



A1100 Coaxial Overfill Prevention Installation Instructions

For Use With Models:

A1100-065S, -066S, -067S (with 493768S assembly kit)

A1100-085S, -086S, -087S (with 493785S assembly kit)

Tools Needed:

- | | | |
|-----------------------|------------------------------|-------------------------|
| 1. 13/64" drill bit | 2. Hand drill | 3. Tape measure |
| 4. Fine tooth hacksaw | 5. Screwdriver | 6. Fine half round file |
| 7. Masking tape | 8. Marker | 9. Hammer |
| 10. Hose clamp | 10. Heavy duty pop rivet gun | |

493768S Assembly Kit Contents:

- (1) Collar #565004
- (6) Pop rivets #564394
- (1) Seal-All #566726
- (1) Warning plate #564420

493785S Assembly Kit Contents:

- | | |
|---------------------------|---------------------------|
| (1) Collar #565006 | (1) Seal-All #566726 |
| (1) Disc seal #566539 | (1) Wave spring # 564441 |
| (1) Thrust washer #566038 | (1) O-ring #565023 |
| (6) Pop rivets #564394 | (1) Warning plate #564420 |

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 overfill. An overfilled 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.

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.

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

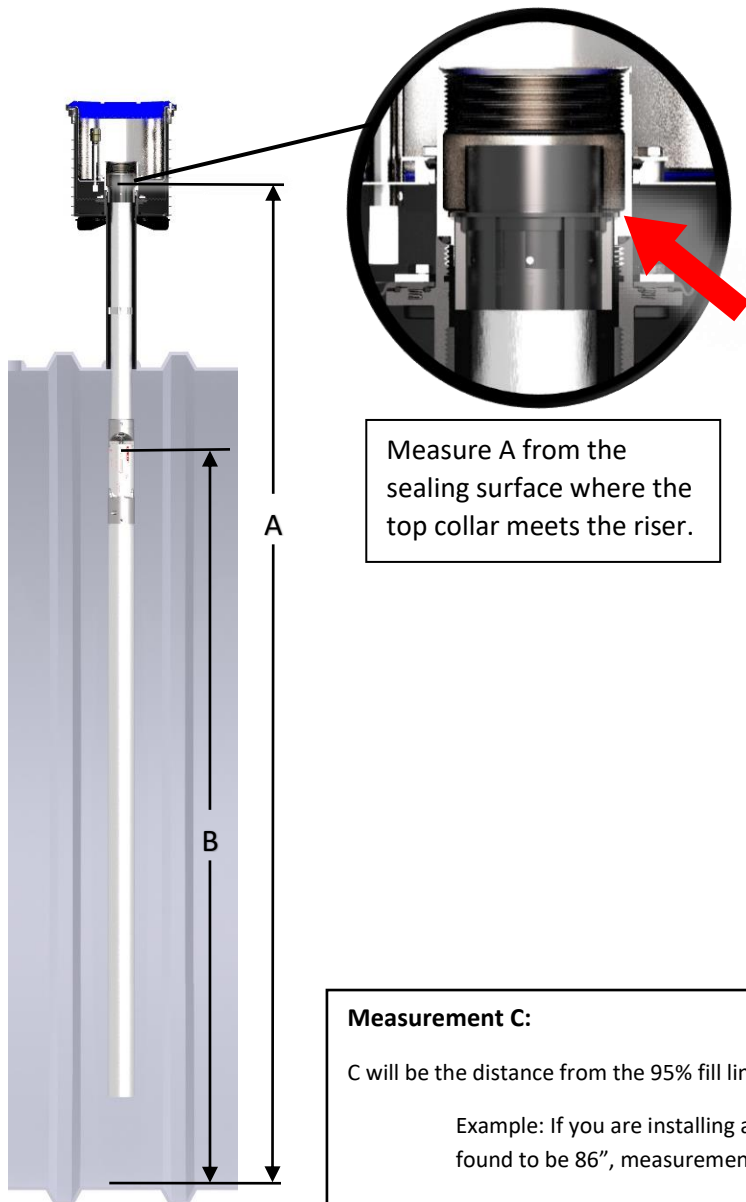
Maintenance:

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.

For complete warranty information visit www.emcoretail.com

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Measure A from the sealing surface where the top collar meets the riser.

Taking Measurements:

Measurement A:

Measure from the bottom of the tank to the top of the drop tube sealing surface or top of the 4" riser. This is distance A.

Measurement B:

To find measurement B, look up the fluid height at 95% of the total capacity on the manufacturer's tank chart.

Note: Use the closest fluid level that does not exceed 95% capacity that is recorded on the manufacturer's tank chart.

Example: A tank has a total true capacity of 10,008 gallons (from tank chart). 95% tank capacity is 10,008 gallons x .95, or 9507.6 gallons. The closest fluid level that is at or below 9507.6 gallons is 9472 gallons. The fluid height at this capacity is measurement B, in this example 86".

Example Tank Chart					
in	gal	in	gal	in	gal
1	18	41	4008	81	9028
2	36	42	4118	82	9122
3	54	43	4250	83	9214
4	72	44	4392	84	9304
5	90	45	4548	85	9392
6	108	46	4718	86	9472
7	126	47	4890	87	9552
8	144	48	5074	88	9628
9	162	49	5270	89	9702
10	180	50	5480	90	9772
11	198	51	5692	91	9838
12	216	52	5914	92	9902
13	234	53	6148	93	9964
14	252	54	6392	94	10022
15	270	55	6642	95	10078
16	288				
17	306				
18	324				
19	342				
20	360				
21	378				
22	396				
23	414				
24	432				
25	450				
26	468				
27	486				
28	504				
29	522				
30	540				
31	558				
32	576				
33	594				
34	612				
35	630				
36	648				
37	666				
38	684				
39	702				
40	720				
41	738				
42	756				
43	774				
44	792				
45	810				
46	828				
47	846				
48	864				
49	882				
50	900				
51	918				
52	936				
53	954				
54	972				
55	990				
56	1008				

The closest tank capacity **not exceeding** 95% tank capacity

True total tank

Measurement C:

C will be the distance from the 95% fill line on the A1100 valve to the top of the drop tube. Measurement C is found using the equations below:

Example: If you are installing an A1100-085S and measurement A was found to be 145", and measurement B was found to be 86", measurement C would be as follows:

$$C = 145'' - 86'' + 2'' = 61''$$



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Cutting the drop tube:

Step 1: Measure from the 95% fill line on the sleeve of the A1100 valve to a length of C (calculated previously) and mark the top tube.

Step 2: Using a hose clamp to keep the cut square, cut the top tube on the C mark with a fine tooth hacksaw.

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

Step 3: File away cutting burrs with a fine tooth file to prevent installation damage to the O-ring seal of the collar. File a slight chamfer on the OD of the tube to allow easier installation in the collar.

Self-Sealing Models Only: Remove thrust washer (p/n 566038, supplied) and wave spring (p/n 564441, supplied). Place thrust washer first, then wave spring over the top tube.

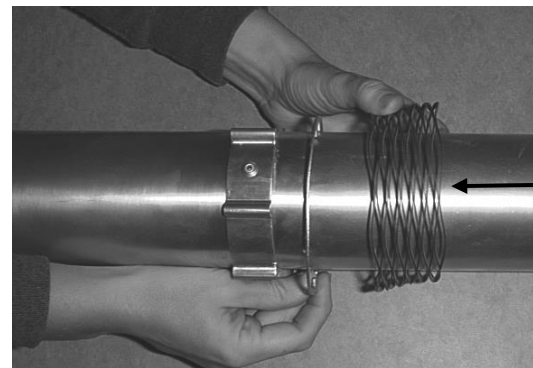
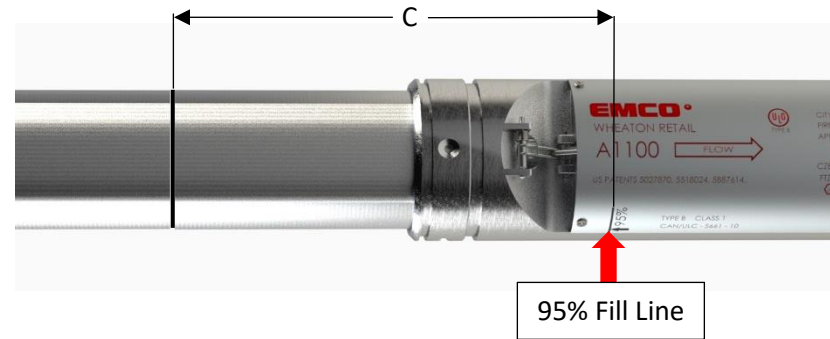
Installing the collar to the top tube:

Step 4: Insert the o-ring (p/n 565023) into the o-ring groove in the collar.

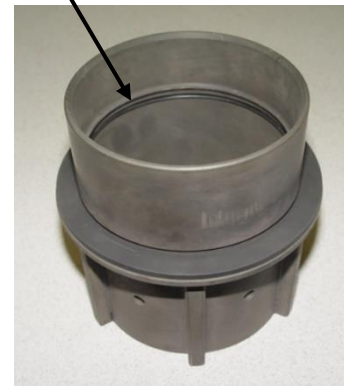
Step 5: Liberally lubricate the top 1" of the OD of the top drop tube with Seal-All. Slide the collar on the top drop tube, smallest end up, and push down past the o-ring until the tube stops at the lip inside the collar.

Step 6: Using the collar as a guide, drill (1) 13/64" diameter hole through the top tube. Place a rivet (p/n 564395, supplied) through this hole to maintain correct orientation of the drop tube and the collar. Drill the remaining 5 holes. Fasten the collar using the rivets (p/n 564395). Apply Seal-All liberally over the rivets before they are installed, to prevent leaks.

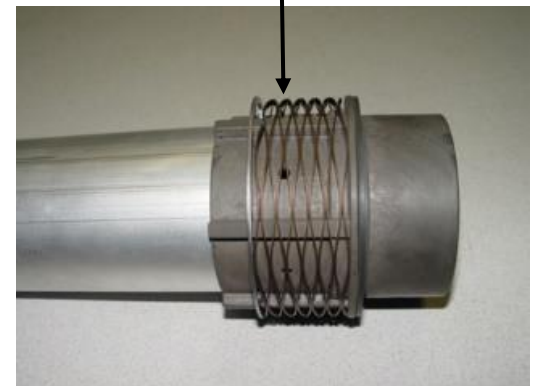
Self-Sealing models only: Push the thrust washer with grooves on the outside of the collar and push up onto the collar.



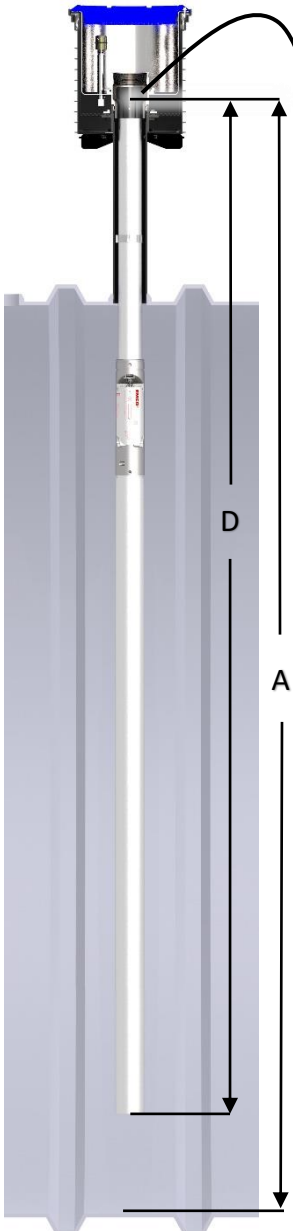
Install O-ring



Washer Should Fit Over Collar As Shown

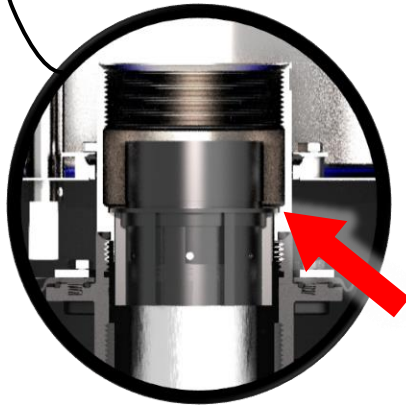
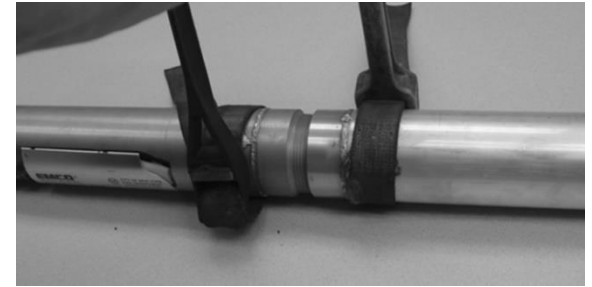


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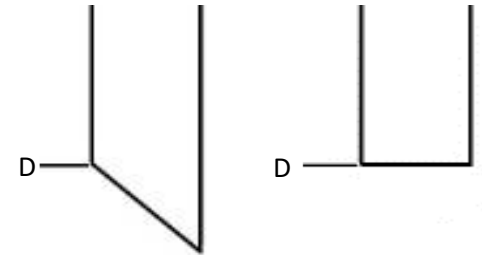
Connect the A1100 to the lower drop tube:

- Step 7:** Apply a liberal coat of pipe dope to the male threads of the A1100 base.
- Step 8:** Screw the male threaded end of the A1100 into the threaded end of the drop tube by hand to prevent cross threading.
- Step 9:** Tighten the A1100 to the drop tube with a set of strap wrenches to prevent raising burrs on the aluminum parts.



Measure A from the sealing surface where the top collar meets the riser.

45° Cut (left) vs. Strait Cut (right)



Cutting the lower drop tube:

Step 10: Measurement D is the length from the sealing surface of the top collar to the end of the bottom drop tube. To find measurement D you will use measurement A (the distance from the bottom of the tank to the drop tube sealing surface) with the following equations:

Self-Sealing Models:
(A1100-085S, -086S, -087S)

Non Self-Sealing Models:
(A1100-065S, -066S, -067S)

$$D = A - 4$$

$$D = A - 6$$

Example: If you are installing an A1100-065S, and measurement A was found to be 145", D would be calculated as:

$$D = 145'' - 6'' = 139''$$

Measuring from the top sealing surface on the collar, mark measurement D on the bottom drop tube.

Step 11: Using a fine tooth hack saw, cut the lower drop tube at measurement D. A 45 degree cut is allowed, but the shortest point of the cut should start at length E.

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

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Installation of completed assembly:

Step 12: Turn the completed assembly upside down and shake vertically to remove any metal chips left from the cutting and drilling process.

Step 13: With the assembly upright, position the completed assembly over the riser pipe. Carefully lower the assembly into the riser pipe until the collar rests on the sealing surface.



Step 14: Use the extension spring to clamp the warning plate onto the riser. Make sure the label is facing up.

Non Self-Sealing Models:

Reinstall the fill adapter onto the riser and tighten. Do not use pipe dope on the threads as the adapter seals on a gasket.

Note: EMCO recommends installing the EMCO A0032-001 Adapter Clamp to prevent the adapter from loosening in use.

Self-Sealing Models Only:

It is critical that the A0089-001 Fill Adapter is properly installed to allow proper vapor flow. Improper installation can result in reduced vapor flow that will prevent a normal fuel drop.

Step 1: Apply pipe dope to the adapter and riser pipe threads. Avoid applying pipe dope to the spring or thrust washer.

Step 2: Position the adapter on the riser and begin to turn the adapter to engage the riser pipe on the threads.



Self-Sealing Models Only:

Step 3: Once the threads engage, turn the A0089-001 adapter 4 turns. The adapter is not designed to seal on the riser.



Step 4: Apply minimal torque (30 ft lbs max) to seat the adapter

Step 5: Tighten the set screws (7-10 ft lbs) to secure the adapter to the riser pipe

Note: EMCO recommends installing the EMCO A0032-001 Adapter Clamp to prevent the adapter from loosening in use.