Fuel saving system

~~EcoCam system~~

For S50MC-C, S60MC-C

MES TECHNOSERVICE CO., LTD.

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1) EcoCam

At Low load operation

Oil press in hydraulic cylinder is reduced by EcoCam.

Exh. Valve “Close” timing is advanced.

Compression pressure is increased.

Improvement of SFOC

Operation range by EcoCam system

(EcoCam is not used at high load due to no merit.)
1) Concept of EcoCam

Actuation of hydraulic cylinder by EcoCam

Oil pressure

Oil cylinder

Oil press piston

Oil pressure

Oil pressure

Theoretical Lift

Actual Lift

Decrease of the Lift

Concept of EcoCam

Oil pressure
1) Concept of EcoCam

![Diagram showing the concept of EcoCam, comparing Standard Cam and Alt. Drain with close timing.]
1) Concept of EcoCam
2) Test results

6S50MC-C Mk8.1 (7650kW x 108rpm) performance results

〈Performance〉

- P_{max} and P_{comp} were compared.
- P_{comp} was increased by approx. 5-8bar.

〈SFOC〉

- SFOC was improved by approx. 1-6g/kWh.

![Graph showing performance results](image-url)
2) Test results

6S50MC-C Mk8.1 (7650kW x 108rpm) Performance results

〈NOx emission〉

IMO NOx : 11.03g/kWh → 11.33g/kWh
(Reference)       (EcoCam)
3) SFOC Reduction and Gain

〈〈8S50MC-C  12640kW x 127rpm〉〉

- **Reference**
- **EcoCam**
- **Gain**

![Graph showing SFOC and Gain](image)

- **SFOC [g/kWh]**
  - 2,500
  - 3,500
  - 4,500
  - 5,500
  - 6,500
  - 7,500
  - 8,500

- **Gain [thousand-Yen]**
  - 2,500
  - 3,500
  - 4,500
  - 5,500
  - 6,500
  - 7,500
  - 8,500

- **Output [kW]**
  - 3,000
  - 4,000
  - 5,000
  - 6,000
  - 7,000
  - 8,000

- **Gain**
  - 5 g/kWh
3) SFOC Reduction and Gain

〈〈7S60MC-C  15130kW x 100rpm〉〉

![Graph showing SFOC reduction and gain](graph.png)
4) Summary of modification

**Supervisor**: 1 person

**Mech. Work**: 4 workers × 24hr

**Electric work**: 3 electricians

**Working period**: one day +

**NOx measurement**: one day

**Engine side**
- Control unit

**Control room**
- Operating Panel
- 24V Power supply

**Retrofit parts**
- Hydraulic cylinder for Eco Cam
- Pipe for oil press. relief
- Wiring for control system
- Control unit
THANK YOU FOR YOUR KIND ATTENTION