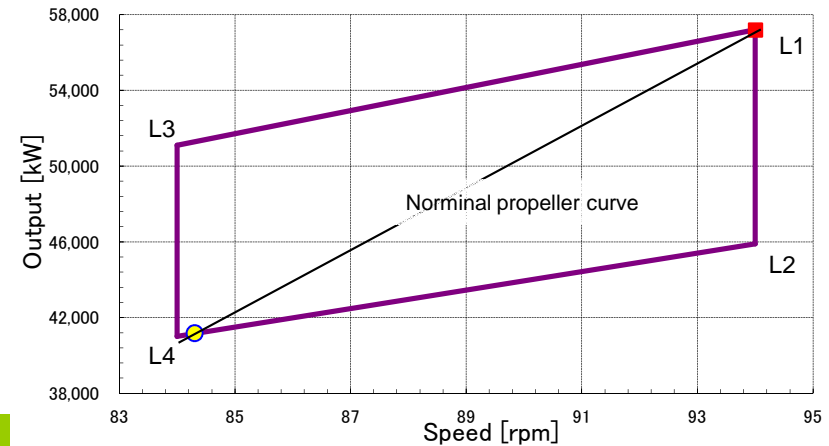
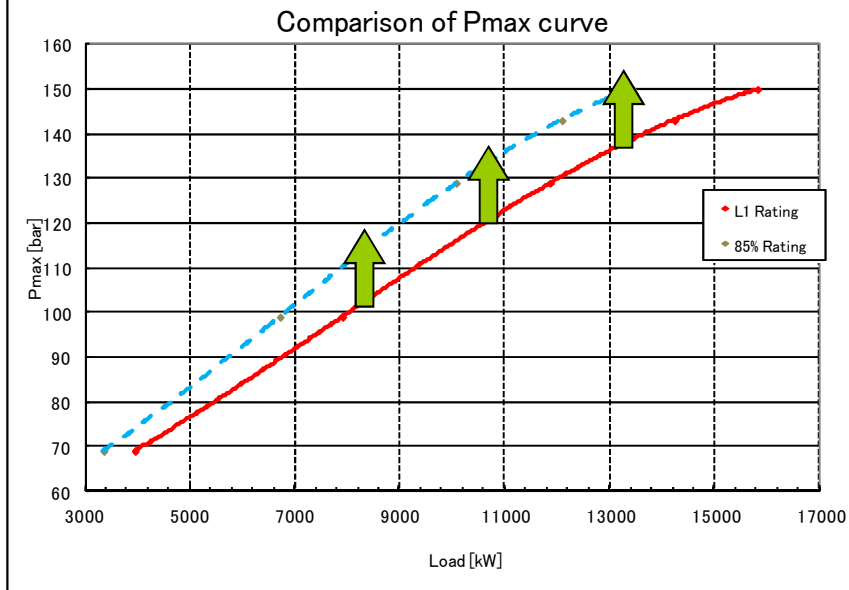


# Improvement of SFOC by Derating

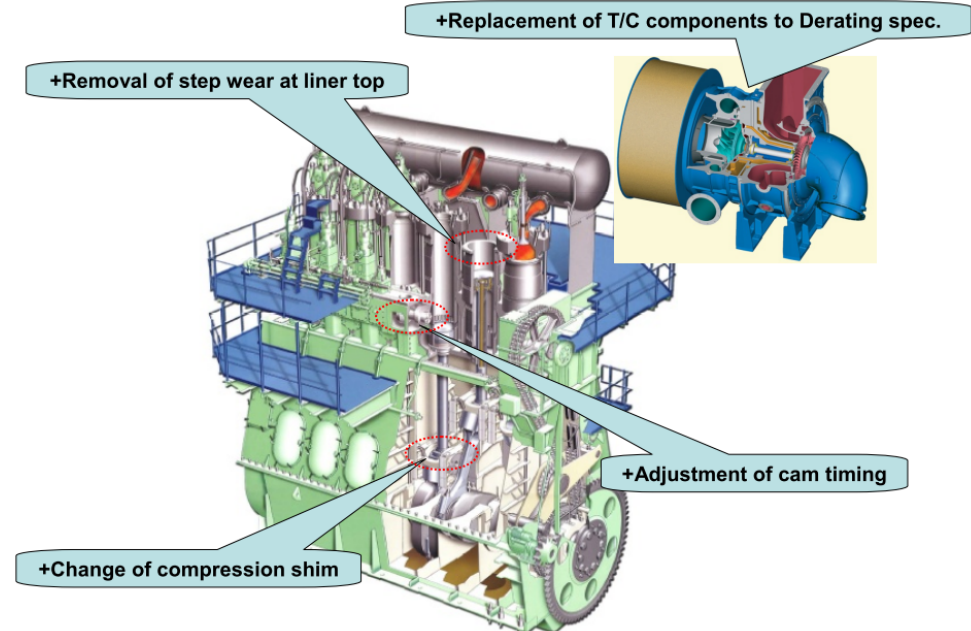
When the engine is operated at low load as a cost saving measure, a derating point can be selected within the layout area (L1-L2-L3-L4) along the propeller curve. In this case, large fuel oil savings can be achieved.



<Example>



## Modification works



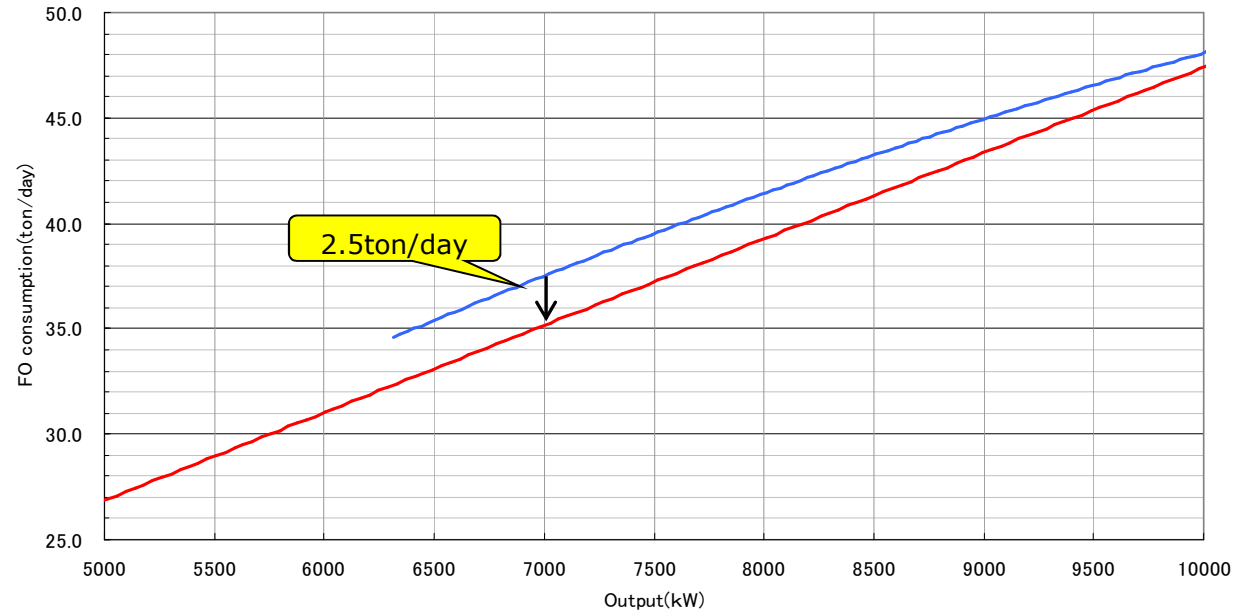
# Performance result [S60MC-C]

## <Original Engine Specification>

Engine type: 7S60MC-C  
 Original rated output: 15,785kW  
 Original rated speed: 105rpm  
 Turbo charger: NA70/T09x 1sets  
 NOx: Tier I

**Case study**

— : Original  
 — : 85% Derating (13,417kW x 99.5rpm)



Plan	Required works	Gain*	Working days
85% Derating	1) T/C modification 2) Compression shim change 3) Removal of step wear at liner top area 4) Exhaust Cam timing adjustment 5) NOx emission measurement	US\$156,250/year at 45%	8 days

\*Fuel cost: US\$250/ton

\*Operation hours: 6000hrs(250days equivalency)

# Performance result [K98MC]

## <Original Engine Specification>

Engine type: 12K98MC6  
 Original rated output: 68,640kW  
 Original rated speed: 94rpm  
 Turbo charger: TCA88 x 3sets  
 NOx: Tier I

### Case study

— : 1 TC cut  
— : 72% derating +1 T/C cut + EGB  
 (49,300kW x 84.2rpm)

Plan	Required works	Gain*	Work
72% Derating	1) T/C modification for 2 T/C (1T/C removal) 2) Compression shim change 3) Removal of step wear at liner top area 4) Exhaust cam timing adjustment 5) NOx emission measurement 6) Bypass valve installation	US\$ 562,500 /year at 35%	14 days

\*Fuel cost: US\$250/ton

\*Operation hours: 6000hrs(250days equivalency)

