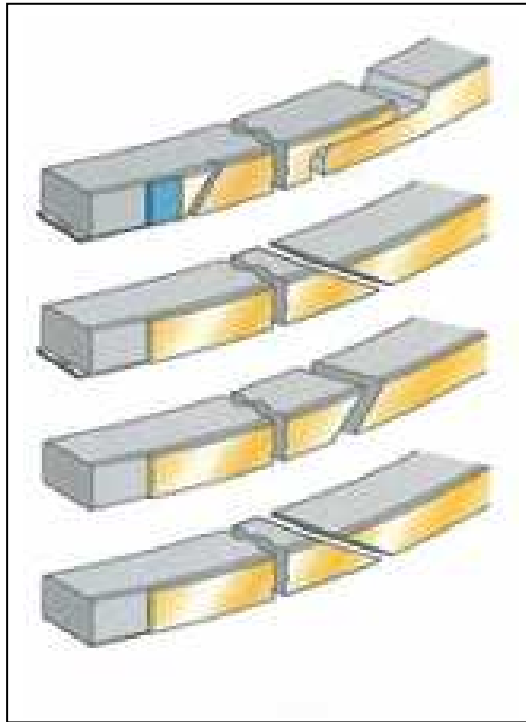


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|--|---------------------------|----------------|------------------|
| for MITSUI—MAN B&W engine, Introduction of New “Running-in Piston Ring Pack” | | No. 083 | |
| | | APPROVED | J.Watanabe |
| | | CHECKED | H.Sakamoto |
| | | PREPARED | H.Kudo |
| ENGINE TYPE | MC/-C, ME/-C,ME/-B | DATE | 2014/6/16 |

We have recently added the Alu-coat type piston ring (so-called “Running in Piston-Ring Pack”) to our ring package lineup for vessels in-service, so hereby introduce our new “Running-in Piston Ring Pack” .

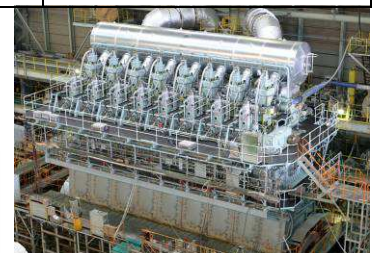
As previously announced in our Service Notes No.188, No.189,and No.183, the cylinder oil feed rate amount and interval during running-in period after piston overhauling can be reduced by using the “Running-in Piston Ring Pack”.



PRIORITY

| | | | |
|--------------------------------------|---|---|---------------------------------|
| IMMEDIATELY <input type="checkbox"/> | AT FIRST OPPORTUNITY <input type="checkbox"/> | WHEN CONVENIENT <input checked="" type="checkbox"/> | OTHERS <input type="checkbox"/> |
|--------------------------------------|---|---|---------------------------------|

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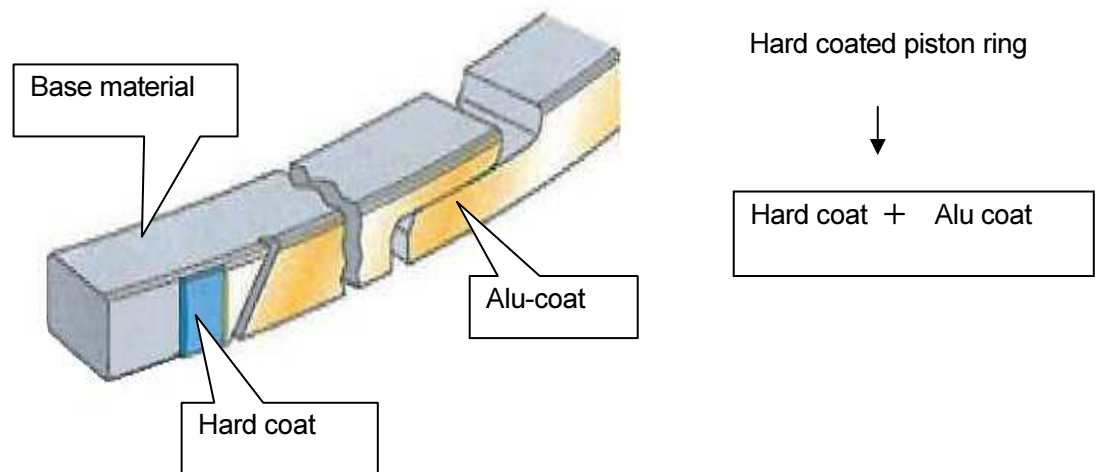


The Alu-coat was developed to achieve optimal sliding surface condition and a shorter running-in period after piston overhaul.

This spray coating is made of a mixture of aluminum and copper and is slightly softer than hard-coating (so-called "Cermet") and base material.

In this piston ring pack, new Alu-coat is added (see figures below) to both ① Hard coat piston ring & ② non coat piston ring, and it is applicable to any vessels with either type of piston ring pack.

① In case "Hard coat piston ring"



② In case "Non coated piston ring"

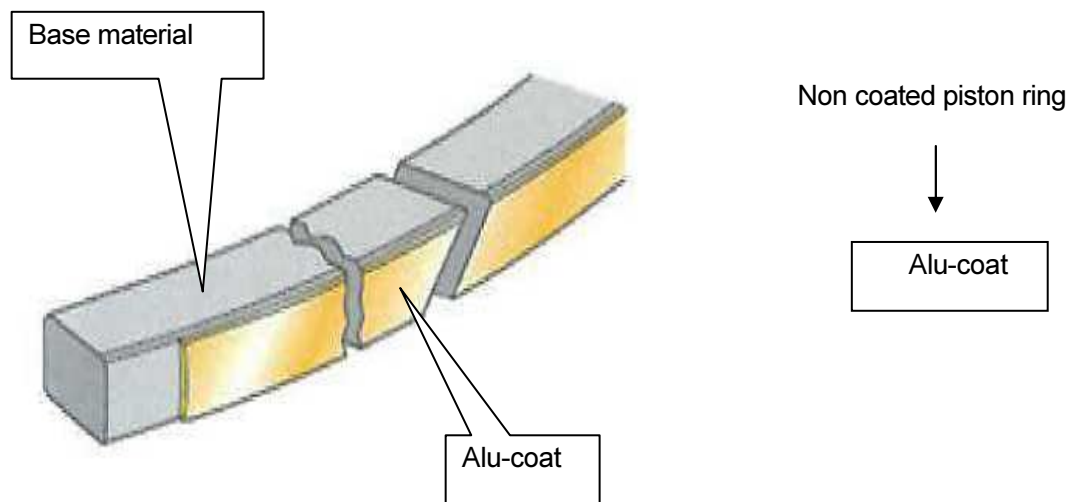


Fig.1 Sectional view of "Running-in Piston Ring Pack"(Alu-coat)

After piston overhauling, below cylinder oil reduction schedule can be applied, however please confirm actual cylinder condition by port inspection before reduction of feed rate.

1. In case of piston ring renewal

In case if "Running-in Piston Ring Pack" is used in already run-in liner, the cylinder oil feed rate shall be increased to 0.9 g/kWh and kept at 0.9 g/kWh for 24Hrs only.

If feed rate before piston overhauling is higher than 0.9g/kWh, no extra lubrication is needed.

Please refer to (*note1),(*note2).

(*note1) Maximum feed rates are as follow:

for Alpha Lubricator -----1.7 g/kWh (ref.SN188,SN189)

for Mechanical cylinder lubricator:----- 2.7 g/kWh (S/MC,MC-C engines) (ref.SN183)

----- 2.2 g/kWh (K,L-stroke engine).

(*note2) At next port, the scavenging port inspection should be carried out. If the piston ring /cylinder liner condition is satisfactory, the cylinder oil feed rate can be reduced to the previous cylinder oil feed rate.

2. In case of both(liner and piston ring) renewal.

By using the "Running in Piston Ring Pack", the breaking in period can be shortened from existing 15 hrs to 5 hrs.

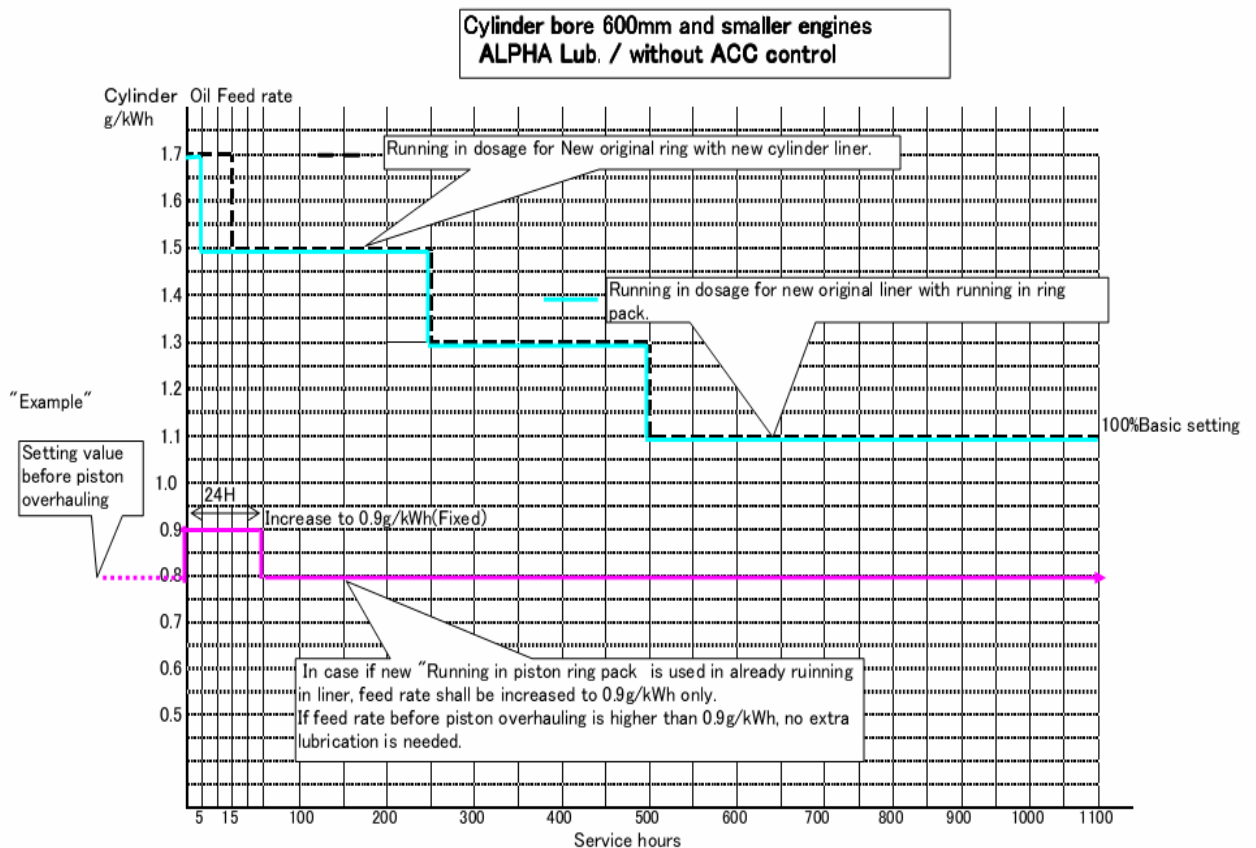


Fig.2 Alpha Lub. / Without ACC control (≤600mm Bore)

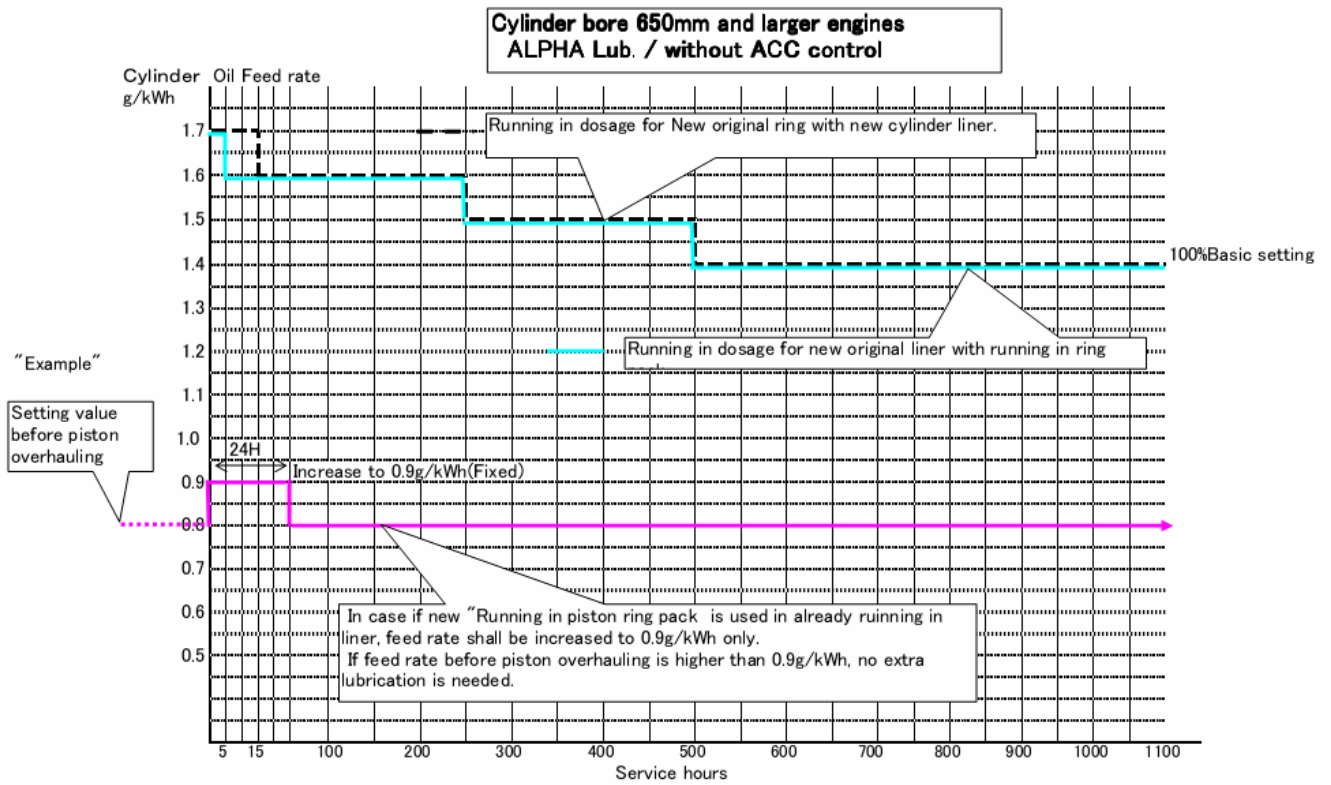


Fig.3 Alpha Lub. / Without ACC control ($\geq 650\text{mm}$ Bore)

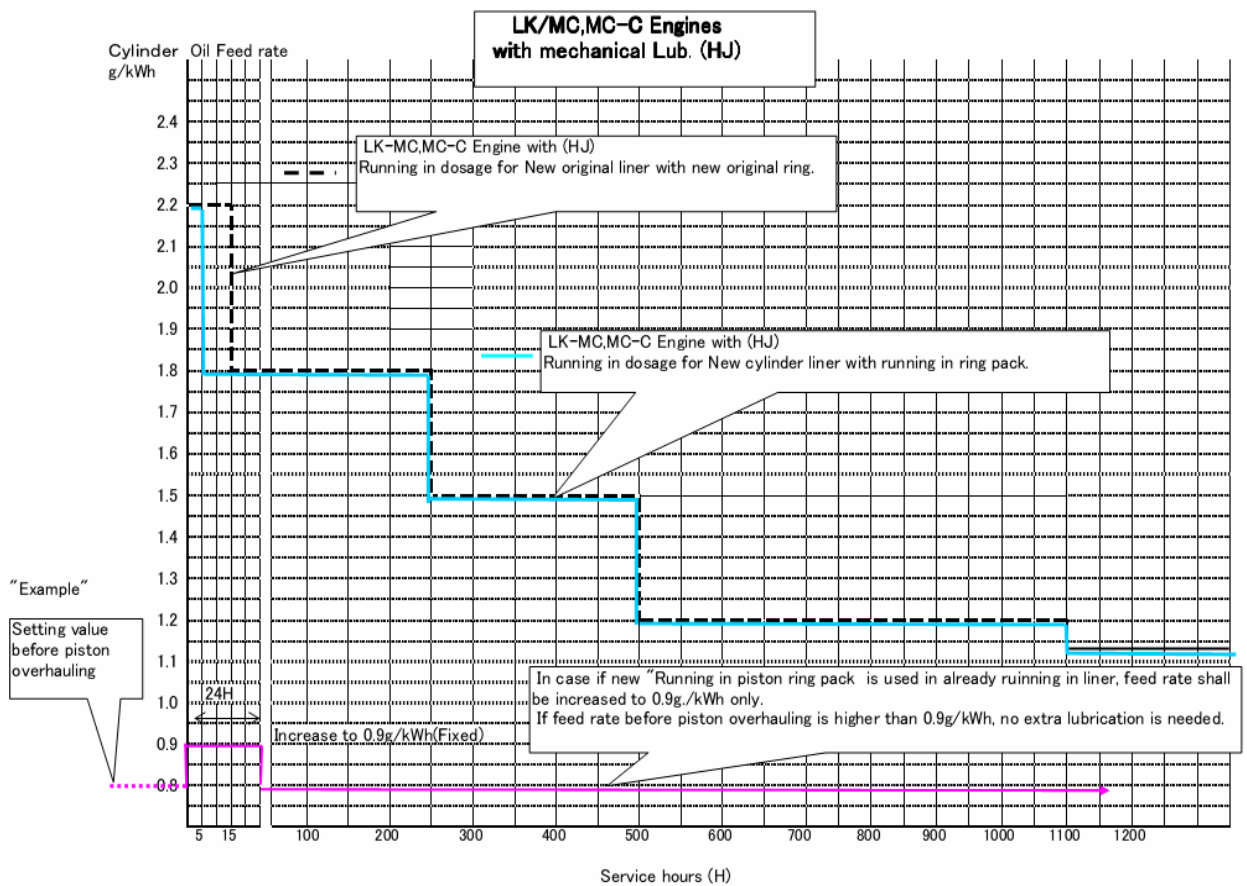


Fig. 4 Mechanical Lub. (HJ) (L/K-MC, MC-C engines)

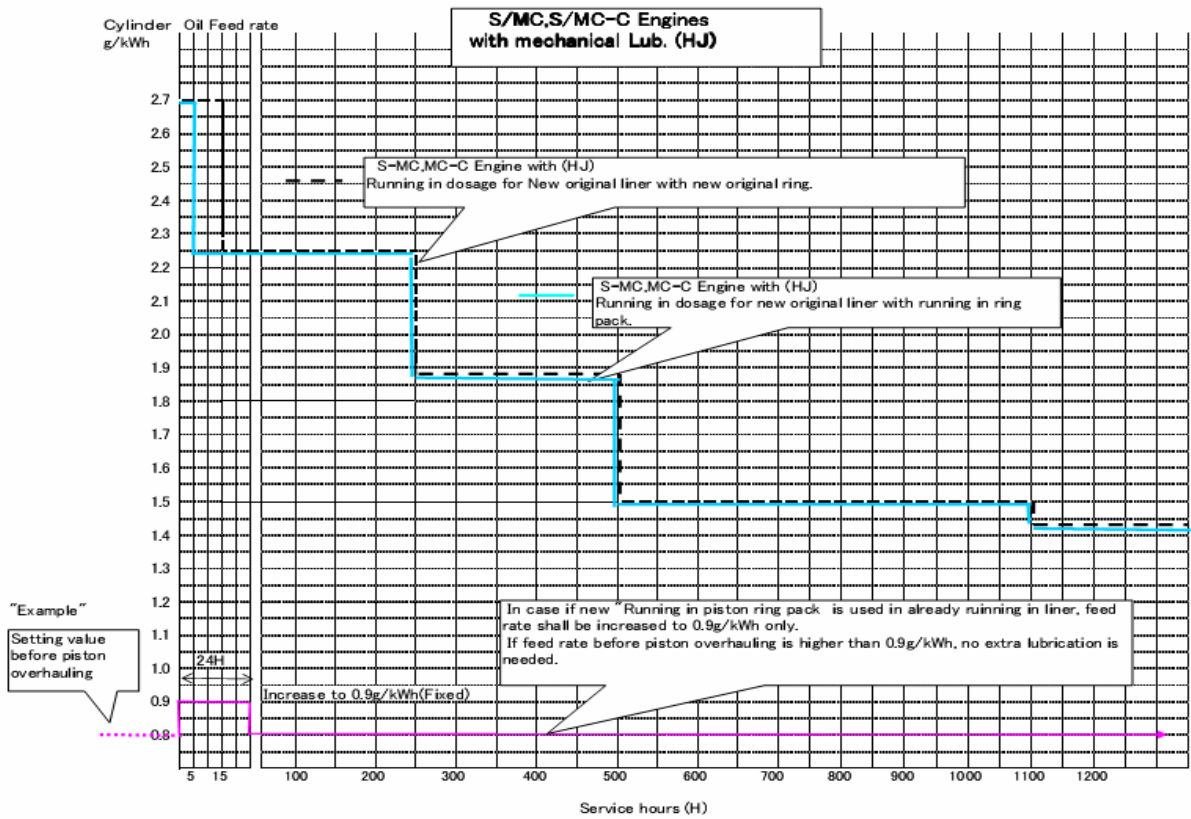


Fig.5 Mechanical Lub. (HJ) (S-MC, MC-C engines)

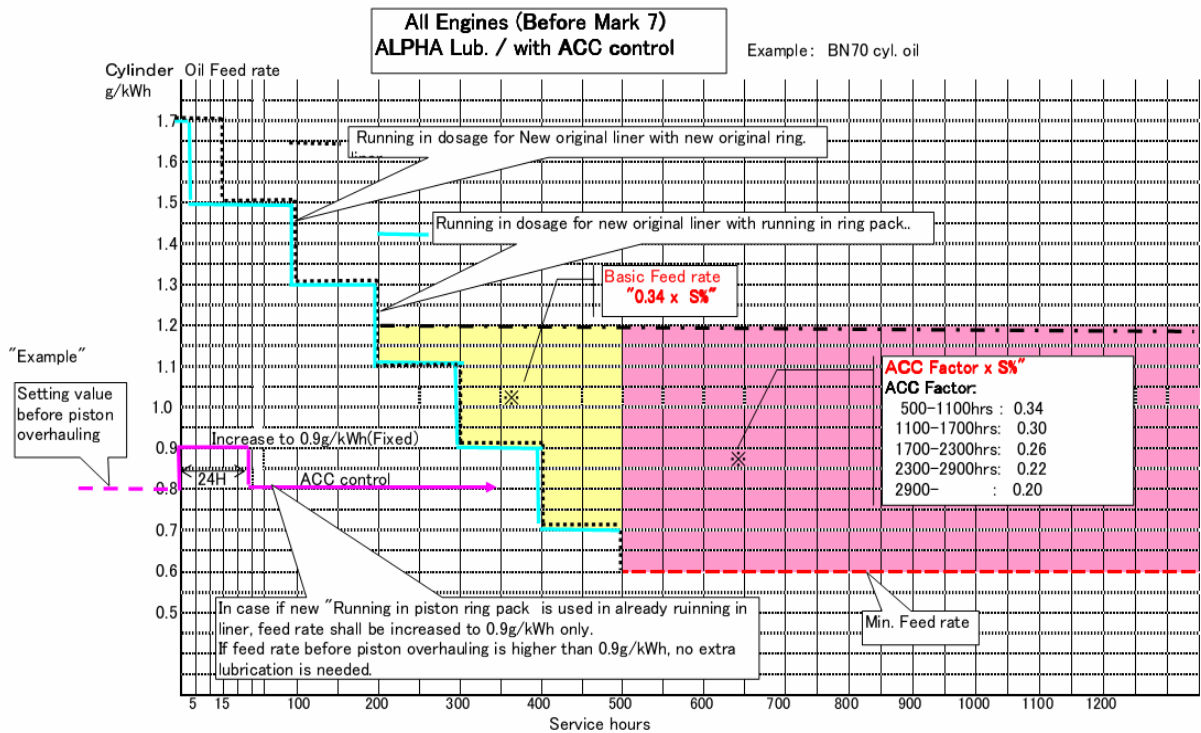


Fig. 6 Alpha Lub. With ACC control(all engines)

For inquiries and purchase orders, please contact us(MES Technoservice Co.,Ltd) upon specifying "Running-in Piston Ring Pack".

(Refer to Mitsui Service Note No.111 for contact details).