The replacement of FIVA or ELFI-V valves every 32,000 hours is recommended for optimal engine performance and safe operation. At that case, new units or factory overhaul is recommended. Factory overhauls is available at our main factory in Japan and it has been recently introduced at our Singapore branch office, Mitsui Engineering & Shipbuilding Asia Pte. Ltd.

We would like to introduce our maintenance plans as follows.

**FIVA / ELFI-V valve**
It is a multi way valve for regulation of high pressure oil flow to function fuel injection and exhaust valve.
1 unit of FIVA or ELFI-V installed per cylinder according to main engine type.
1 spare unit must be kept on board to satisfy Classification Society requirements

**Inquiry and purchase**
Please contact your local sales representative. For contact details, please refer to Mitsui Service Note No.111

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**PRIORITY**

<table>
<thead>
<tr>
<th>IMMEDIATELY</th>
<th>AT FIRST OPPORTUNITY</th>
<th>WHEN CONVENIENT</th>
<th>OTHERS</th>
</tr>
</thead>
</table>

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**Issuer** : MES TECHNOSERVICE CO., LTD.
TECHNICAL DEPARTMENT / DIESEL ENGINE SERVICE DIVISION
1-1, Tama 3-chome, Tamano, Okayama 706-8651 Japan
TEL : +81-863-23-2385 / FAX : +81-863-23-2349
E-mail : tech_de @mes.co.jp
### Maintenance Plans

We offer the following three plans for overhaul of FIVA/ELFI-V valve.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Recondition</th>
<th>Exchange</th>
<th>Repair on board</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are spare FIVA/ELFI-V more than 2 pcs</td>
<td>Place order → Target unit is delivered from user to maker → Unit is overhauled / calibrated by maker</td>
<td>Place order → Reconditioned unit is delivered to vessel by Maker → FIVA/ELFI-V is replaced by user</td>
<td>Place order → Engineer and necessary parts are dispatched by maker → FIVA/ELFI-V is overhauled / calibrated on board by maker engineer</td>
</tr>
<tr>
<td>There are spare FIVA/ELFI-V 1 pc</td>
<td>Place order → Reconditioned unit is delivered to vessel by Maker → FIVA/ELFI-V is replaced by user</td>
<td>Place order → Reconditioned unit is delivered to vessel by Maker → FIVA/ELFI-V is replaced by user</td>
<td>Place order → Engineer and necessary parts are dispatched by maker → FIVA/ELFI-V is overhauled / calibrated on board by maker engineer</td>
</tr>
<tr>
<td>Emergency 1</td>
<td>Place order → Reconditioned unit is delivered to vessel by Maker → FIVA/ELFI-V is replaced by user</td>
<td>Place order → Reconditioned unit is delivered to vessel by Maker → FIVA/ELFI-V is replaced by user</td>
<td>Place order → Engineer and necessary parts are dispatched by maker → FIVA/ELFI-V is overhauled / calibrated on board by maker engineer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery time</th>
<th>Recondition</th>
<th>Exchange</th>
<th>Repair on board</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 pcs / 2 weeks ※2</td>
<td>Prompt delivery if stocked ※3</td>
<td>3 pcs / 8 hours ※4</td>
<td></td>
</tr>
</tbody>
</table>

### Function Test
- Same function test as new one is carried out at test bench
- Function test on Main engine

### Guarantee target
- Delivered assembly
- Replaced parts

### Guarantee period
- 6 months

※1 : Not available for some engine types. Please contact your local representative for details
※2 : Shortening of delivery time is available.
※3 : If out of stock current delivery time will be notified
※4 : Overhaul quantity will depend on situation on board vessel
※5 : Additional charge is applied if no unit is returned, or if returned unit is unuseable
※6 : Assistance of ship’s crew are required to remove and install FIVA/ELFI-V from main engine

### Maintenance locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Recondition (In factory)</th>
<th>Exchange (In factory)</th>
<th>Repair on board (Engineer’s attendance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Singapore</td>
<td>YES</td>
<td>YES</td>
<td>YES※7</td>
</tr>
<tr>
<td>Other</td>
<td>※8</td>
<td>※8</td>
<td>Available※7</td>
</tr>
</tbody>
</table>

※7 : It is available if vessel stays at port which engineer and parts are able to be dispatched
Depending on availability engineer might have to be dispatched from Japan
※8 : It is carried out from Japan or Singapore