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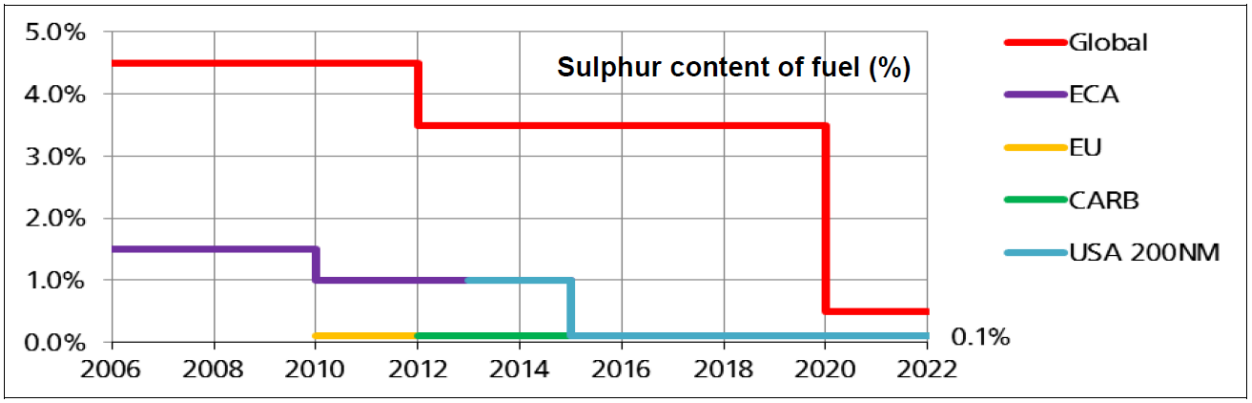
Service Letter

Date : 18th Feb, 2019
Ref. No.: HGS-HSM-SL-18-007

Subject: Exhaust Gas Back Pressure for SOx Scrubber Installation_r2
Type: All HiMSEN Engines

To whom it may concern.

This Service Letter was written to inform our customers of exhaust gas back pressure for HiMSEN engines with regard to SOx Scrubber installation in order to comply with IMO MARPOL ANNEX VI Reg.14.8 which is to come into force as of 1st January 2020.



Engine exhaust gas back pressure means the relative pressure between turbocharger turbine outlet and ambient air which indicates resistance to flow of exhaust gas through exhaust ducts. Back pressure is naturally generated due to the geometry of exhaust pipe arrangement and after-treatment devices such as SCR, scrubber and etc, which are installed in exhaust gas arrangement.

In respect of engine data, Fig.1 shows the SFOC trend, Exhaust gas temperature & Exhaust gas flow at different engine loads and back pressure.

There is no influence when the back pressure is below 30mbar for all HiMSEN engines.

In case of HiMSEN Diesel Tier II engine,

① SFOC & Exhaust gas temperature are increased Exhaust gas flow is decreased when the back pressure is from 30mbar to 50mbar. Also, turbocharger re-matching with regard to D/G engine may to be applied.

② If the back pressure is over 50mbar, turbocharger re-matching and de-rating with regard to D/G engine are to be applied.

③ In case of over 30mbar, the engine starting fail may be occurred.

In this regard, we would like to ask you to contact with HGS directly for the further consulting if the back pressure is over 30mbar.

In case of HiMSEN DF engine,

① SFOC & Exhaust gas temperature are increased Exhaust gas flow is decreased when the back pressure is from 30mbar to 40mbar.

② The maximum allowable back pressure is below 40mbar. In case of over 40mbar, please contact with HGS directly.

Type	Back Pressure	SFOC		Exhaust gas temperature		Exhaust gas flow	
All	0 ≤ X ≤ 30 mbar (0 ~ 300mmWC)	Standard		Standard		Standard	
Diesel		SFOC increases		Exhaust gas temperature increases		Exhaust gas flow decreases	
	30 〈 X ≤ 50 mbar (300 ~ 500mmWC)	100%	+ 1 g/kWh	100%	+ 10 ℃	100%	- 1 %
		75%	+ 2 g/kWh	75%	+ 15 ℃	75%	- 1.5 %
		50%	+ 3 g/kWh	50%	+ 25 ℃	50%	- 2.5 %
	50 mbar Over ( ) 500mmWC)	Turbocharger re-matching and de-rating with regard to D/G engine are to be applied					
	* In case of over 30mbar, the engine starting fail may be occurred. Please contact with HGS for the further consulting.						
DF		SFOC increases		Exhaust gas temperature increases		Exhaust gas flow decreases	
	30 〈 X ≤ 40 mbar (300 ~ 400mmWC)	100%	+ 1 g/kWh	100%	+ 10 ℃	100%	- 1 %
		75%	+ 2 g/kWh	75%	+ 15 ℃	75%	- 1.5 %
		50%	+ 3 g/kWh	50%	+ 25 ℃	50%	- 2.5 %
	40 mbar Over ( ) 400mmWC)	In case of over 40mbar, please contact with HGS directly.					

Fig.1:Back pressure and Engine data

Furthermore, the exhaust gas temperature is normally influenced by the engine operating conditions and aging. Therefore, the current exhaust gas temperature should be monitored and it is required to re-consider turbocharger re-matching, if the temperature is close to the TC inlet temperature limit due to back pressure.

Faithfully yours,

G. Y. Oh, General Manager
Head of Machinery Service Dep't
Technical Division