



# AT27GL to 275GL+ with ESM2

## Model Conversion

### Product description

Improve reliability and disturbance tolerance, reduce emissions and simplify your controls with the Waukesha\* AT27GL to 275GL\*+ with ESM\*2 Model Conversion. Increasing your engine power is possible with multiple power levels to choose from. This upgrade will greatly advance the control capability of the engine and incorporates various reliability improvements made over the life of the engine to transform your user experience.

### Product details

Upgrade Contents:

- ESM2 single control panel module & front wiring harness replacement
- 12"/305mm remote mounted HMI with harness
- IPMD ignition module and quick connect ignition coils
- Smart Thermocouple Modules (STU) for managing exhaust & main bearing temperatures
- New high temperature harnessing for actuators, sensors near exhaust
- Engine control actuators
- Power distribution box
- Cylinder head prechambers
- Turbochargers, Turbo Connections, Intercooler, Exhaust Manifolds, Air Inlet Connections
- Gas Regulator, Carburetor, Fuel Manifold
- Flywheel
- Governor
- Dual starters



### Customer benefits

- **ESM2 with NOx AFR Controls**
  - Controls upgrade and consolidation
  - All thermocouples and controls are managed out of a single, high capacity control module
  - Adjusts air/fuel ratio based on output from NOx AFR & NOx Sensor to maintain 0.5g/bhp-hr NOx or 0.3g/bhp-hr NOx with LCR Fuel Flex Upgrade Kit
  - Trican sensor measuring humidity, temperature, pressure at air inlet to improve engine performance
  - Ease of access to wiring harnesses
  - Single control panel via off engine HMI – Provides easy-to-read engine operating parameters. **No laptop needed.** Data trending, Fault trees, Troubleshooting, manuals all available throughout the HMI
- **Lower Prechamber Volume (2% → 1%)**
  - Improved prechamber geometry
  - Provides stable operation at 0.5g/bhp-hr NOx or 0.3g/bhp-hr NOx with LCR Fuel Flex Kit
- **Upgraded Turbocharger**
  - Allows for leaner air/fuel ratio which provides lower fuel consumption and emission levels with increased power.
- **Reliability, Uptime, Availability**
  - Hardware improvements – Wastegates, Ignition system, fuel system
  - Improved disturbance tolerance – No more wastegate learning
  - Improved startup – automatic lean out after starting
  - Improved e-stop to minimize fuel in the engine at shutdown
- **Performance**
  - Increased horsepower (crankshaft dependent)
  - Improved air handling, both steady state and transient
  - Improved efficiency

### Customer Impact

- Increased engine power and availability
- NOx emissions read directly from exhaust stream; no calculations required
- Reduction in unplanned shutdowns
- Lower fuel consumption means lower costs
- Ease of access for lube oil maintenance
- Quick connect coils/thermocouples

### Applicable units

#### AT27GL to 275GL+ ESM2 Upgrade

Engine	LCR/HCR	Kit
12V-AT27GL	HCR	G-962-1266
12V-AT27GL	LCR	G-962-1269
Multiple power levels available: 3130, 3375, 3625, and 3750 BHP (Up to 600 more BHP)		
16V-AT27GL	HCR	G-962-1271
16V-AT27GL	LCR	G-962-1274

Multiple power levels available: 4100, 4500, 4825, and 5000 BHP (Up to 900 more BHP)

Crankshaft is not included in kit. Engine must use crankshaft C280011 for 12V or E280311 for 16V to be eligible for increased horsepower.

### HCR Customer Profile

- Fuel derate begins: \*60 WKI/16V – \*70 WKI/12V
- 9:1 Pistons (not needed with upgrade)
- BTU fuels (600-900)
- Efficient fuel consumption
- Emissions: 0.5 NOx (g/BHP-hr)

### LCR Customer Profile

- Fuel derate begins: \*50 WKI
- 8:1 Pistons (needed for upgrade)
- Wide BTU fuels (900-2300)
- Lower Emissions: 0.3 NOx (g/BHP-hr)

\*BHP Calibration will relate to a lower WKI derate.

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