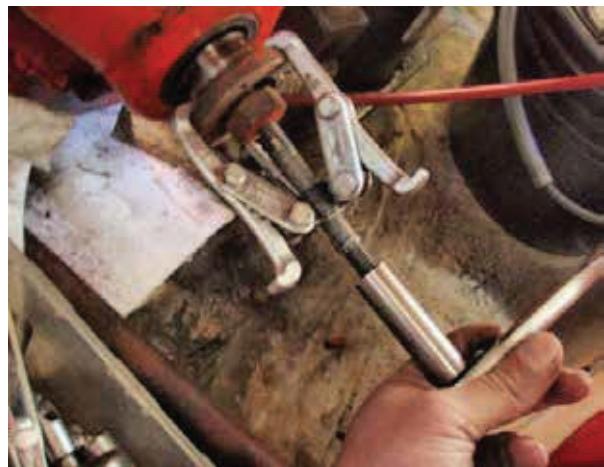
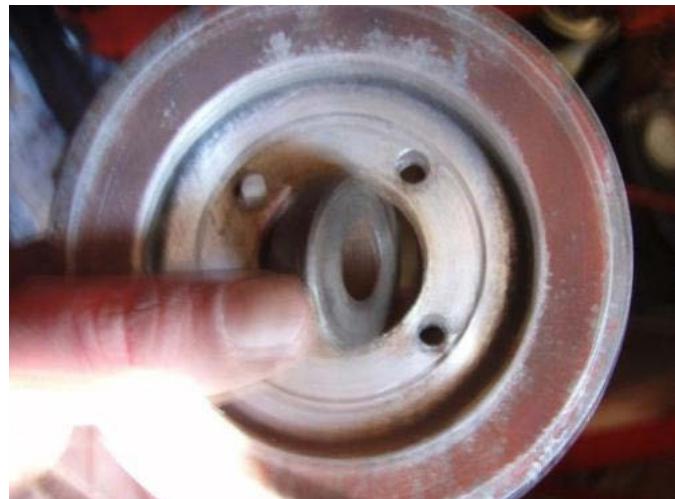


**48-PSP-410-A & 48-WSP-40 SERPENTINE PULLEY KIT
PERKINS 4107/4108/WESTERBEKE ENGINES****AltMount Serpentine Pulley Kit****Installation Instructions**

The AltMount® Serpentine Pulley Kits for Perkins 4107 & 4108 engines are unique in that they require that the installer remove and replace the water pump, rather than just the water pump pulley. Please take extra care when removing and replacing the water pump to ensure that the system is leak-free when the installation is complete. To install the pulley kit:

1. Loosen the alternator tensioning bolt to loosen the old vee drive belt. Remove belt.
2. Using a strap wrench or chain grips, secure the crankshaft pulley in place. Once the pulley is secure, remove the center bolt from the front of the pulley. A thin-walled socket will be required to remove the bolt.
3. Once the bolt is removed, loosen and remove the four small surrounding bolts.
4. Remove the crankshaft pulley. A puller may be required to remove the pulley.
5. Once the pulley is removed, re-install the center bolt, and use your puller to remove the crankshaft to remove the crankshaft adapter plate (see center photo).
6. Replace the old lip seal with the new seal included in the serpentine pulley kit (see bottom photo).





7. Clean the installation location thoroughly to eliminate grime, then grease the crankshaft, lip seal and inner bore of serpentine crank pulley. Install new crank pulley.



9. When seated, the serpentine crank pulley will extend approximately 1/4" forward of the crankshaft.



10. Thread the center bolt into the the crankshaft and tighten to 45-50 ft-lb. Use padding to protect pulley threads when using chain or strap wrench to keep pulley from turning



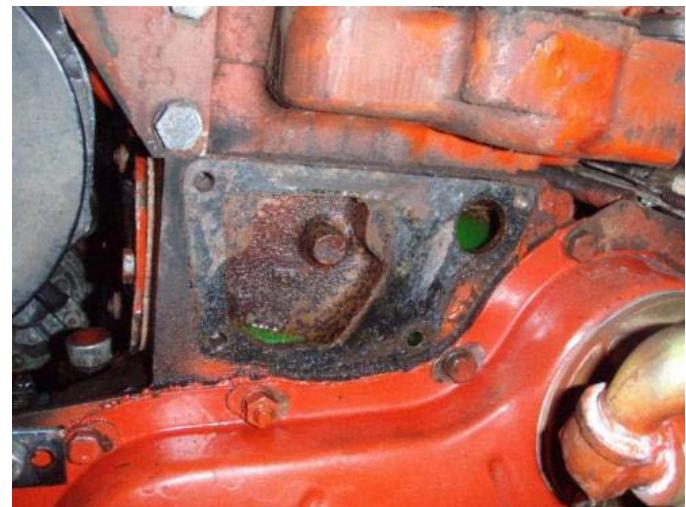
11. Completed serpentine crank shaft pulley.



12. When crank pulley installation is complete, remove water pump pulley from engine.



14. Old and new pumps are shown side-by-side. The gasket plate between the old pump and engine block will need to be removed, cleaned, and re-installed with the new pump.



15. The surface of the engine block must be thoroughly cleaned and smooth before the installation of the new pump.



16. The gasket plate must be free of any old sealants or any other foreign matter before re-installation. Don't take any shortcuts during this process.



17. Coat the contact surfaces of the water pump assembly with high-temp RTV silicone sealer, and install with new gaskets included with the serpentine pulley kit.



18. The new water pump shown installed on the engine.



18. Once the new water pump is installed, remove the old alternator from its mounts.

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 a 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 45-50 ft. lb. 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.



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 Alt Mount 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 6-groove, K-type belt, the deflection is $1/64"$ per 1" of belt span between pulleys. For example, the deflection of a 32" span is $1/64" \times 32$ or $1/2"$.
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 a part of routine engine maintenance thereafter.

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 a straight edge, sight along the run of the belt and ensure that the pulleys are parallel to each other. Often, the alternator can be moved slightly forward or aft to improve pulley alignment.*
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. See page 4 for recommended tension*

If none of the steps above corrects the belt dusting issue, contact Balmar Customer Service or Technical Support departments for additional recommendations.

Notes

* 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.

*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.