

ENGINEERING BULLETIN

Ref Document No.	EB15015	Issue No.	1
Subject	Nickel Plated ExDES Components		
Release Date	3 rd September 2015		

Purpose – Advise COALTRAM® owners of steps PPK Mining Equipment is taking to increase the in service life of ExDES components currently being limited by corrosion.

Applicability – COALTRAM® models - CT08, CT10, CT10LP and CT13

Information

The exhaust manifold adaptor plate (5520000075) and turbo adaptor plate (5520000077) are the two ExDES components that suffer from the most aggressive corrosion during service. This is because a predominant amount of the component is open to the atmosphere without any surface protection. The components are rarely able to be reinstalled to the engine during a code D inspection without corrective measures to obtain the required surface finish. PPK has investigated applying a corrosion resistive coating to these components.

Different coating methods were investigated, taking into consideration suitability, cost and performance. Electroless nickel plating was chosen as the coating of choice because of its excellent corrosion resistance, "cold" plating process, uniform coating thickness and high hardness/wear resistance.

PPK was required to prove to the Department of Industry that the electroless nickel plating had no negative effects on the components being able to perform its function and retain the explosion protected state of the engine.

Hydrostatic testing of the components was undertaken to prove that the gasket would be retained and the joint on either side of the component would remain gas tight. The results showed the nickel plated exhaust manifold adaptor plate and the turbo adaptor plate did not affect the gas tight integrity of the joint when assembled with the correct gasket and fasteners tightened to the correct torque.

Surface temperature testing of the components installed on an engine in chassis was carried out to ensure the component surface temperature was not near or above 150°C. The surface temperatures recorded remained below those of the three hottest surface temperatures and well below the 150°C limit.

All information was submitted to the Department of Industry for inclusion on approved engine packages:

- MDR 088335 DES
- MDR 088335 DES-1
- MDR 088335 DES-10
- MDR 088336 DES

- MDR 088336 DES-1

- MDR 088336 DES-10

Response from the Department of Industry was received informing that the alterations do not adversely affect health and safety, therefore, the registrations do not require revising to implement the surface coating on the effected items.

A set of nickel plated components have not yet been put through a full life cycle so the extension of in service life or surface condition after a Code D interval is unknown.

Recommendations

PPK will be able to supply new exhaust manifold adaptor plates (5520000075) and turbo adaptor plates (5520000077) nickel plated from the end of September. After this point all new exhaust manifold adaptor plates and turbo adaptor plates supplied from the PPK store will be nickel plated. Existing components can be sent for nickel plating at their next code D or per customer discretion. Service exchange components will be available.

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