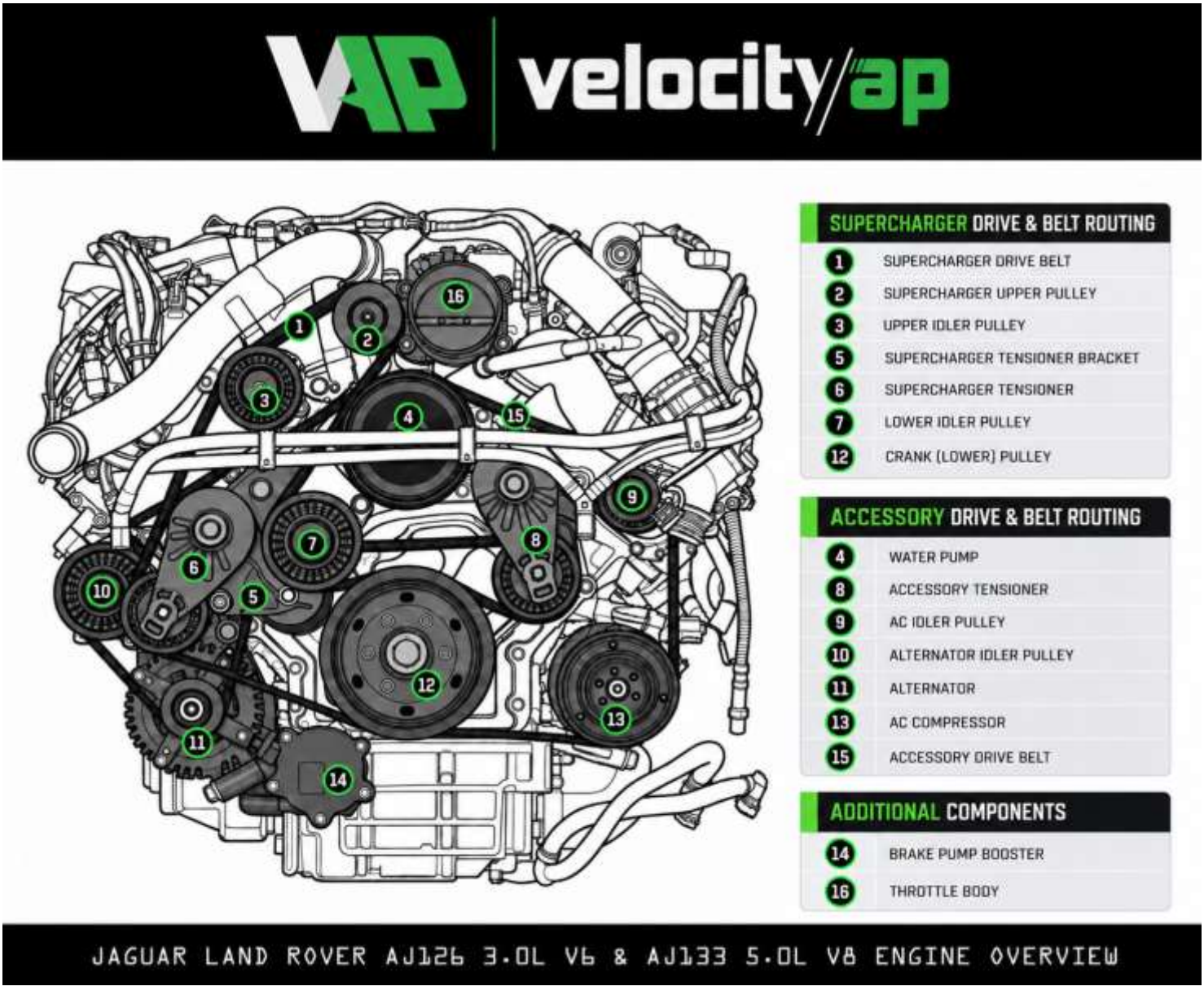


AJ126 3.0L V6 & AJ133 5.0L V8

ENGINE, PRODUCT & ECU TUNING

Where on the engine is the crank pulley, supercharger pulley, brake booster and tensioners?



(models with mechanical power steering will have a power steering pump in location number 9 instead of another idler pulley)

Additional **F**requently **A**sked **Q**uestions are provided on the following pages.

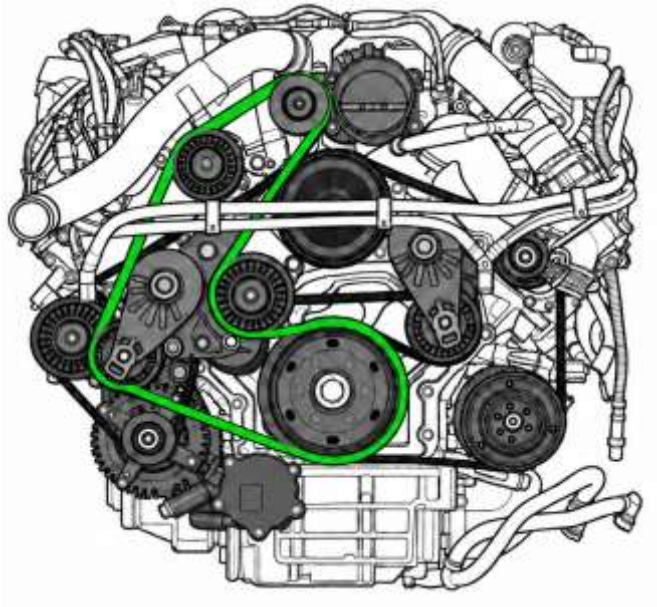
How much boost does the crank pulley and supercharger pulley add over stock?	3.5PSI for the crank pulley and 1.5PSI for the upper pulley. Our VAP Crank pulley has a nominal 177mm effective diameter, creating 14% larger than stock increase. (Stock PSI on 5.0L is around 10PSI and on the 3.0L 15PSI)
What are the tuning options available?	**Every car is different based on model year; here are the most common options available:** • Burble (aka Pops & Bang Tune) – **requires waiver to be signed** • Disable Auto Start Stop • Remove 4k limiter in neutral • Remove speed limiter (MED17.8.31 ECU models) • Increase redline by 200 rpm **(Only with concurrent TCU Tuning)** • Disable high RPM cold start • Program ECU for high flow or decat pipes • Disable upshift indicator on manual cars
Can I run 91aki fuel and what should I be aware of?	Just like the OE calibration, our file works on 91aki but recommended on 93aki. The OE file would pull timing in stock form with 100F ambient temps on 91aki, and our file would operate the same way. We'd estimate a performance decrease in the range of 10-15% compared to using 93aki.
I'm running 91 octane and some race fuel concentrate to bump me up to 93+. What if I wanted to use E85?	The maximum you can use is 20% of E85 with a non-ethanol adjusted tune file, this will bring 91aki to around 93.8aki. You will need to use products available (i.e. Fuel It) to properly measure the ethanol content to avoid running too lean and potentially causing damage to your engine. There are also apps, like E85 Calc, to help you calculate the amount of E85 needed.
For flex fuel vehicles running a VAP stage 1 tune, can they run E85 flex fuel or straight up E85?	Yes, you can run any ethanol mix, hence the term "flex" fuel. This means you can run different mixes of ethanol blended fuels E20, E40, E60, E85. It doesn't create more performance though, just opens the door to run it on a stock engine. However, you cannot run **flex fuel** if you have any pulley combinations, it will cause the engine to run lean. The engine needs to maintain 100% stock boost pressure.
What custom tune are available for E85 on the AJ126	Our E85 file for the AJ126 is considered out stage 4 file, it was designed and intended for the smaller supercharger pulley AND the larger crank pulley. We do not recommend E85 on just the upper pulley, there are more impactful options (crank pulley etc.) that we recommend pursuing first.
I want to run your AJ126 E85 Tune, what information do I need to know?	The file will only support E70 or higher, if one only has access to say, E50 then I would not suggest our offering of the E85, we don't support flex fuel which is E50 ranges.
Can the factory tune be re-uploaded in the future using the included flashing tool?	Yes, our flashing tool will preserve the OEM tune file and can be reloaded in the future.
Do you all help with troubleshooting in the event of a problem following the tune?	Yes, our team is available to help support in the event of an issue. We do provide detailed instructions on the steps required that must be followed to avoid any issues.

If I later buy an upper supercharger pulley, do I need to repay for the tune?	No, if you purchase the upper pulley from us, it includes the required tune file updates as well. This is the same for most tune revisions when adding another VAP product.
Does your upper pulley provide hp gains?	Yes, an upper pulley (Stage 3) does provide some additional HP gains when combined with our lower crank pulley.
Is there a way to adjust the valve position and idle during a cold start on the JLR platform?	Depends on the model year, if it's a vacuum operated bypass valve flaps; The engine would need to be running, to pull the valve flaps closed, so it is not possible. If it's a vehicle with an electric bypass valve flap motor, we can trigger those to be closed before starting the engine. For either valve type, we can remove the high rpm loud start function entirely; engine starts and is instantly at idle/650rpm vs revving high around 1350rpm and settling over time after heating up the catalysts. However, this will not pass emissions testing.
I installed high flow or decat downpipes and getting a CEL now, what does that mean and how can you help?	With larger volume downpipes and less restrictive cats installed, it is possible you will receive a CEL for catalytic efficiency codes 0420/0430 (and P226D/E in Europe/Globally where GPF are installed.) These are expected behaviors of the vehicle, however with our tuning solutions, we can help.
Should I expect any significant hp gains with the sport cats, and if so, about how much?	Yes, you can expect some gains with the sport cats, however the potential performance gains will vary depending on the vehicle. We will consider what components are installed as we provide an updated tune file for your vehicle, to safely maximize the HP potential.
Do you offer a tune for Ingenium based engines?	We would recommend looking at a local tier 2 dealer that can do the install for you, otherwise you would have to ship your ECU to us to complete the work. **Dealer Locator:** https://www.velocityap.com/contact/dealer-locator/ The P340 and P400 share everything the same in terms of its powertrain. When tuning they both achieve 450BHP max, it's the same power the P510e can achieve without it's extra aid of power from the hybrid electric motors. 550bhp is possible from the JLR P510e when tuned, the power boost to achieve this is done by the hybrid motor which tuned can achieve 550bhp. The MHEV (Mild Hybrid Electric Vehicle), such as the AJ300 I6 F-Pace, doesn't have hybrid motors like the JLR P510e, it uses an electric supercharger to aid in power. So, this does not increase power like the full-blown hybrid can output in the P510e. **Please note:** You are already achieving most of the power down low, if tuned you will achieve this extra power up top in the mid to high rpm ranges, this is the rpm region you are limited in the stock file by JLR.
Thoughts on a Throttle Position Adapter (i.e. Sprint Booster, Pedal Commander or similar)	On a VAP tuned file, if anything it would make the power delivery nonlinear. The Jaguar ECU commands full throttle body open with only 26% of the accelerator pedal depressed. Adding a throttle response adapter, is normally to make the throttle open sooner, but that would mean you want the throttle to open before you get to this 26% pedal depressed range, that's too sudden to command WOT and would cause a poor experience for you as the driver.
I received a key fob not detected message while flashing my vehicle, what do I do?	Please follow the animation shown on the cluster. Place the key fob next to the steering column where indicated by the animation. Then after the flash, just wait 45 minutes and the key fob will be detected again and so will the lock buttons on the key fob. The reason being, an update was never done for the keyless module and it goes into a long comma, requires a complete module power down and then they all wake

	up at same time. A faster way around this besides getting the dealer update, is to disconnect battery and reconnect. Using a scan tool to then clear all fault codes.
What spark plugs and gap should I run?	We recommend using OEM plugs. There is no need to run a colder plug with our tune. You can keep with the stock gap. We have also seen good results gapped between 0.028 and 0.032.
What oil do you recommend?	Please review our blog post: https://www.velocityap.com/why-we-recommend-higher-viscosity-oils-for-tuned-jlr-engines/
What other modifications do you offer or recommend?	We offer a full range of optional products and always adding new products into our catalog. Common questions regarding cooling upgrades, belt tensioners, and other product recommendations can be found using the links below: **High-Performance Ignition Coils** - https://www.velocityap.com/product/velocityap-high-performance-jaguar-land-rover-ignition-coil-aj126-aj133/ **Pierburg Coolant Pump Upgrade** - https://www.velocityap.com/product/water-pump-jaguar-aj133-velocity-ap/ **VMP Fuel Pump Booster** - https://www.velocityap.com/product/jaguar-land-rover-low-pressure-fuel-pump-controller-2013-2017my-5-0supercharged/ **Stage 1 Supercharger Tensioner** – https://www.velocityap.com/product/upgraded-supercharger-belt-tensioner-3-0-5-0-supercharged-jaguar-land-rover-range-rover-engines/ **Stage 2 Supercharger Tensioner** – https://www.velocityap.com/product/stage-2-upgraded-supercharger-belt-tensioner-3-0l-5-0l-supercharged-jaguar-land-rover-range-rover-engines/ **Upper Pulley Installation Tool** - https://www.velocityap.com/product/installation-tool-for-jaguar-landrover-supercharger-upper-pulley/ **Full Jaguar / Land Rover Product Catalog:** • https://www.velocityap.com/product-category/jaguar/ • https://www.velocityap.com/product-category/land-rover/

APPENDIX A:

OEM & VAP STAGE 1 - SUPERCHARGER BELT ROUTING



VAP STAGE 2 - SUPERCHARGER BELT ROUTING

