NEW HOLLAND

REPAIR MANUAL

BACKHOE LOADER

B90B
B95B
B95BLR
B95BTC
B110B
B115B
TIER 3

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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

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.

Safety Decals on this machine use the words Danger, Warning, or Caution, which are defined as follows:

- DANGER: Indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.
- CAUTION: 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:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- 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.

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.

REFERENCE

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

- Operator's Manual
- Parts Catalogue

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

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.

⚠ 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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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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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.

⚠ 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.

⚠ 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.

⚠ 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.

MACHINE SAFETY

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

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

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.

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 accidental 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.