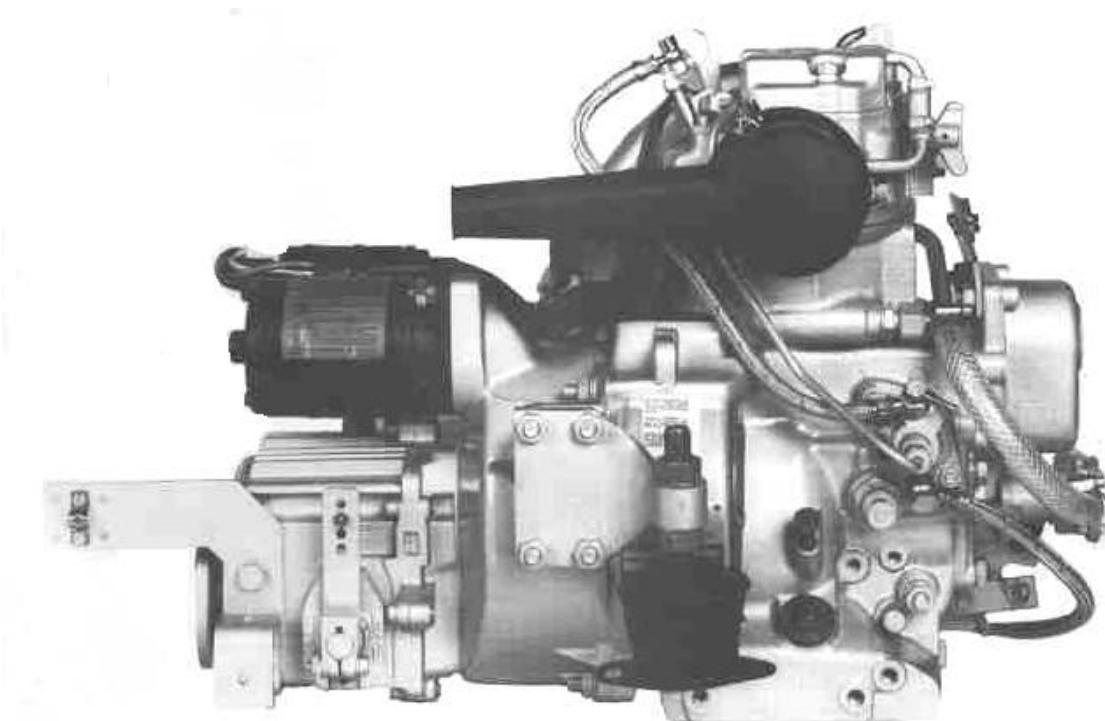


Workshop Manual

BMW D7



BMW Marine

This copy of the BMW D7 Workshop Manual has been re-created using images computer scanned from a manual rather than original artwork.

BMW D7 Marine Engine

A four-stroke diesel engine with direct injection and open-circuit cooling system. The Neoprene impeller of the coolant pump is driven directly from the crankshaft. Electric starter and flywheel alternator are standard equipment. The injection system is fitted with automatic bleeding.

Notes on Use

This workshop manual describes complete procedures for dismantling, overhaul and assembly of the BMW D7 marine engine.

If only part of the procedure is to be carried out (e.g. small repairs or replacement of gaskets, oilseals) the remainder can be ignored.

The relevant technical data is provided with each section. General specifications are found on page iii.

Assembly is generally a reversal of removal procedure. Special attention, however, should be paid to "notes on assembly".

Checking and adjustment procedures, where applicable, are to be found at the end of the relevant section.

	Page		Page
Introduction	i	Fuel System	27
Summary	1	Remove, adjust:	
Removing cylinder head	3	- Injection valve	27
- Preparations	3	- Injection pump	29
- Valve mechanism	4	- Engine speed	31
- Valves	5	Check:	
- Cylinder head	7	- Injection pump	32
- Cylinder	7	- Injection valve	32
		- Fuel pump	32
Removing gearbox	8	Air filter	33
- Starter	8	Electrical system	34
- Reversing gear	8	- Wiring diagram	34
- Bearing cover	9	- Generator	35
- Hand crank mechanism	10	- Starter motor	39
- Connecting rod	11	Water Pump	40
- Piston	13		
- Fuel pump	14		
- Timing gear cover	14		
- Fuel regulator	15		
- Crankshaft	16		
- Valve lifters	19		
- Camshaft	20		
Assemble crankshaft	20		
- Camshaft	20		
- Crankshaft	20		
- Fuel regulator	21		
- Timing gear cover	21		
- Fuel pump	21		
- Piston	21		
- Connecting rod	21		
- Hand crank mechanism	21		
- Bearing cover	22		
- Reversing gear	22		
- Starter			
Assemble cylinder head	22		
- Cylinder	22		
- Cylinder head	23		
- Valves	23		
- Valve mechanism	23		
- Hoses & pipes	23		
Adjust:	24		
- Valve clearance - valve timing	24		
- Decompression lever	25		
- Automatic decompression	26		

Technical data

Capacity	280cc / 17.1 cu.in.
Bore x stroke	73 mm x 67 mm / 2.87 in x 2.64 in
Max. power	4.5 kw / 6 bhp @ 3600 rpm
Compression ratio	22 : 1
Dry weight with gearbox	68 kg / 150 lbs
Gearbox reduction	forward 2.7:1, reverse 1.9:1
Max. installation angle	15°

Specifications

Fuel	Diesel oil, DIN 51601/USA #2
Lubricating oil, engine	HD-API CC/CD
gearbox	Hurth ATF Dexron - ZF SAE 20 W 20
Oil capacity, engine	2 litres / 3.5 pints UK / 4.4 pints US
gearbox	0.4 litres / 0.7 pints UK / 0.85 pints US
Fuel filter	BMW 13 32 1 328 270
Air filter	BMW 13 71 1 329 269
Injector	Bosch
Injection pressure	135 + 8 bar
Injection pump	Bosch PFR 1 K 70 A 343/II
Starter motor	Bosch 0.8 kw
Generator	14V 350W 25A
Battery	12V 60 Ah
Gearbox	Hurth HBW5 - ZF Bw 3

Adjustment data

Injection ends	11.5° - 12.5° BTDC
Valve clearances, cold	0.15 mm / .006 in.

Torque settings

	Nm	kpm	Remarks
Cylinder head nuts M 8	40	4.0	Use permanently elastic sealing compound (e.g. Atmosit) on the stud screws in the oil space!
Connecting rod screws	40	4.0	Oil threads and screw head insert lightly
Counter weight screws	22	2.2	Oil threads and screw head insert lightly
M 6 hex nut for the mounting of the injector	10	1.0	
Flywheel bolts M 10	70	7.0	
Injection pump delivery valve	40	4.0	
M 6 hex head screw for fastening bearing cover retaining yoke on the flywheel side	10	1.0	
Nozzle nut	85	8 - 9	