

Product: New Holland B90B/B95B/B95BLR/B95BTC/B110B/B115B TIER 3 Backhoe Loader Service Repair Manual

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# REPAIR MANUAL

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## BACKHOE LOADER

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**B90B**  
**B95B**  
**B95BLR**  
**B95BTC**  
**B110B**  
**B115B**  
**TIER 3**

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Bur • Issued 01Feb 08  
Printed in U.S.A. Document Number 8448508-01  
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This unit first became available 02-2008			
REVISION HISTORY			
Issue	Issue Date	Applicable Machines	Remarks
First Edition	01Feb 08	B90B, B95B, B95BLR, B95BTC, B110B, B115B Tier 3 Backhoe Loader	87643850B NA

	<p>THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF DEATH OR SERIOUS INJURY.</p>
Safety Decals on this machine use the words Danger, Warning, or Caution, which are defined as follows:	
● <b>DANGER:</b> Indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.	
● <b>WARNING:</b> Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.	
● <b>CAUTION:</b> Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.	
If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:	
● The first panel indicates the nature of the hazard.	
● The second panel indicates the appropriate avoidance of the hazard.	
● Background color is YELLOW	
● Prohibition symbols such as  and  if used, are RED.	

## WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE DEATH OR SERIOUS INJURY. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- ② Is instructed in safe and proper use of the machine.
- ② Reads and understands the Manual(s) pertaining to the machine.
- ② Reads and understands ALL Safety Decals on the machine.
- ② Clears the area of other persons.
- ② Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow instructions on machine operation and maintenance.

### CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery post, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

### TECHNICAL MANUALS

Manuals are available from your Dealer for the operation, service, and repair of your machine.

Contact your Dealer for assistance in obtaining the manuals for your machine. Your Dealer can expedite your order for Operator's Manuals, Parts Catalogs, Service Manuals, and maintenance records.

Always give the Machine Name, Model, and P.I.N. (Product Identification Number) or S.N. (Serial Number) of your machine so your Dealer can provide the correct manuals for your machine.

<https://www.arepairmanual.com/downloads/new-holland-b90b-b95b-b95blr-b95btc-b110b-b115b-tier-3-backhoe-loader-service-repair-manual/>

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## TO READER

This manual has been printed for a kilful engineer to supply necessary technical information to carry out service operations on this machine.

Read carefully this manual to collect correct information relevant to repair procedures.

For any question or remark, or in case of any error relevant the contents of this manual, please contact:

**CNH AMERICA LLC**  
245 E North Avenue  
Carol Stream, IL 60188 U.S.A.

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## REFERENCE

Beyond this Service Manual, also refer to documents hereunder listed:

- Operator's Manual
- Parts Catalogue

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## COMPLETE HANDBOOK FOR INSTRUCTIONS AND REPAIRS

The complete Service Manual consists of two volumes:

- B90B-B95B-B95BLR-B95BTC-B110B-B115B Service Manual "Loader backhoe"
- B90B-B95B-B95BLR-B95BTC-B110B-B115B Service Manual "Engine"

The Service Manuals for "Loader backhoe" and "Engine" contain the necessary technical information to carry out service and repair on machine and on engine, necessary tools to carry out those operations and information on service standard, on procedures for connection, disconnection, disassembly and assembly of parts.

The complete Service Manual which covers the loader backhoe models B90B-B95B-B95BLR-B95BTC-B110B-B115B consists of the following volumes, which can be identified through their print no. as stated below:

VOLUME	MACHINE TYPE	PRINT NUMBER
Service Manual - "Loader backhoe"	B90B-B95B-B95BLR-B95BTC-B110B-B115B	87643850B
Service Manual - "Engine"	B90B-B95B-B95BLR-B95BTC-B110B-B115B	87659057A

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### AVOID ACCIDENTS

The majority of accidents and injuries which occur in industry, on the farm, at home or on the road, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason MOST ACCIDENTS CAN BE PREVENTED by recognizing the real cause and taking the necessary precautions, before the accident occurs.

Regardless of the care used in design and construction of any type of equipment, there may be conditions that cannot be completely safeguarded against, without interfering with reasonable accessibility and efficient operation.

A careful operator and / or technician is the best insurance against accidents. The complete observance of one simple rule would prevent many thousands of serious injuries each year.

This rule is: Never attempt to clean, lubricate or adjust a machine while it is in motion.

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### **⚠ WARNING**

Before carrying out any maintenance operation, adjustment and or repair on machines equipped with attachments, controlled hydraulically or mechanically, make sure that the attachment is lowered and safely set on the ground. If it is necessary to have the equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the hydraulic lift cylinders, cable and /or mechanical device used for controlling the equipment.

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**CNH AMERICA LLC**  
245 E North Avenue  
Carol Stream, IL 60188 U.S.A.

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## LOADER BACKHOE MODELS

The complete range of Loader Backhoe models described in this manual are identified below:

	B90B	B95B - B95BLR	B95BTC	B110B	B115B
Powershift	/	/	/	•	•
Powershuttle	•	•	•	•	/
Cab	•	•	•	•	•
Rops	•	•	•	/	/
2WD	•	•	/	/	/
4WD	•	•	•	•	•
4WS	/	/	/	/	•
Pilot control	•	•	•	•	•
Mechanical control	•	•	•	•	•
Engine Iveco 72 kW - 97 HP model F4GE9424C*601 (mechanical)	•	/	/	/	/
Engine Iveco 72 kW - 97 HP model F4HE0484G*J102 (electronic)	/	•	•	/	/
Engine Iveco 82 kW - 110 HP model F4HE9484C*J102 (electronic)	/	/	/	•	/
Engine Iveco 82 kW - 110 HP (4WS) model F4HE9484C*J103 (electronic)	/	/	/	/	•
Short dipper	•	•	•	/	/
Long dipper	/	•	•	•	•



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# INDEX

## SECTION 00 - SAFETY PRECAUTIONS

## SECTION 01 - MAINTENANCE

## SECTION 02 - TECHNICAL SPECIFICATIONS

1. LOADER BACKHOE MODELS .....	3
2. IDENTIFICATION OF MAIN COMPONENTS.....	4
3. TECHNICAL SPECIFICATIONS.....	5
3.1 DIESEL ENGINE .....	5
3.2 TRANSMISSION.....	7
3.3 AXLES .....	8
3.4 BRAKES .....	8
3.5 STEERING.....	9
3.6 HYDRAULIC SYSTEM .....	9
3.7 FRONT COUNTERWEIGHT .....	9
3.8 NOISE AND VIBRATION LEVELS .....	10
3.9 BUCKETS .....	10
3.10 TYRES .....	12
4. DIMENSIONS AND PERFORMANCE.....	13
4.1 DIMENSIONS - 2WS - B90B - B95B - B95BLR - B110B.....	13
4.2 DIMENSIONS - 2WS - B95BTC .....	14
4.3 DIMENSIONS - 4WS - B115B .....	15
4.4 LOADER ATTACHMENT PERFORMANCE.....	16
4.5 PERFORMANCE OF LOADER ATTACHMENT WITH FORKS .....	28
4.6 BACKHOE ATTACHMENT PERFORMANCE.....	32
5. BACKHOE ATTACHMENT LIFTING CAPACITY .....	53
6. FLUID AND LUBRICANT CAPACITIES AND SPECIFICATIONS.....	57

## SECTION 17 - TORQUE CONVERTERS

1. POWERSHUTTLE TORQUE CONVERTER .....	3
1.1 DESCRIPTION AND OPERATION.....	3
1.2 TECHNICAL SPECIFICATIONS.....	4
1.3 OVERHAUL .....	4
1.4 INSPECTION .....	4
1.5 DISASSEMBLY AND ASSEMBLY.....	5
1.6 STALL TEST.....	5
1.7 FAULT FINDING.....	6
2. POWERSHIFT TORQUE CONVERTER .....	7
2.1 DESCRIPTION AND OPERATION.....	7
2.2 TECHNICAL SPECIFICATIONS.....	8
2.3 OVERHAUL .....	8
2.4 INSPECTION .....	9
2.5 DISASSEMBLY AND ASSEMBLY.....	9
2.6 STALL TEST.....	11

**SECTION 21 - TRANSMISSION**

1. POWERSHUTTLE TRANSMISSION "TURNER MODEL COM-T4-2025" .....	3
1.1 TECHNICAL SPECIFICATIONS .....	3
1.2 TIGHTENING TORQUES .....	5
1.3 TRANSMISSION CONTROLS .....	6
1.4 LUBRICATION .....	11
1.5 TRANSMISSION OIL FLOW AND SUPPLY .....	12
1.6 TRANSMISSION HYDRAULIC VALVES AND PRESSURE TEST POINTS .....	18
1.7 TRANSMISSION POWER FLOW .....	19
1.8 TRANSMISSION 2WD COMPONENTS .....	23
1.9 TRANSMISSION 4WD COMPONENTS .....	26
1.10 TRANSMISSION REMOVAL .....	31
1.11 DISASSEMBLY AND ASSEMBLY .....	32
1.12 FAULT FINDING .....	90
1.13 SPECIAL TOOLS .....	93
2. POWERSHIFT TRANSMISSION "DANA T16000" .....	94
2.1 TECHNICAL SPECIFICATIONS .....	94
2.2 TRANSMISSION CONTROLS .....	95
2.3 LUBRICATION .....	105
2.4 PRESSURE SPECIFICATIONS AND CHECK POINTS .....	106
2.5 TRANSMISSION COOLER .....	108
2.6 TRANSMISSION HYDRAULIC DIAGRAM .....	109
2.7 OPERATION .....	110
2.8 POWER FLOWS .....	117
2.9 GEAR AND CLUTCH LAY OUT .....	132
2.10 TRANSMISSION / ENGINE REMOVAL FROM LOADER .....	133
2.11 TRANSMISSION COMPONENTS .....	138
2.12 DISASSEMBLY AND ASSEMBLY .....	156
2.13 SPECIAL TOOLS .....	265
2.14 FAULT FINDING .....	266
2.15 FAULT FINDING .....	268

**SECTION 25 - FRONT AXLES**

1. FRONT AXLE 2WD "CARRARO" .....	3
1.1 TECHNICAL SPECIFICATIONS .....	3
1.2 DISASSEMBLY AND ASSEMBLY .....	6
1.3 FAULT FINDING .....	24
2. FRONT AXLE 4WD "CARRARO" .....	26
2.1 TECHNICAL SPECIFICATIONS .....	26
2.2 DISASSEMBLY AND ASSEMBLY .....	31
2.3 FAULT FINDING .....	77
3. FRONT AXLE 4WS "CARRARO" .....	80
3.1 TECHNICAL SPECIFICATIONS .....	80
3.2 DISASSEMBLY AND ASSEMBLY .....	84
3.3 FAULT FINDING .....	137
4. SPECIAL TOOLS .....	140

---

## SECTION 27 - REAR AXLE

1. REAR AXLE 2WS .....	3
1.1 DESCRIPTION AND OPERATION.....	3
1.2 TECHNICAL SPECIFICATIONS.....	6
1.3 DISASSEMBLY AND ASSEMBLY.....	8
1.4 FAULT FINDING.....	27
2. REAR AXLE 4WS "CARRARO" .....	28
2.1 TECHNICAL SPECIFICATIONS.....	28
2.2 DISASSEMBLY AND ASSEMBLY.....	32
2.3 FAULT FINDING.....	81
3. SPECIAL TOOLS.....	84

## SECTION 33 - BRAKE SYSTEM

1. TECHNICAL SPECIFICATIONS.....	3
2. HAND BRAKE.....	6
2.1 HAND BRAKE ADJUSTMENT .....	7
3. BRAKE MASTER CYLINDERS .....	8
3.1 BRAKE RESERVOIR.....	13
3.2 BRAKE BLEEDING PROCEDURE.....	13

## SECTION 35 - HYDRAULIC SYSTEM

1. HYDRAULIC DIAGRAMS .....	3
1.1 HYDRAULIC DIAGRAM - 2WS MECHANICAL MODELS CENTER PIVOT - B90B - B95B - B95BLR - B110B.....	3
1.2 HYDRAULIC DIAGRAM - 2WS PILOT MODELS CENTER PIVOT - B90B - B95B - B95BLR - B110B 5	
1.3 HYDRAULIC DIAGRAM - 2WS MECHANICAL MODELS CENTER PIVOT - B95BTC .....	7
1.4 HYDRAULIC DIAGRAM - 2WS PILOT MODELS CENTER PIVOT - B95BTC .....	9
1.5 HYDRAULIC DIAGRAM - 4WS MECHANICAL MODELS CENTER PIVOT - B115B .....	11
1.6 HYDRAULIC DIAGRAM - 4WS PILOT MODELS CENTER PIVOT - B115B .....	13
1.7 HYDRAULIC DIAGRAM - QUICK COUPLER FOR B95BTC .....	15
2. HYDRAULIC PUMP .....	16
2.1 DESCRIPTION AND OPERATION.....	16
2.2 TECHNICAL SPECIFICATIONS.....	16
2.3 LOAD SENSING VALVE .....	19
2.4 REMOVAL .....	21
2.5 COMPONENTS .....	22
2.6 DISASSEMBLY AND ASSEMBLY.....	23
3. CONTROL VALVES .....	27
3.1 CONTROL VALVES "HUSCO" (B90B - B95B - B95BLR - B95BTC - B110B MECHANICAL MODELS) .....	27
3.2 CONTROL VALVES "REXROTH" (B115B MECHANICAL MODELS) .....	64
3.3 CONTROL VALVES "REXROTH" (B90B - B90BLR - B95BLR - B110B - B115B PILOT MODELS) ..	80
3.4 SOLENOID VALVE FOR PILOTING THE BACKHOE CONTROL VALVE (WITH HYDRAULIC CONTROL) .....	88
3.5 ACCUMULATOR "GLIDE RIDE" PARKER.....	91
3.6 SYSTEM RELIEF VALVES.....	94
4. HYDRAULIC SWING SYSTEM .....	104
4.1 DESCRIPTION AND OPERATION.....	104
4.2 HYDRAULIC OIL FLOW .....	105
4.3 PRECISION SWING CONTROL .....	107

---

5. HYDRAULIC CYLINDERS .....	110
5.1 LOADER CYLINDER .....	111
5.2 LOADER BUCKET CYLINDER .....	118
5.3 4X1 BUCKET CYLINDER .....	127
5.4 BACKHOE BOOM CYLINDER .....	130
5.5 BACKHOE DIPPER CYLINDER .....	134
5.6 BACKHOE BUCKET CYLINDER .....	138
5.7 TELESCOPIC CYLINDER .....	142
5.8 STABILIZERS CYLINDER .....	146
5.9 SWING CYLINDER .....	150
5.10 SPECIAL TOOLS .....	154
6. PILOT HYDRAULIC CONTROL LEVERS .....	155
6.1 TECHNICAL SPECIFICATIONS .....	155
6.2 DESCRIPTION AND OPERATION .....	156
6.3 DISASSEMBLY AND ASSEMBLY .....	159
6.4 PILOT HYDRAULIC CONTROL VALVE .....	162
7. FAULT FINDING .....	165
7.1 PRELIMINARY CHECKS .....	165
7.2 FAULT FINDING (WITH "HUSCO" CONTROL VALVES) .....	166
7.3 FAULT FINDING (WITH "REXROTH" CONTROL VALVES) .....	171

## **SECTION 39 - CHASSIS**

1. DESCRIPTION AND OPERATION .....	3
2. REMOVAL AND INSTALLATION COMPONENTS .....	5
2.1 COMPONENTS WITHIN THE CHASSIS .....	5
2.2 COMPONENTS BELOW THE CHASSIS .....	6
2.3 COMPONENTS ATTACHED OUTSIDE THE CHASSIS .....	8
2.4 COMPONENTS ATTACHED ABOVE THE CHASSIS .....	9
2.5 TIGHTENING TORQUES .....	11

## **SECTION 41 - STEERING SYSTEM**

1. STEERING SYSTEM 2WS .....	4
2. STEERING SYSTEM 4WS .....	7
3. POWER STEERING .....	12
3.1 TECHNICAL SPECIFICATIONS .....	13
3.2 COMPONENTS .....	15
3.3 DISASSEMBLY AND ASSEMBLY .....	16
3.4 SPECIAL TOOLS .....	33
3.5 FAULT FINDING .....	33

## **SECTION 50 - CAB HEATING AND AIR CONDITIONING**

1. TECHNICAL SPECIFICATIONS .....	3
2. CAB HEATING .....	5
2.1 DESCRIPTION AND OPERATION .....	5
3. AIR CONDITIONING .....	12
3.1 PRINCIPALS OF AIR CONDITIONING .....	12
3.2 SAFETY PRECAUTIONS .....	17
3.3 DESCRIPTION AND OPERATION .....	18
3.4 FAULT FINDING AND TESTING .....	27

---

3.5 FLUSHING THE SYSTEM.....	45
3.6 EVACUATING THE SYSTEM.....	47
3.7 CHARGING THE SYSTEM.....	48
3.8 COMPONENTS OVERHAUL .....	49
3.9 COMPRESSOR .....	54
3.10 SPECIAL TOOLS.....	68

## SECTION 55 - ELECTRICAL SYSTEM

1. GENERALITIES .....	3
1.1 TEMPORARY WIRING HARNESS REPAIR .....	3
1.2 FAULT FINDING.....	4
2. ELECTRICAL DIAGRAMS.....	5
2.1 ELECTRICAL DIAGRAMS - POWERSHUTTLE ROPS (B90B).....	5
2.2 ELECTRICAL DIAGRAMS - POWERSHUTTLE CAB (B90B).....	22
2.3 ELECTRICAL DIAGRAMS - POWERSHUTTLE ROPS (B95B - B110B).....	42
2.4 ELECTRICAL DIAGRAMS - POWERSHUTTLE CAB (B95B - B110B).....	56
2.5 ELECTRICAL DIAGRAMS - POWERSHIFT CAB (B110B).....	73
2.6 ELECTRICAL DIAGRAMS - POWERSHIFT 4WS CAB (B115B).....	89
3. CONTROLS AND INSTRUMENTS .....	106
3.1 FRONT INSTRUMENT PANEL .....	106
3.2 CALIBRATION OF SPEEDOMETER .....	108
3.3 SIDE INSTRUMENT PANEL (B90B).....	109
3.4 SIDE INSTRUMENT PANEL (B95B - B110B - B115B).....	111
3.5 SIDE INSTRUMENT CLUSTER (B90B).....	113
3.6 SIDE INSTRUMENT (B95B - B110B - B115B).....	115
3.7 IMMOBILISER SYSTEM.....	117
4. DIAGNOSTICS DISPLAY (B95B - B110B - B115B).....	118
4.1 SYMBOLS.....	120
4.2 SETUP MENU .....	121
4.3 PROCEDURE ABOUT SELF TEST .....	122
4.4 ON BOARD ERROR CODE RETRIEVAL .....	123
4.5 BACKLIGHTING AND DIMMING.....	124
4.6 WORK HOURS.....	125
4.7 FUNCTIONAL DESCRIPTION .....	126
4.8 MAINTENANCE.....	132
4.9 WARNING MESSAGES .....	133
5. STARTING SYSTEM .....	139
5.1 DESCRIPTION AND OPERATION.....	139
5.2 FAULT FINDING.....	140
5.3 STARTER MOTOR.....	143
6. ALTERNATOR.....	149
6.1 TECHNICAL SPECIFICATIONS.....	149
6.2 DESCRIPTION AND OPERATION.....	149
6.3 COMPONENTS .....	151
6.4 REMOVAL .....	152
6.5 PRELIMINARY CHECK AND TESTS.....	153
6.6 FAULT FINDING.....	162

7. BATTERY.....	163
7.1 TECHNICAL SPECIFICATIONS.....	163
7.2 DESCRIPTION AND OPERATION.....	163
7.3 REMOVAL AND INSTALLATION.....	164
7.4 MAINTENANCE.....	166
7.5 TESTS.....	168
7.6 CONNECTING A BOOSTER BATTERY.....	170
7.7 BATTERY MASTER SWITCH.....	170
8. COMPONENT TESTING .....	171
8.1 GENERAL INTRODUCTION .....	171
8.2 COMPONENT TESTING .....	172
8.3 GROUND POINTS.....	172
8.4 KEY-START AND STOP SWITCH .....	174
8.5 ALTERNATOR.....	175
8.6 TRANSMISSIONS .....	175
8.7 PARKING BRAKE SWITCH.....	179
8.8 CAB.....	180
8.9 4WD SWITCH.....	185
8.10 BRAKE PEDAL SWITCHES .....	185
8.11 BRAKE OIL LEVEL LAMP .....	186
8.12 FRONT WORK LAMP SWITCH - REAR WORK LAMP SWITCH (2) MAIN LIGHT SWITCH .....	186
8.13 HAZARD SWITCH .....	187
8.14 FLASHER RELÈ .....	187
8.15 MULTI FUNCTION SWITCH.....	188
8.16 FRONT WIPER MOTOR (1) - REAR WIPER MOTOR (2) .....	188
8.17 4WS -STEERING SELECTOR SWITCH .....	189
8.18 STEERING CONTROL UNIT .....	190
8.19 4WS REAR AXLE STEERING SENSOR.....	192
8.20 4WS FRONT AXLE STEERING SENSOR .....	192
8.21 STEERING SOLENOID VALVE.....	193
8.22 DIFFERENTIAL LOCK SWITCH (1) .....	194
8.23 LOADER .....	195
8.24 BACKHOE.....	197
8.25 REVERSING BUZZER.....	200
8.26 FUEL LEVEL INDICATOR.....	201

## SECTION 82 - LOADER

1. LOADER ATTACHMENT CONTROLS .....	4
2. LOADER BUCKET SELF LEVELING .....	7
3. LOADER ATTACHMENT SAFETY STRUT .....	10
4. LOADER BUCKET REMOVAL .....	13
4.1 REPLACING BUCKET TEETH .....	18
5. LOADER ARM REMOVAL .....	19
5.1 LOADER ARM REMOVAL (B90B - B95B - B110B).....	19
5.2 LOADER ARM REMOVAL (B95BTC - B115B).....	21

**SECTION 84 - BACKHOE**

1. DESCRIPTION AND OPERATION.....	3
2. BACKHOE ATTACHMENT MECHANICAL CONTROLS .....	6
3. BACKHOE ATTACHMENT HYDRAULIC CONTROLS .....	15
4. REMOVAL AND INSTALLATION .....	17
4.1 BACKHOE BUCKET REMOVAL .....	19
5. TELESCOPIC DIPPER (HED) REVISION.....	24



**B90B**

**B95B - B95BLR**

**B95BTC**

**B110B**

**B115B**



**SECTION 00 - SAFETY PRECAUTIONS**



## PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION", "WARNING", and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.

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### **▲ CAUTION**

THE WORD "CAUTION" IS USED WHERE A SAFE BEHAVIORAL PRACTICE ACCORDING TO OPERATING AND MAINTENANCE INSTRUCTIONS AND COMMON SAFETY PRACTICES WILL PROTECT THE OPERATOR AND OTHERS FROM ACCIDENT INVOLVEMENT.

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### **▲ WARNING**

THE WORD "WARNING" DENOTES A POTENTIAL OR HIDDEN HAZARD WHICH HAS A POTENTIAL FOR SERIOUS. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY.

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### **▲ DANGER**

THE WORD "DANGER" DENOTES A FORBIDDEN PRACTICE IN CONNECTION WITH A SERIOUS HAZARD.

FAILURE TO FOLLOW THE "CAUTION", "WARNING" AND "DANGER" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

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## MACHINE SAFETY

Additional precautionary statements ("ATTENTION" and "IMPORTANT") are followed by specific instructions. These statements are intended for machine safety.

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**ATTENTION:** the word "ATTENTION" is used to warn the operator of potential machine damage if a certain procedure is not followed.

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**IMPORTANT:** the word "IMPORTANT" is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.

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**SAFETY RULES**

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get hold into moving parts. We advise to use approved safety clothing such as anti-slipping footwear, gloves, safety goggles, helmets, etc.
- Never carry out any repair on the machine if someone is sitting on the operator's seat, except if they are certified operators to assist in the operation to be carried out.
- Never operate the machine or use attachments from a place other than sitting at the operator's seat.
- Never carry out any operation on the machine when the engine is running, except when specifically indicated.
- Stop the engine and ensure that all pressure is relieved from hydraulic systems before removing caps, covers, valves, etc.
- All repair and maintenance operations should be carried out with the greatest care and attention.
- Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.
- Disconnect the batteries and label all controls to warn that the Machine is being serviced. Block the machine and all equipment which should be raised.
- Never check or fill fuel tanks and accumulator batteries, nor use starting liquid if you are smoking or near open flames as such fluids are flammable.
- Brakes are inoperative when they are manually released for maintenance purposes. In such cases, the machine should be kept constantly under control using blocks or similar devices.
- The fuel filling gun should remain always in contact with the filler neck. Maintain this contact until the fuel stops flowing into the tank to avoid possible sparks due to static electricity buildup.
- Use exclusively specified towing points for towing the machine. Connect parts carefully. Ensure that foreseen pins and/or locks are steadily fixed before applying traction. Do not stop near towing bars, cables or chains working under load.
- To transfer a failed machine, use a trailer or a low loading platform trolley if available.
- To load and unload the machine from the transportation mean, select a flat area providing a firm support to the trailer or truck wheels. Firmly tie the machine to the truck or trailer platform and block wheels as required by the forwarder.
- For electrical heaters, battery-chargers and similar equipment use exclusive auxiliary power supplies with a efficient ground to avoid electrical shock hazard.
- Always use lifting equipment and similar of appropriate capacity to lift or move heavy components.
- Pay special attention to bystanders.
- Never pour gasoline or diesel oil into open, wide and low containers.
- Never use gasoline, diesel oil or other flammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Wear protection goggles with side guards when cleaning parts using compressed air.
- Do not exceed a pressure of 2.1 bar (30 psi), in accordance with local regulations.
- Do not run the engine in a closed building without proper ventilation.
- Do not smoke, use open flames, cause sparks in the nearby area when filling fuel or handling highly flammable liquids.
- Do not use flames as light sources when working on a machine or checking for leaks.
- Move with caution when working under a Machine, and also on or near a Machine. Wear proper safety accessories: helmets, goggles and special footwear.
- During checks which should be carried out with the engine running, ask an assistant to sit at the operator's seat and keep the service technician under visual control at any moment.

In case of operations outside the workshop, drive the machine to a flat area and block it. if working on an incline cannot be avoided, first block the Machine carefully. Move it to a flat area as soon as possible with a certain extent of safety.

- Ruined or plied cables and chains are unreliable. Do not use them for lifting or trailing. Always handle hem wearing gloves of proper thickness.
- Chains should always be safely fastened. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stop near the fastening point, trailing chains or cables.
- The working area should be always kept CLEAN and DRY. Immediately clean any spillage of water or oil.
- Do not pile up grease or oil soaked rags, as they constitute a great fire hazard. Always place them into a metal container. Before starting the Machine or its attachments, check, adjust and block the operator's seat. Also ensure that there are no persons within the Machine or attachment operating range.
- Do not keep in your pockets any object which might fall unobserved into the Machine's inner compartments.

- Whenever there is the possibility of being reached by ejected metal parts or similar, use protection eye mask or goggles with side guards, helmets, special footwear and heavy gloves. Wear suitable protection such as tinted eye protection, helmets, special clothing, gloves and footwear whenever it is necessary to carry out welding procedures. All persons standing in the vicinity of the welding process should wear tinted eye protection. NEVER LOOK AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.
- Metal cables with the use get frayed. Always wear adequate protections (heavy gloves, eye protection, etc.).
- Handle all parts with the greatest caution. Keep your hands and fingers far from gaps, moving gears and similar. Always use approved protective equipment, such as eye protection, heavy gloves and protective footwear.

#### START UP

- Never run the engine in confined spaces which are not equipped with adequate ventilation for exhaust gas extraction.
- Never bring your head, body, arms, legs, feet, hands, fingers near fans or rotating belts.

#### ENGINE

- Always loosen the radiator cap very slowly before removing it to allow pressure in the system to dissipate. Coolant should be topped up only when the engine is stopped or idle if hot.
- Do not fill up fuel tank when the engine is running, mainly if it is hot, to avoid ignition of fires in case of fuel spilling.
- Never check or adjust the fan belt tension when the engine is running. Never adjust the fuel injection pump when the machine is moving.
- Never lubricate the machine when the engine is running.

#### ELECTRICAL SYSTEMS

- If it is necessary to use auxiliary batteries, cables must be connected at both sides as follows: (+) to (+) and (-) to (-). Avoid short-circuiting the terminals. GAS RELEASED FROM BATTERIES IS HIGHLY FLAMMABLE. During charging, leave the battery compartment uncovered to improve ventilation. Avoid checking the battery charge by means of "jumpers" made by placing metallic objects across the terminals. Avoid sparks or flames near the battery area. Do not smoke to prevent explosion hazards.
- Prior to any service, check for fuel or coolant leaks. Remove these leaks before going on with the work. Do not charge batteries in confined spaces. Ensure that ventilation is appropriate to prevent acci-

dental explosion hazard due to build-up of gasses relieved during charging.

- Always disconnect the batteries before performing any type of service on the electrical system.

#### HYDRAULIC SYSTEMS

- Some fluid slowly coming out from a very small port can be almost invisible and be strong enough to penetrate the skin. For this reason, NEVER USE YOUR HANDS TO CHECK FOR LEAKS, but use a piece of cardboard or a piece of wood for this purpose. If any fluid is injected into the skin, seek medical aid immediately. Lack of immediate medical attention, serious infections or dermatitis may result.
- Always take system pressure readings using the appropriate gauges.

#### WHEELS AND TIRES

- Check that the tires are correctly inflated at the pressure specified by the manufacturer. Periodically check possible damages to the rims and tires.
- Keep off and stay at the tire side when correcting the inflation pressure.
- Check the pressure only when the machine is unloaded and tires are cold to avoid wrong readings due to over-pressure. Do not reuse parts of recovered wheels as improper welding, brazing or heating may weaken the wheel and make it fail.
- Never cut, nor weld a rim with the inflated tire assembled.
- To remove the wheels, block both front and rear Machine wheels. Raise the Machine and install safe and stable supports under the Machine in accordance with regulations in force.
- Deflate the tire before removing any object caught into the tire tread.
- Never inflate tires using flammable gases as they may originate explosions and cause injuries to bystanders.

#### REMOVAL AND INSTALLATION

- Lift and handle all heavy components using lifting equipment of adequate capacity. Ensure that parts are supported by appropriate slings and hooks. Use lifting eyes provided to this purpose. Take care of the persons near the loads to be lifted.
- Handle all parts with great care. Do not place your hands or fingers between two parts. Wear approved protective clothing such as safety goggles, gloves and footwear.
- Do not twist chains or metal cables. Always wear protection gloves to handle cables or chains.

**IMPORTANT ECOLOGICAL CONSIDERATIONS**

The following are recommendations which may be of assistance:

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use and dispose of these substances.

**Helpful hints**

- Avoid filling tanks using jerry cans or inappropriate pressurized fuel delivery systems which may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances which can be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and/or waste oils in ordinary heating systems.
- Avoid spillage when draining off used engine coolant mixtures, engine, transmission and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
- Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil but should be collected and disposed of safely.
- Do not open the Air-Conditioning system yourself. It may contain gases which should not be released into the atmosphere. Your air conditioning specialist has special equipment for discharging and charging the system.
- Repair any leaks or defects in the engine cooling or hydraulic system immediately.
- Do not increase the pressure in a pressurized system as this may lead to a catastrophic failure of the system components.
- Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, causing the loss of oils, coolant, etc.

**B90B**

**B95B - B95BLR**

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**SECTION 01 - MAINTENANCE**



All maintenance and repair operations described in this manual should be carried out exclusively by authorized workshops. All instructions detailed should be carefully observed and special equipment indicated should be used if necessary.

Everyone who carries out service operations described without carefully observing these prescriptions will be directly responsible of deriving damages.

## GENERAL

Clean the exterior of all components before carrying out any form of repair. Dirt and abrasive dust can reduce the efficient working life of a component and lead to costly replacement.

Time spent on the preparation and cleanliness of working surfaces will pay dividends in making the job easier and safer and will result in overhauled components being more reliable and efficient in operation. Use cleaning fluids which are known to be safe. Certain types of fluid can cause damage to O-rings and cause skin irritation. Solvents should be checked that they are suitable for the cleaning of components and also that they do not risk the personal safety of the user.

Replace O-rings, seals or gaskets whenever they are disturbed. Never mix new and old seals or O-rings, regardless of condition. Always lubricate new seals and O-rings with hydraulic oil before installation.

When replacing component parts, use the correct tool for the job.

## HOSES AND TUBES

Always replace hoses and tubes if the cone end or the end connections on the hose are damaged.

When installing a new hose, loosely connect each end and make sure the hose takes up the designed position before tightening the connection. Clamps should be tightened sufficiently to hold the hose without crushing and to prevent chafing.

After hose replacement to a moving component, check that the hose does not foul by moving the component through the complete range of travel.

Be sure any hose which has been installed is not kinked or twisted.

Hose connections which are damaged, dented, crushed or leaking, restrict oil flow and the productivity of the components being served. Connectors which show signs of movement from the original swagged position have failed and will ultimately separate completely.

A hose with a chafed outer cover will allow water entry. Concealed corrosion of the wire reinforcement will subsequently occur along the hose length with resultant hose failure.

Ballooning of the hose indicates an internal leakage due to structural failure. This condition rapidly deteriorates and total hose failure soon occurs.

Kinked, crushed, stretched or deformed hoses generally suffer internal structural damage which can result in oil restriction, a reduction in the speed of operation and ultimate hose failure.

Free-moving, unsupported hoses must never be allowed to touch each other or related working surfaces. This causes chafing which reduces hose life.

## O-RING FLAT FACE SEAL FITTINGS

When repairing O-ring face seal connectors, the following procedures should be observed.

### ⚠ WARNING

Never disconnect or tighten a hose or tube that is under pressure. If in doubt, actuate the operating levers several times with the engine switched off prior to disconnecting a hose or tube.

Release the fittings and separate the hose or tube assembly, then remove and discard the O-ring seal from the fitting.

Dip a new O-ring seal into clean hydraulic oil prior to installation. Install a new O-ring into the fitting and, if necessary, retain in position using petroleum jelly. Assemble the new hose or tube assembly and tighten the fitting finger tight, while holding the tube or hose assembly to prevent it from turning.

Use two suitable wrenches and tighten the fitting to the specified torque according to the size of the fitting. Refer to the following torque chart.

**NOTE:** to ensure a leak-free joint is obtained, it is important that the fittings are not over or under torqued.

## SHIMMING

At each adjustment, select adjusting shims, measure them individually using a micrometer and then sum up recorded values.

Do not rely on measuring the whole shimming set, which may be incorrect, or on rated value indicated for each shim.

## ROTATING SHAFT SEALS

To correctly install rotating shaft seals, observe the following instructions:

- let the seal soak into the same oil as it will seal for at least half an hour before mounting;
- thoroughly clean the shaft and ensure that the shaft working surface is not damaged;

- place the sealing lip towards the fluid. In case of a hydrodynamic lip, consider the shaft rotation direction and orient grooves in order that they deviate the fluid towards the inner side of the seal;
- coat the sealing lip with a thin layer of lubricant (oil rather than grease) and fill with grease the gap between the sealing lip and the dust lip of double lip seals;
- insert the seal into its seat and press it down using a flat punch. Do not tap the seal with a hammer or a drift;
- take care to insert the seal perpendicularly to its seat while you are pressing it. Once the seal is settled, ensure that it contacts the thrust element if required.;
- to prevent damaging the sealing lip against the shaft, place a suitable protection during installation.

## O-RINGS

Lubricate the O-rings before inserting them into their seats. This will prevent the O-rings from rolling over and twisting during mounting which will jeopardize sealing.

## BEARINGS

It is advisable to heat the bearings to 80 to 90 °C before mounting them on their shafts and cool them down before inserting them into their seats with external tapping.

## SPRING PINS

When mounting split socket spring pins, ensure that the pin notch is oriented in the direction of the effort to stress the pin.

Spiral spring pins should not be oriented during installation.

## HARDWARE TORQUE VALUES

Check the tightness of hardware periodically. Use the following charts to determine the correct torque when checking, adjusting or replacing hardware on the Backhoe loader.

**IMPORTANT: DO NOT** use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only. Make sure fastener threads are clean and not damaged.

---

**NOTE:** a torque wrench is necessary to properly torque hardware.

---

## NOTES FOR SPARE PARTS

Only genuine parts guarantee same quality, life, safety as original components as they are the same as mounted in production. Only the genuine spare parts can offer this guarantee.

All spare parts orders should be complete with the following data:

- machine model (commercial name) and chassis number;
- engine type and number;
- part number of the ordered part, which can be found on the "Spare Parts Catalogue", which is the base for order processing.

## NOTES FOR EQUIPMENT

Equipment which proposes and shows in this manual are as follows:

- studied and designed expressly for use on company machines;
- necessary to make a reliable repair;
- accurately built and strictly tested to offer efficient and long-lasting working means.
- we also remind the repair personnel that having these equipment means:
- work in optimal technical conditions;
- obtain best results;
- save time and effort;
- work more safely.

## NOTICES

Wear limits indicated for some details should be intended as advised, but not binding values. The words "front", "rear", "right hand", and "left hand" referred to the different parts should be intended as seen from the operator's seat oriented to the normal sense of movement of the machine.

## HOW TO MOVE THE MACHINE WITH THE BATTERY REMOVED

Cables from the external power supply should be connected exclusively to the respective terminals of the Machine positive and negative cables using pliers in good condition which allow proper and steady contact.

Disconnect all services (lights, wind-shield wipers, etc.) before starting the Machine.

If it is necessary to check the machine electrical system, check it only with the power supply connected. At check end, disconnect all services and switch the power supply off before disconnecting the cables.

## O-RING FLAT FACE SEAL FITTING

O-RING FLAT SEAL FITTING TORQUE VALUES					
Nominal		Dash size	Thread size (inch)	Swivel nut torque	
O.D. (inch)	Tube (mm)			Ibf·ft	Nm
0.250	6.35	-4	9/16-18	12	16
0.375	9.52	-6	11/16-16	18	24
0.500	12.70	-8	13/16-16	37	50
0.625	15.88	-10	1-14	51	69
0.750	19.05	-12	1 3/16-12	75	102
0.875	22.22	-14	1 3/16-12	75	102
1.000	25.40	-16	1 7/16-12	105	142
1.250	31.75	-20	1 11/16-12	140	190
1.500	38.10	-24	2-12	160	217

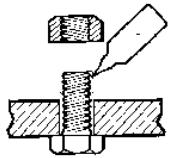
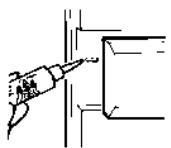
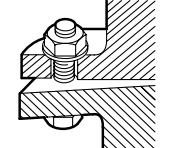
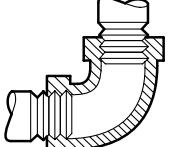
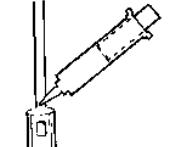
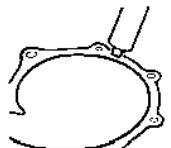
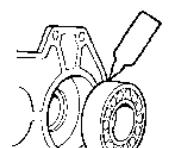
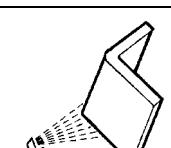
## MINIMUM HARDWARE TIGHTENING TORQUES Ibf·ft (Nm)

INCH HARDWARE AND LOCKNUTS									
Nominal Size	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		Nominal Size
	Unplated or plated silver	Plated with zinc-chrome gold	Unplated or plated silver	Plated with zinc-chrome gold	Unplated or plated silver	Plated with zinc-chrome gold	Gr.B with Grade 5 bolt	Gr.C with Grade 8 bolt	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

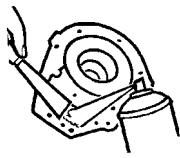
METRIC HARDWARE AND LOCKNUTS							
Nominal Size	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 with Class 8.8 bolt
	Unplated	Plated with zinc-chrome	Unplated	Plated with zinc-chrome	Unplated	Plated with zinc-chrome	
M4	15* (1.7)	19* (2.2)	23* (2.6)	30* (3.4)	33* (3.7)	42* (4.8)	16* (1.8)
M6	51* (5.8)	67* (7.6)	79* (8.9)	102* (12)	115* (13)	150* (17)	56* (6.3)
M8	124* (14)	159* (18)	195* (22)	248* (28)	274* (31)	354* (40)	133* (15)
M10	21 (28)	27 (36)	32 (43)	41 (56)	45 (61)	58 (79)	22 (30)
M12	36 (49)	46 (63)	55 (75)	72 (97)	79 (107)	102 (138)	39 (53)
M16	89 (121)	117 (158)	137 (186)	177 (240)	196 (266)	254 (344)	97 (131)
M20	175 (237)	226 (307)	277 (375)	358 (485)	383 (519)	495 (671)	195 (265)
M24	303 (411)	392 (531)	478 (648)	619 (839)	662 (897)	855 (1160)	388 (458)

**NOTE:** there is no note on the page that \* indicates lb·in and not lb·ft.

## SEALANTS

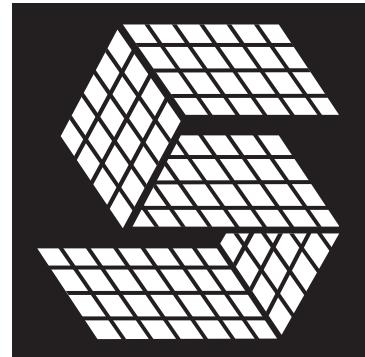
Description	P/N CNH	Typical Applications	
THREAD LOCK AND SEAL 24 ml	82995773	General locking and sealing of metallic threads-medium strength. Oil tolerant. Resists vibration, seals against corrosion and leakage. Can be dismantled with standard tools.	
SUPER GLUE GEL 20 gm	82995778	General purpose instant non drip gel adhesive Ideal for repair of cab trim, mats, external trim etc. Bonds most materials including wood, rubber, metals, most plastics. Not absorbed by porous materials.	
FLEXIBLE GASKET SEALANT 50 ml	82995770	Replaces pre-cut gasket materials. Use on hydraulic lift cover joint, transmission to axle joint and all rigid machined faces. Anaerobic sealant cures on assembly. Will not cure and block oil ways etc.	
THREAD SEAL 50 ml	82995768	General purpose metallic thread and pipe sealant. Use on fuel system, hydraulics, air lines etc. Replaces pastes, hemp, pipe tape etc.	
CLEAR ADHESIVE 50 ml AND SEALANT 310 ml	82995775 82995776	Clear, flexible adhesive and sealant. Suitable for glass, metal, wood etc., seals and bonds gaps to 6 mm. Use to seal glazing and windshields, vehicle lamps, electrical boxes, sump joints etc.	
GASKET DRESSING 60 ml	82995774	Non hardening sealant-enhances sealing of all types of pre cut gaskets. Holds gasket in place-assists assembly. Dries slowly, sets to pliable film for easy dismantling.	
STUD AND BEARING LOCK 24 ml	82995772	General high strength metallic locking and sealing of all threaded fasteners and studs. Retains cylindrical parts, e.g. bushes, bearings, gears to shafts etc. Resists severe vibration loosening. Seals against corrosion	
SOLVENT CLEANER AND DEGREASER 400 ml	82995779	All purpose cleaner and degreaser. Specially designed for parts to be lubricated, bonded or sealed leaving no film or residue. Removes grease, oil and dirt from electrical parts, tools etc.	

**MISCELLANEOUS**

Description	P/N CNH	Typical Applications	
GASKET REMOVER 300 ml	82995782	Spray on fast action foaming gasket remover. Removes old heat hardened gasket residue without damaging metal surfaces. Removes all Loctite gaskets and gasket residue. Removes carbon deposits from cylinder heads etc.	
CITRUS HAND CLEANER 400 ml 3 liter	82995780 82995781	Natural hand cleaner made from citrus oil. Removes ground in dirt, grease, grime, paint, glue oil and tar. Contains premium skin conditioners. Use with or without water.	

**NOTE:**

**B90B**  
**B95B - B95BLR**  
**B95BTC**  
**B110B**  
**B115B**



## **SECTION 02 - TECHNICAL SPECIFICATIONS**

1. LOADER BACKHOE MODELS .....	3
2. IDENTIFICATION OF MAIN COMPONENTS.....	4
3. TECHNICAL SPECIFICATIONS.....	5
3.1 DIESEL ENGINE .....	5
3.2 TRANSMISSION.....	7
3.3 AXLES .....	8
3.4 BRAKES .....	8
3.5 STEERING.....	9
3.6 HYDRAULIC SYSTEM .....	9
3.7 FRONT COUNTERWEIGHT .....	9
3.8 NOISE AND VIBRATION LEVELS .....	10
3.9 BUCKETS .....	10
3.10 TYRES .....	12
4. DIMENSIONS AND PERFORMANCE.....	13
4.1 DIMENSIONS - 2WS - B90B - B95B - B95BLR - B110B.....	13
4.2 DIMENSIONS - 2WS - B95BTC .....	14
4.3 DIMENSIONS - 4WS - B115B .....	15
4.4 LOADER ATTACHMENT PERFORMANCE.....	16
4.5 PERFORMANCE OF LOADER ATTACHMENT WITH FORKS .....	28
4.6 BACKHOE ATTACHMENT PERFORMANCE.....	32
5. BACKHOE ATTACHMENT LIFTING CAPACITY .....	53
6. FLUID AND LUBRICANT CAPACITIES AND SPECIFICATIONS.....	57

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2. **SECTION 02 - TECHNICAL SPECIFICATIONS**

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