

# SMART. PRODUCTIVE. COST EFFECTIVE.

**CAT® REPAIR OPTIONS FOR  
YOUR MINING OPERATION**





# IMPORTANT CHOICES. KEY DECISIONS.

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WHEN YOU'RE FACING MAJOR REPAIRS OR COMPONENT REBUILDS  
FOR YOUR MINING FLEET, YOU HAVE SOME **CRITICAL OPTIONS** TO CONSIDER:

- + Do you run a machine until it breaks or take a proactive repair-before-failure approach?
- + What fits your needs — new, remanufactured or exchange components?
- + Can your crew do the repair or should you let your dealer handle it?
- + Does a Cat® Customer Value Agreement (CVA) or Maintenance & Repair Contract (MARC) make sense for your operation?

The repair and rebuild options you choose can have serious consequences for your entire operation. From downtime and machine availability to total costs of equipment operation and bottom-line return, it's vital that you choose the options that make the most sense for your fleet, your site and your business.

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## IT PAYS TO KNOW YOUR OPTIONS

Your Cat dealer offers a range of flexible solutions for the entire lifecycle of any mining machine, including repairs, rebuilds, retrofits and upgrades.

Explore your options in this brochure, then talk with your Cat dealer about the most cost-effective opportunities for your fleet.



# FOUR REASONS TO REPAIR BEFORE FAILURE

IF A MACHINE SEEMS TO BE WORKING FINE, DOES IT MAKE SENSE TO TAKE IT OUT OF PRODUCTION FOR PLANNED MAINTENANCE (PM) OR A REPAIR? ABSOLUTELY! **REPAIRS AFTER FAILURE ARE MUCH MORE EXPENSIVE** — BOTH IN REPAIR COSTS AND LOST PRODUCTION.

## PLANNING FOR A REPAIR OR COMPONENT REPLACEMENT IS A SMART MOVE

You can work around production demands, and the machine may only be out of service for a few hours or days.

## PLANNED MAINTENANCE PREVENTS MUCH MORE DOWNTIME THAN IT CAUSES

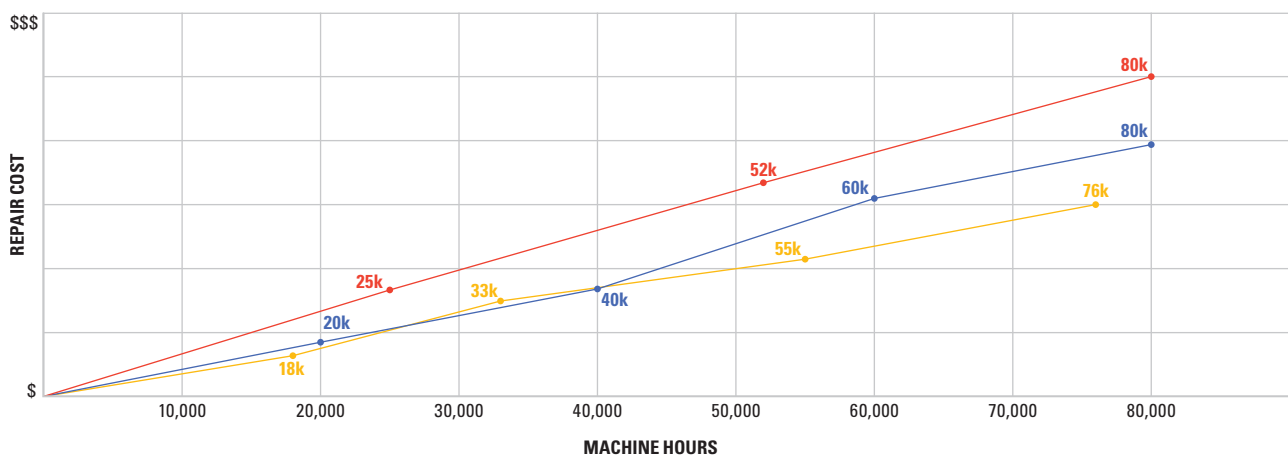
Unplanned downtime can stop a machine in its tracks out on your site, and a catastrophic failure may put it down for weeks.

## ONCE THE OPERATOR NOTICES A PROBLEM, A FAILURE HAS ALREADY OCCURRED

Operators may not feel the effects of a small issue until it's too late to avoid a major repair, or the signs may be ignored to keep up with production.

## REPAIRING A MAJOR COMPONENT BEFORE IT FAILS IS COST EFFECTIVE

See the graphic below. **And remember:** the costs of lost production will dwarf the cost of almost any repair for machine and power train rebuilds.



### Run Until Failure:

The red line shows the cost over time of letting the engine in a Cat 793F haul truck fail twice, then replacing it with a Cat Reman unit at 25,000 and 52,000 hours.

### Overhaul Before Failure:

The blue line shows the cost of doing a Rebearing/Reseal Plus every 20,000 hours through 80,000 hours, each time before the engine fails.

### Planned Repairs:

The yellow line shows the cost of doing a Rebearing/Reseal at 18,000 hours, a Dealer Rebuild/Exchange before failure at 33,000 hours, a second Rebearing/Reseal at 55,000 hours and a final Dealer Rebuild/Exchange before failure at 76,000 hours.

# HOW CAT REPAIR OPTIONS DELIVER **MAXIMUM** VALUE

## **CAT COMPONENTS ARE DESIGNED TO BE REBUILT**

Not only are the components superior with long wear life, they're designed to be rebuilt — so your dealer provides repair solutions that work with the entire machine's design specs.

## **QUICK TURNAROUND TIME**

Industry-leading component availability and options for on-site repairs help you get more uptime and better overall machine availability.

## **MULTIPLE OPTIONS AND PRICE TIERS**

Your Cat dealer offers different price tiers across various repairs, helping you achieve the lowest total cost of ownership with a proactive equipment management plan. Whatever the need — you have options.



# OPTIONS TO CONSIDER FOR **CRITICAL** MACHINE COMPONENT REPAIRS

1

## **REBEARING/RESEAL**

**Includes:** Non-reusable parts and those designed to protect mating parts as they wear such as gaskets, bearings and seals.

**Excludes:** External parts (such as engine injectors, exhaust and accessory seals).

2

## **REBEARING/RESEAL PLUS**

**Includes:** All Level 1 parts, plus parts that wear at a slower rate and are designed for reusability. Parts are reconditioned or replaced according to Caterpillar's Reuse & Salvage Guidelines.

3

## **DEALER REBUILD/EXCHANGE**

**Includes:** All Level 1 and 2 parts, plus parts that typically last the life of the machine unless a major component failure occurs. Level 2 and 3 parts are inspected, reconditioned and/or replaced according to Caterpillar's Reuse & Salvage Guidelines.

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## **CAT REMAN COMPONENT EXCHANGE**

You can choose to exchange an entire component with a Cat Reman unit. Off-the-shelf delivery limits downtime for maximum machine availability. Every Cat Reman component is inspected, guaranteed and covered by the Caterpillar factory warranty.

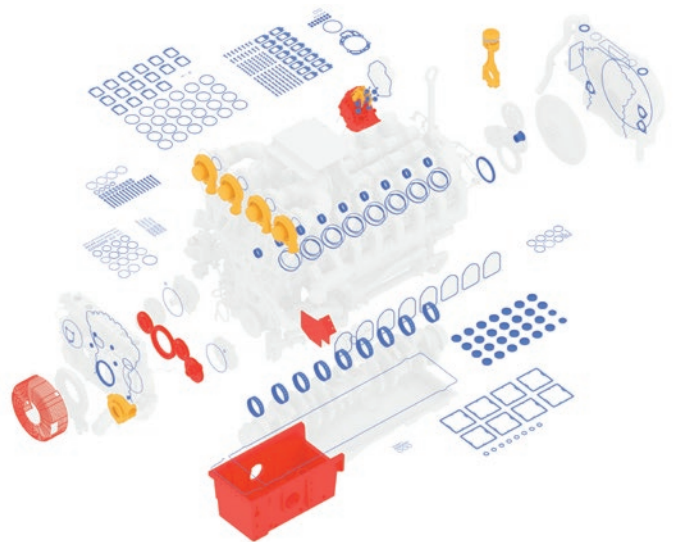
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## **NEW COMPONENT REPLACEMENT**

For maximum confidence, choose a new Cat replacement component.

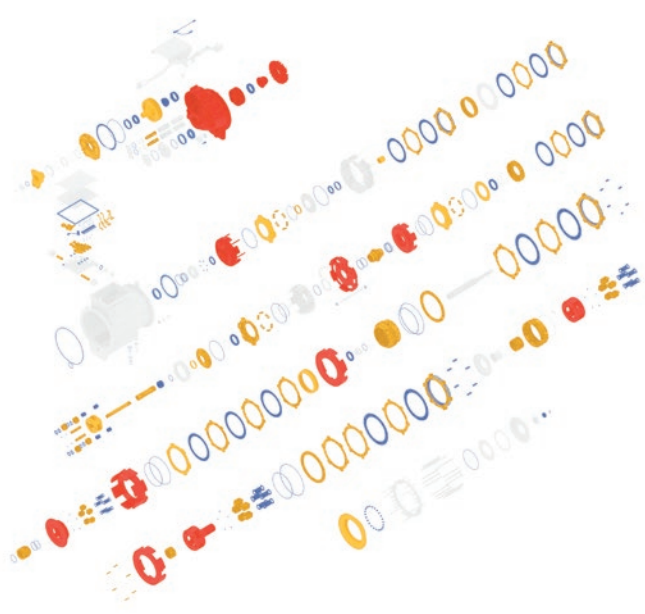
## **REPAIR LEVELS AT-A-GLANCE**

- Level 1 Parts
- Level 2 Parts
- Level 3 Parts



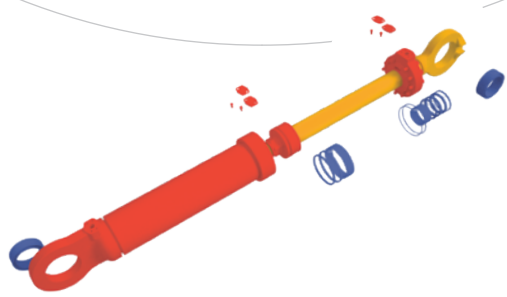
## ENGINE

Even if an engine is running well, it pays to keep up with maintenance and repairs. Waiting to repair your engine after a failure leads to an average increase in cost of 190%. And be sure to pay extra attention to your coolant. Between 40% and 60% of all engine downtime is due to cooling system problems.



## TRANSMISSION

Drive train components can be tricky because they're hidden from view, but repairs before failure remain essential. Restoring a transmission after failure costs an average of 2.5 times more. And because Cat transmission parts are designed to work and wear as a system, replacing any worn parts as soon as possible will help extend the life of the entire component.



## HYDRAULIC SYSTEM

The "muscles" of your machines need special care to maintain maximum performance. Seal wear, leaks, component damage and fluid contamination can all lead to hidden performance loss. Research shows that hydraulics systems can lose up to 20% efficiency before the operator notices.

# WHEN IS THE BEST TIME TO REBUILD A COMPONENT?



At the target hours for overhaul, rings, bearings and other essential parts will have already started to wear. The component may also have developed leaks, so performance has likely started to suffer. Plus, the wear on bearings and rings is not linear; it accelerates quickly once wear reaches a critical point.

The best time to rebuild is at the hour intervals recommended by your dealer, or at the earliest signs of the above issues. On a Cat C175 engine, for example, this is normally at around 18,000 hours, depending on load factors and site conditions.

# CUSTOMIZED DEALER REPAIR OPTIONS PLUS INDUSTRY-LEADING SERVICE

For everything from minor repairs to comprehensive rebuilds, your Cat dealer has you covered. Consult with your dealer to tailor repair options that optimize everything from budget and price to turnaround times.

Plus, you can opt for upgrades and enhancements that deliver improved safety, convenience, operator comfort and equipment performance. And you can choose to do some repairs in your own shop or let your Cat dealer handle everything.

You might also consider a Cat Customer Value Agreement (CVA) for maintenance, or a Maintenance & Repair Contract (MARC) that takes some or all of the burden of mining fleet management off of your crew's shoulders, leaving them more time to focus on other site management tasks.

With OEM component quality, industry-best parts availability and the largest global network, your dealer's wide range of repair options can help you extend machine life, reduce operating costs and maximize your operations anywhere in the world.

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