

BD POWER CAMPLATE KIT

Installation Instructions

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.

NOTE: Unless this product has been identified with a CARB # it is only legal in California for racing vehicles which may never be used upon a highway.

Required Tools

- Fender Covers (To protect paint)
- 7/16" deep socket - 3/8" drive with 3" ratchet
- 10mm six point socket - 3/8" drive with extensions
- Tape or clean towels (To cover openings)
- 7mm and 1/4" six point sockets - 1/4" drive with 3" extensions
- 19mm socket - 3/8" or 1/2" drive
- Center punch 8-10" long
- Hammer to strike punch and hand impact tool
- Hand impact tool - 3/8" or 1/2" drive
- T15 & T20 TORX bits – 1/4" drive with 1/4" extension 6" long
- 1/4" to 3/8" and/or 1/2" adapter to hand impact tool
- 8mm, 6-point 1/4" drive socket
- Large standard screwdriver bit with 6" adapter for impact tool
- Large screwdriver or small pry bar
- Pliers
- 7/16" open-ended wrench
- 5/8" open-ended wrench
- Torque wrench (Capable of at least 30 ft. lbs.)
- RTV silicone sealant
- 8mm Allen wrench

-- BD CAMPLATE APPLICATION RATINGS --

CUMMINS PICKUP TRUCK Torque Plate#	#12 – 1040195	#11 – 1040194	#10 – 1040197	#8 – 1040193	#6 – 1040192	#5 – 1040196
Stock Ratings	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft
1994-95 Automatic 160hp 400 lbs. Ft --CPL#'s 1549, 1815, 1959, 1968	165/440	185/500	200/550	210/570	230/605	255/650 †
1994-95 Manual 175hp 420 lbs. Ft	190/500	210/550	220/570	230/605	250/635	270/675 †
1996-98 Automatic 180hp 420 lbs. Ft --CPL#'s CA, 1863 ** Stock injector orifice: .0095	190/500	210/550	220/570	230/605	250/635	270/675 †
1996-98 Manual 215hp 440 lbs. Ft CPL#'s 2023, 2175 Stock injector orifice: .0105	230/605	280/680	330/750 ††	NR	NR	NR

** - The California 96-98 manual and automatic are both EGR engines – 180hp & 420 lbs-ft, which may not be to CPL# 1553

† - Stock automatic transmission or manual clutch (whichever applicable) will not handle this rating

‡ - Exhaust temperatures will run hot and may cause damage without airflow improvements

NR – Not Recommended

CUMMINS MOTORHOME Torque Plate#	#12 – 1040195	#11 – 1040194	#10 – 1040197	#8 – 1040193	#6 – 1040192	#5 – 1040196
Stock Ratings	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft	BHP/lbs-ft
1992-97 Automatic 5.9L 6BTA 239HP/605 lbs-ft	250/635	270/690	290/710	NR	NR	NR
1991-96 Automatic 5.9L 6BTA 190HP 1996-99 Automatic 5.9L 6BTA 210HP	NR	220/570	230/605	240/645	260/660	NR
1993-96 Automatic 8.3L 6CTA 250hp	325/310	NR	NR	350/360	375/410	400/460

BD Engine Brake Inc.

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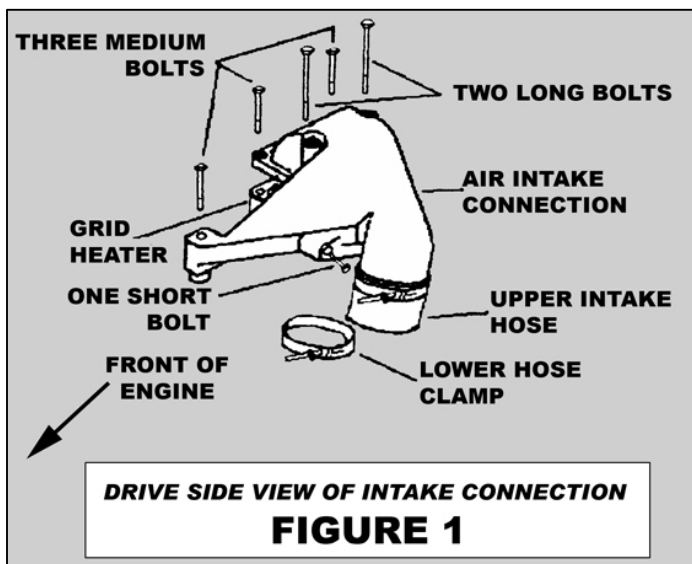
Installation

- 1) Park your vehicle in a suitable work location. Set your transmission in park (if automatic), manual transmissions into neutral and set your parking brake.
- 2) Take a note of your radio settings if you wish, as you will lose all stored memory in your stereo unit. Open your hood and disconnect **both** negative battery cables.

- 3) Clean the engine if necessary to keep debris and foreign objects from entering the engine.

- 4) Place fender covers or other protective covering to protect your paint and batteries.

- 5) Using a 7/16" deep socket, loosen the lower clamp on the upper intake connection hose and slide the lower clamp off of the hose and down the steel tube, out of the way. (See figure 1)

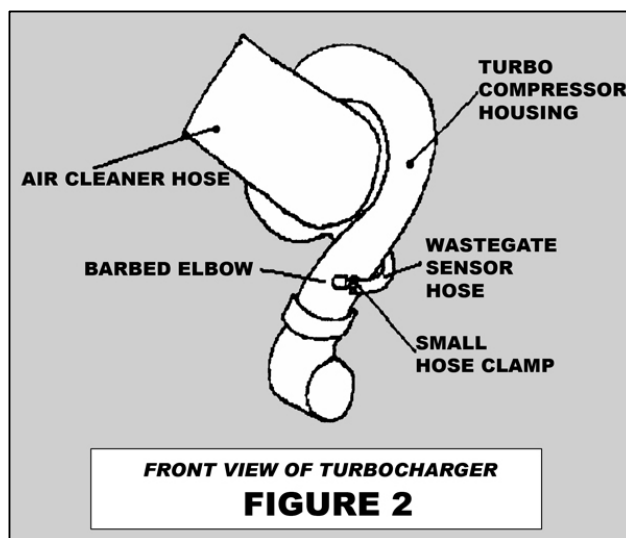


- 6) Remove the six bolts holding the air intake connection and dipstick tube in place using a 10mm six-point socket. **Take note of the bolt locations as they are different lengths and need to be re-installed in the proper location during re-assembly.**

- 7) Remove the intake manifold connection and hose as a unit, taking care not to damage the gasket. This gasket can normally be re-used, however if it is torn, replace it while lifting the air connection so that the gasket joint under the grid heater is not disturbed.

- 8) Cover the air tube and manifold openings with tape or towels to keep out any debris.

- 9) Determine where your vehicle obtains its wastegate pressure signal. Some vehicles pick up this signal at an elbow on the front of the turbo (see figure 2) while others get



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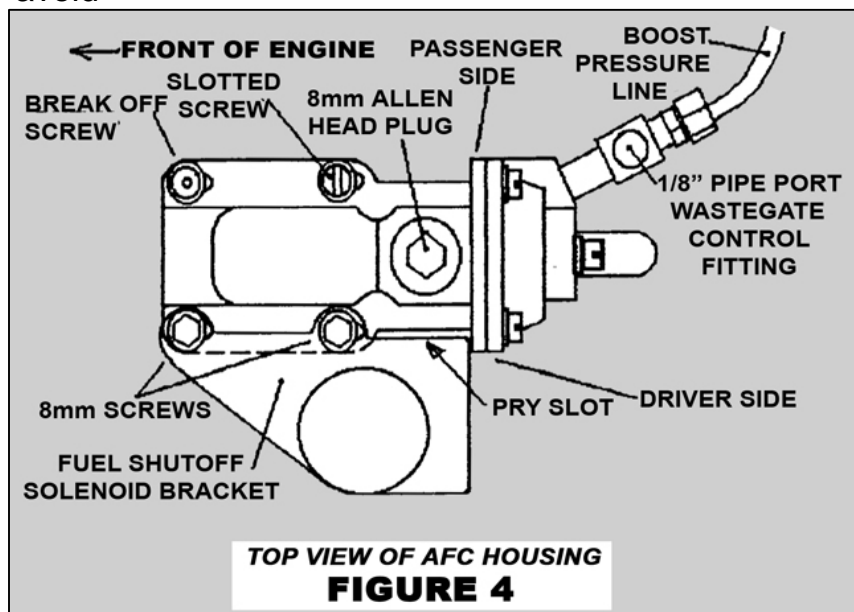
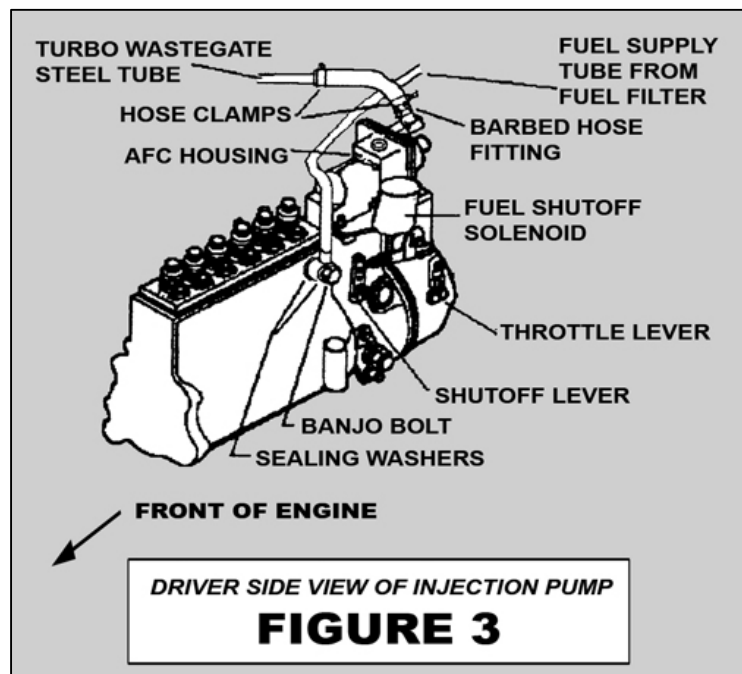
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the signal at a tee connected to the rear of the injection pump (see figures 3 & 4). If your vehicle is the system shown in figure 2, skip to step 11. If your vehicle gets its wastegate signal from the tee at the rear injection pump, loosen the hose clamps on the AFC housing to the turbo wastegate tube air hose using a 7mm socket. Disconnect the hose from the barbed fitting on the top of the fuel pump Air Fuel Control (AFC) housing. Slide the hose as far down as possible onto the steel turbo wastegate tube.

- 10) Remove the barbed fitting from the AFC housing using a 7/16" deep barrel socket.

NOTE: Save this barbed fitting in case you want to convert your engine back to stock; This fitting is not used with the Camplate Kit.

- 11) Remove the injection pump fuel supply tube banjo bolt using a 19mm socket. A few ounces of fuel will drain out which could wash the sealing washers away. **Do not to lose the sealing washers, as they need to be re-used.** In the event that you lose or damage them, re-order Cummins part number 3918192. **NOTE:** The fuel supply tube is not removed; loosening it on the injection pump end allows access to get to the AFC housing screws. You can avoid removing the banjo bolt if you bend the fuel supply line slightly to make access to the break-off screw. (See figure 4) This option saves some time, eliminates breaking into the fuel line, and starts the engine quicker at the end of the install.



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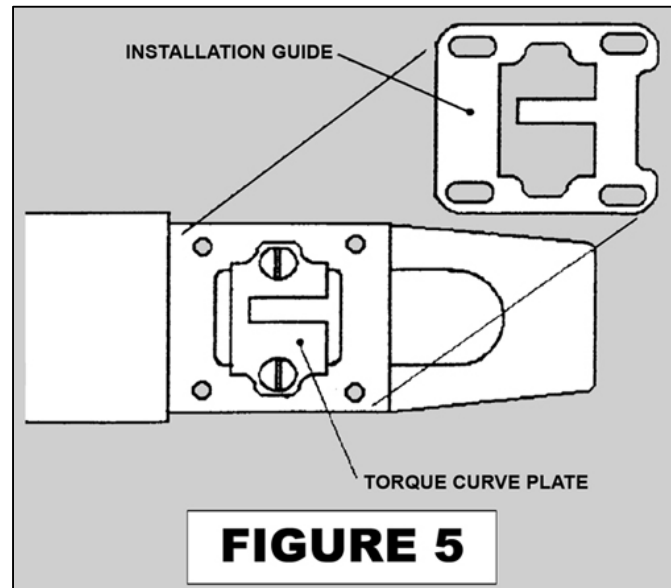
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- 12) Scribe the location of the AFC housing in relation to the pump. You will need to reattach the AFC housing in the same location.
- 13) Remove the front passenger side AFC housing break-off screw. This screw is a factory break-off screw with a rounded head and no screwdriver, Allen head or TORX slot (tamper proof). Use a hand impact tool with a 6" long ¼" extension and a T15 TORX bit to remove this screw. A center punch may be required to start a hole in the center of the screw. Set the hand impact tool in the removal position (counter-clockwise) and use light hammer taps on the impact tool to loosen the screw. Tap progressively harder allowing it to be re-installed later with the T15 TORX bit. In some cases, the hole in the top of the screw is too large for the T15 bit; In this case, use the T20 TORX bit. There is usually a lock washer and flat washer under each of these screws. As another option, you can use a sharp chisel to remove the break-off screw, chiseling in a counter-clockwise direction.
- 14) Use the hand impact tool and a 8mm socket to remove the two drivers side AFC screws.
- 15) Use the hand impact tool with a large standard screwdriver bit to remove the rear passenger side AFC screw.
- 16) Pry the fuel shutdown solenoid bracket away from the AFC housing using a larger screwdriver in the pry slot shown in FIGURE 4. This bracket only needs to move about 3/8" for clearance.

- 17) Lift the AFC housing and move it out of the way towards the rear of the engine. If your boost line is a plastic line, then it does not need to be disconnected. However, some engines have a metal boost line rather than a plastic line between the engine intake and the AFC housing. In this case, the boost line should be disconnected.



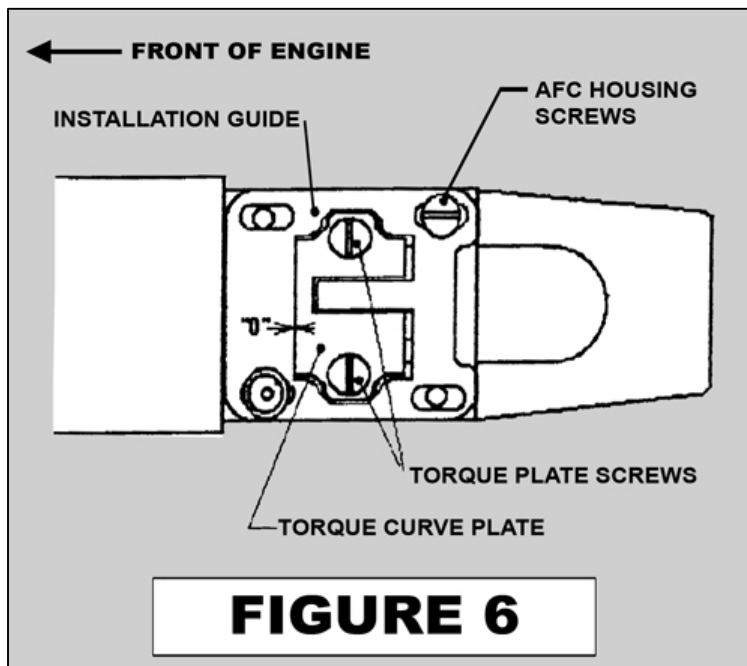
- 18) Place the black installation guide provided with the camplate kit over the torque curve plate (see Figure 5 & 6). This guide plate prevents objects from entering the open fuel pump and helps position the new torque curve plate.
- 19) Leave one of the torque plate screws tight while removing the other screw using the hand impact tool with a large screwdriver bit.

20) Move the removed screw and re-install it to one corner of the guide plate. Slide the installation guide as far towards the rear of the engine as possible so that there is zero clearance between the front edge of the torque curve plate flange and the installation guide (See Figure 6). Once zero clearance is achieved, hand-tighten the screw so that the guide does not move during the next four steps.

21) Remove the other torque plate screw and install it in another corner to help hold the guide in place.

22) Remove the stock curve plate using pliers or a magnet. Save the stock torque curve plate to permit converting the engine back to stock in the future.

23) Place the new torque curve plate in the same position that the stock plate was in, sliding it as far forward as possible so that there is nearly zero clearance between the front of the torque plate and the installation guide.



24) Install one of the two torque plate screws and hand tighten as tight as possible with a normal large screwdriver. Install the second screw. Using the hand impact tool and a large standard bit, tighten each screw another 1/8" to 1/4" turn.

25) Remove the installation guide and save it in case you want to convert the engine power back to stock.

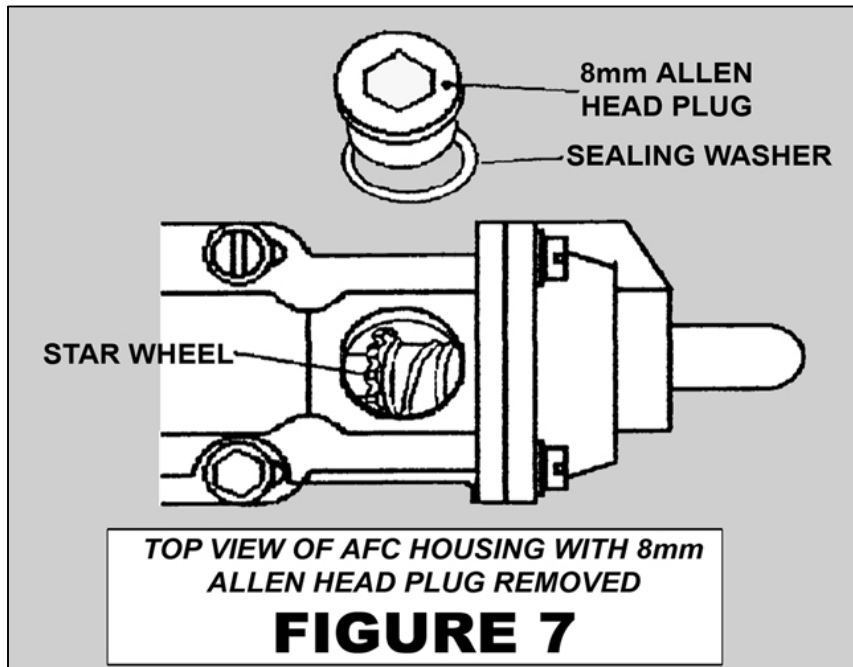
26) Be sure that the AFC housing seal is in its groove (it may require a small amount of grease or silicone sealant to hold it in place), and then carefully re-install the AFC housing. Do NOT force the housing into the plate; rather ensure that the tang on the bottom of the housing fits into the slot in the torque curve plate. Wiring harnesses, hoses and the shut-off solenoid bracket may need to be moved to get the housing to drop into its proper location.

27) Move the shut-off solenoid bracket back to its original position so that the AFC housing mounting screws will pass through the proper holes in the bracket and housing.

- 28)** Install the AFC housing hold down screws loosely into their original locations (see *Figure 4*).
- 29)** Tighten three of the AFC mounting screws (not the break-off screw) as tight as possible with a normal screwdriver. Be sure to align the AFC with the scribe location you made earlier. Use the hand impact tool to turn each screw an additional 1/8" to 1/4" turn. It is suggested that you successfully complete the test drive before breaking off the head of the break-off screw; Only tighten it slightly to keep it from falling out during the test drive. You can re-use the original break-off screw by installing it with a TORX bit.
- 30)** Install the turbo boost control (the small brass elbow supplied) into the 1/8" pipe port for wastegate control (see *Figure 4*) in place of the barbed hose fitting removed in step 10. If your vehicle senses manifold pressure at the turbo (see *Figure 2*), remove the crimp type clamp with pliers, remove the stock elbow and install the boost control elbow from the camplate kit in its place. Do NOT disturb the Allen head set screw in the brass elbow, as it will affect boost levels. Lightly tighten this fitting using a 7/16" open-ended wrench, and then continue to tighten until the barbed end aligns with the turbo wastegate tube.
- 31)** Install the hose removed in step 9 onto the brass barb of the turbo boost control. The AFC housing to boost pressure line fitting may need to be loosened slightly using a 5/8" open-ended wrench for good alignment of the hose. Tighten the two hose clamps loosened in step 8 using a 7mm socket. If your vehicle uses the system shown in *Figure 2*, use the new hose clamp supplied in the camplate kit, re-attach the hose and tighten the clamp using a 1/4" socket. For vehicles with the metal boost line that was removed, re-install it now.
- 32)** Remove the duct tape or towels from the previously covered openings. Re-install the air connection gadget and the air intake connection, starting with the rubber hose on the air intake tube first, then rotating the connection into position.
- 33)** Clean any debris from the threads of the air connection bolts, then place a small amount of RTV sealer sparsely on the first 3/4" of the threads, re-install the bolts to their original position and tighten to 18 lbs. Ft. using a 10mm six point socket and suitable torque wrench.
- 34)** Re-install the lower air connection hose clamp and tighten it hand tight. Do NOT strip the threads on the clamp bolt. Check the other seven air circuit clamps, ensuring the four hoses and eight clamps are not leaking air.
- 35)** Remove fender and battery cover, lights, tools, etc., and re-connect the battery cables.

36) Start the engine and check for any leaks. Since there was an amount of fuel drained from the injection pump fuel supply tube, it is normal to take several seconds of cranking before the engine will start. Don't panic, this is normal. Depress the throttle to about half throttle position and crank the engine no more than 30 seconds. Let the starter motor cool for 2 minutes before attempting to crank for another 30 seconds. The engine will normally start during the first 10 seconds of cranking. If after four 30-second attempts the engine has not started, check to make sure the fuel shutoff solenoid and shutoff level are moving when the key is turned from off to start. When the engine starts, release the throttle back to the idle position and check under the hood for leaks.

37) Test-drive the vehicle - It should now have much more power and quicker acceleration than before. Observe the acceleration rate and smoke level. If the vehicle is still slow to accelerate or has too much smoke, adjust the AFC setting by removing the large plug on top of the AFC housing (see *Figure 7*) using an 8mm Allen wrench. Take care not to lose



the sealing washer under the plug. Removing the plug exposes a star wheel, which changes the quickness of fueling response to boost. If the acceleration is weak with minimal smoke, rotate the top of the star wheel towards the engine a few revolutions. If the vehicle has heavy black smoke on initial acceleration, rotate the top of the star wheel away from the engine a few revolutions. Re-install the large plug with the sealing washer and test-drive the vehicle again. It may take a few repeated attempts to get this adjustment set. If the heavy smoke is still encountered with the star wheel moved completely to the rear position, go back to step 26, loosen the AFC housing and slide it rearward a 1/16" inch, re-tighten and test again. Repeat until desired results occur.

38) To make your installation look more professional, paint the new parts and chips on the screws and bolts with matching engine paint. Cummins paint part number 3822975 "blue" matches earlier engines that appear grayish-bluish-black. Later engines are painted with a glossy black 3824514 "titanium black".

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If you have any technical questions about this or other products, call the BD Sales & Technical Support Line at (800) 887-5030, Monday to Friday, 8:30am – 5:00pm PST.

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LIMITED WARRANTY STATEMENT

BD Engine Brake, Inc., Valley Fuel Injection Ltd., BD Diesel Performance, Turbocharger.net (the "Seller") warrants the following product(s):

All products manufactured or rebuilt by the Seller are to be free from defects in material or workmanship which includes but is not limited to Turbochargers, Exhaust and Intake manifolds, Exhaust brakes, Intercoolers, Flex Plates, Transmissions, Torque Converters, Oil pans, Fuel pumps and systems, Electronic monitors and control systems. The Seller warrants to the original buyer of the product (the "Buyer") that it will repair or replace, free of charge, any product which has a defect in material or workmanship within the warranty period described below. Copy of original invoice is required to qualify for warranty.

A defect is defined as a condition within the product that would render the product inoperable under normal conditions of use and service. The Seller's responsibility under this Warranty is limited to the repair or replacement, at the Seller's option, of any warrantable product returned prepaid with a complete service history and proof of purchase. A valid proof of purchase is a dated bill of sale or receipt.

A Return Material Authorization (RMA) number, obtained in advance from a customer service representative of the Seller and the dated bill of sale or receipt, must accompany any product returned by the Buyer for warranty determination. The Seller will be the final authority on the approval of all warranty claims hereunder. The issuance of a RMA number does not represent an approval of a warranty claim. All repaired or replaced products will be returned to the Buyer freight collect. Accepted warranty products, which have been replaced, will become the sole property of the Seller.

Until the Seller has approved a warranty claim, the Buyer will be responsible for all costs. Replacement parts and the labor costs incurred by the removal and replacement of the product while performing warranty work will be the responsibility of the Buyer. In no case does the obligation of the Seller exceed the original purchase price of the product as indicated on the original bill of sale or receipt. Under no circumstances will the Seller be liable for any travel time incurred in diagnosis for defects, or any other contingent expenses.

Once the claim is approved and within a 1 year period of original purchase Labor costs incurred will be considered for the removal and replacement of an eligible part while performing warranty work, at a rate of 55.00 per hour at authorized centers with prior approval of the Seller. Freight is FOB Abbotsford, B.C. Canada.

To the extent permitted by law, the Buyer hereby waives all rights other than those expressly set out herein and acknowledges that this warranty sets out the Buyer's exclusive remedies with respect to products covered by it. This warranty shall not be extended, amended or varied except by written instrument signed by the Seller and the Buyer.

The Seller will administer warranty requests on products sold by the Seller and not manufactured by the Seller by forwarding claims made by a Buyer under the manufacturer's warranty to the manufacturer. The final disposition of such claims will be made by the manufacturer and ruled by the laws of British Columbia, Canada.

Customer assumes risk in purchasing product with in 30 days may return the product for exchange of other BD products or services only. No cash refunds are available.

Please refer to Warranty time limitation per product.

NOT COVERED UNDER THIS WARRANTY

This warranty is limited to the original purchaser of the product and is not transferable to subsequent owners. Specifically excluded from this warranty are failures of products caused by misuse, misapplication, negligence of the Buyer, accidents, modification, abuse, improper storage, installation, repair or operation, use of unauthorized parts or other mistreatment of the Buyer or his agent. Any competitive use, sled pulling, drag racing will void warranty on product. A sheared or twisted shaft, broken planetary gear sets, burned clutches, broken drive hubs, sun gear damage, cracked housings is not covered. Fluids and filters or damage caused from fuel or air contamination, BioDiesel, low fluid levels. This warranty does not cover deterioration of plating, paint or any other coating, linings or parts that are subject to normal wear and tear, such as light bulbs, fuses, bearing wear, seal wear, etc.

If product is not installed by a trained and authorized BD dealer, installation facility must prove it is properly tooled and has certified training to have installed or to carry out repair of product.

The Seller also disclaims any liability for incidental or consequential damages including but not limited to, repair labor, rental vehicles, hotel cost or any other inconvenience cost. To the extent permitted by law, this warranty is in lieu of all other warranties or guaranties, either expressed or implied, included the implied warranties of merchantability and fitness for a particular purpose and shall not extend to any Buyer or to any person other than the original purchaser residing within the boundaries of the continental U.S. or Canada. As well the seller is not responsible or obligated to update previously manufactured parts that are currently under the above warranty.

NOTE THAT THIS GUARANTEE WILL BE VOID IF THE USER BREACHES THE CONDITIONS IN THE SECTION LABELED "NOT COVERED UNDER THIS WARRANTY" AND IS ONLY APPLICABLE ON THE PRODUCTS THE SELLER MANUFACTURES.

DISCLAIMER OF LIABILITY

Other than as expressly set forth herein, the Seller, together with its distributors, jobbers and dealers shall in no way be responsible for the product's proper use and service. In no event shall the Seller be liable for any special, incidental, indirect or consequential damages of any kind or nature, whether or not the Buyer was advised of the possibility of damage, arising or resulting from the use or performance of the product, and the Buyer hereby waives any and all such claims.

The Buyer acknowledges that he/she/it is not relying on the Seller's skill or judgment to select or furnish goods suitable for any particular purpose and that the Seller has no liability that will extend beyond the scope of the limited warranty contained herein, and the Buyer hereby waives all remedies or liabilities, expressed or implied, arising by operation of law or otherwise, (including, without limitation, any obligations of the Seller with respect to fitness for any particular purpose; merchantability; and special, incidental, indirect or consequential damages) or whether or not occasioned by the Seller's negligence.

The Seller disclaims any warranty and expressly disclaims any liability for personal injury or damages related to the Buyer's use of the product. The Buyer acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this Agreement and the Buyer agrees to indemnify the Seller and hold the Seller harmless from any claim related to the product and its use or performance. Under no circumstances will the Seller be liable for any damages, liabilities, costs or expenses incurred as a result of by reason of the use, performance or sale of the product, including without limitation, any damages, liabilities, costs or expenses incurred by reason of the Buyer's negligence related to those uses of the product as a result of the removal of the speed limiter.

The Seller assumes no liability regarding the improper installation or misapplication of the product. It is the installer's responsibility to check for proper installation, and, if in doubt, contact the manufacturer.

Limited Warranty Details			
Product Name	Parts	Labour	Notes
	(Months/Miles)¹	(Months/Miles)^{1, 2}	
Torque Converters (Dodge)	36/ 150,000	12/12,000	No Race abuse covered
Torque Converters (Ford & Allison)	36/ 150,000	12/ 12,000	No Race abuse covered
Transmissions	36/ 150,000	12/ 24,000	No Race abuse covered
Race Transmissions	12/ 24,000	Not Eligible	
Valve / Accumulators Bodies	12/ 24,000	12/ 24,000	
Transmission Pans	36/ 150,000	Not Eligible	
Auto / Torq / Towloc's	12 / 24,000	Not Eligible	
Flex Plates	36/ 150,000	Not Eligible	
Injectors & Injection Pumps	12 / 24,000	12/ 24,000	Race Pumps 90 days parts/No labour
Tuners and Chips	Manufacturer ³	Not Eligible	
X-Monitor / Cool Down Timers	12/ 24,000	Not Eligible	
Intake / Exhaust Manifolds	36/ 75,000	Not Eligible	
Exhaust Kits	24 Months	Not Eligible	Surface rust not eligible
Turbo Guards / Boost Builders / Waste Gate Kits	12/ 24,000	Not Eligible	
Intercoolers / Hoses / Clamps	12/ 24,000	Not Eligible	
Transmission Coolers	Manufacturer ³	Manufacturer ³	
Manual Transmission Clutches	Manufacturer ³	Manufacturer ³	
Short Shifters	12/ 24,000	Not Eligible	
Engine / Head Stud kits	Manufacturer ³	Manufacturer ³	
Engine Brakes	24/ 24,000	12/ 24,000	
Steering Stabilizers / Sway bars	12/ 24,000	Not Eligible	
Boost Coolers	Manufacturer ³	Manufacturer ³	
Gauges and Mounts	Manufacturer ³	Manufacturer ³	
Performance Turbos	12/ 12,000	Not Eligible	
FlowMAX Fuel Pumps	60/ 75,000	Not Eligible	
Auxiliary Fuel Pumps	12/ 12,000	Not Eligible	

A Return Material Authorization (RMA) number, obtained in advance from a customer service representative of the Seller and the dated bill of sale or receipt, must accompany any product returned by the Buyer for warranty determination.

¹ Warranty is based on whichever occurs first (Months or Mileage).

² Prior approvals must be given to qualify for labour reimbursement.

³ As per Manufacturer's warranty

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