



NOTICE!

THANK YOU FOR YOUR PURCHASE!

In a market that is loaded with options, we appreciate that you have selected IAG Performance for your engine build. Please read and review all documents included in your package, as they contain important information about break in instructions, warranty information & more!

1. Please review the enclosed document titled "IAG PERFORMANCE SHORT BLOCK BREAK-IN, WARRANTY & ADDITIONAL INFORMATION" for important details about starting and breaking in your engine.
2. If you have any questions, ASK! The fastest way to reach our support team is via email at sales@iagperformance.com. ***Please note that while our sales team is always happy to try and help, we do not offer installation support not related to our products or services, and always recommend PROFESSIONAL installation. Subaru engines are complex, contain many idiosyncrasies, and are best left to experts with previous experience, access to installation guides, manuals, and specialty tools.***
3. Special instructions and specifications are available for engines featuring ARP case bolts, 14mm or ½" head studs, which can be obtained by messaging sales@iagperformance.com.
4. Digital Engine Blueprint copies are available by request in DOCX format by messaging sales@iagperformance.com
5. Built engines require a variety of supporting components for installation, including gaskets, oiling components, hardware, air/oil separator, and more. A base map can be provided by your tuner for break-in, and professional tuning and engine calibration are REQUIRED to ensure longevity of your engine. Built engines are designed to be far stronger than their OEM counterparts, but are NOT BULLETPROOF, and quality supporting parts, quality installation, and quality tuning are all essential to making your build last. Pair up with your local performance tuner and installer!!!



IAG PERFORMANCE SHORTBLOCK BREAK-IN, WARRANTY & ADDITIONAL INFORMATION

Professional installation is required to establish warranty on your Subaru engine build. Assembly should be performed in a debris-free, climate-controlled clean room using clean and properly lubricated hardware and new gaskets. Fluids should all be filled and checked to proper levels. Confirm that the timing belt has been installed properly, and that cams/cam gears are properly timed. Be sure to read ALL instructions below before your initial startup procedure. **If aftermarket cam shafts were utilized for the build please see the included guide titled: IAG Performance Engine Pre-Lube Procedure Tech Bulletin For Aftermarket Cams.**

ESSENTIAL INFORMATION ABOUT YOUR ENGINE REPLACEMENT

- If bearing failure occurred or there are any symptoms of metal contamination in the oil, oiling components **MUST** be replaced. These components include oil pump, oil cooler, oil pan, oil pickup (strainer), oiling lines/fittings (including banjo bolts), AVCS cam gears & more (depending on your model). AVCS cam gear replacement is suggested on vehicles with bearing failure or metal contamination in the oil. Disassembly of the cam gears and a thorough cleaning is necessary at an absolute minimum.
- Cylinder heads must be disassembled, inspected and thoroughly cleaned during the rebuild. ALL oil passages must be removed, flushed, and cleaned. Valves should be tested, and valve job performed if needed. Deck must be checked, and resurfaced if needed in order to create a proper seal on new head gaskets. IAG recommends and uses OEM Subaru head gaskets exclusively for open and semi-closed deck blocks, and JE ProSeal and Cosworth gaskets on Closed Deck blocks
- Other engine components such as the condition of various lines, fittings, gaskets, timing belt, tensioner, timing rollers, guide, etc. should all be inspected during the engine build and replaced if necessary.
- You **MUST** run a high-quality Air/Oil Separator or catch can when running a forged piston engine in your Subaru. Our IAG AOS is the best on the market, and is available in a variety of different formats and colors to suit your needs.

PRIMING/FIRST START UP PROCEDURE

1. Be sure to PRE-FILL oil filter when installing and fill oil using 5w30 conventional oil (as outlined below)
2. A properly calibrated ECU map should be used for initial start-up, and can be provided to you by your tuner.
3. Disconnect crank position sensor. Crank car in intervals of 15-20 seconds until the oil pressure light goes off. Connect crank sensor. Check engine bay and underneath engine for leaks. Perform first startup. Let car run for 15-20 seconds and shut off. Check again for leaks and check oil level. Perform second start up, carefully monitoring fuel pressure and checking every area of the installed engine for leaks or noises. If oil pressure drops, leaks occur, or anything seems out of sorts, turn the vehicle off immediately and check through your install.



4. Run engine to operating temperature (monitored via coolant temps) while carefully watching oil pressure and keeping an eye out for leaks. Oil pressure should stabilize and drop once engine has reached operating temperature. Run car until coolant fans cycle, making sure that the thermostat opens.

5. If aftermarket performance camshafts have been installed, be sure to also follow the manufacturer's start-up procedures to "break-in" the cams.

6. Drive vehicle (VERY EASY) for first 50 miles using a break-in ECU map, keeping RPM's below 4000 and ZERO BOOST (1-2 PSI, MAX). Vary RPM and load conditions while driving, and shift down/decel (engine brake) whenever possible. Engine braking = good vacuum conditions = happy engine!

7. Drain engine oil. Change oil to BREAK IN OIL (Motul/Royal Purple/Brad Penn) and install NEW oil filter. It is imperative that you change the oil filter during this time, as initial start-up and first 50 miles produce a large amount of metal and particulates that will need to be removed. Check for leaks and issues with the car in the air. Make sure oil, coolant, and other essential fluids are properly filled and topped-off.

8. Continue driving at <4000 RPM's with a break-in ECU map until the car is tuned, being conscious to vary RPM and load conditions, engine braking as often as possible when slowing down. DO NOT use cruise control or stay at a steady RPM and load condition while driving (i.e. highway driving at constant speed/load). Continue with AS CLOSE TO ZERO boost as possible! Check your oil and coolant levels every time you fill your gas (every few hundred miles). During the break-in period, the engine will use oil – Be sure to be conscious of the amount of consumption and top off when needed. See remainder of oil changes below:

BREAK-IN OIL CHANGES

****Permissible Break-In Oils: 10W-40 Motul Break-In Oil (Preferred), Royal Purple Break-In, Brad Penn Break-In.***

- Run Conventional (Non-synthetic) 5W-30 oil and OEM or Purolator PureOne filter for the first 50 miles, as outlined above.
- Change the oil to break-in oil at a total of 50 miles on the engine (as highlighted above), and replace the oil filter and crush washer.*
- Change the oil with break-in oil at a total of 500 miles on the engine; replace the oil filter and crush washer.
- Change the oil with break-in oil at a total of 1,500 miles on the engine; replace the oil filter and crush washer.
- Finally, change the oil at a total of 3,000 miles on the engine; replace the oil filter and crush washer. For the EJ25, we recommend Motul 8100 X-cess 5W-40. For the FA20 & FA20DIT, the oil used must be designed for direct-injected engines. Therefore, we recommend the Motul 8100 X-Clean EFE 5W-30.
- From this point forward, use the Motul Synthetic recommend above and change the oil and filter every 2500-3000 miles.
- Make a habit of always checking your fluids every few hundred miles. Built engines can consume oil; however, most IAG street-clearance engines should use less than 1 quart of oil per 3000-mile oil change after break-in. If your oil consumption deviates, please let us know.



TUNING & FINAL BREAK-IN

- IAG built short blocks can be professionally tuned once they have reached approximately 800-1000 miles of break-in driving and have been extensively quality controlled.
- Regardless of mileage when tuning, continue performing break-in oil changes as scheduled throughout the duration of your first 3000 miles of driving.
- Once break-in tune has been performed, monitor ECU readings by logging vehicle and continuing your relationship with your tuner to ensure that the car is running properly and safely.

IAG SHORT BLOCK WARRANTY INFORMATION, TERMS & CONDITIONS

IAG Performance is confident in our products and services and we proudly stand behind our workmanship. Starting from the date of delivery, IAG Performance offers a 12 month / 12,000 mile warranty on every engine built at our facility. If there is an issue with the engine that was due to an error on our behalf during the machining, assembly, or in-house installation process, you will be covered.

IAG Short Block Warranty Limitations are as follows:

1. Warranty applies only to short block components manufactured and assembled by IAG Performance.
2. Warranty does not extend to any other part of the engine, turbocharger, accessories, or vehicle in which the engine is installed.
3. Warranty coverage excludes any and all labor expenses related to engine removal and replacement, as well as any shipping costs incurred.
4. Warranty coverage excludes any and all labor expenses or components (i.e. gaskets, fluids, etc.) needed for reassembly and reinstallation.
5. Warranty is only offered if the short block is professionally installed, with receipts provided.
6. Warranty is non-transferrable and only offered to the original purchaser of the engine.
7. All parts used in the assembly of the IAG build short block carry the manufacturer's individual component warranties. No warranty is expressed nor implied for any customer-supplied components.
8. Customer is responsible for initiating a warranty claim with IAG directly.
9. Customer is responsible for any and all shipping, transportation and handling costs to return the engine to our facility.
10. The customer will be held responsible for all engine tear down costs for claims deemed insufficient and/or invalid.



11. Proof of proper maintenance is the owner's responsibility.

IAG Short Block Warranty does NOT cover:

Engine damage or failure incurred by improper installation, improper or insufficient break in, improper or inadequate tuning, overly aggressive or dangerous tuning parameters, user negligence, improper or inadequate maintenance, failure to maintain proper type and level of fluids, fuel, oil and lubricants, abuse, alteration, over-rev, overheat, detonation, hydro-lock, short block and cylinder head casting flaw or failure, oil starvation, fuel starvation, normal wear and tear maintenance items, accident damage, foreign object ingestion, etc.

Warranty is also void if bearing-related failure occurs and proof of oiling component replacement cannot be provided. Oiling components may include oil pump, oil cooler, oil pick up, oil pan, oil driven AVCS cam gears, screened banjo bolts and all other oiling related components depending on the model year and layout of the vehicle. Keep all receipts and be prepared to make them available if questions arise about maintenance. Proof of proper maintenance is the owner's responsibility.

Warranty Claim Procedure

All warranty claims must be directed to IAG Performance for assignment of a return merchandise authorization number (RMA). Following the issuance of an RMA claim number, IAG requires the engine to be returned to our facility for inspection and final determination of claim eligibility. The customer is responsible for all shipping and handling costs to return the engine back to IAG. Upon receipt of the engine, IAG will disassemble the engine to determine if product manufacturing, assembly, parts defect, improper installation, or improper tuning directly or indirectly caused the engine to prematurely fail. After engine tear down is complete IAG will determine whether warranty coverage applies.

IAG Performance Engine Pre-lube Procedure Tech Bulletin For Aftermarket Cams

Required Tools & Products:

- **Pressure Pot** (Melling - MPL-101)
- **Compressed Air** (Max 120psi)
- **Conventional Oil**
- **Cam Lube** – (Driven PN# 00728 / Cam-Shield CSAP625)
- **Metric to NPT Adapter** (PSNUT)

Pre-lubing the engine is designed to avoid a dry first startup, IAG Performance and major cam manufacturers recommend pressurizing the oil system and checking that all systems are receiving oil including the cylinder heads and cam shafts prior to running the vehicle.

1. This procedure must take place in a clean work environment as the engine will be pressurized and some internal components will be exposed.





2. Assemble Long Block including oil pump, all timing components, AVCS lines, oil pan, oil filter and factory oil cooler if applicable but do not install valve covers. When installing cams and lifters make sure to use appropriate cam lube and coat all the journals, lifter faces, lifter sides and cam lobes.

Cam Lube:

- Driven PN# 00728
- Cam-Shield PN# CSAP625
- Available thru A-Tech, Summit or Jegs



3. Install turbo with oil feed and drain lines attached.

4. If the OEM oil pressure switch is installed remove the switch and adapter. Then install a metric to NPT adapter i.e.: Prosport PN# PSNUT.



5. Attach the pressure pot line to engine with the appropriate metric to NPT adapter mentioned in Step 4.

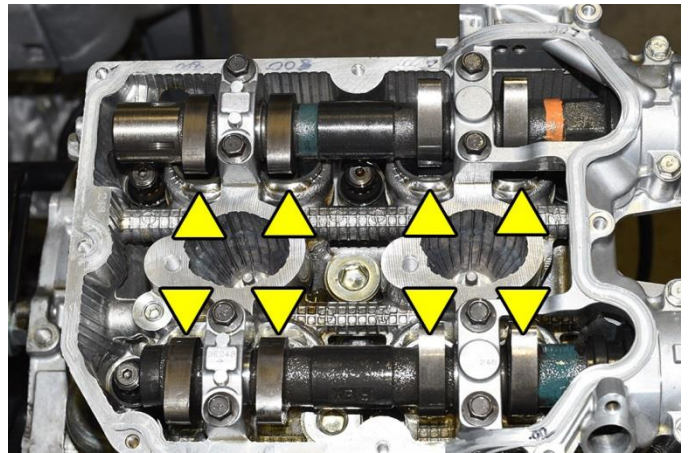


6. Fill the pressure pot with appropriate oil. In the case of the Melling MPL-101 it holds a total of 4 quarts, usually 2-3 quarts is sufficient for testing. Pressurize the tank with compressed air to a maximum of 120psi.



7. Open the pressure pot gate valve to allow the oil to flow into engine. Observe oil flow at the cam bearing journals and around each valve lifter.

- If oil is flowing freely at these locations, check that the cam lube installed on the cam lobes and top of lifter buckets didn't get washed off from the pre-oiling process. If the lube is missing be sure to re-apply to the lobes and lifters.
- Otherwise, remove cams and lifters as needed to investigate lack of oil flow. This inspection could include removal of the cylinder head oil galley plugs to inspect for a blockage of the restrictor as well as making sure the restrictor is installed at the proper depth.



8. Remove the Pre-Oiler and adapter fitting, re-install factory switch and adapter. Reapply cam lube to the lobes and lifters to replace what may have washed off.