Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-762.901(9)
Form Title: Storage Tank Equipment Registration Form
Effective Date: July 2019
Incorporated in Rule 62-762.851, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: Morrison Bros. Co.
Contact Name: Jerry Schollmeyer
Company Address: 570 East 7th Street
City, State: Dubuque, IA Zip: 52001
E-mail: jschollmeyer@morbros.com
Contact Number: 1.800.553.4840
Product Name: 918DP Dual Point Clock Gauge
Model Number(s): 918DP Series
Product Type: Overfill alarm & gauge
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), F.A.C.: 62-762

Write a brief description of equipment registration request including product limitations:

The 918DP Dual Point Clock gauge displays the liquid level in an aboveground storage tank up to 12 feet in diameter or height. The gauge provides two user defined set points. When pared with any Morrison 918 alarm, it can provide alarms at two liquid levels (example a high and a High-high, or a high and a low)

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

		Yes	No	N/A
1.	Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	✔		
2.	Documentation of third-party evaluation that the equipment meets DEP Rules?	✔		
3.	Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	✔		
4.	Technical information and drawings included?	✔		
5.	Installation instructions included?	✔		
6.	Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	✔		
7.	Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	✔		
8.	Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	✔		
9.	Has the product been approved or registered in other countries or states? (If so provide list)	✔		
10.	Any requirements for company-certified installers or trainers?		✔	
11.	Was this product(s) previously approved or registered by the Department? If yes, EQ- **861**	✔		
12.	Any changes or modifications to the equipment since the last submittal to DEP?		✔	

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

The 918DP gauge displays the liquid level in an boveground storage tank. Liquid level readings are displayed on the gauge face. Two user defined alarm set points can be acheived through a single 2 inch tank top opening. This gauge has CARB EVR approval.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Jerry Schollmeyer, National Sales Manager
Printed Name and Title

Gerald Schollmeyer Digitally signed by Gerald Schollmeyer Date: 2022.03.31 14:36:32 -05'00'
Signature (right click to sign)

03/31/2022
Date

For Department Use Only:

Date Application Received: 03/31/2022 Application complete: Yes: ✔ No:

EQ- 861 Date of complete or incomplete letter sent: 04/12/2022 Date Equipment Requires Renewal: **4/12/2027**

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-762.851(2), F.A.C.

918DP Clock Gauge

Installation, Operation, and Maintenance Instructions

The 918DP Clock Gauge is designed to measure liquid volume in an aboveground storage tank. The gauge mounts on top of the tank and is activated by a float connected to a cable. The 918DP contains two normally open switches to connect to an alarm device that can provide an audible alarm at two desired tank levels that are set during installation.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

NOTE: The most accurate method to calibrate the tank is with fluid in it. This will take into account variables associated with the float position, the mechanism, and the fluid density. To calibrate a low alarm setting, **the tank fluid level must be several inches lower than the desired alarm level setting.**

Electrical Switch Ratings

10 watt resistive load, 127VAC-354mA max / 180VDC-500mA max *(Ratings for resistive loads only.)*

*Do not use for inductive loads.

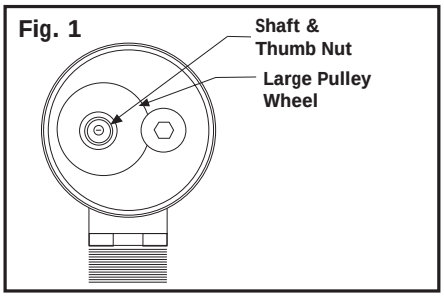
Gauge Installation & Calibration

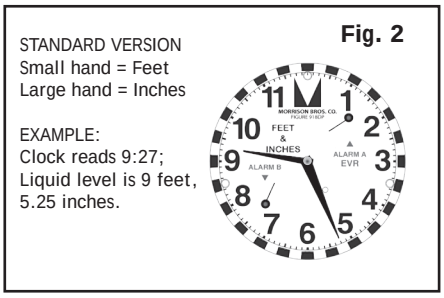
WARNINGS

- **Fire Hazard – Death or serious injury could result from spilled liquids.**
- **You must be trained to install or maintain this gauge. Stop now if you have not been trained.**
- **Any modification to this gauge other than those stated in these installation instructions will void the product warranty.**
- **This device is intended to be used as an auxiliary warning to the operator of a possible overfill situation and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the gauge.**
- **Install in accordance with all applicable local, state, and federal laws.**
- **For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.**
- **Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.**
- **Use a dampened cloth when cleaning the clear front cover of the gauge or 918 alarm device to prevent static buildup and discharge.**
- **In the event of malfunction, contact Morrison Bros. Customer Service.**

Steps

1. Verify contents of box. You should have received the gauge, float, installation instructions, re-order/overfill labels, warning tag, cable tie, and optionally the alarm device. Inspect the items for shipping damage. **DO NOT** use if damage is found. **DO NOT** pull and release the cable uncontrollably. This can cause damage to the internal mechanism and render the gauge inoperable. **ALWAYS** hold onto cable and allow it to move in a slow steady motion.
2. Locate the opening, on the top of the tank, where the gauge is to be installed. If possible, select a location away from the fill port to avoid excessive turbulence that could affect the float. Also make certain that there are no objects inside the tank, near the selected opening, upon which the float and cable could get tangled.
3. Once an opening is selected, measure to the bottom to determine the current liquid level height in the tank. Record this height in feet and inches as you will need it to set the gauge once it is installed.
4. Apply pipe dope or Teflon tape to the male threads on the gauge. If you have a gauge with female threads, apply the pipe dope or Teflon tape to the male threads of the pipe on the tank. **DO NOT** get pipe dope on the cable of the gauge.
5. Open the float clip and attach the float clip to the swivel end of the cable. Latch the float clip making sure the float clip is securely closed.
6. Slowly lower the float into the tank. Guide the cable through your fingers letting the cable slide through slowly. **DO NOT** allow the float to free fall into the tank as this will cause the cable to come off of the pulley mechanism and render the gauge inoperable.
7. Once the float is resting on the liquid level (or tank bottom if the tank is empty) thread the gauge into, or onto, the tank fitting. Use a pipe wrench or strap wrench, on the large hex at the bottom of the gauge, to tighten the gauge into, or onto, the tank fitting.
8. Remove the back plate retaining ring and back metal cover from the gauge. Hold the large pulley wheel in place and loosen the thumb nut (Figure 1). Insert a small flat blade screwdriver into the slot on the end of the shaft. Rotate the shaft with the screwdriver, which will move the gauge hand, until the gauge hands indicate the level that you recorded in Step 3. Note: Short hand indicates feet and long hand indicates inches





9. Once you have the hands in the correct position, hold the screwdriver firmly in position and tighten the thumb nut on the shaft.
10. Remove the front face retaining ring and remove the clear front cover.

11. Setting Alarm Points

Option 1: To calibrate an alarm setting to activate when fluid is rising (example-high level):

<u>IMPORTANT:</u> The tank fluid level must be several inches lower than the desired alarm level setting.

<u>IMPORTANT:</u> The 918DP alarm switches are normally open. For setting an alarm with fluid rising, alarming device inputs (918AC, 918D, or 918Q) should be set to normally open. See instruction and operations manuals for 918S, 918D, 918Q, and 918AC for proper configuration.

A. Connect desired alarm wire pair (A or B) to an alarming device such as a 918S, 918D, 918Q, or 918AC.

B. Rotate the thumb nut counter-clockwise (when facing rear of gauge, see Figure 4) to the desired alarm set point (see Figure 5). This will raise the float assembly out of the liquid. Be careful to maintain a firm grasp of the thumb nut to prevent free fall of the float.

FIGURE 4: Raising the float with thumb nut to desired alarm trip point.

FIGURE 5: Hold thumb nut at desired trip point. Example- Alarm set point at 9 feet - 0 inches.

C. Hold the thumb nut steady (see Figure 4) and face the clock face of the gauge (see figure 5.)

D. While holding the thumbwheel at desired set point, look and listen to determine if the alarm device (918AC, 918D, or 918Q) has already been activated:

- If **<u>yes</u>**
  - If using a 918S, 918D, or 918Q, press test/cancel button at the alarm box.
    - Slowly rotate alarm pointer counter-clockwise till alarm state comes on and at that point release alarm pointer.
  - If using a 918AC pull the alarm pointer out and rotate counter-clockwise, until alarm state turns off, and slowly keep rotating alarm pointer till alarm state comes on and at that point release alarm pointer.
- If **<u>no</u>**
  - Pull the alarm pointer out and slowly rotate counter-clockwise till alarm state comes on and at that point release alarm pointer.

E. Verify alarm setting:

- Turn thumbwheel clockwise (when facing rear of gauge, see Figure 4) slowly let float drop to clear alarm state.
- If using a 918S, 918D, or 918Q, alarm state must be cleared by pressing test/cancel button.
- Once alarm state is off, turn thumb wheel counter clockwise (when facing rear of gauge, see Figure 4) raising the float raising the float to within 3 inches of set point.
- Then creep up on to set point, alarm state should come on <u>within +/- 1 inch of desired set point.</u>

F. Fine tuning alarm setting:

- **<u>If alarm state is coming on before</u>** desired alarm set point.
  - Pull up alarm pointer up and rotate it <u>ever so slightly</u> clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.
- **<u>If alarm state is coming on after</u>** desired alarm set point.
  - Pull up alarm pointer up and rotate it <u>ever so slightly</u> counter-clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on <u>within +/- 1 inch of desired set point.</u>

G. Once set, slowly carefully allow the float to drop.

11. Setting Alarm Points Continued...

Option 2: To calibrate an alarm setting to activate when fluid is dropping (example-low level):

IMPORTANT: The tank fluid level must be several inches lower than the desired alarm level setting.

IMPORTANT: The 918DP alarm switches are normally open. For setting an alarm with fluid dropping, alarming device inputs (918AC, 918D, or 918Q) should be set to normally closed. See instruction and operations manuals for 918S, 918D, 918Q, and 918AC for proper configuration.

A. Connect desired alarm wire pair (A or B) to an alarming device such as a 918S, 918D, 918Q, or 918AC.

B. Rotate the thumb nut counter-clockwise (when facing rear of gauge, see Figure 4) to the desired alarm set point (see Figure 5). This will raise the float assembly out of the liquid. Be careful to maintain a firm grasp of the thumb nut to prevent free fall of the float.

FIGURE 4: Raising the float with thumb nut to desired alarm trip point.

FIGURE 5: Hold thumb nut at desired trip point. Example- Alarm set point at 9 feet - 0 inches.

C. Hold the thumb nut steady (see Figure 4) and face the clock face of the gauge (see Figure 5.)

D. While holding the thumbwheel at desired set point, look and listen to determine if the alarm device (918AC, 918D, or 918Q) has already been activated:

- If **yes**
  - If using a 918S, 918D, or 918Q, press test/canceled button at the alarm box.
    - Slowly rotate alarm pointer clockwise till alarm state comes on and at that point release alarm pointer.
  - If using a 918AC pull the alarm pointer out and rotate clockwise, until alarm state turns off and slowly keep rotating alarm pointer till alarm state comes on and at that point release alarm pointer.
- If **no**
  - Pull the alarm pointer out and slowly rotate clockwise till alarm state comes on and at that point release alarm pointer.

E. Verify alarm setting:

- Turn thumb wheel counter clockwise (when facing rear of gauge, see Figure 4) raising the float to clear alarm state.
- If using a 918S, 918D, or 918Q, alarm state must be cleared by pressing test/cancel button.
- Once alarm state is off, slowly turn thumbwheel clockwise (when facing rear of gauge, see Figure 4) dropping the float to within 3 inches of set point.
- o Then creep down on to set point, alarm state should come on within +/- 1 inch of desired set point.

F. Fine tuning alarm setting:

- **If alarm state is coming on before** desired alarm set point.
  - Pull up alarm pointer up and rotate it ever so slightly counter-clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.
- **If alarm state is coming on after** desired alarm set point.
  - Pull up alarm pointer up and rotate it ever so slightly clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.

G. Once set, slowly carefully allow the float to drop.

12. Before continuing, check alarm points to an alarming device to verify alarm settings.
13. If installing the alarm box, leave the gauge front and rear covers removed. If the alarm box will not be installed, or will be installed at a later date, replace the front and rear covers of the gauge.

Alarm Installation and Testing

Refer to 918 Series Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Operation

Steps

1. To determine the height of fluid in the tank, read the position of the gauge hands. Interpolate if necessary.
   Note: Short hand indicates feet and long hand indicates inches. See Figures 2 and 3 above.
2. The tank manufacturer's chart will be required to translate fluid height into fluid volume.
3. Before a tank fill is initiated, the alarm device should be checked for proper operation and sufficient loudness. Refer to the Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918 S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.
4. If the alarm sounds while the tank is being filled, immediately halt filling operations.

Maintenance

This gauge should be maintained per applicable codes, or at least once each year.

Refer to 918 Series Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.

WARNINGS

- **Fire Hazard – Death or serious injury could result from spilled liquids.**
- **You must be trained to install or maintain this gauge. Stop now if you have not been trained.**
- **Any modification to this gauge other than those stated in these installation instructions will void the product warranty.**
- **This device is intended to be used as an auxiliary warning to the operator of a possible overfill situation and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the gauge.**
- **Install in accordance with all applicable local, state, and federal laws.**
- **For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.**
- **Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.**
- **Use a dampened cloth when cleaning the clear front cover of the gauge or 918 alarm device to prevent static buildup and discharge.**
- **In the event of malfunction, contact Morrison Bros. Customer Service.**

Steps

1. Visually inspect the gauge and alarm for damage or excessive wear. If either is found replace the gauge or alarm.
2. If necessary, clean the clear front cover of the gauge or alarm box with a damp cloth.
3. Measure the fluid height and correlate it to the tank manufacturer's volume chart to verify the gauge volume reading. If readings do not match adjust the gauge setting according to the installation instructions.
4. Check alarm points to an alarming device to verify alarm settings. **The tank fluid level must be several inches lower than the alarm level setting.**
5. Refer to the Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918 S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.
6. Inspect the warning tag located near the tank fill and off-loading area. If the tag is damaged or difficult to read, contact Morrison Bros. at (800) 553-4840 for a free replacement tag.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Optional Overfill and Reorder Label Installation

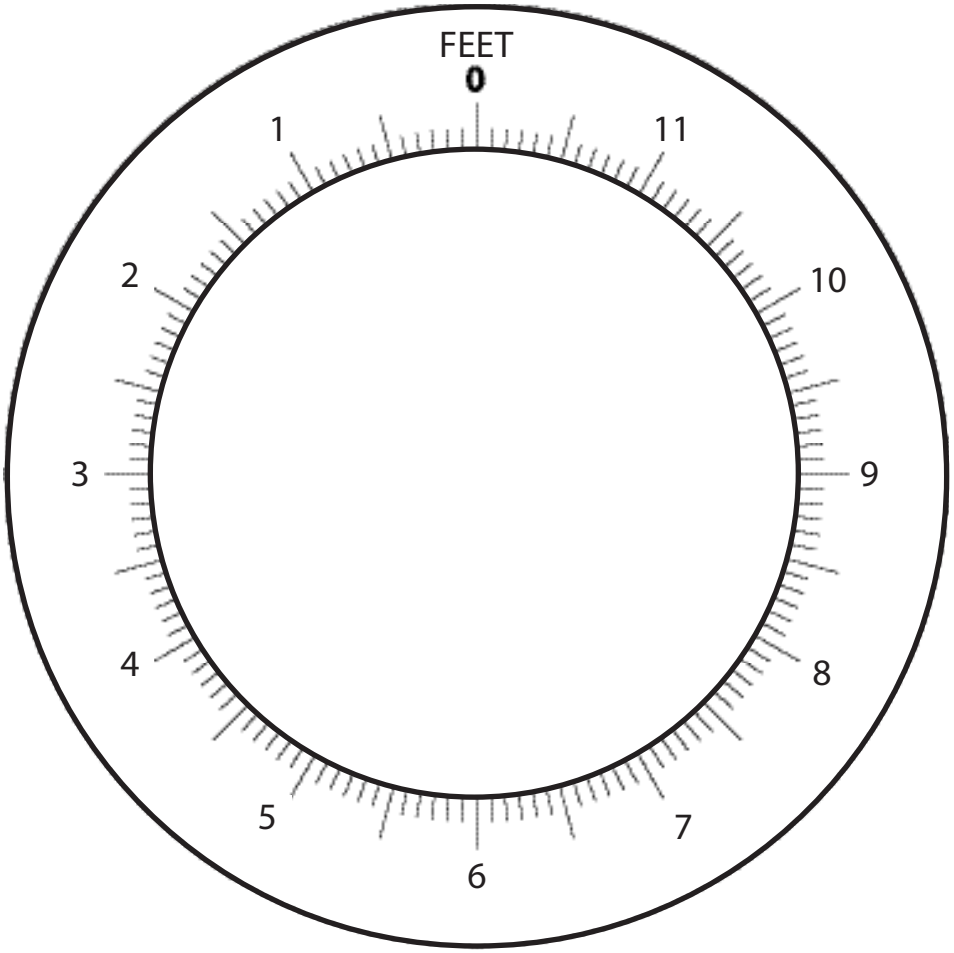
NOTE: The template (see Figure 7) is intentionally reversed (mirror image) so the labels may be placed on the inside surface of the clear front cover. Therefore, the lettering of the labels is on the adhesive side and will read correctly once placed.

Steps

1. Template units are shown in feet. It will be necessary to determine the desired overfill and reorder points and convert those into feet in order to use this template.
2. Remove the front face retaining ring and remove the clear front cover.
3. Place the clear cover onto the template aligning the outside edge to the outside circle.
4. Remove indicator label backing and place label on the clear cover as shown on template. Align wider end against inside circle and narrower end pointing toward the level you want to indicate.
5. If both overfill and reorder labels are used, make sure each is pointing to the correct foot reading that provides the volumes you desire.
6. Reinstall the clear front cover with the labels on the inside. Make sure indicators are in correct location and wording is readable before putting gauge in service. Replace the front face retaining ring making certain the ring snaps all the way down into the groove. You will need to use pliers to squeeze the ring into the groove. The retaining ring is correctly squeezed into place if the ends of the retaining ring do not overlap.

WARRANTY: If you believe this gauge has a defect due to material or workmanship, please contact Morrison for a return authorization. All products are thoroughly tested before shipment and meet all applicable performance standards and specifications. Only material found to be defective in manufacture will be replaced or repaired at our discretion. Claims must be made within one year from the date of installation, and Morrison Bros. Co. will not allow claims for labor or consequential damage resulting from purchase, installation or misapplication of the product. The warranty registration information must be provided to the end user.

Fig. 7: Overfill and Reorder Label Template



Model 918DP Dual Point Clock Gauge

SPECIFICATION SHEET

918DP

Application

The 918DP “Dual Point” Clock Gauge displays the liquid level in a storage tank while providing two alarm set points all within a single 2” tank opening.

Features and Details

- Easy to install and calibrate
- Liquid level displayed in feet and inches
- Measures liquid level up to 12 feet
- Two normally open switches can be set at desired alarm set points
- Gauge is accurate to ⅛”
- Vapor tight
- Easy to read up to 30 feet
- Can be paired with Morrison 918D or 918Q Battery Powered Tank Alarms and 918AC System Interface

Approvals

Florida DEP EQ-861

Item Number	Description	Weight (lbs)
918DP-0000AGEVR	Clock gauge with 2 set points, standard float, male threads, no alarm box	6.2
918DP-2000AGEVR	Clock gauge with 2 set points, drop tube float, male threads, no alarm box	6.2
918DPF0000AGEVR	Clock gauge with 2 set points, standard float, female threads, no alarm box	6.2
918DPF2000AGEVR	Clock gauge with 2 set points, drop tube float, female threads, no alarm box	6.2

MORRISON BROS. CO.

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238
t. 563.583.5701 | 800.553.4840 | f. 563.583.5028
www.morbros.com

EXHIBIT 1

Equipment List

Equipment	Manufacturer/Model Number
Emergency Vent (Figures 1A)	Morrison 244O WX YYYY AVEVR

W represented by:
dash (-) = female threads
M = male threads
F = flange mounted
S = with screen

X represented by:
S = with screen
A = Aluminum
dash (-) = Blank

YYYY represented by:
Numerical values between 0 to 9

Male / Female	***Flanged****	***Size***	***Setting***
0030		*2”*	*16 oz./sq.in.*
0060		*3”*	*16 oz./sq.in.*
0170	***0170***	*4"*	*16 oz./sq.in.*
0900		*5"*	*16 oz./sq.in.*
0200	***0050***	*6"*	*8 oz./sq.in.*
0400	***0075***	*6"*	*16 oz./sq.in.*
0600	***0100***	*8"*	*8 oz./sq.in.*
0700	***0200***	*8"*	*16 oz./sq.in.*
	0300	*10”*	*2.5 oz./sq.in.*
	0400	*10”*	*8 oz./sq.in.*
	0500	*10”*	*16 oz./sq.in.*

***Note:** For flange mounted models use gasket material made by Fibreflex. More information is available at http://www.fibreflex.com.

Equipment	**Manufacturer/Model Number**
Overfill Prevention Valve and Drop Tube Assembly	
Overfill Prevention Valve (Figures 1B)	Morrison 9095W X YYYY – AVEVR

W represented by:
- *A = A Series*
- *C = C Series*
- *X = X Series*

X represented by:
- *dash = blank*
- *V = Nickel Plated*
- *A = AA Series or for fuels with S.G. less 0.72*

YYYY represented by:
- *Numerical values between 0 to 9*

	Size	***Description***
9100	*2”*	*Base Model*
9200,7200	*2”*	*Base Model*
9300	*3”*	*Base Model*
5200	*2”*	*Direct Fill*
3200	*2”*	*Remote Fill*
3300	*3”*	*Remote Fill*
4200,6200,6800	*2”*	*Remote Fill*

Drop Tube (Figures 1C)

Morrison 419X - -YYZZ 1TEVR

X represented by:
- *dash = Aluminum*
- *A = Anodized Aluminum*

YY represented by:
- *Numerical values between 0 to 9*

Tube Size	
02	*2”*
03	*3”*

ZZ represented by:
- *Numerical values between 0 to 9*
- *As length in Feet*

Equipment	**Manufacturer/Model Number**
Spill Container *	
Non-Integral Spill Container* (Figure 1D)	Morrison 516 XX – 0400 ACEVR *X represented by:* *dash = female threads* *O = Offset female threads* *M = male threads* *MO = Offset male threads*

*__NOTE:__ Optional for protected tanks with integral spill container.

Integral Spill Container

Convault Drain Valve (Figure 1E)	
Drain Plug (Figure 1F)	Material: Galvanized, Brass, or Stainless Steel Thread Type: NPT Pipe Fitting

*__NOTE:__ Either is required for protected tanks with integral spill container.

Non-Rotatable Product Adaptor (Figure 1G)

Morrison 927 - - - YYYY AAEVR

YYYY represented by:

Numerical values between 0 to 9

	Thread Size	***Cam & Groove Size***
0200	*2”*	*2.5”*
0300	*3”*	*4”*
0400	*4”*	*4”*

Equipment	Manufacturer/Model Number
Product Adaptor Dust Caps (Figure 1H)	Morrison 735DC X YYYY ACEVR *X represented by:* *dash = Aluminum* *A = Anodized Aluminum* *YYYY represented by:* *Numerical values between 0 to 9* ***Size*** *2000 2”* *2500 2.5”* *3000 3”* *4000 4”*
Product Coupler (Figure 1I)	Morrison 928 - - - YYYY ACEVR *YYYY represented by:* *Numerical values between 0 to 9* ***Thread Size*** / ***Cam & Groove Size*** *0150 1.5” / 2”* *0200 2” / 2.5”* *0300 3” / 4”* **Note:** During fuel deliveries, a MORRISON coupler (928 Series) shall be used with a MORRISON product adaptor (927 Series). The MORRISON 928 Series coupler can be provided by the fuel supplier or provided by the GDF operator.
Non-Rotatable Vapor Adaptor (Figure 1J)	Morrison 323 - - - YYYY AAEVR *YYYY represented by:* *Numerical values between 0 to 9* ***Thread Size*** / ***Cam & Groove Size*** *0300 3” / 4”* *0400 4” / 4”*
Vapor Adaptor Dust Caps (Figure 1K)	Morrison 323C YYYY ACEVR *YYYY represented by:* *Numerical values between 0 to 9* ***Size*** *0100 4”*

Equipment	**Manufacturer/Model Number**

Dedicated Gauging Port

(Figure 1L)

NOTE: Per CP-206, an Above Ground Storage Tank (AST) shall include a dedicated gauging port for determining the amount of gasoline. The determination shall be accomplished manually, mechanically, or electronically

Gauging Port and Drop Tube Assembly (Optional)

Gauging Port Adapter — Morrison 305 X YYYY AAEVR / 305 X YYYY ACEVR

X represented by:
- *blank = Brass Adaptor*
- *C = Cap*
- *GSP = Cap / Adapter Kit*

YYYY represented by:
Numerical values between 0 to 9

Size
2”

0000,2000

Drop Tube (Figures 1C) — Morrison 419X - - YYZZ 1TEVR

X represented by:
- *dash = Aluminum*
- *A = Anodized Aluminum*

YY represented by:
Numerical values between 0 to 9

Tube Size
2”

02

ZZ represented by:
Numerical values between 0 to 9
As length in Feet

Equipment	**Manufacturer/Model Number**
Mechanical Tank Gauging (Optional)	Morrison Z18 XXX YYYY AGEVR

Z represented by:

Numerical values between 8 and 9
8 = Gauge w/o Alarm
9 = Gauge w/ Alarm

X represented by:

dash = Male thread
C = Custom Clock Face Label (Male Thread)
F = Female thread
CF = Custom Clock Face Label (Female Thread)
MEF = Metric(Female Thread)
MET = Metric (Male Thread)
DP = Dual Level Points (Male Thread)
DPF = Dual Level Points (Female Thread)

YYYY represented by:

Numerical values between 0 to 9

	Size	***Description***
0100, 0000	*2”*	*with Standard Float*
0400, 2000	*2”*	*with Drop Tube Float*

Note: Custom clock face label model number.
AAABCXXXXXY 2L

AAA = Figure No. = 818 or 918
B = Units of Measure
G = Gallons
L = Liters
C = Shape of Tank

Equipment	Manufacturer/Model Number

Monitoring Cap and Adaptor (Optional)

Morrison 305XXX YYYY ZZEVR

XXX represented by:
dash = Brass Adapter
XP = Cap with Cable Connector
XPA = Cap, Adapter and Cable Connector

YYYY represented by:
Numerical values between 0 to 9

	Cap Size	***Description***
2200	*2”*	*3/8” hole & Cable Connector*
2400	*2”*	*1/2” hole & Cable Connector*
0100	*4”*	*3/8” hole*
1100	*4”*	*1/2” hole*
0200	*4”*	*3/8” hole & Cable Connector*
1200	*4”*	*1/2” hole & Cable Connector*

	Adapter Size	***Description***
0000	*2”*	*Adapter*
0200	*4”*	*Adapter*

ZZ represented by:
AA = Adaptor
AC = Cap with/without Cable Connector
AK = Cap, Adapter with/without Cable Connector

Drop Tube Diffuser (Optional)
(Figure 1M)

Morrison 539A XZ YYYY ADEVR

X represented by:
S = Slip-on
T = Threaded

Z represented by:
dash = blank
A = Anodized

YYYY represented by:
Numerical values between 0 to 9

	Size
0200	*2”*
0300	*3”*

Equipment	**Manufacturer/Model Number**
Double Tapped Bushing (Optional) (Figure 1N)	Morrison 184X YYYY1B / 184X YYYYMB *X represented by:* *blank = iron / steel* *S = Stainless Steel* *YYYY represented by:* *Numerical values between 0 to 9*
Extractor Fitting (Optional) (Figure 1O)	Morrison 56X 0101 MBE *X represented by:* *Numerical values between 0 to 9*
Drop Tube Extender (Figure 1P)	Morrison 419E-XX00 AEEVR XX respresented by: Numerical values between 0 to 9 Tube Size 02 2” 03 3” 04 4”
Wireless Tank Monitor	AMETEK ST95 LTE

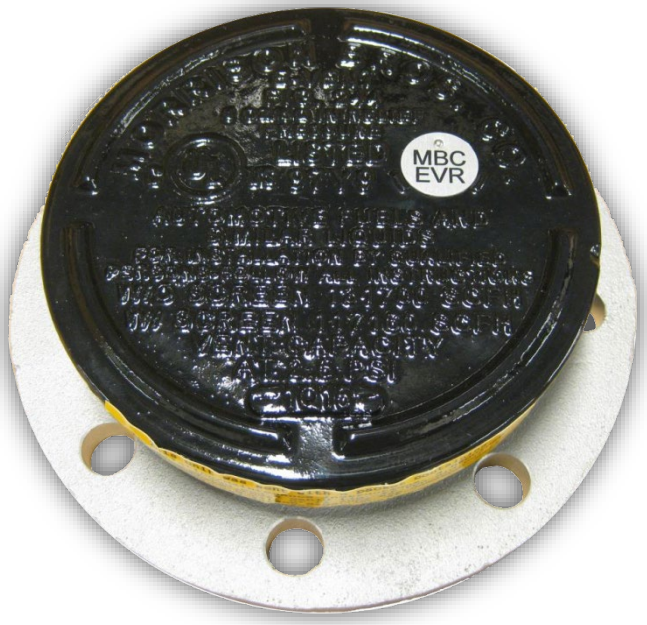
TABLE 1-1
Components Exempt from Identification Requirements

Component Name	Manufacturer	Model Number
Drop Tube	Morrison	419 - - - YYXX 1TEVR 419A - - YYXX 1TEVR
305 Series Adaptors (dedicated gauging port & monitoring cap and adaptor)	Morrison	305 - - - 0000 AAEVR
Drop Tube Diffuser	Morrison	539A Series
Overfill Prevention Valve	Morrison	9095 Series
Product Coupler	Morrison	928 Series
Double Tapped Bushing	Morrison	184 Series
Extractor	Morrison	56X Series
Drop Tube Extender	Morrison	419E – XX00 AEEVR

FIGURE 1A-1
Morrison Bros. 244 Series Emergency Vents

Male Emergency Vents

Female Emergency Vents

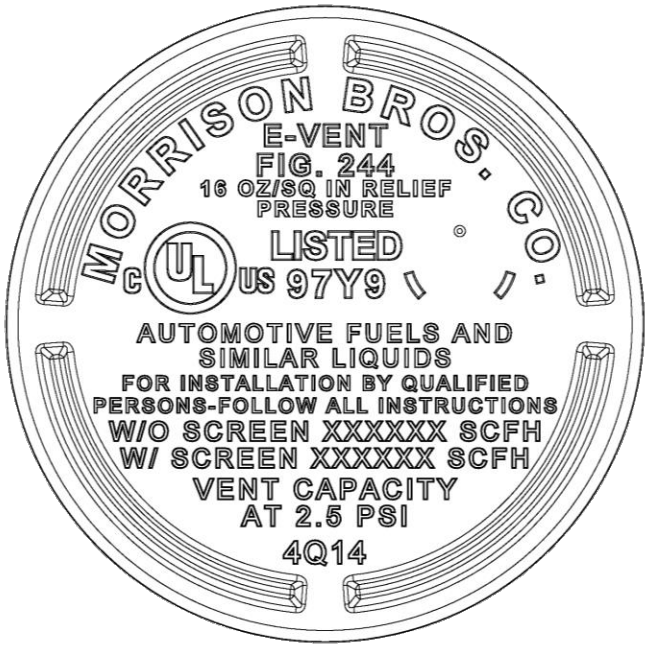


Flanged Emergency Vents

FIGURE 1A-2
Morrison Bros. 244 Series Emergency Vents
Cover Marking Diagram

(The X designation will contain a value which may vary depending upon the size and pressure setting of the vent)

Vent Sample With Relief Opening Pressure Less Than 0.5 Psi
(ONLY APPLIES TO 2" 8OZ/SQ. IN. MODELS)



Vent Sample With Relief Opening Pressure Greater Than or Equal to 0.5 Psi

FIGURE 1B -1
Morrison Bros. 9095A Series Overfill Prevention Valve

Base Model
(w/o adaptor or bushing)

Direct Fill Model
(w/ adaptor)

Remote Fill Model
(w/ bushing)

FIGURE 1B-2
Morrison Bros. 9095C Series Overfill Prevention Valve

Base Model
(w/o adaptor or bushing)

Direct Fill Model
(w/ adaptor)

Remote Fill Model
(w/ bushing)

FIGURE 1B-3
Morrison Bros. 9095AA Series Overfill Prevention Valve

Base Model
(w/o adaptor or bushing)

Direct Fill Model
(w/ adaptor)

Remote Fill Model
(w/ bushing)

FIGURE 1B-3 (con't)
Morrison Bros. 9095 Series Overfill Prevention Valve

9095 AA Series Base Model
(w/o adaptor and w/ 2 floats)

9095 X Series Remote Fill Model
(w/ bushing and integral seat)

FIGURE 1C
Morrison Bros. 419 Series Drop Tube

FIGURE 1D
Morrison Bros. 516 Series Direct Fill Spill Container

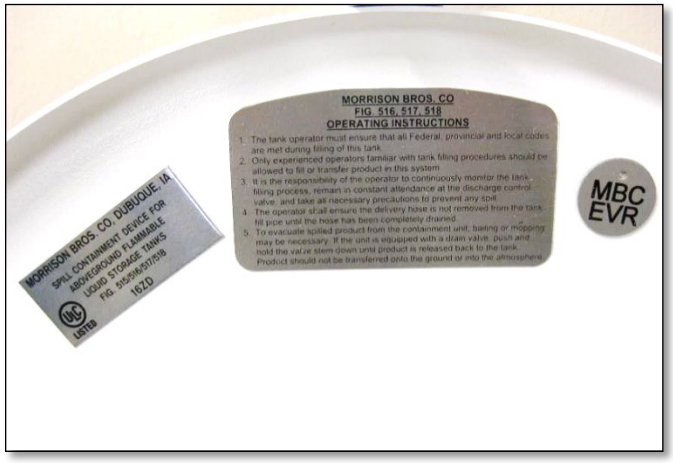


FIGURE 1E
Convault Drain Valve

FIGURE 1F
Drain Plug (Typical)

FIGURE 1G
Morrison Bros. 927 Series Non-Rotatable Product Adaptor

FIGURE 1H
Morrison Bros. 735DC Series Product Dust Cap

Note: The number 713 at the bottom of the cap refers to the aluminum the cap is made of, and not the model number of the cap itself.

FIGURE 1I
Morrison Bros. 927 Series Non-Rotatable Product Adaptor

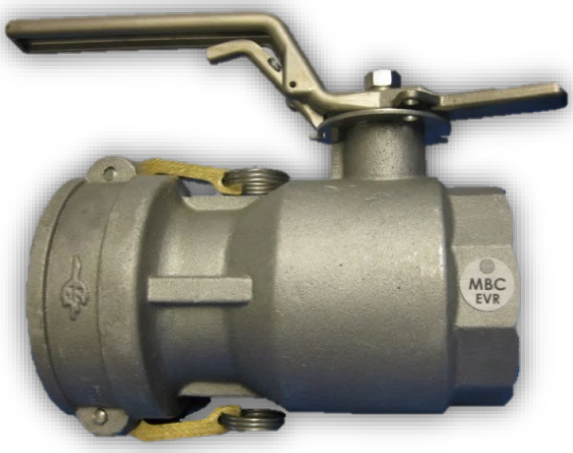


FIGURE 1J
Morrison Bros. 323 Series Non-Rotatable Vapor Adaptor

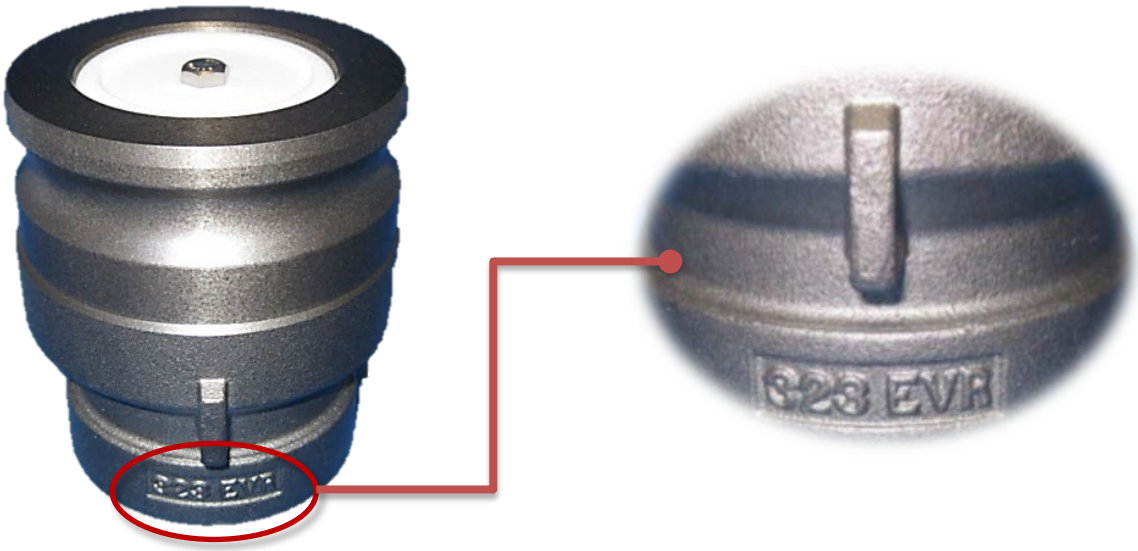


FIGURE 1K
Morrison Bros. 323C 0100 ACEVR Vapor Adaptor Dust Cap

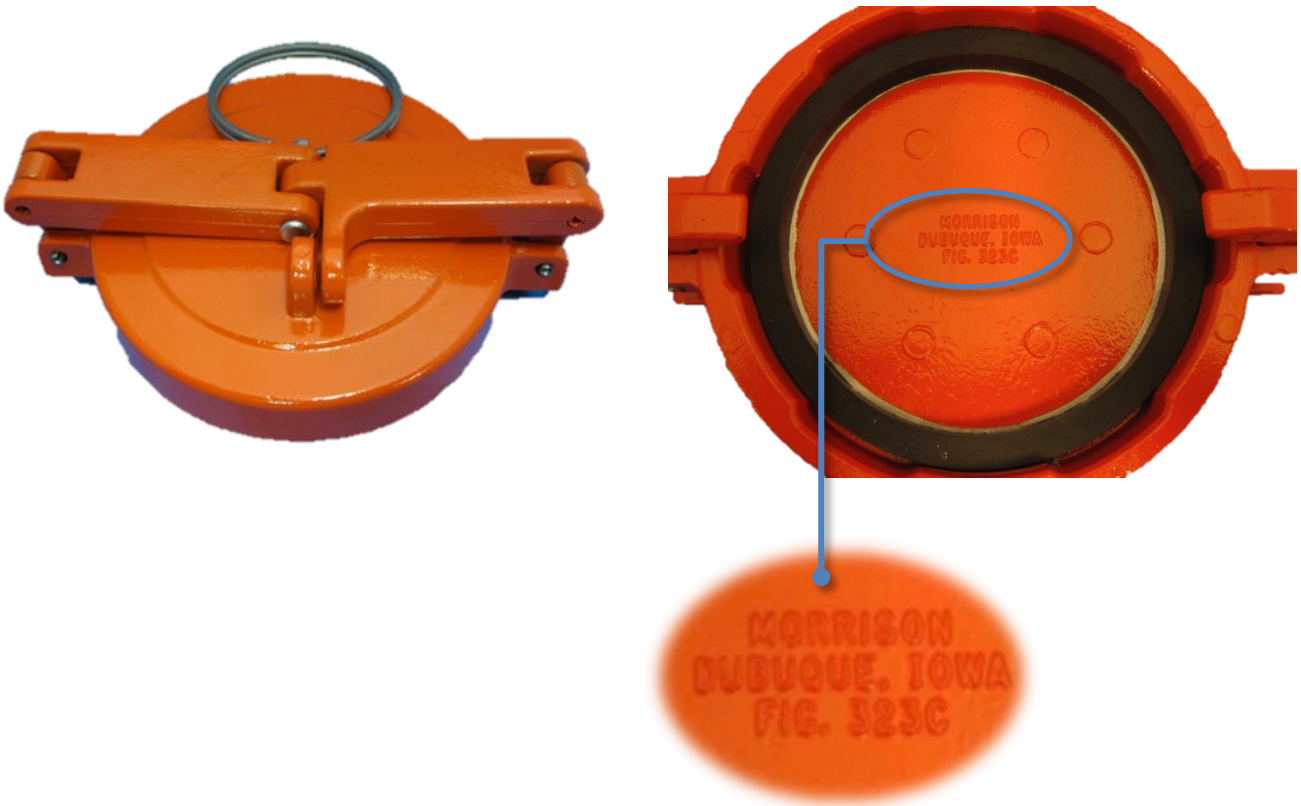


FIGURE 1L
Dedicated Gauging Port

NOTE: Per CP-206, an Above Ground Storage Tank (AST) shall include a dedicated gauging port for determining the amount of gasoline. The determination shall be accomplished manually, mechanically, or electronically

FIGURE 1L-1
Morrison Bros. 305 Series Gauge Port Adaptor and Cap
(optional)

Morrison Bros. 305 Series Gauge Port Adaptor

Morrison Bros. 305 Series Gauge Port Cap

FIGURE 1L
Dedicated Gauging Port
(continue)

FIGURE 1L-2
Morrison Bros. Mechanical Tank Gauge
(optional)

Morrison Bros. 818 Series
(optional)

Morrison Bros. 918 Series
With Alarm Output
(optional)

Morrison Bros. 918DP Series
With Dual Alarm Output
(optional)

FIGURE 1L
Dedicated Gauging Port
(continue)

FIGURE 1L-3
Morrison Bros. 305 Series Monitoring Cap & Adaptor
(optional)

FIGURE 1M
Morrison Bros. 539 Series Drop Tube Diffuser
(optional)

FIGURE 1N
Morrison Bros. 184 Series Double Tapped Bushing
(optional)

FIGURE 1O
Morrison Bros. Extractor 56X Series
(optional)

(Photo is of Fig. 562 4” x 4” x 3” x 2”)

FIGURE 1P
Morrison Bros. 419E Drop Tube Extender

FIGURE 1Q
SKYBITZ AMETEK ST95 LTE Wireless Tank Monitor

918DP Alarm Hand Tool

Installation Instructions

Alarm hand tool is provided for assistance in setting alarm points for the 918DP clock gauge. Slide tool under desired alarm hand and align slot in tool with the hand on the gauge. Pull up and rotate to the desired setting and then allow hand to seat back in. Remove alarm hand tool.

Figure 1

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

VIA ELECTRONIC MAIL
Jerry Schollmeyer <jschollmeyer@morbros.com>

Mr. Jerry Schollmeyer
Morrison Brothers Co.
570 East 7th Street
Dubuque, IA 52001

Subject: Approval of the Morrison Brothers Co.
Model 918DP Clock Gauge
File No. EQ-861

Dear Mr. Schollmeyer:

The Office of District and Business Support has concluded its review of the Equipment Approval request dated December 10, 2015, that was submitted by Morrison Brothers Co. for its Model 918DP Clock Gauge, pursuant to Rules 62-762.501(2)(d), and 62-762.851(2), Florida Administrative Code (F.A.C.). The Morrison Brothers Co., Model 918DP Clock Gauge measures the liquid level in the tank and may be used to meet the overfill protection requirements for aboveground storage tanks by providing fill level information or an alarm to the operator that is filling the tank.

Based on the information provided by Morrison Brothers Co., the Model 918DP Clock Gauge provides environmental protection that is equivalent to that provided by compliance with the requirements established in Rule 62-762.501(2)(d), F.A.C. The Morrison Brothers Co., Model 918DP Clock Gauge may be used as an overfill protection devices for aboveground storage tank systems in accordance with the requirements of Chapter 62-762, F.A.C.

Pursuant to Rule 62-762.851(2), F.A.C., the request for the use of the Morrison Brothers Co. is approved in the State of Florida as overfill protection devices in the State of Florida provided that the gauge is either visible to the operator during the filling of the tank or is connected to an alarm that will alert the operator when the maximum fill level is reached. The installation and maintenance of the clock gauge device must be in accordance with the manufacturer's recommendations.

Please be advised that the above referenced DEP rules are subject to change. If the above rule standards are modified in the future, this order may be modified or rescinded for future upgrades and installations. Additionally, if the product(s) show a consistent pattern of failure(s), and

therefore does not provide substantially equivalent environmental protection, the Department may rescind this order.

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57, F.S., within **21** days of receipt of this Order. Persons who have filed such a petition may seek to mediate the dispute and choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning a hearing and pursuing mediation are set forth below.

Persons affected by this Order have the following options:

A. If you choose to accept the Department's decision regarding the Order, you do not have to do anything. This Order is final and effective as of the date it is clerked and filed (see page 5).
B. If you choose to challenge the decision, you may do the following:
    1. File a request for an extension of time to file a petition for hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order. This request should be made if you wish to meet with the Department in an attempt to resolve any disputes without first filing a petition for hearing or negotiate an agreement to mediate; or
    2. File a petition for administrative hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order.

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation under Section 120.573, F.S., and must negotiate an agreement to mediate within **10** days after the deadline for filing a petition.

How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant, shall mail a copy of the request to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant shall mail a copy of the petition to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Subsection 120.569(2), F.S., and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information.

a) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the DEP facility number, and the name and address of the facility;
b) A statement of when and how the petitioner received notice of the Department's action or proposed action;
c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
e) A concise statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action or proposed action; and
g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

How to Pursue Mediation

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation. The election may be accomplished by filing with the Department a mediation agreement with all parties to the proceeding (i.e., the applicant, the Department, and any person who has filed a timely and sufficient petition for hearing). The agreement must contain all the information required by Rule 28-106.404, F.A.C. The agreement, signed by all parties, must be received by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000 within **10** days after the deadline for filing a petition, as set forth above. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement.

Pursuant to Rule 28-106.404, F.A.C., an agreement to mediate must include the following.

(i) The name, address, and telephone number of the persons who may attend the mediation, (also the DEP facility number, the name and address of the facility if applicable);
(ii) The name, address, and telephone number of the mediator agreed to by the parties;
(iii) How the costs and fees associated with the mediation will be allocated (the Department will not pay any of the costs of mediation);
(iv) The agreement of the parties regarding the confidentiality of discussions and documents introduced during mediation to the extent authorized by law;
(v) The date, time, and place of the first mediation session;
(vi) The name of the party's representative who shall have authority to settle or recommend settlement; and
(vii) The signature of the parties.

As provided in Section 120.573, F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57, F.S., for holding an administrative hearing and issuing a final order. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons seeking to protect their substantial interests that would be affected by such a modified final decision must file their petitions within **21** days of receipt of this notice, or they shall be deemed to have waived their right to a proceeding under Sections 120.569 and 120.57, F.S. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57, F.S., are resumed.

This Order is final and effective as of the date it is clerked and filed (see page 5). Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or mediation settlement.

Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Agency Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this order is filed with the clerk of the Department (see below).

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

Questions

Any questions regarding the Department's review of your equipment approval should be directed to John Svec at (850)245-8845. Questions regarding legal issues should be referred to Betsy Hewitt, Office of General Counsel, at (850)245-2267. Contact with any of the above does not constitute a petition for administrative hearing, a request for a time extension to file a petition for hearing or an agreement to mediate.

Sincerely,

John A. Coates, PE, Assistant Division Director
Division of Waste Management

JAC/js

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to §120.52 Florida Statutes,
with the designated Department Clerk, receipt of
which is hereby acknowledged.

2/1/2016

X

Judith Pennington

Signed by: Penningto_JA

Clerk (or Deputy Clerk) Date

Model 918DP Dual Point Clock Gauge

NEW PRODUCT ANNOUNCEMENT

Application

The 918DP “Dual Point” Clock Gauge displays the liquid level in a storage tank while providing two alarm set points all within a single 2” tank opening.

918DP

Features and Details

- Easy to install and calibrate
- Liquid level displayed in feet and inches
- Measures liquid level up to 12 feet
- Two normally open switches can be set at desired alarm set points
- Gauge is accurate to ⅛”
- Vapor tight
- Easy to read up to 30 feet
- Can be paired with Morrison 918D or 918Q Battery Powered Tank Alarms* and 918AC System Interface

**Note: 918D or 918Q tank alarm input channels can only be configured to all normally open or all normally closed.*

Item Number	Description	Weight (lbs)	List Price
918DP-0000AGEVR	Clock gauge with 2 set points, standard float, male threads, no alarm box	6.2	$751.00
918DP-2000AGEVR	Clock gauge with 2 set points, drop tube float, male threads, no alarm box	6.2	$751.00
918DPF0000AGEVR	Clock gauge with 2 set points, standard float, female threads, no alarm box	6.2	$751.00
918DPF2000AGEVR	Clock gauge with 2 set points, drop tube float, male threads, no alarm box	6.2	$751.00

MORRISON BROS. CO.

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238
t. 563.583.5701 | 800.553.4840 | f. 563.583.5028
www.morbros.com

918DP Clock Gauge

Installation, Operation, and Maintenance Instructions

The 918DP Clock Gauge is designed to measure liquid volume in an aboveground storage tank. The gauge mounts on top of the tank and is activated by a float connected to a cable. The 918DP contains two normally open switches to connect to an alarm device that can provide an audible alarm at two desired tank levels that are set during installation.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

NOTE: The most accurate method to calibrate the tank is with fluid in it. This will take into account variables associated with the float position, the mechanism, and the fluid density. To calibrate a low alarm setting, **the tank fluid level must be several inches lower than the desired alarm level setting.**

Electrical Switch Ratings

10 watt resistive load, 127VAC-354mA max / 180VDC-500mA max *(Ratings for resistive loads only.)*

*Do not use for inductive loads.

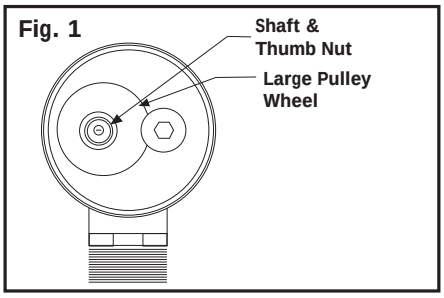
Gauge Installation & Calibration

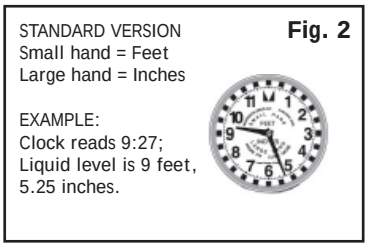
WARNINGS

- **Fire Hazard – Death or serious injury could result from spilled liquids.**
- **You must be trained to install or maintain this gauge. Stop now if you have not been trained.**
- **Any modification to this gauge other than those stated in these installation instructions will void the product warranty.**
- **This device is intended to be used as an auxiliary warning to the operator of a possible overfill situation and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the gauge.**
- **Install in accordance with all applicable local, state, and federal laws.**
- **For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.**
- **Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.**
- **Use a dampened cloth when cleaning the clear front cover of the gauge or 918 alarm device to prevent static buildup and discharge.**
- **In the event of malfunction, contact Morrison Bros. Customer Service.**

Steps

1. Verify contents of box. You should have received the gauge, float, installation instructions, re-order/overfill labels, warning tag, cable tie, and optionally the alarm device. Inspect the items for shipping damage. **DO NOT** use if damage is found. **DO NOT** pull and release the cable uncontrollably. This can cause damage to the internal mechanism and render the gauge inoperable. **ALWAYS** hold onto cable and allow it to move in a slow steady motion.
2. Locate the opening, on the top of the tank, where the gauge is to be installed. If possible, select a location away from the fill port to avoid excessive turbulence that could affect the float. Also make certain that there are no objects inside the tank, near the selected opening, upon which the float and cable could get tangled.
3. Once an opening is selected, measure to the bottom to determine the current liquid level height in the tank. Record this height in feet and inches as you will need it to set the gauge once it is installed.
4. Apply pipe dope or Teflon tape to the male threads on the gauge. If you have a gauge with female threads, apply the pipe dope or Teflon tape to the male threads of the pipe on the tank. **DO NOT** get pipe dope on the cable of the gauge.
5. Open the float clip and attach the float clip to the swivel end of the cable. Latch the float clip making sure the float clip is securely closed.
6. Slowly lower the float into the tank. Guide the cable through your fingers letting the cable slide through slowly**. DO NOT** allow the float to free fall into the tank as this will cause the cable to come off of the pulley mechanism and render the gauge inoperable.
7. Once the float is resting on the liquid level (or tank bottom if the tank is empty) thread the gauge into, or onto, the tank fitting. Use a pipe wrench or strap wrench, on the large hex at the bottom of the gauge, to tighten the gauge into, or onto, the tank fitting.
8. Remove the back plate retaining ring and back metal cover from the gauge. Hold the large pulley wheel in place and loosen the thumb nut (Figure 1). Insert a small flat blade screwdriver into the slot on the end of the shaft. Rotate the shaft with the screwdriver, which will move the gauge hand, until the gauge hands indicate the level that you recorded in Step 3. Note: Short hand indicates feet and long hand indicates inches





9. Once you have the hands in the correct position, hold the screwdriver firmly in position and tighten the thumb nut on the shaft.
10. Remove the front face retaining ring and remove the clear front cover.

11. Setting Alarm Points

Option 1: To calibrate an alarm setting to activate when fluid is rising (example-high level):

<u>IMPORTANT:</u> The tank fluid level must be several inches lower than the desired alarm level setting.

<u>IMPORTANT:</u> The 918DP alarm switches are normally open. For setting an alarm with fluid rising, alarming device inputs (918AC, 918D, or 918Q) should be set to normally open. See instruction and operations manuals for 918S, 918D, 918Q, and 918AC for proper configuration.

A. Connect desired alarm wire pair (A or B) to an alarming device such as a 918S, 918D, 918Q, or 918AC.

B. Rotate the thumb nut counter-clockwise (when facing rear of gauge, see Figure 4) to the desired alarm set point (see Figure 5). This will raise the float assembly out of the liquid. Be careful to maintain a firm grasp of the thumb nut to prevent free fall of the float.

FIGURE 4: Raising the float with thumb nut to desired alarm trip point.

FIGURE 5: Hold thumb nut at desired trip point. Example- Alarm set point at 9 feet - 0 inches.

C. Hold the thumb nut steady (see Figure 4) and face the clock face of the gauge (see figure 5.)

D. While holding the thumbwheel at desired set point, look and listen to determine if the alarm device (918AC, 918D, or 918Q) has already been activated:

- If **<u>yes</u>**
  - If using a 918S, 918D, or 918Q, press test/cancel button at the alarm box.
    - Slowly rotate alarm pointer counter-clockwise till alarm state comes on and at that point release alarm pointer.
  - If using a 918AC pull the alarm pointer out and rotate counter-clockwise, until alarm state turns off, and slowly keep rotating alarm pointer till alarm state comes on and at that point release alarm pointer.
- If **<u>no</u>**
  - Pull the alarm pointer out and slowly rotate counter-clockwise till alarm state comes on and at that point release alarm pointer.

E. Verify alarm setting:

- Turn thumbwheel clockwise (when facing rear of gauge, see Figure 4) slowly let float drop to clear alarm state.
- If using a 918S, 918D, or 918Q, alarm state must be cleared by pressing test/cancel button.
- Once alarm state is off, turn thumb wheel counter clockwise (when facing rear of gauge, see Figure 4) raising the float raising the float to within 3 inches of set point.
- Then creep up on to set point, alarm state should come on <u>within +/- 1 inch of desired set point.</u>

F. Fine tuning alarm setting:

- **<u>If alarm state is coming on before</u>** desired alarm set point.
  - Pull up alarm pointer up and rotate it <u>ever so slightly</u> clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.
- **<u>If alarm state is coming on after</u>** desired alarm set point.
  - Pull up alarm pointer up and rotate it <u>ever so slightly</u> counter-clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on <u>within +/- 1 inch of desired set point.</u>

G. Once set, slowly carefully allow the float to drop.

11. Setting Alarm Points Continued...

Option 2: To calibrate an alarm setting to activate when fluid is dropping (example-low level):

IMPORTANT: The tank fluid level must be several inches lower than the desired alarm level setting.

IMPORTANT: The 918DP alarm switches are normally open. For setting an alarm with fluid dropping, alarming device inputs (918AC, 918D, or 918Q) should be set to normally closed. See instruction and operations manuals for 918S, 918D, 918Q, and 918AC for proper configuration.

A. Connect desired alarm wire pair (A or B) to an alarming device such as a 918S, 918D, 918Q, or 918AC.

B. Rotate the thumb nut counter-clockwise (when facing rear of gauge, see Figure 4) to the desired alarm set point (see Figure 5). This will raise the float assembly out of the liquid. Be careful to maintain a firm grasp of the thumb nut to prevent free fall of the float.

FIGURE 4: Raising the float with thumb nut to desired alarm trip point.

FIGURE 5: Hold thumb nut at desired trip point. Example- Alarm set point at 9 feet - 0 inches.

C. Hold the thumb nut steady (see Figure 4) and face the clock face of the gauge (see Figure 5.)

D. While holding the thumbwheel at desired set point, look and listen to determine if the alarm device (918AC, 918D, or 918Q) has already been activated:

- If **yes**
  - If using a 918S, 918D, or 918Q, press test/canceled button at the alarm box.
    - Slowly rotate alarm pointer clockwise till alarm state comes on and at that point release alarm pointer.
  - If using a 918AC pull the alarm pointer out and rotate clockwise, until alarm state turns off and slowly keep rotating alarm pointer till alarm state comes on and at that point release alarm pointer.
- If **no**
  - Pull the alarm pointer out and slowly rotate clockwise till alarm state comes on and at that point release alarm pointer.

E. Verify alarm setting:

- Turn thumb wheel counter clockwise (when facing rear of gauge, see Figure 4) raising the float to clear alarm state.
- If using a 918S, 918D, or 918Q, alarm state must be cleared by pressing test/cancel button.
- Once alarm state is off, slowly turn thumbwheel clockwise (when facing rear of gauge, see Figure 4) dropping the float to within 3 inches of set point.
- o Then creep down on to set point, alarm state should come on within +/- 1 inch of desired set point.

F. Fine tuning alarm setting:

- **If alarm state is coming on before** desired alarm set point.
  - Pull up alarm pointer up and rotate it ever so slightly counter-clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.
- **If alarm state is coming on after** desired alarm set point.
  - Pull up alarm pointer up and rotate it ever so slightly clockwise and release alarm pointer.
  - Verify alarm set point and adjust accordingly, alarm state should come on within +/- 1 inch of desired set point.

G. Once set, slowly carefully allow the float to drop.

12. Before continuing, check alarm points to an alarming device to verify alarm settings.
13. If installing the alarm box, leave the gauge front and rear covers removed. If the alarm box will not be installed, or will be installed at a later date, replace the front and rear covers of the gauge.

Alarm Installation and Testing

Refer to 918 Series Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Operation

Steps

1. To determine the height of fluid in the tank, read the position of the gauge hands. Interpolate if necessary.
   Note: Short hand indicates feet and long hand indicates inches. See Figures 2 and 3 above.
2. The tank manufacturer's chart will be required to translate fluid height into fluid volume.
3. Before a tank fill is initiated, the alarm device should be checked for proper operation and sufficient loudness. Refer to the Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918 S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.
4. If the alarm sounds while the tank is being filled, immediately halt filling operations.

Maintenance

This gauge should be maintained per applicable codes, or at least once each year.

Refer to 918 Series Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.

WARNINGS

- **Fire Hazard – Death or serious injury could result from spilled liquids.**
- **You must be trained to install or maintain this gauge. Stop now if you have not been trained.**
- **Any modification to this gauge other than those stated in these installation instructions will void the product warranty.**
- **This device is intended to be used as an auxiliary warning to the operator of a possible overfill situation and should not be the only system in place to prevent a tank from overfilling. It is the sole responsibility of the operator to continuously prevent any spillage regardless of the situation or status of the gauge.**
- **Install in accordance with all applicable local, state, and federal laws.**
- **For your safety, it is important to follow local, state, federal and/or OSHA rules that apply to working inside, above, or around the storage tank and piping area. Use all personal protective equipment required for working in the specific environment.**
- **Tanks could be under pressure. Vapors could be expelled from tank vents, piping, valves or fittings while performing installation. Vapors could catch fire or cause an explosion. Avoid sparks, open flame, or hot tools when working on gauge.**
- **Use a dampened cloth when cleaning the clear front cover of the gauge or 918 alarm device to prevent static buildup and discharge.**
- **In the event of malfunction, contact Morrison Bros. Customer Service.**

Steps

1. Visually inspect the gauge and alarm for damage or excessive wear. If either is found replace the gauge or alarm.
2. If necessary, clean the clear front cover of the gauge or alarm box with a damp cloth.
3. Measure the fluid height and correlate it to the tank manufacturer's volume chart to verify the gauge volume reading. If readings do not match adjust the gauge setting according to the installation instructions.
4. Check alarm points to an alarming device to verify alarm settings. **The tank fluid level must be several inches lower than the alarm level setting.**
5. Refer to the Alarm Installation, Operation and Maintenance Instructions (918S--0142 PP) for 918 S, D, and Q models or (918AC-0142 PP) for the 918AC Series Alarm Devices.
6. Inspect the warning tag located near the tank fill and off-loading area. If the tag is damaged or difficult to read, contact Morrison Bros. at (800) 553-4840 for a free replacement tag.

Failure to follow any or all of the warnings and instructions in this document could result in a hazardous liquid spill, which could result in property damage, environmental contamination, fire, explosion, serious injury or death.

Optional Overfill and Reorder Label Installation

NOTE: The template (see Figure 7) is intentionally reversed (mirror image) so the labels may be placed on the inside surface of the clear front cover. Therefore, the lettering of the labels is on the adhesive side and will read correctly once placed.

Steps

1. Template units are shown in feet. It will be necessary to determine the desired overfill and reorder points and convert those into feet in order to use this template.
2. Remove the front face retaining ring and remove the clear front cover.
3. Place the clear cover onto the template aligning the outside edge to the outside circle.
4. Remove indicator label backing and place label on the clear cover as shown on template. Align wider end against inside circle and narrower end pointing toward the level you want to indicate.
5. If both overfill and reorder labels are used, make sure each is pointing to the correct foot reading that provides the volumes you desire.
6. Reinstall the clear front cover with the labels on the inside. Make sure indicators are in correct location and wording is readable before putting gauge in service. Replace the front face retaining ring making certain the ring snaps all the way down into the groove. You will need to use pliers to squeeze the ring into the groove. The retaining ring is correctly squeezed into place if the ends of the retaining ring do not overlap.

WARRANTY: If you believe this gauge has a defect due to material or workmanship, please contact Morrison for a return authorization. All products are thoroughly tested before shipment and meet all applicable performance standards and specifications. Only material found to be defective in manufacture will be replaced or repaired at our discretion. Claims must be made within one year from the date of installation, and Morrison Bros. Co. will not allow claims for labor or consequential damage resulting from purchase, installation or misapplication of the product. The warranty registration information must be provided to the end user.

Fig. 7: Overfill and Reorder Label Template