



COMPONENT REBUILD CENTERS

THE FLEXIBILITY OF A SERVICE SHOP WITH THE PROCESS CONSISTENCY OF A MANUFACTURER

Caterpillar machines are designed so that components can be rebuilt several times over the life of the machine—allowing customers to benefit from maximum performance and reliability throughout the life of their equipment.

Component Rebuild Centers (CRCs) help Caterpillar customers achieve optimum component life and reliability through world-class rebuild practices. Equipped to rebuild and test all major components of the largest equipment Caterpillar produces today, CRCs meet the same safety, quality and contamination standards as a Caterpillar factory.

“Customers have options when it comes to repairing and rebuilding components,” says Patrick Mohrman, a Caterpillar product support manager. “But there isn’t another repair option that can provide what a CRC does. It’s 100 percent Caterpillar.”

Dealers and Caterpillar work together at all stages—sizing the facility, determining the right equipment, providing all the necessary specifications and tooling, and training the technicians who work there.

“Dealers build CRCs to provide their customers with the least cost to rebuild, a quick turnaround, better quality through standardization, improved contamination control and the latest updates for Cat equipment,” says Mohrman. “And we believe CRCs do all these things.”

USING QUALITY TOOLS

Certified Component Rebuild Centers are large investments for Cat dealers. In addition to the large square footage required for a facility, a CRC also contains a number of high-tech tools necessary to assess the condition and rebuild all major equipment components. CRCs are equipped for general machining as well as outfitted with specific tools to rebuild and test engines (including blocks, cranks, heads and cylinder packs), powertrains, torque converters, transmissions, differentials, wheel stations and more.

FOLLOWING QUALITY PROCESSES

Each rebuild follows a Cat-approved process—beginning with a thorough cleaning of every component and ending with rigorous testing to ensure quality.

“Everything gets looked at,” says Caterpillar product support manager Mike Staley. “For example, engines are completely stripped to the bare block and checked down to the bolts. Then they’re re-assembled with whatever parts make the most sense. They may be new, they may be parts rebuilt from the same machine, or they may be exchange parts from another rebuild. You use all these components to do it in the fastest and most economical way.”

Dealer CRCs are continually audited for cleanliness and must meet stringent standards set by Caterpillar. Many CRCs meet Cat’s Five Star Contamination Control standards. Paying attention to contamination control enhances productivity, increases component longevity and results in decreased downtime.

DEVELOPING EXPERT TECHNICIANS

“CRC technicians are trained by Caterpillar experts to rebuild Caterpillar components—and only Caterpillar components,” says Mohrman. “And they’re trained for their area of expertise. Whether it’s a fuel system or a transmission, they become experts in the rebuilding of that specific component. They do it day in and day out.”

ADDING VALUE IN BRAZIL

With customers in nearly every state in Brazil, Cat dealer Sotreq knows the value of providing major component rebuilds that offer quality repair, fast turnaround and maximum value. That’s why, in 2000, Sotreq decided to invest in a 3,200-square-meter (34,000-square-foot) Component Rebuild Center designed to restore engine and drive-train components to factory standards. An 820-square-meter (8,800-square-foot) addition is in progress.

Sotreq’s newest CRC is centrally located in Contagem, the third-largest city in the Brazilian state of Minas Gerais. Rebuild activities at this facility complement those of two smaller Sotreq CRCs, one in Belem, Para, and the other in Sumare, Sao Paulo.

“We know that having access to our CRCs helps our clients to reduce downtime,” says Sinval Colares Nassau, manager of the Sotreq CRC. “We value our strong business partnerships with all our clients and we work with all of them to satisfy their expectations in terms of quality, reliability and availability.”

“Our objective is to fully serve customer machine, service and maintenance needs, so that customers can concentrate on core business needs.”

MANAGING COMPONENT LIFE

Planned component rebuild intervals can be based on a number of factors, including past experience, condition monitoring, fuel consumption, oil analysis or even arbitrary target hours.

Mine site conditions can change over time and impact component life. Deeper pits, longer hauls, overloading, etc., can have a negative impact on component life. Positive changes can come from continuous improvement initiatives like contamination control, fluid cleanliness, application and payload management, and better maintenance and monitoring.

When a component is repaired or rebuilt in the dealer CRC, dealers are able to assess the condition of the component. Dealer documentation of the component’s condition can be valuable information for the customer.

Dealers can provide technical reports back to the customer after every component rebuild or repair. These reports may also offer recommendations and information the customer can use to better manage component life.

Repairs account for 25 to 30 percent of the costs of owning and operating mining equipment. “It’s important that customers know the status of every component at all times so they can manage their operations today and be better prepared,” says Sinval Colares.

MEETING THE NEED

Sotreq built its newest CRC to meet the needs of a booming mining industry as well as to meet customer demand for improved contamination control practices.

“Our decision to build this newest CRC was motivated by the increasing number of mining machines and volume of powertrain components in our territories,” says Sinval Colares. “We needed the additional capacity to better organize our work flow—and offer our customers the full advantages of contamination control and rebuild certifications.”

Ten of Sotreq’s major mining customers and more than 1,000 traditional dealer customers have taken advantage of the new facility. Component rebuilds completed so far for mining machines have included 777, 785, 789 and 793 mining trucks; 990, 992 and 994 wheel loaders; D9, D10 and D11 track-type tractors; and 16H and 24H motor graders. Smaller machine components—from 950 wheel loaders, 320 hydraulic excavators, 416 backhoe loaders and D6 track-type tractors—are also repaired at the CRC. Warranty repairs and partial rebuilds take place there, too.

Sotreq’s largest CRC is designed to move material systematically from receiving to initial, external cleaning. Following that are disassembly, component cleaning, inspection, component reconditioning, re-assembly, testing, painting and shipping.

“We have 20 work areas just to assemble powertrain components,” says Sinval Colares. “We also have six areas for disassembly and two for testing. We have two dynamometers, one that we use to test 3400 and smaller engines and another larger one to test 3500 engines. We also have two hydraulic/transmission tests that we use to evaluate hydraulic pumps, hydraulic motors, transmissions and torque converters.”

“Currently, we’re operating in two shifts, but because of volume increases, we’re planning to add a third,” he says. “With this new shift, we will be able to increase our annual production around 20 percent the first year and 30 percent the second year. We also plan to improve our hydraulic test and relocate the hydraulic area so that we can increase our capacity from 1,400 to 2,000 large components. All these improvements will allow us to offer customers even faster turnaround on rebuilds and repairs.”

More than 120 technicians are responsible for quality rebuilds within the CRC. Sotreq operates its own mechanical training school and offers on-the-job training by experienced technicians who mentor less-experienced employees.

Sotreq insists on high standards for contamination control as well and has received Five Star Contamination Control certification from Caterpillar. “We are pleased to have earned this highest certification rating from Caterpillar,” says Sinval Colares. “We set high standards to maximize our competitive advantage in the service capability area. In addition, we know that reducing contamination has clear benefits for our customers, including longer component life, lower owning and operating costs, reduced service rework and lower warranty costs.”

“All this contributes to increased profitability for our customers.”

CRCs MAY BE OUTFITTED WITH THE FOLLOWING STATE-OF-THE-ART TOOLS:

- Dynamometers to test engines and powertrains
- Paint booths
- Cylinder repair tools, including repair benches, hydraulic hones, parts washers and barrel cleaners
- Lapping machines for pump and motor parts
- Lathes and mills of various sizes

- Boring machines
- Transmission test benches
- Hydraulic hose benches
- Hydraulic test bench