

# PERRIN

## FA/FB Engine Lightweight Crank Pulley w/Small Hub

2022-11-22

PSP-ENG-106

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. We can be reached in any of the following methods:

Email [Tech@PERRIN.com](mailto:Tech@PERRIN.com)

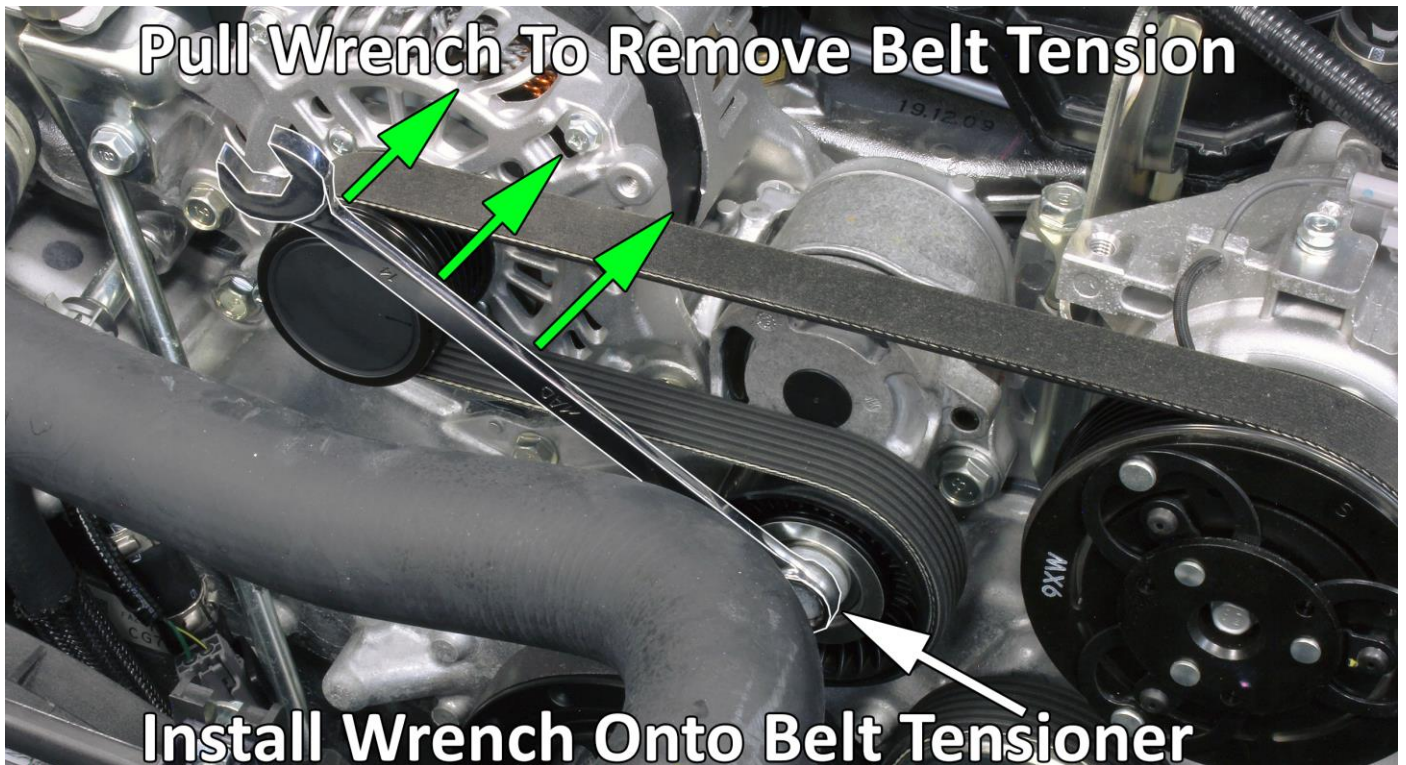
Instant Chat off the main page of [www.PERRIN.com](http://www.PERRIN.com)

Or simply call our tech team at 503-693-1702

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.

### Parts Included with the PERRIN Crank Pulley:

QTY	Part Number	Description
1	X-PSP-ENG-101	Crank pulley for BRZ/FR-S FA/FB Engines
2	X-BLT-M39X2MM-N70	O-ring 39mm ID X2mm Buna For Crank Pulley Hub
1	X-PSP-ENG-107	Hub for FA/FB Crank Pulley (Small OD)



### Remove OEM Pulley

1. Locate belt tensioner on front of engine. Using 14mm (or 17mm for 22+ vehicles) wrench, remove tension from belt and remove serpentine belt from engine. Take note of belt orientation on pulleys as this will need to be reinstalled in future step.



2. Place transmission into 6<sup>th</sup> gear. Firmly apply parking brake to prevent vehicle from moving. If car is equipped with automatic transmission, please consult factory service manual. This will require a special tool or a carefully placed prybar to hold the flex plate from turning.
3. Using a breaker bar and 19mm socket, loosen crankshaft bolt by turning it counterclockwise. 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 or radiator hoses while loosening.
4. Remove bolt and pulley from engine taking note of the location of the flats on the crank pulley. Have a paper towel ready to catch any oil that might drip out from crank case.



### Installation of PERRIN Pulley

1. Install PERRIN hub into then engine with the flats in the same location as the OEM crank pulley. If installed properly, it will sit nearly flush with the crank case as shown in the above picture. **Please read the extremely important notes below before moving to the next step.**
  - a. The key on the crank and the flat on the oil pump need to be aligned for the hub to be installed and sit flush as shown above. Since the oil pump can rotate separate from the engine, it is possible that the two parts can become out of alignment. If this happens, the hub will NOT sit flush and stick out as shown below.
  - b. To correct this misalignment, install hub as far as it can go, and rotate hub around until the key lines up to the keyway, and the pulley can be pushed in and matches the picture above.
  - c. While re-aligning, very little force will be required to re-align the hub with the crank and oil pump. If any binding occurs during this step, make sure to pull hub out and re-attempt to align it.
  - d. **If these steps are not followed, the timing chain gear and/or oil pump can be damaged and cause engine failure if not fixed!**

**If Hub Stops With It Sticking Out, STOP!!**



2. Install (1) supplied O-ring into groove on the face of the hub. **NOTE: Applying a small amount of grease into the groove will help keep O-ring in place during the next few steps.**
3. Slide PERRIN Crank Pulley onto crank. Slowly turn pulley to align hole with pin on crank and continue to slide pulley on. **NOTE: Failure to line up pin and hole on pulley will result in damage to pulley and nose of crankshaft.**
4. Apply engine oil under the head and on the threads of the crank pulley bolt. There are two methods that Subaru has provided for tightening specs on this part. You may find something different, but these are the most current version.
  - a. Tighten bolt to 14.8ft-lbs.
  - b. Using marks on head of bolt as a guide, tighten bolt 90 degrees. Note: Using a paint pen to mark your starting point can aid in rotating the bolt 90 degrees.
5. Place transmission into neutral.
6. Reinstall belt to all pulleys in the same direction they came off but leave belt off automatic tensioner pulley.
7. Using 14mm socket and prybar, un-tension the tensioner and install belt to automatic tensioner pulley. Slowly release tensioner making sure belt stays aligned.
8. Start engine and check for misaligned belts and crank pulley wobble. If belts are aligned and crank pulley isn't wobbling, then installation is complete. If either problem exists, recheck your installation.

**Questions, Comments and Suggestions Contact: [Tech@PERRIN.com](mailto:Tech@PERRIN.com)**

**Visit Our Website for Instant Chat Options at [www.PERRIN.com](http://www.PERRIN.com)**

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