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JAPAN ENGINE CORPORATION

SERVICE ENGINEERING DEPARTMENT, SERVICE ENGINEERING SECTION
1, MINAMIFUTAMI, FUTAMI-CHO, AKASHI-CITY 674-0093, JAPAN

TEL. +81-78-949-0804 (direct), e-mail: sales2@j-eng.co.jp (parts & engineer order), service@j-eng.co.jp (technical inquiry)

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Subject : Corrosion on Fuel Valve Holes in Cylinder Cover	Application	UEC Diesel Engine
	Type	UEC LS II /LSC/LSE/LSH
	No.	USI-14102E Rev.1
If necessary		

A ship, which has been operated for four years after having been put in service, reported the trouble to us such that the inside surfaces of fuel valve holes in the cylinder cover partially corroded and water leaked through the corroded holes which penetrated to the cooling water bores in the cylinder cover.

(See attached drawings.)

This trouble is presumed to be due to the sulfuric acid corrosion because it takes place on the surfaces of the fuel valve holes near the cooling water bores in particular.

The fuel valve hole will never change into an atmosphere of sulfuric acid corrosion due to exhaust gas leakage if the seating face of the fuel valve and the cylinder cover is perfectly sealed.

We therefore suppose that this trouble was caused by a very small quantity of combustion gas which gradually intruded into the fuel valve hole owing to the inferior seal.

(The quantity of leaked gas was supposedly so small that it could not be detected.)

Taking warning by this trouble, we kindly ask you to execute the following matters when fuel valves of your engine are inspected.

1. Inspect the corresponding part whether or not it has any cavity when the fuel valve is pulled out.
2. If any cavity/pit is found, grind off the part slightly and apply a heat/corrosion resisting special paint (e.g. SUNTOMO DHX F-1 Primer AND SUNTOMO DHX 610 Black).

Please place an order as-needed with following identifying number.

Identifying No.	Name	Application procedure
U1-76162-01	SUNTOMO DHX 610 Black (Upper coating)	See page 3.
	SUNTOMO DHX F-1 Primer (Primer coating)	
	SUNTOMO DHX-B (Curing agent)	

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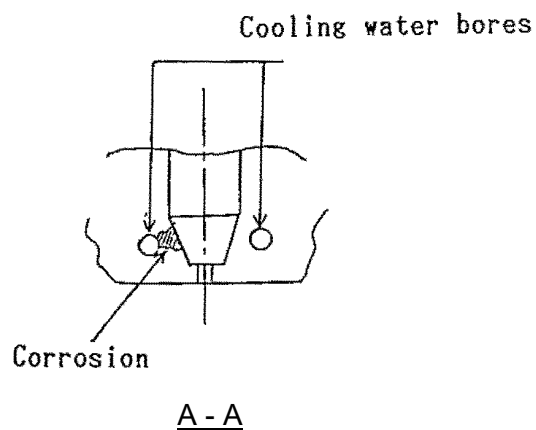
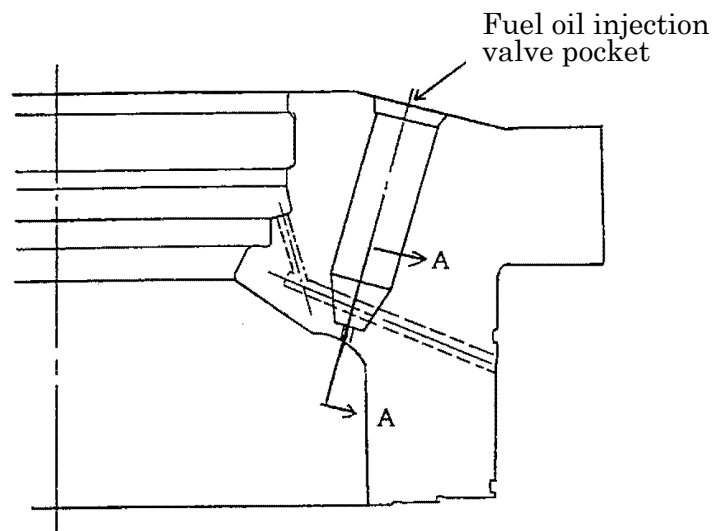
Plan record	Newly issued 26th Oct. 2018 MSI-9353E Rev.4 (6th Jan.2015) Rev.1 18 th Oct. 2021 (K.Y, H.H, T.N)	Approved	<i>K. Yoshida</i>	SERVICE ENGINEERING DEPARTMENT
		Checked	<i>H. Hirabayashi</i>	ENGINEERING DEPARTMENT
		Designed	<i>T. Nagashima</i>	DATE OF REVISED :18 th Oct. 2021

3. Lap the seating face of the cylinder cover, apply MOLYKOTE with high viscosity (e.g. THREE BOND 1901) on it after sufficiently cleaning it, and then properly tighten the fuel valve, even if no cavity is found. Furthermore, carefully inspect the seating face of the fuel valve on the cylinder cover as well.
4. Keep the outlet temperature of jacket cooling water to allowable upper limit.

When the cavity/pit is slight, the above-mentioned remedies are fairly as temporary repairs. However, we recommend you a welding repair as a permanent measures.

Regarding the allowable corrode depth, please refer to the service information USI-14101E.

Regarding the gas vent holes for fuel oil injection valve pockets in the cylinder cover, please also refer to the service information USI-14105E.



How to apply the special heat/corrosion resistance coating

	Use	Product name
A	Undercoat	SUNTOMO DHX K-1 Primer
B	Topcoat	SUNTOMO DHX 610 Black
C	Curing agent	SUNTOMO DHX-B

(1) Preparation

The fuel injection valve seat surface and the nozzle hole shouldn't be coated.

Plug or mask them in advance.

Also, mask around the O-ring fitting position of the fuel injection valve to avoid the coating.

(2) Undercoat

Remove dirt and oil on the surface to be coated.

After stirring the main agent of the paint A, mix it with the curing agent C at the ratio of main agent : curing agent = 2 : 1.

Apply a coating with 20~40μm thickness over the applicable surface using a brush as shown in Fig.1 and wait for drying.

(3) Topcoat

After stirring the main agent of the paint B, mix it with the curing agent C at the ratio of main agent : curing agent = 2 : 1.

Apply a coating with 20~40μm thickness over the applicable surface using a brush as shown in Fig.1 and wait for drying.

(Drying time for both the undercoat and topcoat to be referred to the instructions provided by the paint supplier.)

(4) Remove the masking and install fuel injection valve.

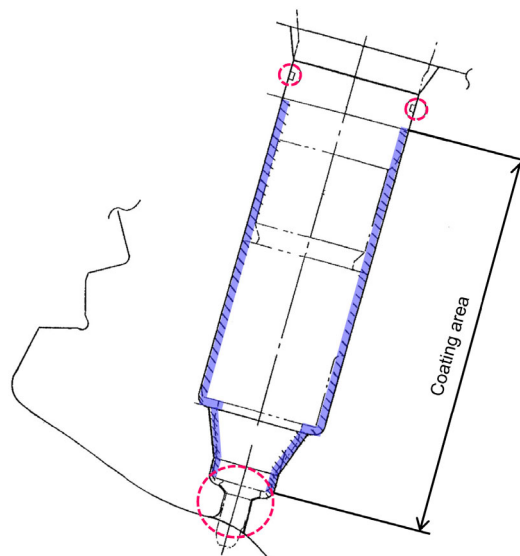


Fig.1 Painting procedure (Do not apply to the seat surface, nozzle hole and near O-rings)