



494794EVR-CM/494795EVR-CM Primary Replacement Kit For A1004EVR-316S-CM & A1004EVR-317S-CM

Installation Instructions

****The switch should be checked using the following procedures before the bucket is disassembled to make sure the existing switch is defective.***

****Push button is no longer supplied with repair kits. When troubleshooting the CM sensor, it is recommended to remove and discard the push button assembly to prevent any future false alarms. (A 1/2" diameter x 12" long rod can be used.)***

The Emco Wheaton CM style buckets have two basic types of switches. The early buckets (prior to 2010) have the switch in the sidewall of the secondary bellows. These buckets have a dipstick in the monitor tube that can be used to detect water in the interstitial space in addition to the switch. The later units have a monitor tube cap that is marked "remove to test".

A1004 - CM Switch Troubleshooting

1. Read VR (Veeder Root) fault codes. (Make notes.)
2. Inspect all buckets for water in interstitial space. If water is present, pump all water out, and test the interstitial integrity to determine where the problem is that allowed the water to enter.
3. Locate switch wires at VR panel or at the junction box (in the area of the bucket). Measure resistance of switch.
 - Good checks 1-2 ohms. OK at <10 ohms
 - Cut wire checks open (infinite resistance)
 - Switch activated (float up) checks 95-100k ohms
4. Check all bucket switch wires at the VR panel or junction box considering the possibility of wires being crossed or mislabeled (incorrect wiring at the VR panel or at the junction box).
5. If the switch checks open (wire cut) manipulate wire connections at the junction box of the problem bucket while monitoring ohmmeter at VR to see if an intermittent short exists.
6. Cycle the switch manually using one of the following methods:
 - Water method (early units <2010)
 - Remove the primary
 - Push the push button
 - Use a rod to push down into the monitor tube to activate float simulating fluid in the bucket, (if so equipped)Measure the resistance at the VR panel or junction box to confirm proper operation. If you activate the push button and do not see any change in the switch resistance that would indicate the switch has been made, it is likely that the push button (or rod) is not long enough to activate the switch. Adjust the push button by approximately 1/16" increments as required.
7. If the switch is being used on a non-Veeder Root system: check the System requirements. The standard Emco switch has a 100,000 ohm resistor across the switch leads as required by Veeder Root and some other systems. Some systems will fault out and show the system in alarm because of this resistor and would need to be changed to a non-resistor type switch.
8. Check the system by removing the push button to see if this removes the fault. If it does, the push button should be removed and tested manually with a rod, and the push button adjusted shorter, by 1/16" increments as required.
9. Determine course of action to correct the problem.

If switch replacement is required, proceed with the following steps.



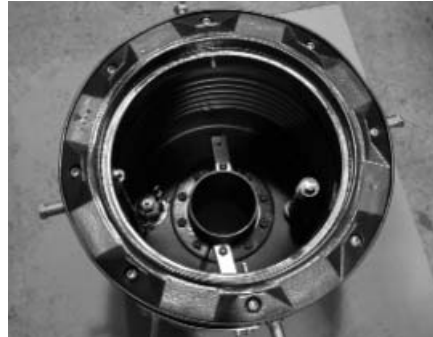
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Emco Supplied Parts

Primary Bellows Assembly
Lid w/seal
Primary rim
(8) $\frac{3}{8}$ " x 1" long bolts
(8) $\frac{3}{8}$ " x $1\frac{1}{4}$ " long bolts
(1) Rim gasket
A0031-175K Riser Extension
(2) Bellows support ring segments
Use only if required; see step 5

Required Tools

$\frac{9}{16}$ " socket
 $\frac{3}{8}$ " socket
12" extension and ratchet
Chain wrench or strap wrench
Emco A0081-001 Adapter Wrench
Plumbers putty or heavy grease
(if vacuum testing)
 $\frac{1}{4}$ " Allen wrench
Emco A0081-001H Primary
Removal Wrench
Tape Measure
Hacksaw
Sandpaper or file

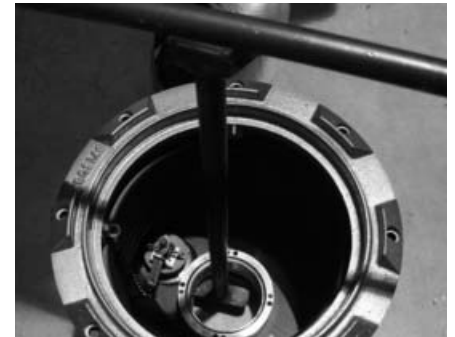


Step 1: Remove lid, cap and adapter; set aside. Disconnect drain chain if present. If date and model number tags are present, remove and set aside.

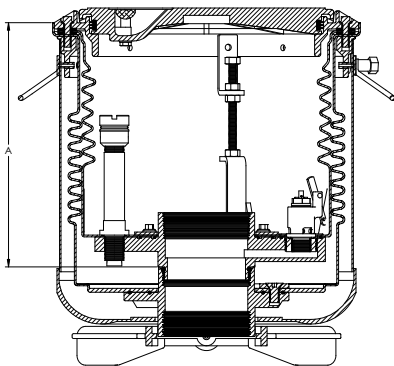
Remove and discard push button. Do not reuse as this will not work in the new primary unit and will likely cause the sensor to stay in alarm.



Step 2: Remove the rim bolts from the primary rim. Discard bolts.



Step 3: Remove primary unit using the A0081-001H Wrench by inserting the wrench into the drain channel. Discard primary unit.



Step 4: Measure from grade down to the top of the secondary flange as shown by dimension "A" above. If dimension A is greater than 13", install A0031-175K Riser Extension included with the kit. **Do Not** use pipe dope on either set of threads.

Step 5: If the secondary has noticeable indentations, proceed to step 6. If not, proceed to step 7.

If there are no noticeable indentations, the bellows support ring segments are not required and can be discarded.



Step 6: Slide both bellows support ring segments underneath the secondary bellows, lining up holes in the secondary bellows. The longer bolts may be required.



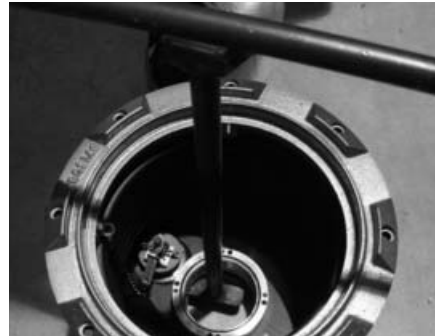
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Step 7: Place new bellows gasket over the secondary bellows holes.

Step 8: Dry fit new primary bellows using the A0081-001H to tighten lining up the holes in the primary bellows with the rim holes in the secondary bellows.

Step 9: Check monitor tube to see if sensor bracket lever is aligned with the monitor tube. If not, mark the position of the monitor tube in the bottom of the secondary bucket and remove primary bellows assembly.



Step 10: Remove the bolt that holds sensor bracket in place. Reposition sensor bracket so that the bracket lever pad is over the mark made on the bottom of the secondary bellows from Step 7.

Step 11: Once monitor tube is properly aligned with the sensor bracket lever, install the new primary bellows using the A0081-001H to tighten lining up the holes in the primary bellows with the rim holes in the secondary bellows.

Step 12: Loosely install the (8) $\frac{3}{8}$ " x 1" bolts into rim. **Make certain that the bolts engage threaded hole under secondary bellows before proceeding.** If washer segments were used in Step 6, the $\frac{3}{8}$ " x $1\frac{1}{4}$ " bolts may be required.



Step 13: Tighten all 8 bolts to 20 ft. lbs.

Step 14: Install adapter and cap per instructions included with each. Reattach date and model number tags.

Step 15: Test sensor assembly.



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Step 16: Testing

Perform one of the following test procedures as specified by customer:

Integrity Test - perform per following procedure, with customer specified cap and adapter.

Hydrostatic Test - perform if specified per customer or local regulations. Perform per local guidelines.

Integrity Test Procedure

Equipment (not supplied)

Emco A1004-210TEST Vacuum Apparatus w/test adapter 494343

Emco 494833 Test Cover

Timer

Air supply

Procedure

1. Line top surface of stainless steel bucket with plumbers putty as shown. (Heavy grease may be used, but may not work properly on rough surfaces.)
2. Place test cover over plumbers putty or heavy grease.
3. Insert brass plug from test unit into opening in test cover (A).
4. Attach air pressure source to air pressure regulator on vacuum apparatus.
5. Slowly apply vacuum of 30" water column (2.2" mercury) to the interstitial space, by moving the toggle switch. Wait 30 seconds. Reapply 30" water column.
6. Ensure switch is in off (center) position, start timer and record remaining vacuum after 1 minute.
7. If the remaining vacuum after 1 minute is 26" water column (1.9" mercury) or greater, the containment is tight.
8. If the test fails, determine if leak point is at test cover seal, cap or adapter, or base flange o-ring by spraying a soap solution to each area and watching for bubbles. Repair as required and retest.
9. Replace components.



Follow-Up Testing

If follow-up or annual retesting is required by local/state regulation, use the above procedure.

Tank Operator Responsibilities

Tank operator must ensure that all Federal, Provincial and local codes are being met during the filling of the tank.

All operators must be familiar with proper filling procedures.

The operator responsible for transferring product to an above ground storage tank must take all reasonable steps to prevent spillage.

The delivery hose from the tank's fill pipe must not be disconnected before the hose has been drained completely.

When tank vehicles are being unloaded, the vehicle operators must remain

- (a) in constant view of the transfer nozzle and fill pipe; and
- (b) in constant attendance at the discharge control valve.

Emco Wheaton Retail

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