9700054
Revision
04/26/22

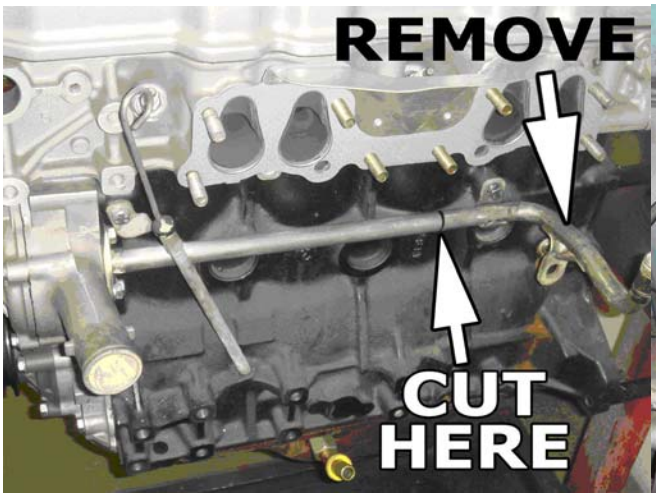
TURBO KIT INSTRUCTIONS
1071010 (22RET) Factory Turbo Block
1071012 (22RE) Non Turbo Block

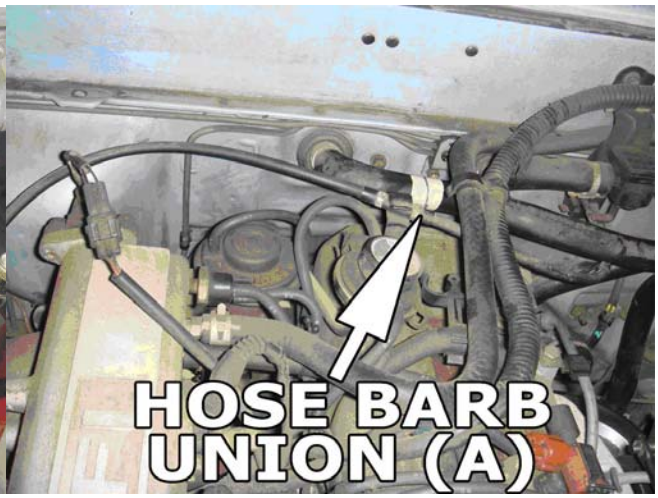
This turbo kit consists of the necessary parts to upgrade or add a turbo to your 22RE 4-Cylinder Engine. This kit does require some fabrication to address your particular application such as intercooler location, exhaust system layout and fuel management.

Note: This kit does not address the fuel injection management or ignition control concerns. LC Engineering offers engine components and other accessories to modify your engine assembly as needed to perform with this turbo kit. Please call our technicians if you have any questions on your specific application. 928-855-6341.

Remove Stock Components
Remove exhaust manifold, down tube, heat shield, etc. from your engine.
Drain coolant from radiator.

Heater Tube Relocation
If your vehicle has a heater using the stock water tube running along the exhaust side of the block, you will need to modify the tube to clear the turbo down pipe. See the illustration for where to cut the steel tube. Cut the rubber heater hose behind the valve cover (See illustration below for the location). Install the supplied hose barb union (A), and run the rubber heater hose from that hose barb union to the cut tube. Use supplied Adel clamp to secure the hose to the block where the factory tube is mounted.





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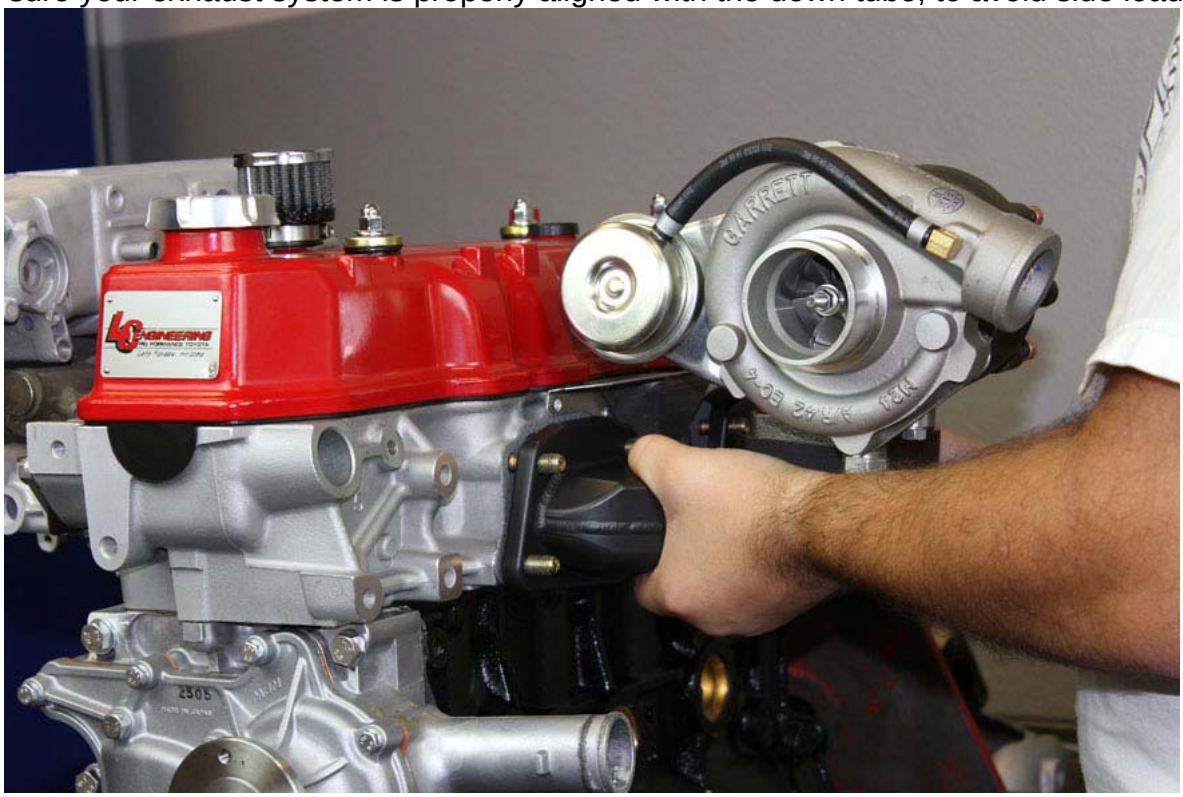
Turbo and Turbo Manifold Installation

Install turbo manifold onto the head using the supplied exhaust gasket and the new exhaust stud kit (Tighten to 33 ft-lbs). LCE has pre-installed the turbo onto the manifold, including the oil drain flange housing and oil feed fitting. Install the exhaust down tube onto the turbo using the 3 bolt gasket and hardware provided.

Make sure your exhaust system is properly aligned with the down tube, to avoid side load on it



Installation of the Turbo Oil <u>Drain</u> Line

Factory Turbo Block

The oil drain will be located at the stock drain location on the block. Using the supplied drain housing and hardware, bolt it onto the stock turbo block then use the supplied drain line between the turbo drain and the block drain housing. Use thread sealant on all of the pipe thread fittings, and oil on all of the AN fittings.

Non Turbo Block

The oil drain will have to be located on the oil pan just below the pan rail (Approx. 1.500” down). Mark the location where the oil drain is to be located. Remove the oil pan and drill a hole where you marked the oil pan. Weld the supplied fitting to the oil pan. From here you will debur, clean, paint and reinstall the oil pan. Use the supplied drain line to install between the turbo drain and the drain fitting on the oil pan. Use thread sealant on all of the pipe thread fittings, and oil on all of the AN fittings.

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Warning: Clean all hoses before installation

Installation of the Oil <u>Feed</u> Line

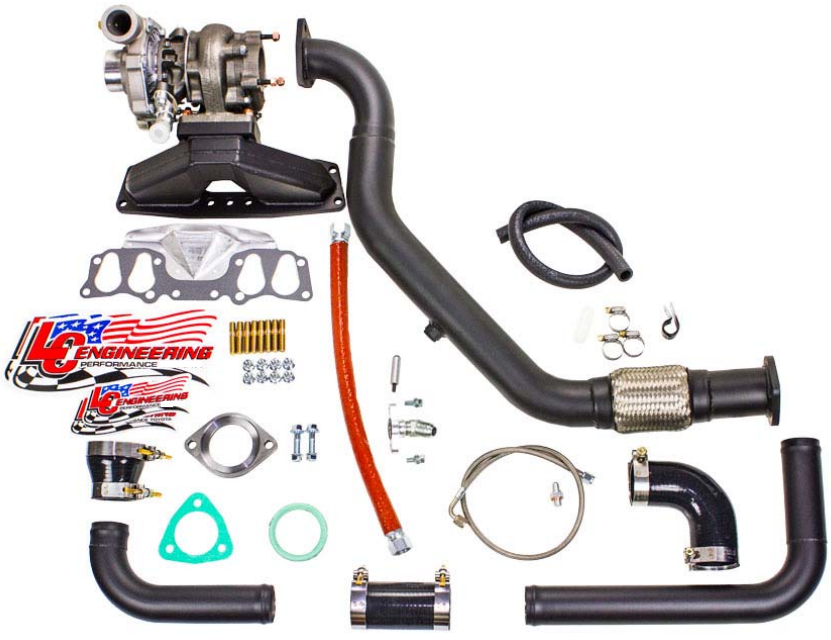
Factory Turbo Block
On the exhaust side of the block, in the stock oil feed location, install the 12mm x -4AN fitting with a copper crush washer. Install the stainless steel feed line coming from the oil supply fitting to the top of the turbo oil feed inlet. Be careful to route the oil line away from as much heat as possible.

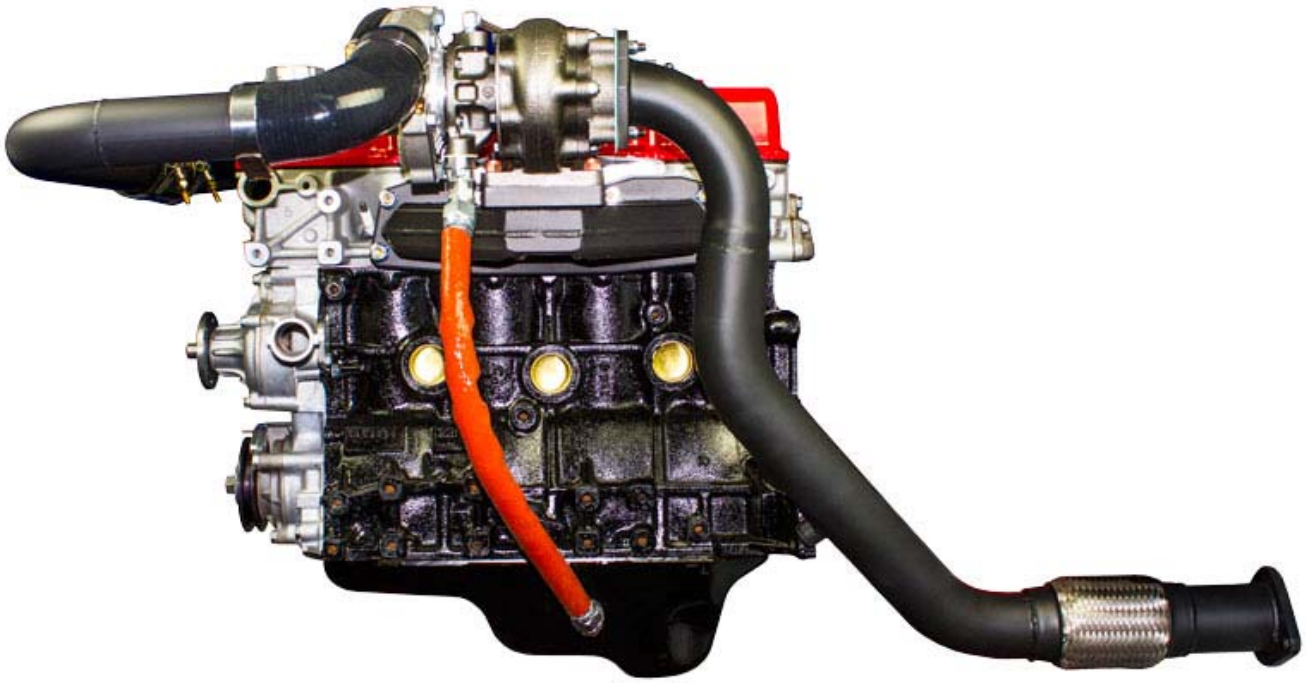
Non Turbo Block
On the exhaust side of block, behind the motor mount location, remove the oil galley plug. Install the –4AN x 28BSPT fitting to the block using thread sealant. Route the supplied oil line from the oil supply fitting to the top of the turbo oil inlet fitting. Use the supplied Adel clamps to route the line from the block fitting to the turbo. Mount the 90 degree side of the oil feed line to the block, and then connect the straight end of line to the 90 degree fitting on the turbo.

Power Steering Hose Bracket
We have supplied a special spacer to move the power steering hose out of the way when installing the turbo. Install the spacer between the reservoir and the hose so that the power steering hose clears the silicone hose. Bolt the spacer to the reservoir and use the supplied Adel clamp around the power steering hose, while using the supplied Allen bolt to attach to the aluminum spacer.

Turbo compressor exit clocking position
The compressor side of the turbo is adjustable, but should be clocked pretty close when you receive it.

Turbo Charger Compressor Hot Pipe Installation
Using the 2” 90º hose connector and band clamps, install it on the exit side of the compressor. The charge pipe is designed in two sections, to make the installation easier. Install the tube with the long leg on the turbo side, and the short leg tube on throttle body side. Use the 2” silicone coupler to connect the two halves (See image below).





TURBO ENGINE SET-UP INFORMATION

Turbo charging any engine increases the strain on all of the engine components. At each level of additional boost, new issues regarding engine configuration develop and need to be addressed.

Keep in mind that it is the combination of matched components that will deliver a reliable high horsepower engine. What works for a low boost application may not take the strain of high levels of boost. The following are some guidelines to consider when prepping an engine for a turbo application.

- **Camshaft**

LC Engineering offers specifically designed camshafts to achieve full benefit of your turbo engine. We offer custom ground camshafts for all levels of boost and rpm ranges. For the most low boost street applications, our Street Turbo Cam (part # 1022027) is an excellent choice. Please call and talk with our technical staff about your specific requirements and for a recommendation.

- **Valves, Valve Springs and Cylinder Head**

For the most performance, the valve size, valve springs and cylinder head porting need to match the desired level of boost and the camshaft profile used. Our Pro Cylinder Head (part #1021024) will be adequate for most low boost 4WD and 2WD street applications. For drag strip and high rpm use, even at low boost levels, we recommend using our Stage 2 Head (part # 1021033) with Pro Dual Valve Springs and Titanium Retainers. Our Pro Cam Kit (Part # 1020000) would be beneficial if you are rebuilding your cylinder head.

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- **Compression Ratio**

To achieve a reliable turbo charged engine, you will need to lower your mechanical compression to the proper ratio. This can be done on a stock EFI engine by changing the pistons during the rebuild process. We offer both a Street Performer Hypereutectic Piston Set, as well as our Racing Forged Piston Set. These will help you achieve your desired compression ratio. Remember that Cylinder head and block modifications are able to change the compression ratio. Always check your components during assembly to verify the mechanical compression ratio. Please call our technicians if you have any questions on your specific needs.

- **Short Block / Rotating Assembly**

The stock short block has an adequate strength for low boost and low rpm applications. For higher levels of boost and performance, our Pro Short Block components (Pro Crank, Pro Rods, and Forged Pistons) should be used. A Pro Short Block Kit (Part # 1011045) will provide adequate strength for up to 300 HP. For higher horsepower levels or turbo/nitrous applications please contact our technicians for specific recommendations.

- **Fuel & Ignition Management**

LC Engineering offers the SDS fuel management system that will control the fuel curve and Ignition timing (LC Pro Fuel Injection Kits). Generally, you will need larger injectors and additional sensors for higher boost applications. We also offer a Mass Airflow Conversion kit that eliminates the stock air box assembly, and replaces it with a hot-wire style MAF sensor. We offer several kits with various fuel injector sizes. Please contact our technicians for a specific recommendation.

- **Intercoolers**

Intercoolers allow the use of high boost levels and increased performance. There are many different intercooler designs and locations for them. These units are available with different sizes and configurations. You can find the different intercoolers we offer on our webstore (www.LCEperformance.com). Please contact our tech line for specific information on the intercoolers.

SHOP @ LCEperformance.com

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