



# Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-761.850, F.A.C.

## Storage Tank System Equipment Registration Form

*Fill out completely*

### General Information

Company Name: Franklin Fueling Systems Contact Name: Brad Fawcett  
Company Address: 3760 Marsh Road City, State: Madison, WI Zip: 53718  
E-mail: Bradley.Fawcett@franklinfueling.com Contact Number: 608 838 5650  
Product Name: Defender Series™ Overfill Prevention Valve  
Model Number(s): 708 Series Product Type: Overfill Prevention Valve  
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST),  
62-761.600, 62.7612.601 F.A.C.

F.A.C.: Write a brief description of equipment registration request including product limitations:

The Defender Series OPV prevents the underground storage tank from overfilling during fuel delivery to the tank. It uses a magnetically-coupled actuator to provide positive shutoff before overfilling.

### 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)                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 2. Documentation of third-party evaluation that the equipment meets DEP Rules?                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 4. Technical information and drawings included?                                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 5. Installation instructions included?                                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 9. Has the product been approved or registered in other countries or states? (If so provide list)     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 10. Any requirements for company-certified installers or trainers?                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 11. Was this product(s) previously approved or registered by the Department? If yes, EQ- <u>838-R</u> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| 12. Any changes or modifications to the equipment since the last submittal to DEP?                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to [Tanknotify@floridadep.gov](mailto: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.:

Installers must follow all Franklin instructions as well as applicable building codes. The Defender Series OPV has been proven to provide positive shutoff during gravity fill deliveries.

### Equipment Registration Certification:

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

Brad Fawcett, Product Certification Engineer

Printed Name and Title

Brad Fawcett

Signature (right click to sign)

Digitally signed by Brad Fawcett  
Date: 2022.05.25 09:06:18 -05'00'

05/25/2022

Date

### For Department Use Only:

Date Application Received: 05/25/2022 Application complete: Yes: ☒ No: ☐

EQ- 838-R Date of complete or incomplete letter sent: 06/03/2022 Date Equipment Requires Renewal: 06/03/2027

*Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.*

# CERTIFICATE OF COMPLIANCE

**Certificate Number** MH21090  
**Report Reference** MH21090-19990315  
**Issue Date** 2020-SEPTEMBER-17

**Issued to:** FRANKLIN FUELING SYSTEMS INC  
3760 MARSH RD  
MADISON WI 53718-6900

**This certificate confirms that  
representative samples of**

TANK ACCESSORIES FOR FLAMMABLE AND  
COMBUSTIBLE LIQUIDS

See Addendum page for models

Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:**

UL 2583, OUTLINE OF INVESTIGATION FOR FUEL TANK  
ACCESSORIES

CAN/ULC-S661-10, Overfill Protection Devices For  
Flammable And Combustible Liquid Storage Tanks

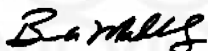
**Additional Information:**

See the UL Online Certifications Directory at  
<https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

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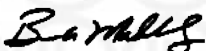
# CERTIFICATE OF COMPLIANCE

|                           |                   |
|---------------------------|-------------------|
| <b>Certificate Number</b> | MH21090           |
| <b>Report Reference</b>   | MH21090-19990315  |
| <b>Issue Date</b>         | 2020-SEPTEMBER-17 |

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Overfill protection device, gravity fill, Class 1, Series 708, for use with underground storage tank installations handling petroleum products. Maximum flow 1400 L/min, maximum pressure CNL - 50 kPa, USL 7.25 psi.

Overfill Protection Device/Preventer, pressure fill, Class 1, Series 709, for use with underground storage tank installations handling petroleum products. Maximum flow 440 L/min., maximum pressure 500 kPa.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

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# **DEFENDER SERIES® OVERFILL PREVENTION VALVE**

## **INSTALLATION GUIDE**



The information in this publication is provided for reference only. While every effort has been made to ensure the reliability and accuracy of the information contained in this manual at the time of printing, we recommend that you refer to “franklinfueling.com” for the most current version of this manual. All product specifications, as well as the information contained in this publication, are subject to change without notice. Franklin Fueling Systems does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, or in any way connected with, installation, operation, use, or maintenance by using this manual. Franklin Fueling Systems assumes no responsibility for any infringement of patents or other rights of third parties that may result from use of this manual or the products. We make no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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For technical assistance, please contact:

franklinfueling.com

3760 Marsh Rd. • Madison, WI 53718 • USA

Tel: USA & Canada +1 800 225 9787 • Fax: +1 608 838 6433

Tel: UK +44 (0) 1473 243300 • Tel: Mex 001 800 738 7610

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Defender Series is a registered trademark of Franklin Electric Company, Inc.

OPW is a registered trademark of the Dover Corporation.

F-9044 r9

# CONTENTS

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|                                                                |    |
|----------------------------------------------------------------|----|
| Introduction .....                                             | 1  |
| Questions and concerns .....                                   | 1  |
| Conventions used in this manual .....                          | 1  |
| Operating precautions .....                                    | 1  |
| Specifications .....                                           | 2  |
| Valve operation .....                                          | 3  |
| Tank Size and Installation of Overfill Prevention Devices..... | 3  |
| Installation .....                                             | 5  |
| Installing the OPV .....                                       | 5  |
| Determine drop tube lengths.....                               | 6  |
| Mark and cut the drop tubes .....                              | 8  |
| Install the upper drop tube adapter.....                       | 9  |
| Complete the installation .....                                | 11 |
| Optional installation of OPW spill containment.....            | 13 |
| OPV Drop Tube Preparation .....                                | 13 |
| Operational inspection .....                                   | 14 |
| Maintenance .....                                              | 16 |
| Inspect and verify the final shutoff level.....                | 17 |
| Direct fill.....                                               | 17 |
| Remote fill.....                                               | 18 |
| Inspection worksheet .....                                     | 19 |
| Dimension drawing.....                                         | 20 |
| Certification information .....                                | 20 |
| Production specifications .....                                | 20 |
| OPV installation record sheet.....                             | 21 |

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# INTRODUCTION

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## QUESTIONS AND CONCERNS

In case of emergency, follow the procedures established by your facility. If you have questions or concerns about safety or need assistance, use the information below to contact Franklin Fueling Systems:

franklinfueling.com

3760 Marsh Rd. • Madison, WI 53718 • USA

Tel: USA & Canada +1 800 225 9787 • Fax: +1 608 838 6433

Tel: UK +44 (0) 1473 243300 • Tel: Mex 001 800 738 7610

Tel: DE +49 6571 105 380 • Tel: CH +86 10 8565 4566

## CONVENTIONS USED IN THIS MANUAL

This manual includes safety precautions and other important information presented in the following format:

**NOTE:** This provides helpful supplementary information.

**IMPORTANT:** This provides instructions to avoid damaging hardware or a potential hazard to the environment, for example: fuel leakage from equipment that could harm the environment.

**⚠ CAUTION:** This indicates a potentially hazardous situation that could result in minor or moderate injury if not avoided. This may also be used to alert against unsafe practices.

**⚠ WARNING:** This indicates a potentially hazardous situation that could result in severe injury or death if not avoided.

**⚠ DANGER:** This indicates an imminently hazardous situation that will result in death if not avoided.

## OPERATING PRECAUTIONS

Franklin Fueling Systems (FFS) equipment is designed to be installed in areas where volatile liquids such as gasoline and diesel fuel are present. Working in such a hazardous environment presents a risk of severe injury or death if you do not follow standard industry practices and the instructions in this manual. Before you work with or install the equipment covered in this manual, or any related equipment, read this entire manual, particularly the following precautions:

**IMPORTANT:** To help prevent spillage from an underground storage tank, make sure the delivery equipment is well-maintained, that there is a proper connection, and that the fill adaptor is tight. Delivery personnel should inspect delivery elbows and hoses for damage and missing parts.

**⚠ CAUTION:** Use only original FFS parts. Substituting non-FFS parts could cause the device to fail, which could create a hazardous condition and/or harm the environment.

**⚠ WARNING:** Follow all codes that govern how you install and service this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. A potentially lethal electrical shock hazard and the

possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on while you are installing or servicing this product. Refer to this manual (and documentation for related equipment) for complete installation and safety information.

**⚠ WARNING:** Before you enter a containment sump, check for the presence of hydrocarbon vapors. Inhaling these vapors can make you dizzy or unconscious, and if ignited, they can explode and cause serious injury or death. Containment sumps are designed to trap hazardous liquid spills and prevent environmental contamination, so they can accumulate dangerous amounts of hydrocarbon vapors. Check the atmosphere in the sump regularly while you are working in it. If vapors reach unsafe levels, exit the sump and ventilate it with fresh air before you resume working. Always have another person standing by for assistance.

**⚠ WARNING:** Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, and/or environmental contamination.

**⚠ WARNING:** Always secure the work area from moving vehicles. The equipment in this manual is usually mounted underground, so reduced visibility puts service personnel working on it in danger from moving vehicles that enter the work area. To help prevent this safety hazard, secure the area by using a service truck (or some other vehicle) to block access to the work area.

**⚠ WARNING:** This product contains a strong magnet. Make sure it does not come into the vicinity of a person with a pacemaker or similar medical aid. The magnetic field associated with this product can adversely affect such devices.

**⚠ WARNING:** If you are working with drop tubes that have been exposed to fuel or other flammable substances, allow these substances and any vapors to dissipate in a well-ventilated area for an hour before you perform any procedures.

**⚠ WARNING:** Discharge to ground before putting into service and ensure valve is properly grounded while in service.

**⚠ WARNING:** When inserting the drop tube/valve assembly into the tank riser pipe, use caution not to forcefully impact the tank riser pipe. When raising/lowering the drop tube/valve assembly while inside the tank riser pipe, do so in a slow, controlled manner.

**⚠ WARNING:** It is the responsibility of the end user of this product to evaluate each installation location for the following potential ignition sources: lightning, high frequency radio waves, electromagnetic radio waves, ionizing radiation, and ultrasonic sound waves. If any of these potential ignition sources are identified, protective systems/measures shall be implemented.

## **SPECIFICATIONS**

- Model: 708-590 Series
- Type: Class I Automatic Overfill Shutoff Device—Gravity Fill Only
- Size: Fits through 4" pipe (Schedule 40 (DN100) Inner Diameter = 4.026" (102.26mm))
- Flow rate: 25-370 GPM (95-1400 LPM)
- Static pressure rating: 10 PSI (0.7 bar) MAX
- Compatibility: Liquid petroleum fuel blends (E0-E85, B0-B20)

## **VALVE OPERATION**

The Franklin Fueling Systems (FFS) Defender Series® Overfill Prevention Valve (OPV) is designed with a primary shutoff that activates between 85 and 92% of tank volume, depending on the tank diameter. When the primary shut-off is actuated, the flow through the OPV is limited to less than 8 GPM (30 LPM). A secondary, positive shutoff happens at 95% tank volume if you continue filling. After primary shutoff, you can still drain the delivery hose, but you must be extremely careful and follow these steps:

1. Close the truck bottom loading valve.
2. Wait 5 minutes.
3. Partially open the coupler between the delivery hose and the bottom loading valve and allow the hose to drain.

**NOTE:** Shutoff points are affected by the specific gravity of the stored liquids. These instructions are based on the average performance of all products. The OPV was designed to be only an emergency overfill prevention device.

**NOTE:** Determine if the underground storage tank has a ball float vent valve. If it does, make sure the nipple portion does not extend more than 3" (76.2 mm) into the tank.

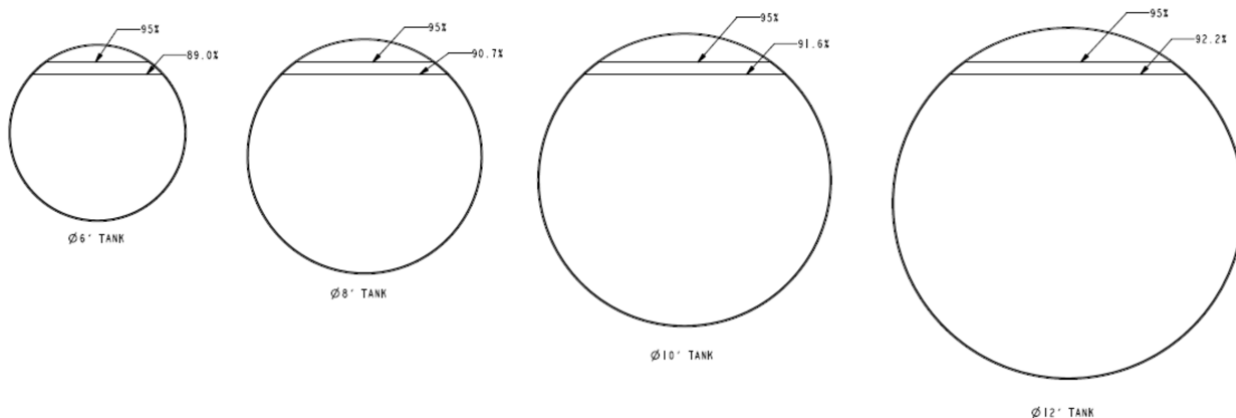
## **TANK SIZE AND INSTALLATION OF OVERFILL PREVENTION DEVICES**

In a two-stage, mechanical Overfill Prevention Valve (OPV), primary closure of the device significantly restricts the flow of fuel into the tank. After primary shut-off occurs, the delivery hose can be drained slowly 3-5 GPM (11-18 LPM) until secondary or “positive” shut-off occurs. Under current EPA regulations and industry standards, secondary shut-off is typically set at 95% of tank volume; however, other local regulations may prescribe other values.

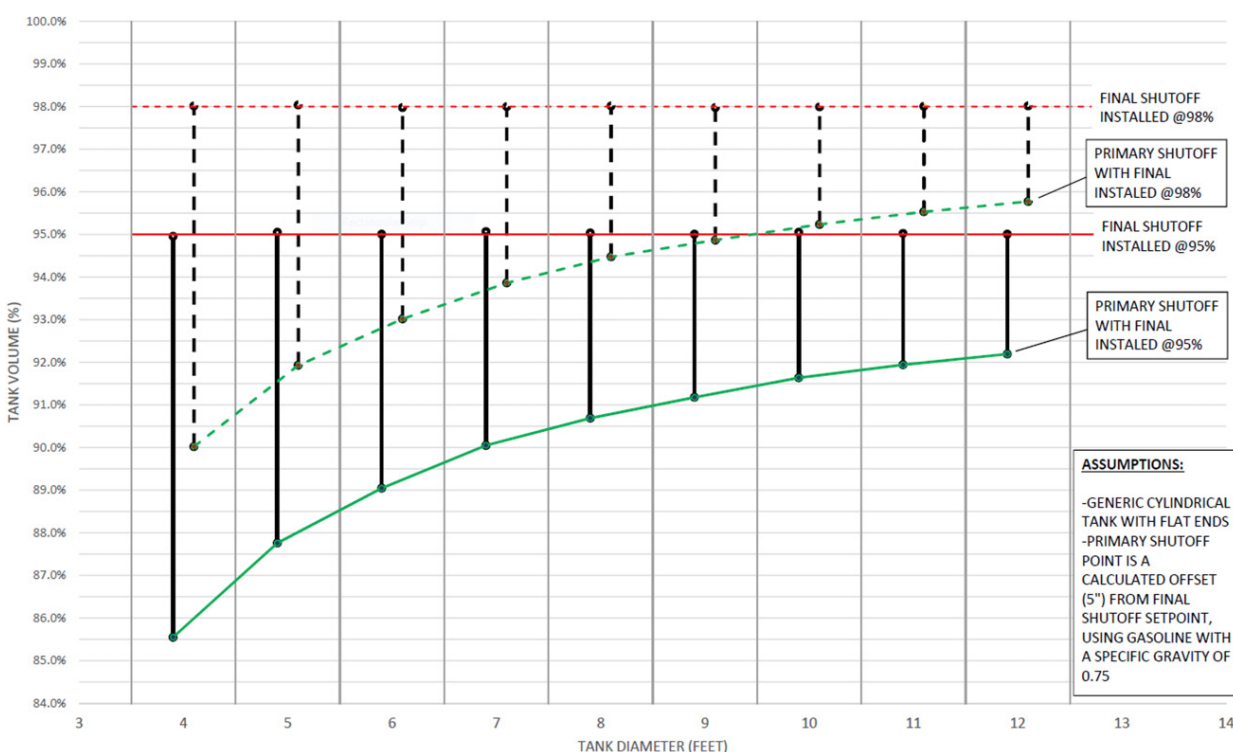
Mechanical OPVs use a float(s) to trigger shut-off, or closure, of the device and restrict flow to the storage tank. The shut-off level of the secondary (“positive”) closure can be set based on the height of installation in the tank. The height of this installation typically is correlated with a volume percentage such as 95%. The level of the primary shut-off point will fluctuate to some degree based variables such as the:

- Size and shape of the tank. (See the images below.)
- Specific gravity of the stored liquid:  
The offset picture is based on a specific gravity of 0.75 for gasoline and 0.85 for diesel. A lower specific gravity will need more fluid to create equivalent buoyancy, which equates to a higher shutoff level (and vice-versa).
- Flow rate during delivery.  
The offset is based off data from our production flow test apparatus, which runs at 370 gpm. A lower flowrate causes less buoyancy force needed to activate the primary, which equates to a lower shutoff level.

The most influential of these variables is the size and shape of the tank volume, as illustrated below. Always use a calibrated tank chart in combination with the manufacturer’s instructions for best results.

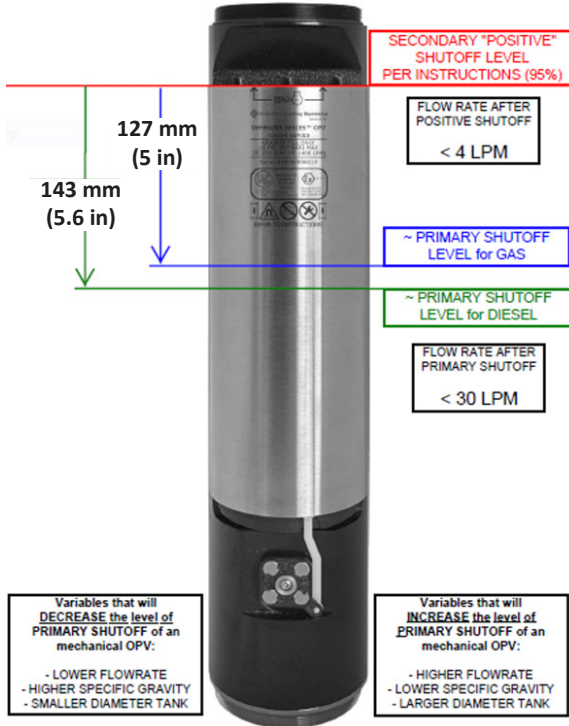


**NOTE:** When secondary, “positive,” shut-off is set at 95% of tank volume, the level at which primary shut-off occurs varies with tank volume. The above illustration depicts how tank volume could influence the actual shut-off levels of a mechanical OPV.



**NOTE:** The installation height of an OPV can be adjusted to optimize actual shut-off levels as required. Consult local regulations for specific requirements in your area. The above graph shows how a two-stage, mechanical overfill prevention device is influenced by tank diameter and volume.

The following is the Overfill Prevention Device:



## INSTALLATION

### INSTALLING THE OPV

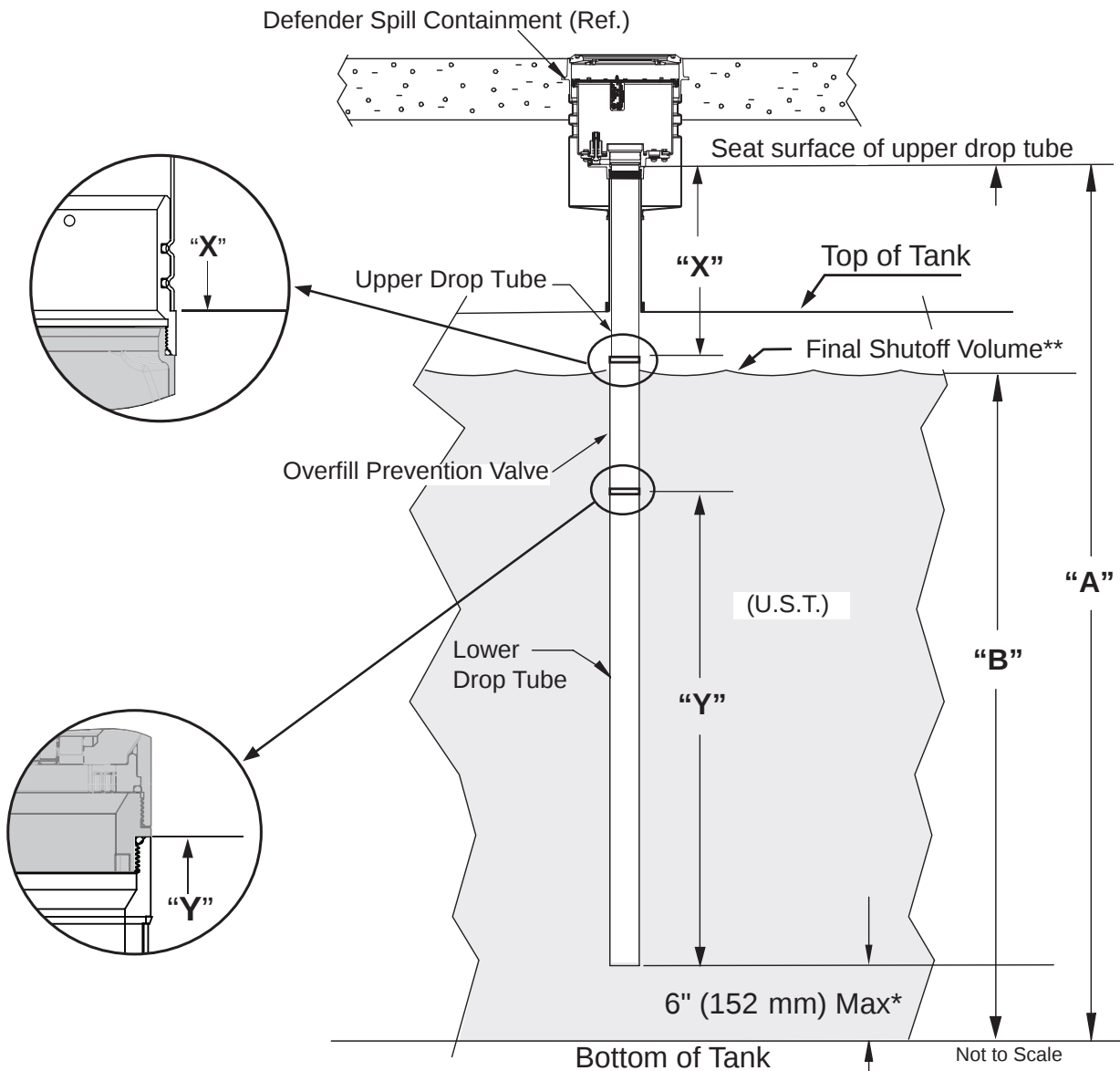
**⚠ WARNING:** If you are working with drop tubes that have been exposed to fuel or other flammable substances, allow these substances and any vapors to dissipate in a well-ventilated area for an hour before you perform any procedures.

Required equipment:

- Tape measure
- Half round file
- Permanent marker
- FFS pipe cutter\* or metal saw
- Groove roller tool\*
- OPV assembly
- 4" upper drop tube gasket
- Hose clamp
- Warning plate

\* Refer to the FFS catalog for ordering information.

## DETERMINE DROP TUBE LENGTHS



\* If local codes require this distance to be smaller, subtract less than 6" (152mm)

### Calculate final shutoff volume

Actual Tank Capacity

Gallons

X (Multiply)

Typically 95%\*\*

=

Final shutoff volume (gallons)

= B

Final Shutoff Volume Height

### To find Upper Drop Tube length "X"

"A"  Drop tube seat surface to bottom of tank

- (subtract)

"B"  Final shutoff volume height

- (subtract)

2½" (63.5 mm) Position and mounting adjustment

= (equals)

"X"  Upper Drop Tube Length

### To find Lower Drop Tube length "Y"

"B"  Final shutoff volume height

- (subtract)

15¾" (400 mm) OPV Length Offset

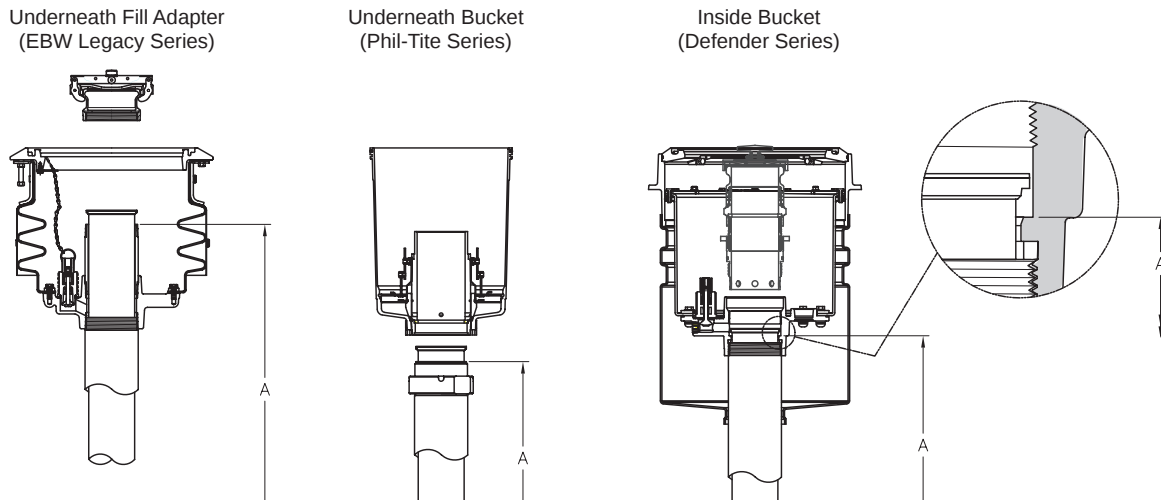
- (subtract)

6" (152mm) Tank bottom clearance

= (equals)

"Y"  Lower Drop Tube Length

**A** = The distance from the seat surface of the upper drop tube to the bottom of the underground storage tank. The seat surface will vary depending on the type of installation. See below.



**NOTE:** If you are installing into an OPW® spill container, measure from the bottom of the tank to the top face of the OPW® seal adaptor in the OPW® spill bucket.

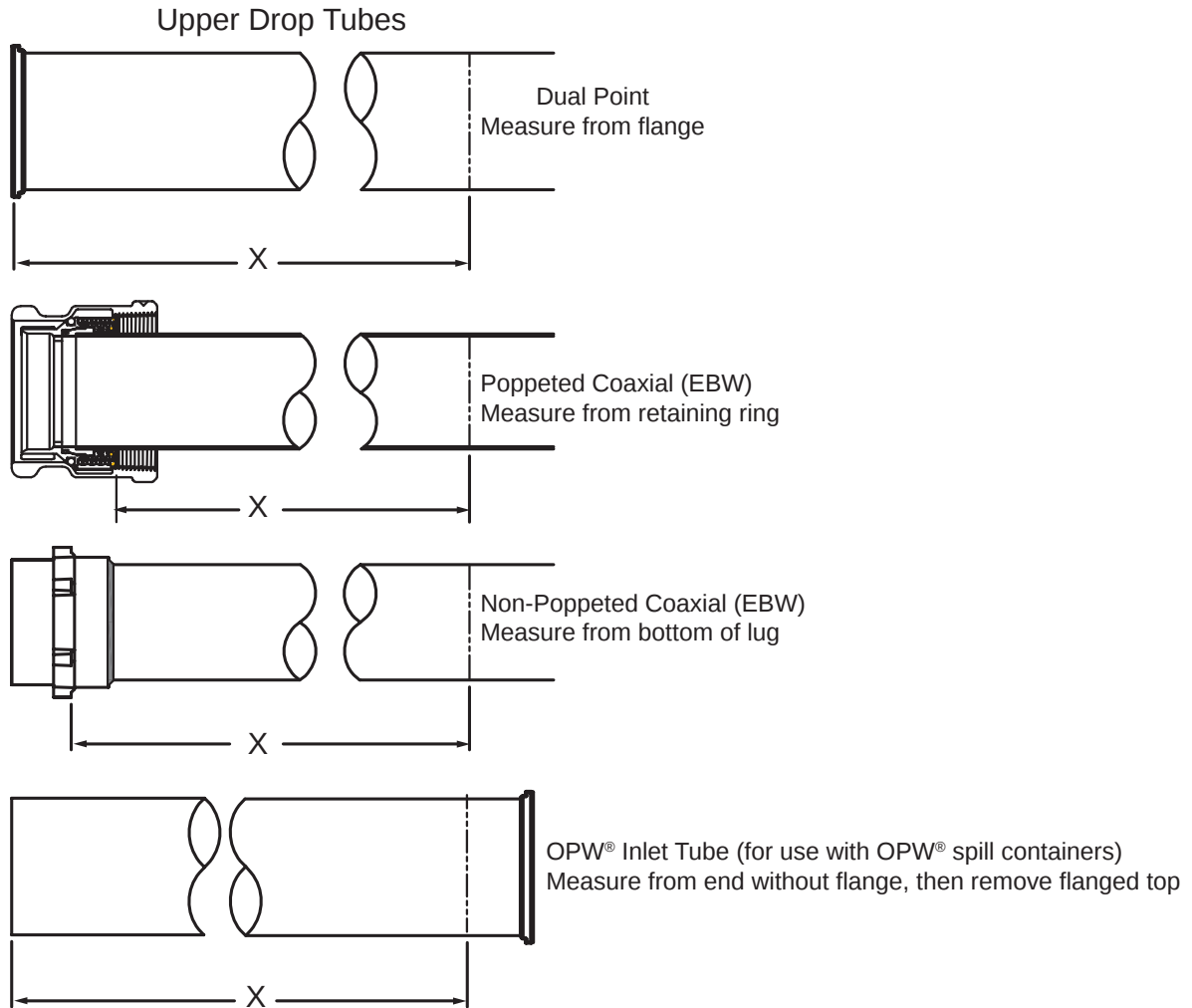
**B** = FINAL SHUTOFF VOLUME HEIGHT-- According to industry recommended practices, FFS recommends that you set the final shutoff volume to a maximum of 95% of the actual tank capacity. To find the final shutoff volume height, multiply the actual tank capacity (gallons) by the final shutoff volume percentage. (If you are using 95% tank volume, multiply the actual tank capacity by .95.) You then locate the closest volume on the tank chart (provided by the tank manufacturer), and record the corresponding height for "B."

**\*\* NOTE:** To accommodate tank tilt or increased/decreased usage of tank capacity, the final shutoff volume can be adjusted to a value other than 95%, providing it meets all applicable regulatory requirements, and is acceptable to the Authority Having Jurisdiction (AHJ). If the final shutoff volume is not installed at 95%, the installing contractor should document the new volume as intended and include it with the station records as reference for compliance inspections. The installing contractor can do this on the "OPV Installation Record Sheet" or any other applicable station records.

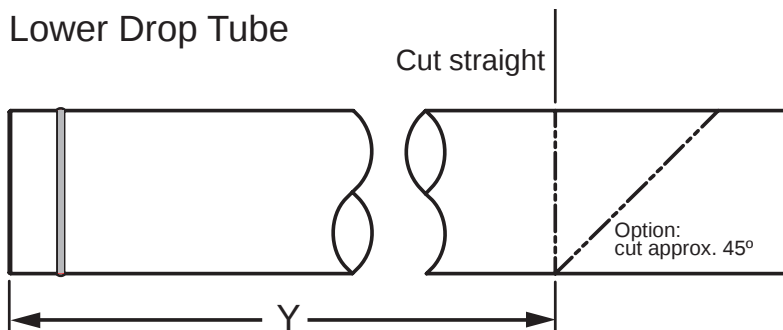
If the final shutoff volume is installed greater than 95%, make sure in all cases that there is at least 250 gallons of ullage volume remaining so that "...none of the fittings located on the top of the tank are exposed to product due to overfilling" according to EPA 40 CFR Part 280.

## MARK AND CUT THE DROP TUBES

1. Mark the upper drop tube with the length X.



2. Mark the lower tube with the length Y.



**NOTE:** FFS recommends the FFS pipe cutter, but if you use a metal saw to cut the drop tube, make sure you cut it as squarely as possible. Use the band clamp included with the warning tag as a guide.

3. Use the FFS pipe cutter to cut the upper drop tube where marked. (If you are using an OPW® inlet tube, you must remove the flanged end.)

**NOTE:** Tighten the tool handle less than a tenth of a turn for every two times you rotate the tool.

- a. Tighten the blade against the tube just enough to make contact, and then rotate one full turn in one direction.
- b. Rotate one full turn in the opposite direction, and then tighten the cutter approximately one tenth of a turn.
- c. Repeat this process until there is a good scribe line.

**IMPORTANT:** Do not overtighten the cutter wheel, otherwise the end of the tube could be crimped, which can cause it to be too small to fit the adapter.

4. Use the half-round file to deburr the inside of the upper drop tube, and then test fit the adapter to see if it fits inside the tube. If the adapter does not fit, continue deburring, and then test fit the adapter again. If the adapter still does not fit, contact FFS Technical Service.
5. Use the FFS pipe cutter to cut the lower drop tube where marked.

Use a metal saw if you have to cut the lower drop tube to a 45 degree angle. Make sure the lowest point of the drop tube does not extend into the minimum clearance specified by the tank manufacturer (or according to local requirements).

## INSTALL THE UPPER DROP TUBE ADAPTER

1. Replace the cutting wheel on the Franklin Fueling Systems Pipe Cutter with the Roller Tool.



2. Start at the cut end of the upper drop tube, and mark the grooves on the tube.



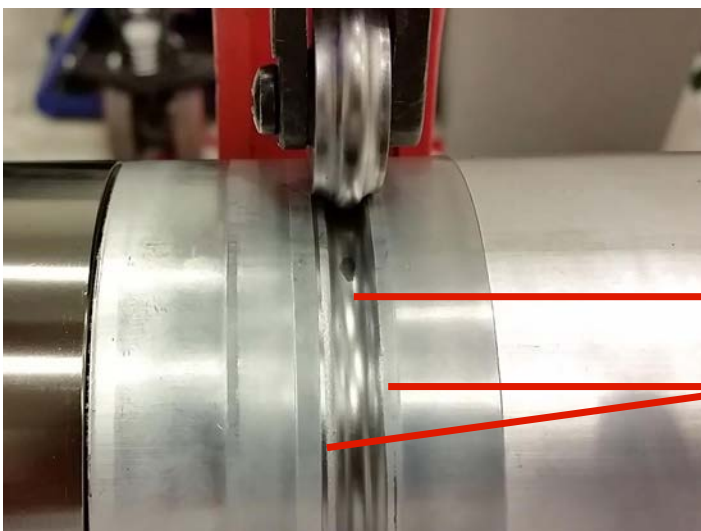
**NOTE:** If you are installing an OPW® inlet tube, skip the following step. Follow steps 3 to 16 of the intrusions in the OPW® document *7150 Installation and Maintenance Instructions* in VR-102-S for cutting the upper drop tube and installing the OPW® inlet tube. (Do not use the FFS drop tube gasket. Make sure you use the gasket included with the OPW® inlet tube.) Proceed to step 4 when the installation is complete.

3. Install the drop tube gasket on the upper drop tube (dual point installation as shown below).



Drop tube gasket  
(note orientation)

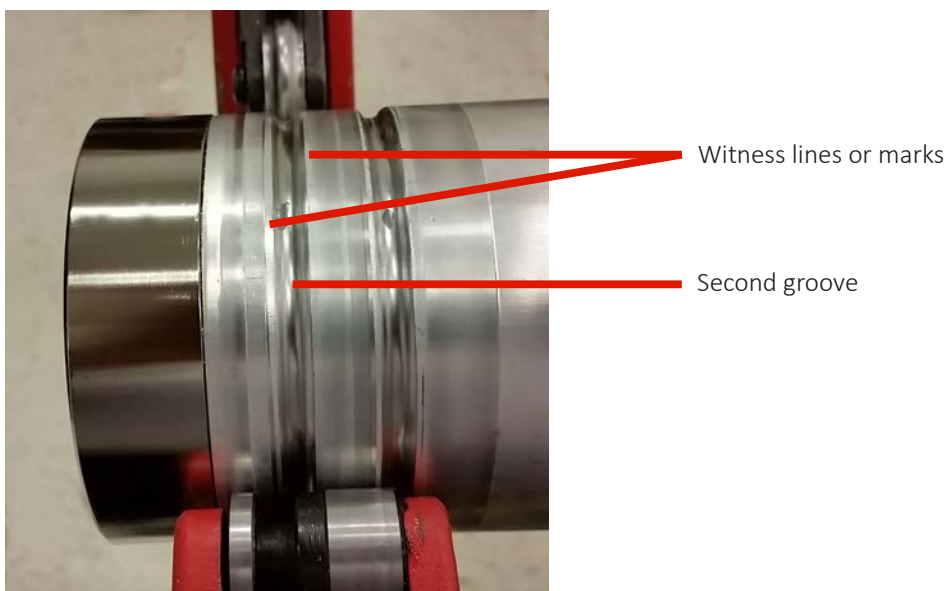
4. Make sure the O-rings are installed on the upper drop tube adapter.
5. Insert the upper drop tube adapter into the cut end of the upper drop tube.
6. Position the roller tool over the mark, and then tighten the roller tool until it makes contact with the upper drop tube.
7. Rotate the roller tool one full turn in one direction, and then rotate it one full turn in the opposite direction.
8. Tighten the roller tool approximately one tenth of a turn, and then repeat the previous step until the groove is complete. The tube is indented enough when the shoulder of the roller tool contacts the tube and creates a witness line or mark.



Groove

Witness lines or marks

9. Repeat the previous three steps to create a groove over the second mark.

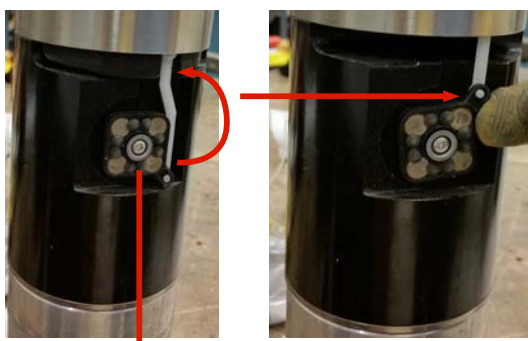


## **COMPLETE THE INSTALLATION**

Before you install the OPV, remove any burrs and clean the inside of the tank riser pipe properly. If you do not, the OPV might be damaged or unable to function properly.

**NOTE:** The upper and lower threads of the drop tube adapters are lubricated at the factory. Do not use pipe sealant. Make sure the O-rings on both ends of the OPV are present and undamaged.

1. Check the float and flapper mechanism by rotating the outer coupler counter-clockwise. Make sure this activates the internal flapper and operates smoothly.



Outer coupler

2. Make sure the drop tube gasket is installed under the upper drop tube flange. (See step 3 of "Install the upper drop tube adapter.")
3. Thread the upper and lower drop tubes onto the OPV, and then use strap wrenches (not pipe wrenches) to tighten the drop tubes. Position one on the upper drop tube, and the other on the lower drop tube. Do not tighten the float shield or valve.



Use wrenches in this area.

Use wrenches in this area.

Do not use wrenches in this area.

4. Spill containment must be grounded to earth to discharge any static electricity.
5. Carefully lower the completed OPV assembly into the riser pipe.  
Do not drop the assembly or force it down the riser pipe. If it does not fit, clean the riser pipe, and attempt to insert the OPV assembly again. If it still does not fit, the riser pipe may need to be replaced.
6. Reinstall the spill bucket components.
7. Use the stainless steel band clamp to install the warning plate around the 4" (102mm) riser pipe below the threaded section.



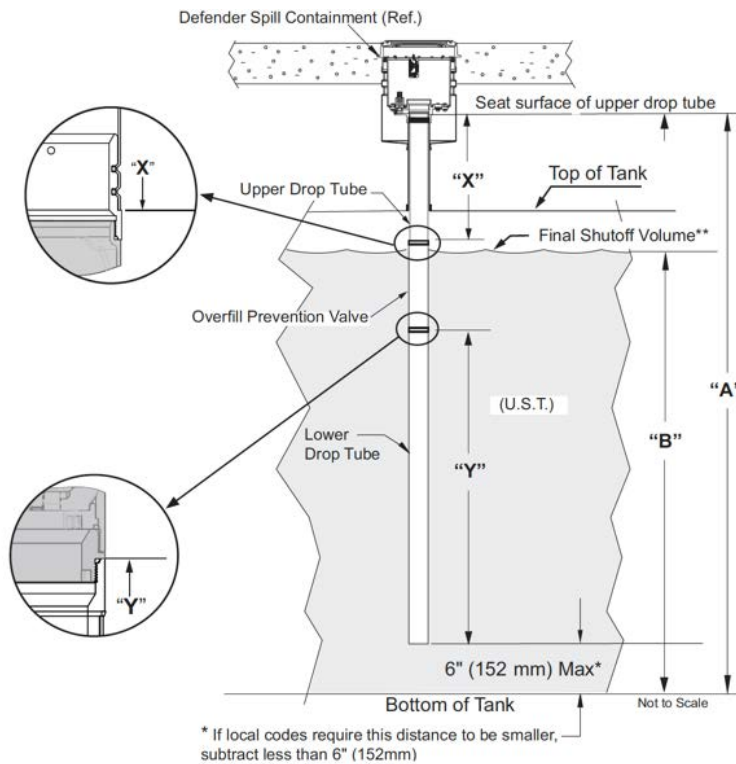
8. Perform the operational inspection procedure.

# OPTIONAL INSTALLATION OF OPW SPILL CONTAINMENT

## OPV DROP TUBE PREPARATION



OPW inlet tube for use with OPW spill containers



### Calculate final shutoff volume

Actual Tank Capacity  
 Gallons

X (Multiply)  
 .95 Typically 95%\*\*

=  
 Final shutoff volume (gallons)

= B  
 Final Shutoff Volume Height

### To find Upper Drop Tube length "X"

"A"  Drop tube seat surface to bottom of tank

- (subtract)

"B"  Final shutoff volume height

- (subtract)

2½" (63.5 mm) Position and mounting adjustment

= (equals)

"X"  Upper Drop Tube Length

### To find Lower Drop Tube length "Y"

"B"  Final shutoff volume height

- (subtract)

15¾" (400 mm) OPV Length Offset

- (subtract)

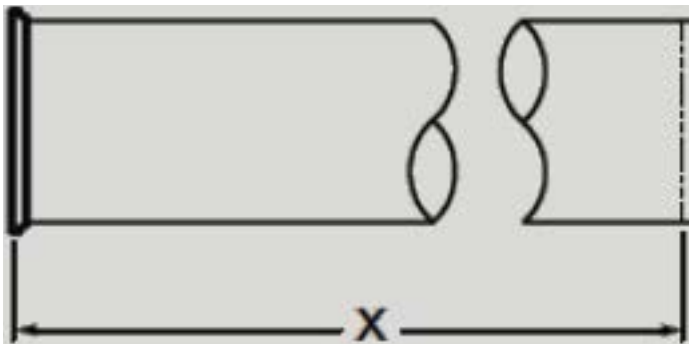
6" (152mm) Tank bottom clearance

= (equals)

"Y"  Lower Drop Tube Length

**NOTE:** For additional information, refer to the Defender Series® Overfill Prevention Valve Installation Guide.

1. Determine Dimension A:
  - Measure from bottom of the tank to the top of OPW face seal adaptor in the OPW spill container.
2. Determine Dimension X:
  - Measure required length for the upper drop tube from the non-flanged end.
  - Remove the flanged top.
  - Follow steps 3 to 16 in OPW 71SO Installation & Maintenance Instructions (H15524PA) referenced in Executive Order VR-102 to cut the upper drop tube and install the OPW inlet tube.
3. Remove the flanged top of the upper drop tube.

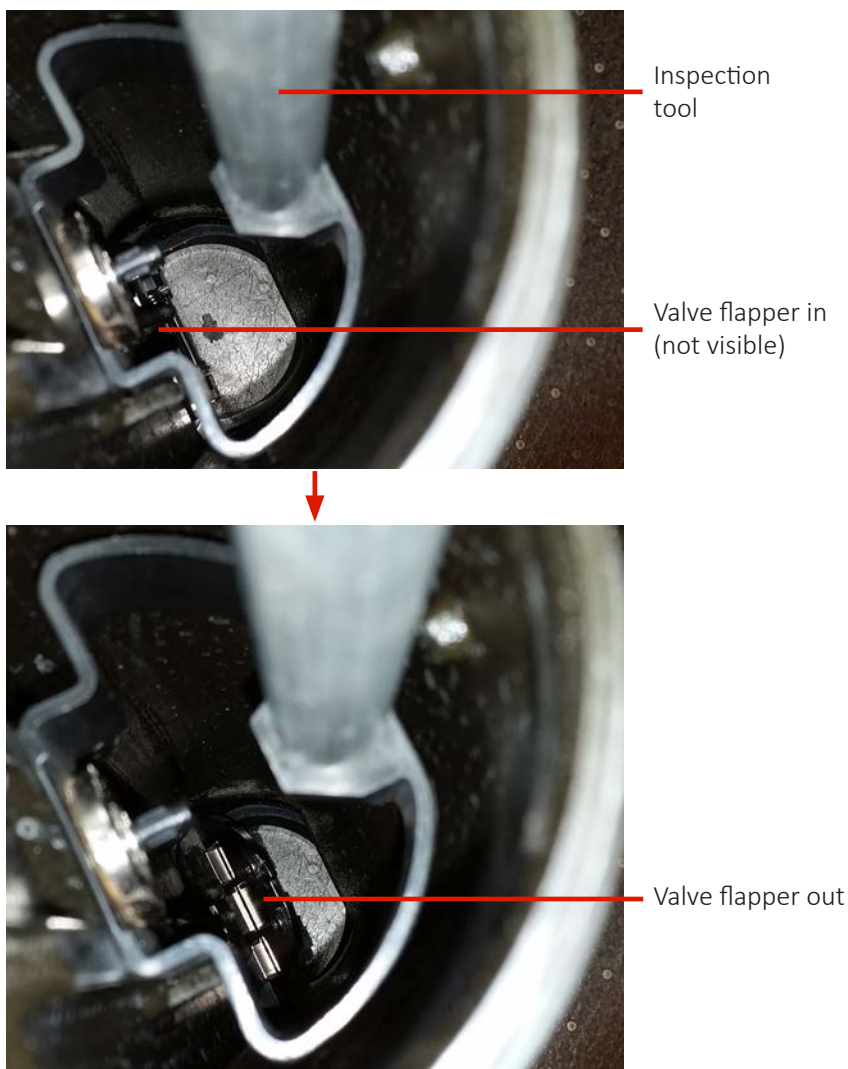


## **OPERATIONAL INSPECTION**

Use the FFS remote test tool to inspect the OPV.



1. Assemble the remote test tool with enough extension sections to reach the OPV.
2. Insert the remote test tool into the drop tube. You should feel a “pull” when the magnets are positioned correctly and attract.
3. Slowly raise the remote test tool about 1½" (38 mm). You should see the flapper move into the flow path. If you see the flapper moving back and forth, the OPV is functioning normally.



**NOTE:** If required by a local agency, you can push flapper fully closed by inserting a non-sparking stick or rod (no larger than .75" (19 mm) diameter) through the remote test tool opening.

4. Remove the remote test tool by pulling it out of the drop tube. The magnets disengage and the flapper resets automatically.

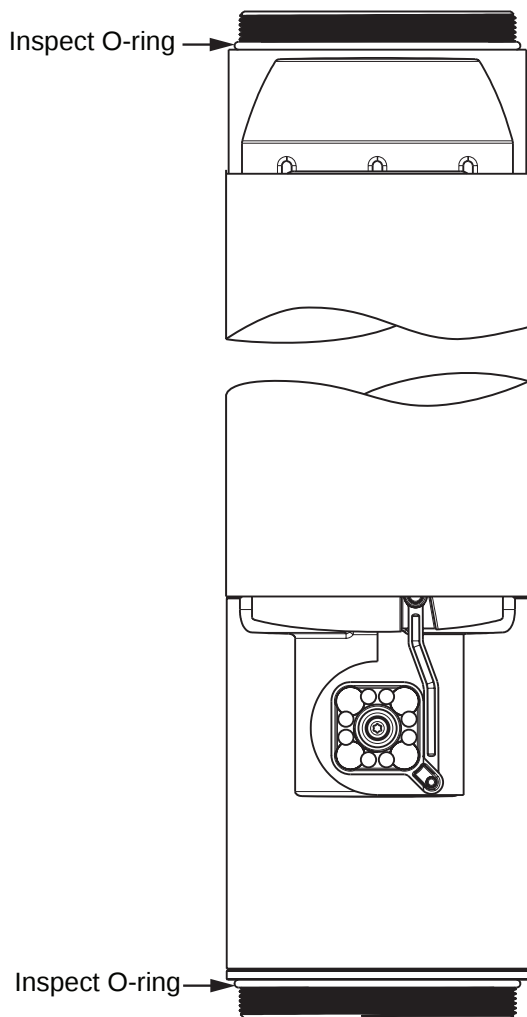
## MAINTENANCE

The OPV has no periodic maintenance requirements, but if you remove the drop tube and OPV assembly from the tank, inspect the drop tube seal for wear or damage. Replace it if necessary.



Drop tube gasket  
(note orientation)

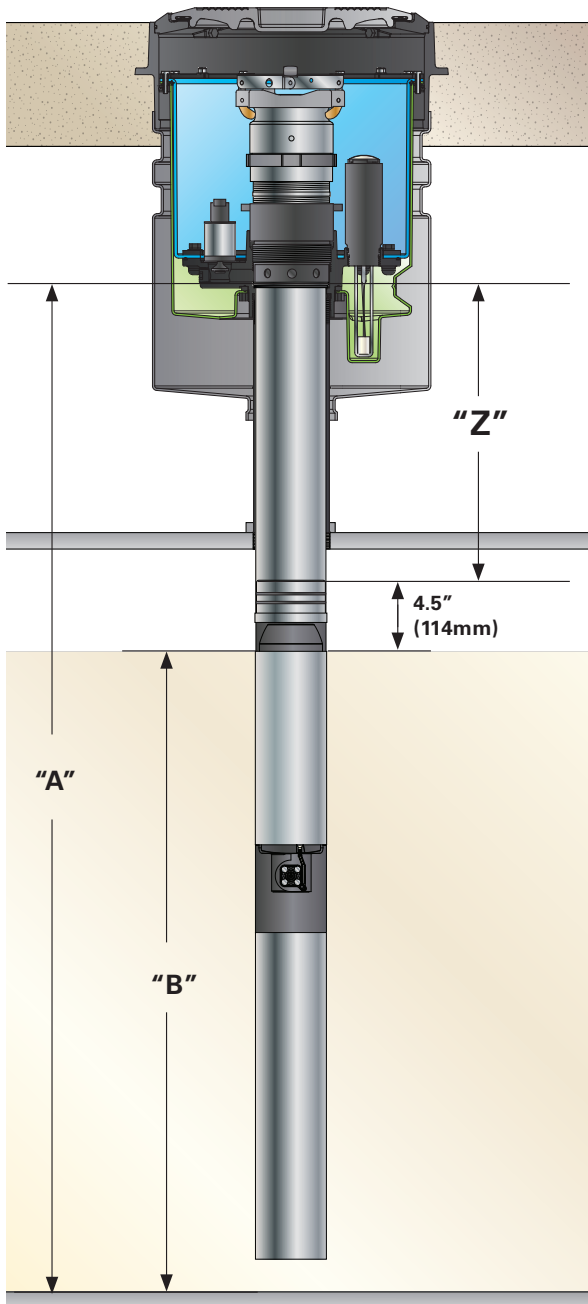
Also, if you remove the upper or lower drop tube from the OPV, you should replace the O-ring(s).



## INSPECT AND VERIFY THE FINAL SHUTOFF LEVEL

### DIRECT FILL

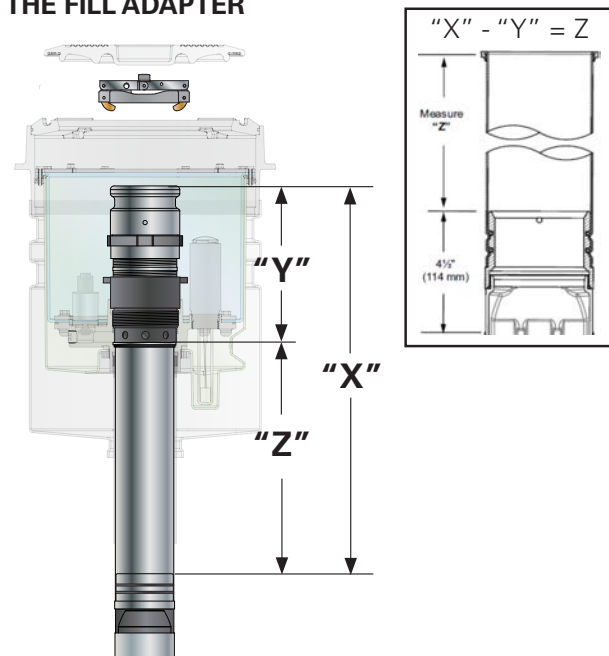
**NOTE:** When you perform this procedure, do not remove the OPV assembly from the tank.



### DEFINITIONS

- "A"** Distance from the upper drop tube to the bottom of the underground storage tank.
- "B"** 95% tank volume - obtained from the tank chart provided by the tank manufacturer. To find the 95% tank level on the tank chart, multiply the actual tank capacity by 0.95. Then on the tank chart, find the level measurement that matches the calculated volume the closest.
- "Z"** Distance from the upper drop tube to the top edge of the upper drop tube adapter.
- 4.5"** Distance from 95% shut-off to the top of upper drop tube adapter.

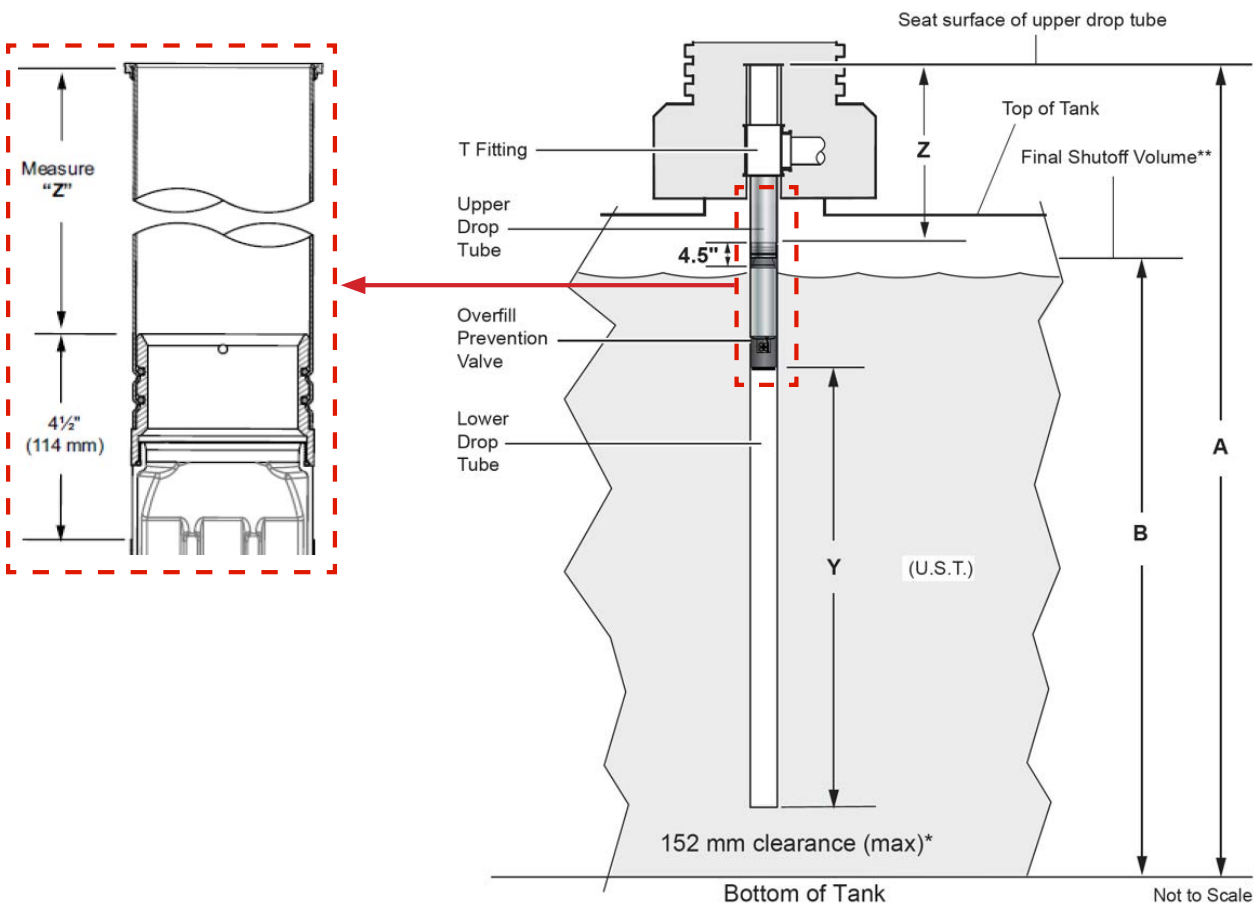
### MEASURING "Z" WITHOUT REMOVING THE FILL ADAPTER



**"X"** Distance from the top of the fill adapter to the top edge of the upper drop tube adapter.

**"Y"** Distance from the top of the fill adapter to the top edge of the drop tube flange.

## REMOTE FILL



\* If local codes require the tank bottom clearance to be smaller, subtract less than 152 mm.

Definitions:

A- Distance from the upper drop tube to the bottom of the underground storage tank.

B- 95% tank volume- obtained from the tank chart provided by the tank manufacturer. To find the 95% tank level on the tank chart, multiply the actual tank capacity by 0.95. Then on the tank chart, find the level measurement that matches the calculated volume the closest.

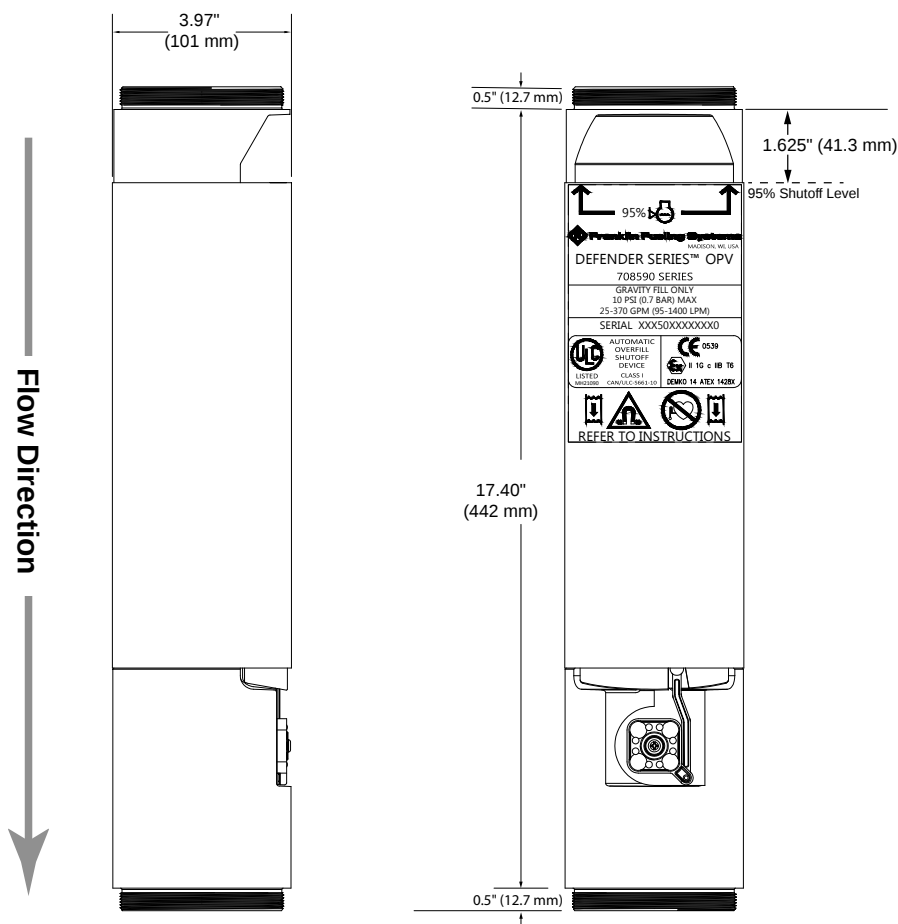
Z- Distance from the upper drop tube to the top edge of the upper drop tube adapter.

4.5"- Distance from 95% shut-off to the top of upper drop tube adapter.

# INSPECTION WORKSHEET

| UST OVERFILL EQUIPMENT INSPECTION - DEFENDER SERIES® OVERFILL PREVENTION VALVE                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| Facility Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                             |                                                             | Owner:                                                      |                                                             |                                                             |                                                             |
| Address:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| City, State, Zip Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |                                                             |                                                             |                                                             | Phone:                                                      |                                                             |
| Testing Company:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                                             | Phone:                                                      |                                                             | Date:                                                       |                                                             |
| Product Grade:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| <b>1. REFER TO THE MANUFACTURER'S TANK CHART.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Tank Volume (gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Tank Diameter (ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| 95% Tank Volume (gal)<br>(x Multiply Tank Volume by 0.95)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| 95% Volume Height (in inches) Based<br>on Calculation Above                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>1</b>                                                    | <b>1</b>                                                    | <b>1</b>                                                    | <b>1</b>                                                    | <b>1</b>                                                    | <b>1</b>                                                    |
| <b>2. PERFORM THE OVERFILL PREVENTION VALVE INSPECTION.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Inspection performed? Flapper moves<br>freely into the flow path?                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> |
| Measure "A" (in)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| - Subtract "Z" (in)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| - Subtract 4.5 in                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | - 4.5                                                       | - 4.5                                                       | - 4.5                                                       | - 4.5                                                       | - 4.5                                                       | - 4.5                                                       |
| = Calculated 95% Final Shutoff<br>Volume Height (in inches) Based on<br>Measurements Above                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>2</b>                                                    | <b>2</b>                                                    | <b>2</b>                                                    | <b>2</b>                                                    | <b>2</b>                                                    | <b>2</b>                                                    |
| Difference Between <b>1</b> and <b>2</b> (equal or<br>less than = pass, greater than = fail)                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| <b>3. DETERMINE WHETHER THE OVERFILL PREVENTION VALVE INSTALLATION PASSES THE INSPECTION.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Find the Final Shutoff Volume in the<br>manufacturer's tank chart. Enter the<br>closest corresponding volume (gal).                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| ÷ Divide by Actual Tank Capacity (gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| × Multiply by 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| = Equals Final Shutoff Volume %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| If the final shutoff volume percentage is 95% or less, the installation meets FFS and industry recommended practices. This percentage can, however, exceed 95% as long as the ullage volume remaining is greater than or equal to 250 gallons so that "none of the fittings located on the top of the tank are exposed to product due to overfilling" according to <i>EPA 40 CFR, Part 280</i> . The installation must also meet all applicable regulatory requirements, and must be acceptable to the Authority Having Jurisdiction. |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Enter Actual Tank Capacity (gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| - Subtract Final Shutoff Volume (gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| = Equals Ullage Volume Remaining (gal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| <b>The OPV passes the installation<br/>inspection?</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> | Yes <input type="checkbox"/><br>No <input type="checkbox"/> |
| Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |
| Tester's Name (print) _____ Tester's Signature _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |                                                             |                                                             |                                                             |                                                             |                                                             |

## DIMENSION DRAWING



## CERTIFICATION INFORMATION

|         |                                                                                                                            |                                                                                          |
|---------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| UL/ULC  | File MH 21090, 1:1 UL 2583 AND CAN/ULC S661-10                                                                             |                                                                                          |
| CARB    | VR-101 and VR-102                                                                                                          |                                                                                          |
| ATEX    |  II 1 G c IIB T6<br>DEMKO 14 ATEX 1428X |  0539 |
| Florida | EQ-838                                                                                                                     |                                                                                          |

## PRODUCTION SPECIFICATIONS

| Construction       |                                                 |
|--------------------|-------------------------------------------------|
| Valve Body         | E-Coated Cast Aluminum                          |
| Upper Drop Tube    | Aluminum or Hard Coat Anodized Aluminum         |
| Lower Drop Tube    | Aluminum or Hard Coat Anodized Aluminum         |
| Internal Mechanism | Nickel plated Aluminum, Stainless Steel, Acetal |

## OPV INSTALLATION RECORD SHEET

Date Installed

\_\_\_\_\_  
\_\_\_\_\_

Valve Serial Number

\_\_\_\_ \_ 5 0 \_\_\_\_ \_ \_\_\_\_ \_ 0

### Site information

Site # / Description \_\_\_\_\_

Site Address \_\_\_\_\_

Site Contact \_\_\_\_\_

### Installing Contractor

Name \_\_\_\_\_

Company \_\_\_\_\_

### Tank Information

Product Type \_\_\_\_\_

Underground Tank Manufacturer \_\_\_\_\_

Tank Full Volume \_\_\_\_\_

Tank Diameter \_\_\_\_\_

Tank Chart Available? ☐ Yes ☐ No

Tank Type ☐ Steel ☐ Fiberglass

☐ Square ☐ Cylinder ☐ Dome Ends

Tank have compartments? ☐ Yes ☐ No

### Tank/Drop Tube Measurements

Upper Drop Tube Length (X) \_\_\_\_\_

Lower Drop Tube Length (Y) \_\_\_\_\_

Distance from Lower Drop tube to tank bottom \_\_\_\_\_

#### Dimensions

A \_\_\_\_\_

B \_\_\_\_\_

#### Operational Inspection Procedure Performed

☐ Yes

*Initials*

*Date*

☐ No

\_\_\_\_\_

#### Final Shutoff Setpoint

\_\_\_\_\_ Gallons

\_\_\_\_\_ % Tank Fill

Intentionally Blank

Intentionally Blank



**From:** [Curran, Kimberley](#)  
**To:** [Curran, Kimberley](#)  
**Subject:** RE: EQ-838 Revision request  
**Date:** Wednesday, May 03, 2017 9:13:06 AM

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**From:** Adams, Sandy [mailto:sadams@franklinfueling.com]  
**Sent:** Tuesday, May 02, 2017 2:05 PM  
**To:** Curran, Kimberley <Kimberley.Curran@dep.state.fl.us>  
**Cc:** Burns, Bill <Bill.Burns@dep.state.fl.us>  
**Subject:** EQ-838 Revision request

Attached, please find our request for revision of EQ-838. Bearing material change in our overfill Prevention valve, Defender Series. Also Rivets were added to secure the body. All changes have been approved by ULC. That test report, install manual, drawings, and registration form are attached. Please let us know if you have any further questions.

Thank you,  
Sandy

Sandra M. Adams  
Franklin Fueling Systems  
Certification Specialist, Engineering  
3760 Marsh Road  
Madison, WI 53718  
PH 608.838.5668  
FAX 608.838.6433  
[adams@franklinfueling.com](mailto:adams@franklinfueling.com)



# Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: January 2017

Incorporated in Rule 62-761.850, F.A.C.

## Storage Tank Equipment Registration Form

*Fill out completely*

### General Information

Company Name: \_\_\_\_\_ Contact Name: \_\_\_\_\_  
Company Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip: \_\_\_\_\_  
E-mail: \_\_\_\_\_ Contact Number: \_\_\_\_\_  
Product Name: \_\_\_\_\_  
Model Number(s): \_\_\_\_\_ Product Type: \_\_\_\_\_  
Rule(s) citation within Chapter 62-761, or 62-762, F.A.C. that registration is being requested: \_\_\_\_\_

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

### Information Checklist

Yes No N/A

1. Third-party Certification by a Nationally Recognized Testing Laboratory?
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. Installation instructions included?
5. Technical information and drawings included?
6. Annual Operability Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702 F.A.C.)?
7. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?
8. Has the product been approved or registered in other countries or states? (If so provide list)
9. Any requirements for company-certified installers or trainers?
10. Was this product(s) previously approved or registered by the Department?  
If yes, please specify the Equipment Number: **EQ-**\_\_\_\_\_
11. 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@dep.state.fl.us](mailto:Tanknotify@dep.state.fl.us), 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.:

### Equipment Registration Certification:

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

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### For Department Use Only:

Date Application Received:

Application complete:

Yes:

No:

**EQ-**

Date of complete or incomplete letter sent:

Date of entry to the DEP Equipment Registration List:



# Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)  
Form Title: Storage Tank Equipment  
Registration Form  
Effective Date: January 2017  
Incorporated in Rule 62-761.850, F.A.C.

## Storage Tank Equipment Registration Form

Fill out completely

### General Information

Company Name: Franklin Fueling Systems Contact Name: Sandra Adams  
Company Address: 3760 Marsh Road City: Madison Zip: 53718  
E-mail: adams@franklinfueling.com Contact Number: 608 838 5668  
Product Name: Overfill Prevention Valve - Defender Series -EQ-838  
Model Number(s): 708590 series Product Type: Overfill Protection Valve  
Rule(s) citation within Chapter 62-761, or 62-762, F.A.C. that registration is being requested: 62-761

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

This is a simple revision to the Current EQ-838 registration. Added alternate Ceramic Bearing, riveted valve body. Changed approved by ULC, See attached test report and UL file MH21090 accepted drawings, as well as larger versions of what was accepted by ULC

### Information Checklist

|                                                                                                   | Yes                                 | No                       | N/A                                 |
|---------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Third-party Certification by a Nationally Recognized Testing Laboratory?                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 2. Documentation of third-party evaluation that the equipment meets DEP Rules?                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Installation instructions included?                                                            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 5. Technical information and drawings included?                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 6. Annual Operability Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702 F.A.C.)?   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?                         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8. Has the product been approved or registered in other countries or states? (If so provide list) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 9. Any requirements for company-certified installers or trainers?                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| 10. Was this product(s) previously approved or registered by the Department?                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| If yes, please specify the Equipment Number: <u>EQ- 838</u>                                       |                                     |                          |                                     |
| 11. Any changes or modifications to the equipment since the last submittal to DEP?                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to [Tanknotify@dep.state.fl.us](mailto:Tanknotify@dep.state.fl.us), 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.:

See E-838- Only a bearing material changed form, fit, function the same as current EQ-838

### Equipment Registration Certification:

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

Sandra M. Adams Certification Specialist, Engineering  
Printed Name and Title

Signature

05/02/17  
Date

### For Department Use Only:

Date Application Received: \_\_\_\_\_ Application complete: Yes: ☐ No: ☐

EQ-  Date of complete or incomplete letter sent: \_\_\_\_\_ Date of entry to the DEP Equipment Registration List: \_\_\_\_\_

TEST RECORD NO. 12

An alternate ceramic bearing was submitted for Series 708590 for this investigation.

TEST METHOD REFERENCE:

The alternate bearings have the same nominal dimensions as current bearings. The only difference is the material being ceramic instead of the stainless steel bearings used on the valves previously evaluated. Since ceramics have tighter tolerances, higher load rating, longer bearing life, and better chemical resistance to fuels compared to stainless steel, therefore, no testing is necessary for this investigation.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with applicable requirements, Overfill Protection Devices For Flammable And Combustible Liquid Storage Tanks, CAN/ULC-S661-10 (1<sup>st</sup> Ed, December 2010), and therefore, such products are judged eligible to bear ULC's Mark as described on the Conclusion Page of this Report.

Test Record by:  
ADRIAN LIU  
Project Engineer

Reviewed by:  
TIM CREWS  
Staff Engineer

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20160115-MH21090  
**Report Reference** MH21090-19990315  
**Issue Date** 2016-JANUARY-15

**Issued to:** FRANKLIN FUELING SYSTEMS INC  
3760 MARSH RD  
MADISON WI 53718

**This is to certify that  
representative samples of**

**TANK ACCESSORIES FOR FLAMMABLE AND  
COMBUSTIBLE LIQUIDS CERTIFIED FOR CANADA**

Overfill protection device, gravity fill, Class 1, Series 708, for use with underground storage tank installations handling petroleum products. Maximum flow 410 L/min, maximum pressure 15 kPa (with the exception of Model Series 708590 rated maximum pressure 50kPa, maximum flow 1400 L/min).

Overfill Protection Device, pressure fill, Class 1, Series 709, for use with underground storage tank installations handling petroleum products. Maximum flow 440 L/min., maximum pressure 500 kPa

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** Overfill Protection Devices For Flammable And Combustible Liquid Storage Tanks, CAN/ULC-S661-10

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



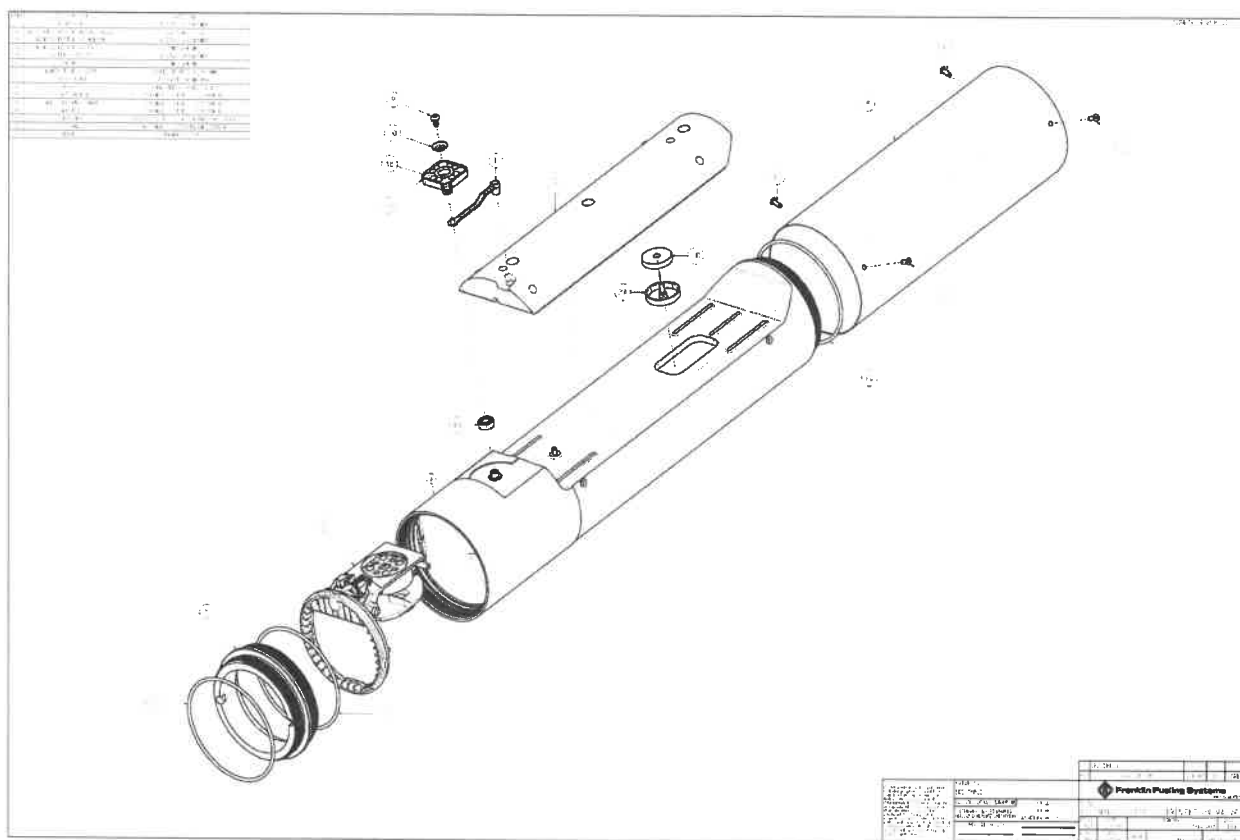
Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services

UL LLC

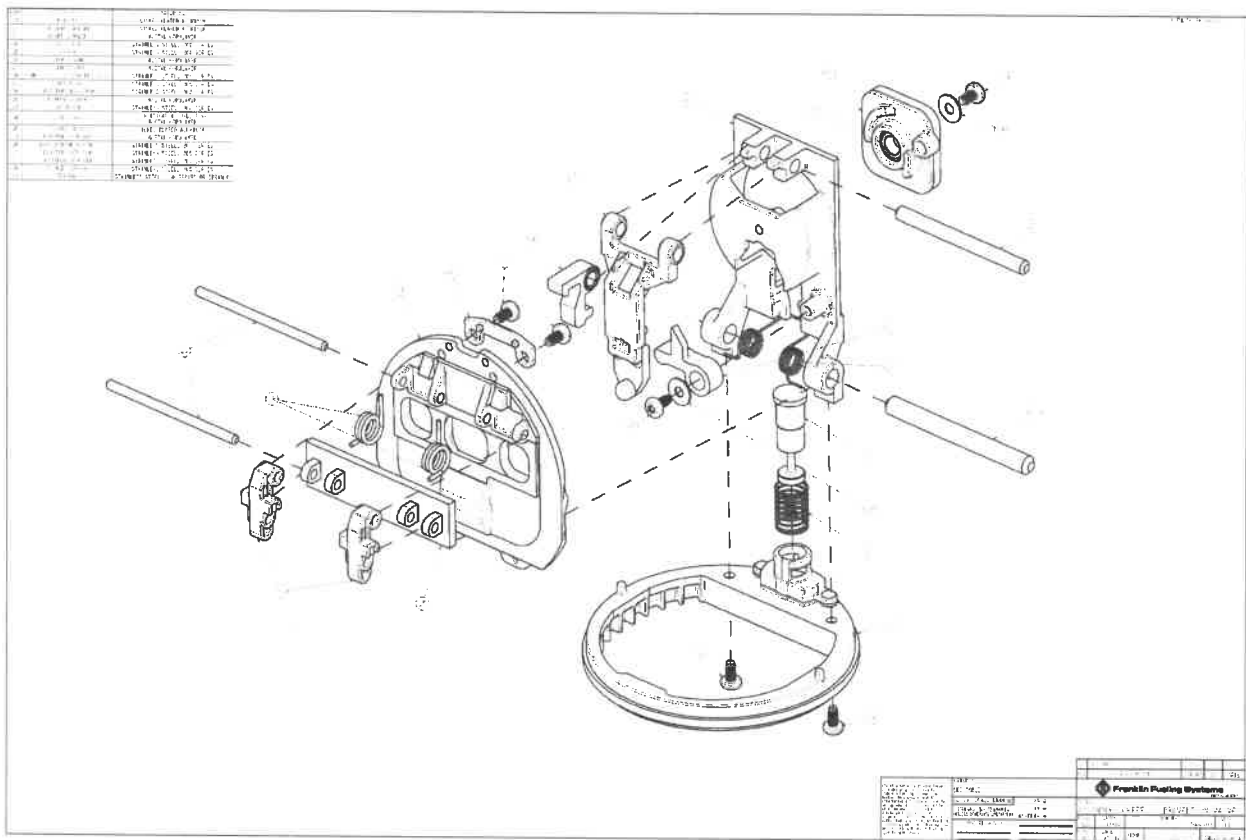
Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at [www.ul.com/contactus](http://www.ul.com/contactus)





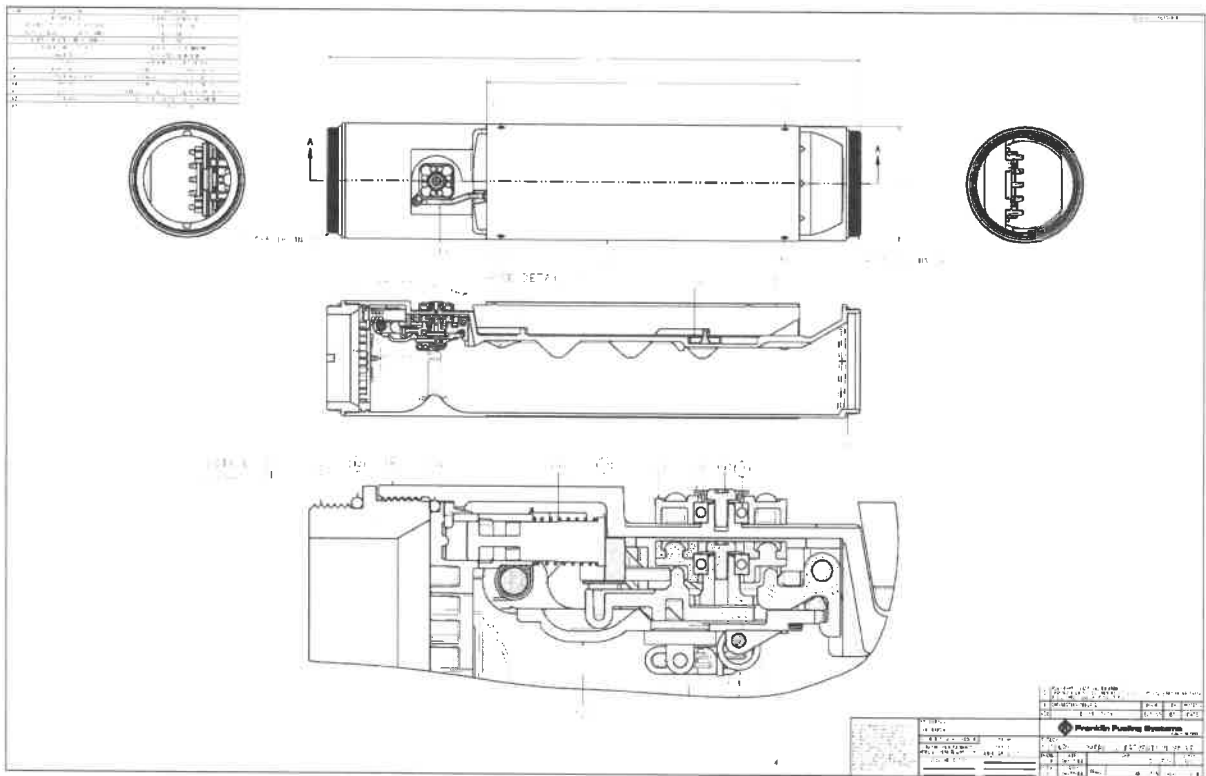


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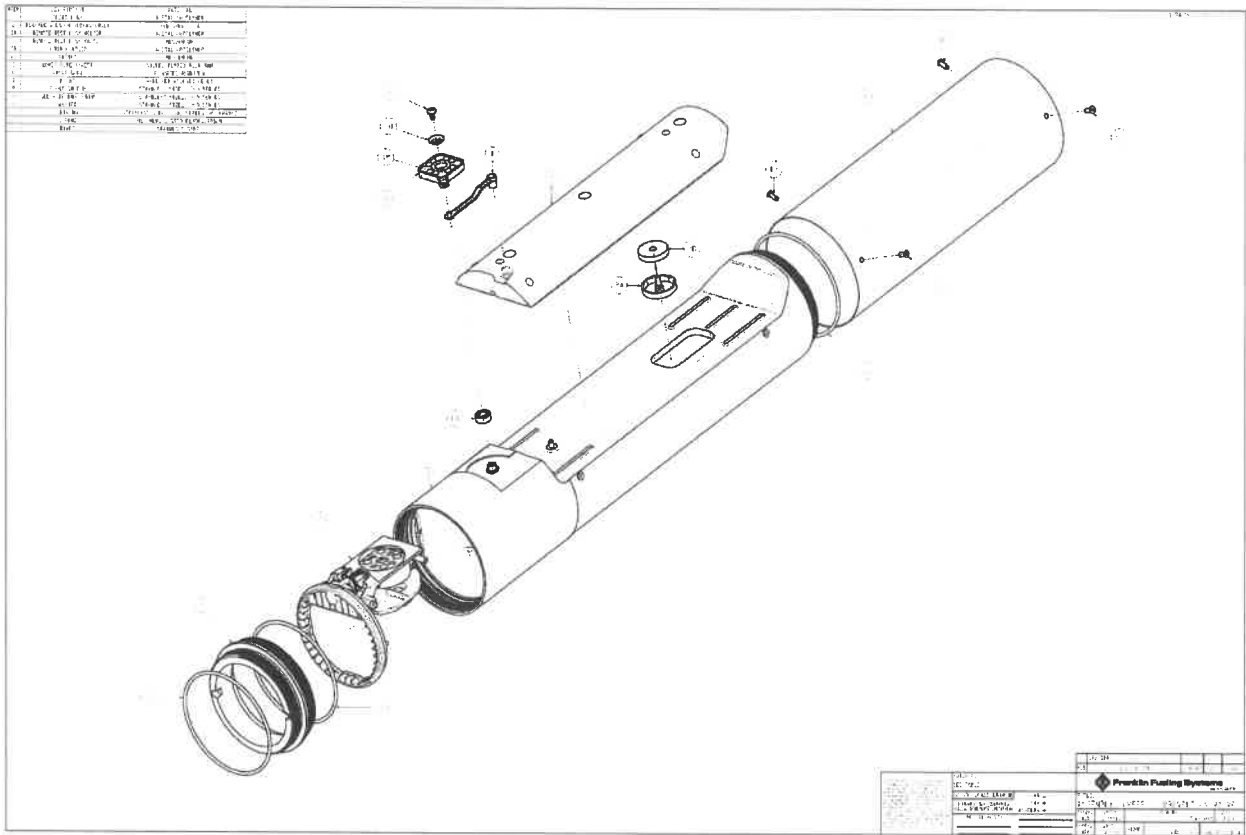


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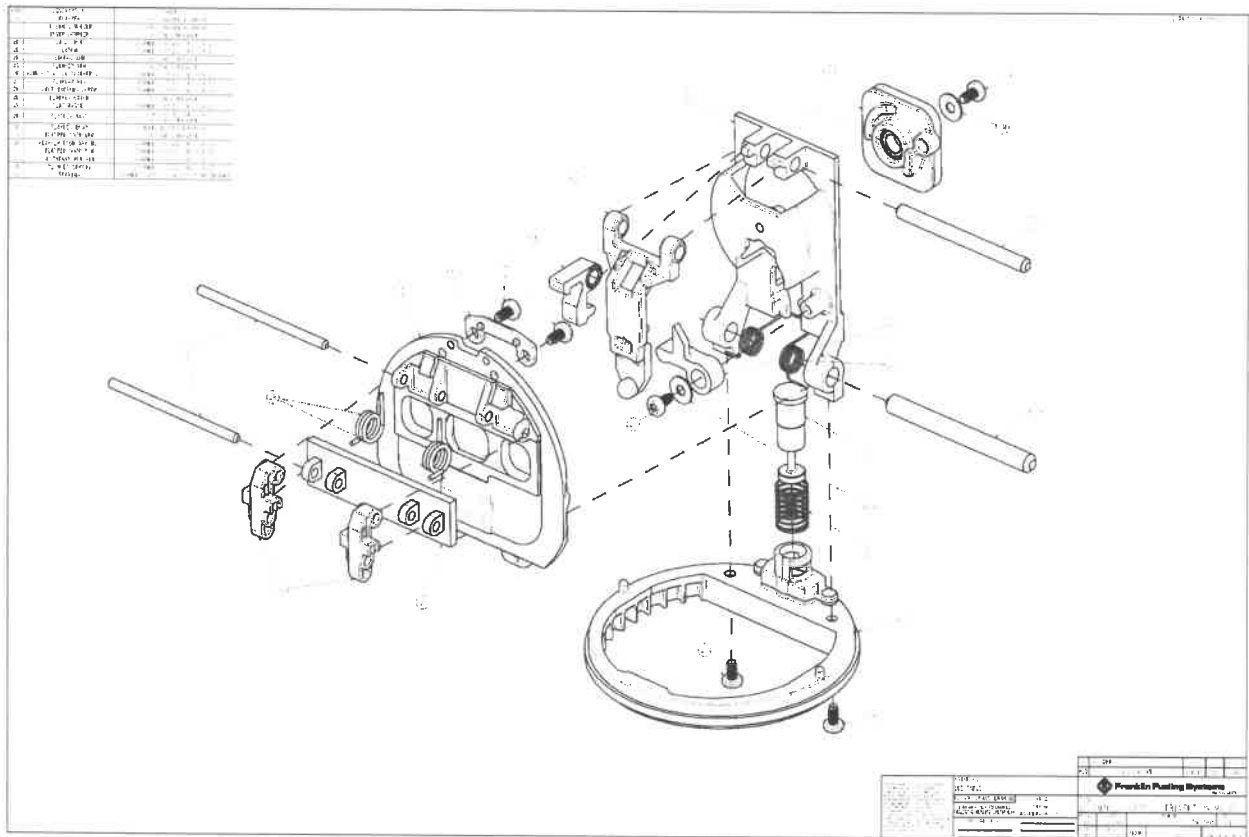




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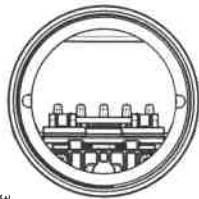
N161454438



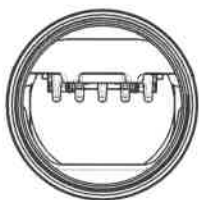
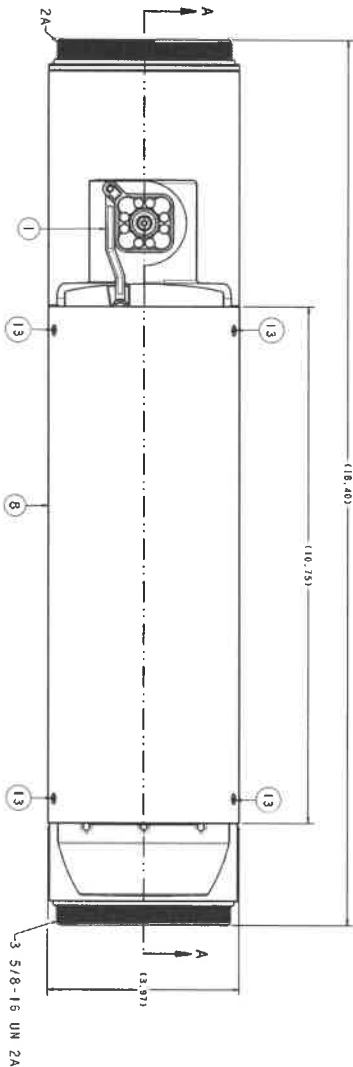
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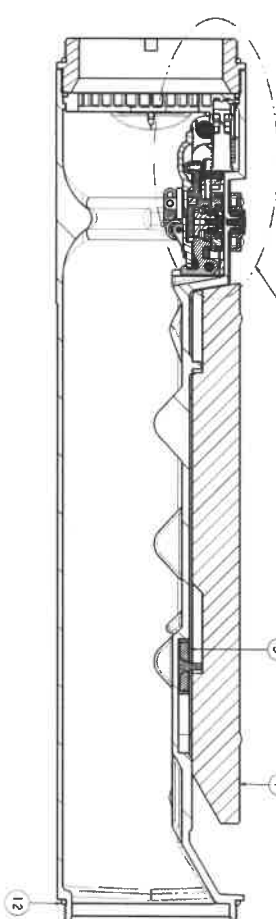
| ITEM | DESCRIPTION                 | DETAIL        |
|------|-----------------------------|---------------|
| 1    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 2    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 3    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 4    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 5    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 6    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 7    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 8    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 9    | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 10   | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 11   | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |
| 12   | FLANGE & LATCH SUB-ASSEMBLY | SEE SHEET 3/4 |



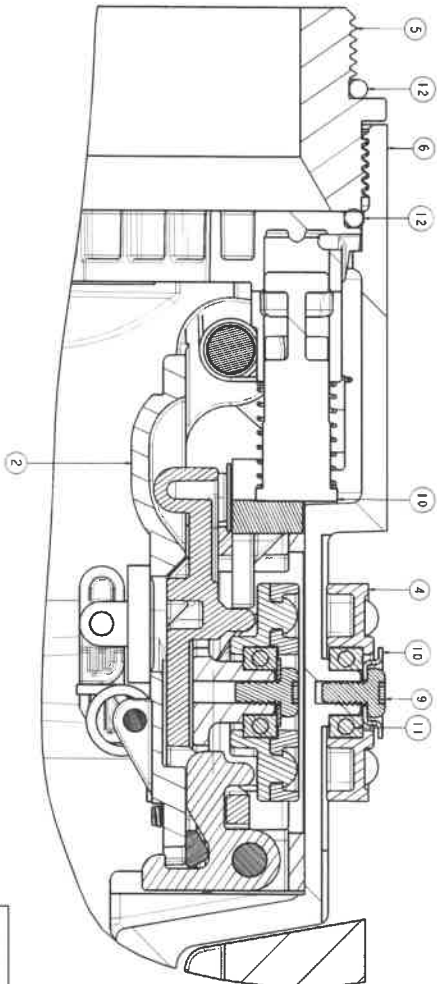
3 5/8-16 UN 2A



SEE DETAIL A



DETAIL A  
SCALE 3/1

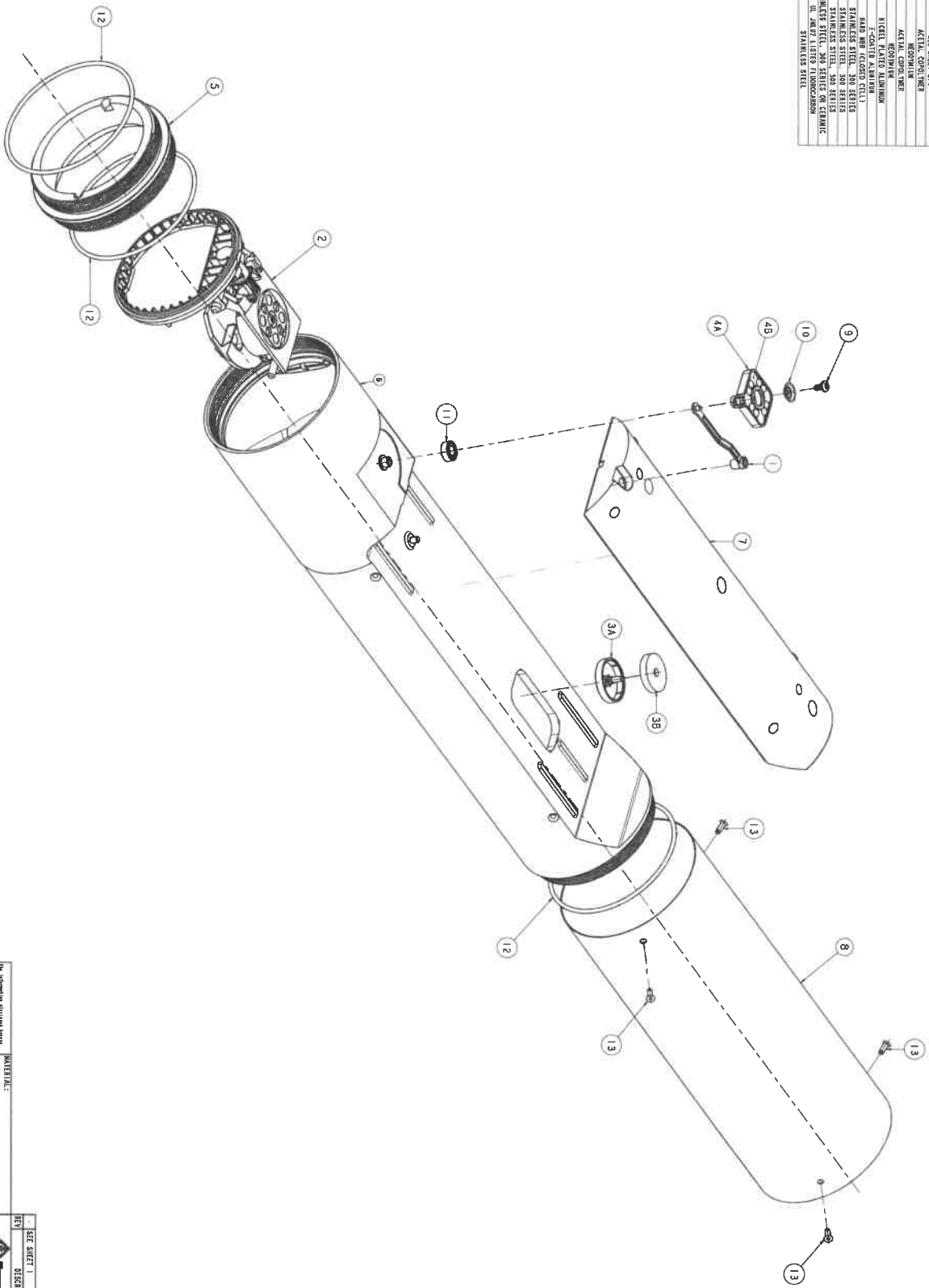


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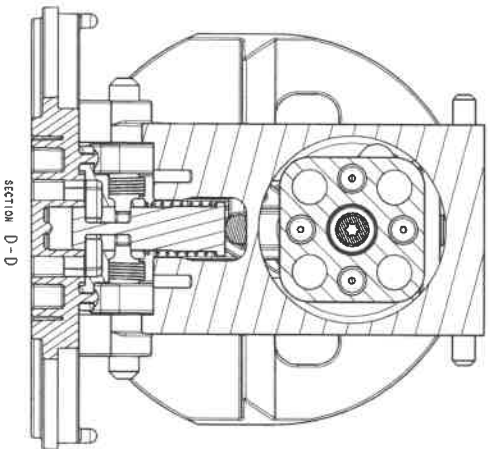
| ITEM | DESCRIPTION                 | ITEM NO. | ITEM NAME                   |
|------|-----------------------------|----------|-----------------------------|
| 1    | FLANGE & LATCH SUB-ASSEMBLY | 10001    | FLANGE & LATCH SUB-ASSEMBLY |
| 2    | FLANGE & LATCH SUB-ASSEMBLY | 10002    | FLANGE & LATCH SUB-ASSEMBLY |
| 3    | FLANGE & LATCH SUB-ASSEMBLY | 10003    | FLANGE & LATCH SUB-ASSEMBLY |
| 4    | FLANGE & LATCH SUB-ASSEMBLY | 10004    | FLANGE & LATCH SUB-ASSEMBLY |
| 5    | FLANGE & LATCH SUB-ASSEMBLY | 10005    | FLANGE & LATCH SUB-ASSEMBLY |
| 6    | FLANGE & LATCH SUB-ASSEMBLY | 10006    | FLANGE & LATCH SUB-ASSEMBLY |
| 7    | FLANGE & LATCH SUB-ASSEMBLY | 10007    | FLANGE & LATCH SUB-ASSEMBLY |
| 8    | FLANGE & LATCH SUB-ASSEMBLY | 10008    | FLANGE & LATCH SUB-ASSEMBLY |
| 9    | FLANGE & LATCH SUB-ASSEMBLY | 10009    | FLANGE & LATCH SUB-ASSEMBLY |
| 10   | FLANGE & LATCH SUB-ASSEMBLY | 10010    | FLANGE & LATCH SUB-ASSEMBLY |
| 11   | FLANGE & LATCH SUB-ASSEMBLY | 10011    | FLANGE & LATCH SUB-ASSEMBLY |
| 12   | FLANGE & LATCH SUB-ASSEMBLY | 10012    | FLANGE & LATCH SUB-ASSEMBLY |

| ITEM | DESCRIPTION              | MATERIAL |
|------|--------------------------|----------|
| 1    | FLAPPER & LATCH ASSEMBLY | ALUMINUM |
| 2    | FLAPPER & LATCH ASSEMBLY | ALUMINUM |
| 3A   | FLAPPER TEST O-RING      | ALUMINUM |
| 3B   | FLAPPER TEST O-RING      | ALUMINUM |
| 4    | FLAPPER TEST O-RING      | ALUMINUM |
| 5    | FLAPPER TEST O-RING      | ALUMINUM |
| 6    | FLAPPER TEST O-RING      | ALUMINUM |
| 7    | FLAPPER TEST O-RING      | ALUMINUM |
| 8    | FLAPPER TEST O-RING      | ALUMINUM |
| 9    | FLAPPER TEST O-RING      | ALUMINUM |
| 10   | FLAPPER TEST O-RING      | ALUMINUM |
| 11   | FLAPPER TEST O-RING      | ALUMINUM |
| 12   | FLAPPER TEST O-RING      | ALUMINUM |
| 13   | FLAPPER TEST O-RING      | ALUMINUM |

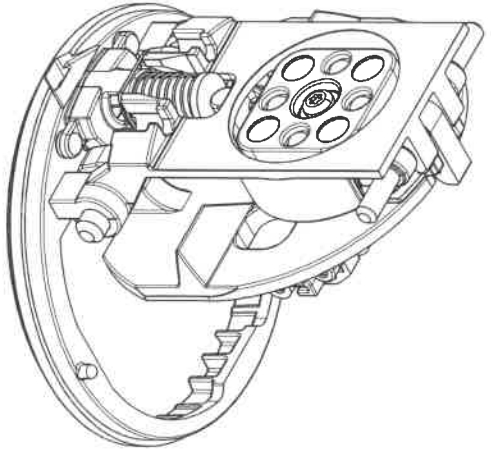


| REV | DESCRIPTION              | ECN NO | BY   | DATE |
|-----|--------------------------|--------|------|------|
| 1   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 2   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 3   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 4   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 5   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 6   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 7   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 8   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 9   | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 10  | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 11  | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 12  | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |
| 13  | FLAPPER & LATCH ASSEMBLY | 1000   | 1000 | 1000 |

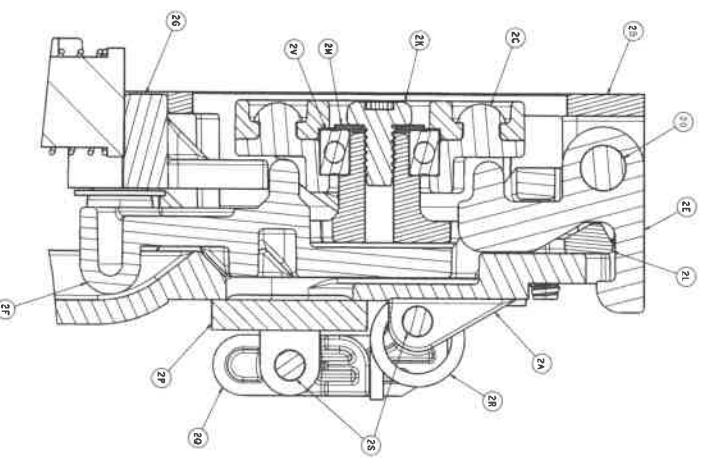
| ITEM | DESCRIPTION   | MATERIAL         |
|------|---------------|------------------|
| 1    | FLAPPER DOOR  | ACTUAL COPOLYMER |
| 2    | INNER COUPLER | ACTUAL COPOLYMER |
| 3    | LOCKER ARM    | ACTUAL COPOLYMER |
| 4    | FLAPPER DOOR  | ACTUAL COPOLYMER |
| 5    | FLAPPER DOOR  | ACTUAL COPOLYMER |
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| 99   | FLAPPER DOOR  | ACTUAL COPOLYMER |
| 100  | FLAPPER DOOR  | ACTUAL COPOLYMER |



SECTION D-D

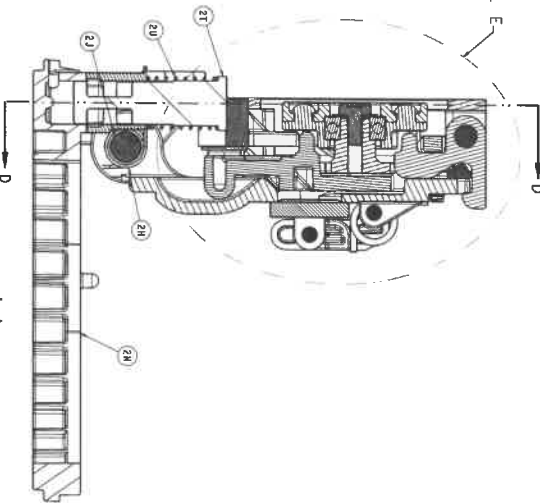


SECTION A-A



DETAIL E  
SCALE 4/1

SECTION A-A



D

A

|     |                                       |         |     |     |     |
|-----|---------------------------------------|---------|-----|-----|-----|
| REV | DESCRIPTION                           | DATE    | BY  | CHK | APP |
| 1   | ASSEMBLY V. OVERHILL PREVENTION VALVE | 10/1/10 | ... | ... | ... |
| 2   | ...                                   | ...     | ... | ... | ... |
| 3   | ...                                   | ...     | ... | ... | ... |
| 4   | ...                                   | ...     | ... | ... | ... |
| 5   | ...                                   | ...     | ... | ... | ... |
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| 97  | ...                                   | ...     | ... | ... | ... |
| 98  | ...                                   | ...     | ... | ... | ... |
| 99  | ...                                   | ...     | ... | ... | ... |
| 100 | ...                                   | ...     | ... | ... | ... |





## 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**  
[adams@franklinfueling.com](mailto:adams@franklinfueling.com)

Ms. Sandra M. Adams  
Franklin Fueling Systems  
3760 Marsh Road  
Madison, WI 53718

Subject: Approval of the Franklin Fueling Systems  
Defender Series™ Overfill Prevention Valve  
File No. EQ-838

Dear Ms. Adams:

The Office of District and Business Support has concluded its review of the Equipment Approval request dated December 2, 2014, that was submitted for the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve, pursuant to Rules 62-761.500(5), and 62-761.850(2), Florida Administrative Code (F.A.C.). The Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve provides automatic shutoff capability to prevent underground storage tanks from overfilling during product delivery.

Based on the information provided by Franklin Fueling Systems, the Defender Series™ Overfill Prevention Valve provide environmental protection substantially equivalent to that provided by compliance with the requirements established in Rule 62-761.500(5), F.A.C. The Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve may be used as an overfill protection device associated with underground storage tank systems.

Pursuant to Rule 62-761.850(2), F.A.C., the request for the use of the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve is approved in the State of Florida as an overfill protection device associated with underground storage tank systems. The installation, operation and maintenance procedures for the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve shall be made 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 on the top of the first page of this Order.
- 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.

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Questions

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Sincerely,

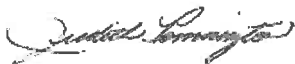


John A. Coates, PE, Assistant Division Director  
Division of Waste Management

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.

1/14/2015

  
X

Judith Pennington

Signed by: Penningto\_JA

Clerk  
(or Deputy Clerk)

Date

# PRINTING INSTRUCTIONS FOR P/N F-9028

**THIS PAGE NOT INCLUDED IN PRINT JOB**

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| <b>Paper</b>                | 60 lb text weight - white, 11" x 17"               |
| <b>Binding</b>              | center staple                                      |
| <b>Finishing</b>            | double sided, center fold to create 8½" x 11 pages |
| <b>Special Instructions</b> |                                                    |

| Rev. | Date        | Description                                                                                                                            | By  | ECN#   |
|------|-------------|----------------------------------------------------------------------------------------------------------------------------------------|-----|--------|
| 1    | 2/10/10     | Created manual with content approved by Justin Kuehn and Allan Busch                                                                   | JWG | 402807 |
| 2    | 4/29/10     | Added info for concrete slope (p8) and added fig. 15, and modified fig 14                                                              | JWG | 402807 |
| 3    | 7/08/10     | Added Integrity testing and Hydrostatic testing procedure to p. 9, removed single-wall info to manual F-9032                           | JWG | 403290 |
| 4    | 12/01/10    | Updated page 6 figure 13 to show self-tapping screw                                                                                    | JWG | 403407 |
| 5    | 18Mar2015   | Added step 5 to page 7 to specify that the sensor cable needs to be wrapped counterclockwise before screwing spill container to riser. | JWG | 702277 |
| 6    | 05-Oct-2016 | Clarified drop tube/riser clamp connection, and enhanced instructions for installing spill bucket onto riser. (Done by Jim Gammons.)   | EAS | 708249 |



# 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**  
[adams@franklinfueling.com](mailto:adams@franklinfueling.com)

Ms. Sandra M. Adams  
Franklin Fueling Systems  
3760 Marsh Road  
Madison, WI 53718

Subject: Approval of the Franklin Fueling Systems  
Defender Series™ Overfill Prevention Valve  
File No. EQ-838

Dear Ms. Adams:

The Office of District and Business Support has concluded its review of the Equipment Approval request dated December 2, 2014, that was submitted for the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve, pursuant to Rules 62-761.500(5), and 62-761.850(2), Florida Administrative Code (F.A.C.). The Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve provides automatic shutoff capability to prevent underground storage tanks from overfilling during product delivery.

Based on the information provided by Franklin Fueling Systems, the Defender Series™ Overfill Prevention Valve provide environmental protection substantially equivalent to that provided by compliance with the requirements established in Rule 62-761.500(5), F.A.C. The Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve may be used as an overfill protection device associated with underground storage tank systems.

Pursuant to Rule 62-761.850(2), F.A.C., the request for the use of the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve is approved in the State of Florida as an overfill protection device associated with underground storage tank systems. The installation, operation and maintenance procedures for the Franklin Fueling Systems' Defender Series™ Overfill Prevention Valve shall be made 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 on the top of the first page of this Order.
- 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.

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Ms. Sandra M. Adams

EQ-838

Page 4

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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.

1/14/2015

X



Judith Pennington

Signed by: Penningto\_JA

Clerk  
(or Deputy Clerk)

Date

# **Defender Series™**

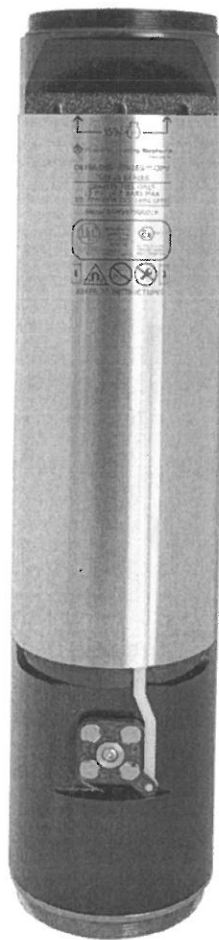
## **Overfill Prevention Valve**

### **Automatic Shutoff for USTs**

---

## **Installation, Operation and Maintenance**

*708-590 Series*



**For use in 4" gravity-fill applications only**  
**25-370 Gallons per Minute flow**  
**Compatible with all motor fuel blends**

## Important Safety Messages

Franklin Fueling Systems (FFS) equipment is designed to be installed in association with volatile hydrocarbon liquids such as gasoline and diesel fuel. Installing or working on this equipment means working in an environment in which these highly flammable liquids may be present. Working in such a hazardous environment presents a risk of severe injury or death if these instructions and standard industry practices are not followed. Read and follow all instructions thoroughly before installing or working on this, or any other related, equipment.

As you read this guide, please be aware of the following symbols and their meanings.

**Warning**  This symbol identifies a warning. A warning sign will appear in the text of this document when a potentially hazardous situation may arise if the instructions that follow are not adhered to closely. A potentially hazardous situation may involve the possibility of severe bodily harm or even death.

**Caution**  This is a caution symbol. A caution sign will appear in the text of this document when a potentially hazardous environmental situation may arise if the instructions that follow are not adhered to closely. A potentially hazardous environmental situation may involve the leakage of fuel from equipment that could severely harm the environment.

---

**Warning**  Follow all applicable codes governing the installation and servicing of this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. A potentially lethal electrical shock hazard and the possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on during installation or servicing. Please refer to the *Installation and Owner's Manual* for this equipment and the appropriate documentation for any other related equipment for complete installation and safety information.

**Warning**  Before entering a containment sump, check for the presence of hydrocarbon vapors. If these vapors are inhaled they could cause dizziness or unconsciousness, and, if ignited, hydrocarbon vapors could explode causing serious injury or death. Electronic and electrical petroleum monitoring equipment is often housed in containment sumps designed to trap hazardous liquid spills and prevent contamination of the environment, and, as a consequence, containment sumps can trap dangerous amounts of hydrocarbon vapors. If these vapor levels reach unsafe amounts, ventilate the sump with fresh air. While working in the sump, periodically check the atmosphere in the sump, if vapors reach unsafe levels, exit the sump and ventilate it before continuing work. Always have a second person standing by for assistance when working in, or around, a containment sump.

**Warning**  Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, and/or environmental contamination.

**Warning**  Always secure the work area from moving vehicles. The equipment in this manual is usually mounted underground, so reduced visibility puts service personnel working on this equipment in danger from moving vehicles entering the work area. To help eliminate these unsafe conditions, secure the area by using a service truck to block access to the work environment, or by using any other reasonable means available to ensure the safety of service personnel.

**Caution**  Use only original FFS parts. Substituting FFS parts may cause failure of the device, which, in turn, may create a hazardous condition and/or damage the environment.

**Caution**  The Overfill Protection Valve uses a strong magnet. Do not allow the Valve near a person with a pacemaker or similar medical aid. The strong magnetic field of the magnet can affect the operation of such medical devices.

## Contents

|                                            |    |
|--------------------------------------------|----|
| Important Safety Messages .....            | 2  |
| Introduction.....                          | 3  |
| Determining Drop Tube Length.....          | 4  |
| Marking and Cutting the Tubes .....        | 5  |
| Completing the Installation .....          | 7  |
| Maintenance.....                           | 8  |
| Overfill Prevention Valve Inspection ..... | 8  |
| Inspecting/Verifying .....                 | 9  |
| Dimension Drawing .....                    | 10 |
| Specifications .....                       | 10 |
| Installation Record Sheet .....            | 11 |

## Introduction

FFS's model 708-590 Series Overfill Prevention Valve should only be installed in a spill container through a 4" (102 mm) schedule 40 tank riser. The valve is designed with a primary shutoff that will activate between 85 and 92% of tank volume, depending upon tank size. After the primary shut-off is actuated the flow through the valve is limited to less than 8 gpm. A secondary, positive shutoff will occur at 95% tank volume if filling continues. After primary shutoff occurs, the delivery hose may still be drained by using extreme caution, and taking these steps:

- Close the truck bottom loading valve. Wait 5 minutes
- Crack open the coupler between the delivery hose and the bottom loading valve, to allow the hose to drain slowly.

**Note:** Shutoff points are influenced by the specific gravity of stored liquids. These instructions are based on average performance using all products.

***This valve was designed to be used as an emergency overfill prevention device only!***

**Note:** Determine if the underground storage tanks is equipped with a ball float vent valve. If the tank is equipped with a ball float vent-valve, the nipple portion must not extend more than 3" (76.2 mm) into the tank for this device to function properly.

**Caution**  To prevent product spillage from an underground storage tank (UST), well-maintained delivery equipment, a proper connection, and a tight fill adaptor are essential. Delivery personnel should inspect delivery elbows and hoses for damage and missing parts.

### Tools Needed for Installation and Assembly

Tape Measure  
Half Round File  
Permanent Marker  
\* FFS Pipe Cutter  
\* Groove Roller Tool

### Packing List

(1) Valve Assembly  
(1) Installation Manual  
(1) Gasket – Upper Drop Tube (4")  
(1) Hose Clamp  
(1) Warning Plate

\* Refer to the Product Catalog for ordering information.

## Determining Drop Tube Length

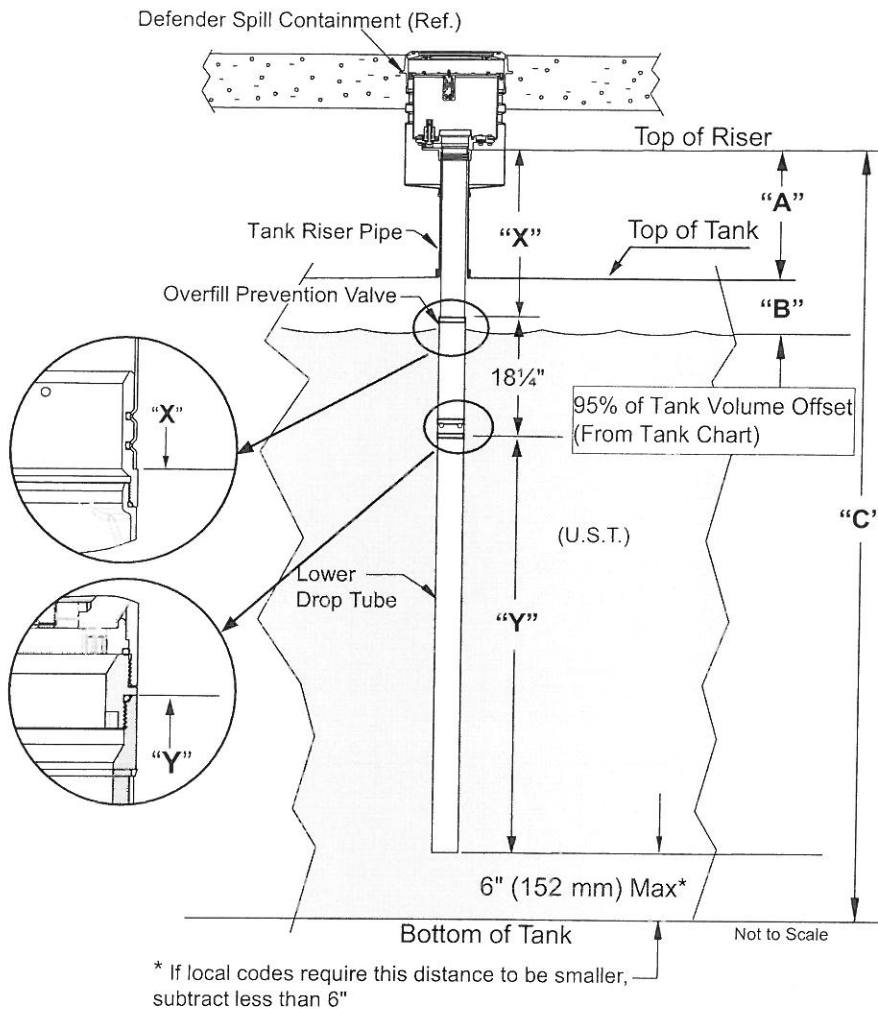


Figure 1: Installation Overview and Drop Tube Calculation

To find Upper Drop Tube length "X"

"A"  " Riser Length

+ (add)

"B"  95% Offset

- (subtract)

2 1/2" Position and mounting adjustment)

= (equals)

"X"  Upper Drop Tube Length

To find Lower Drop Tube length "Y"

"C"  Riser to tank bottom

- (subtract)

"X"  Upper Drop Tube Length

- (subtract)

18 1/4" OPV Length

- (subtract)

6" \* Tank bottom clearance

= (equals)

"Y"  Lower Drop Tube Length

To find Tank Volume Offset

Tank Capacity

X  .05

=  5% Volume (Correlate this number with the tank chart)

5% Height  = B

### Explanation of Figure 1 Dimensions

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b> | <ul style="list-style-type: none"> <li>Distance from the seat surface of the upper drop tube to the inside of the top of the tank. The seat surface will vary depending on the type of installation (see Figure 2).</li> <li>If this is a manway application, be sure to include the height of the manway to the inside of the top of the tank</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>B</b> | <ul style="list-style-type: none"> <li>95% tank volume offset – obtained from the tank chart provided by the tank manufacturer. This is typically equal to the 5% level measurement. To find the 5% tank level on the tank chart, multiply the full tank capacity by .05. Then find on the tank chart the level measurement that matches the calculated volume the closest. If this is a manway application, be sure to include the height of the manway to the inside of the top of the tank.</li> <li>If tank tilt is an issue, the installing contractor may use best judgment to adjust "B" dimension accordingly, so "... none of the fittings located on top of the tank are exposed to product due to overfilling," per EPA 40CFR280</li> </ul> |
| <b>C</b> | <ul style="list-style-type: none"> <li>Distance from the seat surface of the upper drop tube to the bottom of the tank</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Underneath Fill Adapter

Underneath Bucket

Defender Series

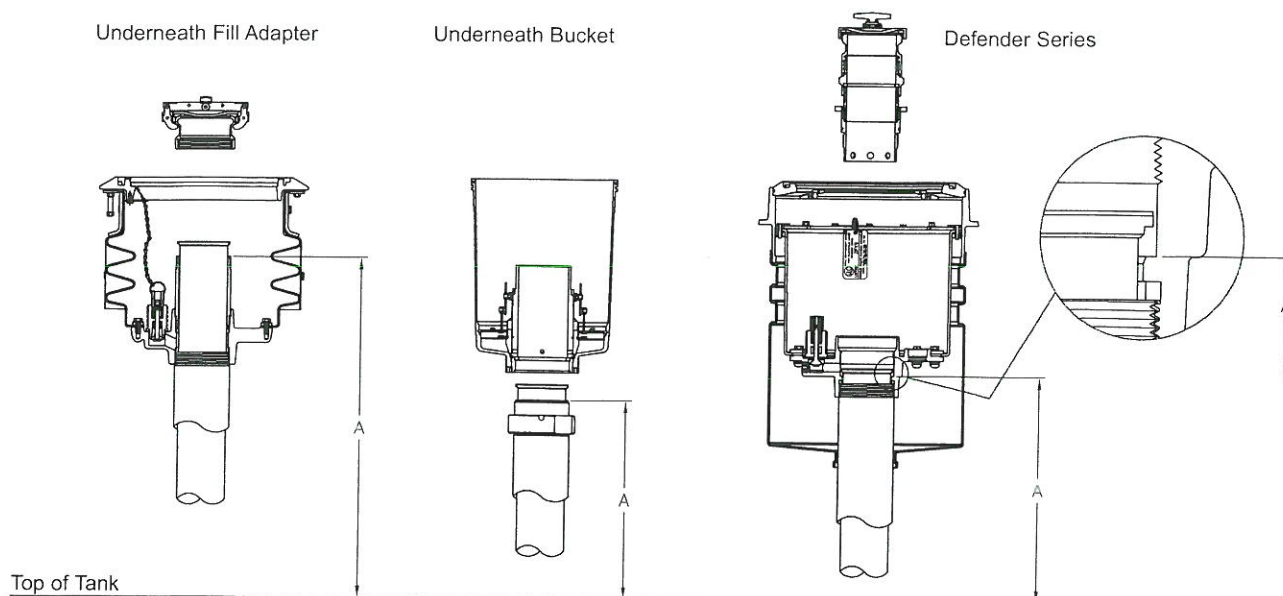


Figure 2: Installation Dimensions per Spill Container

If the tank chart is not available, the following tables may be used FOR REFERENCE ONLY. The actual "B" dimension will vary based on the actual tank diameter and type.

Round Tank with Dome Ends

| Tank Diameter    | Appx. Dim. "B" for 95% Shutoff |
|------------------|--------------------------------|
| 4 feet (122 cm)  | 5" (127 mm)                    |
| 5 feet (152 cm)  | 6¼" (159 mm)                   |
| 6 feet (183 cm)  | 7½" (191 mm)                   |
| 7 feet (213 cm)  | 8¾" (222 mm)                   |
| 8 feet (244 cm)  | 10" (254 mm)                   |
| 9 feet (274 cm)  | 11¼" (286 mm)                  |
| 10 feet (305 cm) | 12½" (318 mm)                  |
| 12 feet (366 cm) | 15¼" (387 mm)                  |

Round Tank with Square Ends

| Tank Diameter    | Appx. Dim. "B" for 95% Shutoff |
|------------------|--------------------------------|
| 4 feet (122 cm)  | 5" (127 mm)                    |
| 5 feet (152 cm)  | 6" (152 mm)                    |
| 6 feet (183 cm)  | 7½" (191 mm)                   |
| 7 feet (213 cm)  | 8" (203 mm)                    |
| 8 feet (244 cm)  | 9 ½" (241 mm)                  |
| 9 feet (274 cm)  | 10½" (267 mm)                  |
| 10 feet (305 cm) | 13" (330 mm)                   |
| 12 feet (366 cm) | 14" (356 mm)                   |

Square Tank

| Tank Diameter    | Appx. Dim. "B" for 95% Shutoff |
|------------------|--------------------------------|
| 4 feet (122 cm)  | 2½" (64 mm)                    |
| 5 feet (152 cm)  | 3" (76 mm)                     |
| 6 feet (183 cm)  | 3½" (89 mm)                    |
| 7 feet (213 cm)  | 4¼" (108 mm)                   |
| 8 feet (244 cm)  | 5" (127 mm)                    |
| 9 feet (274 cm)  | 5½" (140 mm)                   |
| 10 feet (305 cm) | 6" (152 mm)                    |
| 12 feet (366 cm) | 7¼" (184 mm)                   |

## MARKING & CUTTING THE TUBES

1. Mark the upper drop tube with the length "X" calculated from Figure 1, measuring per Figure 3:

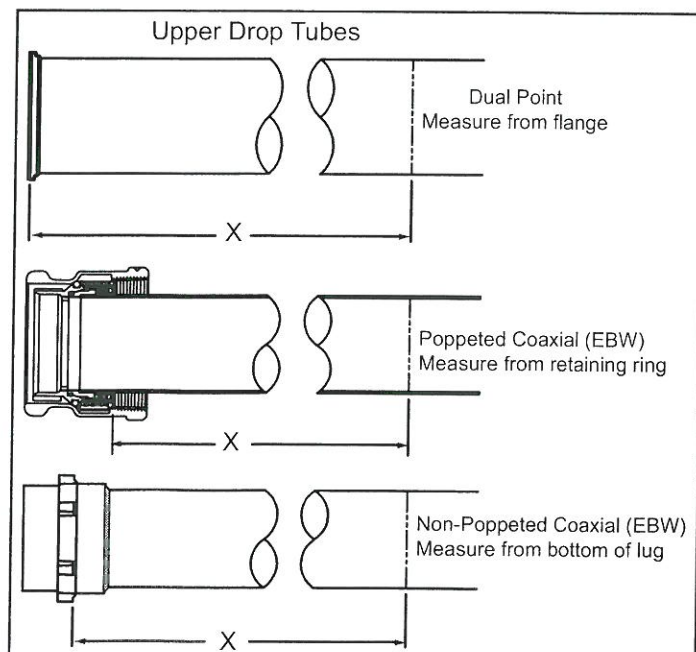


Figure 3: Dimension X for Upper Drop Tube

2. Mark the lower drop tube with the length "Y" calculated from Figure 1.

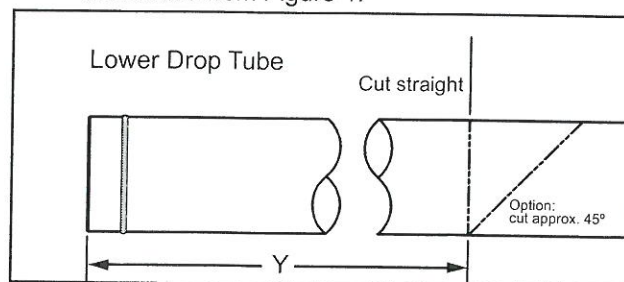


Figure 4: Lower Drop Tube

3. Cut the upper drop tube where marked, using the Franklin Fueling Systems pipe cutter.
  - a. If using the Franklin Fueling Systems Pipe Cutter, tighten the handle in very small increments ( $<1/10$  turn per every 2 rotations of the tool).

To get the cut started and keep the cutter from "walking", tighten the blade against the tube just enough to make contact. Then rotate one full turn in one direction.

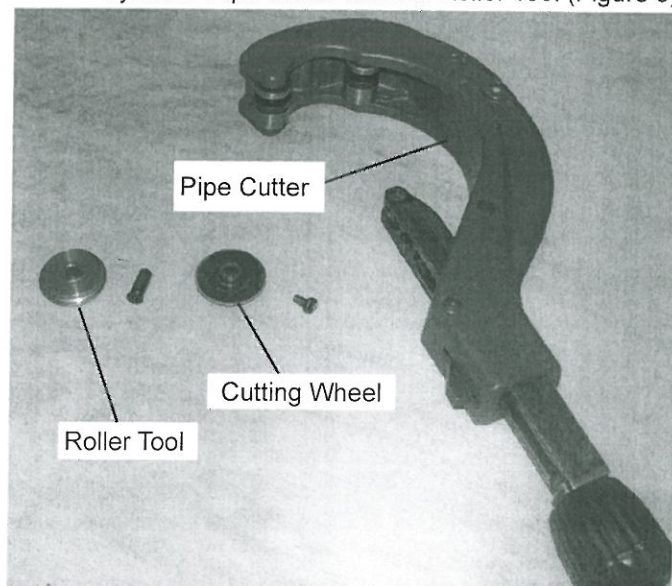
Next, rotate one full turn in the opposite direction. Tighten the cutter approximately  $1/10$ th of a turn and repeat until a good scribe line is created.

Overtightening the cutter wheel will result in crimping of the aluminum tube, which will cause the end to be too small for the adapter to fit inside.

- b. If using a metal cutting saw blade, make sure to cut as squarely as possible. Using the band clamp supplied with the warning tag as a guide will aid in cutting squarely.
4. Using the half-round file, deburr the inside of the tube. Check to see if the upper tube adapter fits inside the upper drop tube – if not, more deburring may be needed.
5. Cut the lower drop tube as marked, using the FFS pipe cutter or a saw with a metal cutting blade.
  - a. If cutting the lower drop tube at a 45 deg angle, make sure the lowest point of the drop tube does not project within the minimum clearance specified by the tank manufacturer (or per local requirements).

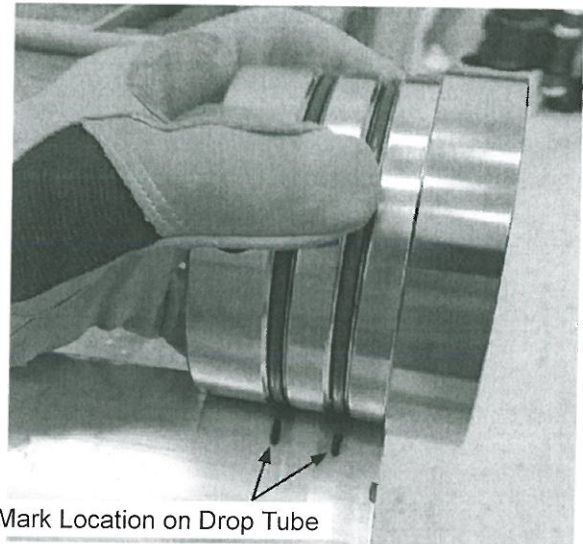
#### Installing the Upper Tube Adapter

1. Replace the cutting wheel on the Franklin Fueling Systems Pipe Cutter with the Roller Tool (Figure 5)



**Figure 5: Pipe Cutter and Roller Tool**

2. From the cut end of the upper drop tube, mark the grooves on the tube (Figure 6)



**Figure 6: Mark the Drop Tube**

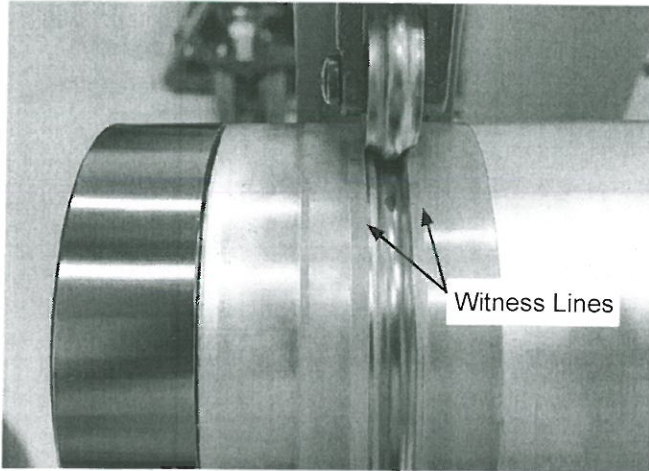
3. Install the drop tube gasket onto the upper drop tube (Dual Point Installation, Figure 7).



**Figure 7: Drop Tube Gasket Installed**

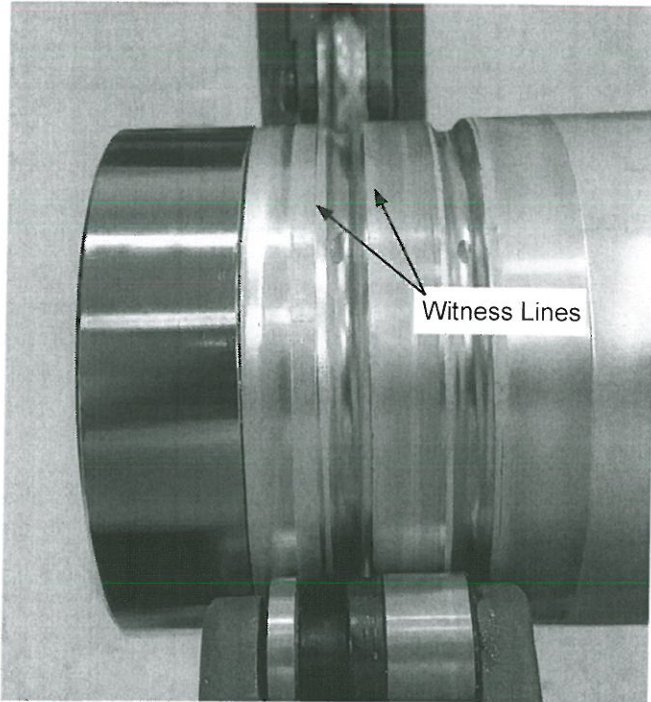
4. Check to make sure the O-rings are installed on the upper tube adapter.
5. Insert the upper tube adapter into the cut end of the upper drop tube.
6. Position the Roller Tool over the mark and lightly tighten.
7. To get the cut started and keep the roller from "walking", tighten the roller against the tube just enough to make contact. Then rotate one full turn in one direction and then rotate one full turn in the opposite direction. Tighten the roller approximately  $1/10$ th of a turn and repeat until the groove is complete.

The tube is indented enough when the shoulder of the roller tool contacts the tube and creates a witness line/mark



**Figure 8: First Indent**

8. Repeat steps 6 & 7 for the second mark



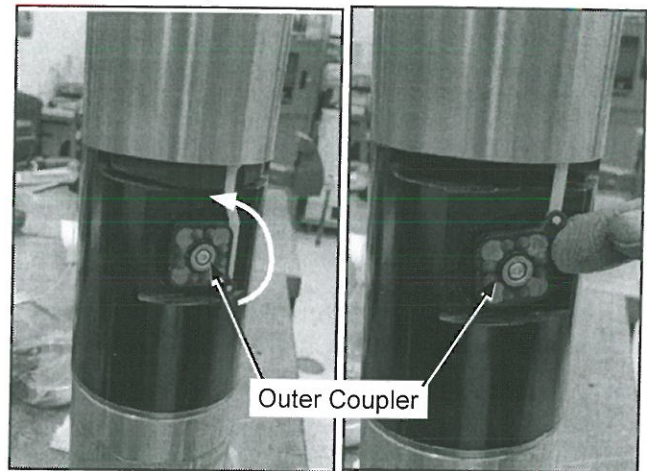
**Figure 9: Second Indent**

## Completing the Installation

Before you begin assembly, clear the inside diameter of the tank riser pipe of any burrs, improper reaming, or foreign material. Failure to adequately clean the inside of the tank riser pipe may damage or prevent the valve from functioning properly.

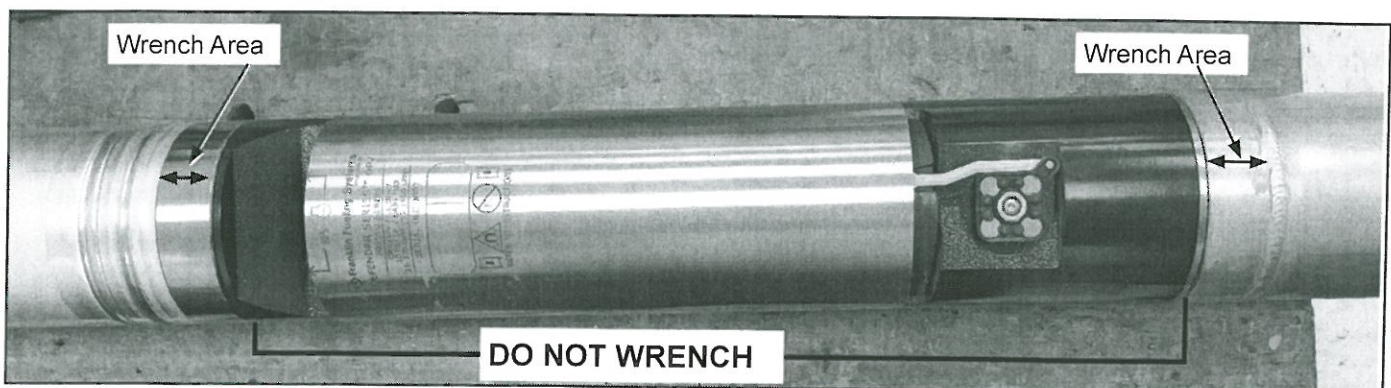
**Note:** The upper and lower threads of the valve come pre-lubricated from the factory. **DO NOT USE PIPE SEALANT.**

1. Thread the upper and lower drop tubes onto the Overfill Prevention Valve and tighten using strap wrenches (**DO NOT USE PIPE WRENCHES**). Position one on the upper drop tube, and the other on the lower drop tube (see Figure 11). **DO NOT TIGHTEN ON THE FLOAT SHIELD OR VALVE.**
2. Check the float and flapper mechanism by rotating the outer coupler (counter-clockwise). This should activate the internal flapper and operate smoothly. (Figure 10)



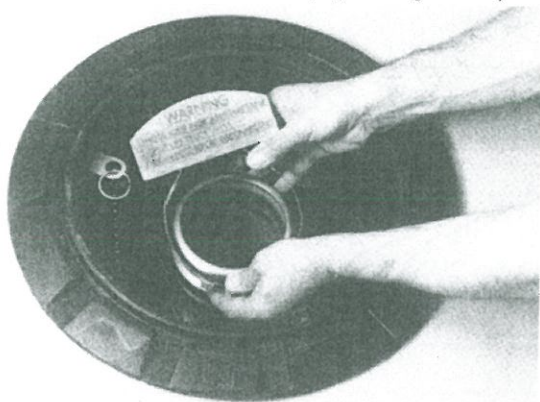
**Figure 10: Outer Coupler, Lowered and Raised**

3. Double-check to see that the drop tube gasket was installed under the upper drop tube flange (dual point installation, Figure 7).
4. Before inserting drop tube into the riser pipe, dissipate any static buildup by grounding to earth.
5. Carefully lower the completed assembly down the riser pipe (**DO NOT DROP**). Do not force the valve down the riser pipe. If the valve does not fit, the riser pipe may have to be cleaned or deburred further.



**Figure 11: Do Not Tighten on the Float Shield**

5. Install the warning plate around the 4" (102 mm) riser pipe below the threaded portion using the stainless steel band clamp (see Figure 12).



**Figure 12: Install Warning Plate**

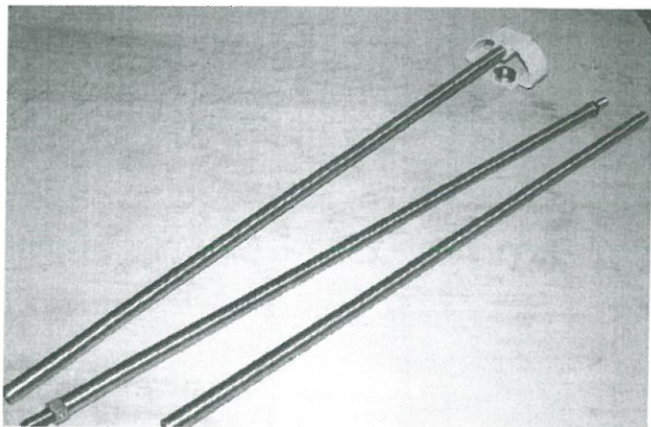
6. Reinstall the spill bucket components. The valve is now installed and ready for inspection.

## Maintenance

The 708-590 Series Overfill Prevention Valve is maintenance free. Franklin Fueling Systems recommends, however, that a visual inspection be performed upon installation and annually thereafter.

## Overfill Prevention Valve Inspection

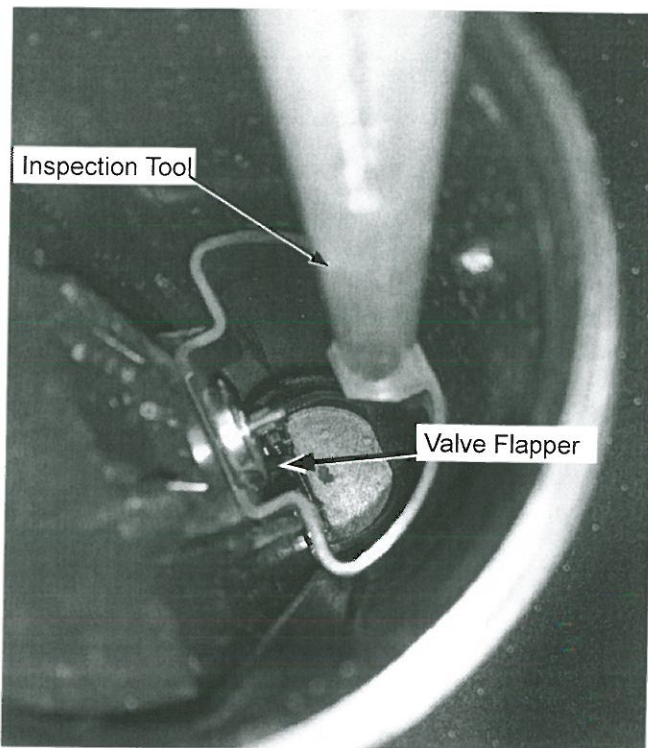
The valve can easily be inspected by use of the Franklin Fueling Systems inspection tool.



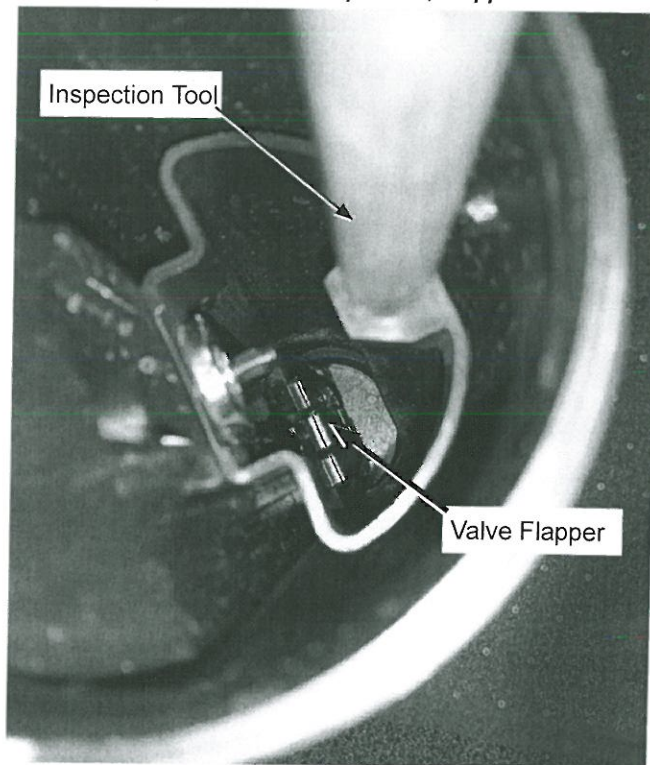
**Figure 13: Inspection Tool**

## Procedure

1. Assemble the remote tool with enough extension sections to reach the Overfill Protection Valve.
2. Insert the remote test tool into the drop tube. You should feel a "pull" when the magnets are positioned correctly and attract.
3. Slowly raise the inspection tool about 1 ½" and you should see the flapper move into the flow path.



**Figure 14: Valve Inspection, Flapper In**



**Figure 15: Valve Inspection, Flapper Out**

4. If the flapper is observed moving back and forth, the valve is functioning normally.

## Inspecting/Verifying

### 95% level from grade (without removing from tank)

1. Measure from the top of the drop tube flange to the top edge of the tube adapter (Figure 16).
2. Add 4½" to the measured value.
3. This number should match A plus B (from Figure 1).

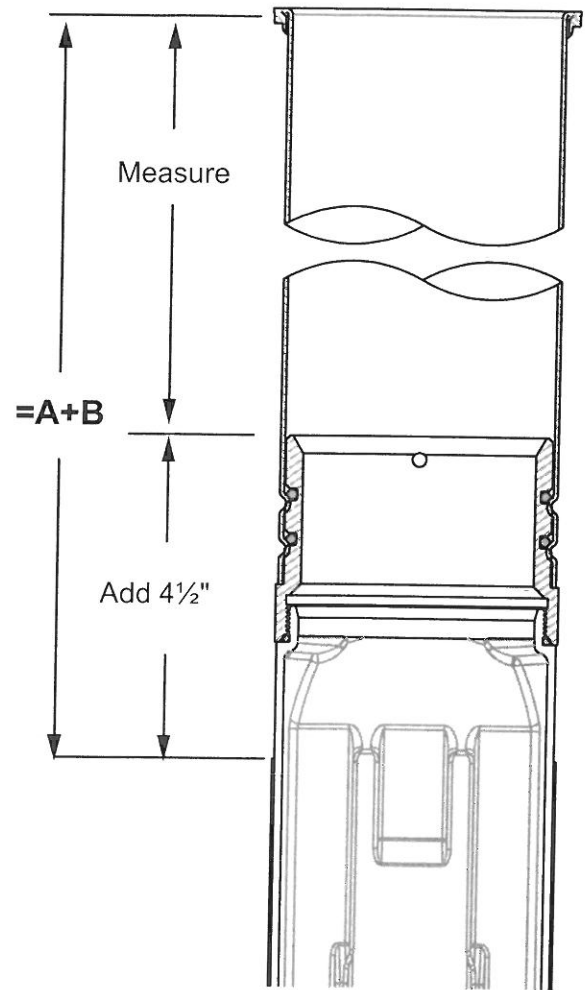
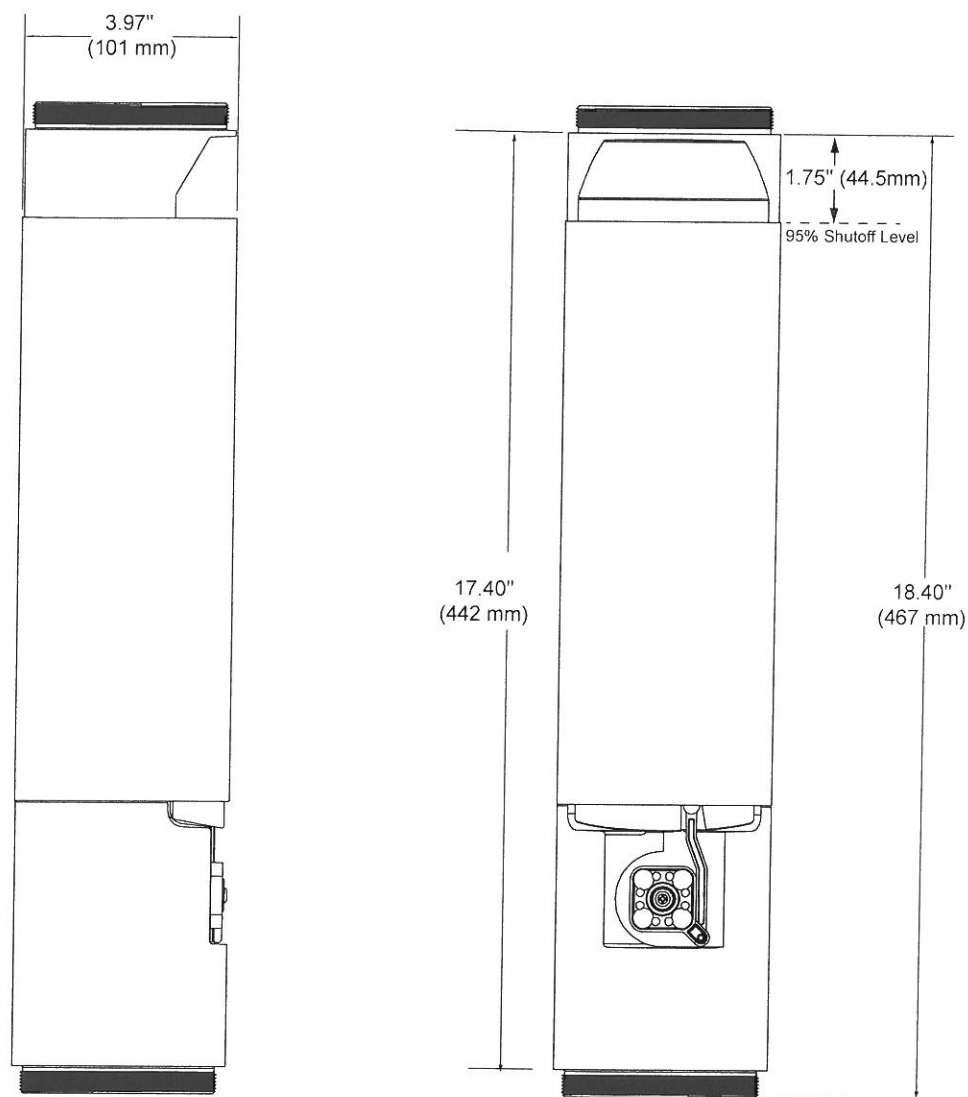


Figure 16: Dimension Verification After Installation

# Dimension Drawing



## Product Specifications

| Construction       |                                                 |
|--------------------|-------------------------------------------------|
| Valve Body         | E-Coated Cast Aluminum                          |
| Upper Drop Tube    | Aluminum or Hard Coat Anodized Aluminum         |
| Lower Drop Tube    | Aluminum or Hard Coat Anodized Aluminum         |
| Internal Mechanism | Nickel plated Aluminum, Stainless Steel, Acetal |

# Overfill Prevention Valve Installation Record Sheet

## Date Installed

## Site information

Site # / Description \_\_\_\_\_

Site Address \_\_\_\_\_

Site Contact \_\_\_\_\_

## Installing Contractor

Name \_\_\_\_\_

Company \_\_\_\_\_

## Tank Information

Product Type \_\_\_\_\_

Underground Tank Manufacturer \_\_\_\_\_

Tank Full Volume \_\_\_\_\_

Tank Diameter \_\_\_\_\_

Tank Chart Available? ☐ Yes ☐ No

Tank Type ☐ Steel ☐ Fiberglass

☐ Square ☐ Cylinder ☐ Dome Ends

Tank have compartments? ☐ Yes ☐ No

## Tank/Drop Tube Measurements

Upper Drop Tube Length (X) \_\_\_\_\_

Lower Drop Tube Length (Y) \_\_\_\_\_

Distance from Lower Drop tube to tank bottom \_\_\_\_\_

## Length

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

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| Item             | Item Description | T | Plant | Work Center | Op | Description |
|------------------|------------------|---|-------|-------------|----|-------------|
| * FPUL20X12HFXHF |                  |   |       |             |    |             |

# CERTIFICATE OF COMPLIANCE

Certificate Number 20141124-MH21090  
Report Reference MH21090-19990315  
Issue Date 2014-NOVEMBER-24

Issued to: FRANKLIN FUELING SYSTEMS INC  
3760 MARSH RD  
MADISON WI 53718

This is to certify that  
representative samples of

## OVERFILL PROTECTION DEVICES

Overfill protection device, gravity fill, Class 1, Series 708, for use with underground storage tank installations handling petroleum products. Maximum flow 410 L/min, maximum pressure 15 kPa (with the exception of Model Series 708590 rated maximum pressure 50kPa, maximum flow 1400 L/min).

Series 709, Type B, pressure fill, overfill protection device for use with storage tank installations handling petroleum products. Maximum flow 440 L/min., maximum pressure 500 kPa

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: Overfill Protection Devices For Flammable And Combustible Liquid Storage Tanks, CAN/ULC-S661-10

Additional Information: See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

*B. Mahrenholz*

Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services

UL LLC

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