



# AZUMA ENGINEERING SHANGHAI

**AZUMA GROUP**

[www.azuma-engineering.com](http://www.azuma-engineering.com)

## FUEL PARTS - MAINTENANCE – RECONDITIONING

From our workshop in Shanghai, Azuma Engineering can recondition all fuel valve components for both main- and auxiliary engines for all engine types.



Fuel valve components reconditioning:

- Spindle and guide;
- Non-return valve;
- Atomizer.
- Complete fuel valves



In our airconditioned workshop, we measure, recondition, blueprint and test each fuel valve component in order to provide the best quality.

Each component has a unique individual marking in order to have 100% traceability.

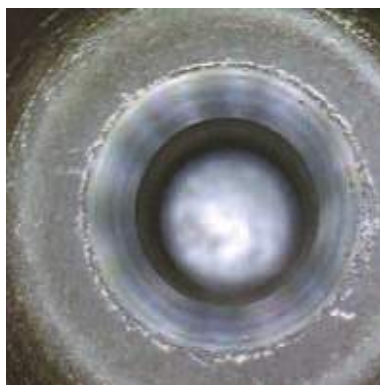
## FUEL PARTS - MAINTENANCE – RECONDITIONING



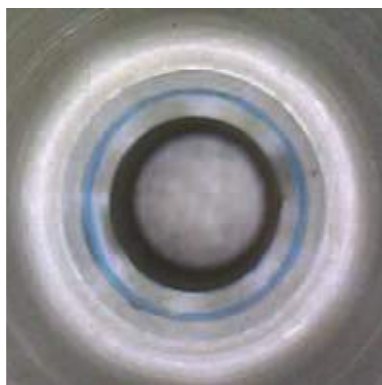
Before reconditioning



After first time lapping



Finished lapping and grinding to the right angle



After lapping and grinding, a blue print will be made

Each reconditioned fuel valve is inspected by blue print. After reconditioning the final clearance and lift is measured and put in the final inspection report. The atomisation of each reconditioned fuel valve component is tested as per the requirements of the engine builders.

Atomisation test of each fuel valve component

The sealing face and seating area of the spindle&guide and non-return valve are grinded on special grinding machines. Very important for succesfull operation is that the grinding angle from spindle and seat is slightly different.

GRINDING ANGLES MAN B&W:

- GUIDE = 60°

- SPINDLE = 60° 40'





## FUEL PARTS - MAINTENANCE – RECONDITIONING

In addition, Azuma Engineering Shanghai is specialized in overhauling of fuel pumps for all engine types including the electronic executions.



Azuma Engineering Shanghai has their own service team to provide overhauling of fuel pumps on board. To provide those overhauls the following procedure will be done:

- Disassembling fuel pumps from the engine
- Disassembling and dye check guide rollers
- Cleaning/overhauling all internal components
- Measuring all the parts (full report is made)
- Replacing worn components
- Assemble the fuel pumps including checking of lead time and/or timing with shop trial records



## FUEL PARTS - MAINTENANCE – RECONDITIONING



From our workshop in Shanghai we can recondition all main engine components for all different types of engines/engine builders.

The following main engine components can be reconditioned:

- piston crowns
- piston skirts
- cylinder covers
- exhaust valve spindles
- exhaust valve seats
- exhaust valve housings

Available processes:

- CNC machining (boring/turning)
- SAW/MIG/TIG welding
- Plasma welding
- HVOF coating
- Chrome plating
- Grinding (round + horizontal)
- MPI/Dye and Ultrasound check
- Gamma Ray testing





## FUEL PARTS - MAINTENANCE – RECONDITIONING

Complete reconditioning of exhaust valve seats and exhaust valve spindles for all engine types.



HVOF coating of exhaust valve stems



Plasma/MIG welding of exhaust valve spindles/seats including full reconditioning of Nimonic80A spindles.



## FUEL PARTS - MAINTENANCE – RECONDITIONING



Besides reconditioning of main- and auxiliary engine components we are also specialized in reconditioning and new production of all types of hydraulic cylinders.

The following auxiliary engine components are reconditioned in our workshop:

- piston crowns
- cylinder covers
- connecting rods

Reconditioning of connecting rods:

- cleaning/inspection
- mpi check of serrations
- grinding of serrations
- machine/hone big end bore
- check blue print serrations
- final inspection/report





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Mitsubishi Heavy Industries  
(1,2,3)



Hanshin Diesel  
(1)



Lloyds Register of  
Shipping (1, 2, 3)



American Bureau of Shipping  
(1)



Mitsui Engineering & Shipbuilding  
(1)



Diesel United  
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Nippon Kaiji Kyokai  
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Det Norske  
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Biz Safe 3  
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Imex  
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1: Azuma Singapore  
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