4.0L 1997-2006 TJ Supercharger Install Instructions

Preinstall

- 1. Tuning is required when using a pulley smaller than 3.00". An AFR gauge is recommended when tuning the fuel map. We are happy to assist in making tuning adjustments. Please contact us to setup and appointment.
- 2. Fuel
 - 2.1. Be sure to run highest octane available at the pump! This is critical for a forced-induction vehicle. If most of the tank is full of lower octane fuel, postpone install until filled up with high octane fuel.
 - 2.2. If you would like to replace your fuel injectors, replace them before installing the supercharger tub. The tub and supercharger sit over top of the fuel rail once installed.
- 3. Tools needed
 - 3.1. Normal hand tools: Flat head screwdriver, 10, 12, 13, and 15mm sockets to remove the throttle body and power steering bolts.
 - 3.2. Fuel line disconnect tool to remove the connector on fuel line.
 - 3.3. A 15mm wrench and socket to remove the belt on 1997 to 1999 Jeeps with the sliding tensioner. On 2000+, a 3/8" square male ratchet to unload the dynamic tensioner.
 - 3.4. All the Boosted Technologies parts use stainless allen head socket capscrews. You will need 4 and 5mm sockets. 'T'-handles are nice.
 - 3.5. Rags to clean gasket surfaces, tape to cover intake manifold inlet from dropped parts.
 - 3.6. Safety glasses to keep fuel out of your eyes when you disconnect the fuel line. It is under 50 PSI!

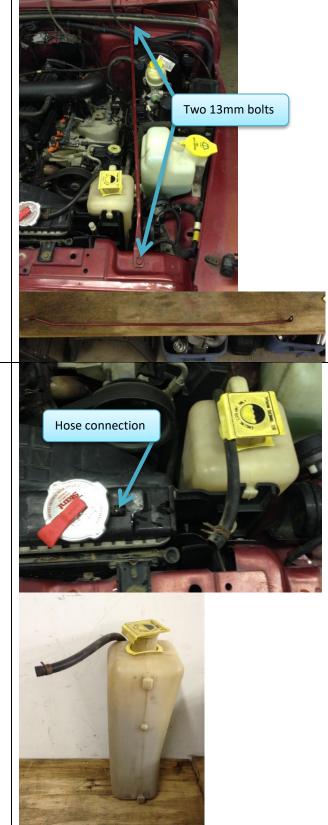
Stock Removal

1. Disconnect battery and cover terminal with non-conductive material



- 2. Remove radiator support rod and coolant overflow hose
 - 2.1. Remove support rod on driver side2.1.1. 2 Two 13mm bolts one on firewall one on radiator

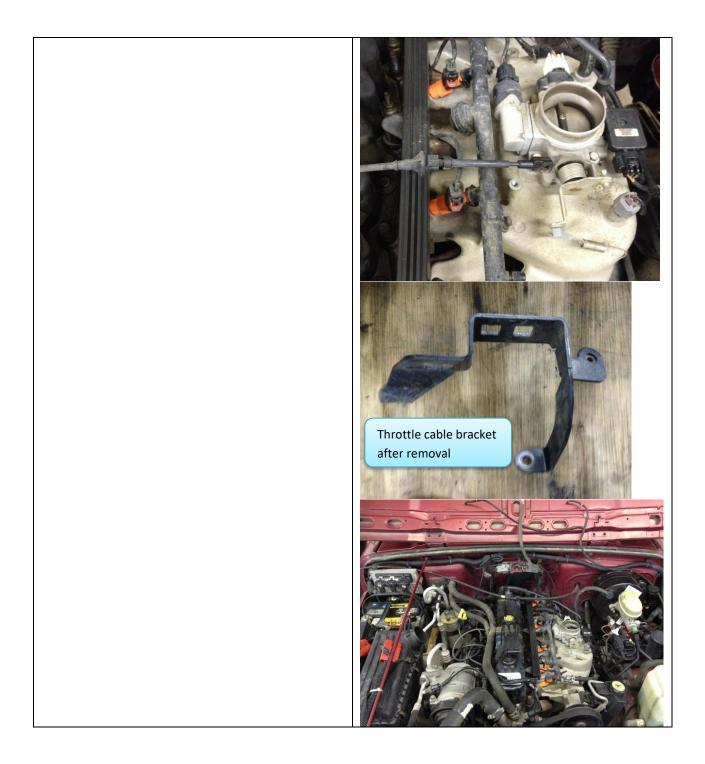
2.2. Remove coolant overflow2.2.1. Disconnect overflow hose from driver side of radiator



- 3. Remove air intake tube
 - 3.1. Loosen two hose clamps
 - 3.2. Disconnect fresh air vent hose on top of engine



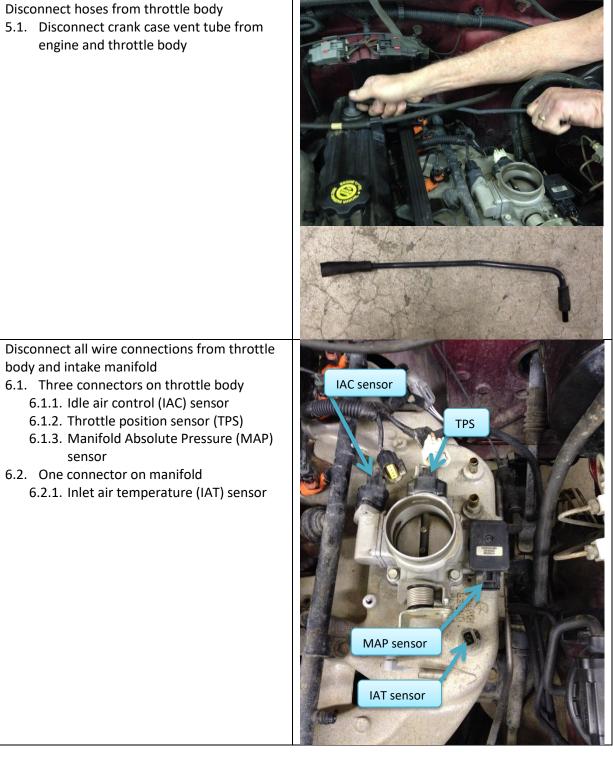
- 4. Disconnect throttle cable and return spring4.1. Disconnect cable(s) from throttle body
 - 4.1.1. Throttle cable uses a ball connection
 - 4.1.2. Pop off connector
 - 4.1.3. Other cables slide off
 - 4.2. Disconnect spring from bracket
 - 4.3. Remove throttle cable bracket
 - 4.4. Remove cable retainers from bracket
 - 4.5. Lay cables out of way towards passenger side



5. Disconnect hoses from throttle body

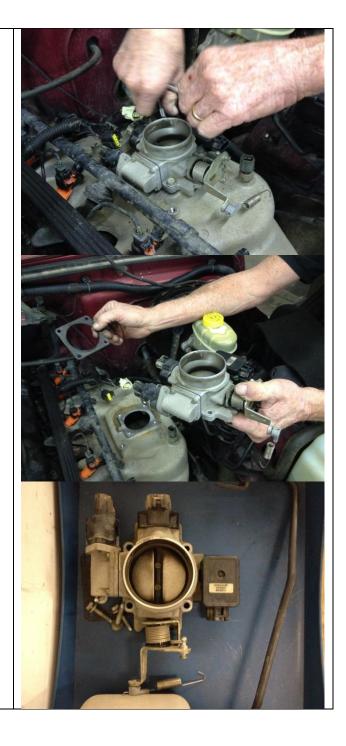
sensor

5.1. Disconnect crank case vent tube from engine and throttle body



6.

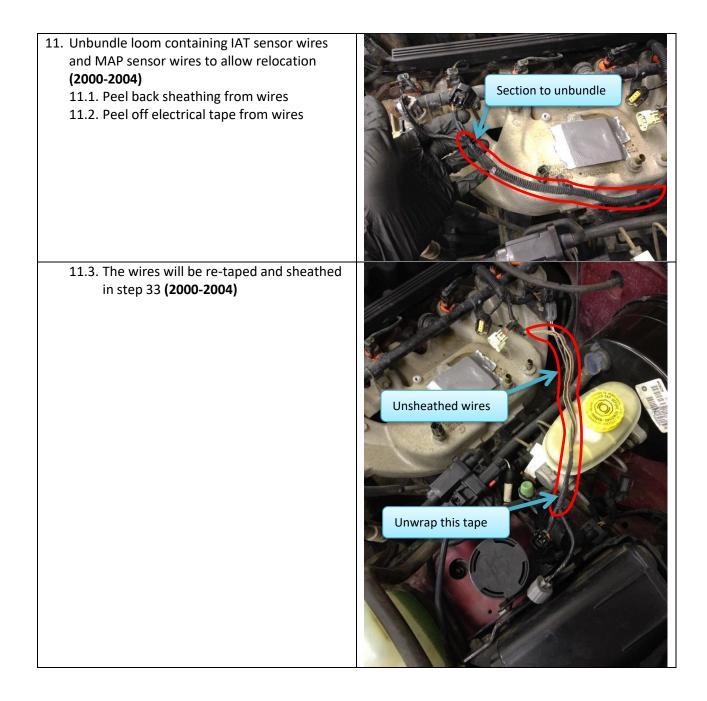
- 7. Remove throttle body
 - 7.1. Remove four throttle body bolts
 - 7.2. Remove throttle body and gasket
 - 7.3. Clean throttle body mount with carburetor or brake cleaner



7.4. Tape over hole in mount to prevent debris or bolts falling in	
 Remove serpentine belt (1997-1999) 8.1. Disconnect engine coolant temperature sensor from front of engine 8.1.1. Prevents accidental damage 	Engine coolant temp. sensor
8.2. Loosen tensioner pulley bolt	Tensioner pulley bolt

 8.3. Loosen belt tensioner till belt can slide off tensioner pulley 9. Remove serpentine belt (2000-2006) 9.1. Disconnect engine coolant temperature sensor from front of engine 9.1.1. Prevents accidental damage 	<image/>
9.2. Loosen dynamic tensioner 9.2.1. Insert a socket into hole and rotate	
counterclockwise to release tension9.3. Loosen belt tensioner till belt can slide off tensioner pulley	

10. Remove power steering pump 10.1. Remove three bolts from pump 10.2. Keep pump lines attached	<image/>
10.3. Use a bolt (stainless steel on left side of photo) inserted in the reverse direction to hold pump in place	Bolt holding pump in place



 12. Remove Schrader valve from fuel rail port (skip if shipped tee'd fuel line) 12.1. Remove cap from rail (1997-2003.5) 12.2. Remove valve with Schrader valve removal tool 12.3. This is very important, if this step is missed fuel will not reach 7th fuel injector 	chrader valve
13. Replace fuel injectors now if desired 13.1. The intake tub and supercharger sit over top of the fuel rail once installed, making it difficult to change the injectors	

 14. Remove IAT sensor from intake manifold (1997-2004) 14.1. Unscrew sensor from manifold 14.1.1. Screw in plug with PTFE tape or pipe dope 	
 15. Remove vacuum port from intake manifold (1997-1999) 15.1. Unscrew large vacuum port next to throttle body port on manifold 	IAT sensor removed Vacuum port to remove
15.1.1. Screw in plugs with PTFE tape or pipe dope on threads	Plugs

 16. Disconnect vacuum lines and cap ports on intake manifold 16.1. Slip off hoses and lines from ports 16.1.1. Brake booster, heater AC and EVAP 16.2. Place caps with clamps over specific ports 16.2.1. These ports experience boost and need clamps to remain capped 16.2.2. Cap large port in middle side of manifold 	
16.2.3. Cap large port on rear top of manifold (2000-2004)	33
17. Check spark plugs and gaps	
17.1. Check spark plugs condition and replace if needed	
17.2. Spark plugs should be gapped at 0.030 in.	



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Installation

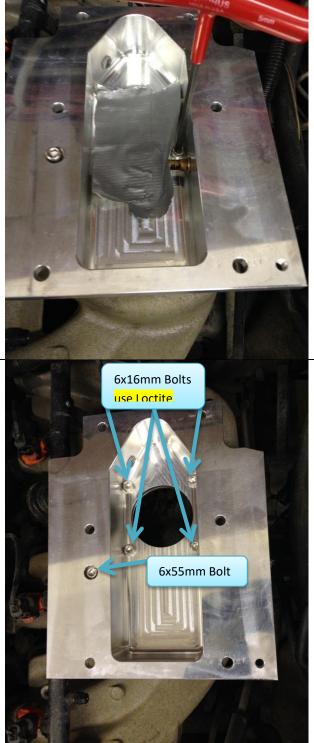
- 18. Torque specs for bolts if not listed
 - 18.1. Examples from tables on right
 - 18.1.1. 6mm bolts torque to 12-16 Nm (9-12 ft-lbs)
 - 18.1.2. 3/8" bolts torque to 27 Nm (20 ftlbs)
 - 18.1.3. Use the 18-8 S/S column for the US recommended bolt torque

Metric Recommended Bolt Torque					
Bolt Diameter	Recommended Torque (Nm)				
(mm)	Class 8.8	Class 10.9			
5	7	9			
6	12	16			
8	30	40			
10	55	75			
12	100	135			
14	160	215			
16	245	335			
20	480	650			

Figure 1: https://www.boltdepot.com/fastenerinformation/bolts/Metric-Recommended-Torque.aspx

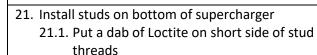
	Recommended Torque											
Size	Grad	le 2	Grade 5		Grade 8		18-8 S/S		Bronze		Brass	
	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fin
#4*	-	-	-	-	-	-	5.2	-	4.8	-	4.3	-
#6*	-	-	-	-	-	-	9.6	-	8.9	-	7.9	-
#8*	-	-	-	-	-	-	19.8	-	18.4	-	16.2	-
#10*	-	-	-	-	-	-	22.8	31.7	21.2	29.3	18.6	25.
1/4"	4	4.7	6.3	7.3	9	10	6.3	7.8	5.7	7.3	5.1	6.4
5/16"	8	9	13	14	18	20	11	11.8	10.3	10.9	8.9	9.7
3/8"	15	17	23	26	33	37	20	22	18	20	16	18
7/16"	24	27	37	41	52	58	31	33	29	31	26	27
1/2"	37	41	57	64	80	90	43	45	40	42	35	37
9/16"	53	59	82	91	115	129	57	63	53	58	47	51
5/8"	73	83	112	128	159	180	93	104	86	96	76	85
3/4"	125	138	200	223	282	315	128	124	104	102	118	115
7/8"	129	144	322	355	454	501	194	193	178	178	159	158
1"'	188	210	483	541	682	764	287	289	265	240	235	212
			Grad	• F	izes from a Sizes from Fine thread nd 8 values	1/4" up a figures a	re in Ib-ft. ire for 1"-14	L.	olts.			

	all intake tub	and a second second
	. Remove tape over intake manifold hole	
	. Place intake tub over intake adapter hole	e
19.3	. Put tape over hole in tub to prevent	1010
10.4		The Constant
19.4	. <mark>USE LOCTITE ON BOLTS INSIDE INTAKE</mark> TUB	
19.6 19.7	 Tighten in a crisscross pattern four 6x16mm bolts into bottom of tub 19.5.1. Torque to 10-12Nm (89-106 in lbs) Tighten one 6x55mm bolt through top o plate (hole not present on all tubs) 19.6.1. Torque to 10-12 Nm (89-106 in lbs) 19.6.2. Fill hole with RTV and protrude 1/8" above hole to seal hole Remove tape over hole Note: there are no washers under the bolts 	

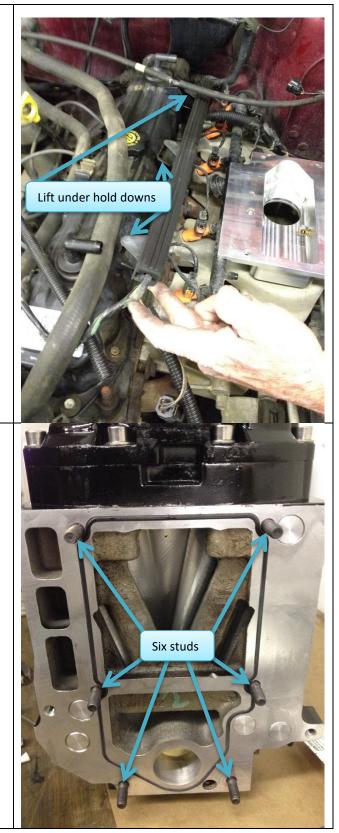


20. Lift up plastic wire loom chase

- 20.1. From front of vehicle use pry bar under hold downs to lift up
- 20.2. This eases supercharger installation in step 24



- 21.2. Thread short side of studs into supercharger until they stop turning
- 21.3. Wipe off excess Loctite around studs



- 22. Install bypass valve on supercharger
 - 22.1. Insert actuator rod into slotted bypass valve shaft
 - 22.1.1. Angle bypass valve forward to insert then rotate 90° clock wise to align with two bolt holes
 - 22.2. Loosely tighten two bolts and washers 22.2.1. two 8x16mm bolts
 - 22.3. Position bypass valve so that it is as far back and upright as possible while maintaining pressure on flipper
 - 22.3.1. Ensure pressure is exerted on bypass valve butterfly shaft holding it down on bump stop
 - 22.3.2. Tighten two bolts tightly

23. Bending AC lines 2000-2006 only

23.1. The AC lines interfere with the supercharger



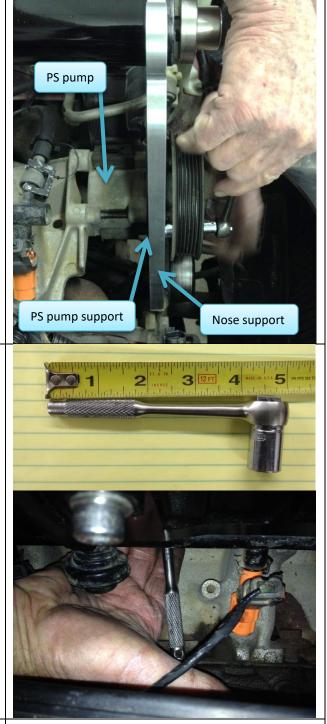
 23.2. Test fit the supercharger over the intake tub to determine where the lines interfere 23.3. Gently bend the lines down so they are not in the way 23.3.1. These are aluminum and can crack if bent too far 	
24. Install supercharger over intake tub 24.1. Carefully align studs over holes and set down	

- 25. Install supercharger nose support
 - 25.1. Put a lubricant like Vaseline on nose support O-ring
 - 25.2. Slide nose support over supercharger nose
 - 25.3. Slide one power steering pump bolt through nose support -> power steering pump support -> power steering pump while aligning all holes in parts and tighten loosely
 - 25.4. Remove bolt inserted into rear of power steering pump in step 10.3
 - 25.5. Slide last two power steering pump bolts in and tighten lightly
 - 25.6. Shift supercharger and nose support around until all parts are square and aligned with no binding

26. Install nuts over studs from bottom loosely26.1. Apply loctite to nuts

26.2. Use a small ratchet with 13mm socket for easiest access

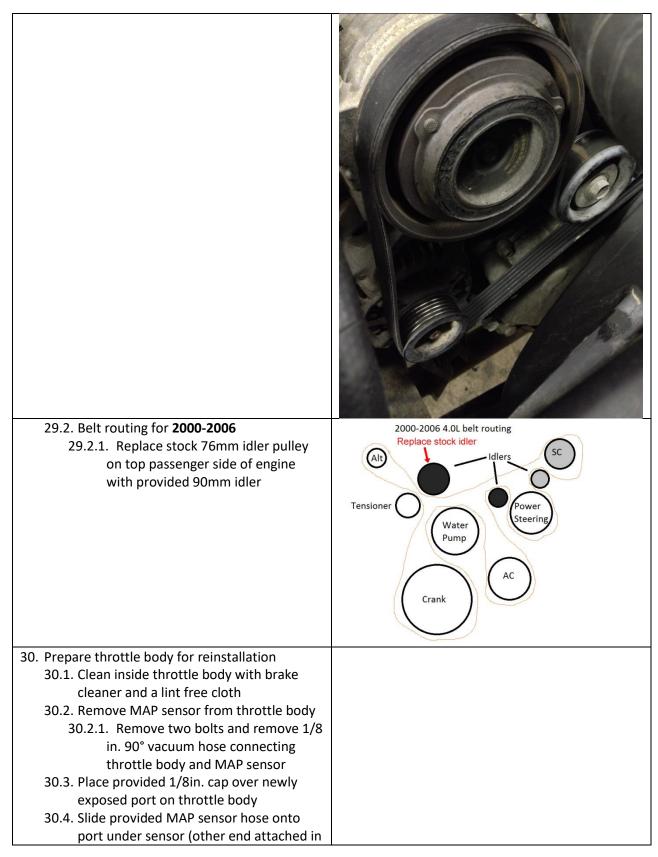
26.3. Tighten nuts under supercharger in a crisscross pattern snugly then tightly26.3.1. Torque to 30-40Nm (22-30 ft-lbs)



27. Tighten nuts and bolts on supercharger and
nose support well
27.1. Tighten bolts on power steering pump
tightly

27.2. Tighten all pulley bolts and nuts on nose

support	
28. Install supercharger pulley28.1. Tighten four bolts tightly in a crisscrosspattern	
29. Install serpentine belt 29.1. Belt routing for 1997-1999	<image/>



step 37.7) 30.5. Reattach MAP sensor to throttle body in original orientation	
 31. Install throttle body 31.1. Reconnect wire connectors to throttle body 31.1.1. Throttle position sensor, Idle air control and MAP sensor connectors 31.2. Install throttle body and gasket (if provided) to rear of supercharger with throttle cable bracket facing up 31.3. Tighten loosely four stock bolts 31.4. Tighten bolts tightly 	
 32. Install IAT sensor 32.1. Insert the IAT into a piece of rubber hose the diameter of the threads which is about 3 in. long 32.1.1. Make sure the threads are fully covered by the hose 32.2. The IAT is ideally located where: 32.2.1. The wire connector reaches 32.2.2. The sensor will not get too hot while the engine is running (<100°F) 32.2.3. Water and dirt will not get on the sensor or inside the rubber hose covering the sensor 32.2.4. Use two zip ties to secure the IAT sensor 32.2.5. Two good location are the bottom of the wire loom behind the throttle body or on the support rod with the tube facing the firewall 	

- 33. Rewrap IAT and MAP wires separately
 - 33.1. Determine length of wires that reach IAT sensor and MAP sensor on throttle body without tension
 - 33.2. Wrap electrical tape around area where wires intersect creating a "V"
 - 33.3. Disconnect wires from connectors
 - 33.4. Wrap sheathing around wires and electrical tape at ends of sheathing
 - 33.5. Use zip ties over ends of sheathing to keep sheathing on wires
 - 33.6. Reconnect wires to IAT and MAP sensors

34. Install throttle cable bracket

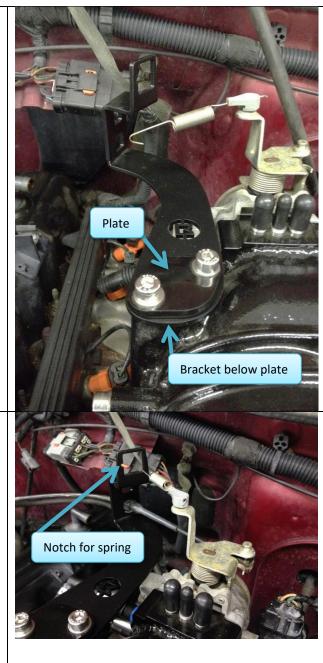
- 34.1. Remove bolts, washers and plate from top of supercharger on passenger side
- 34.2. Apply RTV to opening (skip if 1/2" set screw is installed perpendicular through PCV cavity)





34.3. Install throttle bracket on bottom with plate then washers and bolts above

- 34.4. Install throttle cable(s) and return spring34.4.1. Return spring goes in notchtowards front of vehicle on throttlebracket
 - 34.4.2. You may have to adjust the transmission cable for the correct shift points.
 - 34.4.3. Ensure full throttle is reached when depressing the gas pedal fully
 - 34.4.3.1. If not, loosen throttle bracket bolts and angle outward and check again
 - 34.4.3.2. If more adjustment is needed, bore out or elongate bracket holes



 35. Install 7th fuel injector on passenger side of supercharger 35.1. Lubricate O-rings on injector with Vaseline 35.2. Place fuel line adapter over top of fuel injector 35.3. Insert fuel injector into port on supercharger with wire connection angled back and up towards firewall 35.4. Slide retainer with bolt and spacer over adapter 35.5. Tighten bolt tightly while ensuring injector and retainer remain parallel and are not tweaked 	Fuel line adapter Retainer Spacer Fuel line 90° adapter
 36. Install 7th fuel injector fuel line 36.1. Attach end 90° adapter on fuel injector until it clicks 36.1.1. Gently pull on line to ensure it is securely attached and snapped on 36.2. Attach end with Tee over fuel rail port at front of fuel rail 36.3. Attach stock fuel line to aluminum fitting opposite of Tee 	
 37. Install vacuum lines 37.1. The photo on the right has color overlays showing the boost (orange) and vacuum (blue) sides of the system 37.1.1. Vacuum ports are on rear of supercharger and throttle body 37.1.2. Boost ports are below supercharger on intake tub and intake manifold 37.2. Brake booster (vacuum) 37.2.1. Attach provided brake booster hose to large port on side of supercharger flange and brake booster swivel port 37.3. Boost out to SS (Split Second) box (boost) 37.3.1. Attach provided boost out to SS box hose to any port on intake manifold 	

 37.3.2. Lay excess in area under brake booster for later connection to SS box 37.4. Heater AC and Leak Detection Pump(LDP) (vacuum) 37.4.1. Remove stock end keeping one way valve white/black valve attached 37.4.2. Attach hose to provided Heater AC hose 37.4.3. Attach Heater AC hose to any of the small diameter ports around the supercharger/throttle body 	Provided Heater AC hose One way valve (white/black)
 37.4.4. Attach provided hose to LDP if it exists (vacuum) 37.4.4.1. The LDP may not be present in all vehicles 37.4.4.2. Remove line on front of LDP 37.4.4.3. Attach hose to port 37.4.4.4. Attach other side of hose to any of the small diameter ports around the supercharger/throttle body 	LDP hose Remove stock line
37.5. EVAP (vacuum) 37.5.1. Remove stock end from plastic line 37.5.2. Slide provided hose over plastic tube	EVAP line

37.5.3. Attach other end to large port on supercharger	EVAP hose
 37.6. Bypass valve (boost) 37.6.1. Attach hose to front (upper) port of bypass valve 37.6.2. Leave lower port open to atmosphere, nothing attaches to it 37.6.3. Attach other end of hose to port on driver side of intake tub 	Bypass valve hose
 37.7. MAP sensor (boost) 37.7.1. Attach end to port on intake manifold 37.7.2. MAP sensor must see boost(post supercharger) for proper engine function 37.7.3. MAP sensor needs a dedicated line to boost port 	
 38. Install crankcase hoses 38.1. The PCV and Fresh Air hose assemblies are different and not interchangeable 38.2. Install PCV hose (vacuum) 38.2.1. Slide 1/2" hose over plastic vent on top rear of engine and secure with a clamp or zip tie 38.2.2. Attach other end of hose to large port on top rear of supercharger 38.3. Install fresh air vent hose (fresh/filtered 	
air) 38.3.1. Attach hose end with aluminum plug into plastic vent on top front of engine	

38.3.2. Attach other end of hose to port on air filter or in middle of optional intake tube	
 39. Install Split Second box 39.1. ***Ensure Split Second box is kept away from heat and water*** 39.1.1. If the SS box is exposed to excess heat or water it may malfunction 39.2. Place SS box on shelf under brake booster 39.3. Orient SS box with wire loom facing engine 39.4. Attach SS box wires 39.4.1. Large wire loom connects to stock ECU 39.4.2. Small wire connects to 7th fuel injector 	Wire loom Order
39.4.3. Route loom and fuel injector wire across rear firewall 39.4.4. Attach fuel injector wire to 7 th fuel injector	<complex-block></complex-block>

- 39.4.5. Release stock connector on driver side of ECU
- 39.4.6. Attach SS box male connector to ECU
- 39.4.7. Attach SS box female connector to stock male ECU connector

39.4.8. Ensure both SS box wire and loom are away from steering column

39.4.9. Secure wire and loom with zip ties to stock loom

39.5. Screw down SS box to tray39.5.1. Need at least one screw on the front and one on the rear of box39.5.2. Use all three if possible

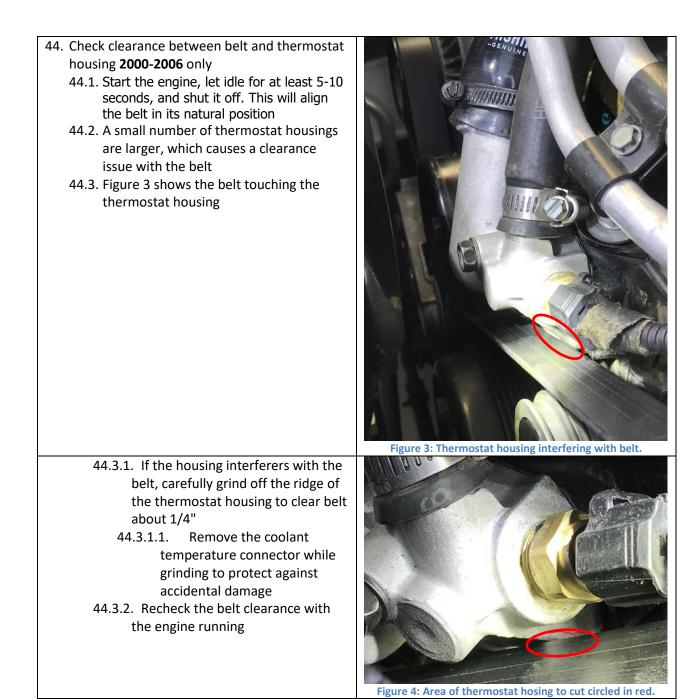
- 39.6. Attach vacuum hose(s) to box
 - 39.6.1. Check SS box instructions to ensure proper port connections
 - 39.6.2. Top (or only) port should connect to boost hose already attached to intake manifold
 - 39.6.2.1. Determine length of hose needed to go from intake manifold to SS box and add two to three inches then cut
 - 39.6.3. For bottom port (if present) attach provided hose to port and hang over brake booster ensuring end faces down preventing water from entering

39.6.3.1. Secure hose with zip ties

- 40. Attach any loose wire connectors
- 41. Check all bolts and steps
- 42. Reconnect battery
- 43. Check for fuel leaks
 - 43.1. Turn key to on without starting engine
 43.2. Check fuel rail, 7th fuel injector and 7th fuel injector line for leaks
 - 43.3. Do this multiple times







Note:

If any part of the instructions are not clear or are missing any information you would find helpful please let us know so we can update them.

Rev: 2018-05-07

Service

1.	 Supercharger oil 1.1. Replace oil in supercharger nose at least every 30,000 miles 1.2. Remove oil fill plug on nose 1.2.1. Check O-ring on fill plug for damage and replace if necessary 1.2.2. Clean fill plug thoroughly 1.3. Use a large syringe with a tube on it to remove used oil 1.3.1. Ensure all used oil is removed 1.4. Replace oil with about 6oz Mobile1 5w30 full synthetic oil 1.4.1. The oil level should come up just to the bottom of the fill hole threads 1.5. Install fill plug and tighten till snug 	