POWER DRIVEN DIESEL

AFC LIVE INSTRUCTION MANUAL

POWER DRIVEN DIESEL | 660 N 800 W, Cedar City, UT, 84721

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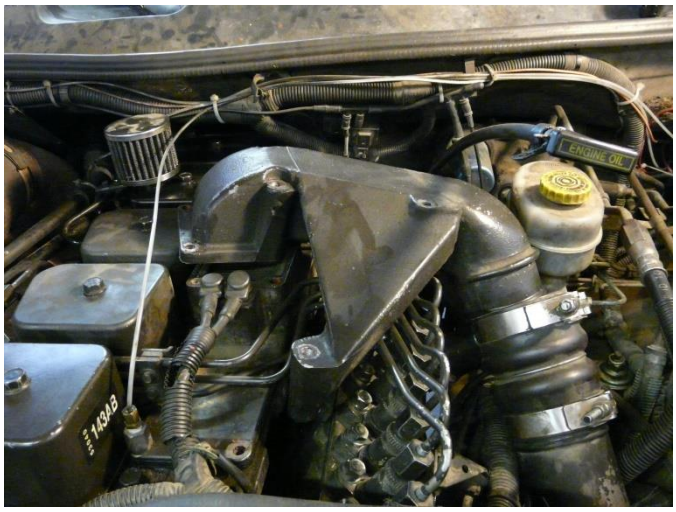
Power Driven Diesel, 660 N 800 W, Cedar City, Utah, 84721 PH: (435) 962-9555 Email: Info@powerdrivendiesel.com

Installation Instructions for AFC LIVE

(Patent Pending)

(P7100 Pump Install for Dodge Ram Trucks 1994 thru 1998 model year)

Basic Install (Allow 1 hour)



1. Remove air-intake horn by removing (5) 10mm bolts, (1) 10mm dipstick bolt, and loosening (1) 7/16" t-bolt clamp on the air-take hose. Take care when removing the intake horn to not damage the gasket at the mating surface, normally this gasket can be reused, but if it is damaged a replacement is available from Cummins, part number 3913352.

2. Remove the factory original AFC air/boost line using a 13mm wrench and air/boost line fittings using an 11mm wrench.

3. Install the two new 90°composite fittings (provided in the kit), one in the cylinder head and one in the AFC threaded hole where the stock fittings were removed in step 2 above.

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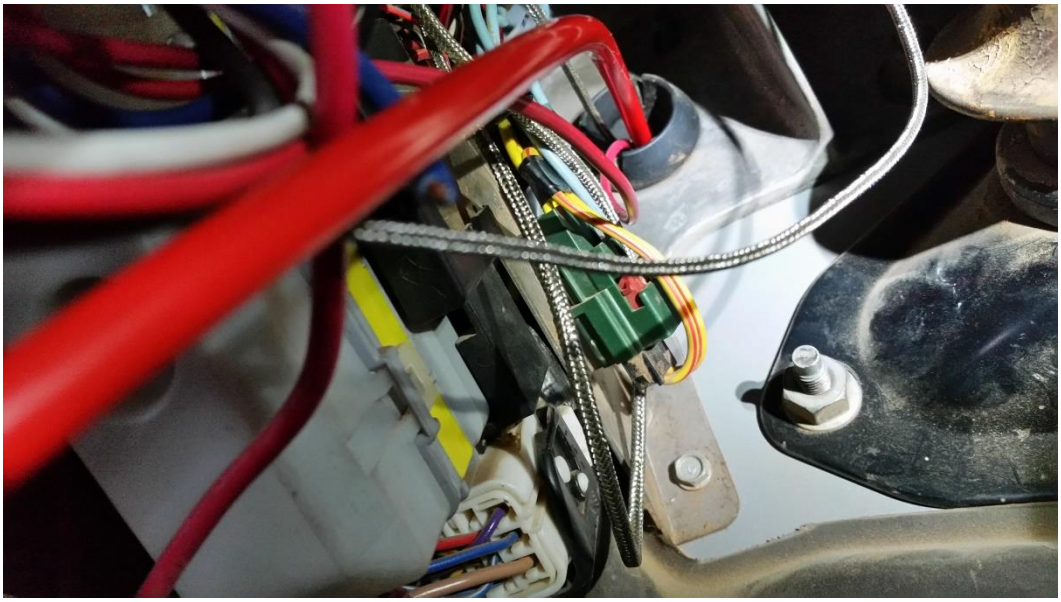
4. Temporarily place the AFC LIVE control box in the passenger compartment and uncoil the plastic 5/32" air lines. Pull the (2) plastic 5/32" air lines from inside the passenger compartment through the firewall into the engine compartment. Use an existing rubber grommet in the firewall such as the main wiring loom or grommet where the clutch master cylinder normally resides if installing on a truck equipped with an automatic transmission. Tech Tip: a piece of wire can be fished through the firewall from the engine compartment and used to pull the plastic 5/32" air lines back through from the passenger compartment.



5. Mount The Aluminum Plate using the provided screws to your desired mounting location. Using the heavy duty Hook & Loop (provided in kit), peel backing from one piece and firmly press it to the back of the AFC LIVE control box. Push and slightly twist the other piece of Hook & Loop to the Hook & Loop previously installed on the control box. Peel the backing plastic and then firmly press the AFC LIVE control box to your Aluminum Plate in your desired mounting location. **Tech Tip: dry-fit the mounting box before peeling the backing to ensure it will fit and is still reachable while driving the truck.**

6. Pull the extra red airline slack through the firewall into the engine compartment checking to ensure the airlines do not become kinked.

7. Connect air lines to the two composite 90° fittings previously installed at the cylinder head and AFC in step 3 above by pushing the lines into the quick connect ends. **Important Note:** The airline marked with tape must be connected to the cylinder head (boost source). The other airline without markings must be connected to the AFC. Excess slack can be coiled up in the engine

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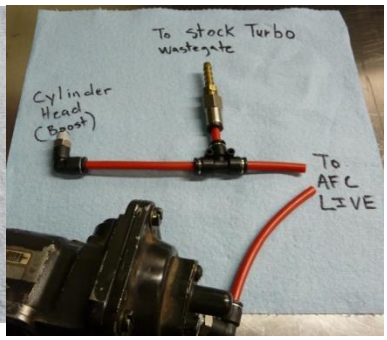
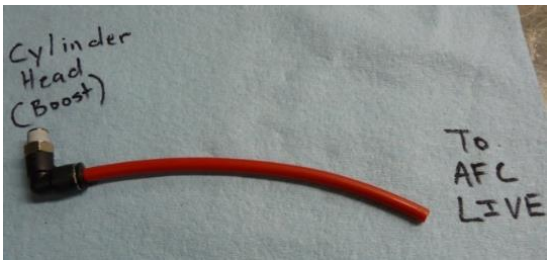
compartment and neatly zip-tied, or the airlines can be trimmed to the proper length at the quick-connect composite fittings after neatly routing them in the engine compartment.


Important Note: for trucks with the factory original HX35 turbo

8. The OEM setup has a tee located on the AFC housing that feeds boost pressure to both the AFC and the factory wastegate crossover tubing that runs across the middle of the cylinder head and down to the turbo. If you choose to retain factory wastegate function, which limits boost to the mid 20 psi range, install the (provided in kit) new composite tee and 1/8-27 threaded adapter in-line on the boost/airline tubing coming from the cylinder head and re-use the factory threaded barb to reconnect the factory crossover for the wastegate. If the tee is not installed, the wastegate will be disabled which will allow for more boost pressure, more power, and better EGT control which is desirable for most truck owners. **Caution: exceeding 42 psi boost pressure on the factory HX35 turbo will dramatically shorten its service life.** If you want the HX35 to last for several hundred thousand miles, limit peak boost pressure to 36 psi or less. (On some late 1998 model trucks, the OEM setup does not have a tee for the wastegate boost source crossover tubing; instead they have a boost pressure port on the turbo itself with a short run of silicone hose to the turbo-mounted wastegate, if more boost pressure is desired the brass 90° fitting can be removed and plugged or an adjustable boost elbow can be purchased and installed in place of the brass 90° fitting.)

9. Re-install the factory air-horn (ensure the gasket is still in-tact), dipstick clamp, and intake hose. Tech Tip: Use a small amount of RTV sealant or silicone on the first few threads of the air-horn bolts to eliminate future small boost leaks at the bolt locations.



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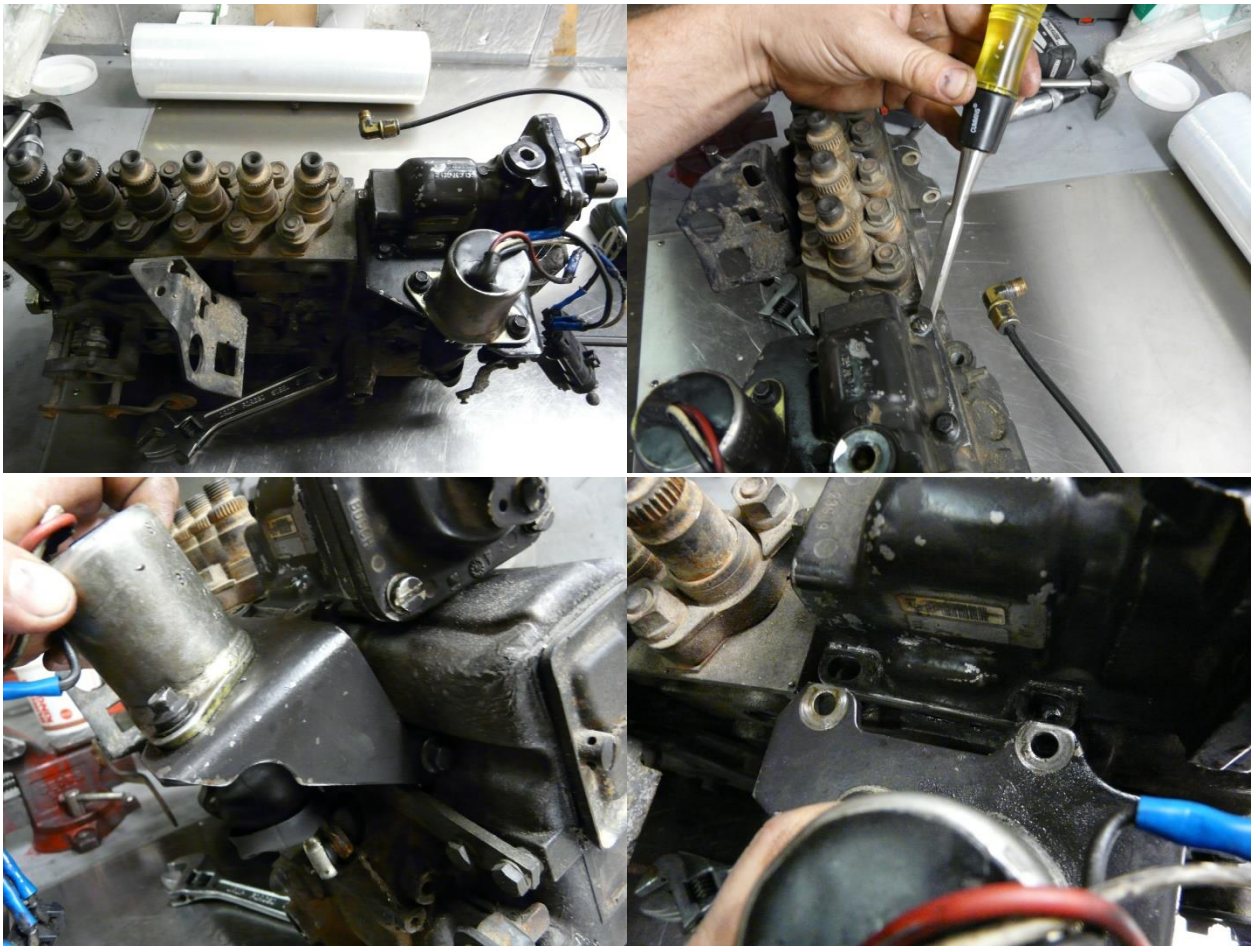
Installation Instructions for AFC Max Travel Kit

(Aneroid Fuel Control Modification for Dodge Ram Trucks 1994 thru 1998 model year)

10. **AFC Max Travel Kit (Allow 1.5 to 2 hours for installation)** Remove the factory AFC by removing (3) 8mm bolts and (1) tamper-proof screw. A sharp wood chisel can be used to make a slot in the taper-proof and then a screw driver can be used for removal; other methods include grinding a slot with a small Rotary tool or die grinder, using a chisel on the edge to turn the screw, grinding off the head with a small grinder, etc. Fuel injection lines and low pressure feed line removal may be necessary to gain access to remove the tamper screw depending on removal technique and tool size. (Previously modified trucks with an aftermarket fuel plate have already had the tamper screw removed so this step is usually very quick and easy) After removing the bolts, push the shutdown solenoid assembly toward the driver's side front tire so the bracket slides off the AFC. (Sometimes it may be necessary to slightly loosen (1) 8mm bolt on the lower bracket if it's too tight to pivot) Remove the AFC from the truck, being careful to not drop anything into the now open injection pump governor housing.



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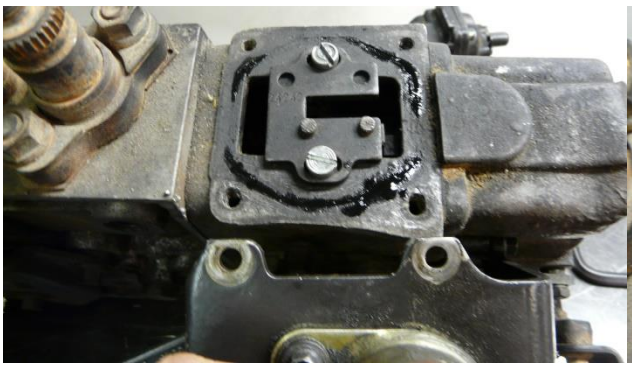
11. Remove the fuel plate being careful to not drop screws or washers into the open governor housing. If the fuel plate is left installed, it will limit injection pump fueling long before the AFC reaches full travel. This AFC Max Travel Kit is designed to provide full AFC foot travel, therefore fuel plate removal is recommended. **It's advisable to use a magnet when removing the screws.**




12. Take the AFC to a suitable working location (work bench). Remove AFC cover by removing (3) flat-standard screws and grinding a slot in (1) tamper-proof screw and then removing screw. Also grind a slot in the tamper-proof screw on the small pre-boost fuel cover and remove the cover. A sharp chisel can also be used to make a slot. Pliers or vice grips are another method for tamper screw removal.


13. Under the AFC back cover is a red rubber-like diaphragm. Remove the 10mm nut, small washer, large washer, diaphragm, inner cupped washer, and stock AFC spring.



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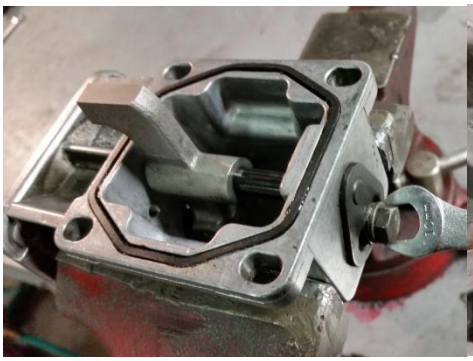
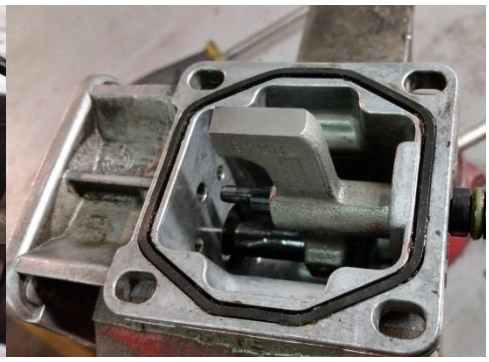
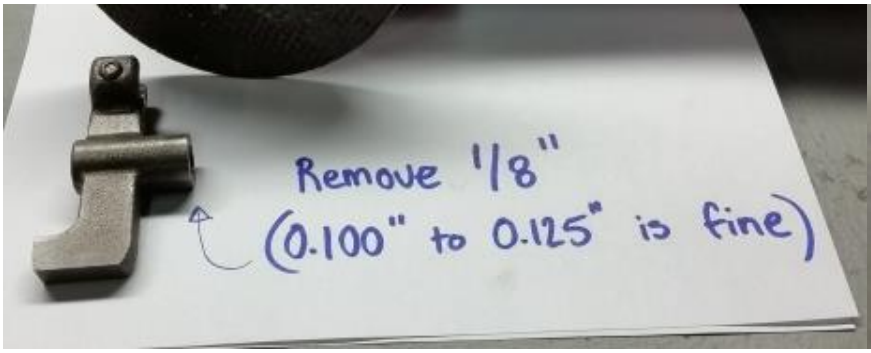
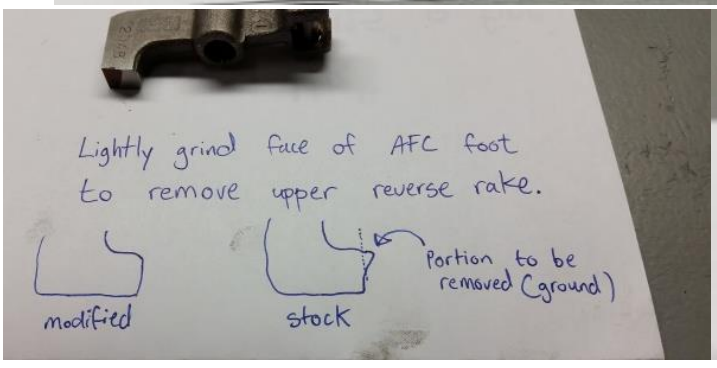
14. Next, remove the AFC foot by removing (1) 10mm bolt and using a screw driver to pry the guide rod assembly free from the AFC housing.






15. Using a grinder or cut-off wheel, remove 1/8" (0.125") from the guide barrel of the AFC foot, for maximum AFC foot travel a minimum 0.100" must be removed. Optional: lightly grind the face of the AFC foot to remove the reverse/negative rake on the upper portion of the foot. The dark portion of the foot face in the picture is left stock, only the upper half is lightly ground flat to remove the upper reverse rake.



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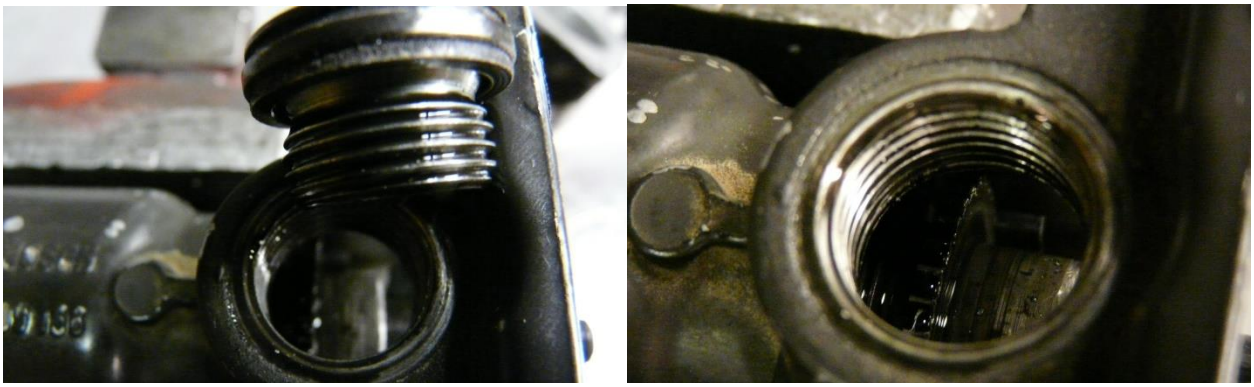
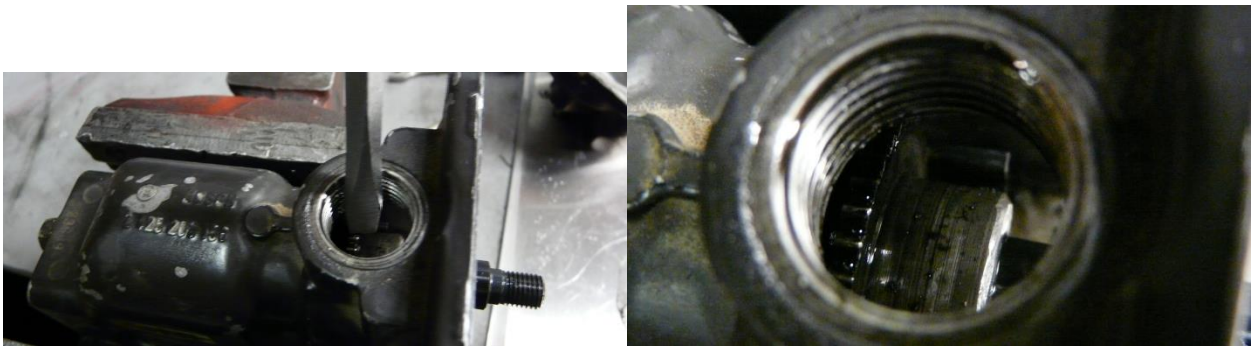
16. Clean and re-install the AFC foot by installing the guide rod into the housing and through the AFC foot/barrel. Install the AFC foot facing rearward towards the AFC diaphragm like the stock orientation pictured in step 6 above. Note the orientation of the guide rod tab vs. bolt so the AFC foot height can be reset to the stock setting, it's typically not fussy but if the old orientation wasn't noted, start with the slotted tab centered over the bolt hole as pictured.

17. Remove the 5/16" or 8mm allen socket plug on the top of the AFC to gain access to the star wheel. If this plug has never been removed, it will be pretty tight and may require a vise to hold the AFC when breaking it loose. (It's regular standard thread: righty-tighty, lefty-loosey)



18. Turn the star wheel clockwise (as viewed from the open diaphragm side of the housing) to thread it deeper into the AFC housing, stop when the star wheel bottoms out in the housing when using a custom Power Driven AFC spring. Tech Tip: The farther the star wheel is threaded into the housing, the lower the pre-load tension on the AFC spring which allows for more AFC travel for the same amount of boost. If the star wheel is turned in all the way loose when using the stock AFC spring, the spring will be too short to control the first few millimeters of AFC foot travel and will result in excessive smoke/fueling. Power Driven AFC springs are longer than stock and provide control of the AFC foot with the star wheel turned-in all the way till bottomed out in the housing.



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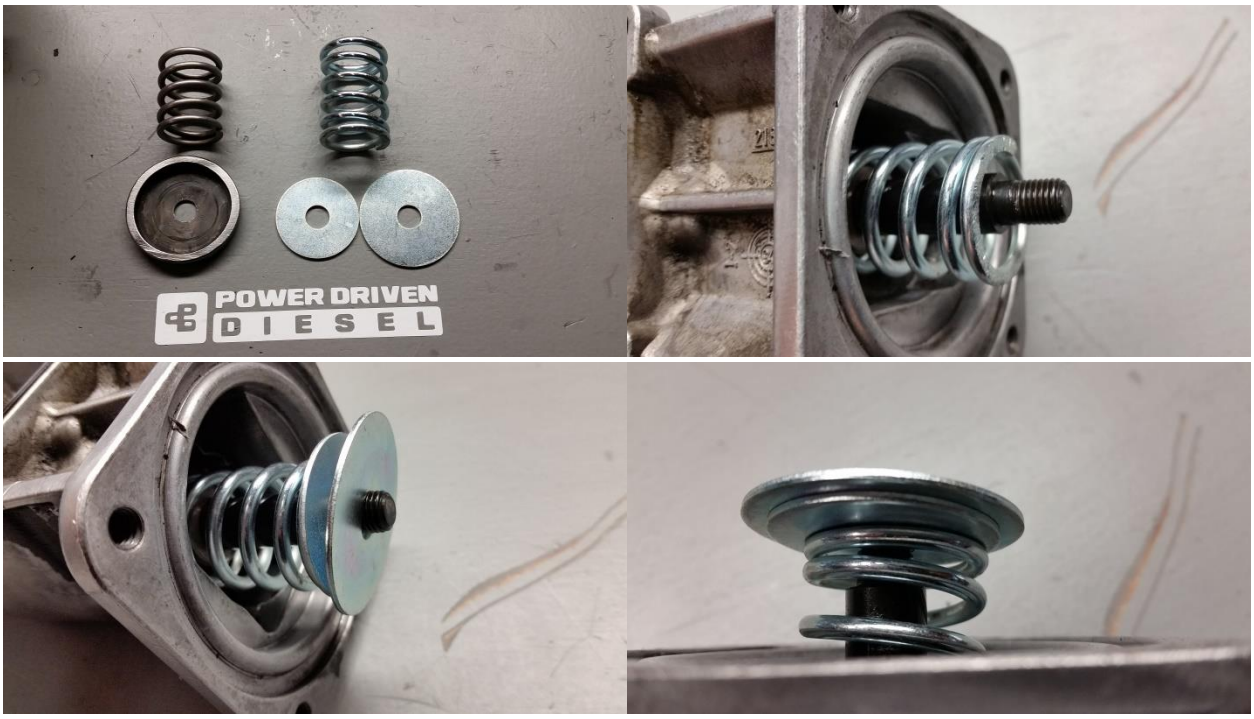
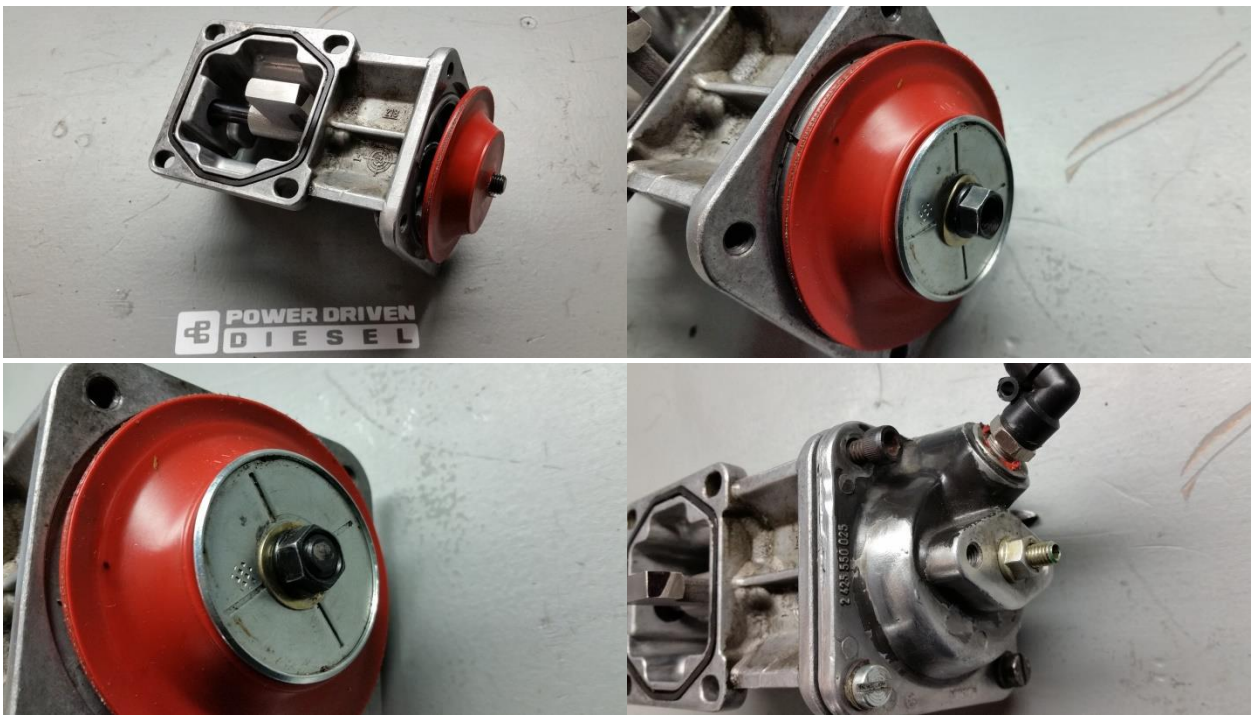
19. Discard the cupped washer and stock AFC spring. Install the new Power Driven AFC spring, then the smaller washer followed by the larger washer provided in the kit.



20. Reassemble the AFC by placing the red diaphragm over the top of the new washers, then sandwich the diaphragm with the original washer, small washer, and tighten the 10mm nut until the red diaphragm is secured between the washers. Locate the AFC diaphragm cover and loosen the 10mm locknut on the pre-boost (smoke screw), and back out the 3mm allen screw until it is flush with the inside face of the AFC diaphragm cover. Then install the AFC diaphragm cover using the (3) stock screws and (1) new M6x1.0 allen screw provided in the kit.



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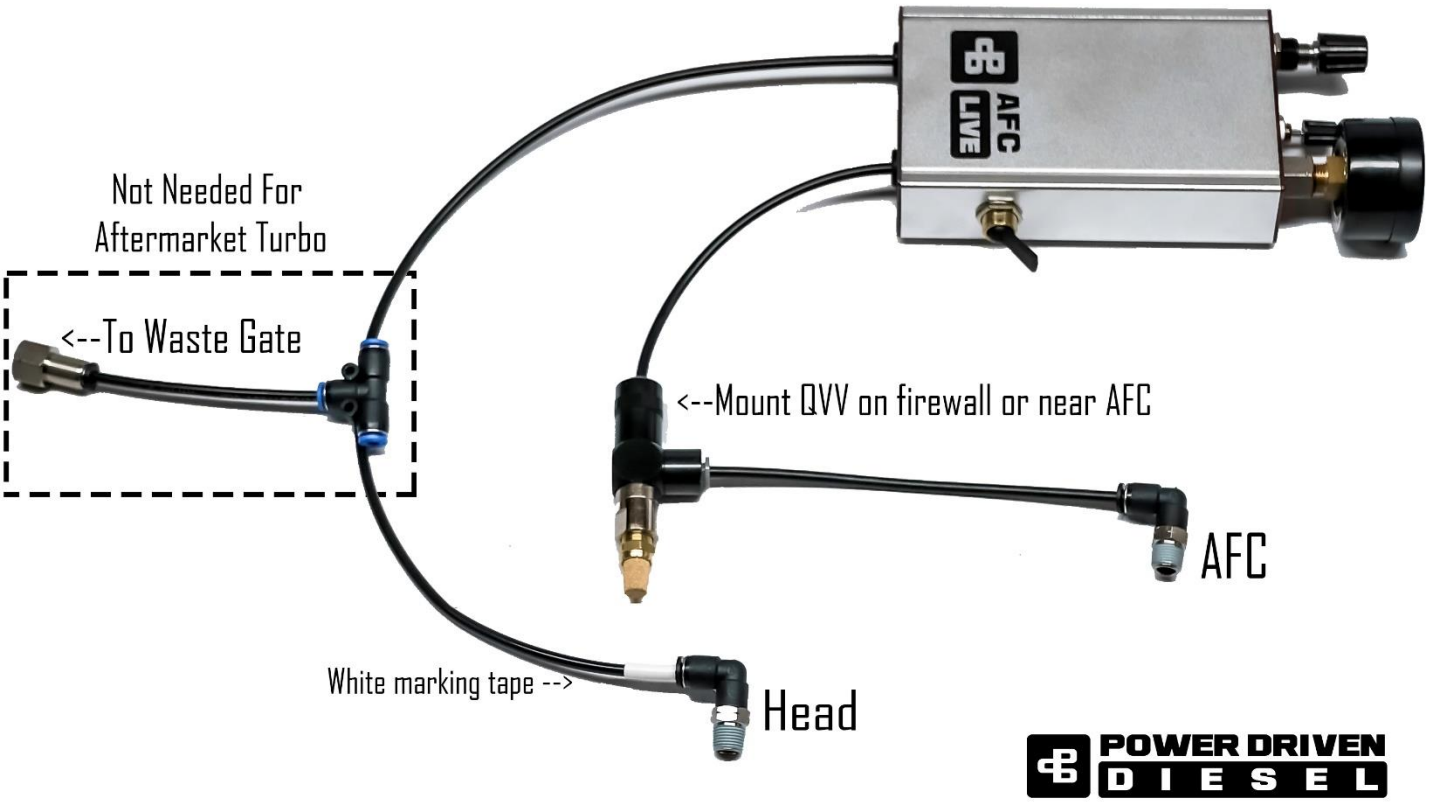
21. **If using a Power Driven AFC spring, skip this step.** If using a stock AFC spring: use hand pressure to push on the AFC foot to see if it has some spring tension, if the foot is able to free travel, tighten the star wheel adjuster until the spring is tight enough to control foot travel.
22. Using a 3mm Allen wrench, adjust the pre-boost screw (smoke screw) by threading it in till it barely contacts the AFC's internal assembly and the AFC foot begins to move. For stock trucks (stock injectors & stock delivery valves) start with 1.5 full turns past initial contact. For heavily modified trucks with larger injectors, start with ¼ turn past initial contact, then tighten the pre-boost screw using a 10mm wrench on the retaining nut. For easy future adjustment, **it's advisable to not re-install the small pre-boost fueling (smoke screw) metal cover.**
23. Re-install the AFC on the injection pump by pushing the shutdown solenoid assembly up onto the AFC and then using the (3) 8mm headed bolts and (1) ground or slotted tamper-screw tighten the AFC assembly to the injection pump. Note the slotted bolt holes in the AFC that allow it to be slid forward toward the front of the motor or rearward toward the passenger compartment about 1/8" of total adjustability. Installing the AFC Full forward will typically make the most power **but can cause excessive pre-boost smoke** if the pre-boost screw is set too aggressively. For most trucks, it's advisable to start with the AFC at the 25% forward from the firewall/rearward position. If hard starting is encountered, either slide the AFC forward a touch more, or add ½ turn in on the pre-boost set screw.
24. Re-install any injection lines or low pressure feed lines if they were previously removed. Tech Tip: Leaving the first (2) injection lines loose at the injectors will help bleed air upon initial startup. Once fuel appears at the loosened lines, stop cranking the motor, tighten the two lines, and then the truck should fire up quickly.
25. Install the QVV anywhere you would like (recomended outside the cab, it will make noise) in the 5/32" line going to the AFC Housing.

AFC LIVE CONNECTION MAP



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Tuning Instructions for AFC LIVE

AFC Live Can Only Fuel to the Minimums That Your AFC Housing or Pump is Set To

1. For max fueling control (maximum rack travel in the pump) turn the large red colored control knob. Turning the knob clockwise will increase maximum fueling, turning the knob the opposite direction will decrease maximum fueling for EGT reduction or reduced total power.
2. For smoke and throttle response control, the smaller black knob is turned in (clockwise) for less smoke and less throttle response or turned out (counter-clockwise) for more smoke and increased throttle response.
3. If the truck is heavily modified with large fueling upgrades, it is sometimes necessary to reduce pre-boost fueling beyond the minimum settings of the control knobs. This requires AFC adjustment(s) under the hood via loosening the (4) hold-down bolts and sliding the AFC rearward and/or loosening the pre-boost smoke screw setting using a 10mm wrench to loosen the jam nut and a 3mm Allen wrench to back-out the pre-boost screw. **Note** under-hood adjustments are only necessary when minimum fueling settings on AFC Live do not produce the desired smoke-free tuning result, this is not common.
4. If AFC LIVE stage 2 was installed, the integrated gauge is there to assist with tuning and displays the total pressure running through AFC LIVE to the AFC. The full power mode toggle switch is also available for extremely quick tuning from tuned (towing/fuel economy/smoke free mode) to full power mode (kill mode) at the flip of the switch. Turn the switch up where it points toward the tuning knobs for tuned mode, flip the switch down away from the knobs for full-power/ non-tuned mode.

Enjoy your new-found **CLEAN POWER!**

Thanks,

Will & Todd – Power Driven Diesel

For Install Help Check Out Our Install Video on Youtube.
https://www.youtube.com/watch?v=z70FjCHY7WA&t=357s

For Trouble Shooting Check Out Our AFC live Q&A on Youtube.
https://www.youtube.com/watch?v=K8FjIYphqCY&t=40s

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