

Revisions to this document are noted
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INSTRUCTION SHEET NO. 367, Rev. A
P/N 29565591
March 03, 2021
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SUBJECT: Retarder Air Accumulator—Installation of Piston and Seals

MODELS AFFECTED: All 3000/4000 Series

Use this instruction sheet to help select the appropriate end cap O-rings, and to help in the assembly process.

Table 1. Accumulator Seal Kits

Part Name (indented indicates content)	Qty	P/N
Seal Kit	1	29563811
Piston Lip Seal	2	29563171
Sealring (Slide Ring)	1	29527009
End Cap O-ring (Aluminum)	2	29534489
Seal, Piston, Nipple Conversion Kit	1	29565564
Instruction Sheet #367	1	29565591
Sealring (Slide Ring)	1	29527009
Piston Lip Seal	2	29563171
Piston (A)	1	29564913
End Cap O-ring (Aluminum)	2	29534489
End Cap O-ring (Steel)	2	29527010
Nipple With Sealant	1	29563216



NOTE: Use Seal Kit P/N 29565564 to convert former TID 1, 2, 3 or TID A, B accumulators to current configuration accumulator. Former accumulator designs include P/Ns 29534483 and 29544596 (3000 Series™) and 29534484 and 29544648 (4000 Series™). Use Seal Kit P/N 29563811 to service current configuration accumulator.

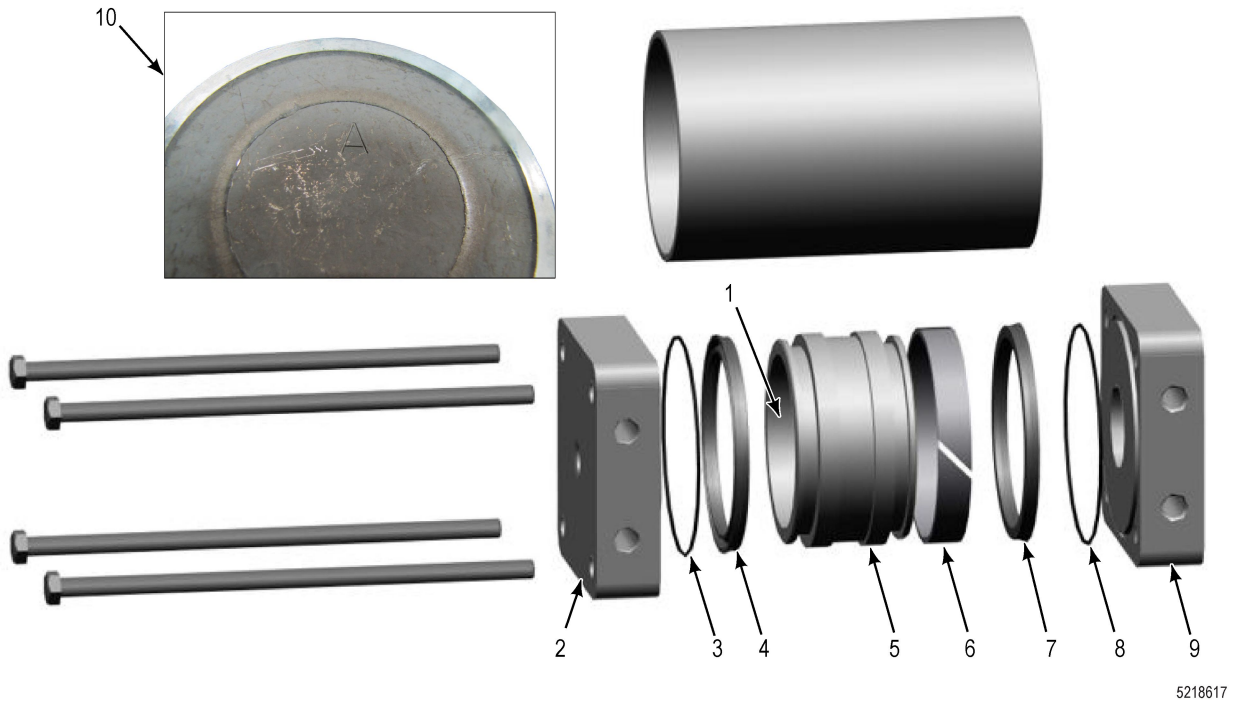


Figure 1. Parts Used to Assemble Cylinder

Table 2. Figure 1 Legend

Reference Number	Part
1	Concave Side of Piston Facing Air Side End Cap
2	Air Side End Cap
3, 8	O-ring
4, 7	Seal, Lip
5, 10	Piston (A) on Fluid Side Face
6	Sealring
9	Fluid Side End Cap



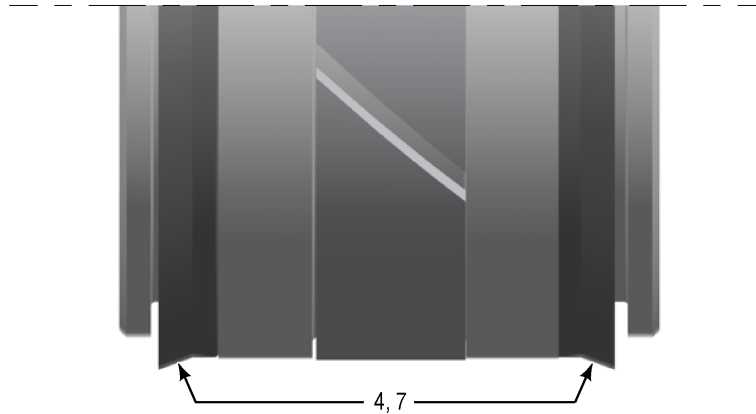
WARNING: Relieve residual air pressure from the vehicle air system to the inlet side of the accumulator air solenoid valve prior to disconnecting air supply to remove the accumulator from the vehicle.



NOTE: The concave/cupped side of the piston faces the air solenoid valve end cap in all accumulator models. Lightly lubricate piston seals with clean transmission fluid just prior to installation into the accumulator cylinder. Verify cleanliness of all components prior to assembly. If uncertain of end cap material, check with a magnet to determine if aluminum or steel, then use [Table 1](#) to select the proper end cap O-rings.

1. Install the piston (A) into the cylinder bore with one lip seal groove exposed.

2. Install a piston lip seal on the piston, larger outside diameter section of taper facing outward (refer to [Figure 2](#) and [Figure 3](#)).

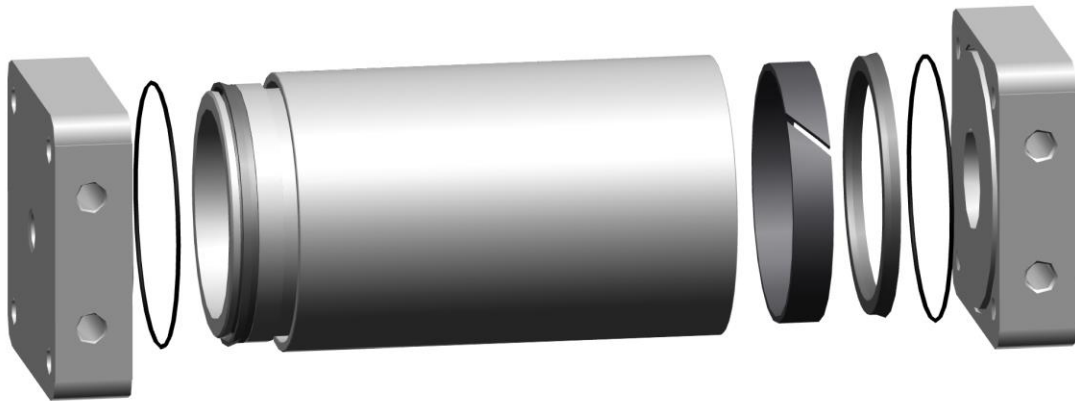


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Figure 2. Piston Lip Seal Orientations

Table 3. [Figure 2](#) Legend

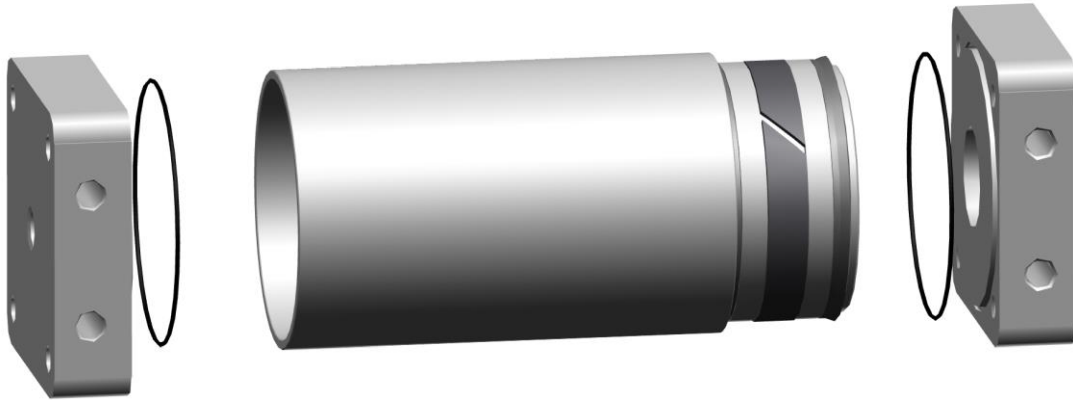
Reference Number	Part
4, 7	Seal-Larger Outside Diameter Section of Taper Facing Outward



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Figure 3.

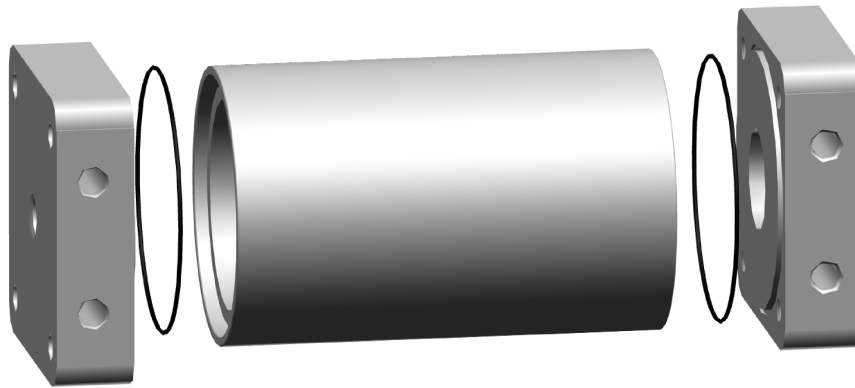
3. Press the piston and seal through the bore, being careful not to damage or roll the installed piston lip seal. Press until you expose the piston at the opposite end while leaving the first seal inside the cylinder bore (refer to [Figure 3](#)). Install the second piston lip seal, larger outside diameter section of taper facing outward, and install the sealring (refer to [Figure 4](#)).



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Figure 4.

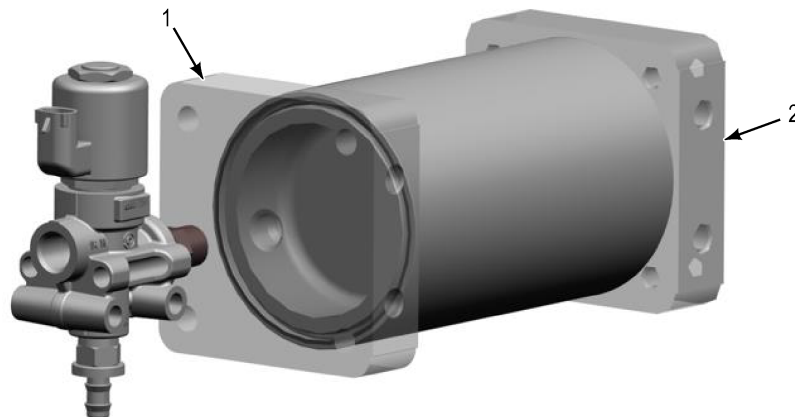
4. Press the piston assembly back into bore. Be careful not to roll or damage the installed piston lip seals. Lubricate again, if needed, before moving the piston fully into the cylinder (refer to [Figure 5](#)).



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Figure 5.

5. Install the O-ring seal inside the air solenoid valve side end cap. Install the air side end cap on the concave side of the piston (refer to [Figure 6](#)).



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Figure 6. Air Side End Cap Partially Transparent – Showing Concave Side of Piston

Table 4. Figure 6 Legend

Reference Number	Part
1	Air Side End Cap
2	Fluid Side End Cap

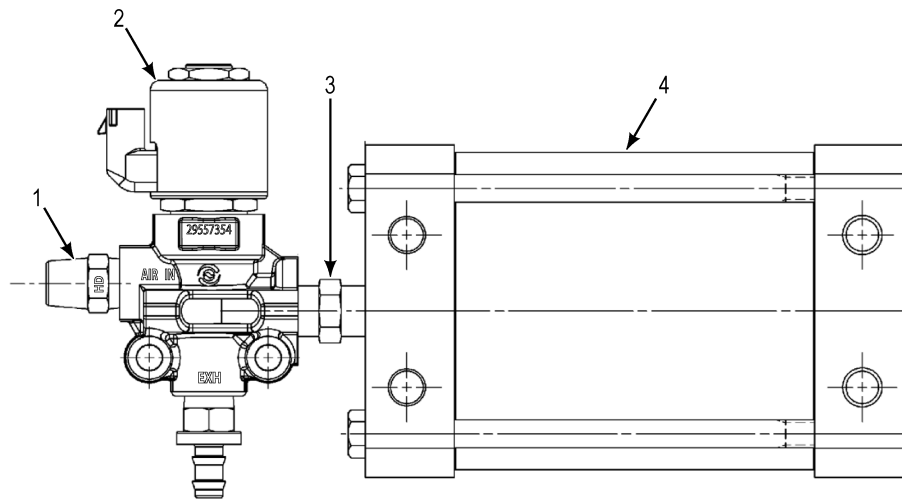
6. Install the O-ring seal inside the fluid side end cap (refer to [Figure 6](#)). Install the fluid side end cap and O-ring seal on the cylinder. Install the appropriate O-ring seal on the air side end cap. Install the air side end cap and O-ring on the cylinder. Install the 4 bolts through the air side end cap into the threaded fluid side end cap and torque the bolts to 32–36 N·m (24–27 ft-lb). Run the bolts to contact first, then tighten fully in a cross pattern. Visually inspect both ends of the assembly to ensure the O-ring seals are not visible at either end.

When replacing the air solenoid valve nipple:

1. Install the nipple with pre-applied sealant into the air solenoid valve.
2. Tighten air solenoid-to-accumulator nipple fitting (P/N 29563216) to 16 N·m (12 lb-ft).
3. Install air solenoid valve and nipple assembly into the accumulator end cap.
4. For 4000R or B500R, tighten air solenoid-to-air line nipple fitting with orifice (P/N 29566363) to 16 N·m (12 lb-ft).
5. Continue rotating solenoid until desired orientation is achieved (not to rotate over 360 deg after initial 16 N·m (12 lb-ft) torque is obtained).



NOTE: The nipple may be reused if sealant is applied.



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Figure 7. Accumulator Assembly

Table 5. Figure 7 Legend

Reference Number	Part
1	Nipple with Sealant and Orifice (fitting has "HD" marking and green paint to distinguish it from item 3)

Table 5. Figure 7 Legend (cont'd)

Reference Number	Part
2	Air Solenoid Valve
3	Nipple with Sealant
4	Accumulator