



BD Twin Turbo RT700 & RT850 Kit

2008-2012 Dodge HPCR

Installation Instructions

1045480	2008-2009 Dodge 6.7L RT700
1045481	2010-2012 Dodge 6.7L RT700
1045482	2008-2009 Dodge 6.7L RT850
1045483	2010-2012 Dodge 6.7L RT850

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION.

NOTE: This kit will require a race tuner and deletion of the EGR cooler.

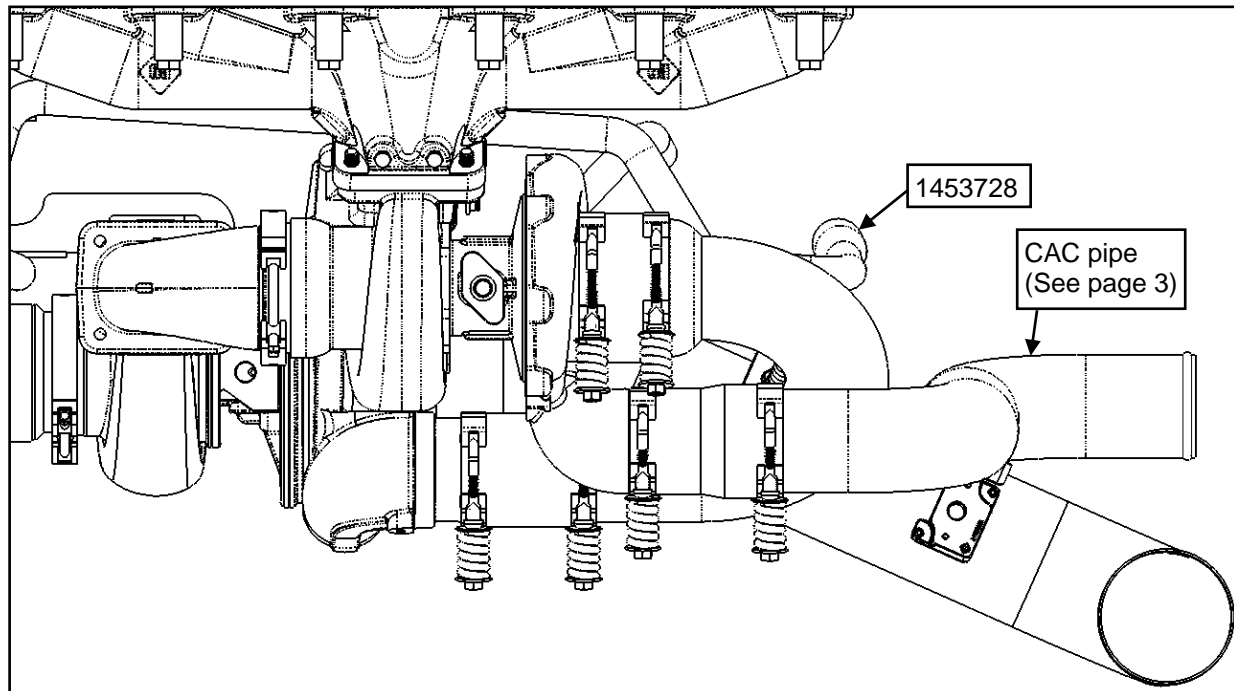
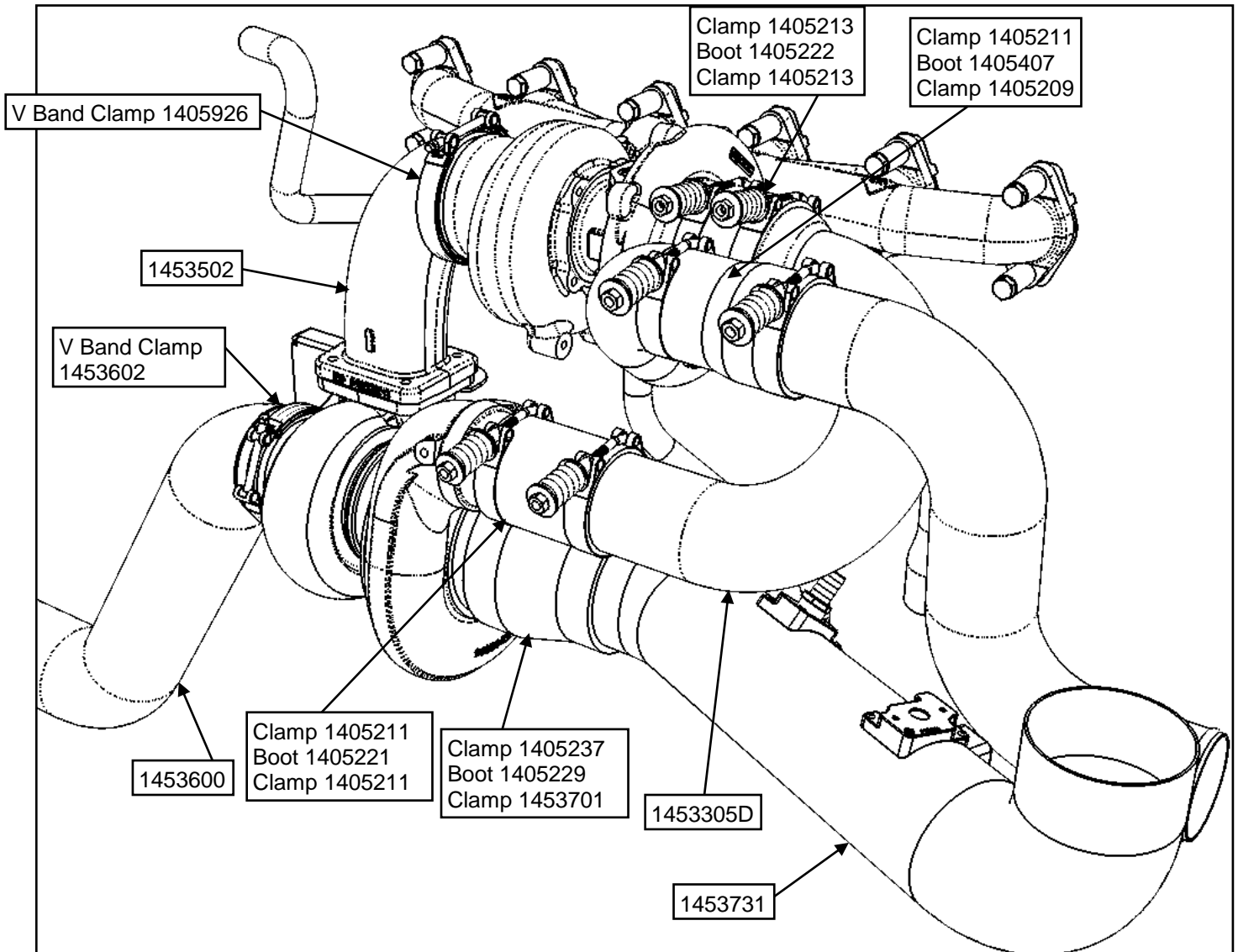
UNLESS AN EO# IS LISTED, THIS PRODUCT IS LEGAL IN CALIFORNIA FOR RACING VEHICLES ONLY, WHICH MAY NEVER BE USED UPON A HIGHWAY.

BD Engine Brake Inc.

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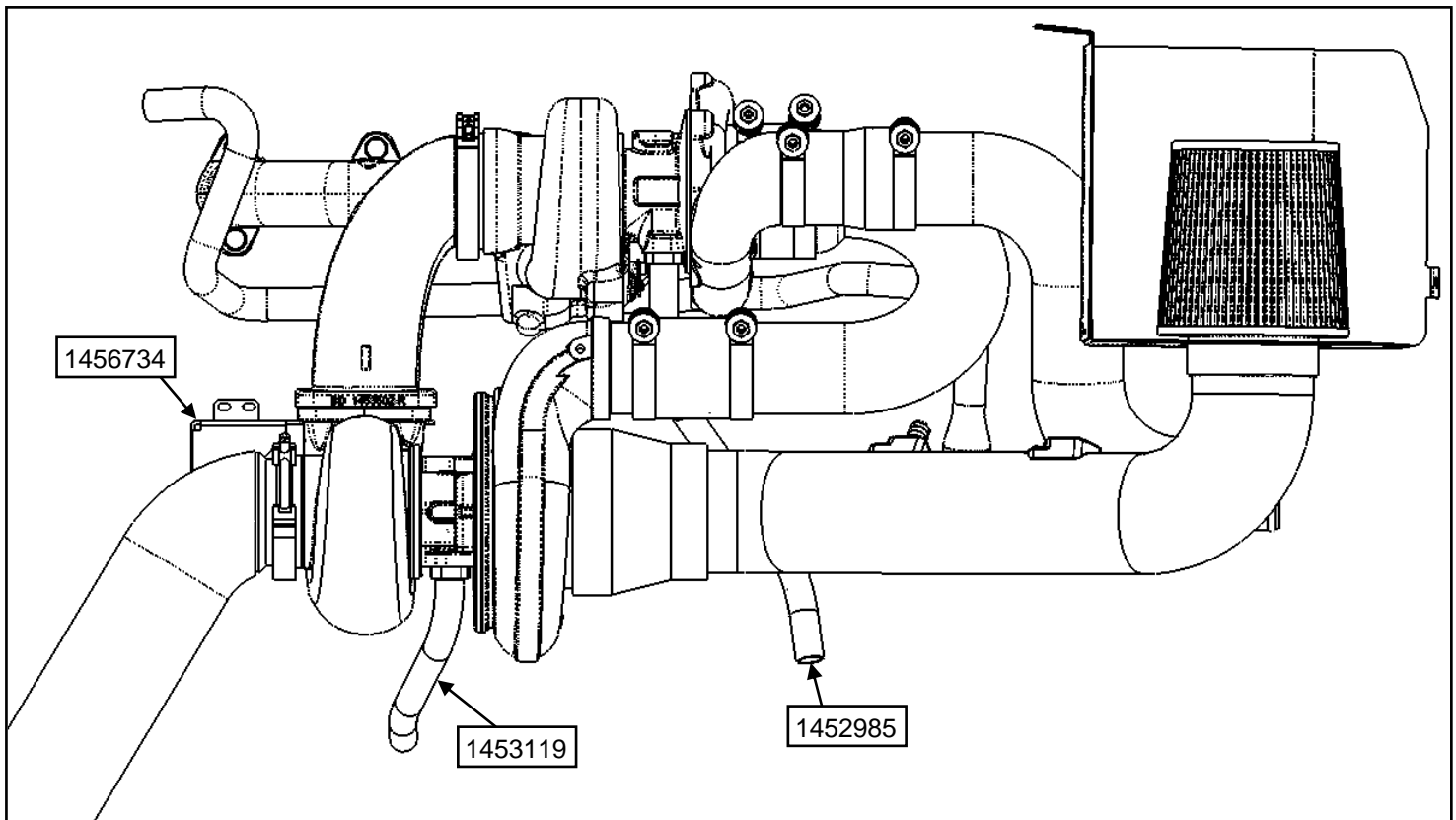


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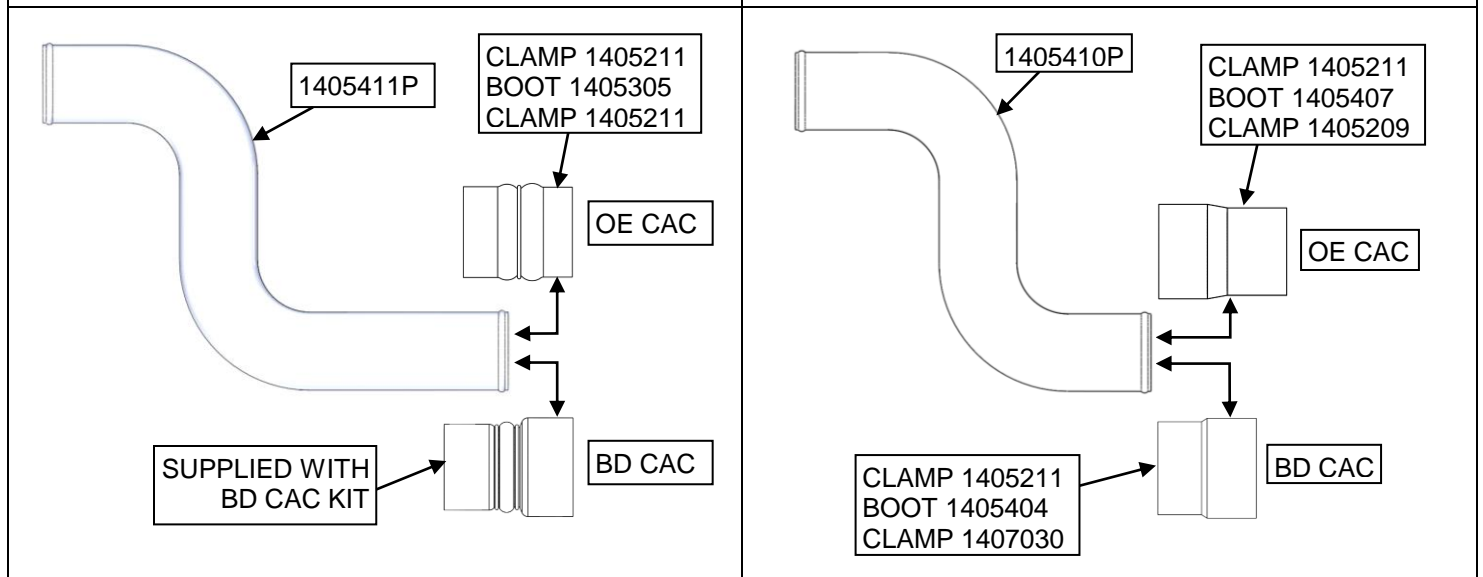
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CHARGE AIR COOLER PIPE

2008-2009

2010-2012



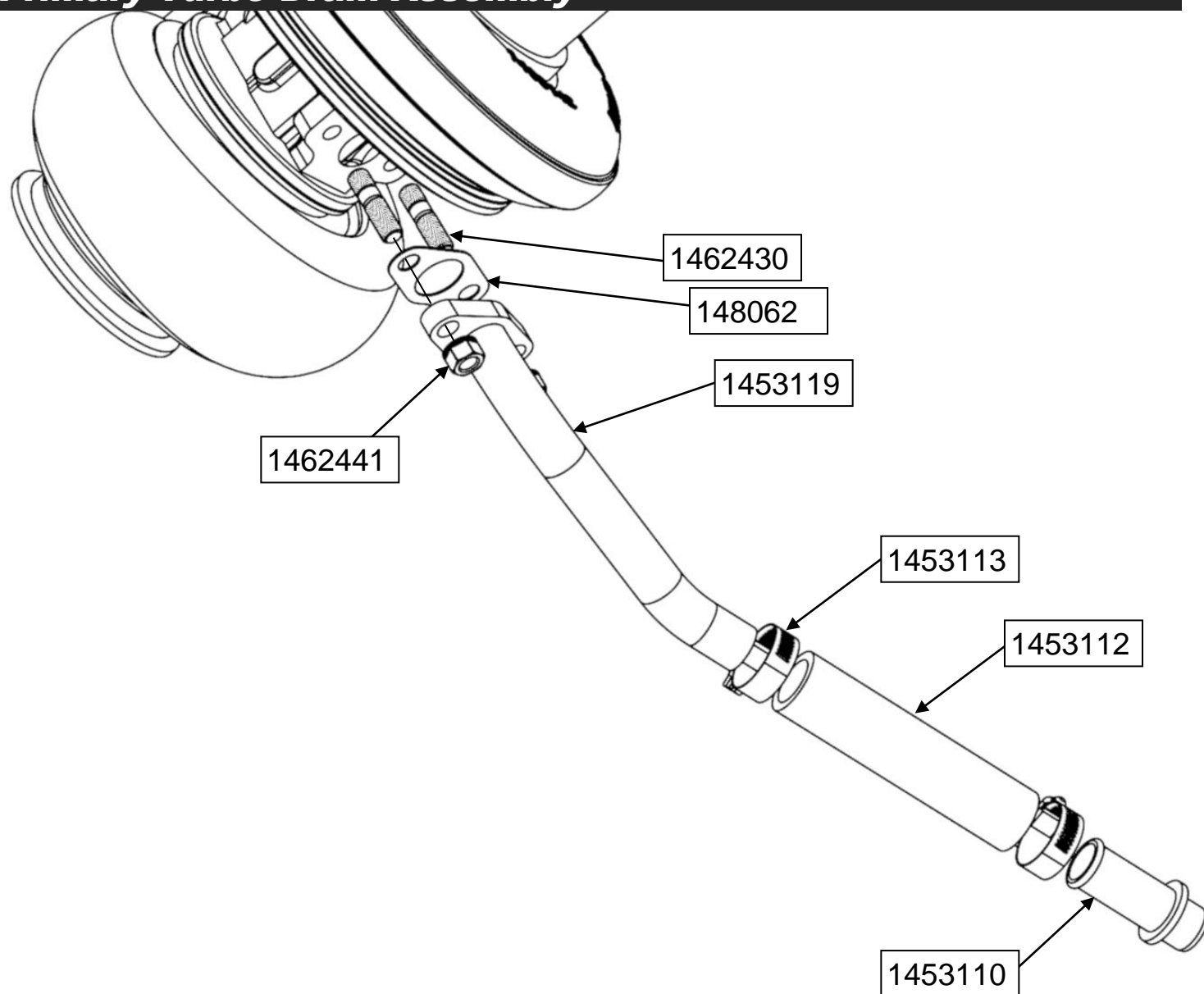
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Primary Turbo Drain Assembly



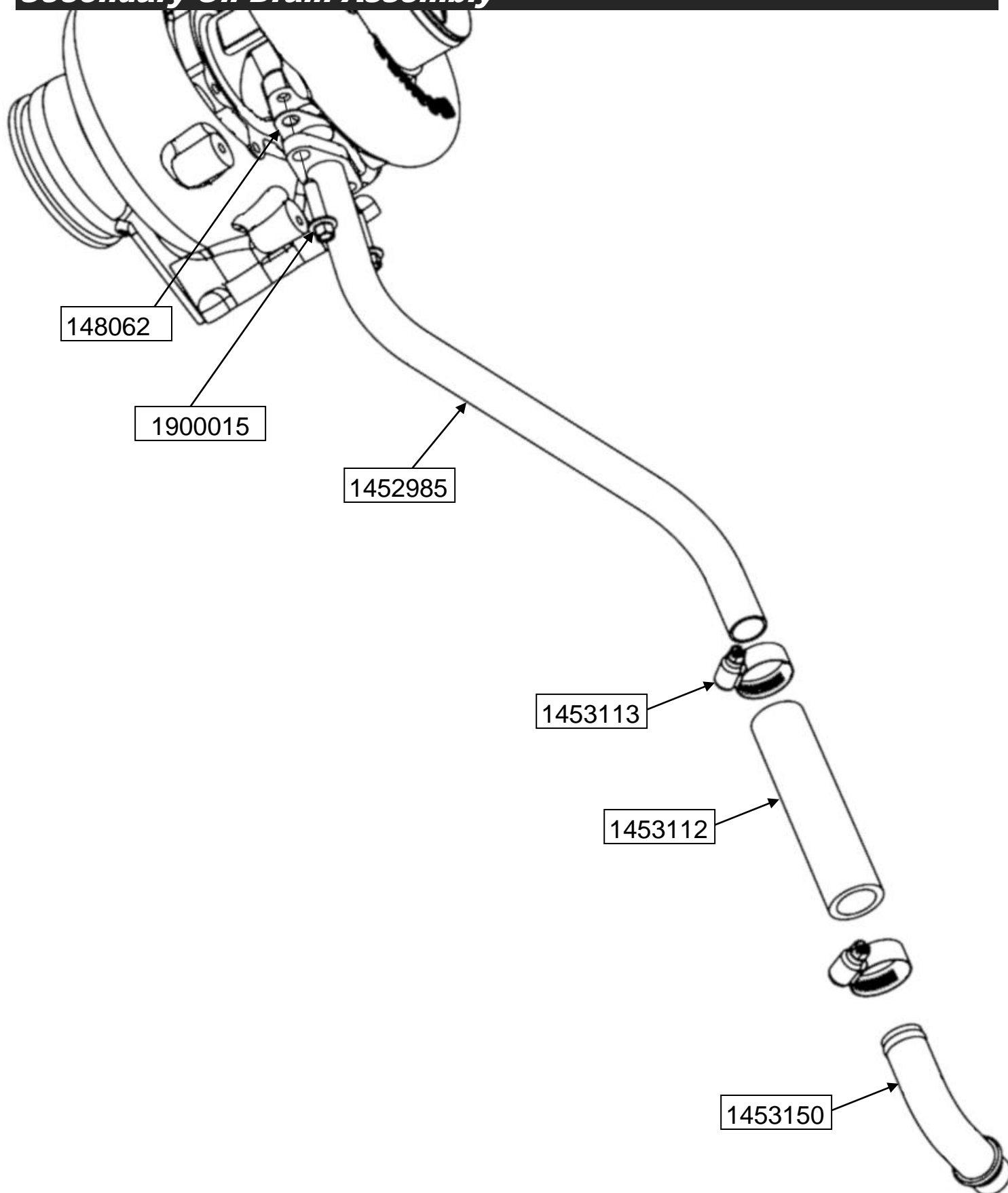
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Secondary Oil Drain Assembly



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K I T C O N T E N T S :

Please check to make sure that you have all the parts listed in this kit **before** you start the disassembly of your truck.

DODGE RT850 TWIN TURBO KIT (BD# 1045480)	
S474B900-874125	1405133
	
RT850 Primary Turbo (Non-wastegated)	Secondary Turbo (Wastegated)
Qty: 1	Qty: 1

DODGE RT850 TWIN TURBO KIT (BD# 1045481)	
S474B900-874125	1405133
	
RT850 Primary Turbo (Non-wastegated)	Secondary Turbo (Wastegated)
Qty: 1	Qty: 1


DODGE 2008-2009 RT700 & RT850 GENERAL KIT (BD# 1045480)			
1453305P	1045985SS	1453731	1453502
			
Secondary Air Inlet Pipe	Stainless Exhaust Manifold	Air Filter to Primary Turbo Pipe r700	Primary to Sec. Pipe
Qty: 1	Qty: 1	Qty: 1	Qty: 1
1045986	1453600	1405411P	
			
Exhaust Manifold Gasket Set	Primary Exhaust Outlet Pipe	Intercooler Pipe 3RD Gen	
Qty: 1	Qty: 1	Qty: 1	
1453521	1453728	1453724	
			
Turbine Housing Blanket	5/8" Molded Coolant Hose	5/8" Molded CCV Hose	
Qty: 1	Qty: 1	Qty: 1	

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DODGE 2010-2012 RT850 TWIN TURBO KIT (BD# 1045481)			
1453305P	1045985-SS	1453731	1453502
			
<i>Secondary Air Inlet Pipe</i>	<i>Stainless Exhaust Manifold</i>	<i>Air Filter to Primary Turbo Pipe r700</i>	<i>Primary to Sec. Pipe</i>
Qty: 1	Qty: 1	Qty: 1	Qty: 1
1045986	1453600	1405410P	
			
<i>Exhaust Manifold Gasket Set</i>	<i>Primary Exhaust Outlet Pipe</i>	<i>Intercooler Pipe 4TH Gen</i>	
Qty: 1	Qty: 1	Qty: 1	
1453521	1453728	1453724	
			
<i>Turbine Housing Blanket</i>	<i>5/8" Molded Coolant Hose</i>	<i>5/8" Molded CCV Hose</i>	
Qty: 1	Qty: 1	Qty: 1	

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TURBO HARDWARE KIT (BD# 1453094)					
1120125	1405976	1302198	1453126	1453135	1120124
					
<i>Insulated Clamp 1" ID</i>	M10 Spacer	<i>Hose Clamp</i>	<i>Support Bracket Bolt (M10x1.5x20)</i>	<i>ORB-6JIC Fitting</i>	<i>M8-1.25 x 20mm Flange Bolt</i>
Qty: 2	Qty: 1	Qty: 3	Qty: 2	Qty: 2	Qty: 2
1453137	1453127	1900015	1120126	FT-0173590	
					
10mm O-Ring	<i>Support Bracket Washer (M10)</i>	<i>Bolt M8-1.25 X 30mm</i>	<i>Gear Clamp</i>	<i>#8 Pan Hd Screws</i>	
Qty: 2	Qty: 2	Qty: 2	Qty: 1	Qty: 3	
1453602	1453110	1453150	1453316		
					
<i>Down Pipe V-Band Clamp</i>	<i>Primary Turbo Drain</i>	<i>Oil Drain Adapter</i>	<i>Spacer</i>		
Qty: 1	Qty: 1	Qty: 1	Qty: 1		
1453725	1405912			1453735	
					
Auto Trans Tube Bracket	Gasket T3 Dual Volute			5/8" Barb-1/2" MNPT Fitting	
Qty: 1	Qty: 1			Qty: 2	


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1453119	1452985	1456734	
			
Primary Turbo Oil Drain (R700)	Secondary Turbo Oil Drain	Primary Turbo Support Bracket	
Qty: 1	Qty: 1	Qty: 1	

1405237	1100740	1405229	1453504
			
Reducer Clamp	4" Stainless Steel Down Pipe Clamp	4" - 5" Reducer Sleeve	Stainless Zip Tie
Qty: 1	Qty: 1	Qty: 1	Qty: 2

1040142	1300131	1401589	1400113
			
Heatshield	Cable Tie (Med)	M16-1.5 Coolant Plug	Insulated Clamp 1.250" ID
Qty: 1	Qty: 2	Qty: 1	Qty: 1

SECONDARY TURBO HARDWARE KIT (BD# 1453294)







1452813	1453982	1453983	1462430	1462441
				
<i>Turbo Mnt. Bolt 3/8NFx1.25"</i>	<i>Turbo Mnt. Nut (3/8NF Gold)</i>	<i>Turbo Mnt. Washer (3/8 Gold)</i>	<i>Adapter Elbow Stud M10 x 1.5</i>	<i>Adapter Elbow Nut</i>
Qty: 2	Qty: 2	Qty: 4	Qty: 2	Qty: 2









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r700 PRIMARY TURBO HARDWARE KIT (BD# 1453196)		
1462430	1462441	1453117
		
<i>Adapter Elbow Stud M10-1.5</i>	<i>Adapter Elbow Nut</i>	<i>Oil Feed Adapter (1/8MPT x -6MJIC)</i>
Qty: 6	Qty: 6	Qty: 1
1453504	1453503	1405926 (0406)
		
<i>Stainless Zip Tie</i>	<i>Heat Shield</i>	<i>Down Pipe V-Band Clamp</i>
Qty: 3	Qty: 1	Qty: 1

COOLANT HARDWARE KIT 2010-2012 (BD# 1453295)			
1453723-1	1453723-2	1453723-3	1453155
			
<i>Fitting, Coolant Hose Twin 6.7L</i>	<i>Fitting, Coolant Hose Clamp</i>	<i>Fitting, Barb Coolant 1.125"x 3/4NPT</i>	<i>Coolant Port Oring</i>
Qty: 1	Qty: 1	Qty: 1	Qty: 1
1453735	1900037	1302198	1456733
			
<i>5/8" Barb-1/2" MNPT Fitting</i>	<i>M6-1.0 x 12mm Flange Bolt</i>	<i>Hose Clamp</i>	<i>TC Coolant Adapter</i>
Qty: 2	Qty: 2	Qty: 2	Qty: 1















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HOSE & CLAMP KIT (BD# 1453494)

1405222	1405221	1405305	1405407	1405404
				
4" I.D. Hose (3" long/ea)	3" I.D. Hose (5" long/ea)	3 x 4" L Hose	2.75-3" X 4.5" L Reducer Boot	3-3.25" CAC Boot
Qty: 1	Qty: 1	Qty: 1	Qty: 2	Qty: 1
1405213	1407030	1405211	1405209	1453113
				
Clamp (4.11")	Clamp (3.50")	Clamp (3.00-3.38")	Clamp (2.75"-3.09")	Oil Drain Clamps
Qty: 2	Qty: 1	Qty: 5	Qty: 2	Qty: 4
1453130-B	1453162	1453112	1453701	
				
Primary Turbo Oil Feed Hose (-6 JICM 90° x -6 JICF)	Primary Turbo Oil Inlet Adapter (1/4MPTx-6JIC)	Oil Drain Hose (5")	Clamp (4")	
Qty: 2	Qty: 1	Qty: 2	Qty: 1	

AIR BOX KIT 08-09 (BD# 1453894)

1453815	2924
	
Air Box	Air Box Filter
Qty: 1	Qty: 1

AIR BOX KIT 10-12 (BD# 1453895)

1453720	2924
	
Air Box	Air Box Filter
Qty: 1	Qty: 1

If you believe you are missing any parts that are displayed here, please contact BD Power at 1-(800)-887-5030 for replacements.

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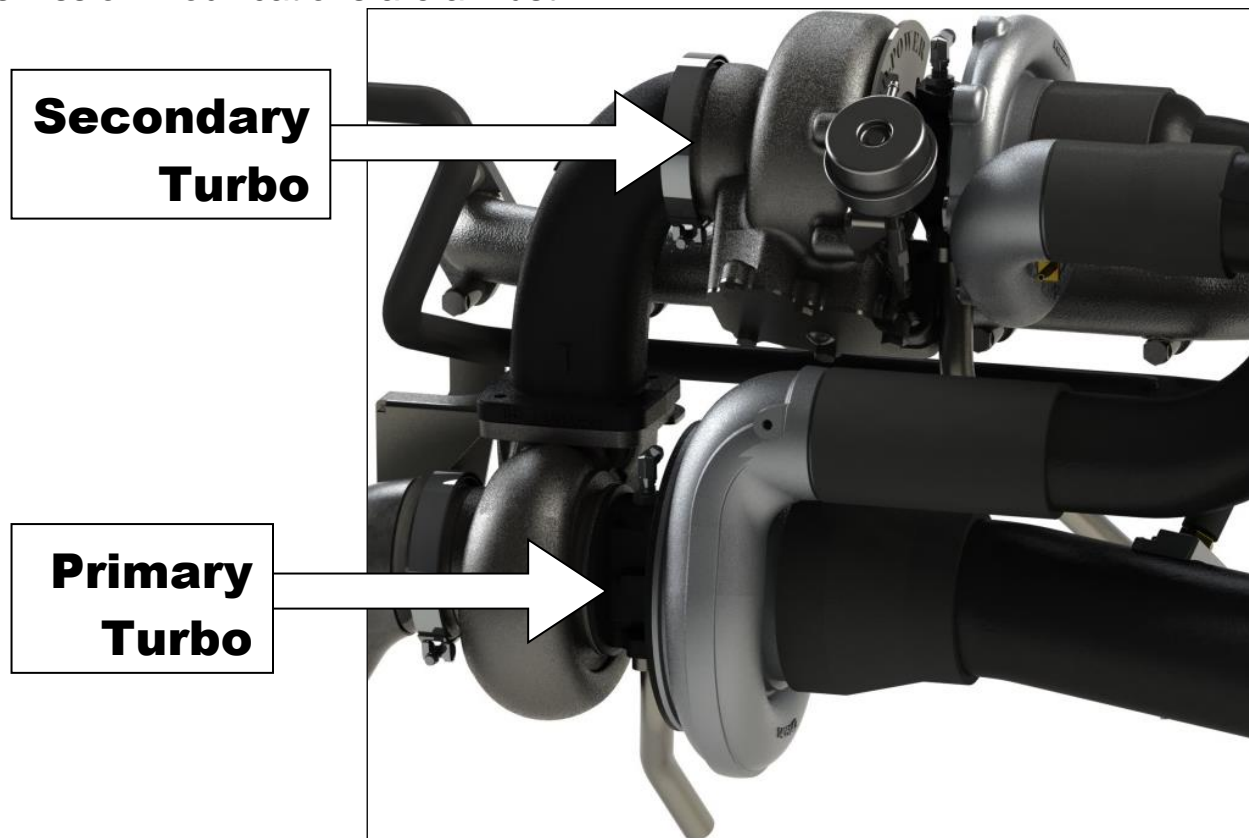
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Pre-Installation

For the purpose of the instruction manual, the term “primary turbo” refers to the larger non-wastegated turbo and the term “secondary turbo” refers to the smaller wastegated turbo.

Installation should occur on a cold vehicle, as turbo and exhaust components become very hot with use.

Also note that a stock transmission will not handle this power and torque, transmission modifications are a must.



Options

Description	Part #
BD Torque Converter 2007.5-2012	1071219X
BD HD Transmission	CALL
BD Stroked CP3 Pump 2008-2012	1050550
BD Injectors	CALL
BD Intercooler 2003-2009	1042525
BD Intercooler 2010 - 2012	1042530
BD Staging Limiter	1057722

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This kit requires the use of head studs, EGR & DPF delete and a performance transmission.

REMOVAL



Please refer to the EGR Delete manual for removal of the EGR system.

1. Secure the vehicle from rolling, disconnect the negative leads on both batteries.

2. Disconnect and re-position the right hand side positive battery cable away from the battery.

3. Drain the coolant from the radiator and engine.

4. Remove the air filter housing.

5. Disconnect the crankcase vent hose at the turbocharger air intake

6. Remove the intake air tube at the turbocharger

7. Remove the charge air cooler inlet tube at the turbocharger outlet

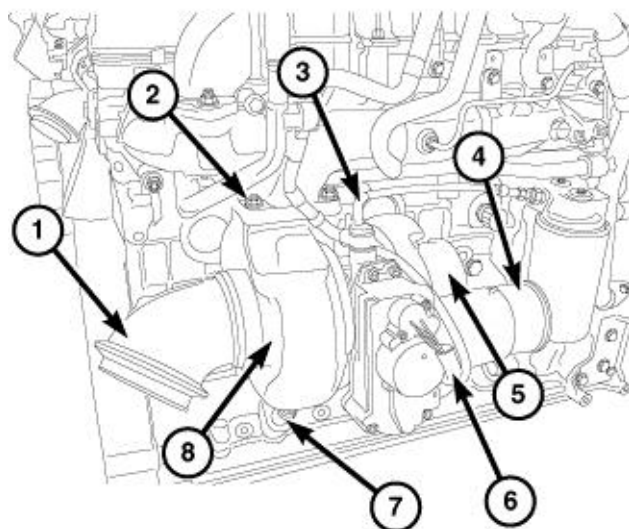
8. Disconnect the turbocharger speed sensor electrical connector

9. Disconnect turbocharger actuator wire harness connector

10. Remove the turbocharger oil pressure line

11. Remove the turbocharger coolant lines at the engine block and turbocharger.

12. Remove the right side fender liner.



1283861

13. Raise and support the vehicle.

14. Remove the exhaust support bracket from transmission.

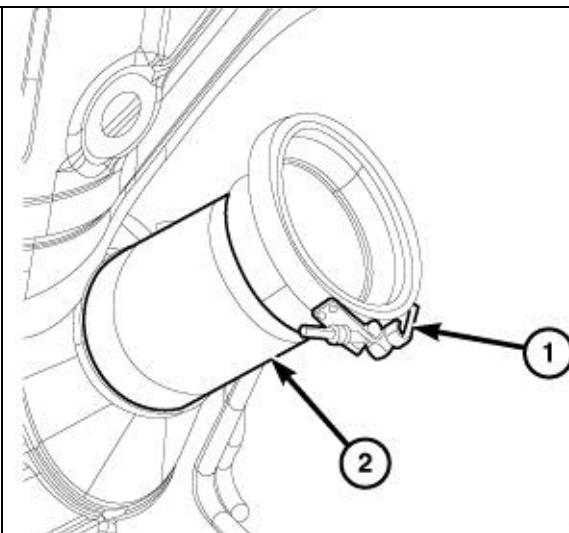
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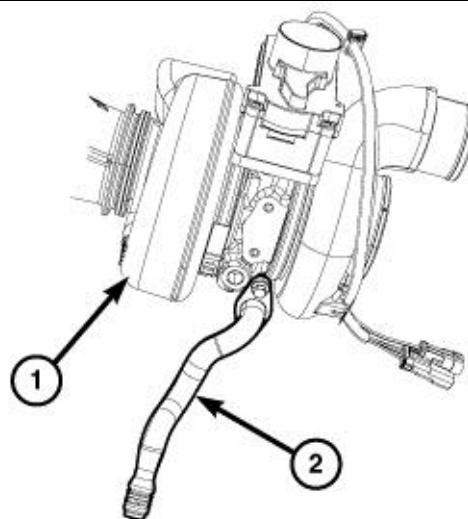
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- 15.** Remove the V-clamp (1) from the turbocharger exhaust outlet



2592481

- 16.** Remove the turbocharger drain tube (2) at the turbocharger (1)



2595525

- 17.** Remove the turbocharger drain tube from the cylinder block.

- 18.** Lower the vehicle.

- 19.** Remove and re-position the grid heater relay from the battery tray

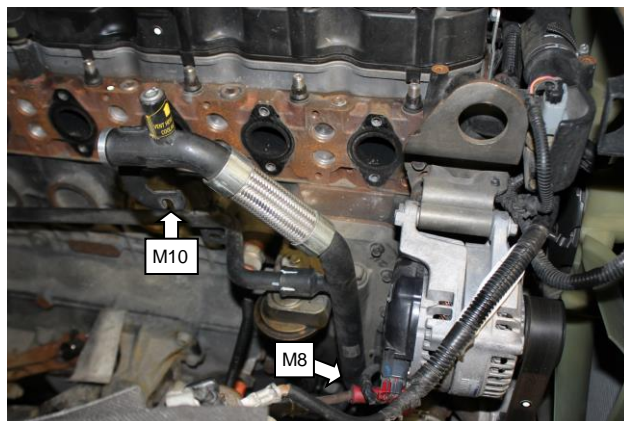
- 20.** Using Tool 9866 or 15mm box end wrench, remove the turbocharger to exhaust manifold mounting nuts.



- 21.** Remove the turbocharger (1) from the vehicle by lifting from the top of the engine compartment.

- 22.** Remove the coolant line from the heater core and engine block port (M10 & M8 sockets required).

Remove exhaust manifold and clean cylinder head mating surface.



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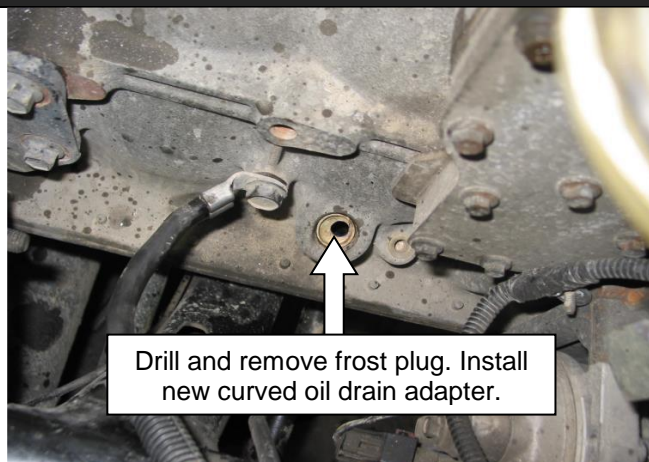
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INSTALLATION

23. Remove the oil filter for better access. You will need to locate the frost plug behind the oil filter and remove it. This can be done by drilling a hole into it and prying it out; be careful not to contaminate the oil. You can coat the drill bit with grease to contain a lot of the metal shavings.



24. Install the provided long, curved oil drain adapter (#1453150) into the front oil return port in the engine block behind the oil filter. The installation is a press fit and will require tapping it in with a punch on all sides until the flange is firmly seated up against the block.



25. Install the rear oil drain adapter into the motor, note this is a press fit and will require to be tapped with a punch to completely seat the flange.



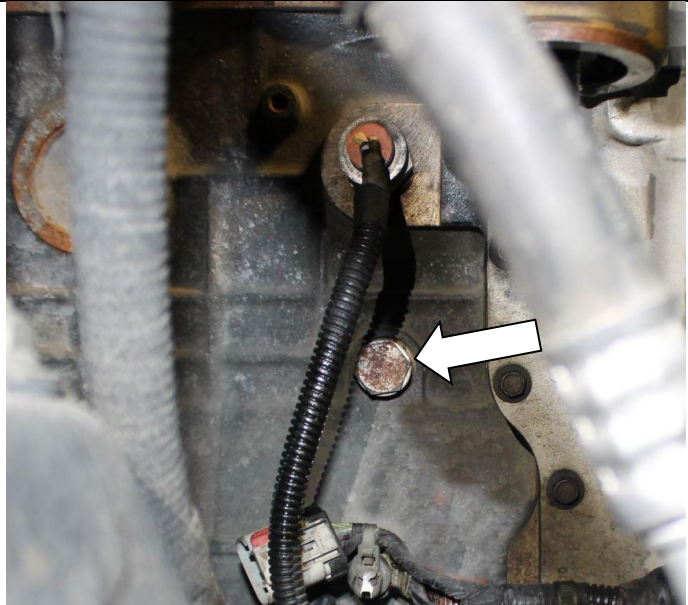
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26. Install the supplied coolant plug (1401589) into the block where the OEM coolant line was removed from.
8mm Allen Socket



Relocate the grid heater solenoid from the side edge of the battery tray to the top edge.



Predrill 3/32" holes into the top edge of the battery tray reusing the OE screws and a *T20 Torx Bit*.

Suggested Relocation

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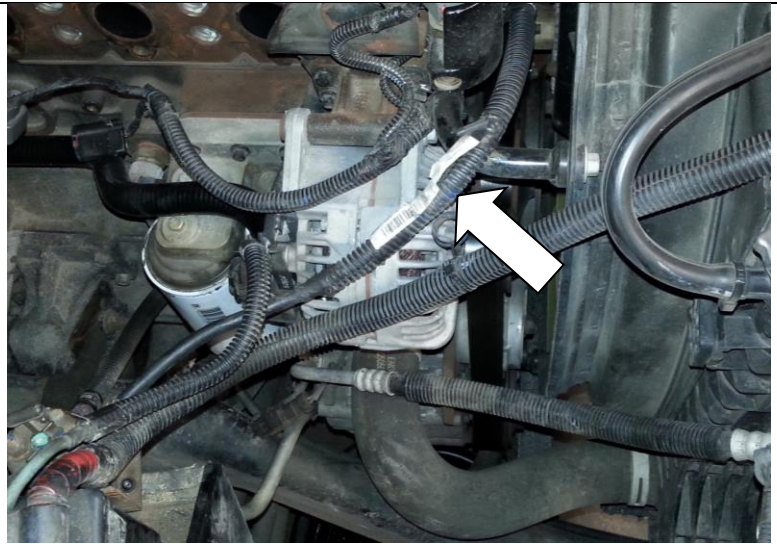
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2008-2009 MODELS ONLY

The power cable to the grid heater solenoid will need to be re-routed under the radiator shroud bracket.



- 27.** Install the transmission dipstick relocation support bracket (1453725) to the valve cover using the OEM hardware; attach dipstick tube to the bracket using the supplied bolt (1130182).
8mm & 10mm socket

NOTE: You will need to reshape the dip stick tube to align with the bracket.

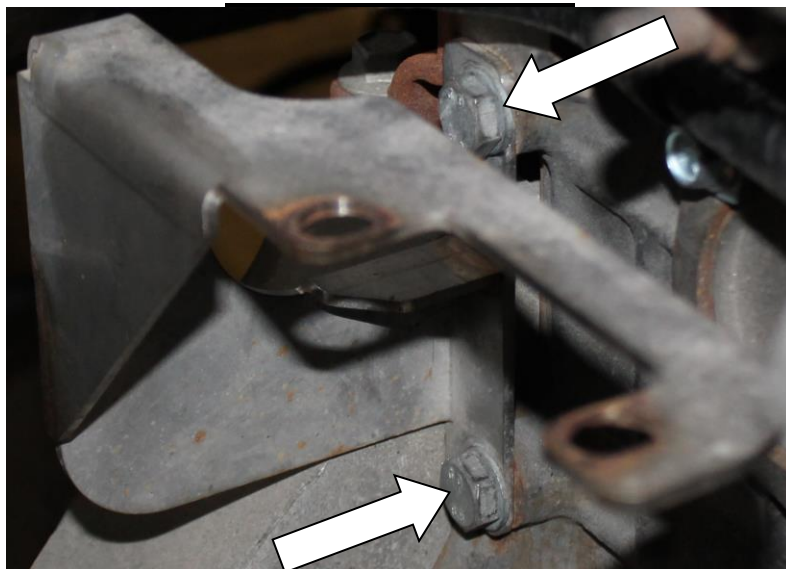


- 28.** Install the primary turbocharger support bracket (See table below) on to the block using the supplied M8 bolts (1120124). 17mm socket.

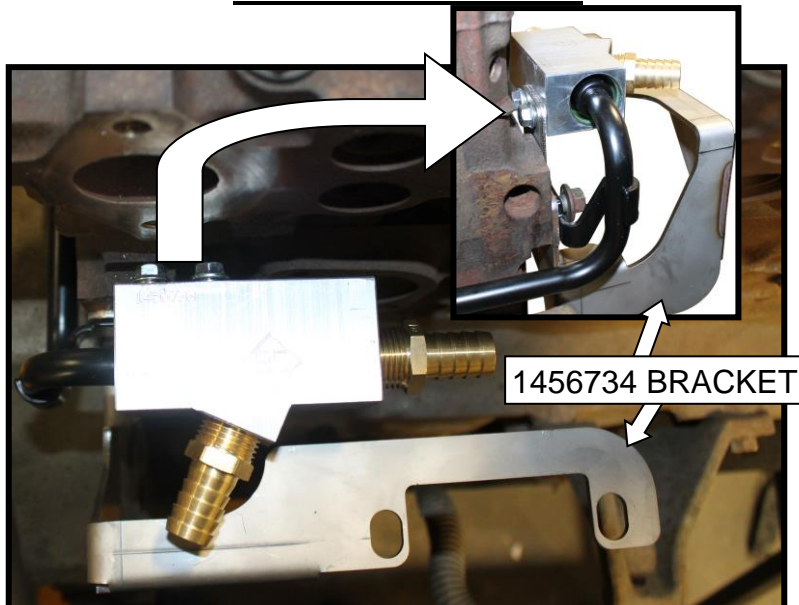
Year	Bracket
2008-2012	1456734

If installing a 2010-2012 model; thread in the two brass barbed fittings (1453735) into the TC coolant adapter (1456733) and bolt the coolant adapter assembly onto the bracket (1456734) using the supplied M6 hardware (1900037).
7/8" wrench & 10mm socket

2008-2009 MODELS



2010-2012 MODELS



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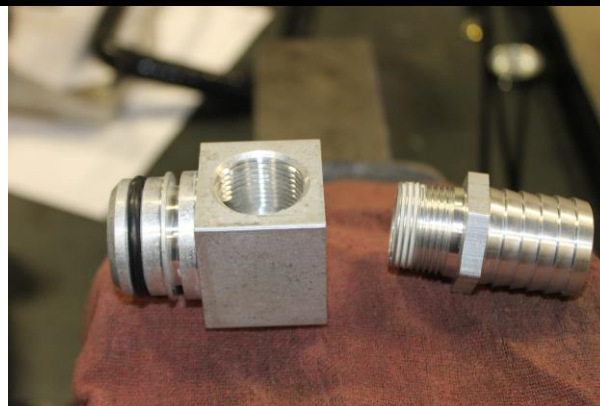
2010-2012 Models

**If installing a 2008-09 model proceed to Step 31*

- 29.** Install the supplied oring (1453155) onto coolant adapter (1453723-1). Apply some pipe dope to the threads of the barbed adapter fitting (1453723-3) and assemble the barbed adapter fitting to the adapter until snug. *1 1/4" wrench*



Do not over tighten the barbed fitting



- 30.** Install the coolant adapter assembly onto the motor using the hold down clamp (1453723-2), and fasten using the OEM clamp bolt. *8mm Socket*



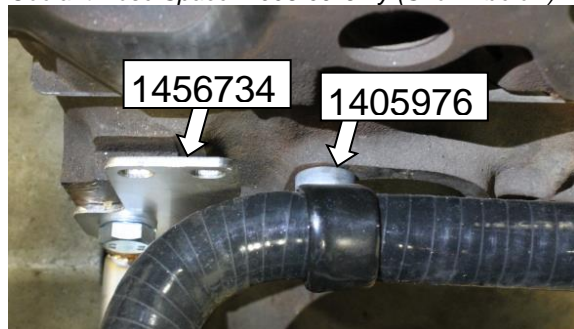
31. Place all clamps onto the coolant hose then install onto the heater core and the other end onto the coolant adapter (large side of hose).

Fasten to the block utilizing the supplied hardware and clamps.

*13 mm Socket
5/16" Socket*

NOTE: Clamp spacer (1405976) is only required for 2008-09 models only.

Coolant Hose Spacer 2008-09 Only (Shown below)



Coolant Adapter Connection 2008-09 (Shown below)



Coolant Adapter Connection 2010-12 (Shown below)



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- 32.** Install the exhaust manifold with gaskets onto the block. Tighten to 32 ft/lbs.
13mm socket

Re-torque all bolts after at least one heat cycle.



- 33.** Locate the cast flanged turbine adapter, and wrap the supplied heat shielding (1453503) around the adapter. The heat shield has been formed in a specific pattern to completely wrap around the elbow. Use the 3 supplied stainless steel zip ties (1453504) to secure the heat shield. One at the bottom, one at the middle and one at the top. Be sure that neither the heat shield or zip tie will interfere with the circular marmon flange when the band clamp is applied.



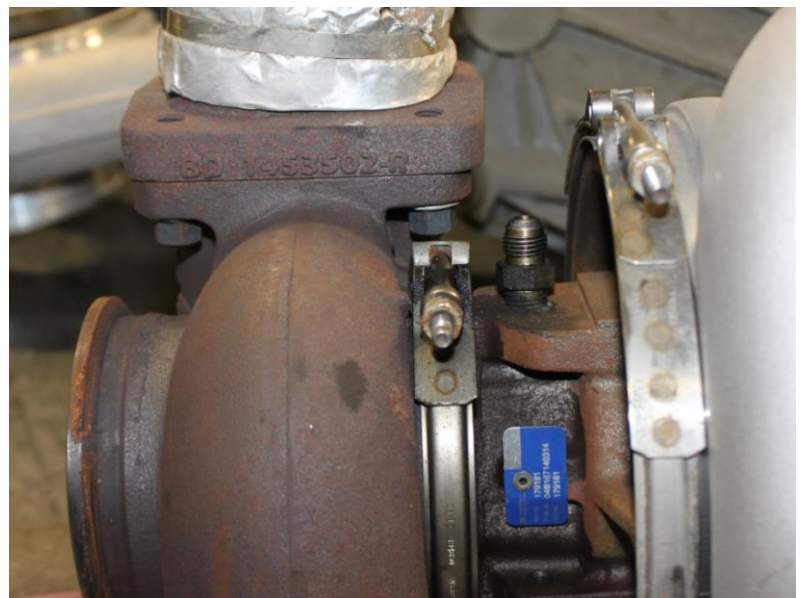
34. You can now bolt the flanged turbine adapter to the primary turbo.

Insert all four M10-1.5 studs into the hot pipe.

Secure the hot pipe to the turbo (use provided gasket) with two serrated nuts and flat washers on the inner side as the outer side studs will go into the primary turbo support bracket.

As well insert the oil supply JIC adapter into the primary turbo.

14mm Wrench or 17mm Wrench



- 35.** Install the two M10 x 25mm studs into the primary oil drain while on the bench.



TO ALLEVIATE ANY FITMENT PROBLEMS, ALL TURBOCHARGER SUPPORT BOLTS, CLAMPS MUST BE LEFT LOOSE. ONCE EVERYTHING HAS BEEN FIT TOGETHER, THEN TIGHTEN ALL BOLTS AND NUTS.

- 36.** Install the primary turbo onto the vehicle. The outer two studs on the hot pipe will go through the bracket holes. Then fasten hand tight using the supplied nuts to allow for movement.



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- 37.** Install two studs into manifold using the double nut method. Then add the gaskets and the spacer plate onto exhaust manifold.

Place the v band clamp onto the hot pipe.



- 38.** Install the secondary turbo onto the exhaust manifold and secure with the supplied hardware. (2 nuts and 2 through bolts with nuts.) Torque to 32 ft/lbs.

Tighten the hot pipe v band clamp.

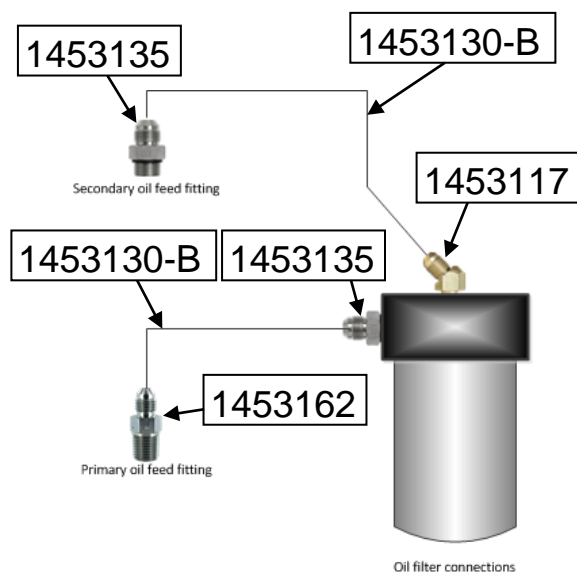
14mm Wrench
9/16" Wrench
9/16" Socket
7/16" socket



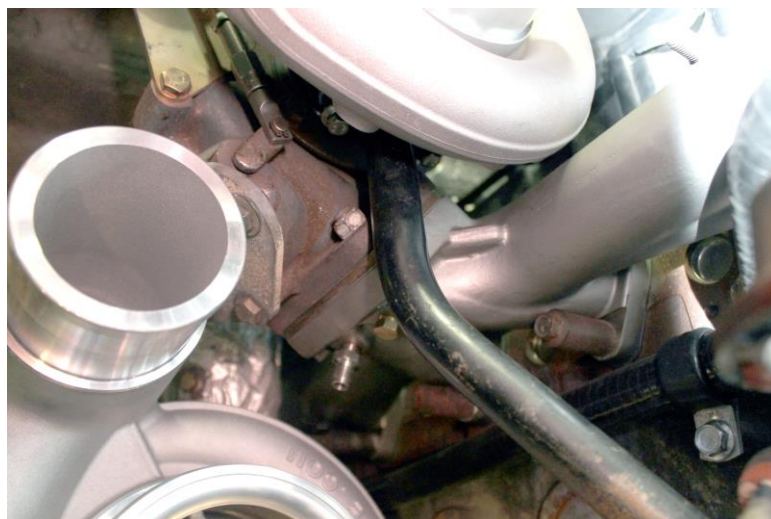
YOU MAY NEED TO TRIM THE TURBOCHARGER OIL DRAIN LINES IN LENGTH AS EVERY INSTALLATION IS SLIGHTLY DIFFERENT.

39. Preoil turbos, then install the oil feed line(s) and the oil drain(s) on the primary & secondary center housings using the supplied lines and fittings for the top of the oil filter housing and the supplied oil drain line with hose.

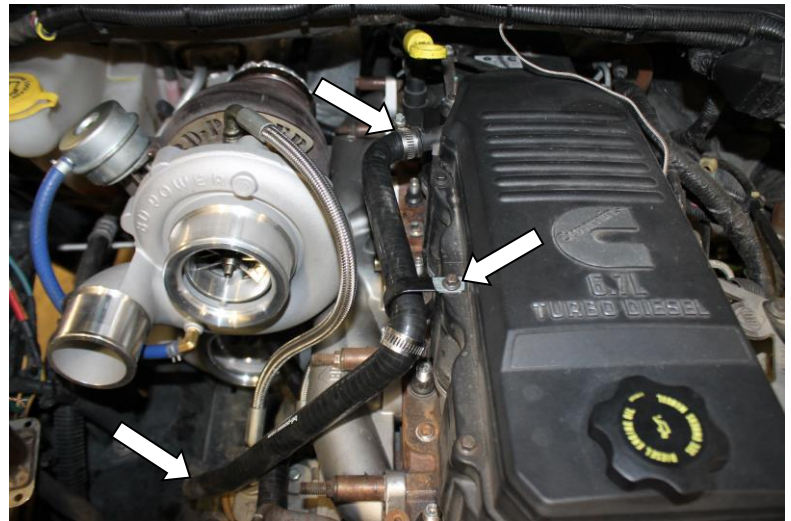
Torque oil drains to 32 ft/lbs



9/16" & 3/4" Wrench
17mm Wrench
5/16" Socket
M10 Socket



- 40.** Install the PCV venting hose using the supplied clamps and OEM hardware. Check to make sure the hose will not rub.
5/16" Socket
8mm Socket



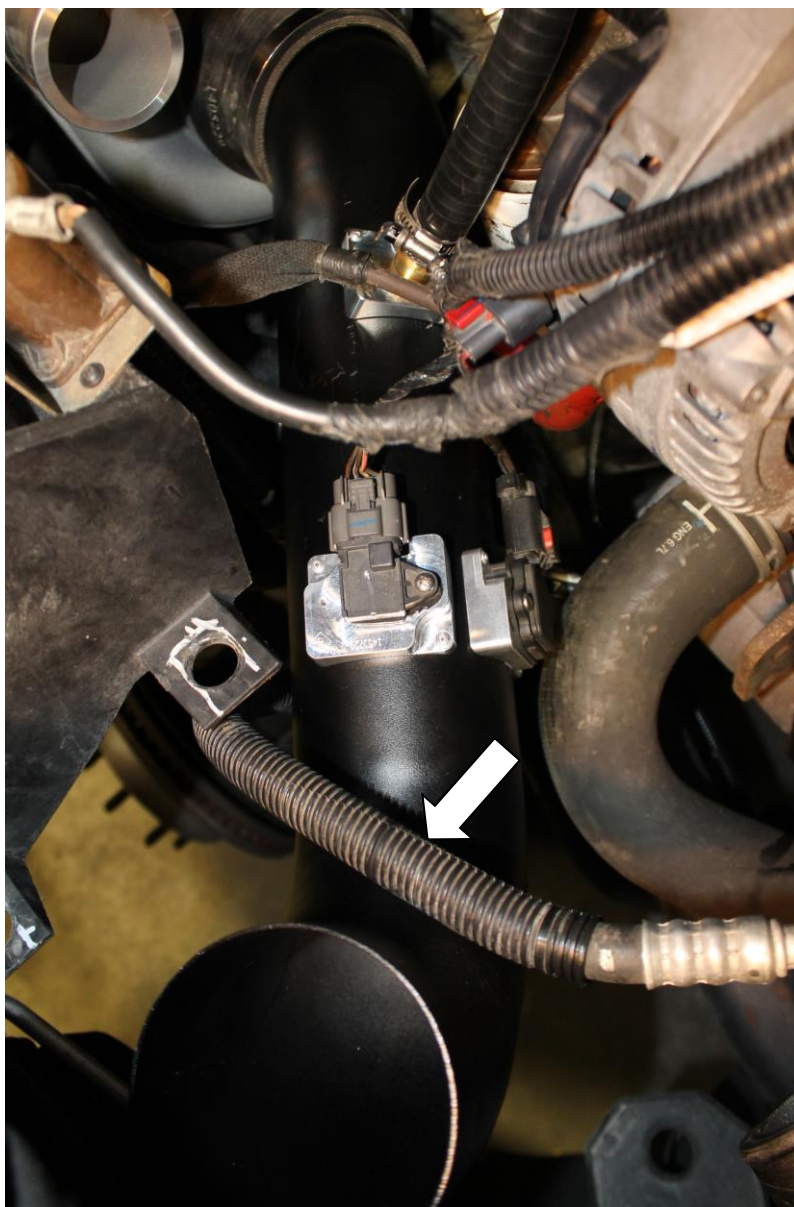
- 41.** Wrap the turbine housing blanket around the secondary exhaust housing, secure using the springs to hold it tight.



Note: Spring may need to be trimmed to ensure a snug fit.

- 42.** Install the intake boot/ clamp onto the primary compressor housing. Insert the brass barbed fitting into the intake tube using pipe dope, mount MAF and IAT into the intake tube with the supplied hardware. Install the intake tube with the supplied gear clamp and connect sensors. *5/16" Socket*
Philips Screwdriver

A/C lines will have to be reshaped to allow for clearance of the intake pipe, CAC tube and air box.



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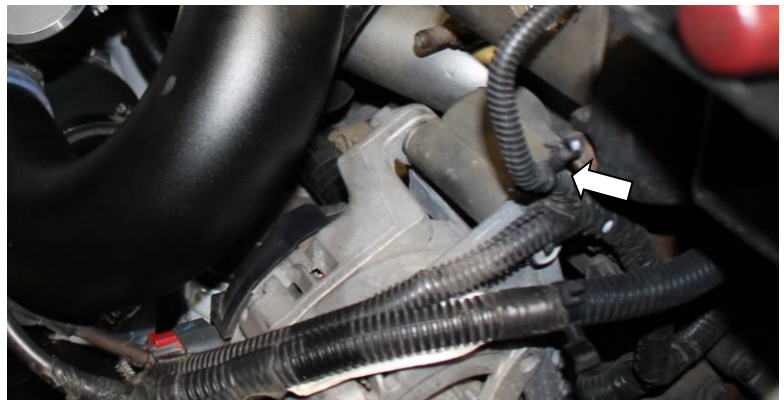
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43. Remove the Christmas tree clip holding the MAF & IAT sensor harness from the alternator bracket to allow more slack, then secure with cable ties.

44. Install the primary to secondary pipe using the boots and clamps supplied.
1/2" Socket

Clock turbo(s) for correct alignment.



45. Install the passenger side intercooler pipe using the supplied boots and clamps. Tighten clamps until spring is bound.

NOTE: 2010-2012 models utilize a CAC pipe that is 1/2" longer on one side. That long end goes into the CAC.



Ensure all connections and mounting hardware are tightened correctly at this point.

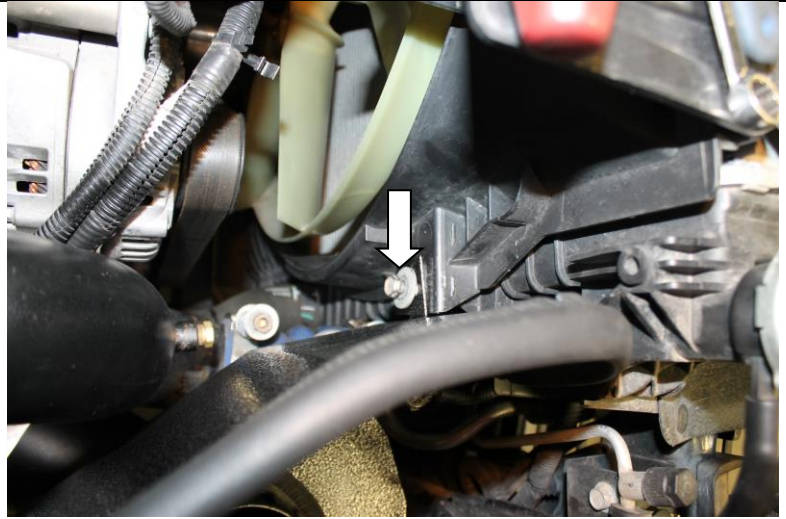
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- 46.** Install the custom Air box using the OEM hardware and the BD air filter.
13mm Socket



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- 47.** Test fit the downpipe to mark and cut the exhaust system to the correct length. Install down pipe, tighten the turbo side first then the exhaust pipe clamp. Torque v-band clamp to 18 ft/lbs
7/16" Socket
1/2" Socket

DO NOT ADJUST THE DOWN-PIPE ONCE THE V-BAND CLAMP HAS BEEN TIGHTENED. FAILURE TO ADHERE TO THIS WILL DESTROY THE V-BAND CLAMP AND ITS ABILITY TO SEAL.



- 48.** Reinstall the inner fender & wheel onto the Vehicle, refill coolant, and reconnect battery terminals.
8mm Socket

BE SURE TO PURGE THE AIR FROM THE COOLANT SYSTEM BEFORE RUNNING THE VEHICLE.



IMPORTANT When idled for any length of time some oil may leak from the turbo. If the performance/boost is satisfactory and the wheel is not touching the housing (There will be some small movement), the excess oil is not a concern. Simply wipe with a clean cotton cloth and continue use.

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Wastegate Adjustments

*YOU WILL NEED TO ADJUST THE
WASTEGATE!!!*

When either upgrading or installing the twin turbo kit the wastegate will need to be adjusted. This wastegate is adjustable by turning the actuator rod. To adjust the wastegate you will need to screw the rod clockwise roughly 3 complete turns. You can then take the vehicle for a test drive to customize the boost pressure to the vehicle. 2008-2012 vehicles can handle 60psi of boost pressure on a well maintained engine.

YOU SHOULD EFFECTIVELY RUN AS MUCH BOOST AS POSSIBLE TO KEEP YOUR EGTS IN CONTROL, BUT DO NOT EXCEED THE MAXIMUM BOOST PRESSURE.

BD WILL NOT BE RESPONSIBLE FOR ANY FAILURES OF THE VEHICLE'S HEAD GASKET.

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