AltMount®

SERPENTINE PULLEY CONVERSION KIT
INSTALLATION INSTRUCTION SHEET

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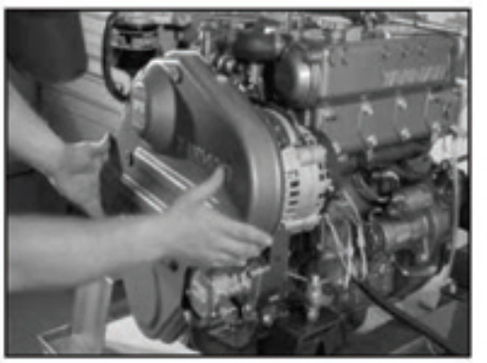
DC CHARGING SOLUTIONS

The AltMount® Serpentine Pulley Conversion Kit provides an easily-installed solution to provide greater load transfer and reduced engine noise and vibration for your engine. While the installation process for the kit is moderately simple, we strongly recommend reading and following the installation instructions closely when installing the kit. Although our kits are designed around specific engine models, we have no control over changes made during assembly of the engines or modification made thereafter. There may be specific instances in which changes have been made we are not aware of. Please verify fit of each pulley, fastener, belt length, and any other components before installing. Please note that any mechanical installation has some element of danger. Do not attempt installation if you are overly tired or otherwise impaired.

Installing Serpentine Crank Pulley

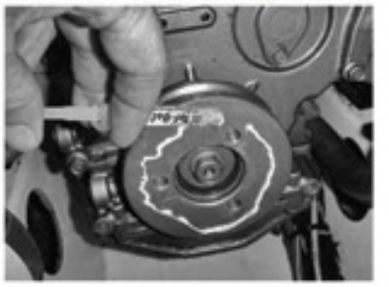


1. Disconnect or switch off battery power to the alternator / engine.

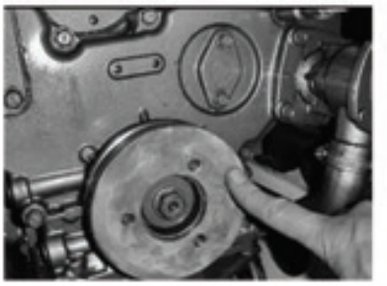
2. Remove engine belt cowling bolts and remove cowling. Ensure that all fasteners are properly labeled and stored for re-installation.

3. Unpack Serpentine Conversion Kit and verify that all components are included.

4. Loosen mounting and tensioning arm bolts at the alternator. Swing alternator toward engine and remove V- belt from pulleys.



5. The AltMount® serpentine crank pulley is designed to slip over the top of the existing crank pulley. Before applying the supplied general purpose lubricant, test fit the serpentine crank pulley over the crank pulley and inspect for proper bolt alignment. Also, inspect bolt holes for debris, rust, or paint and verify bolts will not bottom out in bolt holes. It is advisable to chase the bolt holes with the proper tap to clean them.



6. When you are satisfied that the serpentine pulley aligns correctly with the crank pulley, remove the AltMount® pulley and apply a coating of lubricant to the surface of the engine crank pulley as shown in the photo to the right. Ensure that all metal-to-metal surfaces are adequately coated to eliminate any possibility of electrolysis between steel and aluminum.

7. When you are assured that the bolt alignment is correct and that all contact surfaces are protected with the anti-corrosive gel, place the serpentine crank pulley over the crank pulley.

   Rotate the serpentine pulley until the bolt holes are properly aligned.

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8. Once the pulleys are correctly aligned, apply a coating of thread locking compound to the mounting bolts. A threadlocker is supplied.

9. Insert the mounting bolts through the serpentine pulley and tighten.

10. When all bolts are tightened in place, use a torque wrench to secure the mounting bolts to the engine manufacturer's torque and tightening order specifications. Failure to properly torque bolts could result in excess vibration, poor belt alignment and damage to the engine, water pump and alternator.

Installing Water Pump Pulley

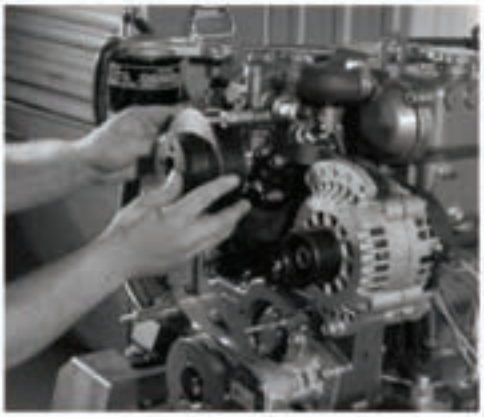
1. Loosen the bolts that affix the pulley to the water pump. Remove the standard pulley from the water pump.

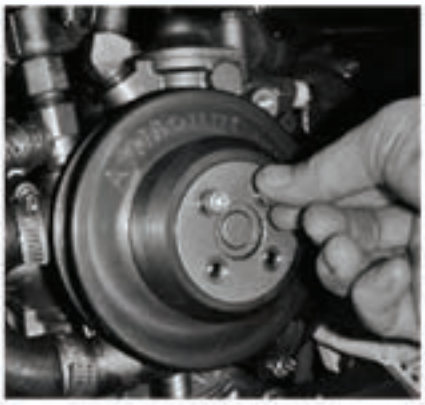
2. Test fit the AltMount® water pump pulley to the water pump to ensure that the AltMount pulley seats on the center flange, and that the four bolt holes align properly with the serpentine water pump pulley.

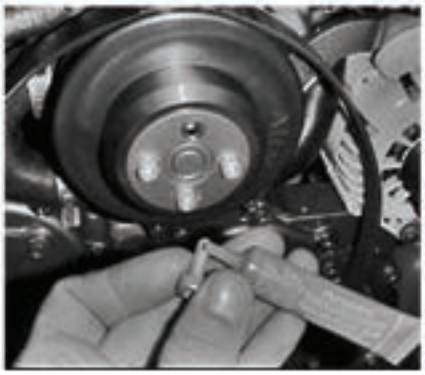
3. When proper alignment is assured, remove the AltMount® pulley and coat all dissimilar metal contact surfaces with general purpose lubricant.

4. Re-fit the AltMount® pulley on to the water pump and install the four supplied bolts. Bolt threads should be coated with a thread locking compound prior to installation as shown in the figure at right. Secured bolts should be tensioned to engine manufacturer torque and tensioning order specifications.

5. Once installed, the pulley can be hand rotated to ensure smooth, balanced operation.







Notes

*Pulley Bolts: The bolts supplied with AltMount® Kits are typically representative of the particular engine the kit was designed to fit. Engine manufacturers often change the bore depths without notification, therefore the bolts supplied might be too long or too short for your particular engine. Make sure the bolt lengths are appropriate to properly seat the AltMount® pulley. If different bolt lengths are required, the fastest solution is to request longer or shorter bolts of the same diameter and thread pitch from your local hardware store.

Installing Alternator Pulley

1. If the alternator to be used is already installed on the engine, disconnect and mark all wiring attached to the alternator. Remove the front and rear mounting bolts as well as the tensioning arm bolt and remove the alternator from the engine block. Remove standard pulley from alternator. The AltMount® alternator pulley can be used on any alternator with a 17 mm rotor shaft. While the pulley can be removed without one, the use of an impact wrench (as shown) is strongly recommended.

2. Place AltMount® pulley on rotor shaft. Insert lockwasher and hex nut.

3. With impact wrench, tighten hex to 70-80 ft. lbs. The pulley can be supported with your free hand to prevent the pulley from spinning as you tighten the nut.

4. With the new pulley installed, return the alternator to its original position on the engine. Replace the front and rear mounting bolts and tensioning arm bolt and tighten until the alternator is supported, yet loose enough to allow alternator to move freely to allow belt installation and tensioning.

5. Re-attach wiring to alternator

Pulley Conversion Instructions

Your AltMount® Serpentine Pulley Kit includes a 10-groove pulley that can be used with either Balmar's 6-Series, 9-Series, XT-Series, or AT-Series alternators. To use with the AT-Series alternator, simply place the pulley on the alternator's rotor shaft, install the lock washer and pulley nut, and tension to 70-80 ft. lbs.

If the Serpentine Pulley Kit is being used in conjunction with our 6-Series, XT-Series or 9-Series alternators (or any other alternators based on the Delco CS130-D or 10-DN frames), insert the spacer (shown at right) into the counterbore of the alternator pulley, replace the washer and nut, and tension to 70-80 ft. lbs.

Installing Serpentine Belt

1. Once the three serpentine pulleys are installed and in place, the serpentine belt can be installed. Your serpentine conversion kit includes two belts; one for immediate installation and one as a spare. Both are the same size, it won't matter which one you choose to install.
   Note: Some installations require different belt lengths than what Balmar provides in your standard AltMount® Kit. Call Balmar Tech Service if you require a different belt length.

2. With the alternator pushed as close to the engine as possible, place the belt around the three new serpentine pulleys. The belt will need to go around the crank pulley first, then around the water pump pulley, and last around the alternator pulley.

3. Once the belt is around all three pulleys, the alternator can be moved away from the engine block to add tension to the belt. The recommended tension for the serpentine belt can be measured by the deflection over a given span. In a 10-groove, J-type belt, that deflection is 1/32" per one inch of belt span between pulleys under 25 pounds of deflection pressure.

4. There are a number of tensioner gauges available for determining serpentine belt tension. While thumb pressure and a straight edge will give you a good, rough guide, the use of a tensioning tool is far more accurate - and far more likely to provide you with optimal belt life.

5. Once you have properly tensioned your belt, tighten the alternator's mounting and tensioning arm bolts. Replace the cowling.

6. While serpentine belts are far less susceptible to stretching than traditional vee belts, re-tensioning is recommended after the first few run cycles, and should be part of routine engine maintenance.

Troubleshooting

The serpentine drive belt system is far less prone to dusting or belt wear issues than traditional vee belts. If undue belt wear or premature belt failure is noted, start with the following steps:

1. Ensure that crankshaft, water pump and alternator pulleys are in proper alignment. Using straight edge, sight along the run of the belt measuring from the edge to center of the same groove on each pulley, to ensure pulleys are parallel to each other. Often, the alternator can be moved slightly forward or aft to improve pulley alignment. Shimming of water pump pulley may also be necessary in some installations.

2. Ensure that none of the bolts supporting the crank or water pump pulleys has loosened. Using a torque gauge, ensure that all bolts are tensioned to the engine manufacturer's torque specifications

3. Verify that the belt tension meets specified values.

If non of the steps above corrects the belt dusting issue, contact Balmar Customer Service or Technical Support departments for additional recommendations

Notes

AltMount Kit Includes: AltMount® Pulleys and (2) Serpentine Belts
(1) Threadlocker
(1) General purpose lubricant / Anti-corrosion gel
Fasteners as Required

* Some kits require the installer to use the original hardware installed on the engine.
* AltMount hardware may vary based on mounting application.
* AltMount Pulley Conversion Kits are designed to be used with Balmar High Output Alternators and may not fit the alternator currently installed on your engine. If you choose to utilize an alternator other than a Balmar Alternator, please contact our technical service department to verify correct fitment for your application. Balmar provides a unique alternator serpentine pulley for Hitachi alternators installed on Yanmar engines. If you are converting an Hitachi alternator, order Balmar part number 48-AM-97 in addition to your applicable AltMount Conversion Kit for this application.