

Subject
Blowdown Cap Operation and Troubleshooting

System or Parts affected

UNDERHOOD® VR70 & DTM	UNDERHOOD VR150	Hydraulic Driven (Predatair)
Blowdown Cap P/N# 9200437	Blowdown Cap P/N# 9210028	Blowdown Cap P/N# 9400059

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Overview

The blowdown cap, located at the discharge end of the Air/Oil Separator Tank (AOST) (Figures 1-2), depressurizes the compressor system when it is shut down. This is done to prevent system from restarting while there is air pressure in the system, causing premature wear to the clutch.

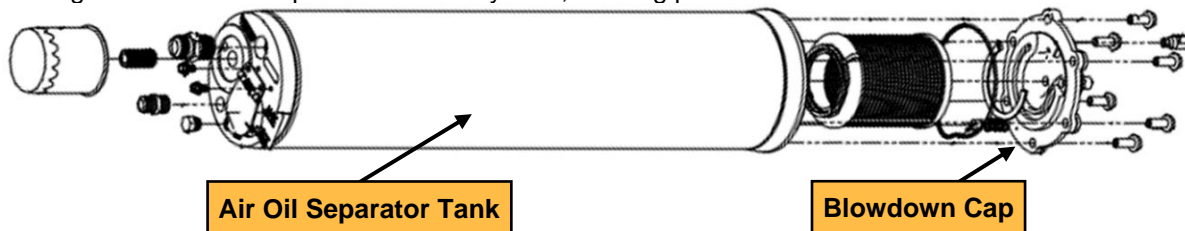


Figure 1- UNDERHOOD and DTM

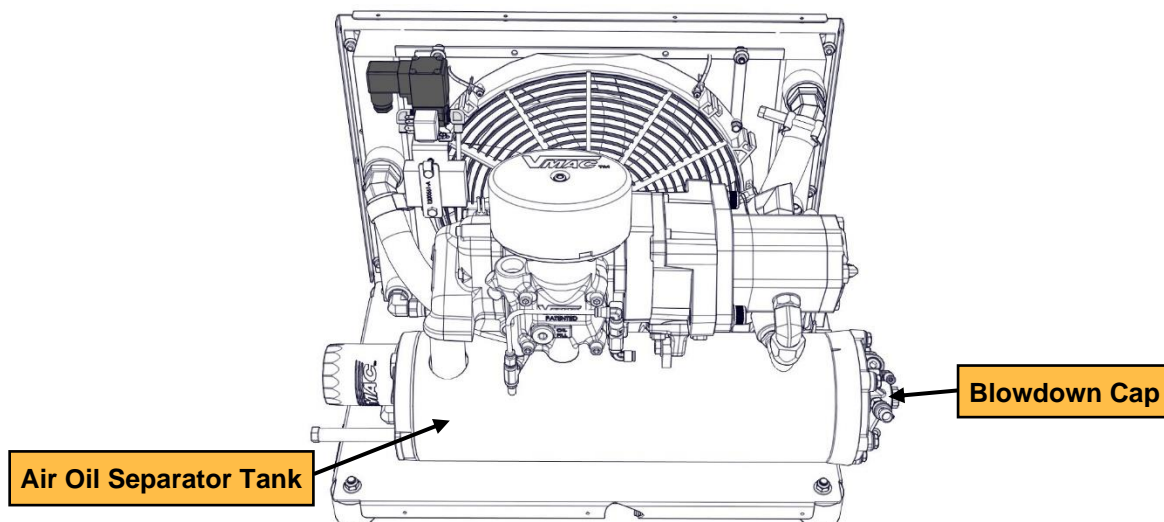


Figure 2 – Hydraulic Driven

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Symptoms of Blowdown Cap malfunction

- Oil escaping through the sintered muffler.
- Premature clutch wear.
- Blowdown does not vent after compressor shut down.
- Blowdown constantly venting during compressor operation.
- System takes a long time to blow down.

Components

- **200 psi Pressure Relief Valve:** a safety valve, used to protect the system from over pressurizing resulting in damaged components or tools.
- **Blowdown Muffler:** Diffuses blowdown air and lowers the noise level when the system depressurizes.
- **3/16" Pressure Control Line:** Supplies system air pressure to the VMAC regulator.
- **1/4" Scavenge Line:** Used to route scavenged oil from the "dry side" of the AOST back to the compressor.

NOTE *If the system is equipped with Pressure Control and Scavenge lines that are constructed of braided rubber and steel, part number A700153 PTFE tube retrofit kit will be needed when replacing a Blowdown Cap.*

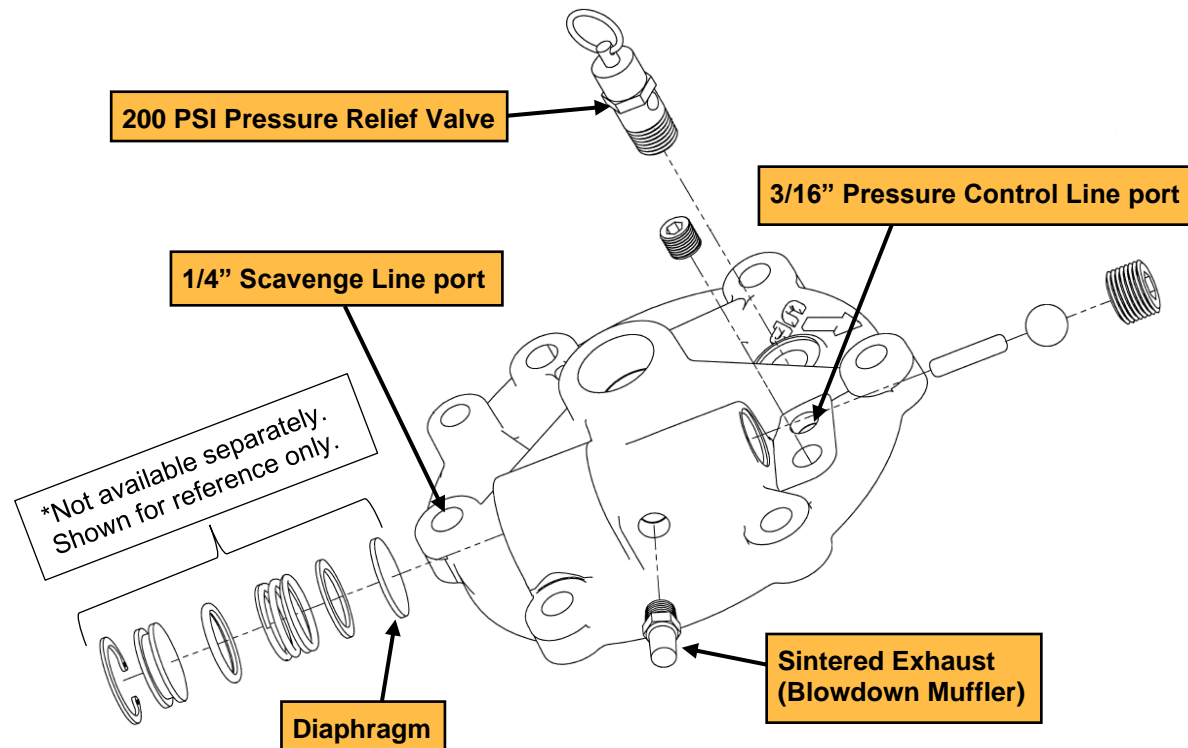


Figure 3 – Blowdown cap components

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Trouble shooting

Blowdown constantly venting during compressor operation

- Determine if venting air is from the Blowdown Muffler or the 200PSI Pressure Relief Valve.
- Check the 1/4" scavenge line for leaks, kinks or obstructions.
- Check 1/4" scavenge fittings for leaks, or obstructions.
- Inspect the scavenge port in the blowdown cap. Ensure it is not obstructed.
- Ensure the scavenge screen is not plugged.

Blowdown does not vent

- Plugged muffler: This will prevent the air pressure from venting.
- Ball seized onto seat: Remove cap from tank, and shake the cap. The ball move should move freely inside, like in a paint can.

Oil comes out of Blowdown Muffler

- Blowdown diaphragm* is damaged.
- Tank or cap mounted is upside down (Arrow on discharge cap should be pointing upwards).

System takes a long time to Blowdown

- Restricted Blowdown muffler.
- External receiver tank installed without a one-way check valve between the AOST and the tank.

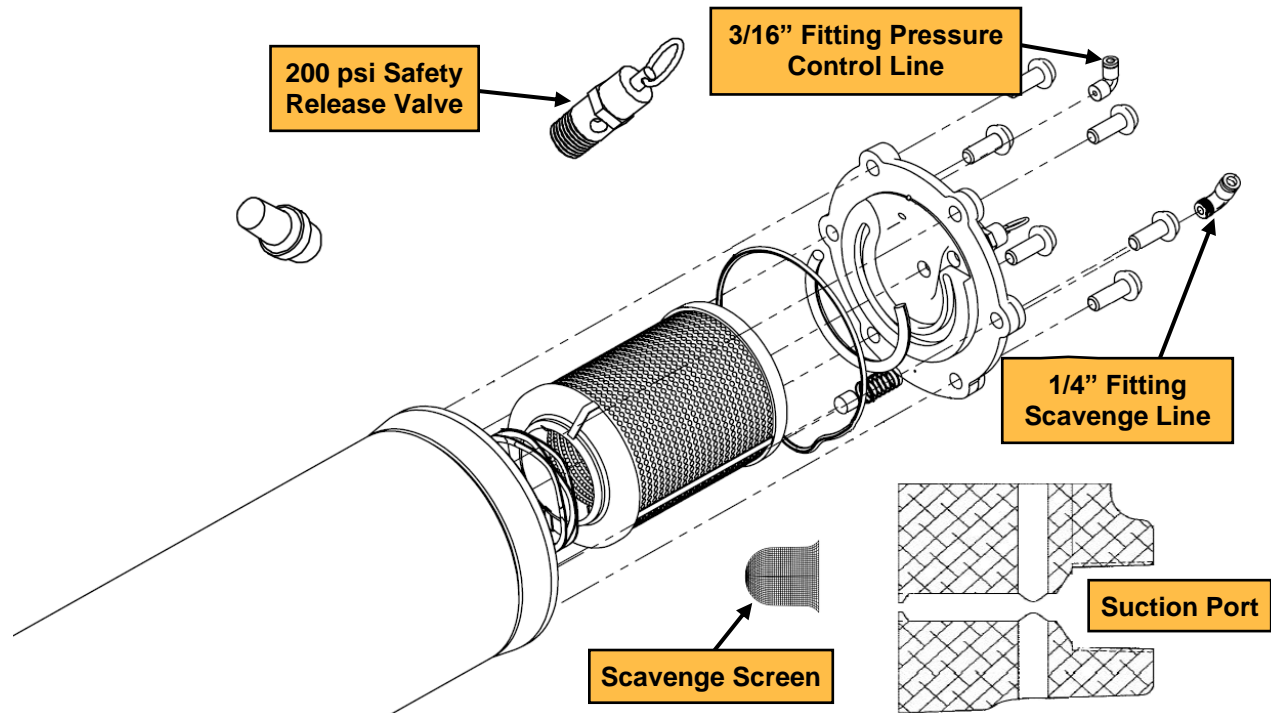


Figure 4 - Components

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How it works

When the Compressor is Turned On

Suction from the 1/4" scavenge line pulls on the diaphragm, against the spring, allowing the blowdown pin to move with the diaphragm. System air pressure forces the blowdown ball against the internal seat which stops any air from flowing through to the blowdown muffler. (Figure 5)

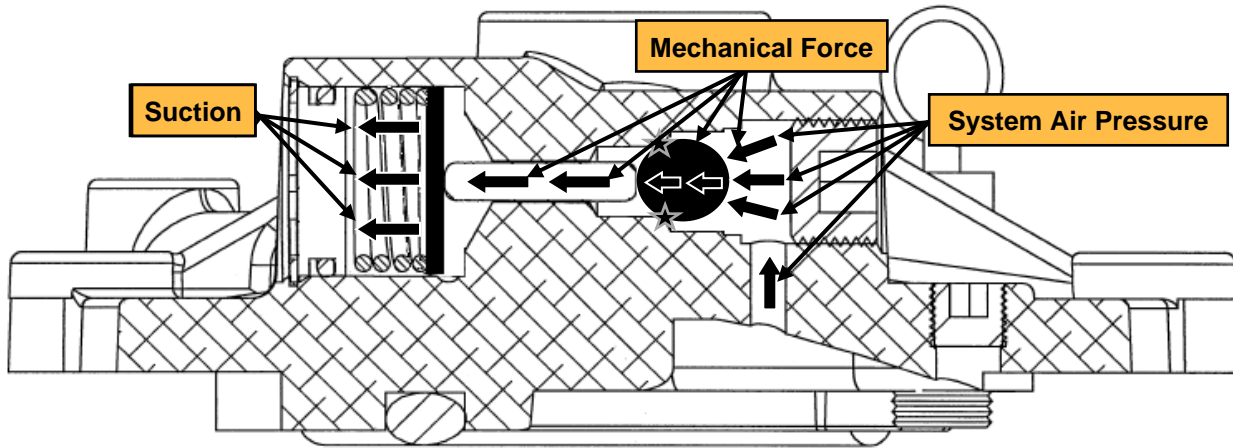


Figure 5 - Sealed

When the Compressor is Turned Off

System air pressure is applied to the blowdown diaphragm (suction only occurs when the compressor is turning). While the pressure is dropping in the ball chamber it allows the diaphragm and spring pressure to move the ball off its seat allowing air to bypass the ball seat where it vents out through the muffler. (Figure 6)

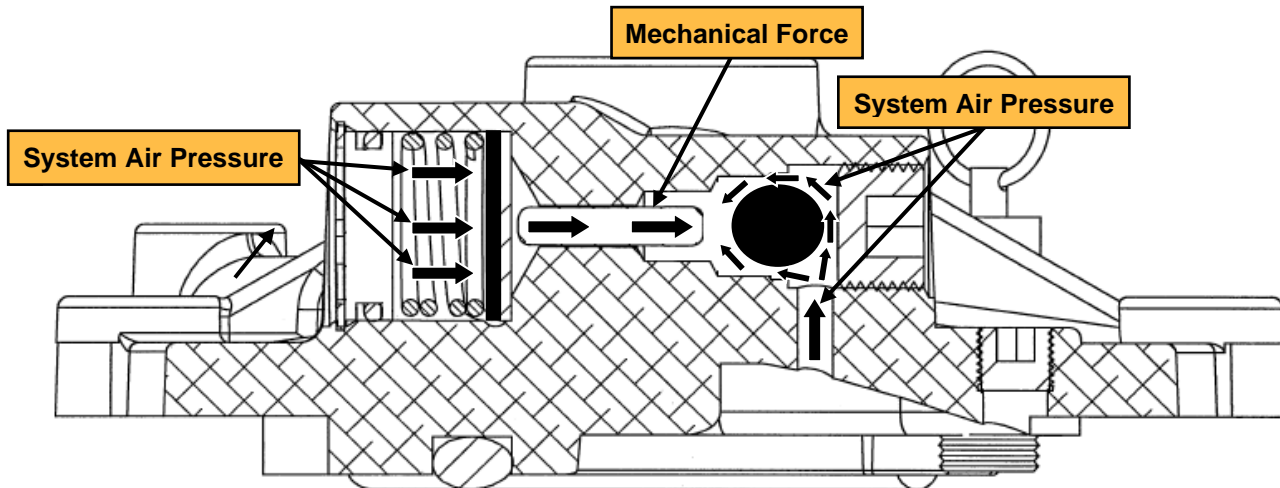


Figure 6 - Blowdown

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