

バイオ燃料対応Oリングキット販売のお知らせ

O-ring kits for biofuel on sale

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バイオ燃料の使用を検討されているお客様からのお問い合わせが増えてきたことから、接油部のOリングをバイオ燃料の性状に対応した材質に変更したOリングキットを販売致します。

As the number of vessels using biofuel has been increasing, we've started selling O-ring kit compatible with biofuel which swells the normal O-rings in the short term.

Kit No.

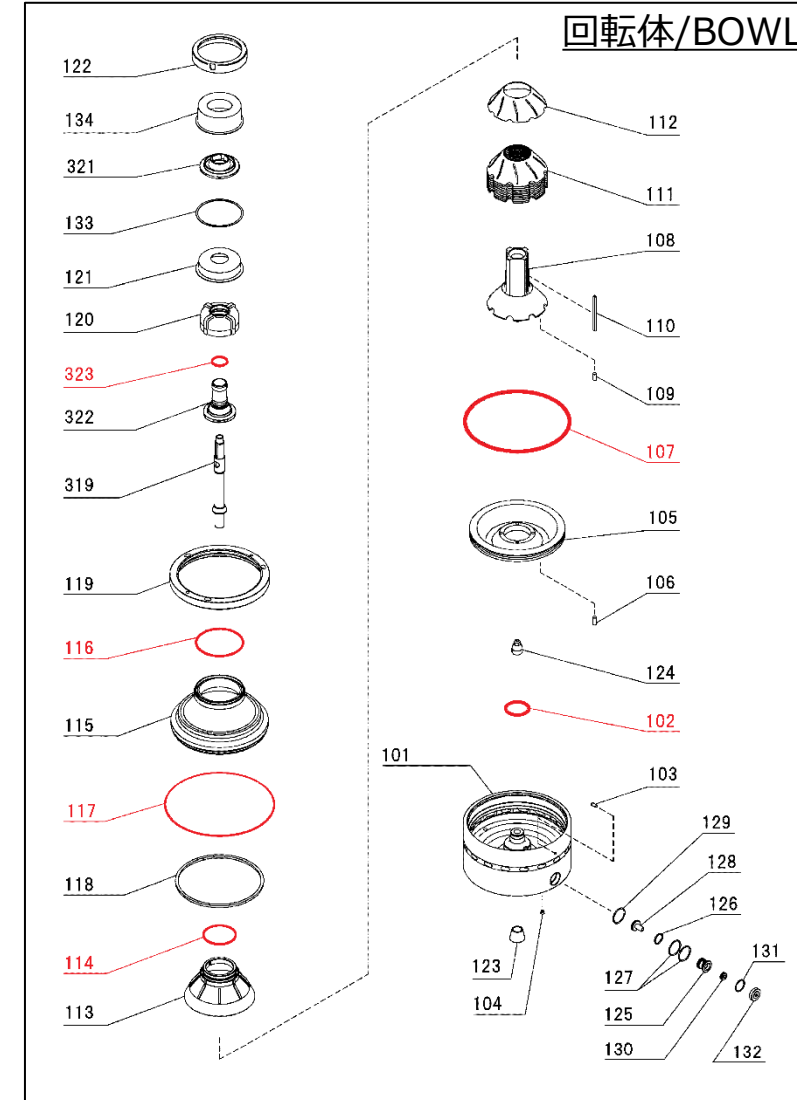
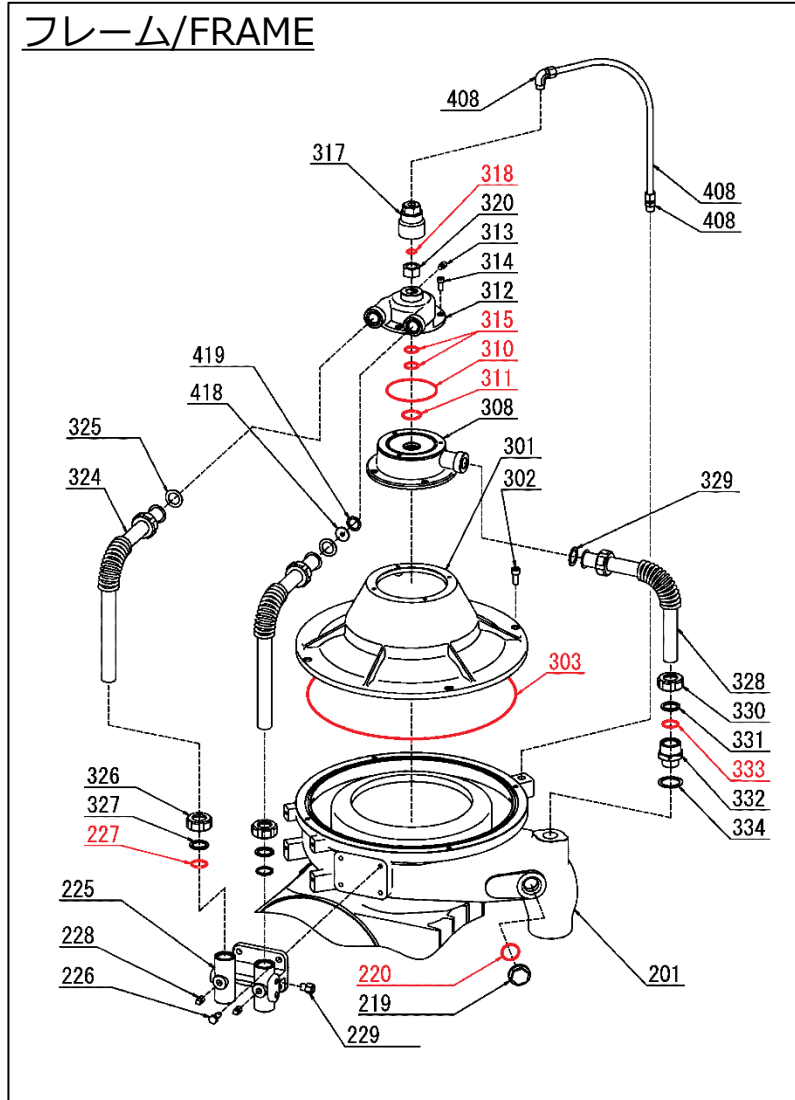
SJ-H Series	Kit No.	SJ-G Series	Kit No.
SJ15H/HH	BF015H	SJ10G/GH	BF010G
SJ25H/HH	BF025H	SJ20G/GH	BF020G
SJ35H/HH	BF035H	SJ30G/GH	BF030G
SJ60H/HH	BF060H	SJ50G/GH	BF050G
SJ85H/HH	BF085H	SJ60G/GH	BF060G
SJ110H/HH	BF110H	SJ70G/GH	BF070G
SJ160H/HH	BF160H	SJ100G/GH	BF100G
SJ220H/HH	BF220H	SJ120G/GH	BF120G
—	—	SJ150G/GH	BF150G

Symbol No. of O-rings in kit

Symbol No.	
102	311
107	315
114	318
116	323
117	333
220	
227	
303	
310	

バイオ燃料対応Oリングキット販売のお知らせ O-ring kits for biofuel on sale

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To Customers

DOC. No.; L0-2022-T101R2

Mitsubishi Kakoki Kaisha, Ltd.
Marine Machinery Design Department
Selfjector Design Section

Regarding the oil purifier operation when using Biofuel

We would like to express our sincere appreciation to you for your kindness and awareness.

We inform regarding the points to note when treating the Biofuel (MVO/FAME/HVO mixed oil) with the oil purifier on board.

"Biofuel" in this document means a mixed fuel of below define and mineral oil-based fuel (such as VLSFO).

("Biofuel" is regulated by ISO8217:2024. Biofuel in this letter shall be established under regulation of ISO8217:2024.)

(MVO ; Marine Vegetable Oil / Waste cooking oil of SVO)

(FAME ; Fatty Acid Methyl Ester)

(HVO ; Hydrotreated Vegetable Oil)

Yours sincerely

1) Low temperature fluidity

MVO / FAME tend to have low fluidity at low temperatures (normal temperature) and may become waxy under low temperature environments. When the partly waxy Biofuels is fed to the purifier, it may be occurred abnormal accumulation of solid material in the bowl.

Consider keeping the Biofuel system (tanks and pipes, etc.) on board at an appropriate temperature.

2) Detergency

It is possible that solids/precipitates of fuels handled in the past have settled to the bottom of the settling tank or adhered to the tank wall surface will be washed away by the detergency of the Biofuel. As a result, it is possible that fuel with a temporarily high solid content concentration will be fed to the purifier. This can cause an unbalance of the bowl due to abnormal sludge accumulation.

The first time of filling a tank with Biofuel, clean it so that there are no deposits of past filled fuel on the bottom or walls of the tank in advance.

3) Oxidative deterioration, Corrosion

Biofuels may be oxidative deteriorated if they are stored for a long period of time in the tank, so consider measures to prevent deterioration with antioxidants as necessary.

When acid is generated due to oxidative deterioration of Biofuels, it is possible that the bowl and impeller (copper material) of the purifier are corroded.

During regular maintenance, inspect that each part is not corroded.

4) Rubber parts

Confirm if Biofuels have any properties that adversely affect the rubber parts.

During regular maintenance of the purifier, inspect the rubber parts such as O-rings to see if the rubber parts have deteriorated compared with conventional fuel treatment.

5) Microorganisms

Microorganisms such as bacteria may grow in the water (separated water) mixing in Biofuels excluded HVO, so please consider regularly draining out the storage/settling tank.

* The contents of the precautions 1) to 5) are quoted from Web Site of Nippon Kaiji Kyokai

- Information Service / Biofuels.

(https://www.classnk.or.jp/hp/ja/info_service/bio/)

6) Density

Generally, treating by Purifier operation is possible. Select the gravity disc suitable for the density of the treated oil.

If the density is lower than 850 kg/m³ (15 degC), it may be difficult to adjust the separation interface by the gravity discs.

In case of higher Biofuel blending ratio, density is lower.

We recommend to change operation from purifier operation to clarifier operation after checking with bunker report when customer treats oil density of lower 850 kg/m³ (15 degC) higher Biofuel blending ratio as like B100 or B75 and so on.

(It is necessary to replace the gravity disc for clarifier operation.)

When the purifier is installed HIDENS type, it can be treated by operating in HIDENS mode.

7) Problems caused from mineral fuel oil (such as VLSFO)

• Sludge by biofuel

MVO and FAME may generate precipitates derived from themselves, so it is recommended to raise the treating temperature of the oil purifier and reduce the flow rate as much as possible. Regarding to HVO, it is not happened sludge. However HVO may has character to make sludge mixed with VLSFO due to equivalent of MGO. Even if MGO or other mineral oil.

(Class NK: Precautions concerning change-over to 0.50% sulphur compliant fuel oils.)

• Water removal

It is possible to decrease separation efficiency by biofuel due to components derived from biofuels.

It is recommended to raise the treating temperature of the oil purifier possible and reduce the flow rate as much as possible while paying attention to abnormal outflow alarms. The recommended temperature is as described in 13).

8) Problems caused from mineral fuel oil (such as VLSFO)

Attention should also be paid to problems caused by the properties of fuel oil mixed with Biofuel (FAME).

• Abnormal generating of sludge

VLSFO may become easy to generate sludge when mixed with other fuels, so carry out the Spot Test etc. to check if there are any signs that sludge is likely to be generated by mixing with FAME.

Especially, we recommend to check mixed with HVO regularly.

It is possible that the VLSFO generate sludge by mixing with other bunker oil remaining in the tank or piping, so when switching fuels, make sure that no other bunker oil remains in the tank/piping.

It said that VLSFO may generate sludge due to heating.

When heating, avoid excessive heating, and make sure to heat stably so that the temperature does not become too high and temperature hunting does not occur.

• Cat-Fines (Al+Si)

Some VLSFOs contain FCC catalysts (Cat-Fines). In order to remove the Cat-Fines, raise the temperature as much as possible and operate with reducing the flow-rate to the vicinity of the treating amount commensurate with the fuel consumption at that time.

9) Contact with water

Confirm whether the emulsion or the sludge generate if water is mixed into the Biofuel.

When the above matter occurs due to contact with water, if the purifier is HIDENS type, HIDENS operation will eliminate the need for the sealing water, so contact with water can be minimized.

If purifier is not a HIDENS type, it can be minimized contact with water by Clarifier operation as an emergency method. (In this case, the Gravity disc for Clarifier is necessary.)

10) Additives

Since properties such as sludge generation / oxidative deterioration / low temperature fluidity decrease differ depending on the bunker oil, consider using/stock the fuel additives for each symptom.

Contact the additive manufacturer about fuel additives.

In case of MVO, we shall recommend to use antioxidant for prevention of oxidant of oil.

11) Regarding the operation of the purifier

✓ After switching fuels, shorten the sludge discharge interval for a certain period of time, and check for abnormal sludge generation and wax accumulation.

✓ Some mineral oil fuels mixing with Biofuels contain FCC catalysts (Cat-Fines).

Therefore, in order to improve the separation efficiency, it is recommended to raise the temperature as much as possible and operate with reducing the flow-rate to the vicinity of the treating amount commensurate with the fuel consumption at that time.

✓ During regular maintenance of the purifier, inspect that the bowl and impeller are not corroded. Also, inspect that rubber parts such as O-rings are not swollen or deteriorated.

※ We shall recommend to replace our “For Biofuel parts” for using biofuel.

These parts kit shall be informed as following;

H-Series	Parts No. of Biofuel Kit	G- Series	Parts No. of Biofuel Kit
SJ15H/HH	BF015H	SJ10G/GH	BF010G
SJ25H/HH	BF025H	SJ20G/GH	BF020G

SJ35H/HH	BF035H	SJ30G/GH	BF030G
SJ60H/HH	BF060H	SJ50G/GH	BF050G
SJ85H/HH	BF085H	SJ60G/GH	BF060G
		SJ70G/GH	BF070G
SJ110H/HH	BF110H	SJ100G/GH	BF100G
SJ160H/HH	BF160H	SJ120G/GH	BF120G
SJ220H/HH	BF220H	SJ150G/GH	BF150G

In case of higher Biofuel blending ration operation by standard type, we recommend to stock gravity disc for clarifier operation due to lower 850 kg/m³ (15 degC) of oil as (6) mentioned. Gravity disc for clarifier is not included above kit parts.

Hidens type is no necessary to stock these disc.

- New-shipbuilding: These kit shall deliver to shipyard as spare parts.
- Existing vessel : Please contact us or our agent n the world.

And it also is able to use VLSFO / MGO or mineral oil for marine using.

12) Capacity of Purifier treating Biofuels

The kinematic viscosity of FAME itself (B100) is low, but the kinematic viscosity of Biofuel (FAME mixed oil) is considered to have wide range depending on the mineral oil-based fuel to be mixed. When the kinematic viscosity at the treating temperature of Biofuel is as follows, the approximate catalog capacity of the purifier is ;

Kinematic viscosity at the treating temperature	Catalog reference
~ 24 mm ² /s	Capacity table of "180 mm ² /s/50degC" column
~ 37 mm ² /s	Capacity table of "380 mm ² /s/50degC" column
~ 48 mm ² /s	Capacity table of "500 mm ² /s/50degC" column

There is no need to raise the flow rate to near the catalog capacity greatly beyond the fuel consumption.

13) Recommended treating temperature

The treating temperature of mixed oil with mineral oil-based fuel ;

- MVO : 70 degC or higher
- FAME : 65 - 70 degC
- HVO : 65 - 70 degC

※It is for reference information. Actual temperature shall depends on each vessel.

Please set higher treating temperature and reducing flow rate as much as possible.

And it is necessary to meet the operation of the Fuel Supplying equipment onboard.

14) ISO8217:2024 (Related with Biofuel)

- Distillate marine fuels DFA, DFZ, DFB are regulated to report with Biofuel blending ratio and amount by bunker companies. Distillate marine fuels DFA, DFZ, DFB are same regulation of viscosity (@ 40 deg.C)/ max. density (@ 15 deg.C) as HFO/VLSFO.

It means no necessary to change from exiting model or recommendation due to same regulation before when customer replaces our biofuel kit during bio-fuel operation due to prevent swelling during operation.

(Please confirm (11) mentioned.)

And bio-fuel sometimes are supplied too light density oil.

In case of above oil, we recommend below operation except Hidens-model.

Density(@15°C) below 850kg/m³ ;Clarifier operation (Included 100% FAME operation)

Density (@15°C) 850~900kg/m³ ; Purifier Operation (By density(@15°C) ~991 kg/m³)

• Bio-residual marine fuels RF20/80/180/380/500 are regulated to report with Biofuel blending ratio and amount by bunker companies.

Bio-residual marine fuels RF20/80/180/380/500 are same regulation of viscosity (@ 40 deg.C)/ max. density (@ 15 deg.C) as HFO/VLSFO.

I It means no necessary to change from exiting model or recommendation due to same regulation before when customer replaces our biofuel kit during bio-fuel operation due to prevent swelling during operation.

(Please confirm (11) mentioned.)

And bio-fuel sometimes are supplied too light density oil.

In case of above oil, we recommend below operation except Hidens-model.

RF20~380/ Density(@15°C) below 850kg/m³ ; Clarifier operation (Included 100% FAME operation)

※Please attention treatment temperature of RF20/RF80.

RF20~380/Density (@15°C) 850~900kg/m³ ; Purifier Operation (By density(@15°C) ~991 kg/m³)

RF500 Density(@15°C) 991~1,010kg/m³ ; Clarifier operation

※100% of HVO shall be clarifier operation due to estimate below 850kg/m³.

(HVO and SVO(MVO) are not regulated on ISO8217:2024.)

Thank you for your attention.