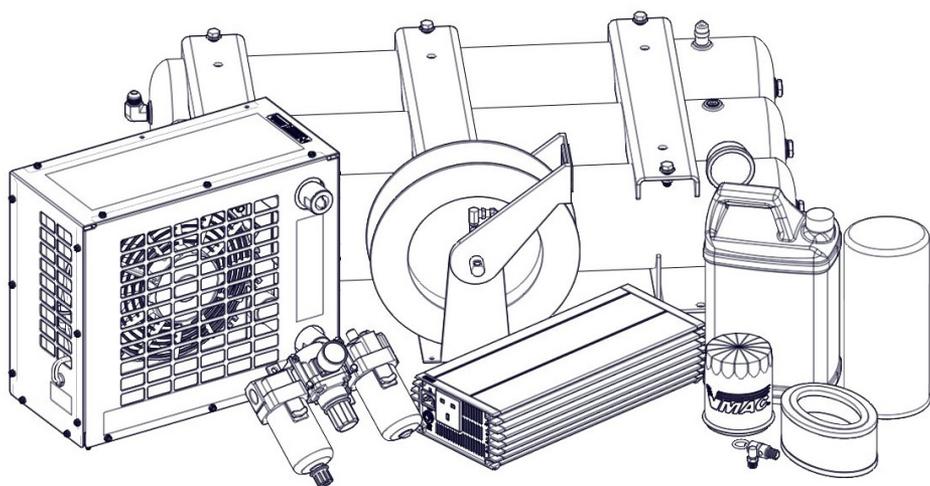




VMAC[®]

AIR INNOVATED[®]



Installation Manual for VMAC Accessory

A700310 / A700311

Clutch Replacement Kit

Compatible with all VMAC VR 40 airends

www.vmacair.com

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Revision	Revision Details	Revised by	Checked by				Implemented
			Eng.		Tech.	Qual.	
			Mech.	Elec.			
A	Initial Release	MSP	TBC	N/A	MSP	LPH	19 Mar. 2021

Additional Application Information

The A700310 and A700311 Clutch Replacement Kit is compatible with all VMAC VR 40 aircends.

Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation and service procedures and/or for anyone with mechanical trade certification who has the tools and equipment to properly and safely perform the installation or service. Do not attempt installation or service without the appropriate mechanical training, knowledge and experience. Follow all safety precautions. Any fabrication for correct fit in modified vehicles must follow industry standard "best practices".

Notice

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Safety

Important Safety Notice

The information contained in this manual is based on sound engineering principles, research, extensive field experience and technical information. Information is constantly changing with the addition of new models, assemblies, service techniques and running OEM changes. If a discrepancy is found in this manual, contact VMAC Technical Support prior to initiating or proceeding with installation, service or repair. Current information may clarify the issue. Anyone with knowledge of such discrepancies, who proceeds to perform service and repair, assumes all risks.

Only proven service procedures are recommended. Anyone who departs from the specific instructions provided in this manual must first ensure that their safety and that of others is not being compromised, and that there will be no adverse effects on the operational safety or performance of the equipment.

VMAC will not be held responsible for any liability, consequential damages, injuries, loss or damage to individuals or to equipment as a result of the failure of anyone to properly adhere to the procedures set out in this manual or standard safety practices.

Safety should be the first consideration when performing any service operations. If there are any questions concerning the procedures in this manual, or more information is required, please contact VMAC Technical Support prior to beginning work.

Safety Messages

This manual contains various warnings, cautions and notices that must be observed to reduce the risk of personal injury during installation, service or repair and the possibility that improper installation, service or repair may damage the equipment or render it unsafe.



This symbol is used to call attention to instructions concerning personal safety. Watch for this symbol; it points out important safety precautions, it means, "Attention, become alert! Your personal safety is involved". Read the message that follows and be aware of the possibility of personal injury or death. As it is impossible to warn of every conceivable hazard, common sense and industry standard safety practices must be observed.



This symbol is used to call attention to instructions on a specific procedure that if not followed may damage or reduce the useful life of the compressor or other equipment.



This symbol is used to call attention to additional instructions or special emphasis on a specific procedure.

Warranty

VMAC Standard Warranty (Limited)

For complete warranty information, including both VMAC Standard Warranty (Limited) and VMAC Lifetime Warranty (Limited) requirements, please refer to our current published warranty located at: www.vmacair.com/warranty



If you do not have access to a computer, please contact us and we will be happy to send you our warranty.

VMAC's warranty is subject to change without notice.

VMAC Lifetime Warranty (Limited)

A VMAC Lifetime Limited Warranty is offered on the base air compressor only and only on UNDERHOOD, Hydraulic Driven, Transmission Mounted, Gas and Diesel Engine Driven Air Compressors, Multifunction Power Systems, and other products as defined by VMAC, provided that (i) the purchaser fully completes and submits a warranty registration form within 3 months of purchase, or 200 hours of operation, whichever occurs first; (ii) services are completed in accordance with the Owner's Manual; (iii) proof of purchase of applicable service kits are made available to VMAC upon request.



The VMAC Lifetime Warranty is applicable to new products shipped on or after 1 October, 2015.

Warranty Registration

Warranty registration for VMAC systems can be completed online or by filling in the form at the back of each system installation manual. Warranty registration must be completed and sent to VMAC at the time the system is put into service for any subsequent warranty claim to be considered valid.

There are 4 ways the warranty can be registered with VMAC:



www.vmacair.com/warranty



warranty@vmacair.com



(877) 740-3202



VMAC - Vehicle Mounted Air Compressors
1333 Kipp Road, Nanaimo, BC, Canada V9X 1R3

VMAC Warranty Claim Process



VMAC warranty work must be pre-authorized by VMAC. Claims are processed via our dealer network. If you are not a VMAC dealer, please select one to work with via our Dealer Locator: <https://www.vmacair.com/dealer-locator/>



- 1) Communicate with VMAC Technical Support at 1-888-241-2289 or tech@vmacair.com to help diagnose/troubleshoot the problem prior to repair. VMAC technical support will require the VMAC System ID, hours on the compressor and mileage on the vehicle.
- 2) VMAC will provide direction for repair or replacement of the failed components.
- 3) If requested, failed parts must be returned to VMAC for evaluation.
- 4) Dealers may login to the VMAC website to view the "VMAC Labour Time Guide" (under "Agreements") to see the allowable warranty labour times.
- 5) Warranty invoices must include the Service Ticket number, VMAC System ID#, hours on the compressor, and a detailed description of the work performed.
- 6) VMAC Warranty does not cover consequential damages, overtime charges, mileage, travel time, towing/recovery, cleaning or shop supplies.
- 7) Dealers submit warranty claims on behalf of the Vehicle Owner/End User affected by the defective part(s). The dealer ensures that all warranty credits are refunded back to the Vehicle Owner/End User who made the initial warranty claim.



In order to qualify for Lifetime Warranty (Limited), the completed warranty registration form must be received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, whichever occurs first.

If the completed warranty registration form has not been received by VMAC within 3 months of the buyer receiving the Product(s), or 200 hours of operation, the "Standard" warranty period will be deemed to commence 30 days from the date of shipment from VMAC.

Failure to follow the warranty claim process may result in denial of the warranty claim.

VMAC Product Warranty Policies & Warranty Registration can be found on the VMAC website (see previous page for URL).

General Information

Optional Equipment Compatibility

While VMAC strives to design systems compatible with optional OEM equipment (such as running boards), it is impractical to develop systems that accommodate every OEM and aftermarket option or add-on. Whenever possible, VMAC endeavors to advise of compatibility issues in the "Additional Application Information" section of the manual. Even when specific optional equipment is determined by VMAC to be incompatible, it does not preclude the vehicle upfitter or end user from modifying the optional equipment to make it compatible with the installed VMAC system. VMAC does not warrant or accept responsibility or liability for the fitment, function, or safety of any products modified in any way not expressly outlined in the installation manual.

Before Starting



Note and label all parts that are removed from the vehicle as many of the OEM parts will be reused during the installation of the VMAC system.

Read this manual prior to beginning the installation to ensure familiarity with the components and how they will fit on the vehicle. Identify any variations from the application list such as vehicle model, engines, or optional equipment (e.g., dual alternator, active steering assist, etc.).

Open the package, unpack the components and identify them using the Illustrated Parts List (IPL) included in the Fastener Pack.

Hose Information

Depending on other installed equipment, it might be necessary to move the air/oil separation tank from its intended location. The hoses used in VMAC compressor systems have a specific inner liner that is compatible with VMAC compressor oil. Use of hoses other than those supplied or recommended by VMAC may cause compressor damage and may void your warranty. Please contact VMAC for replacement hoses and further information.

Ordering Parts

To order parts, contact a VMAC dealer. The dealer will ask for the VMAC serial number, part number, description and quantity. Locate the nearest dealer online at www.vmacair.com/dealer-locator or call 1-877-912-6605.



Special Tools Required

- Feeler gauges.

Torque Specifications

All fasteners must be torqued to specifications. Use manufacturers' torque values for OEM fasteners.

The torque values supplied in Table 1 are intended for VMAC supplied components, or for use as a guide in the absence of a torque value provided by an OEM.



Apply Loctite 242 (blue) to all fasteners (except nylon lock nuts) unless otherwise stated.

Torque values are with Loctite applied unless otherwise specified.

Standard Grade 8 National Coarse Thread								
Size (in)	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 (in)	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 (mm)	M6	M8	M10	M12	M14	M16
Foot pounds (ft•lb)	4.5	19	41	69	104	174
Newton meter (N•m)	6	25	55	93	141	236

Table 1 — Torque Table

Maintenance and Repair Safety



It is impossible to warn of all the possible hazards that may result from operating, servicing, or repairing this system. Wear all appropriate Personal Protective Equipment and follow all industry standard safety practices.



Confirm that the system is depressurized and has cooled prior to performing any service work.



Never use flammable solvents to clean any components. If a flammable solvent has been used, rinse the component thoroughly with water and dry it before reinstalling it to prevent the possibility of explosion.



Use only genuine VMAC replacement parts to maintain the system. Genuine VMAC replacement parts are designed to work with the high pressure and heat generated by the compressor. Substituting genuine VMAC replacement parts may void the warranty and could cause equipment damage, injury, or death.



This information is intended for people with mechanical trade certification who have the tools and equipment to properly and safely perform the service or repair. Do not attempt to service or repair this system without the appropriate mechanical training, knowledge and experience. Follow all safety precautions and industry standard "best practices".

Safety Check List

- Open the ball valve or connect an air tool to the system to ensure all the stored air is released.
- Gently pull up on the ring on the pressure relief valve to confirm the system is depressurized



Do not use the pressure relief valve as a means of depressurizing the compressor system. Doing so will prematurely wear the internal spring or the seat, preventing the valve from maintaining normal system pressure.

Disassembly



Read the "Maintenance and Repair Safety" section prior to performing any work on the system (beginning on page 8). Wear appropriate Personal Protective Equipment and follow all industry standard safety practices.

- Remove the compressor from the vehicle and place the compressor in a vice with the clutch facing up (Figure 1).

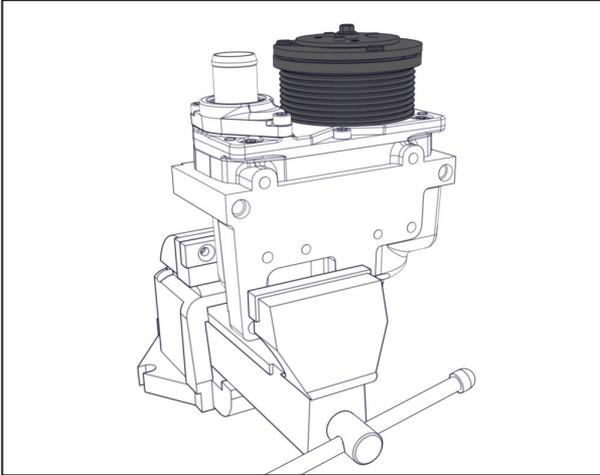


Figure 1 — Place compressor in vice

- Clean the area around the front cover to prevent debris from entering the compressor.
- Remove the bolt from the clutch armature (Figure 2).

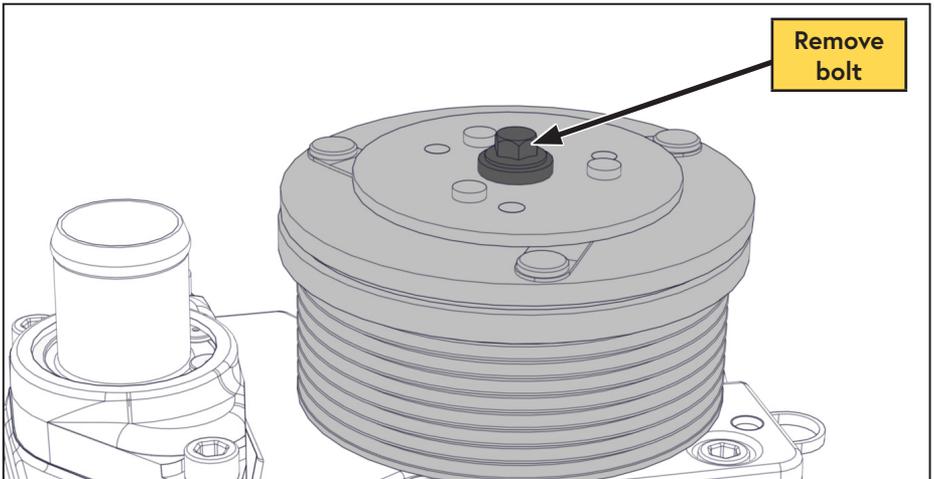


Figure 2 — Remove clutch bolt



Use care when prying up on the clutch armature as the shim stack may be stuck to the bottom of the armature.

- Using (x2) small flat bladed screwdrivers, pry up on both sides of clutch armature to slide it off of the compressor shaft (Figure 3).

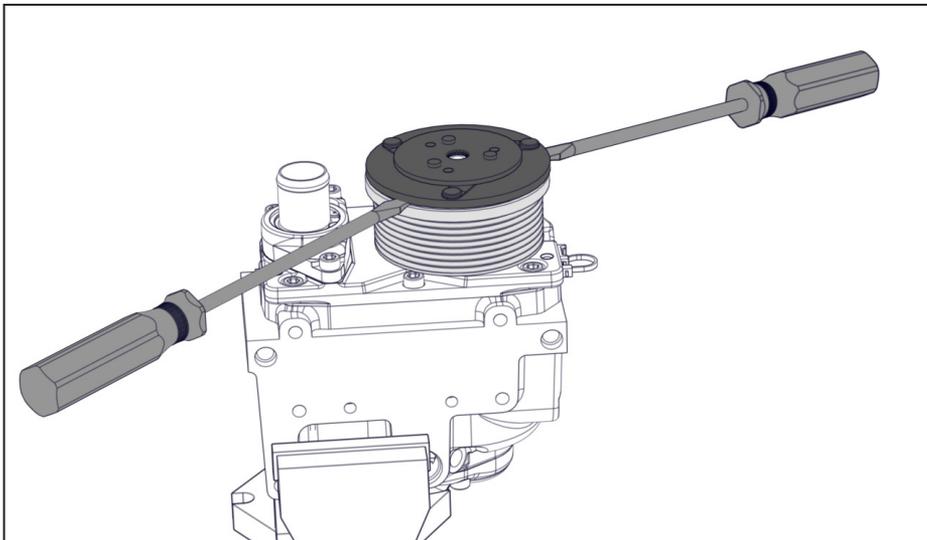


Figure 3 — Remove clutch armature

- Remove the shim stack and spacer from the bottom of the armature and/or the compressor shaft. Set the shim stack aside and discard the spacer (Figure 4).

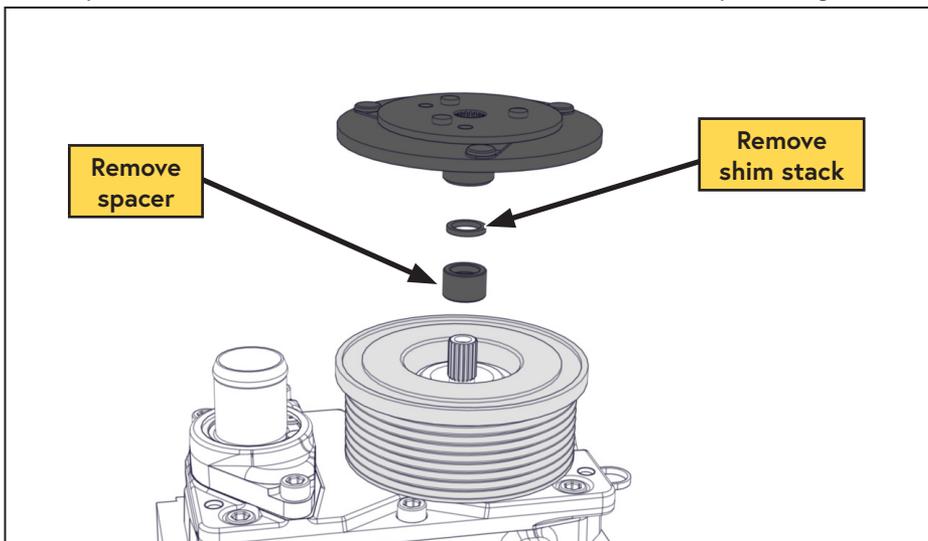


Figure 4 — Remove shim stack and spacer

- Remove the upper snap ring on the inside of the rotor assembly (Figure 5).

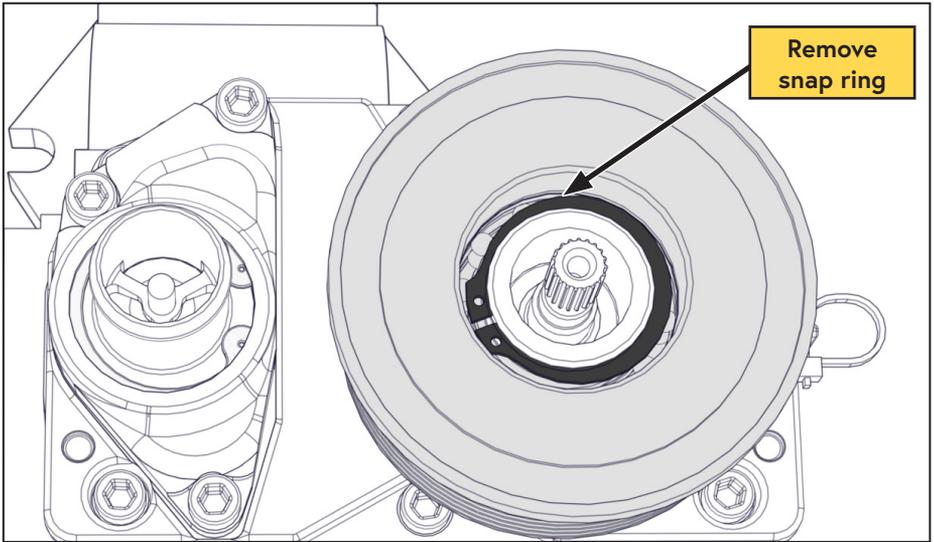


Figure 5 — Remove upper snap ring



Use care when removing the clutch rotor assembly from the rotor shaft to prevent damaging the rotor shaft splines.

- Slide the clutch rotor assembly off of the end of the compressor cover housing.
- Remove the lower snap ring securing the field coil assembly (Figure 6).

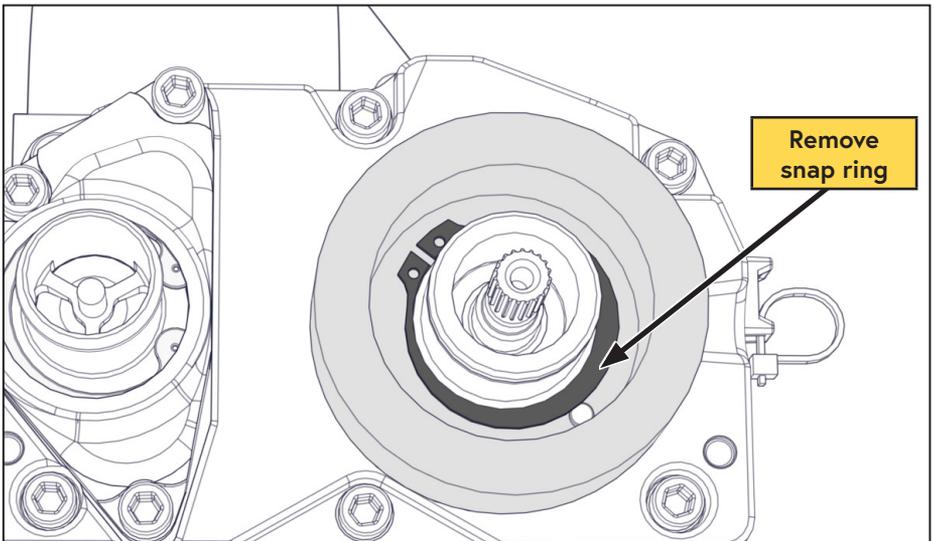


Figure 6 — Remove lower snap ring

- Cut the cable tie securing the field coil wire (Figure 7).

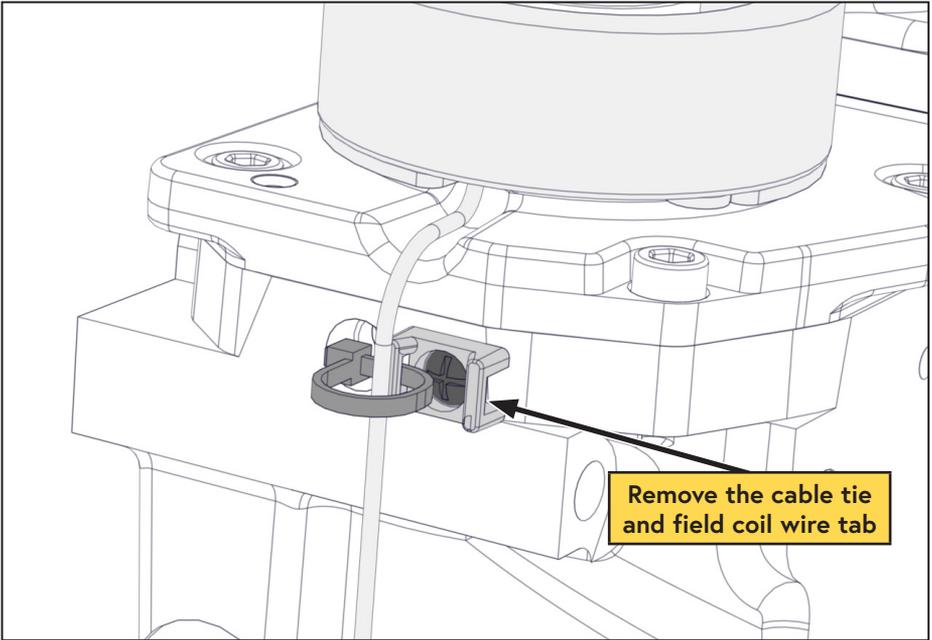


Figure 7 — Free the field coil wire

- Remove the screw securing the cable tie tab on side of compressor; set the screw and tab aside for use later (Figure 7).
- Remove the field coil.



Discard all of the old clutch components (except the shim stack) as a complete clutch assembly is included in this kit.

Clutch Installation



The figures in this chapter illustrate a compressor with a top mounted inlet however the clutch installations instructions are the same for a compressor with a front mounted inlet.



It is imperative that the front cover and field coil alignment pins fully engage into the slots to ensure the clutch will not rotate during use.

- Remove the spline protector cap from the compressor shaft.
- Install the new field coil. Ensure the alignment pins on the field coil and the front cover fully engage in their respective slots. The field coil should not have any rotational movement once it is installed (Figure 8).

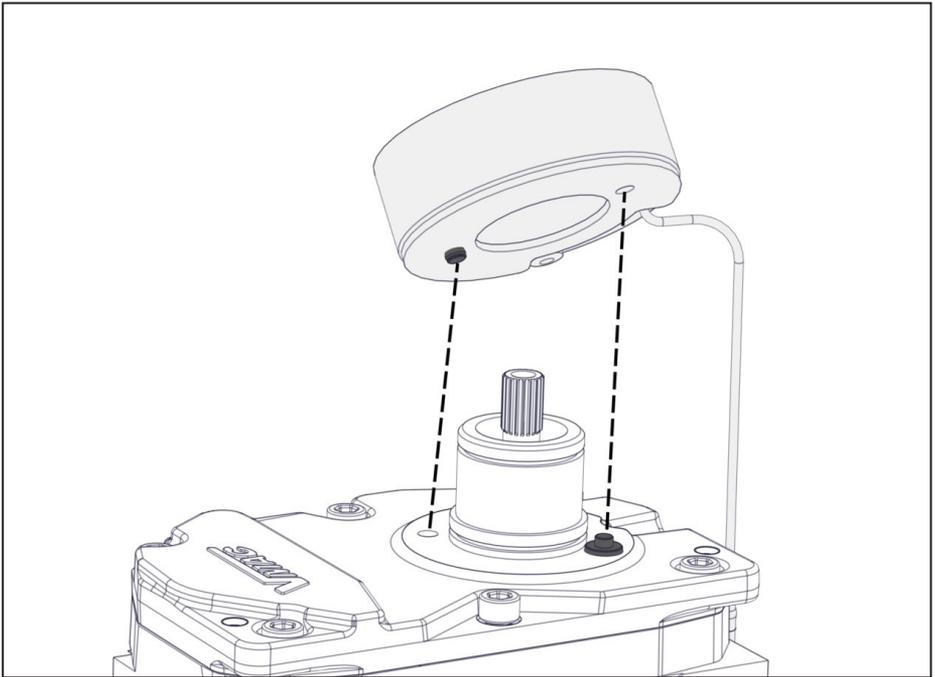


Figure 8 — Install field coil



The snap ring must be installed in the correct orientation. Ensure the snap ring is installed with the opening at the 12 o'clock position and the larger tab to the right.

- Install the lower (larger) snap ring with the opening at the 12 o'clock position and the larger tab to the right (Figure 9).

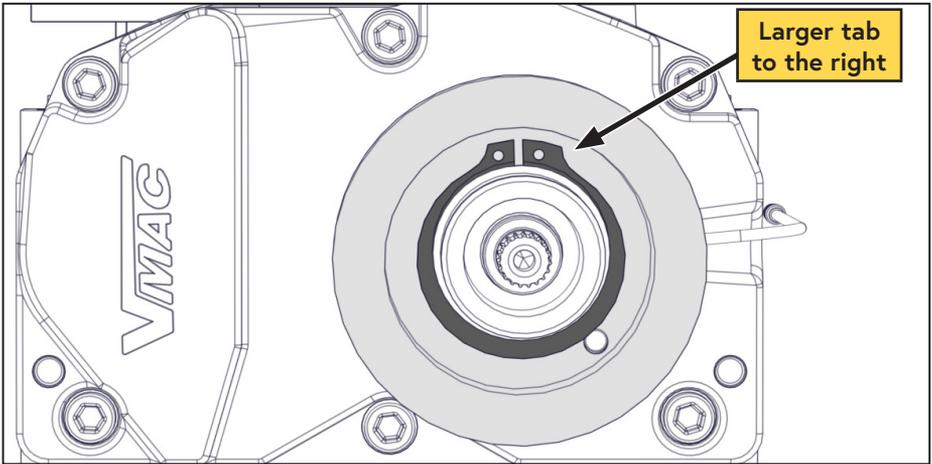


Figure 9 — Install lower snap ring

- Slide the new clutch pulley onto the compressor.



The snap ring must be installed in the correct orientation. Ensure the snap ring is installed with the opening at the 12 o'clock position and the larger tab to the right.

- Install the upper (smaller) snap ring with the opening at the 12 o'clock position and the larger tab to the right (Figure 10).

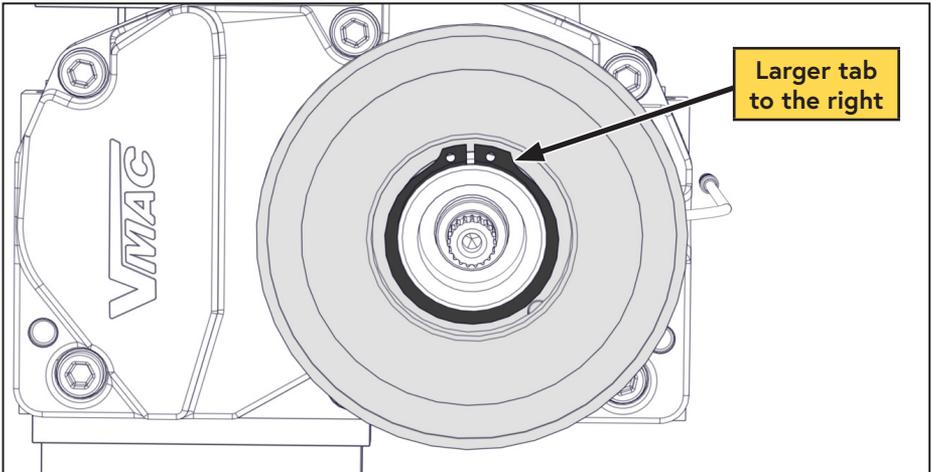


Figure 10 — Install upper snap ring



Ensure the field coil wire is pulled toward the rear of the compressors before cinching the cable tie to ensure it will not contact the clutch pulley .

- Secure the field coil wire using a cable tie and the cable tie tab on the side of the compressor (Figure 11).

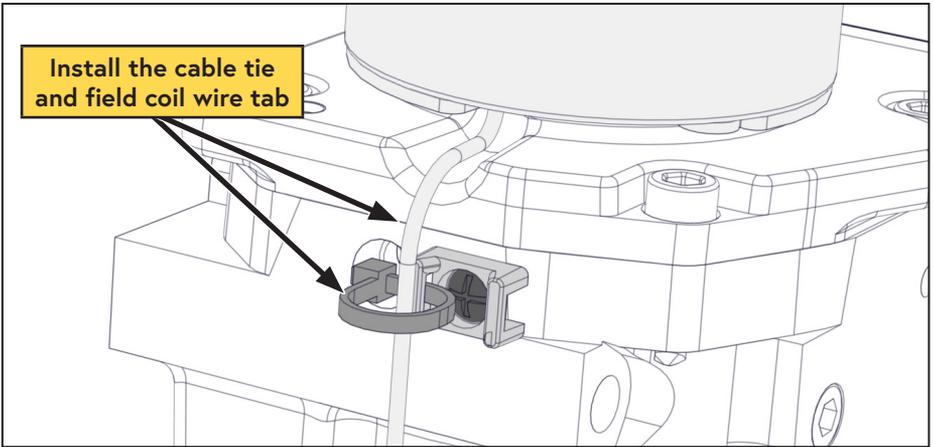


Figure 11 — Secure the field coil wire

- Slide the supplied spacer onto the compressor shaft until it rests on the shoulder of the shaft (Figure 12).

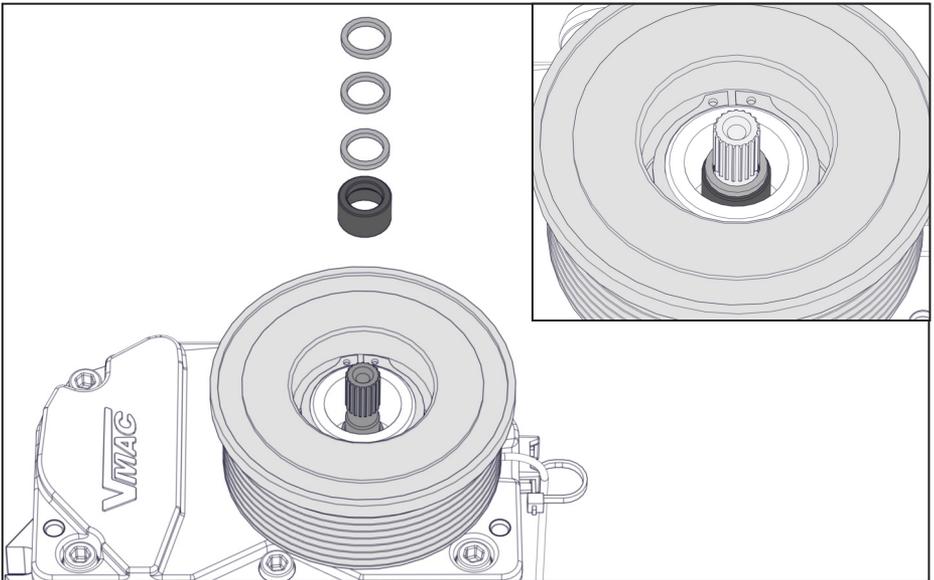


Figure 12 — Install shim pack

- Reinstall the shim pack (set aside earlier in the installation) onto the compressor shaft (Figure 12).

- Align the splines on the armature with the compressor shaft and slide the armature onto shaft. Push the armature down until the armature is fully seated (Figure 13).

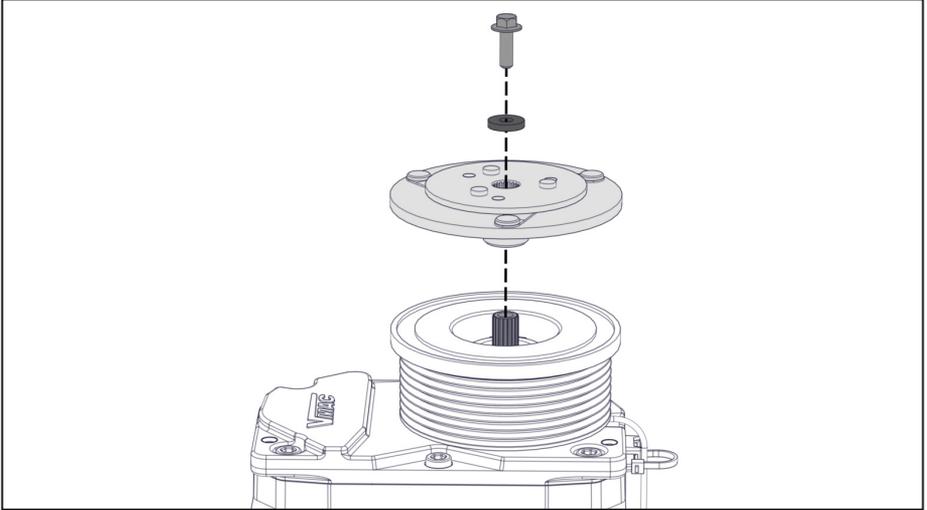


Figure 13 — Install the armature

- Install the bolt (do not apply Loctite) and torque it to 54 in•lb (6 N•m).
- Measure the air gap between the compressor rotor assembly and the armature using (x2) feeler gauges. The gap must measure between 0.016 in (0.4 mm) and 0.023 in (0.6 mm) (Figure 14).

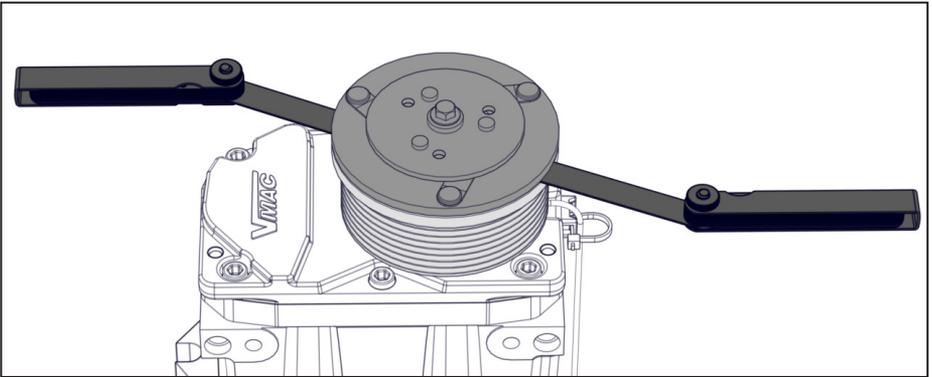


Figure 14 — Measure air gap

- Adjust the shim stack height as necessary using the supplied shims to obtain the appropriate air gap.
- Remove the bolt, apply Loctite 242 (blue), and reinstall it.
- Torque the bolt to 54 in•lbs (6 N•m).
- Install the compressor on the vehicle.
- Start the vehicle and test the compressor system.

Manufactured by



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