Actuator Replacement Instructions:

1. Open hood and remove radiator cap and coolant vent plug. (The coolant vent plug is sticking straight up on the passenger side of the valve cover). If this is a 2012+ there is no coolant vent or radiator cap. Simply open the reservoir.

2. Drain the radiator. There is a drain valve on the bottom-drivers side of the radiator. You will need a 4.5 gallon container to drain the coolant into. On the 2012+ it may be easier to to remove the upper radiator hose and suck the coolant out or you can pull the grill for easier access to the drain plug. If you suck it out of the upper radiator hose you will need to wait and allow the coolant to finish settling several times to insure you get all of it.

3. Remove the passenger side inner fender cover. Disengage any component retaining clips, remove the screws and plastic clips holding the inner fender cover on.

4. Wait for coolant to completely finish draining before proceeding.

5. Remove 4 5mm allen head screws holding actuator on turbocharger, and pull actuator straight back from turbo. Unplug the actuator harness from engine harness. On the later trucks it helps to push the connector further in first then push the lock tab down.

6. Check the turbo gear that was under the actuator. It should be able to be moved full travel by hand. (Full travel is approximately 1 inch). If it cannot be moved by hand the turbocharger must be replaced. This should be easy to move with one finger. A new actuator cannot fix your turbo for you and replacing the actuator is not a substitute for replacing the turbo. There are more detailed instructions available for checking the vanes here -> https://www.citydiesel.net/index.php?action=viewitem&itemid=29012&cat=19 . If you have any questions about this please call so we can help you.

7. Remove the 4 T20 six sided torx screws holding the 2 actuator halves together and separate the two halves. If you purchased both halves you can skip this step

8. Check your turbo gear carefully for any hairline cracks. If you see a crack/fracture you must replace the turbo. Mount the new actuator half to its mate and use either the 4 removed T20 torx screws to secure or use the included 4 T15 torx screws (Due to availability issues these could be 2.5mm allen instead). Do not strip the head. (around 25 in-lbs). If you are working on a 2013+ you will be mounting the actuator half to the new billet gear housing instead. If you did not get all the coolant drained well and water got into the gear housing you are going to reuse you must dry it completely before mounting it to the new electronics. Brake cleaner and compressed air work well for drying this area.

9. After torquing the gear housing and electronics half together turn the ignition to the run position and plug the actuator in. You should see the actuator move one direction then stop and go the other direction. The movement should be smooth. Again you are checking for excessive binding. If you do not see this stop and email or call us for assistance. Turn the ignition back to off before proceeding.

10. Dry the bearing housing where the actuator sits with a rag, this area must be dry or the actuator will fail.

11. Mount the actuator to the turbocharger you do not care about gear positioning. For clearance you will want to make sure that you have the long allen bolts through the actuator before trying to mount the actuator. Make sure the actuator is sitting flush against the turbo before screwing in. Using the included 4 new allen head bolts tighten the actuator to the turbocharger.

12. Plug the actuator connector back into the engine harness. Be careful to avoid routing it against the hot side of the turbo or exhaust.

13. Close the radiator drain and re-add coolant. Leave the coolant vent plug out until you get most of the coolant back in and coolant starts coming out of the vent.

14. Re-install the fender cover and radiator cap.

15. It is normal for the Witech topology screen to show the VGT as red. This is so Dodge dealerships do not try to flash the module or calibrate the actuator. It does not indicate a problem.

(See reverse side)

Warranty Statement

A copy of the invoice is required for warranty.
The actuator must be returned for warranty.

The manufacturer warranties this product against material, workmanship or design defects for a period of 2 years. The manufacturer does not warranty against any defect or failure except that as listed above, and the manufacturer is not responsible for and does not warranty against any damage caused by improper installation. Excessive force during installation and exposure of the electronics to coolant are 2 examples of improper installation. The manufacturer is not responsible for any adverse behavior of the vehicle caused by additional add-ons or tuning.

Manufacturer's sole responsibility under this warranty shall be at its option to either repair, replace or refund the product that failed under the warranty period. Prior to said remedy manufacturer may require you to perform several troubleshooting steps to confirm the failure of warrantied product. Manufacturer will also require pictures to prove that excessive force was not used and the electronics were not exposed to coolant.

The product must be returned for further testing prior to warranty. This is to confirm the product has failed and to attempt to isolate the cause of failure to prevent further failures. If upon the return of the product manufacturer finds no fault with the product the product will be returned to the buyer. We will make every attempt to make the analysis and replacement or return of the product as quick as possible.

Plain Language Version

Getting coolant in the actuator is not covered by warranty. Installing with a hammer or similar is also not covered. Before we cover a warranty we may request you run some test to verify where the problem lies. This can include taking a picture of the actuator board or returning the unit to us for analysis. We are not responsible and do not warranty any part of the vehicle except for the actuator. Some failures covered under warranty may still be caused by other underlying issues. If we suspect this we will advise you about the cause, and any subsequent failures will not be warrantied if the underlying cause is not corrected. If you have any questions about the cause we will advise you as best as we are able, however we are limited in scope and some problems may require an in person mechanic to diagnose.

If you are experiencing issues after install please fill out and email this form before contacting us. This allows us to better assist you.

1. Did you completely drain the coolant before removing the original actuator.

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2. Would you describe your vanes as easy to move with the side of one finger without using your thumb?

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3. When checking your vanes are you able to move it slowly and smoothly from end to end with no tight spots or spots that jerk?

_____

4. Turn your key to the run position, unplug the actuator and plug it back in. Do you hear the actuator cycle?

_____

5. If number 4 is no. Leave the key in the run position, unplug the actuator. Check the voltage on actuator side of the adapter. Put your red lead on the red wire and the black lead on the black. What voltage do you read?

_____

6. Turn the key off and wait for 30 seconds. Check resistance between the two wires on the actuator side of the adapter that are not red or black. What value did you get?

_____

7. Repeat test #6 but test on the actuator plug. What value did you get?

_____

8. Unplug the adapter and check resistance from end to end on each wire of the adapter. Do any of the wires show a resistance higher than 1 ohm? If so what was the value shown?

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9. Please list any codes that are currently set.

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10. Please describe the issue you are having.

_____

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_____

11. How old is the actuator?

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Please fill out all relevant sections and email it to tech@citydiesel.net . Include your phone number in the email. If you do not have a scanner taking a picture of it and sending the picture is sufficient.