EQUIPMENT TREATMENT REPORT · SABSON ENERGY, ADEN

MTU 4000 G63 V16: cylinders back to nominal, power close to rated

Sabson Energy Ltd, diesel power plant · treatment and supervision performed by a XADO Chemical Group engineer; report signed by the customer's technical management

Aden, Yemen · treatment 19–23.04.2020 · monitoring up to 561 h of operation

PRODUCT

XADO Gel-Revitalizant® for Diesel Engine

5 stages of 520 ml · oil system flush XADO VitaFlush

TEST OBJECT

MTU 4000 G63 V16 diesel genset

V16, 76.3 l, 16 cylinders · rated power 1635 kW (ISO 3046)

DOCUMENT TYPE

Equipment treatment report

Four signatures of the parties, seal of Sabson Energy FZE

UNIT	CONDITION AT THE START OF TESTS	WHAT WAS MEASURED
MTU 4000 G63 V16 diesel 16 cylinders, 76.3 l, 2011	Generator power loss, spread of pressure across the cylinders, increased oil consumption; endoscopy of the cylinder-piston group — multiple scratches on the cylinder walls	Cylinder pressure, diesel power output, oil temperature and oil consumption

Continuously operating diesel genset; treatment performed without disassembling the engine, during regular service.

Key results

↑ 1-2.5 bar

peak cylinder pressure, 27-29 → 28.5-30 bar (nominal 30)

↑ 5 %

diesel power output, 1535 → 1612 kW (nominal 1635)

↓ 14 %

oil temperature, 121 → 104 °C

Peak cylinder pressure, bar — before treatment and after 561 h of operation

CYLINDER	BEFORE TREATMENT	AFTER 561 H
1	27	28.5
2	27	28.5
3	27.5	30
4	27.5	30
5	27.5	30
6	27	28.5
7	28	30
8	28.5	30
9	28	30
10	29	30
11	29	30
12	27	29
13	28	30
14	27.5	29
15	29	30
16	28	30

The nominal 30 bar was reached in 11 of the 16 cylinders, the spread narrowed from 27-29 to 28.5-30 bar. Measured with a compression gauge at 1500 rpm, coolant temperature 55 °C.

Power, oil temperature and oil consumption over operating hours

PARAMETER	BEFORE TREATMENT	AFTER 100 H	AFTER 561 H
Diesel power output, kW	1535	1541	1612
Oil temperature, °C	121	119	104
Oil consumption, l/h	3	2.7	2.5

Measurements taken at 1500 rpm. Between 100 and 561 h four more check measurements were made: power was rising, oil temperature was falling monotonically. Engine rating — 1635 kW (ISO 3046).

Report conclusions

Before treatment, endoscopy of the cylinder-piston group showed multiple scratches on the cylinder walls, none of the 16 cylinders delivered the nominal pressure, and the generator was losing power. Following the treatment and **561 h** of monitoring, the parties recorded:

1. The scheduled cylinder liner replacement interval changed from ≈**20 000** to more than **25 000 h** of operation: cavitation wear was reduced, which extended the liner service life by **25 %**.
2. Oil consumption fell from **3.1** to **2.5 l/h**, which is **19.4 %**.
3. Output power rose from **1535** to **1612 kW**, which is **5 %**.
4. Visually, the scratches on the cylinder walls healed over or decreased in size.
5. The amount of wear debris in the oil decreased according to oil analysis data.

XADO

© XADO. All rights reserved.
The results refer to an MTU 4000 G63 V16 diesel genset at 1500 rpm under continuous power plant operation; on other equipment and in other duty modes the figures may differ. The report is drawn up on a XADO Chemical Group letterhead and certified by the customer's signatures and seal; the original is published in full and available for download.