



# AT27GL to 275GL+ with ESM2 Conversion Upgrade Offering

## Product description

Increase your power, improve reliability and disturbance tolerance, reduce emissions and simplify your controls with the Waukesha\* AT27GL to 275GL\*+ with ESM\*2 Upgrade kit. 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
- IPMD2 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
- Oil cooler, spin on oil filter manifold, centrifugal oil filter
- Gas Regulator, Carburetor, Fuel Manifold
- Flywheel
- Governor
- Dual starters



## Customer benefits

- **ESM2 Controls with NOx AFR & IPMD2**
  - 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.
- **Improved Oil Filtration**
  - Spin On Oil Filter allows for easier maintenance
- **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
BHP Calibrations: 3130, 3375, 3625, and 3750 (Up to 600 more BHP)		
16V-AT27GL	HCR	G-962-1271
16V-AT27GL	LCR	G-962-1274
BHP Calibrations: 4100, 4500, 4825, and 5000 (Up to 900 more BHP)		

Increased Horsepower is Crankshaft dependent. Crankshaft is not included in Kit. 12V: C280011, 16V: E280311

### 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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