

Suzuki Samurai Ultimate 1.3L G13A Rebuilt Engines, Long Block with Options by Low Range Off Road (SKU# SER-RE)

Engine Break-In Instructions

**SUZUKI SAMURAI
ULTIMATE 1.3L G13A
REBUILT ENGINES**



**FOR ADDITIONAL COPIES OF THESE
AND OTHER INSTRUCTIONS GO TO:**
www.lowrangeoffroad and click on the
"INSTRUCTIONS" tab.

Break-In Procedures



Start the engine and bring rpm up to 1200-1300 rpm until water temperature just begins to rise. ([Click Here](#) if you would like more detailed instructions on cooling system refill procedures. Begin with Step 37) It is a good idea to leave your radiator cap off until your thermostat opens and water starts to circulate. Add coolant to bring coolant level up when the air bubbles circulate to radiator. Have some coolant mix ready to add to the radiator when this happens. Watch your timing marks to make sure you are between 15-25 degrees. ([Click Here to see a video on how to check and set Ignition Timing](#)) As soon as your water temperature just starts to rise, bring rpm up to 1800 rpm, and check ignition timing to make sure you are approx. 22-25 degrees timing for engine break-in. Run the engine at 1800 rpm for at least half an hour, making sure someone is monitoring oil pressure and water temperature at all times! After your half hour or more break-in, bring engine up to 3000 rpm and check total timing. Most engines need to be between 32-38 degrees total timing. Bring engine to idle and quickly check initial timing. Time to factory specs. You can give a little bit more timing at idle for higher elevations, but total timing cannot be too much or engine damage can occur. You may have to have your distributor re-curved if the timing curve is not correct. Most non-computer vehicles need about 8 to 12 degrees at idle, and 32 to 38 degrees total timing.

If your car is computer controlled, then you will have to follow instructions for your particular vehicle to do the ignition timing, but rpm is followed in the same manor as above.

After engine break-in, turn engine off and let it cool. After it has cooled down, check for leaks (oil and water), check your oil for discoloration and level, and check your coolant level.

If everything looks and sounds OK, then take it out for a test drive. Still don't let the engine idle for any length of time. If you get stuck in traffic, or at a long light, then place car in neutral or park and bring rpm up slightly until you are ready to proceed.

Take your vehicle someplace where you can drive between 30 and 65 mph. Take vehicle up to 65 mph then let completely off the gas and let vehicle come down to approx. 30 mph. Do this about 10 times to help your rings seat. Do not beat your new engine! Just drive normal. Do not take engine above 4000 rpm, and do not pull any heavy loads for the first 2 oil and filter changes. Your first oil and filter change should be done at or before 500 miles. Preferably right away. Remember that everything in that new engine has to wear-in, and all that wear-in metal needs to get out of the system. Your second oil and filter change should be done approx. 1500 miles after your first one was done. Then every 2500-3000 mile increments for the rest of its life.

You should also check under your vehicle for the first two weeks for any leaks, and check your oil and coolant levels daily for the first two weeks.

We hope these instructions have been helpful. If you have suggestions on how to make these instructions (or our products) better, please email us at: sales@lowrangeoffroad.com



As always, If you experience any difficulty during the installation of this product please contact Low Range Off-Road Technical Support at 801-805-6644 M-F during regular store hours. Thank you for purchasing from Low Range Off-Road.



These instructions are designed as a general installation guide. Installation of many Low Range Off-Road products require specialized skills such as metal fabrication, welding and mechanical trouble shooting. If you have any questions or are unsure about how to proceed, please contact our shop at 801-805-6644 or seek help from a competent fabricator. Using fabrication tools such as welders, torches and grinders can cause serious bodily harm and death. Please operate equipment carefully and observe proper safety procedures.

Rock crawling and off-road driving are inherently dangerous activities. Some modifications will adversely affect the on-road handling characteristics of your vehicle. All products sold by Low Range Off-Road are sold for off road use only. Any other use or application is the responsibility of the purchaser and/or user. Some modifications and installation of certain aftermarket parts may under certain circumstances void your original dealer warranty. Modification of your vehicle may create dangerous conditions, which could cause roll-overs resulting in serious bodily injury or death. Buyers and users of these products hereby expressly assume all risks associated with any such modifications and use.

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