



KT248 SERIES

Governor System Installation Kit

For Diesel Engines W/ RSV Style Mechanical Governors on
Right Side of Engine
SHINDAIWA (ISUZU 4BG1T w/upright oil filter)

INTRODUCTION

The KT248 Series Governor System Installation Kit provides the necessary bracket, cables and hardware to install a GAC precise Electronic Governor on a diesel engine with a RSV style mechanical governor that is on the right side, as viewed from the rear of the engine with a high mounted Run/Stop lever location. The electronic governor system's actuator is linked to the fuel pump's Run/Stop lever. The actuator, speed control unit, speed sensor and remaining governor system components can be selected by the customer to meet the specific application requirements.

PRE-INSTALLATION

Disconnect the engine battery cables, negative connection first, to prevent accidental engine starting. The engine should be cool to avoid burns while installing the governor system. Locate the fuel injection pump's Run/Stop lever. It maybe mechanically linked to a stop solenoid. If so, disconnect and remove the stop solenoid and its bracket. Secure the fuel pump's throttle lever at approximately 10 % above the highest desired engine governing speed.

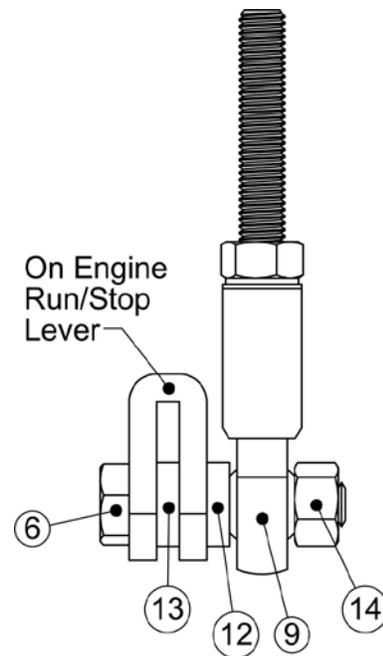
ACTUATOR INSTALLATION

(Please refer to the installation diagrams and parts list.)

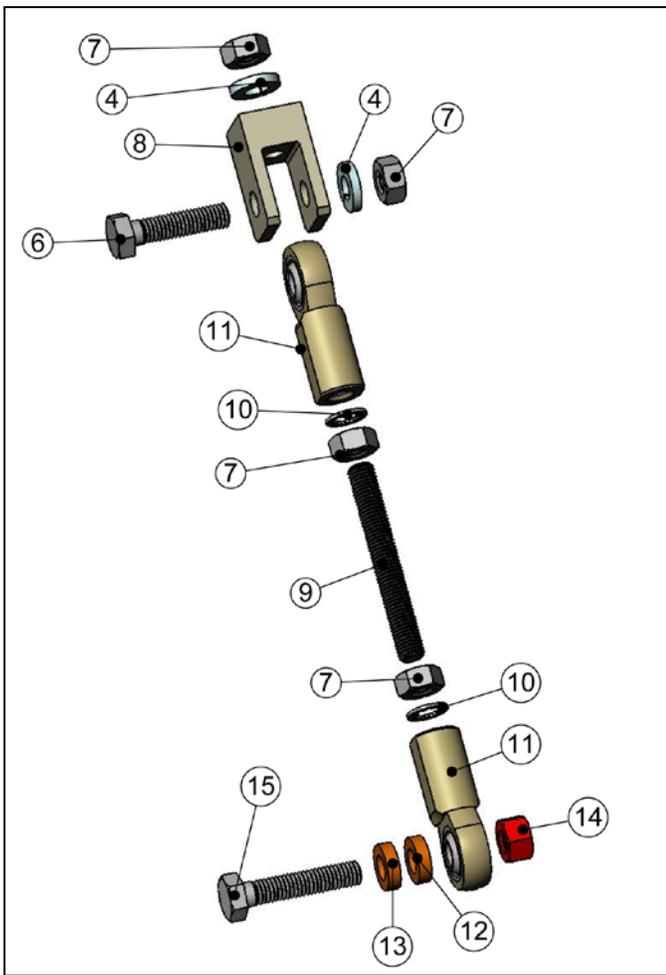
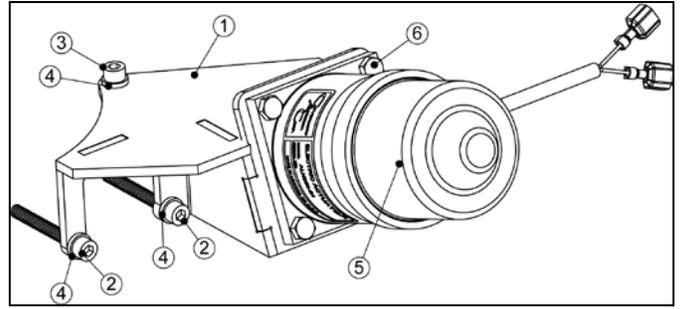
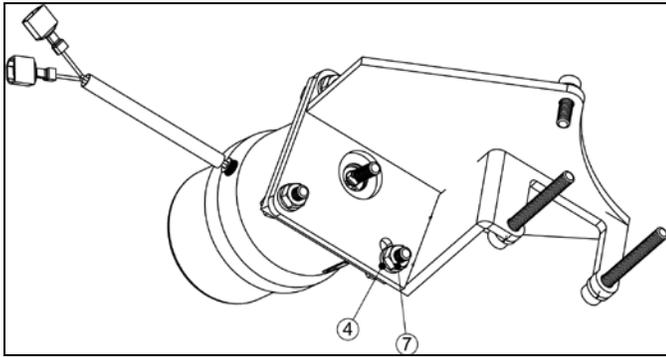
1. Remove the top two bolts/studs from the RSV style mechanical governor cover and one short bolt from the top side of the pump cover. Attach the actuator bracket (1) using the two supplied M6X50mm socket head bolts (2), one M6X20 socket head bolt (3), three M6 lock washers (4).
2. Mount the linear electric actuator (5) onto the actuator bracket (1) using four M6 hex bolts (6), M6 lock washers (4) and M6 Hex nuts (7).
3. Assembly of Clevis: Screw an M6 hex nut (7) onto the actuator shaft until it is flush with the last thread, followed by a M6 lock washer (4) and the supplied clevis (8). Adjust the clevis until it touches the M6 lock washer and nut. Secure the hex nut and lock washer.

ACTUATOR LINKAGE INSTALLATION

1. Assembly of linkage rod: Screw one M6 jam nut (7) onto both ends of the linkage rod (9). Slide a 1/4" internal tooth lock washer (10) onto each end. Screw one ball bearing rod end (11) on each end of the linkage rod. Adjust rod ends until there is an approximate distance of 3.375 inches (85.7mm), center to center of the rod end through holes.
2. Attach linkage to the actuator's clevis with a M6 hex bolt (6), M6 lock washer (4), and M6 hex nut (7). Attach the opposite end of the linkage to the factory Run/Stop lever using the following: a M6 hex head bolt (15), 1/8" spacer (13) which slides inside the slot in the factory lever, an additional 1/8" spacer (12), through the rod end followed by a M6 nylon lock nut (14). Please refer to the diagram below:



3. Move linkage by hand and check for smooth operation.
4. Connect actuator lead to mating harness connector.



POSITION	Part #	Description	Qty
1	BK248	Bracket	1
2	HW05-640	M6 50mm Screw	2
3	HW05-514	M6 20mm Screw	1
4	HW06-627	M6 Lock Washer	9
5	ALN050	Actuator (Not included)	1
6	HW05-523	M6 Hex Screw	5
7	HW07-700	M6 Hex Nut	8
8	LK130	Link-Clevis	1
9	RD248	M6 Threaded Rod-1.5"	1
10	HW02-226	¼" Lock Washer	2
11	BB112	Rod End Bearing	2
12	SR242	Spacer- 1/8"	1
13	SR242	Spacer- 1/8"	1
14	HW07-702	M6 Nylok Nut	1
15	HW05-649	M6 Hex Screw 30mm	1

COMPLETED INSTALLATION



SPEED CONTROL UNIT INSATLLATION

Mount the speed control unit in the engine control cabinet or engine mounted enclosure. If water, mist or condensation can come into contact with the controller, it should be mounted vertically. Extreme heat should be avoided.

Site selection should allow access to the speed control unit adjustments. The speed control unit's case mounting holes can be used as a drilling template.

MAGNETIC SPEED SENSOR INSTALLATION

1. If not provided by the engine manufacturer, it may be necessary to drill and tap an appropriate hole in the engine's bell housing, to accommodate the selected speed sensor. The location should be perpendicular to the engine's crankshaft.
2. Rotate the engine ring gear until a tooth crown is in the center of the tapped hole.
3. Thread the magnetic speed sensor into the tapped hole until it makes contact with the ring gear tooth. Back out the sensor $\frac{1}{2}$ - $\frac{3}{4}$ turn. Secure the sensor with the lock nut.

GOVERNOR SYSTEM WIRING

The ALN050 Series electric actuator is pre-wired for either 12 or 24 V DC. The actuator is supplied with mating half crimp on connectors so that a cable harness of desired length can be constructed. Wire size selection should be made using good electrical judgment and is dependent on current draw of the actuator and length of the wiring harness from the speed control unit. Secure these wires to the speed control unit's actuator output terminals.

If applicable, connect the speed sensor harness to the magnetic speed sensor.

Cut the magnetic speed sensor's shielded wiring harness to length. Secure these wires to the speed control unit's magnetic speed sensors input terminals and shield to the proper ground point. See the specific Speed Control Unit publication for connection information.

Install wire leads from the battery (+) and (-) to the BATTERY input terminals of the Speed Control Unit. Battery polarity must be observed. See the specific Speed Control Unit publication for switching, fusing, as well as, for complete electrical wiring information.

Optional Speed Trim Control

Mount the 5 K ohm speed trim potentiometer to the panel and attach an appropriate length of wire. Connect the terminals of the potentiometer to the Speed Control Unit according to the specific Speed Control Unit's wiring diagram.

SPEED CONTROL UNIT (PRE-ADJUSTMENT)

1. Remove the protective covers that are over the Speed Control Unit adjustments.
2. Check to ensure that the GAIN and STABILITY adjustments are in their mid-positions.
3. If used, set the optional Speed Trim Control to its mid-position.
4. Start the engine and rotate the 25 turn SPEED adjustment to the desired engine speed setting. Clockwise adjustment increases engine speed.

WARNING

An overspeed shutdown device, independent of the governor system, should be provided. Equipment damage or personal injury may result due to loss of engine control.

GOVERNOR SYSTEM PERFORMANCE ADJUSTMENTS

1. Rotate GAIN adjustment clockwise (CW) until instability develops. Gradually move the adjustment counter clockwise (CCW) until stability returns. Move the adjustment an additional 1/8 turn further counter clockwise (CCW) to insure sable performance.
2. Rotate STABILITY adjustment clockwise (CW) until instability develops. Gradually move the adjustment counterclockwise (CCW) until stability returns. Move the adjustment an additional 1/8 turn further counterclockwise (CCW) to insure sable performance.
3. GAIN and STABILITY adjustments may require minor changes after engine load is applied. Normally, adjustments made under no-load conditions achieve satisfactory performance. A strip chart recorder can be used to further optimize the adjustments.
4. If instability cannot be eliminated, or further performance improvements are required, refer to the troubleshooting sections of the Speed Control Unit and/or Actuator publications.

5. Apply full load to the engine. If the engine is unable to carry full load, stop the engine and adjust the linkage rod length by rotating the Ball Bearing Rod Ends. Repeat the load test. It may be necessary to back

out the maximum fuel stop screw on the throttle lever and/or Run/Stop lever until full load is reached.

Complete Set-up Components

Parts for Complete Set-up		
ITEM	DESCRIPTION	QUANTITY
KT248	Installation Kit	1
ALN050-12 or 24 Volt	Electronic Actuator	1
ESD5500-II	Controller	1
MSP6729	3/8-24 Magnetic Speed Sensor	1
Options		
TP501	5K-1 Turn Potentiometer	1
EEG6500	Digital Controller Replacement for the ESD5500-II	1