



# ***NOTICE!***

## ***Short Block & Long Block Install Documentation!***

### **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!***

***Please register your engine by completing the online form at <https://www.iagperformance.com/warranty>***

1. Please review the enclosed document titled "IAG PERFORMANCE ENGINE 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](mailto: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](mailto:sales@iagperformance.com).
4. Digital Engine Blueprint copies are available by request in DOCX format by messaging [sales@iagperformance.com](mailto: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!!!

6. Included with every IAG short block & long block package is a copy of our Engine Installation & Warranty Documentation sheets. Inside the packet is a sticker that must be filled out and applied to the engine bay strut tower by the installer. This sticker is used to indicate the date of install, miles, and type of build (long block or short block). Please use a permanent marker to fill out the date and miles.

## **IAG PERFORMANCE ENGINE 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. If You Are Using Stock Cams:**

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.

### **If You Are Using Upgraded / Aftermarket Camshafts:**

Crank the vehicle with the crank sensor disconnected until you register oil pressure on either a temporary mechanical gauge or a known accurate electronic gauge. Once oil pressure registers, plug the crank sensor back in. Crank the vehicle until it starts and immediately shut it off. Repeat this step 3 times. On the final start up, let the car come to an idle. Check under the car for any oil or coolant leaks. If everything looks good and oil pressure is above 30 at idle, slowly bring the vehicle up to 2200-2500 RPM. Hold the throttle at this point for 15 minutes. Follow instructions below.

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. 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!

6. 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.

7. 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:



## EJ25 BREAK-IN OIL CHANGES

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

- Run any Conventional 5w30 Oil and OEM or Purolator Pureone filter for first 50 miles, as outlined above.
- Change oil to Break-In Oil at 50 miles (as highlighted above), and replace oil filter and crush washer.\*
- Change oil with Break-In Oil at 500 miles on your new engine, and replace oil filter and crush washer.
- Change oil with Break-In Oil at 1500 miles and replace oil filter and crush washer.
- Finally, change oil at 3000 to Motul 5w40 8100 X-cess Synthetic (Pump Gas) and replace oil filter and crush washer. If running E85 or Race Gas use Motul 10w40 6100 Synergie+ or Motul 300V.
- From this point forward, use Motul 5w40 8100 X-cess Synthetic (Pump Gas) and change oil and filter every 2500-3000 miles. If running E85 or Race Gas use Motul 10w40 6100 Synergie+ or Motul 300V.
- Make a habit of always checking your fluids every few hundred miles. Built engines can consume oil, though 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.

## FA20 BREAK-IN OIL CHANGES

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

- Run any Conventional 5w30 Oil and OEM or Purolator Pureone filter for first 50 miles, as outlined above.
- Change oil to Break-In Oil at 50 miles (as highlighted above), and replace oil filter and crush washer.\*
- Change oil with Break-In Oil at 500 miles on your new engine, and replace oil filter and crush washer.
- Change oil with Break-In Oil at 1500 miles and replace oil filter and crush washer.
- **FA20DIT WRX** change oil at 3000 to Motul 5w30 8100 X-clean EFE and replace oil filter and crush washer.  
**FA20 BRZ / FR-S / GT86** change oil at 3000 to Motul 0w20 8100 Eco-lite and replace oil filter and crush washer
- From this point forward for WRX DIT use Motul 5w30 8100 X-clean EFE and for BRZ / FR-S / GT86 use Motul 0w20 8100 Eco-lite changing 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, though 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 engines 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 ENGINE WARRANTY INFORMATION, TERMS & CONDITIONS**

IAG Performance is confident in our products and services and proudly stand behind our workmanship. Therefore, we offer a limited warranty against defects in workmanship or materials, covering both parts and labor, for a standard period of 1-Year/12,000-Miles or an enhanced warranty of 2-Years/24,000-Miles if installed by an IAG Certified Engine Installer.

### **IAG (Standard) Short Block / Long Block Warranty Limitations are as follows:**

- Standard Warranty period begins on the day the engine was delivered.
- Standard Warranty applies only to short block / long block components manufactured and assembled by IAG Performance.
- Standard Warranty does not extend to any other part of the engine, turbocharger, accessories, or vehicle in which the engine is installed, or subsequent damage to any component or part of the vehicle due to an engine failure.
- Standard Warranty coverage excludes any shipping costs incurred to return the product to our facility. If the warranty claim is denied, the client will be responsible for return shipping from our facility.
- Standard Warranty coverage excludes any and all labor expenses needed for reassembly, as well as any components (i.e. gaskets, fluids, etc.) required for reinstallation.
- Standard Warranty is only offered if the short block / long block is professionally installed, with receipts



provided.

- Standard Warranty is non-transferrable and only offered to the original purchaser of the engine.
- All parts used in the assembly of the IAG built short block / long block carry the manufacturer's individual component warranties. No warranty is expressed or implied for any customer-supplied components.
- Standard Warranty clients are responsible for initiating a warranty claim with IAG directly.
- The client agrees that they will be held responsible for all engine tear down costs for claims deemed insufficient and/or invalid.
- Proof of proper maintenance is the owner's responsibility.
- Any covered repairs or replacement will not extend the warranty period.
- You must register your engine by completing the online form at <https://www.iagperformance.com/warranty>

**IAG Certified Engine Installer (Enhanced) Warranty Limitations are as follows:**

- Effective Date May 1<sup>st</sup>, 2019
- The Enhanced Warranty Program is only available for engines sold and installed after 5-1-2019. Engines purchased and installed prior to 5-1-2019 will still qualify for the Standard Engine Warranty Program.
- Enhanced Warranty period begins on the day the vehicle is completed and delivered to the client by the IAG Certified Engine Installer (as evidenced by client receipts.)
- The installer must register the engine by completing the online form at <https://www.iagperformance.com/warranty>
- Enhanced Warranty applies only to short block / long block components manufactured and assembled by IAG Performance.
- Enhanced Warranty does not extend to any other part of the engine, turbocharger, accessories, or vehicle in which the engine is installed, or subsequent damage to any component or part of the vehicle due to an engine failure.
- Enhanced Warranty coverage excludes any shipping costs incurred to return the product to our facility. If the warranty claim is denied, the client will be responsible for return shipping from our facility.
- Enhanced Warranty coverage includes limited labor expenses needed for reassembly, as well as any gaskets required for reinstallation.



- Enhanced Warranty is only offered if the short block / long block is purchased, tuned and professionally installed by a single IAG Certified Engine Installer, with receipts.
- Enhanced Warranty is non-transferrable and only offered to the original purchaser of the engine.
- All parts used in the assembly of the IAG built short block / long block carry the manufacturer's individual component warranties. No warranty is expressed or implied for any customer-supplied components.
- Enhanced Warranty claims must be initiated by an IAG Certified Engine Installer ONLY.
- The client agrees that they will be held responsible for all engine tear down costs for claims deemed insufficient and/or invalid.
- Proof of proper maintenance is the owner's responsibility.
- Any covered repairs or replacement will not extend the warranty period.

**IAG Short Block / Long Block Warranty does NOT cover:**

- Damage due to improper engine installation, negligence, abuse, alteration or accident.
- Improper or insufficient engine break-in (failure to follow assigned break-in procedure, including oil changes.)
- Damage resulting from improper engine tuning including, piston skirt scuffing, lifted heads / head gasket failure, damage indicated by head gaskets exhibiting burned or crushed fire ring(s), or damage caused by improper combustion, detonation, pre-ignition or extreme cylinder pressures, as indicated by melted, broken, or eroded pistons or bent wrist pins/worn wrist pin bushings.
- Damage resulting from improper transmission installation or clutch adjustment, including crankshaft thrust bearing damage on transmission side only.
- Damage caused by lack of proper maintenance, failure to follow scheduled maintenance intervals or failure to use or maintain proper type and levels of fluids, fuel, oil, and lubricants, including accelerated wear from contaminated oil or fuel wash.
- Damage caused by the failure of other engine related components, such as fuel injectors or pump, wiring, water pump, oil pump, sensors, or gaskets.
- Damage related failure to replace contaminated oiling components. Oiling components may include oil pump, oil cooler, oil pick up, oil pan, oil-driven AVCS cam gears, screened banjo bolts and all other contaminated oiling related components depending on the model year and layout of the vehicle.
- Engine damage without documentation of professional installation, including proof of purchase of replacement



oiling components. Proof of proper maintenance is the owner's responsibility.

- Damage due to abuse, including over-rev, overheating, lean conditions or oil starvation.
- Engines where the odometer has been disconnected or mileage has been altered.
- Failure caused by short block or cylinder head casting flaw or failure.
- Damage caused by vehicle collisions or other accidental damage, including shipping damage.
- Damage caused by foreign objects dropped or drawn into cylinders or the crankcase, including water or other fluids.
- Towing, shipping, rental vehicles, loss of time, inconvenience, loss of use or other economic loss to the extent allowed by law.
- Damage to subsequent components, such as a turbocharger or wastegate, due to failure of an engine or engine component.

### **Standard Warranty Claim Procedure**

All Standard Warranty claims must be directed to IAG Performance for assignment of a return merchandise authorization number (RMA) to facilitate inspection.

To initiate an inspection fill out this form:

<https://www.iagperformance.com/v/vspfiles/downloadables/instructions/IAG/WARRANTY/Engine-Inspection-Form.pdf>

Email a copy of this form and your original purchase receipt to [sales@iagperformance.com](mailto:sales@iagperformance.com) for an RMA number.

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 client 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.

### **Address for Engine Inspection Shipping**

IAG Performance  
RMA#  
1241 New Windsor Rd  
Westminster, MD 21158





## Enhanced Warranty Claim Procedure

All Enhanced Warranty claims must be directed to an IAG Certified Engine Installer 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 client must authorize the Certified Engine Installer to remove the engine from the vehicle. The client is responsible for all shipping and handling costs to return the engine to IAG. Upon receipt of the engine, IAG will disassemble the engine to determine the cause of failure. After engine tear down is complete, IAG will determine whether warranty coverage applies. If the engine is deemed to be covered under warranty, IAG will reimburse the Certified Engine Installer for a pre-determined cost of labor. If the engine is not deemed to be covered under this limited warranty, the client will be responsible for all labor costs associated with the removal and reinstallation of the engine or components.

## Address for Engine Inspection Shipping

IAG Performance

RMA#

1241 New Windsor Rd

Westminster, MD 21158

## 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.

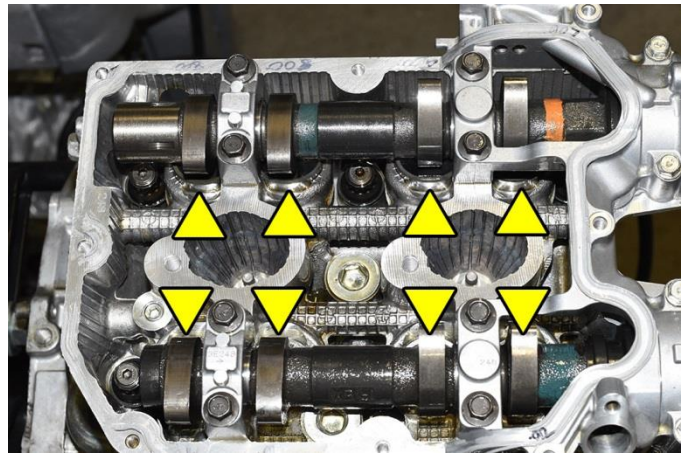


6. Fill the pressure pot with appropriate oil. In the case of the Melling MPL-101 it holds a total of 4 quarts, usually 2-3 quarts is sufficient for testing. Pressurize the tank with compressed air to a maximum of 120psi.



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.