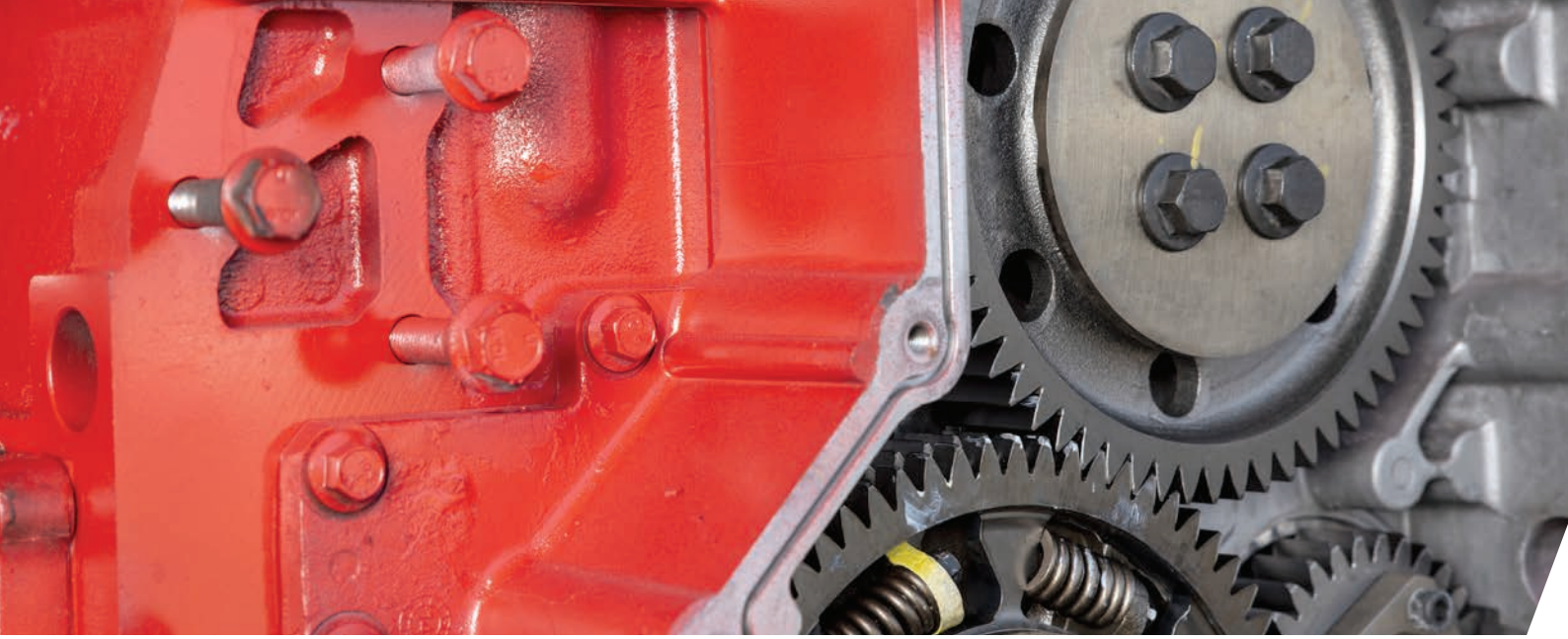


THERE IS A DIFFERENCE

GENUINE CUMMINS PARTS

Rely on Cummins for all your heavy duty engine components.

Cummins®

FOR A WORLD THAT'S ALWAYS ON™

THE GENUINE DIFFERENCE, MAGNIFIED.

Genuine Cummins Parts are backed by more than 100 years of engineering experience and significant investments in research, design and testing to ensure peak compatibility in our engines and unmatched quality. This means that your operation keeps running, For a World That's Always On.

THE RISK OF USING NON-GENUINE

Competitive part manufacturers may try to reverse engineer Cummins parts and build something that will fit like an original part at a cheaper price. Using non-genuine parts which don't meet critical engineering design specifications can impact:

- Engine Performance
- Fuel Economy
- Reliability
- Durability
- Uptime
- Warranty

NON-GENUINE PUT TO THE TEST

Cummins Engineers conducted lab analysis and destructive testing on over 300 non-genuine overhaul kit components for ISX and N14 engines, including pistons, piston rings, piston pins, cylinder liners, main bearings, connecting rod bearings, head gaskets and injectors.

- Of the over 300 non-genuine parts tested, none met all of Cummins Design Specifications.
- Here's a breakdown of the issues that were discovered while testing non-genuine parts:

PISTONS

Pivotal to the combustion process, the demands put on pistons are intense. The slightest imprecision can result in diminished power, as well as increased fuel consumption and emissions. Genuine Cummins pistons are designed to work in perfect conjunction with supporting components, such as injectors, piston rings and cylinder liners, and undergo rigorous testing to ensure they can meet the severe thermal demands of the combustion process.

NON-GENUINE TEST RESULTS

DIMENSIONAL TESTING: FAILED

- Utilises the old, non-APR (Anti-Polishing Ring) design
  RISKS: Carbon buildup on top land of the piston which can polish out cylinder liner cross-hatch

MATERIAL TESTING: FAILED

- Deficient microstructure and steel alloy content
  RISKS: Thermal fatigue and reduced service life

WHAT COULD GO WRONG?

Using the old, non-APR design can lead to the buildup of carbon which can polish out the cylinder liner cross-hatch, leading to increased oil consumption, blow-by, reduced power, progressive damage to the aftertreatment, and even catastrophic engine damage.

PISTON RINGS

Piston rings seal the combustion chamber and regulate oil consumption as well as blow-by. Genuine Cummins piston rings meet strict dimensional tolerance ranges for size, edge profile shape and end gap. Material hardness and proprietary coatings are also tightly controlled in order to ensure proper strength, durability and sealing characteristics.

NON-GENUINE TEST RESULTS

DIMENSIONAL TESTING: FAILED

- Coating thickness below specification
  RISKS: Delamination of coating, reducing service life; improper sealing of ring causing excessive blow-by and oil consumption

MATERIAL TESTING: FAILED

- Material hardness below specification
  RISKS: Lower durability and robustness; reduced service life

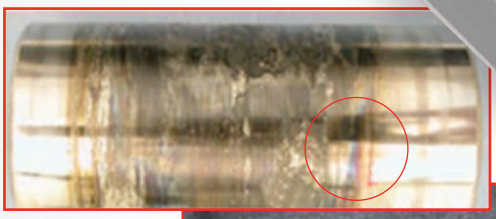
WHAT COULD GO WRONG?

Piston ring failures can cause severe catastrophic power cylinder damage resulting in loss of power as well as progressive damage to the cylinder head, turbo and other downstream components such as the aftertreatment.

PISTON PINS

The piston pin connects the piston to the connecting rod and allows the connecting rod to pivot while the piston moves up and down within the power cylinder. Genuine Cummins piston pins adhere to strict dimensional and material specifications and undergo rigorous testing in order to ensure free movement of the connecting rod during the severe thermal demands of the combustion process.

NON-GENUINE TEST RESULTS



DIMENSIONAL TESTING: FAILED

- Inner and outer diameter do not meet specification
  RISKS: Fitment issues with mating parts

MATERIAL TESTING: FAILED

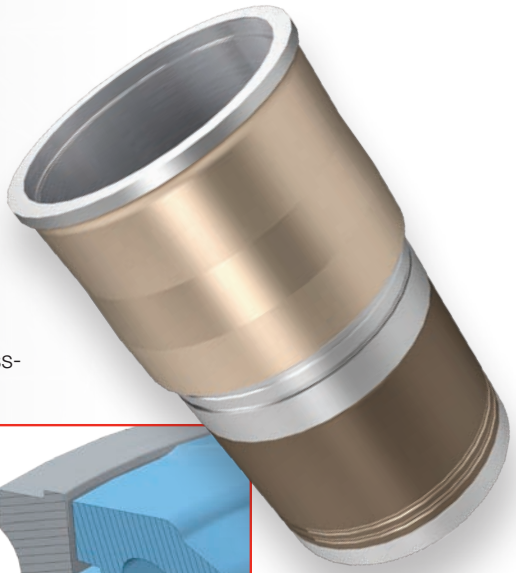
- Material does not meet specification
  RISKS: High potential for cracking, piston pin failure

WHAT COULD GO WRONG?

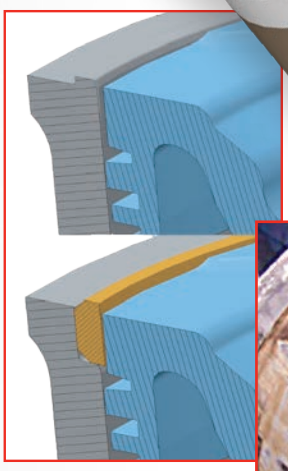
Piston pin joint seizure can result in severe catastrophic engine failure when the connecting rod is no longer able to move freely in relation to the piston.

CYLINDER LINERS

In conjunction with the piston and piston rings, cylinder liners seal the combustion chamber and regulate oil consumption as well as blow-by. Genuine Cummins cylinder liners are designed with specific proprietary cross-hatching and feature anti-polishing rings to remove carbon buildup.



NON-GENUINE TEST RESULTS



DIMENSIONAL TESTING: FAILED

- Utilises the old, non-APR (Anti-Polishing Ring) design
  RISKS: Assembly issues, carbon buildup
- Case depth of inner diameter is above specification
  RISKS: Residual strain on part; impacted performance

MATERIAL TESTING: FAILED

- Microstructure of inner diameter does not meet specification
  RISKS: Reduced wear resistance during engine operation

WHAT COULD GO WRONG?

Cylinder liner failure can result in inefficient combustion, reduced power, excessive wear of related parts such as piston rings, increased oil consumption, blow-by and progressive damage to aftertreatment.

MAIN BEARINGS

Upper and lower main bearings are curved semi-circular metal pieces surrounding the crankshaft that support its rotation and allow it to move with minimal friction. Genuine Cummins main bearings are made from alloys which result in parts that are hard enough to be durable but soft enough to prevent damage to the crankshaft.

NON-GENUINE TEST RESULTS

DIMENSIONAL TESTING: FAILED

- Missing critical oiling grooves
  RISKS: Improper oiling to bearing; potential for thrust bearing failure

MATERIAL TESTING: FAILED

- Does not meet specification for material requirements or lining thickness
  RISKS: Robustness of material is severely compromised; high potential for delamination

WHAT COULD GO WRONG?

Delamination of bearing layers, corrosion and the absence of critical oiling grooves can lead to spun bearings which result in severe catastrophic engine damage.

CONNECTING ROD BEARINGS

Upper and lower connecting rod bearings are curved semi-circular metal pieces installed in the large end of a connecting rod and surround the connecting rod journals on the crankshaft. Genuine bearings are made from alloys, which result in parts that are hard enough to be durable but soft enough to prevent damage to the crankshaft while supporting the movement of the connecting rod with minimal friction.

NON-GENUINE TEST RESULTS

DIMENSIONAL TESTING: FAILED

- Outer diameter does not meet specification
  RISKS: Interference with mating parts

MATERIAL TESTING: FAILED

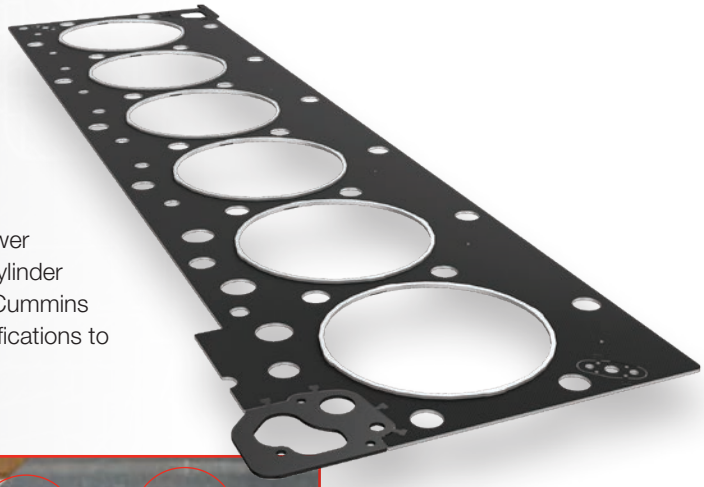
- Surface damage observed during stereoscopic analysis
  RISKS: Reduced corrosion resistance; adverse performance
- Chemistry composition does not meet specification
  RISKS: Adversely affects the seizure, conformability and debris resistance of material; robustness is severely compromised; delamination related failures

WHAT COULD GO WRONG?

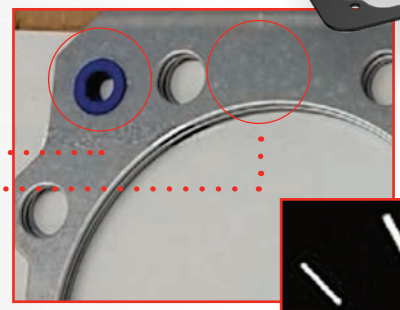
Delamination of bearing layers and corrosion can lead to spun bearings which result in severe catastrophic engine damage.

HEAD GASKETS

The cylinder head gasket seals the combustion gases within the power cylinder and allows for proper passage of oil and coolant between cylinder head and cylinder block without internal or external leaks. Genuine Cummins cylinder head gaskets meet rigorous dimensional and material specifications to ensure durability, longevity and sealing characteristics.



NON-GENUINE TEST RESULTS



DIMENSIONAL TESTING: FAILED

- Fluid passage hole is incorrectly sized
- Missing fluid passage hole

  RISKS: Fluid flow obstruction resulting in improper coolant and oil flow; major engine damage

WHAT COULD GO WRONG?

Fluid flow obstructions can result in major catastrophic engine damage due to inadequate cooling or oil flow restriction.

INJECTORS

Injectors control the timing and quantity of fuel injected into the power cylinder during the combustion process. Genuine Cummins injectors are designed with precise nozzle spray patterns and in precise conjunction with piston bowl shapes in order to produce efficient combustion, power, fuel economy and in order to meet emissions regulations.

NON-GENUINE TEST RESULTS

FUNCTIONAL TESTING: FAILED

- Torque from solenoid and retainer below specification

  RISKS: Fuel carryover to engine oil; spun bearings
- Needle valve pop-off pressure below specification

  RISKS: Reduced injector fuel flow; Low engine power and improper combustion
- Solenoid closing time below specification

  RISKS: Shortened injector life; injection timing issues
- Barrel flow above specification

  RISKS: Improper combustion; injection timing issues

WHAT COULD GO WRONG?

Improper injector function can result in inefficient combustion, misfire, reduced power and progressive damage to the power cylinder or downstream components such as aftertreatment.

Cummins GENUINE PRODUCTS Warranty

GENUINE QUALITY IS PRICELESS

The test results from the lab show there's a significant risk to using non-genuine parts. The lower costs of non-genuine parts could be the result of not meeting Cummins critical engineering design specifications.

The slight savings you may experience when purchasing non-genuine parts can cost you down the road in the form of equipment downtime, lost productivity, reduced engine life, expensive additional service events and even catastrophic failure. When you buy a Genuine Cummins Part, you're ultimately paying for peak performance, cutting-edge technology, fuel economy, reliability and durability. When it comes to quality and peace of mind, you won't find greater value for your money than Genuine Cummins Parts.

SAVING A LITTLE UPFRONT COULD COST YOU:

- Early-life failure
- Downtime
- Non-warranty repair costs
- Additional fuel cost
- Progressive damage to aftertreatment
- Poor performance
- Catastrophic failure

HERE WHEN YOU NEED US

Looking for another reason to choose genuine? Genuine Cummins Parts are backed by Cummins unmatched service and support network across the South Pacific.

For more information on the genuine difference visit **www.cummins.com/parts/why-buy-genuine/truck-engine-parts**

For more information on ordering Genuine Parts see your local Cummins distributor or authorised dealer.

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Newcastle	02 4964 8466
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Northern Territory

Alice Springs	0407 340 779
Darwin	08 8935 2200

Queensland

Brisbane	07 3710 4700
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