

# **PERRIN**

## **PERFORMANCE**

### **WRX/STI Lightened Crank Pulley**

Thank you for purchasing this PERRIN product for your car! Installation of this product should only be performed by persons experienced with installation of aftermarket performance parts and proper operation of high performance vehicles. If vehicle needs to be raised off the ground for installation, the installer must use proper jacks, jack-stands and/or a professional vehicle hoist for safety of the installer and to protect property. If the vehicle is lifted improperly, serious injury or death may occur! Please read through all instructions before performing any portion of installation. If you have any questions, please contact our tech department prior to starting installation.

Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques may be required. Failure to drive a vehicle safely may result in serious injury or death. Do not drive a vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Some modifications (and combinations of modifications) are not recommended and may not be permitted in your state or country. Consult the owner's manual, service manual, instructions accompanying these products, and local laws before purchasing and installing these modifications. You are responsible for the legality and safety of the vehicle you modify using these components.

#### ***SPECIAL NOTES:***

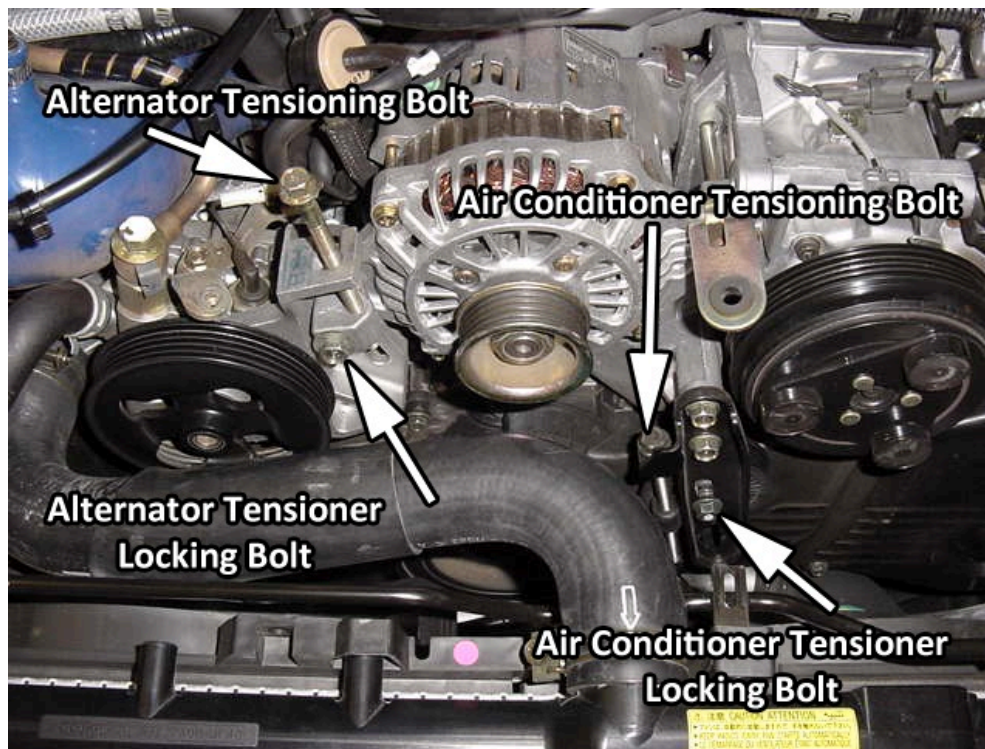
- 2008+ vehicles have no tensioner on the AC belt, but rather a stretch type belt. This requires the Subaru OEM tool or Gates Belt installation tool which can be found anywhere that sells Gates Products. Gates and Subaru recommend that you cut old belt off and install a new one every time. We carry both the belt and installation tool. Give your PERRIN sales team a call to purchase.
- The use of penetrating oil will help with removal of crank pulleys with high mileage or ones that are corroded.

#### ***Included Parts with PERRIN Crank Pulley:***

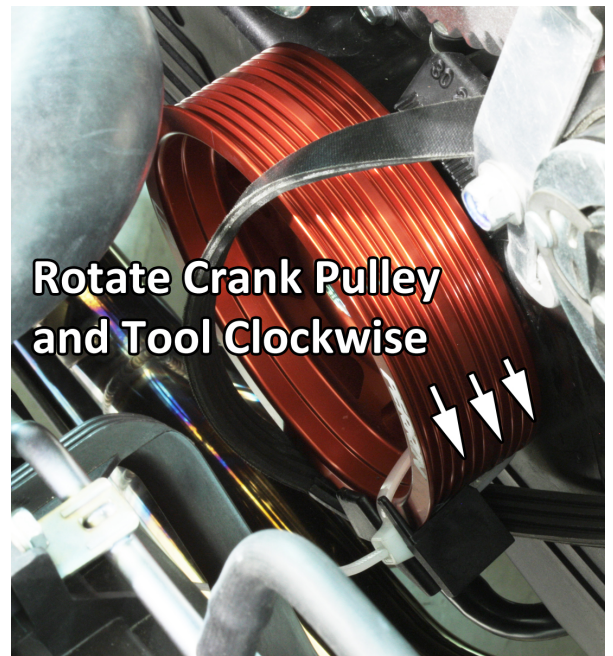
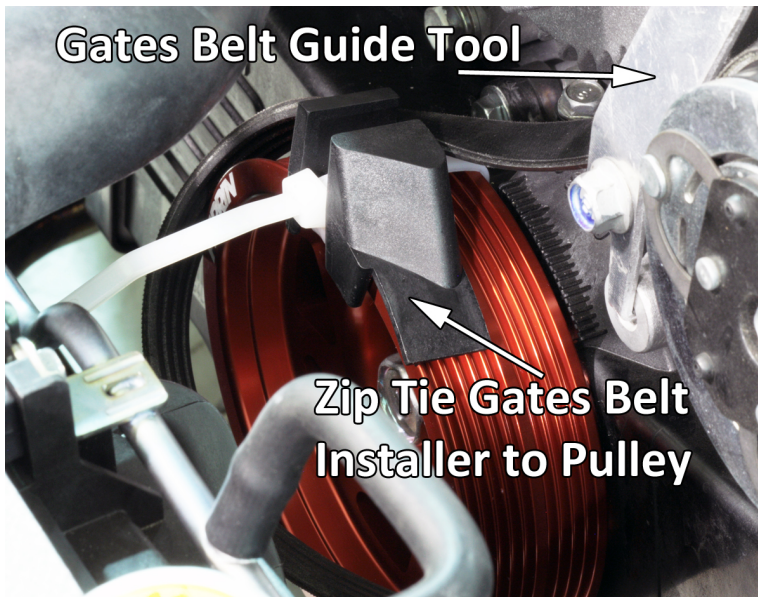
- (1) PERRIN Lightened Crank Pulley

#### **Installation Instructions**

1. Remove plastic belt cover to access belt tensioner bolt and nut. 02-07 cars will have a 10mm nut and bolt to remove. 08+ cars will have (1) 10mm bolt to remove.
2. Using a 12mm socket, loosen the alternator tensioner lock bolt roughly 2 full turns. Loosen the alternator tensioning bolt until belt comes loose and remove from engine. Pushing down on the alternator will be necessary to relieve tension. NOTE: You can also loosen the alternator pivot bolt to free alternator from pivoting.
3. Remove AC belt.
  - a. For 02-07 cars, using a 12mm socket, loosen air conditioner tensioner lock bolt roughly 2 turns. Loosen air conditioner tensioning bolt until belt becomes loose, and remove from engine.
  - b. For 08+ cars you have two methods to remove AC belt. Subaru and Gates recommend cutting the OEM belt off. This is the easiest method to remove belt. Alternatively, you can remove the belt as you slide the crank pulley off the engine. This allows you to reuse the OEM belt if you choose to. Follow the steps below to remove the crank pulley bolt, then using a pry bar, lightly pry behind the left and right side of pulley until the pulley comes off. Be very careful not to damage the plastic belt covers.



4. Place transmission in 5<sup>th</sup> (or 6<sup>th</sup>) gear. Apply parking brake to prevent vehicle from moving during removal. If car is equipped with automatic transmission, please consult factory service manual. This will require a special tool that locks the flex plate from turning.
5. Using a breaker bar and 22mm socket, loosen crankshaft bolt turning it counter clockwise. This can be very tight and will require over 100ft-lbs of force along with loading the drivetrain slightly. Take care not to damage other pulleys and radiator hoses while loosening.
6. Remove bolt and pulley form engine. **NOTE: If pulley doesn't come off with a little wiggling, use penetrating oil or similar to loosen rust. If pulley still doesn't come off, use suitable commercial puller to remove. Take care not to loose woodruff key during this process.**
7. Make sure nose of crankshaft is clean of corrosion or contaminates before installing new pulley. Use a Scotchbrite pad and penetrating oil to clean nose of crankshaft if needed. Re-install woodruff key if removed earlier.
8. Slide PERRIN Lightened pulley onto crank. Slowly turn pulley to align keyway with key on crank, and continue to slide pulley on. **Failure to line up key with keyway on pulley will result in damage to pulley and nose of crankshaft. NOTE: If crank pulley doesn't go right on check that key hasn't slid off the crank or lifted off. This is very rare but can happen.**
9. Apply engine oil to crankshaft pulley bolt seat and threads. Tighten bolt to 33ft-lbs. Taking note of angle of wrench, tighten bolt to 132.8ft-lbs. During this final tightening, bolt should have tightened more than 65 degrees. If tightening angle is less than 65 degrees, replace bolt and start over with instructions above.
10. Place transmission neutral.
11. Reinstall AC belt and tension to factory specs.
  - a. 02-07 cars. Install AC belt over AC pump, then under tensioner bracket, then around back set of grooves on crank pulley. Tighten AC tensioner bolt until belt has roughly 3/8" of deflection. Tighten AC tensioner lock bolt to 18ft-lbs only after belt is tensioned properly.
  - b. 08+ cars. Install stretch fit belt around AC pump. Install Gates Belt Guide Tool (bracket shown in below picture) using supplied bolt. Thread supplied Zip Tie (only supplied with PERRIN Gates kit) around crank pulley as shown below. Set the Gates Belt Installer on outside of crank pulley as shown and tighten zip tie down tight. Rotate crank pulley clockwise making sure to push belt to inside of Gates Tool as shown below. Continue to rotate crank pulley clockwise. As belt starts to wrap around, there will be a moment where the tension become very high then it will snap into place. Once you have made one full revolution, cut zip tie and remove both Gates Belt Installer and Gates Belt Guide.



- c. Make sure belt is lined up on grooves by rotating engine one full turn. If belt is off one groove, rotate pulley clockwise and at the same time push or pull bottom of belt to line up.
12. Reinstall Power Steering and Alternator belt and tension to factory specs.
  - a. All cars. Install alternator belt over crank pulley, then power steering pulley, then Alternator pulley. Tighten Alternator Tensioner Bolt until belt is tight with about 3/8" deflection. Tighten Alternator Tensioner Lock bolt to 18ft-lbs. If Alternator pivot bolt was loosened earlier tighten to 18ft-lbs.
13. Start engine and check for belts being misaligned and check for crank pulley wobble. If belts are aligned and crank pulley isn't wobbling then you can continue to next step. If either problem exists, recheck your installation.
14. Reinstall your belt cover removed earlier to complete the installation.