

Technical Information Note 002

Remarks

Wärtsilä X82-B and X92 low speed engines with TC Cut-off

Subject

RT-flex and X-engines

Date: June 2015

Our Reference: 21349/CCA029/TCtL 7420

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Wärtsilä X82-B and X92 low speed engines with TC Cut-off

This document concerns Wärtsilä low-speed new-built engines where a turbocharger cut-off is to be applied. WinGD's extensive experience with Turbocharger (TC) cut-off systems has been applied to several existing Wärtsilä engines in the form of the Slow Steaming Upgrade Kit (SSUK), which is supplied as a retrofit kit.

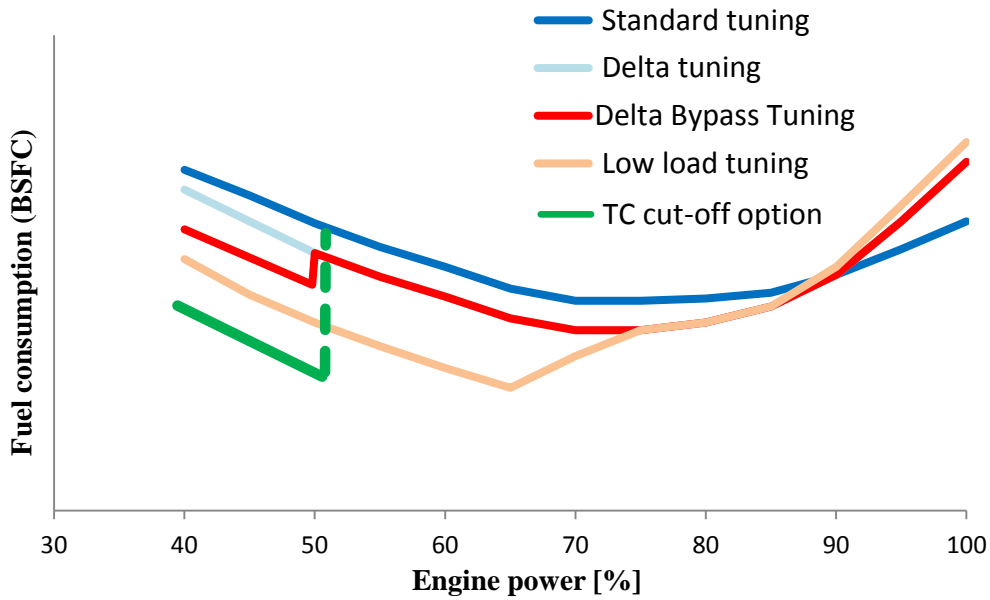
1. Turbocharger (TC) cut-off option

In response to requests from the market, WinGD has developed a new Turbocharger Cut-Off option, which will be part of the offering for new-built engines with three or four turbochargers.

TC cut-off is designed to achieve optimized brake specific fuel consumption (BSFC) at engine load below 50% (refer to Fig.1). The TC cut-off is achieved by the following measures:

- Automatic cut-off of one turbocharger by a valve operated by the engine control system at engine loads below ~50%
- Increased scavenge air and firing pressures
- Modified engine software parameters

2. The overall TC cut off indicative benefit on BSFC can be seen from the following graph:



3. TC cut-off application range

The TC cut-off application range for Wärtsilä low-speed engines is illustrated by the green area shown in fig. 2. When the TC cut off is applied, a crosshead oil lubrication pump is required.

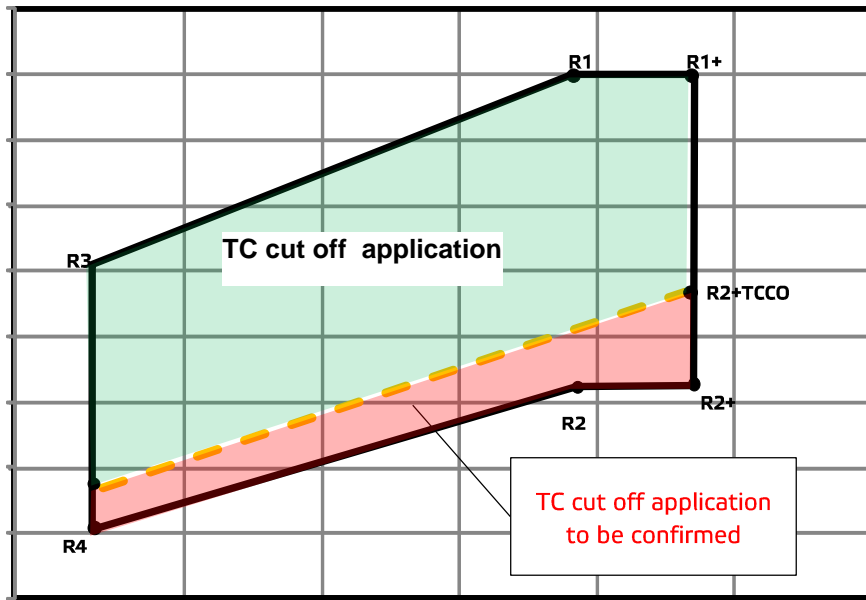


Figure 2: Summary of limitations to TC cut-off application for Wärtsilä engines

Fig.2 provides a qualitative indication of the requirements and possible limits within the rating field for the application of the TC cut-off.

The shape and position of the limiting lines is engine specific and will be published at a later date for the relevant engines.

For heavy de-rated engines, the TC cut-off operation must be evaluated on a case-by-case basis (red area in fig.2).

4. Effect on Brake Specific Fuel Consumption (BSFC)

TC cut-off option can provide considerable BSFC savings. These savings vary for different engine models, but in general savings of up to 6g/kWh compared to delta tuning can be achieved.

5. Conclusion

WinGD offers TC cut-off option for new built X82-B and X92 low-speed engines with three (3) or more TCs as part of its standard offering, if the CMCR is selected within the allowed rating range.

Individual projects will be investigated on a case-by-case basis. Please contact WinGD for further information.