Action code: WHEN CONVENIENT

Cylinder Lubrication Guidelines

Small bore MC/MC-C engines

SL12-553/HRR
January 2012

Concerns

Owners and operators of MAN B&W two-stroke 26-50MC-MC-C engines with high topland and mechanical lubricators.

Summary

This service letter specifies the recommended feed rates for mechanically controlled MAN B&W small bore two-stroke engines.

Dear Sirs

Thanks to the development in our engine design over the past ten years, we have decided to lower the cylinder oil dosages for our small bore mechanically controlled two-stroke engines with mechanical lubricators. Experience with the redesigned combustion chamber, characterised by the so-called high topland (on engines designed after year 2000), has shown a potential for lowering the cylinder oil dosages to the following figures:

- Absolute maximum setting at 100% load 2.0 g/kWh
- Basic setting 1.1 g/kWh
- Minimum setting at 100% load 0.7 g/kWh

This Service Letter replaces SL00-385/HRR for the above-mentioned group of engines.

Yours faithfully

Mikael C Jensen
Vice President Engineering

Stig B Jakobsen
Senior Manager Operation

Head office (& postal address)
MAN Diesel & Turbo
Teglholmsgade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 30
info-cph@mandieselturbo.com
www.mandieselturbo.com

PrimeServ
Teglholmsgade 41
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 49
PrimeServ-cph@mandieselturbo.com

Production
Teglholmsgade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 17
manufacturing-dk@mandieselturbo.com

Forwarding & Receiving
Teglholmsgade 35
2450 Copenhagen SV
Denmark
Phone: +45 33 85 11 00
Fax: +45 33 85 10 16
shipping-cph@mandieselturbo.com

MAN Diesel & Turbo
Branch of MAN Diesel & Turbo SE, Germany
CVR No.: 31611792
Head office: Teglholmsgade 41
2450 Copenhagen SV, Denmark
German Reg.No.: HRB 22056
Amtsgericht Augsburg

Introduction

The recommended cylinder oil feed rates have been lowered as a result of convincing service experience.

However, optimal cylinder lubrication depends on many factors such as engine load pattern, fuel oil type and quality, overhaul strategy, and lube oil price. Therefore, the actual lubrication setting should rely on actual service experience based on frequent scavenge port inspections.

Lubrication at part load

As a rule, mechanical lubricators are driven via a chain connection to the camshaft. Therefore, normal part load control will be proportional to the speed of the engine and the vessel's speed. Because the load of the engine follows the propeller curve, i.e. the load drops three times the drop in speed, part-load oil dosages will increase significantly compared with the full-load setting. For this reason, and in order to prevent underlubrication at high load, all settings should refer to the MCR output of the engine.

Some mechanical lubricators may be delivered with an optional "MEP-control" that limits the overlubrication at part load by controlling it proportionally to the mean effective pressure of the engine.

Running in new liners and new rings

Today's piston ring standard, with Alucoat on all four rings, ensures a quick and non-problematic running-in. Therefore, the running-in cylinder oil dosages can be gradually reduced and should never exceed the maximum recommended setting.

When running in new liners, the maximum setting should be used for the first 5 hours only. After that, the setting should be reduced to 150% of the basic setting and be kept at this level for the next 250 hours. The next 250 hours should be run at 125% of the basic setting.

Running in new liners

First 5 hours	maximum setting (2.0 g/kWh)
From 5-250 hours	150% of basic setting
Next 250 hours	125% of basic setting
After 500 hours	100% basic setting followed by 0.1 g/kWh incremental reduction

After 500 running hours, after reaching the basic setting, a continuous reduction towards the minimum setting may be continued by incremental reductions of 0.1 g/kWh. Each reduction must be based on a scavenge port inspection confirming a good and stable cylinder condition, see Fig. 1.

When running in a new engine on the test bed, the load can be increased gradually to MCR load within 5 hours. However, the load increase should be more gentle when running in new liners in service, due to the risk of having a more torque rich situation. For that reason, we recommend loading up the engine from 50% to 100% MCR within 16 hours.

When running in new alu-coated rings in well running liners, loading up from 50% to 100% engine load should take about 5 hours. In this period, and during manoeuvring, lubrication should be increased by 25%.

Manoeuvring and load change situations

The engine demands extra oil during starting, manoeuvring and sudden load changes, due to the changed thermal and mechanical deformations of ring grooves and rings. Consequently, the lubricator setting should be increased to 125% of the service feed rate, see Fig. 2.

Cylinder condition abnormalities

It is recommended that the cylinder condition should always be kept under strict observation. This is done by combining the results of frequent scavenge port inspections with the wear results measured during routine overhauls of the pistons. If any abnormalities are observed, it is recommended to adjust the feed rate back to the "Basic setting" and, furthermore, to add extra oil on the "LCD" – actuator or on the "joint quantity adjustment" handle. This overlubrication should be maintained until the cause of the problem has been eliminated, and scavenge port inspections have proved that a safe condition has been re-established.

Questions or comments regarding this SL should be directed to our Operation Dept. LEO (e-mail: leo@mandiesel-turbo.com).

Cylinder oil regulation, fixed propeller

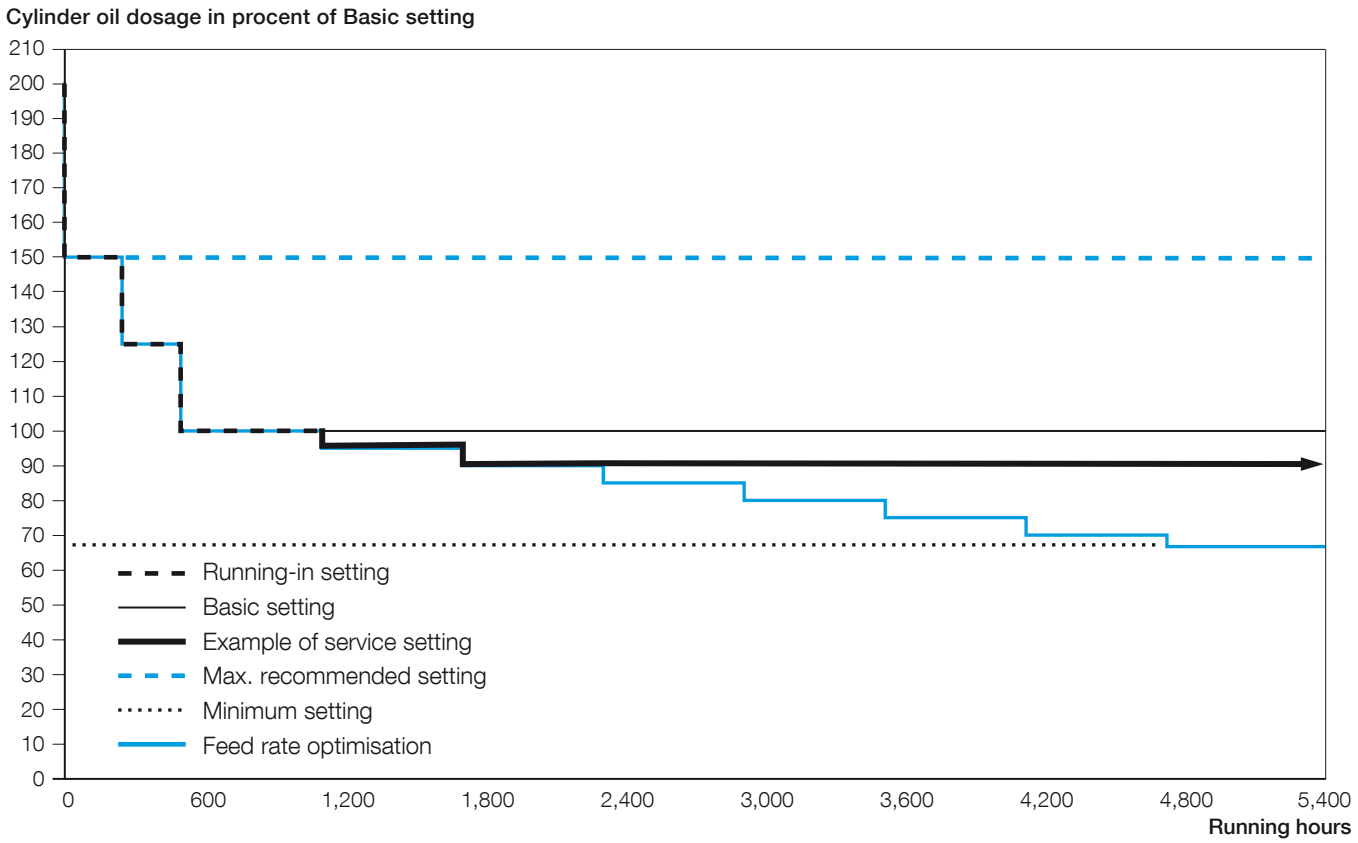

Fig 1:

Cylinder oil regulation, fixed propeller

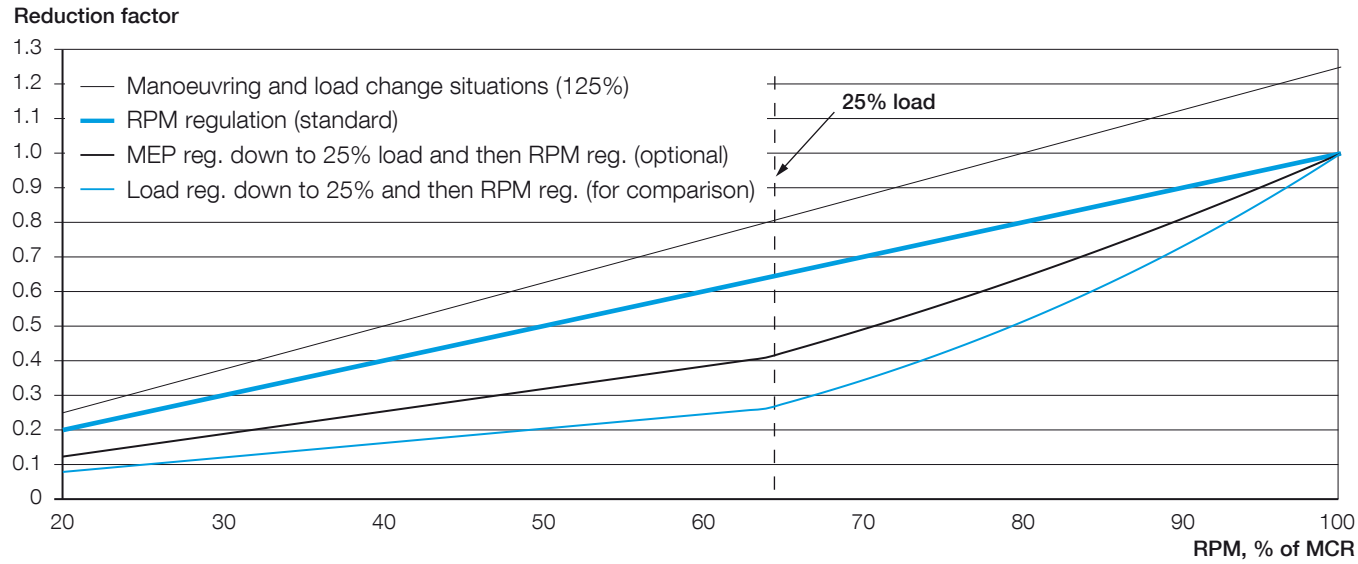

Fig. 2: