MES TECHNOSERVICE CO., LTD.

TECHNICAL DEPARTMENT / DIESEL ENGINE SERVICE DIVISION

for MITSUI—MAN B&W engine, Maintenance of FIVA/ELFI-V valve		No. 095	
		APPROVED	H.Sakamoto
		CHECKED	
		PREPARED	Y.Ishida
ENGINE TYPE	ME/ME-C/ME-B	DATE	22 nd May 2017

The replacement of FIVA or ELFI-V valves <u>every 32,000 hours</u> 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.

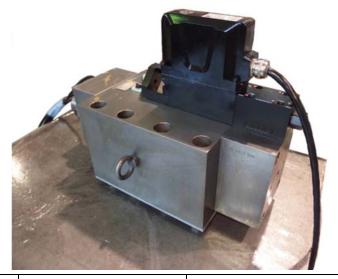
FIVA / ELFI-V valve

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



PRIORITY

IMMEDIATELY AT FIRST WHEN CONVENIENT OTHERS

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ClassNK MS JAB CM 005



Maintenance Plans

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

Situation	There are spare FIVA/ELFI-V more than 2 pcs	There are spare FIVA/ELFI-V 1 pc ※1	Emergency %1		
Maintenance Plan	Recondition	Exchange	Repair on board		
Delivery time	3 pcs / 2 weeks %2	Prompt delivery if stocked	3 pcs / 8 hours		
Maintenance flow	Target unit is delivered from user to maker Unit is overhauled / calibrated by maker **5 Overhauled unit is delivered to assigned place by maker **FIVA/ELFI-V valve unit must always be kept on board	Place order Reconditioned unit is delivered to vessel by Maker FIVA/ELFI-V is replaced by user Used unit is returned to maker by user **5 Returned unit is overhauled / stocked by maker	Engineer and necessary parts are dispatched by maker FIVA/ELFI-V is overhauled / calibrated on board by maker engineer **6		
Function Test	Same function test as new one is carried out at test bench		Function test on Main engine		
Guarantee target	Delivered	Replaced parts			
Guarantee period	6 months				

- 💥 1 : Not available for some engine types. Please contact your local representative for details
- $\ensuremath{\%2}$: 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
- 36 : Assistance of ship's crew are required to remove and install FIVA/ELFI-V from main engine

Maintenance locations

Plan	Recondition	Exchange	Repair on board
Location	(In factory)	(In factory)	(Engineer's attendance)
Japan	YES	YES	YES
Singapore	YES	YES	YES**7
Other	- *8	- *8	Available*7

%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

38 : It is carried out from Japan or Singapore