



## AIR COOLER CLEANER

### DESCRIPTION

UNIMARINE AIR COOLER CLEANER (ACC) is a liquid blend of highly active cleaning compounds and corrosion inhibitors. ACC has been developed for safe, fast and economical in-service cleaning of the air handling systems of turbo charged diesel engines.

By using ACC, airborne contaminants that have been carried into and deposited on scavenger air trunks, air coolers and inlet valves are removed. Thus, all surfaces are kept clean and free of deposits.

### ADVANTAGES

1. By using ACC and the UNIMARINE ACC INJECTION SYSTEM, fouling of air coolers is reduced so heat transfer and engine efficiency are improved. Pressure drops across the air cooler and air temperature after the air cooler are kept to a minimum.
2. Fire hazards from the build-up of grease and residue are minimized.
3. Down time and expense of periodic dismantling of the air handling system for cleaning is eliminated.
4. Scavenging efficiency is improved by the reduction of deposit build-up around scavenging ports.
5. Water displacing surfactants incorporated in ACC form a mono-molecular film throughout the air handling system that protects the metal and reduces the adherence of airborne contaminants.

### USAGE

ACC is suitable for all types of diesel engines. The ACC / fresh water mixture has no flash point and cylinder lubrication is not impaired.

### DOSAGE

The following table shows our recommendation for initial dosage per air cooler. This is based on one injection every 24 hours. This can be varied based on performance of the pressure drops across the air coolers.

Suggested daily usage table:

Engine H.P. ACC/Water solution

- 6.000 to 12.000 1 liter ACC with 2 liter water
- 12.000 to 24.000 1 1/2 liter ACC with 3 liter water
- 24.000 or more 2 liter ACC with 4 liter water

Code: 161161320

### AIR COOLER CLEANER

Liquid cleaner containing solvents and surface-active agents for on-line and off-line cleaning of charge air coolers

- Effective removal of oily contaminants
- On-line cleaning saves time and maintenance costs
- Completely combustible in the cylinder
- Does not damage cylinder oil film

### PRODUCT CHARACTERISTICS

Appearance: clear amber liquid (light yellow or dark brown)

Corrosive action: metal - none  
plastic, rubber, paint:

make preliminary test

Specific gravity: 0,9 (20°C)

Flash point: >63°C

IMO Class: 9 / III

UN Number: 3082

ADR: 9.11c)



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## APPLICATION

ACC can be applied by immersion, circulation or injection. For immersion and circulation, cleaning time is reduced considerably by heating the chemical to maximum 50°C (122°F). If the air coolers are very dirty it may be advisable to use undiluted ACC by means of circulation method to thoroughly clean the system before commencing ACC injection treatment.

### IMMERSION METHOD

(generally ACC is used undiluted)

The dismantled parts to be cleaned are laid in a tank specially designed for the purpose, which has been filled with undiluted ACC. Movement is achieved by means of compressed air. Wash surface with high-pressure water hose or compressed air. ACC can be reused for several cleanings. Cleaning time: 5-12 hours.

### CIRCULATION METHOD

(for in-place cleaning - generally ACC is used undiluted)

See diagram B

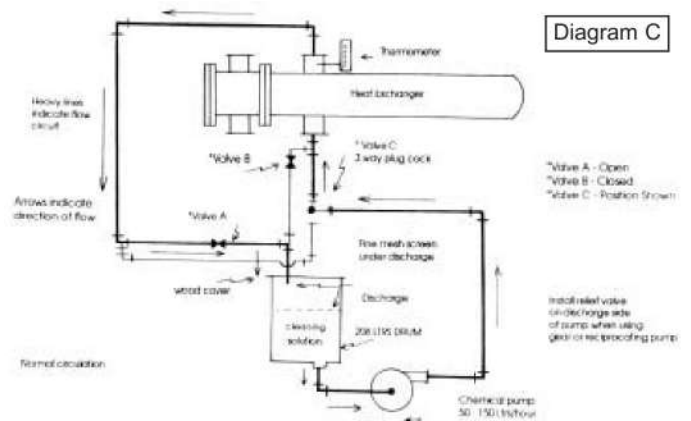
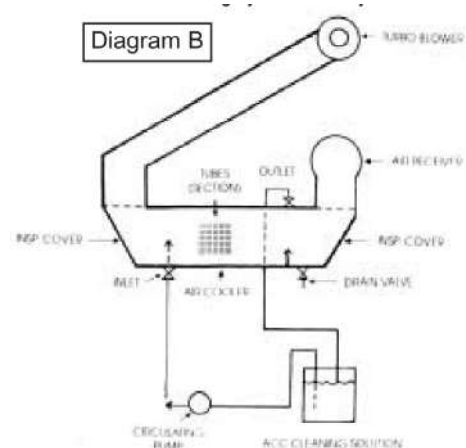
1. Arrange to collect ACC at bottom of unit with drain back to drum.
2. Circulate by pump and/or spray (airless spray or steady low-pressure flow - do not atomize) on deposits through access doors. A perforated pipe placed between tubes is effective for reaching normally inaccessible tubes.
3. Thoroughly saturate deposits and allow to stand for one hour minimum.
4. Wash off with high-pressure water hose and drain to collecting tank.
5. Dry with compressed air.

### CLEANING FUEL OIL HEATERS OR LUBE OIL COOLERS

See diagram C

For best results ACC should be circulated through the heat exchange unit for 6 to 8 hours, depending on the amount of deposits present and the length of time since the last cleaning. When ACC is used as a preventive maintenance item periodically, circulating times can be substantially reduced.

ACC solution can be saved and reused until it becomes thoroughly contaminated. Flushing unit with kerosene before using ACC will prevent excessive dilution. During cleaning, solids may accumulate in reservoir drum. These solids may be removed by allowing the solution to settle and decanting clean liquid from the top. When cleaning action of ACC has been reduced by excessive dilution with fuel oil, the material can then be dumped into the bunker tanks and then burned.



For circulating ACC a pump with a large discharge volume should be used in order to insure rapid flow through the unit. A 50 or a 200 liters drum fitted with a wooden cover containing an opening for the discharge pipe can be used as a reservoir. Use enough ACC to fill the unit, piping and enough additional material to keep the reservoir one third full. Take pump suction from the reservoir and discharge into the lowest connection on the heat exchanger. Pipe the overflow from the highest point on the heat exchanger back into the reservoir. A fine mesh screen should be adapted to the reservoir return to remove large pieces, which become dislodged during the cleaning operation. To avoid the dislodging of loosened particles, a method of backflushing can be used as indicated in schematic drawing showing recommended hood-ups for use of ACC.

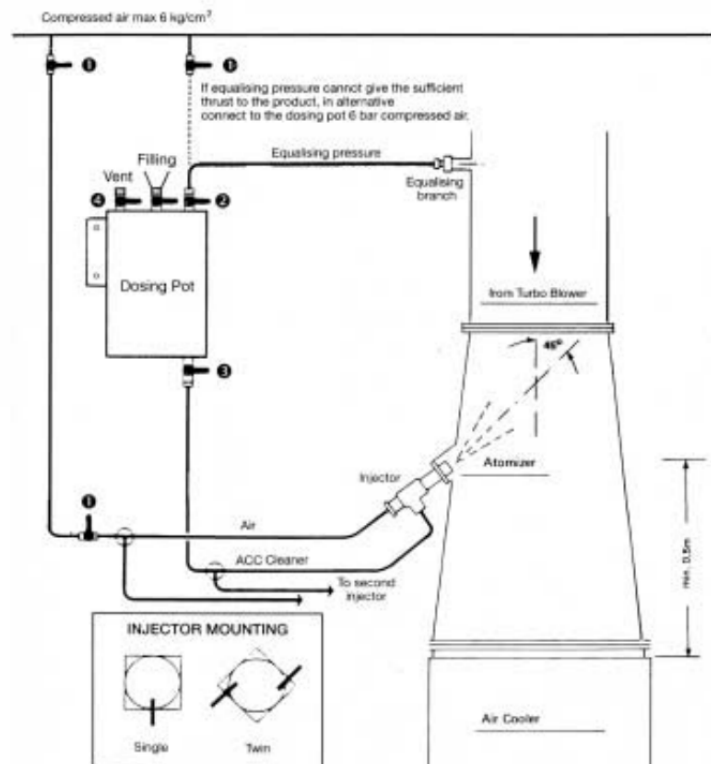
#### INJECTION METHOD USING ACC (DAILY) UNDERWAY

Dilute with water as per dosage diagram. See diagram A

Simple, safe application of UNIMARINE AIR COOLER CLEANER (ACC) is provided by use of the UNIMARINE ACC INJECTION SYSTEM. This system consists of a steel 6 liter dosage tank, complete with all necessary valves, an atomizer and required fittings for 6x8 mm copper tubing. The dosage tank may be installed in any appropriate place in the engine room. Copper tubing (6x8 mm) is fitted from the dosage tank to the atomizer, from the dosage tank to the casing on the pressure side of the turbo blower (equalizing line), and from the ships' compressed air system to the atomizer.

By means of UNIMARINE SPECIAL ACC INJECTION SYSTEM a mixture of ACC and fresh water in a ratio of 1:3 (observe the mixture ratio exactly) is injected into the air channel between the turbo blower and the air cooler. This is followed by a second injection of fresh water only. Injection procedure as per the ACC injection system diagram is as follows:

1. Fill the dosing tank with the required quantity of ACC fresh water mixture. Close the tank.
  2. Open valve 1 (compressed air for atomizer).
  3. Open valve 2 and 3; following equalization of pressure to the scavenging air line the ACC/fresh water mixture is injected in about 5-10 minutes.
  4. Close valves 1, 2 and 3.
  5. Open valve 4 to vent air from the tank.
  6. Fill the tank with fresh water. Close the tank.
- Repeat steps 2-5.



## NATURE OF SPECIAL RISKS AND SAFETY ADVICE

In accordance with the latest EEC Council directives this product is subjected to:

R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

R65 : Harmful, may cause lung-damage if swallowed

S2 : Keep out of reach of children

S23 : Do not breathe vapour / spray

S24 : Avoid contact with skin

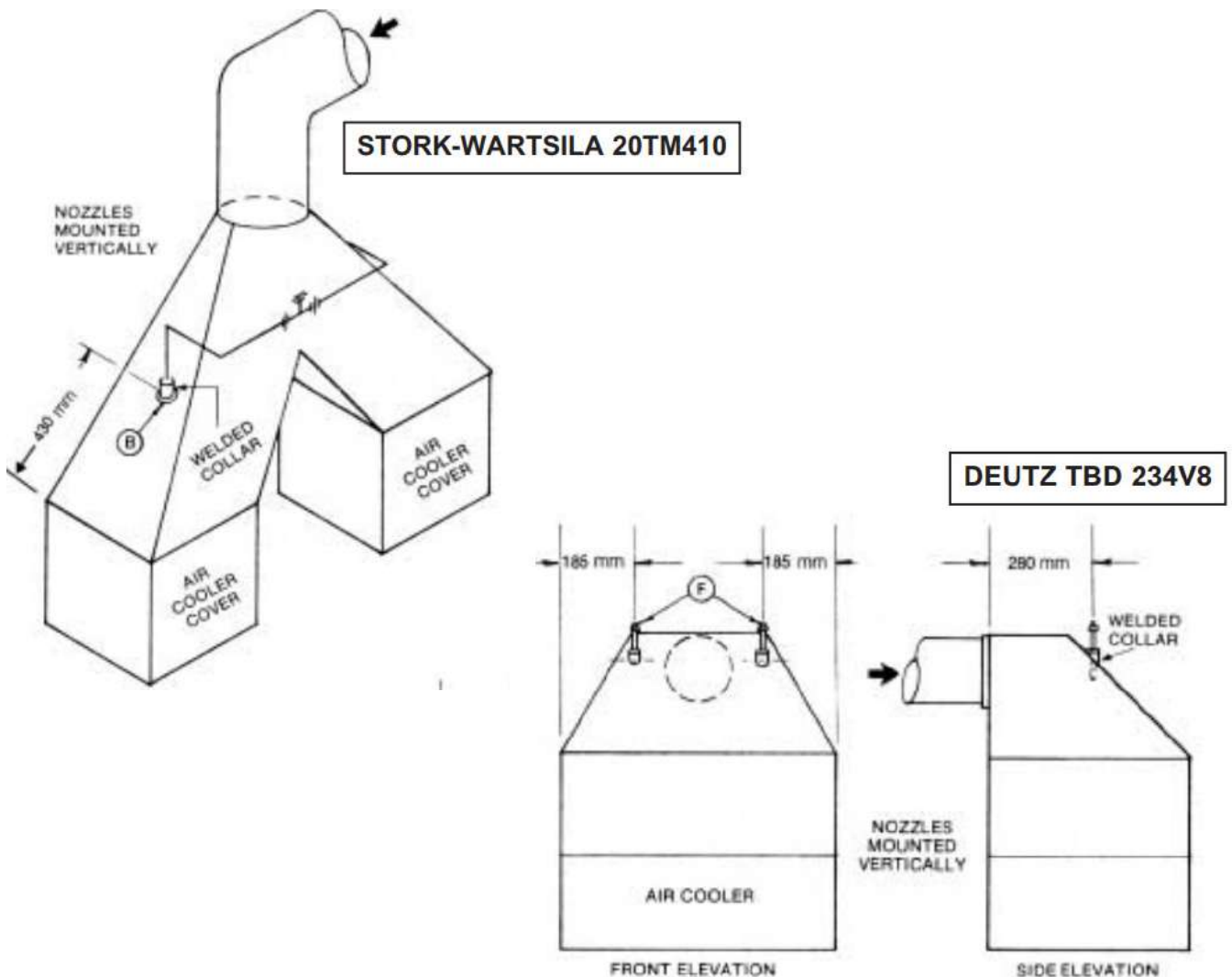
S60 : The material and its container must be disposed of as hazardous waste

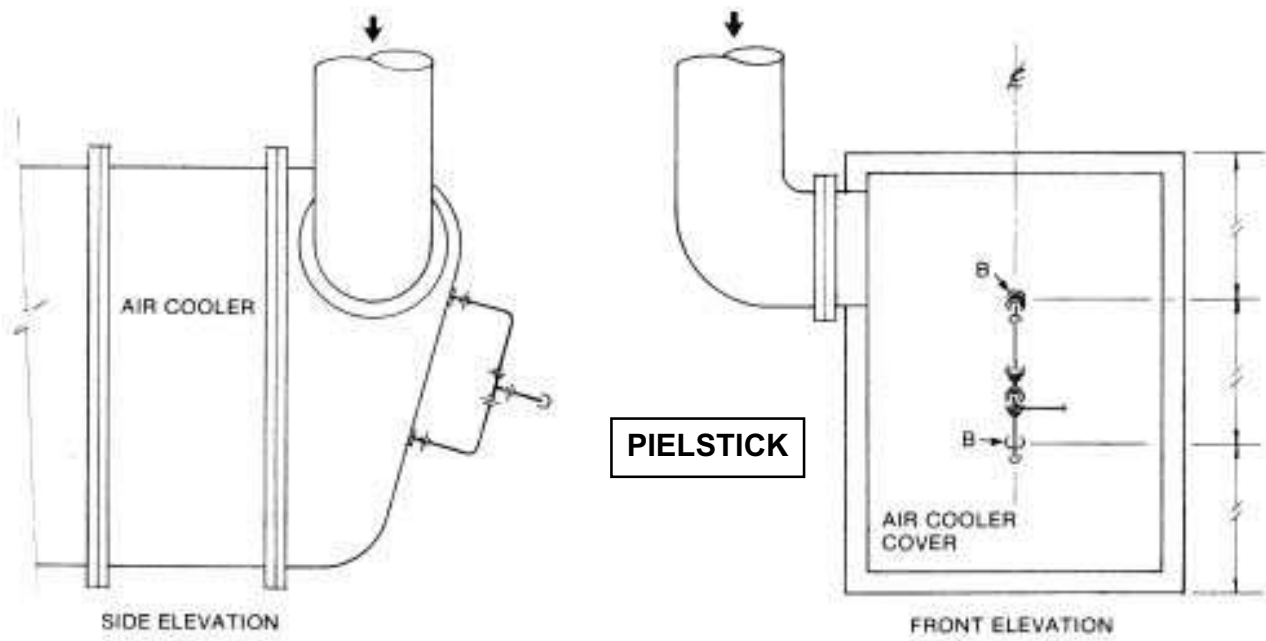
S61 : Avoid release to the environment. Refer to special instructions / safety data sheets

S62 : If swallowed do not induce vomiting, seek medical advice. Immediately show this container or label

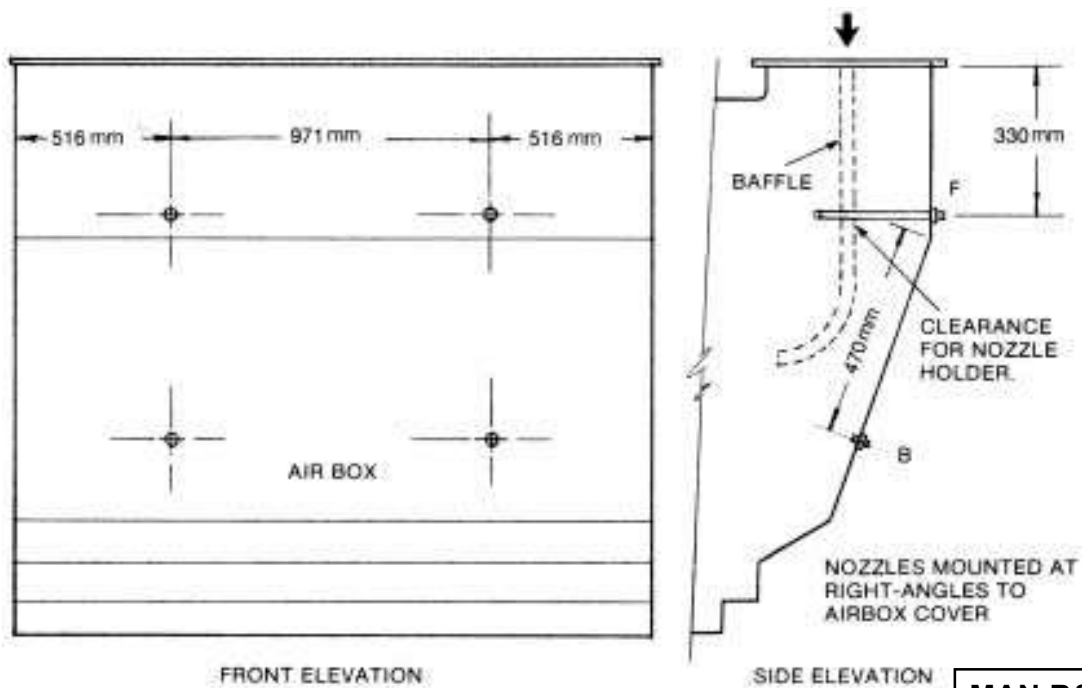
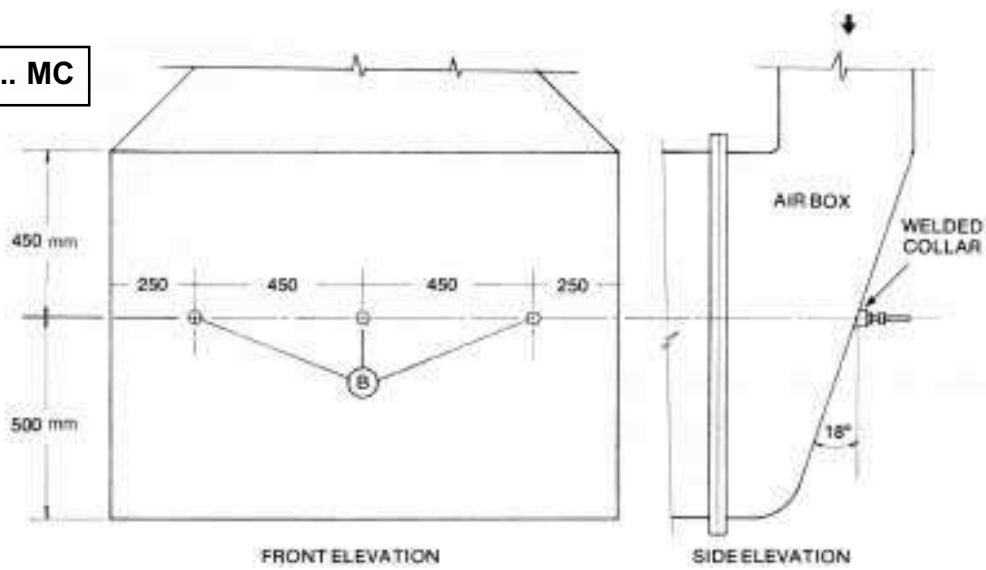
## INSTALLATION DRAWINGS

These installation drawings are only a guide for typical installations. Air trunking dimensions, configuration and baffles arrangement may differ between engines of the same model. Physical inspection is necessary to ensure that nozzles are correctly sited and installed. These drawings are not to scale. All dimensions





**MAN B&W L/S.. MC**



**MAN B&W K.. MC**