Nonroad Equipment Facts
North American Tier 4 Interim, EU Stage IIIB, Japan Step 4 Impacts

**Discussion:** The United States, European Union (EU), and Japan are implementing significant regulations that mandate the lowest emitting nonroad equipment in history. Canada is expected to release similar regulatory programs in January 2012. These regulations, which are known as U.S. Tier 4 Interim/EU Stage IIIB/Japan Step 4, will result in nonroad equipment approaching near-zero emissions of particulate matter (PM) and oxides of nitrogen (NOx).

The effective dates for Tier 4 Interim/Stage IIIB are as show:
January 2011: 130 – 560 kW (175 – 750 hp); >560 kW (>750 hp) (U.S. & Canada)
January 2012: 56 – 130 kW (75 – 175 hp)

The regulations require diesel engines to reduce Particulate Matter (PM) exhaust emissions by 90% and Oxides of Nitrogen (NOx) exhaust emissions by 50% compared with the Tier 3 and Stage IIIA emissions standards.

**New Fuel Requirements:** Tier 4 Interim/Stage IIIB/Step 4 generation engines with exhaust gas recirculation (EGR) and equipment require the use of ultra-low sulfur diesel fuel (“ULSD”), which has no more than 15 ppm sulfur. FAILURE TO USE ULSD FUEL CAN RESULT IN SEVERE DAMAGE OR FAILURE TO THE ENGINE, FUEL SYSTEM AND DIESEL PARTICULATE FILTER SYSTEM. For more information on clean diesel fuel requirements visit www.clean-diesel.org

**Recommendations for Potential Latin American Purchasers of Nonroad Equipment:** A very high percent of the used equipment that is imported to Latin America originates from countries that fall under these new emissions regulations. In the event that a used (or new) Tier 4 Interim/Stage IIIB/Step 4 emission level machine with EGR arrives in Latin America and proceeds to be operated, using non-ULSD fuel, severe damage or failures to the engine, fuel systems, and diesel particulate filter system are imminent.

Estimated Fuel Sulfur levels in Latin American Fuel (measured in parts per million) ppm:
- Argentina Metro Area: 500ppm
- Argentina Other: 2,000ppm
- Brazil Metro Area: 500ppm
- Brazil Other: 2,000ppm
- Chile Metro Area: 50ppm (could be reduced to 15ppm in 2011)
- Chile Other: 350ppm (could be reduced to 50ppm in 2011)
- Mexico Metro Areas: 15-500ppm
- Mexico/US Border Areas: 15ppm (not consistent)
- Mexico Other: 5,000ppm
- Venezuela: 5,000ppm
- All Other Countries 1,000-12,000 range

Prior to purchasing new or used nonroad equipment, obtain written verification from the manufacturer, re-seller, or broker whether or not the equipment requires the use of ULSD fuel. This will help to avoid repetitive or catastrophic failures caused by higher sulfur fuel. Avoid importing equipment that was not designed to run in the region of the world in which you work.

Typically, this or a similar label will be posted at the fuel fill location for nonroad equipment that requires ULSD fuel.

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