



Automation | Valves | Measurement | Process Control



REMVUE[®] AIR FUEL RATIO GI to GSI Conversion with EcoPlugs

Designed to run reliably and stably at full load and meet pending emissions regulations requirements.

www.spartancontrols.com



Spartan Controls specializes in providing solid, proven optimization technology for reciprocating machinery. We provide technology that has a positive environmental effect by reducing emissions of CO₂, NOx and greenhouse gases (CO₂ and CH₄). While many other emissions-reduction systems on the market increase costs, our technology allows most Customers to achieve lower operating costs as they reduce their CO, NOx and greenhouse gas emissions – emissions reduction with a payback.



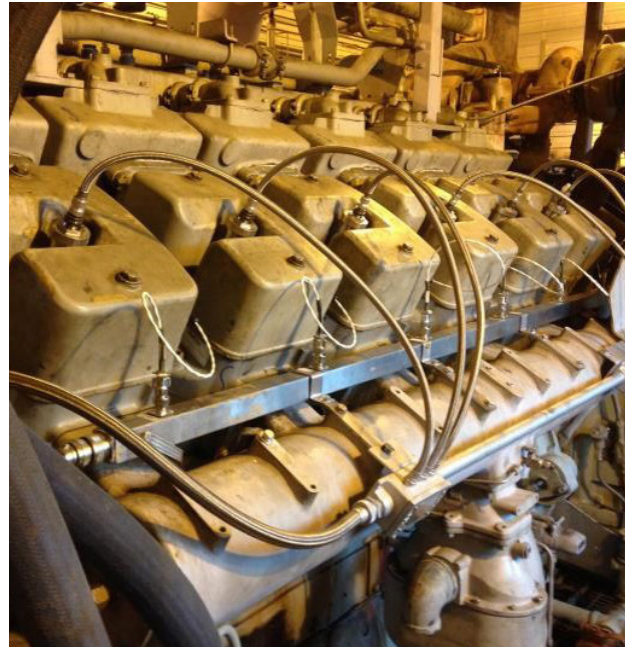
REMVUE® AIR FUEL RATIO (AFR) GL TO GSI CONVERSION (WITH ECOPLUGS)

Waukesha VHP GL engines, with reliability and stability challenges (and a high potential for detonation), provide a unique opportunity. Waukesha VHP engines are partially converted from a GL to a GSI by replacing the engine heads, pistons and upgrading to EcoPlug spark plugs.

The new **AFR GL to GSI with EcoPlugs** application has been designed to run reliably and stably at full load and meet pending emissions regulations requirements.

Advantages

- Emission levels of 1g/bhp-hr NOx achievable
- Fuel savings of 4 to 12% is typical
- Better engine control over full range and operating conditions
- Able to handle fuel gas (BTU) variations, load changes, ambient air changes
- Easier to maintain, and available spare parts
- Improved reliability and stability
- Increased plug life with EcoPlugs
- IntelliSpark ignition, dynamic timing & spark control
- Lower occurrence of detonation through DetCon (optional)
- Partially loaded units can be run at full load



Reduced Environmental Effect

Emissions from engines found in natural gas production facilities must meet corporate stewardship objectives, legislative emissions standards, and environmental targets. This technology meets the Multi-Sector Air Pollutants Regulations (MSAPR) requirements for NOx reduction and emissions.

Environment Canada has completed extensive analysis and held numerous stakeholder meetings with engine owner/operators, engine OEMs and technology vendors and has recommended these approaches to reduce NOx for rich-burn natural gas engines: rich to lean conversions. Spartan Controls has the only patented rich to lean technology (REMVue®) that enables substantial NOx reductions, fuel savings and reliability improvements. EcoPlug technology extends NOx reduction and fuel savings for new and existing REMVue® AFR systems.

MSAPR Compliant

The REMVue® AFR GL to GSI conversion (with EcoPlugs) meets anticipated MSAPR.

The NOx regulations for stationary reciprocating natural gas engines in Canada applies to all new engines, 75kW (100hp) and above, and all existing engines, 250kW (335hp) and above. The regulation allows an 11-year time frame for compliance; mandating 50% of the engine fleet meet NOx targets within 6 years, and 100% of the fleet meeting NOx targets in 11 years.

Applications

9 ³/₈" Bore

- P9390GL
- L7042GL
- F3521GL

8 ¹/₂" Bore

- Under review

Software Control

The REMVue® system is designed with our Capacity Control, AFR, DetCon and Ignition Timing Control technology which automatically compensates for:

- RPM changes
- Load changes
- Dynamic Timing Control based on ability to maintain air manifold pressure (decreases in turbocharger efficiency)
- Dynamic AFR Control on load, exhaust temperature, engine fuel BTU, & ambient air conditions
- Detonation prevention algorithms

The result is optimum control for your engine/compressor equipment for all operating conditions.



REMVUE® AFR GL TO GSI CONVERSION

Installation

Easy Equipment Changes

REMVue® AFR GL to GSI (with EcoPlug) can be easily retrofitted to existing Waukesha VHP GL installations in the field by one of our technicians. The systems have been designed for minimal downtime during installation and can be completed during a normal head swing.

The following installation equipment changes can be made:

- Install VHP GSI heads & pistons
- Remove existing wastegates and blank off
- Remove CEC ignition and detonation system (DSM)
- Remove GL regulators, governor, wastegate and piping
- Add REMVue® Panel
- Add wastegate assembly and balance air lines
- Add Fisher™ GX Fuel Valve with DVC 6200 positioner
- Add MicroMotion™ Fuel Meter
- Add IntelliSpark Ignition System
- Add Motortech DetCon20 Detonation Control System
- Add EcoPlugs

Safety

REMVue® AFR GL to GSI (with EcoPlug) employs advanced safety control strategies to ensure safe and reliable operation in all conditions. The REMVue® AFR system can easily convert a Waukesha GL to GSI system to use advanced timing control, capacity control and long-life, fuel-reducing EcoPlugs to create a cost-effective, reliable and production enhancing system.

Low maintenance and reliability



REMVUE® AFR GL TO GSI CONVERSION

Key Benefits

Removal of prechamber components leads to reduced maintenance and improved reliability through:

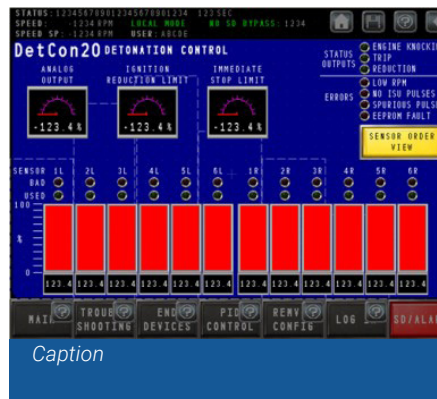
- Engine/compressor load increase potential from partial 70% to full 100%
- Production increase potential of 0.64 mmscfd (\$655k/year) capacity
- 5 to 12% fuel savings
- Reliable control down to 1g/bhp-hr of NOx
- Decreased maintenance
- Increased plug life
- More consistent exhaust temperatures



Caption



Caption



Caption



Caption

Call us or request a quote online 24/7

+ 1 (877) 278-6404

British Columbia

Burnaby +1 (604) 422-3700 • Fort St. John +1 (250) 785-0285 • Prince George +1 (250) 960-9765

Alberta

Calgary +1 (403) 207-0700 • Edmonton +1 (780) 468-5463 • Fort McMurray +1 (780) 790-0440
Grande Prairie +1 (780) 539-1161 • Whitecourt +1 (780) 778-5445

Saskatchewan

Midale +1 (306) 458-2223 • Regina +1 (306) 721-6925 • Saskatoon +1 (306) 934-3484

Visit us online

www.spartancontrols.com | info@spartancontrols.com

©2019 Spartan Controls. All rights reserved.