



PRODUCT INFORMATION BULLETIN



PIB # 021711

February 17, 2011

Model / Series Impact: Hyster H400-450HD; H400-500-EC; H550-700HD

To: Hyster Dealer Principals, Sales Managers and Sales Representatives
From: Herman Klaus, Director of Big Truck Operations

SUBJ: Hyster Trucks updated to meet new EPA Tier 4 (interim) Emissions regulations

Beginning in January 2011, new US EPA legislation requires diesel engine manufacturers to further reduce exhaust gas emissions. The legislation requires an additional reduction of 90% Particulate Matter (PM) emissions and 45% Nitrogen Oxides (NOx) emissions versus current Tier 3 legislation for engines with ratings above 174 horsepower (130 kW).

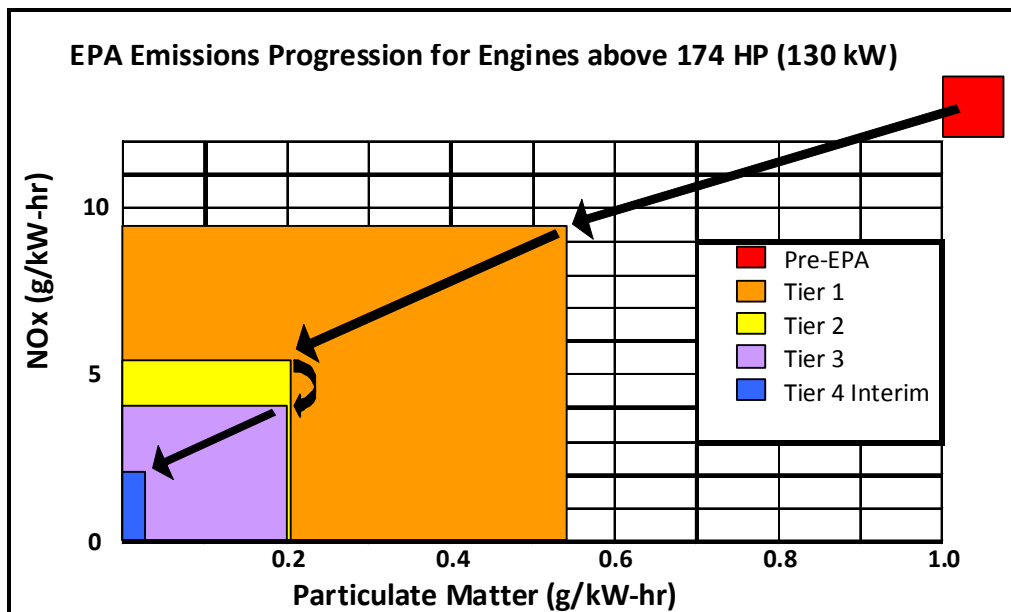
All Hyster Big Trucks with 40,000 lbs lifting capacity and above that are sold into the US are subject to this legislation. Canada originally planned to adopt this legislation, but has put it on hold for now.

This bulletin is to announce the availability of Tier 4 (interim) compliant engines for several series of Hyster Big Trucks.

Note: Equipment already in service is not affected by the new legislation.

What is the EPA Tier 4 (interim) emission legislation?

It is the next stage in the process to reduce exhaust gas emission levels of engines in mobile off-highway applications. Since it was introduced, this process has required engine manufacturers to significantly reduce the levels of Nitrogen Oxides (NOx) and Particulate Matter (PM), as shown in the diagram below:



From 1996 to Tier 4i (2011):

- 96% reduction of PM
- 76% reduction of NOx

Exemptions to the EPA Tier 4 (interim) emission regulations

While these standards take effect beginning in January 2011, there are some exemptions that apply which will prolong the availability of Tier 3 engines.

1. Stock provision (temporary)

In accordance with the legislation, Hyster is permitted to supply trucks equipped with Tier 3 diesel engines, if the engine was supplied to us by the engine manufacturer before December 31, 2010. Please refer to the introduction schedule below.

2. Flexibility provision (temporary)

The EPA legislation allows OEMs some additional flexibility in the implementation of Tier 4 engines. As a result, Hyster Company will be able to offer a fixed number of Tier 3 engines produced after December 31, 2010. Our customers can continue to order Tier 3 engines until our allotment is used up. We anticipate that this will not occur until 4Q 2011. (Note that different OEMs will have different implementation schedules and strategies, and may not be able to offer Tier 3 engines).

3. Other markets not covered by standards

Markets outside the US can be supplied with either Tier 3 or Tier 4 (interim) engines. (However, similar legislation does apply to trucks sold into EU countries and Japan. Tier 3 trucks cannot be sold into these regions).

Overview of Tier 4i compliance of diesel engines in Hyster Big Trucks

Introduction schedule

Truck series	Series code change	Availability Tier 4i engine version	Diesel engine type
H400-450HD H400-500HD-EC	Series code change (for both Tier 3 & 4i versions) beginning January 2011 : A236 -> B236 (H400-450HD) B214 -> C214 (H400-500HD-EC)	Tier 4i version first available dates (subject to prior sales): H400-450HD: June 2011 H400-500HD-EC: June 2011	Tier 3: Cummins QSB6.7 195 or 230 HP Tier 4i: Cummins QSB6.7 230 HP
H550-700HD	Series code change (for both Tier 3 & 4i versions) beginning January 2011 : F008 -> G008	Tier 4i version first available dates (subject to prior sales): H550-700HD: June 2011	Tier 4i: Cummins QSC8.3 230 or 260 HP Tier 4i: Cummins QSB6.7 270 HP
H800-1050HD H1050-1150HD-CH Reachstacker	Details to be released later in 2011	Details to be released later in 2011	

Pricing

You will be able to download the price lists for the H400-450HD (B236 series), H400-500HD-EC (C214 series) and H550-700HD (G008 series) featuring the new series codes from the [Hyster Digital Dealer](#).

How to achieve lower emissions levels

Achieving such low levels of exhaust emissions requires a major investment in engine technology and involves the addition of new systems such as Particulate Filter after treatment. Hyster has worked with leading engine manufacturer Cummins to apply new engine technologies to its range of Big Trucks

- The Advanced Exhaust Gas Recirculation (EGR) system used by Cummins combines today's approach with high-pressure common-rail fuel injection and electronically controlled air and fuel management. The cooled EGR system enables clean combustion and results in a reduction in NOx emissions to the levels required by the legislation.
- Particulate Matter (PM) is collected in a Diesel Particulate Filter and then oxidized by passive and or active regeneration in an exhaust after treatment system, in order to meet the requirements of the new legislation.
- Tier 4i also requires that crankcase emissions, also known as blow-by gasses, be eliminated. To achieve this, Cummins engines incorporate a highly efficient coalescing filter which returns the oil to the crankcase and provides the added benefit of removing oil mist and tiny oil droplets, ensuring that the engine and powertrain remain cleaner than at Tier 3.

Delivering low lifetime costs

These changes do have their advantages. For example, with the Cummins Tier 4i engines, Hyster has demonstrated improved fuel efficiency compared to Tier 3. Productivity has been enhanced, thanks to faster engine response, enabling Hyster equipment to work cleaner and quieter than ever before with reduced CO2 emissions, helping users to reduce the overall carbon footprint of the truck.

Fuel Savings

In addition to the Cummins technologies applied to Hyster Big Trucks, Hyster has introduced various performance optimization techniques to help reduce the total fuel consumption even further. The upgrades for example include a key-switch in the operator compartment, enabling the selection of different power modes with the opportunity to achieve a further 15% fuel saving.

2012 and beyond

Looking ahead, there are more regulations to follow and in January 2012, smaller trucks will be affected within the 75 -173 HP (56 -129 kW) power category. Hyster is now also working towards 2014 and 2015 when emissions levels must drop even further.

Ports, terminals and heavy industry do not have to change their existing equipment to meet the regulations; however, new machine purchases in the US must comply.

As a global brand, Hyster will continue to offer Tier 3 versions of its equipment in some regions outside of the US.

Product Information

A series of on-line sales information seminars will be scheduled over the coming weeks. All sales people involved in selling Big Trucks should participate in one of these training events. In addition, our Sales Training team has released a PowerPoint presentation to describe details of the legislation, and the product updates and features incorporated into the Hyster Tier 4i trucks. Select this link to the [PowerPoint presentation](#)

[New Brochure / Tech Guides](#) (BTG) have been released to include the Tier 4 engine performance.

A new brochure describing the Hyster solution to Tier 4i will be available soon. Look for that information in a future Dealer Digest.

For further information, please contact your Big Truck Sales Manager.