

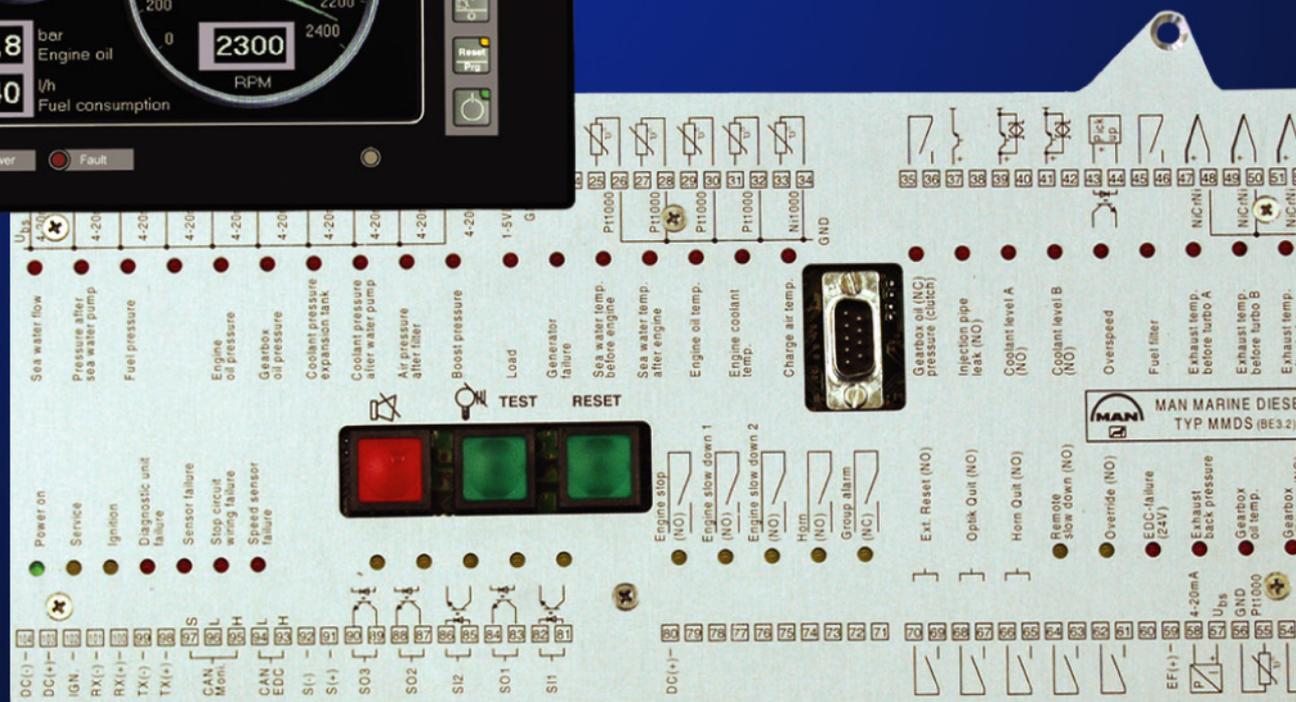
# Repair Manual



## MAN-Monitoring Diagnostic System (MMDS) Marine Diesel Engines

D 28 in-line and V marine engines with EDC  
D 28 V marine engines with mechanical governor

Description, checking, interfaces





# Dear Customer

This manual is intended to help you:

- Familiarise yourself with the components of the MAN Monitoring Diagnostic System (MMDS for short)
- Recognise the interaction of the individual MMDS components
- Install the system correctly in the ship
- Rectify faults and malfunctions

This manual must be read together with Publication 51.99598–8043 “Electronically Controlled Diesel Injection in Conjunction with MAN Monitoring Diagnostic System (MMDS)”.

This Publication was devised under the assumption that its readers will have the necessary basic knowledge of handling and working with marine engines and their electrical systems.

Best regards  
MAN Nutzfahrzeuge Aktiengesellschaft  
Nuremberg Plant

Since our products are in continuous development, we reserve the right to make technical modifications.

© 2003 MAN Nutzfahrzeuge Aktiengesellschaft  
Reprint, duplication or translation, as a whole or in part without the written approval of MAN is prohibited.  
MAN reserves all rights accorded by the relevant laws on copyright.



	Page
<b>Safety information</b> .....	4
<b>Layout of MAN Monitoring Diagnostic System (MMDS)</b> .....	7
<b>System description</b> .....	14
<b>Location of sensors</b>	
Location of sensors for combustion air system .....	18
Location of sensors for combustion air system .....	19
Location of sensors for cooling system .....	22
Location of sensors for cooling system .....	23
Location of sensors for lube oil system .....	24
Location of RPM sensors .....	25
<b>Testing sensors</b>	
Sensors for pressure measurement .....	26
Sensors for temperature measurement .....	27
Sensors for coolant level .....	31
Testing three-phase generator .....	32
<b>Testing sensors engines with mechanical control</b>	
RPM sensor Hall-HT: 51.27120-0010 .....	33
Boost pressure sensor: 51.27421-0125 .....	34
Coolant temperature sensor: 51.27421-0150 .....	34
Charge-air temperature sensor: 51.27421-0103 .....	34
<b>Testing sensors special equipment</b>	
Sensors for engine monitoring .....	35
Sensors for gearbox monitoring .....	35
<b>MMDS central diagnostic unit in terminal box</b>	
Special variant for D 2876 LE 4.. in 12-Volt version .....	36
Voltage converter MMDS-DC 12 for 12-Volt version .....	37
Central diagnostic unit .....	42
Alarm and status indications .....	44
Pre-alarm, master alarm, sensor failure, system failure .....	45
Sensor failure .....	46
System failure .....	46
Relay outputs .....	48
Engine monitoring .....	50
Safety function .....	51
Storage of alarms and sensor failures .....	53
Terminal box with MMDS .....	55
<b>Analog indicating instruments (4–20 mA) and their testing (serial / bus system)</b>	
Connecting analog instruments .....	58
Tachometer with operating hours meter: 51.27102-6001 .....	59
Indicating instrument for engine oil pressure: 51.27410-6002 .....	60
Indicating instrument for gearbox oil pressure: 51.27410-6003 .....	61
Indicating instrument for coolant temperature: 51.27401-6005 .....	62
Indicating instrument for engine oil temperature: 51.27401-6006 .....	63
Indicating instrument for battery voltage (voltage gauge): 51.27302-6001 .....	64
Indicating instrument for exhaust-gas temperature: 51.27401-6002 .....	65

	Page
<b>MMDS-LC display unit (serial / bus system)</b>	
Function description of MMDS-LC display unit .....	66
Design of MMDS-LC display unit .....	67
Installation of MMDS-LC display unit .....	69
MMDS-LC display units function and operation (serial / bus system) .....	73
MMDS-LC display unit programming the ship's alarms (serial / bus system) .....	83
<b>MMDS-L display unit (serial / bus system) .....</b>	<b>87</b>
<b>MMDS-SD serial distribution box (serial / bus system) .....</b>	<b>93</b>
Function of serial distribution box 51.27720–7007 .....	93
Installation of MMDS-SD serial distribution box .....	95
<b>MMDS-DA digital / analog converter (serial / bus system) .....</b>	<b>98</b>
<b>Engine room panel of the diagnostic system MMDS (serial / bus system) .....</b>	<b>102</b>
<b>MMDS-CLC 6.3 colour display (CAN bus system)</b>	
Description .....	104
Fitting and installation .....	108
Operating function and configuration .....	111
Technical data .....	113
Alarms .....	114
<b>Analog display instruments (CAN bus system) .....</b>	<b>120</b>
System .....	120
CAN master tachometer .....	121
European slave instruments (bar / 5C) .....	126
<b>Commissioning .....</b>	<b>131</b>
<b>Connecting cables .....</b>	<b>138</b>
<b>Circuit diagram</b>	
Circuit diagram for engines with EDC and MMDS .....	143
EDC diagram with MMDS .....	145
Connection diagram for engine with EDC and MMDS .....	147
Circuit diagram for engines with mechanical governors and MMDS .....	149
Circuit diagram for engines with mechanical governors and MMDS .....	151
Circuit diagram for engines with EDC and MMDS (12V) .....	153
Circuit diagram for engines with EDC and MMDS (12V) .....	155
Wiring of individual components of MMDS .....	157
<b>Index .....</b>	<b>159</b>