



## Supercharger Installation Instructions 22RE (Low Boost)

### Part# 1073003

The Camden Supercharger System utilizes a roots type supercharger developed specifically for automotive engine applications. The present supercharger design has evolved from the first Camden Supercharger built in 1956. The experience gained from hundreds of installations in circle track race cars, sports cars, passenger cars, trucks, marine, aviation and stationary engines has been applied to periodically upgrade the design for increased reliability and improved performance. Design features of the Camden Supercharger include extruded aluminum rotors with Teflon tip seals, pressure lubrication of the rotor shaft bearings, flanged pulleys for Micro-V drive belt, one piece front extension and multi ribbed rotor housings.

**NOTE:** Supercharger rotors have very close operating tolerances between themselves and the rotor housing. Any foreign object introduced through the carburetor flange opening can cause serious damage to the internal components. Keep the protective tape on both the inlet and discharge ports until the last possible moment. Additional engine management systems must be installed to run this kit, it is not designed to run with a stock ECU

### DISASSEMBLY:

**NOTE:** Before starting any mechanical work on the engine, disconnect the negative cable from the battery!

1. Drain engine oil and coolant. Remove upper radiator hose.
2. Remove intake manifold:
  - A. Remove air intake hose from air cleaner and air intake chamber.
  - B. Tag and disconnect all vacuum lines, wires, and water hoses attached to the intake chamber and throttle body.
  - C. Remove EGR valve, Reed valve, and resonator with pipe.
  - D. Tag & disconnect throttle cable, auto tranny cable, & cruise control cable.
  - E. Unbolt air intake chamber and remove with throttle body.
  - F. Remove fuel lines from fuel rail.
  - G. Unbolt heater inlet pipe from underside of manifold.
  - H. Unbolt intake from head and remove with fuel rail. (Be sure to label all electrical connections that are removed.)

## Disassembly Continued...

3. Remove all belts.
4. Remove clutch fan.
5. Remove accessory drive v-belt from crankshaft.
6. Remove air injection tube from exhaust.
7. Remove oil pan.

## INSTALLATION:

1. Install Crankshaft Pulley:
  - A. Clean face of crankshaft.
  - B. Install supercharger crank pulley using 4 M8-1.25X40 bolts and lock washers.
  - C. Torque to 18 ft-lbs.
2. Install Oil Return Fitting:
  - A. Weld -8AN oil return fitting to intake rear of oil pan. (It needs to be located as high as possible on the pan and still have room to install the -8AN swivel fitting.)
  - B. Drill a hole through the welded fitting to allow the oil to drain.
  - C. Clean all chips out of the oil pan and clean the gasket surface.
  - D. Install oil pan using silicone gasket. Torque to 9 ft-lbs.
3. Install Oil Feed Fitting:
  - A. Remove oil pressure sending unit.
  - B. Install 1/8" street "T" using Teflon tape. (The side port of the "T" should face the firewall at the 10 o'clock position.)
  - C. Install the inverted flare fitting into the side port using Teflon tape.
  - D. Install the inverted flare to 1/4" male push lock fitting to the other inverted flare fitting. (This will be your oil feed. No Teflon tape required.)
  - E. Install 1/4" flexible oil line to push lock fitting and clamp with hose clamp. (Leave hose long and cut to fit later.)
  - F. Install oil pressure sending unit to top port of "T" using Teflon tape.
4. Install lower intake manifold:
  - A. Transfer all fittings and sensors from stock intake to supercharger intake. (Not including injectors and fuel rail.)
  - B. Clean gasket surface and install M8-1.25X30mm studs.
  - C. Install intake manifold using new intake gasket and lock washers. Torque to factory specs.
5. Block off unused ports:
  - A. Use block off plates provided to block off EGR and exhaust ports.
  - B. Torque to factory settings.

6. Run wiring harness:
  - A. Tag and remove wiring harness from mass airflow sensor.
  - B. Carefully remove wire loom at the back to main part of harness.
  - C. Remove wire protection box that the harness runs through that is located on the inside passenger fender. Remove harness from box.
  - D. The entire harness can now be run up the middle of the supercharger intake manifold; with the exception of the TPS connector, the #1 injector, and the sensors on the front of the intake. It is a tight fit, but they all do go through. Run one sensor connector through the intake at a time, starting with the one furthest away.
  
7. Install remaining fittings to lower intake:
  - A. Install water temp. sensor to top of intake.
  - B. Install heater inlet pipe to bottom of intake.
  - C. If you want to install a boost gauge, remove the 1/8" NPT plug at the rear of manifold and install boost fitting.
  
8. Install fuel rail:
  - A. Attach fuel rail clamps to front and rear of intake. The longer one mounts in the front and the short one in the rear.
  - B. Install new injector seats and o-ring on the stock injectors.
  - C. Install stock injectors into new fuel rail using Vaseline on the o-rings.
  - D. Install fuel rail in fuel rail clamps. (Make sure all injectors can move in their seats.)
  - E. Install fuel supply line to rear of fuel rail using stock crush washers.
  - F. Install cold start injector fuel supply line to new fuel rail using stock crush washers.
  
9. Connect wiring harness to injectors and sensors.
  
10. Install pressure regulator:
  - A. Mount pressure regulator in desired location.
  - B. Run 5/16" fuel line from front of fuel rail to side of pressure regulator using -5AN to 5/16" push lock fittings.
  - C. Run fuel line from the bottom of the regulator to the fuel tank return line.
  - D. Use hose clamps at all hose connections.
  
11. Install fan spacer and clutch fan using four 8.8MM studs and nuts.
  
12. Install new thermostat and new thermostat housing.
  
13. Install upper air intake to supercharger:
  - A. Transfer all fittings, sensors, and brackets to the supercharger upper air intake.
  - B. Transfer the cold start injector.
  - C. Transfer the throttle body using stock hardware and new gasket.
  - D. Remove protective tape from top of supercharger.
  - E. Install upper air intake to supercharger using square gasket and 5/16"-18 socket head cap screw and 5/16" lock washers. (This must be done before the supercharger is installed on the car.)

14. If you have a water cooled oil cooler under your oil filter, you will need to relocate your oil filter. This is to make it possible to change your oil filter and to add clearance for the supercharger. If your oil filter mounts directly to the block you can now install the supercharger.
15. Install supercharger:
  - A. Install rubber o-ring into lower intake using silicone to hold it in place.
  - B. Remove protective tape from bottom of supercharger.
  - C. If you are keeping your air conditioning, you must carefully bend the ac lines. Bend the ac lines that come from the ac pump, down. This is so the nose of the supercharger will clear.
  - D. Install supercharger using 3/8"-16 X 5 1/2" bolts and 3/8" washers. (This is usually a two man job.)
  - E. Torque to 20 ft-lbs.
  - F. Install the oil in line using 1/4" 90deg. Inverted flare fitting.
  - G. Install the oil return line using 1/2" oil line. Use hose clamp at all hose connections.
16. Run new coolant lines to the throttle body using 1/4" oil line.
17. Run new vacuum lines:
  - A. Run all lines to stock location.
  - B. Plug vacuum lines that are no longer used. (EGR, Reed valve, ect.)
  - C. Make sure to run a vacuum line to the pressure regulator from the stock location.
18. Connect the cold start injector fuel line:
  - A. Carefully bend the stock metal line to match up with the cold start injector.
  - B. Connect using stock hardware and crush washers.
19. Connect all remaining hoses and electrical connections. (Be sure to attach any loose grounds.)
20. Install stock belts and supercharger belt. Adjust tension with the idler pulley. Visually line up the idler pulley with the belt before tightening the clamp bolt. Make sure that there is at least 1/16" gap between the idler arm and the back of the supercharger pulley.
21. Install intake pipe:
  - A. Cut Hose to fit and clean all foreign material out of intake pipe thoroughly.
  - B. Connect 3" tube with 90DEG bend to throttle body using 3" turbo hose and hose and clamps. (The tube is cut to fit.)
  - C. Connect 3" tube with 45DEG bend to mass air flow sensor using 45DEG rubber boot and hose clamps. (The tube is cut to fit.)
  - D. Connect the two tubes together using 3" turbo hose and clamps.
  - E. Place rubber plug over air box nipple where resonator pipe was disconnected.
22. Install upper radiator.
23. Fill with fluids.
24. Pressure check fuel system.

25. **Tuning:**

- A. You may need to adjust the air bypass screw counterclockwise to allow more air in at idle. It is located on the top of the throttle body.
- B. You may need to adjust the timing 5deg advanced or retarded, depending on where you want your power band located. Advanced for lower rpm power and retarded for higher rpm power. (See service manual on how to adjust timing.)
- C. Your fuel pressure should run from 50 to 60 psi. There is an adjustment screw on top of the pressure regulator.
- D. Final engine tuning should be done by a trained professional with engine monitoring instruments such as a dyno tuner.

**Installation Complete:** Enjoy your Camden Supercharger and the added power you now have. Please drive safe and take care. For questions and concerns call Camden at (253)848-7776

## **Warranty**

**Nature and Duration of Warranty:**

Camden Superchargers, (hereinafter "Seller") warrants to the buyer that products sold under this order shall, on the date of retail purchase and for twelve (12) months thereafter, conform to the Specifications and Drawings referenced in the order and be free from defects in materials and workmanship. Buyer's sole remedy and seller's sole liability, under this warranty, shall be at the seller's option. Repair, replacement, or refund of the purchase price of any such product is based upon examination by seller or seller's designee, and the determination that, to seller's reasonable satisfaction, to have be nonconforming or defective. Repaired or replaced products are warranted only for the remaining unexpired portion of the original warranty.

**Sole Warranty:**

This Warranty is in lieu of all other warranties, expressed or implied including without limitation any warranties of merchantability or fitness for a particular purpose. All such other warranties are hereby disclaimed and excluded by seller. In no event shall seller be liable for any special incidental or consequential damages with respect to seller's performance or non-performance of this order or products delivered hereunder.

**Procedure:**

Before returning a product for warranty service, buyer should obtain shipping instructions and a Return Authorization Number (RAN) from Camden Superchargers, (253) 848-7776, 16715 Meridian E, Bldg K-A, Puyallup, WA 98375. Buyer shall pay the cost of transportation both ways for warranty services.

**Warranty Limitations:**

The warranty, provided in Paragraph 1, shall not apply to any product that has been subject to misuse, neglect, accident, improper application, (see Warranty Limitations), or exposure to an environment beyond the limits described in the Specifications. The warranty shall not apply to any product that has been altered or repaired outside of seller's written consent. Also, the warranty shall not apply to anyone other than the buyer without seller's prior written consent.

The Camden Superchargers warranty does not cover the following:

1. Normal wear and tear.
2. Damage resulting from improper oil or lack of oil.
3. Damage to related components, i.e. engine, drive train.
4. Costs due to down time or towing.
5. Shipping costs.
6. Removal or replacement costs.
7. Damage resulting from foreign object ingestion.
8. Damage resulting from improper installation.
9. Damage resulting from any misuse or abuse.
10. Any product used for racing or competition.
11. Any supercharger used with a crank speed to blower speed drive ratio of greater than 2.
12. Any supercharger used to produce boost levels of greater than 10 psi.
13. Supercharger damage due to backfire.