

# KT153 - Motorpal PPxM Pump

## Works With Any 175 Series Actuator - Use In Place of KT188-2

### 1 PREPARING THE FUEL INJECTION PUMP

If the Motorpal fuel injection pump with right hand rack (as viewed from the mechanical governor) is equipped with a mechanical governor, it must be removed. GAC recommends that this modification be performed by a qualified fuel injection service facility. The following procedure is a representation if a disassembled governor (Fig. 0).

**NOTE:** Be prepared to collect the oil that will be released from the mechanical governor.

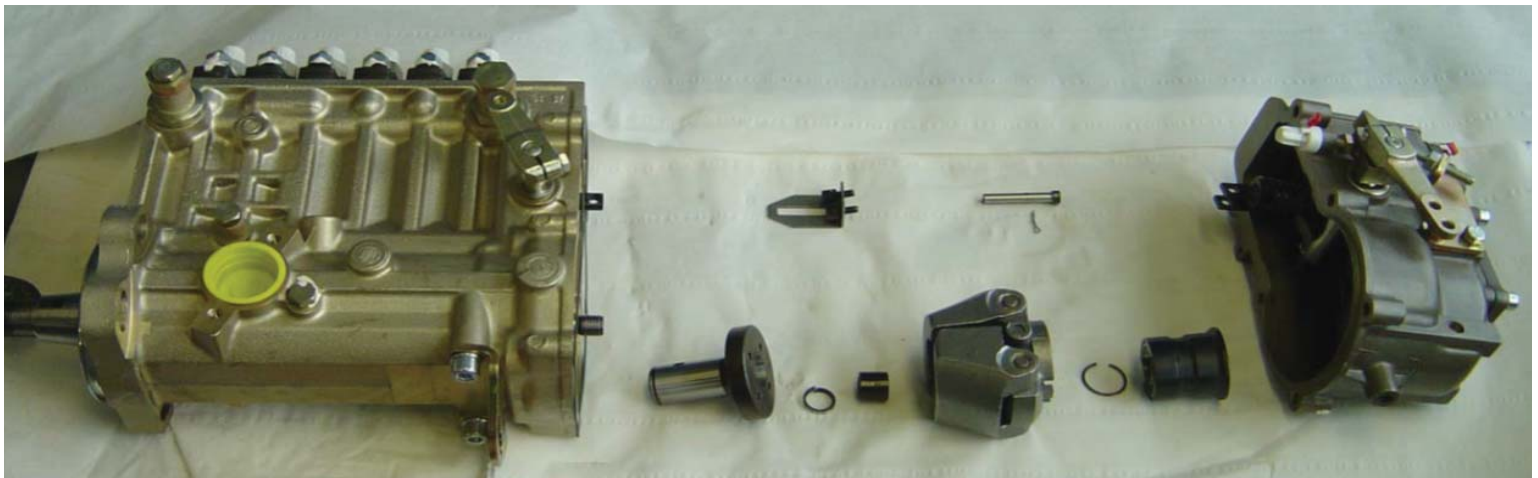
1. Remove the rear housing from the mechanical governor by unscrewing six screws.
2. The governor linkage must be disconnected from the fuel rack. Remove split pin (1) (Fig.1) from the rack pin (2) (Fig.1). Slide out the rack pin from the fuel rack (3) (Fig.1).
3. Remove the flyweight assembly using socket and a flyweight puller. It can be obtained from a Motorpal authorized service center.
4. Unscrew two screws from the rack pin guide (4) (Fig.1) and remove the guide from the pump.
5. Remove inner weight hub (5) (Fig.1) by unscrewing the M12 nut inside the hub.
6. If the fuel injection pump had received lubrication from the engine's crankcase through the mechanical governor housing, this lubrication supply line must be rerouted directly to the fuel injection pump.

### 2 INSTALLING THE MOUNTING KIT

All hardware needed to attach the GAC kit to the pump is provided (see parts list shown in Table 2).

1. The mounting surface of the pump and fuel rack must be clean. Attach the rack link (6) (Fig.2) to the left side of the fuel rack with M6 x 12mm screw (7) (Fig.2). It is required that a thread locking fluid, such as Loctite 243, be applied to the thread of the rack link (6) (Fig.2). Tighten the screw to 4 - 5 Nm so that the link is aligned axially on the rack.
2. Apply a small amount of silicone gasket maker around the mounting surface of the pump (8) (Fig.1 & 2) to seal the mounting surface of the adapter plate.
3. Install the adapter plate (9) (Fig.3) with the six flat head M6 x 30 mm screws (10) (Fig.3). Tighten the screws to 3 - 4 Nm. The mounting kit is installed.
4. The following assembly procedure is described in PIB2050 (supplied with the 175A actuator) with required modifications as described below. Place the spring retainer seat (11) (Fig.5) from the KT289 (supplied with the 175A actuator) over the rack link (6) (Fig.2 & 5), slide it down to the body of the adapter plate (9) (Fig.3 & 5) into the hole.
5. Slide the fuel rack return spring (12) (Fig.5) over the rack link and against the spring retainer seat.
6. Disassemble the link sub assembly from KT289 (Fig.4). Slide the spring retainer (13) (Fig.4 & 5) over the rack link against the return spring (12) (Fig.5). Slide the shut off plate (14) (Fig.4 & 5) over the rack link onto the cut in 12 o'clock position, and tighten it with the M10 nut (15) (Fig.5).
7. Mount the actuator, as shown in Fig.6, to the four mounting holes (16) (Fig.3 & 5) using the supplied fasteners from the KT289, as described in PIB2050. Follow PIB2050 for the remaining actuator installation and adjustment procedures.

Fig. 0. Dissassembled Mechanical Governor:



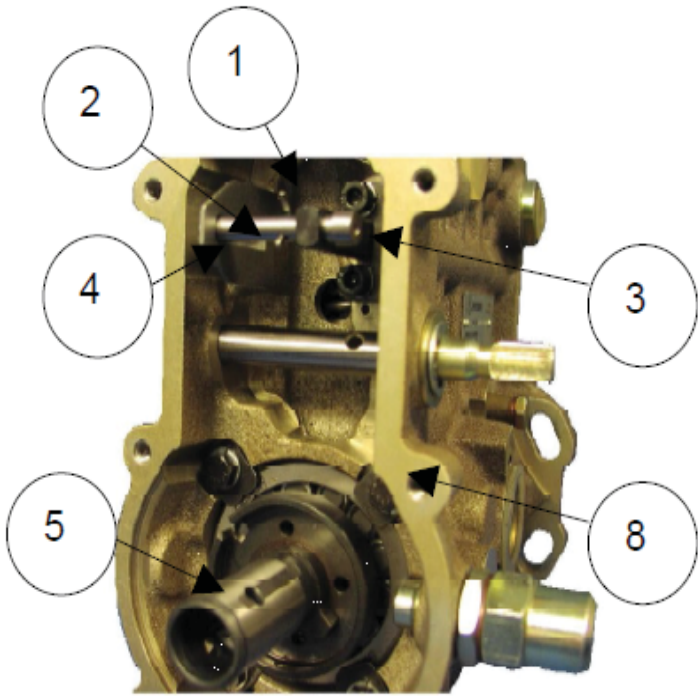


Fig.1. MOTORPAL Pump w/out Housing or Mechanical Governor.

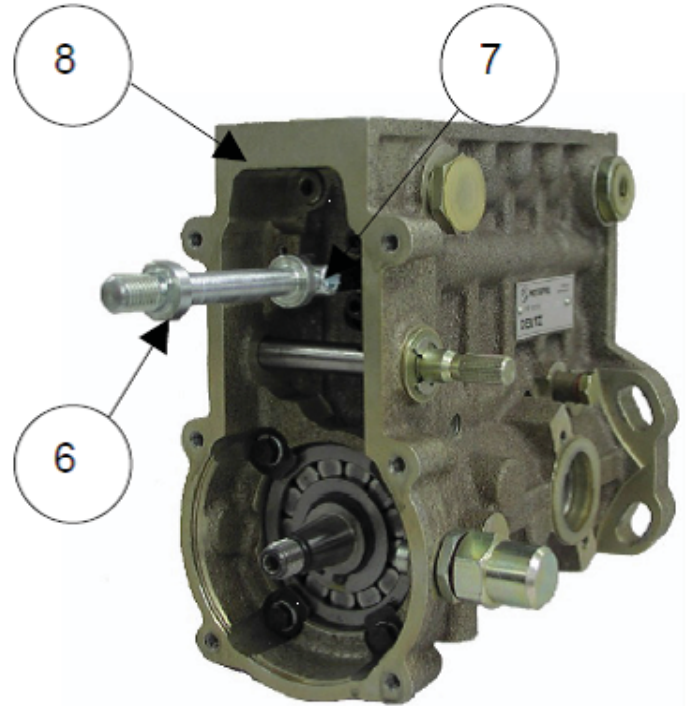


Fig.2. MOTORPAL Pump with Rack Extension Link.

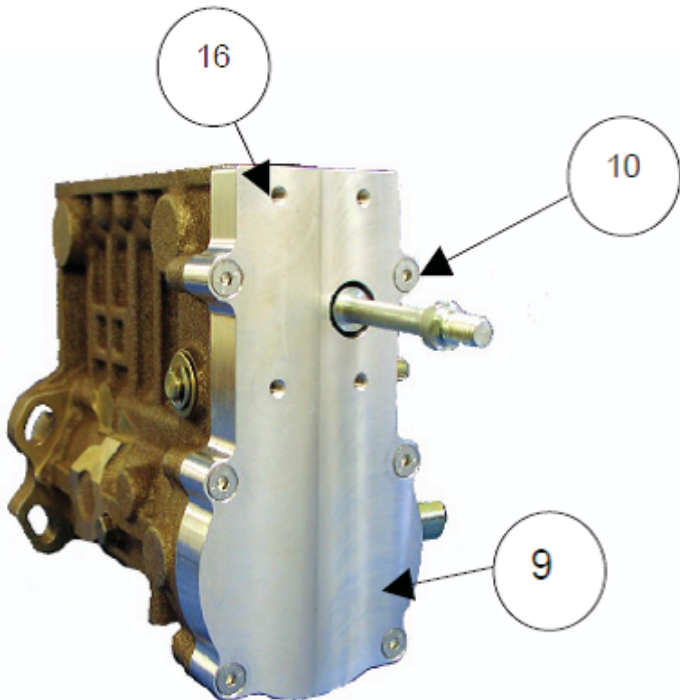


Fig.3. Link Sub Assembly From KT289 (Shown w/o Nut)

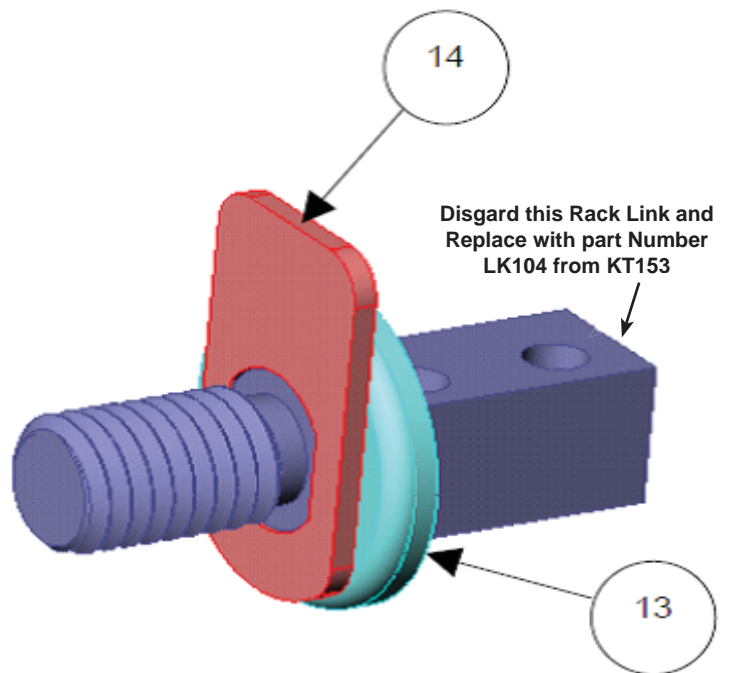


Fig.4. Link Sub Assembly From KT289 (Shown w/o Nut)

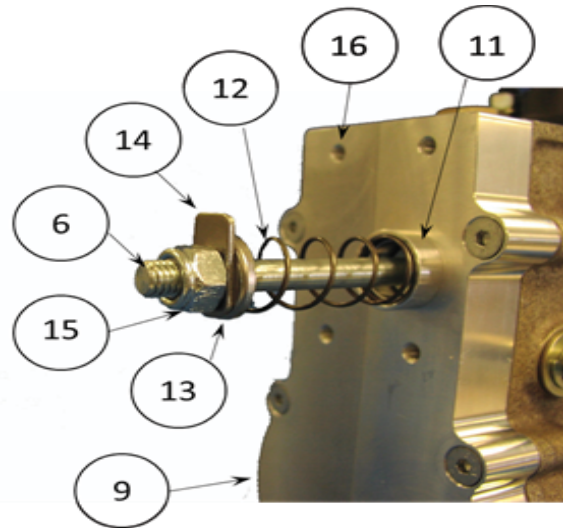
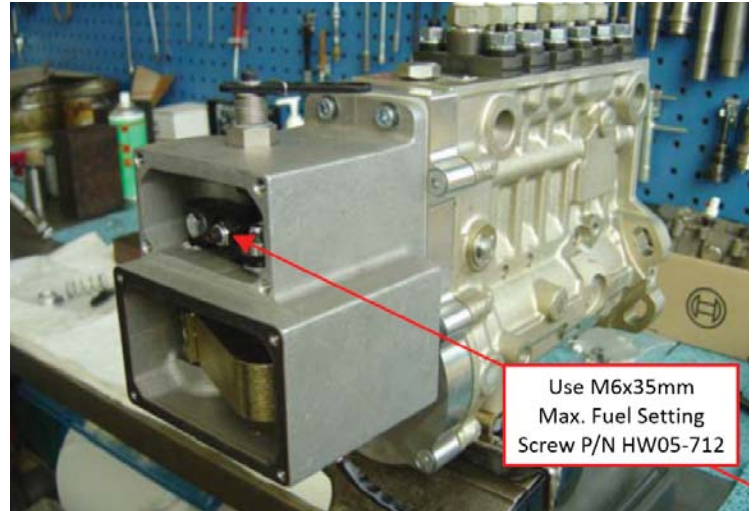


Fig.5. Parts From KT289 Mounted On KT153 Prior to Actuator Installation



Maximum Fuel Setting Screw - Installed



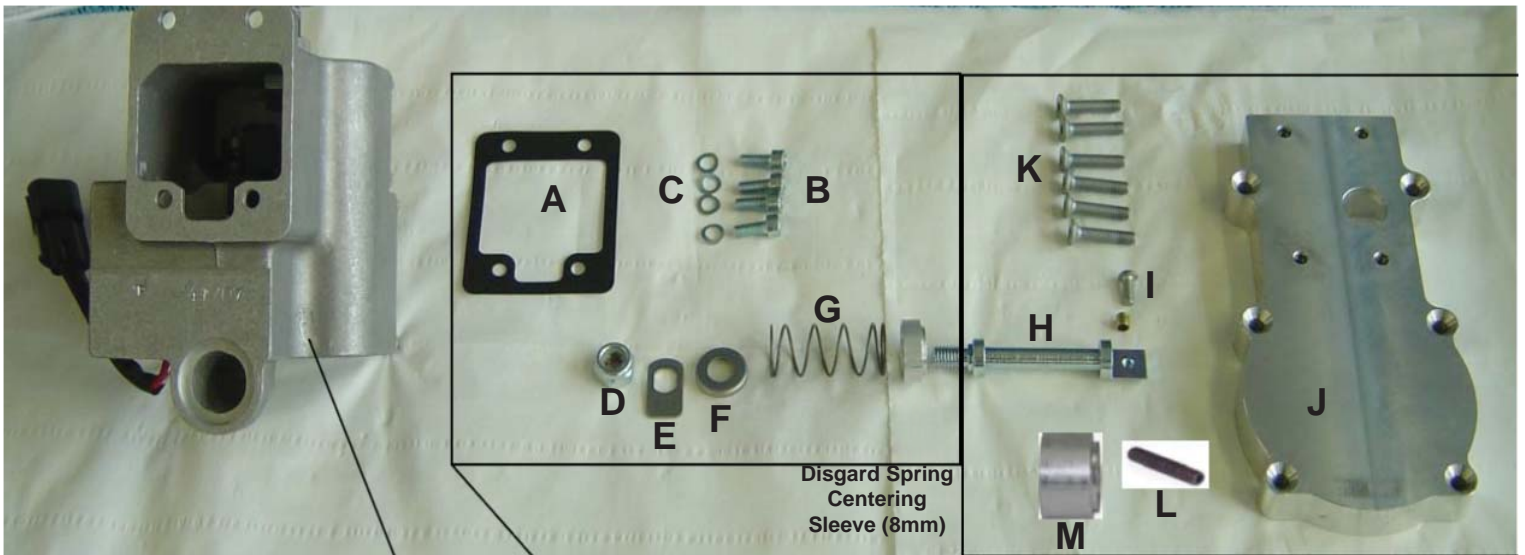
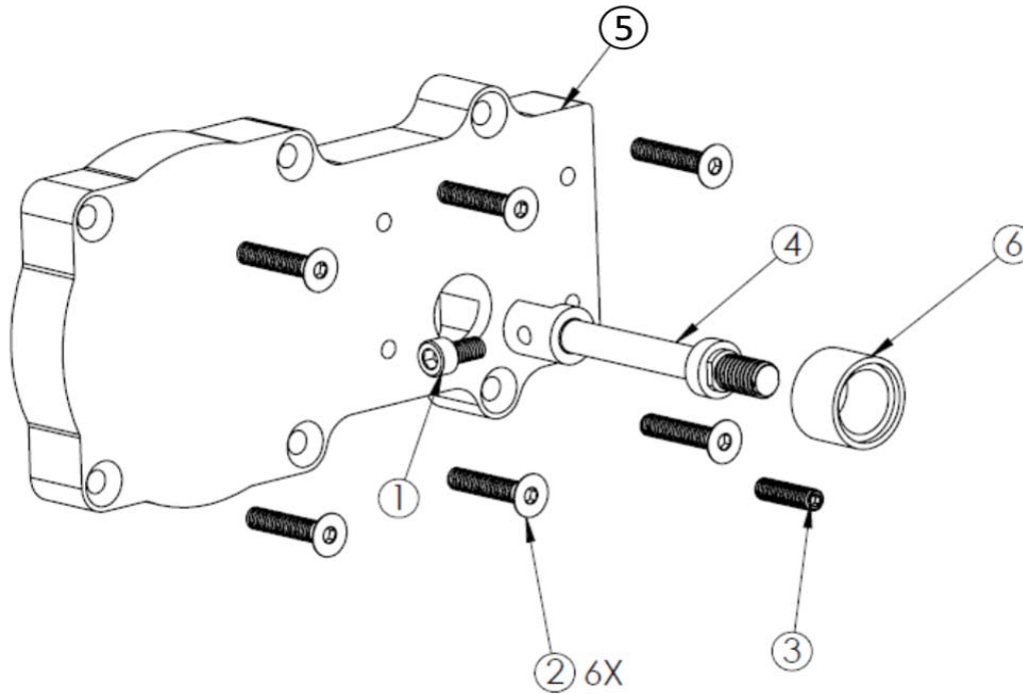
Max Fuel Adjustment, Setting Either Rack Travel or Fuel Flow On a Test bench



Fig.6. MOTORPAL Pump w/ KT153 and Actuator Installed



Fig. 7 KT153 – Motorpal PPxM Pump / 175 Series Actuator Mounting Kit



**KT289 PARTS LIST - Table 1**  
(Supplied with the Actuator)

ITEM NO.	DESCRIPTION	GAC P/N	QTY
A	Gasket, Mounting	GA196	1
B	Cap Screws M6X16mm	HW05-566	4
C	Spring Washer M6	HW06-600	4
D	Castle Nut M10	HW07-710	1
E	Plate, Shut-Off	PL171	1
F	Spring Retainer	RT171	1
G	Spring, Rack Return	SP170	1

**KT153 PARTS LIST - Table 2**

ITEM NO.	DESCRIPTION	GAC P/N	QTY
H	Rack Link	LK104	1
I	M6X12mm Screw	HW05-628	1
J	Mounting Plate	PL215	1
K	M6X30mm Flat Head Screw	HW05-629	6
L	M6X35mm Max. Travel Screw	HW05-712	1
M	Spring Seat/Centering Sleeve 16mm	RT175-L	1