

**PREFACE**

This manual covers the construction, function and serving procedures for the Honda BF135A•BF150A outboard motors.

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at anytime without notice.


No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher. This includes text, figures, and tables.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to the outboard motor, other property, or the environment.

**SAFETY MESSAGES**

Your safety, and the safety of others, are very important. To help you make informed decisions, we have provided safety messages and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing these outboard motors. You must use your own good judgment.

You will find important safety information in a variety of forms, including:

- **Safety Labels** — on the engine cover.
- **Safety messages** — Preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION.

These signal words mean:

** DANGER** You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

** WARNING** You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

** CAUTION** You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this outboard motor correctly and safely.

**Honda Motor Co., Ltd.  
Service Publications Office**

**CONTENTS**

<b>SPECIFICATIONS</b>	<b>1</b>
<b>SERVICE INFORMATION</b>	<b>2</b>
<b>MAINTENANCE</b>	<b>3</b>
<b>ENGINE COVER/COVER LOCK</b>	<b>4</b>
<b>PROGRAMMED-FUEL INJECTION</b>	<b>5</b>
<b>ALTERNATOR</b>	<b>6</b>
<b>ENGINE REMOVAL/INSTALLATION</b>	<b>7</b>
<b>THERMOSTAT/RELIEF VALVE/FLUSH VALVE</b>	<b>8</b>
<b>CRANKSHAFT PULLEY/CAM CHAIN</b>	<b>9</b>
<b>CYLINDER HEAD/VALVES</b>	<b>10</b>
<b>OIL PUMP/FLYWHEEL</b>	<b>11</b>
<b>CRANKCASE/BALANCER</b>	<b>12</b>
<b>CYLINDER BLOCK/CRANKSHAFT/PISTONS</b>	<b>13</b>
<b>PROPELLER/GEAR CASE/EXTENSION CASE/OIL CASE</b>	<b>14</b>
<b>MOUNTING CASE/STERN BRACKET/SWIVEL CASE/POWER TRIM/TILT ASSEMBLY</b>	<b>15</b>
<b>STEERING ROD/REMOTE CONTROL BOX</b>	<b>16</b>
<b>CABLES/SHIFT LINK BRACKET/SHIFT ARM/NEUTRAL SWITCH</b>	<b>17</b>
<b>ELECTRICAL EQUIPMENT</b>	<b>18</b>
<b>OPERATION</b>	<b>19</b>
<b>SYSTEM DIAGRAM/WIRING DIAGRAM</b>	<b>20</b>

<b>1. SPECIFICATIONS</b> .....	<b>1-1</b>	<b>3. MAINTENANCE</b> .....	<b>3-1</b>
1. SPECIFICATIONS .....	1-1	1. MAINTENANCE SCHEDULE .....	3-1
2. DIMENSIONAL DRAWINGS .....	1-4	2. ENGINE OIL .....	3-2
<b>2. SERVICE INFORMATION</b> .....	<b>2-1</b>	3. OIL FILTER .....	3-3
1. THE IMPORTANCE OF PROPER SERVICING .....	2-1	4. GEAR CASE OIL .....	3-4
2. IMPORTANT SAFETY PRECAUTIONS .....	2-1	5. SPARK PLUGS .....	3-6
3. SERVICE RULES .....	2-2	6. VALVE CLEARANCE .....	3-9
4. SYMBOLS USED IN THIS MANUAL .....	2-2	7. FUEL STRAINER (LOW PRESSURE SIDE) .....	3-15
5. SERIAL NUMBER LOCATIONS .....	2-2	8. FUEL STRAINER (HIGH PRESSURE SIDE) .....	3-18
6. MAINTENANCE STANDARDS .....	2-3	9. WATER SEPARATOR with WATER LEVEL	
7. TORQUE VALUES .....	2-7	SENSOR .....	3-19
8. SPECIAL TOOLS .....	2-10	10. IDLING .....	3-22
9. TROUBLESHOOTING .....	2-14	11. SHIFT CONTROL CABLE .....	3-24
a. ENGINE .....	2-14	12. THROTTLE CONTROL CABLE/	
HARD STARTING .....	2-14	THROTTLE LINK .....	3-26
CYLINDER COMPRESSION TEST .....	2-15	13. REMOTE CONTROL LEVER FRICTION .....	3-28
ENGINE DOES NOT RUN SMOOTHLY .....	2-16	14. ALTERNATOR BELT .....	3-28
b. IGNITION (POWER) SYSTEM .....	2-20	<b>4. ENGINE COVER/COVER LOCK</b> .....	<b>4-1</b>
ENGINE DOES NOT START .....	2-20	1. ENGINE COVER .....	4-2
FUSE LOAD CHART .....	2-21	2. FRONT SEPARATE COVER .....	4-7
FUSE BOX CONNECTION TABLE .....	2-22	3. L/R. ENGINE UNDER COVERS .....	4-9
c. STARTER SYSTEM .....	2-23	4. UNDER COVER FRONT BRACKET/	
ENGINE DOES NOT START .....	2-23	L/R. SIDE COVER BRACKETS .....	4-20
d. IGNITION SYSTEM .....	2-25	<b>5. PROGRAMMED-FUEL INJECTION</b> .....	<b>5-1</b>
ENGINE IS HARD TO START .....	2-25	1. SERVICE PRECAUTIONS .....	5-2
e. FUEL SYSTEM .....	2-28	2. CIRCUIT DIAGRAM .....	5-3
ENGINE IS HARD TO START .....	2-28	3. VACUUM CONNECTIONS .....	5-5
f. CHARGING SYSTEM .....	2-30	4. PARTS LOCATION/	
BATTERY UNDER CHARGED .....	2-30	ECM TERMINAL LAYOUT .....	5-6
ACG INDICATOR LINE INSPECTION .....	2-31	5. TROUBLESHOOTING .....	5-11
g. ALERT SYSTEM .....	2-32	6. TROUBLESHOOTING WITH	
OIL ALERT SYSTEM .....	2-32	HDS TESTER .....	5-13
OVERHEAT ALERT SYSTEM .....	2-32	a. TROUBLESHOOTING GUIDE BY DTC .....	5-15
ALTERNATOR WARNING SYSTEM .....	2-32	b. TROUBLESHOOTING .....	5-18
FULL WATER (IN WATER SEPARATOR)		MIL DOES NOT COME ON .....	5-18
WARNING SYSTEM .....	2-32	MIL COMES ON BUT DTC CODE DOES NOT	
MIL WARNING SYSTEM .....	2-32	APPEAR .....	5-21
WARNING SYSTEM .....	2-32	ALERT SYSTEM INITIAL OPERATION IS	
WARNING BUZZER SOUNDS		FAULTY .....	5-23
CONTINUOUSLY .....	2-33	NEUTRAL SWITCH MALFUNCTION .....	5-26
OIL PRESSURE INSPECTION .....	2-35	TACHOMETER MALFUNCTION .....	5-27
INTERMITTENT PROLONGED SOUND OF		ECM TROUBLESHOOTING .....	5-28
WARNING BUZZER KEEPS SOUNDING .....	2-37	MAP SENSOR TROUBLESHOOTING .....	5-28
INTERMITTENT SHORT SOUND OF		CKP SENSOR TROUBLESHOOTING .....	5-30
WARNING BUZZER KEEPS SOUNDING .....	2-38	ECT SENSOR 1 TROUBLESHOOTING .....	5-33
h. SHIFT MECHANISM .....	2-39	TP SENSOR TROUBLESHOOTING .....	5-34
i. POWER TRIM/TILT ASSEMBLY .....	2-40	CMP SENSOR TROUBLESHOOTING .....	5-36
POWER TRIM/TILT ASSEMBLY DOES		IAT SENSOR TROUBLESHOOTING .....	5-38
NOT MOVE .....	2-40	BARO SENSOR TROUBLESHOOTING .....	5-39
POWER TRIM/TILT ASSEMBLY DOES		IAC VALVE TROUBLESHOOTING .....	5-41
NOT HOLD .....	2-41	VTEC SOLENOID VALVE	
POWER TRIM/TILT MOTOR DOES		TROUBLESHOOTING .....	5-42
NOT MOVE .....	2-42	KNOCK SENSOR TROUBLESHOOTING .....	5-43
POWER TRIM/TILT ASSEMBLY QUICK		A/F SENSOR HEATER TROUBLE-	
REFERENCE CHART .....	2-43	SHOOTING .....	5-44
CHECK POINT .....	2-44	A/F SENSOR TROUBLESHOOTING .....	5-49
10. CABLE/HARNESS ROUTING .....	2-45	ECT SENSOR 2 TROUBLESHOOTING .....	5-51
11. TUBE ROUTING .....	2-66	ECT SENSOR 3 TROUBLESHOOTING .....	5-52
12. LUBRICATION .....	2-77		

EOP SWITCH (HIGH PRESSURE SIDE) TROUBLESHOOTING .....	5-54	12. SILENCER CASE/THROTTLE BODY/ INTAKE MANIFOLD .....	5-128
ECT SENSOR 4 TROUBLESHOOTING .....	5-55	13. FUEL INJECTOR/PRESSURE REGULATOR.....	5-136
<b>7. TROUBLESHOOTING WITHOUT</b>		14. FUEL PUMP (LOW PRESSURE SIDE) .....	5-142
HDS TESTER .....	5-57	15. FUEL STRAINER (LOW PRESSURE SIDE)/ WATER SEPARATOR.....	5-144
a. TROUBLESHOOTING GUIDE .....	5-59	16. EOP (ENGINE OIL PRESSURE) SWITCH (HIGH PRESSURE SIDE) .....	5-146
b. TROUBLESHOOTING .....	5-61	17. EOP (ENGINE OIL PRESSURE) SWITCH (LOW PRESSURE SIDE) .....	5-146
MIL DOES NOT COME ON.....	5-61	18. ECT (ENGINE COOLANT TEMPERATURE) SENSOR 1 .....	5-147
MIL ON BUT MIL DOES NOT BLINK WITH SCS CIRCUIT SHORTED.....	5-64	19. ECT (ENGINE COOLANT TEMPERATURE) SENSOR 2, 3, 4 .....	5-148
ALERT SYSTEM INITIAL OPERATION IS FAULTY .....	5-66	20. BARO (BAROMETRIC PRESSURE) SENSOR .....	5-149
NEUTRAL SWITCH MALFUNCTION .....	5-70	21. KNOCK SENSOR.....	5-149
TACHOMETER MALFUNCTION .....	5-70	22. CMP (CAMSHAFT POSITION) SENSOR .....	5-149
MAP SENSOR TROUBLESHOOTING .....	5-71	23. CKP (CRANKSHAFT POSITION) SENSOR .....	5-150
CKP SENSOR TROUBLESHOOTING .....	5-72	24. VTEC SOLENOID VALVE.....	5-150
ECT SENSOR 1 TROUBLESHOOTING .....	5-74	25. VAPOR CHAMBER/CHECK VALVE .....	5-151
TP SENSOR TROUBLESHOOTING .....	5-75	26. EXHAUST MANIFOLD .....	5-152
CMP SENSOR TROUBLESHOOTING .....	5-77	<b>6. ALTERNATOR .....</b>	<b>6-1</b>
IAT SENSOR TROUBLESHOOTING .....	5-78	1. SILENCER DUCT .....	6-2
BARO SENSOR TROUBLESHOOTING .....	5-80	2. ALTERNATOR .....	6-5
IAC VALVE TROUBLESHOOTING .....	5-81	<b>7. ENGINE REMOVAL/INSTALLATION .....</b>	<b>7-1</b>
VTEC SOLENOID VALVE TROUBLE- SHOOTING .....	5-82	1. REMOVAL .....	7-2
KNOCK SENSOR TROUBLESHOOTING .....	5-83	2. INSTALLATION .....	7-6
ECT SENSOR 2 TROUBLESHOOTING .....	5-84	<b>8. THERMOSTAT/RELIEF VALVE/FLUSH VALVE .....</b>	<b>8-1</b>
ECT SENSOR 3 TROUBLESHOOTING .....	5-86	1. THERMOSTAT .....	8-2
EOP SWITCH (HIGH PRESSURE SIDE) TROUBLESHOOTING .....	5-87	2. WATER RELIEF TUBE/RELIEF VALVE .....	8-5
ECT SENSOR 4 TROUBLESHOOTING .....	5-89	3. FLUSH VALVE .....	8-10
A/F SENSOR HEATER TROUBLE- SHOOTING .....	5-90	<b>9. CRANKSHAFT PULLEY/CAM CHAIN .....</b>	<b>9-1</b>
A/F SENSOR TROUBLESHOOTING .....	5-92	1. DISASSEMBLY .....	9-2
<b>8. IDLE CONTROL SYSTEM .....</b>	<b>5-93</b>	2. ASSEMBLY .....	9-9
TROUBLESHOOTING .....	5-93	<b>10. CYLINDER HEAD/VALVES .....</b>	<b>10-1</b>
IDLE ADJUSTING SCREW ADJUSTMENT .....	5-94	1. CYLINDER HEAD COVER REMOVAL.....	10-2
THROTTLE BODY INSPECTION/ CLEANING .....	5-95	2. CYLINDER HEAD COVER DISASSEMBLY.....	10-4
IAC VALVE REPLACEMENT .....	5-95	3. CAMSHAFT/ROCKER ARM DISASSEMBLY .....	10-5
<b>9. FUEL SUPPLY SYSTEM .....</b>	<b>5-96</b>	4. CAMSHAFT/ROCKER ARM INSPECTION .....	10-13
TROUBLESHOOTING .....	5-96	5. CYLINDER HEAD ASSEMBLY REMOVAL .....	10-19
PGM-FI MAIN RELAY HARNESS INSPECTION .....	5-97	6. CYLINDER HEAD ASSEMBLY DISASSEMBLY .....	10-20
INJECTOR HARNESS INSPECTION .....	5-100	7. CYLINDER HEAD ASSEMBLY INSPECTION ...	10-23
HOW TO RELIEVE FUEL PRESSURE .....	5-102	8. VALVE GUIDE REPLACEMENT .....	10-26
FUEL PRESSURE MEASUREMENT .....	5-102	9. VALVE SEAT RECONDITIONING .....	10-28
FUEL LINE INSPECTION.....	5-104	10. CYLINDER HEAD ASSEMBLY ASSEMBLY .....	10-30
FUEL INJECTOR INSPECTION.....	5-105	11. CYLINDER HEAD ASSEMBLY INSTALLATION .....	10-32
PRESSURE REGULATOR INSPECTION.....	5-106	12. CAMSHAFT/ROCKER ARM ASSEMBLY .....	10-34
FUEL PUMP (HIGH PRESSURE SIDE) INSPECTION.....	5-107	13. CYLINDER HEAD COVER ASSEMBLY.....	10-38
<b>10. IAB (INTAKE AIR BYPASS) CONTROL SYSTEM .....</b>	<b>5-109</b>	14. CYLINDER HEAD COVER INSTALLATION .....	10-40
IAB CONTROL VALVE INSPECTION .....	5-109		
SHUTTER VALVE DIAPHRAGM INSPECTION .....	5-110		
<b>11. VAPOR SEPARATOR/FUEL PUMP (HIGH PRESSURE SIDE ) .....</b>	<b>5-111</b>		