

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 accumulated knowledge and experience. 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 in steps of 0.05 g/kWh down to:
0.60g/kWh.

If you are already running at a lower feed rate please use this feed rate as your starting point.

Further reduction may be possible, but this will require strict and continual monitoring of the cylinder condition by an attentive and competent crew.

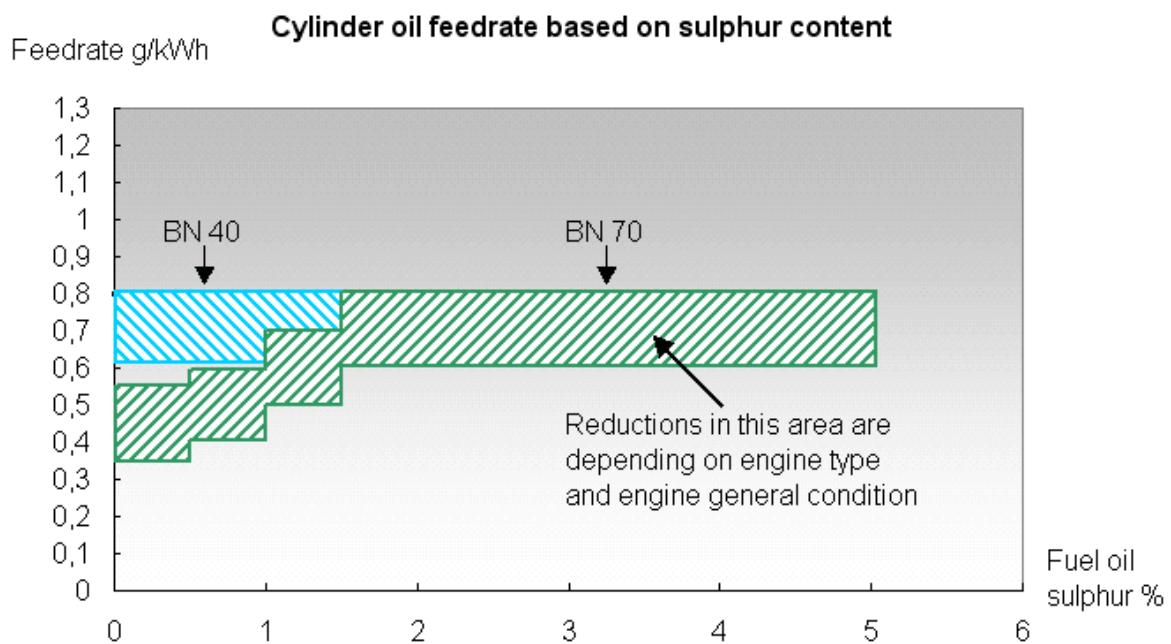
The above-mentioned feed rates are based on cylinder oil with BN 70 and fuel oil with a sulphur content between 1.5 – 3.5 %.

It is recommended that scrape downs are analysed for iron wear particles and BN 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 are pleased to place our knowledge and experience at your disposal.

Please note:

When using fuel oil 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 BN. Please refer to below graph “Cylinder oil feedrate based on sulphur content”.



Breaking in and Running in

The engine designer’s guidelines for the running-in period must always be followed during the warranty period of the engine.

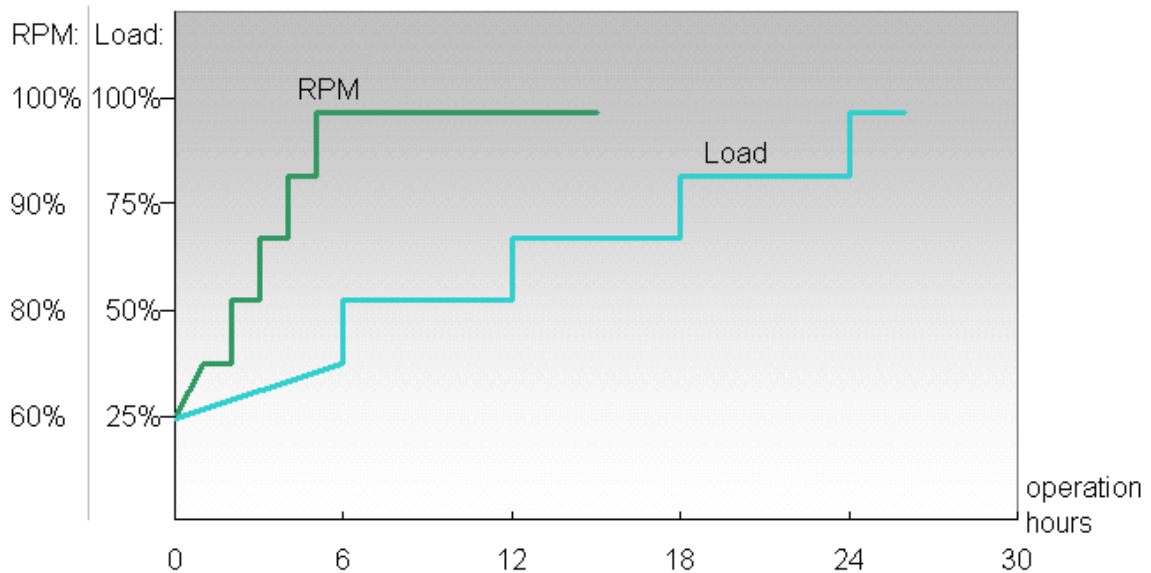
Enclosed please find graphs for “**Breaking in**” and “**Running in**” for suggested relations between main engine speed, load and cylinder oil feed rates for Breaking in and Running in of new or reconditioned cylinder liners and piston rings.

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 the speed slowly from full manoeuvre corresponding to 65 % speed to full speed over the first 5 hours.

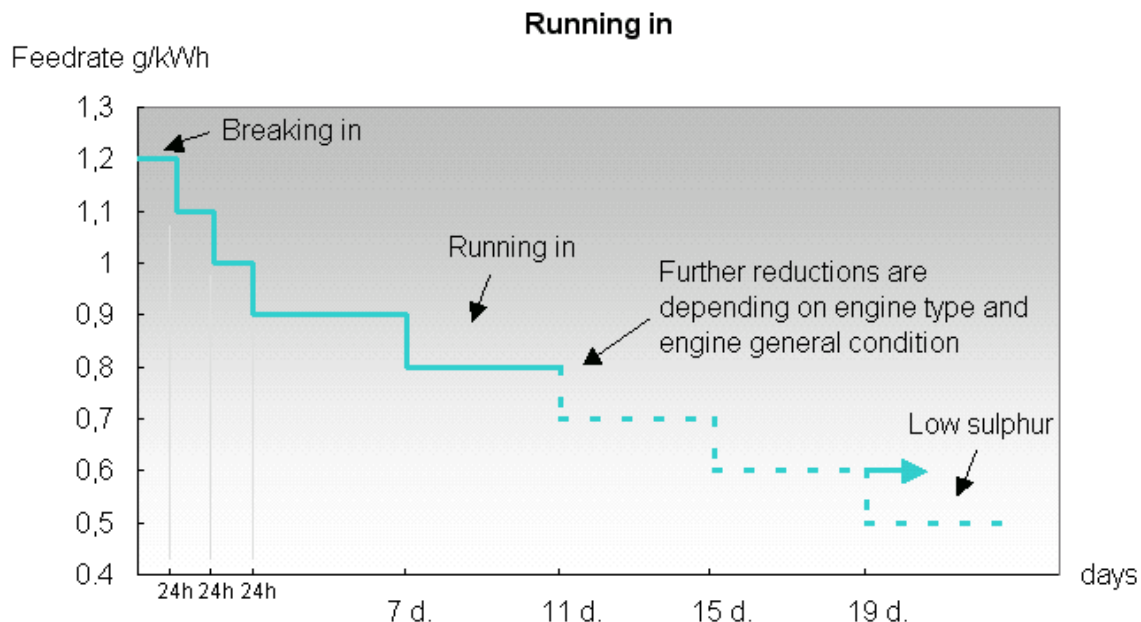
Breaking in



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.



In the first part of Table 1 the correlation between ACC factor and cylinder oil can be found. If the BN level of the cylinder oil is changed, please adjust the ACC factor according to this column. If running a HJ Lubtronic system, simply input the BN level in the PC and the control algorithm will adjust the ACC factor automatically.

The second part of Table 1 shows the correlation between feed rate and fuel oil sulphur content. BN 100 is used for the calculations, the feed rates in an HJL system will thus change if another BN is used. Please note that the minimum recommended limit of 0.6 g/kWh is implemented in this table. A lower limit may be possible, but as noted above, it requires strict and continual monitoring of the cylinder condition by an attentive and competent crew.

Table 1: ACC factor and cylinder oil BN, and feed rate and fuel oil sulphur content

	Cylinder oil BN [mg KOH/g]				AC factor		Fuel oil sulphur content [%]				
	25	40	70	100			0.1	1	2	3	3.5
ACC factor [g/kWh%]	0.39	0.25	0.14	0.10	0.12	Feed rates [g/kWh]	0.60	0.60	0.60	0.60	0.60
	0.45	0.28	0.16	0.11	0.14		0.60	0.60	0.60	0.60	0.60
	0.50	0.32	0.18	0.13	0.16		0.60	0.60	0.60	0.60	0.60
	0.56	0.35	0.20	0.14	0.18		0.60	0.60	0.60	0.60	0.63
	0.62	0.39	0.22	0.15	0.20		0.60	0.60	0.60	0.60	0.70
	0.67	0.42	0.24	0.17	0.22		0.60	0.60	0.60	0.60	0.77
	0.73	0.46	0.26	0.18	0.24		0.60	0.60	0.60	0.60	0.84
	0.78	0.49	0.28	0.20	0.26		0.60	0.60	0.60	0.65	0.91
	0.84	0.53	0.30	0.21	0.28		0.60	0.60	0.60	0.70	0.98
	0.90	0.56	0.32	0.22	0.30		0.60	0.60	0.60	0.75	1.05
	0.95	0.60	0.34	0.24	0.32		0.60	0.60	0.60	0.80	1.12
	1.01	0.63	0.36	0.25	0.34		0.60	0.60	0.60	0.85	1.19
	1.06	0.67	0.38	0.27	0.36		0.60	0.60	0.60	0.90	1.26
	1.12	0.70	0.40	0.28	0.38		0.60	0.60	0.60	0.95	1.33
	1.18	0.74	0.42	0.29	0.40		0.60	0.60	0.60	1.00	1.40
	1.23	0.77	0.44	0.31	0.42		0.60	0.60	0.63	1.05	1.47
	1.29	0.81	0.46	0.32	0.44		0.60	0.60	0.66	1.10	1.54
	1.34	0.84	0.48	0.34	0.46		0.60	0.60	0.69	1.15	1.61
	1.40	0.88	0.50	0.35	0.48		0.60	0.60	0.72	1.20	1.68
	1.46	0.91	0.52	0.36	0.50		0.60	0.60	0.75	1.25	1.75
1.51	0.95	0.54	0.38	0.52	0.60	0.60	0.78	1.30	1.82		
1.57	0.98	0.56	0.39	0.54	0.60	0.60	0.81	1.35	1.89		
1.62	1.02	0.58	0.41	0.56	0.60	0.60	0.84	1.40	1.96		

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