Franklin Fueling Systems

Auto Limiter II®

Automatic Shutoff for USTs

Installation Instructions

490 Series

Manual #	Revision	Date	Changes from Previous Revision
F-9022	3	Aug. 2010	Changed drop tube cut angle. Added inspection procedure

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Important Safety Messages

EBW 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 EBW parts. Substituting EBW parts may cause failure of the device, which, in turn, may create a hazardous condition and/or damage the environment.**

Contents

Introduction

EBW's model 708 automatic shutoff valve is designed to be installed in the 4" (102 mm) riser pipe of an underground storage tank to reduce the flow by 90% (at approximately 92% of tank capacity) and shut the flow off at 95% tank capacity. After the valve has been activated, the delivery hose can be drained. The 708 should only be installed in a spill containment manhole.

Note: Shutoff points are influenced by the specific gravity of stored liquids. These instructions are based on average performance utilizing all products. ***This valve was designed to be used as an emergency overfill prevention device only!***

New York City Fire Department Certification #4959

For N.Y.C. applications, this valve must be installed with a N.Y.C. Fire Department approved spill container. There are additional installation requirements including, but not limited to, product identification and color coding of fills. Installation must comply with applicable codes at the time of installation.

Note: Determine if the underground storage tanks is equipped with a ball float vent valve as shown in Figure 1. 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. If the ball float vent-valve's nipple extends more than 3" (76.2 mm) from the top of the tank, remove it or replace it with a 3" (76.2 mm) diameter ball float valve (EBW part #308-300-05) or a 2" (50.8 mm) diameter ball float valve (EBW part #308-213-01).

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.**
Make certain there is a positive connection between the adaptor and elbow. If delivery equipment is not properly maintained or if an elbow is not securely coupled to an adaptor, a serious spill may result when an EBW model 708 closes causing a hazard and environmental contamination.

Tools Needed for Installation and Assembly
1/16" ((1.6 mm) and 3/16" (4.7 mm) Drill Bits
Drill
Tape Measure
Half Round Fine File
Hammer
Hacksaw with Fine Tooth Blade
Screwdriver - Flat Blade
Masking or Electrical Tape
Pop Rivet Tool
Permanent Marker

Packing List (Included with the Auto Limiter Valve)	
708-494-02 (Dual Point Fill)	**708-493-03 (Co-Axial Fill)**
(1) Valve Assembly 708-494-01	(1) Valve Assembly 708-494-01
(1) Installation Manual F-9022	(1) Installation Manual F-9022
(1) Dual Point Upper Tube (#153) O-Ring 11003-22	(1) Co-Axial Upper Tube (#042) O-Ring 11003-21
(4) Self Sealing 120 Degree Pop-Rivets 11070-06	(4) Self Sealing 120 Degree Pop-Rivets 11070-06
(1) Gasket – Upper Drop Tube (4") 11182-01	(1) Hose Clamp 708-160-01
(1) Hose Clamp 708-160-01	(1) Warning Plate 708-218-01
(1) 120 Degree Punch Coin 708-172-01	
(1) Warning Plate 708-218-01	
(1) Upper Tube Drill Template 708-221-01	

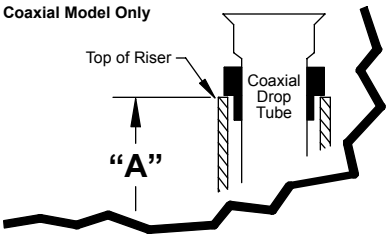
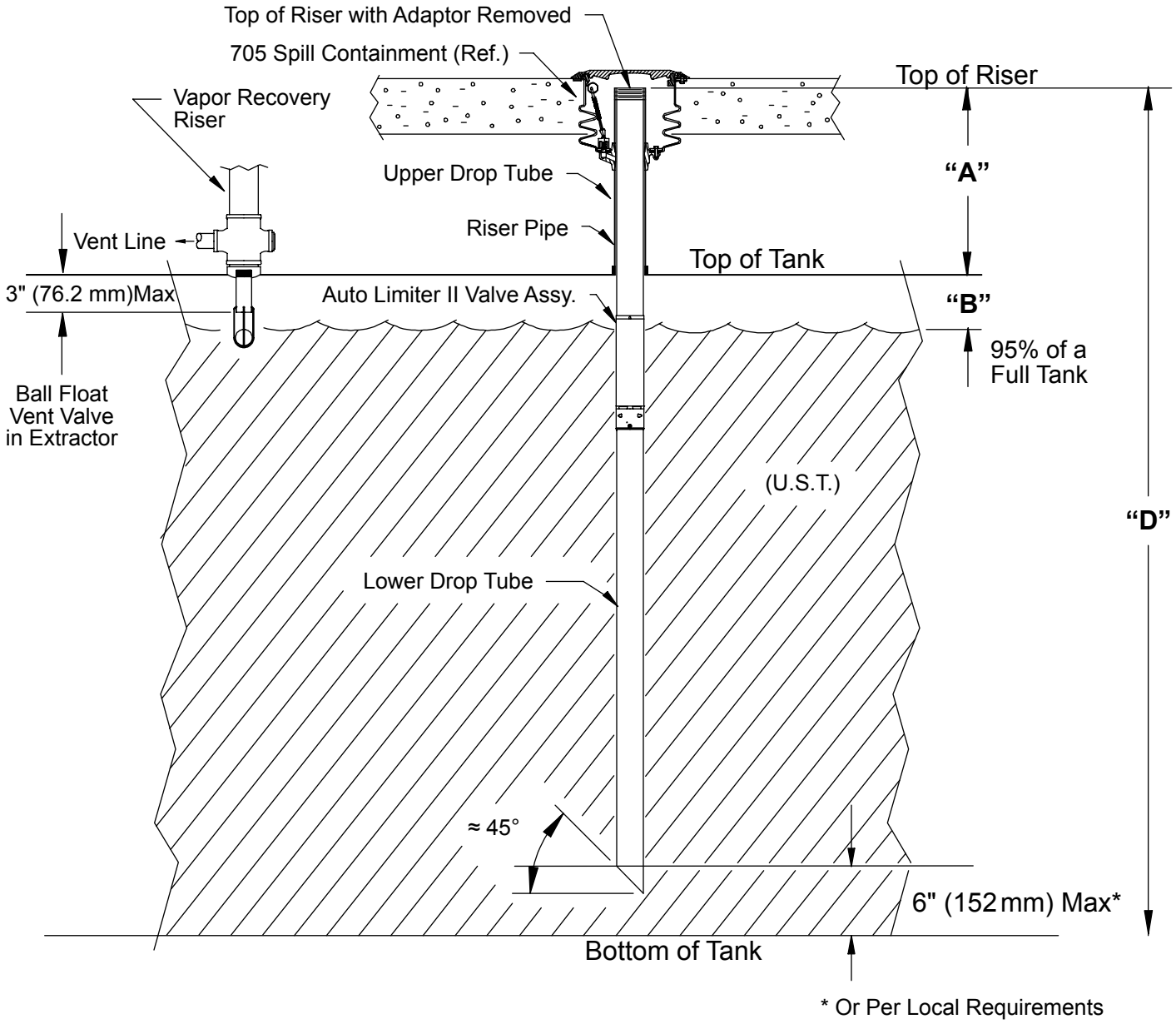


Figure 1



"A" = Distance from the Top of the Riser to the Inside of the Top of the Tank

"B" = 95 % Full Tank Level (See Chart "A" for Your Size Tank)

"D" = Distance from the Top of the Riser to the Bottom of Tank

Assembly Instructions

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

1. Remove the fill cap, adaptor, and existing drop tube from the riser pipe. Measure from the inside top of the tank to the top of the riser pipe (see Dimension "A" in Figure 2 & 3).

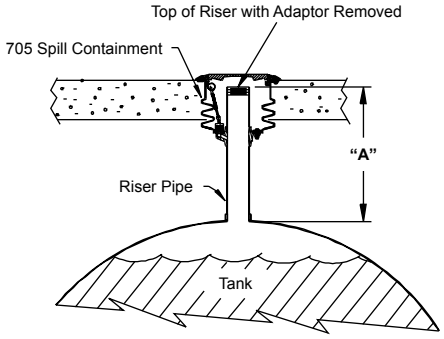


Figure 2

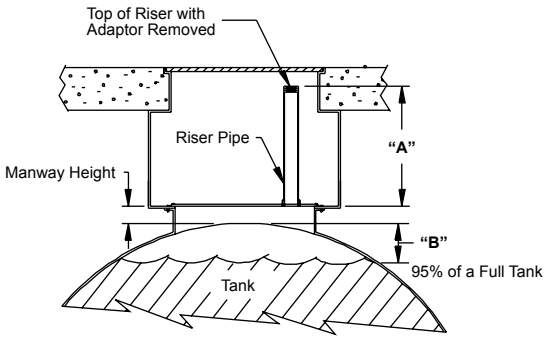


Figure 3

2. Determine the 95% shutoff point for your tank from the tank chart provided with the tank or from a calibrated gauge stick. To determine your actual "B" dimension, subtract the 95% level height from the overall tank diameter (tank diameter (inches) - 95% level (inches) = "B" dimension). The chart below is provided for reference only (see Figure 1). Your actual "B" dimension will vary slightly based upon your actual overall tank diameter head and bulkhead design.

Tank Diameter	Appx. Dimension "B" for 95% Shutoff
4 feet (122 cm)	5" (127 mm)
5 feet (152 cm)	6" (152 mm)
6 feet (183 cm)	7 1/2" (191 mm)
7 feet (213 cm)	8" (203 mm)
8 feet (244 cm)	9 1/2" (241 mm)
9 feet (274 cm)	10 1/2" (267 mm)
10 feet (305 cm)	13" (330 mm)
12 feet (366 cm)	14" (356 mm)

Be certain to add the manway height to the "B" dimension when the 708 Auto Limiter is used in manway applications (see Figure 3).

3. To determine the correct length of the upper drop tube add dimension "A" to "B" and subtract 4" (102 mm).

____ "A" + ____ "B" - 4" (102 mm) = _____ "C" (Drop Tube Length)

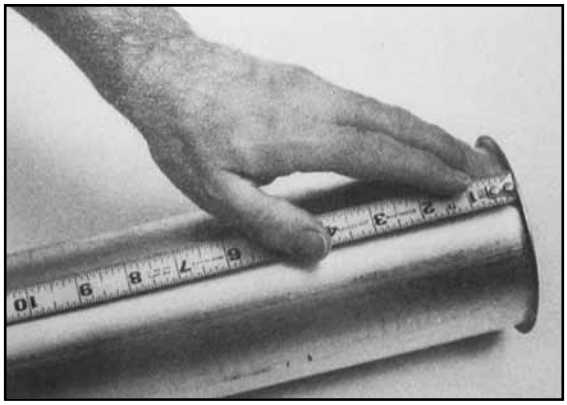
For tanks with manways, add dimensions "A" to "B" to manway height and subtract 4" (102 mm) to get the drop tube length.

____ "A" + ____ "B" + _____ Manway Height - 4" (102 mm) = _____ "C" (Drop Tube Length)

4. Mark the dimensions on the upper drop tube.

4a. For dual point applications, measure down from the flange and mark dimension "C" on the drop tube (see Figure 4).

4b. For coaxial installations, measure down from the bottom side of the top adapter's supporting lugs and mark dimension "C" on the drop tube (see Figure 5). For coaxial installations, go to Step 7.



≈Figure 4: Measure from Flange

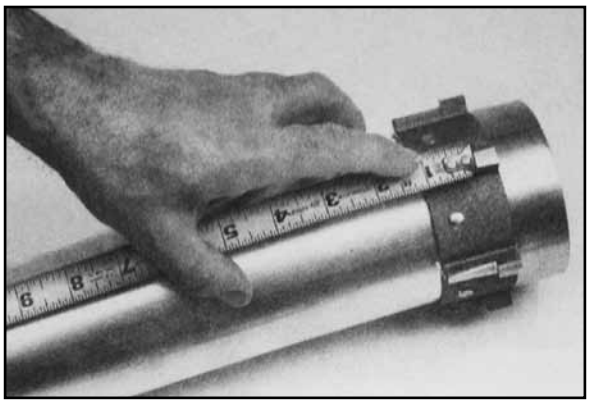


Figure 5: Measuring for Coaxial Installations

5. Wrap the paper cutting and drilling template tight around the upper drop tube with the bottom's cut edge aligned with the mark from Step 4. Tape the template to the drop tube (see Figure 6).

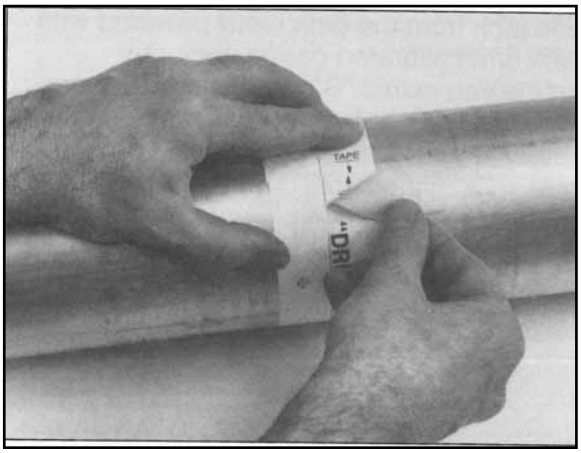


Figure 6: Apply Template

6. Carefully drill four 1/16" pilot holes through the drop tube, using the drill template's center lines (see Figure 7). Enlarge each 1/16" hole to 3/16".

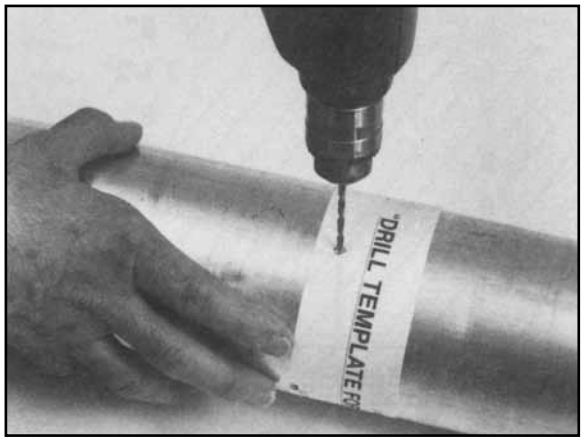


Figure 7: Drill Pilot Holes

7. Slide the provided stainless hose clamp over the upper drop tube until the outside edge lines up with the mark applied in Step 4. Then tighten the clamp. Using the edge of the clamp as a guide, carefully saw through the drop tube — *rotating the tube while sawing will help prevent run-out (see Figure 8)*. After sawing: remove the hose clamp, file the end square, and remove all burrs.

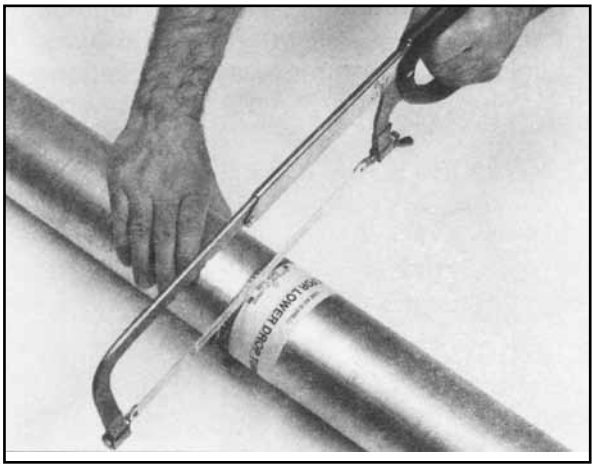


Figure 8: Saw

8. Install the appropriate o-ring into the groove at the top of the valve (see Figures 9 & 10). Use 3-3/8" (86 mm) OD O-rings on coaxial models and use 3-5/8" (92 mm) OD O-rings on dual point conversions.

Note: Coating the O-rings in petroleum jelly may assist in installing the upper drop tube to the Auto Limiter.

Figure 9: Lubricate O-Ring

Figure 10: Install O-Ring

Dual Point Installations

9. Rotate the upper drop tube so that the four holes line up with four holes in the valve assembly. Using the tapered punch, carefully dimple the four holes in the drop tube into the counter sunk holes of the valve body (see Figure 11).

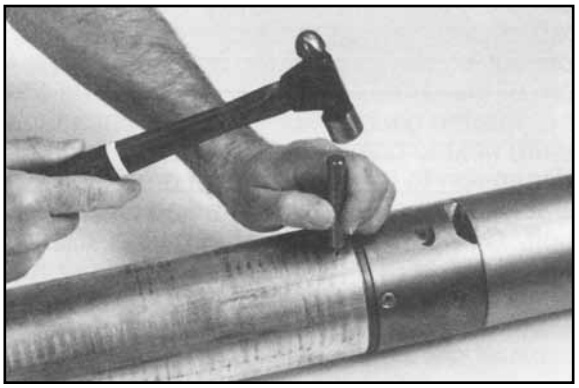


Figure 11: Dimple 4 Holes

Coaxial Installations

Making certain that the top tube is fully inserted, drill four 3/16" (4.76 mm) holes through the upper drop tube, using the Auto Limiter valve body as a guide (see Figure 12).

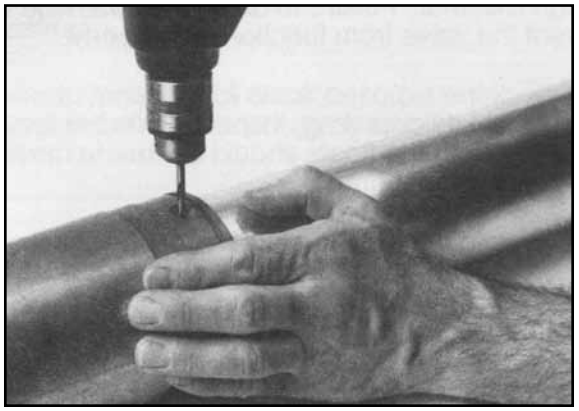


Figure 12: Drill Holes

10. Install four 3/16" (4.76 mm) diameter closed-end POP® rivets into the holes discussed in Step 9. *Use only the aluminum POP® rivets supplied. The heads of the rivets must be flush or below the exterior surface of the upper drop tube or valve body (see Figure 13).*

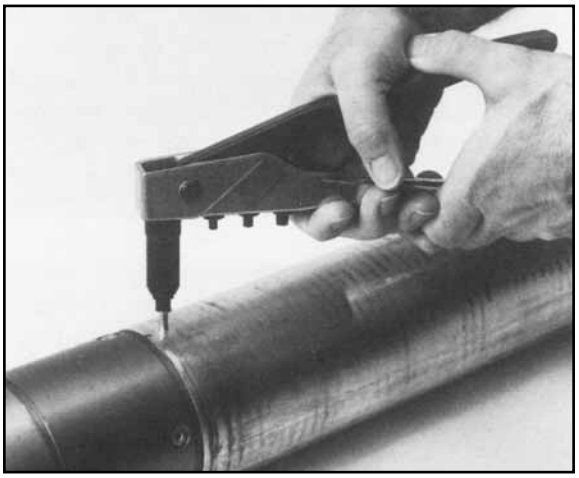


Figure 13: Install Rivets

11. Take the bottom of the Auto Limiter and apply fuel resistant pipe sealant to the male threads on the bottom of the valve assembly. Thread the lower drop tube on all of the way to the stop shoulder. If a vise or clamp is used to hold the assembly in place, make sure to avoid clamping near any moving parts (see Figure 14).

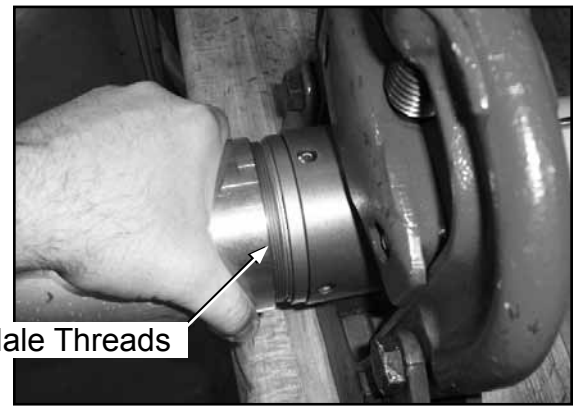


Figure 14: Thread Drop Tube

12. Measure the tank's dimension "D" (Figure 1) and subtract 6" (152 mm)*. Measuring down from the same place as in Step 4, mark dimension "D" on the lower end of the lower drop tube. Cut the tube at this mark at 45º and deburr (see Figure 15). Also, the lowest point of the drop tube must not project within the minimum clearance specified by the tank manufacturer. *Or per local requirements

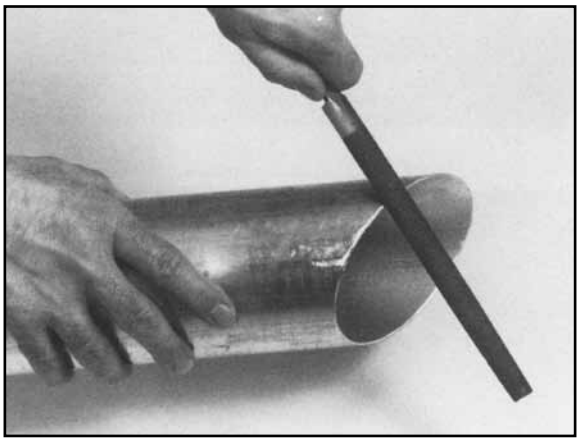


Figure 15: Deburr the Tube

Installation Instructions

13. Double-check your assembly by following this procedure. Dimension “D”, shown in Figure 1, is the overall length from the top of the riser pipe to the bottom of the tank. Either mark this dimension on your calibrated gauge stick or stretch out a tape measure next to the completed assembly aligning the “D” dimension to the top of the flange of the drop tube assembly. The valve body is marked for a 95% shutoff. Compare the calibrated gauge stick reading found at the 95% valve mark or determine the dimension location of this valve mark and calculate from your tank chart. The tank volume determined should equal 95% of capacity.
14. Remove the fill cap, the adaptor, and the existing drop tube (if applicable). Check the inside diameter of the riser pipe for any burrs, improper reaming, or foreign material. *Failure to clean the inside diameter of the riser pipe may damage or prevent the valve from functioning properly.*
15. Check the exposed floats for freedom of movement. If the floats drag, inspect the guide bar for damage. Both the floats should be free to move up and down without drag.
16. Check to make sure that there is a rubber gasket under the upper drop tube’s flange (Dual Point Installations only).
17. Carefully lower the complete shutoff assembly down the riser pipe. Hold the unit by the upper drop tube only (see Figure 16). Do not force the valve down the riser pipe. If the valve does not fit, the riser pipe will have to be cleaned or deburred before inserting the valve.

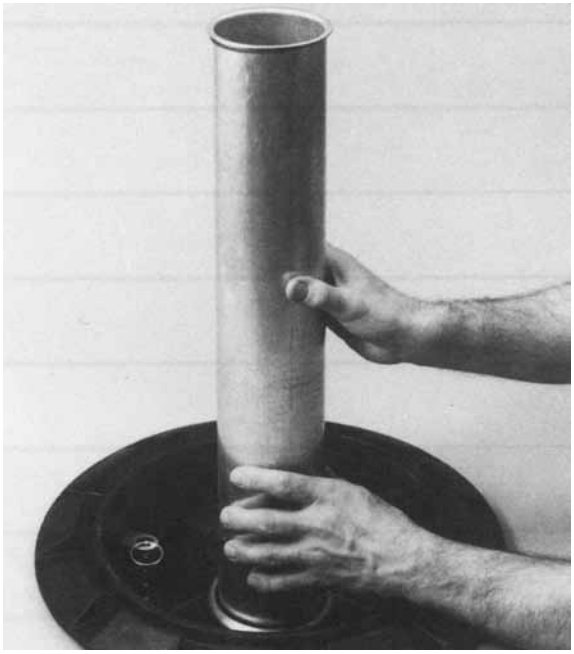


Figure 16: Lower into Riser Pipe

18. Install a warning plate around the 4" (102 mm) riser pipe below the threaded portion using the stainless steel band clamp (see Figure 17).

Figure 17: Install Warning Plate

19. Reinstall the tight fill adaptor and gasket. The valve is now installed and fully operational.

Maintenance

The 708 Auto Limiter II is maintenance free. EBW recommends, however, that an annual visual inspection inside the installed drop tube for remnants of broken dipsticks or visual damage be performed. Should the drop tube assembly be removed for any reason, request EBW form 6329 for a detailed valve component inspection procedure that is recommended prior to reinstalling.

Product Specifications

Construction	
Valve Body	Anodized Cast Aluminum
Upper Drop Tube	Aluminum or Anodized Aluminum (AG models)
Lower Drop Tube	Aluminum or Anodized Aluminum (AG models)
Flappers	Die Cast Zinc and Acetal or Die-cast Zinc with nickel plating and Acetal (AG models)
Float	Polyethylene or fluorinated Polyethylene (AG models)

Flow Rate	
Typical 4" (102 mm) Hose	**350 Gallons per Minute (1325 Liters per Minute)**
Minimum Required for Proper Operation	**180 Gallons per Minute (681 Liters per Minute)**
Maximum Working Pressure	10 psi (69 kPa)

Weight	
Shipped in a Carton	33 Pounds (15 kg)

Size (Standard Unit)	
Valve Body Length	17.44" (443 mm)
Upper Drop Tube	4" (102 mm) Diameter x 60" (1524 mm) Long
Lower Drop Tube	Std. 4" (102 mm) Diameter x 96" (2438 mm) Long

Models	Tank Diameter
708-491-01	Standard model up to 10' (304.8 cm)
708-491-02	Standard model up to 12' (365.7 cm)
708-492-01	Deep bury model up to 10' (304.8 cm)
708-492-02	Deep bury model up to 12' (365.7 cm)
708-493-01	Coaxial model up to 10' (304.8 cm)
708-493-02	Coaxial model up to 12' (365.7 cm)
708-491-21	Standard model up to 10' (304.8 cm) Flex-Fuel model
708-491-22	Standard model up to 12' (365.7 cm) Flex-Fuel model
708-492-21	Deep bury model up to 10' (304.8 cm) Flex-Fuel model
708-492-22	Deep bury model up to 12' (365.7 cm) Flex-Fuel model

EBW Auto Limiter II Valve Component Inspection Procedure

EBW's AutoLimiter II drop tube mounted overfill prevention valve includes an inspection port for periodic inspection of the valve components. With the addition of a small, resealable inspection port though, an inspection of the valve's internal flapper assembly can now also be done.

Periodic Auto Limiter Component and Function Inspection

Tools Needed

- #2 Phillips Screwdriver
- Flashlight
- EBW Service Kit (Part #90082)
- Tape Measure or Dipstick

Warning **The storage tank may be under pressure. Vent the tank prior to removing this drop tube. Highly combustible petroleum vapors are present, so use only non-sparking tools.**

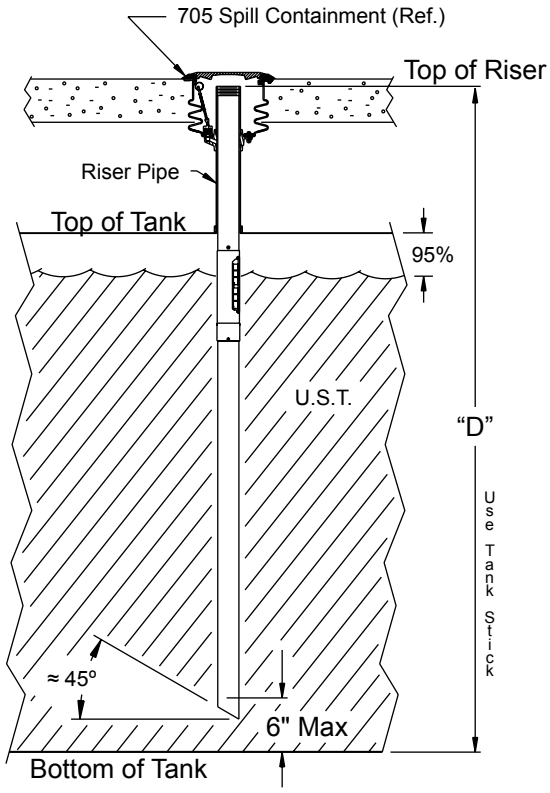


Figure A

1. Remove the fill adapter from the spill containment riser pipe.
2. Using a dip stick or tape measure, determine the height of this flange off the bottom of the tank. Record this dimension.
3. Remove the drop tube/valve assembly from the storage tank fill riser.
4. Place the drop tube assembly on a flat surface with the float side of the overfill valve up.
5. Lay your tape measure or dipstick next to the drop tube aligning the top flange to the dimension number obtained from Step 2. Locate, on the overfill valve assembly, the machined ring adjacent to the upper float. This ring should be identified with a "95%" stamp. Record the dimension on the dip stick or tape measure that aligns with this "95%" identification ring. This is the second stage shutoff point for this valve installation. This should be set for no more than 95% of tank capacity.

Figure B

6. From the tank chart for this tank, determine the dimension off of the tank bottom for 95% of tank capacity. Compare this determined dimension to the dimension obtained in Step 5. Your calculated 95% capacity dimension should be equal to, or greater than, the actual dimension measured in Step 5. If your calculated dimension is lower, then the installation for this overfill valve is incorrect and needs to be immediately addressed.
7. Locate the Phillips head screw on the right side of the float linkage (Figure C). Remove the screw and save it for reinstallation.

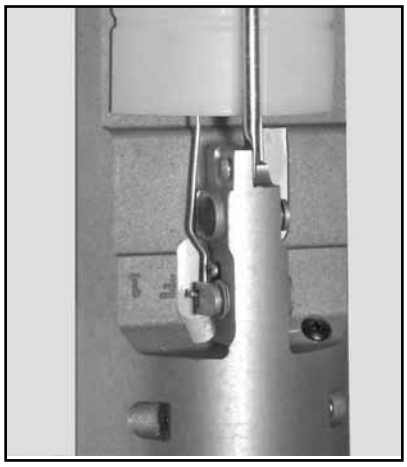


Figure C

8. Inspect the exposed floats for freedom of movement or damage. These floats should slide back and forth on the guide bar freely. If there is any binding, the guide bar may be bent. If necessary, straighten this guide bar (see Figure D).
9. Inspect the linkage connecting the floats to the valve operating mechanism. This linkage should be clean and intact (see Figure D).

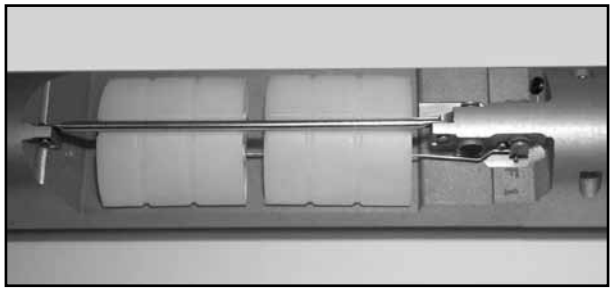


Figure D

10. Insert the 1/8” T-handled hex wrench into the open hole until it makes contact with the internal valve flapper (see Figure E).

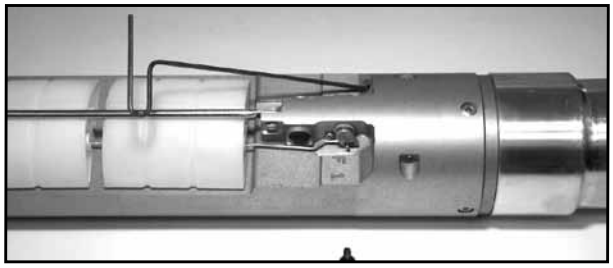


Figure E

11. While holding both floats from sliding away from the inserted hex wrench, lightly try to push the hex wrench further into the hole. The flapper should stay in the locked position and not move closed. If the flapper closes, the latching mechanism is defective and valve must be replaced.
12. Slide the float closest to the hex wrench away from the wrench. You should now be able to easily push the hex wrench further into the hole. This will close the first stage valve flapper (see Figure F).

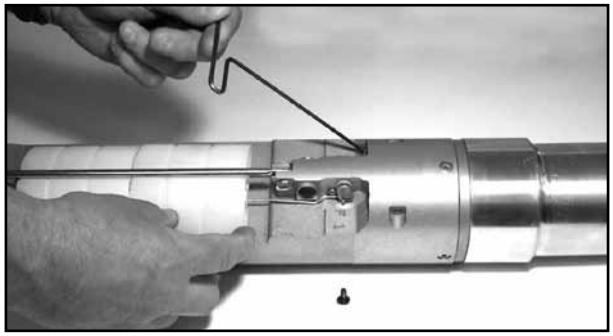


Figure F

13. With the hex wrench inserted until it will not go any further, the first stage valve flapper should stay in the closed position. Using a flashlight, you can now see this by looking in from the top of the drop tube (see Figure G).

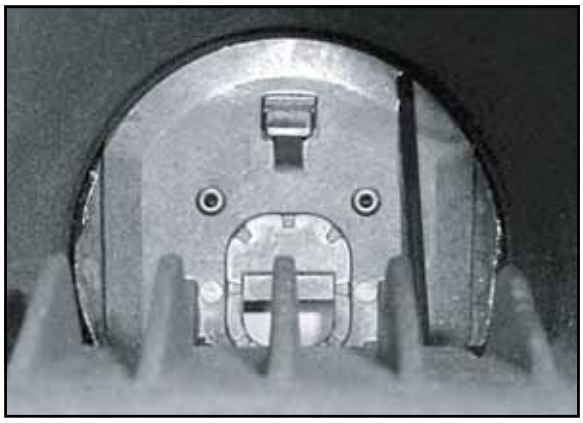


Figure G

14. Slide the second float away from the hex wrench (see Figure H). This will release the valve’s second stage flapper (see Figure I).

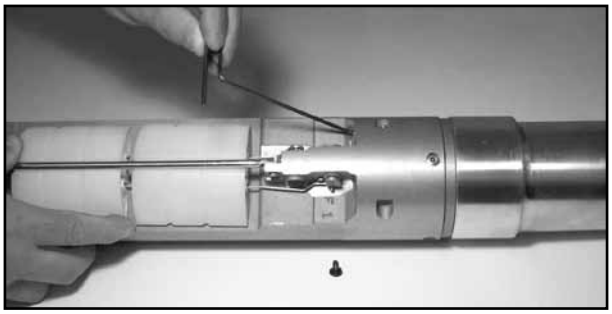


Figure H

Figure I

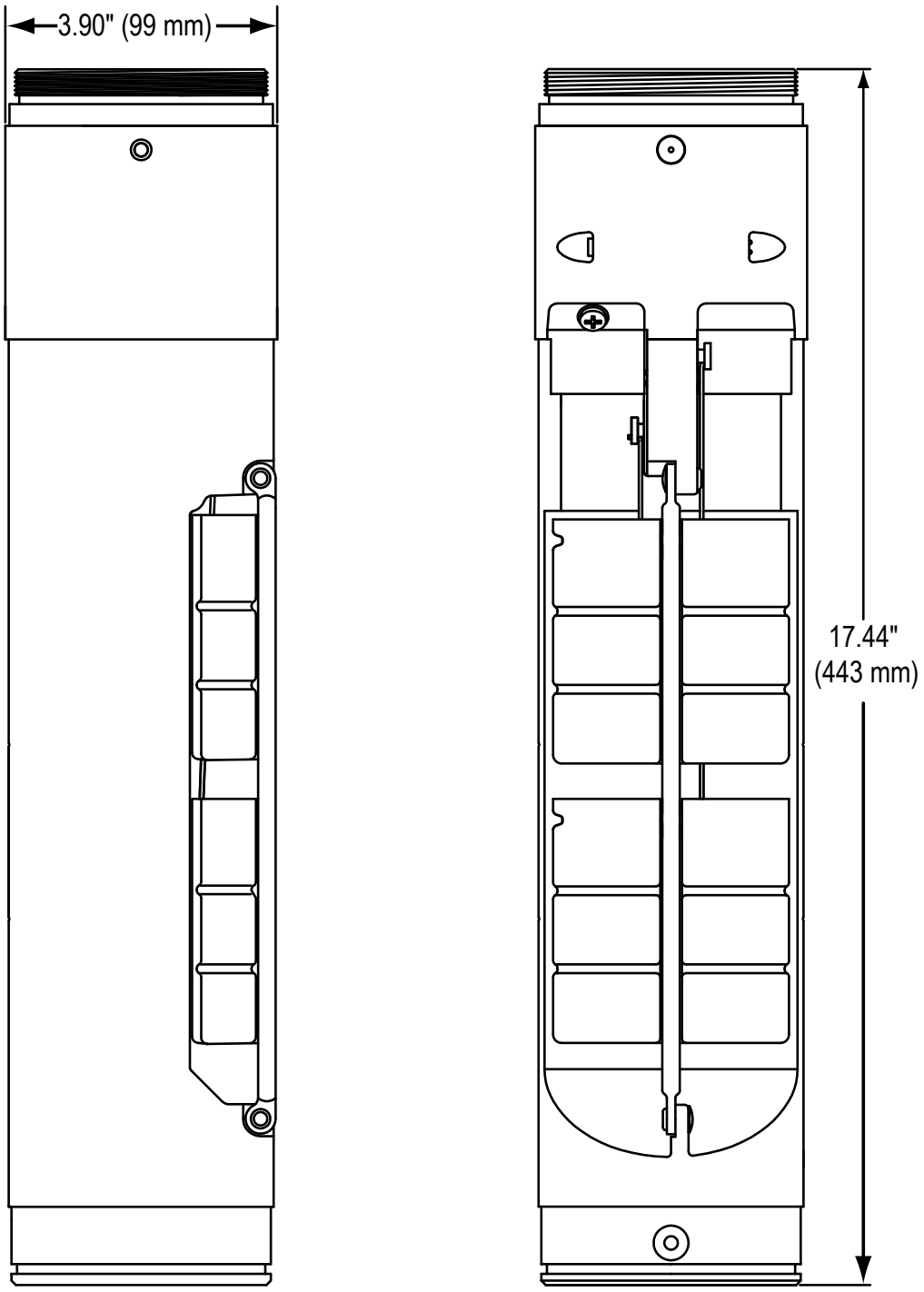
15. Remove the hex wrench from the inspection port. The valve’s internal flappers should return to their open positions. To verify that the flapper has reset and re-latched, re-insert the hex wrench and repeat Steps 10 & 11. If the flapper did not reset, replace the valve.

16. Remove the hex wrench and re-install the #10-24 inspection port screw with an o-ring seal attached. Torque the screw to 20-25 in. lbs.
17. From the end of the drop tube's top flange, illuminate the internal valve flapper with a flashlight and visually inspect the deflector attached to the valve flapper. There should be no visible damage to this deflector. The deflector's shape should be uniform and similar to that of Figure J. If damage is observed, the valve will not operate as designed and must be replaced.

Figure J

18. After completing these inspection steps, recheck the floats and linkage as detailed in Steps 8 & 9. Using care not to damage the floats or the float guide, reinstall the drop tube assembly into the tank riser.

Dimension Drawing



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