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# ENGINEERING INFORMATION

NUMBER: KEI - 162      ISSUE DATE: 12/30/2010

DISTRIBUTION: OEM's, Distributors, RSM's, KCL

SUBJECT: Kubota B20 Biodiesel Fuel Policy

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TOTAL PAGES: 3

## **TITLE:** Kubota B20 Biodiesel Fuel Policy for North America

### **Information:**

Kubota approves the use of B20 biodiesel fuel in our mechanical fuel injected diesel engines as long as the following standards and maintenance items are followed:

#### 1. Definition of Allowable B20 Biodiesel Fuel

- I. Blended diesel fuels containing 6% thru 20% Biodiesel fuel (B6 - B20) which comply with the American Society of Testing Materials ASTM 07467-09a Standard, as revised, can be used for your KUBOTA engine without adversely affecting the performance and durability of the engine and fuel system components.
- II. Any mineral oil diesel fuel, if used, must conform to ASTM 0975-09b Standard, as revised. B100 fuel used to make Biodiesel blended fuels must meet ASTM 06751-09a Standard, as revised. The final blended fuel B20 must conform to ASTM 07467-09a Standard, as revised. Pure vegetable oil is NOT allowed in any blended fuel.
- III. Allowable blended fuel is mineral oil diesel fuel blended with B100 (i.e. 100% Biodiesel fuel). The blended fuel ratio shall be 20% or less B100 and 80% or more diesel fuel. The B100 source used for Biodiesel blends must be purchased from an accredited BQ-9000 marketer or producer. More information about qualified marketer(s) and producer(s) can be found at <http://www.bq-9000.org>.

#### 2. Maintenance Requirements when using Biodiesel fuel B6 thru B20

- I. Replace the fuel hoses with new KUBOTA approved hoses\* at one half (1/2) of the replacement intervals as listed in the Operator's Manual. For Example: If the interval to replace the fuel hoses is listed at 100 hours, then replace the hoses at 50 hours. Follow the applicable Kubota or OEM workshop manual when servicing these components.
- II. Replace the fuel filters with new KUBOTA approved filters\* at one half (1/2) of the replacement interval as listed in the Operator's Manual.
- III. When using Biodiesel for the first time in your KUBOTA engine, replace the engine oil per the specifications in the Operator's Manual and replace the oil filter with a new KUBOTA approved filter then continue to follow the service specifications listed in the Operator's Manual.

**Please note that the replacement interval for the Fuel Hoses (I) and Fuel Filters (II) differs from the standard interval stated in the Operator's Manual.**

**\* If your machine is equipped with non-Kubota fuel hoses and/or filters ensure that these components are B20 compatible and follow the manufacturer's guidelines for maintenance with B20 fuel usage.**

3. Warranty Covered Countries: USA & Canada  
(EU and other regions will not be covered by the KUBOTA Limited Warranty.)
4. Some OEM's may have their own biodiesel fuel policies. In these cases the OEM takes all related warranty responsibilities and the Kubota policy does not apply.
5. Engines that currently use a Kubota electronic fuel feed pump do not need to change from the current pump. However, the Operator's Manual & Instructions for B20 must be followed.
6. In order to use B20 fuel, the engine's current mechanical fuel feed pump may need to be changed. Below are the 6 types of mechanical fuel feed pumps that Kubota offers for use with B20. If your Kubota mechanical fuel feed pump is not listed below then it is NOT B20 compatible and would need to be replaced with one listed below as being B20 compatible. Follow the applicable Kubota workshop manual when replacing these components.

<u>Engine Series</u>	<u>Current Fuel Pump NOT B20 Compatible</u>	<u>New Fuel Pump B20 Compatible</u>	<u>Gasket</u>
SM	1G961-52030	1G826-52030	16264-52140
05	16241-52032	1G177-52030	16261-52140
05	16271-52032	1G062-52030	16261-52140
05	16285-52032	1G910-52030	16261-52140
03, 03M	17121-52030	1G896-52030	1G751-52140
V3, 07	1C010-52032	1J597-52030	16261-52140

7. This policy does not apply to engines with common rail fuel systems. These engines are limited to the use of diesel fuel with 5% or less biodiesel (B5) meeting the requirements per KEI-144.
8. Product Warranty, Emissions Compliance and Other Precautions
  - I. Your KUBOTA engine emission control system was certified according to applicable emissions regulations based on the use of non-biodiesel fuel. When using Biodiesel fuel, the owner is advised to check applicable local and federal emission regulations and comply with them as required.
  - II. Biodiesel fuel may cause restricted or clogged fuel filters during cold weather conditions, resulting in improper engine operation.
  - III. Biodiesel fuel encourages the growth of microorganisms which may cause degradation of the fuel. This in turn may cause fuel line corrosion or reduce fuel filter flow sooner than expected.
  - IV. Biodiesel fuel inherently absorbs moisture which may cause degradation of the fuel sooner than expected. To avoid this, drain the water separator and fuel filter port often. The use of a fuel water separator is strongly recommended when using B20 fuel.
  - V. Unlike soybean-based and rapeseed-based feedstock, palm oil-based feedstock is less fluid at low temperatures. Consequently, fuel filter performance may be reduced, particularly during cold weather conditions.
  - VI. The KUBOTA Limited Warranty only covers defects in product materials and workmanship for KUBOTA approved engines. Accordingly, any problems that may arise due to the use of poor quality fuels that fail to meet the above requirements, whether biodiesel or mineral oil based, are not covered by the KUBOTA Limited Warranty .
9. Routine handling
  - I. Avoid spilling Biodiesel fuel onto painted surfaces as it may damage the finish. If fuel is spilled, immediately wipe up and clean with soapy water to avoid permanent damage.
  - II. When using Biodiesel fuel, you are advised to maintain a full fuel tank level, especially overnight and during short term storage, to reduce condensation inside of the tank. Also be certain to tighten the fuel cap after refueling to prevent moisture build up inside of the tank. Water in the biodiesel mixture will damage fuel filters and may damage engine components.

## 10 Long Term Storage

- I. Biodiesel fuel easily deteriorates due to oxygen, water, heat and foreign substances. Do not store B6 thru B20 longer than one (1) month and B5 longer than three (3) months.
- II. When using B6 thru B20 and storing the machine longer than one (1) month, drain the fuel from the tanks and replace with light mineral oil diesel fuel. Subsequently, run the engine at least thirty (30) minutes to remove all of the biodiesel from the fuel lines and filter.
- III. When using B5 fuel and storing the machine longer than three (3) months, drain the fuel from the tanks and replace with light mineral oil diesel fuel. Subsequently, run the engine at least thirty (30) minutes to remove all of the biodiesel from the fuel lines and filter.