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## Trouble shooting Guide



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# VMAC UNDERHOOD VR70 and VR140 Air Compressor Troubleshooting

## Problem: Frequent clutch burnout

### *Possible Cause*

Turning on the compressor with pressure still in the system

Also visit [Ogura for additional clutch troubleshooting](#).

### *Corrective Action*

If the green light isn't flickering, check the clutch connection. Also, try powering the clutch right from the battery with the engine running. See if it still cuts in and out. [Follow Test Procedure 1](#)

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## Problem: The green light on the control box may flicker.

### *Possible Cause*

Loose connection at:

- Clutch,
- Interface cable,
- Key-switched 12V,
- Park Brake,
- DDC,
- Ground, or
- the green connector between the Switching Box and Low-Profile Control Panel.

### *Corrective Action*

If it does, check the resistance between clutch wire (unplugged) and the battery's negative terminal. The resistance should be between 2.3 - 2.5 ohms. Try wiggling the clutch wire while testing to check for an intermittent contact. If it does not, work from the Key-Switched 12V source, checking each connection. Repair any loose connections found. Probing connection points with an analog voltage meter should show any intermittent connections. Alternatively, a test light may flicker with an intermittent contact.

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## Problem: The clutch engages and disengages while VR system is running.

### *Possible Cause*

Failed component in Control Box, Low-Profile Control Panel, Switching Box, or DDC. The engine may run "rough" when the system is on, due to the throttle power turning on and off with the clutch.

Also visit [Ogura for additional clutch troubleshooting](#).

### *Corrective Action*

Note: An Analog meter has a needle that moves with voltage, and will flicker as the voltage changes, whereas a modern digital meter samples the voltage many times per second and averages these values. This can result in intermittent contact problems being missed.

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## Problem: Compressor does not run.

### *Possible Cause*

Failed component in Control Box, Low-Profile Control Panel, Switching Box, or DDC.

### *Corrective Action*

Isolate the Park Brake connection: Disconnect the black interface cable wire connected to the Park Brake. Connect it directly to ground. Run

Oil temperature too high.	the system. Proceed to next step if problem persists.
Loss of 12 Volt signal at the clutch, blown fuse, broken wires or a failed switch.	Isolate the DDC: If it is an automatic, remove the DDC from the system, and ground the black Interface Cable wire. Run the system. Proceed to next step if problem persists.  Isolate the Throttle: For electronic throttles, if possible, disconnect the red throttle wire to bypass the throttle. Run the system. Proceed to the next step if problem persists.  If none of the above corrects the problem, the problem should be isolated to the control box in the system. Try replacing the Control Box, or the Switching Box and Low-Profile Control Panel as a pair. Turn compressor off, allow to cool for 30 minutes and restart. <b>Follow Test Procedure 1</b>

**Problem: No power to the clutch**

<i>Possible Cause</i>	<i>Corrective Action</i>
Fuse burned or wires damaged	Check power at the clutch, replace fuse if necessary, replace broken wires or failed switch.
<b>Also visit Ogura for additional clutch troubleshooting.</b>	

**Problem: Engine stalls when the compressor is activated.**

<i>Possible Cause</i>	<i>Corrective Action</i>
System is under pressure.	Allow 10 seconds for blow-down
Blow down valve not working	Replace blow-down valve.
RPM setting too low or throttle not set correctly.	Readjust RPM and throttle settings for optimum operation.

**Problem: Objectionable noise level.**

<i>Possible Cause</i>	<i>Corrective Action</i>
Excessive gear wear	Contact the nearest dealer to replace compressor/gearbox assembly.
Maximum RPM setting higher than necessary to meet air demand requirements.	Reduce maximum RPM settings.
Operating with the hood open	Close the hood.

**Problem: Bad clutch ground**

*Possible Cause*

Open clutch stator windings.

Also visit Ogura for additional clutch troubleshooting.

*Corrective Action*

With 12 V applied to the clutch check for voltage between the clutch stator housing and the engine. If voltage is present, ground the stator.  
With compressor switch off and clutch wire disconnected, check resistance between the input wire and ground.  
Resistance (less lead resistance) should be 2.5 ohms to 3.0 ohms. If outside this range, replace the stator.

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**Problem: The engine may run "rough" when the system is on, due to the throttle power turning on and off with the clutch.**

*Possible Cause*

Loose connection at:  
Clutch, Interface cable, Key-switched 12V, Park Brake, DDC, Ground, or the green connector between the Switching Box and Low-Profile Control Panel.

*Corrective Action*

With power off, disconnect the Interface Connector (white connector). Check to make sure all the pins and sockets are in the same position in the connectors, and that there is no dirt or signs of arcing on them.  
Repair / replace as needed. For systems with the Low-Profile Control Panel and Switching Box, check the green connector between them as above. Recheck system. If condition persists, try to isolate the problem to one component (and replace it as needed):

Isolate Power Source issues: Disconnect the key-switched 12V wire and connect it directly to the battery. Run the system. Proceed to next step if problem persists.

Isolate Grounding issues: Measure the resistance from the green ground connection on the interface cable to the battery's negative terminal. This should be less than 1ohm. Run the system. Proceed to the next step if problem persists.

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**Problem: Red lamp pushed part way out of control panel. This could result in the relay operating inconsistently or not operating at all.**

*Possible Cause*

Factory assembly defect.

*Corrective Action*

Back cover could be removed and the tab on the red lamp that is touching the relay could be bent carefully so that the Tab no longer interferes with the relay.

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**Problem: Power fuse blows.**

*Possible Cause*

Short to ground in the control circuit.

Incorrect fuse.

Incorrect wiring.

*Corrective Action*

Locate and correct short or replace control panel.

Install correct OEM fuse.

Repair wiring according to wiring diagram.

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**Problem: Oil level is too low.**

*Possible Cause*

Excessive oil carry-over

Parked on uneven ground

*Corrective Action*

Inlet valve.

Park on level ground and check level again. Add oil as necessary.

Check level at the sight glass and add as necessary

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**Problem: Frequent compressor over-temperature shutdowns.**

*Possible Cause*

Discharge temperature probe failure.

High ambient temperatures.

Low oil level.

Restriction in the compressor oil lines.

Compressor oil filter plugged

Heat exchanger not functioning or is fouled with deposits.

Engine cooling system failure (engine temperature will be high).

Engine fan clutch slipping.

Oil temperature probe failure.

*Corrective Action*

Replace probe if defective. **Follow Test Procedure 2**

Reduce duty cycle.

Check oil on level ground, add as required.

Check for kinked or pinched oil lines.

Replace oil filter.

Remove and clean or replace heat exchanger.

Correct engine cooling problems.

Replace if defective

**Problem: Drive belt is broken or missing.**

*Possible Cause*

Alignment problems

*Corrective Action*

Install new compressor belt

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**Problem: Belt squeals when compressor switch is activated.**

*Possible Cause*

Worn Belts  
System is under pressure.  
Blow-down valve not working.  
Improper belt tension.  
Belt is glazed.

*Corrective Action*

Check alignment of pulleys.  
Allow 10 seconds for blow-down.  
Replace blow-down valve.  
Check belt tensioner.  
Replace belt.

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**Problem: Low air pressure.**

*Possible Cause*

Air flow is too high.  
Throttle control set too low  
Pressure regulator valve set too low.

*Corrective Action*

Reduce consumption.  
Increase maximum RPM settings  
Increase pressure by adjusting pressure regulator valve.

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**Problem: Excessive air pressure.**

*Possible Cause*

Pressure regulating valve set too high.

*Corrective Action*

Reduce system pressure by adjusting pressure regulating valve.

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**Problem: Oil blows out of compressor air filter on compressor shutdown**

*Possible Cause*

Shutting the engine off while running at high speed.

*Corrective Action*

Allow engine to idle-down before shutting down the compressor.  
Turn off any air tools before shutting down compressor.

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**Problem: Oil drips from clutch after shutdown.**

*Possible Cause*

Seal leaking.

Also visit [Ogura](#) for additional clutch troubleshooting.

*Corrective Action*

Contact the nearest dealer to replace gearbox input shaft seal.

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**Problem: Excessive oil in the air.**

*Possible Cause*

Failed coalescing separator element.

*Corrective Action*

Replace element.

Clogged scavenge line screen.	Clean or replace parts as required.
High oil level	
Poor fit between coalescing filter and tank – lack of seal at O-rings	

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**Problem: Engine RPM excessive on initial startup and during operation.**

<i>Possible Cause</i>	<i>Corrective Action</i>
Maximum RPM setting is too high.	Reduce maximum RPM setting of throttle control or reset cable nipple.
Idle-down pressure is too high.	Reduce idle-down setting of the throttle control.

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**Problem: Engine RPM stays at base idle when compressor runs.**

<i>Possible Cause</i>	<i>Corrective Action</i>
Maximum RPM setting too low.	Test and correct connections
Idle-down pressure too low.	Adjust throttle controls Test and correct connections. Replace throttle control.

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**Problem: Engine RPM over-revs when compressor is activated.**

<i>Possible Cause</i>	<i>Corrective Action</i>
Throttle controls not connected properly.	Increase maximum RPM setting of the throttle control or reset the cable nipple.
Throttle control not setup properly.	Increase idle-down setting of the throttle control. Check and correct connections. Adjust high idle screw.

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**Problem: Engine RPM does not return to base idle.**

<i>Possible Cause</i>	<i>Corrective Action</i>
Wiring fault.	Check and correct wiring according to wiring diagram
Throttle not properly adjusted	Adjust idle down screw.

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**Problem: Engine RPM stays at maximum whenever the compressor is running**

<i>Possible Cause</i>	<i>Corrective Action</i>
Idle-down setting is too high.	Reset idle-down pressure.

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**Problem: System is very noisy during operation**

*Possible Cause*

Defective idler or tensioner bearings.

Locate the source of the noise and replace the appropriate part.

Vehicle hood is open.

*Corrective Action*

Locate the source of the noise and replace the appropriate part.

If the noise is coming from the compressor, replace the unit.

Noise levels can be reduced by closing the hood while operating the compressor.

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**Problem: Engine stalls on activation of the system**

*Possible Cause*

The compressor or clutch is damaged

*Corrective Action*

Make sure that the system has no residual pressure by venting the tank. Remove the drive belt and spin the outer part of the compressor clutch. It should spin freely. Using a socket and ratchet on the center bolt on the compressor clutch, turn the compressor clockwise. If the compressor will not turn, it has internal damage.

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**Problem: Engine stays at base idle**

*Possible Cause*

The throttle control is not increasing engine speed

*Corrective Action*

Electronic throttle controls, [follow Test Procedure 3](#)

Pneumatic throttle controls, [follow Test Procedure 4](#)

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**Problem: Belt squeals on startup**

*Possible Cause*

There is residual air pressure in the system

There is insufficient belt tension

The drive belt is damaged

*Corrective Action*

Residual air pressure in the system will cause the compressor to stall. Vent air pressure and test again.

The belt tensioner may be damaged and is not applying sufficient tension to the belt. Compare the tension of the VR7000 belt with the OEM belt or test the tension with an approved tension gauge. If the belt seems too loose, replace the tensioner.

If the belt is cracked, glazed or is missing pieces, replace the belt.

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**Problem: Clutch slips and is damaged**

*Possible Cause*

Insufficient voltage to the clutch

Also visit [Ogura for additional clutch troubleshooting](#).

*Corrective Action*

If the clutch does not receive battery voltage, there will be insufficient magnetism developed and the clutch will not engage correctly. This will cause instant destruction of the matching surfaces, as they are not lubricated and cannot withstand the friction.

Follow [Test Procedure 5](#)

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**Problem: Engine speed is too high**

*Possible Cause*

Incorrect adjustment of the throttle control

*Corrective Action*

The cable nipple is not positioned correctly or the electronic control is not adjusted correctly. Follow the procedures in your Owners Manual

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**Problem: Engine speed is too low**

*Possible Cause*

Incorrect adjustment of the throttle control

*Corrective Action*

The cable nipple is not positioned correctly or The electronic control is not adjusted correctly. Follow the procedures in your Owners Manual

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**Problem: Engine stays at base idle**

*Possible Cause*

The throttle control is not increasing engine speed

*Corrective Action*

Electronic throttle controls, [follow Test Procedure 3](#)

Pneumatic throttle controls, [follow Test Procedure 4](#)

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**Problem: Engine will not return to base idle**

*Possible Cause*

Throttle operation has interference

*Corrective Action*

On pneumatic throttle controls, check the operation of the throttle

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**Problem: Air pressure is too high**

*Possible Cause*

Incorrect regulator settings

Defective regulator

*Corrective Action*

Follow the procedures in your Owners Manual

If adjusting the regulator does not have any affect on pressure and engine speed is correct, replace the regulator.

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**Problem: Excessive oil in the air**

*Possible Cause*

Operating angle of the vehicle is excessive.

Oil level is too high

Coalescing element is defective

Scavenge line is plugged

*Corrective Action*

Maintain a level operating position no greater than 10 degrees from the horizontal

Check the oil level at the tank and drain sufficient oil to correct the level.

Follow the repair procedures to replace the coalescing element.

Clear or replace the line. Check the scavenge line filter for contamination.

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**Problem: Oil blows out of the air filter on shut-down or the air filter is always wet with oil**

*Possible Cause*

Shutting down the engine before returning to idle.

*Corrective Action*

Turn the compressor off FIRST and allow the engine to return to idle.

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**Problem: Air pressure is too low**

*Possible Cause*

Insufficient air flow or incorrect regulator settings

Defective regulator

*Corrective Action*

Follow the procedures in your Owners Manual

If engine speed settings are correct and adjusting the regulator has no effect on pressure, replace the regulator.

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**Problem: Frequent relief valve operation**

*Possible Cause*

Air pressure is too high

Defective relief valve

*Corrective Action*

Follow the procedures in your Owners Manual

If pressure settings do not exceed 200 psi, replace the relief valve.

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**Problem: Fuse always blows**

*Possible Cause*

Short to ground in the control circuit.

Incorrect fuse

*Corrective Action*

Recommended fuse is 20 Amps. Check the blown fuse to make sure that it was a 20 Amp fuse. If a 20 Amp fuse blows repeatedly DO NOT replace it with a larger fuse.

Locate and correct short or replace control panel.

Incorrect wiring.

Repair wiring according to wiring diagram.

System electrical problems

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**Problem: Red lamp pushed part way out of control panel. This could result in the relay operating inconsistently or not operating at all.**

*Possible Cause*

*Corrective Action*

Factory assembly defect.

Back cover could be removed and the tab on the red lamp that is touching the relay could be bent carefully so that the Tab no longer interferes with the relay.

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**Problem: Intermittent operation**

*Possible Cause*

*Corrective Action*

Poor wiring connections

Faulty control unit or throttle control

Defective temperature probe

Defective pressure transducer

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**Problem: No response from the vehicle throttle**

*Possible Cause*

*Corrective Action*

Faulty connections between the electronic throttle controller and the foot pedal

Remove all of the connectors. Visually check the condition of the pins and sockets. Insert the connectors firmly, making sure that the latches on the connectors close.