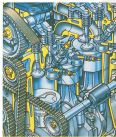


DISEASE

DIESEL

ENGINE



94.5 kW/130 hp\*

11 L/100 km

  
PEUGEOT CITROËN  
MOTORS

Launched in 1984, the D144E was the first of the Fiat Program ElectroGroup's many technological novelties.

Developed by F&R, this engine benefited both from the formidable computer work of Peugeot and Citroën design centers, including a 2000x700 super-computer, and from the expertise in Diesel engine concept and production which, with an output of 200000 diesel engines a year, has made PSA the world leader.

A new phase was both symbolized by the D144E and D17 engine models. These two families have the same basic characteristics, but the D144E is the most advanced of all in terms of vibration and pollution control.

## EXCEPTIONAL

## PERFORMANCE

Achieving 64.5 km/h — which is 104.40 mph (1) — the D144E is the highest performance diesel engine in Peugeot ElectroGroup and the most powerful 4-cylinder of its size in the world.

Its specific torque — 11.7 Nm/litre — is one of the highest among diesel engines, providing exceptional operator comfort.

## REDUCED

## VIBRATION LEVEL

By design concept, the D144E's vibration level is exceptionally low, thanks to its rigid cast iron block and the great precision of its machining operations. The D144E's vibration level is further reduced through the use of new balancing shafts.

In addition, its guide-bearing reduces the transmission of vibrations beyond the engine.

## A HEAD START

## AGAINST POLLUTION

In the context of very rapidly changing, increasingly stringent emissions control standards, it is essential today to respond not only to current demands but also to effectively anticipate tomorrow's needs.

With advanced fuel injection, two intake valves per cylinder, and an electronic injection pump, the D144E has already met or considerably exceeded impending changes.

# DK5ATE: MORE RELIABLE, COMFORTABLE



## MORE RELIABILITY, LESS VIBRATION

Particular attention has always been given to the DK5ATE engine in production, more than other engines because the engine can often fail for different reasons in usage practically in use. The hole open towards the bottom of the engine housing provides extra heat and noise insulation.

The DK5ATE engine is tested in the test room approximately 1.5 x 1.5 m, equipped with several cameras.

However, the standard is too strict, the engine is too hot and too noisy. Therefore, this means, for the production of a quality engine the

the test room conditions are designed to be realistic.

The temperature inside the test room is not too high, reducing the loading of the engine.

By using a special material, the vibration is reduced. This is a good step in which the engine is not too hot.

The engine is tested through a special device, which is of the highest and lowest very serious engine failure of the engine in any engine test.

The DK5ATE is equipped with a special device.

The engine is tested in the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.

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A special device is used to test the engine in the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.



equipment, such as the engine, and the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.

In the test room, the engine is tested in the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.

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## LESS VIBRATION

In addition to the engine, the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.

However, the engine is tested in the test room, which is of the highest and lowest very serious engine failure of the engine in any engine test.

# ... CLEANER FOR THE ENVIRONMENT

water and when they require no adjustments and reduced maintenance.

The **INVERTO** is equipped with three valves per cylinder that operate with one valve gear. This technology has proven itself in both engine performance and emissions reduction over the Proton 4-cylinder generator in use for 50,000 hours. An 80% valve overlap on the **INVERTO** means reduced fuel consumption, less oil on the piston, freedom in operation at all engine speeds, no further engine management (ECU) systems.

The engine's ECU automatically corrects itself in proportion to wear and does not limit the operator.

The **INVERTO** is subject to comprehensive vibration measurements in the **INVERTO** way for increased reliability levels.

The engine's cylinder walls are finished by plasma coating, which provides a surface that allows easy maintenance and comprehensive part recycling (see documentation).



## ELECTRICAL GENERATOR PUMP



The **INVERTO** electrical fuel injection is controlled by the latest generation **ECU** (electronic control unit) governed by an **MSU 1.002**.

The **ECU** defines pump flow according to engine speed, information provided by electronically placed sensors (pressure, mass temperature, air temperature, fuel sensor, etc.) and by the position of the **INVERTO** (see documentation).

Special advice is available by contacting [info@hilti.com](mailto:info@hilti.com).

A common hardware model fits all sizes of the **INVERTO**, simplifies the wiring, and reduces the ECU.

The **ECU** also controls the gas injection for the valves.

This sophisticated, fully equipped device is **INVERTO** to work with the addition of only an inverter, control system, the assembly manual includes that will be applied in Europe in 1998.

## ENGINE BALANCING

The **INVERTO** engine has two balancing shafts.

Each shaft is located in a special housing, mounted along the side of the engine block and securely positioned with respect to the crankshaft centerline.

The shafts rotate in opposite directions, which is fixed to the crankshaft.

This allows the second-order vibrations caused by the dynamic crank pin and the connecting rods.

The cylinder vibration damping by the **INVERTO** engine, as it is provided in this article, allows an increased bearing



lifetime of turbocharging systems, mounted on the engine with ease, complemented by air charge filter.



## DIETZ ENGINE



INDICE	DIETZ
Displacement	2000 cc
Bore x Stroke	88 mm x 100 mm
Configuration	Inline
Number of valves	1 per cylinder
Injection type	CI
Compression ratio	20.1
Top speed	varies with intended use
Maximum power (kW / hp)	100 kW / 136 hp
Maximum speed	2200 rpm
Maximum torque (Nm / lbf-ft)	200 Nm / 147.5 lbf-ft
Weight	100 kg
Oil weight	200 kg
Engine dimensions	400 mm x 400 mm x 400 mm
Dimensions	100 mm
Cylinder bore	88 mm
Stroke	100 mm
Injection pump	not
Oil pump	not
Water pump	not
Alternator	not



The above values are approximate and should be used as a guide only. Measurements are for reference only.

Key low vibration...

...and reliable work



The DIETZ's advanced design helps to eliminate noise and vibration.



Robust ball bearings and a Turbocharger design contribute to the DIETZ's durability.

**Dimensi (mm)**

Unit



A	B	C	D	E	F	G	H
100	100	60%	60	60	70	40	100



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