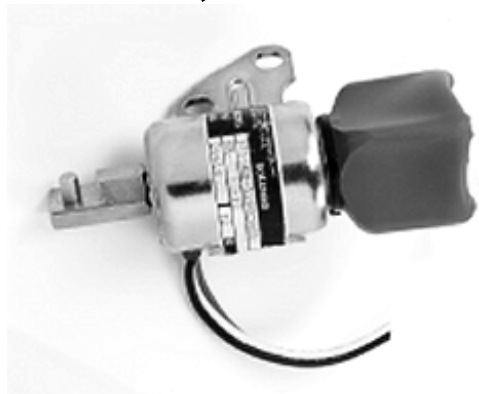


# Shutdown Solenoids

## Kubota D722, D902 & Z482 Engines



### DESCRIPTION

Woodward's fuel shutdown solenoid provides start/stop control of engines in the energized-to-run mode, resulting in fail safe operation. The solenoid is available in 12- and 24-volt versions and mounts directly to the engine without extra brackets or linkage.

Designed for operation on the following Kubota Super Mini Series engines:

- Kubota D722
- Kubota Z482
- Kubota D902

#### Models Available

12 volt: SA-4899-12  
(Model 1756ES-12SUL5B1S5)

24 volt: SA-4899-24  
(Model 1756ES-24SUL5B1S5)

### SPECIFICATIONS

**Rated Voltage:** 12 or 24 Vdc

**Ambient Temperature:** -40°F to +250°F  
(-40°C to +121°C)

**Weight:** Approx 1.8 lbs (0.8 kg)

**Pull Current:** 46 A (12 Vdc)  
25 A (24 Vdc)

**Hold Current:** 1.1 A (12 Vdc)  
0.5 A (24 Vdc)

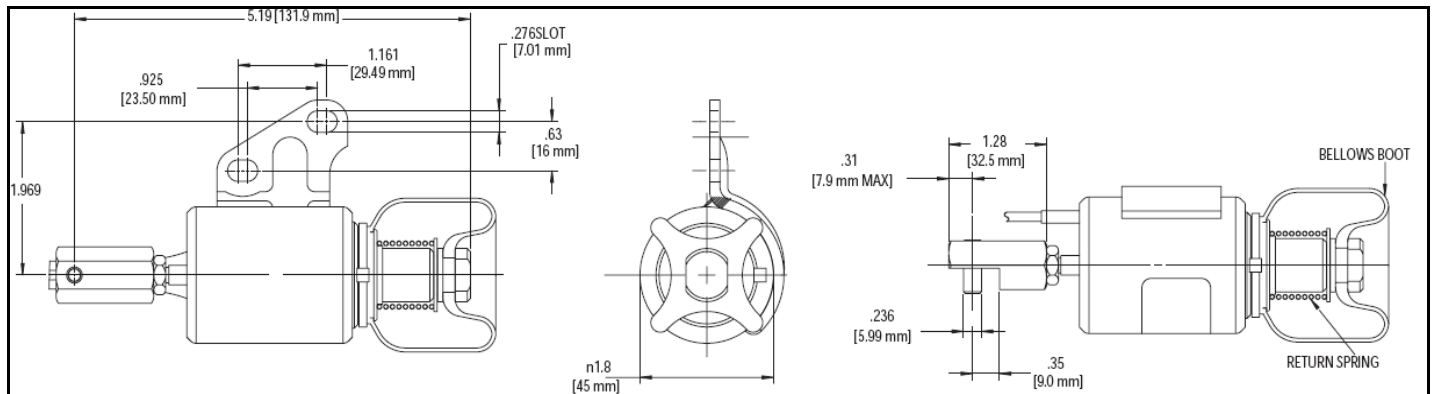
### OPERATION

The solenoid has a pin fitted to a hexagonal block attached to the solenoid plunger. This pin fits into the hooked slot in the stop/start lever. When the solenoid is de-energized, the return spring pulls the stop/start lever counter clockwise to the stop position. The two elliptical slots in the solenoid bracket are used to attach the solenoid to the engine.

To ensure correct operation of the solenoid, it is important that the solenoid is properly installed and aligned. Please follow the procedures outlined in the Installation section of this document when installing the solenoid.

- Designed for direct mounting on Kubota Super Mini Series engines
- Energized-to-run solenoid, resulting in fail-safe operation
- Continuous duty operation under severe temperature and vibration conditions
- Simple installation, as no brackets or linkages are necessary
- Brass liner plunger bore for long life
- Hard chrome plated plunger for smooth, reliable, wear-resistant operation
- Plated steel solenoid, bracket, linkage, lever, and hardware for corrosion resistance

## DIMENSIONS



## INSTALLATION



### WARNING—FOLLOW INSTRUCTIONS

Improper installation or alignment can result in the engine failing to start.

Overheating of the solenoid due to excessive cranking is not covered by warranty.



### NOTE

Engine must be equipped with proper shutdown lever in order to install the solenoid. Order appropriate part number from Kubota.

P/N 16851-57720 (Engine production date *before* April 2001\*)

P/N 16851-57723 (Engine production date *after* April 2001\*)

(\*) Contact Kubota with engine serial number to determine production date)

### Installation Procedure

The fuel shutdown solenoid mounts closely above the front gear housing behind the fan. Refer to **Figure 1**.

1. Ensure engine is turned off and battery is disconnected before beginning installation.
2. Make sure you have proper voltage solenoid.
3. Locate the pin in the hexagonal block and fit it into the hooked slot in the start/stop lever.
4. Fit the two M6 setscrews through the elliptical slots in the bracket and attach the solenoid to the engine. Finger tighten the screws to loosely secure the solenoid in place.
5. Ensure the return spring in the solenoid has pushed the solenoid to the end of the slots in the bracket. Apply light pressure to the solenoid in a clockwise direction to take up side clearance in the slots.

Note: The solenoid will find its own position lengthwise relative to the slots and screws due to the spring force. A slight clockwise twist is then needed to take up the side clearance between the slots and the screws before tightening the screws. This ensures that there will be no side loading on the hexagonal block and the plunger assembly.

6. Hold the solenoid in this position and tighten the M6 setscrews to 6 ft-lb (9 N-m).

## INSTALLATION (cont'd.)

7. Check the solenoid linkage for free movement. Push the end of the plunger where the boot attaches and ensure that it moves freely over the full travel. It should be possible to feel a positive stop as the plunger bottoms out internally with metal-to-metal contact.

NOTE: If there is any doubt about the free movement of the linkage over the full travel, the adjustment procedure outlined in Step 4 should be repeated. To readjust, loosen the setscrews and reposition the solenoid by changing the clearance in the slots. Be aware that variations in engines and solenoids may require a slightly different procedure for adjustment.

8. When the free movement of the plunger travel has been obtained, connect the solenoid to the electrical system using the wiring instructions in publication SE-3024. (To request a copy, please contact a Woodward customer service representative at (847) 967-7730.)
9. Make sure the moving parts of the solenoid are not rubbing against any hoses, pipes, or wires when the engine is running. Reposition them away from the solenoid if needed.

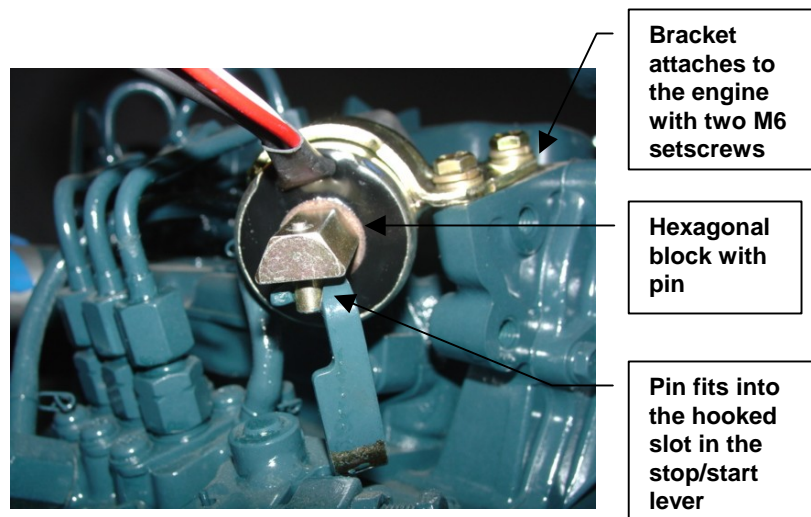


Figure 1



PO Box 1519  
Fort Collins CO, USA  
80522-1519  
1000 East Drake Road  
Fort Collins CO 80525  
Ph: +1 (970) 482-5811  
Fax: +1 (970) 498-3058

#### **Distributors & Service**

Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

**[www.woodward.com](http://www.woodward.com)**

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward Governor Company contractual or warranty obligation unless expressly stated in a written sales contract.

**© Woodward 2007  
All Rights Reserved**

2007/1/Niles

For more information contact: