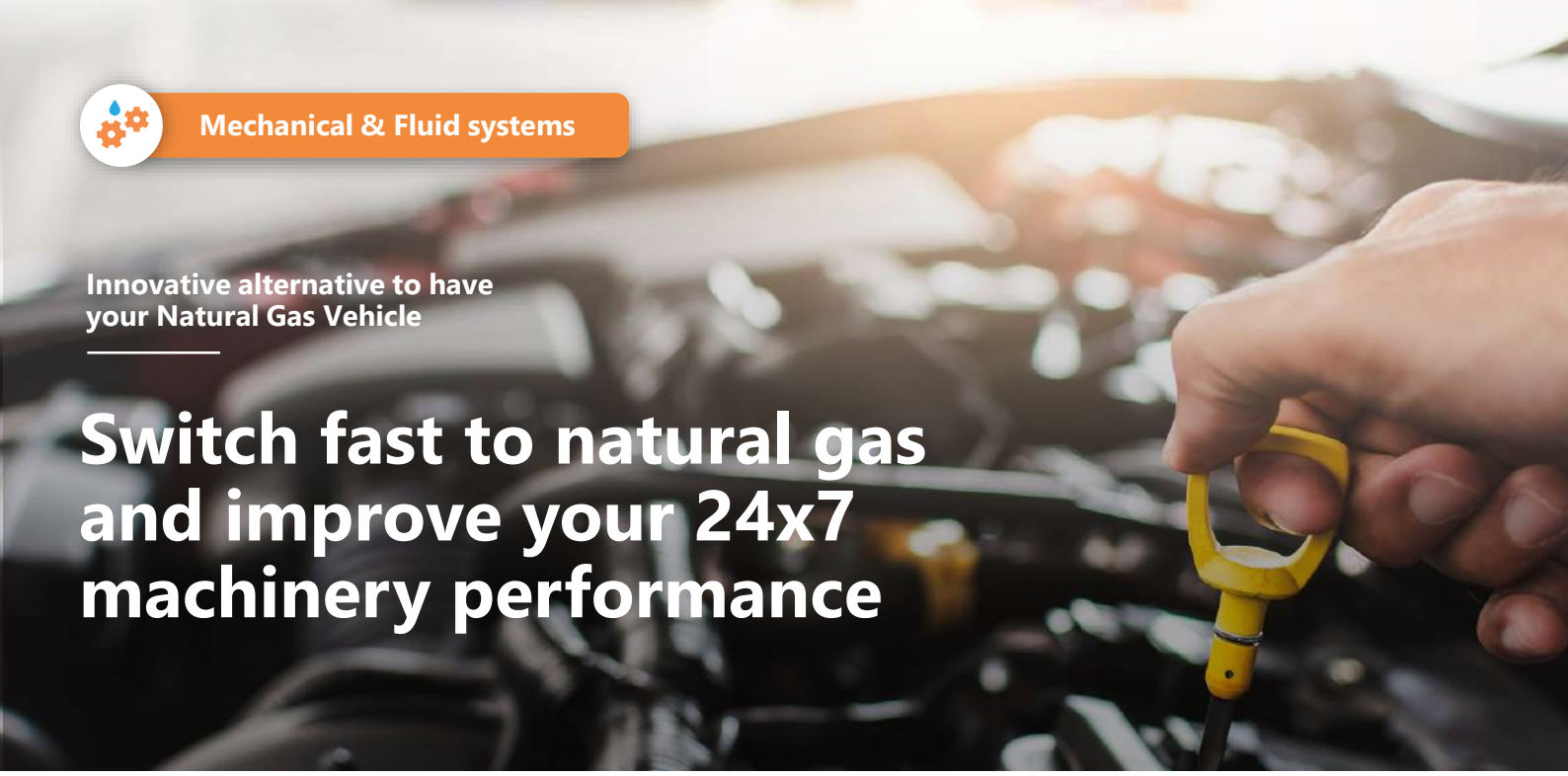
Mechanical & Fluid systems



Innovative alternative to have your Natural Gas Vehicle

Switch fast to natural gas and improve your 24x7 machinery performance

Universidad Tecnológica de Pereira

Target Markets / Potential Applications

- Transport industry
- Isolated electric generation sector

IP Status

Patent: US10253688B2, NC2016/0000102

Offer: Worldwide exclusive license for any potential tech application, and a sole licensing from a UTP Spin-Off in some product listing.

Convert your engine to natural gas with a shorter time alternative and with lower costs, due to the innovative methods used.

Innovators at the *Universidad Tecnológica de Pereira* have developed a whole technological package to transform engines form diesel to natural gas.

This invention relates to diesel engines converted to natural gas by a compression ratio reduction process by adding cold material at the cylinder head without the need for internal engine modifications, thus reducing costs and installation times. The method consists of increasing the size of the combustion chamber over the engine head, without affecting the structural reliability of the engine and allowing the process to be reversible compared to processes requiring internal engine modifications.

Benefits

- Reduction of total operating costs.
- Environmental impact (accessible and non-polluting energy, climate action).
- Sustainable cities and communities.
- Government incentives for using natural gas.

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BUSINESS OPPORTUNITY

The need

There are current environmental and public health problems where emissions from diesel engines are a mayor cause of air pollution so there is a need to reduce this emissions and operation cost in engine motors. Due to high prices of liquid fuels for external factors, **Natural Gas Vehicle (NGV)** emerged as an alternative for diesel engines to be transformed.

The Package Delivery Industry**,** particularly Trucking Industry, needs to convert a diesel engine so that it can use natural gas as fuel is the reduction of the compression ratio, since the one that the diesel engine initially has is greater than the one needed for the optimal operation with natural gas.

The client segment needs to improve engine efficiency with less wear and more power on the cars that works 24x7.

The solution

The process allows the conversion of a diesel engine to natural gas, increasing the size of the combustion chamber over the engine head, without affecting the structural reliability of the engine and allowing the process to be reversible compared to processes requiring internal engine.

This process reduces the installation time from one week to one day, and lower costs are associated with less engine disassembly and less component intervention.

It is the main advantage that allows the performance of the motor to become more efficient and powerful.

Fig. 1

Fig. 2

Fig. 1 Testing of the testing.

Fig. 2 Motor converted from Diesel to NGV.

Innovators

Main innovator

Luis Guillermo Gaviria Arboleda.

B.Eng. Professor and Researcher of Mechanical Department. Engineer Faculty. *Universidad Tecnológica de Pereira.*

Innovation Maturity

TRL7 - Product prototype in an operational environment Stage (Alpha prototype):

- The technology is already installed and running in some automobiles in Colombia and Peru.

CRL2 - Market Awareness Stage:

- A Tech Market Report in the automobile industry is completed.

What are the TRL & CRL?

Other relevant information

Videos Sell Sheets

IVECO Daily truck transformed into Natural Gas in a **Dedicated** type:

https://youtu.be/Mfz_HezTzoE

IVECO truck transformed to Natural Gas. First kick-off test.

https://youtu.be/BUuYxinQmak

Technology field: Electrical machinery, apparatus, energy Transport

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