Please read all instructions before installation.

The stock governor springs begin to restrict fuel rack travel as soon as 2100 rpm and by 2250 rpm the fuel is restricted to the point the engine will not accelerate under load. Installation of the governor springs is not difficult and will eliminate fuel starvation problem noted above up to 4000 rpm.

Note: If you intend to operate the engine over 3200 rpm you should replace the engine valve springs with a heavy duty type.

Components supplied in kit:

- (2) Large outer springs
- (2) Intermediate springs
- (2) Small inner springs
- (2) Spring retainers

Tools required:

- 7/16” wrench or deep socket
- 8mm, 10mm, 15mm and 22mm socket
- Ratchet with extensions
- Dial and/or Vernier calipers
- Mechanics magnet or a strong magnet taped to a rod or screwdriver
- Large flat blade screwdriver
- 5mm allen wrench and Phillips screwdriver
- Clean rags or paper towels
Important! Keep the parts / tools clean and don’t knock dirt or debris into the injector pump!

1. Remove the lower band clamp on the turbo boost hose.
2. Remove the oil dipstick clamp bolt from the intake horn.
3. Remove the 5 intake horn bolts and remove intake horn (with boost hose attached).
4. Loosen the hose clamp and remove the wastegate hose from the AFC control.
5. Remove the boost sense line from the back of the AFC housing.
6. Remove the two AFC housing bolts on the fender side which also holds down the fuel shutdown solenoid bracket.
7. Remove the two AFC housing bolts on the engine side.
8. Remove the AFC housing and set it aside.
9. Remove the two torque plate screws and the torque plate.
10. With torque plate removed look into pump cavity and look for the governor weight and spring. If it is not visible, bar the engine (rotate) forward (use 15mm wrench on the crankshaft pulley bolt) or backward (22mm on the alternator pulley bolt) until the spring is positioned in the center of the opening. This position will be “off-center” toward the fender side of the pump so that the spring and retainers can clear the fuel rack lever. If you can’t see the weight and spring, bar the engine until it appears. (See Fig 2)

Figure 2 - Weight and Spring Visible
11. Use a dial and/or vernier caliper to measure the distance from the top of the governor stud to the top of the governor adjustment nut. Take several measurements with the caliper as straight as possible and write down the measurement. Note the position of the adjustment nut so that it can be returned to its original position.

Note: The stock height should be about .060 (slightly more in some instances).

12. With the magnet inserted into the space to the right of the governor weight (See Fig 2), put the tip of a large screwdriver on one side of the slot in the nut and slowly unscrew the nut from the stud.

The nut has positive “click stops” every ¼ turn so do not be concerned if it keeps stopping. Loosen the nut until the screwdriver will fit into both sides of the slot.

Proceed carefully and when the nut is almost loose, put your magnet on the nut and use the screwdriver to finish unscrewing it from the stud (the magnet will catch the nut if it is dropped).

Hold the retainer washer in place with the screwdriver and use the magnet to remove the nut from the governor. NOTE: you do not want too many parts stuck to the magnet at one time as one of them is bound to fall off and get lost inside the pump.

13. Use the magnet to remove the spring retainer washer while you hold the springs in place with a screwdriver.

14. Use the magnet to remove the inner spring while you hold the two outer springs with a screwdriver.

15. Use the magnet to remove the next inner spring (BE CAREFUL! SOME SHIMS MAY STICK TO THE BOTTOM OF THE SPRING). Hold the outer spring in place with a screwdriver.

16. Use the magnet to remove the shims (usually three) and the spring seat from the bottom of the spring pocket. Use a screwdriver to hold the large outer spring in place as it will not be removed. (See Fig 3)
17. Carefully install the new spring seat and the three new inner springs. Put each part on the shaft of a thin screwdriver. Place the end of the screwdriver on top of the governor stud and slide the part down the screwdriver and into position. Install the new seat first, followed by the (3) new replacement springs (starting with the largest). The old springs, shims and seat are not re-used. *(See Fig 4)*

Note: *Figure 4 only shows 3 springs. 4000 rpm kit will have 4 springs total, including the original outer spring.*
18. The retaining washer is too big to go straight in so be very careful. Use the magnet to gently install the retainer through the available space and onto the stud (due to the magnet, the retainer will try to stick to everything).

Note that the stud is flattened and the retainer has an oblong hole to prevent it from rotating. You will have to work with the magnet and a screwdriver to get the retainer hole aligned with the stud. Sliding the retaining washer down a screwdriver shaft is not recommended. (See Fig 5)

![Figure 5 - Retaining Washer](image)

19. Install and screw down the nut until it measures the same as the original distance from the top of the stud to the top of the nut. The nut slot should return to its original position.

20. Bar the engine 360 deg until the other weight appears. Repeat steps 10 through 19 for this side also.

21. Reassemble following steps 9 through 1 in reverse order.
**Start engine and check idle.**

1. If the engine easily reaches 4000 rpm but does not idle, adjust the idle and test drive.

2. If the engine struggles to reach 4000 rpm in addition to not wanting to idle the nuts need to be tightened 1 or 2 clicks.

**When properly adjusted with new springs/hardware installed:**

1. Engine will pull hard to about 3800 rpm before governor begins to pull back on fuel delivery. Idle will also be smooth with a clean transition to higher engine speeds off idle.

2. A sensitive or touchy idle indicates the nuts are too tight. Adjust both nuts one click at a time until the idle and high end both seem reasonable (.030-.040 will give you a soft pedal).

After installation the idle should have only changed slightly (50-60 rpm). If it raised or dropped a lot then the springs are too tight (idle raises) or too loose (idle drops). When you install the springs tighten them until the very first click (first click is light), go two more clicks and try. See where the idle is and go from there, but depending on the vehicle you may have to put one more click on them. If they are too tight you won’t like it on cruise control.

**What if disaster strikes and you lose a part in the pump?**

Since all of the parts are steel you have the option of using a magnet to retrieve the components …just have patience.

If you can’t find the part, temporarily remove the injection pump lock pin (24mm wrench) and allow the oil to drain out of the pump (don’t lose the copper sealing washer for the pin cover).

With the lower oil level you may be able to see the missing part. If you can’t see the part you can easily tell where it has to be and fish for it with a magnet. When part is located carefully work it out of the confined area at the bottom. It is much easier to find and retrieve a missing part when the oil level is close to the bottom of the pump.
Have Any Questions?

Thank you for purchasing the ATS 4000rpm Governor Springs. Please check our website at http://www.atsdiesel.com for technical support and other performance products such as the 5-Star™ torque converter, ATS High Performance Valve Body and ATS High Performance Transmission along with our full line of power enhancers. Please call or e-mail our Technical Service Department, 8:00am to 5:30pm Mountain Standard Time, Monday through Friday.

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We strive to make our instructions as clear and complete as possible. To achieve this, our instructions are under constant construction. We encourage you to visit our website to check for the most up-to-date manuals and diagrams as well as other information. If you have any suggestions as to how we can improve this installation manual, let us know at mailto:Suggestions@ATSDiesel.com.