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# SERVICE INFORMATION

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**TITLE: Storage Conditions and Operation Checks of Long-Term Storage Engines to OEM and Sales Companies**

**Models Affected: ALL**

**Serial No. Affected: ALL**

**Purpose of Bulletin:**

This KSI has been revised and reissued for all engine types. It combines the information included in OEM-21-001 (Storage Conditions and Operation Check of Long-Term Storage Engines), KSI-267 (Maintenance Procedures for Long-Term Storage to Sales Companies), and KSI 103 (Storage Procedures for Oil Cooled/Liquid Cooled Gasoline & Diesel Engines). The primary goal of this document is to provide general service information for all engines. Please note that these maintenance procedures are not intended to endorse or facilitate long-term storage of engines beyond one year.

## **STORAGE CONDITIONS AND OPERATION CHECK FOR LONG-TERM STORAGE ENGINES**

All Kubota engines, including mechanical diesel and gasoline/gas engines, as well as electrical diesel (common rail type) and gasoline/gas engines, manufactured and inspected at Kubota facilities, undergo anti-corrosion treatment. This includes the application of rust preventatives and sealing of intake and exhaust manifold ports. However, improper storage conditions at customer sites or malfunctioning key components (e.g., fuel injection pump) may lead to corrosion after one year of long-term storage due to the degradation of residual fuel in the engine. To prevent such issues, please adhere to the following storage conditions and inspection protocols prior to engine use. \*Note: For OC/AC Series and 05-CRS engines, this information applies for engines stored for six months or longer.

### **I. ENGINE STORAGE ENVIRONMENTS (ALL KUBOTA ENGINES)**

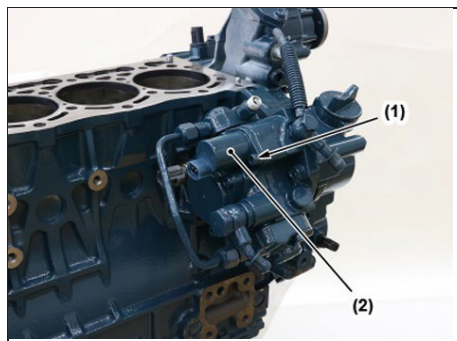
Select a suitable storage location with the following conditions:

1. Store engines indoors to protect them from rain.
2. Ensure the storage area is dry and well-ventilated.
3. Avoid direct sunlight exposure.
4. Keep engines away from extreme temperature fluctuations.
5. Protect engines from sea breezes.
6. Prevent wildlife intrusion (e.g., birds, rodents, insects).

### **II. ENGINE STORAGE CONDITIONS (ALL KUBOTA ENGINES)**

1. Use appropriate packaging and place engines on a hard, flat surface.
2. Securely tighten the oil fill cap to seal the engine.
3. Properly insert the oil gauge to ensure a tight seal.
4. Cover all ports, including the inlet manifold, exhaust manifold, breather pipe, fuel inlet locations, aftertreatment device outlet, and sensor/ECU couplers, to prevent air and dust ingress.
5. Use a plastic cover over the engine to shield it from rain, air, and dust.
6. For long-term storage of LPG engines, drain the gas before stopping operation to avoid damage from sulfur-containing residual gas.

\*\*For 05-CRS engines stored for over six months, remove the SCV every six months and refill it with fresh fuel. After refilling, mark the date on the SCV with white paint (e.g., July 2025 → 25.07). Handle the part that connects to the supply pump carefully to avoid contamination, as foreign objects can cause malfunctions.



### **05-CRS ENGINES**

1. Refer to the workshop manual section "Removal and Installation of the Suction Control Valve (SCV)."
  2. Remove the SCV from the supply pump.
  3. Fill the SCV with new fuel and record the implementation date.
  4. Install the SCV onto the supply pump.
- 1) SCV mounting screws  
2) SCV

### **III. RUST PREVENTION MEASURES FOR ENGINES EXPECTED TO BE STORED OVER ONE YEAR**

If an engine is anticipated to be stored for more than one year for replacement purposes, please ensure the following procedures are completed:

#### **Rust Prevention Procedure Inside the Crankcase:**

1. Every 1.5 years, fill the cooling system with a 3% solution of Kubota AR Coolant 2 (or an equivalent rust preventive liquid). Allow it to circulate for about 30 minutes, then drain completely.
2. Store the engine filled with new LLC (50% premixed).

#### **Filling and Discharging Rust Prevention Liquid:**

1. Remove the engine from its packaging.
2. Take off the thermostat cover and remove the thermostat for easier filling.
3. Cap the water pump inlet with a rubber cap and secure it with a band (ensure the drain plug is closed).
4. Fill the engine with the prescribed rust prevention liquid until it is full.
5. Maintain this fill for approximately 30 minutes.
6. After 30 minutes, drain the rust prevention liquid from the engine.
7. Reinstall the thermostat and cover (replace the thermostat cover gasket).

#### **Filling LLC (50% Premixed):**

Follow steps 1 to 4 above, ensuring the engine is stored with LLC filled inside. The mixing ratio should be 50%. During storage, cover the engine to prevent leakage and intrusion of foreign materials.

### **IV. INSPECTION BEFORE THE USE OF LONG-TERM STORAGE ENGINES**

Conduct the following inspections prior to using engines that have been stored for over one year.

#### **1. Visual Check (All Kubota Engines)**

1. Inspect for any rust on the engine surfaces.
2. Check for discoloration, cracks in the cooling fan, and degradation of the fan belt; replace parts if necessary.
3. Look for any breakages in exterior components; replace as needed.
4. Examine for signs of water, fuel, or oil leaks. Identify and repair any leaks.

#### **2. Regular Replacement Parts**

Some replacement parts specified in the operator's manual may degrade over time, even if the engine is not in use. For parts with a replacement interval based on time:

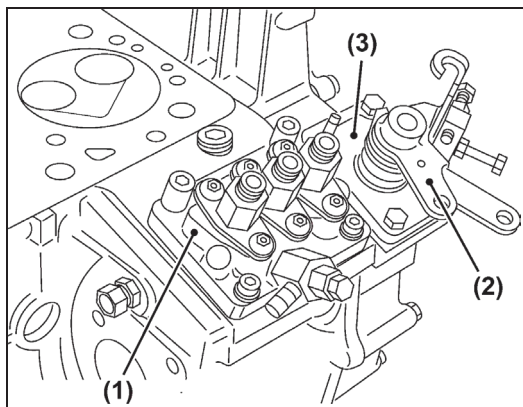
1. Replace the fuel hose with a new one before installing the equipment.
2. Visually inspect other parts; if any deterioration (cracks, tears) is found, replace them before installation.

#### **Typical Replacement Parts with a 2-Year Interval:**

- Rubber pipes associated with the oil separator
- Rubber pipes related to the DPF
- Intake air hose and intake air pressure takeout rubber pipe
- Boost sensor pressure rubber pipe
- Rubber pipe for EGR cooler
- Water rubber pipe
- Lubricant rubber pipe
- Radiator hose
- Fuel rubber pipe
- Fan belt

### 3. Operational Check of Fuel Injection Pump (Mechanical Diesel Engines)

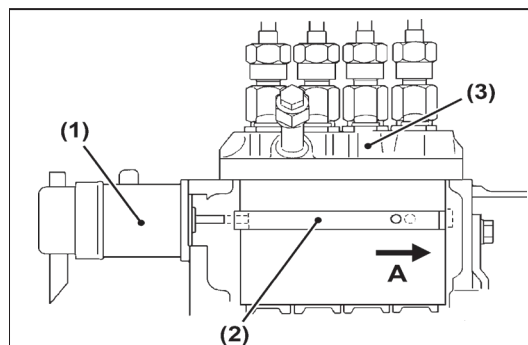
Fuel on the surface of the plunger and barrel of the fuel injection pump acts as both a corrosion inhibitor and lubricant. If engines are stored for extended periods without maintenance, the plunger and barrel may seize due to fuel degradation or oxidation. Attempting to start an engine with a seized fuel injection pump may lead to starting failures or uncontrolled engine speed. Therefore, check for any seizure of the plunger before using long-term stored engines.



#### NSM SERIES (MECHANICAL DIESEL ENGINES)

1. Refer to "Disassembling and Assembling of Fuel Injection Pump" section of Work Shop Manual.
2. Check the Stop Lever (2) moves smoothly by hand (i.e. Control Rack of Fuel Injection Pump (1) moves smoothly).
3. In case the Fuel Injection Pump (1) is seizing, disassemble the Fuel Injection Pump (1) from the engine for repair or replace with the new Pump if necessary.

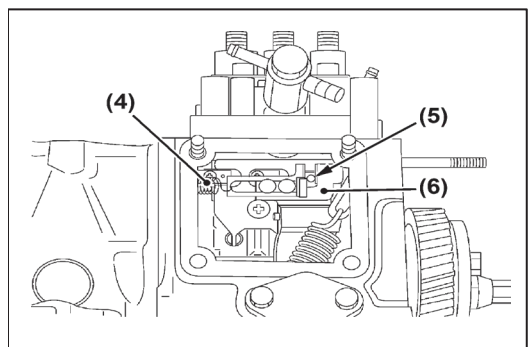
- (1) Fuel Injection Pump
- (2) Stop Lever
- (3) Speed Control Plate

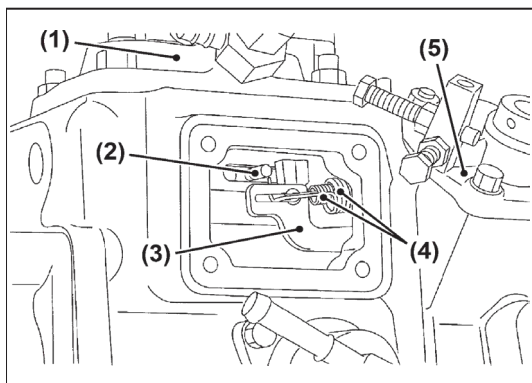


#### 05 SERIES (MECHANICAL DIESEL ENGINES)

1. Refer to "Disassembling and Assembling of Fuel Injection Pump" section of Work Shop Manual.
2. Disassemble the Engine Stop Solenoid (1) and the Speed Control Plate from the engine.
3. Check the Control Rack (2) of the Fuel Injection Pump (3) moves smoothly by hand.
4. In case the Fuel Injection Pump (3) is seizing, disassemble the Fuel Injection Pump (3) from the engine for repair or replace with the new Pump if necessary.

- (1) Engine Stop Solenoid
  - (2) Control Rack
  - (3) Fuel Injection Pump
  - (4) Start Spring
  - (5) Rack Pin
  - (6) Fork Lever
- A : To Stop**

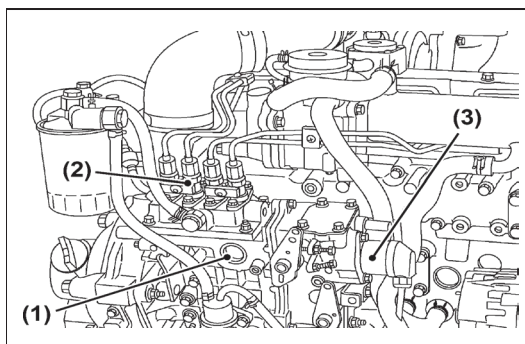




### 03 SERIES (APPLIED ONLY TO MECHANICAL DIESEL ENGINES)

1. Refer to "Disassembling and Assembling of Fuel Injection Pump" section of Work Shop Manual.
2. Disassemble the Engine Stop Solenoid and the Cover from the engine.
3. Check the Control Rack (2) of the Fuel Injection Pump (1) moves smoothly by hand.
4. In case the Fuel Injection Pump (1) is seizing, disassemble the Fuel Injection Pump (1) from the engine for repair or replace with the new Pump if necessary.

- |                         |                         |
|-------------------------|-------------------------|
| (1) Fuel Injection Pump | (4) Governor Spring     |
| (2) Control Rack        | (5) Speed Control Plate |
| (3) Fork Lever          |                         |

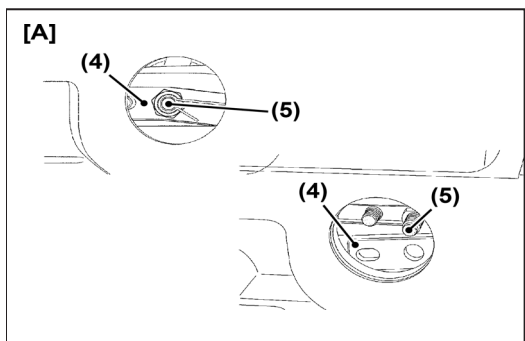


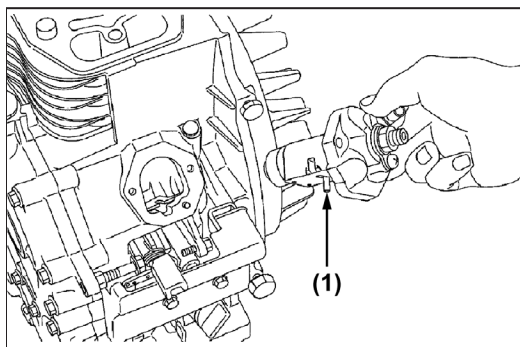
### 07 & V3 SERIES (APPLIED ONLY TO MECHANICAL DIESEL ENGINES)

1. Refer to "Disassembling and Assembling of Fuel Injection Pump" section of Work Shop Manual.
2. Disassemble the Engine Stop Solenoid (3) and the Cover Plug (1) from the engine.
3. Check the Connecting Rod (4) of the Fuel Injection Pump (2) moves smoothly by hand.
4. In case the Fuel Injection Pump (2) is seizing, disassemble the Fuel Injection Pump (2) from the engine for repair or replace with the new Pump if necessary.

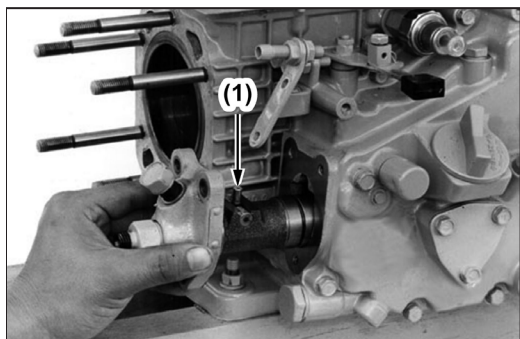
- |                          |
|--------------------------|
| (1) Cover Plug           |
| (2) Fuel Injection Pump  |
| (3) Engine Stop Solenoid |
| (4) Connecting Rod       |
| (5) Control Rack         |

**[A] After the cover plug (1) is removed**





OC/AC series



EA series

## OC/AC SERIES AND HORIZONTAL DIESEL ENGINES (EA SERIES)

1. Refer to "Disassembling and Assembling of Fuel Injection Pump" section of Work Shop Manual.
2. Follow the instructions in the Workshop Manual to confirm that the injection pump can be removed.
3. Use your finger to confirm that the control rack pin (1) can be moved smoothly within the range of movement.
4. If the fuel injection pump is stuck.  
Either have it repaired at a designated service shop or replace it with a new fuel injection pump.

(1) Control Rack Pin

## **V. CHECK ITEMS BEFORE SHIPPING OR INSTALLING (ALL KUBOTA ENGINES)**

Before shipping any long-term stored engine:

1. Adjust the fan belt tension according to the operator's manual.
2. Inspect the bands securing rubber hoses (fuel pipe, turbo boost hose) for looseness; tighten if necessary.
3. Manually rotate the flywheel and confirm:
  - No abnormal noises.
  - Air compression in each cylinder (equivalent resistance during the compression stroke).
4. For mechanical engines, refer to pages 4 to 6 for the operational check of the fuel injection pump to ensure the control rack is not stuck.

## **VI. PROCEDURE FOR STARTING ENGINES AFTER LONG-TERM STORAGE (ALL KUBOTA ENGINES)**

Engines stored for extended periods may lack oil film on sliding surfaces. To prevent sudden load connections upon startup, follow these procedures:

1. Ensure adequate lubricant and coolant levels.
2. Rotate the starter until the oil indicator turns off (approx. 10 seconds) to distribute oil throughout the engine.
3. Open the fuel cock, set the accelerator to low speed, and start the engine. Allow it to idle for 5 minutes, then gradually increase the RPM to maximum and check operational conditions.
4. Once confirmed there are no abnormalities, proceed with normal operation.