

MAN Diesel A/S • Denmark



Service Letter

SL08-496/NJC May 2008

**Cleaning and Inspection of Cylinder Cover Contact Face and Combustion Area** MAN B&W 60-98MC/MC-C Engines Action Code: WHEN CONVENIENT

Dear Sirs

Recently, we have received information that a cylinder cover had unfortunately been dropped from an engine room crane during overhaul.

The incident was caused by failure of the engine room crane during cleaning/inspection of the contact face and combustion area on the cylinder cover. Fortunately, the incident did not cause injuries to any personnel.

It has come to our knowledge that, occasionally, inspection/cleaning of the cylinder cover before re-assembly is carried out by engine crew standing underneath the cylinder cover while it is suspended from the engine room crane.

Therefore, we enclose and draw your attention to the very important Safety Precautions chapter of our Operation Manual, No. 701-01, warning of special dangers, e.g.: "Keep clear of space below crane with load".

MAN Diesel has designed special supports for cylinder covers to be used during overhaul of large bore engines, thereby avoiding inspections carried out standing underneath a cylinder cover hanging from the engine room crane.

The cylinder cover supports have been a part of the standard tools for a number of years for 60-98 cm bore engines designed with 8 cylinder cover studs.

HEAD OFFICE (& postal address) MAN Diesel A/S Teglholmsgade 41 2450 Copenhagen SV Denmark Phone: +45 33 85 11 00 Fax: +45 33 85 10 30 Fax. mandiesel-cph@mandiesel.com www.mandiesel.com

PrimeServ Teglholmsgade 41 2450 Copenhagen SV Denmark Phone: +45 33 85 11 00 Fax: +45 33 85 10 49 PrimeServ-cph@mandiesel.com

PRODUCTION Teglholmsgade 35 2450 Copenhagen SV Denmark Phone: +45 33 85 11 00 Fax: +45 33 85 10 17 manufacturing-dk@mandiesel.com

FORWARDING & RECEIVING MAN Diesel A/S Teglholmsgade 35 Denmark 2450 Copenhagen SV Denmark Phone: +45 33 85 11 00 Fax: +45 33 85 10 16

Reg. No.: 39661314

## MAN Diesel



We have now decided to offer a similar tool also for older-type engines with 16 cylinder cover studs.

This tool can be ordered from our PrimeServ organisation (e-mail: PrimeServ-cph@mandiesel.com)

Questions or comments regarding this SL should be directed to our Maintenance Tools Department LEE3 (e-mail: <u>lee3@mandiesel.com</u>).

Yours faithfully MAN Diesel A/S Cart-Erik Egeberg

A/S Niels B Clausen

Encl.: Operation 701-01, Edition 0003



## General:

Correct operation and maintenance, which is the aim of this book, are crucial points for obtaining optimum safety in the engine room. The general measures mentioned here should therefore be routine practice for the entire engine room staff.

### Special Dangers



## WARNING !

Keep clear of space below crane with load.

The opening of cocks may cause discharge of hot liquids or gases.

Carefully consider which way liquids, gases or flames will move, and keep clear.

The dismantling of parts may cause the release of springs.

The removal of fuel valves (or other valves in the cylinder cover) may cause oil to run down onto the piston crown. If the piston is hot, an explosion might blow out the valve.

When testing fuel valves, do not touch the spray holes as the jets may pierce the skin.

Do not stand near crankcase doors or relief valves – nor in corridors near doors to the engine room casing – when alarms for oil mist, high lube oil temperature, no piston cooling oil flow, or scavenge box fire is registered. See also Chapter 704.



# WARNING !

In design and layout of the engines, MAN B&W Diesel A/S has the basic philosophy that the failure of one part should not result in the engine becoming inoperative.

As some mechanical and electronical parts are essential for the safe functioning of the engine, such parts are duplicated to achieve redundant capability.

Should such a redundant part become wholly or partly inoperative, the failing part must be changed or repaired immediately to re-establish redundancy of the part or – if an emergency situation requires operation of the engine – as soon as the vessel calls at the nearest port.



### Hydraulic System



## WARNING !

Before repair or maintenance work is started, the plant must be stopped and the current be switched off at the main switch. Open the drain valve to decrease the pressure to zero. During repairs, the drain valve must be open.

Always measure the pressure and check that the system is depressurized before disassembling the part concerned from the system.

Never service the hydraulic system when the pumps are running, unless absolutely necessary (bleeding the system).

Leak detection must always be carried out using a long piece of wood to secure proper distance to eventually outflowing oil.

Leaking seals cannot be repaired by tightening. Sealing is only possible by replacing the sealing elements with new parts.

Never carry out welding or soldering on any part of the hydraulic system.

Only use nitrogen as pre-charge gas on accumulators.

#### Cleanliness

The engine room should be kept clean both above and below the floor plates.

If there is a risk of grit or sand blowing into the engine room when the ship is in port, the ventilation should be stopped and ventilating ducts, skylights and engine room doors closed.

Welding, or other work which causes spreading of grit and/or swarf, must not be carried out near the engine unless it is closed or protected, and the turbocharger air intake filters covered.

The exterior of the engine should be kept clean, and the paintwork maintained, so that leakages can be easily detected.

Fire



## WARNING !

Keep the areas around the relief valves free of oil, grease, etc. to prevent the risk of fire caused by the emitted hot air/gas in the event that the relief valves open.

Do not weld or use naked lights in the engine room, until it has been ascertained that no explosive gases, vapour or liquids are present.



If the crankcase is opened before the engine is cold, welding and the use of naked flames will involve the risk of explosions and fire. The same applies to inspection of oil tanks and of the spaces below the floor.

Attention is furthermore drawn to the danger of fire when using paint and solvents having a low flash point.

Porous insulating material, soaked with oil from leakages, is easily inflammable and should be renewed. *See also Sections 704-01, 02 and 'Sealing Materials' in this Section.* 

#### **Order/Tidiness**

Hand tools should be placed on easily accessible tool panels. Special tools should be fastened in the engine room, close to the area of application.

No major objects must be left unfastened, and the floor and passages should be kept clear.

#### Spares

Large spare parts should, as far as possible, be placed near the area of application, well secured, and accessible by crane.

All spares should be protected against corrosion and mechanical damage. The stock should be checked at intervals and replenished in good time.

#### Lighting

Ample working light should be permanently installed at appropriate places in the engine room, and portable working light should be obtainable everywhere. Special lamps should be available for insertion through the scavenge ports.

#### Low Temperatures – freezing

If there is a risk of freezing, then all engines, pumps, coolers, and pipe systems should be emptied of cooling water, or the cooling water treated to avoid freezing.

#### Check and Maintain

Measuring equipment, filter elements, and lubricating oil condition.



## Entering the Crankcase or Cylinder



## WARNING !

Always ensure that the turning gear is engaged; even at the quay, the wake from other ships may turn the propeller and thus the engine.

Check beforehand that the starting air supply to the engine and the starting air distributor, is shut off.

In case of oil mist alarm, precautions must be taken before opening to crankcase *(see Section 704-02).* 

### **Turning Gear**

Before engaging the turning gear, check that the starting air supply is shut off, and that the indicator cocks are open.

When the turning gear is engaged, check that the indicator lamp "Turning gear in" has switched on. Check turning gear starting blocking once every year.

#### Slow-turning

If the engine has been stopped for more than 30 minutes, slow-turning should always be effected, just before starting in order to safeguard free rotation of the engine, *see Chapter 703.* 

#### Feeling over

Whenever repairs or alterations have been made to moving parts, bearings, etc., apply the "Feel-over sequence" (see Section 703-03) until satisfied that there is no undue heating (friction, oil-mist formation, blow-by, failure of cooling water or lubricating oil systems, etc.).

Feel over after 10-15 minutes' running, again after 1 hour's running, and finally shortly after the engine has reached full load. *See Section 703-03.* 

#### **Sealing Materials**

<u>Use gloves</u> when removing O-rings and other rubber/plastic-based sealing materials which have been subjected to **abnormally high temperatures**.

These materials may have a **caustic effect** when being touched directly.

The gloves should be made of neoprene or PVC. Used gloves must be discarded.



### Safety Cap in Starting Air Line

If the bursting disc of the safety cap is damaged due to excessive pressure in the starting air line, overhaul or replace the starting valve which caused the burst, and mount a new disc.

If a new disc is not available immediately, turn the cover in relation to the cylinder, in order to reduce the leakage of starting air.



Mount a new bursting disc and return the cover to the open position at the first opportunity.

### Alarms

It is important that all alarms lead to prompt investigation and remedy of the error. No alarm is insignificant. The most serious alarms are equipped with slow-down and/or shut-down functions. It is therefore important that all engine crew members are familiar with and well trained in the use and importance of the alarm system.