

Installation Manual for System S70073 Cimline Pavement Patcher

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VMAC – Vehicle Mounted Air Compressors

Toll Free: 1-888-241-2289

Fax: 1-250-740-3201

Document #1900904
Installation Manual for VMAC System S700073
Cimline Pavement Patcher

Changes and Revisions

Version	Revision Details	Revised by/date	Approved	Implemented
A	Original Release	SL 16 April 2008	TG 16 April 2008	22 April 2008
B	Technical Updates	SL 18 Feb 2010	TG 18 Feb 2010	18 Feb 2010

Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation procedures and for people with mechanical trade certification who have the tools and equipment to properly and safely perform the installation. Do not attempt this installation if you do not have the appropriate mechanical training, knowledge and experience.

Follow all safety precautions for underhood mechanical work. Any grinding, bending or restructuring operations for correct fit in modified vehicles must follow standard shop practices.



All hoses, tubes, and wires which are rerouted or shifted during installation must be secure so that they do not contact excessively hot areas or sharp edges. Where possible follow the routing suggestions in this manual.

The VMAC warranty form is located at the back of this manual. This warranty form must be completed and mailed or faxed to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

To order parts, contact your VMAC dealer. Your dealer will ask for the VMAC serial number, part number, description and quantity. To locate your nearest dealer, call 1-888-241-2289.

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General Information

Before You Start

Read this manual before attempting installation so that you can familiarize yourself with the components and how they fit on the vehicle. Identify variations for different model years and different situations that are listed in the manual. Open the package, unpack the components and identify them.

All fasteners must be torqued to specifications. Use manufacturers torque values for OEM fasteners. Apply Loctite 242 or equivalent on all engine-mounted fasteners. Torque values are with Loctite applied unless otherwise specified.

STANDARD GRADE 8 NATIONAL COARSE THREAD								
Size	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
Foot-pounds (ft-lb)	9	18	35	55	80	110	170	280
Newton meter (N•m)	12	24	47	74	108	149	230	379

STANDARD GRADE 8 NATIONAL FINE THREAD					
Size	3/8	7/16	1/2	5/8	3/4
Foot-pounds (ft-lb)	40	60	90	180	320
Newton meter (N•m)	54	81	122	244	434

METRIC CLASS 10.9					
Size	M8	M10	M12	M14	M16
Foot-pounds (ft-lb)	19	41	69	104	174
Newton meter (N•m)	25	55	93	141	236

Hose Information

Different frame designations will affect the tank mounting position. If you have to move the tank, the lines may be too short. Measure the hose shortfall and order a *Hose Extender Kit*.

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Part 1: Cooler Installation

- Mount the cooler assembly to the trailer with the oil fitting near the thermal switch at the bottom.

Part 2: Control System

2.1 Solenoid and linkages

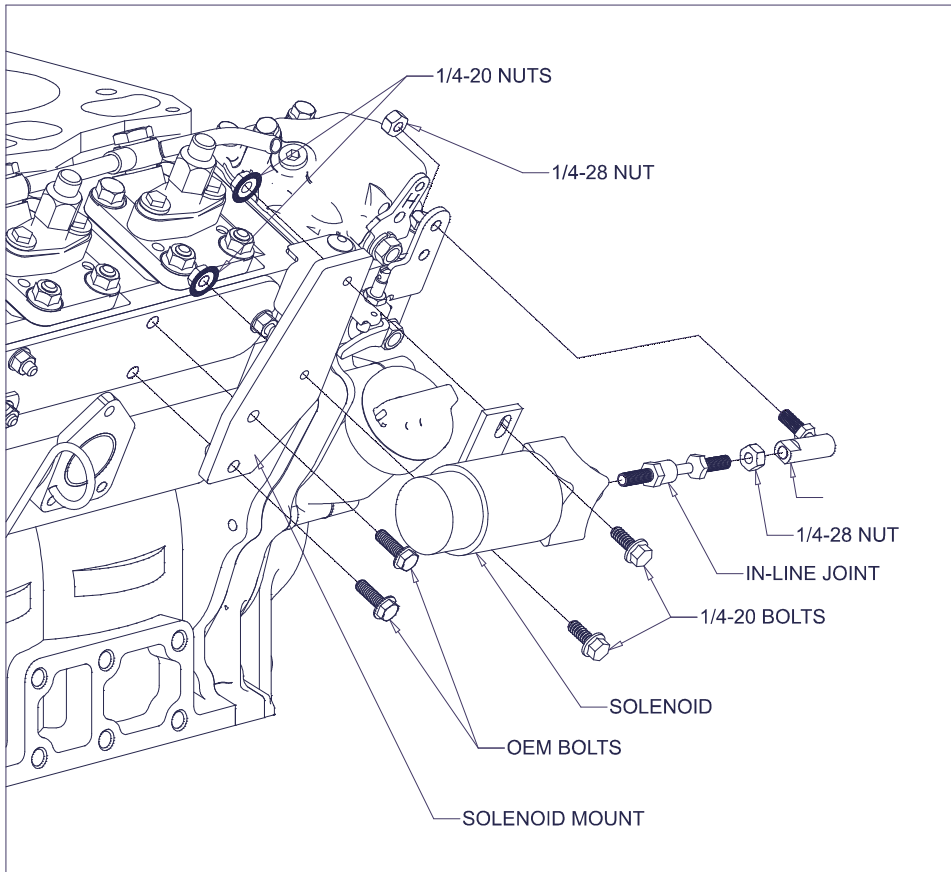


Figure 2.1 – Solenoid Layout

- Mount the control solenoid to the engine as shown in figure 2.1.
- Apply Loctite and torque all bolts to specification.
- Adjust the linkage to set engine rpm to 2200 RPM with solenoid engaged.

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- Tighten the 1/4-28 lock nut on the linkage.

Dual coil solenoids have an extremely high work output for their size due to the high amperage “pull” winding. The solenoids also have a separate low amperage “hold” winding.



If fitted with internal contacts and the plunger does not “bottom” or complete its stroke, the internal switch contact will not disconnect the high current winding. The solenoid will burn out in 30 seconds. On all model solenoids, improper wiring can cause burn out which is not covered in the warranty.

2.2 Relay Panel

- Mount the panel to the firewall using the supplied fasteners.
- Install the Cimline chassis ground wire to the ground post on panel. Leave the post loose for the interface cable ground wire.
- Route the throttle solenoid wiring to the throttle solenoid and connect it.
- Route the fused, high-power wire to the dedicated 12V source.

2.3 Control Box and Wiring

- Mount the control box into the cabinet using the supplied fasteners.
- Route the interface cable through the hole in the cabinet and through the trailer frame to the engine compartment.
- Connect the interface cable to the control box.
- Route the ground wire to the ground post on the Relay Panel and connect it. Tighten the post.
- Route the yellow clutch wire and grey temperature sensor cable to the compressor location.

- Route the black, 2-pin Weather-Pack connector to the tank mounting location.
- Route the purple throttle solenoid disable wire to the Relay Panel and connect it to pin 86 of the small relay with relay holder.
- Route the 10-Amp fused wire to the key switched 12V source and connect it. Route the red wire spliced onto the 10-Amp fused wire to the Relay Panel and connect it to pin 30 of the small relay with the relay holder.

Part 3: Air/Oil Separator Tank Installation

The Air/Oil Separator Tank will be installed between the firewall and the burner on the trailer.



Installing the Air/Oil Separator Tank Temperature Sensor should be done before mounting the unit on the trailer.

- Remove the 1/8 NPT pipe plug from the top of the blowdown cap.
- Apply thread sealant to the provided temperature sensor with black, 2-pin Weather Pack connector and install this into the blowdown cap. Ensure that the wires are not damaged during installation.

3.1 Assembling and Installing the Brackets

- Place the tank on a workbench with the front (oil filter end) of the tank to your left and remove the oil filter.
- Remove the two 1/4 inch pinch bolts from the C-clamps. Expand the clamps slightly and slide them over the front of the tank.
- Position the front clamp right behind the weld on the filter end of the tank and the rear clamp approximately 18 inches from the front weld. Rotate clamps so flat mounting surface of clamps is flat on the bench
- Rotate the tank so the up arrow is pointing away from you (parallel with the mounting surface of the clamps and the workbench).

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- Tighten the pinch bolts on the C-clamps to secure the tank.
- Install a 3/4 inch fitting (not supplied) in the back of the tank.
- Install the tank on the trailer. Use bolts (not supplied) through the C-clamps into mounting points on the trailer.

Part 4: Installing the Compressor

4.1 Main Bracket

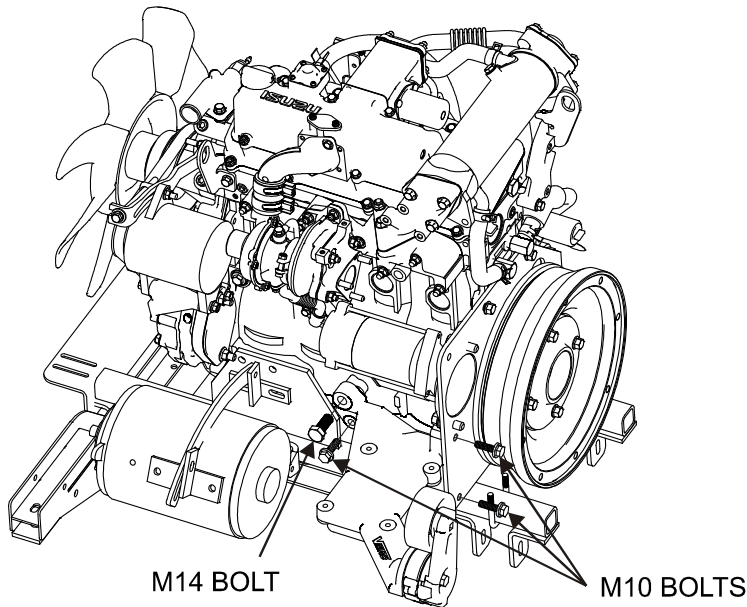


Figure 4.1

- The main bracket is attached the engine under the turbo and starter.
- Apply loctite and install the provided M14 bolt in the large hole on the side of the engine (closest to the front of the engine) and one of the M10x 35 mm bolt provided for the mounting point under the M14 bolt. **Do not tighten** (see Figure 4.1).
- Apply loctite and install the 2x M10x35mm bolts through the rear engine plate into the 2 rear mounts on the main bracket under the mounting bolts for the starter, (see Figure 4.1). Tighten these bolts and tighten front mounts (M14 and M10 bolts) to specified torques.

4.2 Installing Air End and Hoses

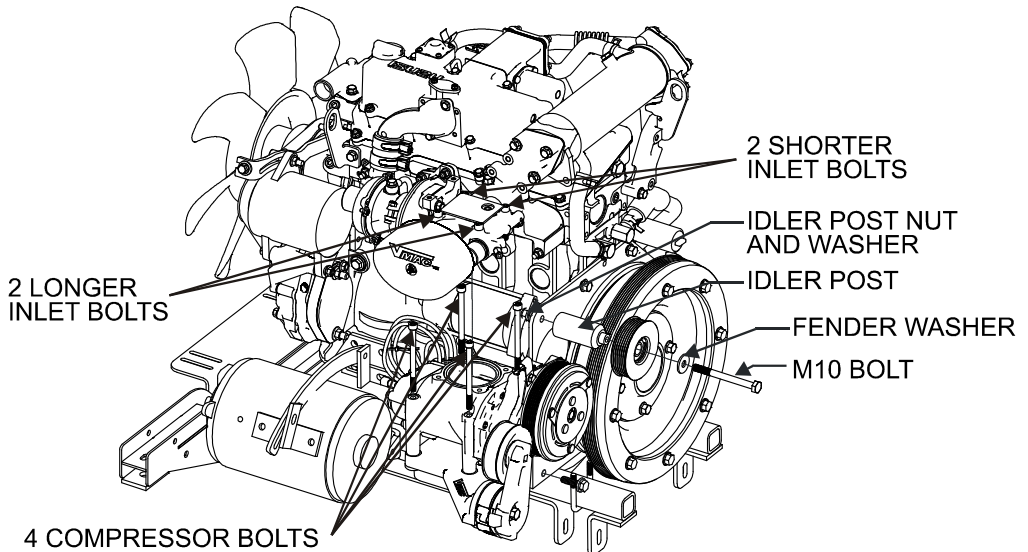


Figure 4.2

- Install crank pulley to rear of engine. The flat side of the pulley faces the rear of the trailer. Ensure flywheel surfaces are clean before installation. Apply loctite and secure using the 8 M10 bolts provided.
- Install idler post and idler to rear engine plate above the starter. Apply loctite and install with fender washer covering bearing under the head of the bolt and nut and washer behind engine plate. See figure 4.2.
- Remove inlet valve from top of compressor (4 socket head bolts). Note that the 2 bolts closest to the air filter are longer than the 2 further away. Cover the opening of the compressor and ensure no debris gets into the inlet valve.
- Attach straight end of the shorter ½" hose to matching fitting on the compressor and 90° end to the top fitting on the cooler. Tighten both ends of hose.
- Apply loctite and install compressor to main bracket using the 4 long M8 socket head bolts included with compressor. Torque to specifications.
- Apply loctite and install inlet valve onto compressor using the 4 socket head bolts removed in a previous step. The air filter should be pointing away from the engine. Torque to specifications.

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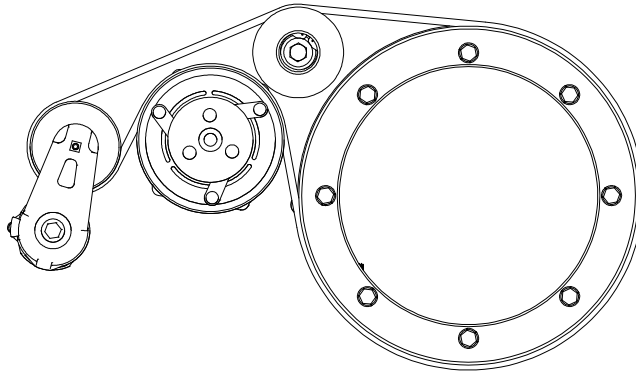


Figure 4.3

- Remove the idler pulley from the automatic tensioner. Route the drive belt as per figure 4.3 belt routing. Put belt around idler from tensioner and rotate tensioner arm clockwise until pulley (with belt around it) can be slid onto hub of tensioner. When pulley is on the hub the tensioner can be released. Reinstall bolt securing idler pulley to tensioner. Torque to specifications.
- Install the provided belt routing decal in a visible location.
- Attach the 45° end of 3/4" hose to rear fitting on compressor and attach the straight end to the matching fitting on the AOST tank (on the end with the oil sight glass and oil filter). Tighten fittings on both ends of the hose.
- Cover plastic lines with loom and attach them to matching fittings on discharge end of tank and the inlet valve on the compressor. Ensure that the lines are not kinked and not in a position to rub through on any sharp edges.
- Attach 90° end of the longer 1/2" hose to the bottom fitting on the cooler and the straight end to the matching fitting on the AOST (on the end with the oil sight glass and oil filter). Tighten fittings on both ends of the hose.



The thermal switch needs to be on the hot side of the cooler for proper fan operation.

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4.3 Filling the System With Oil

- Remove the fill plug and pour the supplied compressor oil into the compressor, turning the center of the compressor clutch clockwise to speed oil flow into the tank.



You must use VMAC compressor oil in this system. Failure to use this special oil will result in damage to the compressor and will void your warranty.

- Allow 5 minutes for the oil to drain into the tank, then check the level at the sight glass at the front of the tank. Continue adding oil until the level is correct.

Do not overfill the system!

4.4 Connecting the Air End and the AOST Wiring



Cover all air end wiring with plastic high temperature loom. Secure the harnesses with nylon ties.

- Route the grey cable and the yellow wire to the compressor.
- Connect the wires to the matching connectors at the compressor.
- Connect the AOST temperature sensor connectors.

4.5 Confirmation Test

- Turn the engine ignition key “ON” but do not start the engine. You should hear the engine solenoid engage.
- Check the control box to see if there is a number showing in the display. If not, there is no power to the control box.
- Press the “ON” button on the control box. The green light should come on and you should hear the engine solenoid disengage and after a couple of seconds compressor clutch engage and the engine solenoid re-engage. Press the “OFF” button. The green light should go off and the compressor clutch disengage.

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The engine must be running to complete the final step in the safety test. This will be done after the pre-start checks have been completed.

If the system fails the test, check the wiring to make sure that all the connections are correct and secure. If you require additional assistance, contact VMAC. Call 1-888-241-2289 or 250-740-3200.

Part 5: Finishing the Installation

5.1 Before Starting the Engine Checklist

- Check the compressor oil level.
- Do a final inspection to make sure that everything has been completed and tightened.
- Perform a final belt alignment check.
- Check all wiring to make sure it is secure and protected.

5.2 After Starting Engine Checklist

- Install a test tool on the air tank outlet and close the ball valve.
- Push the control box “ON” button. Engine speed should decrease to 1100 rpm, compressor engage and then engine speed increase to 2200 rpm.

Note: If engine speeds are not correct adjust throttle linkage.

- Operate the system with an air tool or with the test tool for at least 15 min.
- Watch the engine operation to make sure that belts rotate properly and nothing is rubbing or contacting hot parts.
- Check all components once the engine is turned off and the system has cooled.
- Check the compressor oil level after the engine has been shut down and the oil level has had time to stabilize.

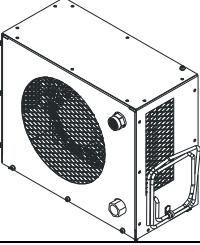
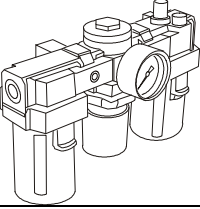
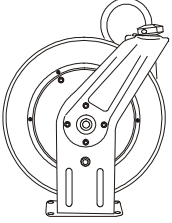
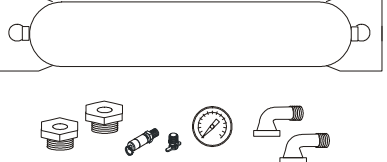
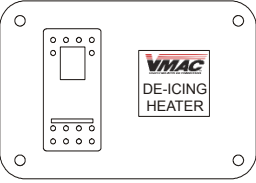
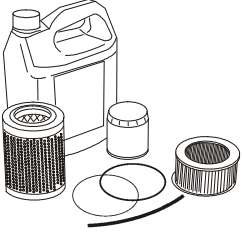
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Accessory Products from VMAC

The following accessory products for your VR compressor system are available from VMAC. For more information or to order these products, call toll free 1-888-241-2289 or local 250-740-3200.

	<p>Eliminator Aftercooler Part Number A800070</p> <p>Removes up to 80% of moisture from compressed air. Quick installation, automatic drain and compact design</p>
	<p>Filter Regulator Lubricator Part Number A700151</p> <p>Removes lubricants, water and dirt from the air stream. Adds atomized tool oil to lubricate tools. Reduces pressure for longer tool life.</p>
	<p>Hose Reel Part Number A700007</p> <p>Secure, compact, retractable hose storage in a sturdy reel.</p>
	<p>Air Receiver Tank Part Number A300010</p> <p>Thirty-five gallon capacity in a compact tank, complete with fittings and a gauge.</p>
	<p>De-icer Kit Part Number A700031</p> <p>Insulated rope heater prevents freezing of lines and regulator.</p>
	<p>Service Kits VR140 200 hour Part Number A700059 VR140 400 hour Part Number A700060 VR70 200 hour Part Number A700019 VR70 400 hour Part Number A700020</p> <p>Using OEM service products will extend the life of your system. Includes oil, filters, seals and O-rings. 200 hour and 400 hour service interval kits are available</p>

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