
REPAIR OPTIONS

REPAIR OPTIONS PREVENT COMPONENT FAILURE AND REDUCE YOUR COSTS

Component failure can cause damage to other components and increase repair costs by 2.5x.

Key indicators of component failure:

- Number of service meter hours
- High fuel & oil consumption
- Concerning fluid analysis results
- Sudden increase in fuel burn
- Unusual noises
- Overheating
- Burning smell
- Smoke
- Filter debris
- Engine hesitation
- Loss of power
- Hard starts

Ask The Expert: Video

Mantrac recently repaired a genset that had failed due to poor maintenance:

Total cost

\$46,275

Cost of advance engine overhaul

\$17,350

Potential overhaul savings

\$28,935

MANTRAC OPTIONS TO MEET YOUR NEEDS

| | Basic | Basic Plus | Rebuild/Exchange | Reman | New |
|----------------|---|--|---|---|---|
| What is it? | Rebearing/Reseal: A baseline to extend your engine life before failure | Rebearing/Reseal and components: Added parts and systems for more systemic support | Complete end-to-end rebuild service to give engines a second life | Cat Remanufactured components: same-as-new performance, a fraction of the cost of new | Cat original new component: built to last and to be rebuilt again and again |
| Ownership | < 2 years | | > 2 years | | |
| Utilisation | < 1,000 hours per year | | > 1,000 hours per year | | |
| Affordability | < 50% of the cost of new | | > 50% of the cost of new | | |
| Turnaround | Flexible | | Urgent | | |
| Component life | Extend | Extend | Extend/ Restore | Restore | Restore |
| Indicators | Planned | Planned | Planned/Problem | Problem | Problem |



IDENTIFYING YOUR REPAIR OPTIONS

| RO LEVELS | | Basic Plus | Fixed Price | Reman | New |
|---------------|--|-----------------|-----------------|-----------------|------|
| AFFORDABILITY | | 25 - 50% of new | 55 - 65% of new | 60 - 80% of new | 100% |
| INDICATORS | Oil level above full | | ● | ● | |
| | White smoke | ● | ● | | |
| | Hard starting | ● | ● | | |
| | Overheating | ● | ● | ● | |
| | Excessive black smoke at full load | ● | ● | | |
| | Increased fuel consumption | ● | ● | | |
| | Blue smoke | ● | ● | ● | |
| | Debris in oil filter | | ● | | |
| | Increased oil consumption or excessive blow-by | | ● | | |
| | Lack of power | | | ● | |

REPAIR OPTIONS: BASIC & BASIC PLUS

Basic:

How it works:

- Reseal fluid leaks
- Free rotation of metal components
- Seal components from contaminants
- Refill with new fluids
- Test to Cat reusability guidelines
- 12 months or 3,000 hours warranty

Advantages:

- Fixed upfront cost for basic repair
- Recover fuel economy
- Reduces oil consumption/smoke
- Restores power and friction
- Improves starting ability

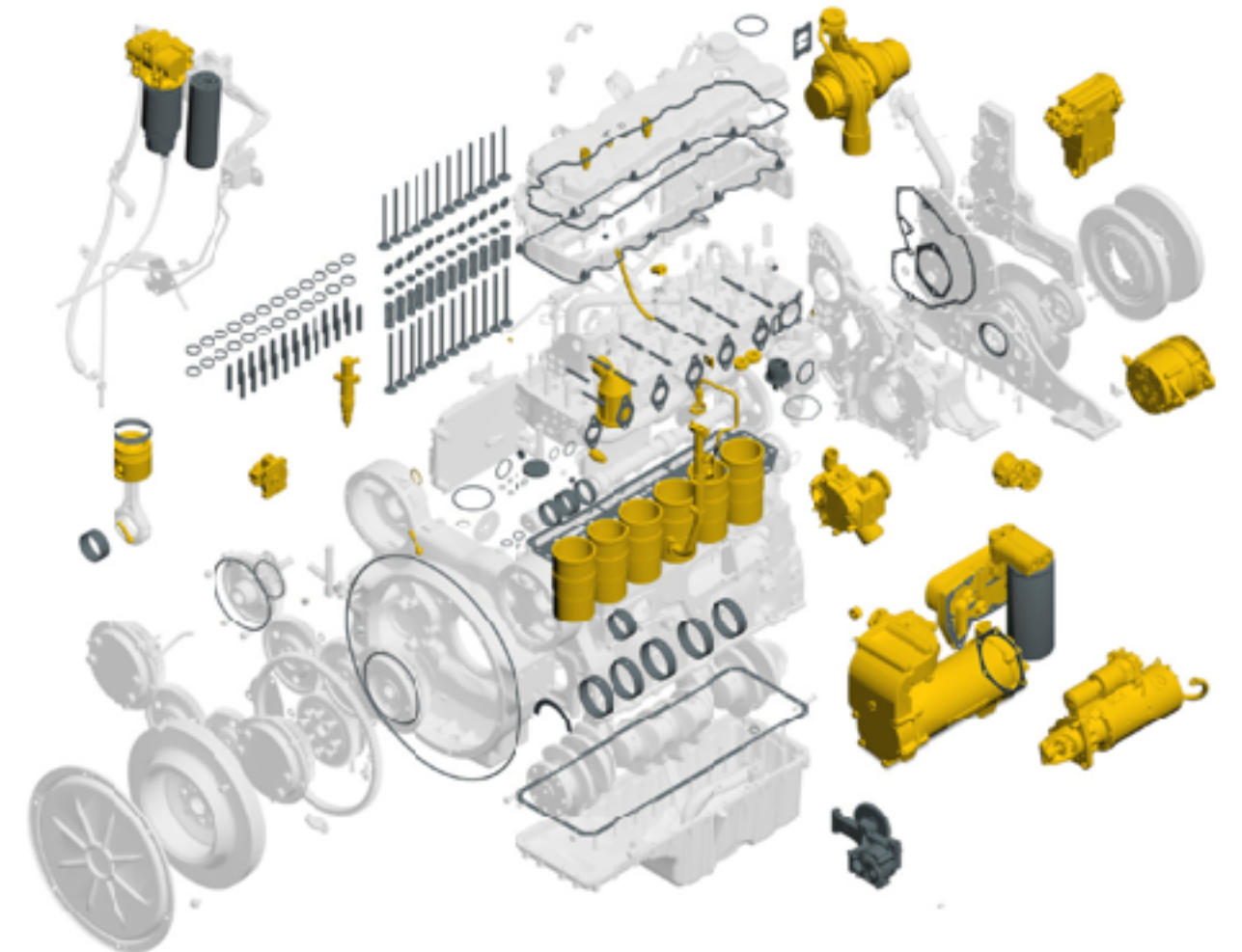
Basic plus:

How it works:

- Readjust timing and replace timing belt
- All items covered in Basic option including a selection of additional components (based on inspection)

Advantages:

- Extend up to 50% component life
- Recover fuel economy
- Improve fuel combustion for power
- Restore turbo performance



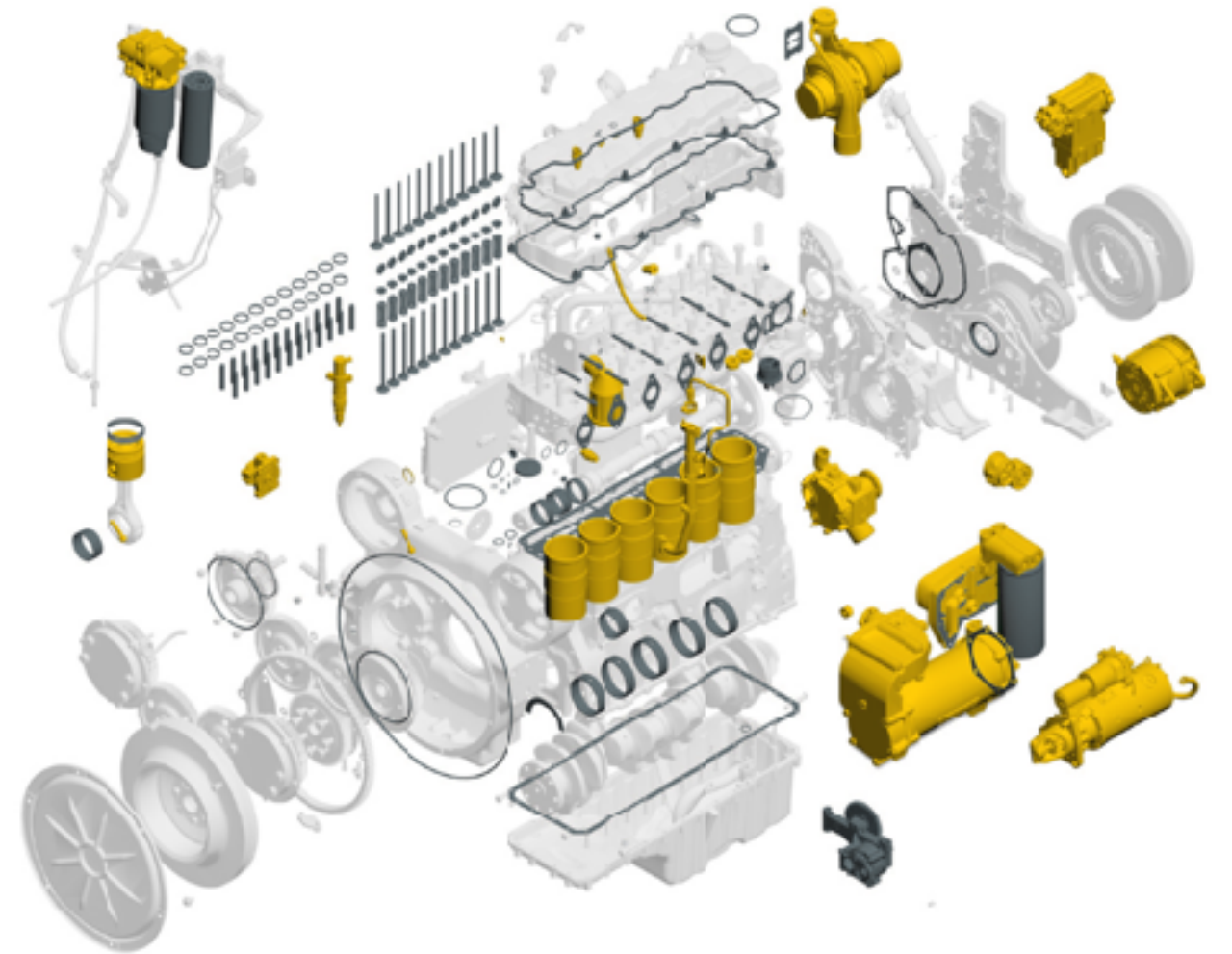
REPAIR OPTIONS: BASIC & BASIC PLUS

What's included in Basic:

- Camshaft bearings
- Coolant temperature regulator
- Crankshaft thrust plates
- Exhaust manifold studs/locknuts
- Freeze plugs
- Gaskets & seals
- Main bearings & rod bearings
- Piston rings
- PM Service: oil, fuel and air filters
- Turbocharger (mounting) studs/locknuts
- Valve spring lock retainers, valve rotocoils, inlet & exhaust valves

Plus options:

- Replace pistons
- Reman fuel injectors
- Reman turbo cartridge
- Rebuild oil pump
- Rebuild water pump
- Replace coolant hoses and belts
- Reman fuel pump
- Reman oil cooler
- Reman starter
- Reman alternator
- Replace engine mounts
- Engine remove & install



REPAIR OPTIONS: FIXED PRICE REBUILD

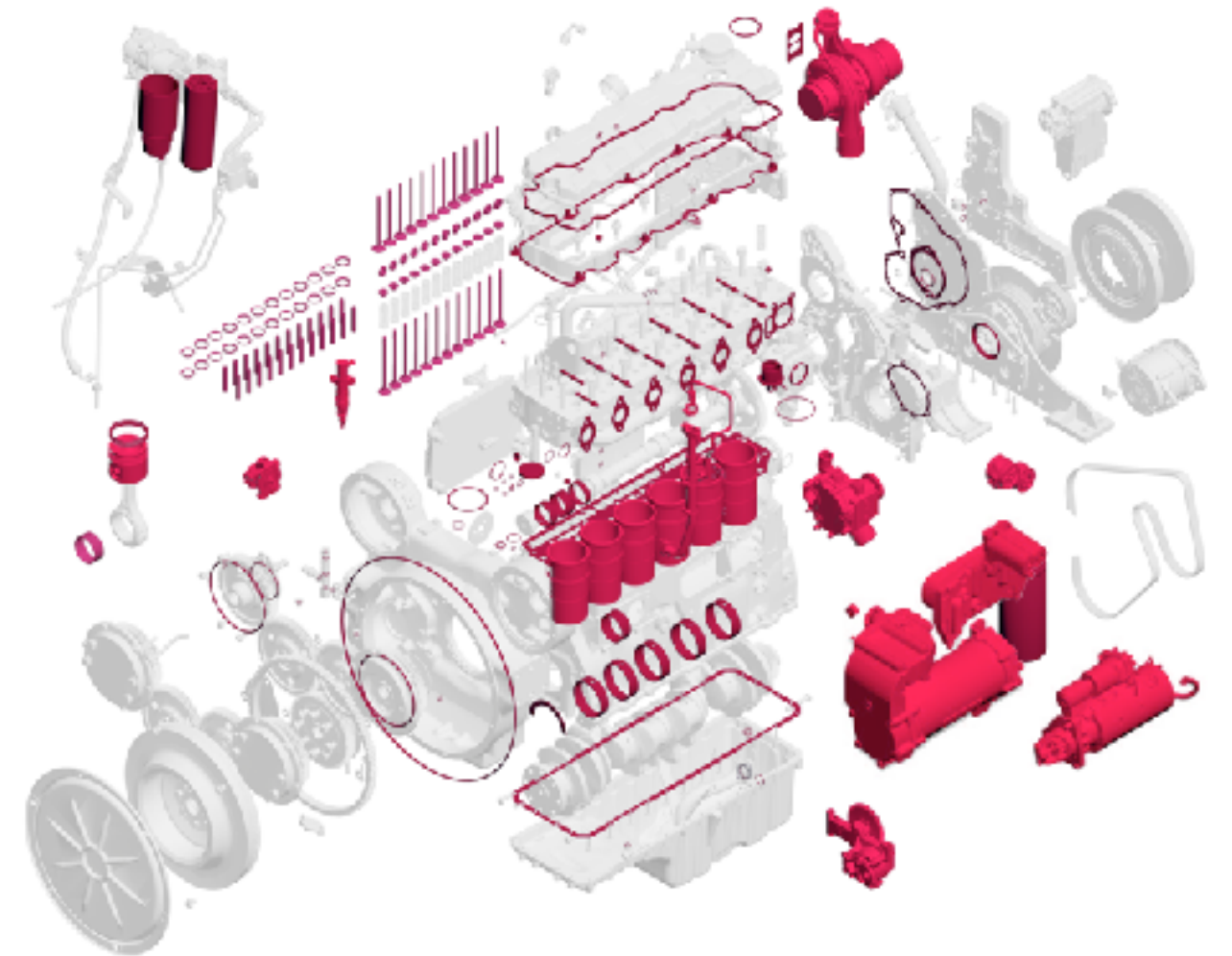
A second life for your engine:

How it works:

- Inspect/test according to Cat reusability guidelines
- Option to rebuild your core component or off-the-shelf exchange with store credit
- Inspect/reuse for full life of reusable parts
- 12 months or 3,000 hours warranty

Advantages:

- Restores 100% component life and performance
- Value for your core
- Latest engineering updates
- Quick turnaround



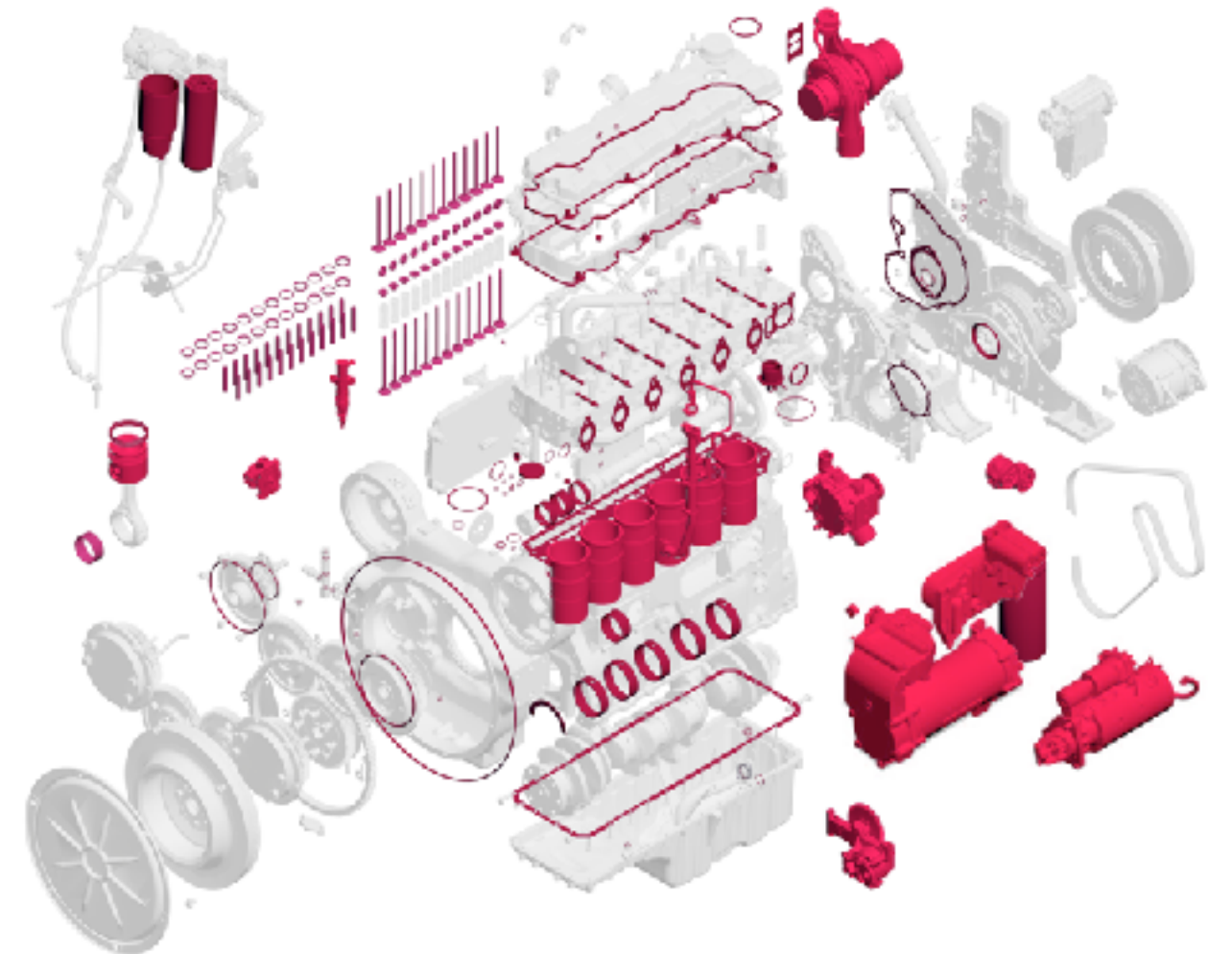
REPAIR OPTIONS: FIXED PRICE REBUILD

What's included:

- Fixed price for rebuild
- Inspect/test according to Cat reusability guidelines
- Engine must be running
- Improves starting ability
- Restores power
- Restores fuel consumption level
- Fully tested on dynamometer
- 12 months (standard labour hours and set turnaround time)

Excluded:

- Crank shaft
- Cam shaft
- Cylinder head casting
- Cylinder block
- Turbo housing
- Extended warranty



MANTRAC REPAIR OPTIONS EXTEND THE LIFE OF YOUR ENGINE

We also have lower cost options and a selection of kits to do your own repair.

- Up to 15% savings on parts compared to individual purchases
- Faster repairs with pre-assembled components
- Single part number kitting options for your technician
- Access to the exact parts saves precious time
- Service instruction including guidelines
- 12-month warranty with genuine Cat parts

Transmission Repair Cost Comparison:

| | <u>After failure</u> | <u>Before failure</u> |
|-------------------------------|----------------------|-----------------------|
| Overhaul: | 14,175 hours | 9,200 hours |
| Costs of repair: | \$22,205 | \$8,130 |
| Cost/hour: | \$1.56 | \$0.88 |
| 4975 extra hours cost: | \$2.82/hour | |