



MANUFACTURER'S REPRESENTATIVE
Specializing in the Water and Wastewater Industry

SERVICE BULLETIN

GORMAN-RUPP AUTOMATIC AIR RELEASE VALVES MAINTENANCE AND REBUILD

Gorman-Rupp's Automatic Air Release Valve (ARV) is designed to vent the air from a Gorman-Rupp self-priming centrifugal pump during the priming cycle. After the pump is fully primed, the valve automatically closes (spring compressed) and remains closed until the pump stops, then re-opens in preparation for the next priming cycle. This Service Bulletin provides general instructions for periodic maintenance and rebuild.



Periodic Maintenance

Periodically, grease should be *lightly* applied to the grease fitting and the shaft should be sprayed with WD-40 (Non-lithium grease or similar products). This should be done as part of routine maintenance per the Gorman-Rupp O&M manual. If the ARV is not functioning properly, operator should first check the inlet and outlet piping for clogs.

Rebuilding a Gorman-Rupp Automatic Air Release Valve

When the ARV is not operating properly, it can be replaced or rebuilt. The following instructions describe the procedures required to rebuild the ARV.

Ordering Parts for Rebuild

When ordering parts for an ARV, customer will need to provide the system's static discharge head reading to ensure the proper spring is provided. Please contact Envirep if assistance is needed to make this determination. There are (3) spring options based on the systems static discharge head.

Type	Paint Color	Part No.	Material Code	Pressure Range
Light	Red	38571-715	17110	4' - 17'
Medium	No Paint	38571-610	17110	18' - 49'
Heavy	Black	38571-717	17110	50' and above

Gorman-Rupp Parts Required



One (1) Diaphragm
38676-404 (19260)



One (1) Roll Pin
21154-709



One (1) O-ring
S816



One (1) Compression Spring
38571-715 (17110) - red paint
38571-610 (17110) - no paint
38571-717 (17110) - black paint



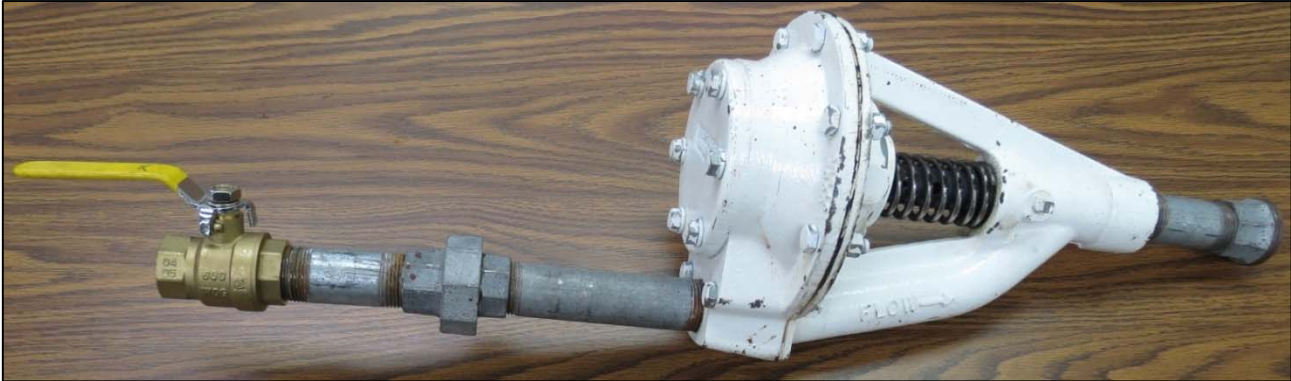
One (1) Spring Compression Tool
48781-003



WARNING

Before attempting to service the ARV, disconnect or lockout the power source to ensure that the pump will remain inoperative. Follow proper lockout/tag-out procedures. If the application involves volatile, corrosive or hazardous liquids, wear protective safety equipment, such as goggles, gloves and apron when servicing the ARV.

Note: Proper installation of an ARV should consist of a union on each side of the inlet and outlet piping of the valve with an isolation ball valve installed prior to the inlet union.



Rebuild Procedures

1. Isolate pump by closing discharge isolation valve and draining water from pump volute so that water level is below ARV connection point. Close the ARV isolation ball valve.
2. Disconnect inlet and outlet unions to remove ARV from service. Or, disconnect inlet union and thread valve off of outlet piping.
3. Using two (2) 9/16 wrenches, remove the eight (8) cap screws and hex nuts to disassemble the valve cover from valve body. Using a putty knife, pry the diaphragm from the valve cover and then separate cover from housing.



4. Insert screw driver into one of the spring adjusting pin holes to stabilize the shaft for removal of outer and inner diaphragm washers and locknut. Remove diaphragm and discard. Remove roll pin from ARV shaft using Gorman-Rupp's spring compression tool and a pair of needle nose pliers.





WARNING

Tension applied to the compression spring is great enough to cause serious injury to personnel if spring should slip and be ejected. Wear safety glasses, use a suitable spring compression tool, ensure personnel are clear of the work area and use extreme caution when installing or removing springs.

5. Remove shaft from valve body. Relieve some of the pressure from the compression tool, but not all. Unseat the spring by pushing the spring compression tool outwards. Be careful when doing this step as noted in the warning above. The spring is under applied pressure and will release upon removal. Using a pick, remove the o-ring from inside valve body where shaft was inserted and replace with new o-ring.



6. Place valve body upright on a flat surface and install a new spring, reusing the existing spring retaining washer.



7. Lubricate shaft with WD-40 and reinstall into valve body.



8. Install new diaphragm and re-use existing inner and outer diaphragm washers and locknut. Insert screwdriver into one of the spring adjusting pin holes to stabilize the shaft and tighten locknut until snug.



9. Re-attach valve cover to valve body re-using the eight (8) cap screws and hex nuts that were earlier removed. Bolts should be tightened until diaphragm is pushing outward along the edge of where the valve cover meets the valve body.



10. Install replacement roll pin in ARV shaft using the spring compression tool. There are five (5) holes where the pin can be placed. Depending on which spring is being used (based on static discharge head) determine where the pin should be placed. The hole closest to the diaphragm represents the lowest fifth of the springs static discharge head range and the hole furthest from the diaphragm represents the highest fifth of the springs static discharge head range.

Refer to the section titled, "Adjustment," in your Gorman-Rupp O&M manual to make a pin placement determination for your specific application.



11. Reinstall ARV being sure to apply grease to grease fitting.
12. Once the ARV is reinstalled, fill the pump with water, and close up the pump. Open discharge plug valve and re-engage power source. Open the isolation ball valve and run the pump to ensure that ARV is operating properly.

Note: Anytime a repair or service is done to a pumping system, gauge readings should be verified before and after the work is completed. Those readings should be compared to the system design conditions. This will ensure proper hydraulic operation. Refer to the pump system startup report for a base line before the work is done. Contact Envirep for a copy of the startup report if it is not onsite.

*** *For more information, please contact Envirep's Service Department @ 717-761-7884 or email a request to service@envirep.com.* ***

Envirep maintains a large inventory of genuine factory parts for **Gorman-Rupp** pumps and equipment for the water and wastewater industry. Please call our dedicated parts sales team for assistance in selecting and ordering parts for your equipment.