

JCB ENGINE TIMELINE

JCB

POWER SYSTEMS

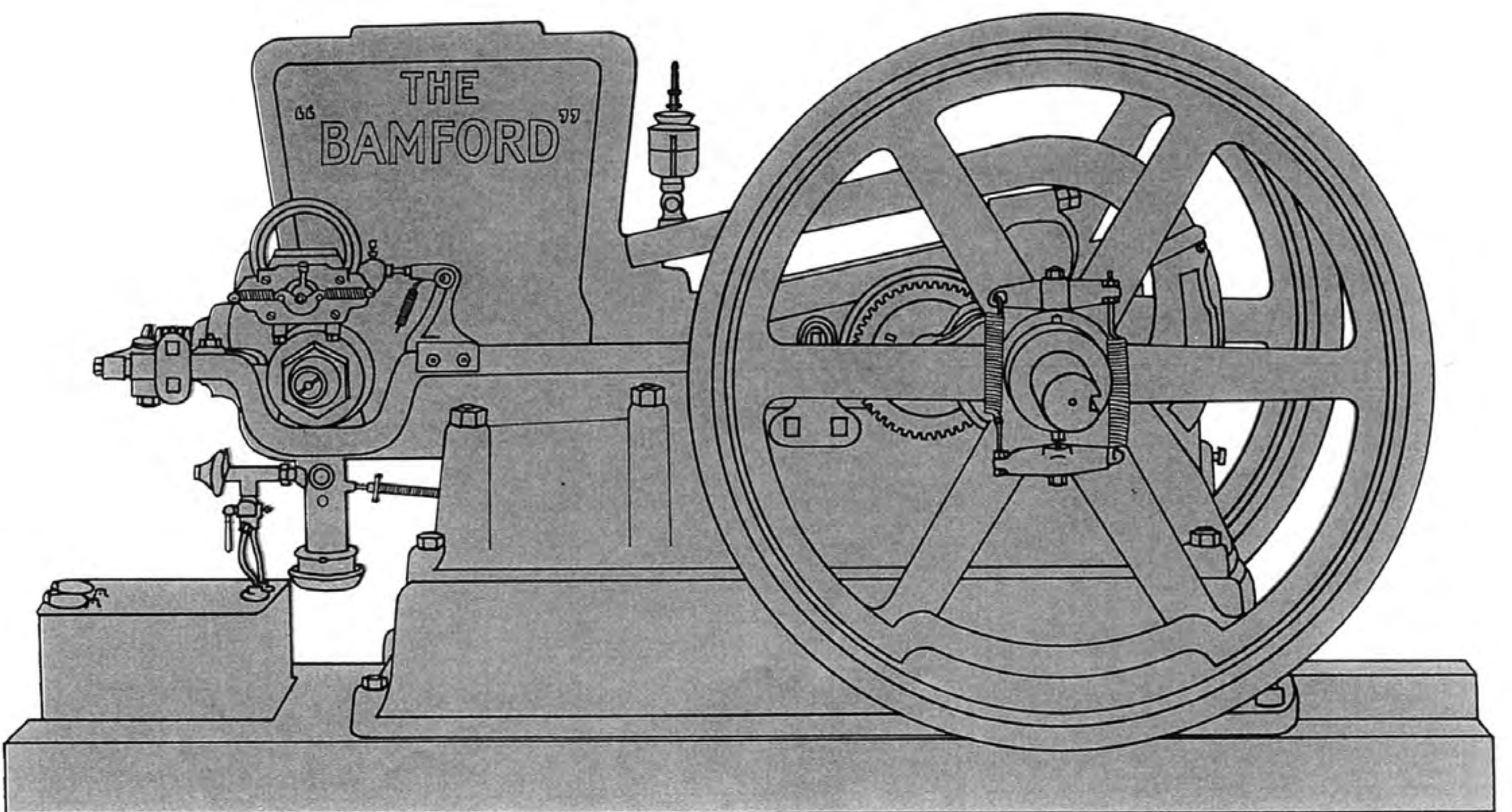
Powerful Possibilities



1871

BAMFORDS LTD IS FOUNDED.

The story starts with the founding of the company by Henry Bamford and his son, Samuel. Based in Uttoxeter, Bamfords Ltd. produced its first engines in 1921 with the development of a 5-6hp horizontal engine and later produced a range of mainly vertical engines. The company also produced a series of single and twin diesel engines.



Bamfords Ltd. started diesel engine manufacture in 1932 with three models of 6, 8 and 10hp. These engines were an immediate success and gained top honours at shows in the UK and Ireland. Meanwhile, Joseph Cyril Bamford, who had been in the family business since 1935, left to start his own successful manufacturing company J. C. Bamford Excavators Ltd in 1945.

1970s

TRIDENT PROGRAMME.

A family of 3, 4 and 6 cylinder Trident engines with a common bore and stroke of 125mm x 140mm were originally designed and developed by Mr JCB together with Ricardo in 1974. They were designed for long life with minimal servicing, as demonstrated in several prototypes.



A number of these Trident engines still exist, and can be viewed in JCB World Headquarter's reception and JCB Power Systems in Dove Valley Park, Derbyshire.



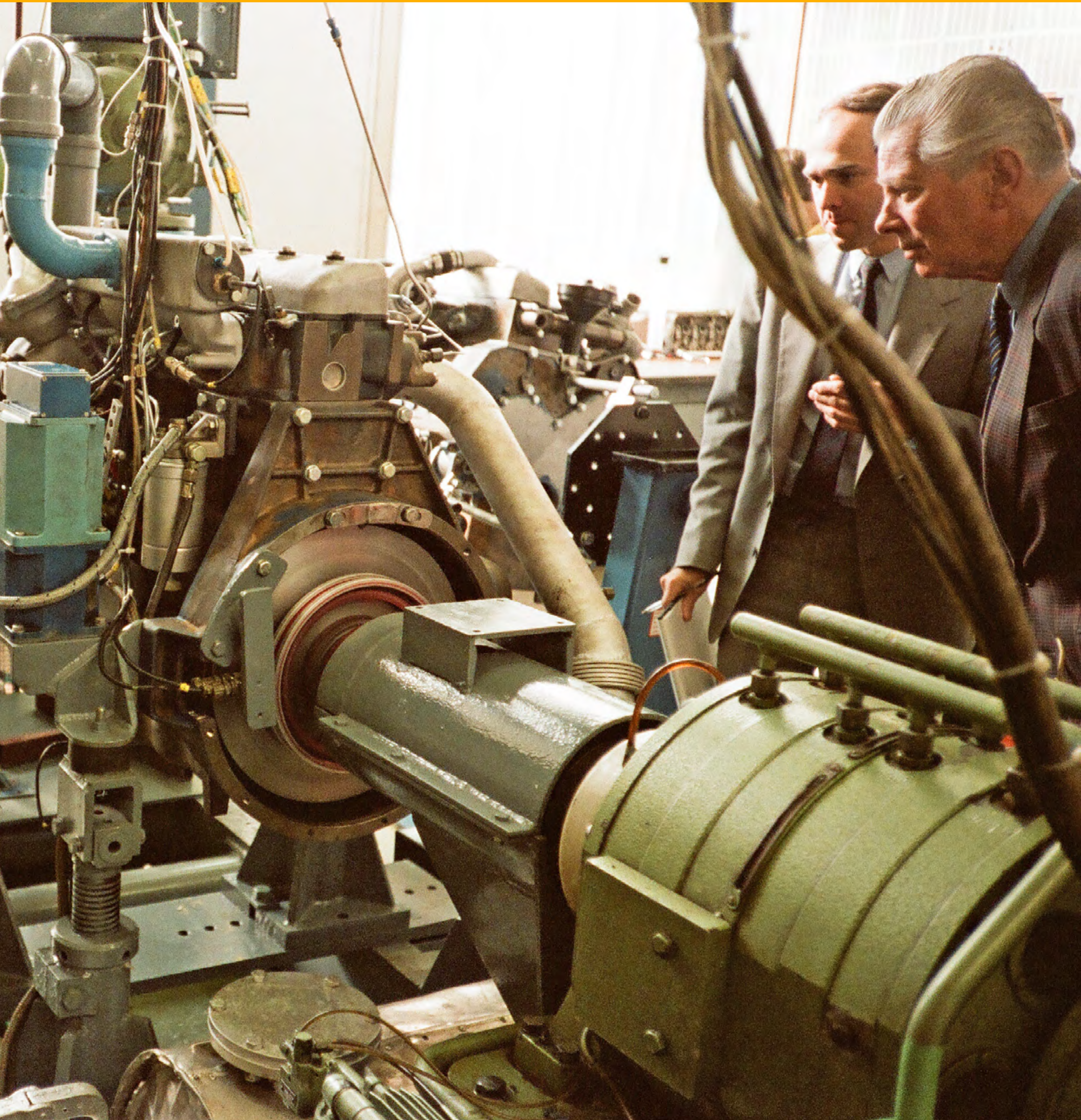
TRIDENT ENGINES

A family of 3, 4 and 6 cylinder engines with a common bore & stroke of 125mm x 140mm. **Designed and developed by Mr JCB together with Ricardo in 1974, but not put into serial production.** The engines were designed for long life and minimal maintenance requirements.

3 CYLINDER NATURALLY ASPIRATED	5.2 litre 90hp at 2250rpm
4 CYLINDER NATURALLY ASPIRATED	6.9 litre 120hp at 2250rpm
6 CYLINDER NATURALLY ASPIRATED	10.3 litre 180hp at 2250rpm
6 CYLINDER TURBOCHARGED	10.3 litre 300hp at 2250rpm

1986 4000 ENGINE.

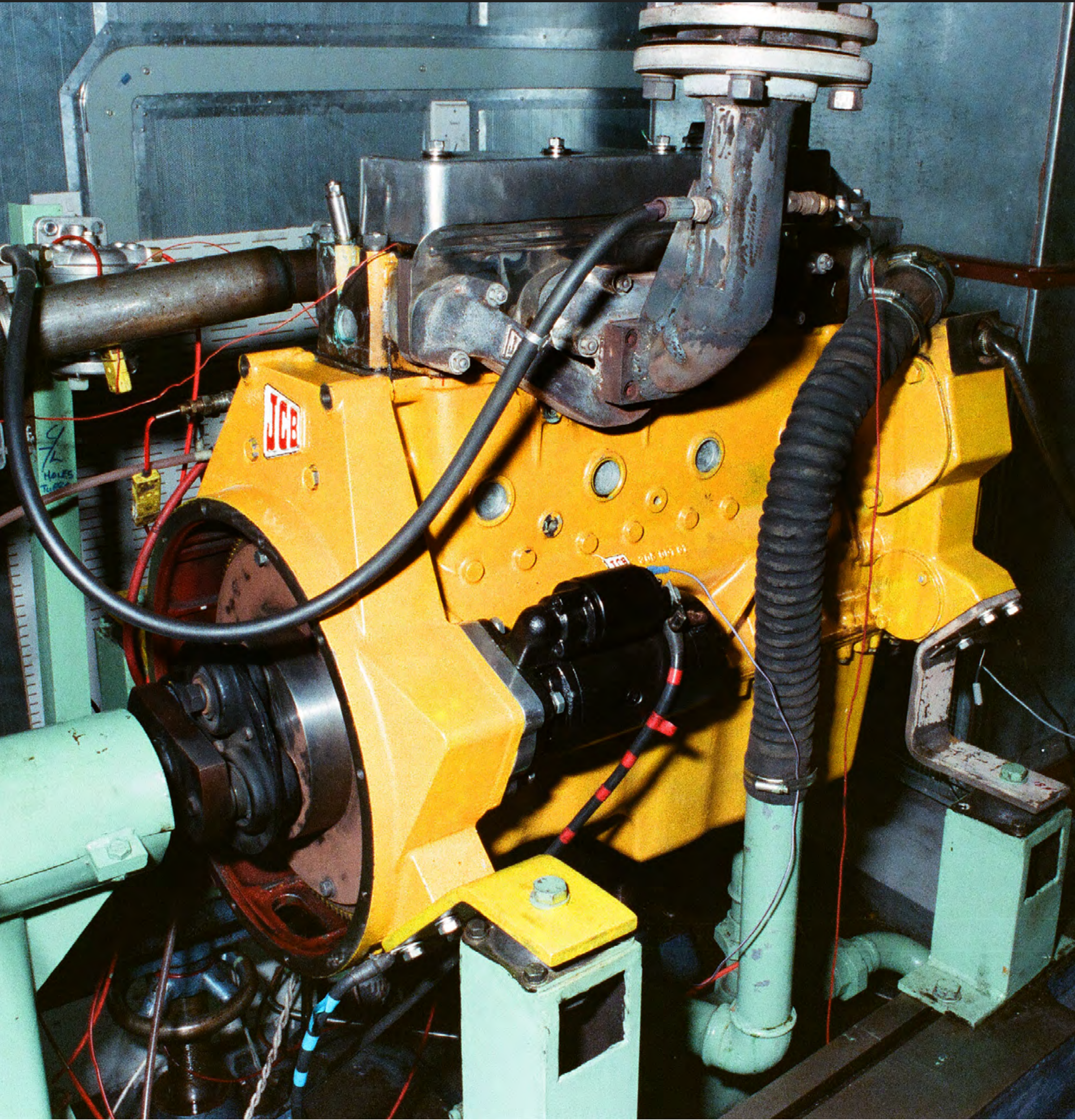
In 1986, the original JCB engine development programme began. It started with the JCB 4000 engine.



Rupert Bamford is pictured above, and left, with his brother Mr JCB.

1985-1991.

This JCB 4000 engine uses a mechanical fuel injection system, rated at 55kW, as shown in this early prototype built in 1986.



The engine development programme was suspended in 1991 due to an economic downturn but not before the JCB 4000 engine had achieved 67,000 hours running on engine dynameters and in development machines.



1999 DIESELMAX.

In August 1999, the first rapid prototype JCB DIESELMAX engine was put into a 4CX machine. This is a photograph of Mr JCB with the engineering team which delivered the project.

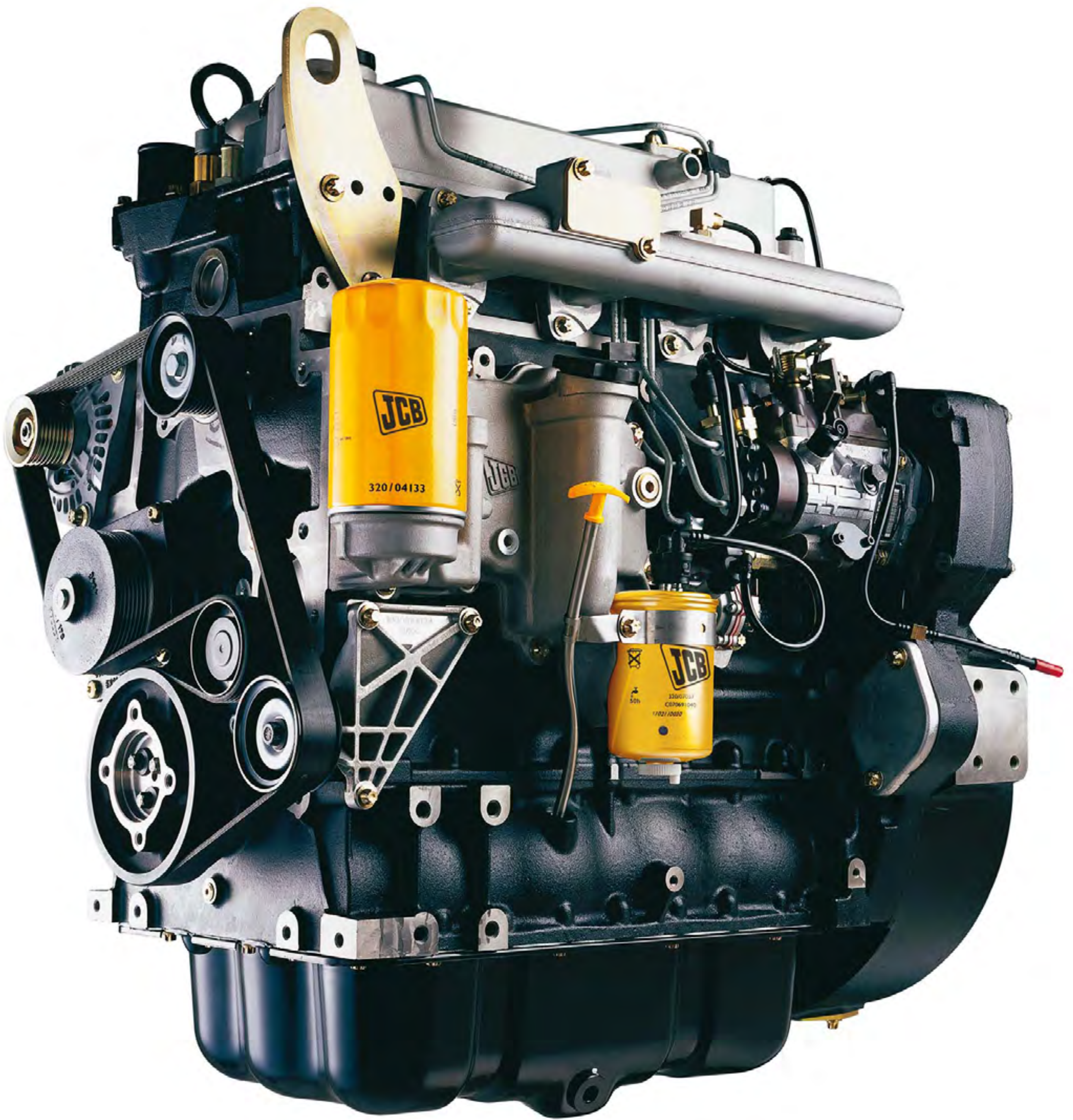


This rapid prototype JCB DIESELMAX engine was to be the start of the DIESELMAX project.

2004

JCB POWER SYSTEMS OPENS.

In 2004, JCB became the first company in the UK for 60 years to begin diesel engine manufacture using state-of-the-art design and manufacturing facilities. Today the engine is fitted into more than 75% of JCB machinery.



“The JCB diesel engine is a project very close to my heart”, Lord Bamford said in 2005. “My father always wanted to manufacture his own engine and he developed a number of prototypes. However, the high costs ruled it out – until now.”

2005 PRODUCTION STARTS.

In January 2005, the first JCB machine to be fitted with a DIESELMAX engine, comes off the production line. The JCB team, including Group Manufacturing Director, Alan Blake is pictured with the 4CX backhoe loader.



JCB DIESELMAX

2006

RAMPING UP PRODUCTION.

Following an £80 million investment, daily production hit 100 units and the engine was powering more than half the machines made by JCB.



2006 DIESELMAX CAR RECORD.

Powered by two JCB444 engines designed for the 3CX, the JCB DIESELMAX streamliner car broke the world land speed record for a diesel powered car on the famous Bonneville Salt Flats in Utah. This picture shows driver Wing Commander Andy Green with Lord and Lady Bamford, Jo, Alice and George Bamford after the record of 350.092mph was set.



The racing engines generated more than five times the power of the production version and at 150bhp/litre, were the world's highest specific power diesel car engines. The photographs above show part of the engine, including the immense fuel rail, and Anthony Bamford directing the design of the car.

Did you know that JCB changed the name of its 444 engine to DIESELMAX in recognition of the record?

JCB DIESELMAX

2009

EXTERNAL SALES BEGIN.

External engine sales to the OEM off-highway application market began. Tier 2 mechanical engines were sold to new customers in a variety of industry sectors, including power generation, water pumping, crushing, screening and the marine sectors.



2010

MANUFACTURING IN INDIA.

Expansion and growth of saw JCB India begin production of engines at its headquarters near Delhi, allowing Indian customers to benefit from the performance and reliability of JCB's world-beating engines for the first time.



2011 DIESEL OF THE YEAR.

In 2011, JCB Power Systems won the Diesel of the Year award for the JCB ECOMAX engine.



2016 QUEENS AWARDS.

JCB Power Systems celebrated winning two Queen's Awards for Innovation and International Trade. The Innovation award honoured the development of the JCB ECOMAX engine, with its low-emission combustion system. The International Trade Award recognised growth in overseas third-party sales of the JCB engine by more than 325% between 2012 and 2014.



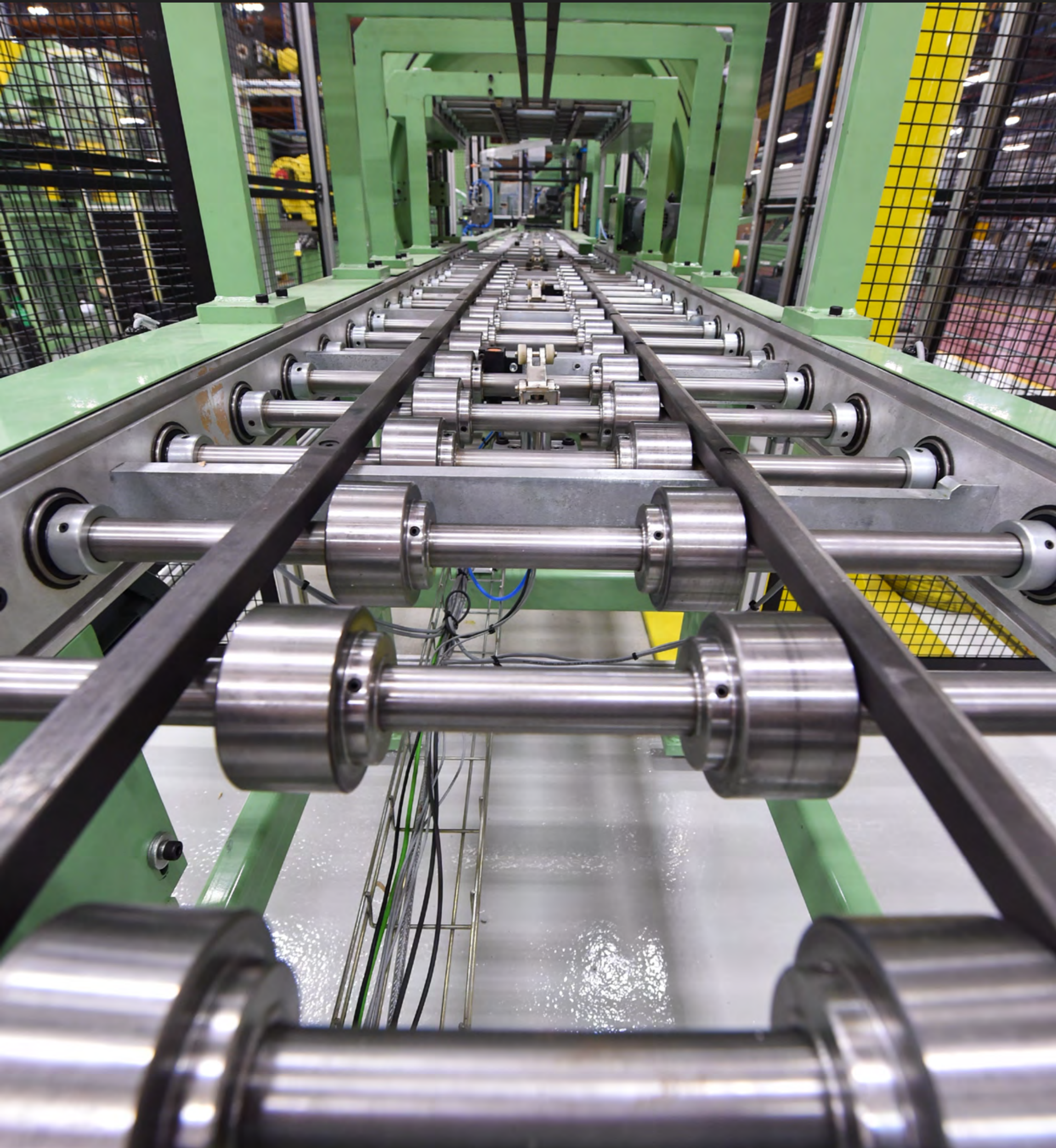
**THE QUEEN'S AWARDS
FOR ENTERPRISE
2016**



2017

NEW MACHINING CENTRE.

JCB Power Systems installed new CNC machining centres and associated automated processes to begin full production of cylinder heads and blocks for the first time. This gave outstanding in-house levels of finished accuracy and boosted production capacity.



2017

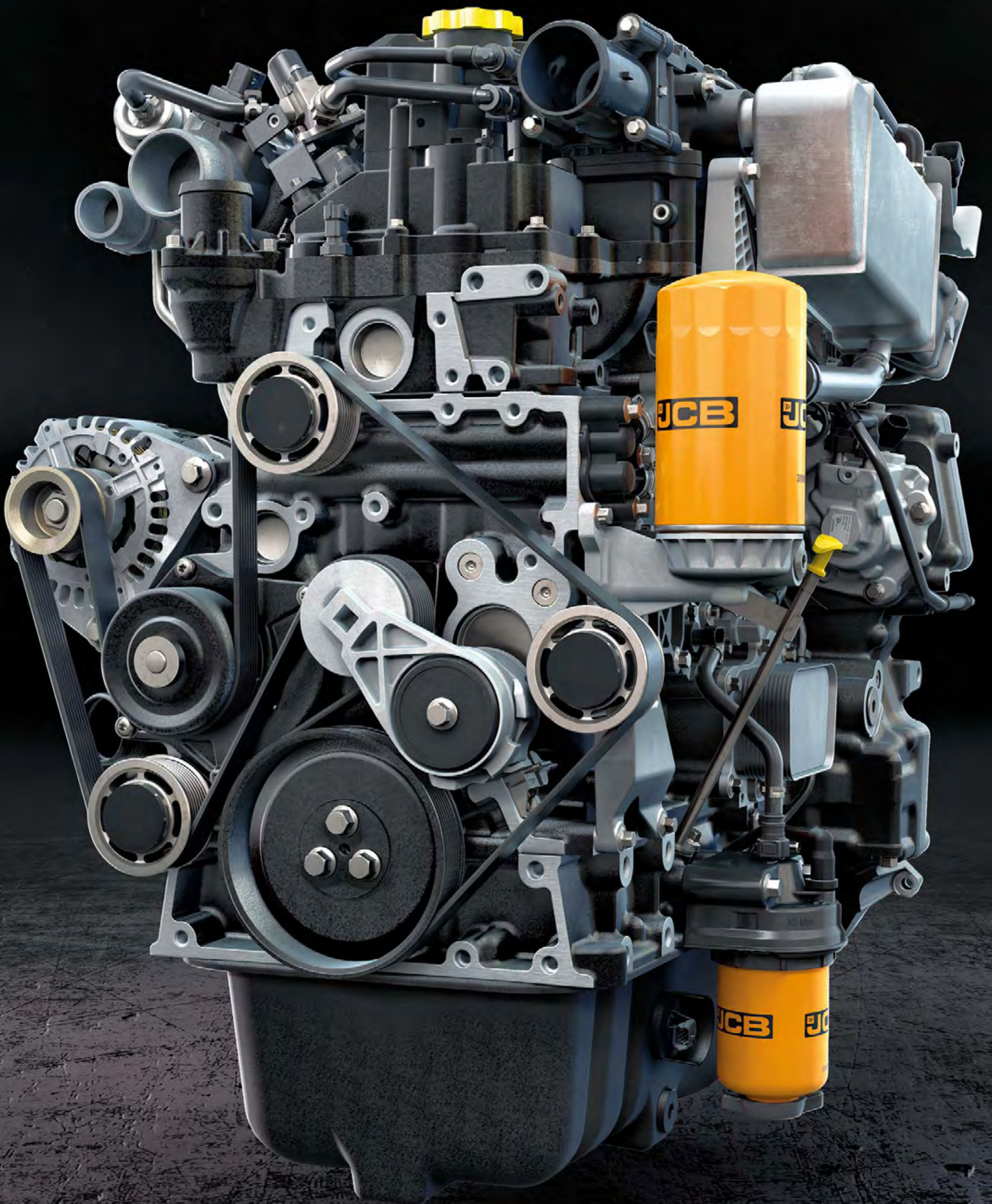
3.0L DIESELMAX ENGINE.

Production of a brand new fuel-efficient JCB diesel engine began, marking the culmination of a £31 million investment programme. The brand new 3.0-litre JCB 430 DIESELMAX engine joined the 4.4, 4.8 and 7.2-litre models and was the third engine line to be launched by JCB since 2004 when engine production first started.



2019 STAGE V.

JCB used a combination of next generation particulate control technology, using diesel oxidation catalysts (DOC), integrated DPF & selective catalytic reduction (SCR) to meet EU Stage V regulations.



2019

WORLD'S FASTEST TRACTOR.

The JCB DIESELMAX engine achieved yet another world record with The World's Fastest Tractor land speed record of 135.191mph. To achieve this, JCB increased the power of the Fastrac's 6 cylinder, 284hp engine by enhancing a JCB 672 engine to 1,016hp and over 2,500Nm of torque.



2021 ENGINE OF THE YEAR.

At the Diesel Progress Summit, the 430 DIESELMAX won the Engine of the Year Award for engines up to 175hp.



Engine of the Year Under 175 HP
WINNER
2021
DPS
DIESEL PROGRESS SUMMIT
AWARDS

2021 HYDROGEN.

Driven by the need to deliver zero CO₂ propulsion systems for JCB equipment, engineers at JCB Power Systems have developed the first hydrogen motor in our industry. Hydrogen is combusted in a sophisticated system to deliver power in exactly the same way as an internal combustion engine. Prototype JCB machines fitted with this new hydrogen motor, can do everything their diesel-powered equivalents can. What's more, the technology is far less complicated than hydrogen fuel-cell technology; only steam is emitted from the tailpipe – **Robust Zero CO₂ propulsion.**



2021

JCB WINS THE ROYAL AUTOMOBILE CLUB'S DEWAR TROPHY FOR ITS HYDROGEN FUEL MOTOR.



Anthony Bamford said: “We’re extremely proud that the Royal Automobile Club has chosen to present JCB with the Dewar Trophy for the third time. Our new hydrogen-fuelled engines can be put into production relatively quickly and it’s an important and pioneering step towards a zero-carbon future, and testament to the amazing abilities of our British engineers.”



Since the launch of the JCB DIESELMAX engine in 2005, it has been an amazing success story.



Powerful Possibilities



engine.sales@jcb.com