INSTALLING YOUR POWERHOUSE 15% LOWER PULLEY

Vehicle Requirements:



This pulley is suitable for all models of supercharged AJ126 V6 and AJ133 V8 used in Jaguar and Range Rover models up to 2020. For later models, please contact Powerhouse for latest compatibility.

ECU remapping is required to run correctly.

For maximum power on these engines this pulley can be combined with a smaller upper pulley for a dual pulley setup. On most applications it is also advised to uprate the exhaust system with 200-cell catalytic converters and cooling system with uprated alloy charge cooler radiator and pump.

Disclaimer:

Powerhouse Automotive UK Ltd makes no claim or warranty that the installation and use of this product nor any modifications advised will be authorised for use in your country or local jurisdiction. We strongly advise checking local laws on the installation of aftermarket performance products.

Parts Included:

- 15% Uprated Lower Pulley
- Longer Supercharger Belt (Size will vary depending on model)
- Pulley Spacer (On application)

Typical Tools Required:

- Flat blade screwdriver & Wire Brush
- 7,10 & 24mm Socket
- T30 & T50 Torx Drive (High quality)
- Socket Wrench & Assorted Extensions
- Torque Wrench (65Nm capable)
- 3/8” and ½” Breaker Bar or Laser tool 3757
- Jack & Axle Stands or Ramp
- Air-Driven Impact Wrench (Optional)
- Medium Strength Loctite/Thread locker

Installation Notes:

To avoid confusion, when referencing sides of the vehicle we will identify them as Left or Right. This will be the from the perspective of looking at the front of the vehicle.

These instructions are generic and cover most steps applicable between models. For more specific instructions, please refer to our website for any updates on vehicle specific instructions.

Only install this pulley and any other modifications on well-maintained vehicles. If the vehicle has faults pertaining to the safety or the engine, resolve these issues before applying the upgrades.

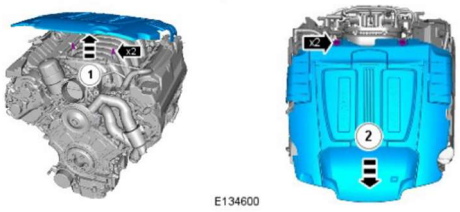
These instructions only apply to the lower pulley, for dual pulleys and package deals please refer to their respective installation sheets.

Powerhouse Automotive (UK) Ltd
Unit 3A Broom Business Park, Bridge Way
Chesterfield, Derbyshire, S41 9QG UK
Tel: 01246 260665 Opt-3 E-mail: tuning@powerhouse.uk

INSTALLATION

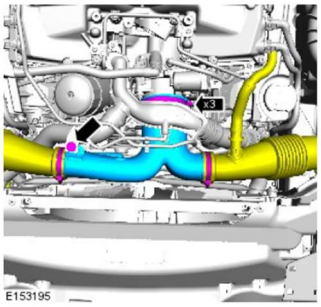
Step 1: Remove Engine Cover

To remove, lift by the front until you feel it pop out of its mounts. Slide to the front out of the rear mounts. Double check the rubber mounts in the cover are still in and in the correct position. Check that the rubber mounts on the rear bracket are also still in place.



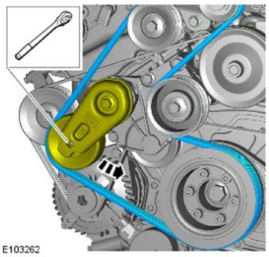
Step 2: Remove Intake Hose

Using the 7mm socket or flat blade screwdriver slacken both screw clamps attaching the central intake t-section on the left and right side and free the hoses. Slacken the throttle hose clamp. Using the 10mm socket remove the mounting bolt on the t-section at the left side of the intake shown with an arrow. Disconnect the large breather hose attachment on the right side of the intake. The location will vary between models, sometimes this is connected to the t-section and sometimes it is connected to the adjoining hoses. Removal is normally found easiest by twisting the shorter side of the tee pictured here on the right, downwards.



Step 2: Remove Supercharger Belt

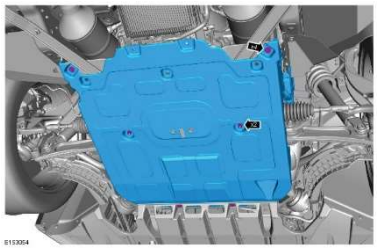
To remove you will need to slacken the tensioner by using either the 3/8” breaker bar for the leverage or one of the laser tools direct into the tensioner as shown. Pull this towards the left of the car. The belt will slip off the idler pulley next to the supercharger easiest then slip off all other pulleys to remove.



Step 3: Remove Undertray

On some models this step in not necessary, typically Range Rover and Jaguar F-Pace models you may have enough room after removing the fan assembly to access from above.

If choosing to remove, when using a jack always support the vehicle with axle stands. Using a T30 Torx and/or 10mm remove fasteners. This process will vary slightly from model to model. The front bumper undertray may need flexing to release this section.



We advise removing these fasteners by hand or with a light torque driver as it easy to damage the retaining clips for these fasteners.

Example shown from Jaguar F-Type

Powerhouse Automotive (UK) Ltd
Unit 3A Broom Business Park, Bridge Way
Chesterfield, Derbyshire, S41 9QG UK
Tel: 01246 260665 Opt-3 E-mail: tuning@powerhouse.uk

Step 4: Remove Radiator Fan Assembly

Remove the radiator fan/motor/shroud or Viscous as per the manufacturer's guidelines. Each model and generation have different assemblies, bolt locations etc to list each type. Further vehicle specific instructions may be available, please visit out online instructions to see if your vehicle is listed.

In general, most Jaguar models will have a standard radiator fan/motor assembly and shroud. These are commonly held in at the top and the sides of the shroud within 6-8" of the top. You may also find a water pump attached to the lower right side of some, this will need accessing from underneath to unfasten.



Numerous pipes are clipped to these shrouds, these will need accessing typically from above, but space restraints may require access from below.

On Range Rovers models a viscous style fan is used, these will need special tools to remove that are readily available online as pictured.

Step 5: Remove Lower Pulley

! IMPORTANT NOTE !

Most engines can be damaged if rotated in an anti-clockwise direction. It is important while removing the crank pulley bolts to stop this from turning. To confirm, it is acceptable to turn the engine clockwise to adjust access to the bolts as you remove.

Using a long wrench or breaker and a 24mm socket, hold the crank still by the main crank bolt. Unfasten the pulley bolts with the T50 torx. A breaker bar may be needed to get the bolts to start.

If you have a small profile impact wrench this may speed up the process. Typically, air-driven will be the only style small enough to fit in with the power.

Once all bolts are removed, if the pulley does not dislodge by hand lightly tap or use a lever. If levering, make sure not to lever against the engine casings, use mounts and bolt points to ensure no damage is caused on the cast covers.

Step 6: Preparation for installing the Pulley.

- Using a wire brush clean the old thread lock from the bolts.
- Check the crank pulley hub for rust, wire brush if required.
- If the auxiliary pulley on the crank is loose and cockled use the laser tools or breaker bar to de-tension the auxiliary belt and re-seat while the new pulley is installed.

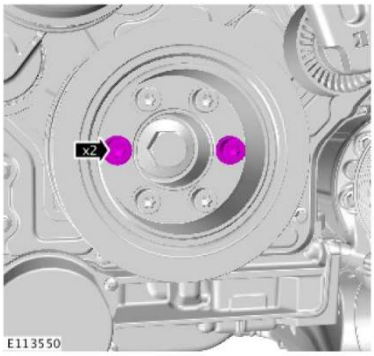
Step 7: Install Pulley

Depending on the year of your vehicle the new pulley may require spacing to keep the correct belt alignment. Identification is determined by the colour of your original pulley. If your OE pulley is silver no spacer will be required, if black, a spacer should be installed between the auxiliary pulley and the new pulley. If one isn't present, please contact Powerhouse or your local seller for supply.



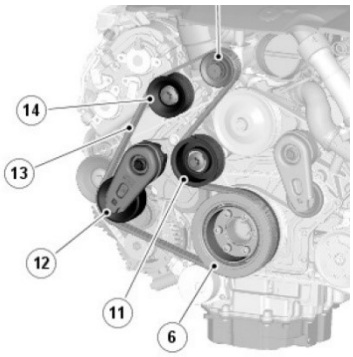
To achieve a 15% increase the pulley sits very close to an idler making it difficult to install the belt after the lower pulley is installed. You can opt to install the pulley with the belt pre-wrapped or remove the idler to install afterwards (pre-wrap on Range Rover).

- Using 1 bolt without thread lock hang the pulley in place and align centrally on the crank.
- Install the next bolt opposite with medium strength Loctite and tighten until it stops without torque.
- Remove the first bolt, apply thread lock and re-install.
- Install remaining bolts in opposite patterns.
- Using the 24mm socket and breaker bar, hold the crank still and torque each bolt in opposites to 65Nm / 48 ft-lb.



Step 8: Belt Install/Routing

If the idler was removed, wrap the belt around the lower pulley then re-install the idler. For the easiest install, route the belt around the tensioner and supercharger pulley. Finally push over the upper idler (14), this may be tight and may require assistance to hold the tensioner fully extended while another pops the belt in to place.



Step 9: Install Intake Hoses & Undertrays

Installing is the opposite of removal.

Step 10: Check & Test

1. Ensure all bolts are present and tight in the new pulley and idler if removed.
2. Ensure the belt is sitting correctly in all ribs of the supercharger pulleys and tensioners.
3. Check the belt is sat evenly across the tensioner puller.
4. Check that no unexpected wires, clips, hoses etc are close to the belt or pulleys.
5. Ensure all intake hoses are correctly seated and tightened to prevent air leaks.
6. Start the vehicle, the vehicle should start and sound almost identical to prior modification. You may get a slightly elevated supercharger whine, certainly until the rpm settles. If there is any other unusual or unexpected noise turn the vehicle off and investigate.
7. While running, double check that the pulley/belt is still seated and running correctly.

Powerhouse Automotive (UK) Ltd
Unit 3A Broom Business Park, Bridge Way
Chesterfield, Derbyshire, S41 9QG UK
Tel: 01246 260665 Opt-3 E-mail: tuning@powerhouse.uk

Step 11: ECU Remapping

This pulley should be used with an uprated ECU file. For the purposes of installation test and manoeuvring it is okay to start and drive without mapping using low throttle. We do not recommend prolonged driving as excessive throttle/boost could flag an ECU light and set the car in to limp mode.

If a handheld tuner has been purchased with this pulley please refer to the instructions provided with the unit to upgrade. If not, please use an authorised tuner using our mapping partner Viezu Technologies for the correct map designed for this modification.

If you have further questions, please refer to our online FAQs.

If your questions are more bespoke and aren't answered in our product information pages, technical notes or online videos please feel free to contact the Powerhouse Team.

Powerhouse Automotive (UK) Ltd
Unit 3A Broom Business Park, Bridge Way
Chesterfield, Derbyshire, S41 9QG UK
Tel: 01246 260665 Opt-3 E-mail: tuning@powerhouse.uk