

# **YANMAR**

## **SERVICE MANUAL**

**MARINE DIESEL ENGINE**

**MODELS**

**4JHE**

**4JH-TE**

**4JH-HTE**

**4JH-DTE**

# Models

## 4JH(B)E - 4JH-T(B)E 4JH-HT(B)E - 4JH-DT(B)E

### CHAPTER 1 GENERAL

1. Exterior Views	1-1
2. Specifications	1-4
3. Construction	1-5
4. Performance Curves	1-6
5. Engine Cross Section	1-10
6. Dimensions	1-11
7. Piping Diagrams	1-15
8. Parts Interchangeability	1-18

### CHAPTER 2 BASIC ENGINE PARTS

1. Cylinder Block	2-1
2. Cylinder Liners	2-4
3. Cylinder Head	2-6
4. Piston and Piston Pins	2-13
5. Connecting Rod	2-17
6. Crankshaft and Main Bearing	2-20
7. Camshaft and Tappets	2-23
8. Timing Gear	2-26
9. Flywheel and Housing	2-28

### CHAPTER 3 FUEL INJECTION EQUIPMENT

1. Fuel Supply System	3-1
2. Disassembly, Reassembly and Inspection of Governor	3-9
3. Disassembly, Reassembly and Inspection of Fuel Injection Pump	3-18
4. Adjustment of Fuel Injection Pump and Governor	3-28
5. Automatic Advancing Timer	3-34
6. Fuel Feed Pump	3-36
7. Fuel Injection Nozzle	3-38
8. Troubleshooting	3-42
9. Fuel Injection Pump Service Data	3-44
10. Tools	3-45
11. Fuel Filter	3-47
12. Fuel Tank (Optional)	3-48
13. Design Change of Fuel Piping Line	3-49

### CHAPTER 4 INTAKE AND EXHAUST SYSTEM

1. Intake and Exhaust System	4-1
2. Intake Silencer	4-4
3. Intake Manifold	4-5
4. Turbocharger	4-6
5. Mixing Elbow	4-21
6. Breather	4-22

### CHAPTER 5 LUBRICATION SYSTEM

1. Lubrication System	5-1
2. Lube Oil Pump	5-3
3. Lube Oil Filter	5-6
4. Oil Pressure Control Valve	5-8
5. Lube Oil Cooler	5-9
6. Piston Cooling Nozzle	5-11
7. Rotary Waste Oil Pump (Optional)	5-12

### CHAPTER 6 COOLING WATER SYSTEM

1. Cooling Water System	6-1
2. Sea Water Pump	6-4
3. Fresh Water Pump	6-7
4. Heat Exchanger	6-10
5. Pressure Cap and Sub Tank	6-12
6. Thermostat	6-14
7. Kingston Cock (Optional)	6-16
8. Sea Water Filter (Optional)	6-17
9. Bilge Pump and Bilge Strainer (Optional)	6-18

### CHAPTER 7a REDUCTION AND REVERSING GEAR

#### (Marine gear model KBW 20 and 21)

1. Construction	7-1
2. Installation	7-6
3. Inspecting and Servicing	7-7
4. Operation and Servicing	7-8
5. Disassembly	7-13
6. Reassembly	7-17
7. Special Tools	7-23

### CHAPTER 7b REDUCTION AND REVERSING GEAR

#### (Marine gear model KM4A, Angle drive)

1. Construction	7-24
2. Shifting Device	7-28
3. Inspecting and Servicing	7-33
4. Special Tools	7-43
5. Disassembly	7-45
6. Reassembly	7-53

### CHAPTER 8 REMOTE CONTROL

1. Remote Control System	8-1
2. Remote Control Installation	8-2
3. Remote Control Inspection	8-5
4. Remote Control Adjustment	8-6

### CHAPTER 9 ELECTRICAL SYSTEM

1. Electrical System	9-1
2. Battery	9-6
3. Starter Motor	9-9
4. Alternator	9-20
5. Instrument Panel and Wiring Codes	9-30
6. Warning Devices	9-35
7. Air Heater (Optional)	9-38
8. Electric Type Stop Device (Optional)	9-39
9. Tachometer	9-41
10. Alternator 12V/80A (Optional)	9-44

### CHAPTER 10 DISASSEMBLY AND REASSEMBLY

1. Disassembly and Reassembly Precautions	10-1
2. Disassembly and Reassembly Tools	10-2
3. Disassembly and Reassembly	10-9
4. Bolt/nut Tightening Torque	10-32
5. Test Running	10-33

# CHAPTER 1

# GENERAL

<u>1</u>	<u>Exterior Views</u>	<u>1-1</u>
<u>2</u>	<u>Specifications</u>	<u>1-4</u>
<u>3</u>	<u>Construction</u>	<u>1-5</u>
<u>4</u>	<u>Performance Curves</u>	<u>1-6</u>
<u>5</u>	<u>Engine Cross Section</u>	<u>1-10</u>
<u>6</u>	<u>Dimensions</u>	<u>1-11</u>
<u>7</u>	<u>Piping Diagrams</u>	<u>1-15</u>
<u>8</u>	<u>Parts Interchangability</u>	<u>1-18</u>