



# A1100 GUARDIAN OVERFILL PREVENTION SYSTEM

(with 493734S collar kit)

## Assembly and Installation Instructions

(includes 566710S paper template)

***IMPORTANT: Read these instructions completely and carefully before attempting to install and operate this valve. Failure to do so may result in improper valve operation allowing for a potential storage tank overflow. An overflowed tank can create extremely hazardous fuel spills which may result in personal injury and property damage. For further information, please call our Customer Service Department at (252) 243-0150.***

### TABLE OF CONTENTS

Assembly	2-7
Tools	2
Packing List	2
Procedure	2
Installation	7
General Maintenance	8
Warranty	8

*Note: All information, illustrations and specifications in this manual are based on the latest product information available. We reserve the right to make changes at any time without notice.*

**CAUTION:** Never disconnect the drop elbow from the tight-fill adapter when the A1100 has reached the positive shut-off level. At this point, the tank truck hose is still full and must not be disconnected until enough fuel has been removed from the underground storage tank to drain the hose. Premature disconnection will result in a hazardous spill and a potential for personal injury and property damage.

**WARNING:** If the underground storage tank is equipped with a ball float vent valve, make sure it is not extended below the positive shut-off point of the A1100, or remove the float vent valve.

## **ASSEMBLY**

### **Tools Needed**

- |                       |                             |
|-----------------------|-----------------------------|
| 1. 3/32" drill bit    | 7. hammer                   |
| 2. 13/64" drill bit   | 8. fine half round file     |
| 3. hand drill         | 9. heavy duty pop rivet gun |
| 4. tape measure       | 10. masking tape            |
| 5. fine tooth hacksaw | 11. marker                  |
| 6. screwdriver        |                             |

**WARNING:** Do not use electrical devices near gasoline vapors, as it could result in fire or explosion.

### **Packing List (included with A1100)**

- |                                                                           |                                   |
|---------------------------------------------------------------------------|-----------------------------------|
| (1) o-ring #561683                                                        | (4) pop rivets #564412            |
| (1) hose clamp #564421                                                    | (1) counter sink indenter #564416 |
| (1) warning plate #564420                                                 | (1) Seal-All sealant #566726      |
| (1) collar #566679 with O-ring #480049                                    | (1) handle #568279                |
| (1) bottom aluminum tube assembly with bushing #568189 attached           |                                   |
| (1) A1100 Overfill Prevention Valve with top tube and screw base attached |                                   |

**Optional:** Drilling fixture #566675 (not included)

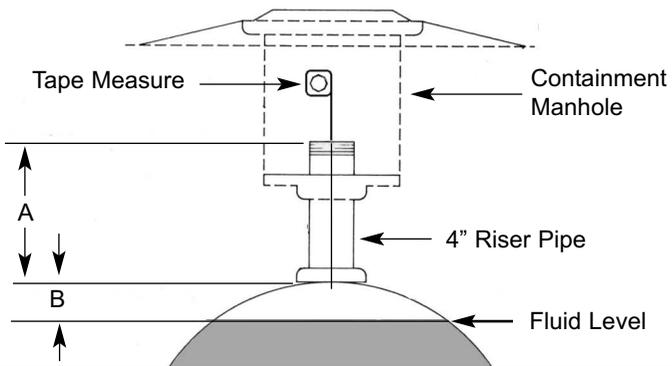
## **TOP TUBE INSTALLATION PROCEDURE**

The A1100 Guardian can only be installed after the containment manhole has been installed.

**Step 1** If already in place, remove the existing 4" cap, adapter and drop tube assembly.

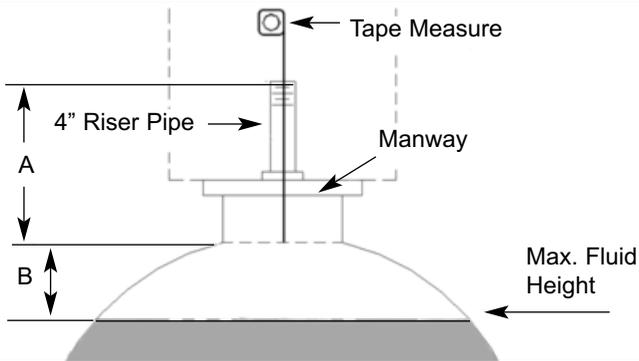
**Step 2:** Find measurement A which is the distance from the inside top of the tank to the top of the 4" riser pipe as shown in Figure 1. If the tank has a manway, make sure to include the height of the manway when finding Dimension A as shown in Figure 2.

**Figure 1**



**Riser Pipe With Spill Containment Manhole**

**Figure 2**



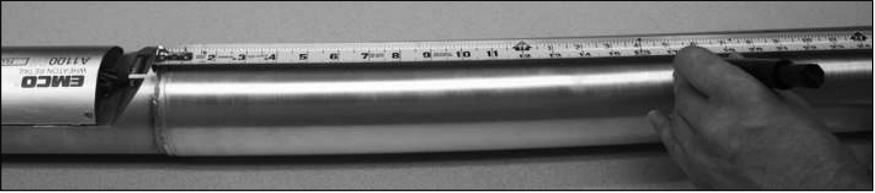
**Riser Pipe Installed On Manway**

**Step 3:** Find Measurement B from the chart below. It is the distance from the maximum fluid height allowed to the inside top of the tank. Calculations are based on cylindrical tanks with flat ends. For exact dimensions, consult the tank gauge chart provided with your tank. Local requirements may limit fill capacity to 95% or 97%.

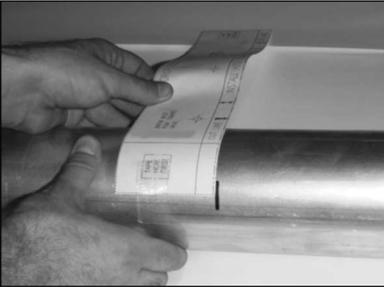
Tank Diameter		95% Shut-off		97% Shut-off	
		B Dimension		B Dimension	
Feet	Meters	Inches	MM	Inches	MM
6.5'	1.98	7.5"	190	5.4"	136
7.0'	2.13	8.0"	203	5.8"	147
7.6'	2.29	9.0"	229	6.2"	157
8.0'	2.44	9.5"	241	6.5"	168
8.2'	2.50	9.5"	241	6.8"	172
8.5'	2.59	10.0"	254	7.0"	178
9.0'	2.74	10.5"	267	7.4"	189
9.5'	2.90	11.0"	279	7.8"	199
10.0'	3.05	11.5"	292	8.5"	216
12.0'	3.66	14.0"	336	9.5"	241

The A1100 Overfill Prevention Valve is not recommended for tanks under 6.5' (1.98 m) in diameter.

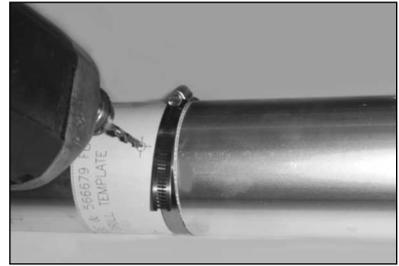
**Step 4:** To determine the top tube cut length C, add A and B, then subtract 7.5".  
Top tube cut length,  $C = A + B - 7.5"$



**Step 5:** Measure length C from the bottom of top tube.



**Step 6:** Wrap the paper drilling template (p/n 566710S, supplied) over the drop tube and tape in place. Line up cut-off line on template with the cut length C.



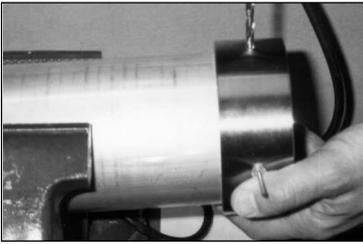
**Step 7:** Secure with the hose clamp (p/n 564421, supplied) as indicated on the template.

**Step 8:** Drill four pilot holes 3/32 diameter through the drop tube as indicated on the template. Redrill holes to final size of 13/64 dia.

**Step 9:** Cut tube to proper length using a fine tooth hacksaw. The hose clamp acts as a guide for a straight cut.

**Step 10:** Remove clamp and template. File away cutting burrs from the cut edge and from the inside surface of the holes with a fine tooth file to prevent installation damage to the O-ring seal of the collar.

**IMPORTANT:** Do not use a power saw or tubing cutter to cut the tube.



### OPTIONAL DRILLING METHOD

A special drilling fixture (p/n 566675) is available which eliminates the paper template, is more accurate, and reduces assembly time.

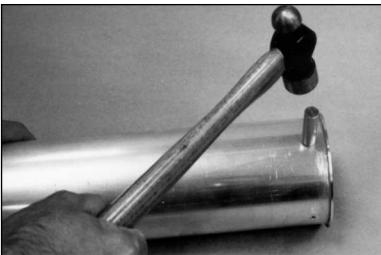
## CONNECT THE COLLAR TO THE DROP TUBE



**Step 11:** Remove the top o-ring from the collar, if in place. Apply a heavy coat of the sealant (p/n 566726, supplied) around the O-ring and a light coat inside the tube. Make sure the O-ring (p/n 480049, supplied) is installed in the groove of the collar.



**Step 12:** Place the loose o-ring onto outside of drop tube. Slide adaptor inside top of drop tube and up tight to the drop tube adapter flange. This will be a tight fit. If necessary, use a wood block across the adaptor to tap into place. Align the 4 holes. Slide top o-ring into place.



**Step 13:** Use a sharp blow on the indenter tool (p/n 564416, supplied) to form the tube into each counter-sink on the collar.



**Step 14:** Using only the factory supplied pop rivets, apply a good amount of the Seals-All Sealant around the base of each pop rivet before installing into each of the four holes. Using the pop rivet gun, permanently fasten the A1100 riser collar to the top of the drop tube.



**Step 15:** Install the o-ring (p/n 561683, supplied).

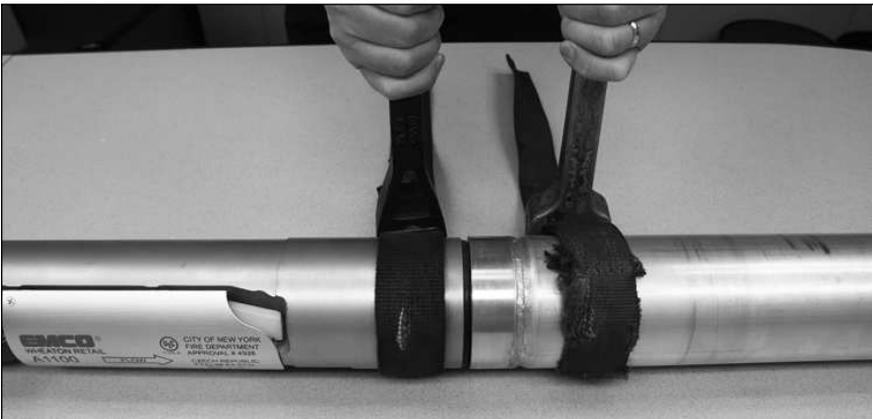
**CONNECT THE A1100 TO THE LOWER DROP TUBE**



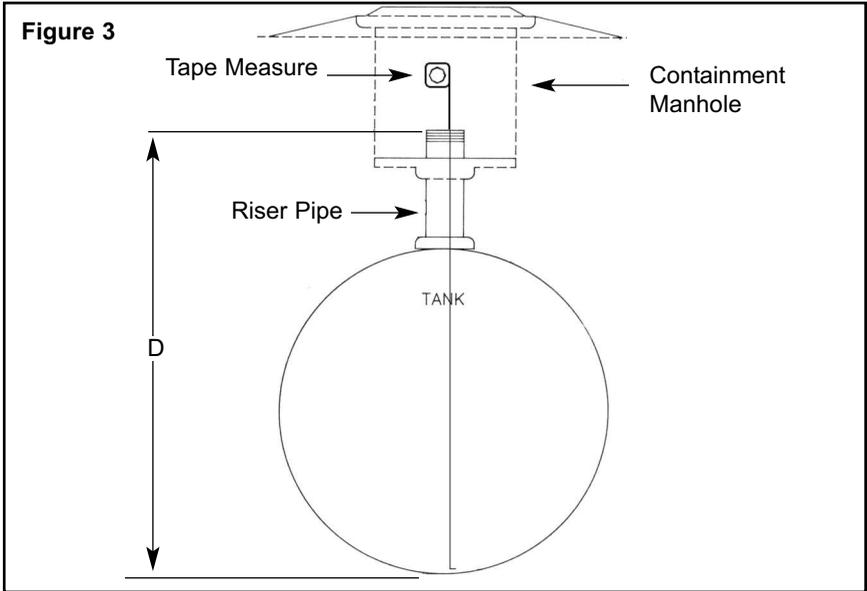
**Step 16:** Apply a liberal coat of pipe dope to male threads of the A1100 base.



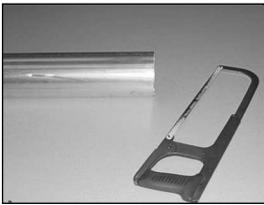
**Step 17:** Screw male threaded end of A1100 base into threaded end of drop tube.



**Step 18:** Tighten. The use of strap wrenches is recommended in order to prevent raising burrs on the aluminum parts.

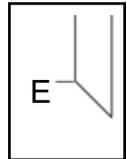


**Step 19:** Measure the distance from the top of the 4" riser pipe to the bottom of the tank (dimension D). See Figure 3.



**Step 20:** Tube length should be 6" above tank bottom to determine overall length E ( $D - 6" = E$ ). Mark tube to length E. Square cut the lower tube to length E.

**Optional:** 45 degree cut - The shortest point should start at length E to maintain the 6" minimum clearance requirement at bottom of tank.



### INSTALLATION OF COMPLETED ASSEMBLY INTO THE TANK

**Step 21:** Turn the completed assembly upside down and shake vertically to remove any metal chips left from the drilling process. Position the completed assembly vertically over the riser pipe with the square cut down. Carefully lower the completed drop tube/valve assembly into the riser pipe until the collar rests on the riser pipe.

**Step 22:** Use the hose clamp to clamp the warning plate (p/n 564420, supplied), onto the riser pipe below the threads. Make sure label is facing up.

**Step 23:** Reinstall the tight fill adapter onto the riser and tighten. To insure a vapor tight connection, use a thread sealant on the riser pipe and adapter threads.



## **MAINTENANCE**

The A1100 Guardian is maintenance free. Periodic inspection of drop tube wear due to corrosion is suggested.

*Please leave these instructions with the owner/operator of the service station for future reference.*

## **WARRANTY**

Emco Wheaton Retail Corporation service station products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

The warranty set forth herein shall be the exclusive warranty made by Emco Wheaton Retail Corporation and in lieu of all other warranties, expressed or implied, (whether written or oral), including but not limited to any implied warranty of merchantability or fitness for any particular purpose.

Emco Wheaton Retail Corporation's liability under this warranty is limited to, at Emco Wheaton Retail Corporation's option, the repair or replacement of that part which proves to be defective within twelve (12) months of date of manufacture. Emco Wheaton Retail Corporation is not responsible for claims for damage due to improper installation or maintenance, corrosive fluids, or use of a product for a purpose other than that for which it was specifically designed.

Emco Wheaton Retail Corporation shall have no liability or be required to fulfill any obligation under this warranty unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

Under no circumstances shall Emco Wheaton Retail Corporation be liable for any consequential, special or contingent damages or expenses or any other charges beyond the invoice value of the defective items. The remedies set forth herein shall be the exclusive remedies available to the user and are in lieu of all other remedies except for the remedies described below.

If an Emco Wheaton Retail Corporation product fails within the warranty period, call the Customer Service Department at **(800) 234-4394**. Describe the problem and provide the product date stamp information to the customer service representative. The customer service representative will provide a product complaint number, if applicable. Ship the defective equipment **PREPAID**, to Emco Wheaton Retail Corporation for repair or replacement.

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