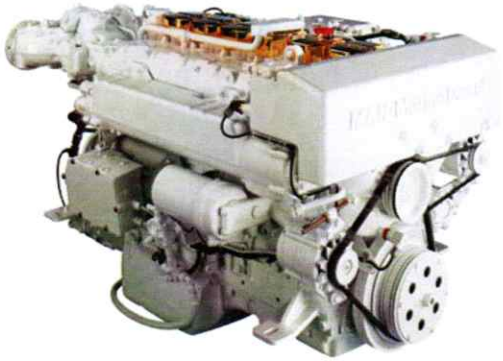
3 The D28 „Classic" Engines

3.1 Identification of the Engines

The following maintenance schedule is only valid for the „D 28 Classic" engine series. Several typical engines of this series are pictured here to aid in identification.

R6-800



V8-900

V12-1550

3.2 Maintenance Schedule for the D28 „Classic" Engines

NOTE!

The maintenance work is to be done after reaching the cited operating hours **or** once per year at the latest.

Those maintenance operations which have reached their deadlines first are to be performed.

3.2.1 Maintenance Work According to Operating Hours for D 28 „Classic" Engines

	Scope of maintenance operations				
	M1	M2	M3	M4	M5
20-60 or after commissioning	x	x			
200	x	x	x		
400*	x	x	x	x	x
600	x	x	x		
800	x	x	x	x	x
1000	x	x	x		
1200	x	x	x	x	
1400	x	x	x		
1600	x	x	x	x	x
1800	x	x	x		
2000	x	x	x	x	
2200	x	x	x		
2400	x	x	x	x	x
2600	x	x	x		
2800	x	x	x	x	
3000	x	x	x		
3200	x	x	x	x	x
3400	x	x	x		
3600	x	x	x	x	
3800	x	x	x		
4000	x	x	x	x	x

* Retighten cylinder head bolts, not for R-730, R-800

3.2.2 Maintenance Work According to Time Intervals

	Scope of maintenance operations					
According to time intervals	M1	M2	M3	M4	A1	A2
Yearly	x	x	x	x		
2 Years					x	
4 Years						x

Carefully read the Maintenance Instructions before starting any work!
This is especially valid for the chapter on General Safety Instructions and the safety instructions in each of the chapters.

3.2.3 Scope of Maintenance Work

M1	**Check** • Outside of engine for oil and coolant leaks [1)] • Coolant level • Concentration of antifreeze/anticorrosion agent • Engine oil level/transmission oil level [1)] • Operation of instruments [1)] • Coolant hoses for leaks • Fuel lines for leaks • Belt tension, retighten if necessary • Condition of impeller • Removable fasteners (screws/bolts, hose clamps, pipe connections) and retighten if necessary • Alignment of the shaft system (abnormal vibrations are due to the settling properties of the elastic engine mounts) **Test Drive** • Engine speed test with boat fully loaded [2)]
M2	**Clean** • Fuel prefilter • Drain water from fuel filter on engine • Drain water from fuel pre-filter

M3	**Change** • Change filter cartridges for fuel filter on engine [3)] • Change filter cartridges for fuel pre-filter [3)]
M4	**Change** • Engine oil • Engine oil filter cartridges • Change filter cartridges for fuel filter on engine [4)] • Filter element for crankcase ventilation • Air filter **Read out** • Diagnostic system memory MMDS • System memory EDC and delete **Check** • Compression test and high run-up test
M5	**Check/set** • Valve clearance
A1	**Change** • Both valve covers on expansion tank • Filter element for crankcase ventilation **Clean** • Charge air cooler/charge air pipes/turbocharger • Heat exchanger (tube cluster)
A2	**Change** • Coolant • All hoses (e.g. fuel feed and fuel return, transmission oil cooler)

1) Daily visual inspection to be performed by the captain as part of the board routine
2) Fully loaded means: water tank and fuel tank are filled, all ship equipment including life boats are on board
3) Change out filters earlier if they have heavy fuel soiling or high water contents.
4) Change out filters earlier if they have heavy fuel soiling or high water contents.

The above mentioned maintenance operations M1 to M4 are to be performed when the corresponding number of operating hours has been reached or once per year by a MAN authorised workshop.
A1 and A2, which occur every 2 or 4 years, must be done regardless of the number of current operating hours.