

CorkSport Performance

AXO-6-310 Aluminum Crank Pulley

Installation Instructions for the CorkSport Performance Aluminum Crankshaft Pulley for the 2019+ Mazda 3, 2020+ CX-30, and 2023+ Mazda CX-50

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INTRODUCTION

In this installation guide we have provided step by step instructions to install the CorkSport Performance Crank Pulley

Advisory:

- Working under the vehicle requires a safe and sturdy location for the vehicle to sit on jackstands.
- Reference the owner's manual for proper lifting and jack stand locations
- Engine components will be hot after vehicle use, let the vehicle cool for at least 30 minutes or use a fan to cool the underside of the engine before starting project
- Does not fit SkyActiv-X models or CX-50 Hybrid models

TOOLS:

- [Hydraulic Jack](#) (1)
- [Jack Stand](#) (2)
- [1/4" or 3/8" Drive Ratchet](#) (1)
- [10mm Socket - Deep](#) (1)
- [Flathead Screwdriver](#) (1)
- [17mm Socket - Deep](#) (1)
- [21mm Socket - Deep](#) (1)
- [1/2" Impact \(if available\)](#) (1)
- [Pry Bar](#) (1)
- [Micro Fiber Towel](#) (1)
- [Dead Blow Hammer](#) (1)
- [Friend](#) (1)

PARTS:

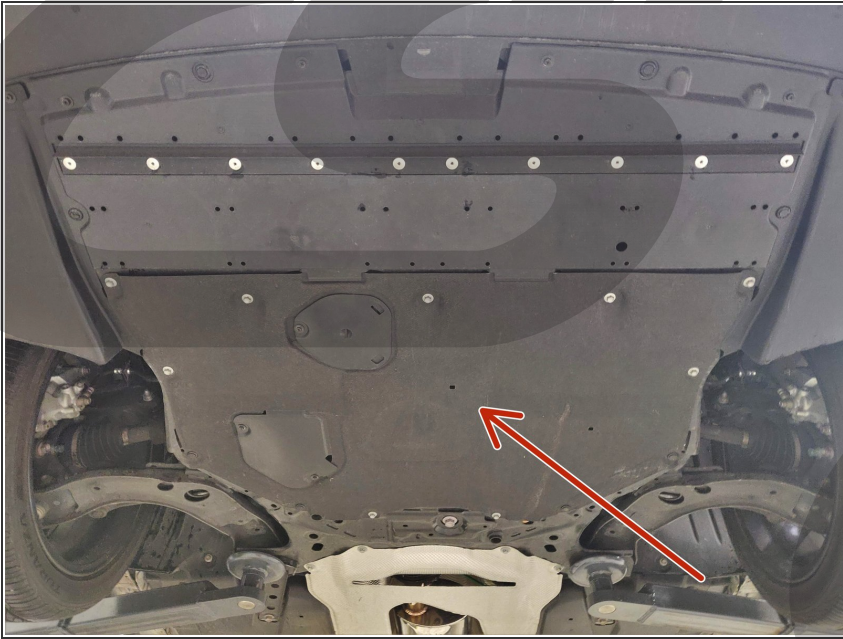
- [AXO-6-310 Crank Pulley](#) (1)

Step 1 — Getting Started



- First and foremost; **THANK YOU** for becoming a part of the CorkSport Family. We hope to bring you the highest level of Parts, Customer Service, & Support
- ⓘ How To Use These Instructions
 - The instruction format will relate colored marking in the image to the color dot in the text to the right of the image
 - ⓘ Assistance from another person is recommended for some portions of the install.
- ⓘ Installation instructions are shown on a 2021 Mazda 3 Turbo. Non-turbo models, manual transmissions, CX30, and CX50 models will be similar.

Step 2 — Lifting the Car



- ⚠ Ensure the vehicle is parked on a level surface before proceeding.
- ⚠ Be sure to reference your owner's manual for jack points and the jack manufacturer's instructions for proper practices.
- Using OEM lifting locations, start by lifting up the front of the car using the hydraulic jack and jack stands to access the OEM Splash Guard.

Step 3 — Removing the OEM Rear Undertray Section



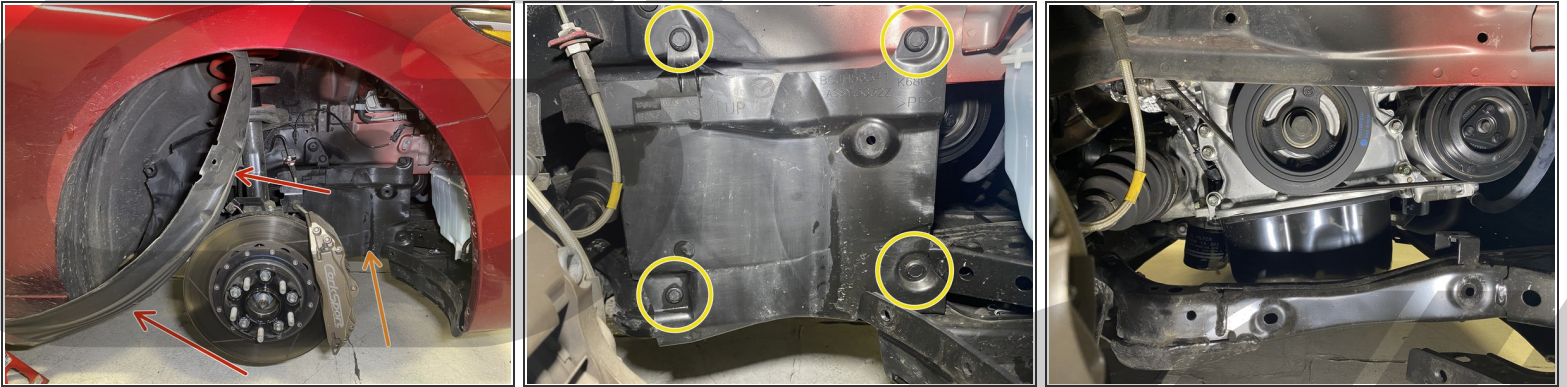
- ⓘ The OEM splash shield does not technically need to be removed for manual transmission installations, however, we recommend doing it anyways as it makes installation easier
- Using a flathead screwdriver or push clip removal tool remove the 4 plastic clips.
 - Remove them by prying down on the center section until it pops out and then remove by hand.
- ⓘ The plastic clips can be difficult to remove due to road debris collecting in them. If this is the case slowly work around the center of the clip, prying evenly until they free up.
- Using a 10mm socket and ratchet, remove the 9 bolts that secure the OEM Rear Section to the subframe starting from the ones that are circle at the top of the picture and working your way down.
- ⓘ When removing the last bolt make sure to hold the rear section in place so it does not fall.

Step 4 — Moving the Fender Liner & Side Panel Part 1



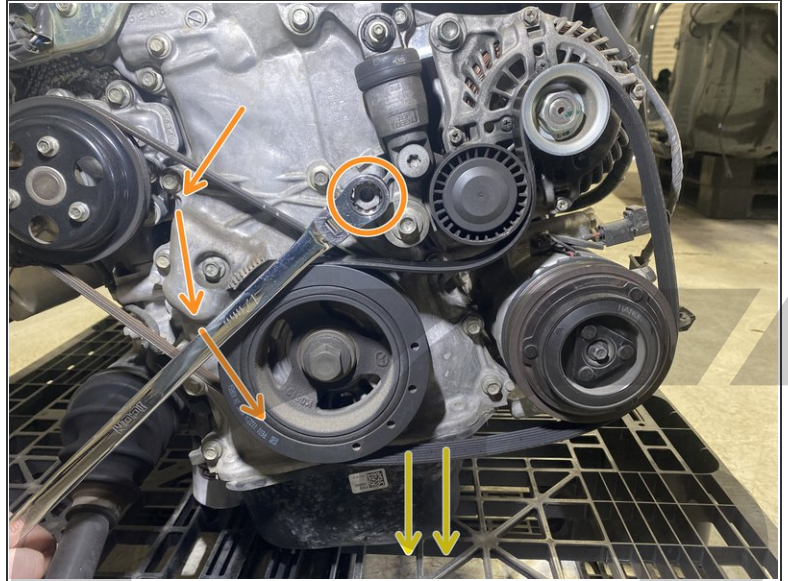
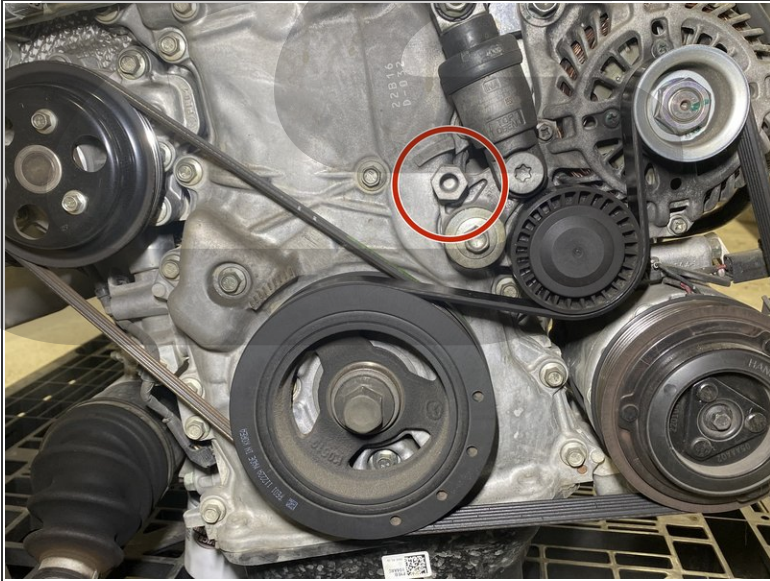
- Remove the right side (passenger side) front wheel from the vehicle using a 1/2" drive breaker bar or impact gun and 17mm or 21mm socket
 - ⓘ 17mm or 21mm lug nuts present depending on year and trim level of your 3.
 - ⓘ A different socket may be required if you have aftermarket or locking lug nuts.
- Remove the 11 push clips from the front half of the fender liner using a flathead screwdriver or push clip removal tool
 - ⓘ Two of the push clips are higher up and shown in the third image

Step 5 — Moving the Fender Liner & Side Panel Part 2



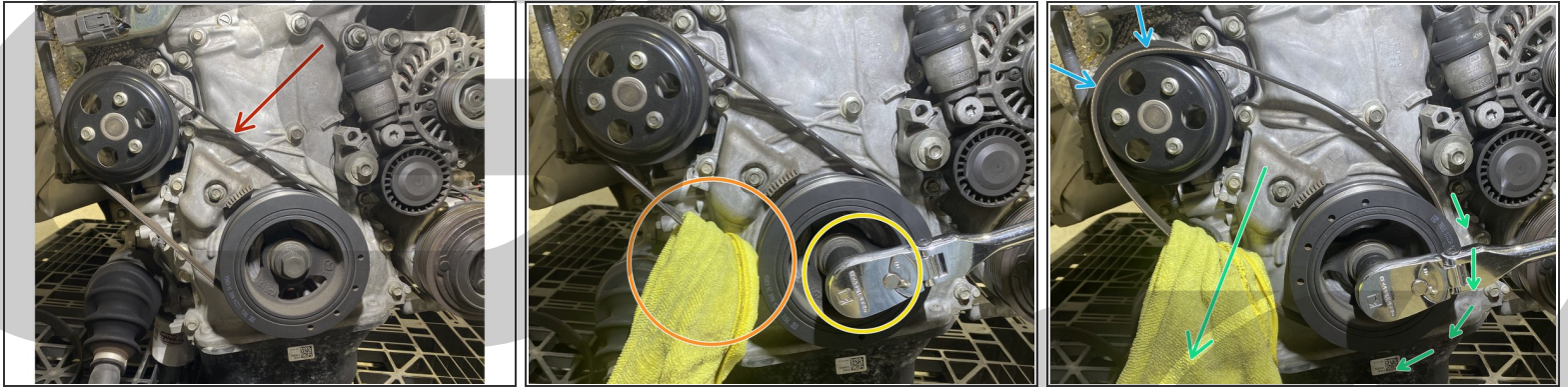
- You should now be able to bend the fender liner to the other side of the brake assembly and out of the way as shown
- The side cover panel will now be removed, it is located as shown with the orange arrow
- Remove the 4 push clips from the side cover panel using a flathead screwdriver or push clip removal tool. Then remove the side cover panel
- You should now be able to see the crank pulley as shown

Step 6 — Removing the Serpentine Belt



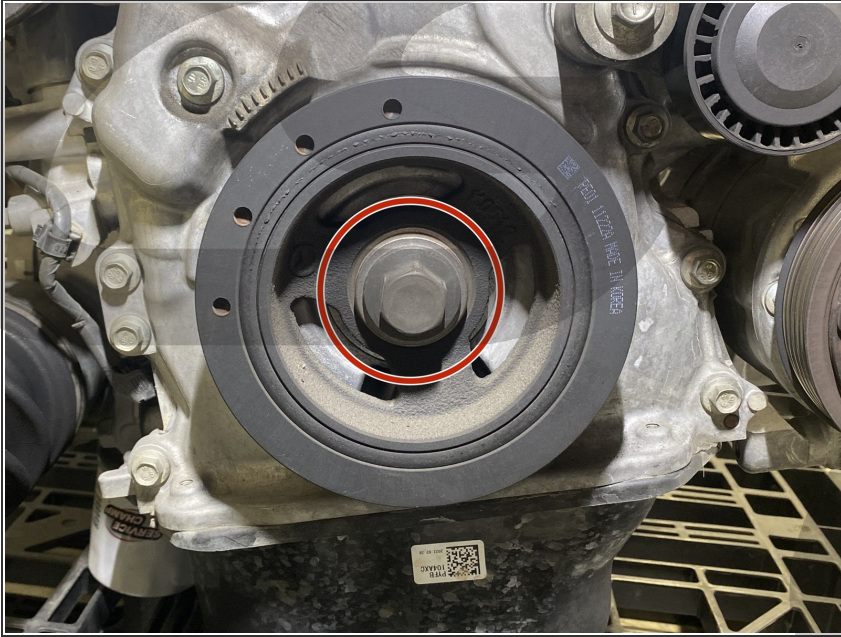
- ① The next few steps are shown with an engine removed from a vehicle for clarity. These components are relatively easy to access, it is just easier to see without the frame rail in the way!
- Above the crank pulley is an aluminum hexagon, this is the portion of the tensioner that needs to be rotated to relieve the serpentine belt tension
- Place a 17mm wrench or socket on this aluminum hexagon and rotate the hex counter-clockwise to compress the tensioner and release the tension on the belt
- While holding the wrench with the tension released, remove the serpentine belt from the crank pulley
- ① The belt can be removed from the pulley system completely if desired

Step 7 — Removing the Water Pump Belt



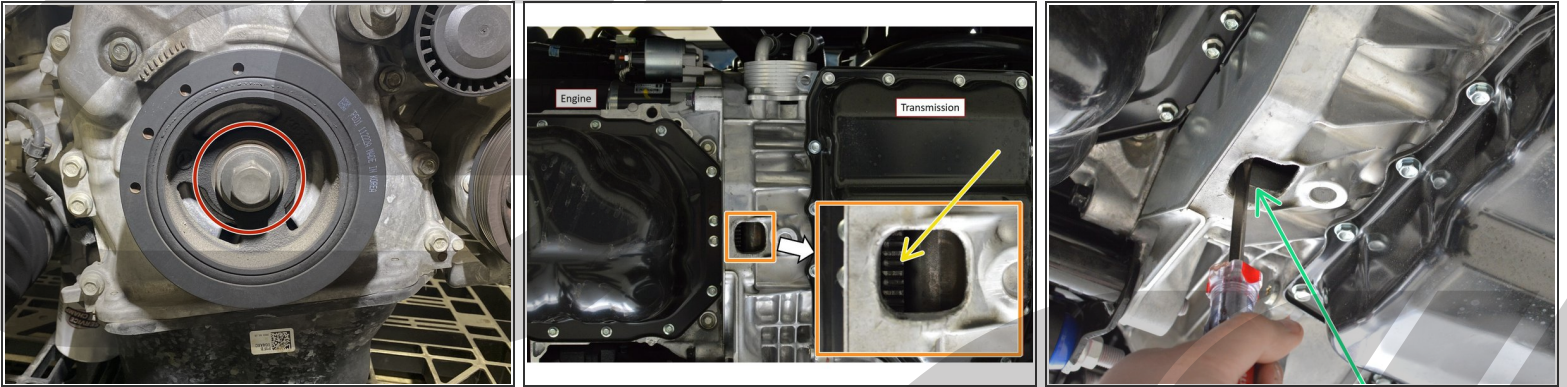
- The remaining belt on the crankshaft pulley is the stretchy water pump belt
- Place a towel over the water pump belt as shown
- Place a 21mm socket and ratchet on the crank pulley as shown
- Pull downward and outward on the towel while rotating the engine clockwise. This will slowly work the water pump belt off the water pump pulley
- If done correctly, the water pump belt will come free from the water pump pulley as shown
- Remove the water pump belt from the crankshaft pulley

Step 8 — Removing the Crankshaft Pulley Bolt MT



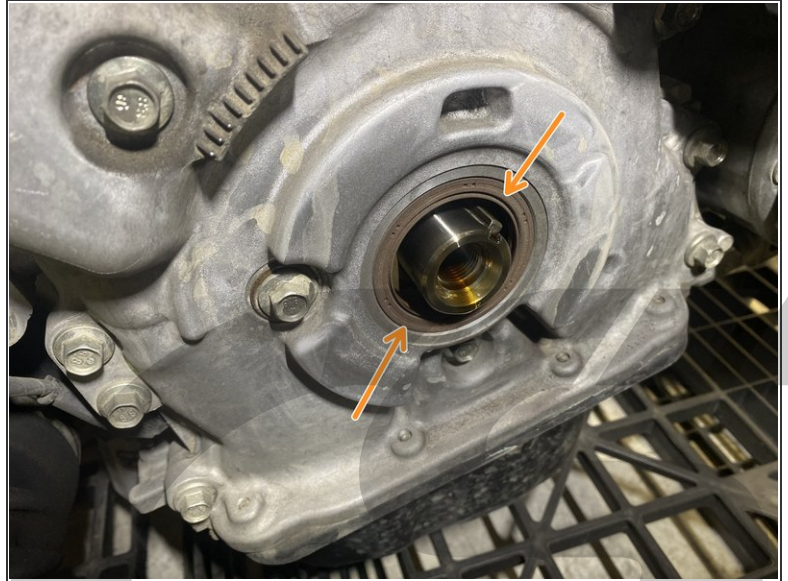
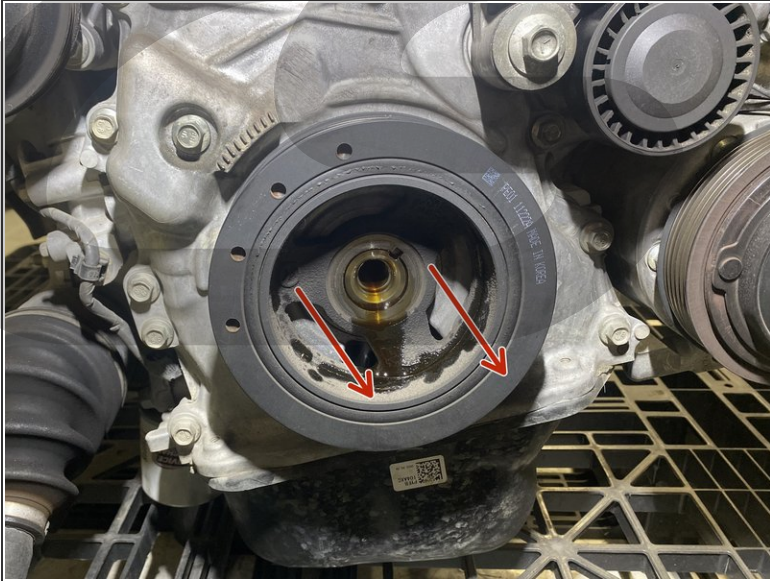
- ① If you have an **automatic transmission**, skip to the next step
- Using an electric or air impact and 21mm socket, remove the crankshaft pulley bolt.
- If you do not have an impact, you will have to follow the below steps:
 - Have a friend put the car in gear and hold the brake pedal firmly
 - Then use a breaker bar and 21mm socket to remove the crankshaft pulley bolt
- ① A small amount of oil will typically leak out of the crankshaft bolt hole. This is normal

Step 9 — Removing the Crankshaft Pulley Bolt AT



- ① If you have a **manual transmission**, skip to the next step
- Using an electric or air impact and 21mm socket, remove the crankshaft pulley bolt.
- If you do not have an impact, you will have to follow the below steps:
 - Underneath the vehicle, there should be a small access hole between the engine and transmission. It may have a plastic cover depending on your engine
 - If a plastic cover is present, remove it using a flathead screwdriver
 - The flex plate should be visible through this access hole
 - Have a friend use a pry bar or large screwdriver to keep the flex plate from rotating while you use a breaker bar and 21mm socket to remove the crankshaft pulley bolt
- ① A small amount of oil will typically leak out of the crankshaft bolt hole. This is normal

Step 10 — Notes before CorkSport Pulley Install



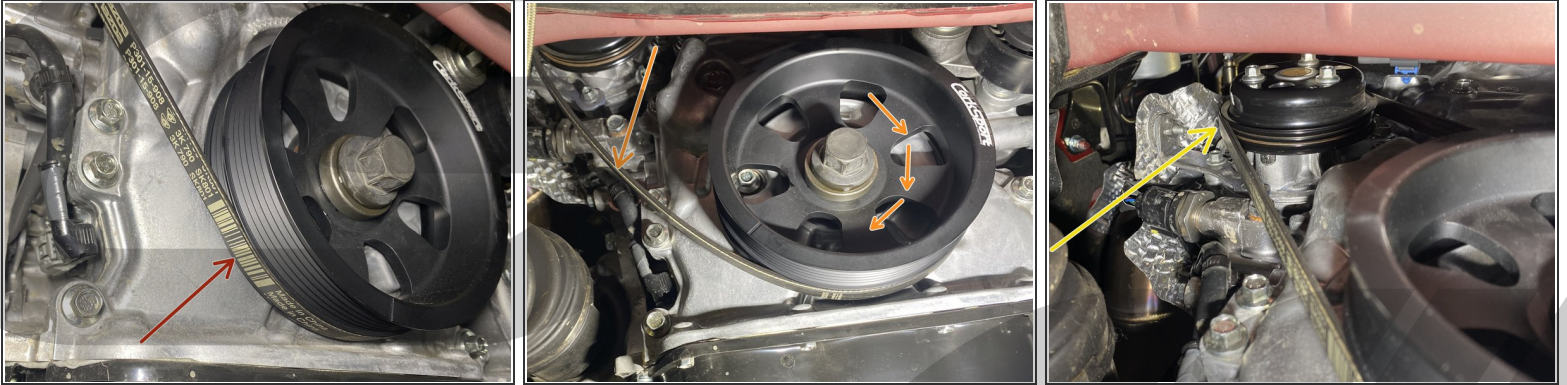
- Remove the OEM crankshaft pulley from the engine. If having difficulty removing, try rocking it back and forth while pulling away from the engine
- ⓘ There may be a small amount of oil that leaks when the crankshaft pulley is removed, this is normal
- Inspect the crankshaft pulley seal for any damage and replace if needed
- ⓘ It is also a good time to check your water pump belt and serpentine belt for any cracks, rips, or fraying and replace if needed
- Clean the oil from the crankshaft and crankshaft bolt

Step 11 — Installing the CorkSport Crankshaft Pulley



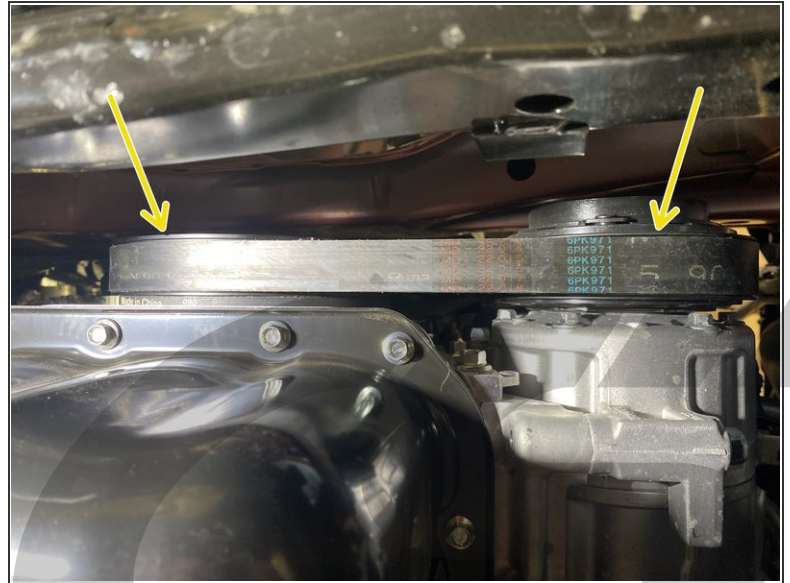
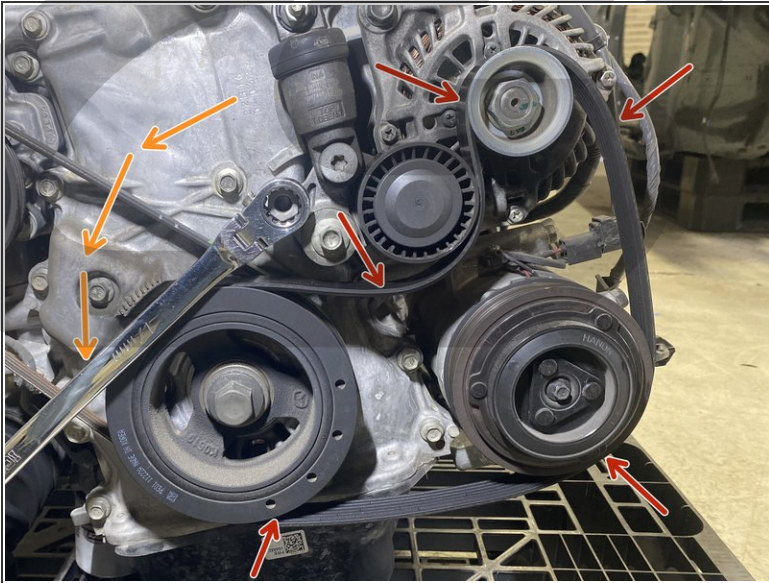
- Install the CorkSport Crankshaft Pulley onto the end of the crankshaft. Ensure the keyway is lined up with the key on the crank
- Use a dead blow hammer or rubber mallet gently to help seat the pulley fully
 - Image 1: Pulley not seated
 - Image 2: Pulley fully seated
- When fully seated, the crank will remain inset from the pulley by a small amount; just under 1/8 of an inch
- Once fully seated, reinstall the crankshaft pulley bolt, and torque to **67-80ft-lbs.**
 - For Manual Transmission owners, see Step 8 for preventing the engine from rotating while tightening
 - For Automatic Transmission owners, see Step 9 for preventing the engine from rotating while tightening

Step 12 — Water Pump Belt Reinstallation



- Place the water pump "stretchy" belt over the inside groove section of the CS crank pulley
- The other end of the water pump belt should sit on the smooth portion of the water pump pulley
- Using a 21mm socket and ratchet as before, rotate the crank pulley clockwise while pushing the water pump belt towards the engine
- If done correctly the water pump belt will pop onto the water pump pulley as shown

Step 13 — Serpentine Belt Reinstallation



- ① OEM pulley shown for a portion of this step, the process is identical
- Place the serpentine belt around the pulleys in the routing shown. Leave the bottom of the belt off the bottom of the crank pulley
- Using a 17mm wrench or socket and ratchet, rotate the hex of the tensioner counter-clockwise to compress the tensioner
- While holding the tensioner hex, place the belt over the bottom of the crank pulley
- Verify the belt is centered on all pulleys as shown, including the tensioner pulley

Step 14 — Reinstalling the Side Panel & Fender Liner Part 1



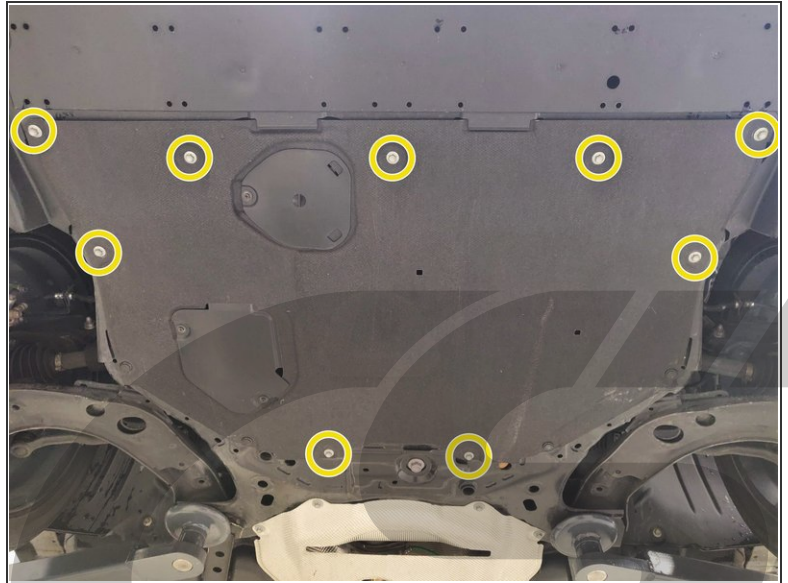
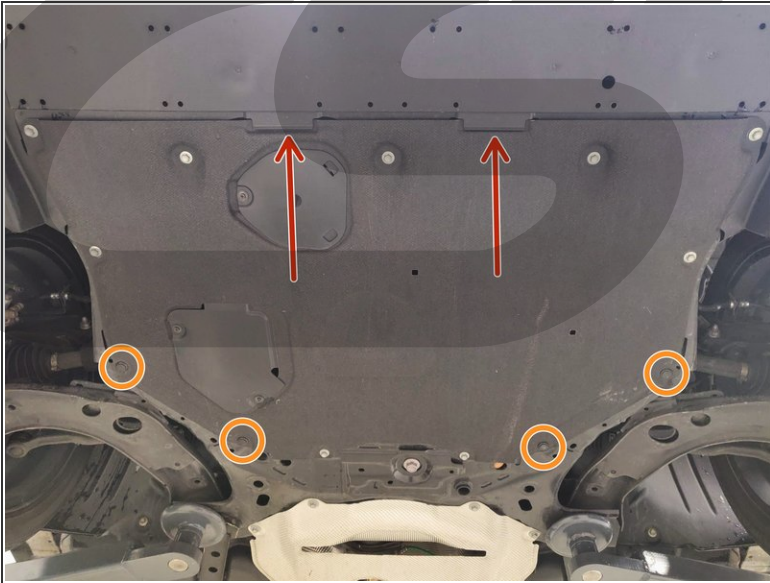
- Replace the side cover panel and secure it with the four push clips removed earlier
- Move the fender liner around the brake system and place it back in its original position
- Secure the fender line with the two upper push clips removed earlier

Step 15 — Reinstalling the Side Panel & Fender Liner Part 2



- Secure the fender liner fully with the remaining 9 push clips removed earlier
- Reinstall the wheel and secure it with the lug nuts, they will be torqued once the vehicle is set back on the ground

Step 16 — Reinstalling the Engine Splash Shield



- Automatic transmissions only: if you had a plastic cover over the flex plate access hole, replace the plastic cover at this time
- Lift the rear splash shield section into position and slide it under the tabs of the front splash shield section
- Secure the splash shield with the four push clips removed earlier
- Finally, secure the splash shield with the nine 10mm bolts that were removed earlier. Tighten until snug
- The vehicle can then be lowered from the jackstands
- Torque the wheel lug nuts in a star pattern to **80-90ft-lbs.**

Step 17 — Installation Complete



- This completes your installation of the CorkSport Performance Crank Pulley!
 - ① Check to make sure your belts look good and are still in the correct position after the first start
 - If ever needing to complete timing work, the machined notch in the CS crank pulley is your TDC marker!
- Contact us with any questions or concerns at sales@corksport.com or (360) 260-2675.
- Please leave a review here: <https://corksport.com/>
- Share your experience using #CorkSport on Instagram, Facebook, and Twitter.