

**Subject**  
Underhood Over / Under Pressurizing Except "G" and "Lite" Systems

- System or Parts affected**
- Underhood70 (V900xxx)
  - Underhood150 (V910xxx)

**Index**

**System or Parts affected** ..... 1

**Overview** ..... 1

**Operation** ..... 1

**Before you start**..... 2

**Troubleshooting/Diagnostics** ..... 2

Over-Pressurization ..... 2

Under-Pressurization ..... 5

**Overview**

This document explains how to troubleshoot Over-Pressurizing and Under-Pressurizing issues with VMAC VR70/VR140/VR150 Underhood Compressor systems - Excluding "G" Green Series Systems.

**Operation**

The amount of air pressure VMAC's underhood air compressor creates is controlled mechanically by the inlet valve. If the inlet valve is open the compressor will build pressure. If the inlet valve is closed it should not build pressure. (Figure 1)

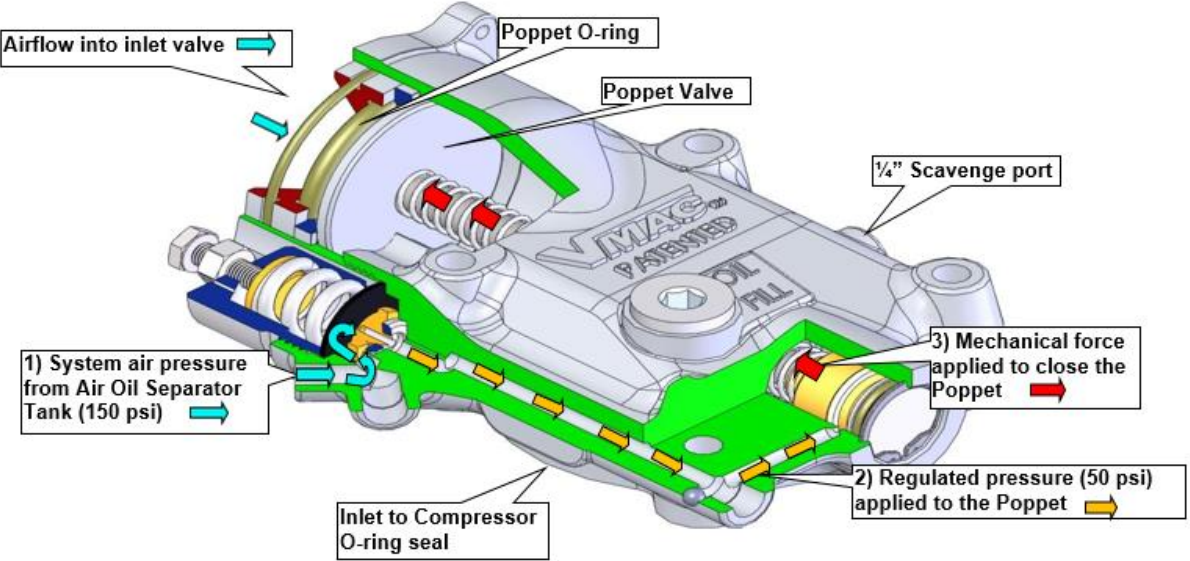



Figure 1

Document	Version	Department	Revision Details	Revised by	Tech	Engineering	Implemented
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Subject
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## Before you start



- Observe all safety procedures relating to moving belts, hot oil and compressed air. Use all safety equipment to protect yourself.
- Hot oil can cause severe burns
- If the system has been operating, shut it off and wait at least 30 seconds for the air pressure to vent before performing service.

## Troubleshooting/Diagnostics

### Over-Pressurization

System over pressurizing occurs when system builds beyond the pre-set pressure as determined by regulator adjustment and continued to build until the 200psi safety relief valve opens to vent the excess. Over-pressurizing is a result of air being supplied to the compressor after the air supply should be closed off. Either the inlet valve is not closing or there is a leak allowing air in.

- Connect VMAC Test Tool (P/N# A700052) directly to the outlet of the Air Oil Separator Tank (AOST).
- Confirm 200 PSI Safety Relief Valve (Underhood70 P/N# 3600054, Underhood150 P/N# 3600073) is functioning correctly. If the valve blows before 200 PSI replace it.
- If proper function of Safety Relief Valve is confirmed, loosen the regulator screw locknut and turn the regulator adjusting screw (Figure 7) counter clockwise two turns. Observe the test tool pressure gauge and watch to see if this results in reduced pressure. If so, adjust the regulator accordingly. (See Owner's Manual <https://www.vmacair.com/wp-content/uploads/Manuals/Underhood/Underhood-Owners-Manual.pdf> )
- Confirm Pressure Control line is not kinked, blocked, leaking, disconnected or frozen. Current systems use 1/4" PTFE while older systems used a combination steel and braided rubber 'brake line' style.
  - Age and moisture can cause the old-style steel lines to internally corrode. This corrosion can break free and abrade the liner of the braided hose allowing an internal blister to form, under system pressure, that can block or restrict flow in the pressure control line. If the pressure control line is the old-style steel and rubber line (Figure 2), it is strongly recommended to upgrade it with a PTFE conversion kit (P/N# A700153).

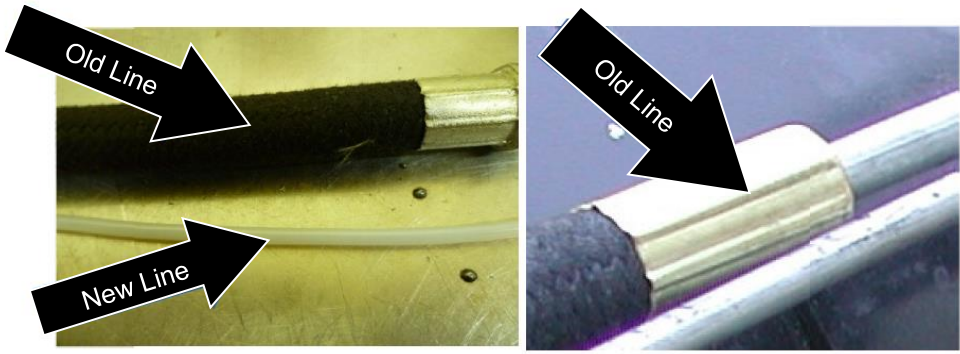


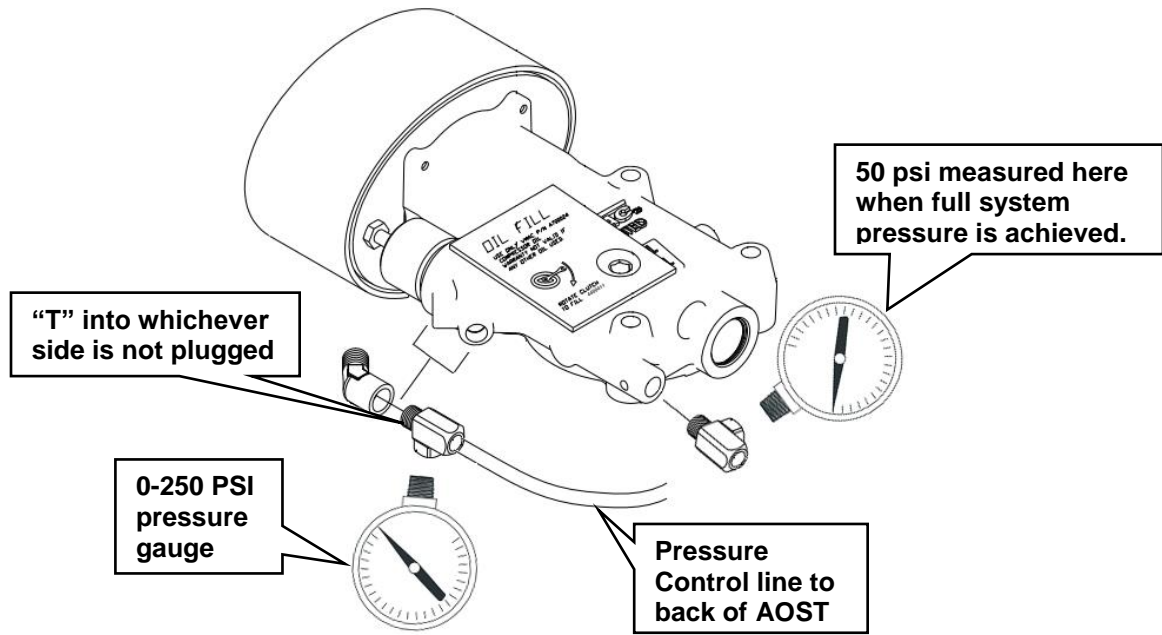
Figure 2

- If ambient temperatures are below freezing, any moisture trapped in the pressure control line can freeze, blocking the line. If freezing is a problem, install a VMAC VR De-Icer (P/N# A700031).

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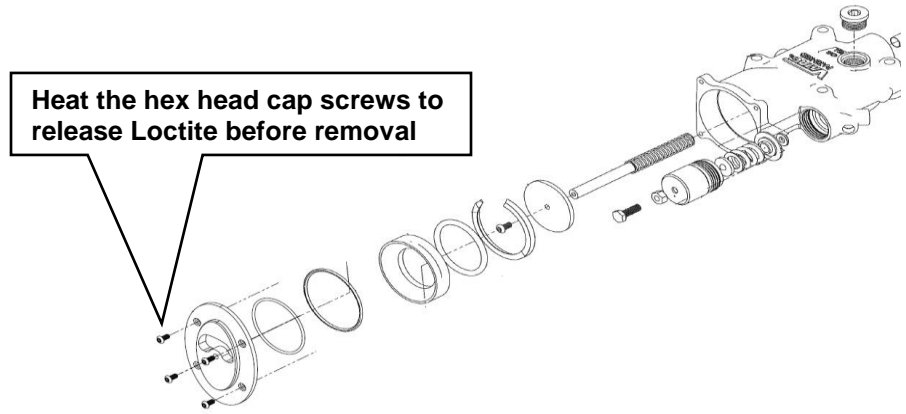
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- Confirm that there is full system pressure (Approximately 150 PSI set from the factory) reaching the inlet from the AOST via the Pressure Control Line by inserting a "T" fitting and 200 PSI pressure gauge. (Figure 3)
- When full system pressure is achieved, the regulator should supply 50 PSI to the back of the poppet piston to close the poppet. Test by removing the 1/8" NPT plug at back of inlet and installing a pressure gauge (Figure 3). If 50 PSI is present but poppet is not closing, check for sticking poppet.



**Figure 3**

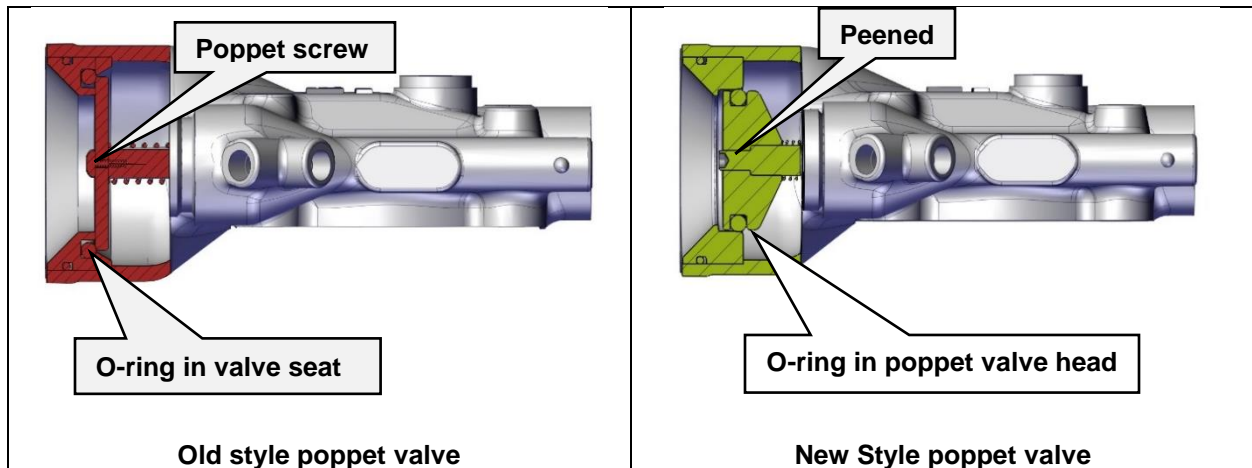
- Check for leaks at all fittings, in the pressure control line, scavenge Line, and at the AOST.
- Confirm that the screw in the front of the Poppet is tight (old style inlets) and the O-ring is in good condition (not cracked etc.) and properly seated (Figure 5).
  - Many VMAC compressor configurations will require you to remove the inlet from the compressor to perform this inspection.
  - Heat the hex head cap screws holding the filter plate on to prevent stripping them. (Figure 4)



**Figure 4**

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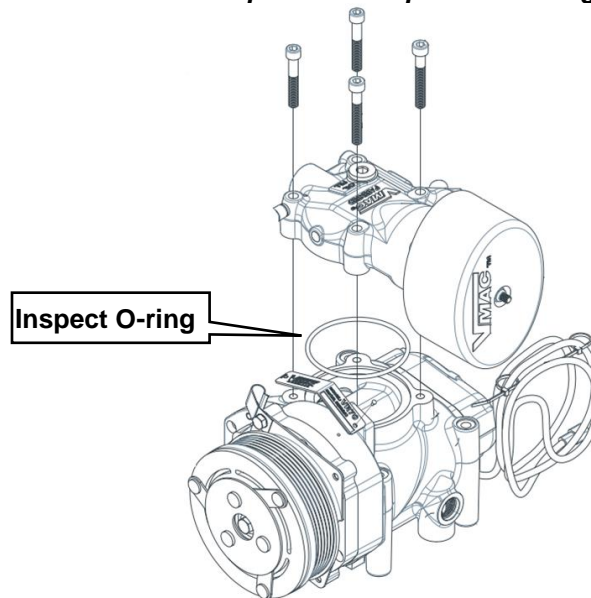
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**Figure 5**

- If the poppet O-ring in an old-style poppet valve requires replacement, replace the poppet valve with VMAC part number A700259 RETROFIT KIT, VR INLET POPPET.
- If a new style poppet valve has malfunctioned:
  - Replace damaged O-rings. See Illustrated Parts List for your system  
<https://www.vmacair.com/support/ipl/>
  - If the O-ring in the poppet valve head cannot be moved freely in its groove, replace the poppet valve with VMAC part number A700259 RETROFIT KIT, VR INLET POPPET.
- If it has not already been done, remove the inlet from the compressor. Inspect the O-ring between the inlet and compressor for signs of damage and confirm it is installed correctly. (Figure 6).

**i** *Inlet bolts can be different lengths. Note the original bolt locations to prevent compressor damage during reassembly.*



**Figure 6**

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- If the above steps do not resolve the issue, please contact VMAC Technical Support and have the System ID ready. To find the system ID see <https://kb.vmacair.com/help/identifying-your-vmac-system>

## Under-Pressurization

If the VMAC system cannot build up to full system pressure (approximately 150psi set at factory) it is said to be under-pressurizing.

- Connect VMAC Test Tool (P/N# A700052) directly to Air Oil Separator Tank (AOST).
- Ensure there is no blockage or restriction to prevent air flow into the inlet – dirty air filter, foreign object etc.
- With engine running and system turned on, loosen the regulator adjusting screw locknut and slowly turn the adjusting screw clockwise while observing the test tool pressure gauge. If pressure increases, adjust regulator accordingly (See your Owner's Manual).
- Check the bleed hole on the front of the regulator to make sure it's not plugged

**NOTE** *If the regulator bleed hole is plugged, the compressor will initially build to full system pressure but will not build pressure again after the initial air pressure is exhausted.*

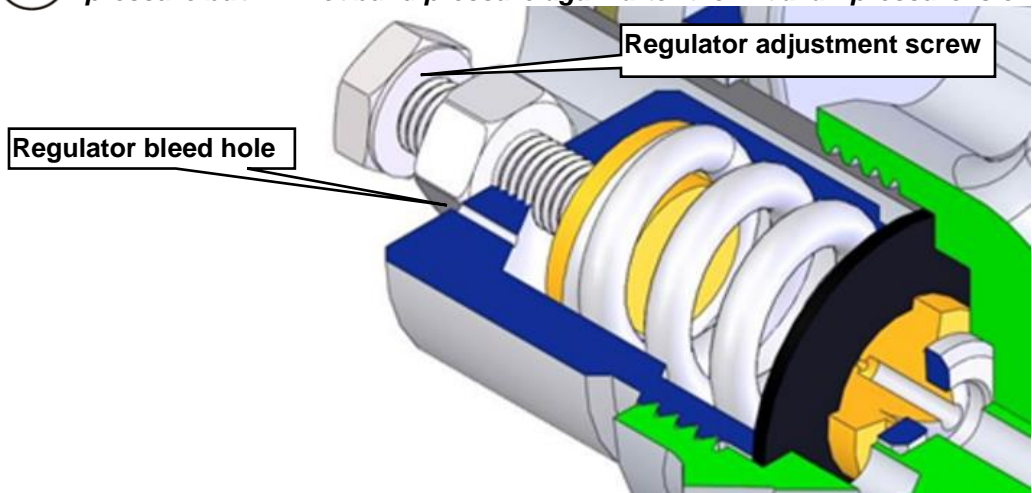


Figure 7

**!** *Ensure that you are wearing appropriate Personal Protective Equipment as there is a small chance that hot oil could be ejected from the inlet valve during the following test.*

- Remove the air filter cover and air filter. Using a screw driver push the poppet to open the inlet valve with the vehicle and compressor running. If the system builds air, the regulator is faulty. Replace the regulator kit using P/N#A700137
  - To view installation instructions for A700137 Regulator assembly see: <https://kb.vmacair.com/help/a700137-regulator-assembly-instructions>

If the system does not build air pressure when the compressor is running, and the inlet poppet is pushed open call VMAC Technical Support and have your System ID ready. To find the system ID see <https://kb.vmacair.com/help/identifying-your-vmac-system>

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