Hans Jensen Lubricators

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SERVICE LETTER 920190
Feed rate adjustment after installation of HJ SIP system

Reservations:

1. The entire service letter, “920166 - How to succeed with SIP” must be read before using these guidelines

2. Inspect the cylinder liner and piston ring condition prior to the feed rate reduction. Both the cylinder liners and the piston rings should be in good condition prior to the reductions.

3. The below-mentioned information is our guidelines/recommendations, which are based on material we have received from our customers. However, as many engine-specific conditions influence the feed rate adjustment, **the final responsibility lies with the users.**

Feed rate adjustment:

After completing the installation of the HJ SIP cylinder lubrication system without overhauling the piston and/or changing the cylinder liner, the cylinder oil feed rate may be adjusted as follows:

From departure to first available port inspection or to minimum 100 running hours:
0.90g/kWh.

If the cylinder condition during the port inspection is found to be satisfactory, the feed rate may be reduced by 0.10 g/kWh to:
0.80g/kWh.

Depending on engine type and engine general condition further reduction is possible, however only after a satisfactory port inspection or minimum 100 running hours, the feed rate can be reduced by 0.05 g/kWh down to:
0.60g/kWh.

The above-mentioned feed rates are based on cylinder oil with TBN 70 and fuel oil with a sulphur content between 1.5-4.5%.

It is recommended that scrape downs are analysed for iron wear particles and TBN residues for evaluation of further reduction, either by using onboard equipment or at a laboratory.

You are always welcome to consult us in case you have questions or are in doubt about the condition of your cylinders. We should be pleased to place our knowledge and experience at our disposal.

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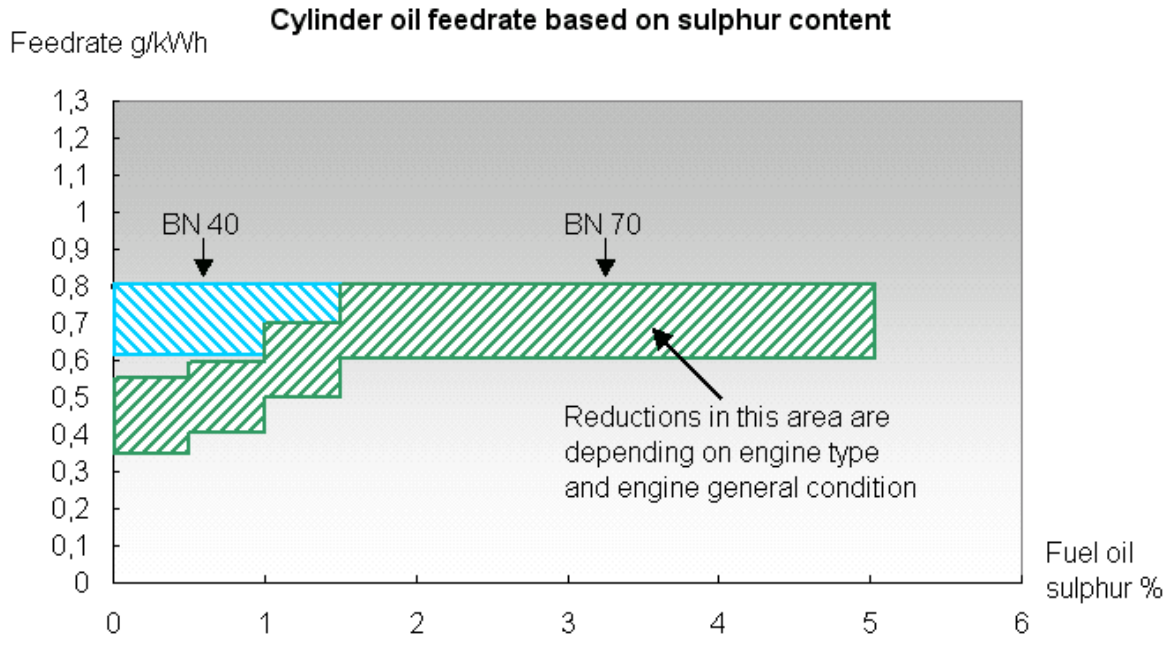
Please note:
When using the HJ SIP lubrication it is not necessary to adjust the feed rate according to the sulphur content in the fuel oil, however when burning fuel with a sulphur content in range of 0.1 – 1.5% reduction in feed rate must be considered based on inspections or change to a cylinder oil with a lower TBN. Please refer to below graph "Cylinder oil feed rate based on sulphur content".



Breaking in and Running in

The engine designer's guidelines for the running-in period must be followed in case of:

1. Piston overhaul with change of piston rings only,
2. Change of cylinder liner and piston rings,
3. Cylinder liner overhauled by honing and grinding with new piston rings,

Enclosed please find graphs for "**Breaking in"** and **"Running in"** for suggested relations between main engine RPM, LOAD and Cylinder Oil Feed rates for Breaking in and Running in of new or reconditioned cylinder liners and piston rings.

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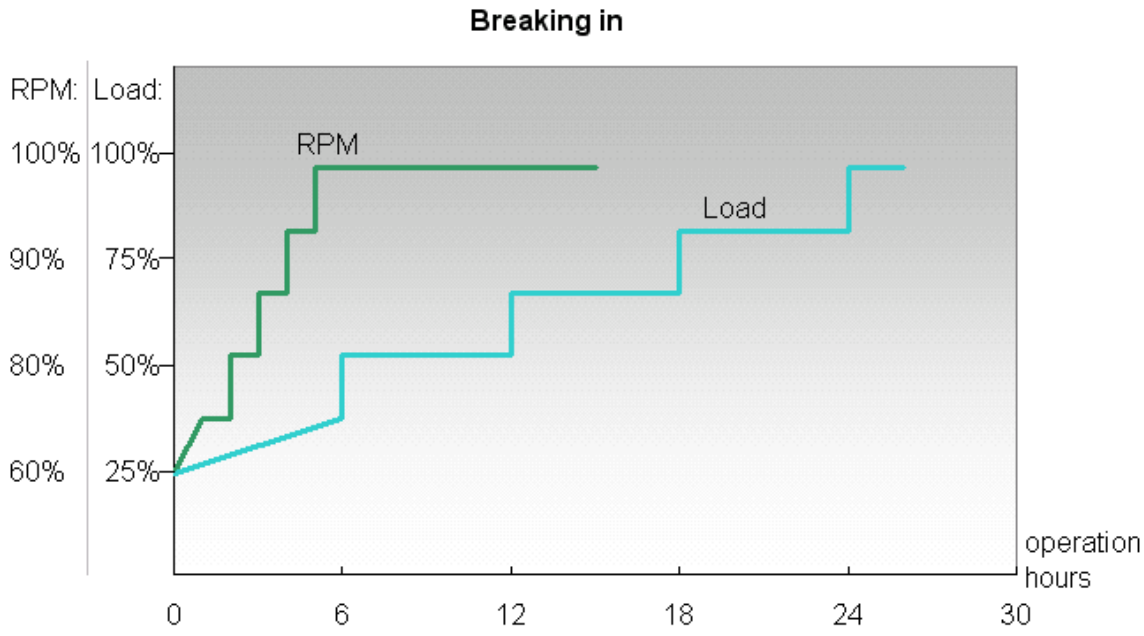
Breaking in: the first 24 hours after overhaul

As regards the unit(s) which is/are to be run in:

1. Adjust the feed rate to 1.20 g/kWh prior to departure.

2. Reduce the load as far down as practically possible i.e. full manoeuvre corresponding to 25% load and then raise to full load over 24 running hours.

3. Raise RPM slowly from full manoeuvre corresponding to 65% RPM to full RPM over the first 5 hours.



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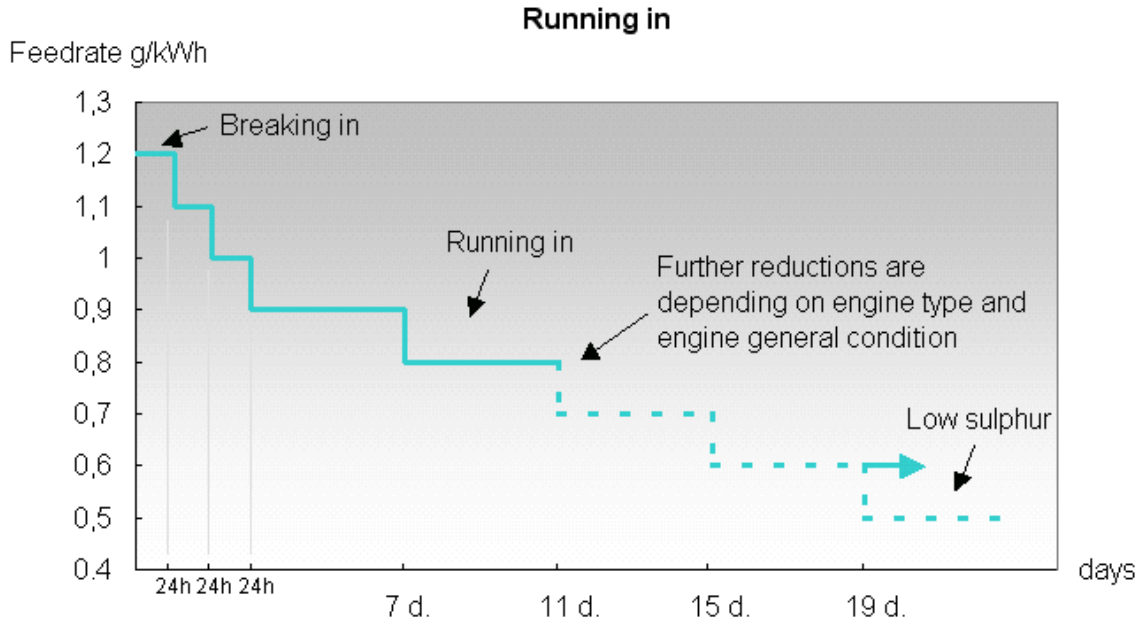
Running in: the period of time after overhaul until target feed rate has been reached

continued from previous page:

4. After 24 running hours, reduce the feed rate to 1.10 g/kWh.
5. After 24 running hours, reduce the feed rate to 1.00 g/kWh.
6. After 24 running hours, reduce the feed rate to 0.90 g/kwh.
7. Subsequently, follow the recommendations on page 1 for further feed rate reductions.



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Feedrate calculation
When using this guideline, the following equation should be used for calculating the feed rate:

$$\text{Feed rate at 100\% = g/kwh} = \frac{s \times d^2 \times n \times k \times 0{,}9}{\text{kw/cyl} \times 22{,}5}$$

s = Strokelength of the lubricator
d = Piston diameter of the lubricator
n = Engine rpm
k = No of valves per cylinder
kw/cyl = Output i KW per cylinder

Conversion of g/Bhph to g/kWh = g/Bhph * 1,36
Conversion of g/kWh to g/Bhph = g/kWh * 0,735