

ENGINE GOVERNING SYSTEMS

0179-3756
120 Series Actuator Kit
for
Cummins 4A2.0, 4A2.3 & 4AT2.3
4-Cylinder Engines



Pre-Installation

Before installing this kit, there are a few preparations that can be made to facilitate the installation.

1. First, using the Throttle Lever Adjustment screw on the pump, set the Throttle Lever to attain a maximum engine speed of 70Hz (approx 2100 rpm). Once this is done, shutdown the engine and disconnect the battery.
2. If there is a Wire Guide Bracket attached to the pump, it must be removed. Be sure to replace the two bolts after removing this bracket (see Figure 1).
3. If the Run/Stop Lever has a tension spring on it, release the tension from this spring and cut this spring off. It is not a good idea to leave this spring dangling in the vicinity of the Run/Stop Lever as it could interrupt the smooth operation of the electric actuator (see Figure 1).
4. Install the Run/Stop Lever Adapter (5) using the two supplied 6-32 Bolts and 6-32 KEP Nuts (Items 6 & 7) as shown in Figure 2. Use Angled Needle-nose pliers to hold the KEP Nut in place. Once the Run/Stop Lever Adapter is installed and seated flat on the Run/Stop Lever, tighten the 6-32 bolts to 20in-lb.

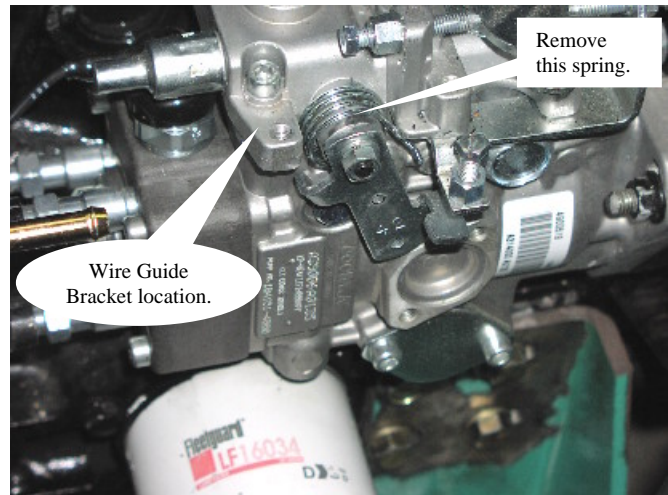


Figure 1

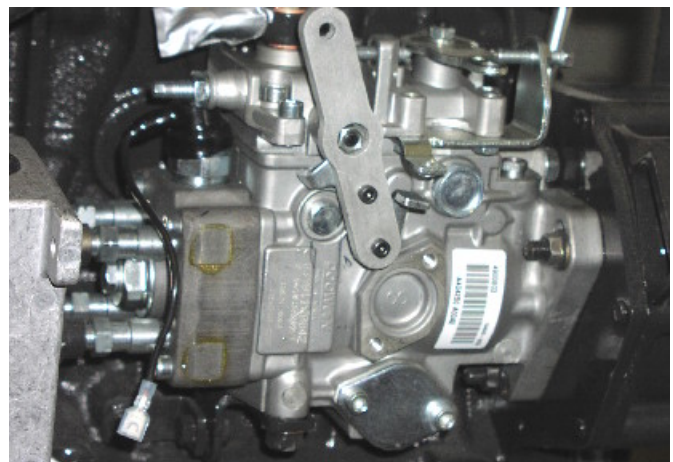


Figure 2 – Run/Stop Lever Adapter (5) Installed

The bolt-holes for mounting the bracket to the engine are located directly under the fuel filter as shown in Figure 3. Place an M10 Lockwasher (3)

followed by an M10 Flatwasher (4) onto each of the four M10 x 25 Bolts (2). Attach the Bracket to the engine using these bolts.



Governors America Corp. 720 Silver St. Agawam, MA 01001
Tel: 413-786-5600 Fax: 413-786-5666
<http://www.governors-america.com>
E-mail: info@governors-america.com



Note: Removing the oil dipstick may provide easier access in placing the bolts.

Notice that the mounting holes on the bracket are slotted. Once all bolts are in, slide the bracket up, vertically, so that the bottom bolts are seated at the bottom of their respective slots and then tighten the bracket mounting Bolts (2) to 33 ft. lb. See Figure 4.

Actuator Installation

Place an M6 Flatwasher (13a) on each of the M6 x 25 bolts (10). Position the actuator on top of the bracket so that the bolt-holes are aligned. See Figure 5. Place the bolts through the actuator and bracket. Put an M6 Lockwasher (12) and M6 Nut (11a) on each bolt and hand-tighten. Again, the holes on the bracket are slotted so that the actuator can be positioned for optimum performance. Slide the actuator towards the Run/Stop Lever until it is flush with the rightmost edge of the Bracket (1). See Figure 5. Check that there is sufficient clearance between the actuator and its surrounding environment. Tighten the actuator mounting bolts (10) to 120 in. lb. Place Actuator Lever (9) on the actuator shaft but do not tighten at this time.

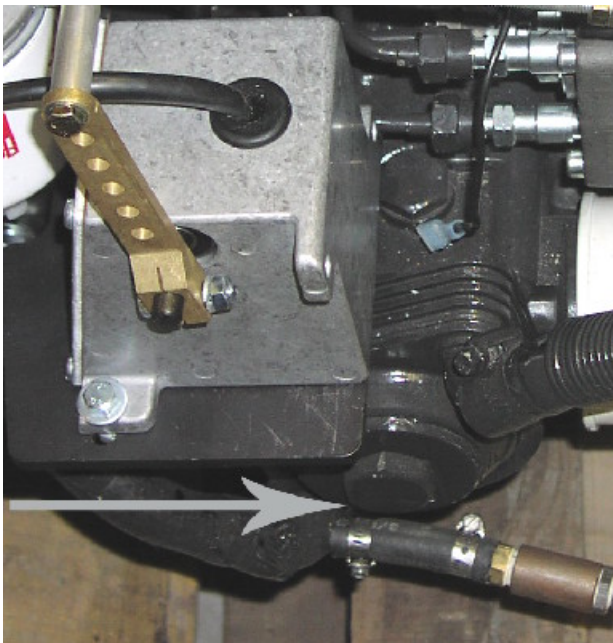


Figure 5 – Slide actuator in direction of arrow to align with the right edge of the bracket as shown.

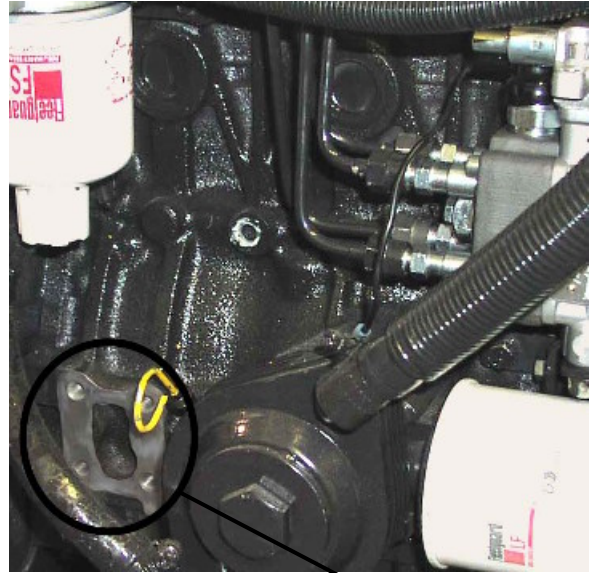


Figure 3 – Mount Bracket here

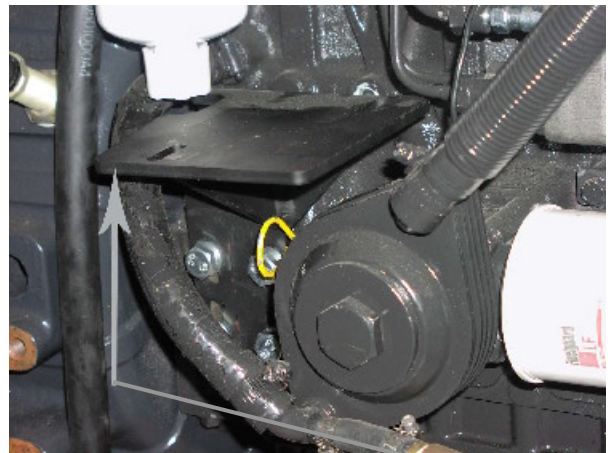


Figure 4 – Slide Bracket in direction of arrow before tightening mounting bolts.

Linkage Installation

Insert the M6 x 75 Bolt (15) through the last hole of the Actuator Lever (9) as shown in Figure 6. Next, slide the Long Spacer (17) onto the bolt followed by one end of the Linkage Assembly (14), Flatwasher (13b), IT Lockwasher (19) and Nut (11b).

Insert the Flatwasher (13b) onto the M6 x 45 Bolt (16) followed by the other end of the Linkage (14). Put the Short Spacer (18) on the bolt and insert the bolt through the Run/Stop Lever Adapter (5) followed by an IT Lockwasher (19) and Nut (11b). See Figure 6. Tighten both Linkage bolts to 120in-lb. Slide the Linkage assembly back and forth a couple of times to insure smooth operation.

Use a 1.25mm (.050") feeler stock to set the gap at the Run/Stop Lever as shown in Figure 7. While holding the feeler-stock in place, tighten the bolt on the Actuator Lever (9) to 120in-lb. This adjustment will insure that the actuator has sufficient travel to shutdown the engine when de-energized.

The linkage (14) should be aligned so that its direction of travel is parallel to the swing of the actuator lever (9). This can be accomplished by loosening the actuator's mounting bolts and re-positioning the actuator. Again, you must make sure that there is sufficient clearance around the actuator, especially in the area of the actuator bracket bolts. **Note:** You must recheck the gap at the Run/Stop Lever if you readjust the actuator. Double check the entire assembly to ensure that the bracket, actuator or linkage is not resting on or pinching any wires, hoses or fuel lines. Also, check that all bolts are tightened to specification.

Reconnect the battery, connect the actuator to Electronic speed control unit and proceed with the installation accordingly.

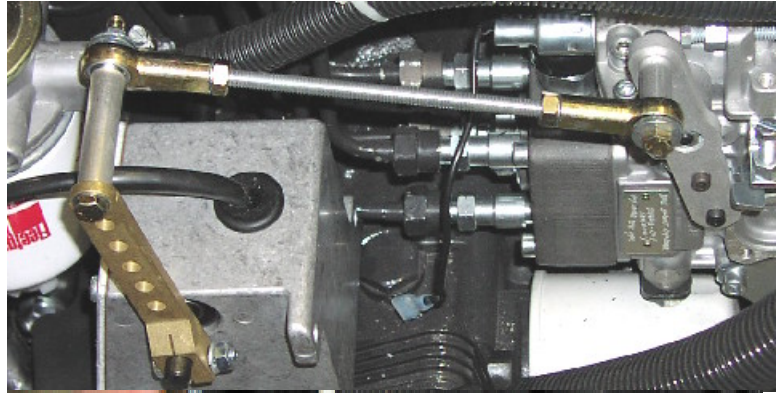


Figure 6 - Linkage Assembly

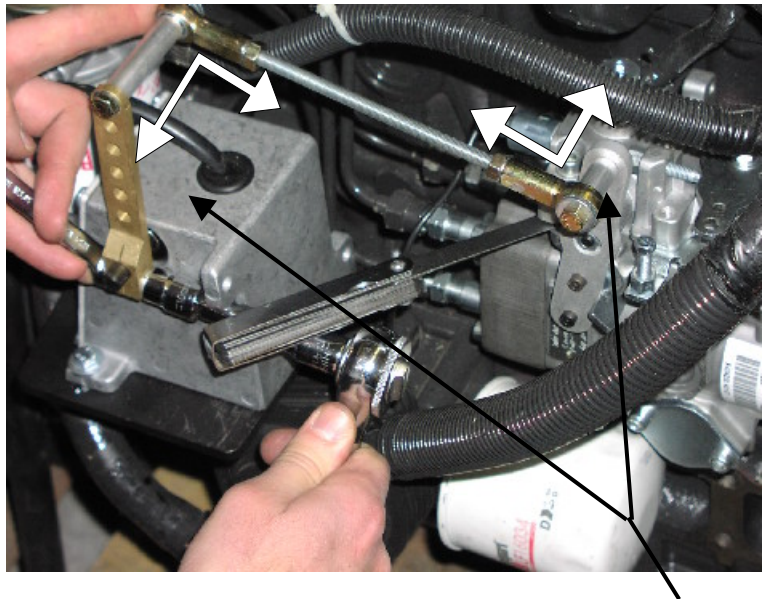


Figure 7 - Set .050" Gap and tighten Actuator Lever bolt. By moving the actuator, the Linkage and Spacers can be squared. Remember, if you adjust the actuator, you must reset the gap at the Run/Stop Lever.

Parts Inventory

Item #	Part #	Description	Purpose	Quantity
1	BK234	Bracket		1
2	HW05-616	M10 x 25mm Bolt	Bracket to Engine Mounting Hardware	4
3	HW06-602	M10 Lockwasher		4
4	HW06-607	M10 Flatwasher		4
5	LE234	Stoplever Adapter		Stop-Lever Adapter & Hardware
* 6	HW01-206	6-32 x 9/16" S.H.C.S.	2	
* 7	HW03-318	6-32 Kep Nut	2	
8	ADC120M-12	Actuator	Actuator to Bracket Mounting Hardware	1
9	LES1501	Actuator Lever		1
10	HW05-523	M6 x 25 Bolt		2
11a	HW07-700	M6 Nut		2
12	HW06-627	M6 Lockwasher		2
13a	HW06-617	M6 Flatwasher		2
14	LKS234	Linkage consisting of (2) bearing rod ends and (1) M6 threaded rod for a total length of 184mm center-to-center		1
15	HW05-615	M6 x 75 Hex Bolt	Linkage Mounting Hardware	1
16	HW05-617	M6 x 45 Hex Bolt		1
17	SR234	Spacer - Long		1
18	SR235	Spacer - Short		1
11b	HW07-700	M6 Nut		2
19	HW06-628	M6 I.T. Lockwasher		2
13b	HW06-617	M6 Flatwasher		2

***All hardware in this kit is metric with the exception of Items 6 & 7**



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