GAS ENGINE IGNITION SYSTEMS

Our continued quest for greener power whilst lowering greenhouse effects due to waste gasses escaping into the atmosphere has boosted growth to a point where this type of generation is now quite economical and accepted as a real player in the energy market.

Common, large manufacturers of quality engines such as Cummins, CAT, Waukesha, MTU, MWM, Deutz, Wartsilla, Superior and Jenbacher have all taken the initiative to improve their engine suitability in this market using lean burn technologies and other futuristic methods of ignition to a point where these engines now use these fuels to produce electrical energy quite efficiently.

TREATED AS CONSUMABLES

As with all machinery containing moving parts, certain parts are considered consumable equipment. Given that fuel of course is a consumable, other items such as oil, filters, coolants and the spark plugs are all treated as consumables in gas fuelled engines. Other items which owners are finding to be consumables are coils, extensions and leads, however this should not be the case.

CREATE THE IGNITION SPARK

All spark plugs will open up over time with heat and wear from abrasive fuels on the electrodes. While any plug with correct resistance values is set at a recommended gap in the engine, the coil voltage required to create the spark will be within the coil's limits. When the coil voltage is within its limits, the strength of the spark is very good and ignites the fuel easily and reliably. After time the gap will open up on the plug. When the gap opens, the coil voltage needs to rise to create the ignition spark, however the spark can now be slightly weaker, but still quite adequate to ignite and continue to run reliably. Once the plug gap opens too far, the voltage rise of the coil required to sustain the spark tends to increase beyond the coil and HT system's limitations. This now begins to make the spark very weak and the coil and HT system can start to breakdown due to excessive voltage rise or not fire at all. To go along with this, any inferior or damaged extensions and leads can fail electrically due to the higher voltage produced. At this stage then damage can be sustained by the coils, leads, extensions and the plugs.

Many owners of these engines have reported repeated premature failures of both coils and plugs of which neither are normally covered by engine warranties.

The simplest answer to improving this situation is to improve the quality and capability of the parts within the ignition system, which in turn improves the reliability of the engine itself. To improve the system a number of pieces of equipment can be upgraded. Firstly a coil with a higher VA [or wattage] rating capable of higher withstand voltages with the same spark producing electrical current capacity. Next the rest of the HT system needs to be improved to cope with the higher capability of the coil, and then lastly a plug that resists opening due to wear and heat.

EFFECTIVE SOLUTION AT A PRICE

This all sounds like it is going to cost a lot of money, however OPMI Pty Ltd of Australia and TriPower of USA have worked closely with ignition system manufacturers to produce an effective solution at a price normally less than the OEM's replacement parts. The retrofit kit includes all required parts for mounting to the OEM's original equipment mounting points and consists of the highest quality, high wattage coil, lead and extension tubes, all derived from high quality German manufacturers.

USE OF SPECIALISED ALLOYS

OPMI are also Australasia's largest distributor of Bosch Industrial Engine spark plugs. OPMI, TriPower USA and Bosch Germany have worked together over the last 3 years to develop spark plugs for almost all industrial gas driven engines. The use of specialised alloys derived from Iridium, Platinum etc has now resulted in one of the highest quality, long lasting spark plugs available in the market. With OPMI's assistance Bosch has developed 2 key plugs for the larger engines such as Cummins QSK & QSV, Cat 3500 & 3600 series, Waukesha, etc. The plugs used such as part No 7306, are for use in clean natural gas in standard engines. Performance tests in CAT and Waukesha engines particularly have proven to be of great success in longevity of run times, running on clean natural gasses in standard operating conditions.

RUNNING LEAN BURN TECHNOLOGIES

The newest plug in the market is our part No 7305 for use in coal seam, landfill, sewage and other lower grade fuels. The 7305 is also recommended for all engines running lean burn technologies and high BMEP engines.

It is particularly suited for high temperature running such as in outback Australian areas. This plug was only introduced to the line in July 2011 after some much appreciated assistance with many Australian engine owners running trials of Bosch's other plug designs. Using their feedback and data, Bosch was able to correlate the data and use this in the design of the 7305 to meet all the requirements expected from a quality product.

The price comparison for most competing plugs of similar performance claims, is very competitive and OPMI can tailor a pricing schedule to meet your projected turnover requirements.

Bosch also apply the same technologies to their smaller plug range such as for CAT 3400 & 3300 series and Cummins C series etc, and include in the long-life range the CAT 3600 series combustion sensor plug.

CONCLUSION

Upgrading the ignition system using Bosch Spark Plugs and OPMI/TriPower USA retrofit coils, leads and extensions will extend the life cycle of the ignition system. This in turn will save both money and downtime at a price that does not necessarily have to break the budget.

To improve your spark plug run times in any gas fuelled industrial engine, be it large or small, contact OPMI Pty Ltd Australia to discuss your requirements and OPMI will tailor a solution to suit.

OPMI can also supply further information on all their services available including Gas Turbine Sales, Transformers, HV systems and Power Generating unit sales.

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