Technical Support

Subject
Oil out the Air Filter (UNDERHOOD™)

System or Parts affected

- UNDERHOOD™ 70/140/150 (V900xxx/V910xxx)

Overview

Troubleshooting oil escaping from the inlet and saturating the VMAC air filter after shutting system down.

Potential Causes and Troubleshooting

Incorrect shut down procedure: Turning the compressor off while the system is building air pressure.

When the VMAC system is building air pressure, the inlet poppet valve is open to allow air to enter the system. If the system is shut off in this state, the air pressure that has built up will rush back through the open inlet, carrying compressor oil with it.

- Ensure the system has reached its maximum regulated pressure, and the discharge valve is closed, and/or no tool is currently using air.
- Allow engine to idle for 1 minute (rpm should be at “VMAC base Idle”).
- Turn off compressor.

The poppet valve is not sealing because its O-ring is either damaged or dislodged.

NOTE ***The following instructions require removal of the inlet from the compressor***.

- Rotate the compressor clutch clockwise by hand to push oil from the screws.
- Remove the inlet from the compressor. Retain the O-ring for reuse unless it is damaged.
- Remove the air filter cover and air filter from the inlet.
- Remove the air filter plate. The socket head hex screws are installed with blue Loctite. Take special care to ensure they are not stripped during removal. Some heat will be required.
- Inspect the poppet screw to ensure it is tight. (Old style inlet only - Figure 1)
- Push the poppet valve in to open and confirm that the poppet seat O-ring has not become dislodged and is not damaged. (Figure 2)

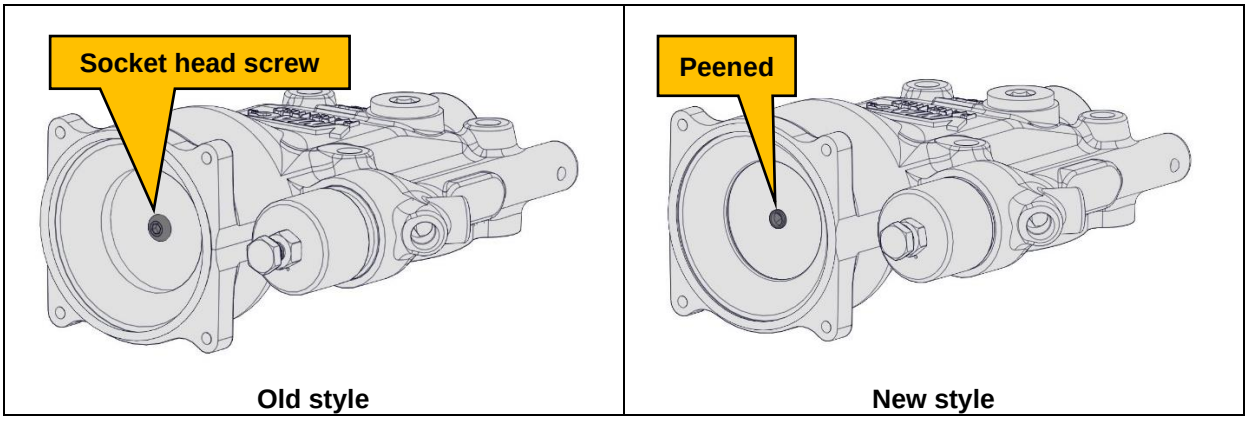

Figure 1

Document	Version	Department	Revision Details	Revised by	Tech	Engineering	Implemented
EXT-VR-014	E	Tech	Retrofit Kit updated	BDJ	MSP	N/A	3 Oct 2019

Knowledge Base: kb.vmacair.com
Email: tech@vmacair.com
Web: www.vmacair.com

Technical Support: 1(888)241-2289
Toll Free:1(800)738-8622 Fax: 1(877)740-3202

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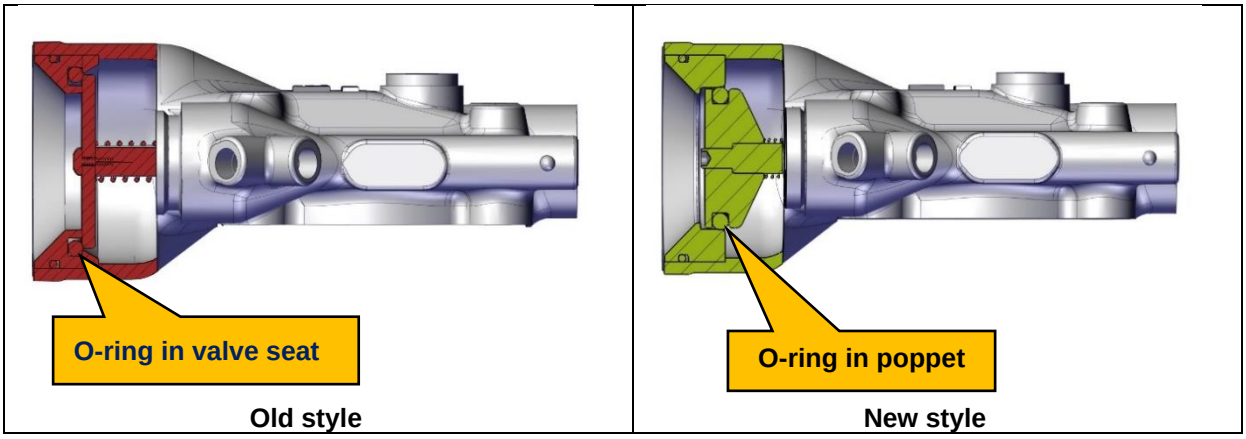

Figure 2

If it is determined that the root cause of the problem is a poor seal in an old style or new style poppet valve, it must be replaced with a VMAC part number A700283 Inlet Poppet Retrofit kit.
See the installation manual for A700283:
https://4235523.fs1.hubspotusercontent-na1.net/hubfs/4235523/Manuals/Accessories/A700283_1901117_B.pdf

Air pressure required to close the inlet valve is not reaching the inlet via the pressure control line.

When the system reaches its set air pressure the regulator allows air pressure to push the inlet valve closed. This pressure reaches the inlet via the pressure control line.
A fault in the pressure control line will produce a few simultaneous symptoms: The VMAC system will over-pressurize (200psi pressure relief valve should vent). The pressure sensor will sense low pressure, so the throttle will maintain high rpm. At shut down air and oil will blow back through the open inlet valve.

- Check the Pressure Control Line from the Blowdown Cap on the Air Oil Separator Tank (AOST) to the regulated side of the inlet assembly.
  - Undo both ends of the PTFE hose and use shop air blow through both ways.
  - Check that the passageway through the fitting into the AOST is clear.
  - Ensure that there are no kinks or damage to the PTFE hose.
  - With the air pressure in the system, use a soap and water solution to look for leaks at the quick connect fittings.

Vehicle operating at extreme angles.

The air filter plate behind the VMAC air filter functions as a dam. It typically retains a small amount of compressor oil. If the vehicle moves to an angle far enough off level, a small amount of oil could spill over the dam, enter the air filter, and drip from the filter.
The angle and direction required to release this oil depends on the orientation of compressor and inlet. Different models vary in orientation. VMAC's owner's manual recommends operation within 15° of level.

Air receiver tank in system but no check valve at AOST

If there is an air receiver tank installed downstream of VMAC's Air Oil Separator Tank (AOST) a check valve must be installed at the discharge of the AOST. The system is designed to discharge its internal pressure within seconds after shutdown. The volume of air present in a receiver tank can extend the blowdown time and force compressor oil out through the inlet valve.

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