

Product: Case 580ST 590ST 695ST Stage IV Tractor Backhoe Loader Service Repair Manual 48090752

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**580ST  
590ST  
695ST  
Stage IV  
Tractor Backhoe Loader**

**SERVICE MANUAL**

Part number 48090752

English

February 2017

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**CASE**  
CONSTRUCTION



## SERVICE MANUAL

**580ST STAGE IV, SIDE-SHIFT (SS), FOUR-WHEEL DRIVE (4WD), MARBLE CUTTING, 580ST STAGE IV, STRAIGHT LOADER ARM (SLA), SIDE SHIFT (SS), FOUR-WHEEL DRIVE (4WD), 580ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS), TWO-WHEEL DRIVE (2WD), 590ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS), FOUR-WHEEL DRIVE (4WD), 695ST STAGE IV, SIDE-SHIFT (SS), FOUR-WHEEL DRIVE (4WD), MARBLE CUTTING, 695ST STAGE IV, TOOL CARRIER (TC), CENTER PIVOT (CP), 695ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS)**

## Link Product / Engine

<b>Product</b>	<b>Market Product</b>	<b>Engine</b>
580ST STAGE IV, SIDE-SHIFT (SS), FOUR-WHEEL DRIVE (4WD), MARBLE CUTTING	Europe	F5BFL413B*C002
580ST STAGE IV, STRAIGHT LOADER ARM (SLA), SIDE SHIFT (SS), FOUR-WHEEL DRIVE (4WD)	Europe	F5BFL413B*C002
580ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS), TWO-WHEEL DRIVE (2WD)	Europe	F5BFL413B*C002
590ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS), FOUR-WHEEL DRIVE (4WD)	Europe	F5BFL413A*B001
695ST STAGE IV, TOOL CARRIER (TC), CENTER PIVOT (CP)	Europe	F5BFL413A*B001
695ST STAGE IV, SIDE-SHIFT (SS), FOUR-WHEEL DRIVE (4WD), MARBLE CUTTING	Europe	F5BFL413A*B001
695ST STAGE IV, TOOL CARRIER (TC), SIDE SHIFT (SS)	Europe	F5BFL413A*B001

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## **INTRODUCTION**

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(\*) See content for specific models

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## Foreword - Important notice regarding equipment servicing

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All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your CASE CONSTRUCTION Sales and Service Networks.

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## Safety rules

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### Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.**

### Machine safety

**NOTICE:** Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

### Information

**NOTE:** Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

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## Safety rules

### General safety rules

Use caution when you operate the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol or drugs, or while you are otherwise impaired.

When digging or using ground-engaging attachments, be aware of buried cables. Contact local utilities to determine the locations of services.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop the engine, remove the key, and relieve the pressure before you connect or disconnect fluid lines.
- Make sure that all components are in good condition. Tighten all connections before you start the engine or pressurize the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or while components are in motion.

Make sure that all guards and shields are in good condition and properly installed before you operate the machine. Never operate the machine with shields removed. Always close access doors or panels before you operate the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate the engine in enclosed spaces as harmful exhaust gases may build up.

Before you start the machine, be sure that all controls are in neutral or park lock position with the backhoe swing lock pin in the lock position. The backhoe swing lock pin must be in the lock position when you are not using the backhoe.

Start the engine only from the operator's seat. If you bypass the safety start switch, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow-Moving Vehicle (SMV) emblem clean to provide the best possible visibility while you operate the machine.

## INTRODUCTION

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Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.

From the operator's platform, install the backhoe swing lock pin when the backhoe is not in use and before all other operation.

Before you leave the machine:

1. Park the machine on a firm, level surface.
2. Put all controls in neutral or park lock position.
3. Engage the parking brake. Use wheel chocks if required.
4. Lower the loader bucket or other front attachment to the ground.
5. Move the operator's seat to the backhoe operating position and choose one of the following backhoe positions:
  - Move the backhoe into the stowed position and from the operator's seat install the backhoe swing lock pin. See **Swing tower - Basic instructions ( )** .
  - Lower the backhoe bucket or other attachment to the ground.
6. Turn off the engine and remove the key.
7. Move the operator's seat into the driving position.

When, due to exceptional circumstances, you decide to keep the engine running after you leave the operator's station, then you must follow these precautions:

1. Bring the engine to low idle speed.
2. Disengage all drive systems.

### **WARNING**

**Some components may continue to run down after you disengage drive systems.  
Make sure all drive systems are fully disengaged.  
Failure to comply could result in death or serious injury.**

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3. Move the operator's seat to the backhoe operating position and choose one of the following backhoe positions:
  - Move the backhoe into the stowed position and from the operator's seat install the backhoe swing lock pin. See **Swing tower - Basic instructions ()** .
  - Lower the backhoe bucket or other attachment to the ground.
4. Shift the transmission into neutral.
5. Apply the parking brake.

### **General maintenance safety**

Do not attempt to clean, lubricate, clear obstructions, or make adjustments to the machine while it is in motion or while the engine is running.

Keep the area used for servicing the machine clean and dry. Clean up spilled fluids.

Service the machine on a firm, level surface.

Install guards and shields after you service the machine.

Close all access doors and install all panels after servicing the machine.

Always make sure that working area is clear of tools, parts, other persons and pets before you start operating the machine.

Unsupported hydraulic cylinders can lose pressure and drop the equipment, causing a crushing hazard. Do not leave equipment in a raised position while parked or during service, unless the equipment is securely supported.

Jack or lift the machine only at jack or lift points indicated in this manual.

Incorrect towing procedures can cause accidents. When you tow a disabled machine follow the procedure in this manual. Use only rigid tow bars.

Stop the engine, remove the key, and relieve pressure before you connect or disconnect fluid lines.

Stop the engine and remove the key before you connect or disconnect electrical connections.

Scalding can result from incorrect removal of coolant caps. Cooling systems operate under pressure. Hot coolant can spray out if you remove a cap while the system is hot. Allow the system to cool before you remove the cap. When you remove the cap, turn it slowly to allow pressure to escape before you completely remove the cap.

Replace damaged or worn tubes, hoses, electrical wiring, etc.

The engine, transmission, exhaust components, and hydraulic lines may become hot during operation. Take care when you service such components. Allow surfaces to cool before you handle or disconnect hot components. Wear protective equipment when appropriate.

When welding, follow the instructions in the manual. Always disconnect the battery before you weld on the machine. Always wash your hands after you handle battery components.

---

## **Wheels and tires**

Make sure that tires are correctly inflated. Do not exceed any recommended load or pressure. Follow the instructions in the manual for proper tire inflation.

Tires are heavy. Handling tires without proper equipment could cause death or serious injury.

Never weld on a wheel with a tire installed. Always remove the tire completely from the wheel prior to welding.

Always have a qualified tire technician service the tires and wheels. If a tire has lost all pressure, take the tire and wheel to a tire shop or your dealer for service. Explosive separation of the tire can cause serious injury.

DO NOT weld to a wheel or rim until the tire is completely removed. Inflated tires can generate a gas mixture with the air that can be ignited by high temperatures from welding procedures performed on the wheel or rim. Removing the air or loosening the tire on the rim (breaking the bead) will NOT eliminate the hazard. This condition can exist whether tires are inflated or deflated. The tire MUST be completely removed from the wheel or rim prior to welding the wheel or rim.

## **Driving on public roads and general transportation safety**

Comply with local laws and regulations.

Make sure that the backhoe swing lock pin is in the lock position. See **Swing tower - Basic instructions ()** for more information.

Use appropriate lighting to meet local regulations.

Make sure that the Slow-Moving Vehicle (SMV) emblem is visible.

Make sure that the brake pedal latch is engaged. You must lock brake pedals together for road travel.

Use safety chains for trailed equipment when safety chains are provided with machine or equipment.

Lift implements and attachments high enough above ground to prevent accidental contact with road.

When you transport equipment or a machine on a transport trailer, make sure that it is properly secured. Be sure the Slow-Moving Vehicle (SMV) on the equipment or machine is covered while being transported on a trailer.

Be aware of overhead structures or power lines and make sure that the machine and/or attachments can pass safely under.

Travel speed should be such that you maintain complete control and machine stability at all times.

Slow down and signal before turning.

Pull over to allow faster traffic to pass.

Follow correct towing procedure for equipment with or without brakes.

## **Fire and explosion prevention**

Fuel or oil that is leaked or spilled on hot surfaces or electrical components can cause a fire.

Crop materials, trash, debris, bird nests, or flammable material can ignite on hot surfaces.

Always have a fire extinguisher on or near the machine.

Make sure that the fire extinguisher(s) is maintained and serviced according to the manufacturer's instructions.

At least once each day and at the end of the day, remove all trash and debris from the machine especially around hot components such as the engine, transmission, exhaust, battery, etc. More frequent cleaning of your machine may be necessary depending on the operating environment and conditions.

At least once each day, remove debris accumulation around moving components such as bearings, pulleys, belts, gears, cleaning fans, etc. More frequent cleaning of your machine may be necessary depending on the operating environment and conditions.

Inspect the electrical system for loose connections and frayed insulation. Repair or replace loose or damaged parts.

Do not store oily rags or other flammable material on the machine.

Do not weld or flame cut any items that contain flammable material. Clean items thoroughly with non-flammable solvents before welding or flame-cutting.

Do not expose the machine to flames, burning brush, or explosives.

Promptly investigate any unusual smells or odors that may occur during operation of the machine.

### **General battery safety**

Always wear eye protection when you work with batteries.

Do not create sparks or have open flame near a battery.

Ventilate the area when you charge a battery or use a battery in an enclosed area.

Disconnect the negative (-) terminal first and reconnect the negative (-) terminal last.

When you weld on the machine, disconnect both terminals of the battery.

Do not weld, grind, or smoke near a battery.

When you use auxiliary batteries or connect jumper cables to start the engine, use the procedure shown in the operator's manual. Do not short across terminals.

Follow the manufacturer's instructions when you store and handle batteries.

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

Battery acid causes burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

Keep out of reach of children and other unauthorized persons.

### **Reflectors and warning lights**

You must use flashing amber warning lights when you operate equipment on public roads.

**⚠ Seat belts ⚠**

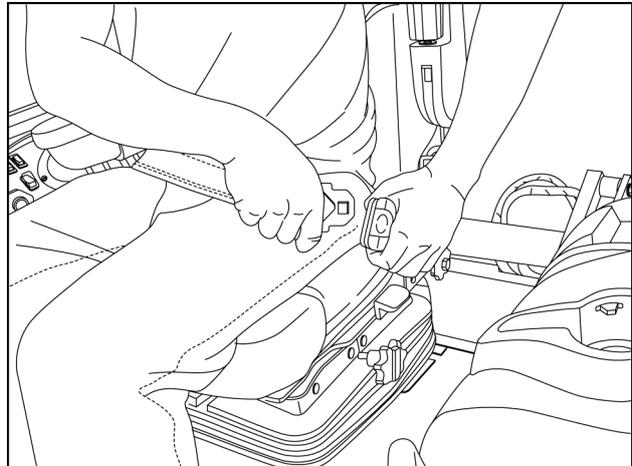
Seat belts must be worn at all times.

Seat belt inspection and maintenance:

- Keep seat belts in good condition.
- Keep sharp edges and items that can cause damage away from the belts.
- Periodically check belts, buckles, retractors, tethers, slack take-up system, and mounting bolts for damage and wear.
- Replace all parts that have damage or wear.
- Replace belts that have cuts that can make the belt weak.
- Check that bolts are tight on the seat bracket or mounting.
- If the belt is attached to the seat, make sure that the seat or seat brackets are mounted securely.
- Keep seat belts clean and dry.
- Clean belts only with soap solution and warm water.
- Do not use bleach or dye on the belts because this can make the belts weak.

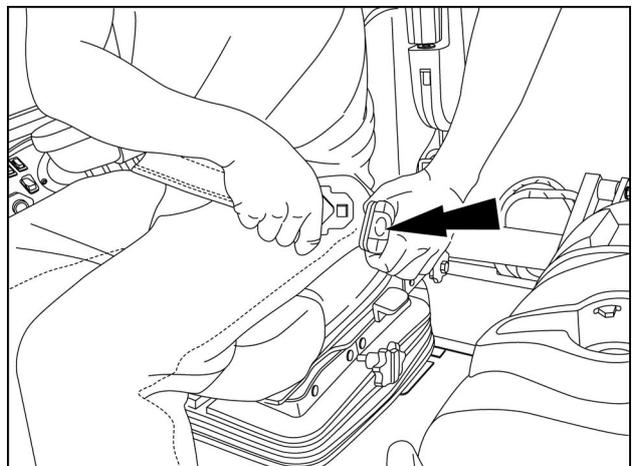
**Fasten/release**

1. Pull the right-hand belt strap from the retractor.
2. Insert the metal end into the latch mechanism of the left-hand side of the seat.



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3. To release, press the red button on the latch mechanism. The seat belt will automatically retract.



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## **Operator protective structure**

Your machine is equipped with an operator protective structure, such as: a Roll Over Protective Structure (ROPS), Falling Objects Protective Structure (FOPS), or a cab with a ROPS. A ROPS may be a can frame or a two-posted or four-posted structure used for the protection of the operator to minimize the possibility of serious injury. The mounting structure and fasteners forming the mounting connection with the machine are part of the ROPS.

The protective structure is a special safety component of your machine.

DO NOT attach any device to the protective structure for pulling purposes. DO NOT drill holes to the protective structure.

The protective structure and interconnecting components are a certified system. Any damage, fire, corrosion, or modification will weaken the structure and reduce your protection. If this occurs, THE PROTECTIVE STRUCTURE MUST BE REPLACED so that it will provide the same protection as a new protective structure. Contact your dealer for protective structure inspection and replacement.

After an accident, fire, tip over, or roll over, the following MUST be performed by a qualified technician before returning the machine to field or job-site operations:

- The protective structure MUST BE REPLACED.
- The mounting or suspension for the protective structure, operator's seat and suspension, seat belts and mounting components, and wiring within the operator's protective system MUST be carefully inspected for damage.
- All damaged parts MUST BE REPLACED.

DO NOT WELD, DRILL HOLES, ATTEMPT TO STRAIGHTEN, OR REPAIR THE PROTECTIVE STRUCTURE. MODIFICATION IN ANY WAY CAN REDUCE THE STRUCTURAL INTEGRITY OF THE STRUCTURE, WHICH COULD CAUSE DEATH OR SERIOUS INJURY IN THE EVENT OF FIRE, TIP OVER, ROLL OVER, COLLISION, OR ACCIDENT.

Seat belts are part of your protective system and must be worn at all times. The operator must be held to the seat inside the frame in order for the protective system to work.

---

## **Backup alarm system**

The audible backup alarm system notifies others in the area that the machine will be or is moving in reverse

Place the directional lever in the reverse travel position and an audible alarm will sound repeatedly until the operator moves the directional lever into the neutral position or the forward travel position.

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## **Personal Protective Equipment (PPE)**

Wear Personal Protective Equipment (PPE) such as hard hat, eye protection, heavy gloves, hearing protection, protective clothing, etc.

# INTRODUCTION

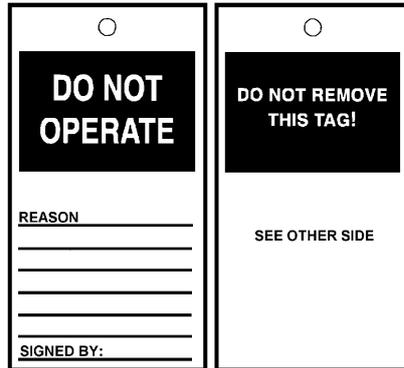
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**⚠ Do Not Operate tag ⚠**

Before you start servicing the machine, attach a 'Do Not Operate' warning tag to the machine in an area that will be visible.



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**⚠ Hazardous chemicals ⚠**

If you are exposed to or come in contact with hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolant, etc. required for the function of your machine can be hazardous. They may be attractive and harmful to domestic animals as well as humans.

Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product, safe handling and storage procedures, first aid measures, and procedures to take in the event of a spill or accidental release. MSDS are available from your dealer.

Before you service your machine check the MSDS for each lubricant, fluid, etc. used in this machine. This information indicates the associated risks and will help you service the machine safely. Follow the information in the MSDS, and on manufacturer containers, as well as the information in this manual, when you service the machine.

Dispose of all fluids, filters, and containers in an environmentally safe manner according to local laws and regulations. Check with local environmental and recycling centers or your dealer for correct disposal information.

Store fluids and filters in accordance with local laws and regulations. Use only appropriate containers for the storage of chemicals or petrochemical substances.

Keep out of reach of children or other unauthorized persons.

Applied chemicals require additional precautions. Obtain complete information from the manufacturer or distributor of the chemicals before you use them.

**⚠ Utility safety ⚠**

When digging or using ground-engaging equipment, be aware of buried cables and other services. Contact your local utilities or authorities, as appropriate, to determine the locations of services.

Make sure that the machine has sufficient clearance to pass in all directions. Pay special attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety. Contact local authorities or utilities to obtain safe clearance distances from high voltage power lines.

Retract raised or extended components, if necessary. Remove or lower radio antennas or other accessories. Should a contact between the machine and an electric power source occur, the following precautions must be taken:

- Stop the machine movement immediately.

- Apply the parking brake, stop the engine, and remove the key.
- Check if you can safely leave the cab or your actual position without contact with electrical wires. If not, stay in your position and call for help. If you can leave your position without touching lines, jump clear of the machine to make sure that you do not make contact with the ground and the machine at the same time.
- Do not permit anyone to touch the machine until power has been shut off to the power lines.

### **Electrical storm safety**

Do not operate machine during an electrical storm.

If you are on the ground during an electrical storm, stay away from machinery and equipment. Seek shelter in a permanent, protected structure.

If an electrical storm should strike during operation, remain in the cab. Do not leave the cab or operator's platform. Do not make contact with the ground or objects outside the machine.

### **Mounting and dismounting**

Mount and dismount the machine only at designated locations that have handholds, steps, and/or or ladders.

Do not jump off of the machine.

Make sure that steps, ladders, and platforms remain clean and clear of debris and foreign substances. Injury may result from slippery surfaces.

Face the machine when you mount and dismount the machine.

Maintain a three-point contact with steps, ladders, and handholds.

Never mount or dismount from a moving machine.

Do not use the steering wheel or other controls or accessories as handholds when you enter or exit the cab or operator's platform.

### **Working at heights**

When the normal use and maintenance of the machine requires you to work at heights:

- Correctly use installed steps, ladders, and railings.
- Never use ladders, steps, or railings while the machine is moving.
- Do not stand on surfaces that are not designated as steps or platforms.

Do not use the machine as a lift, ladder, or platform for working at heights.

### **Lifting and overhead loads**

Never use loader buckets, forks, etc. or other lifting, handling, or digging equipment to lift persons.

Do not use raised equipment as a work platform.

Know the full area of movement of the machine and equipment and do not enter or permit anyone to enter the area of movement while the machine is in operation.

Never enter or permit anyone to enter the area underneath raised equipment. Equipment and/or loads can fall unexpectedly and crush persons underneath it.

Do not leave equipment in raised position while parked or during service, unless securely supported. Hydraulic cylinders must be mechanically locked or supported if they are left in a raised position for service or access.

Loader buckets, forks, etc. or other lifting, handling, or digging equipment and its load will change the center of gravity of the machine. This can cause the machine to tip on slopes or uneven ground.

Load items can fall off the loader bucket or lifting equipment and crush the operator. Care must be taken when lifting a load. Use proper lifting equipment.

Do not lift load higher than necessary. Lower loads to transport. Remember to leave appropriate clearance to the ground and other obstacles.

Equipment and associated loads can block visibility and cause an accident. Do not operate with insufficient visibility.

Keep the load or tool as low as possible while moving the machine around the work site.

Release all hydraulic pressure before servicing the machine.

You must know which circuits have accumulators and how to release pressure properly.

Always use the lift arm support strut when servicing the machine with lift arms up.

### **Air-conditioning system**

- The air-conditioning system is under high pressure. Do not disconnect any lines. The release of high pressure can cause serious injury.
- The air-conditioning system contains gases that are harmful to the environment when released into the atmosphere. Do not attempt to service or repair the system.
- Only trained service technicians can service, repair, and recharge the air-conditioning system.

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## Safety rules - Specific precautions to this machine



- From the operator's platform, install the backhoe swing lock pin when the backhoe is not in use and before all other operation.
- When traveling on the road or working with the front loader keep the backhoe in the stowed position.
- Keep operator's platform clean. Never transport items in the operator's platform.
- Keep the load or tool as low as possible while moving the machine around the work site.
- Adjust the rear window before actuating the backhoe hydraulics. The rear window could come into contact with the control lever.
- Pilot control machines are equipped with two backhoe control patterns. You must know which pattern the machine is in, before operating the machine (actuating the hydraulics).
- Release all hydraulic pressure before servicing the machine.
- You must know which circuits have accumulators and how to release pressure properly.
- Always use the lift arm support strut when servicing the machine with lift arms up.

When using the backhoe:

- Position the stabilizer pads for maximum stability.
- Install a guard rail and warning signs to keep other persons away from the machine if operating in an area with reduced visibility, such as a building.
- Place the direction control lever and the transmission in neutral and apply the parking brake before turning the operator's seat around to the backhoe position.
- Ensure the seat is locked into position.
- Know which control pattern is engaged before actuating the hydraulics (pilot control machines only).
- Use caution when swinging the backhoe completely to the side to prevent contact with the stabilizers.

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## Safety rules - Ductile iron



### **⚠ DANGER**

**Altering cast ductile iron can cause it to weaken or break.**

**Before you weld, cut, or drill holes on any part of this machine, make sure that the part is not cast ductile iron.**

**Failure to comply will result in death or serious injury.**

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Altering cast ductile iron can cause it to weaken or break. Unauthorized modifications to cast ductile iron parts can cause death or serious injury. Do not weld, cut, drill, repair, or attach items to cast ductile iron parts on this machine.

Before you weld, cut, or drill holes on any part of this machine, make sure that the part is not cast ductile iron. See your dealer if you do not know if a part is cast ductile iron.

The following items are examples of cast ductile iron parts. There may also be other parts made of cast ductile iron that are not on the list below.

- Two-wheel drive steering link
- Front axle
- Swing tower
- Air-Conditioning (A/C) compressor mounting bracket

Do not make any unauthorized modifications. Consult an authorized dealer before making any changes, additions, or modifications to this machine.

## Safety rules - Ecology and the environment

580ST	
590ST	
695ST	

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

### Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may 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 you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

### Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. CASE CONSTRUCTION strongly recommends that you return all used batteries to a CASE CONSTRUCTION dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



### Mandatory battery recycling

**NOTE:** The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

## Basic instructions - Support strut for loader lift arm

### **⚠ WARNING**

#### **Crushing hazard!**

If you service the machine with the loader lift arms raised, always use the support strut. Remove the retaining pin and place the support strut onto the cylinder rod. Install the retaining pin into the support strut. Lower the lift arms onto the support strut.

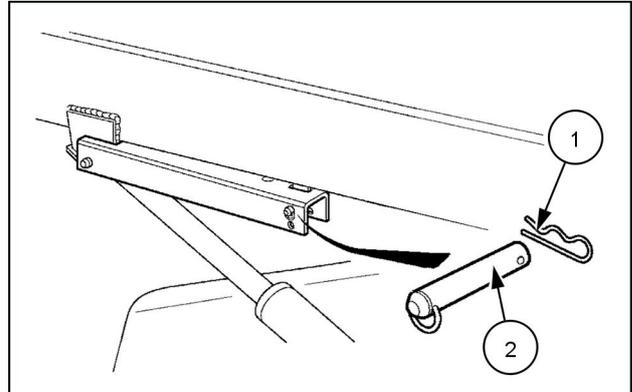
Failure to comply could result in death or serious injury.

W0230A

### Machines without the Tool Carrier (TC) option

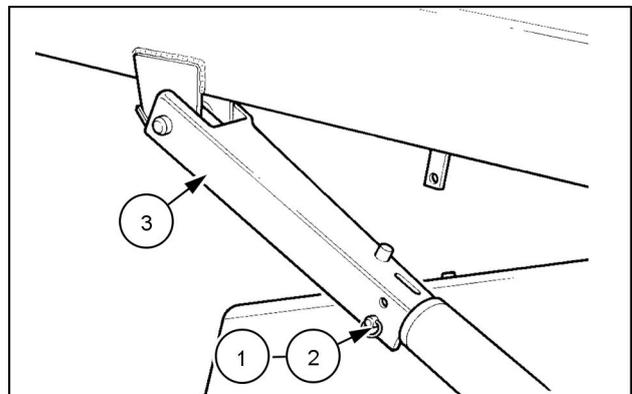
Engage the loader arm support strut:

1. Empty the loader bucket.
2. Raise the loader lift arms to the maximum height.
3. Stop the engine and remove the starter switch key.
4. Remove the split pin (1) and the lock pin (2).



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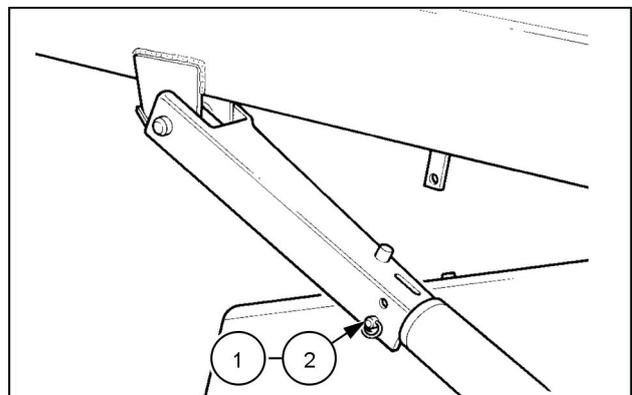
5. Place the strut (3) on the cylinder rod and install the pin (2) and the split pin (1) back into the holes in the strut.
6. Lower the loader attachment until the safety strut is firmly against the cylinder.



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Disengage the loader arm support strut:

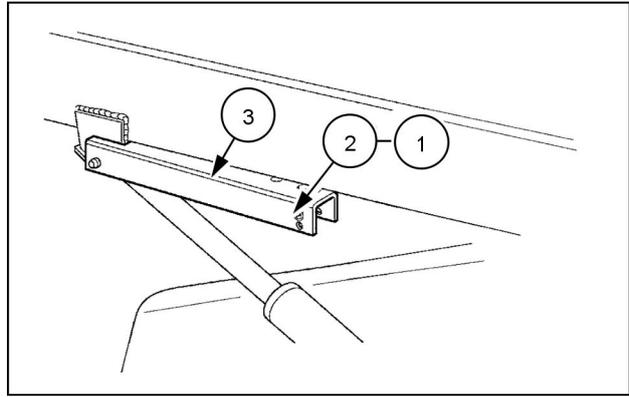
1. Raise the loader lift arms to the maximum height.
2. Stop the engine and remove the starter switch key.
3. Remove the split pin (1) and the lock pin (2).



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## INTRODUCTION

4. Remove the strut **(3)** from the attachment and install the pin **(1)** and the split pin **(2)** back into the holes in the strut.
5. Start the engine and lower the loader attachment.

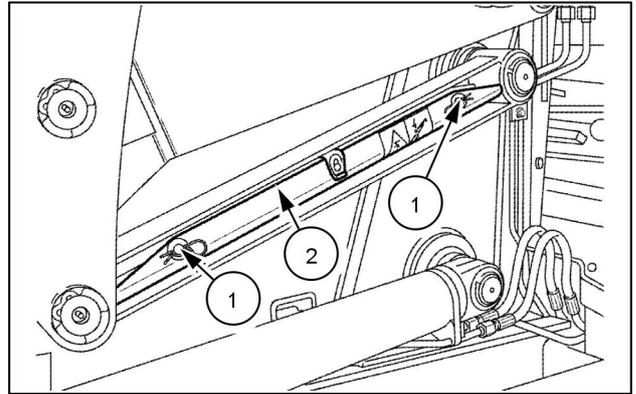


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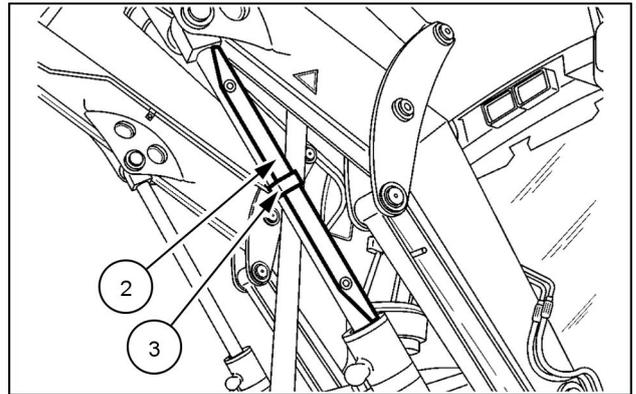
## Machines with the Tool Carrier (TC) option

Engage the loader arm support strut:

1. Remove the split pins **(1)** and the safety strut **(2)** from the storage position on the loader arm. Put the split pins back in place.
2. Empty the loader bucket.
3. Raise the loader lift arms to the maximum height.
4. Stop the engine and remove the starter switch key.
5. Place the strut **(2)** on the cylinder rod and fasten it by means of the fastening flip **(3)**.
6. Lower the loader attachment until the safety strut is firmly against the cylinder.



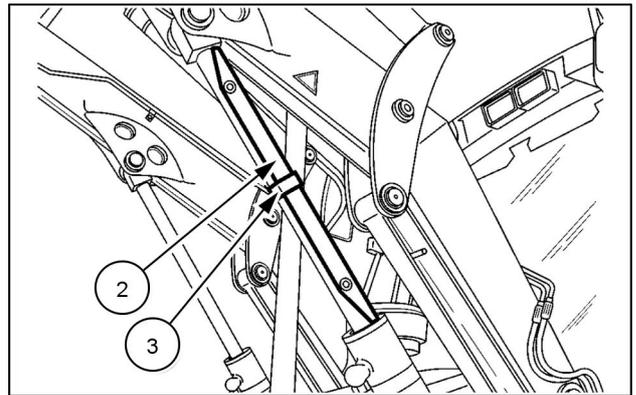
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MOL112LBB0265AB 6

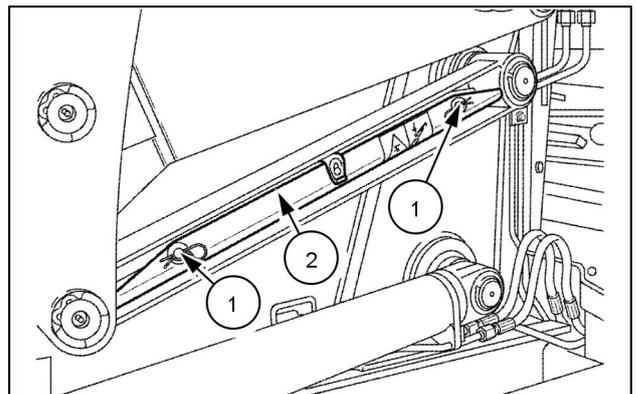
Disengage the loader arm support strut:

1. Raise the loader lift arms to the maximum height.
2. Stop the engine and remove the starter switch key.
3. Remove the flip **(3)** and the strut **(2)** from the cylinder rod.



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4. Start the engine and lower the loader attachment.
5. Stop the engine.
6. Install the safety strut **(2)** in the storage position on the loader arm by means of the split pins **(1)**.



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## Basic instructions - Engine hood

**NOTICE:** It is essential to install the loader attachment support strut before any servicing work is done on the engine.

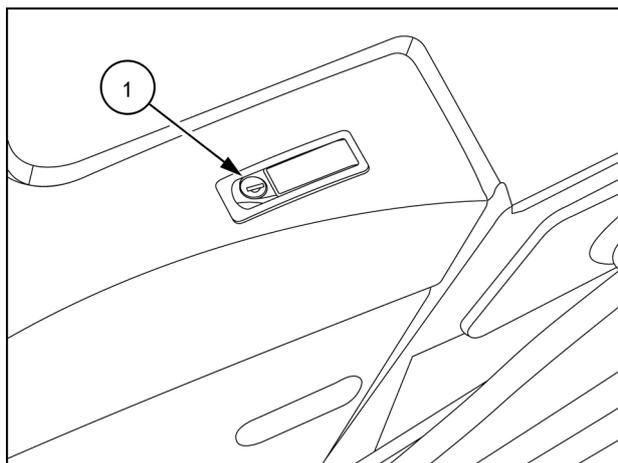
Open the engine hood:

1. Insert the key (1) and turn counter-clockwise.
2. Push the key slot on the engine latch to release the lock (2).
3. Use the engine hood lift handles (4), lift, and rotate the hood (3) into the fully open position.

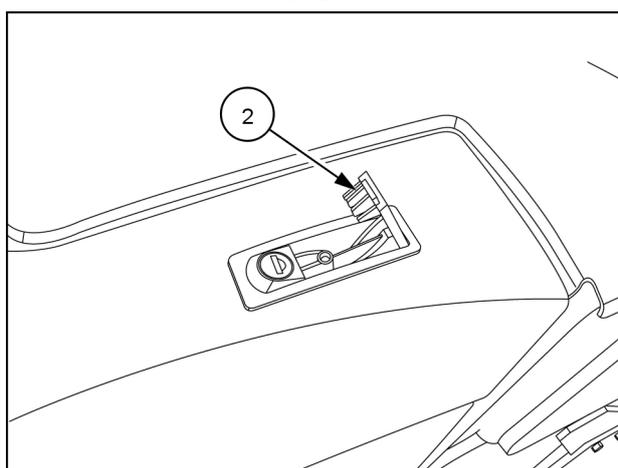
**NOTICE:** Before undertaking any road travel, make sure the engine guard is properly locked.

Close and lock the engine hood (figures in reverse order):

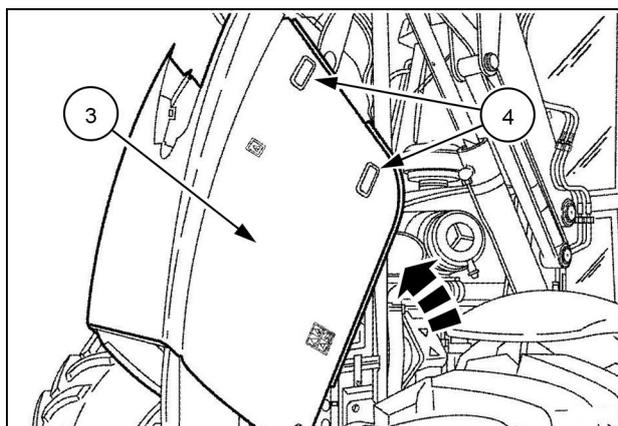
1. Push the hood down in to the closed position.
2. Push the engine latch (2) down into the lock position.
3. Insert the key (1) and turn clockwise.



RAIL15TLB0084AA 1



RAIL15TLB0086AA 2



LEEN11T0072AA 3

## Basic instructions - Organic Acid Technology (OAT) coolant

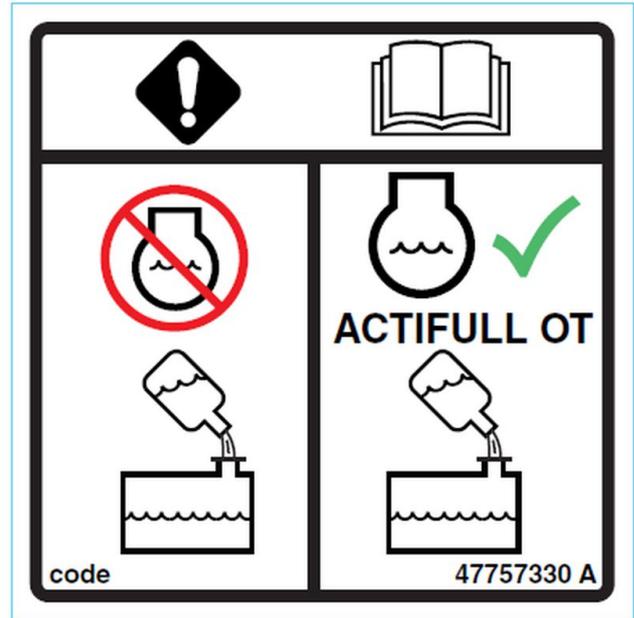
CASE CONSTRUCTION requires the use of a fully formulated Organic Acid Technology (OAT) based coolant. **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT** is preferred. The coolant must meet the specifications outlined in the CNH Industrial material specification **MAT3624**. Use of coolant not meeting this specification is not allowed. Mixing of different coolant brands is not recommended.

**NOTICE:** OAT coolant is mandatory for all FPT engines compliant to Tier 4B (final) emissions using Selective Catalytic Reduction (SCR). NEVER mix OAT coolant with conventional coolant. Under no circumstances should you top off a cooling system with only water. You can use a refractometer to check the concentration level. You should not use Supplemental Coolant Additives (SCA) when using **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**. Change the coolant solution at the recommended change interval.

The decal shown is located near the fill point of the cooling system whenever the factory fill is **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**. This decal is available in three different sizes. See the table below for the associated part numbers.

**NOTE:** Organic Acid Technology (OAT) appears yellow in small quantities. OAT coolant can also appear yellow when against translucent backgrounds. However, under certain lighting conditions and backgrounds, such as looking into the coolant overflow tank, OAT coolant may appear green. The green appearance is similar to the color of ethylene glycol coolant. This color appearance is normal, which is not an indication of mixed coolant fill in new units built after the implementation of OAT coolant.

CNH Industrial part number	Size
47757330	50 mm x 50 mm
47757331	75 mm x 75 mm
47757332	100 mm x 100 mm



47757330 1