



## Service centre overhaul for MOB 3 X 4 - 5 stage pump

**Industry:** Oil + Gas - refinery  
**Region:** Americas  
**Territory:** USA  
**Category:** Service centre overhaul  
**API Type:** BB3

ClydeUnion Pumps Aftermarket Technical Services team has experience across a range of services on critical rotating and reciprocating equipment to improve operational safety, reliability and efficiency. The overhaul of the MOB 3 x 4 - 5 stage pump for the oil and gas market is one of our success stories documented in our library of case studies. These case studies highlight the requirement from the customer, how we achieved the goal and the process we followed to deliver the improvements.

*Image left: Refinery*

### Situation

A refinery in Laurel, Montana was experiencing high vibration with their MOB pump upon start-up. After stripping the pump a few areas of concern were found, such as excessive wear on the 1st stage piece/1st stage sleeve and heat markings on the shaft between the mechanical seal and impeller suction eye. We also found a large piece of Vespel® ring lodged into the suction eye of the impeller. This would be the reason to why the pump was vibrating and not outputting the expected capacity.



*MOB 3 X 4 - 5 stage pump*

## Challenge

It was determined that the Vespel® insert in the 1st stage piece was installed incorrectly. The improper procedure of welding the “wings” onto the 1st stage piece after the Vespel® ring was installed caused the non-metallic material to “separate” making it weak and likely to catastrophically fail.

## Solution

ClydeUnion Pumps solution to this problem was fixing the assembly procedure of the 1st stage piece. With support from our engineering team, we successfully installed the Vespel® insert after welding on the “wings”. The procedure involved the following:

- Weld wings onto 1st stage piece
- Open up the triangular tabs on the other side of the 1st stage piece enough to be able to insert the Vespel® ring



*Deposit in impeller*



*Finished stage piece*



*Finished stage piece*

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P: +44 (0)141 637 7141 F: +44 (0)141 633 2399 E: [cu.sales@spx.com](mailto:cu.sales@spx.com)

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