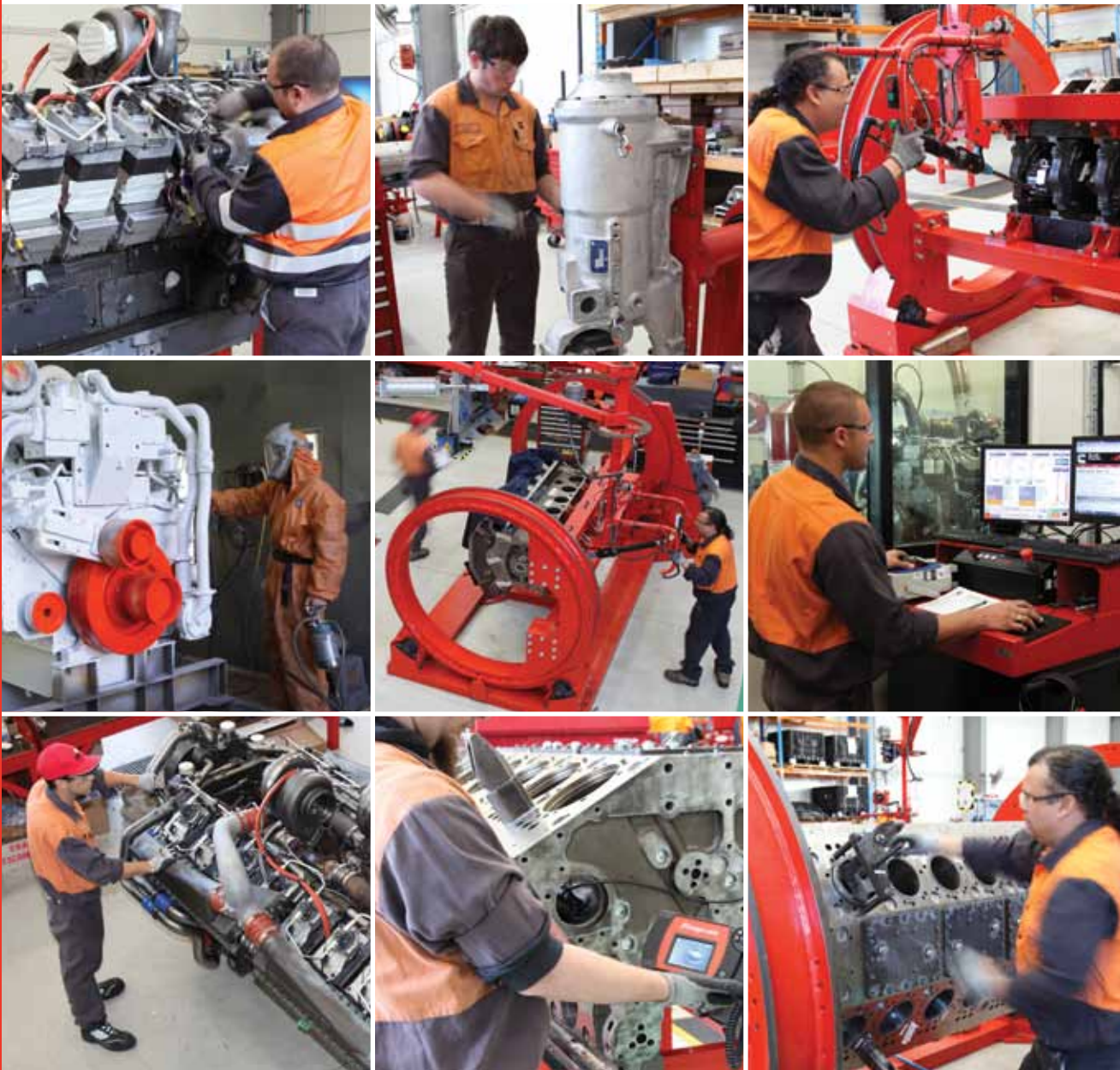




Master Rebuild Centres.

Remanufacturing high horsepower engines in Australia.





Cummins has established two Master Rebuild Centres in Australia to guarantee the quality of its high horsepower engine rebuilds.

The Master Rebuild Centres, in Brisbane and Perth, are quality certified to ISO 9001 and deliver Certified Rebuilt high horsepower engines through best practice manufacturing and planning.

High horsepower engines are complex to manufacture because of the diverse range of markets and applications they go into, along with the range of diesel and natural gas technologies that are necessary to support these markets. Consistent build quality is thus critical.

An engine that has undergone Cummins' certified rebuild process provides as-new reliability and life-to-overhaul, and also carries a new engine warranty of 12 months and unlimited hours.

Cummins' high horsepower range spans 450 hp to 3,500 hp and encompasses engines with displacements of 19, 23, 30, 38, 45, 50, 60 and 78 litres.

These engines, which include in-line six, V12, V16 and V18 configurations, operate in mining,

power generation, marine, gas and oilfield pumping, forestry and rail applications.

Cummins' certified rebuild process provides as-new engine reliability and life-to-overhaul.

Cummins' support bank engines for the mining industry – ranging from non-certified to the latest emissions spec – are rebuilt to factory specification at the Master Rebuild Centres using the certified rebuild process. This process incorporates the latest technology in assembly and includes product improvements as they become available.

The certified rebuild process, from teardown to final inspection, is a 600-step process that fits into a distinct three-phase flow:

- Teardown, cleaning, component evaluation and inspection
- Component sub-assembly and engine assembly
- Dyno testing, final 'dress' and painting, along with final inspection.



Fit-up of valve train, fuel and exhaust systems.

The Master Rebuild Centres are fitted with the latest tooling to handle the manufacturing-based process, including electric rollover stands, electric tensioning tools and a CNC block machine for blueprinting, boring and surfacing.



Final assembly of external components and trim.

The electric tensioning tools provide 100 per cent auditing of bolt tensioning to underpin rebuild quality.

Each assembly station has a ViewEASE touch-screen computer that is linked to high horsepower assembly software from Cummins' manufacturing plants at Daventry in the UK and Seymour in the US. ViewEASE provides the operator with specific build instructions and other associated documentation related to the specific assembly process.



Dynamometer test facilities are capable of testing engines up to 4000 hp.

The latest cleaning equipment is installed at the Master Rebuild Centres, including hot ferrous and warm alloy cleaning tanks, parts washers and block spinners.

They also have the latest dynamometer test facilities, capable of testing engines up to 4000 hp.

The Master Rebuild Centres work to a rolling forecast and review that forecast weekly to understand exactly what engines need to be transferred to the build schedule.

Critical to this forecasting is the Atlas database which was developed in-house and details all Cummins engines in the field, customers, sites, operating hours of each engine, projected rebuild dates, and a vast array of other data that is important to the rebuild process.



Dynamometer control centre.

The Atlas database is not only critical for Cummins' own planning, but it can also help customers understand and plan for their own requirements.



Cummins Certified Rebuilt engine.

Together, the two Master Rebuild Centres employ over 100 people, including quality engineers, planners, material specialists, technicians and apprentices.

Certified support bank engines.



Cummins South Pacific owns and maintains a bank of high horsepower remanufactured engines to meet the requirements of mining equipment manufacturers and customers.

Certified support bank engines are remanufactured with the latest technology parts and enhancements to ensure the highest quality, performance and reliability.

The price of a certified support bank engine is all-inclusive and based on the cost to remanufacture to individual engine component and system options.

Customers are only liable for additional charges if replacement components are needed on the returned core engine due to neglect or abuse while owned and operated by the customer. These parts will be charged at the customer's normal buying price.

Certified support bank engines are sold with warranties equivalent to new factory engines.

Warranty coverage is for two years or 2,000 hours of operation, whichever occurs first. If the 2,000-hour limit is exceeded during the first year, coverage continues until the end of the first year. Extended warranty for major components is three years/10,000 hours of

operation and covers warrantable failures of the cylinder block, crankshaft, camshaft and connecting rods (part only).

Rear geartrain (REPTO), air conditioning and mounting hardware, starter motors and alternators, engine mounts, belts, Centinel and Oil Reserve system components and pumps are not included in the certified rebuild program.

Certified support bank engines are remanufactured with Cummins' new and ReCon components including, but not limited to, pistons, liners and ringsets, main bearings, conrod bearings, thermostats, hoses and hose clamps, gaskets, seals, filters, and pre-lubes on all KV/QSKV engines.

Certified support bank engines have warranties equivalent to new factory engines.

Cummins ReCon is used for the supply of cylinder heads, lube oil pump, fuel pump, injectors, turbocharger/s, Holset air compressor, water pumps, cam followers, conrods and vibration damper/s.

Other items remanufactured during the certified rebuild process include, but are not limited to, STC valves, fan hub (if included), fan idler, accessory drives, Eliminator, rocker assemblies, and hydraulic drives. The cylinder block and crankshaft are reworked to ensure these major components are within the factory tolerances and specifications.

Gears, piston cooling nozzles, lube system regulators, aftercooler elements, oil cooler elements, intake housings and connectors, exhaust manifolds, oil pans and adaptors, engine breathers, thermostat housings, gear housings, front support, flywheel housing, flywheel and ring gear, and lube filter heads are inspected and replaced as necessary.

The aftercooler, intercooler and oil cooler cores if re-used are stamped to indicate second life and are replaced at every second rebuild interval. Oil cooler cores must be replaced on engine failures with lube system contamination.

New camshafts are fitted to all engines except the QSK45 and QSK60 which have their camshafts replaced every second turn or as required based on inspection and serviceability.

The electronic management / monitoring components are critical to the engine operation and performance. Fuel system ECMs are ROM-booted and recalibrated to the latest revisions and all wiring harnesses and critical sensors are replaced. All CENSE engine monitoring ECMs, wiring harnesses and sensors are replaced.

All certified support bank engines are dyno tested on completion of assembly to run the engine in, check that performance meets factory specifications, and to provide a QA check of the end product. A copy of the engine dyno test report and an engine installation document are provided to the customer purchasing the engine.



Customer Support - Every place you need it.

Cummins has the most comprehensive service support network in Australia and New Zealand with 38 branches, 170 authorised dealers, and more than 240 field service vehicles linked by GPS for fast response.

In addition, customers can call the Australian-based Cummins Support Centre any time of the day, any day of the year, for breakdown assistance or technical advice. All you need to do is ring a single number – 1300 CUMMINS (if you're in Australia) or 0800 CUMMINS (if you're in New Zealand) – and you can speak directly to a highly experienced Cummins service technician.

With Cummins you're not just buying an engine, you're buying a partnership with all the support, services and parts you need.



The Cummins Support Centre boasts a team of highly experienced service technicians who are based at a dedicated facility in Melbourne.

Everywhere. Cummins locations.

AUSTRALIA

New South Wales

Grafton	02 6641 1000
Leeton	02 6953 3077
Muswellbrook	02 6541 0611
Newcastle	02 4964 8466
Orange	02 6360 2777
Queanbeyan	02 6297 3433
Sydney	02 9616 5300
Tamworth	02 6765 5455

Northern Territory

Darwin	08 8947 0766
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Queensland

Brisbane	07 3710 4700
Cairns	07 4035 2999
Cloncurry	07 4742 0088
Emerald	07 4983 9000
Mackay	07 4952 8100
Toowoomba	07 4633 7627
Townsville	07 4774 7733

South Australia

Adelaide	08 8368 4300
Mount Gambier	08 8725 6422
Port Lincoln	08 8683 1967

Tasmania

Devonport	03 6424 8800
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Victoria

Campbellfield	03 9357 9200
Laverton	03 8368 0800
Mildura	03 5022 0800
Pakenham	03 5943 3700
Swan Hill	03 5033 1511
Wodonga	02 6024 3655

Western Australia

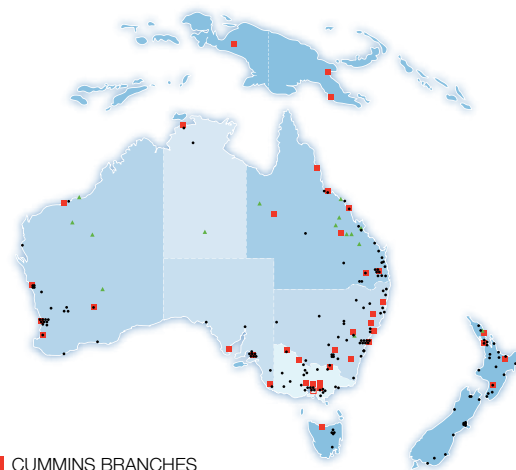
Bunbury	08 9725 6777
Geraldton	08 9964 5449
Kalgoorlie	08 9080 1300
Karratha	08 9144 4646
Perth	08 9475 8777

NEW ZEALAND

Auckland	09 277 1000
Bay Of Plenty	07 345 6699
Palmerston Nth	06 356 2209
Whangarei	09 438 8892

PAPUA NEW GUINEA

Lae	05 472 3699
Port Moresby	05 323 2471



■ CUMMINS BRANCHES

▲ Field Service Locations

● Cummins Dealers

For Australia

1300Cummins
Ph 1300 286 646

For New Zealand

0800Cummins
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