

# **SHORT DESCRIPTION MARINE GENERATING SET**

- **The service personnel have to read the instruction manuals of the producer before the first start, to avoid control errors.**
- **The operator is responsible for the gen sets.**
- **It may be used only the manufacturer released and specified service and maintenance materials. ( For example filter, lube oil...)**
- For damages can no warranty be granted, when the damage is based on do not consider the regulations and/or the operating instructions.
- The LIAG commissioning certificate for Gen Sets has to be filled out. It has to be sent back to Lindenberg-Anlagen.  
(See in the service book of MAN / MTU the documentation chapter 1, Commissioning Report and Commissioning measurement sheet)
- **The warranty can be refused, if the commissioning certificate is not filled out and sent back.**
- The service book is to be filled out **per every** engine.

## **Furthermore attention should be paid to following points:**

All lines and connections have to be checked general for tightness. They have to be retightening if necessary. This control has to be repeated over the whole period of operation time.

## **COOLING WATER SYSTEM**

- The cooling water has to be filled up with the prescribed additives according to the regulations of the manufacturers, before the first start. The additives have to be filled in, in any case and independently of the outside temperature or season, because the antifreeze and corrosion protection agents are contained. That also prevents cavitations of the cooling water pump.
- **For MAN engines is only using antifreeze according MAN standard 324 possible.**
- **For MTU engines is only using antifreeze according MTU standard MLT 5048 possible.**
- **For MAN engines in the Tropics are also additives according MAN standard 249 possible.**
- **Chemicals** which are permitted for high power engines (for example MAN B&W) **can not be used by MAN & MTU engines.**
- The intended means have to be examined for the MAN / MTU permission **before** filling.  
(See documentation chapter 1 “fuels, coolants, ...”)
- The concentration has to be examined with a freeze protection jack.
- Antifreeze has to be filled in a proportion of 40 % at the least.
- The requirements of the cooling water have to be considered also. (hardness, chloride, sulphates, PH-value)  
(See MAN / MTU operating instruction documentation chapter 1)
- **The cooling water level has to be controlled before starting.**
- **On auxiliary engines the cooling water pressure befor engine is to control according technical description.**

## LUBRICATION OIL SYSTEM

- The specified fuels of MAN are the only which may be used.
- **Lubricating oil has to be used according to MAN standard 3275 or 3277.**
- **Lubricating oil has to be used according to MTU standard MLT 5044.**
- **The intended means have to be examined for the MAN / MTU permission before filling.**  
(See in the documentation chapter 1 “fuels, coolants, ...”)
- The lubrication oil level has to be controlled before start.

## FUEL SYSTEM

- The specified fuels may be used only.
- The ship lateral installation, of fuel oil pre filter with water traps, has to be considered.
- The permissible suction height and tank level have to be considered.  
(See MAN / MTU service book and MAN / MTU operating instruction)

## EXHAUST GAS SYSTEM

- Compensators have to be inserted with pre loading.
- To the sufficient cross section has to be paid attention.
- The line has to be checked for free from work materials. (steel, papers, tags)
- For sufficient cross section has to be paid attention.

## SUPPLY AIR SYSTEM

- The cross section of the supply air openings/channels are to be considered in sufficiently dimensioned. So no water or dust is carried into the engine room.
- The distance between in- and outflow holes must be so large that no short circuit develops. Also it sucks the exhaust air or/and the exhaust gas.
- **The air cleaners have to be checked before the start for contamination and damage.**

## START SYSTEM

### COMPRESSED AIR SYSTEM

- The starting air pipes have to be clean and dry.
- The starting air pipes has to be without condensation or dirt.
- It is not allowed to use oil in the start air pipes.
- In the ship lateral air supply line, has to be planned before the starter an air cleaner with automatic water trap.
- Each starter must have **before** the starting pressure, at the least 17/18 bar.