



ENVIRONMENTAL CARE

A Volvo Core Value

March, 2015

OUR ENVIRONMENT VISION

The Volvo Group is to be ranked as a leader in terms of Environmental Care among the world's top producers of transport related products, equipment and systems.



ENVIRONMENTAL CARE

The aim is to achieve the least possible adverse impact on the environment for our products & operations.

We are working to improve energy efficiency and to reduce emissions in all aspects of our business, with particular focus on the use of our products.

Volvo Group is one of the industry leaders in Environmental Care. To make sure we continue this we strive for a holistic view, continuous improvement, technical development and efficient resource utilization.

ACCEPTING THE CLIMATE CHALLENGE

Battling climate change is the primary environmental issue for those of us who work in the transport sector. Construction equipment companies are responsible for helping to build the infrastructure of the planet.

As we undeniably add to greenhouse emissions and climate change, manufacturers have a duty to also be part of the solution.



GREEN THINKING

Building leading products today for a better future tomorrow.

Ensuring a successful and effective environmental care program means applying green thinking to everything we do:

- *Reducing energy consumption per manufactured unit by at least 12% 2015-2020.*
- *Striving towards CO₂-neutral facilities in our operations*
- *Improvement in material efficiency and waste reduction, including an efficient water management system*
- *Elimination of hazardous waste*
- *Environmental impact analyses conducted on all new products and processes as well as periodic checks to ensure we stay on track*
- *Progressive elimination of substances which are judged to be harmful to the environment / replacement with better alternatives*
- *WWF Climate Savers 2015-2020 initiatives: Volvo CE will develop a methodology for operator training and site simulation to support dealers in all regions in order to enhance the site efficiency of their customers; objective to reduce their CO₂-emissions through improved operator behavior and machine utilization.*

GREEN THINKING

With emphasis on recyclability from the product development phase, Volvo Construction Equipment machines are specifically designed so that they are easy to dismantle for recycling at end-of-life.

ECO OPERATOR AND SITE SIMULATION

Eco Operator training teaches fuel efficient methods of working, making operators more environmentally conscious.

***Site simulation** too can support improved operator behavior and machine utilization to enhance site efficiency.*

VOLVO REMAN

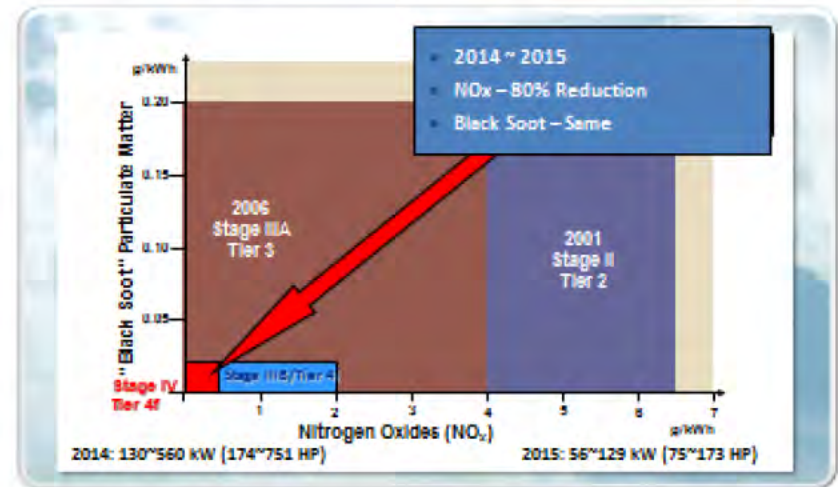
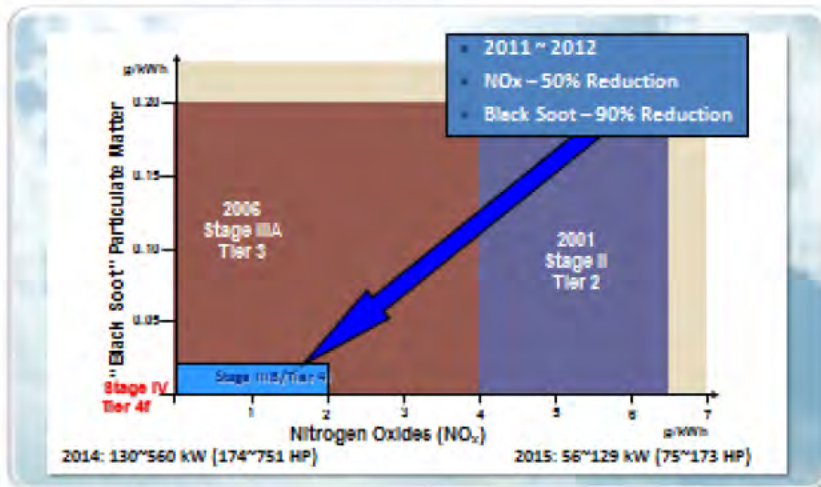
Factory remanufactured components can be recycled and used several times



PROGRESSIVE EMISSIONS REDUCTION

The Volvo Group has taken a leading role in addressing the regulatory requirements for the progressive reduction in Particulate Matter (PM) and Nitrogen Oxides (NO_x), the result of which is significant environmental improvement.

- **1996:** Start of emissions legislation with Tier 1 / Stage I
- **2001:** Tier 2 / Stage II called for significant reductions in both PM and NO_x
- **2006:** Tier 3 / Stage IIIA called for a much more significant reduction in PM
- **2011-2012:** Tier 4 Interim / Stage IIIB required a further 50% reduction in NO_x and a massive 90% reduction in PM
- **2014-2015:** Tier 4 Final / Stage IV required a further 80% reduction in NO_x



MANUFACTURING & SUPPLIERS

- *Manufacturing of the main components - engines, transmissions, drive axles and cabs as well as assembly - takes place at production facilities of Volvo Construction Equipment.
All of these are certified according to ISO 14001.*
- *For components and parts purchased from external suppliers Volvo Construction Equipment works in close cooperation with them in order to ensure that purchased components and parts meet our environmental requirements.*
- *All major component suppliers are also ISO14001 certified.*


HAZARDOUS SUBSTANCES AND MATERIALS

- *The Volvo Group is one the leading automotive and machinery producers in the area of control and avoidance of hazardous substances and materials.*
- *The long standing Volvo internal Grey and Black lists were completed in 2009 with the international industry standard Global Automotive Declarable Substance List (GADSL).*
- *Originally drawn up in collaboration between global automotive manufacturers and subcontractors, the GADSL list includes substances designated as prohibited and/or declarable within the industry.*



Crawler Excavators – ENVIRONMENTAL CARE

Caring for the environment is one of Volvo's core values. This means that Volvo Construction Equipment works with an overall perspective of its products that extends throughout their entire life cycle. This includes engineering and design, material selection, manufacturing processes, product use and recycling.



Solvent content in paint is minimized.

Cleaning and recirculation during the pre-treatment processes in our factories reduces consumption of water and chemicals.

Machines don't contain any hazardous substances / materials specified in GADSL [*Global Automotive Declarable Substance List*].

Service
To facilitate draining and reduce the risk of spilling engine oil and hydraulic oil, special hoses are supplied with each machine.
For bleeding air from the hydraulic oil tank there is a breather filter to reduce appearance of any oil mist.
The hydraulic tank has a protective valve in the breather filter, minimizing leakage in the event of machine turn-over / roll-over.

A cab pre-filter ensures that both fresh and recirculated air is always filtered, providing a clean and healthy operator environment.

Machine is 95% recyclable by weight.

Tier 4Ff / Stage IIIB emissions compliant engine.

Use of Bio fuel up to 7% [Recommendation].

Volvo recommends biodegradable hydraulic oil.

ECO mode
Volvo's unique ECO mode improves fuel efficiency.

Wheeled Excavators – ENVIRONMENTAL CARE

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Solvent content in paint is minimized.

Cleaning and recirculation during the pretreatment processes in our factories reduces consumption of water and chemicals.

Machines don't contain any hazardous substances / materials specified in GADSL [*Global Automotive Declarable Substance List*].

Service
To facilitate draining and reduce the risk of spilling engine oil / hydraulic oil, special hoses are supplied with each machine. For bleeding air from axles, transmission and the hydraulic oil tank there is a breather filter to reduce appearance of any oil mist. The hydraulic tank, as well as front and rear axles, has a protective valve in the breather filter, minimizing leakage in the event of machine turn-over / roll-over.

A cab pre-filter ensures that both fresh and recirculated air is always filtered, providing a clean and healthy operator environment.

Machine is 95% recyclable by weight.



Tier 4F1 / Stage IIIB emissions compliant engine.

Use of Bio fuel up to 7% [Recommendation].



Volvo recommends biodegradable hydraulic oil.

ECO mode
Volvo's unique ECO mode improves fuel efficiency and operators' environmental awareness.

Tires without high-aromatic oils (HA-oils) are available from our suppliers.

Articulated Haulers – ENVIRONMENTAL CARE

Caring for the environment is one of Volvo's core values. This means that Volvo Construction Equipment works with an overall perspective of its products that extends throughout their entire life cycle. This includes engineering and design, material selection, manufacturing processes, product use and recycling.



Tier 4F / Stage IIIB emissions compliant engine.

Use of Bio fuel up to 7% [Recommendation].



Volvo recommends biodegradable hydraulic oil.

Machine is 95% recyclable by weight.

Benefits of using an off-road hauler instead of a regular construction truck in certain applications – Easier access in difficult terrain conditions can result in reduced need for temporary roads and fewer machines due to higher capacity = reduced environmental impact.

Solvent content in paint is minimized.

Cleaning and recirculation during the pretreatment processes in our factories reduces consumption of water and chemicals.

Machines don't contain any hazardous substances / materials specified in GADSL [*Global Automotive Declarable Substance List*].

Service

To facilitate draining and reduce the risk of spilling engine / hydraulic oil, a special drain hose is supplied with each machine. There is a breather filter to reduce oil mist for venting axles, transmission and the hydraulic tank.

The hydraulic tank, as well as front and rear axles, has a protective valve in the breather filter to minimize leakage in the event of a roll-over or turnover.

The tank cap is closed tightly to prevent fuel leaks in case of a roll-over or turn-over.

All engines have a system for cleaning the crankcase emissions of oil particles and mist.


A cab pre-filter ensures that both fresh and recirculated air is always filtered, providing a clean and healthy operator environment.

Tires without high-aromatic oils (HA-oils) are available from our suppliers.



Wheel Loaders – ENVIRONMENTAL CARE

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A cab pre-filter ensures that both fresh and recirculated air is always filtered, providing a clean and healthy operator environment.

Machine is 95% recyclable by weight.

Solvent content in paint is minimized.

Cleaning and recirculation during the pretreatment processes in our factories reduces consumption of water and chemicals.

Tires without high-aromatic oils (HA-oils) are available from our suppliers.

Service
Special hoses supplied with each machine facilitate draining and reduce the risk of spilling engine oil / hydraulic oil. There is a breather filter to reduce oil mist for venting axles, transmission and the hydraulic oil tank. Front and rear axles, as well as the hydraulic tank, have a protective valve in the breather filter to minimize leakage in the event of a roll-over / turn-over. The tank cap closes tightly to prevent fuel leaks in the event of a roll-over / turn-over. All engines have a system for cleaning the crankcase ventilation's emissions of oil particles.


Tier 4F / Stage IIIB emissions compliant engine.

Use of Bio fuel up to 7% [Recommendation].

Volvo recommends biodegradable hydraulic oil.

Machines don't contain any hazardous substances / materials specified in GADSL [*Global Automotive Declarable Substance List*].

Eco pedal
Volvo's unique eco pedal applies mechanical push-back force when the accelerator is used excessively and engine rpm is about to exceed the economic operating range.



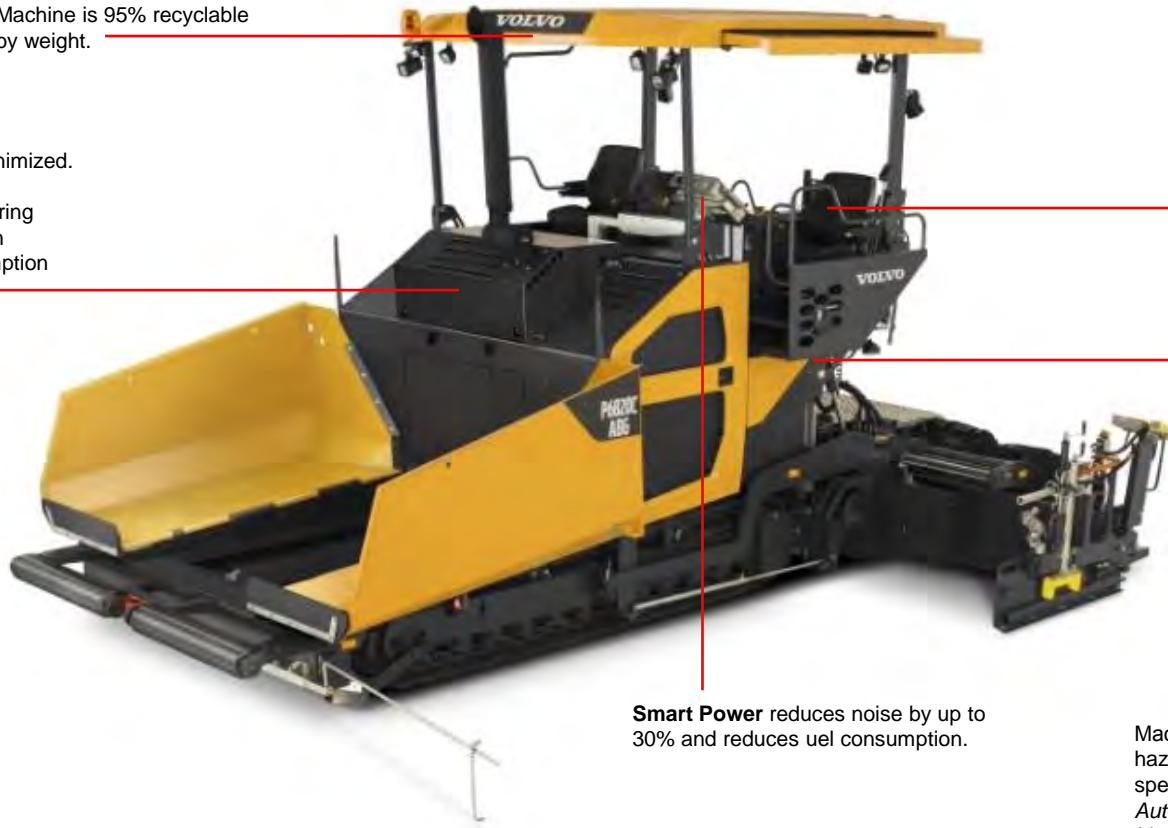
Pavers – ENVIRONMENTAL CARE

Caring for the environment is one of Volvo's core values. This means that Volvo Construction Equipment works with an overall perspective of its products that extends throughout their entire life cycle. This includes engineering and design, material selection, manufacturing processes, product use and recycling.

Machine is 95% recyclable by weight.

Solvent content in paint is minimized.

Cleaning and recirculation during the pretreatment processes in our factories reduces consumption of water and chemicals.



Low noise reduces noise pollution.

Engine complies with the latest emissions regulations..

Use of Bio fuel up to 7% [Recommendation].



Volvo recommends biodegradable hydraulic oil.

Smart Power reduces noise by up to 30% and reduces fuel consumption.

Machines don't contain any hazardous substances / materials specified in GADSL [*Global Automotive Declarable Substance List*].