

ORIGINAL INSTRUCTIONS

**Nitro<sup>®</sup> 7380**  
**Nitro<sup>®</sup> 7420**  
**Tier 3**  
**Sprayer**

*PIN HEKY7380JJF001561 and above*  
*PIN HEKY7420JJF001561 and above*

**OPERATOR'S MANUAL**

**Part number 51452103**  
1<sup>st</sup> edition English  
July 2018

**Miller**  
*Since 1899*

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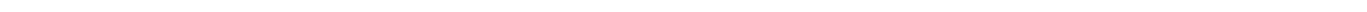
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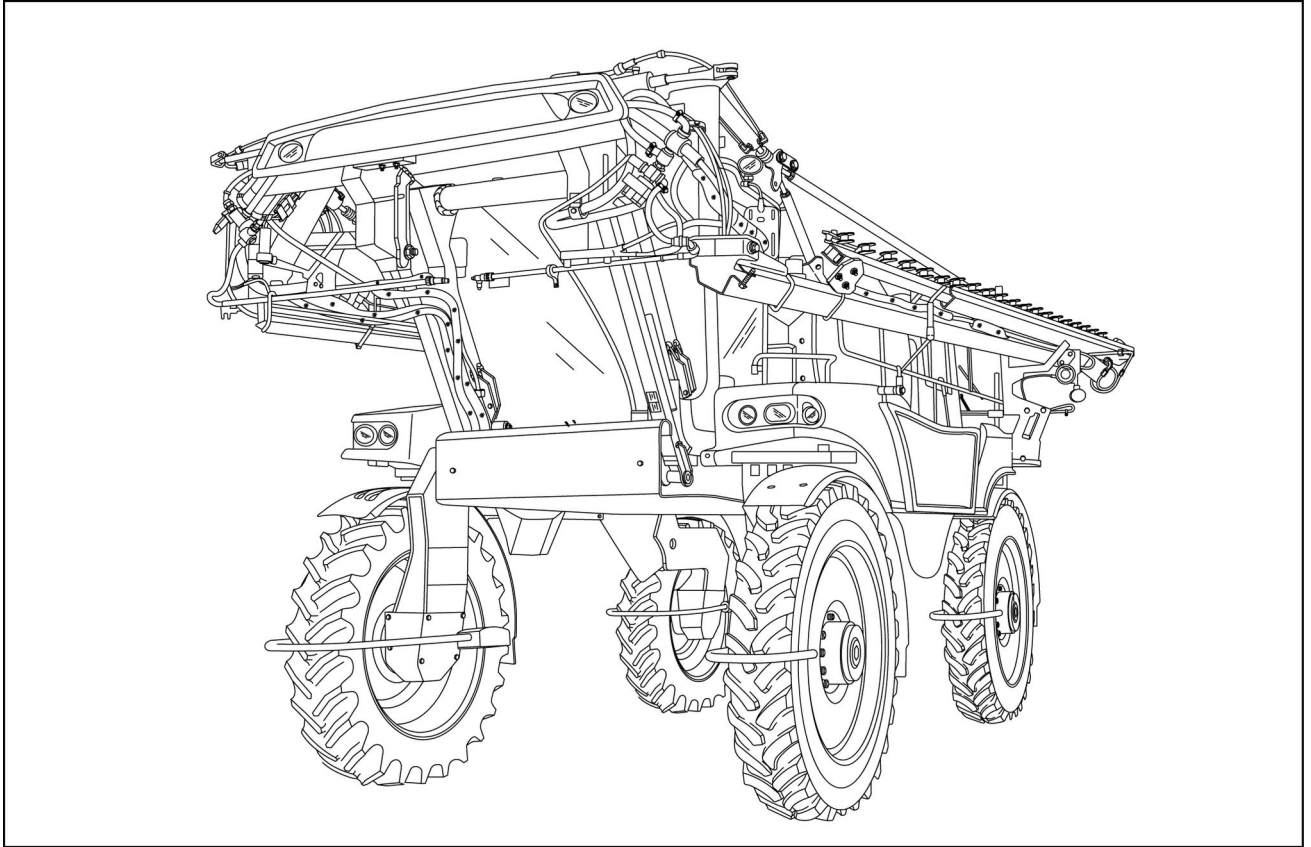
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# 1 - GENERAL INFORMATION

## Your sprayer



RAIL18SP01076FA 1

**Nitro front boom sprayer**

## Note to the owner

This manual contains important information about the safe operation, adjustment and routine maintenance of your sprayer. The manual is divided into ten chapters as outlined in the table of contents. Refer to the index at the end of this manual for locating specific items about your sprayer.

Do not operate or permit anyone to operate or service this machine until you or the other persons have read this manual. Use only trained operators who have demonstrated the ability to operate and service this machine correctly and safely. All persons who will be operating this machine shall possess a valid operating permit and/or other applicable local required permits.

This Operator's Manual is to be stored in the manual compartment behind the operator's seat in the vehicle. Make sure this manual is in good condition. Contact your dealer to obtain additional manuals. Contact your dealer for any further information or assistance about your machine. Your dealer has approved service parts. Your dealer has technicians with special training that know the best methods of repair and maintenance for your sprayer.

Make sure the applicator is calibrated before being placed in service and at regular intervals thereafter in accordance with procedures outlined in this manual and in the control system manual. It is the operator's responsibility to keep the system properly calibrated and in good working order at all times.

Make sure the applicator is maintained to preserve and/or improve safety, accuracy and reliability of the system. Read and follow the maintenance schedule in this manual. As additional technology becomes available, the owner is responsible for improving the safety, accuracy and reliability of the applicator.

**ATTENTION:** *The engine on your machine is designed and built to government emissions standards. Tampering by dealer, customers, operators and end users is strictly prohibited by law. Failure to comply could result in government fines, rework charges, invalid warranty, legal action, and possible confiscation of the machine until rework to original condition is completed. Engine service and/or repairs must be done by a certified technician only!*

## CNH Industrial America LLC technical manuals

Manuals are available from your dealer for your machine. Your dealer can expedite your order for operator manuals and parts catalogs.

Always give the machine name, model and serial number of your machine so your dealer can provide the correct manuals for your machine.

The company is continually striving to improve its products and therefore reserves the right to make improvements and changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

All data given in this manual is subject to production variations.

**NOTICE:** *Operating and service messages displayed on the electronic operating panel may vary from what is shown in the manual. If this occurs, heed the latest instructions on the electronic operating panel.*

Dimensions and weights are approximate only and the illustrations do not necessarily show the machine in standard condition. For exact information about any particular machine, please consult your dealer.

## Intended use

Nitro front boom sprayers with standard equipment and authorized attachments are intended to be used to apply agricultural chemicals in customary farming practices. Any other uses including, but not limited to, towing trailers, vehicles or implements are not recommended. Any sprayer damage resulting from unauthorized uses or installation and/or use of unauthorized equipment is not covered by the sprayer warranty.

DO NOT use this machine for any purpose or in any manner other than as described in the manual, decals, or other product safety information provided with the machine. These materials define the machine's intended use.

Use only approved accessories and attachments designed for your machine.

Consult an authorized dealer on changes, additions or modifications that can be required for this machine to comply with various country regulations and safety requirements.

Unauthorized modifications can cause serious injury or death. Anyone making such unauthorized modifications is responsible for the consequences.

Your dealer will instruct you in the general operation of your new equipment. Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your machine.

## Electro-Magnetic Compatibility (EMC)

Interference may arise as a result of add-on equipment that may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

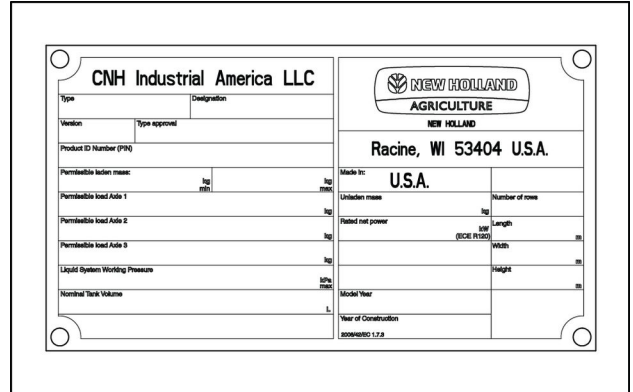
- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the machine
- The electro-magnetic field generated by the add-on system should not exceed **24 V/m** at any time and at any location in the proximity of electronic components
- The add-on equipment must not interfere with the functioning of the on board electronics

Failure to comply with these rules will render the MILLER warranty null and void.

# Product Identification

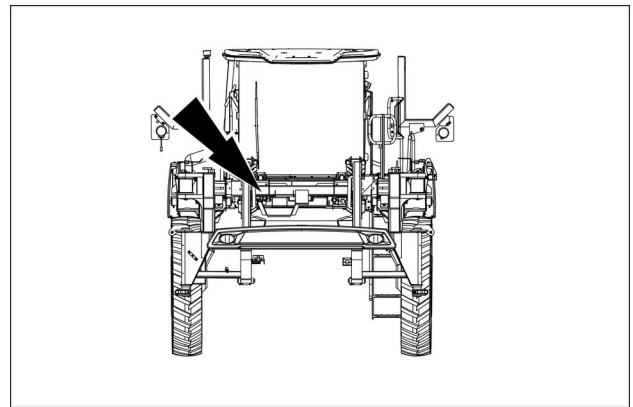
## Sprayer model and Product Identification Number (PIN)

The machine identification plate displays specifications related to your sprayer, including the machine Product Identification Number (PIN).



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The machine identification plate is located on the front side frame cross tube, below the cab and above the fill snorkel latch bar. The machine PIN number can also be displayed on the chassis monitor.



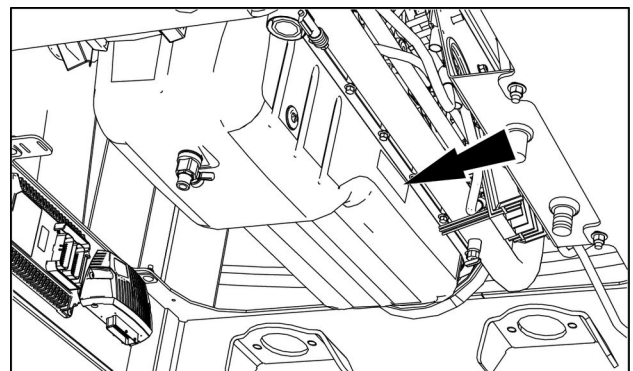
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Refer to the machine PIN and the product model number when requiring service or parts information. Record the date of purchase, dealership name, machine PIN, and machine model number in the spaces provided.

Date Purchased:
Dealership:
PIN:
Model number:

## Engine serial number

The engine identification plate is located on the left-hand side of the engine oil pan. Refer to the number on the engine identification plate when engine service is required.

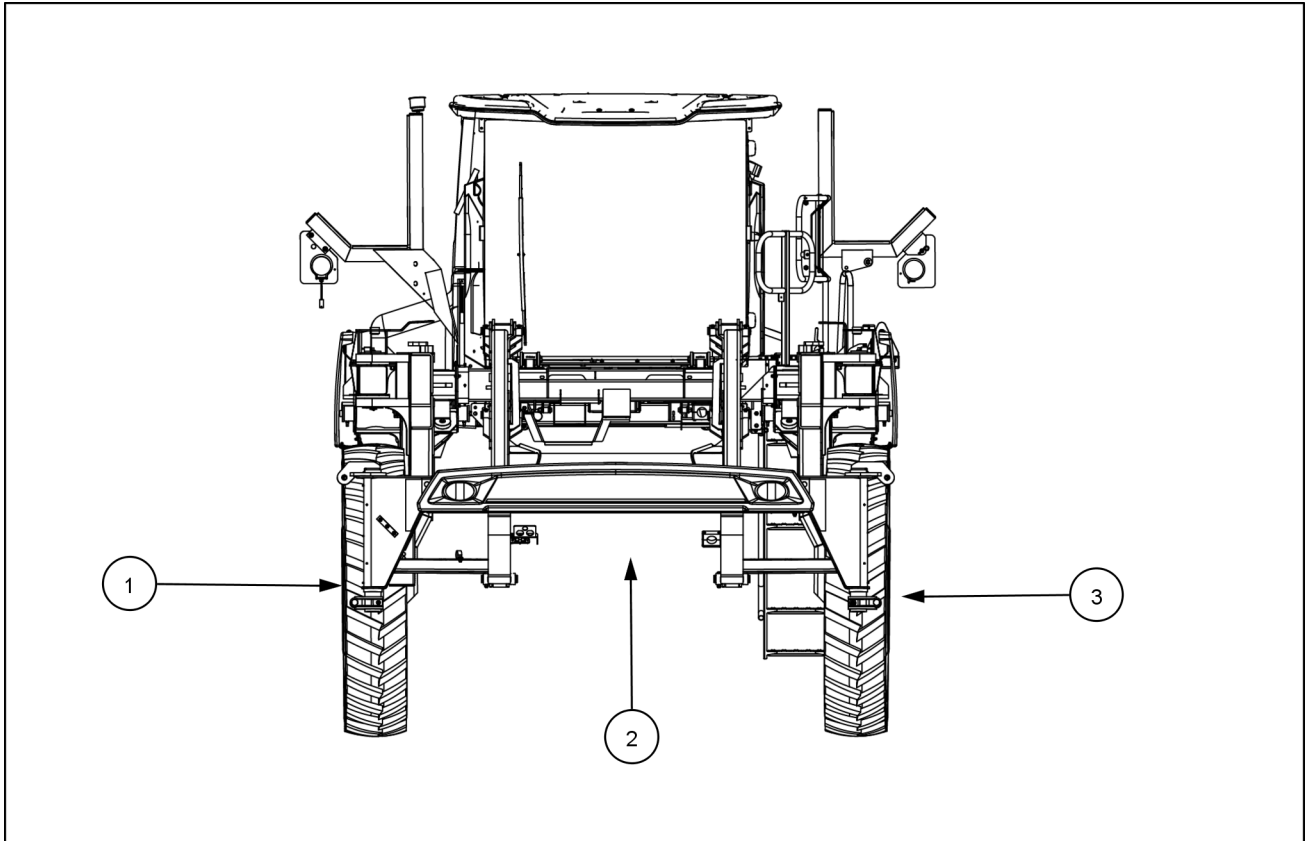


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## **Operator's manual storage**

Inside the cab is a storage bag for small manuals or other important documentation. Keep the operator's manual in the storage bag. You must keep the operator's manual with the vehicle at all times. The operator's manual must be available for use by all operators.

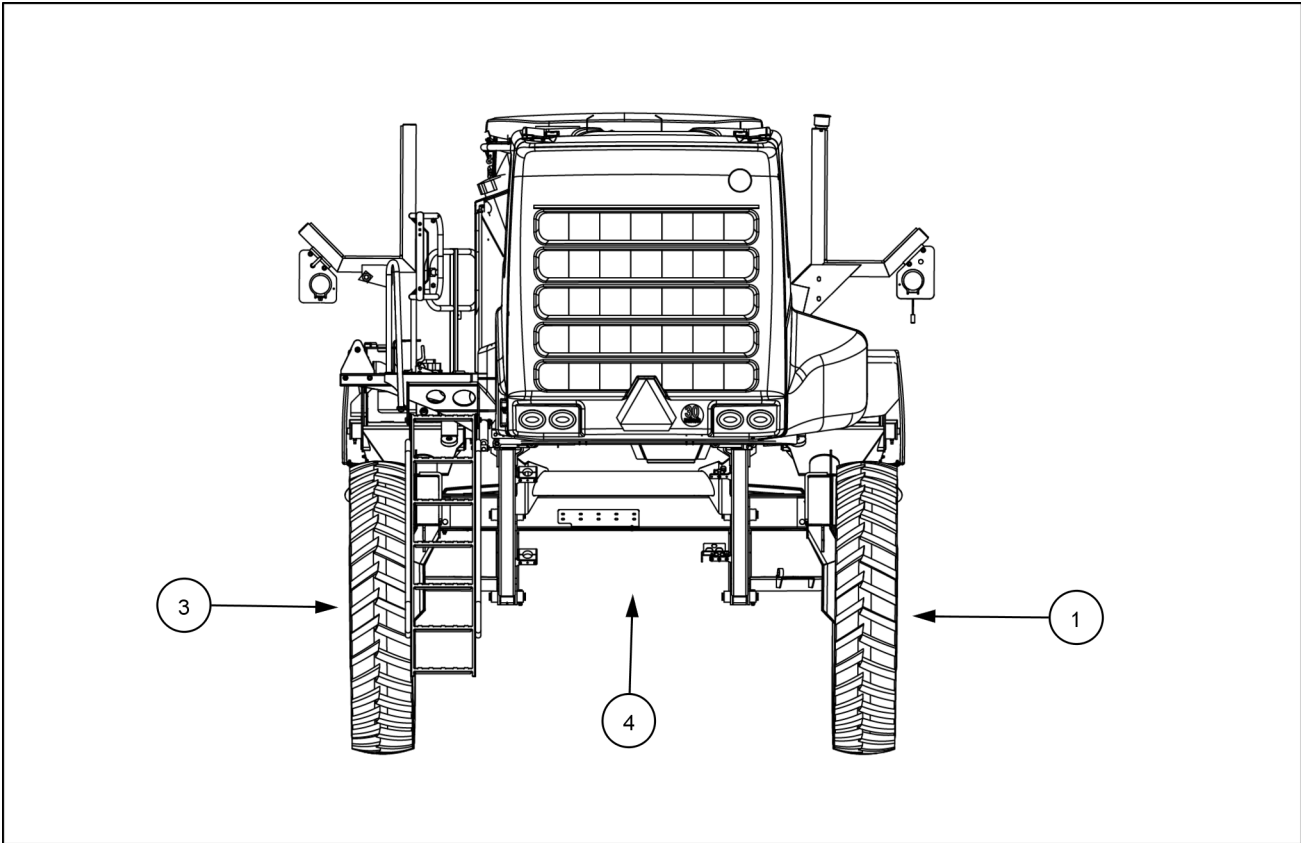
## Machine orientation



RAIL17SP00781FA 1

1. Right hand side	2. Front of unit	3. Left hand side
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1 - GENERAL INFORMATION



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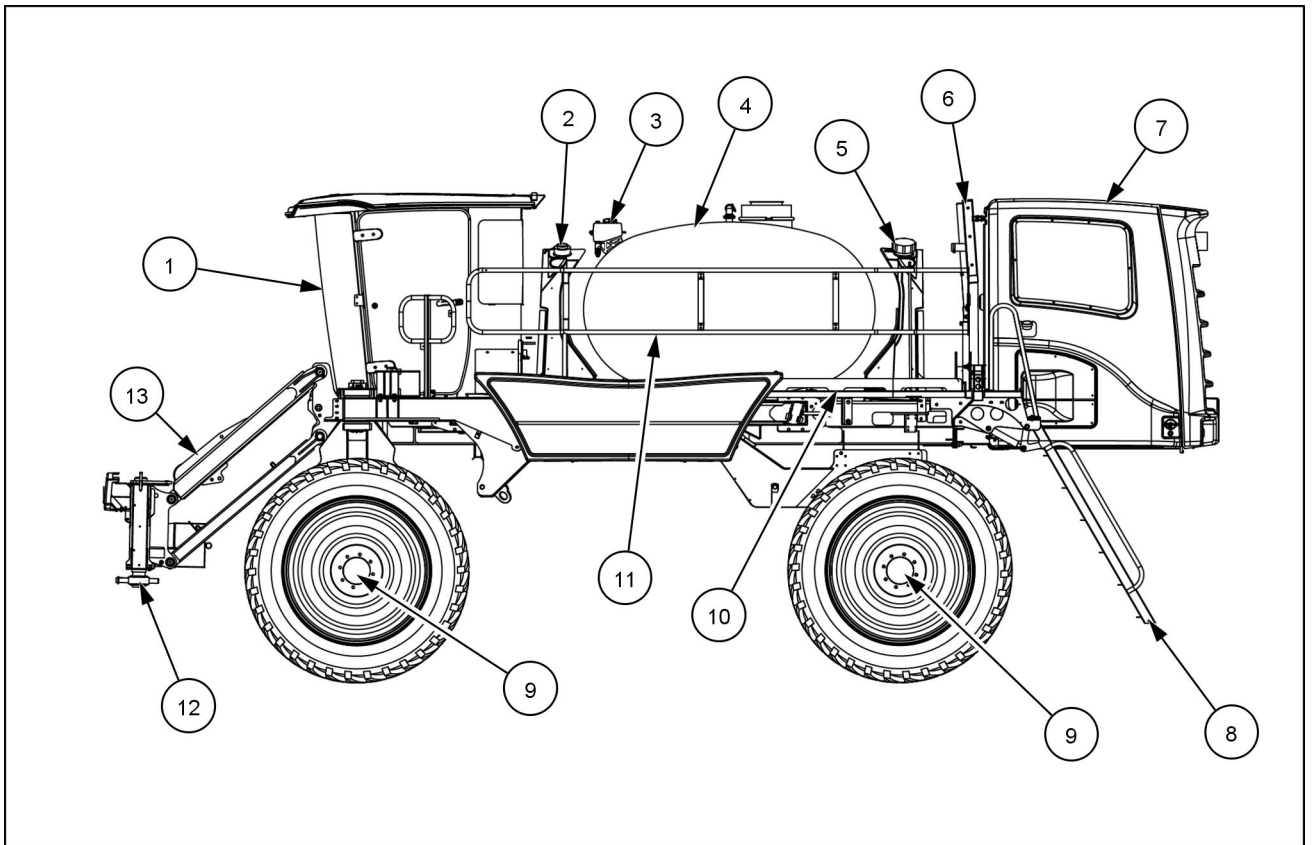
1. Right hand side

3. Left hand side

4. Rear of unit



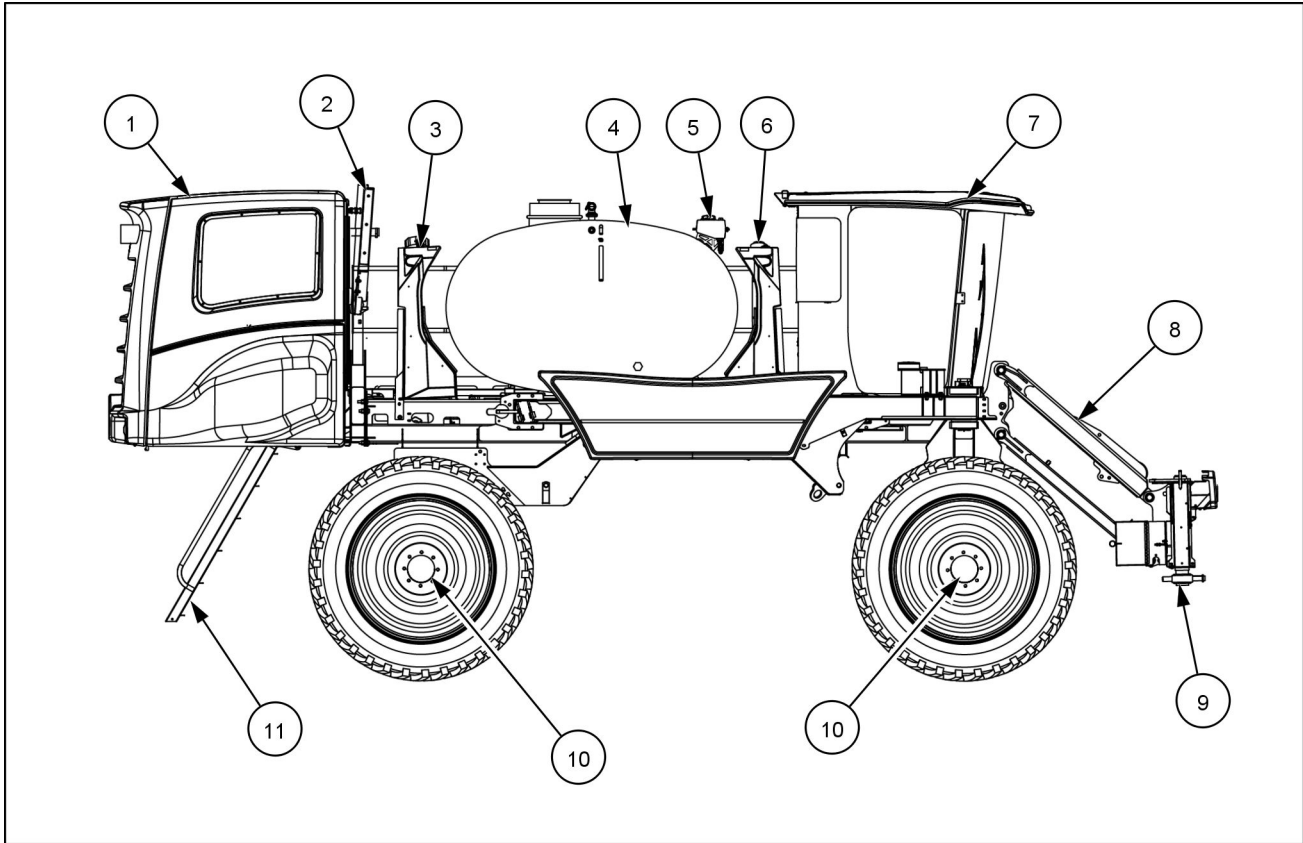
## Machine components



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- |                          |                               |
|--------------------------|-------------------------------|
| 1. Operator's cab        | 8. Ladder                     |
| 2. Fuel tank             | 9. Planetary                  |
| 3. Hand rinse water tank | 10. Operator's platform       |
| 4. Product tank          | 11. Walkway railing           |
| 5. Rinse water tank      | 12. Front boom center section |
| 6. Boom rest             | 13. Lift arms                 |
| 7. Engine compartment    |                               |

# 1 - GENERAL INFORMATION



RAIL17SP00784FA 2

- 1. Engine compartment
- 2. Boom rest
- 3. Rinse water tank
- 4. Product tank
- 5. Hand rinse water tank
- 6. Fuel tank

- 7. Operator's cab
- 8. Lift arms
- 9. Front boom center section
- 10. Planetary
- 11. Ladder

## 2 - SAFETY INFORMATION

### Safety rules and signal words


#### 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 and on machine safety signs, 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. The color associated with DANGER is RED.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury. The color associated with WARNING is ORANGE.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. The color associated with CAUTION is YELLOW.

### **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 damage or property damage. The color associated with Notice is BLUE.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine damage 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.

## Safety rules

### General safety rules

Use caution when operating 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, drugs, or while 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 engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing 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 components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the machine. Never operate the machine with shields removed. Always close access doors or panels before operating 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 engine in enclosed spaces as harmful exhaust gases may build up.

Before starting the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If the safety start switch is bypassed, 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 operating the machine.

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

Before leaving the machine:

1. Park machine on a firm level surface.
2. Put all controls in neutral or park lock position.
3. Engage park brake. Use wheel chocks if required.
4. Lower all hydraulic equipment — Implements, header, etc.
5. Turn off engine and remove key.

When, due to exceptional circumstances, you would decide to keep the engine running after leaving the operator's station, then the following precautions must be followed:

1. Bring the engine to low idle speed.

### **General maintenance safety**

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

Service machine on a firm level surface.

Install guards and shields after servicing the machine.

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

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.

Always make sure 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 securely supported.

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

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

### **Wheels and tires**

Make sure tires are correctly inflated. Do not exceed recommended load or pressure. Follow 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 tire completely from 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

2. Disengage all drive systems.

### 3. **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.**

W0113A

Shift the transmission into neutral.

4. Apply the parking brake.

Stop the engine, remove key and relieve pressure before disconnecting or connecting fluid lines.

Stop the engine and remove key before disconnecting or connecting electrical connections.

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

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

Engine, transmission, exhaust components, and hydraulic lines may become hot during operation. Take care when servicing such components. Allow surfaces to cool before handling or disconnecting hot components. Wear protective equipment when appropriate.

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

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.

Use appropriate lighting to meet local regulations.

Make sure SMV emblem is visible.

Make sure brake pedal latch is engaged. Brake pedals must be locked together for road travel.

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

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

When transporting equipment or machine on a transport trailer, make sure it is properly secured. Be sure the

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 the machine and/or attachments can pass safely under.

Travel speed should be such that complete control and machine stability is maintained 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 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 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 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 fan, etc. More frequent cleaning of your machine may be necessary depending on the operating environment and conditions.

Inspect the electrical system for loose connections or 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 working with batteries.

Do not create sparks or have open flame near battery.

Ventilate when charging or using in an enclosed area.

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

When welding on the machine, disconnect both terminals of the battery.

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

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

Follow manufacturer's instructions when storing and handling batteries.

Battery post, terminals, and related accessories contain lead and lead compounds. Wash hands after handling. This is a California Proposition 65 warning.

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.

### **Instructional seat safety**

Passengers are not permitted to ride on the machine.

The instructional seat is to be used only when training a new operator or when a service technician is diagnosing a problem.

When required for the purposes of training or diagnostics, only one person may accompany the operator and that person must be seated in the instructional seat.

When the instructional seat is occupied, the following precautions must be followed:

- Machine should be driven only at slow speeds and over level ground.
- Avoid driving on highways or public roads.
- Avoid quick starts or stops.
- Avoid sharp turns.
- Always wear correctly adjusted seat belts.
- Keep door closed at all times.

### **Operator presence system**

Your machine is equipped with an operator presence system to prevent the use of some features while the operator is not in the operator's seat.

The operator presence system should never be disconnected or bypassed.

If the system is inoperable, the system must be repaired.

### **Reflectors and warning lights**

Flashing amber warning lights must be used when operating on public roads. Refer to Chapter 5 — Transport

Operations for complete identification and operating instructions.

### **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 belt is attached to seat, make sure 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.
- Refer to Chapter 4 — Operating Instructions for proper use and adjustment of seat belts.

### **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.

Service, repair, or recharging must be performed only by a trained service technician.

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

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

### **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.

### **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 be taken 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, on manufacturer containers, as well as the information in this manual when servicing 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.

Additional precautions are required for applied chemicals. Obtain complete information from the manufacturer or distributor of the chemicals before using 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 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 park 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 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, or ladders.

Do not jump off the machine.

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

Face the machine when mounting and dismounting.

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 entering or exiting the cab or operator's platform.

### **Working at heights**

When the normal use and maintenance of the machine requires working 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 which are not designated as steps or platforms.

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

### **Spraying**

- Be sure to clean and flush all residual chemicals from the sprayer before changing to another type of chemical. On some models, it may be necessary to remove the end caps from the spray bars to thoroughly flush the boom plumbing. In some cases a decontamination solution is recommended by the chemical manufacturer.
- Always follow chemical manufacturers safety instructions when mixing and applying herbicides and chemi-

cals to prevent serious harm to people or the environment.

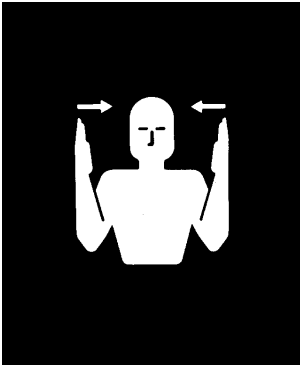
- Observe all Federal and State EPA regulations and all Local, State and Federal codes and/or laws regarding licensing, handling, storage, transportation, application and waste disposal of herbicides or other chemicals.

## **⚠ Roll over and tip over ⚠**

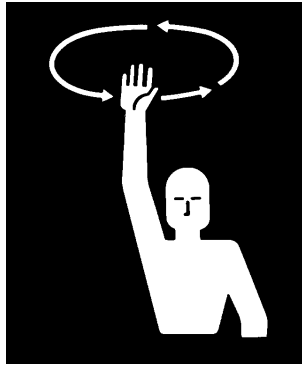
- Travel speed should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
- Do not operate the unit on terrain outside its grade and stability limits. Operating the sprayer outside its limits may result in a roll over or tip over. Observe the guidelines in this manual when going down steep hills with load.
- Operating the unit on steep grades may result in a machine overturn. It is the operator's responsibility to make a judgment if weather, road or ground conditions permit safe operation on a hillside, ramp, ditch or rough ground.
- Use caution when operating the machine on slopes. Raised equipment, full tanks and other loads can change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.
- Do not operate the unit near or on the soft shoulders of canals, brooks, other waterways or banks which are undermined by rodents. The unit may sink sideways and roll over.
- Do not operate the unit on poorly constructed or under-rated ramps. The ramps may collapse and cause the sprayer to roll over. Always check the condition and rating of ramps before use.
- Do not operate the unit without using the seat restraint.
- Do not operate the unit beyond its limits of dynamic stability. High speed, abrupt maneuvers or fast and sharp cornering increase the risk of roll over.

## Hand signals

It is often necessary to communicate using hand signals in agricultural operations when noise or distance inhibit communication by voice. These hand signals, adopted by **ASAE S351** provide an easy means of communication, particularly in the interest of safety.



**THIS FAR TO GO** - Place palms at ear level facing head and move laterally inward to indicate remaining distance to go.



**COME TO ME** - Raise the arm vertically overhead, palm to the front, and rotate in large horizontal circles.



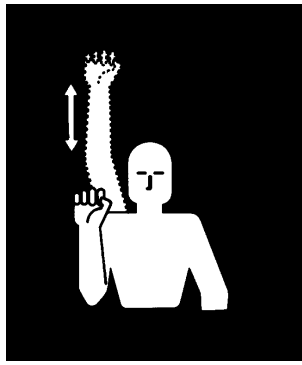
**MOVE TOWARD ME, FOLLOW ME** - Point toward person(s), vehicle(s), or unit(s), beckon by holding the arm horizontally to the front, palm up, and motioning toward the body.



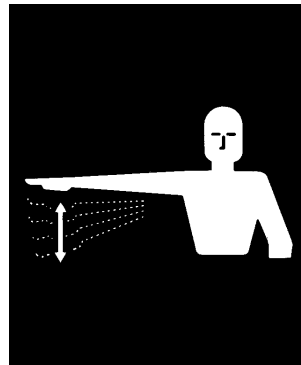
**MOVE OUT, TAKE OFF** - Face the desired direction of movement; hold the arm extended to the rear; then swing it overhead and forward in the direction of desired movement until it is horizontal, palm down.



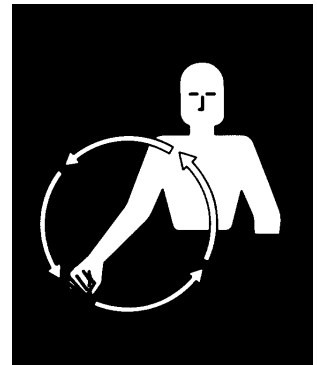
**STOP** - Raise hand upward to the full extent of the arm, palm to the front. Hold that position until the signal is understood.



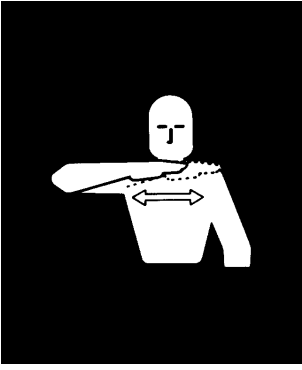
**SPEED IT UP, INCREASE SPEED** - Raise the hand to the shoulder, fist closed; thrust the fist upward to the full extent of the arm and back to the shoulder rapidly several times.



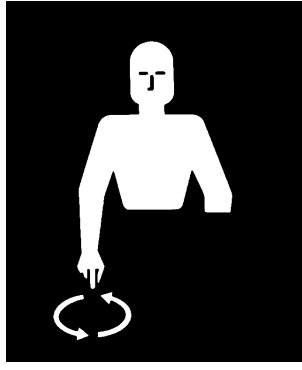
**SLOW IT DOWN, DECREASE SPEED** - Extend the arm horizontally sideward, palm down, and wave arm downward 45 degree minimum several times, keeping the arm straight. Do not move arm above horizontal.



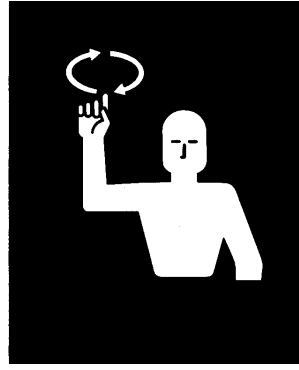
**START THE ENGINE** - Simulate cranking of vehicles by moving arm in circular motion at waist level.



STOP THE ENGINE - Draw right hand, palm down, across the neck in a "throat cutting" motion from left to right.



LOWER EQUIPMENT - Make circular motion with either hand pointing to the ground.



RAISE EQUIPMENT - Make circular motion with either hand at head level.

## Ecology and the environment

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. Your MILLER dealer can also provide assistance.

### 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.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your MILLER dealer or air-conditioning specialist has a special extractor for this purpose and can 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.

### 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. MILLER strongly recommends that you return all used batteries to a MILLER dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



NHIL14GEN0038AA 1

### Mandatory battery recycling

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

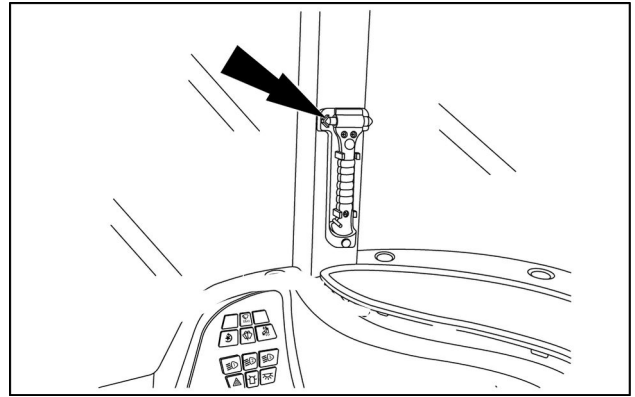
Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

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

## Emergency exit hammer

An emergency exit hammer is supplied with your machine. The emergency exit hammer is located on the right-hand side pillar. Use the hammer to break the right-hand side cab window glass in order to escape the vehicle in case of an emergency. Once the window is broken, exit through the opening. Contact your dealer for a replacement window.



RAIL17SP00259AA 1

## **Safety rules — Boom operation**

Read and exercise the following safety procedures when folding or unfolding booms.

The operator must:

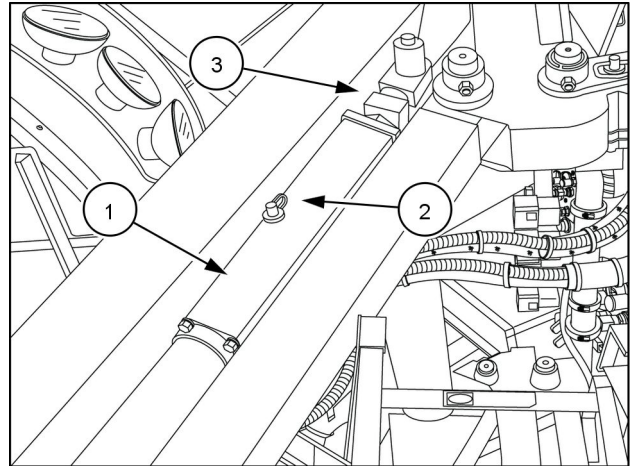
- Be alert and aware of surroundings. Note any overhead power lines, trees or bystanders.
- Remain in complete control of the machine at all times.
- Only fold or unfold booms on private property without public access. Do not fold or unfold booms on any public thoroughfare or main road.
- Maintain a safe operating distance. Bystanders must be well outside of the machine's path while folding or unfolding booms. The operator is responsible for discontinuing fold or unfold operation when the safe working distance has diminished.
- The vehicle must be stationary (not moving forward or reverse) before attempting to and during unfolding or folding of the booms.

## Boom lift cylinder safety stops

### Safety stops installed

Safety stops (1) for the boom lift cylinders prevent the boom from lowering during transport or during extended periods of storage. They are located on the two lift cylinders on the front of the vehicle. Secure both of them in place with the pin (2) on the cylinder rods (3). Be sure the stop is positioned with the arrow pointing toward the rod end mount and the tab is to the bottom side of the clevis.

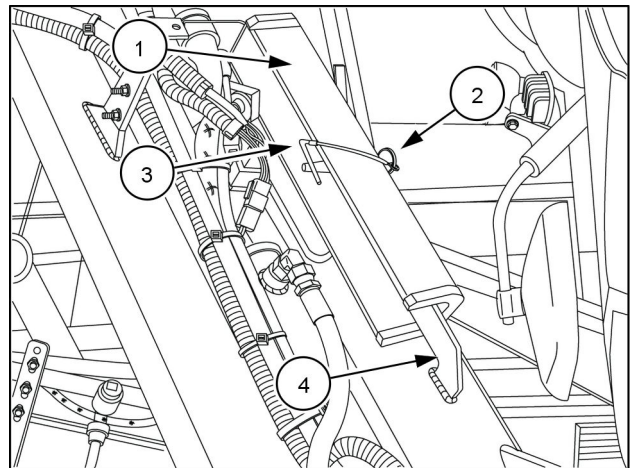
**NOTE:** Always use a ladder to remove or install the safety stops.



RAIL13SP03789AA 1

### Storage

When the cylinder lift stops (1) are not in use, they should be pinned (2) to the storage brackets on the inside surface of the upper lift arms (4). Use the top surface center hole to pin in place. Place the stop on to the bracket from the top side, line up the holes and insert the pin. Clip the pin in place (3).



RAIL13SP03790AA 2



## Safety signs

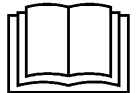
The following safety signs are on your machine as a guide for your safety and for the safety of those working with you. Walk around the machine and note the content and the location of all safety signs before you operate your machine.

Keep all safety signs clean and legible. Clean safety signs with a soft cloth, water, and gentle detergent.

**NOTICE:** Do not use solvent, gasoline, or other harsh chemicals. Solvents, gasoline, and other harsh chemicals may damage or remove safety signs.

Replace all safety signs that are damaged, missing, painted over, or illegible. If a safety sign is on a part you or your dealer replaces, make sure that you or your dealer install the safety sign on the new part. See your dealer for replacement safety signs.

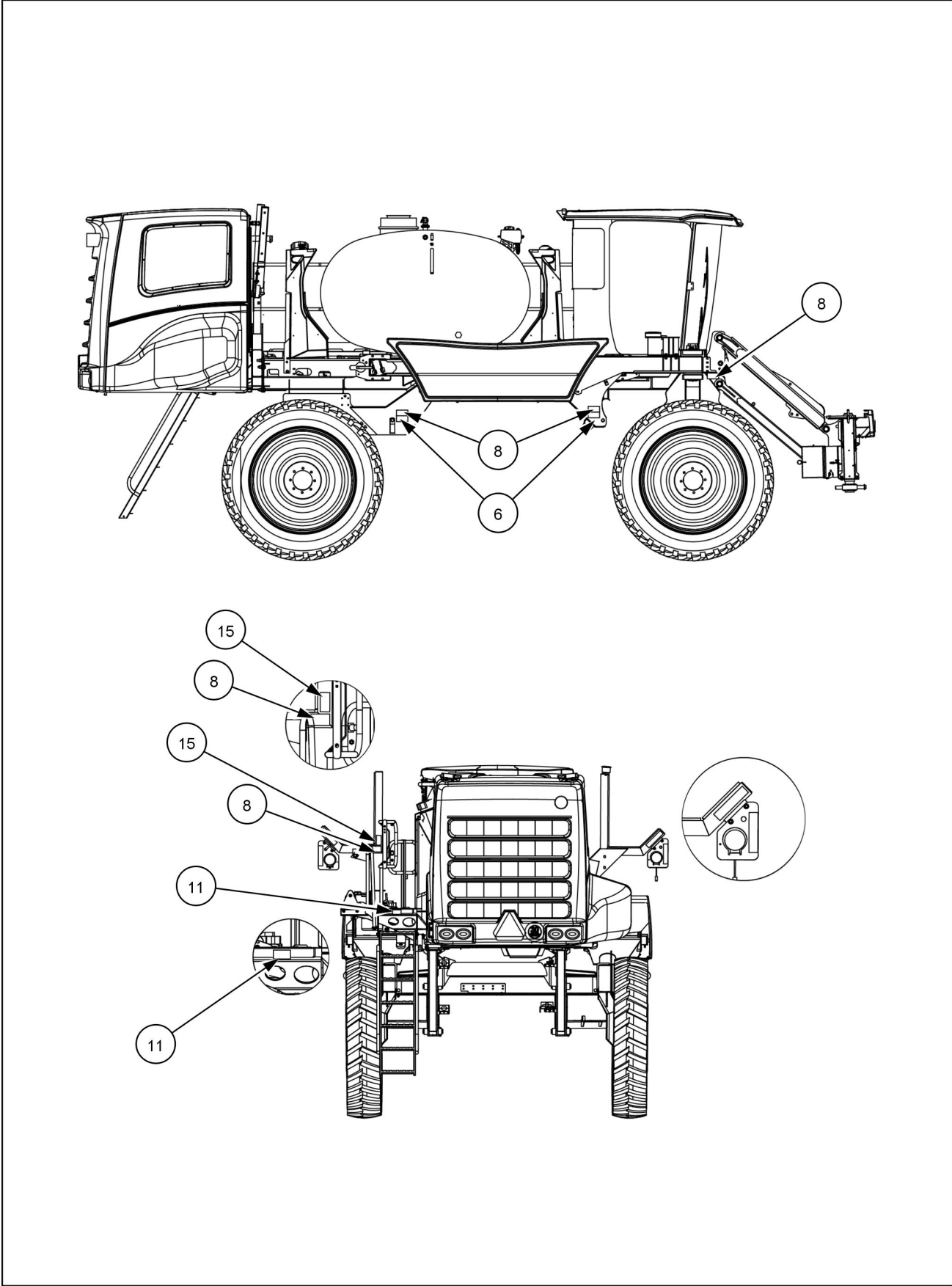
Safety signs that display the “Read operator’s manual” symbol direct you to the operator’s manual for further information regarding maintenance, adjustments, or procedures for particular areas of the machine. When a safety sign displays this symbol, consult the appropriate page of the operator’s manual.



Safety signs that display the “Read service manual” symbol direct you to the service manual. If you doubt your ability to perform service operations, contact your dealer.



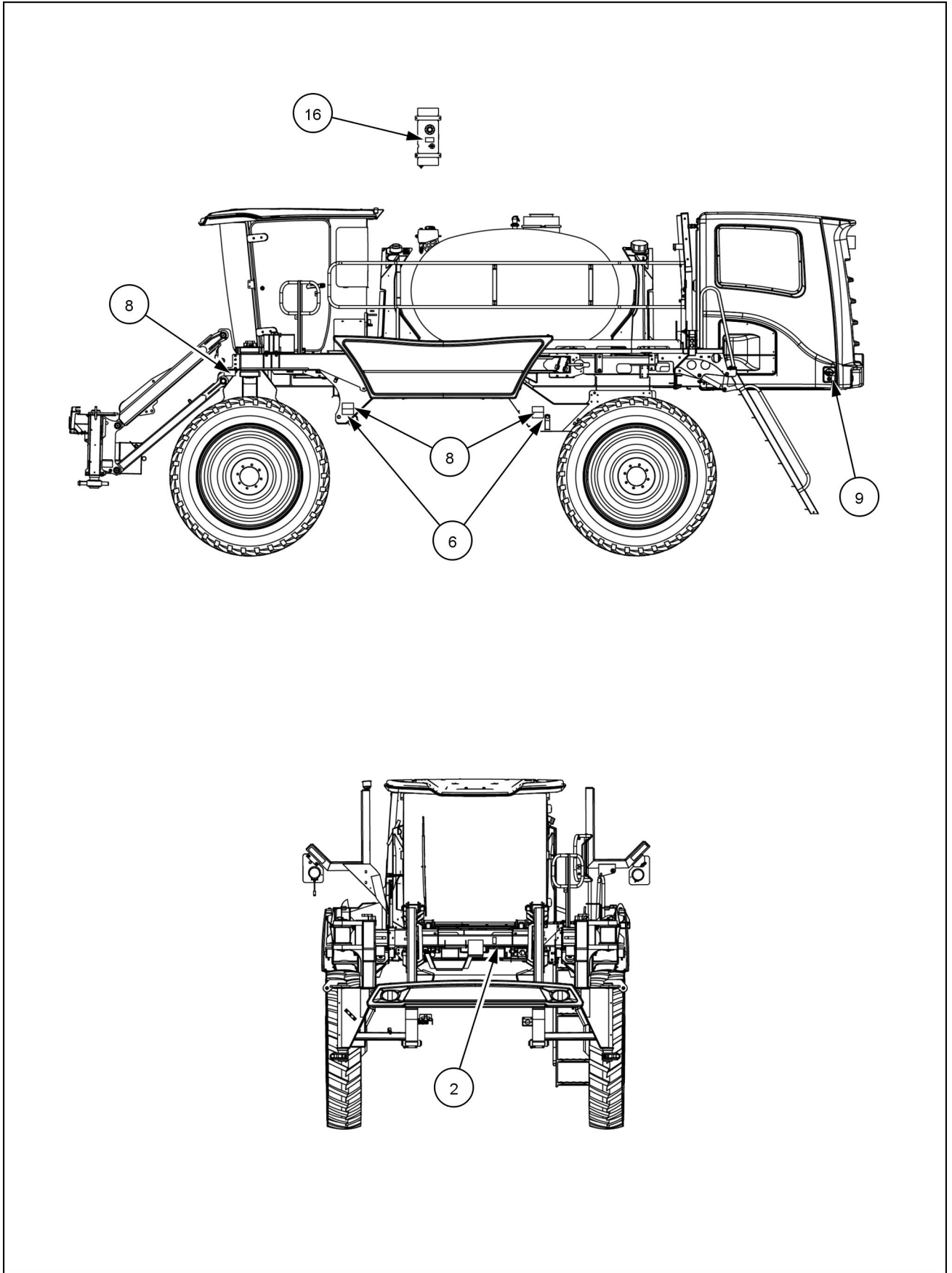
Right-hand side and rear view



RAIL18SP00211HA 1

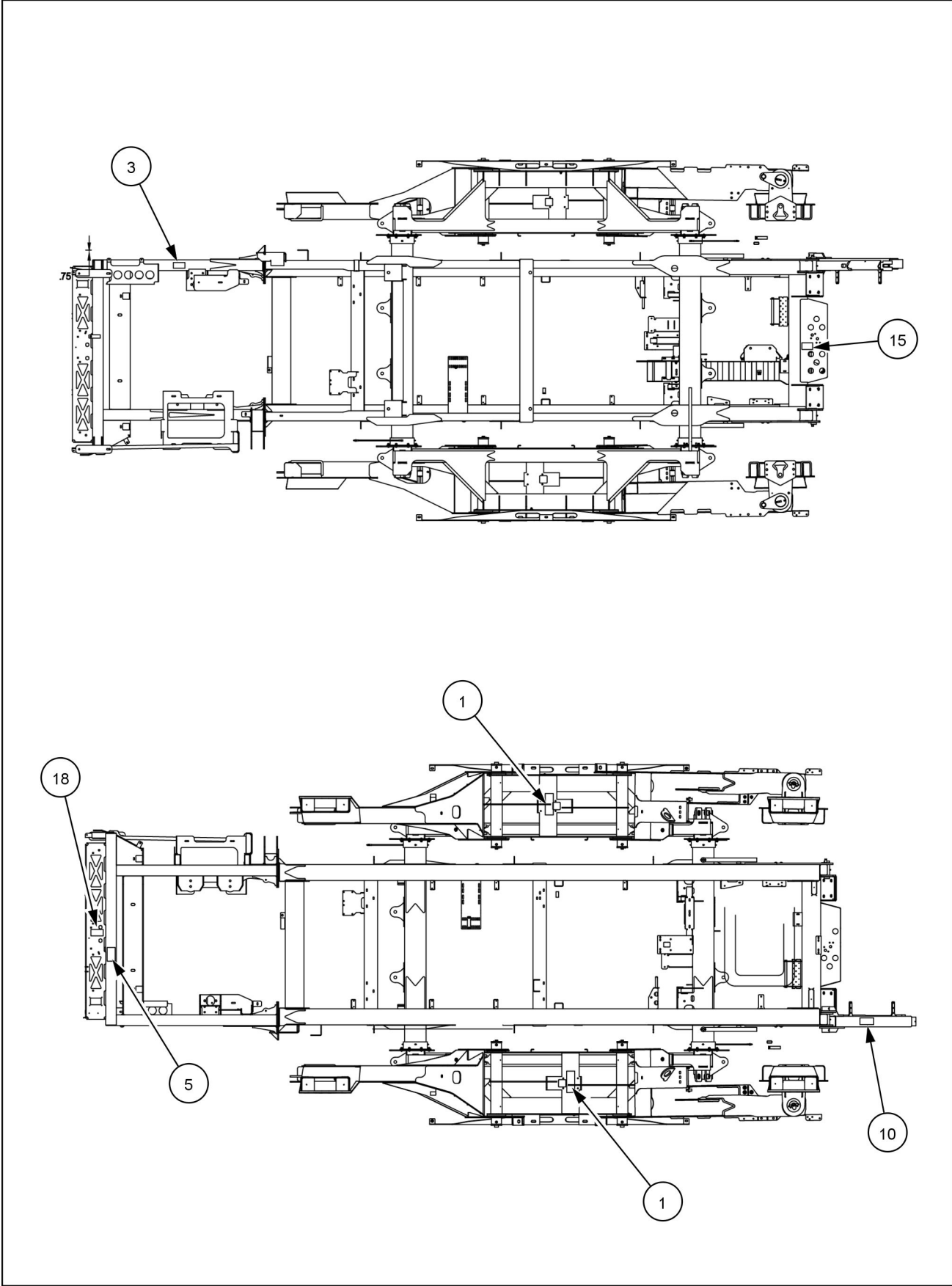
## 2 - SAFETY INFORMATION

Left-hand side and front view

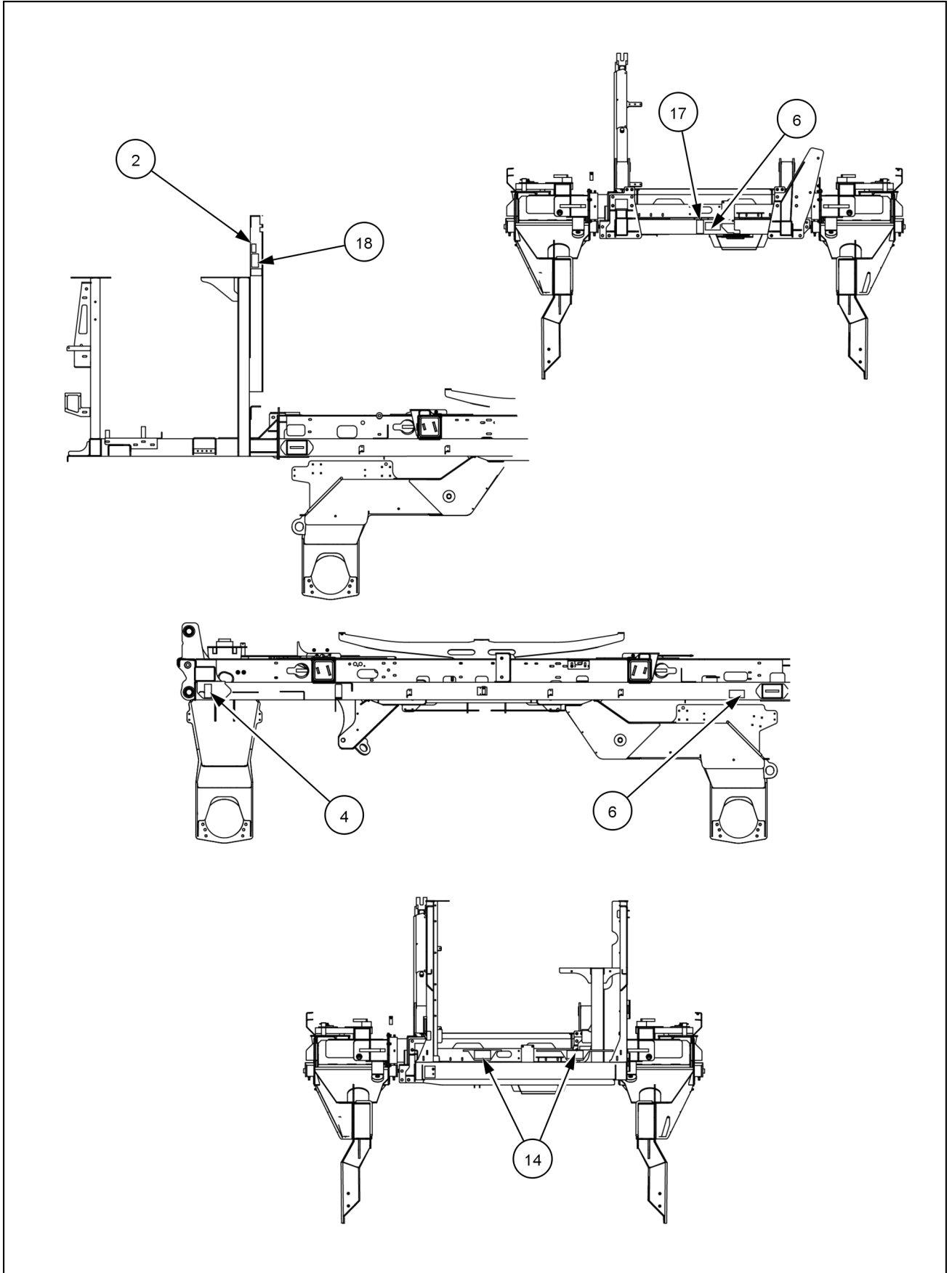


RAIL18SP00212HA 2

Frame (shown from top and bottom)

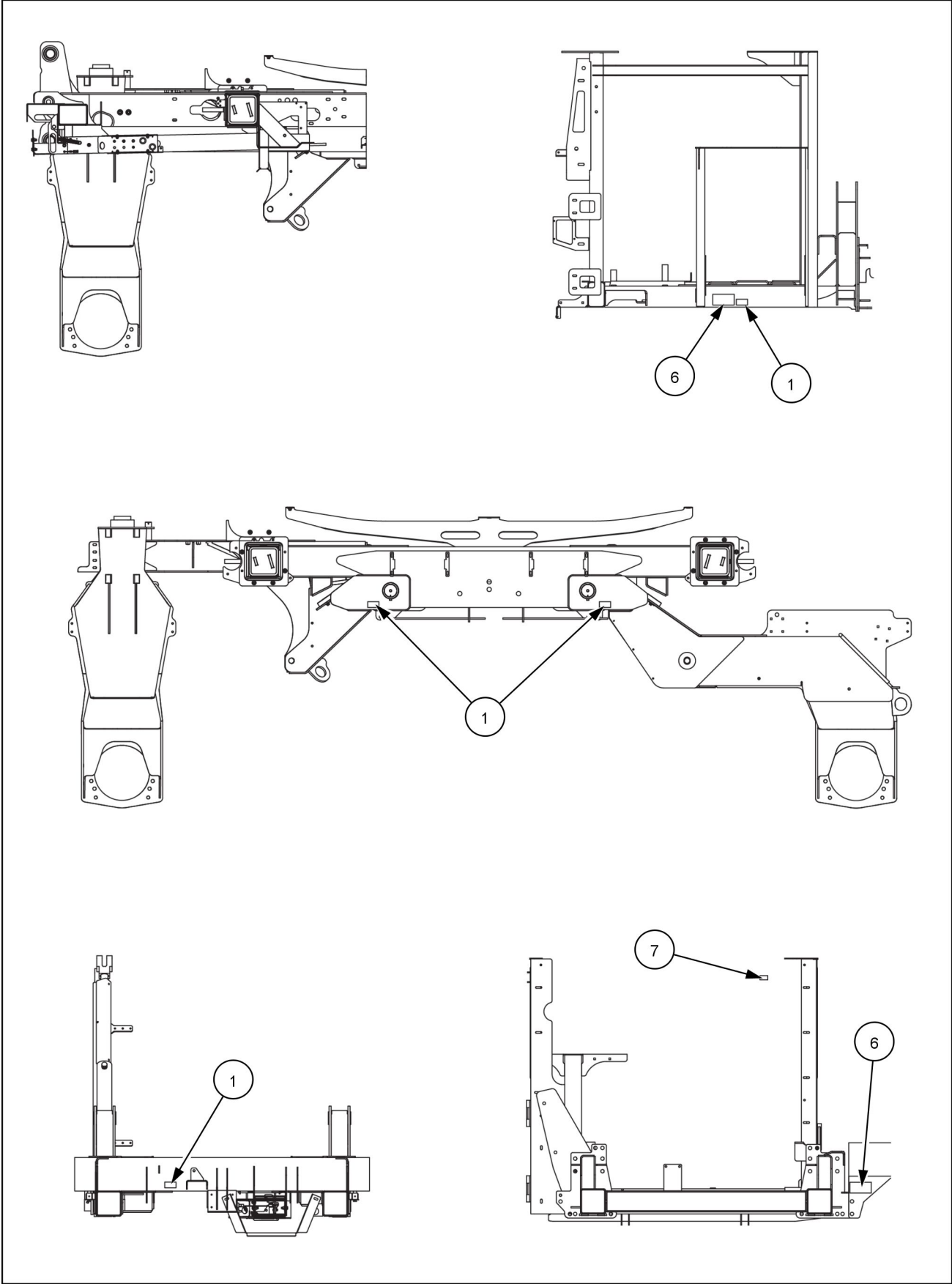


Frame rear, engine, right-hand and left-hand (interior and exterior)

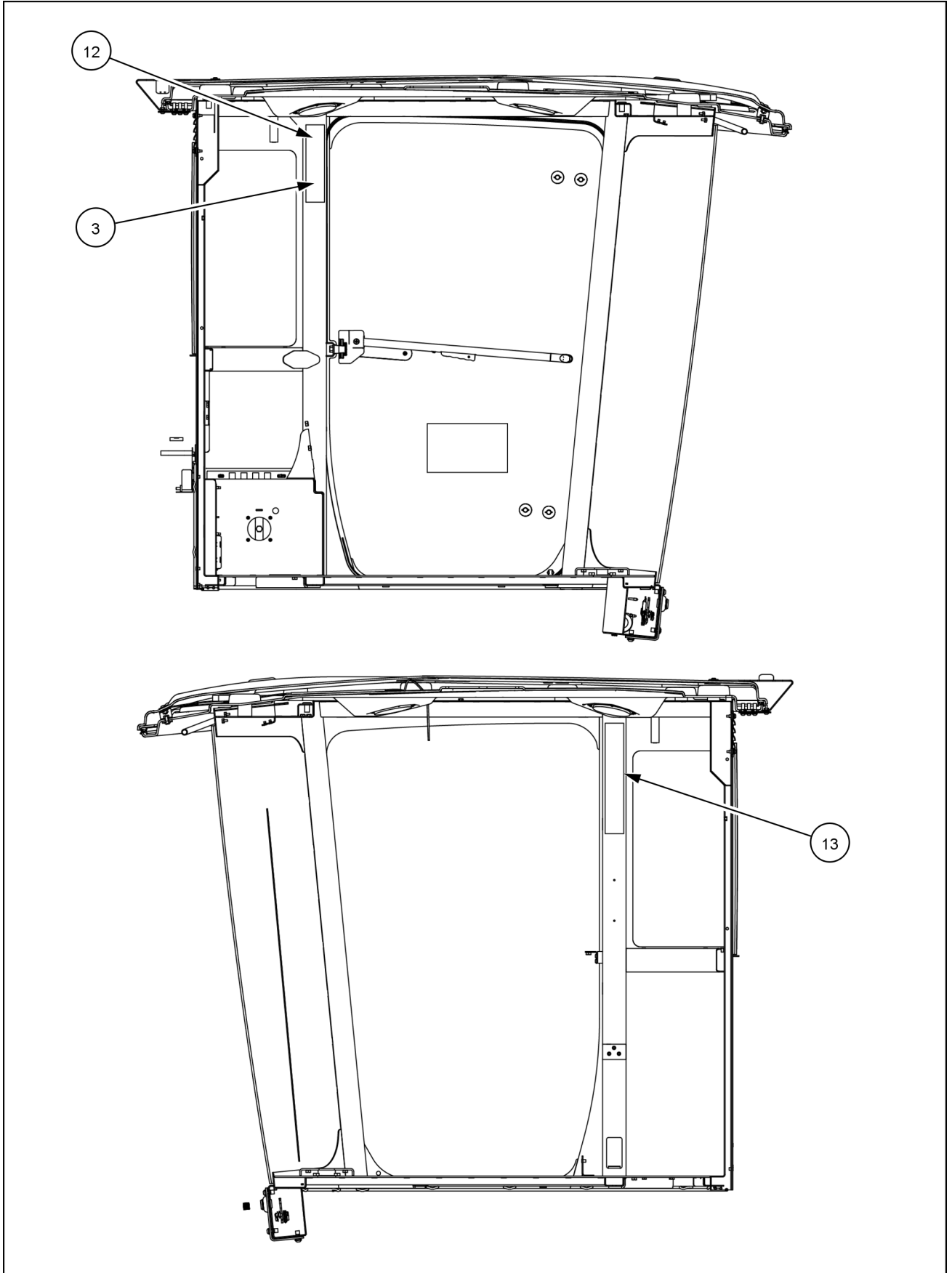


RAIL18SP00214HA 4

Frame engine right-hand exterior, rear interior, mid interior and legs



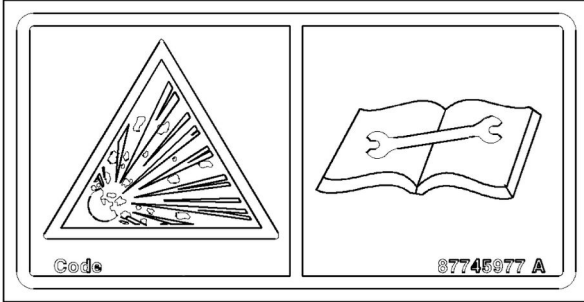
Cab interior right-hand and left-hand



RAIL18SP00216HA 6

**Safety sign 1 — 87745977  
Accumulator warning**

Located on bottom side of left-hand and right-hand between suspension accumulators.  
Located on each front and rear leg next to pivot pins on outside.  
Located on right-hand side engine frame exterior (quantity 6)



87745977 7

**WARNING**

Avoid bodily injuries from hydraulic oil and gas under pressure.

Before removing or charging accumulator

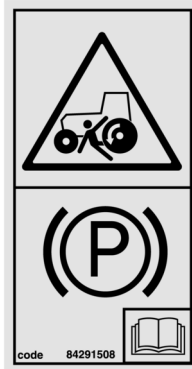
1. Start engine.
2. Relieve the pressure in the circuit by collapsing the cylinder and holding the valve open for 5 seconds.
3. Stop the engine.

Use only DRY NITROGEN for charging accumulator.

Failure to comply could result in death or serious injury.

**Safety sign 2—84291508  
Park brake engage**

Located on front side of cross frame under cab (quantity 2)



84291508 8

**WARNING**

Run over hazard.

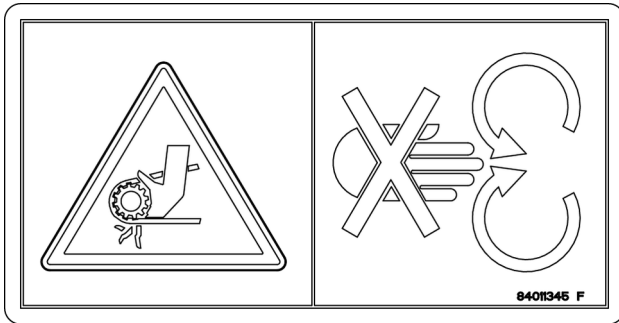
Place the hydraulic control in the neutral position and engage the park brake before filling the liquid tanks.

Failure to comply could result in death or serious injury.



**Safety sign 3— 84011345**  
**Entangle warning**

Located on left-hand side of engine frame top of frame rail.  
 (quantity 1)



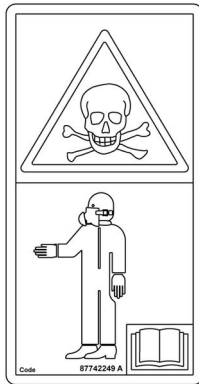
RAIL14SP01269AA 9

**WARNING**

Shield is off or open.  
 Replace or close shield before operating.  
 Failure to comply could result in death or serious injury

**Safety sign 4 — 87742249**  
**Chemical warning**

One located on bottom side of frame on cross member just below front of cab, readable from front side of frame next to chemical eductor.  
 One located on lid of chemical eductor.  
 (quantity 2)



87742249 10

**WARNING**

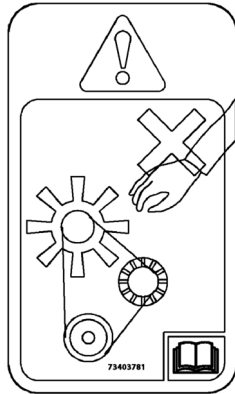
Agricultural chemicals are toxic. Chemicals not safely used, handled, stored and disposed of can cause serious injury or death or harm to the environment.

- Wear protective clothing and equipment.
- It is your responsibility to choose the best chemical for your application.
- Read, understand, and follow the chemical manufacturer's label.
- Contact your chemical supplier, county extension agent or other qualified person if you have questions on chemical usage.

Failure to comply could result in death or serious injury.

**Safety sign 5— 73403781  
Fan warning**

**Located on rear cross member just below batteries  
readable from underside.  
(quantity 1)**



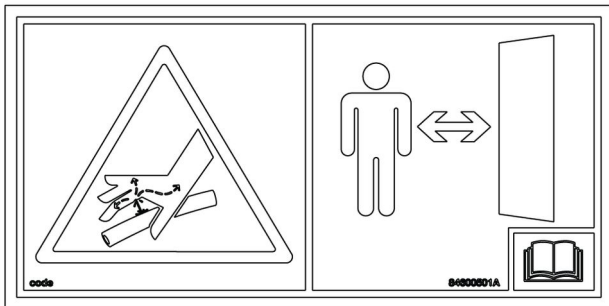
RAIL14SP01272AA 11

**WARNING**

Avoid injury from rotating fan.  
Shut off engine and remove key before opening hood.  
Failure to comply could result in death or serious injury.

**Safety sign 6— 84600501  
High pressure oil penetration warning**

**Located on the outside edge of each front and rear  
suspension leg.  
Located on right-hand inside frame rail below hydros  
Located on each frame rail above the rear suspension  
legs.  
Located on engine frame interior cross frame.  
Located on rear frame interior on outer plate.  
Located on engine frame right-hand exterior  
(quantity 10)**



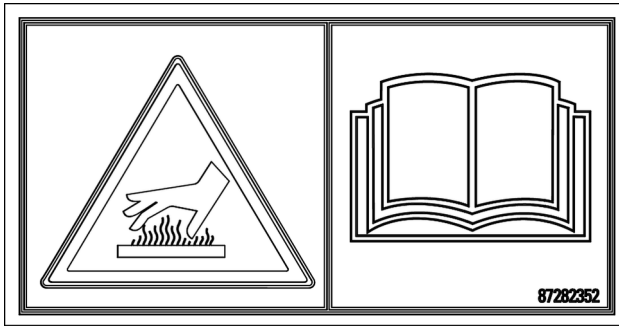
84600501 12

**WARNING**

Avoid high pressure fluids  
Avoid the hazard by relieving pressure before  
disconnecting hydraulic or other lines. Tighten all  
connections before applying pressure.  
Search for leaks with a piece of cardboard. Protect  
hands and body from high pressure fluids.  
Failure to comply could result in death or serious injury.

**Safety sign 7— 87282352**  
Hot surface

Located on engine frame plate near exhaust.  
(quantity 1)



RAIL14SP01270AA 13

**WARNING**

Hot surface

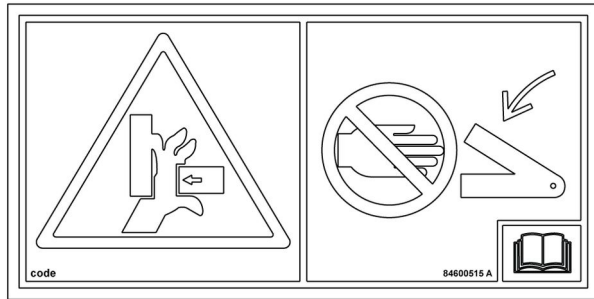
Avoid severe burns. Do not contact muffler or exhaust components.

Read operator's manual

Failure to comply could result in death or serious injury.

**Safety sign 8— 84600515**  
Pinch point danger

Located on outside surface of each front and rear suspension legs  
Located at each lift arm connection point to frame.  
Located on left-hand side boom cradle rear side.  
(quantity 7)



84600515 14

**DANGER**

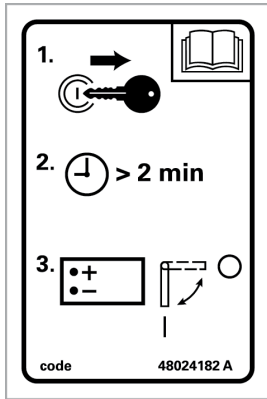
Pinch hazard

Keep your hands, feet, and body clear of all moving parts and oscillating points.

Failure to comply will result in death or serious injury.

**Safety sign 9— 48024182  
Battery disconnect**

**Located on outside surface of engine housing next to battery disconnect switch.  
(quantity 1)**

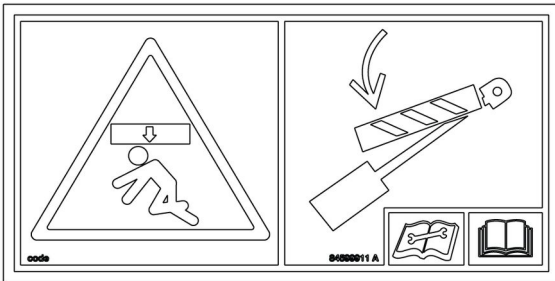


48024182\_A 15

Wait two minutes before disconnecting battery with switch

**Safety sign 10 — 84599911  
Cylinder stop warning**

**Located on bottom side of left-hand lift arm.  
(quantity 1)**

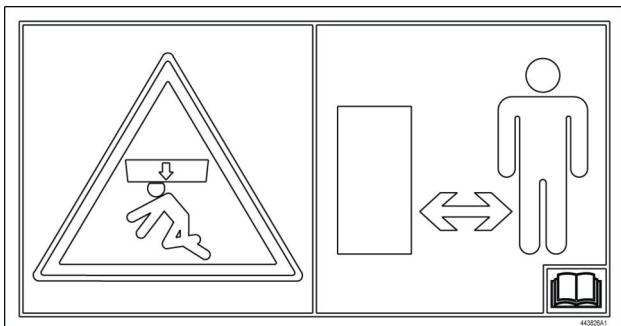


84599911 16

**WARNING**  
Crushing hazard  
Boom may drop suddenly without warning.  
Always install the cylinder stops to hold the boom in the raised position during storage, transport and service.  
Failure to comply could result in death or serious injury.

**Safety sign 11 — 35.03614  
Ladder crushing hazard**

**Located on plate just above ladder pivot on back edge of walkway.  
(quantity 1)**

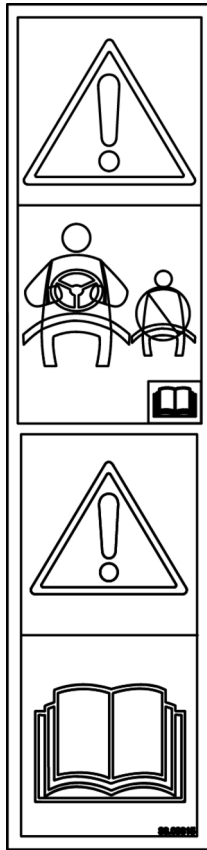


443826A1 17

**CAUTION**  
Ladder may move suddenly without warning. Stand clear of ladder swing path.  
Failure to comply could result in minor or moderate injury.

**Safety sign 12 — 35.03615**  
**Operator warnings cab interior left-hand side**

**Located inside cab on left-hand side cab pillar to the rear of cab door.**  
**(quantity 1)**



RAIL17SP00714BA 18

**WARNING**

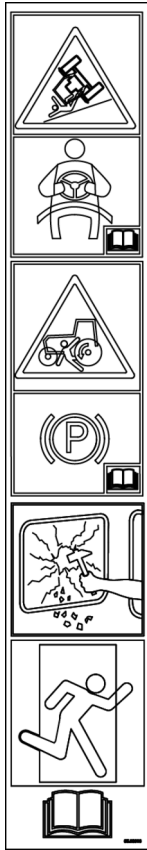
Always wear seat belt when operating machine.

Read operator's manual

Failure to comply could result in death or serious injury.

**Safety sign 13 — 35.03616**  
**Operator warnings cab interior right-hand side**

**Located inside cab on right side cab pillar to the rear of right side window (quantity 1)**

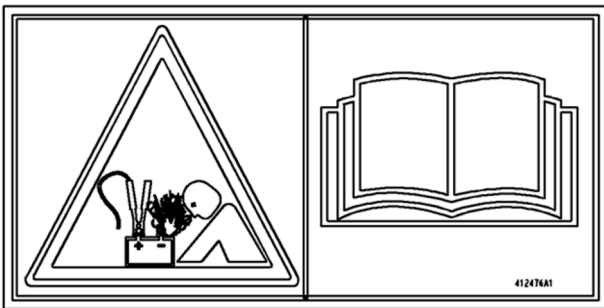


RAIL17SP00713BA 19

**WARNING**  
Tip-over hazard. Always wear seat belt  
Only start engine from operators seat with park brake engaged.  
Emergency exit. break glass to exit.  
Failure to comply could result in death or serious injury.

**Safety sign 14— 412476A1**  
**Battery explosion warnings**

**Located on rear frame exterior near batteries. (quantity 2)**



RAIL14SP01271AA 20

**WARNING**  
Explosion hazard  
Do not smoke or use open flame near battery.  
Failure to comply could result in death or serious injury.

**Safety sign 15— 84004732**  
**No riders**

Located on upright of left-hand side boom cradle  
back stop to the rear of machine.  
Located on top surface of plate centered in front of  
cab.  
(quantity 2)

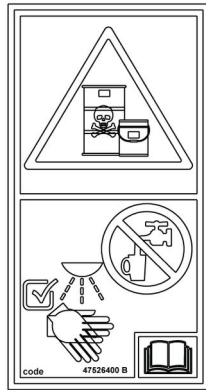


84004732 21

**DANGER**  
Fall hazard!  
No riders are permitted on walkways or ladders.  
Failure to comply will result in death or serious injury.

**Safety sign 16— 47526400**  
**Fresh water tank warning**

Located near fill of fresh water tank mounted on the  
left-hand front side of the product tank.  
(quantity 1)

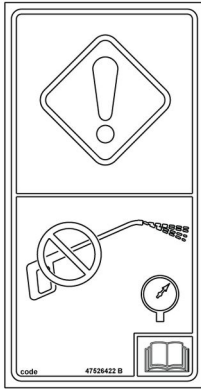


47526400 22

**WARNING**  
— No chemicals  
— Do not drink,  
for hand washing only  
• Contaminated water consumption  
could cause injury or death  
• Failure to comply could result in death or serious injury.

**Safety sign 17 — 47526422**  
**Pressure wash**

**Located on cross frame rail under engine compartment..**  
**(quantity 1)**



47526422 23

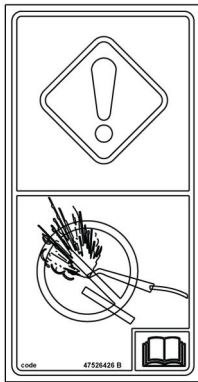
**IMPORTANT**

Avoid machine damage

Do not high pressure wash these components. Use normal water pressure of less than **345 kPa (50 psi)**

**Safety sign 18— 47526426**  
**Before welding**

**Located on rear frame between batteries.**  
**Located on engine frame upright inside engine compartment left-hand side.**  
**(quantity 2)**



47526426 24

**IMPORTANT**

Avoid machine damage

Disconnect both positive and negative battery cables before welding on vehicle. Attach ground cable of welder no more than 2 feet from part being welded. Do Not weld on engine or engine mounted components.

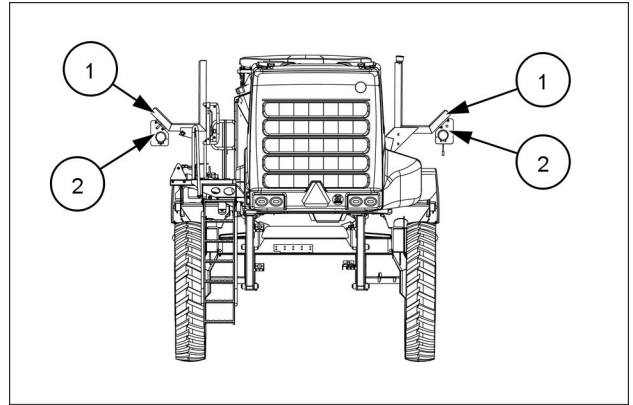


**Reflective decals**

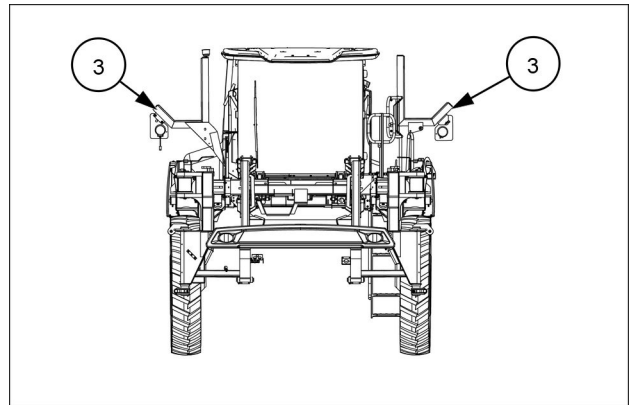
311863A1 (quantity 2)  
decals — red retroreflective (1)  
left-hand and right-hand sides shown

311865A1 (quantity 2)  
decals — orange fluorescent (2)  
left-hand and right-hand sides shown

311864A1 (quantity 2)  
decals — yellow retroreflective (3)  
left-hand and right-hand sides shown (front side of boom saddles)



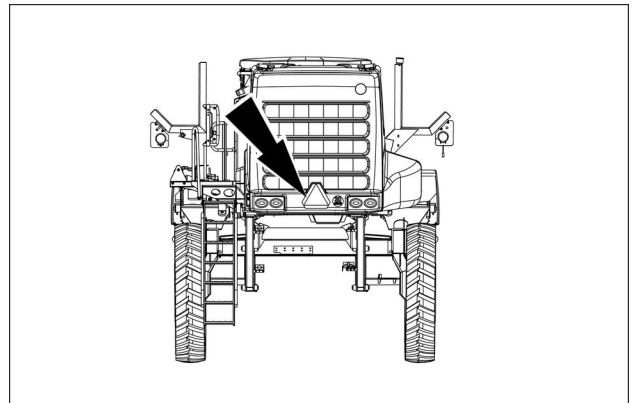
RAIL17SP00782FA 25



RAIL17SP00781FA 26

**SMV (Slow Moving Vehicle) emblem**

86547711 (quantity 1)  
Attached to the rear of the vehicle

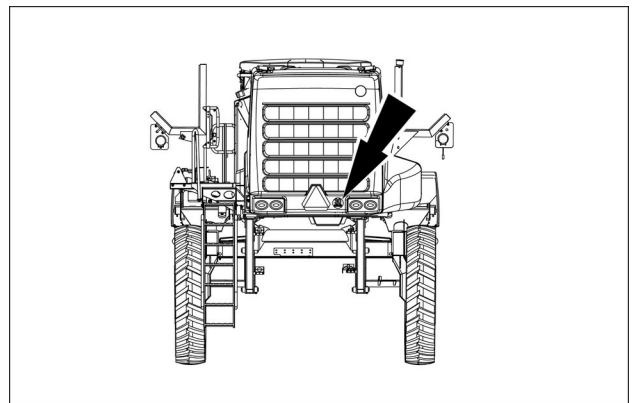


RAIL17SP00782FA 27

**SIS (Speed Indicator Symbol) emblem**

21.42043– 30 mph (quantity 1)  
Attached to the rear of the vehicle

21.42046– 50 km/h (quantity 1)  
Attached to the rear of the vehicle



RAIL17SP00782FA 28



## 3 - CONTROLS AND INSTRUMENTS

### Access to operator's platform

### Cab entry and exit

#### **▲ WARNING**

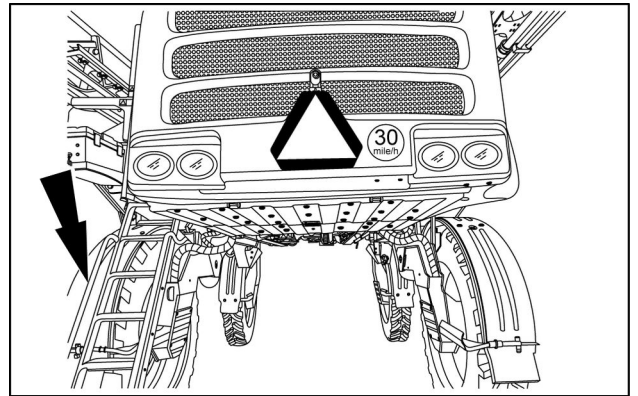
##### **Fall hazard!**

Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps.

Failure to comply could result in death or serious injury.

W0141A

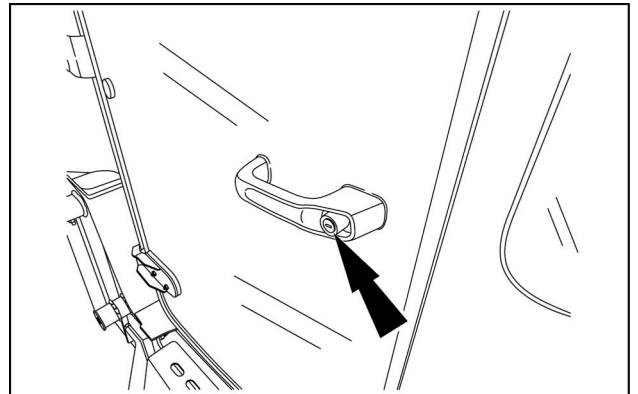
When mounting or dismounting the sprayer, use the hand rails and steps provided.



RAIL17SP00863AA 1

### Cab door lock

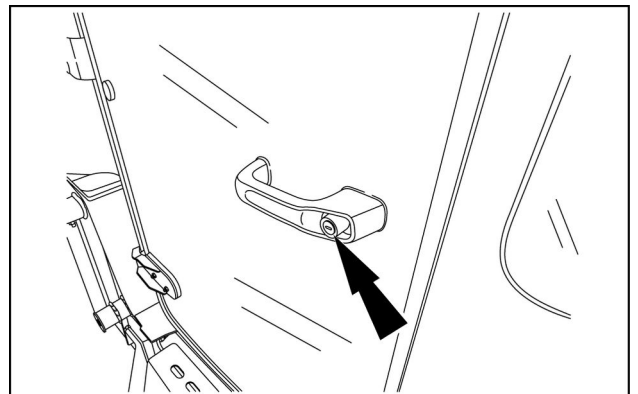
Use the key to lock or unlock the cab door from the outside. This lock uses the same key as the ignition.



RAIL17SP00275AA 2

### Control handle - outside

Push in on the handle button to open the cab door.

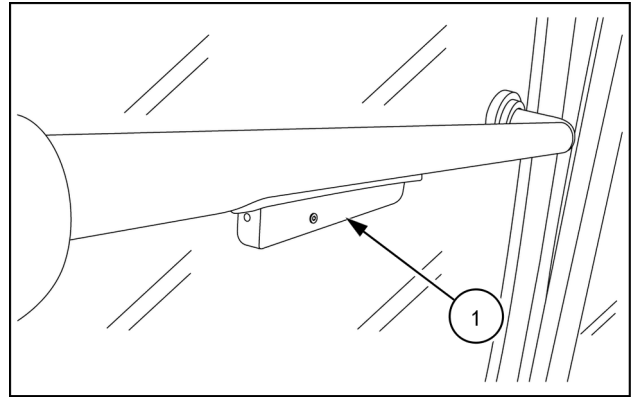


RAIL17SP00275AA 3

### Control handle - inside

To open the door from the inside, squeeze the door latch handle (1) located on the center bar of the door.

**NOTICE:** Never operate the sprayer with the cab door open.



RAIL17SP00264AA 4

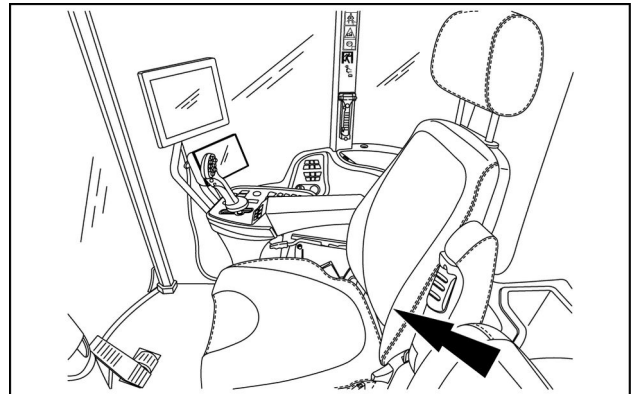
### Operator's seat

### Operator's seat

The operator's seat is equipped with controls to adjust the seat for personal comfort.

The operator's seat in the luxury cab is leather.  
The operator's seat in the deluxe cab is cloth.

Seat control and adjustment can be found at 3-3.



RAIL17SP00310AA 1

## Control identification — Luxury cab

### ⚠ WARNING

#### Loss of control hazard!

**DO NOT** make seat adjustments while the machine is in motion. All seat adjustment should be made with the machine stationary and the parking brake applied.  
Failure to comply could result in death or serious injury.

W0293A

The following is a list of adjustments for the seat and seat suspension:

**Fore/aft isolator (1)** — Under certain driving conditions you may want the operator's seat to absorb sudden shocks as in sudden stops. The isolator has two positions. Isolator off (position 1) pointing forward or isolator on (position 2) pointing rearward.

After the adjustment of position 1, the locking lever must latch into the desired position. For that, the seat must be pressed backwards until it latches with an audible click. It should not be possible to move the fore/aft isolator into another position when it is locked.

**Damper adjustment (2)** — The damper setting of the seat can be varied to suit different driving conditions. Turn the lever to the desired position. 1: Hardest to 5: Softest.

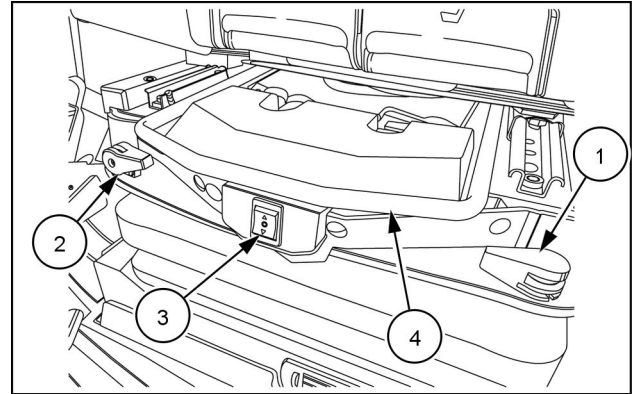
**Height and weight adjustment (3)** — This control will raise and lower the suspension. The key must be on in order for this adjustment to function. The seat is raised using a small onboard compressor.

Never operate the compressor for more than one minute. Press the top of the rocker switch and the seat will rise and the suspension will become firmer. Press the bottom of the rocker switch and the seat will lower and the suspension will become softer. Release the switch and it will return to the center (off) position.

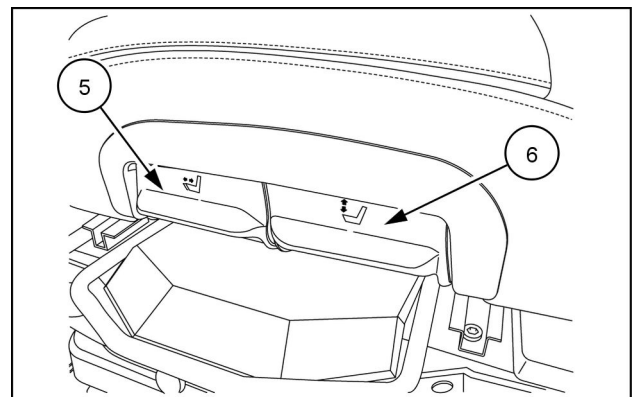
**Seat fore/aft adjustment (4)** — Lift the control up and slide the seat fore/aft. Release the control and lock into position. Be sure the control locks. Do not use your leg to pull this control.

**Seat depth adjustment (5)** — Pull up on the control to move the seat cushion back and forth. This control only moves the seat cushion, not the entire seat. Be sure the adjustment locks into position.

**Seat pan angle adjustment (6)** — Pull up on the control, then tilt the seat forward or backward until you reach the desired angle. Release the control to lock the seat in that position.

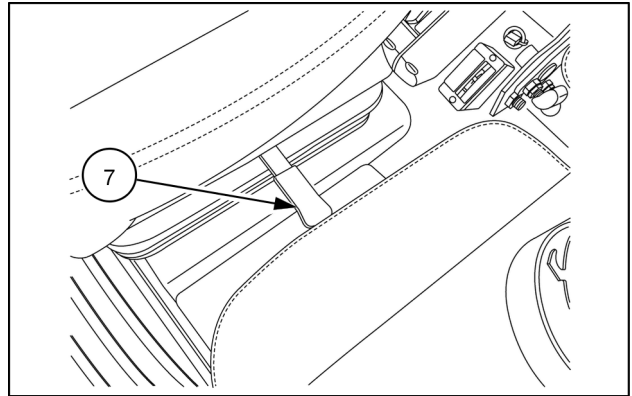


RAIL17SP00297AA 1



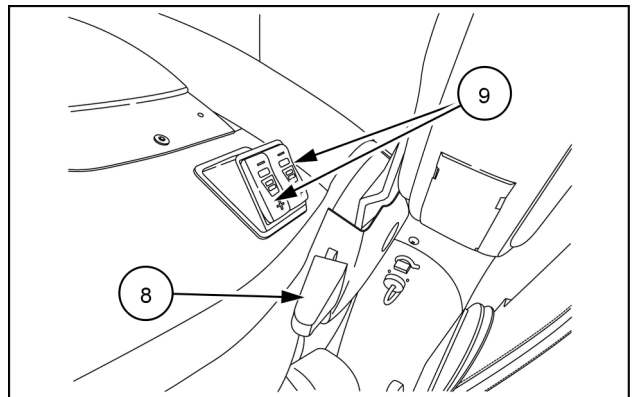
RAIL17SP00295AA 2

Lateral/horizontal suspension lock **(7)** — This control is located on the left-hand side of the seat. Push back on the lever to unlock this control. When control is unlocked the seat is allowed to move slightly side to side to absorb any slight changes in terrain. Push the lever forward to lock the seat and keep it from moving side to side.



RAIL17SP00266AA 3

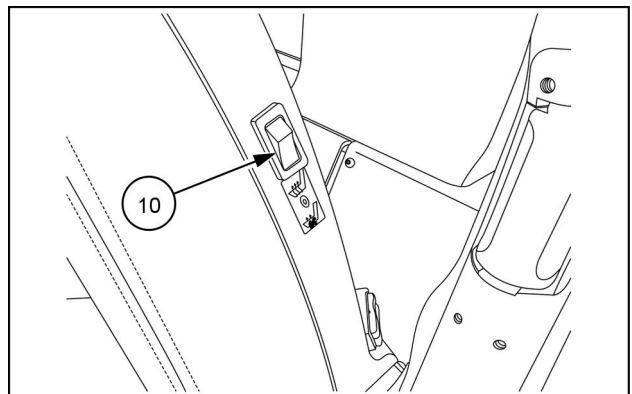
Backrest adjustment **(8)** — Located on the left-hand rear side of the seat, pull up on the lever to move the backrest to another position. Once a comfortable position is reached, release the lever to lock into position. This lever also allows you to fold the seat backrest all the way down to access the storage net behind the seat. Be sure the adjustment is locked in position.



RAIL17SP00223AA 4

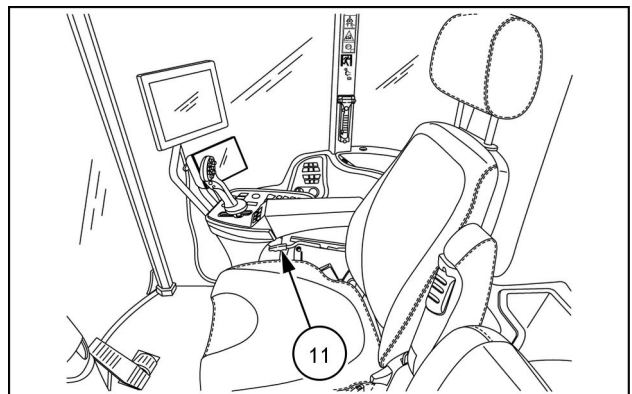
Lumbar support adjustment **(9)** — With the upper and lower switch the curvature in the upper and lower area of the backrest upholstery can be individually adjusted. This increases both the seating comfort and the performance of the driver. The lumbar curvature can be increased pressing the “+” or reduced by pressing the “-” on the relevant switch. When the backrest upholstery does no longer react by pressing the “+”, the maximum curvature has been reached and the switch should be released.

Seat heater and seat ventilation **(10)** — The seat ventilation system makes sure that the seat surface remains dry. Humidity in the contact area of the seat will be taken away. This ensures a comfortable, cool and clean seat feeling. Operate this switch to activate or deactivate the seat heater and the seat ventilation. The rocker switch is a three position switch: with the switch in the center position the seat heater and seat ventilation is OFF. Push the top of the switch in to turn the seat heater ON (seat ventilation OFF). Push the bottom of the switch in to turn the seat ventilation ON (seat heater OFF).



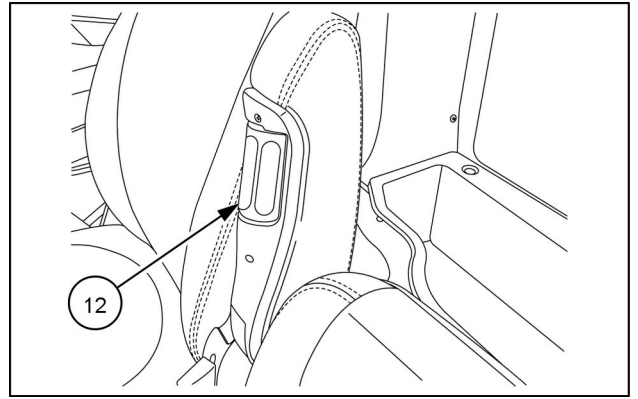
RAIL17SP00296AA 5

Control console only fore/aft adjustment **(11)** — This control is used to adjust the console only in relation to the seat position. Be sure the console is locked in position before operating.



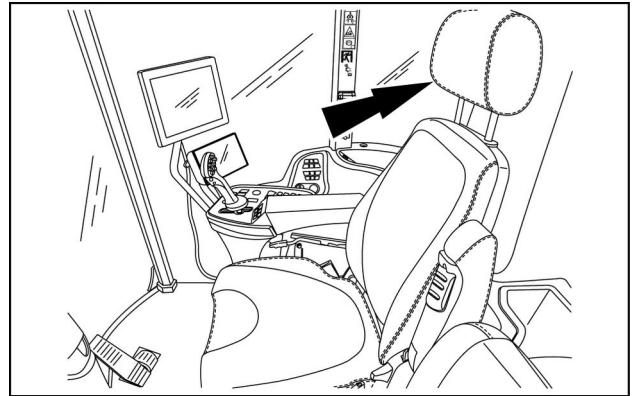
RAIL17SP00310AA 6

Left-hand armrest adjuster (**12**) — The left-hand armrest can be lowered down for operation or raised up for easier entry or exiting of the operator's seat. The angle of the armrest can be changed with the adjuster located under the armrest. Turn the adjuster to move the front edge of the armrest up or down.



RAIL17SP00267AA 7

Headrest- The headrest can be pulled up for height adjustment and tilted fore/aft to suit the operator. It can also be removed if desired.



RAIL17SP00310AA 8

## Instructional seat

## Instructional seat

### ⚠ WARNING

#### Fall hazard!

The instructional seat shall only be used when training a new operator or when a service technician is diagnosing a problem. Do not permit others, especially children, to ride in the seat. Keep the cab door(s) closed. Wear a seat belt at all times.

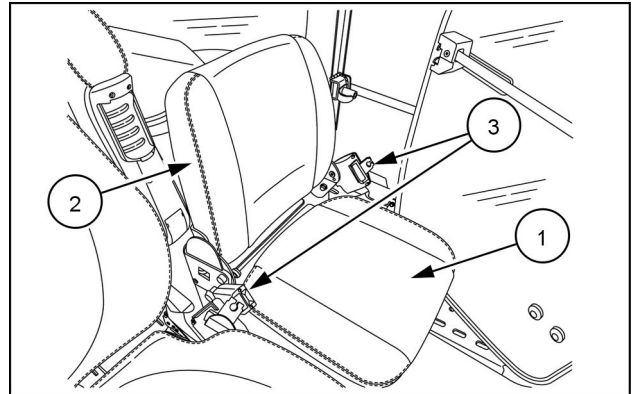
Failure to comply could result in death or serious injury.

W0301A

The instructional seat (1) with seat belt is available to provide seating for an experienced operator when a new operator is being trained.

The instructional seat is located next to the operators seat. The instructional seat back (2) can be folded down when not in use.

Seat belts (3) are standard equipment on the instructional seat. The lap type seat belt has a push button quick releases and automatic retraction to will allow unrestricted exiting and entering of the seat. Be sure the instructor always wears the seat belt when the vehicle is in operation.



RAIL17SP00311AA 1



## Floor controls

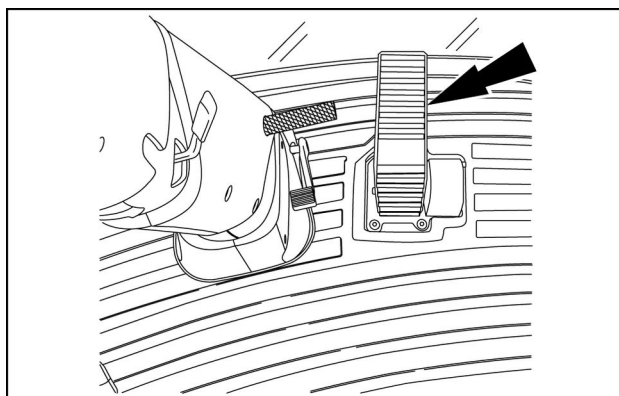
### Brake pedal

The brake pedal is located on the right side of the steering column. This pedal is used to slow the vehicle to a smooth stop. The pedal applies the brake to all four wheels and reduces the propel command to the hydrostat pumps. If the brake pedal is pressed more than 65% of travel, the machine will come to a complete stop. Return the joystick to the neutral position to reset the propel system and then continue normal operation.

If the brake is pressed less than 65% of travel and then released, the drive will return to the preset speed set by the joystick and range selector.

The brake pedal can be used in conjunction with the joystick to rapidly slow the vehicle.

To release the park brake with the engine running, the brake pedal must be completely depressed and held in that position while releasing the park brake.



RAIL17SP00226AA 1

### **⚠ WARNING**

#### **Driving hazard!**

**Be aware that extra weight and bad traction conditions such as mud or ice increase your stopping distance. Liquid in the tires, weights on the machine or wheels, tanks filled with fertilizer, herbicides, or insecticides - all these add weight and increase the distance you need to stop.**

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

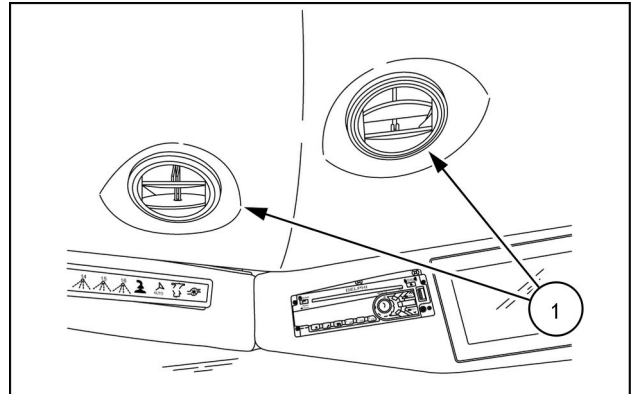
W0338A

## Ventilation

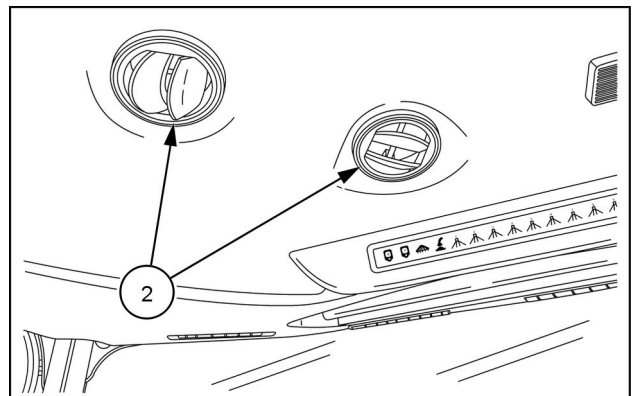
### Air discharge outlets

#### Cab Roof Heater and Air Conditioner Vents:

There are four round swivel and adjustable vents in the cab interior roof. These vents are adjustable to be directed at different areas inside the cab. They can also be closed as needed. The vents are located two on the right-hand side of the cab interior roof **(1)** and two on the left-hand side of the cab interior roof **(2)**.



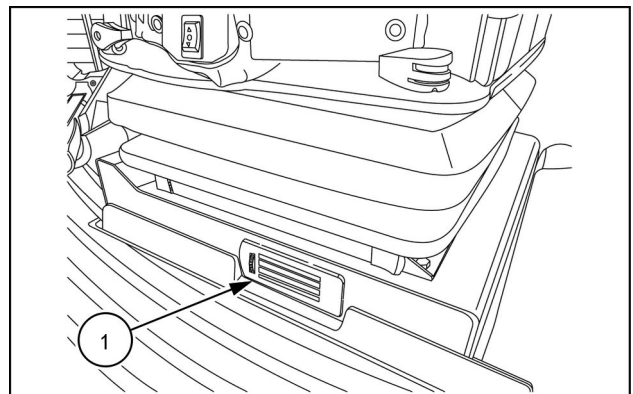
RAIL17SP00289AA 1



RAIL17SP00289AA 2

### Seat base heater and air conditioner vent

The seat base vent **(1)** is located at the front of the seat base. The vent can be closed as needed.

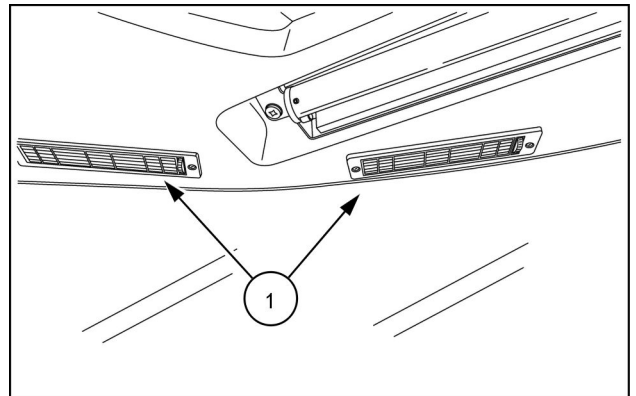


RAIL17SP00294AA 3

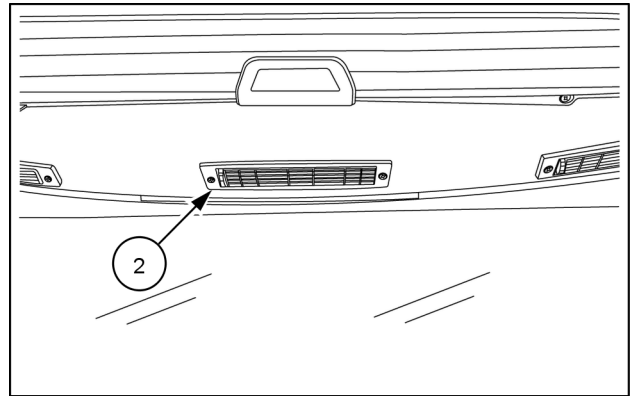
## Defroster vents

### Windshield defroster vents

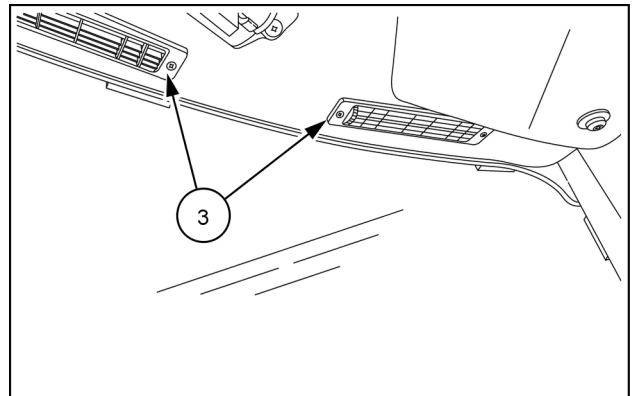
There are five defroster vents in the cab interior roof just above the windshield; two left-hand vents **(1)**, one center vent **(2)**, and two right-hand vents **(3)**. These vents are adjustable, and can be directed at the windshield or as needed.



RAIL17SP00270AA 4



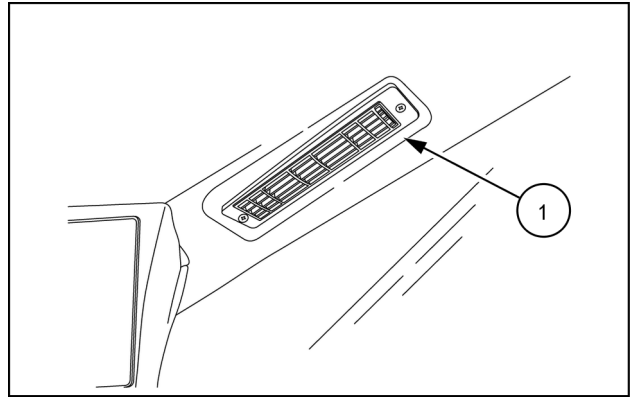
RAIL17SP00230AA 5



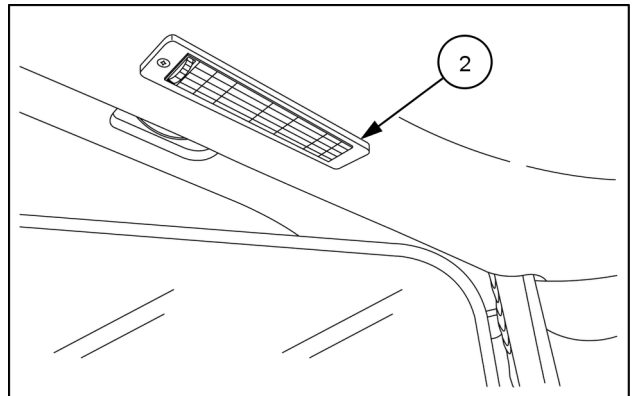
RAIL17SP00290AA 6

### Right-hand and left-hand side window defroster vents

There are two vents in the cab interior roof. One is for defrosting of the right-hand side window (1) and one for the left-hand side cab door (2). These vents are adjustable to be directed at different areas of the window. They can also be closed as needed.



RAIL17SP00291AA 7



RAIL17SP00268AA 8

## Forward controls

### Steering column - Control identification

#### **⚠ WARNING**

**Driving hazard!**

**Do not adjust the steering column while driving.**

**Before adjusting the steering column:**

- stop the machine,
- put the gearshift lever in neutral, and
- apply the parking brake.

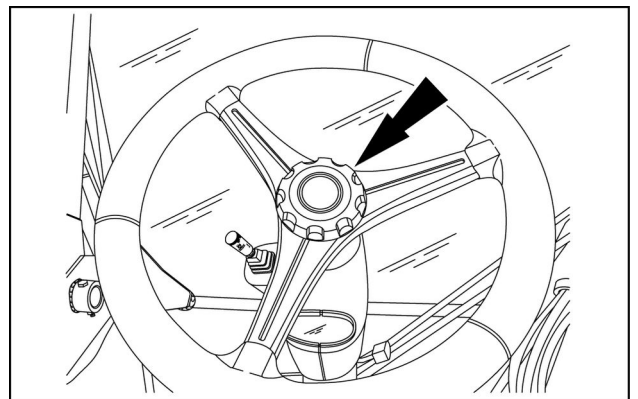
**Failure to comply could result in death or serious injury.**

W1032A

#### Telescoping steering wheel

To adjust steering wheel height: Loosen the center cap on the steering wheel, reposition steering wheel and retighten center cap. Do not use this feature while driving as a loss of vehicle control may occur.

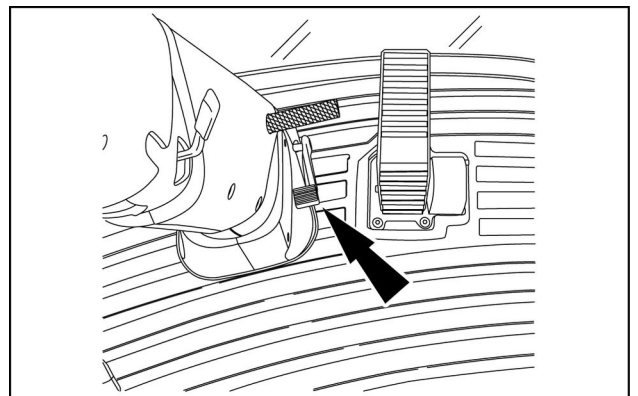
The steering wheel in the luxury cab is leather wrapped. The steering wheel in the deluxe cab is a plastic composite and has no wrapping.



RAIL17SP00299AA 1

#### Lower steering column tilt

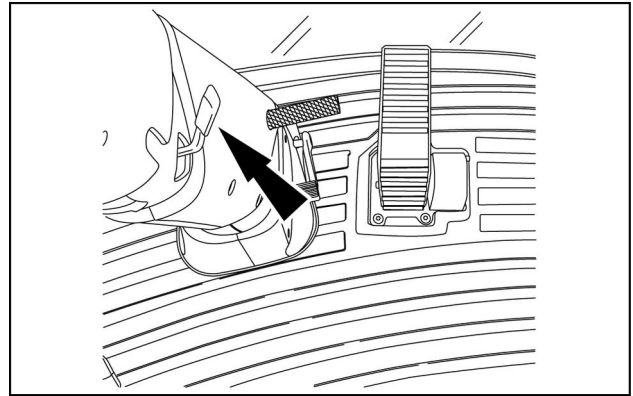
Pressing down on the foot pedal at the base of the steering column allows you to tilt the lower steering column toward or away from you. Do not use this feature while driving as a loss of vehicle control may occur.



RAIL17SP00226AA 2

### Upper steering column tilt

Push the adjustment lock handle toward the steering column and tilt the upper steering column toward or away from you. Do not use this feature while driving as a loss of vehicle control may occur.



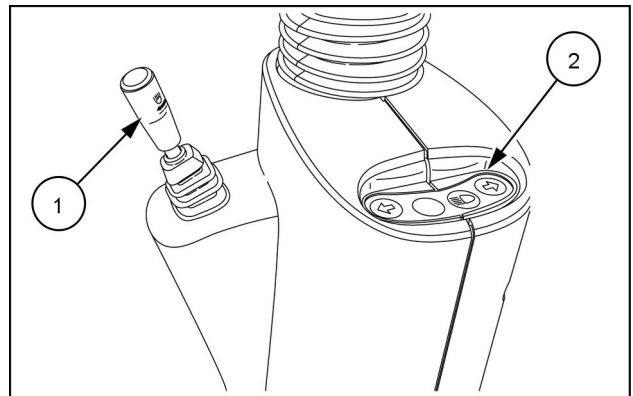
RAIL17SP00226AA 3

### Turn signals

**NOTE:** When operating the vehicle on roads or highways, always use the turn signals.

The turn signal lever (1) is located on the left side of the steering column behind and below the steering wheel. Move the turn signal lever up to indicate a right turn. Move the turn signal lever down to indicate a left turn. The center position is Off. The turn signal indicator lights (2) are located on the front lower surface of the steering column. These lights will be on whenever the turn signals are active.

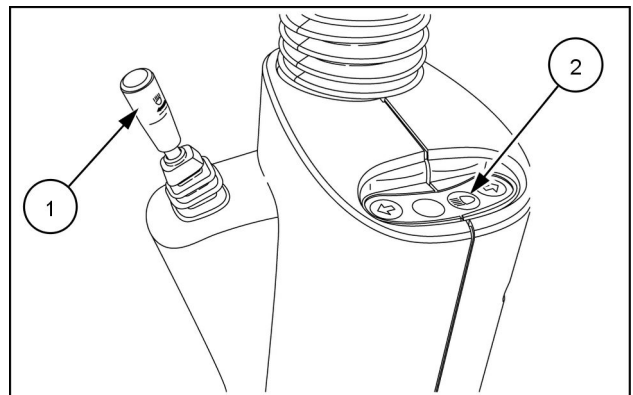
**NOTE:** The turn signals are NOT self-canceling. You must move the lever back to neutral after you complete a turn. The turn signal system will begin to beep after 20 seconds. After 30 seconds the system will turn that directional off, but the lever has to be physically moved to the center position. It will not be active when the foamer is being controlled by the turn signal lever.



RAIL17SP00303AA 4

### Headlight dimmer control

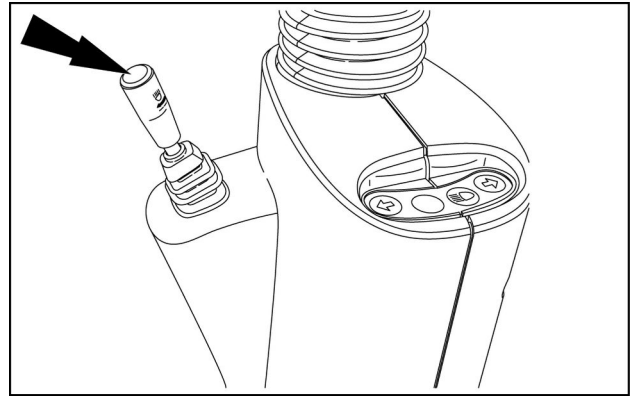
The headlight dimmer is integrated into the directional signal lever (1). Push the lever left to put the headlights on high beam. Pull the lever partially to the right to dim the headlights. Pull the lever fully to the right to flash the headlight high beams. The appropriate indicator light will come on for high beam or low beam. The indicator light (2) is located on the top surface of the steering column.



RAIL17SP00303AA 5

### Horn button

The horn button is located on the end of the turn signal lever. Press the button to activate the horn.



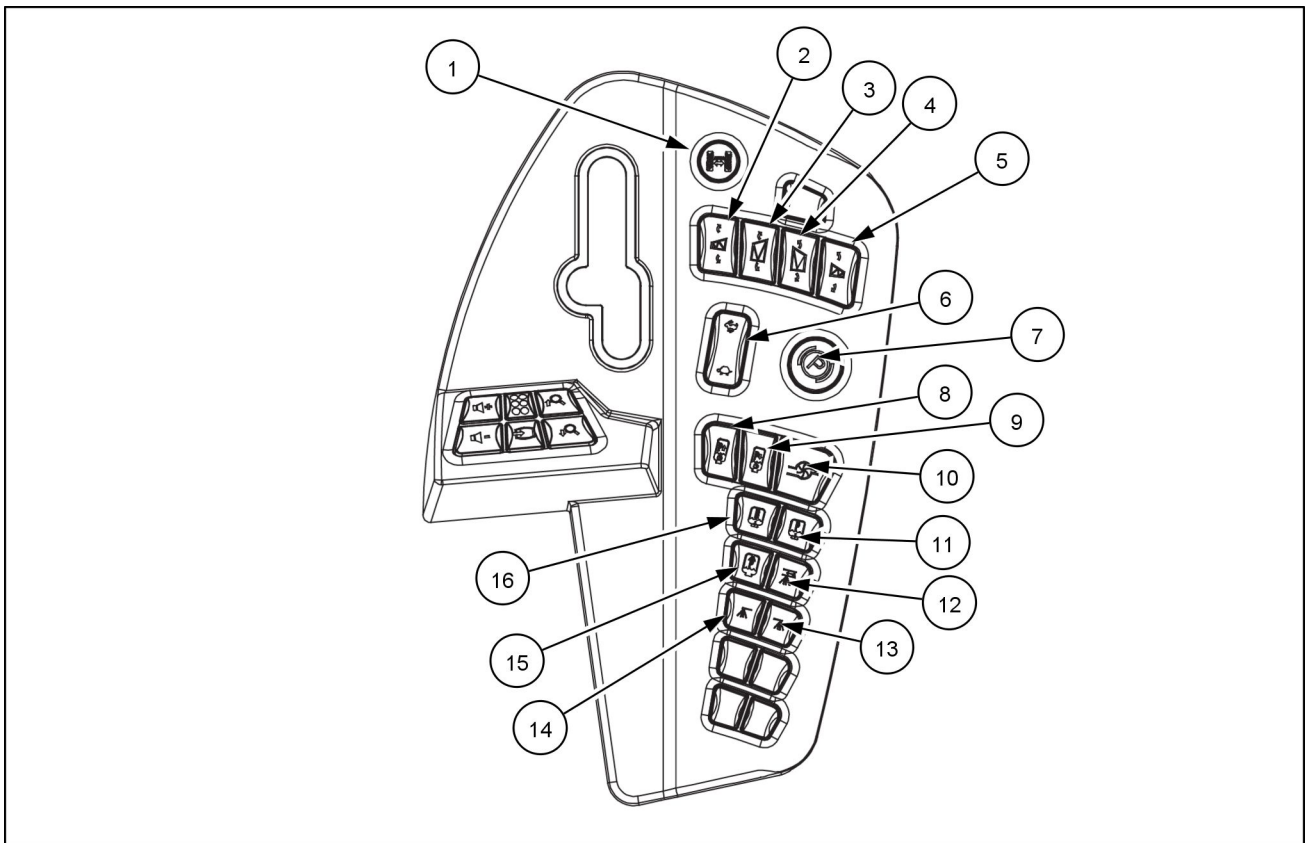
RAIL17SP00303AA 6

### Right-hand side controls

## Main side console

### Right-hand side switch control panel

Refer to the following illustration and table that follows to identify the switches on the right side control panel.



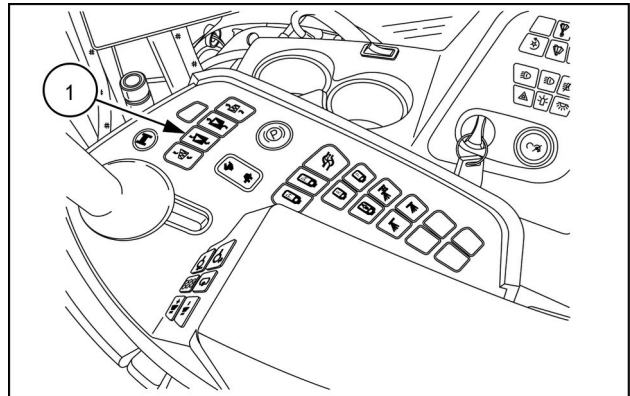
RAIL17SP00307FA 1

Reference number	Switch description
1	Auto leg widening (not used on this model)
2	Left-hand side secondary boom fold/unfold
3	Left-hand side primary boom swing in/out
4	Right-hand side primary boom swing in/out

Reference number	Switch description
5	Right-hand side secondary boom fold/unfold
6	Engine speed control
7	Park brake switch
8	Sparge increase
9	Sparge decrease
10	Product pump on/off
11	Product sump on/off
12	Boom blowout
13	Right-hand side fence row
14	Left-hand side fence row
15	Product tank rinse nozzles on/off
16	Rinse sump

**Left-hand side primary boom swing in/out**

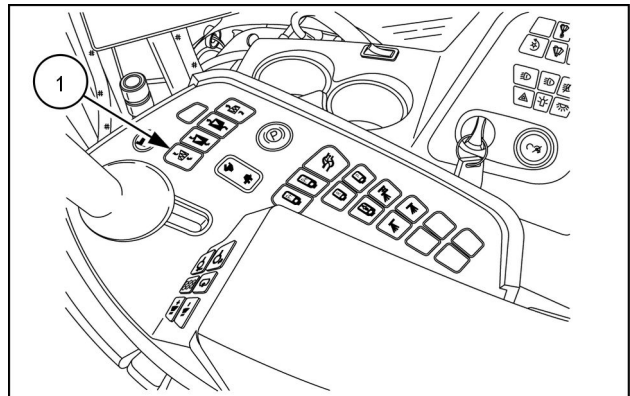
This switch (1) is used to swing the primary boom out away from the vehicle and back toward the vehicle. Refer to 6-11 for complete operation details.



RAIL17SP00287AA 2

**Left-hand side secondary boom fold/unfold**

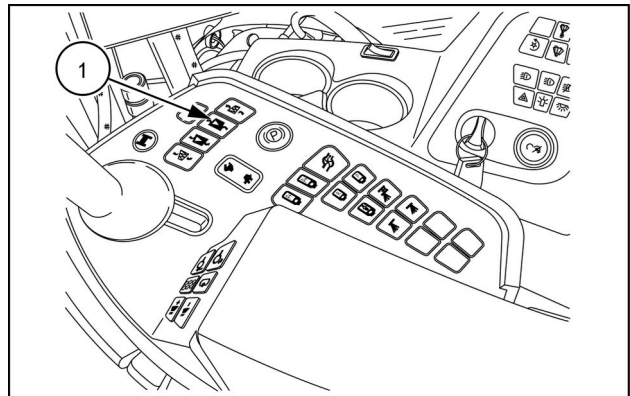
This switch (1) is used to fold or unfold the secondary boom from the primary boom. Refer to 6-12 for complete operation details.



RAIL17SP00287AA 3

**Right-hand side primary boom swing in/out**

This switch (1) is used to swing the primary boom out away from the vehicle and back toward the vehicle. Refer to 6-9 for complete operation details.

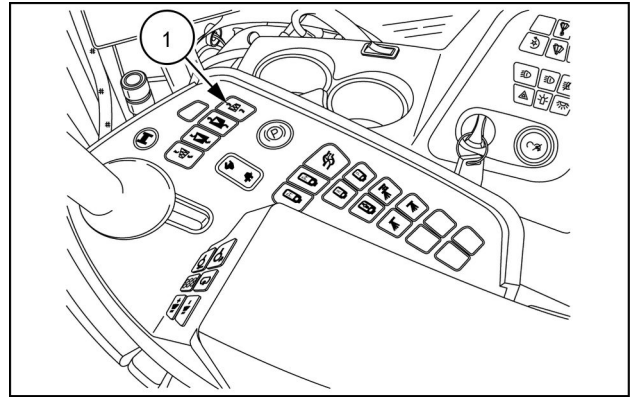


RAIL17SP00287AA 4



### Right-hand side secondary boom fold/unfold

This switch (1) is used fold and unfold the secondary boom from the primary boom. Refer to **6-10** for a detailed explanation.

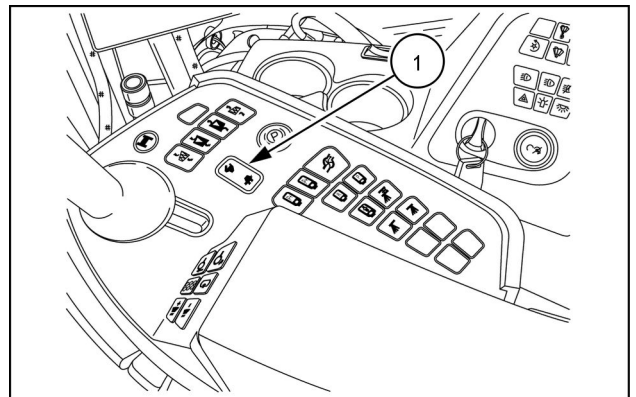


RAIL17SP00287AA 5

### Engine speed control

The engine speed control switch (1) is used to select three distinct speeds at the engine. This control is spring loaded and will return to the center position when released. The engine speed can be increased by pushing the switch toward the "Rabbit" or decreased to idle by pushing the switch toward the "Turtle". Press the "Rabbit" once for half throttle. Press the "Rabbit" twice for full throttle. Pressing a third time will return to half throttle. Press the "Turtle" for idle.

The engine speed can also be increased or decreased with the trigger in conjunction with the engine speed control button on the joystick.



RAIL17SP00287AA 6

## Park brake switch

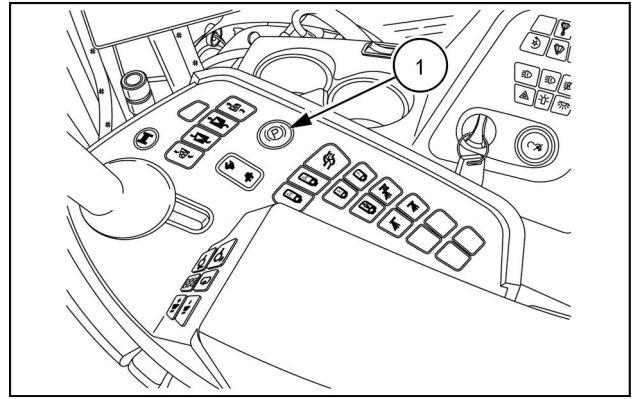
### ⚠ DANGER

Run-over hazard!

Apply the parking brake before leaving the cab.

Failure to comply will result in death or serious injury.

D0028A



RAIL17SP00287AA 7

### ⚠ WARNING

Avoid injury and/or machine damage!

Apply the parking brake only when the machine is stationary. While driving, apply the parking brake only in an emergency. The braking action is abrupt.

Failure to comply could result in death or serious injury.

W1132A

The park brake switch (1) engages the vehicles park brake.

To apply the parking brake press the park brake switch (1) to engage the park brake. When the park brake is applied, the ladder will lower.

### ⚠ CAUTION

Unexpected machine movement!

The ladder may move suddenly without warning. Stand clear of the swing path of the ladder.

Failure to comply could result in minor or moderate injury.

C0212A

To disengage the parking brake with the engine running, first press the service brake pedal fully and hold, then press the park brake switch. When the park brake is disengaged, the ladder will raise. When the park brake disengages, the icon on the display disappears as well. The park brake switch (1) will turn from red to amber when disengaged. Engine must be running for ladder to raise

An audible alarm will sound if the hydro lever is moved from neutral (N) with the park brake engaged.

**NOTE:** Hydraulic pressure is required to disengage the park brake. If the engine and/or hydraulic system are inoperable and the machine must be moved, special procedures must be followed to disengage the park brake. See your dealer for these procedures.

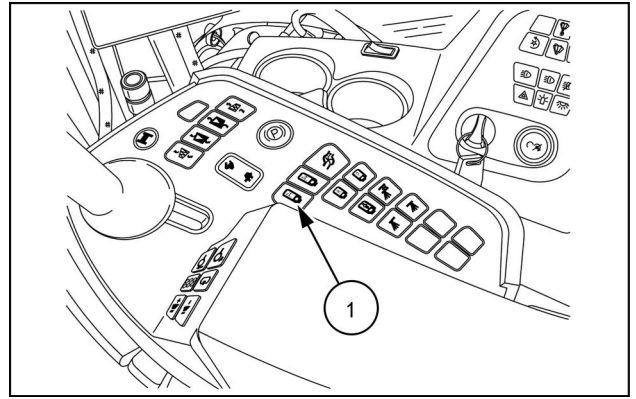
### Sparge increase

The product tank sparge flow is controlled by two separate switches. Press and hold the sparge increase switch (1) to increase the sparge flow. As the sparge increases the four led lights will illuminate indicating the percentage of sparge. Refer to the table that follows for light combination to percentage of sparge. Release the switch when correct sparge is reached. The product pump has to be running for the sparge system to operate. Adjust the sparge as needed to keep the chemical in suspension without creating foam in the product tank. Each tank is equipped with several sparge inlet and outlet locations. These locations keep the product in suspension through circulation of the product tank utilizing the product pump. The sparge can also be adjusted remotely from outside the cab using the remote key pad (2) located on the side of the fast fill snorkel. Hold the sparge increase button (3) to increase the sparge.

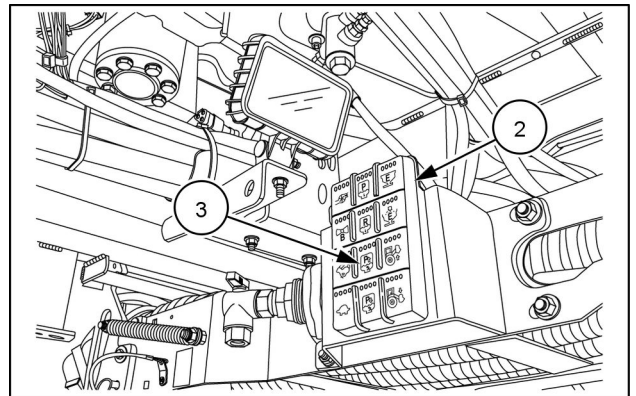
Light color combination	Percentage of sparge
Red	0-6%
Red and Yellow	7-23%
Yellow	24-41%
Yellow and Green	42-58%
Green	59-77%
Green and Blue	78-99%
Blue	100%

From the first armrest home page, touch the product icon (1) to bring up the product circuit screen.

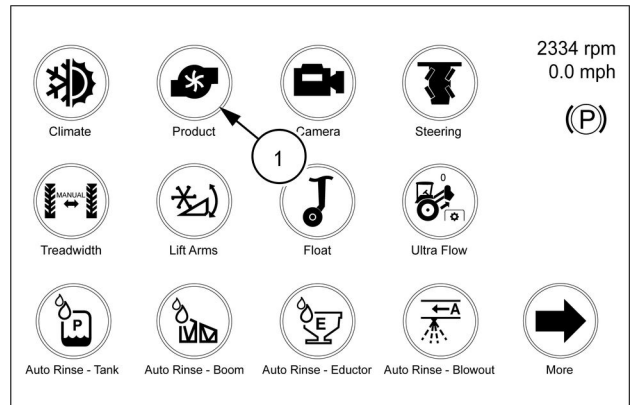
The sparge can be increased or decreased from the product circuit screen. Touch the sparge increase icon (1) or sparge decrease icon (2) to adjust. Observe the sparge percentage (3) or sparge psi (4), increase or decrease as the valve is opened or closed.



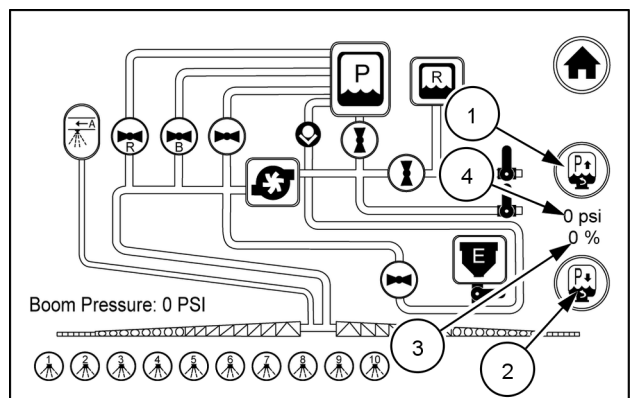
RAIL17SP00287AA 8



RAIL17SP00859AA 9



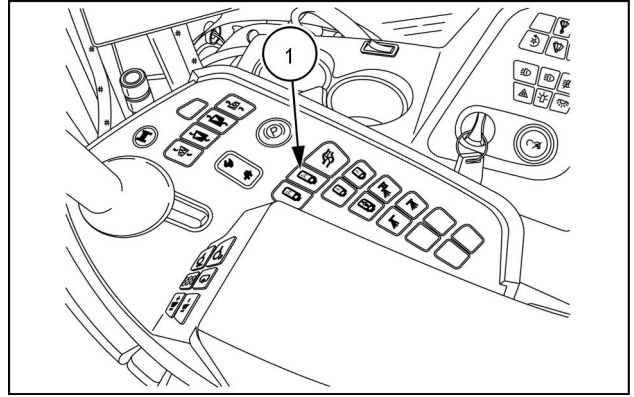
RAIL18SP00852FA 10



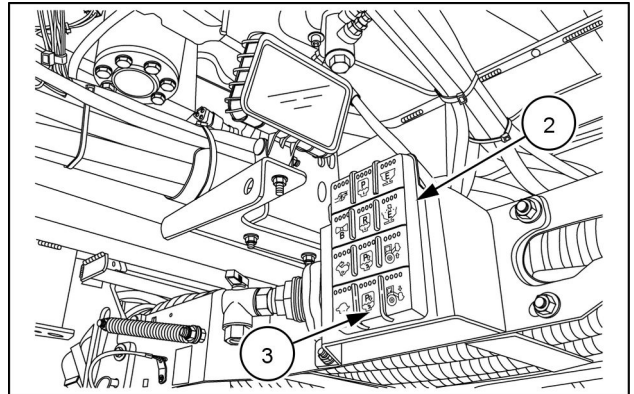
RAIL17SP00183AA 11

### Sparge decrease

The product tank sparge flow is controlled by two separate switches. Press and hold the sparge decrease switch (1) to decrease the sparge flow. As the sparge decreases the four led lights will illuminate indicating the percentage of sparge. Refer to the table that follows for light combination to percentage of sparge. Release the switch when correct sparge is reached. The product pump has to be running for the sparge system to operate. Adjust the sparge as needed to keep the chemical in suspension without creating foam in the product tank. Each tank is equipped with several sparge inlet and outlet locations. These locations keep the product in suspension through circulation of the product tank utilizing the product pump. The sparge can also be adjusted remotely from outside the cab using the remote key pad (2) located on the side of the fast fill snorkel. Hold the sparge decrease button (3) to decrease the sparge.



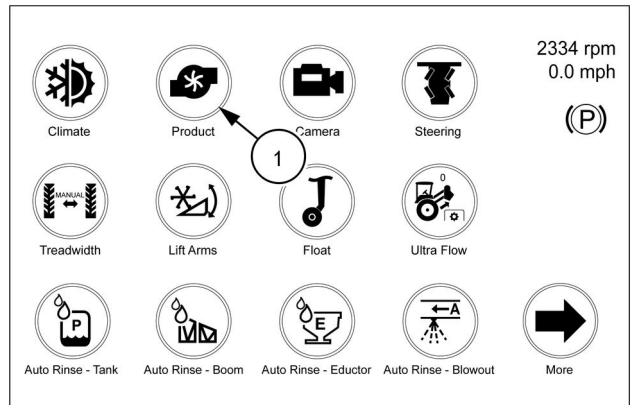
RAIL17SP00287AA 12



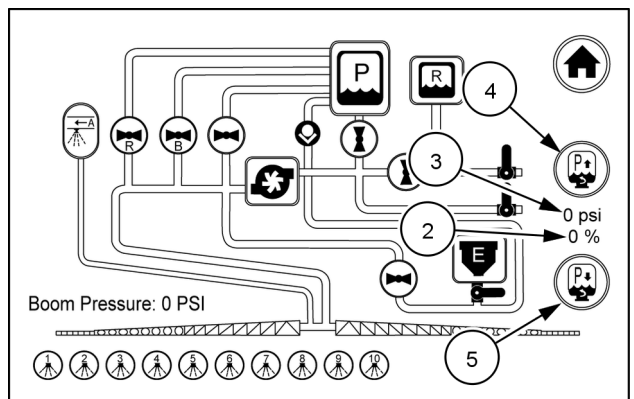
RAIL17SP00859AA 13

Light color combination	Percentage of sparge
Red	0–6%
Red and Yellow	7–23%
Yellow	24–41%
Yellow and Green	42–58%
Green	59–77%
Green and Blue	78–99%
Blue	100%

From the first armrest home page, touch the product icon (1) to bring up the product circuit screen.

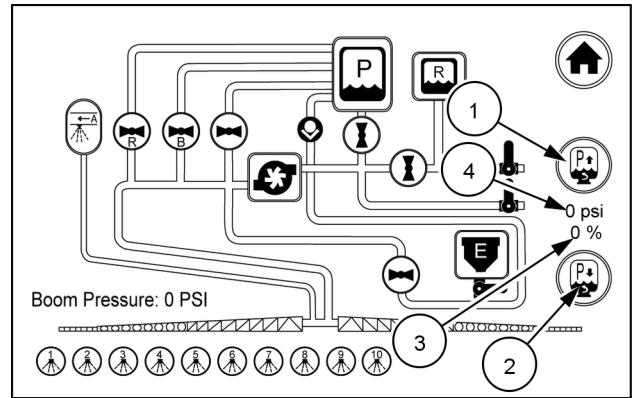


RAIL18SP00852FA 14



RAIL17SP00183AA 15

The sparge can be increased or decreased from the product circuit screen. Touch the sparge increase icon (1) or sparge decrease icon (2) to adjust. Observe the sparge percentage (3) or sparge psi (4), increase or decrease as the valve is opened or closed.



RAIL17SP00183AA 16

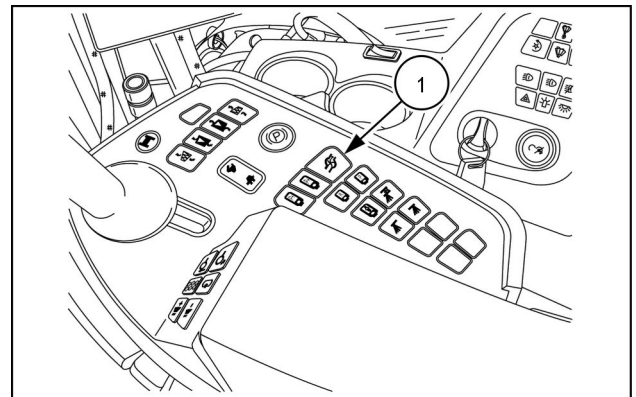
### Product pump on/off

**NOTICE:** To avoid damage to the product pump, never run the pump “Dry” without liquid in the pump.

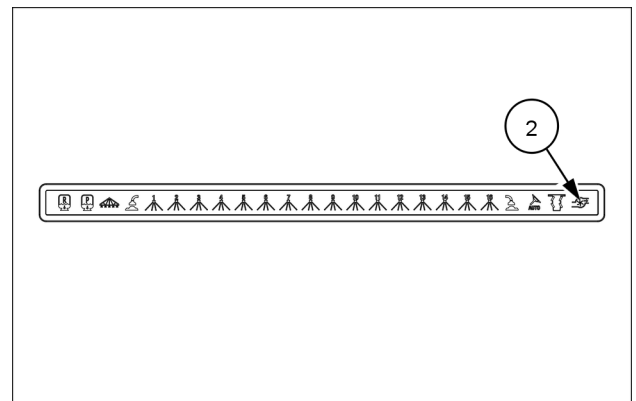
The product pump switch (1) turns on the product pump. Push the switch once to turn the pump on. Push the switch again to turn the pump off. The icon (2) on the front overhead will illuminate alerting you that the pump is on.

The icon on the front overhead display will also alert you that the product pump is turned on when the remote pump switch is used, or when the pump is turned on with the display.

Turning the product pump on with a sump closed will cause the display to show a message stating “Product Pump won’t turn on when the Product and Rinse Sumps are both closed”.

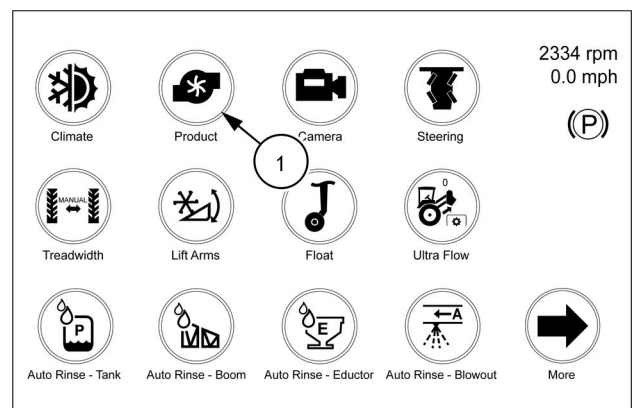


RAIL17SP00287AA 17



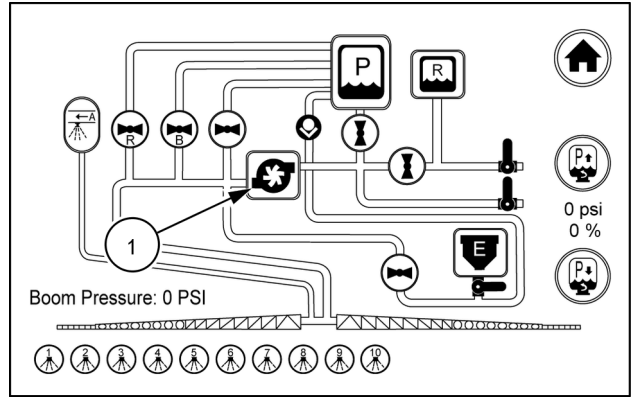
RAIL17SP00309FA 18

The pump icon will also display on the arm rest display. Touch the product icon (1) on the first home screen. The product circuit screen displays.



RAIL18SP00852FA 19

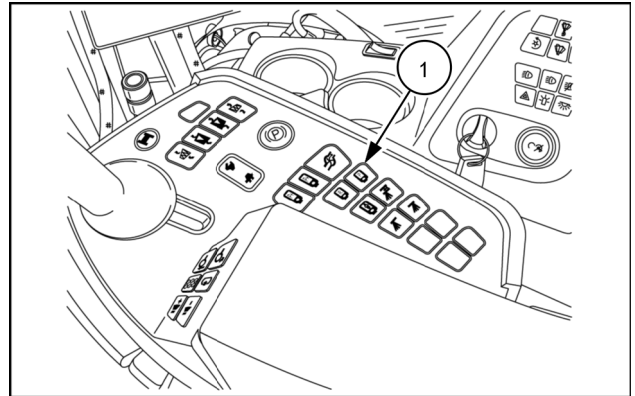
Touch the pump icon **(1)** on the product circuit screen. The product pump is activated. Touch the product pump icon again to turn the pump off.



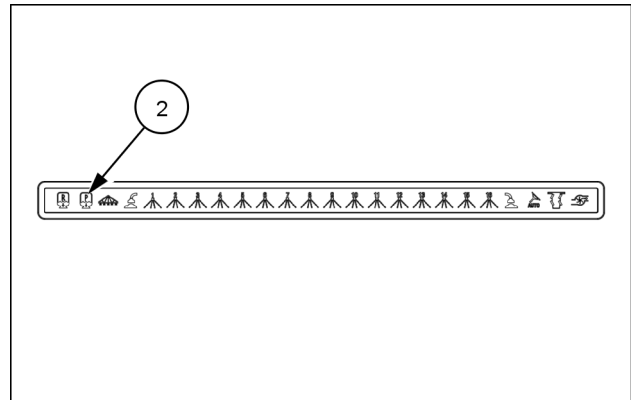
RAIL17SP00183AA 20

### Product sump on/off

This switch **(1)** opens and closes the product tank sump. The product tank sump icon **(2)** on the front overhead display will illuminate amber when the sump is open and change to red when the sump is closed.



RAIL17SP00287AA 21

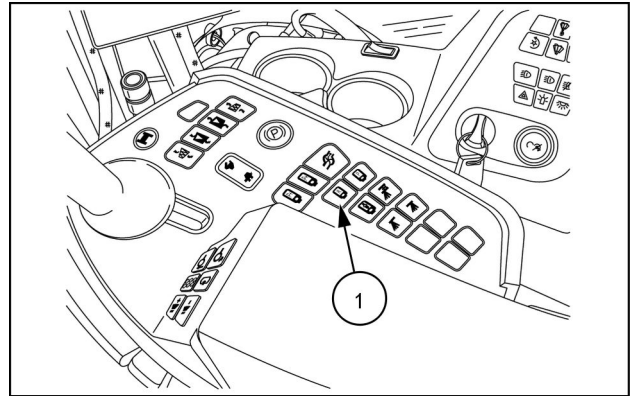


RAIL17SP00309FA 22

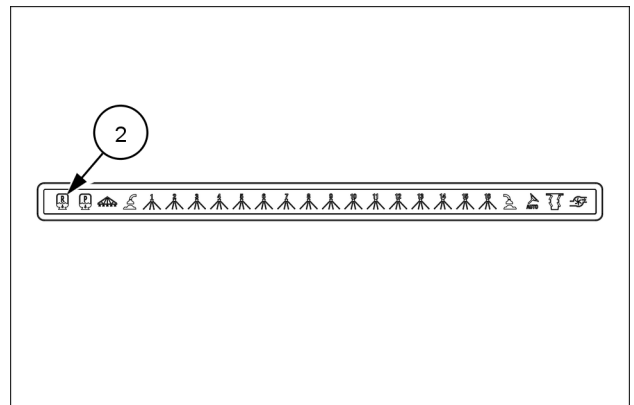
### Rinse sump on/off

This switch (1) allows the operator to open and close the rinse tank sump from the operator cab. Press the switch once to open the sump. Press the switch again to close the sump. This valve does not need to be open when filling with the fast-fill feature. The rinse tank sump icon (2) on the front overhead display will illuminate when the sump is open.

**NOTE:** When you shut the key off with the sump open, the sump will remain open. However, when you turn the key on, the sump will close. You will need to re-open the sump before starting the product pump.



RAIL17SP00287AA 23

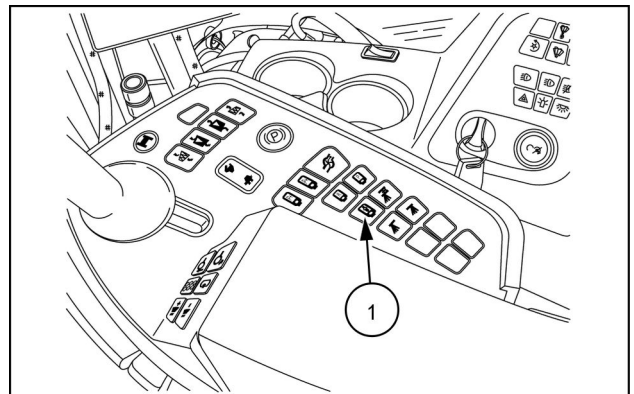


RAIL17SP00309FA 24

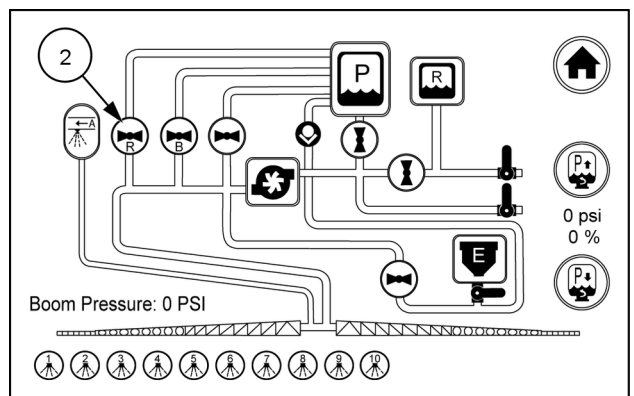
### Product tank rinse nozzles on/off

This switch (1) opens and closes the product tank rinse system valve. Be sure the rinse tank has enough water in it before turning this system on. Press the switch once to turn the valve on. Press the switch again to turn off.

The rinse system can also be activated by touching the "R" valve icon (2) on the product circuit screen.



RAIL17SP00287AA 25

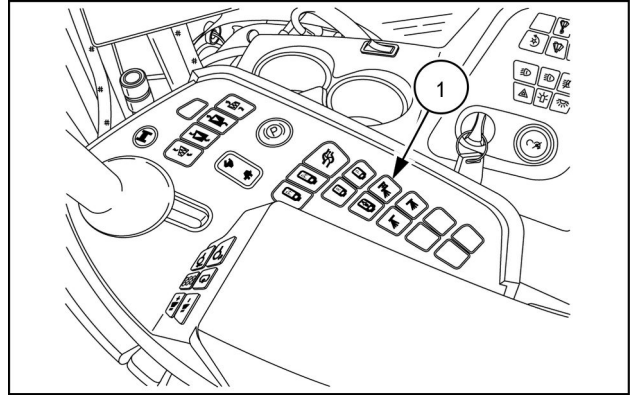


RAIL17SP00183AA 26

### Boom blowout

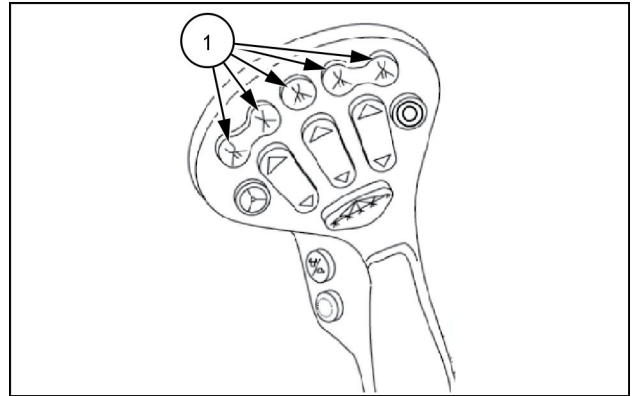
The operator can remove all liquid from the boom lines utilizing compressed air from the air storage tank. Press the switch **(1)** once to turn the system on to remove all the liquid. Press the switch again to turn the system off. The blow out system will blow all the liquid in the boom lines out through the nozzle tips.

**NOTE:** The blow out procedure should be done one section at a time to adequately remove the liquid..

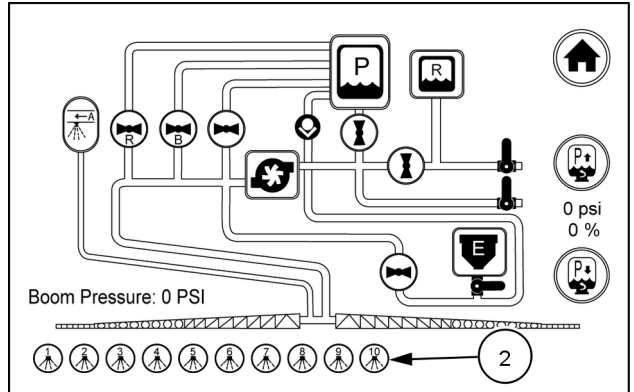


RAIL17SP00287AA 27

The boom sections can be turned on or off using the section control buttons **(1)** on the joystick or by turning the sections **(2)** on or off from the product circuit screen



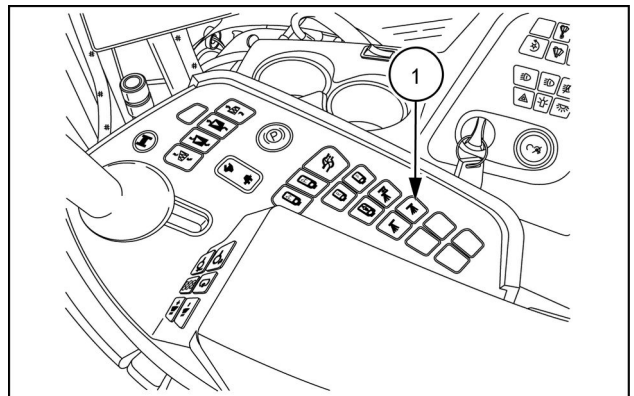
RAIL17SP00391AA 28



RAIL17SP00183AA 29

### Right-hand side fence row (if equipped)

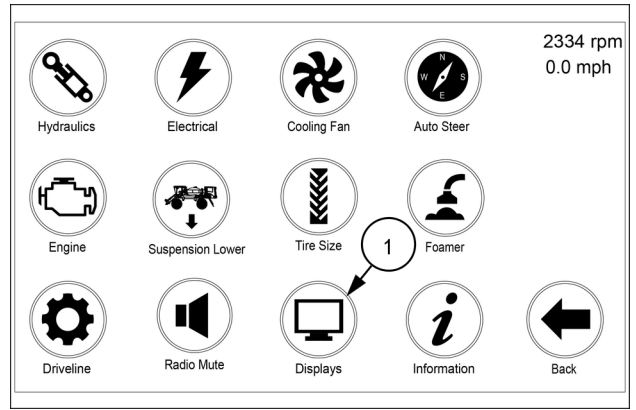
This switch **(1)** control the nozzle mounted to the outer edge of the right-hand side boom. This switch turns the nozzle on or off. This option is useful when at the edge of a field to complete a narrow band which would require another pass, or to allow you to move away from a fence line for easier maneuvering or avoid hitting obstacles. Press the switch once to turn the fence row nozzle on. Press the switch again to turn the fence row nozzle off.



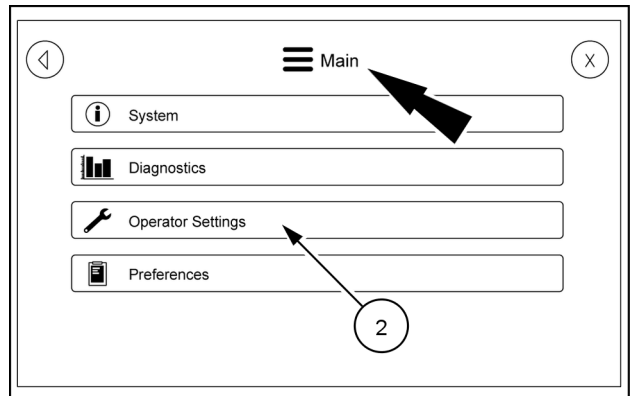
RAIL17SP00287AA 30



On the second home page touch the displays icon (1). This will bring up the main screen where you select operator settings (2).

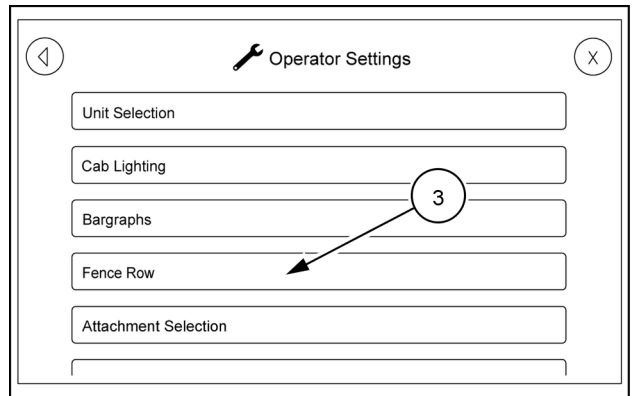


RAIL18SP00743FA 31

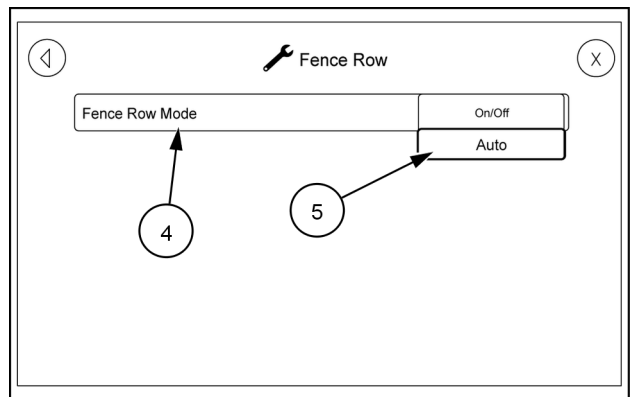


RAIL17SP00118AA 32

Touch the fence row icon (3) This will bring up the fence row mode icon (4) To have the left or right fence row nozzle turn on automatically with the outer most section, you must turn that feature on by selecting the auto icon (5).



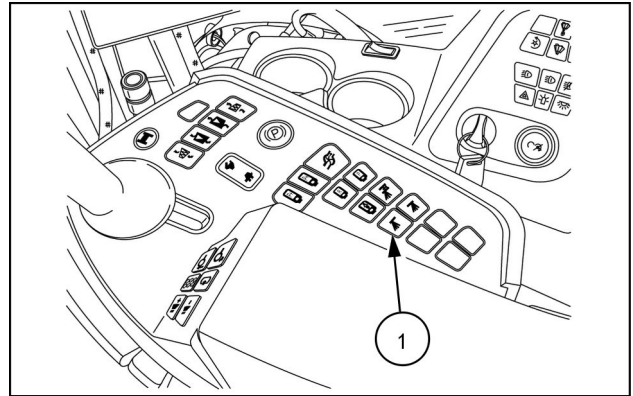
RAIL17SP00144AA 33



RAIL17SP00152AA 34

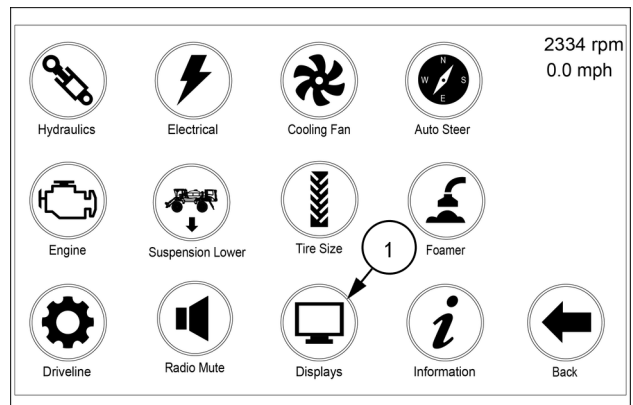
### Left-hand side fence row (if equipped)

This switch (1) controls the nozzle mounted to the outer edge of the left-hand side boom. This switch turns the nozzle on or off. This option is useful when at the edge of a field to complete a narrow band which would require another pass, or to allow you to move away from a fence line for easier maneuvering or avoid hitting obstacles. Press the switch once to turn the fence row nozzle on. Press the switch again to turn the fence row nozzle off.

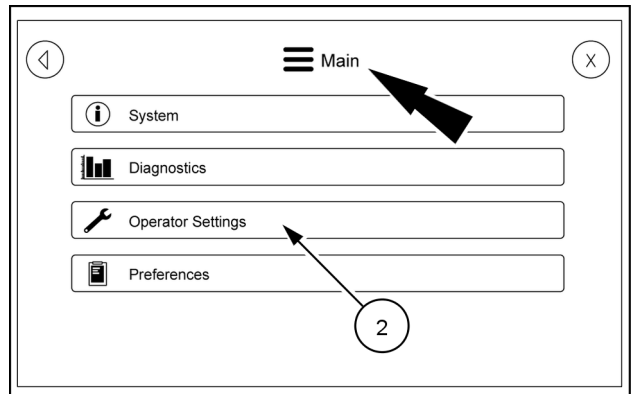


RAIL17SP00287AA 35

On the second home page touch the displays icon (1). This will bring up the main screen where you select operator settings (2)

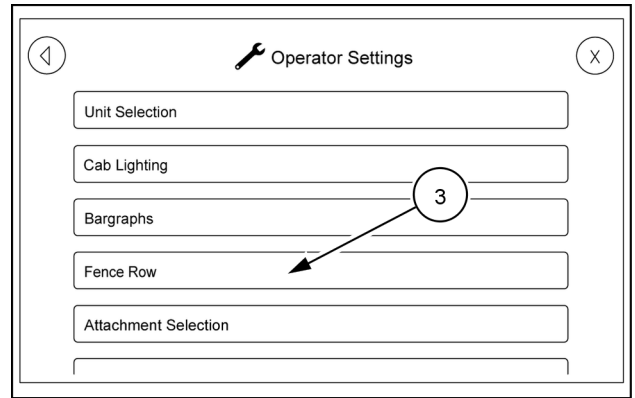


RAIL18SP00743FA 36

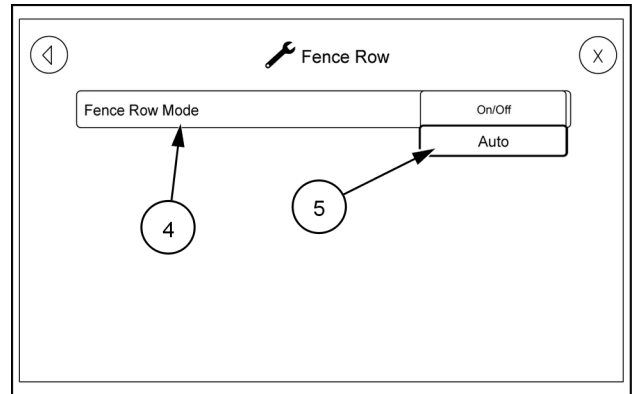


RAIL17SP00118AA 37

Touch the fence row icon (3) This will bring up the fence row mode icon (4) To have the left or right fence row nozzle turn on automatically with the outer most section, you must turn that feature on by selecting the auto icon (5).



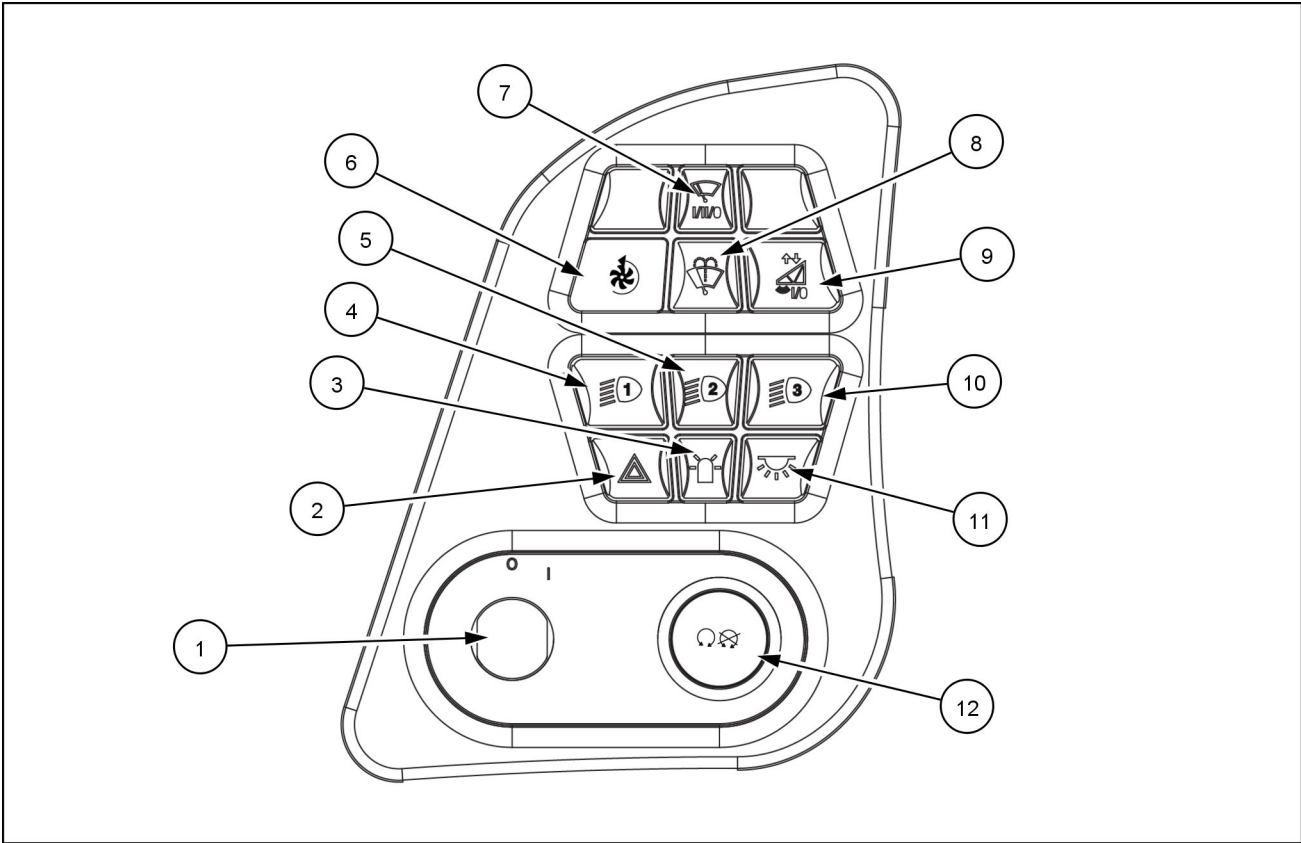
RAIL17SP00144AA 38



RAIL17SP00152AA 39

## Side console

Refer to the illustration and the table that follows to identify the switches and controls of the side console



RAIL18SP01075FA 1

Reference number	Switch controlling feature
1	Accessory on/off
2	Hazard flashers on/off
3	Rotating beacons on/off
4	Road lights on/off
5	Stadium lights on/off
6	Reversing fan override
7	Windshield wiper low/high/off
8	Windshield washer on/off
9	Auto boom on/off
10	Boom lights on/off
11	Egress lights on/off
12	Engine start/stop

### Ignition switch and engine start/stop button

To start the engine, turn the ignition switch (1) to the on position. Push the engine start/stop button (2) to start the engine.

To stop the engine only and leave the electrical system active push the engine start/stop button (2). Use this way of stopping the engine if there is a need to check a fault code or the need to leave the electrical system active. Be sure to turn the ignition switch (1) off before leaving the cab.

To stop the engine and shutting the complete electrical system down turn the ignition switch to the off position.

Remove the key from the ignition switch whenever the vehicle is left unattended.

To have the electrical system live without the engine running simply turn the ignition switch to the on position.

**NOTE:** The battery disconnect and the ignition switch must be in the on position or the engine running for the lights on this vehicle to operate.

### Hazard flasher switch

The hazard flasher switch (1) controls two amber lights in the front fenders and two double—faced amber lights located on the rear boom rests.

To turn the hazard lights on, press the switch.

To turn the hazard lights off, press the switch again.

Always use the hazard lights when traveling on public roads.

The amber lights are also connected to the turn signal lever and will come on when the turn signals are activated. Refer to 3-11.

### Rotating beacon switch

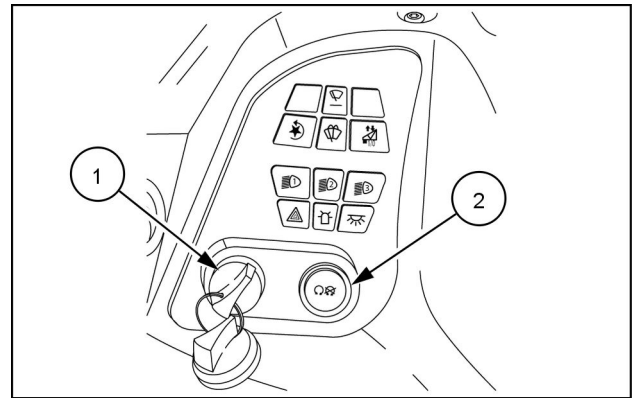
The rotating beacon switch (1) activates the rotating beacon or beacons.

To turn the rotating beacon on, press the switch.

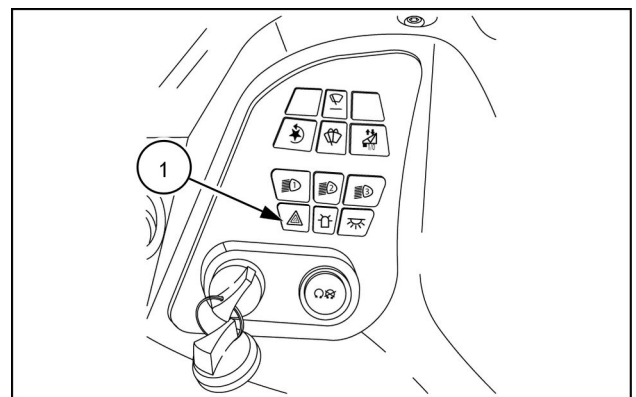
To turn the rotating beacon off, press the switch again.

Press and hold the beacon switch to change the flash pattern of the beacons.

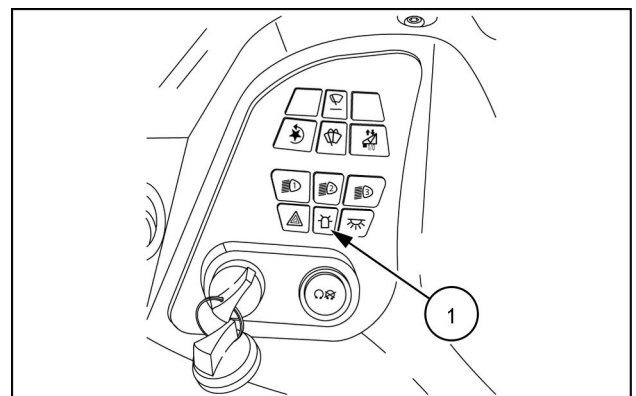
**NOTE:** Be sure the flash pattern selected meets local traffic regulations.



RAIL17SP00263AA 2



RAIL17SP00263AA 3



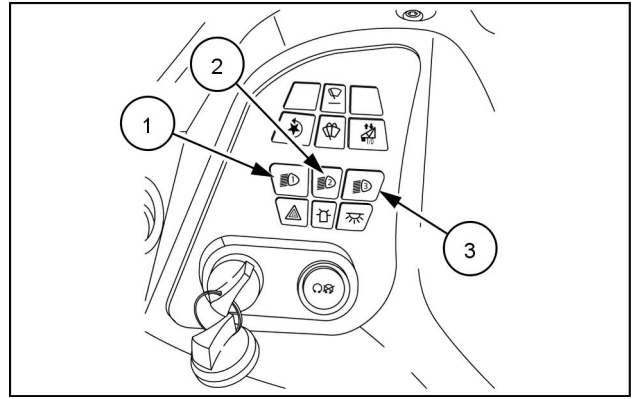
RAIL17SP00263AA 4

### Road headlights switch

The road headlight switch (1) turns the road headlights located in the front fenders on and off. Press the switch to turn the road headlights on. Press the switch again to turn the road headlights off.

### Auto headlights (luxury cab only)

To turn the auto headlight feature off, press and hold the road headlight switch (1) for approximately 5 seconds. Once the ignition is turned off and back on, the auto headlights will reset. If the auto headlights were turned off with the display, you must switch them back to auto with the display.



RAIL17SP00263AA 5

### Stadium lights switch

The stadium lights switch (2) turns the six stadium lights located at the front of the cab on and off. Press the switch to turn all six of the stadium lights on. Press the switch again to turn all the stadium lights off.

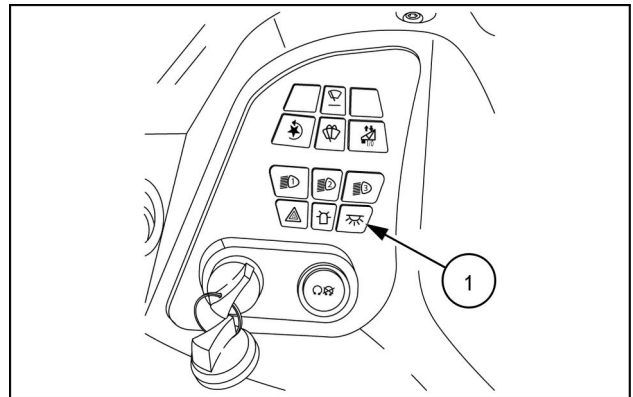
### Boom lights switch

The boom light switch (3) turns the boom lights on or off. The boom lights are located in the boom center section, and on the left-hand and right-hand boom rests. Press the switch to turn the boom lights on. Press the switch again to turn the boom lights off.

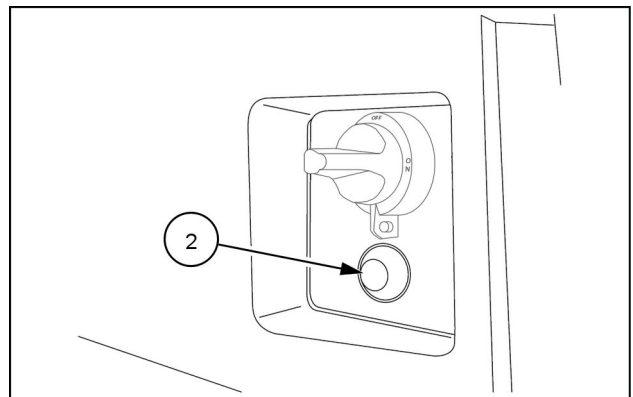
### Egress lights switch (if equipped)

The egress lights are activated by pressing the egress light switch (1). These lights will come on and stay on when switch is active. They can also be activated by pressing the outside egress light switch (2) located on the left—hand rear corner of the engine compartment hood and placing the dome light switch to the left-hand side.

The egress lights consist of the lights positioned on the side of the fuel tank, rinse tank and along the side rail of the ladder..



RAIL17SP00263AA 6



RAIL15SP01232AA 7

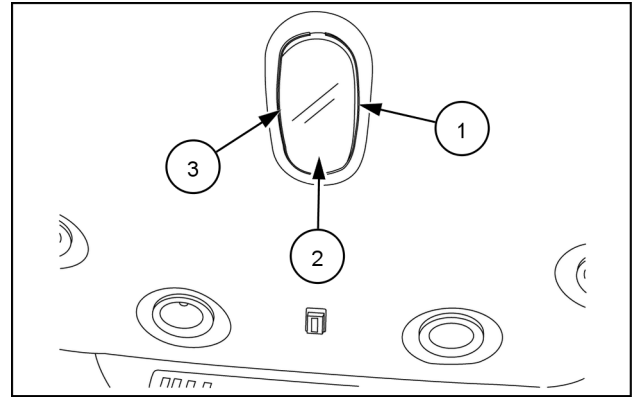
### Cab dome light

The cab dome light is located in the cab head liner and is controlled by pressing either the right side, left side or placing the light in the center position.

While facing forward in the operators seat, press the light to the right side **(1)** to have the dome light on all the time.

Place the dome light in the center **(2)** to turn the dome light off.

With the cab door closed press the dome light to the left **(3)** to have the dome light and egress lights come on when the door is opened and go off when the door is closed.

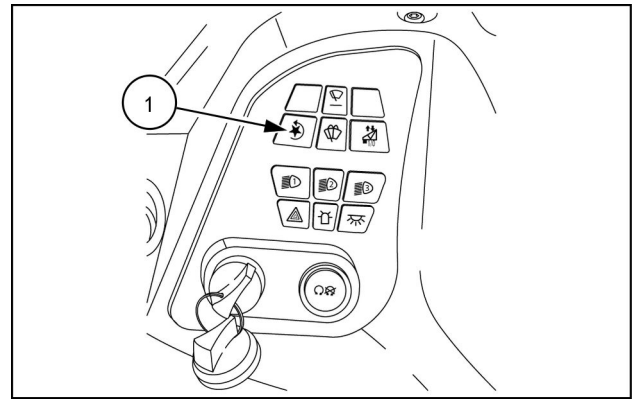


RAIL17SP00227AA 8

### Reversing fan override switch

The reversing fan override switch **(1)** is used to override the automatic settings for reversing the fan which is controlled by the arm rest display.

If the cooling system becomes clogged with debris and the automatic setting has not yet engaged, push the override switch and the reverse cycle will initiate.

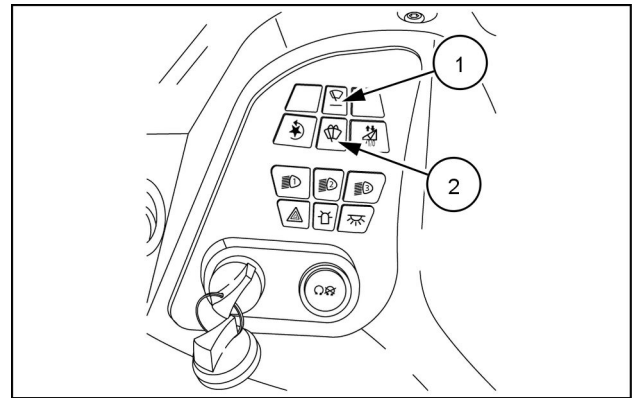


RAIL17SP00263AA 9

### Windshield wiper switch

The windshield wiper will stop on the right side of the windshield when the switch is turned off. Press the switch **(1)** once to turn the wiper on low speed. Press the switch twice for high speed. Press the switch again to turn the wiper off.

The ignition switch must be in the on position for the windshield wiper to work.



RAIL17SP00263AA 10

### Windshield washer switch

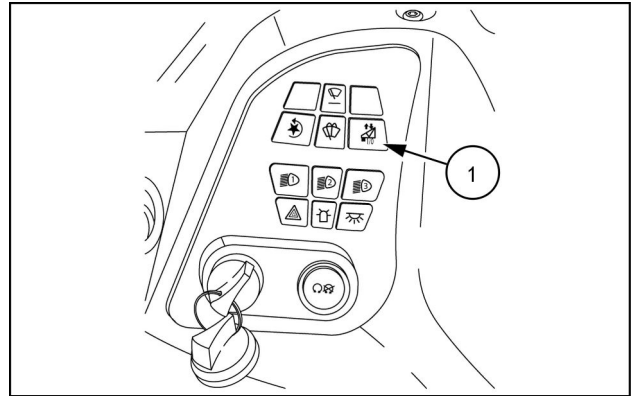
To activate the windshield washer, press and hold the washer switch **(2)** in. The washer will be activated as long as the switch is held in position. When the switch is released it will return to the off position

The ignition switch must be in the on position for the windshield washer to work.

## Auto boom switch

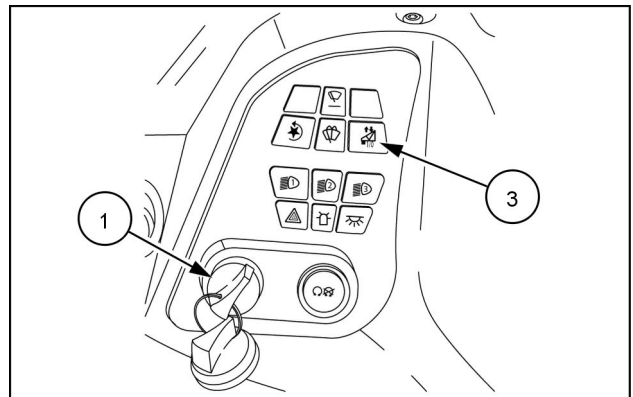
Press the auto boom switch **(1)** to unlock the auto boom (turn on switch amber). Press the auto boom switch again to lock the auto boom (turn off switch blue).

The auto boom system must be activated each time the ignition key is turned to the ON position.

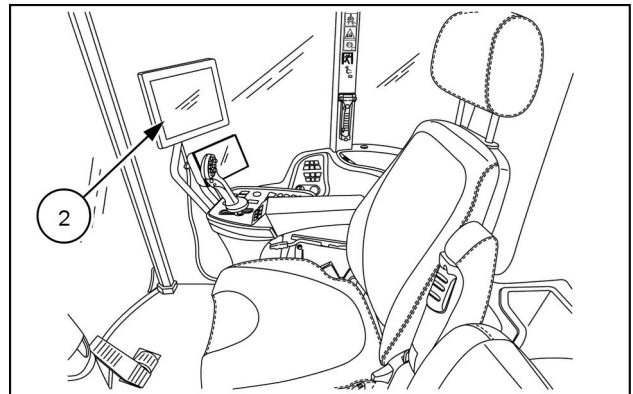


RAIL17SP00263AA 11

1. Turn the ignition key **(1)** to the ON position.
2. The **IntelliView™** monitor **(2)** will become active. After the splash screen the **Raven™** monitoring screen will appear.
3. Touch the auto boom icon on the left-hand side of the screen. A liability warning screen will appear with a green check mark on the right-hand side of the screen.
4. Touch the green check mark and the auto boom screen will appear. There is a red switch icon in the upper right-hand corner signifying the system is OFF. To activate the system press the auto boom switch **(3)** on the side console. The switch icon on the screen is now green and the switch on the side console is now amber.
5. To turn the auto boom OFF, press the switch on the side console, the switch will turn blue and the switch icon on the screen will turn red.



RAIL17SP00263AA 12



RAIL17SP00310AA 13

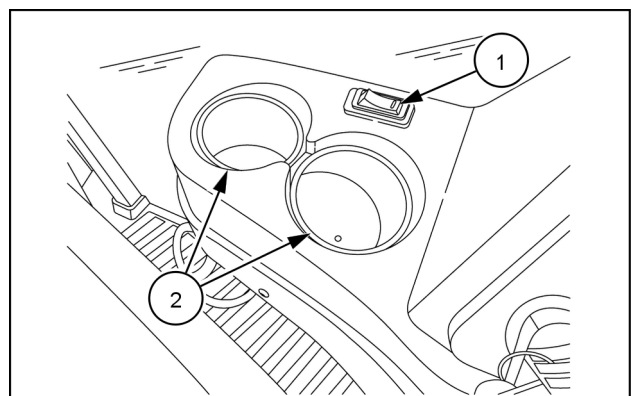
## Auto steer roading lock switch

The auto steer roading lock switch **(1)** is a rocker type switch used to disable the auto steer function when driving on roadways. The switch is located on the right side console next to the cup holder **(2)**.

Push the front of the rocker switch to enable the auto steer function.

Push the rear of the rocker switch to lock out (disable) the auto steer function.

**NOTE:** The auto steer lockout should activate automatically above a certain speed if the switch is left on while roading. If this occurs you must cycle the lock switch to reset.



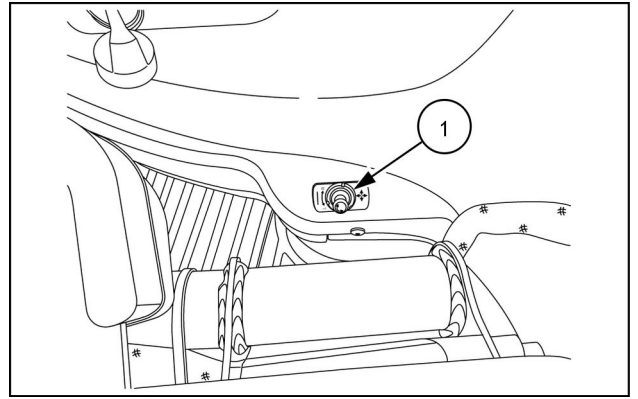
RAIL17SP00288AA 14



### Electric mirror adjustment control

To adjust the left-hand or right-hand side mirrors, locate the mirror adjustment control **(1)** to the right of the main switch panel and below the ignition switch panel. Turn the control to the right or left to select the mirror being adjusted.

Use the control by moving it forward, backward or side to side to adjust. When adjustment is complete turn the control back to the center. There is a small white indicator on the control.



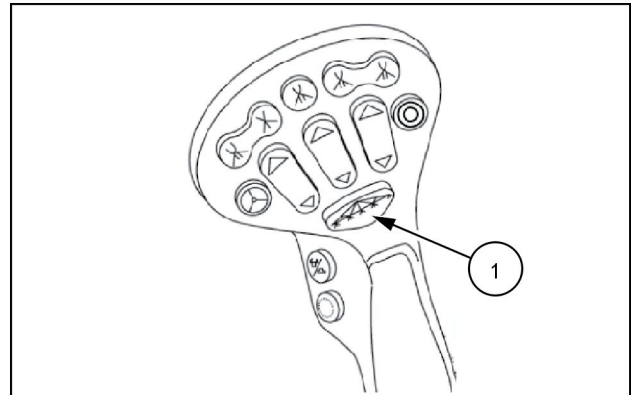
## Joystick control handle

### Boom control functions

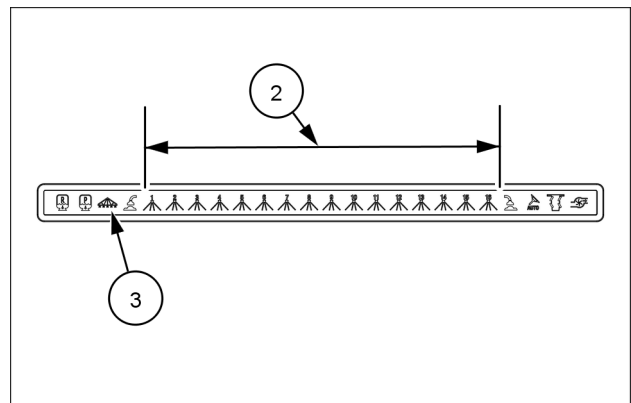
The joystick control handle is used to control boom functions as well as speed and direction of travel. The joystick control handle also controls the auto steer on/off (if equipped) and the optional foamer.

The face of the joystick has several buttons that are used to control boom functions.

**Master on (1):** When the Master button on the joystick is pushed to activate the boom functions the master on button will turn on all the boom sections. The boom section icons (2) on the front overhead display will illuminate as well as the boom master icon (3). When the master on button is pushed again, it will shut off all the boom sections. When the button is pushed the button will turn "Green" showing that it is active. When turned off the button will change back to red.



RAIL17SP00391AA 1

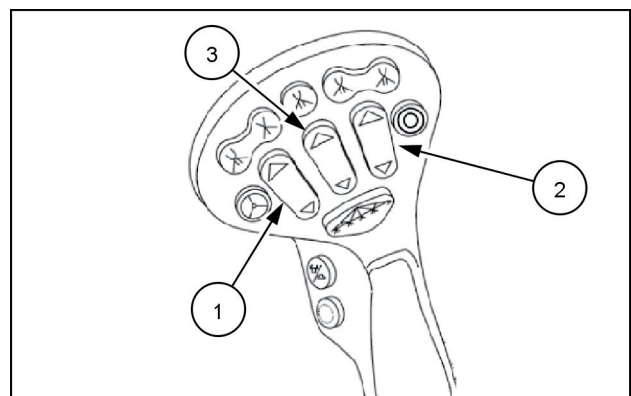


RAIL17SP00309FA 2

**Left boom tilt up and down (1):** Tilts the left boom up or down. The top of the button will tilt the boom up and the bottom of the button will tilt the boom down.

**Right boom tilt up and down (2):** Tilts the right boom up or down. The top of the button will tilt the boom up and the bottom of the button will tilt the boom down.

**Center section (lift arms) raise and lower (3):** Raises or lowers the center section of the boom. The top of the button will lift the center section up and the bottom of the button will lower the center section. The lift arms can also be raised and lowered from the remote key pad located on the side of the fill snorkel under the frame. Engages/disengages the float circuit if equipped and active.

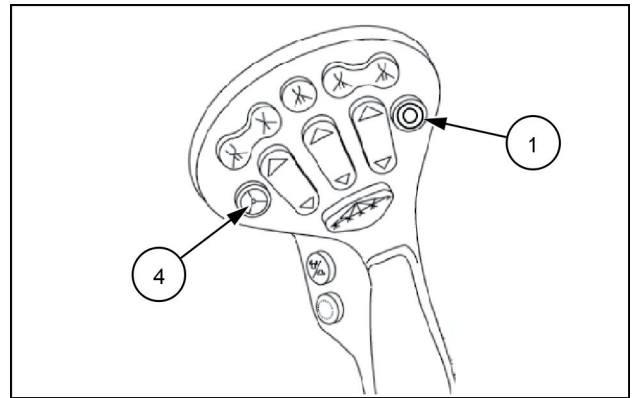


RAIL17SP00391AA 3

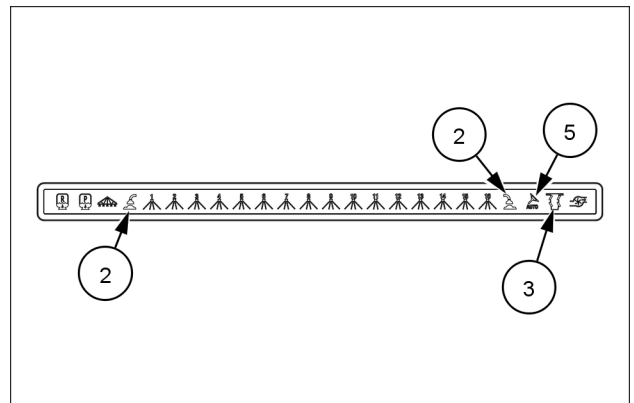
Multi-function button on/off for foamer or 4 wheel steer **(1)** (depending how your vehicle is equipped): Pushing the button will turn the foamer system (when not equipped with 4 wheel steer) or 4 wheel steer on or off. When active the foamer icon **(2)** or the 4 wheel steer icon **(3)** on the front overhead display will illuminate.

If your vehicle has 4 wheel steer and a foamer, the left right foamer selection will be controlled by the turn signal lever when the foamer is turned on with the display.

Auto steer on and off (if so equipped) **(4)**: Pushing the button turns the auto steer on. The auto steer icon **(5)** on the front overhead display will illuminate. Push the button again to turn the auto steer off and the icon will go off.



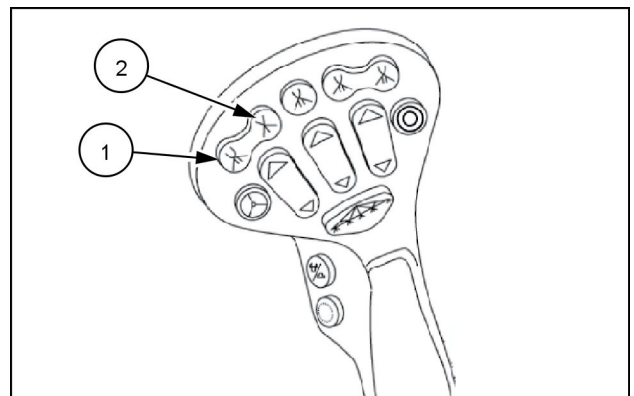
RAIL17SP00391AA 4



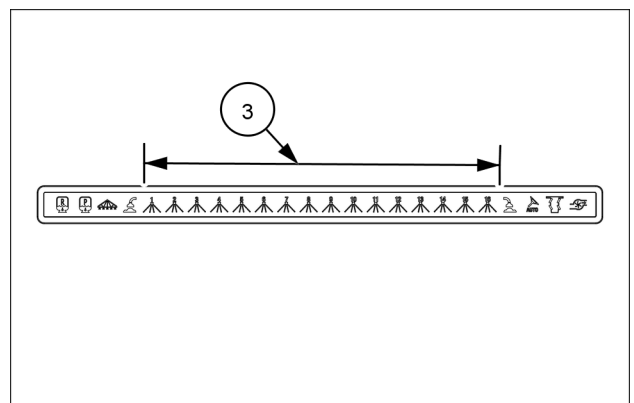
RAIL17SP00309FA 5

Boom section 1 (1 and 2 for 10-section boom) on and off **(1)**: Push the left side of the button to turn boom 1 on. The icon **(3)** on the front overhead display will illuminate indicating that the section is active. The button will change to green. Push the left side again to turn boom 1 off and the button will change back to red. The button will change to amber when the switch is on and the master is off.

Boom section 2 (3 and 4 for 10-section boom) on and off **(2)**: Push the right side of the button to turn boom 2 on. The icon on the front overhead display will illuminate indicating that the section is active. The button will change to green. Push the right side again to turn boom 2 off and the button will change back to red. The button will change to amber when the switch is on and the master is off.

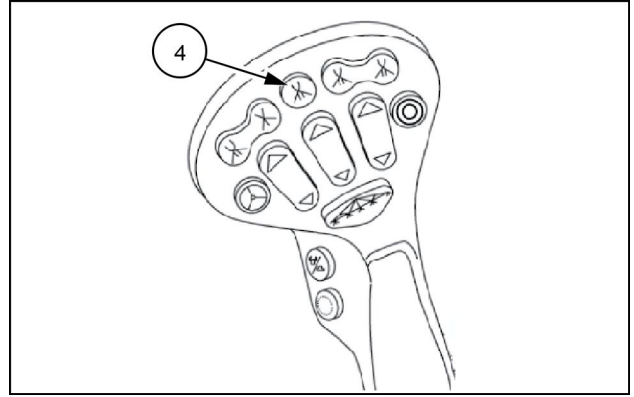


RAIL17SP00391AA 6

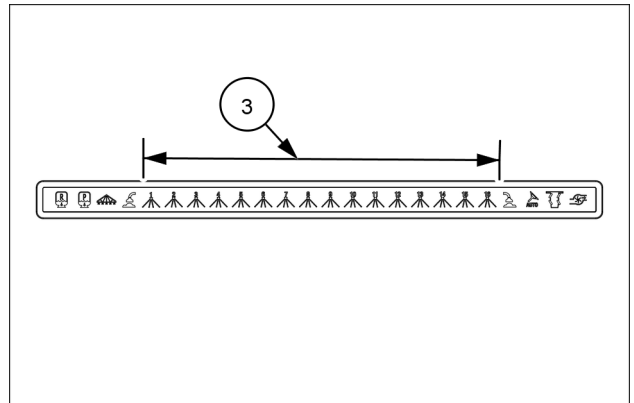


RAIL17SP00309FA 7

Boom section 3 (5 and 6 for 10-section boom) on and off **(4)**: Push the button to turn boom 3 on. The icon **(3)** on the front overhead display will illuminate indicating that the section is active. The button will change to green. Push the button again to turn boom 3 off and the button will change back to red. The button will change to amber when the switch is on and the master is off

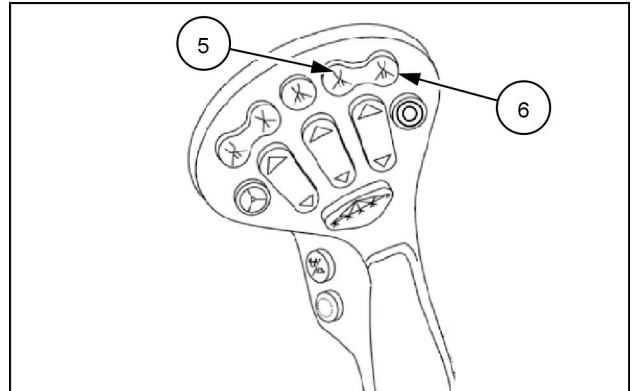


RAIL17SP00391AA 8



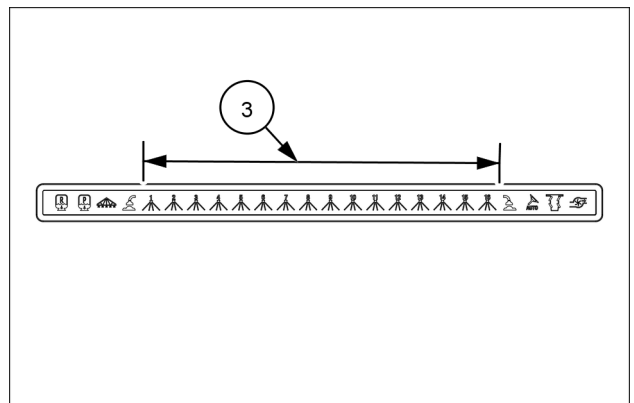
RAIL17SP00309FA 9

Boom section 4 (7 and 8 for 10-section boom) on and off **(5)**: Push the left side of the button to turn boom 4 on. The icon **(3)** on the front overhead display will illuminate indicating that the section is active. The button will change to green. Push the left side again to turn boom 4 off and the button will change back to red. The button will change to amber when the switch is on and the master is off.



RAIL17SP00391AA 10

Boom section 5 (9 and 10 for 10-section boom) on and off **(6)**: Push the right side of the button to turn boom 5 on. The icon on the front overhead display will illuminate indicating that the section is active. The button will change to green. Push the right side again to turn boom 5 off and the button will change back to red. The button will change to amber when the switch is on and the master is off.



RAIL17SP00309FA 11

## Direction control and travel speed functions

In addition to the boom control buttons, the joystick is also used to control direction of travel as well as speed of travel.

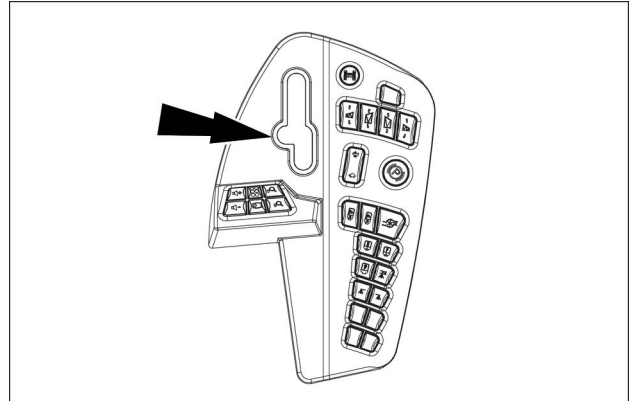
To Start the engine: the three following conditions must be met:

1. The joystick must be in the neutral position.
2. The parking brake must be set.
3. The operator must be seated in the operator's seat.

Before the machine is allowed move forward or reverse, the following steps must be completed:

1. Turn ignition switch to the ON position. (The engine must also be running)
2. Place the joystick in the neutral position.
3. Disengage the vehicle park brake..
4. Press brake pedal to full travel and release.

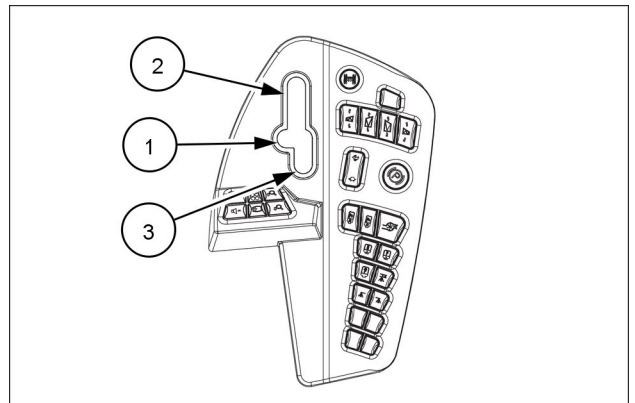
**NOTE:** These steps must be completed each time the ignition switch is turned to the STOP position.



RAIL17SP00307FA 12

To Move Forward: From the center (Neutral) position **(1)** push the joystick forward **(2)** to move forward. Pushing the joystick further forward also increases the travel speed within that range. Pushing the joystick full forward will take the speed up to the preset speed in that range. Pushing the joystick halfway will take the speed up to half of the preset speed in that range. Depending how far you push the joystick forward will determine how fast the vehicle will move in that range.

To Move in Reverse: From the center (Neutral) position pull the joystick backward **(3)** to move in reverse. Pulling the joystick further backward also increases the travel speed up to a preset speed of **8 km/h (5 mph)**. If the range speed setting selected is less than **8 km/h (5 mph)**, the reverse speed will be limited to the lower range speed.



RAIL17SP00307FA 13

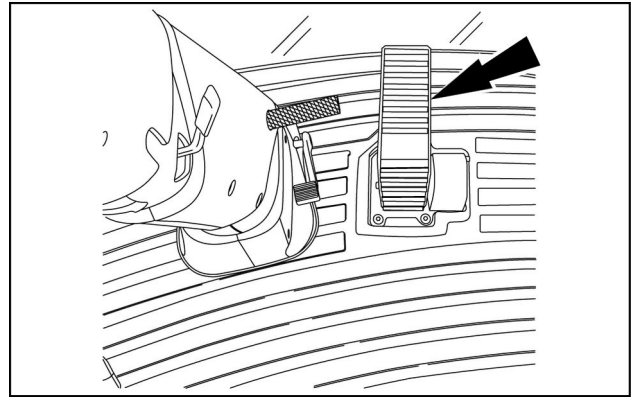
**Slowing Vehicle with Joystick:** The joystick should be used to slow the vehicle under normal operating conditions.

**Brake Pedal:** The brake pedal is located on the right side of the steering column. The pedal is used to slow the vehicle to a smooth stop. The pedal applies the brake to all four wheels and reduces the propel command to the hydrostat pumps. If the brake pedal is pressed more than 65% of travel, the machine will come to a complete stop. Return the joystick to the neutral position to reset the propel system and then continue normal operation.

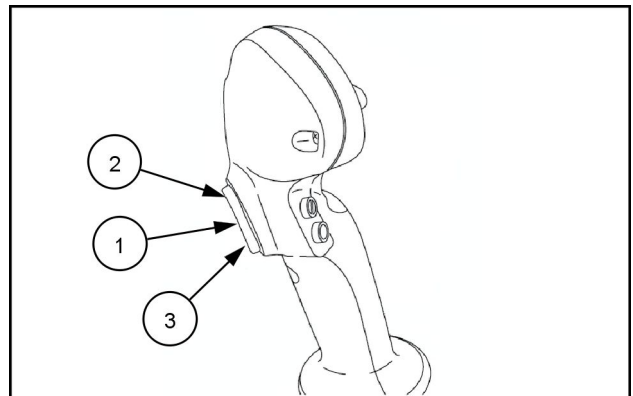
If the brake is pressed less than 65% of travel and then released, the drive will return to the preset speed set by the joystick and range selector.

The brake pedal can be used in conjunction with the joystick to rapidly slow the vehicle.

**To increase or decrease "Tic" marks within a range:** With the joystick in any position, the "Tic" marks within a range can be moved up or down by using the trigger (1) on the joystick without any buttons held. Push the top (2) of the trigger to increase or the bottom (3) of the trigger to decrease the preset "Tic" marks on the display.

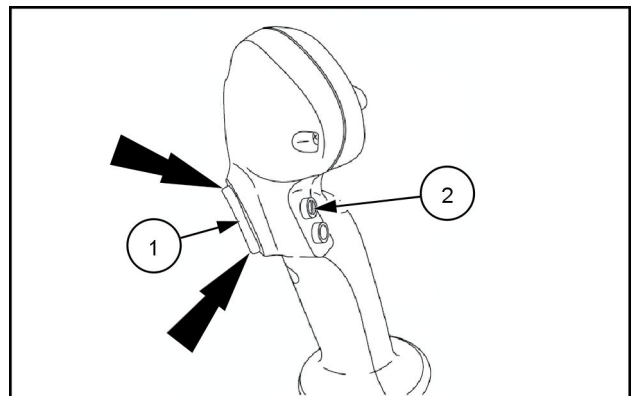


RAIL17SP00226AA 14



RAIL17SP00696AA 15

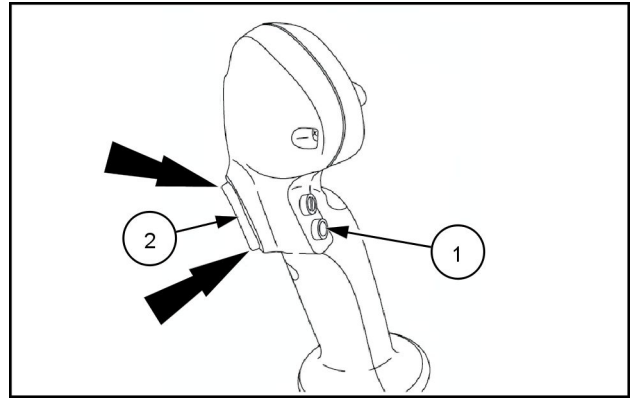
The engine speed can be increased or decreased with the trigger (1) in conjunction with the engine speed control button (2). While holding the engine speed button on the side of the joystick, use the trigger on the front of the joystick to increase (upper part of trigger) or decrease (lower part of trigger). The button must be held when using the trigger.



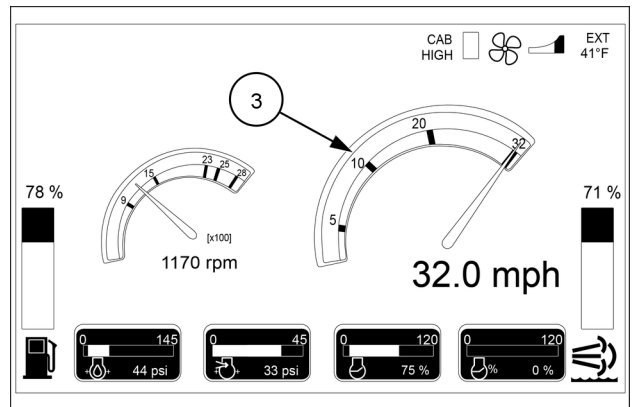
RAIL17SP00696AA 16

The range selector is a push button (1) on the side of the joystick along with the trigger (2) on the front of the joystick and has four speed ranges. Speed range is selected with the trigger, in conjunction with pressing the range button. The speed range can be changed up or down at any time with the vehicle in motion forward or reverse “shift on the go”. While holding the range selector button down, use the trigger on the front of the joystick to shift up (trigger up) or shift down (trigger down). The range button must be held down while using the trigger. Watch the speedometer (3) on the home page of the A-post display as you shift through the ranges. The arc of the speedometer will change colors in the ranges. The range you are in will display as white as well as the lower range.

The range marks on the speedometer gauge will move as you set the speed desired for each range. Refer to 3-63 for a detailed explanation of how to set.



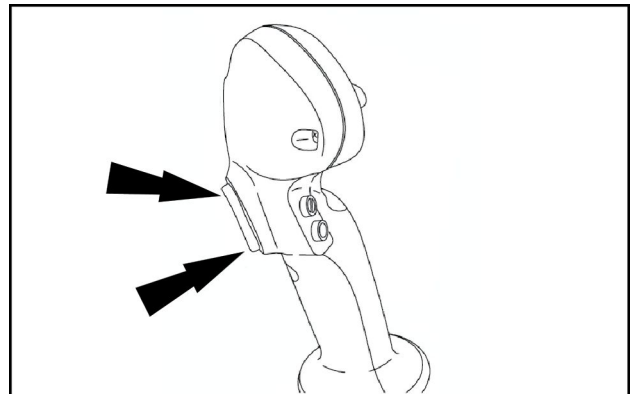
RAIL17SP00696AA 17



RAIL18SP00380FA 18

In each of the speed ranges, you have the ability to increase or decrease the speed by **0.3 km/h (0.2 mph)**. To change the speed within a range, simply press the top of the trigger (without pressing the range selector button) to increase the speed or press the bottom of the trigger (without pressing the range selector button) to decrease the speed.

The speed ranges can also be increased or decreased with the display screen. Refer to 3-87



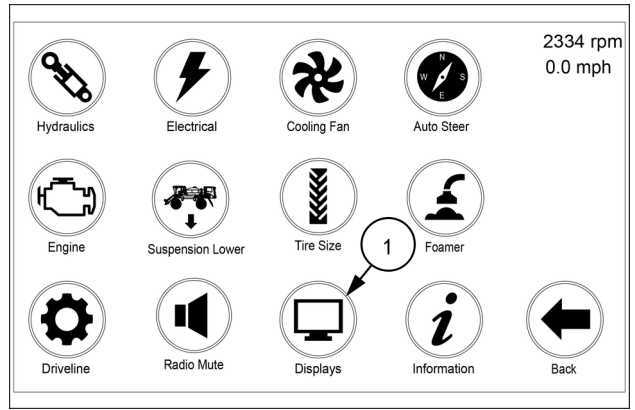
RAIL17SP00696AA 19

### Activating index section control joystick

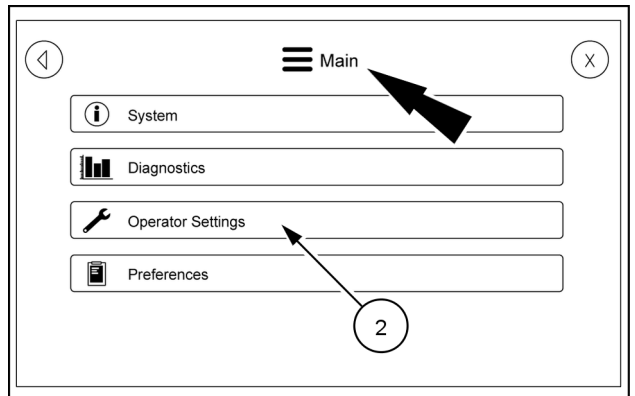
The joystick handle can be reprogrammed to the indexing mode.

On the armrest second home page, touch the Displays icon (1). The Main screen will appear. Touch the Operator Settings icon (2).

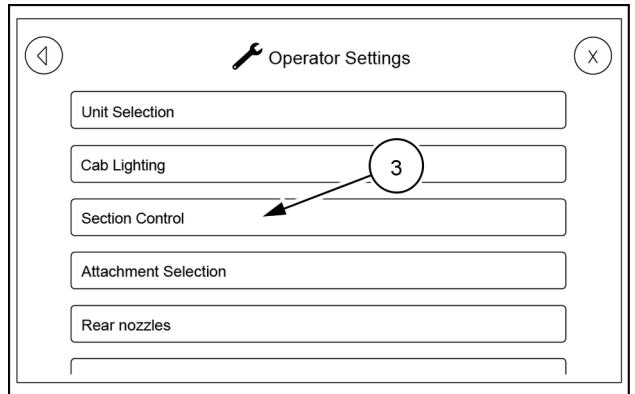
The Operator Settings screen is a scroll screen. Use the finger swipe method to scroll down until the Section Control icon (3) appears. Touch the Section Control icon



RAIL18SP00743FA 20



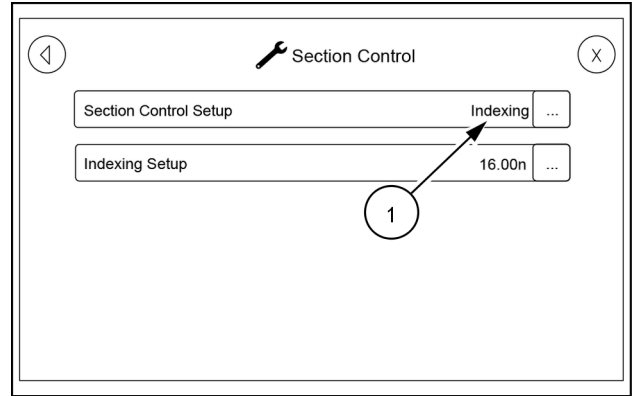
RAIL17SP00118AA 21



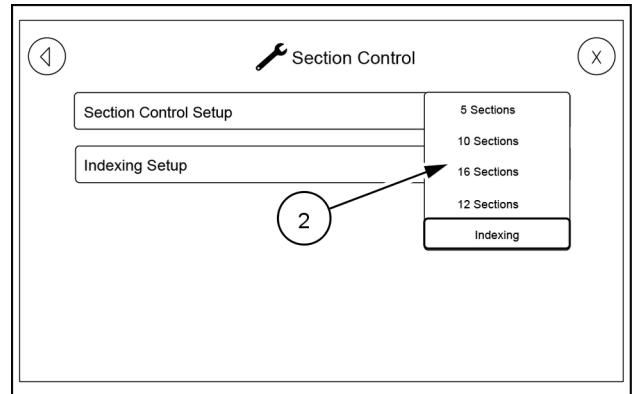
RAIL17SP01462AA 22



The Section Control screen will appear. This screen has two selectable options. Touch the Section Control Setup icon (1) at the right-hand side to bring up a menu (2) where the number of sections to be indexed can be selected.

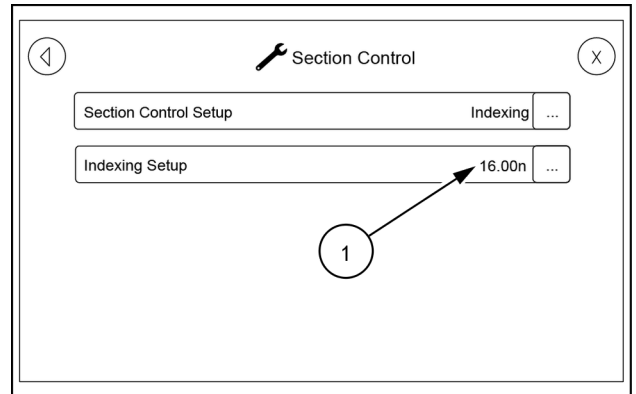


RAIL17SP01463AA 23

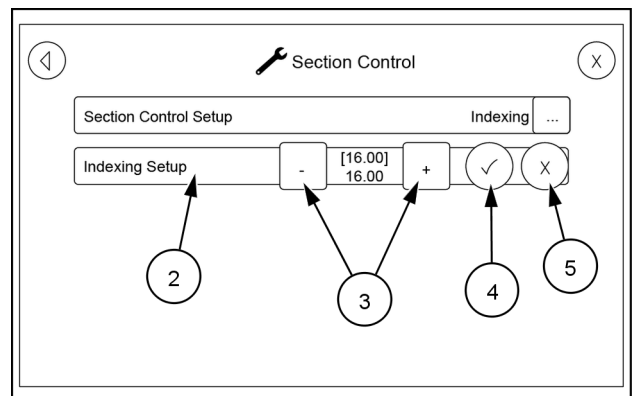


RAIL17SP01464AA 24

On the Section Control screen touch the Indexing Setup icon (1) at the right-hand side to bring up the Indexing Setup icon (2) where the number of sections to be indexed can be set by using the (+) or (-) icons (3). After the setting is correct, touch the check mark icon (4) to lock the setting in. Then touch the X icon (5) to close the selection and save. If the number of sections has not been changed, close the selection with the X icon



RAIL17SP01463AA 25



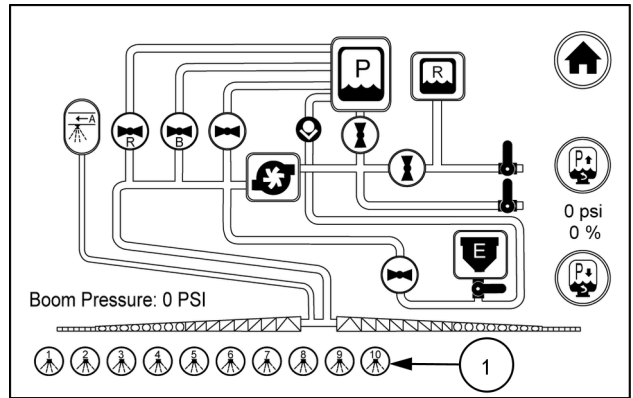
RAIL17SP01465AA 26

### Index section control joystick

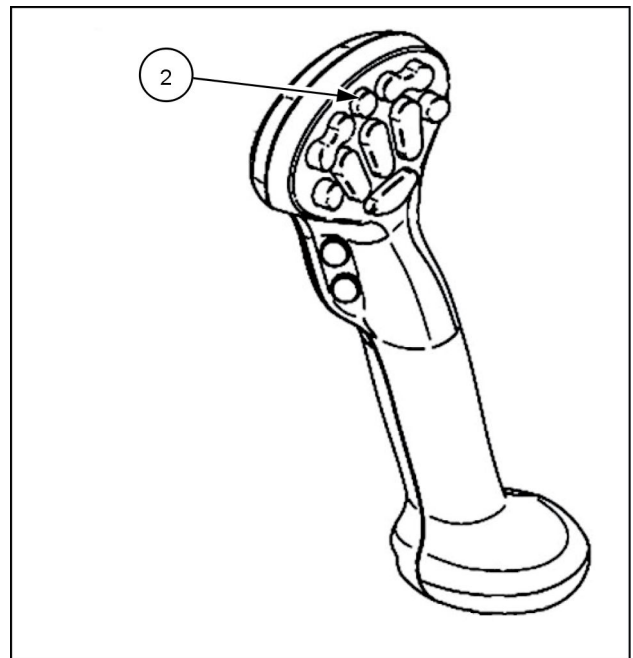
Refer to **3-63** for product pump operation.

The joystick handle can be reprogrammed to the indexing mode by going to the machine setup screen and choosing indexing. Activate the indexing system.

The individual sections can be turned off from the outer section first to the inner sections in one of two ways. Using the touch screen you can touch the individual valves **(1)** to turn off. The valve will be red when off. To turn the sections back on from the inner toward the outer you can touch the valves in order or press the center button **(2)** on the joystick to turn all on at once. The valves will turn green when on.



RAIL17SP00183AA 27

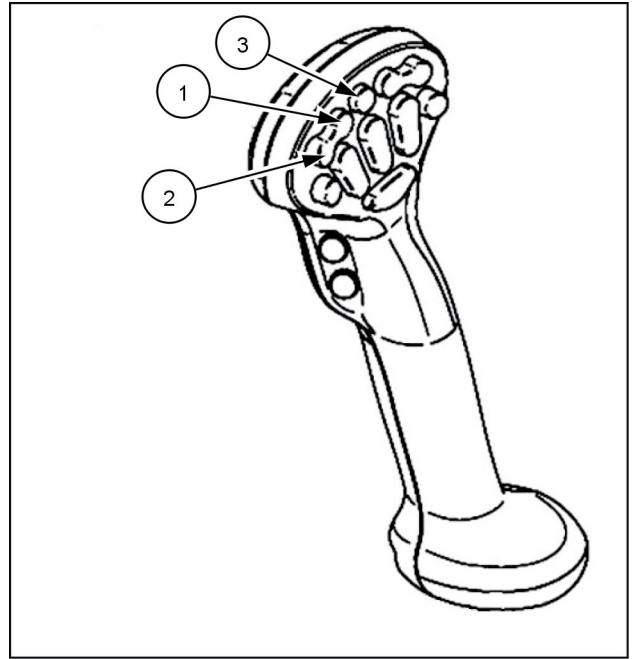


RAIL15SP00918AA 28

To turn the sections off or on with the joystick, choose which side of the boom you will be turning off.

For the left side boom: press the right half **(1)** of the left side section control to turn the sections off one at a time starting at the outer most section. Each time the button half is pressed the next section will be turned off. To turn the left side sections back on, from the inner most to the outer most, press the left half **(2)** of the left side section control to turn the sections on in order from the inner section. Each time the button is pressed the next section will turn on.

To turn all the sections on immediately, press the center button **(3)** on the joystick.



RAIL15SP00918AA 29



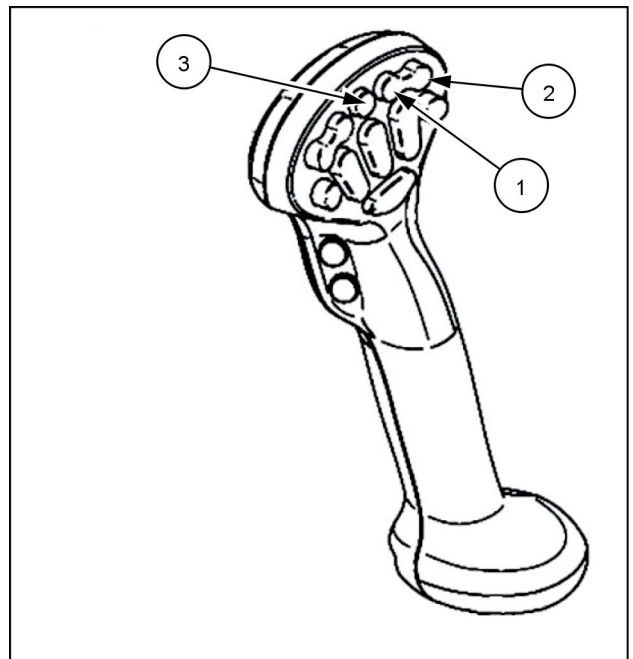
RAIL15SP00919AA 30



RAIL15SP00921AA 31

For the right side boom: touch the left half **(1)** of the right side section control to turn the sections off one at a time starting at the outer most section. Each time the button half is pressed the next section will be turned off. To turn the right side sections back on, from the inner most to the outer most, press the right half **(2)** of the right side section control to turn the sections on in order from the inner section to the outer. Each time the button is pressed the next section will turn on.

To turn all the sections on immediately, press the center button **(3)** on the joystick.

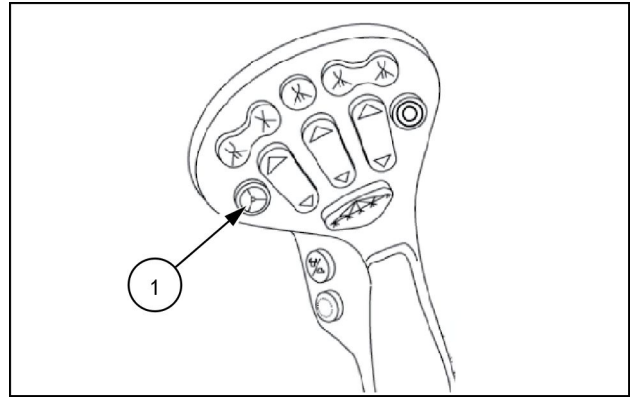


RAIL15SP00918AA 32

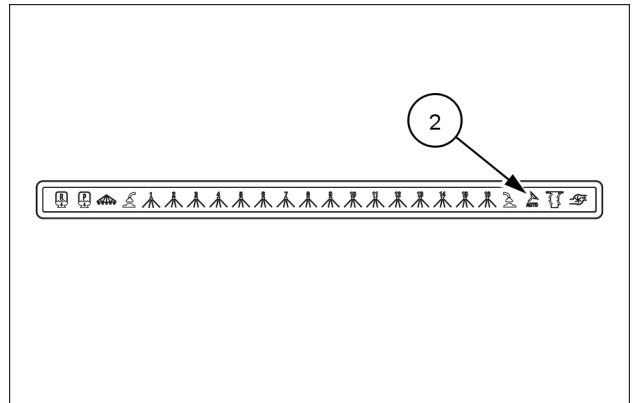
### Auto steer on/off button (optional)

When equipped with the auto steer option, it will be turned on and off using the auto steer button **(1)** on the joystick. Push the button to activate the auto steer option. Once the auto steer is engaged, the button will turn green. The auto steer icon **(2)** on the front overhead display will illuminate. Push the button again to turn the system off. Once the auto steer disengages, the button will turn back to red. Turning the steering wheel manually will also disengage the auto steer.

**NOTE:** You must engage AutoSteer via the display before you can use the functionality.



RAIL17SP00391AA 33

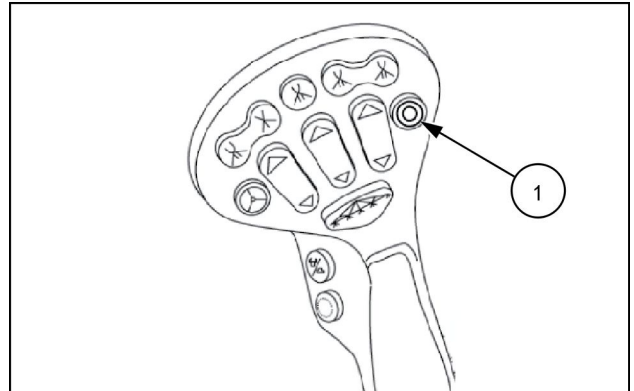


RAIL17SP00309FA 34

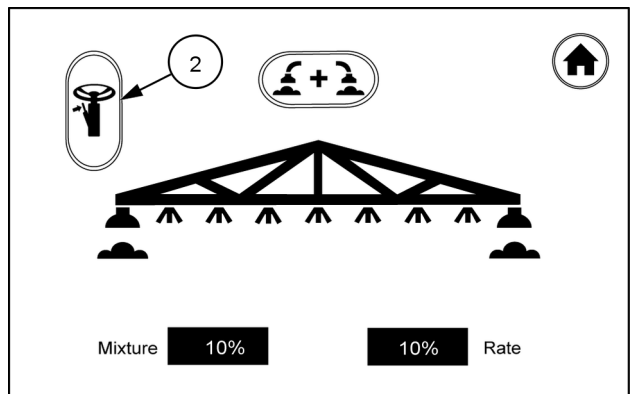
### Multi-function button

The multi-function button **(1)** on the joystick will work as off-right-off-left-off by pressing in this order when the foamer option is active.

The multi-function button on the joystick will toggle both sides (off-both-off) when the dual foamer is turned on with the screen and the turn signal lever icon **(2)** on the screen has been activated.



RAIL17SP00391AA 35



RAIL17SP00204AA 36

## Radio

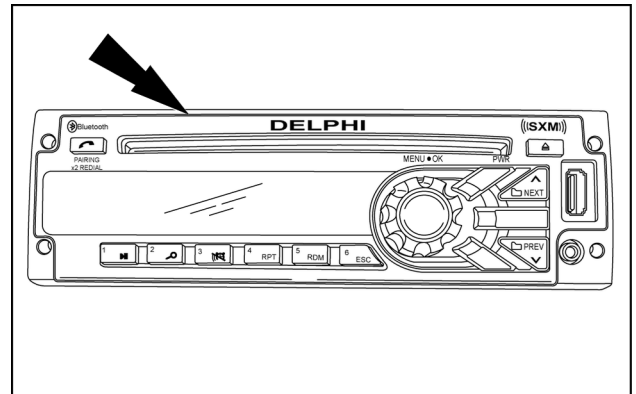
### AM/FM/WX stereo radio with compact disc player (Bluetooth® capable)

For any programming of the radio, refer to the radio operator's manual that is supplied with your vehicle.

Use of the **SiriusXM®** radio service requires a subscription. Refer to the radio operator's manual for subscription information.

### Radio antenna

The radio antenna is located in the cab roof.



RAIL17SP00282AA 1

### Radio controls switch panel

Just to the rear of the joystick on the right side console is a panel with six push buttons that controls certain radio functions. They are: seek up, seek down, source, volume down, volume up and presets.

These controls work in conjunction with the radio controls.

**Seek Up (1)** - Press and hold this button to scan up through the channels. Let the button go when a station is found. If the channel is to be stored, press the presets button to store it.

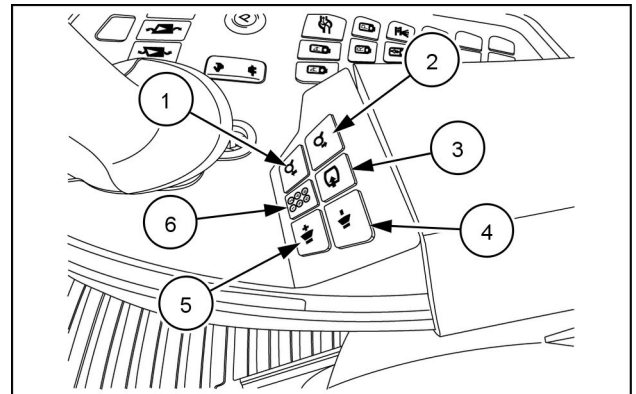
**Seek Down (2)** - Press and hold this button to scan down through the channels. Let the button go when a station is found. If the channel is to be stored, press the presets button to store it.

**Source (3)** - Press the button to switch between AM/FM/Satellite/Weather. Each press will change the source.

**Volume Down (4)** - Press and hold to decrease the volume of the radio. When released the radio will hold that volume.

**Volume Up (5)** - Press and hold to increase the volume of the radio. When released the radio will hold that volume.

**Presets (6)** - Press this button to scan through the preset radio stations. Each press will change to the next saved radio station. It has the capability to store 6 radio stations.

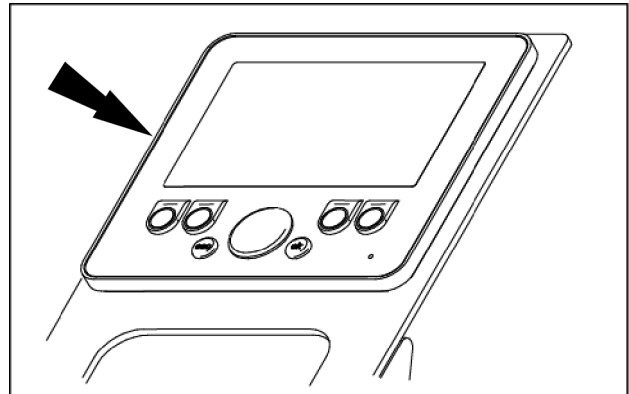


RAIL17SP00281AA 2

**Exterior controls**

**Tank fill monitor (if equipped)**

The tank fill monitor is an option that can be fitted to the vehicle and is used to monitor the filling of the product tank when using the snorkel fill system. This optional monitor does not communicate with the IntelliSpray™ monitor. Access the tank fill monitor by lowering the quick fill snorkel. The tank fill monitor is mounted to the topside of the fill snorkel frame. The tank fill monitor has four different screens that are accessible. They are: Home Screen, Fill Meter Cal Screen, Main Run Screen and Information Screen. The description of the screens is as follows:



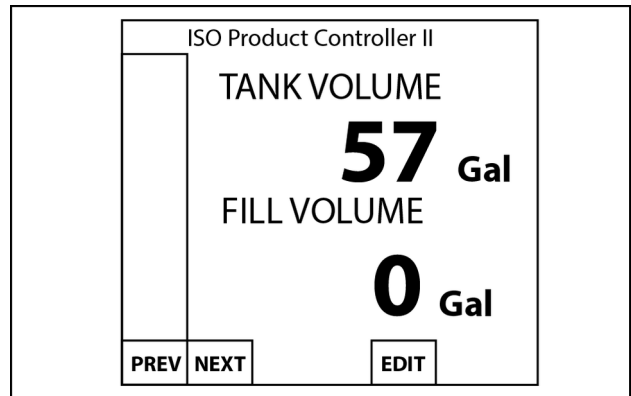
RAIL17SP00702AA 1

**Home screen**

**Tank Volume** - The amount of product currently in the tank.

**Fill Volume** - Amount of product added to the tank through the fill flow line.

**EDIT** - Press the EDIT button to open a screen to edit the tank volume.



RAIL16SP00239AA 2

**Main Run Screen**

**Tank Capacity** - Displays the maximum tank capacity.

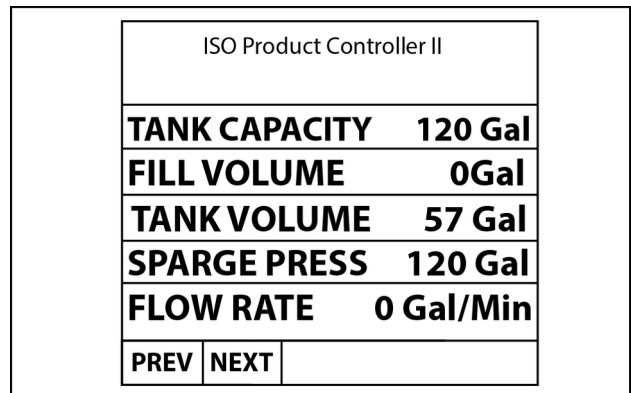
**Fill Volume** - Amount of product added to the tank through the fill flow line.

**Tank Volume** - The amount of product currently in the tank.

**Sparge Pressure** - Displays the product pump pressure (if available).

**Total Volume (not shown)** - The total amount applied. As the tank volume decreases, the total volume increases.

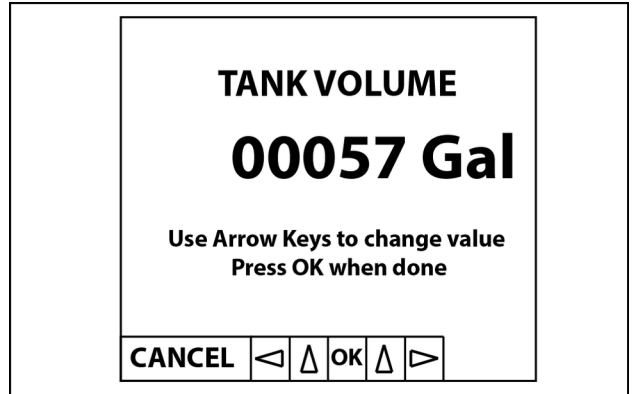
**Flow Rate** - Current flow rate of the product through the fill flow line.



RAIL16SP00241AA 3

### Fill Meter Cal Screen

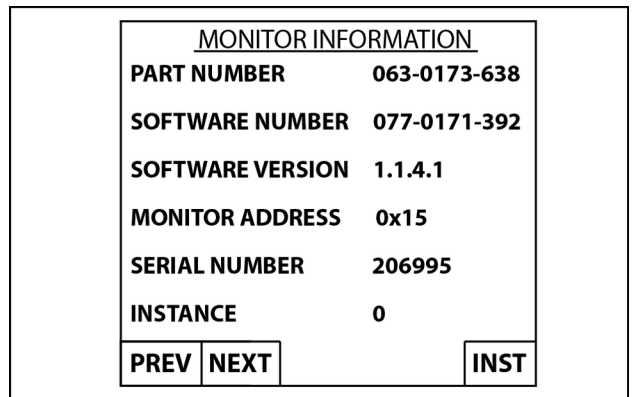
Use the arrow keys to manually adjust the current tank volume. Press the OK button after adjusting.



RAIL16SP00240AA 4

### Information Screen

The information screen displays the hardware and software version information.



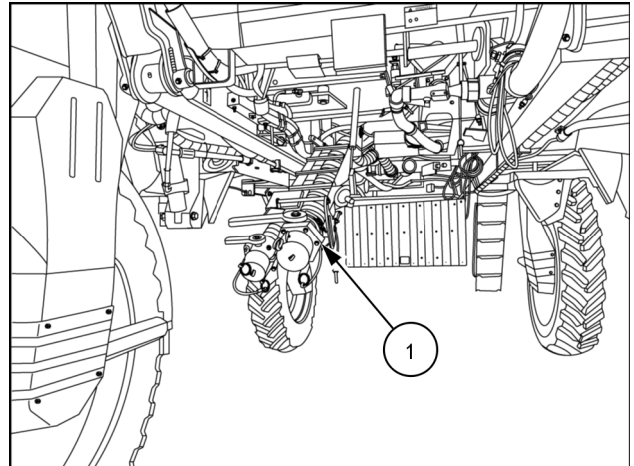
RAIL16SP00242AA 5

## Exterior remote control key pad

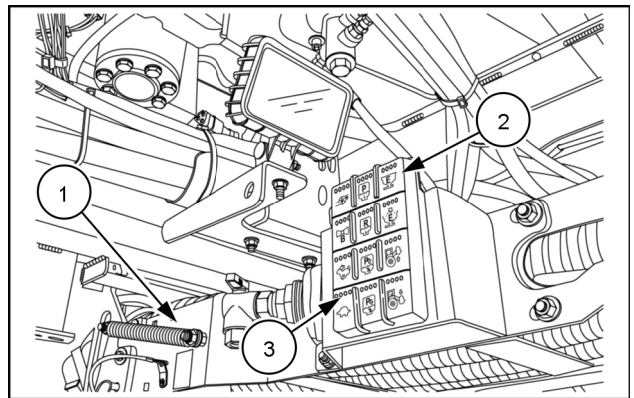
At the front of the frame, locate the fast fill snorkel (1) at the front of the frame.

The exterior remote key pad (2) is assembled to the side of the fast fill snorkel.

Each switch on the key pad has four led lights (3) which will illuminate indicating that the function is either on or open.



RAIL17SP00778AA 1

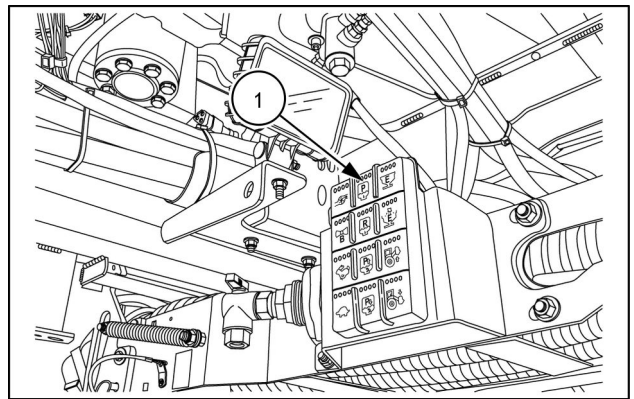


RAIL17SP00859AA 2

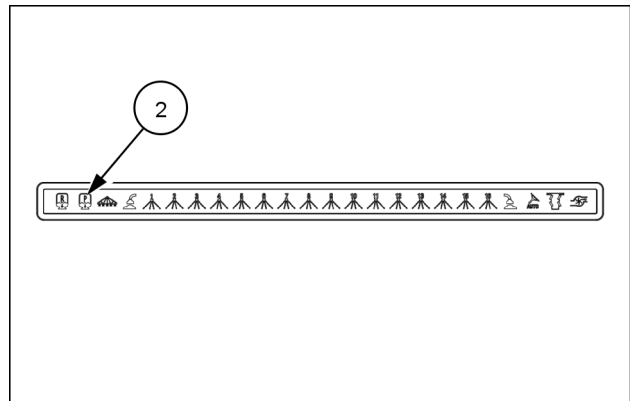
## Remote product tank sump open/close switch

The remote product tank sump switch (1) allows the operator to open and close the product tank sump from outside the cab. Press the switch to open the product tank sump. When the product tank sump is open the four led lights on the switch will illuminate indicating that the sump is open. Press the switch again to close the sump.

The "Sump is Open" light (2) in the front overhead panel will also come on when opening the sump with this switch.



RAIL17SP00859AA 3



RAIL17SP00309FA 4

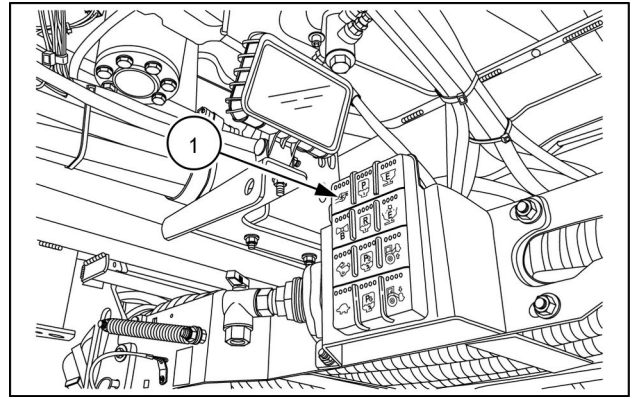


### Remote product pump on/off switch

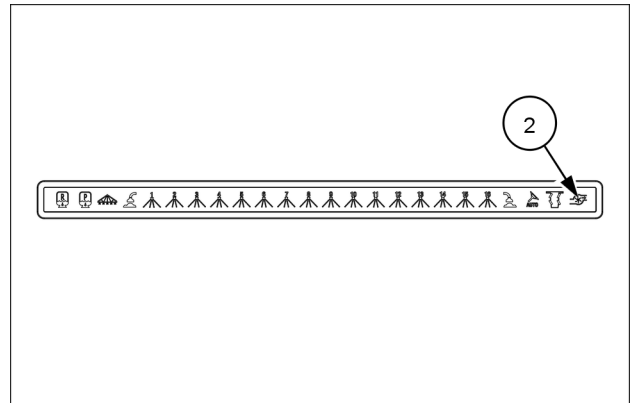
**NOTICE:** To avoid damage to the product pump, never run the pump “Dry” without liquid in the pump.

The product tank sump or rinse tank sump must be open before turning product pump on.

The product pump can also be activated from outside the cab. Push the product pump switch (1) once to turn the pump on. When the product pump is on, the four led lights on the switch will illuminate indicating that the pump is on. Push the switch again to turn the pump off. When the product pump is turned on the pump icon (2) in the front overhead panel will illuminate.



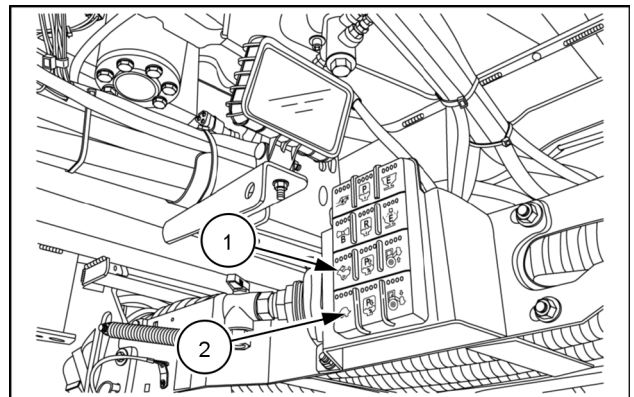
RAIL17SP00859AA 5



RAIL17SP00309FA 6

### Remote throttle control switch

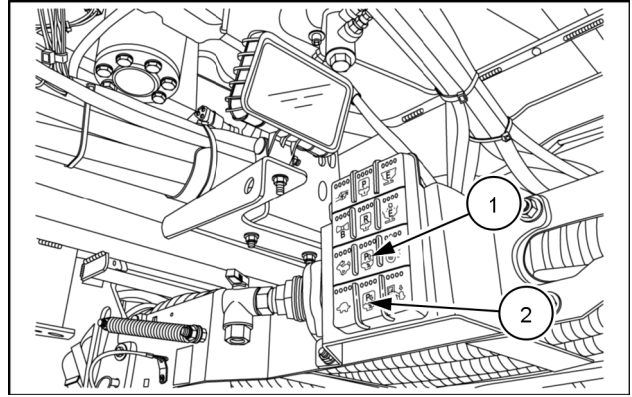
The remote throttle control switch allows the operator to change the engine speed from outside the cab. The engine speed can be increased by pushing the “Rabbit” (1) or decreased to idle by pushing the “Turtle” (2). Press the “Rabbit” once for half throttle. Press the “Rabbit” twice for full throttle. Press the “Turtle” for idle.



RAIL17SP00859AA 7

### Remote product tank sparge flow control switches

Push the sparge increase switch (1) to increase the sparge flow. As the sparge increases the four led lights will illuminate indicating the percentage of sparge. Refer to the table that follows for light combination to percentage of sparge. Push the sparge decrease switch (2) to decrease the sparge flow. As the sparge decreases the four led lights will illuminate indicating the percentage of sparge. Refer to the table that follows for light combination to percentage of sparge. The product pump has to be running for the sparge system to operate. Adjust the sparge as needed to keep the chemical in suspension without creating foam in the product tank. Each tank is equipped with several sparge inlet and outlet locations. These locations keep the product in suspension through circulation of the product tank utilizing the product pump.



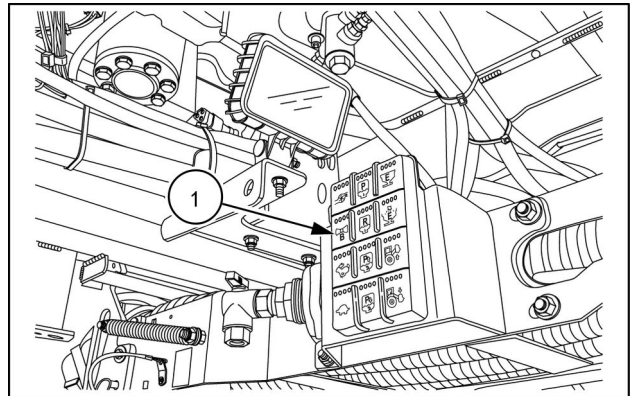
RAIL17SP00859AA 8

Light color combination	Percentage of sparge
Red	0–6%
Red and Yellow	7–23%
Yellow	24–41%
Yellow and Green	42–58%
Green	59–77%
Green and Blue	78–99%
Blue	100%

### Bypass valve on/off switch (if equipped)

The optional bypass valve switch (1) is used to turn the bypass valve on or off. Press the bypass valve switch once to turn the bypass valve on. When the bypass valve is on, the four led lights on the switch will illuminate indicating that the valve is on. Press the bypass valve switch again to turn the bypass valve off.

The bypass valve is used when filling the product tank from a nurse tank that does not have an on board pump. After opening the bypass valve, hold the product pump switch until the pump starts (approximately 5 seconds).

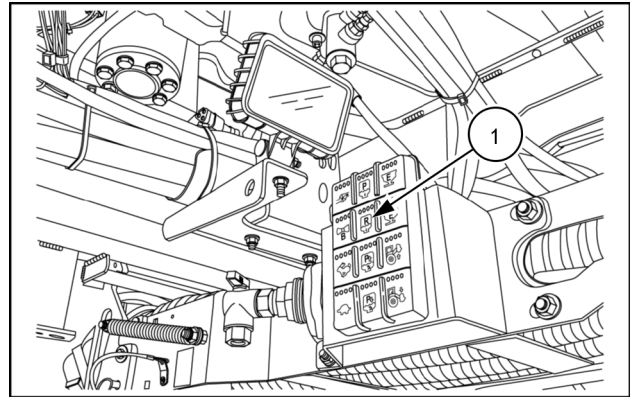


RAIL17SP00859AA 9

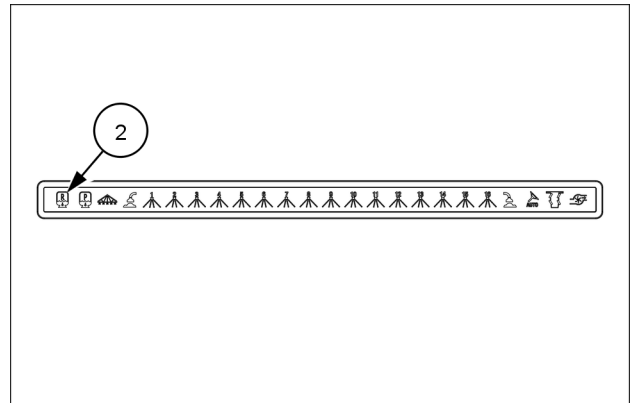
### Remote rinse tank sump valve open/close switch

The remote rinse tank sump switch (1) allows the operator to open and close the sump from outside the cab. Press the switch to open the sump. When the sump is open, the four led lights on the switch will illuminate indicating that the sump is open. Press the switch again to close the sump.

When the rinse tank sump valve is open, the rinse tank icon (2) on the front overhead panel will illuminate.



RAIL17SP00859AA 10

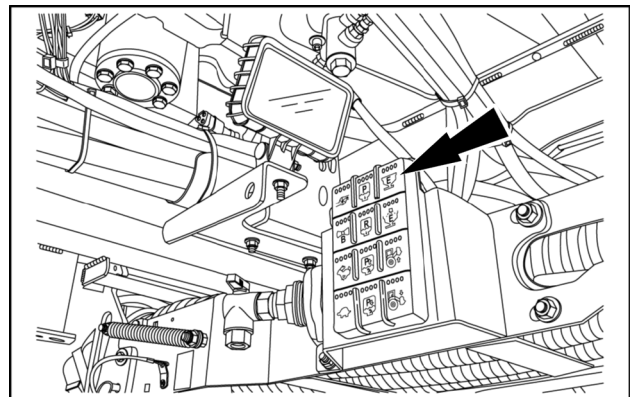


RAIL17SP00309FA 11

### Chemical eductor on/off switch

The chemical eductor on/off switch is used to turn the chemical eductor on and off. Press the switch to turn the chemical eductor on. When the eductor is on the four led lights on the switch will illuminate indicating the eductor is on. Press the switch again to turn the chemical eductor off. Be sure the chemical eductor lid is closed when using the eductor.

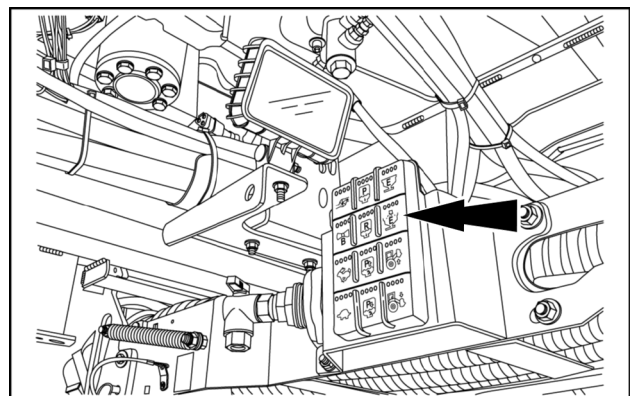
**NOTE:** When the chemical eductor switch is activated, the engine will rev up and the pump will start. These happen automatically.



RAIL17SP00859AA 12

### Chemical eductor rinse on/off switch

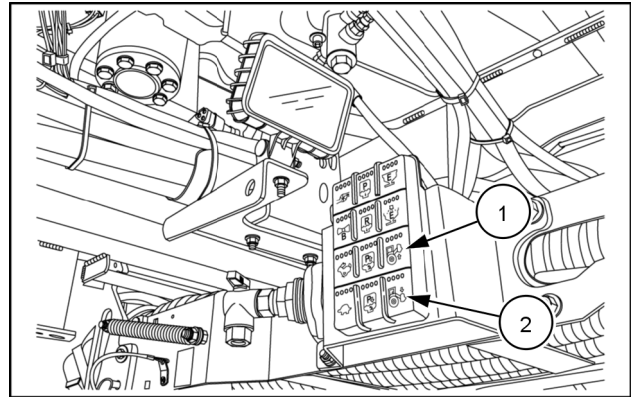
The chemical eductor rinse on/off switch is used to rinse the inside of the eductor hopper. Press the switch to turn the chemical eductor rinse on. When the eductor rinse is on the four led lights on the switch will illuminate indicating that the rinse is on. Press the switch again to turn the chemical eductor rinse off. Be sure the chemical eductor lid is closed when using the eductor rinse.



RAIL17SP00859AA 13

**Remote lift arm raise and lift arm lower switches**

The lift arm raise switch **(1)** is used to raise the lift arms.  
The lift arm lower switch **(2)** is not used on this model.



RAIL17SP00859AA 14

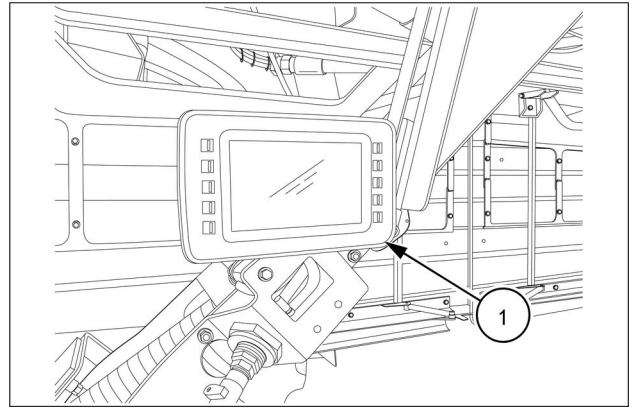
## Auto-rinse display (if equipped)

The vehicle Auto-Rinse option controls the rinsing of the product tank. The Auto-Rinse option includes a display monitor (1) and an electric valve.

The display is mounted on the side of the drop down quick fill carrier at the front of the frame..

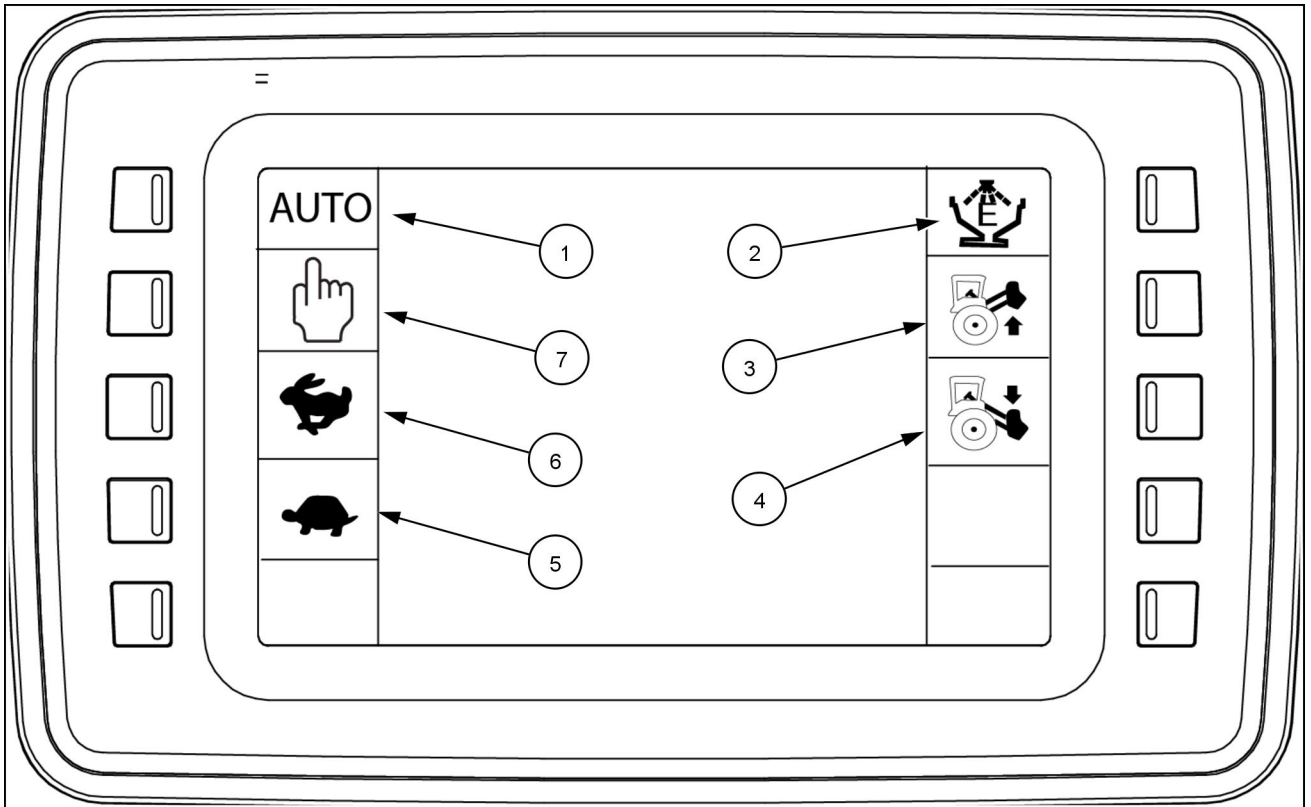
The Auto Rinse display (if equipped) replaces the standard remote key pad. The Auto Rinse display controls the same features as the standard remote key pad with additional features. For external remote key pad refer to 3-46 for functions of the buttons.

Refer to 6-48 for operation of the auto-rinse feature.



RAIL18SP00853FA 1

The features controlled by the Auto-Rinse display are shown in the following image. Refer to the table that follows for control identification

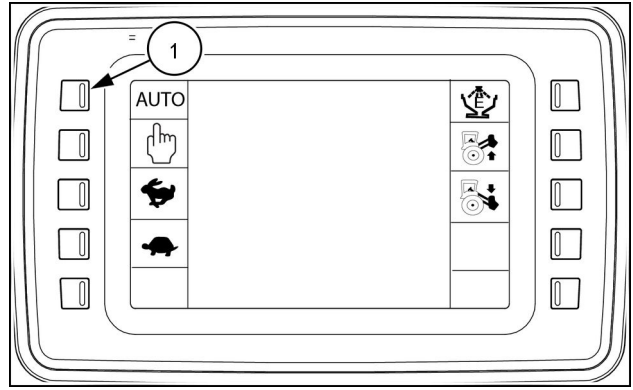


RAIL17SP01569FA 2

Button position on display	Feature controlled
1	Auto rinse
2	Chemical eductor rinse
3	Lift arms raise
4	Lift arms lower
5	Engine speed decrease
6	Engine speed increase
7	Manual rinse

### Auto rinse button

Push the Auto Rinse button (1) on the Auto-Rinse display to bring up the Auto Mode Select Page.



RAIL17SP01569FA 3

On the Auto Mode Select Page there are several selections to choose from.

Fill product tank with a nurse tank (1) through the fast fill.

Fill the product tank using the product pump (2).

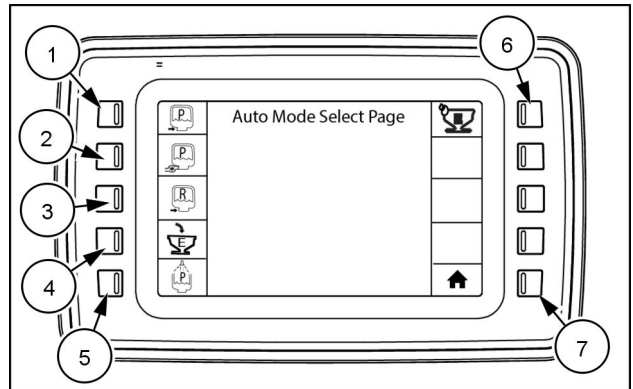
Fill the rinse tank (3).

Turn on the chemical eductor function (4).

Rinse the product tank (5).

Wash the chemical eductor (6).

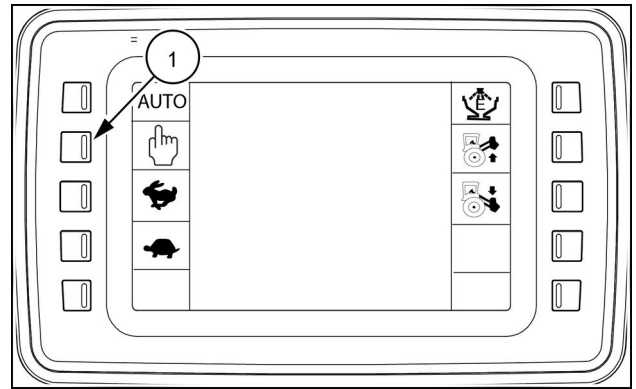
Home button (7) to return to the home page.



RAIL17SP01570AA 4

## Manual rinse button

Push the Manual Rinse button **(1)** on the Auto-Rinse display to bring up the Manual Page.



RAIL17SP01569FA 5

On the Manual Page there are several selections to choose from.

Product pump button **(1)**. To turn product pump ON or OFF.

Product tank sump button **(2)**. To open or close the product tank sump.

Rinse tank sump button **(3)**. To open or close the rinse tank sump.

Sparge increase button **(4)**. To increase the sparge in the product tank.

Sparge decrease button **(5)**. To decrease the sparge in the product tank.

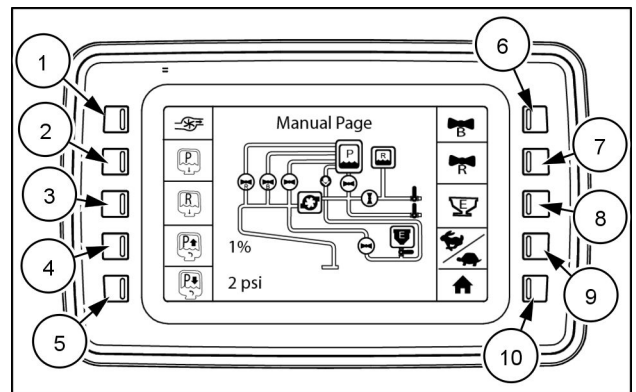
Bypass valve open or close button **(6)**. Used to open or close the bypass valve.

Rinse valve open or close button **(7)**. Used to open or close the rinse valve.

Chemical eductor ON or OFF button **(8)**. Used to turn the chemical eductor ON or OFF.

Engine speed increase or decrease button **(9)**. Used to increase or decrease the engine speed.

Home button **(10)** to return to the home page.



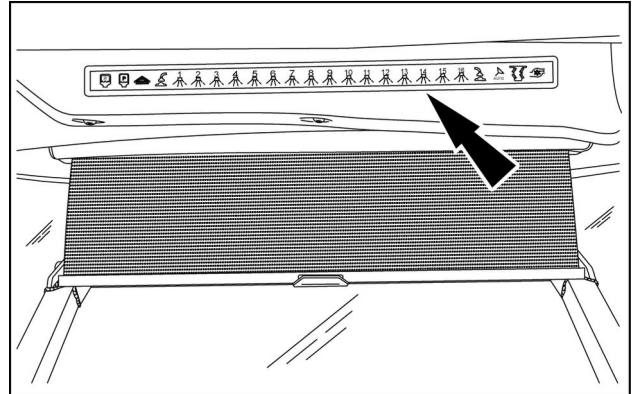
RAIL17SP01594AA 6

Display

Cab mounted displays

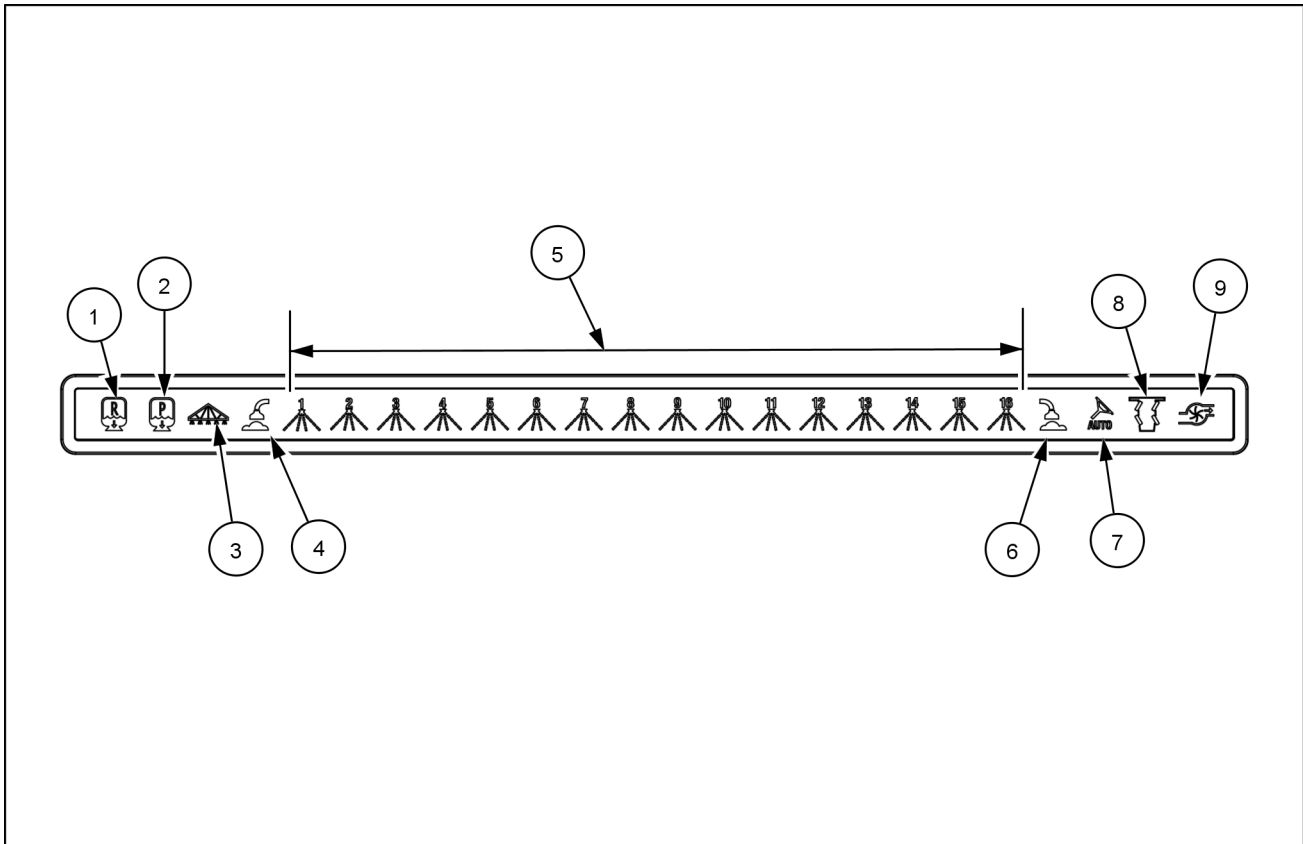
Forward overhead display panel

The forward overhead display panel is located at front of the cab above the windshield. The icons on the display will illuminate red when that feature is on or active.



RAIL17SP00300AA 1

Refer to the illustration and the table that follows for the feature the icons represent.



RAIL17SP00309FA 2

Reference number	Feature activated
1	Rinse tank sump open
2	Product tank sump open
3	Master boom control on
4	Left side foamer on
5	Individual boom sections on
6	Right side foamer on



### 3 - CONTROLS AND INSTRUMENTS

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Reference number	Feature activated
7	Auto steer on
8	Four wheel steer on
9	Product pump on

## A-Post display

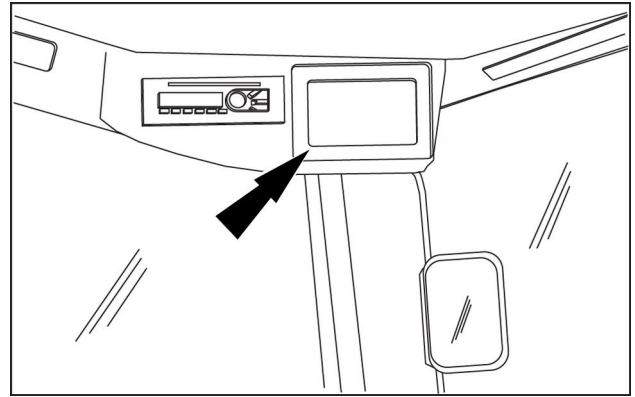
A vehicle operation display is mounted in the headliner by the right-hand A-post, inside of the sprayer cab. This display is a monitoring screen only.

The display will become active when the ignition key is turned to the ON position.

The main information displayed on the screen are

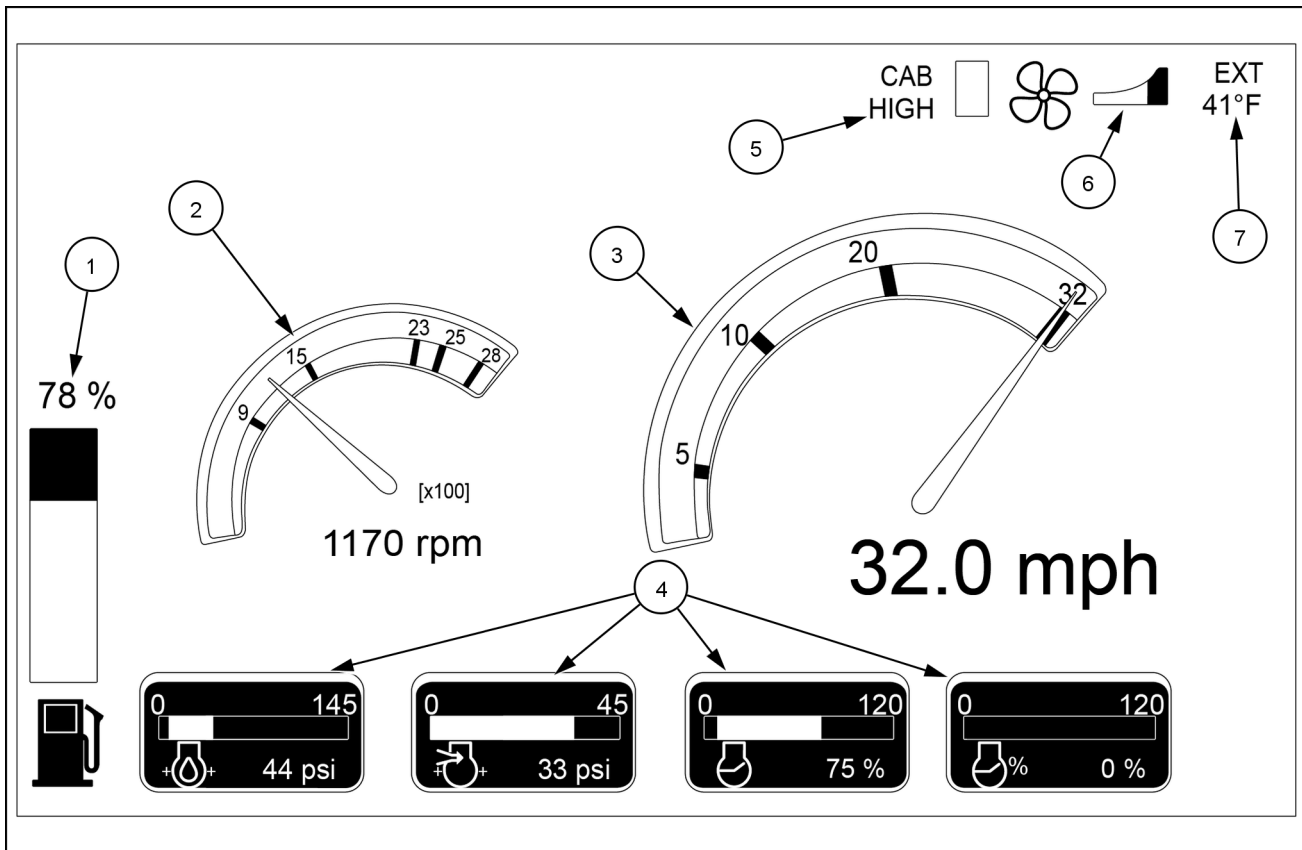
- Fuel level
- Engine RPM
- Vehicle speed
- Cab temperature
- Cab fan speed
- External temperature

There are also four lower monitoring gauges present on the screen. The monitoring gauges can be changed to display various operating functions of the machine.



RAIL17SP00787AA 1

The following illustration and table describe the information displayed on the A-post display screen.



RAIL18SP00377FA 2

Item	Description
1	Fuel Level Gauge
2	Engine RPM
3	Speedometer
4	Monitoring Gauges
5	Cab Temperature
6	Cab Fan Speed
7	External Temperature

### Monitoring gauge selection

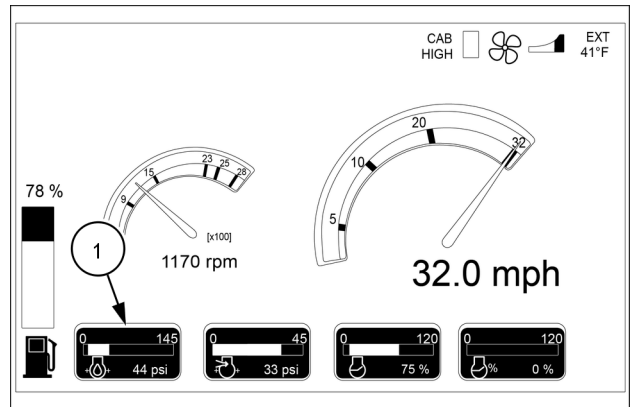
The monitoring gauges displayed on the A-Post display screen may be changed to suit the needs of the operator. The monitoring gauges are selectable from a pop-up menu.

The selections for the monitoring gauges are:

- Engine oil pressure
- Turbo boost pressure
- Engine oil temperature
- Engine percent load and current speed
- Intake manifold temperature
- Actual engine percentage torque
- Engine coolant temperature
- Hydrostatic charge pressure
- Auxiliary pump pressure
- Brake supply pressure
- Hydraulic oil temperature (tank)

To change the individual monitoring gauges, touch the appropriate gauge selection (1 through 4), 1 being the gauge farthest to the left (1).

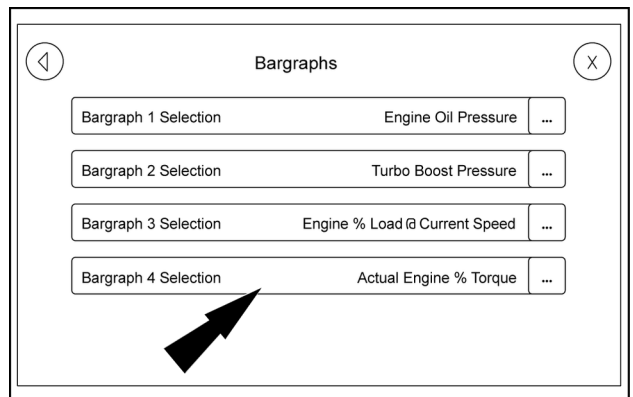
The pop-up monitoring gauge selection menu appears.



RAIL18SP00377FA 3

Use the pop-up "Bargraphs" menu to select the appropriate gauge (1 through 4).

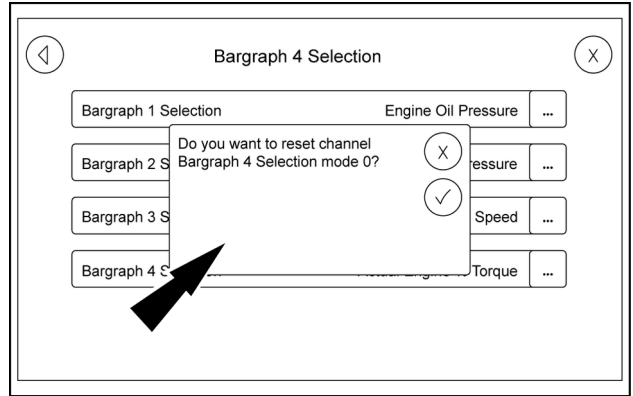
The gauge selection pop-up menu appears.



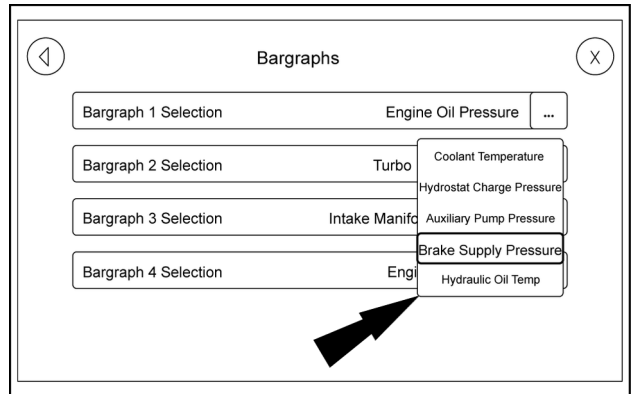
RAIL17SP00110AA 4

Press the desired monitoring gauge selection from the list. The change confirmation screen displays.

**NOTE:** In order to display all of the selectable monitoring gauges available, scroll down through the selectable gauges list by swiping the list.



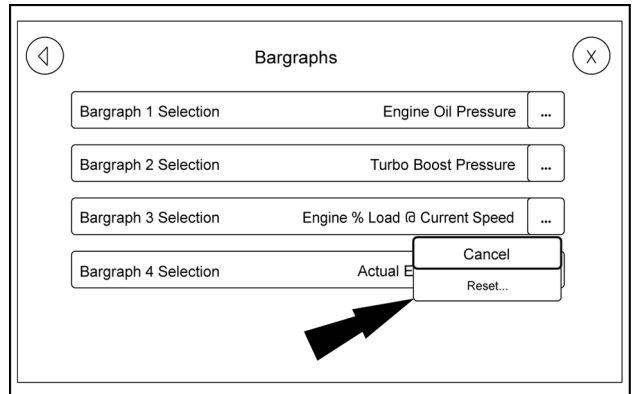
RAIL17SP0011AA 5



RAIL17SP00113AA 6

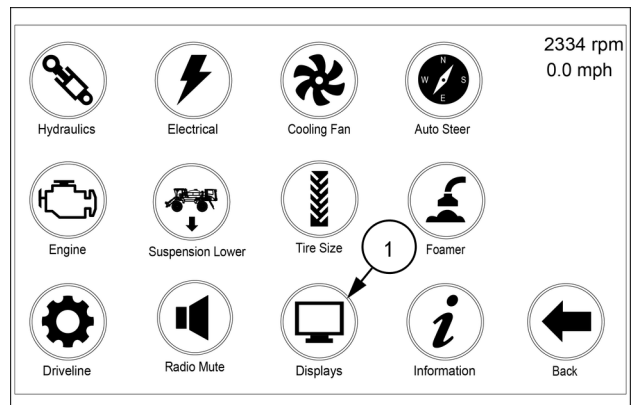
Press Reset to confirm your selection, or press Cancel to leave the selection as is.

The "Bargraphs" selection screen disappears and, the A-post main page displays with the chosen monitoring gauge displayed.



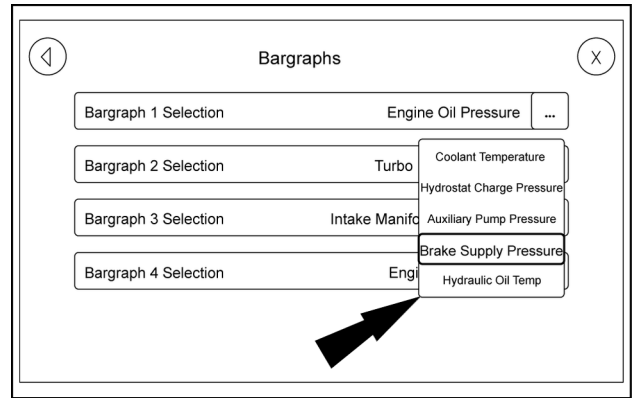
RAIL17SP00112AA 7

The monitoring gauge selection may also be accomplished by using the arm rest display. Access the second page of the arm rest display home page and press the Displays button (1). The "Bargraphs" selection screen appears.



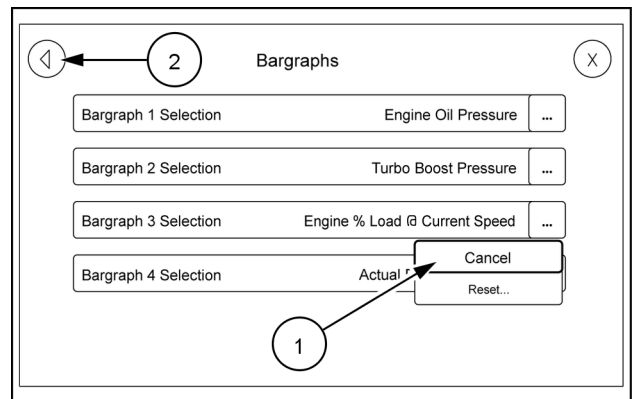
RAIL18SP00743FA 8

Press the desired monitoring gauge selection from the list.  
The change confirmation screen displays.



RAIL17SP00113AA 9

Press Reset to confirm your selection, or press Cancel to leave the selection unchanged (1).  
Press the back arrow button (2) to return to the arm rest display home page.



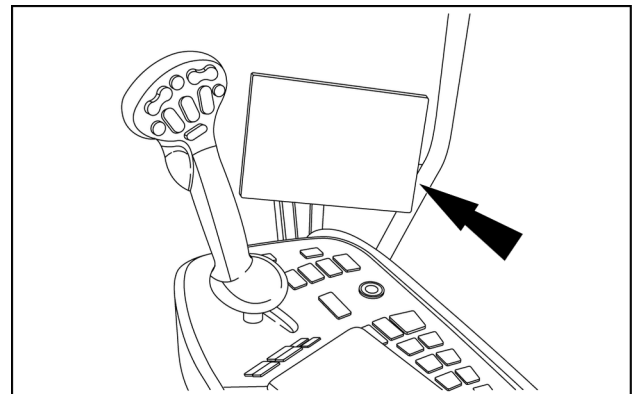
RAIL17SP00112AA 10

## Arm rest display

## Display overview

### Arm rest display

The arm rest display located on the front of the right-hand console, allows the operator to monitor various functions of the vehicle

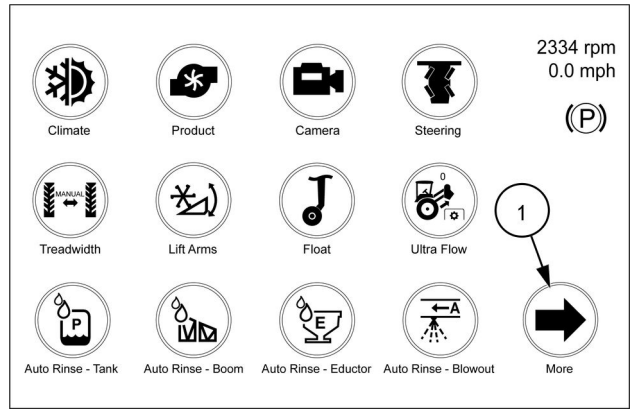


RAIL17SP00377AA 1

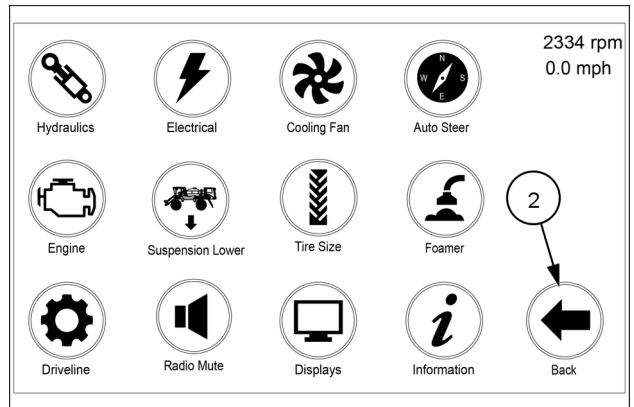
### Home page screens

When the ignition key is turned to the ON position, the display will become active. The display will first display the splash screen and then the home page screen will display. This screen is the first of two home screens. Both screens are touch screen displays. Touch the “More” arrow (1) on the first screen to switch to the second home screen. Touch the “Back” arrow (2) on the second screen to return to the first home screen.

Touch an icon on either home display screen and you will be taken directly to the screens related to that icon.



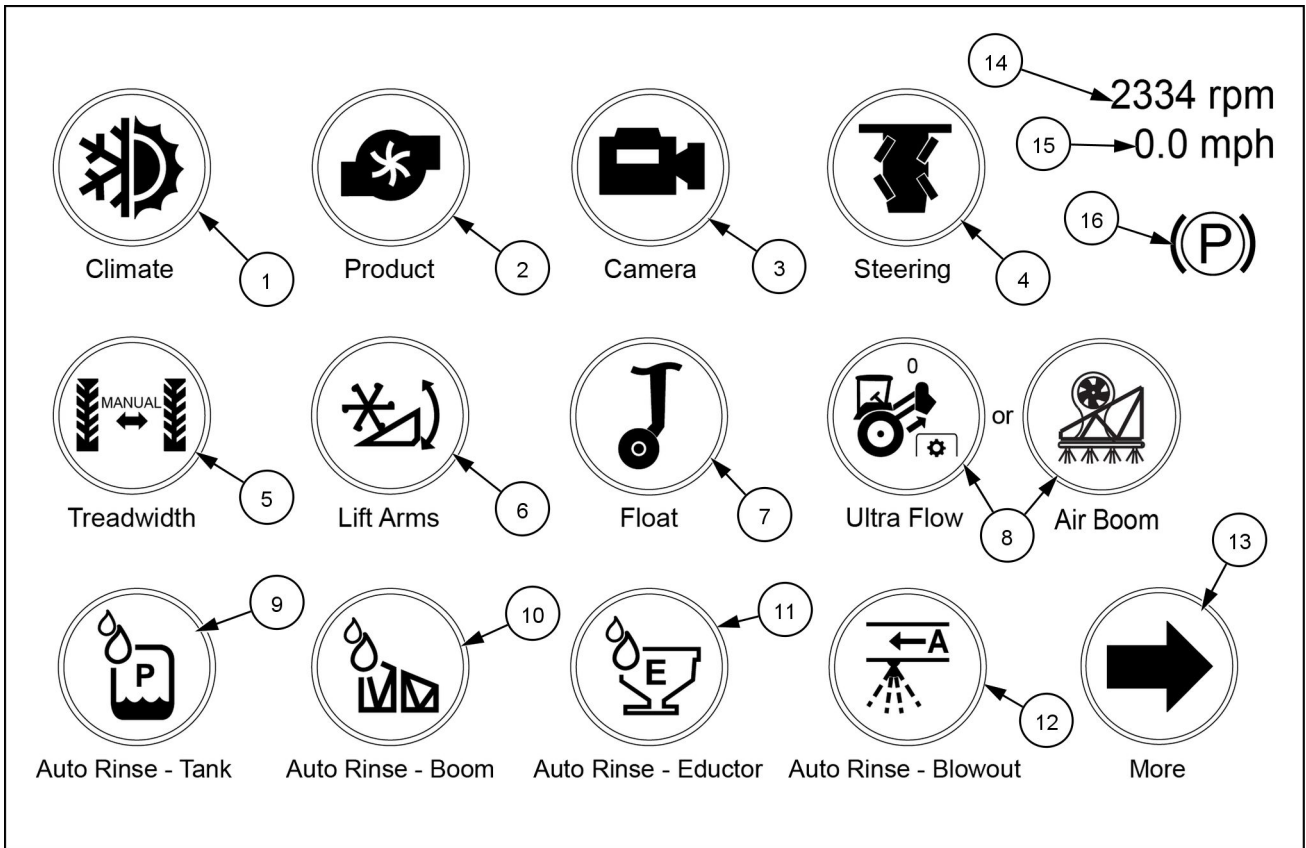
RAIL18SP00852FA 2



RAIL18SP00743FA 3

### 3 - CONTROLS AND INSTRUMENTS

The following illustration and table describe the information displayed on the first home screen display.

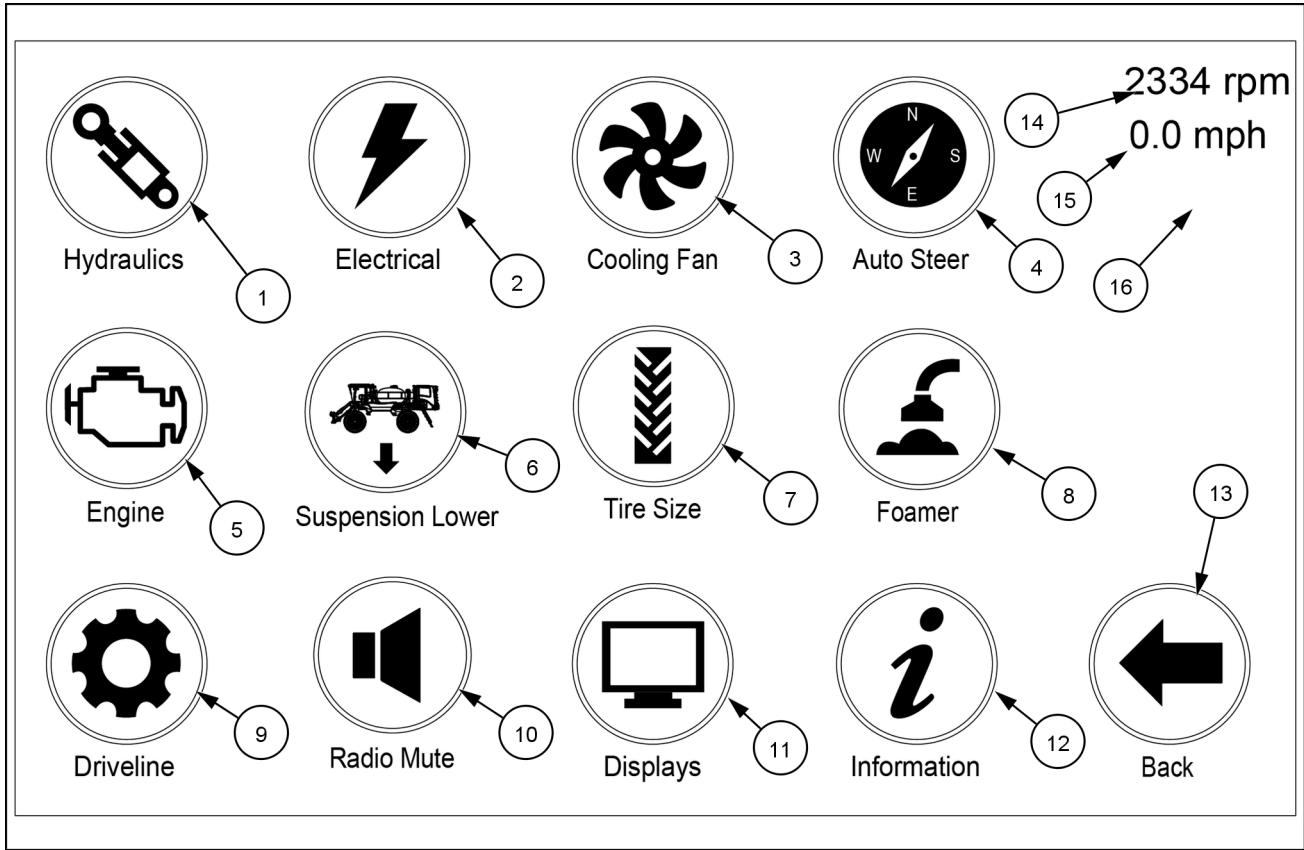


RAIL18SP00742FA 4

Item	Description
1	Climate control inside cab
2	Product circuit page
3	Backup camera setting (luxury cab only)
4	Steering four wheel steer (if equipped)
5	Manual tread width setting
6	Telescoping lift arms
7	Float page (if equipped)
8	Ultra flow (if equipped) or air boom (if equipped)
9	Auto rinse tank (if equipped)
10	Auto rinse boom (if equipped)
11	Auto rinse eductor (if equipped)
12	Auto rinse blowout (if equipped)
13	More
14	Engine rpm (monitoring only)
15	Vehicle ground speed (monitoring only)
16	Park brake on (only visible when active)

### 3 - CONTROLS AND INSTRUMENTS

The following illustration and table describe the information displayed on the second home screen display.



RAIL18SP00743FA 5

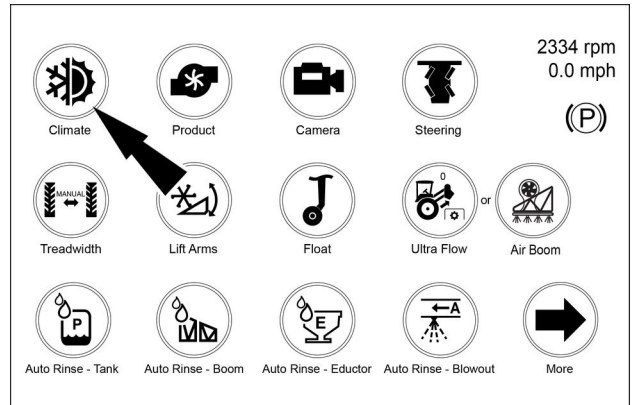
Item	Description
1	Hydraulic system monitoring
2	Electrical fuse monitoring
3	Engine cooling fan settings
4	Auto steer valve calibration
5	Engine fault codes and service interval timer
6	Suspension lowering
7	Tire size selection
8	Foamer setting and adjustments (if equipped)
9	Drive line settings
10	Radio mute
11	Display settings
12	Information screen
13	Back arrow
14	Engine rpm (monitoring only)
15	Vehicle ground speed (monitoring only)
16	Park brake on (only visible when active)



## Climate icons and screens

### Cab climate icon and screens

To adjust cab air temperature and fan speed, touch the climate icon on the first home display screen.



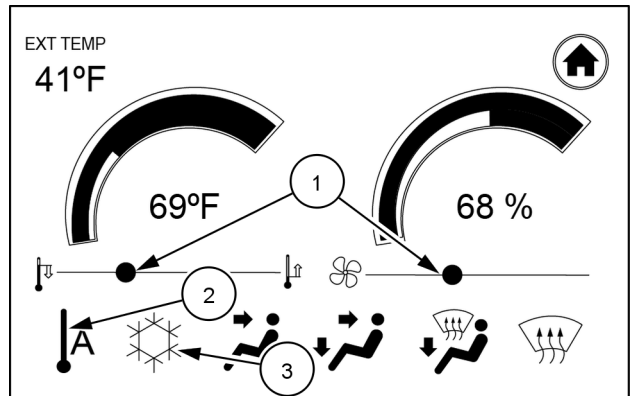
RAIL18SP00742FA 1

From this screen you can adjust the cab inside temperature or fan speed by sliding the appropriate white circle (1) to the right or left.

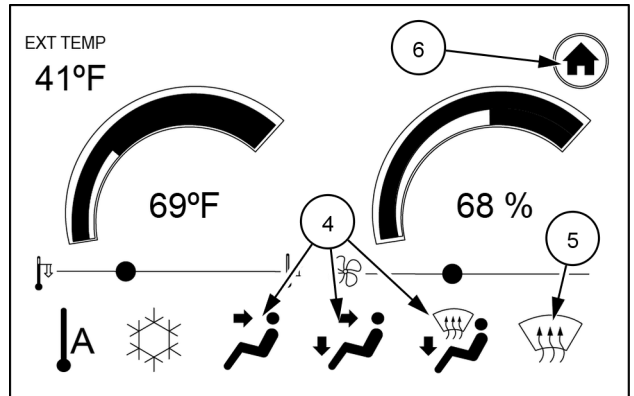
In the lower part of the screen you can set the “Auto” temperature control (2), air conditioning (snowflake) constant on (3), determine which vents (4) you want to be active or setting the vents to defrost (5) only. Simply touch the appropriate icon and it will turn white signifying that it has been selected.

Once all the settings are complete, touch the “Home” icon (6) to return to the home page.

The EXT TEMP in the upper left-hand corner of the screen monitors the temperature outside of the cab



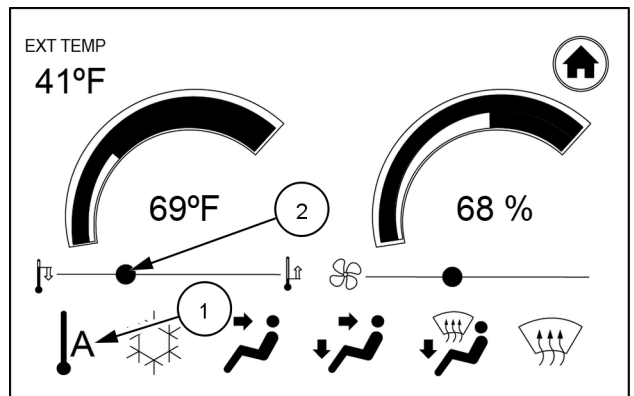
RAIL18SP01062AA 2



RAIL18SP01062AA 3

### Auto mode

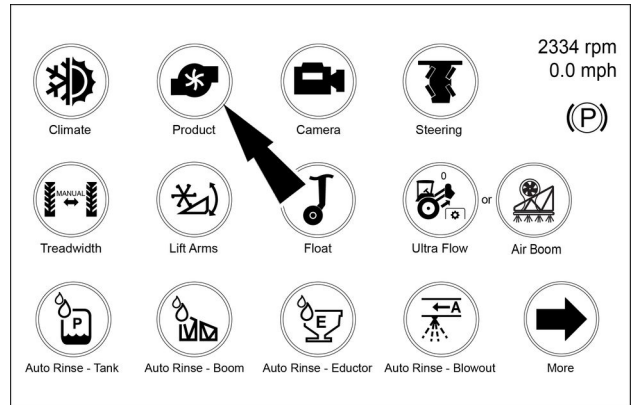
The auto mode is set by touching the auto temperature icon (1). Once the auto temperature icon is touched, all the icons below the line will disappear as well as the setting slider for the fan speed. Use the temperature slider (2) to set the desired inside temperature. In the auto mode this temperature will be maintained.



RAIL18SP01062AA 4

## Product icons and screens

From the armrest first home display touch the product icon to bring up the product screen.



RAIL18SP00742FA 1

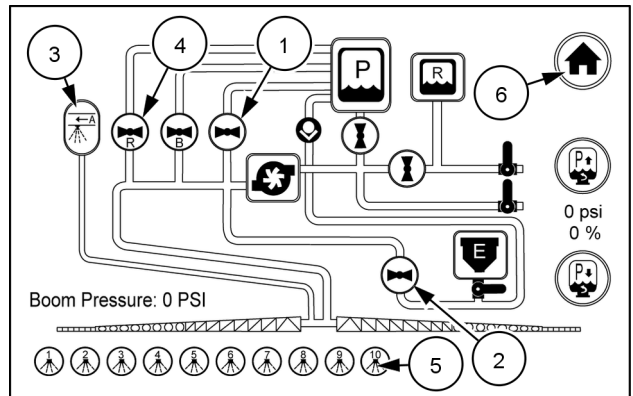
From this screen you can adjust the sparge pressure up or down as needed by touching the sparge up icon (1) or sparge down icon (2) to prevent foaming in the product tank and to keep the chemical in suspension. The sparge valve icon (1) will rotate as the sparge is increased or decreased. You can turn the appropriate valves on or off by touching the appropriate icon such as eductor valve (2) or boom blowout (3).

When a valve is open, the icon will turn green and be parallel with the flow in that line. When a valve is closed (4) it will turn red and be perpendicular to the flow in that line.

In the lower part of the screen you can turn boom sections (5) on or off. Simply touch the appropriate icon.

You can also turn the boom blowout valve (3) on and off from this screen.

Once all the settings are complete, touch the "Home" icon (6) to return to the home page.



RAIL17SP00183AA 2

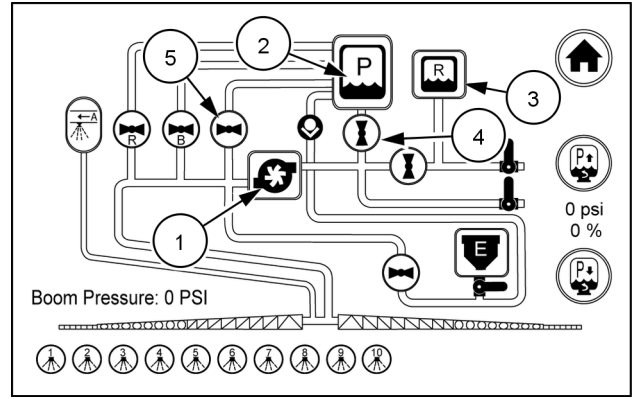
### Product pump screen

On the product pump screen the pump can be turned ON/OFF with a touch of the icon **(1)** or with the switch. ON is indicated with color change of lines and animation of impeller. Interlocks prevent inadvertent cavitation of the pump.

From the product pump screen you can select the product circuit **(2)** or the rinse circuit **(3)**. You can also turn on or off the sections of the boom. Simply touch either the “P” or “R” system icons for product circuit or rinse circuit. Touch the appropriate section ball valve icons **(4)** to turn on or off. When the valve icon is parallel with the piping, the valve is ON. When the valve icon is perpendicular to the piping, the valve is OFF. Manual valves are shown without a status bar inside the circle.

Ball valve symbols: ON is symbolized with the status bar in line (parallel) **(4)** with the circuit lines or flow. OFF is symbolized with the bar perpendicular **(5)** to the flow.

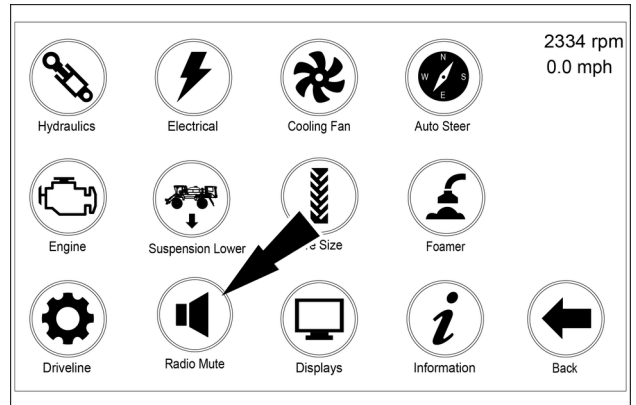
Yellow indicates an OFF section valve that will turn on if you use the master switch. Red indicates an OFF section valve that will not turn on if you use the master switch. Green indicates an ON section valve.



RAIL17SP00183AA 3

## Radio mute icon

From the armrest second home display touch the radio mute icon to mute the radio. Touch the radio mute icon again and the radio volume will return to the original setting.



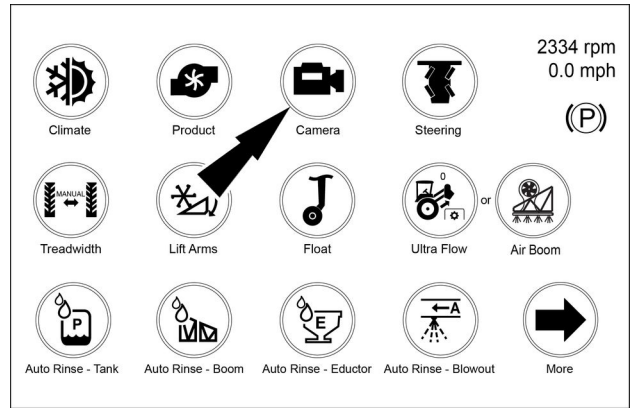
RAIL18SP00743FA 1

## Camera icon and screens

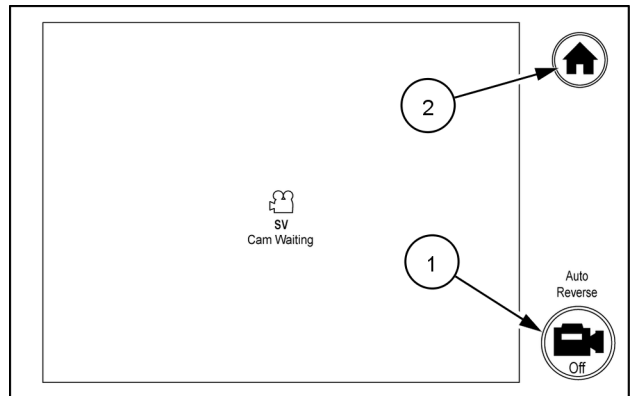
From the armrest display first home page touch the Camera icon.

From the camera screen you can turn the auto reverse on or off. Touch auto reverse camera icon (1) to turn the auto reverse on (icon will turn yellow). The camera will come on when the vehicle is put into reverse. Touch the auto reverse camera icon to turn the auto reverse OFF (icon will turn blue). The camera will not come on when the vehicle is put into reverse.

Touch the home icon (2) in the upper right-hand corner to return to the home page.



RAIL18SP00742FA 1



RAIL17SP00185AA 2

## Tread width (manual) icon and screens

From the armrest display first home page touch the tread width (manual) icon. This will bring up the screen which is the tread width screen.

**NOTE:** The icons will remain grayed out until movement of the vehicle has started. The icons will turn to the appropriate in or out once moving.

From this screen you can move both sides in or out at the same time. The icons will be grayed out indicating no vehicle movement. While moving slowly touch the IN icon (1) to move both sides in at the same time. Watch the tread width indicator decal on the right-hand front leg for width value.

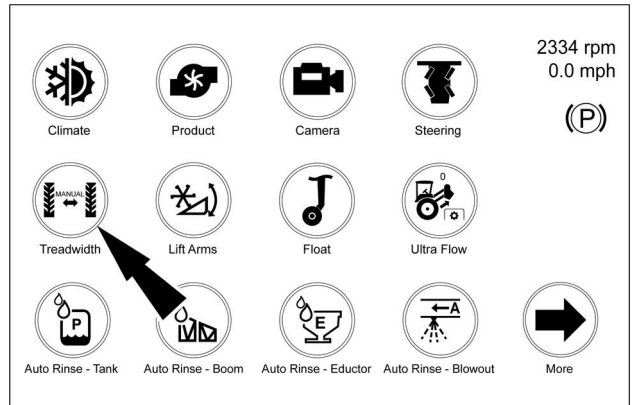
**NOTE:** Dimensions are from center to the center of the tires.

While moving slowly touch the OUT icon (2) to move both sides out at the same time. Watch the tread width indicator decal on the right-hand front leg for width value as the wheels move out.

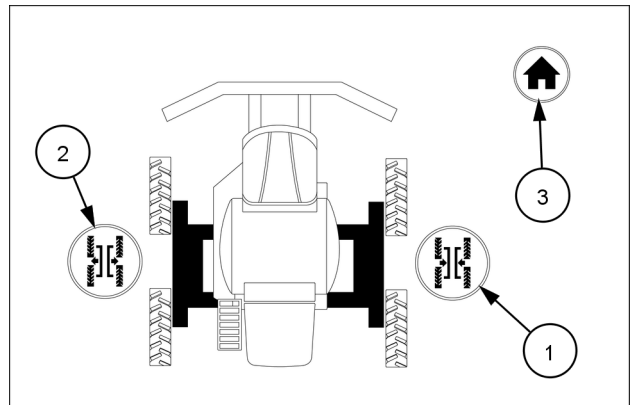
**NOTE:** Dimensions are from center to the center of the tires.

Touch the home icon (3) in the upper right-hand corner to return to the home page.

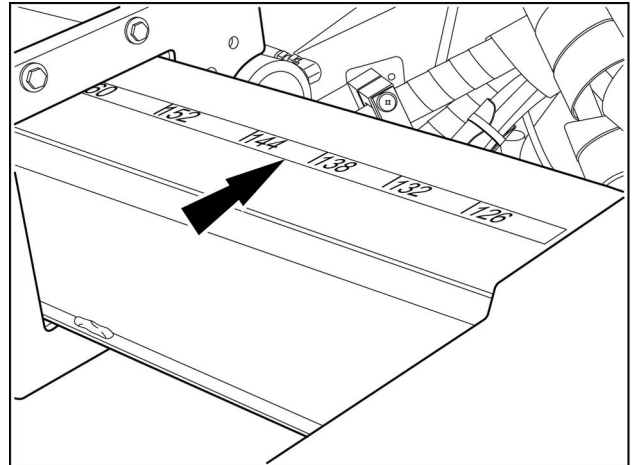
**NOTE:** The machine must be moving 0.8 – 8 km/h (0.5 – 5 mph) while adjusting the tread width.



RAIL18SP00852FA 1



RAIL18SP00847FA 2



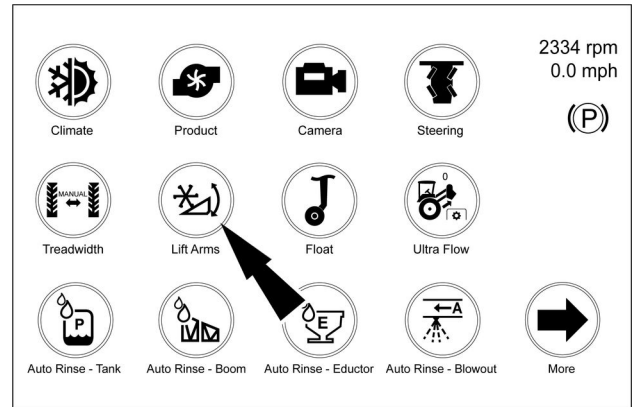
RCPH11SPR010BAM 3

## Telescoping lift arms

### Telescoping lift arm raise lower icon and screens

The telescoping lift arm feature is helpful when attaching implements to the lift arm quick attaches.

From the armrest display first home page touch the lift arm icon. This will bring up the screen where you can raise or lower the telescoping lift arms.

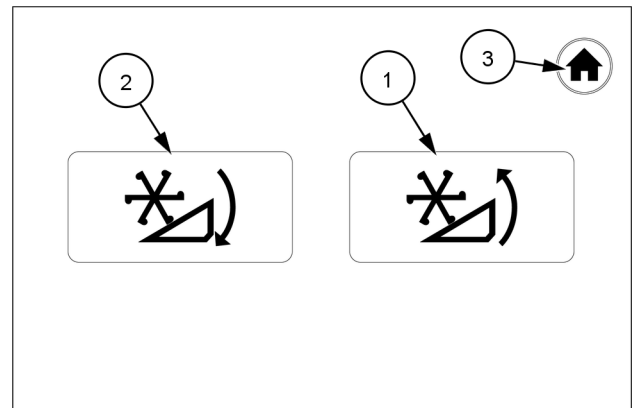


RAIL18SP00852FA 1

On the raise lower screen, you can raise (push the lower part of each quick attach out) with the telescoping lift arms by touching and holding the raise icon **(1)**. When you let go of the icon the telescoping lift arm quick attaches will stop raising.

On the raise lower screen, you can lower (pull the lower part of each quick attach in) with the telescoping lift arms by touching and holding the lower icon **(2)**. When you let go of the icon the telescoping lift arm quick attaches will stop lowering.

Touch the home icon **(3)** in the upper right-hand corner of the screen to return to the home page.



RAIL18SP00848FA 2

## Float icon and screens (if equipped)

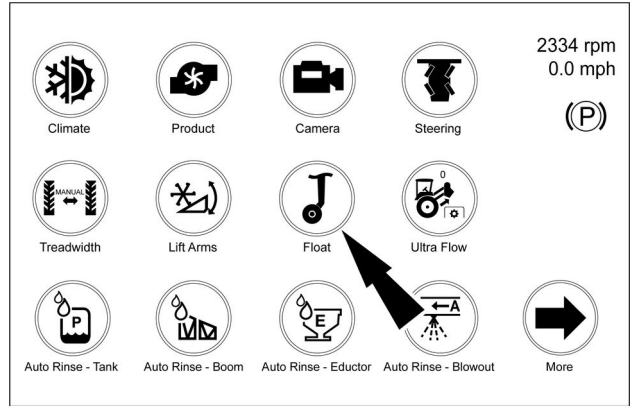
From the armrest display first home page touch the float icon. This will bring up the screen where you can turn the float on or off.

Touch the float icon **(1)** and it will turn yellow indicating that the float is active.

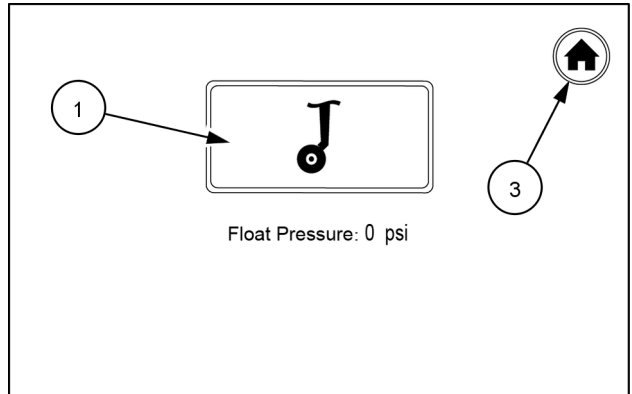
To turn the float on (engage), start to lower the lift arms with the center button **(2)** on the joystick.

To turn the float off (disengage), start to raise the lift arms with the center button on the joystick.

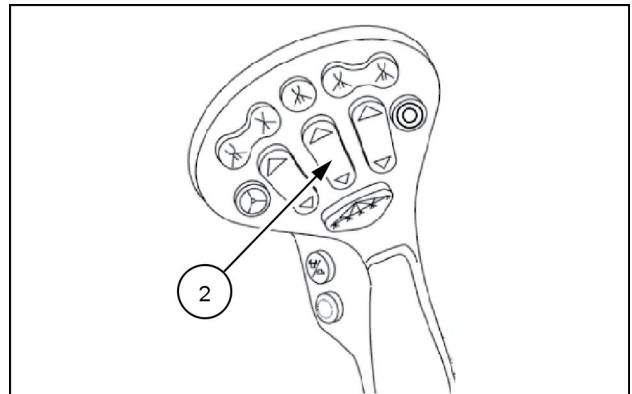
Touch the home icon **(3)** in the upper right-hand corner to return to the home page.



RAIL18SP00852FA 1



RAIL18SP01063AA 2



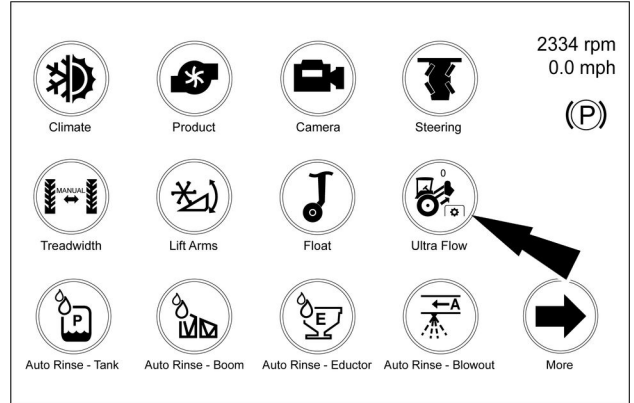
RAIL17SP00391AA 3



## Ultra flow icon and screens

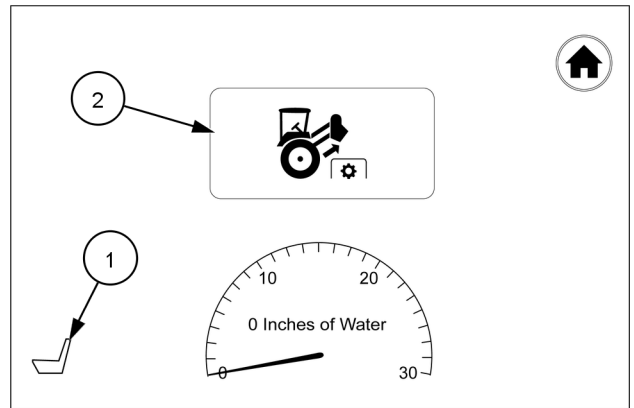
### Ultra flow icon and screens

From the armrest display first home page touch the ultra flow icon. This will bring up the screen were you can turn the ultra flow on or off and adjust the ultra flow pressure..



RAIL18SP00852FA 1

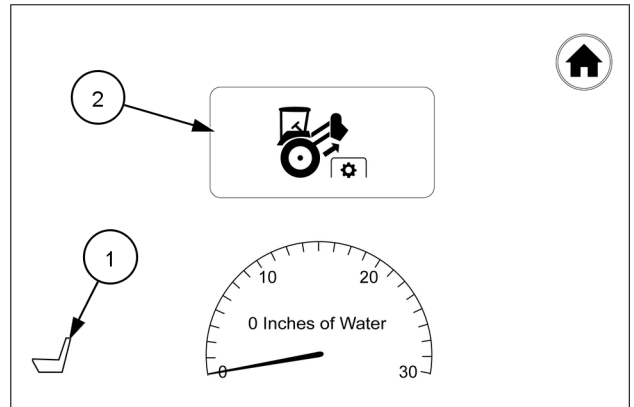
The ultra flow screen will display with the operators seat icon (1) and the ultra flow icon (2) grayed out, indicating that the system is not active.



RAIL18SP00849FA 2

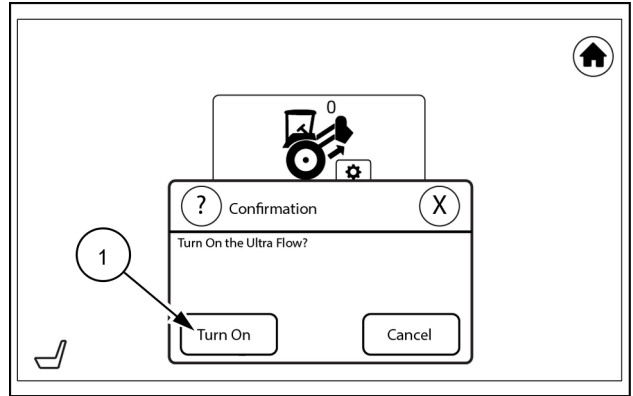
Sit in the seat and touch the seat icon (1). The seat icon will turn green and the ultra flow icon will turn blue and be active. Touch the ultra flow icon (2) to bring up the confirmation screen.

**NOTE:** If the operator leaves the operators seat with the system running, the system will deactivate. The operator will need to sit in the seat again, in order to re-activate the system.



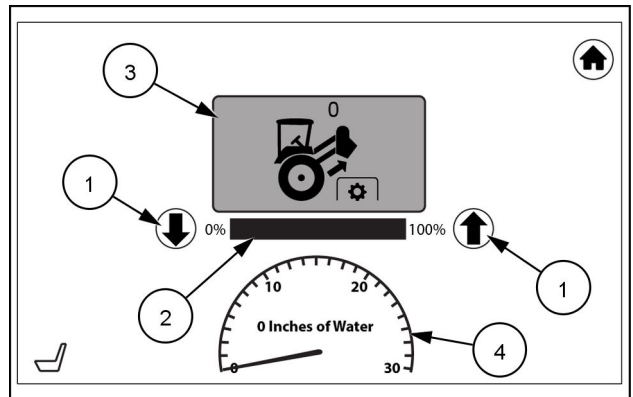
RAIL18SP00849FA 3

Touch the turn on button (1).



RAIL18SP01011AA 4

The pressure adjustment screen will display. The up and down arrows (1) and the pressure indicator bar (2) will appear, as well as the ultra flow icon (3), which will be highlighted yellow. Use the arrows to adjust pressure. When the pressure is adjusted, the pressure indicator bar (2), and the pressure gauge (4) will move to the adjusted pressure level..



RAIL18SP01010AA 5

## Steering icons and screens

From the armrest display first home page touch the Steering icon. This will bring up the screen where 4 wheel steer setting can be done.

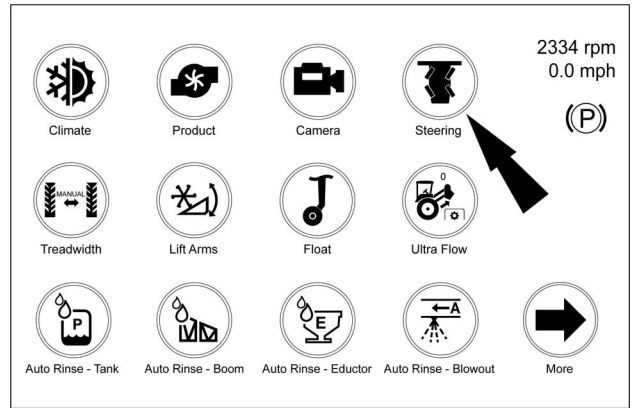
On this screen there are several icons that are active. They are: The 2 wheel steer mode icon (1), 4 wheel steer mode icon (2), 4 wheel steer information icon (3), the front wheel sensitivity zone setting icon (4) and the home icon (5).

Touch the 2 wheel steer mode icon (1) to show the wheels locked on the screen for 2 wheel steer.

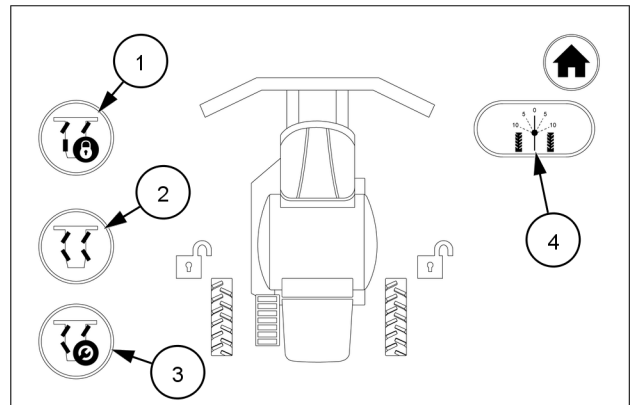
Touch the 4 wheel steer mode icon (2) to show the rear wheels unlocked on the screen for 4 wheel steer.

Touch the front steering sensitivity icon (4) just below the home icon to bring up the setting window. On this window use the slider circle on the screen to adjust the sensitivity zone. The sensitivity zone is the area when set will allow the front wheels to steer a set amount before the rear wheels begin to steer. This setting is used when the rear wheels need to steer at a certain time to eliminate crop damage caused by the rear wheels steering too soon or too late in relation to the front wheels.

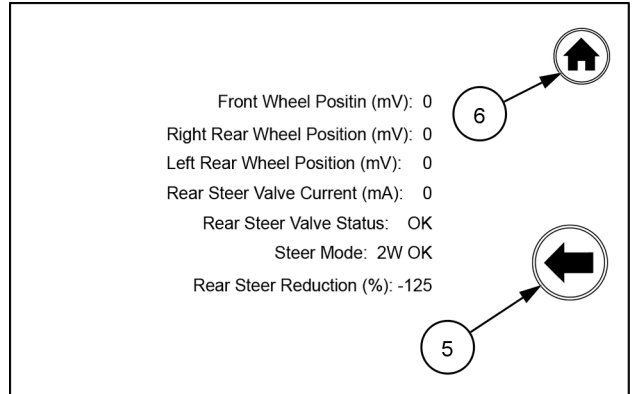
Touching the 4 wheel steer information icon (3) will bring up a screen which is a monitoring screen only. Touch the back arrow icon (5) to go back one screen. Touch the home icon (6) in the upper right-hand corner to return to the home page.



RAIL18SP00852FA 1



RAIL18SP00846FA 2

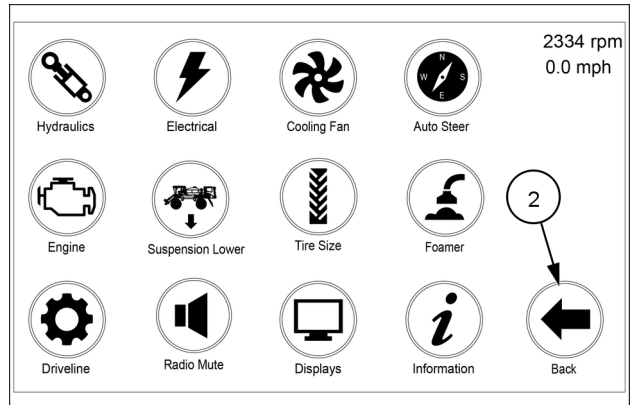
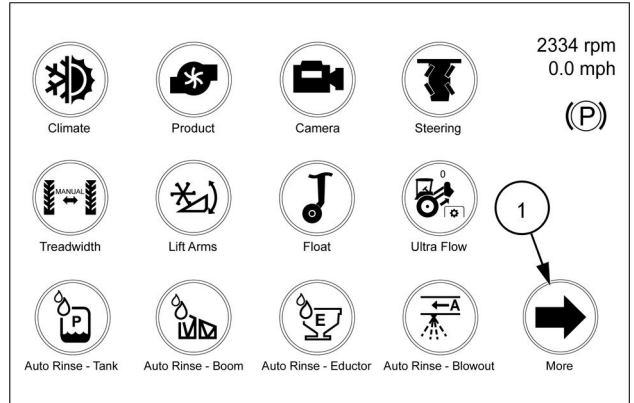


RAIL18SP00792AA 3

## Arm rest display second home screen

To switch to the second arm rest display screen from the first arm rest display screen, simply touch the More icon (1) at the lower right-hand corner.

To return to the first arm rest display screen, from the second arm rest display screen, touch the back arrow icon (2) on the lower right-hand corner of the screen.

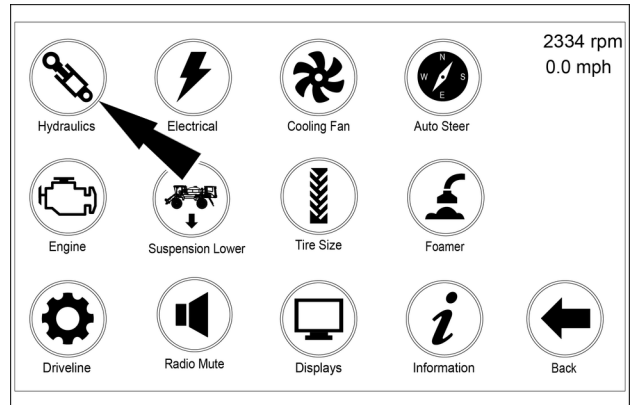


## Hydraulic icon and screens

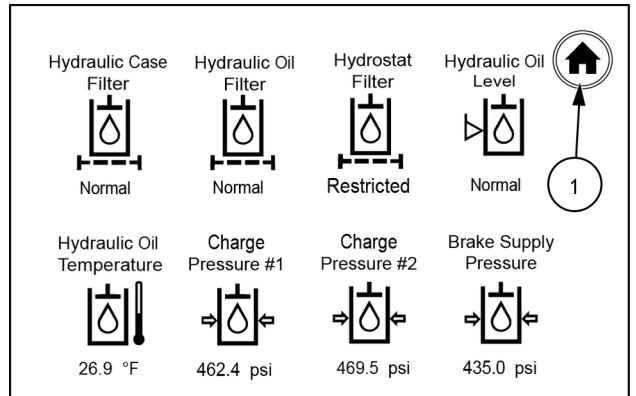
From the arm rest display second home page touch the hydraulics icon.

The monitoring screen has no selectable items. When a fault is detected the corresponding icon will turn red.

Touch the home icon (1) in the upper right-hand corner to return to the home page.



RAIL18SP00743FA 1



RAIL18SP00286AA 2

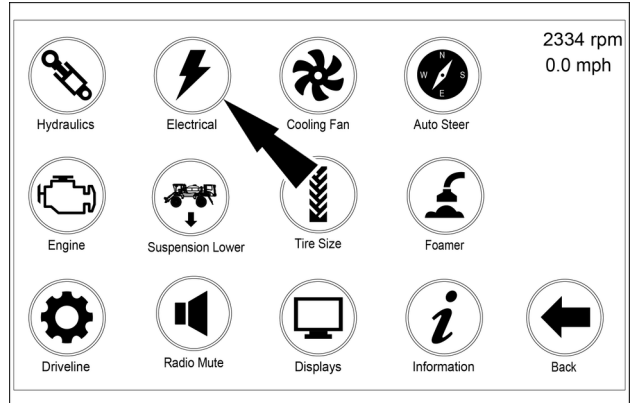
# Electrical icon and screens

## Cab fuse and relay block

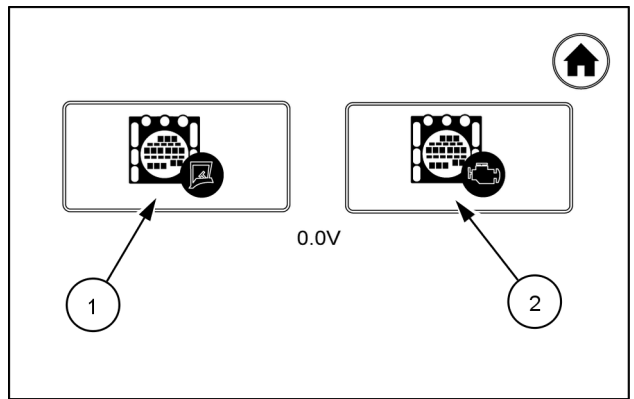
From the arm rest display second home page touch the electrical icon.

This screen is a monitoring screen for the fuse and relay blocks. From the electrical screen you can select the separate fuse and relay blocks by touching the cab (1) or engine (2) fuse and relay blocks. Touch the cab icon to bring up the actual fuse and relay block (3). Touch the icon (4) to the right of the fuse and relay block to bring up a list of the fuses and relays (5) and what they protect.

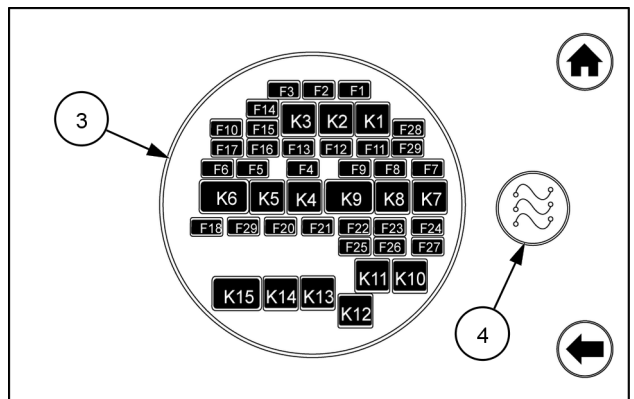
Relays shown in the fuse and relay block will turn green when active.



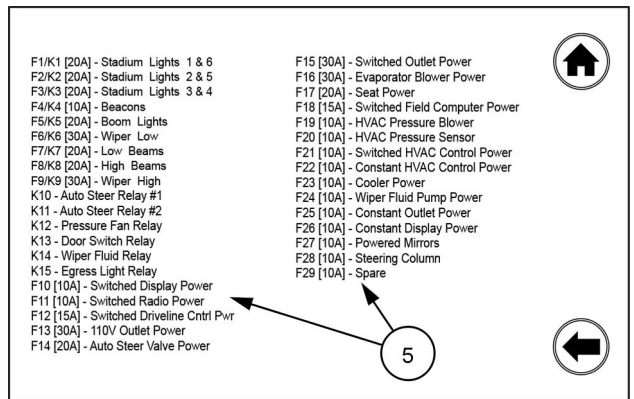
RAIL18SP00743FA 1



RAIL17SP00190AA 2



RAIL17SP00191AA 3



RAIL18SP00382AA 4

### Engine end fuse and relay block

Touch the engine icon (2) to bring up the actual fuse and relay block (6). Touch the icon (7) to the right of the fuse and relay block to bring up a list of the fuses and relays (8) and what they protect.

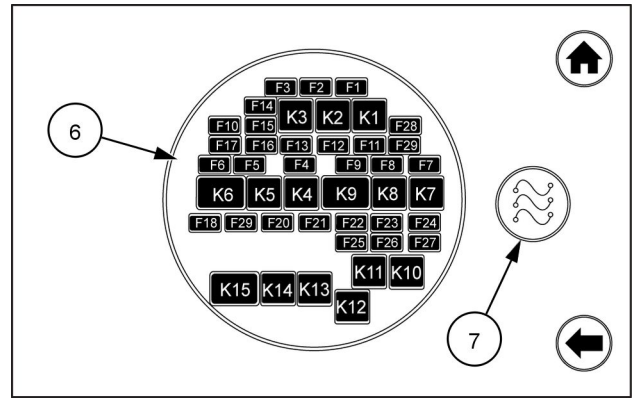
To go back one screen, touch the back arrow icon (9) at the lower right-hand corner of the screen.

Touch the home icon (10) at the top right-hand corner to return to the home page.

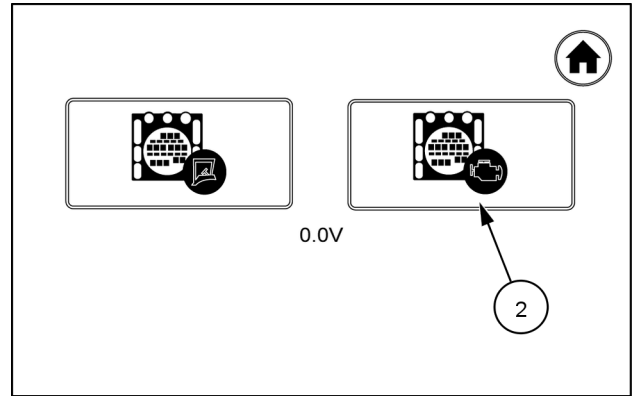
When a fuse has failed the individual fuse will turn red. An alarm will display on the home page of the arm rest display indicating which fuse and relay panel has the blown fuse. Touch the OK icon and then go to the second arm rest display home page and touch the appropriate icon to bring up the fuse and relay block.

Inside the cover of each fuse block are several spare fuses to use if a fuse should fail.

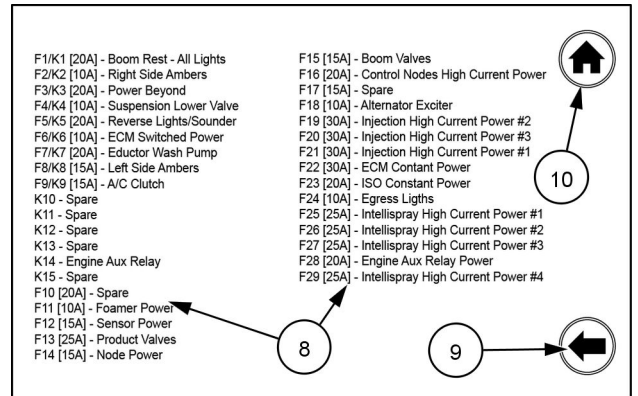
Relays shown in the fuse and relay block will turn green when active.



RAIL17SP00193AA 5



RAIL17SP00190AA 6



RAIL18SP00383AA 7

## Cooling fan icons and screens

From the arm rest display second home page touch the cooling fan icon.

This screen is used to change the reversing time interval as well as the length of time it will reverse.

**NOTE:** The fan will not reverse at low engine RPM.

From this screen you can change the auto time interval (1), the reverse time interval (2) by touching the appropriate icon to bring up the adjustment screens. Adjust as desired using the up or down arrows (3) on the setting screen. To leave the adjustment touch the selected icon again.

Once the times are set, the right-hand side of the screen will act as a count down from the original set values. The Auto Time Interval and the Reverse Time Interval will both count down.

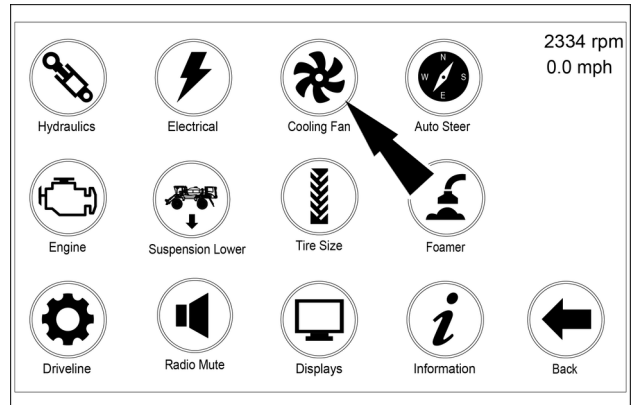
Touch the "Disable" reversing fan (4) icon (lower left) to disable the fans reversing ability.

Touch the "Fan" (5) icon (below the home icon) to set the fan speed to 100%. Fan is in auto mode unless the fan icon is pressed. When the icon is touched the fan will turn yellow and percentage will be set to 100%.

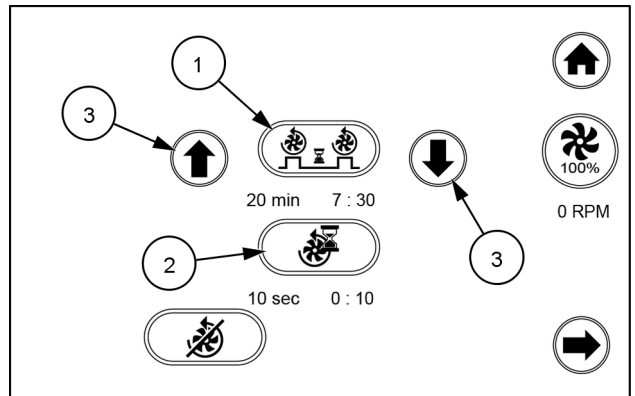
Touch the home icon (6) to return to the home page.

The reversing fan override switch (1) on the side console is used to override the automatic setting of the reversing fan.

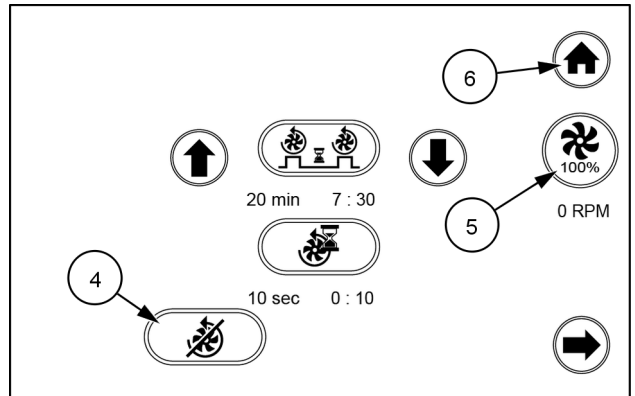
If the cooling system becomes clogged with debris and the automatic setting has not yet engaged, push the override switch and the reverse cycle will initiate.



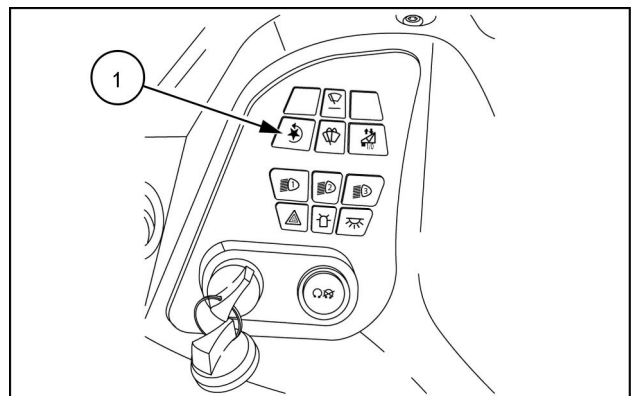
RAIL18SP00743FA 1



RAIL18SP00292AA 2



RAIL18SP00292AA 3



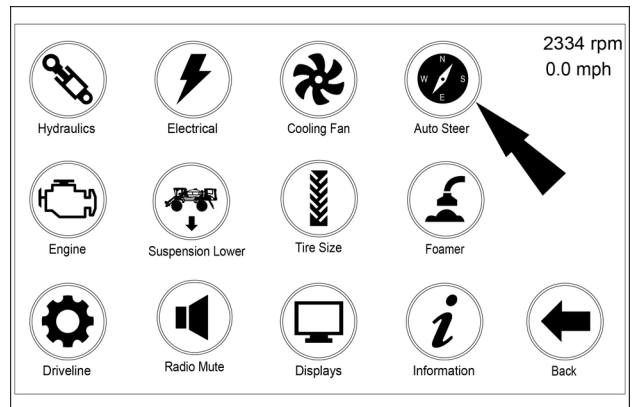
RAIL17SP00263AA 4



## Auto Steer icon and screens

From the arm rest display second home page touch the auto steer icon to bring up the auto steer valve page.

Calibrate the rear wheels as needed.

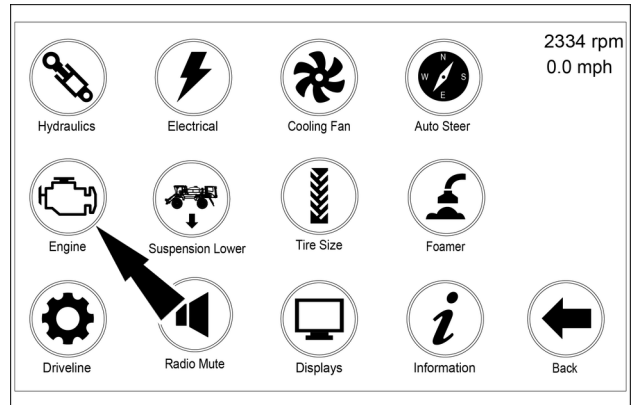


RAIL18SP00743FA 1

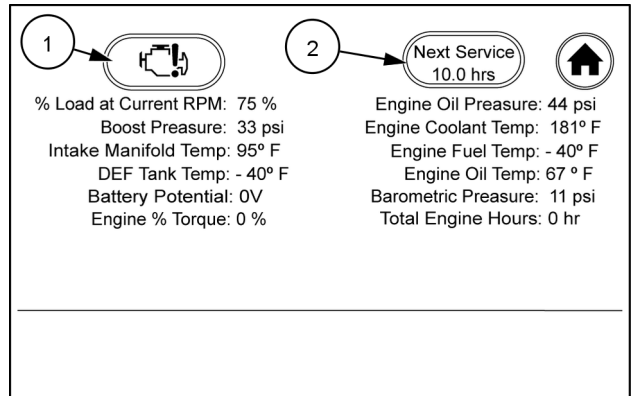
## Engine icon and screens

From the arm rest display second home page touch the engine icon to bring up the engine/service timer page.

On the engine/service timer page you can select the Engine icon (1) or the next Service icon (2).



RAIL18SP00743FA 1



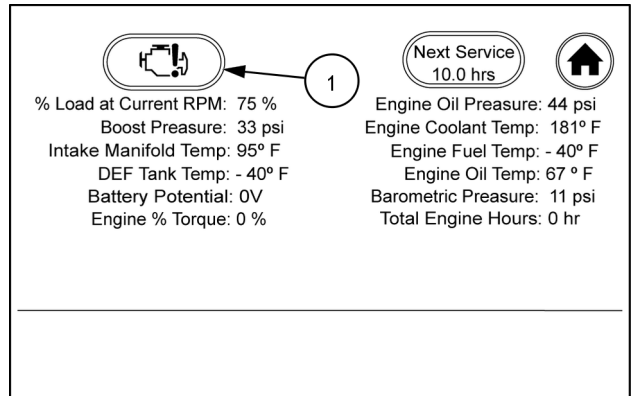
RAIL17SP00200AA 2

## Engine button

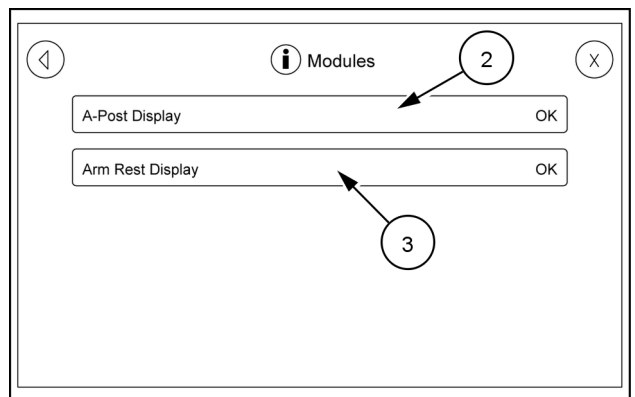
Touch the engine button (1) to bring up the modules screen.

The modules screen has two selectable options. They are: A-Post Display (2) and Arm Rest Display (3).

Touching the Arm rest display icon will bring up a scroll list that can be scrolled through using your finger to swipe the list. Scroll down to the engine icon. Use the back arrow to go back one page.

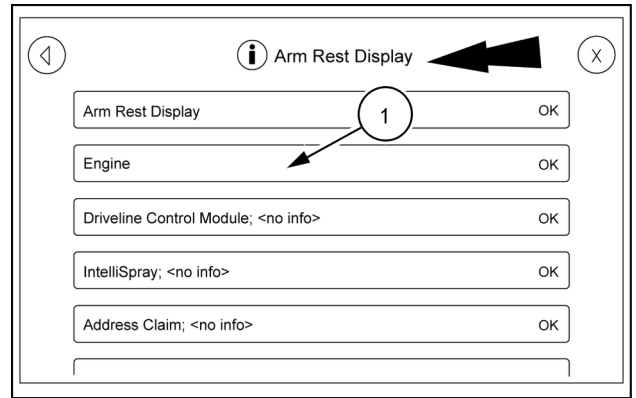


RAIL17SP00200AA 3



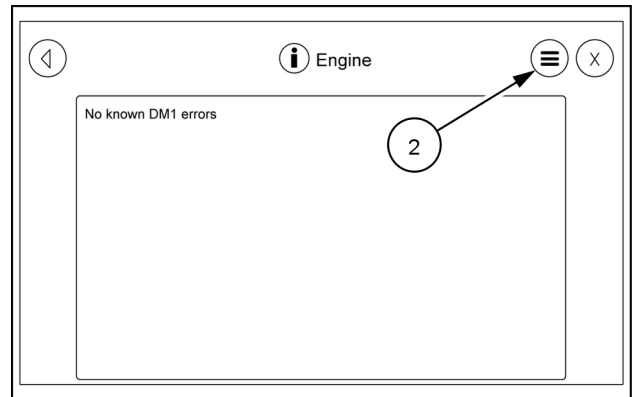
RAIL17SP00132AA 4

Return to the arm rest scroll page. Touch the category engine (1) . this will bring up a DMI errors screen. If any active faults are recorded they will show up in this window.



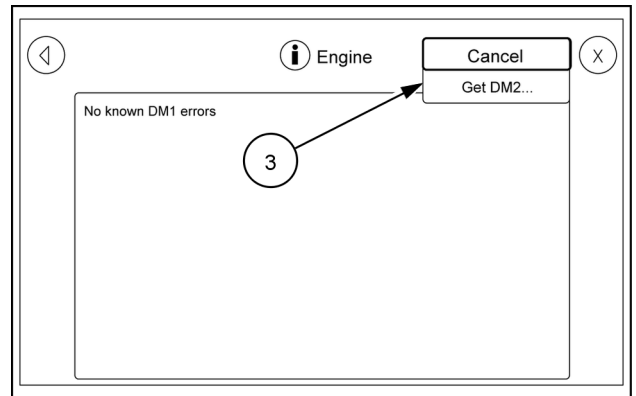
RAIL17SP00133AA 5

On the DMI errors screen touch the icon (2) in the upper right-hand corner.



RAIL17SP00135AA 6

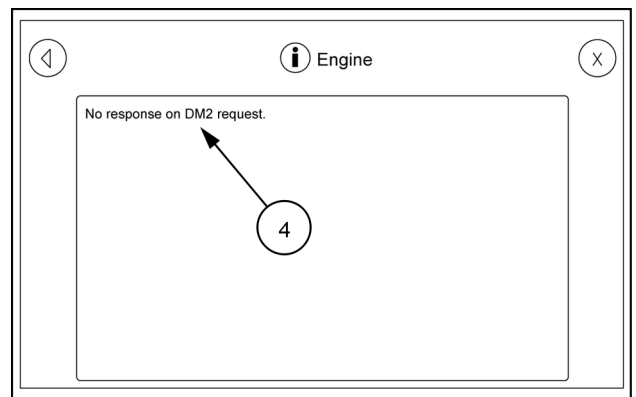
Touching this icon will bring up a screen which has a pull down menu (3) in the upper right-hand corner. Touch the get DM2 icon will bring up a list of in active faults. Press the Cancel button to clear the faults.



RAIL17SP00136AA 7

If there are no faults listed in the DM2 window you will get a screen that indicates no response on DM2 request (4).

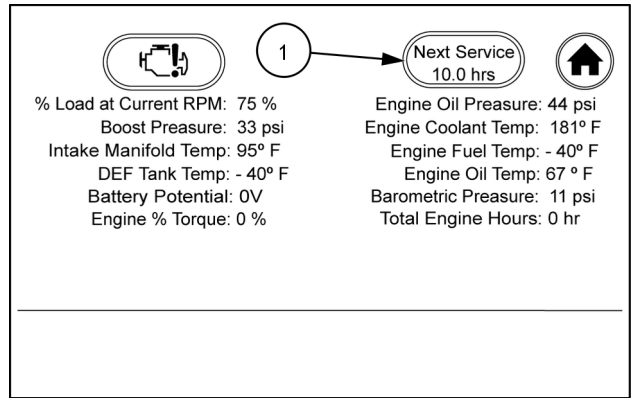
Press the back arrow to go back one page.



RAIL17SP00137AA 8

### Next Service button

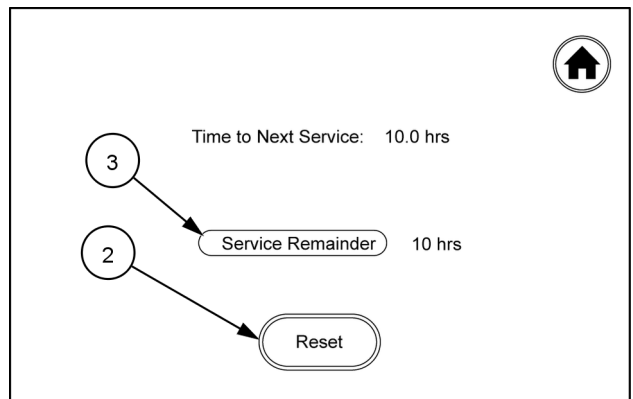
Touch the Next Service button **(1)** to bring up the service interval screen where you can set the service timer. Any after treatment alarms will also show on this screen.



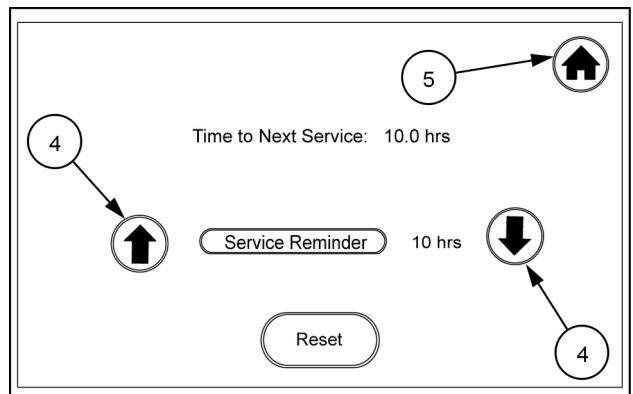
RAIL17SP00200AA 9

When the service timer has expired, if you do not wish to change any times, touch the reset button **(2)** to restart the timer. If you want to change the service timer interval, touch the set service reminder button **(3)** to bring up the setting arrows **(4)**. Touch the up or down arrows to change the time. Touch the service reminder button to set the new interval.

Touch the home icon **(5)** in the upper right-hand corner to return to the home page.



RAIL17SP00201AA 10



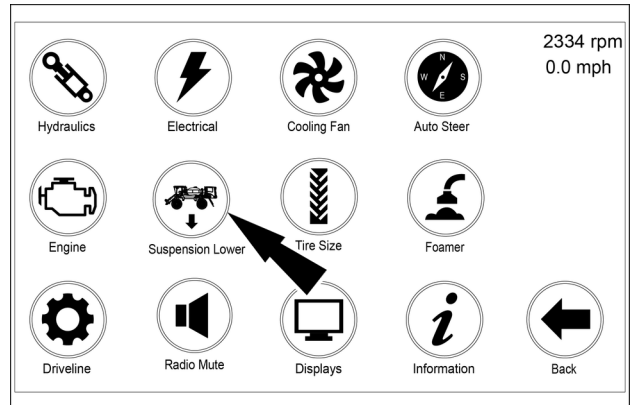
RAIL17SP00401AA 11

## Suspension icon and screens

From the arm rest display second home page touch the suspension lower icon . This will lower the suspension all the way down. Touch the suspension lower icon again and the suspension will raise to the pre set height.

**NOTE:** Be sure the drive is in neutral and the park brake released before using the suspension lower feature.

Do not drive the vehicle at speeds over **16 km/h (10 mph)** with the suspension lowered.

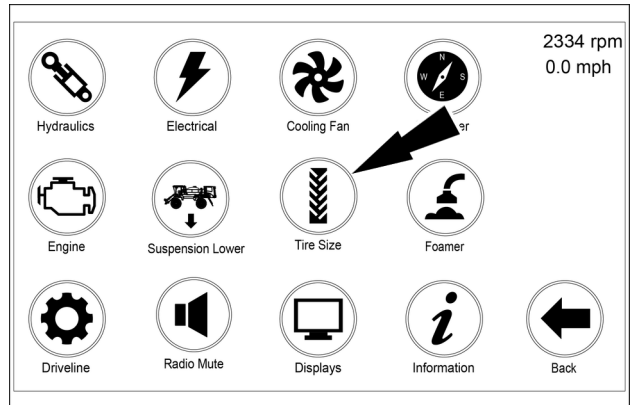


RAIL18SP00743FA 1

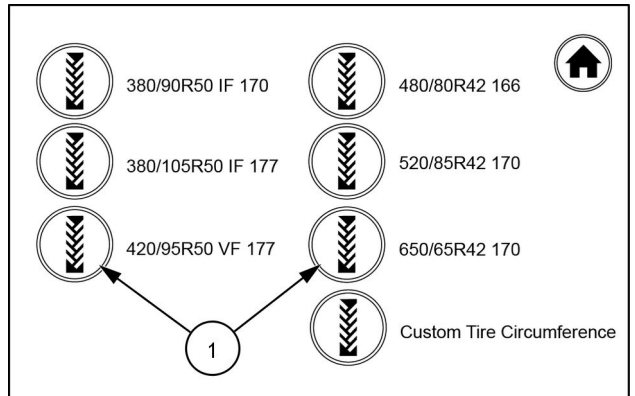
## Tire size icons and screens

From the arm rest display second home page touch the Tire Size icon. This will bring up a screen which has the standard tires shown (1).

If changing to one of these listed tire sizes, touch the icon of the tire and the system will adjust.



RAIL18SP00743FA 1



RAIL18SP00357AA 2

## Foamer icon and screens

**NOTE:** Be sure the foamer water supply valve under the rinse water tank is turned on before operating the foamer.

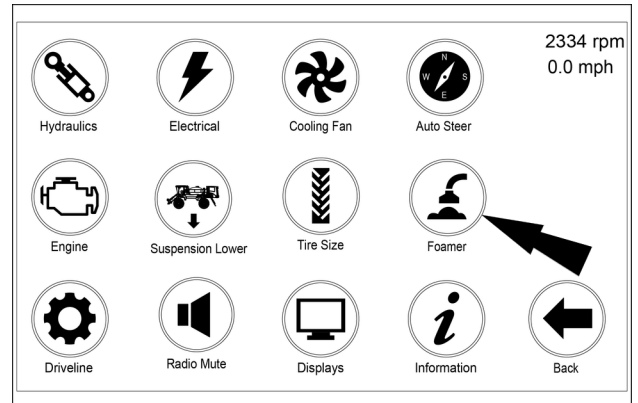
From the arm rest display second home page touch the Foamer icon. This will bring up the screen where you can select the turn signal lever control icon (1), dual foamer on/off icon (2), set the concentrate Mixture (3) and Rate (4).

When the turn signal lever icon (1) is active the icon will turn yellow and will control the left-hand and right-hand foamer. When a foamer side is active the foamer icon (5) in the front overhead display will turn orange indicating which side is on.

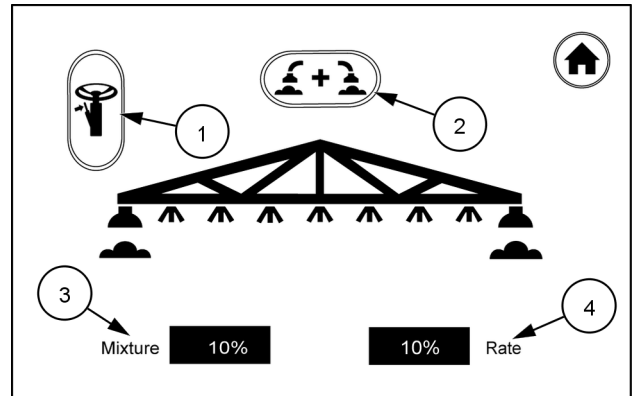
Touch the dual foamer icon (2) and the icon will turn yellow indicating that both foamers are active. Both foamer icons in the front overhead display will also turn red.

With the dual foamer ON, the system ignores the turn signal switch status (turn signal position) and continuously dispenses foam out both sides until button is cycled OFF.

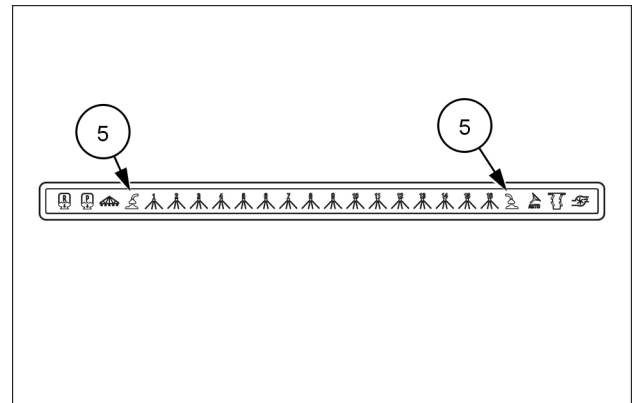
With the dual foamer turned on with the joystick button when turn signal not selected on screen. Also switch left-hand and right-hand foamer with joystick button when not in dual foamer mode on screen.



RAIL18SP00743FA 1



RAIL17SP00203AA 2



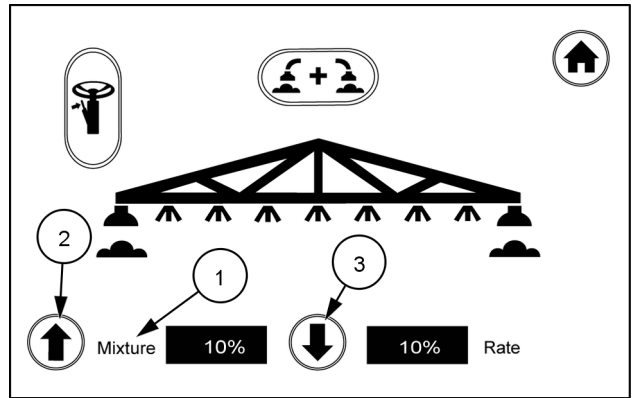
RAIL17SP00309FA 3

### 3 - CONTROLS AND INSTRUMENTS

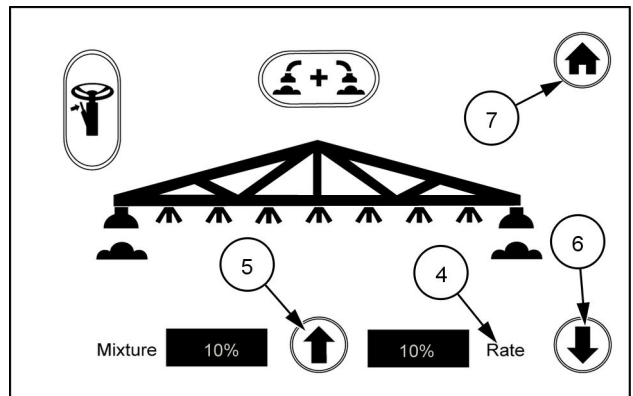
From the foamer screen touch the Mixture icon (1) and the up (2) and down (3) arrows will appear. Use the arrows to adjust the mixture from dry to wet, depending on conditions.

From the foamer screen touch the Rate icon (4) and the up (5) and down (6) arrows will appear. Use the arrows to adjust the rate of the foam, depending on conditions.

Touch the home icon (7) to return to the home page.



RAIL17SP00206AA 4



RAIL17SP00207AA 5



## Driveline icon and screens

From the arm rest display second home page touch the Driveline icon.

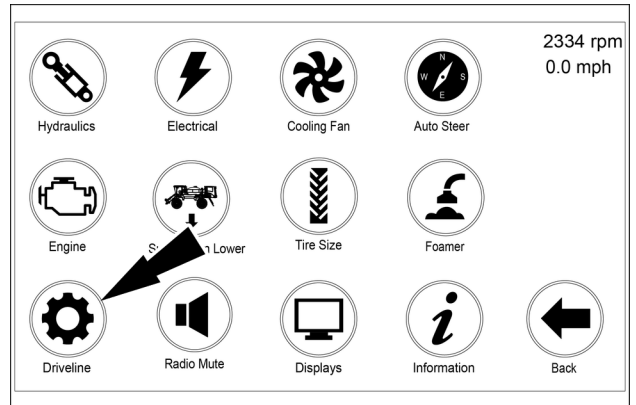
On the driveline screen touch the range setup icon (1). Touch the desired range icon (2) to bring up the up/down arrows (3) for that range. The arrows will increase or decrease the speed by .2 mph per push in that range. When set touch the next range icon to be changed if desired.

All the speed ranges 1 through 4 are changed in the same manner.

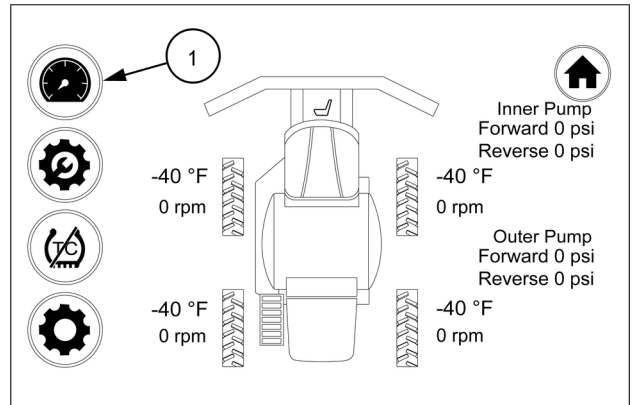
If all the ranges are set at 0.0 mph, you must start the adjustments with range 4.

Touch the back arrow (4) to go back to the driveline screen.

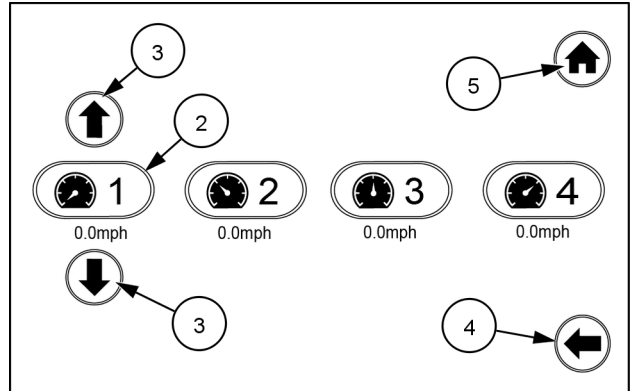
Touch the home icon (5) to return to the home page.



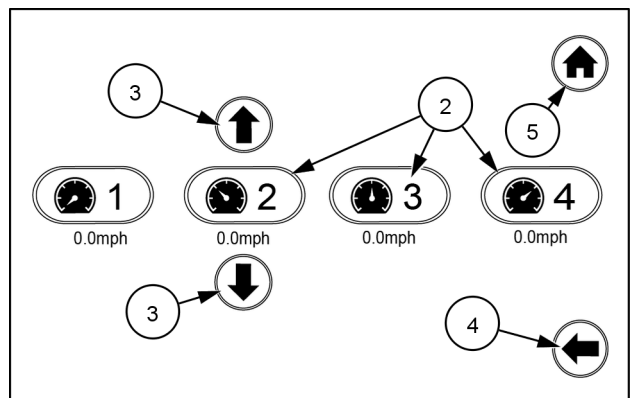
RAIL18SP00743FA 1



RAIL18SP00850FA 2



RAIL18SP00364AA 3



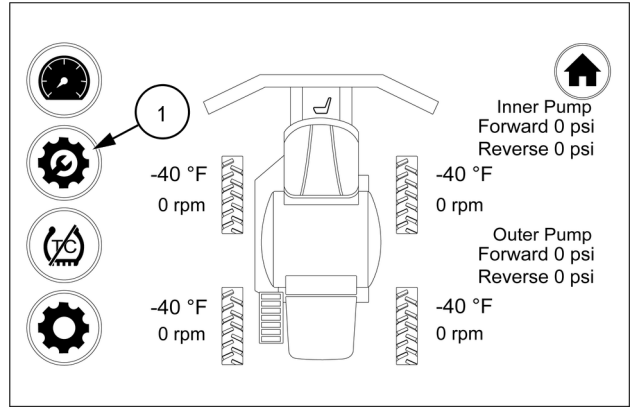
RAIL18SP00365AA 4

### 3 - CONTROLS AND INSTRUMENTS

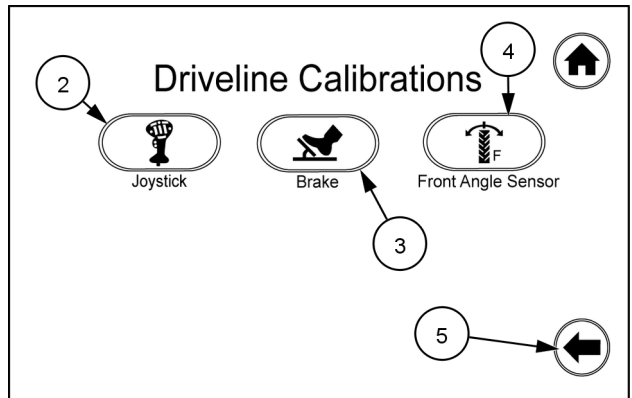
The joystick, brake pedal and front angle sensor can be calibrated by touching the calibration icon (1) on the driveline screen.

Touch the desired icon, Joystick (2), Brake (3) or Front Angle Sensor (4) to bring up the desired feature. Touching any of these icons will bring up sub screens for calibrating that feature.

Touch the back arrow (5) to go back one page.

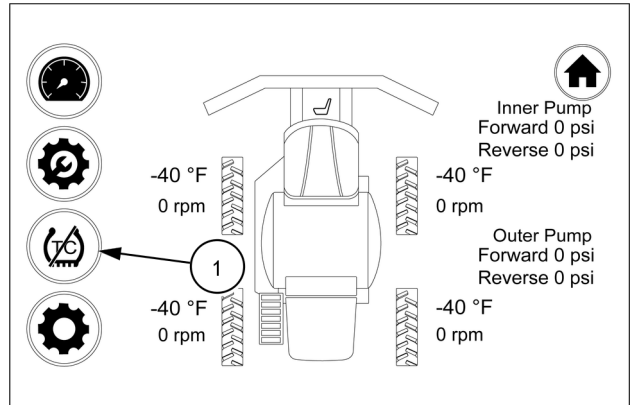


RAIL18SP00850FA 5



RAIL17SP00212AA 6

Touch the Traction Control button (1) to turn the traction control system on or off.



RAIL18SP00850FA 7

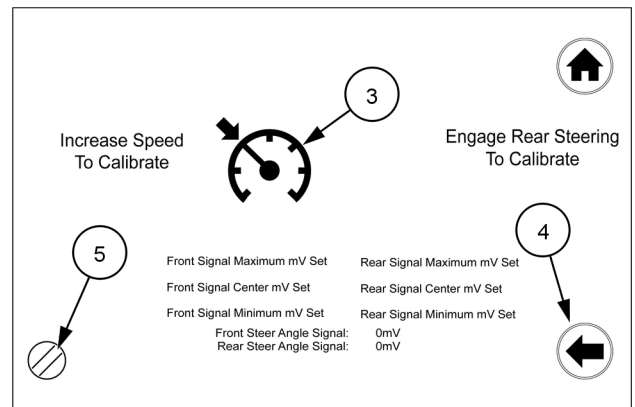
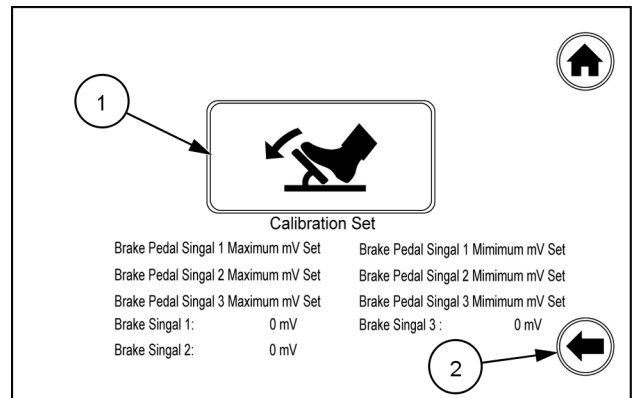
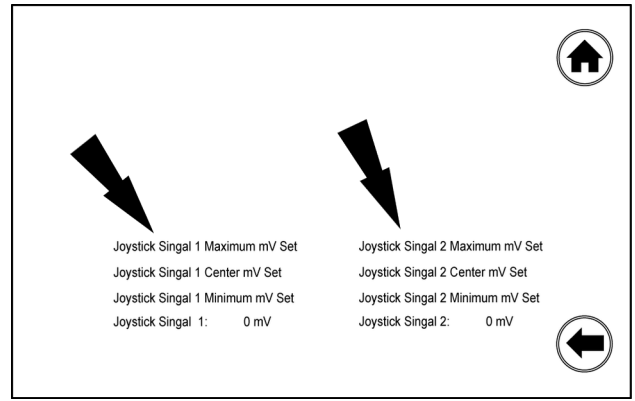
All components can be calibrated only if replaced or unplugged while powered.

The calibration screens for the joystick can only be reset if the joystick is replaced.

The calibration screen for the brake pedal is accessed by touching the brake pedal icon (1). Touch the back arrow (2) to go back one page.

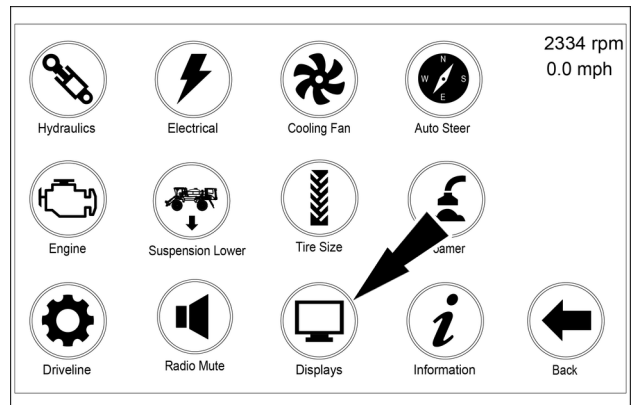
The calibration screen for the steering angle sensor is accessed by touching the steering angle sensor icon (3). Touch the back arrow (4) to go back one page.

Touch the reset calibration button (5) at the lower left-hand corner of the screen to reset the settings.



## Displays icon and screens

From the arm rest display second home page touch the Displays icon.



RAIL18SP00743FA 1

Use the back arrow on the screens until you get back to the main page.

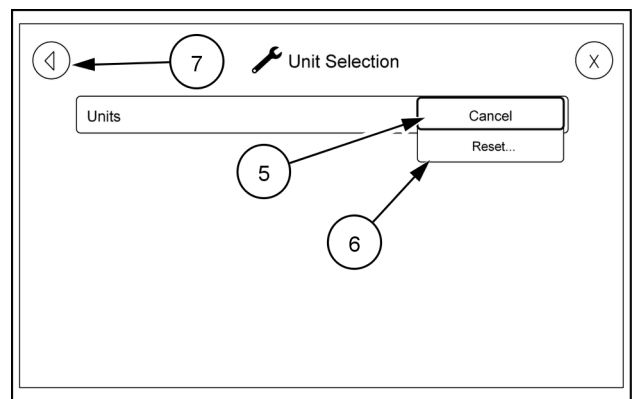
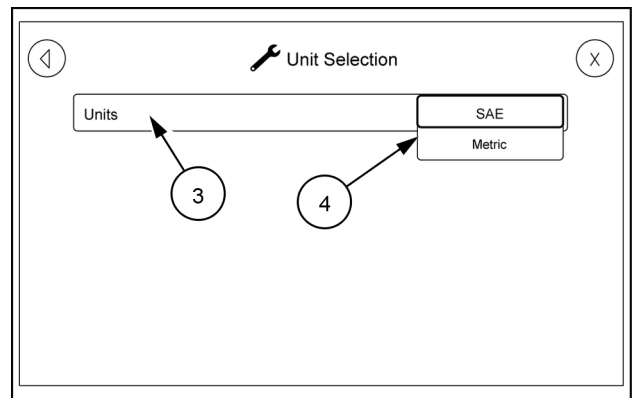
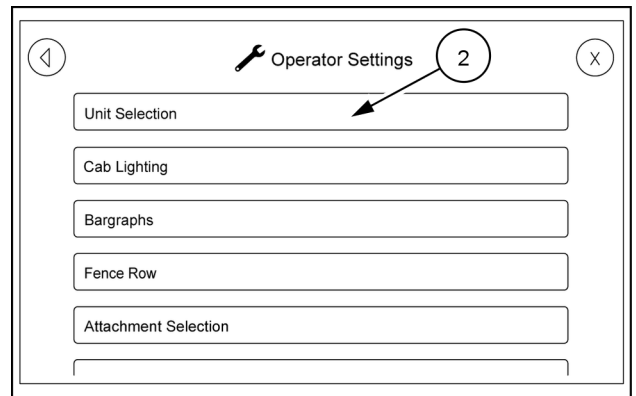
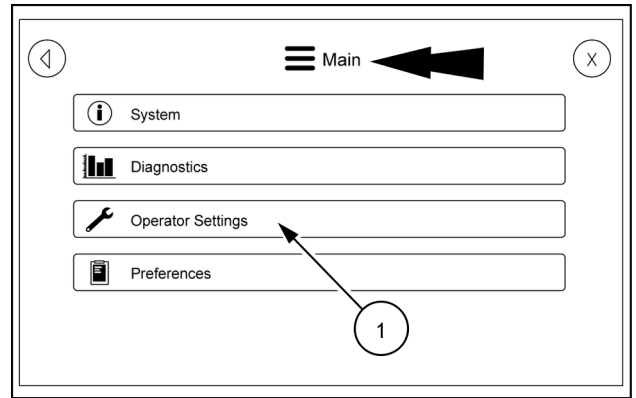
On the main page touch the Operator Settings icon (1). Touching this icon will bring up a screen that has multiple categories. This screen is a swipe screen to see all the categories.

Touch category Unit Selection (2). This will bring up a screen where you can select SAE or metric for the display. Touch the Units icon (3) and a pull down menu will appear.

Select the value you want to display. Touch the Metric icon (4) and the display will be metric.

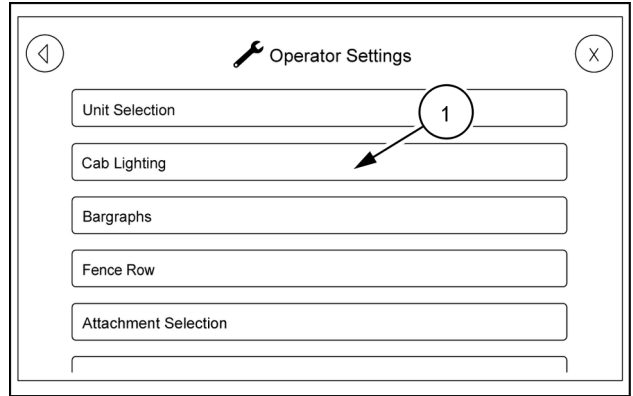
From this screen you can Cancel (5) your selection or Reset (6) the display back to the preset value.

Use the back arrow (7) to go back one page.

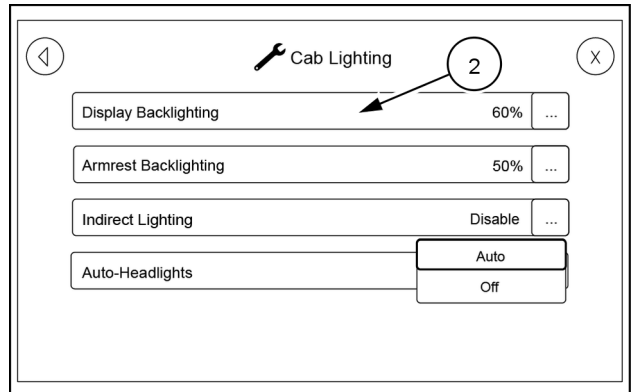


Return to the operator settings scroll screen. Touch the category Cab Lighting (1).

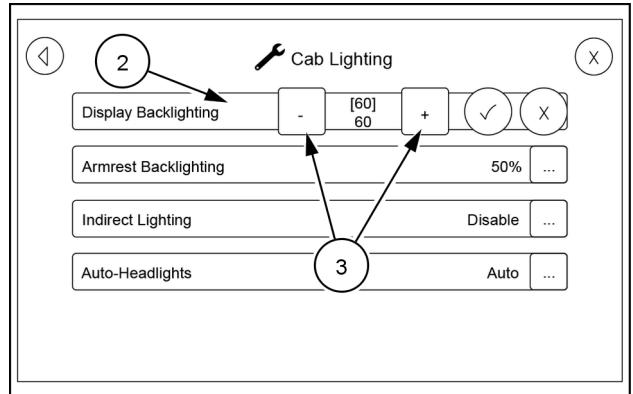
This will bring up a screen where you can select which lighting you want to adjust. Touch the Display Backlighting icon (2) and the setting icons (3) will appear. Touch the plus (+) or minus (-) to adjust the light intensity. Once the proper setting is reached touch the check mark to lock the setting in or touch the X to leave the setting as is.



RAIL17SP00144AA 6

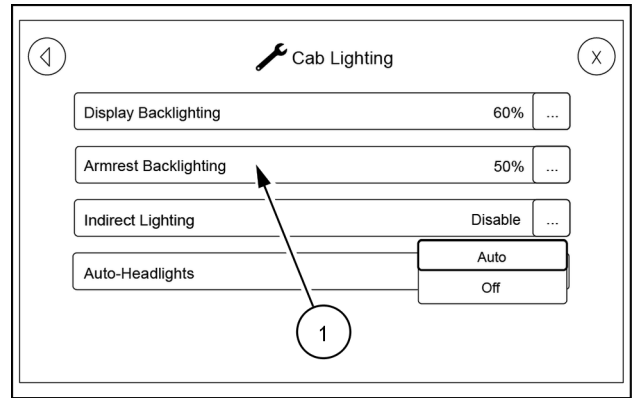


RAIL18SP00332AA 7

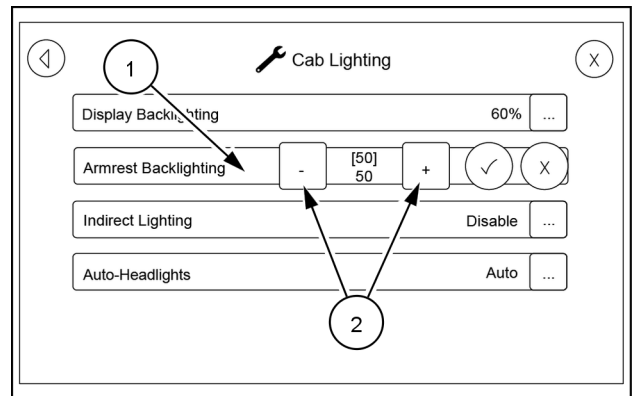


RAIL18SP00326AA 8

Touch the Armrest Backlighting icon **(1)** and the setting icons **(2)** will appear. Touch the plus (+) or minus (-) to adjust the light intensity. Once the proper setting is reached touch the check mark to lock the setting in or touch the X to leave the setting as is.



RAIL18SP00332AA 9

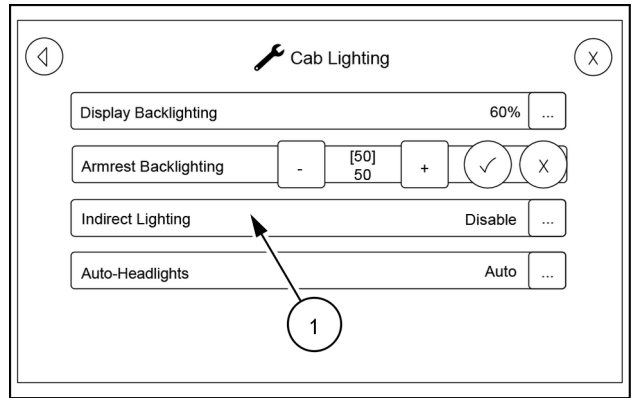


RAIL18SP00328AA 10

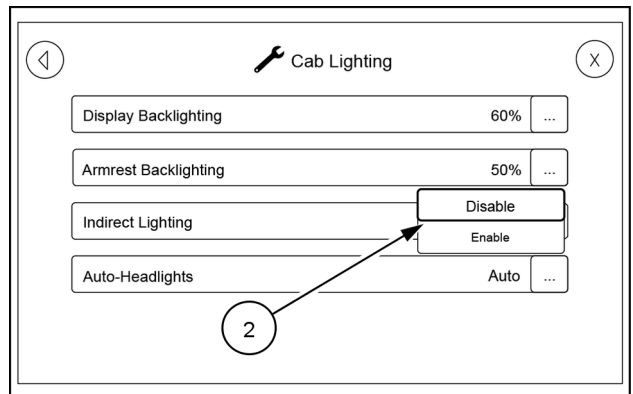
### 3 - CONTROLS AND INSTRUMENTS

Touch the Indirect Lighting icon **(1)** and a pull down menu **(2)** will appear. From the pull down menu you can choose to Disable or Enable the lighting.

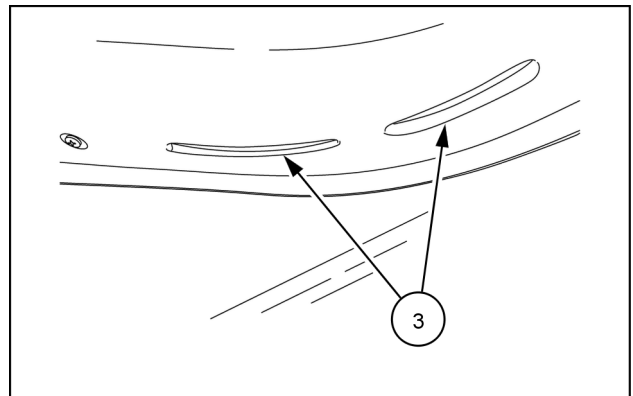
The Indirect Lighting **(3)** is located in the cab headliner (two on each side) behind the operator. They are used for accent lighting.



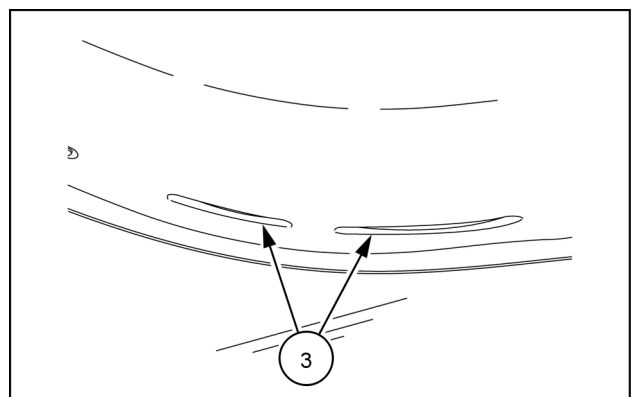
RAIL18SP00328AA 11



RAIL18SP00330AA 12



RAIL17SP00750AA 13



RAIL17SP00751AA 14

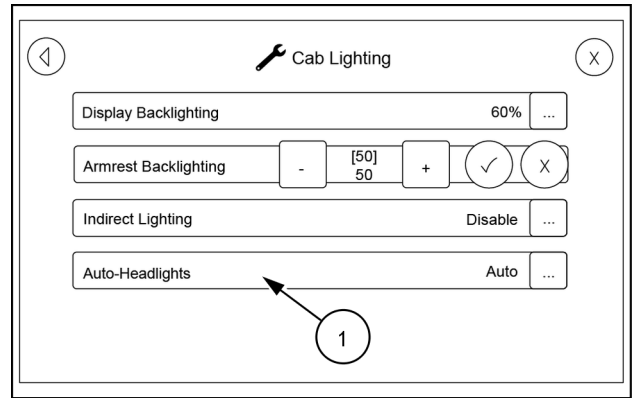


### 3 - CONTROLS AND INSTRUMENTS

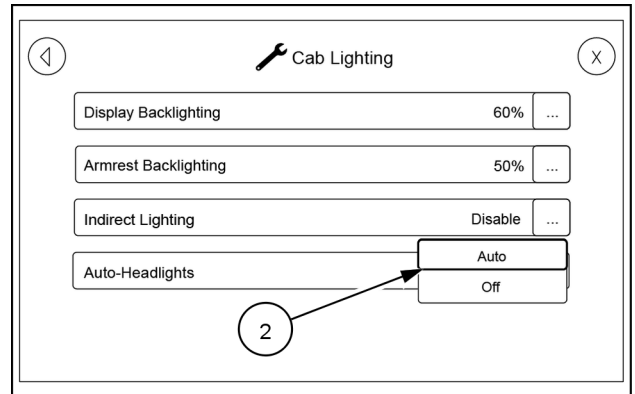
Touch the Auto-Headlights icon **(1)** (luxury cab only) and a pull down menu **(2)** will appear. From the pull down menu you can choose to set the headlights to Auto or Off.

When the auto-headlights is set to auto, headlights come on automatically when the sensor in the cab senses low light. Interior lights will also dim when the headlights come on.

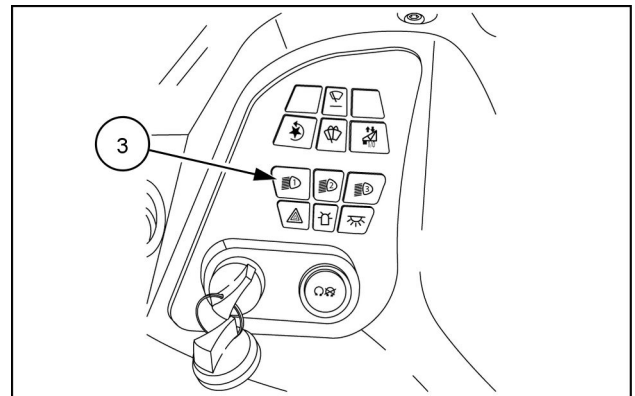
When the auto-headlights is set to off, the headlights must be turned on manually with the headlight switch **(3)** on the side console. Press the switch to turn the headlights on. Press the switch again to turn the low headlights off.



RAIL18SP00328AA 15



RAIL18SP00332AA 16



RAIL17SP00263AA 17

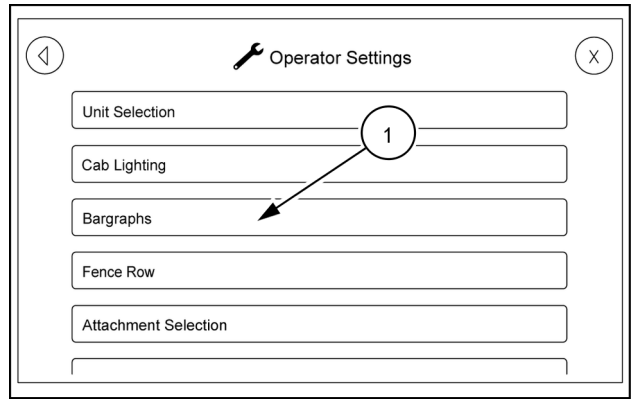
Return to the operator settings scroll screen. Touch the category selection **(1)**.

The bar graph selection screen will appear. The four selections (1 through 4) correspond with the four gauges across the bottom of the upper A-post display 1 being the gauge farthest to the left.

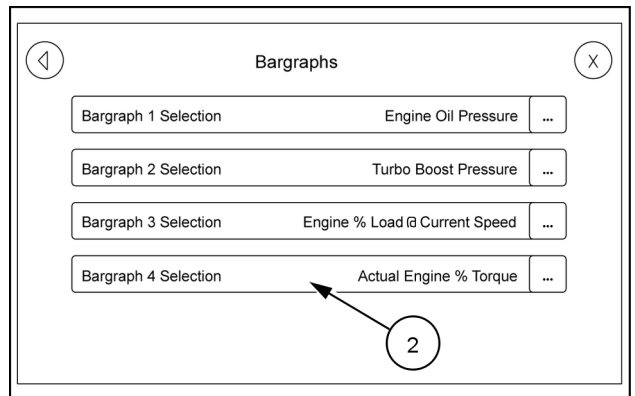
Touch one of the bar graph selections **(2)** and a pop-up menu **(3)** will appear. These menus are longer than what is displayed. Use the swipe method to scroll through the list.

Once the selection is made touch the selected category for that gauge and the gauge will change.

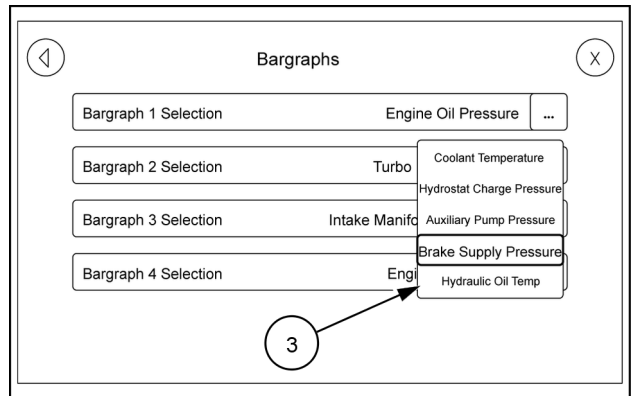
All four of the gauges can be customized per operator needs.



RAIL17SP00144AA 18



RAIL17SP00110AA 19



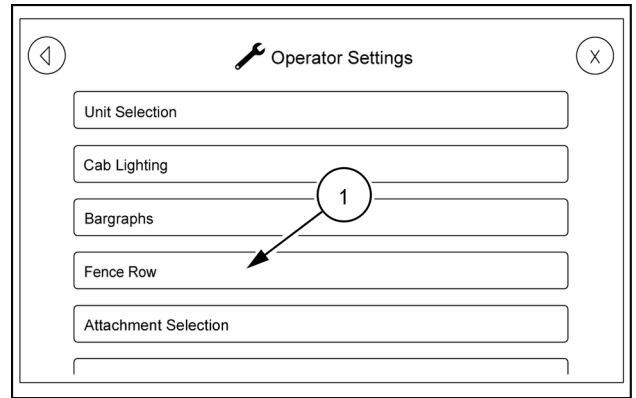
RAIL17SP00113AA 20

Return to the operator settings scroll screen. Touch the category Fence Row **(1)**.

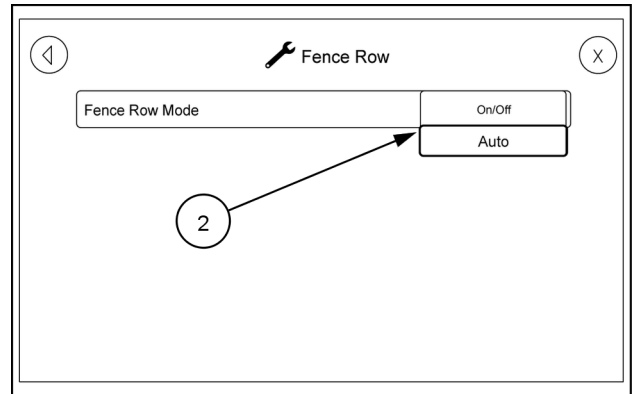
The fence row selection screen will appear. Touch the fence row icon and On/Off or Auto menu **(2)** will pop-up.

If you select on/off the right-hand and left-hand side fence row nozzles will be controlled by the fence row switches **(3)** on the side console by pressing the switch for the side desired.

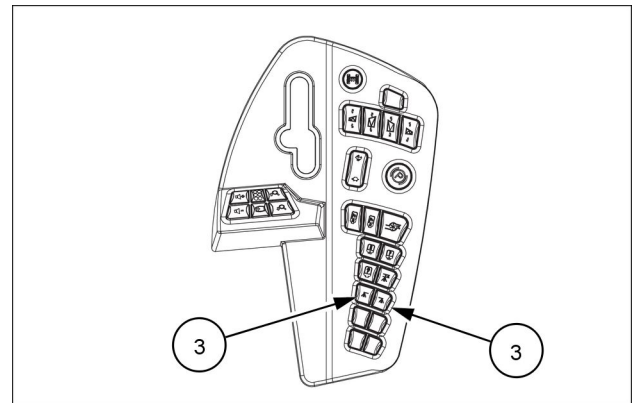
If you select auto, the right-hand and left-hand fence row nozzles are controlled with the outer most boom section on that side.



RAIL17SP00144AA 21



RAIL17SP00152AA 22

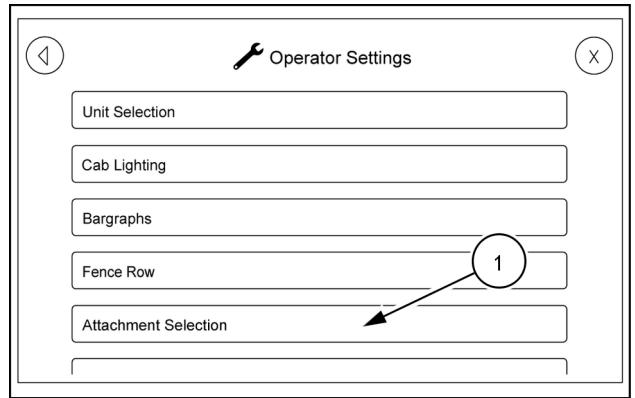


RAIL17SP00307FA 23

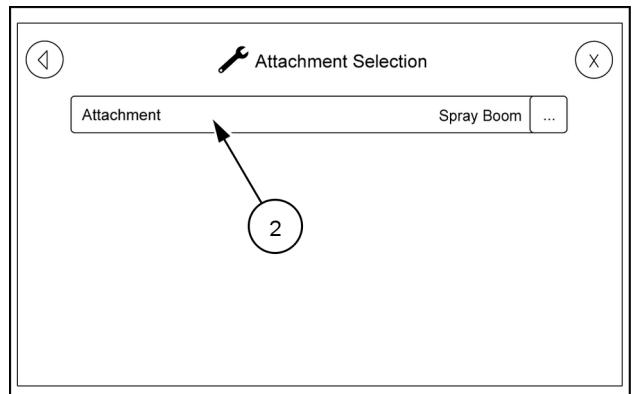
Return to the operator settings scroll screen. Touch the category attachment selection (1).

The attachment selection screen will appear. Touch the Attachment Selection icon (2) and a pop-up menu (3) will appear.

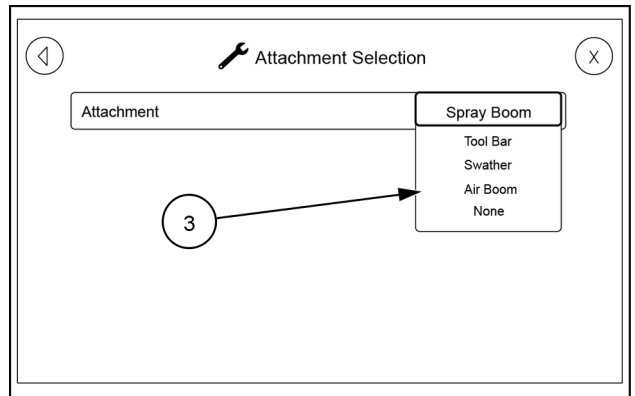
Select the type of attachment you have attached to your unit. You can choose from spray boom, tool bar, swather, air boom or none.



RAIL17SP00144AA 24

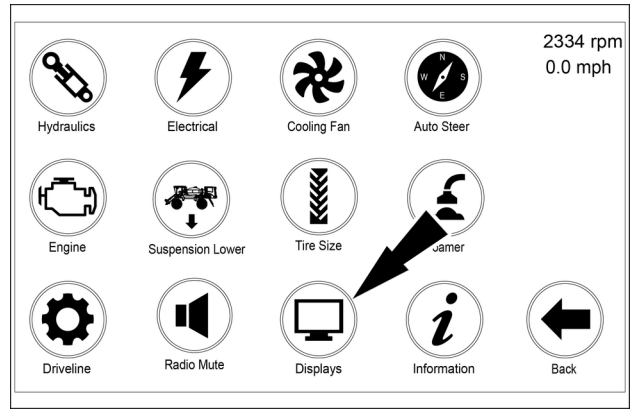


RAIL17SP00153AA 25

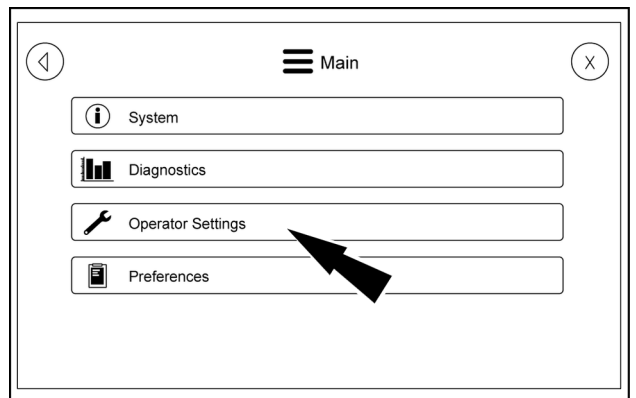


RAIL18SP01068AA 26

Return to the arm rest display second home page and touch the displays icon. This will bring up a page where you can select the operator settings icon.

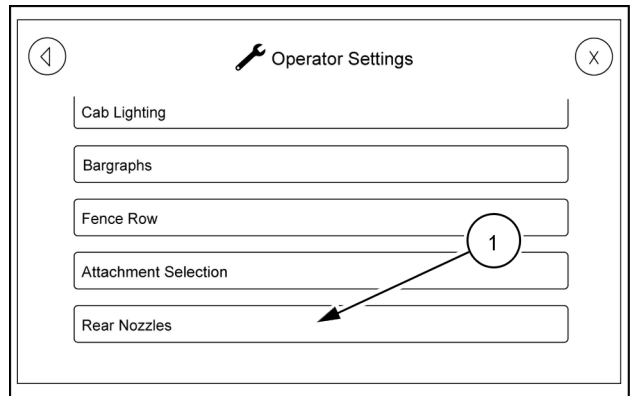


RAIL18SP00743FA 27



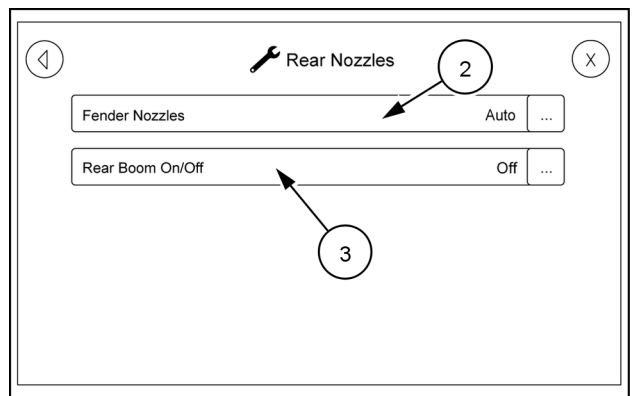
RAIL17SP00118AA 28

On the operator settings scroll screen. Use the swipe method to find the rear nozzle category. Touch the category Rear Nozzle (1).



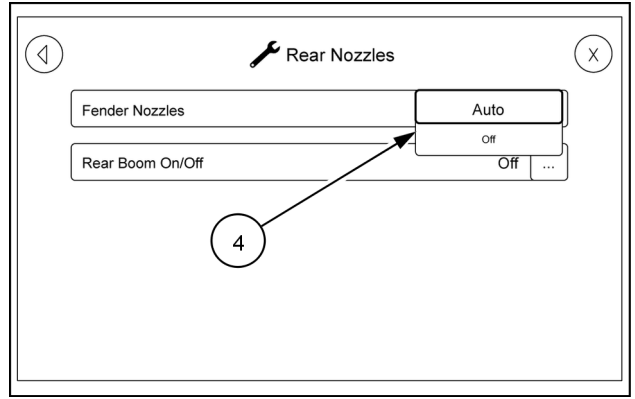
RAIL17SP00145AA 29

This will bring up a screen where you can select Fender Nozzles (2) or Rear Boom On/Off (3).



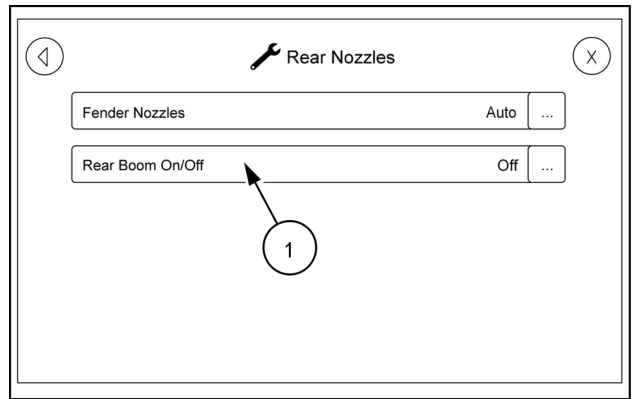
RAIL17SP00155AA 30

Touch the fender nozzles and a pop-up menu **(4)** will appear. You can select Auto or Off. If you select Auto, the fender nozzles will come on automatically with the proper boom section. Off will prevent the fender nozzles from operating.

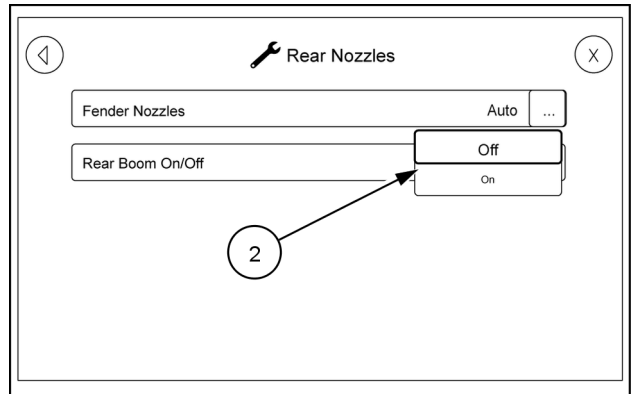


RAIL17SP00156AA 31

Touch the Rear Boom On/Off icon **(1)**. This will bring up a pop-up menu **(2)** where you can choose on or off.



RAIL17SP00155AA 32

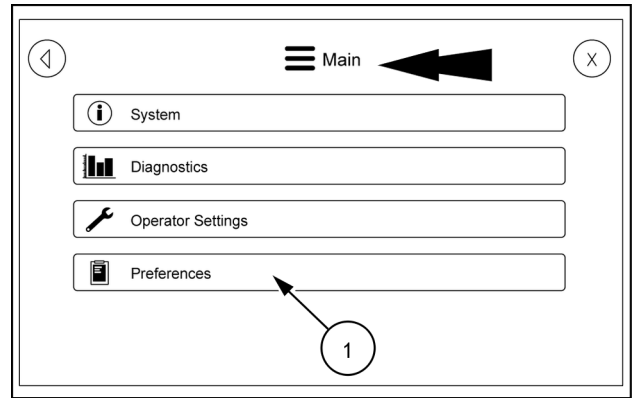


RAIL17SP00157AA 33

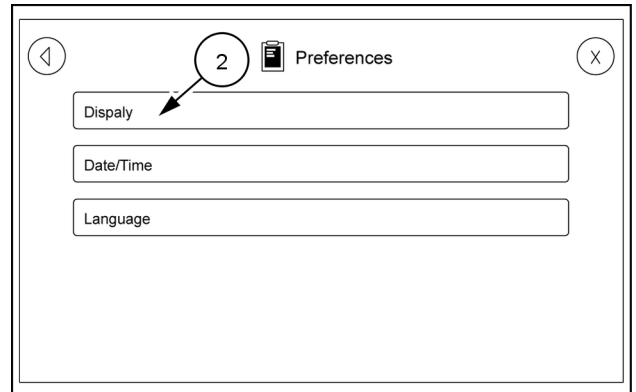
Use the back arrow on the screens until you get back to the main page.

On the main page touch the Preferences icon (1). Touching the Preferences icon will bring up a screen that has three selectable categories. Touch the Display icon (2) which will bring up a backlight and screen saver screen.

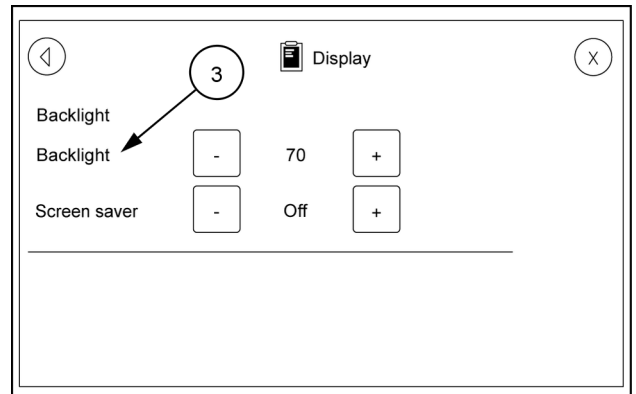
Touch the Backlight selection (3) to bring up the setting screen (4). Use the plus(+) or minus(-) to change the backlight intensity. Once the correct setting is reached touch the check mark to lock the setting in.



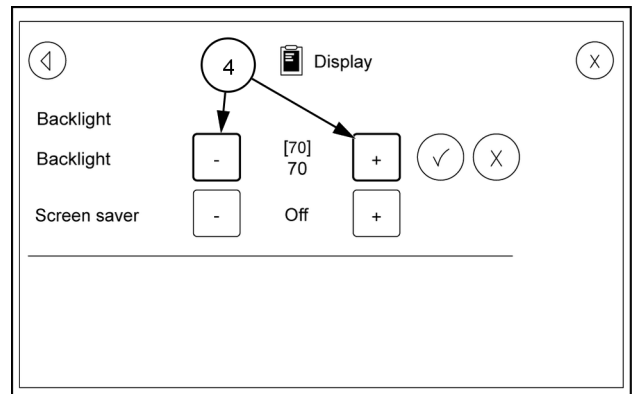
RAIL17SP00118AA 34



RAIL17SP00158AA 35



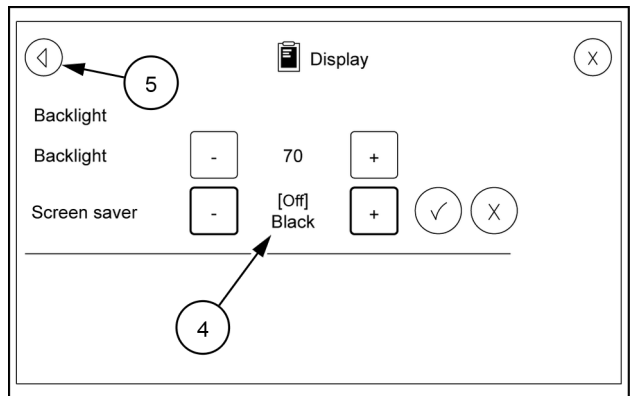
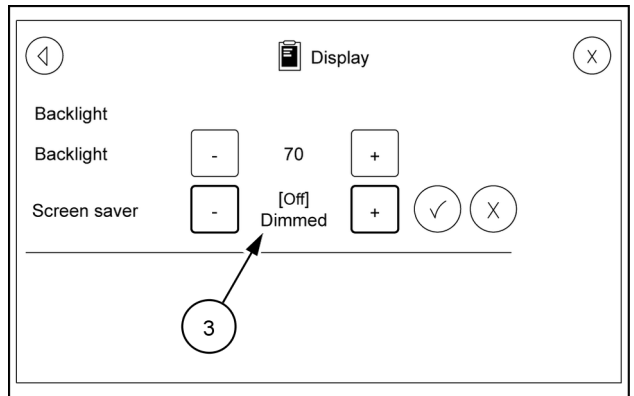
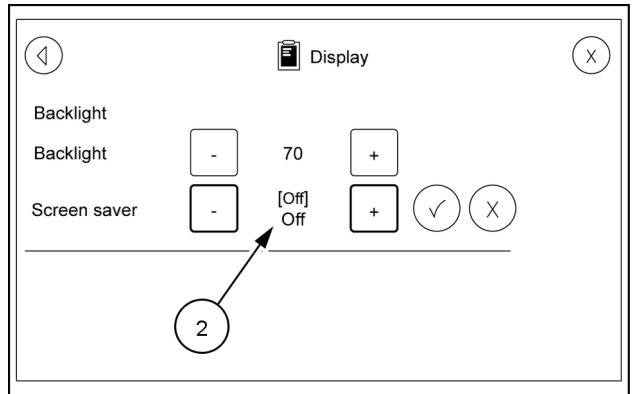
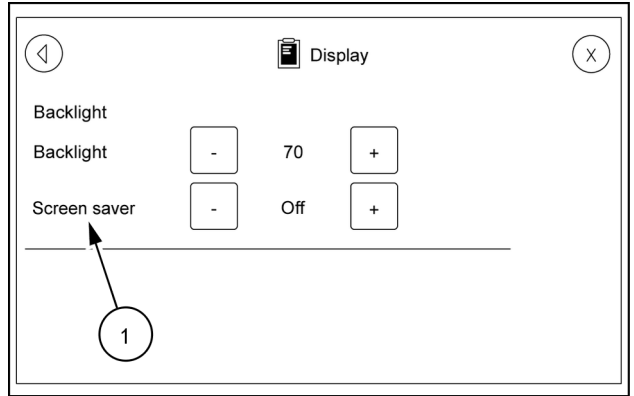
RAIL17SP00159AA 36



RAIL17SP00160AA 37

Touch the Screen Saver icon (1) to bring up the setting screen. Use the plus(+) or minus(-) to change the screen saver. Once the correct setting is reached, touch the check mark to lock the setting in. The screen saver can be set to off (2), dimmed (3) or black (4).

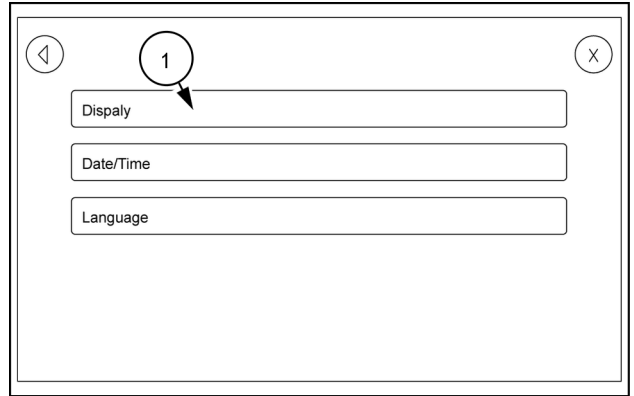
Use the back arrow (5) to go back one page.



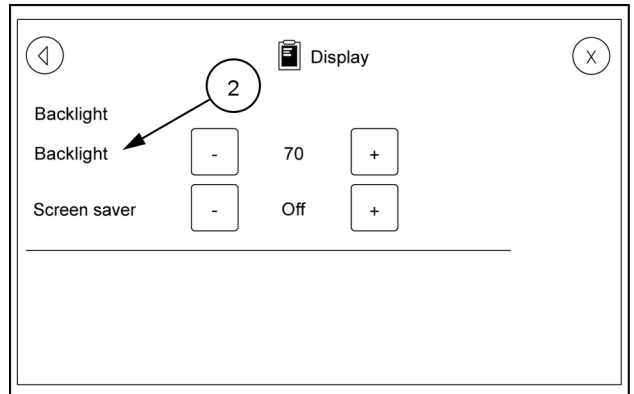


Touching the Display icon will bring up a screen that has three selectable categories. Touch the Display icon (1) which will bring up a backlight and screen saver screen.

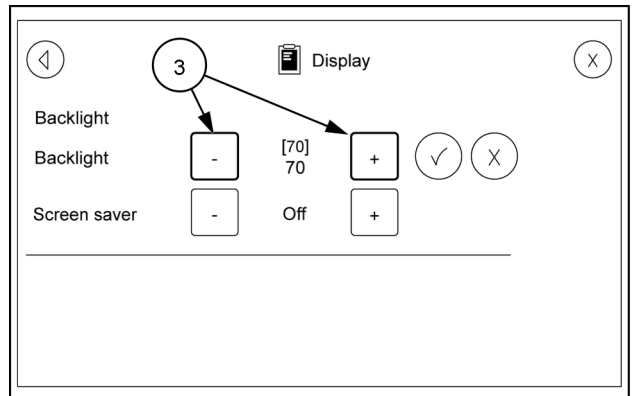
Touch the Backlight icon (2) to bring up the setting screen (3). Use the plus(+) or minus(-) to change the backlight intensity. Once the correct setting is reached touch the check mark to lock the setting in.



RAIL17SP00158AA 42



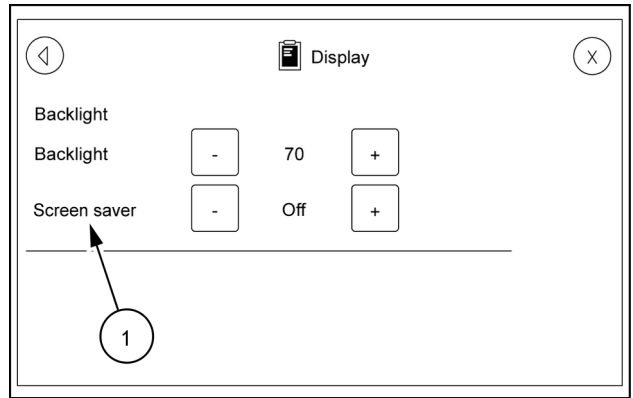
RAIL17SP00159AA 43



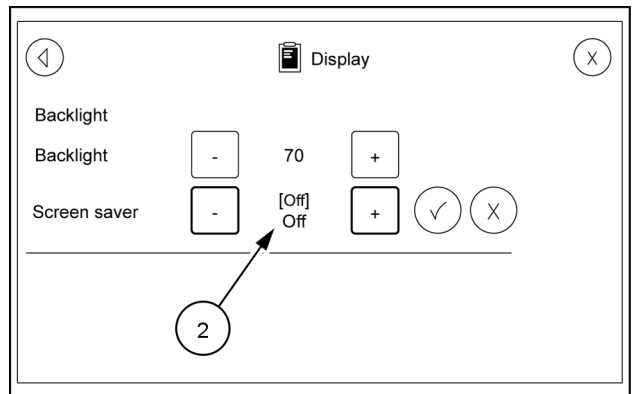
RAIL17SP00160AA 44

Touch the Screen Saver icon (1) to bring up the setting screen. Use the plus(+) or minus(-) to change the screen saver. Once the correct setting is reached, touch the check mark to lock the setting in. The screen saver can be set to off (2), dimmed (3) or black (4).

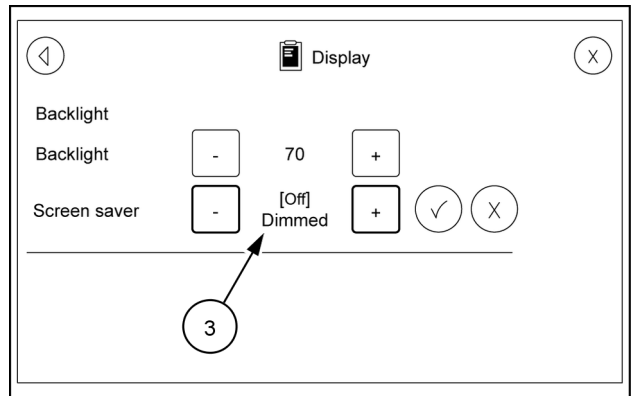
Use the back arrow (5) to go back one page.



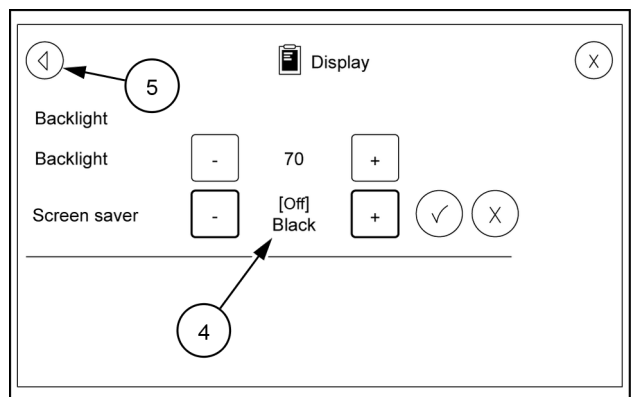
RAIL17SP00159AA 45



RAIL17SP00161AA 46



RAIL17SP00162AA 47

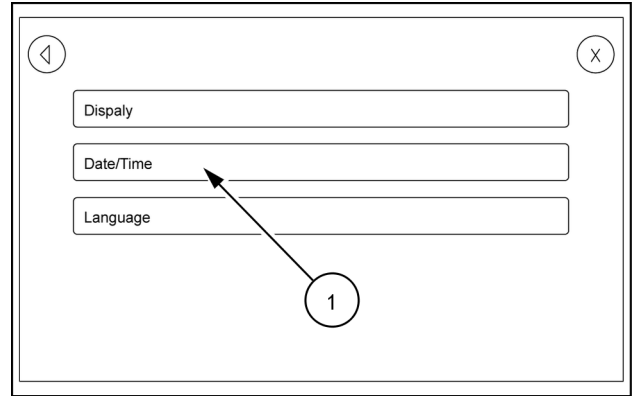


RAIL17SP00163AA 48

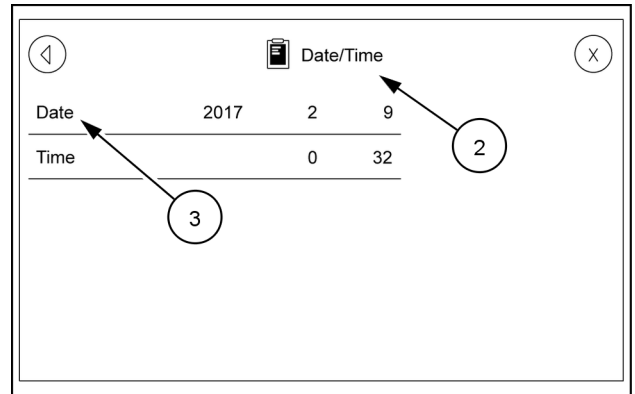
Use the back arrow key until you reach the preferences page.

On the preferences page touch the Date/Time icon (1)  
Touching this icon will bring up a Date/Time screen (2).

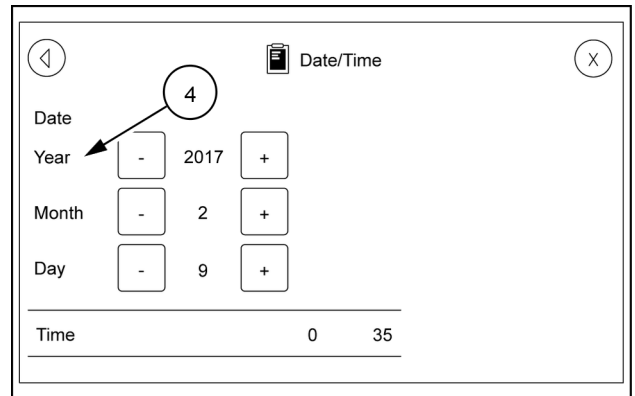
Touch the Date icon (3) to bring up the date setting screen.  
Touch the Year icon (4) to bring up the year setting screen (5).  
Use the plus(+) or minus(-) icons to set the year.  
Once the year is set, touch the check mark to lock the year in.



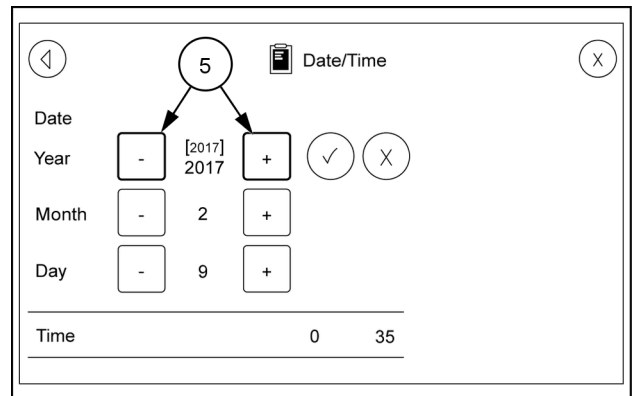
RAIL17SP00158AA 49



RAIL17SP00164AA 50



RAIL17SP00165AA 51



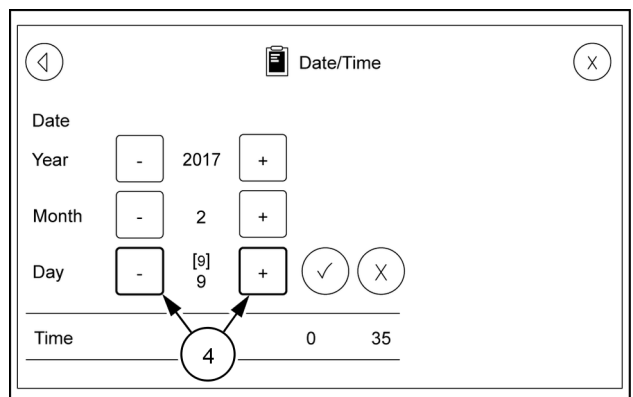
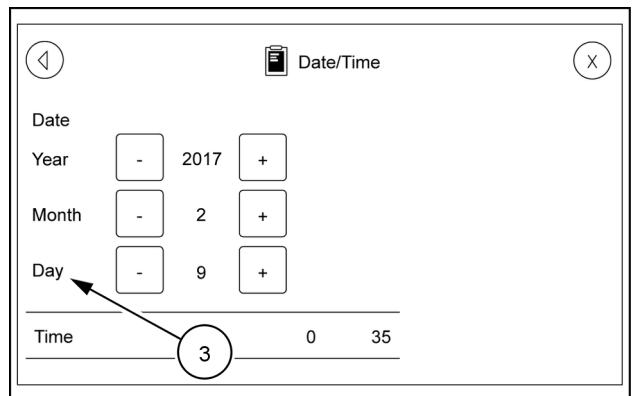
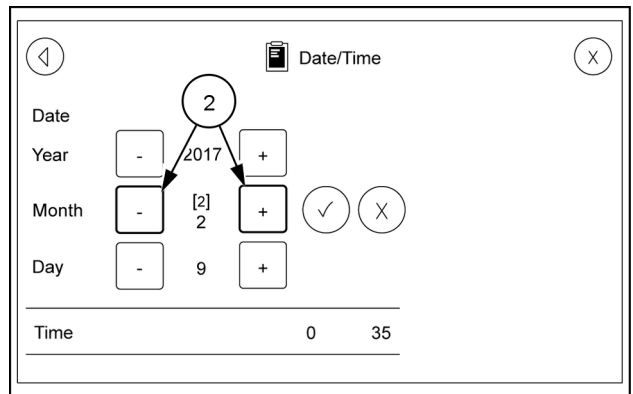
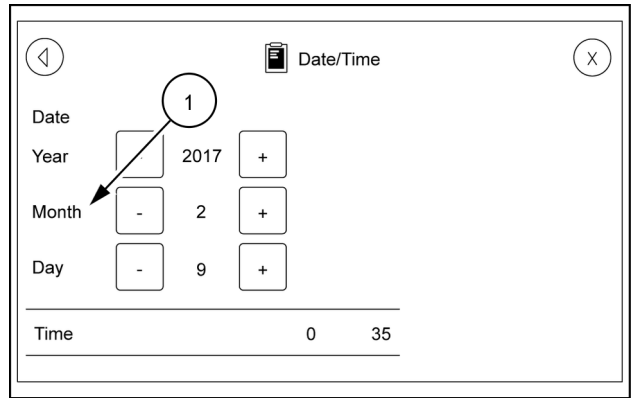
RAIL17SP00166AA 52

### 3 - CONTROLS AND INSTRUMENTS

Touch the Month icon (1) to bring up the setting screen (2). Use the plus(+) or minus(-) icons to set the month. Once the month is set, touch the check mark to lock the month in.

Touch the Day icon (3) to bring up the setting screen (4). Use the plus(+) or minus(-) icons to set the day. Once the day is set, touch the check mark to lock the day in.

Use the back arrow to go back on page.



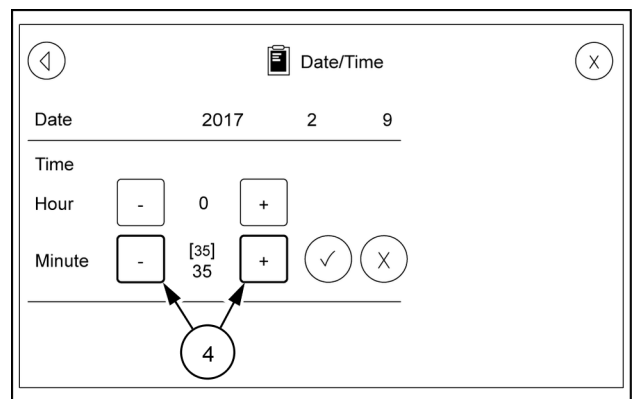
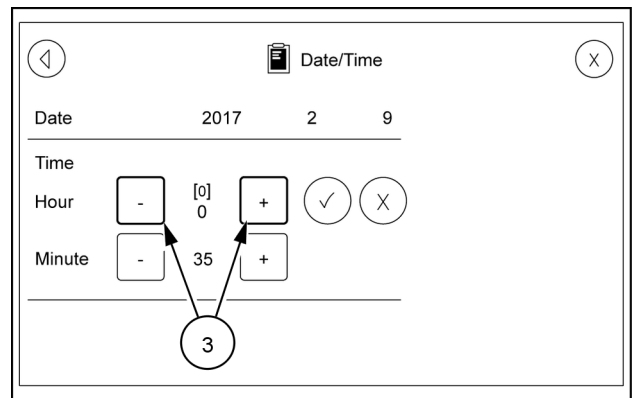
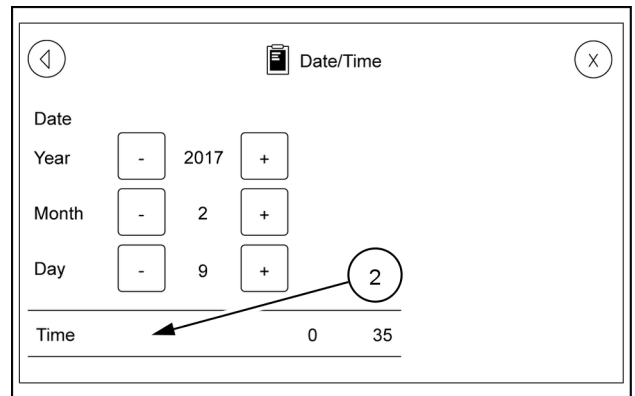
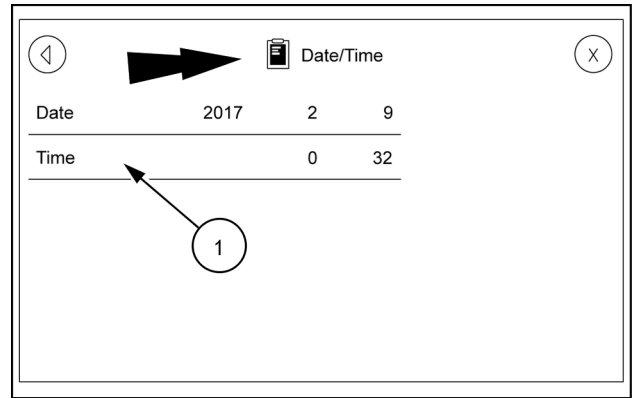
Use the back arrow key until you reach the date/time page.

From this page touch the Time icon (1) to bring up the date/time screen. At the bottom of this screen touch the Time icon (2) to bring up the hour setting screen (3).

Use the plus(+) or minus(-) icons to set the hour. Once the hour is set, touch the check mark to lock the hour in.

Touch the Minute icon (4) to bring up the minute setting screen. Use the plus(+) or minus(-) icons to set the minutes. Once the minutes are set, touch the check mark to lock the minutes in.

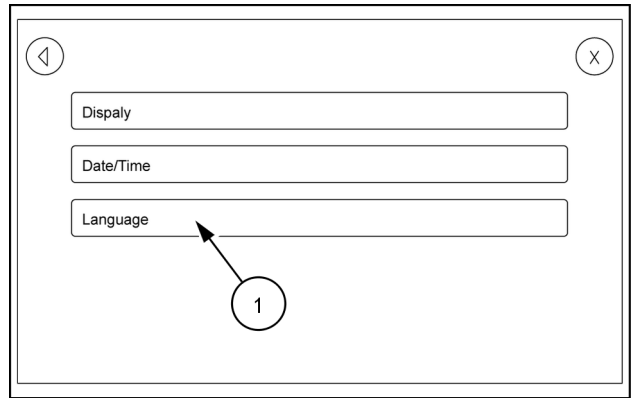
Touch the back arrow to go back one page.



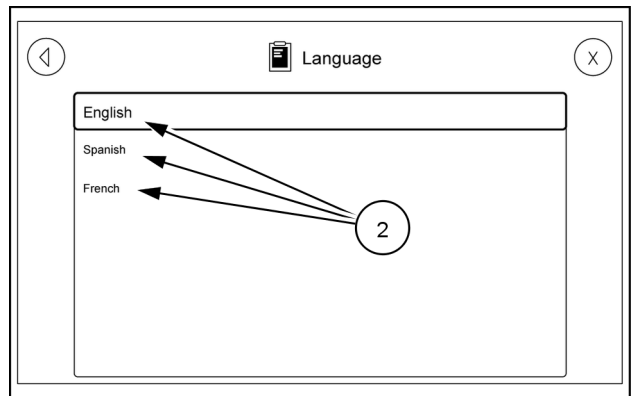
Use the back arrow key until you reach the preferences page.

On the preferences page touch the Language icon **(1)**. Touching this icon will bring up a screen where you can change the display language.

Touch the icon of the Language **(2)** desired and the display will change.



RAIL17SP00158AA 61



RAIL17SP00171AA 62

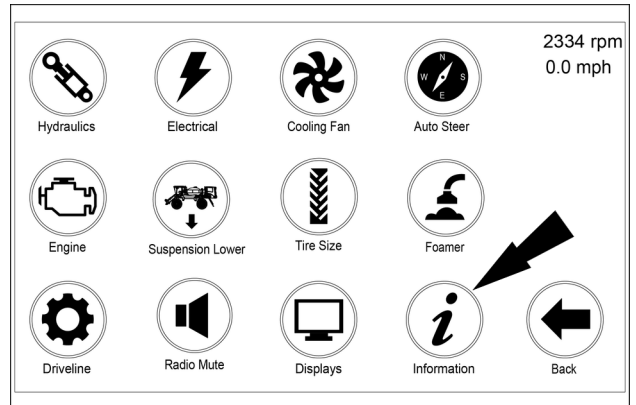
## Information icon and screens

From the arm rest display second home page touch the information icon

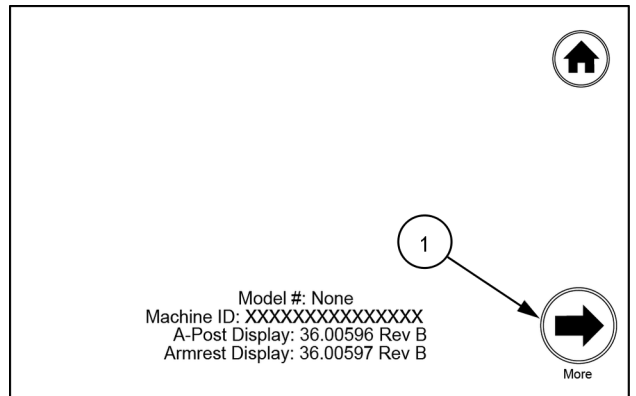
This will bring up a read only screen with machine information.

Touch the More icon (1) at the lower right-hand corner to bring up a read only screen containing the rate controller settings for your unit.

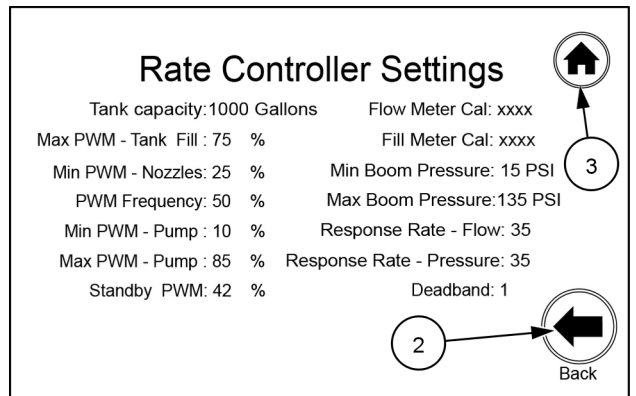
Touch the back arrow (2) to go back one page or touch the home icon (3) to return to the arm rest display second home page.



RAIL18SP00743FA 1



RAIL18SP01069AA 2



RAIL18SP00376AA 3

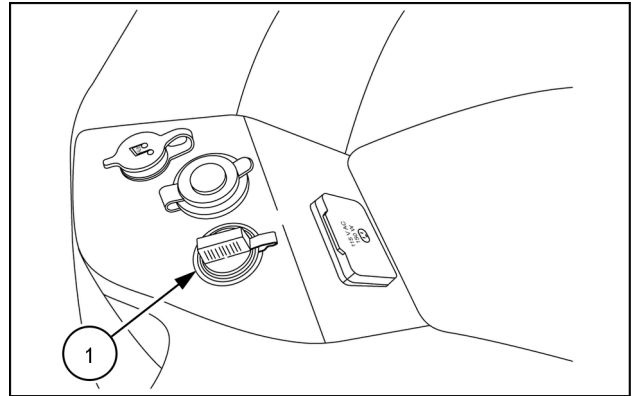
## Cab features

### Power ports and outlets

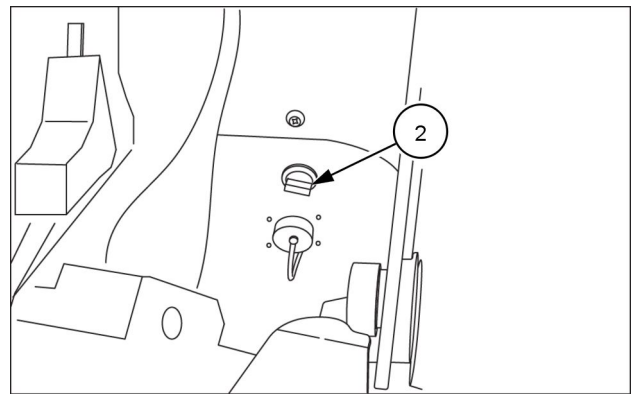
#### Power ports

There are two power ports in the vehicle cab. One power port is located in the storage compartment on the right-hand side behind the operator's seat (1). The other power port is located on the back wall of the cab between the operator's seat and the instructional seat (2). Lift up the operator's seat armrest to access this power port. The power port is used for electrical accessories such as cell phone chargers. These ports have continuous power whether the ignition is on or off. Pull the protective cover off to gain access to the ports.

The power ports should not be used for power loads over **10 A**.



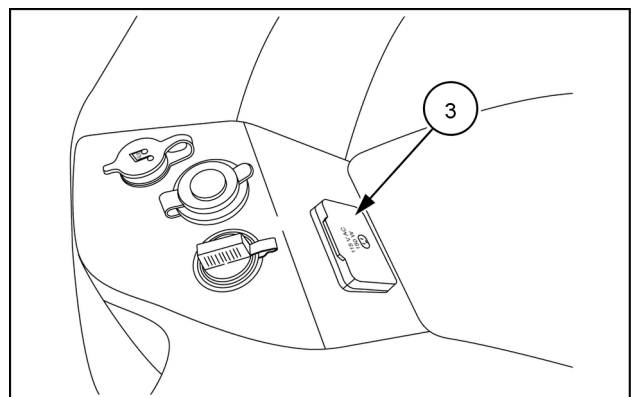
RAIL17SP00369AA 1



RAIL17SP00695AA 2

#### 110 volt power outlet (luxury cab only)

There is a **110 V** power receptacle (3) in the vehicle luxury cab. The power receptacle is located in the storage compartment to the rear right side of the operator's seat. The power receptacle is used for electrical accessories requiring **110 V** for operation.

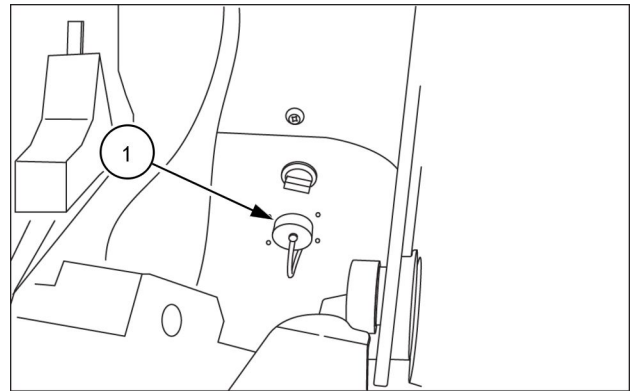


RAIL17SP00369AA 3



### Auxiliary Power Outlets

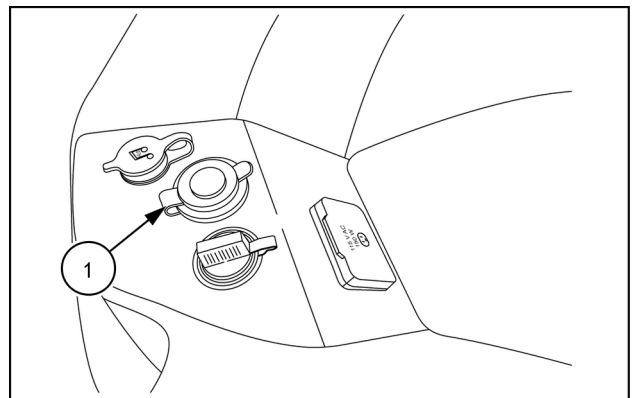
The auxiliary power outlet (1) is located on the back wall of the cab between the operator's seat and the instructional seat just below the power port. Lift up the operator's seat armrest to access this power outlet. This outlet provides two 30 amp terminals. When connected, one power terminal provides a continuous power source (2 o'clock position), the other provides power (10 o'clock position) only when the ignition key is turned to the run position. The terminal at the 6 o'clock position is ground.



RAIL17SP00695AA 4

### USB Ports

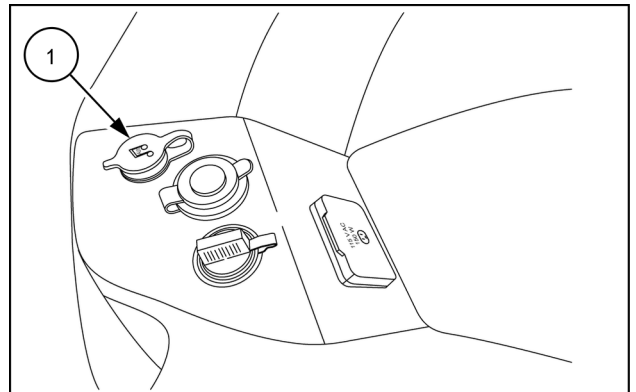
The USB ports (1) are located in the storage compartment to the rear right-hand side of the operator's seat. The two USB are under a single cover. Open the cover to expose the two ports. Close the cover when not using the ports.



RAIL17SP00369AA 5

### Auxiliary Input Receptacle

The auxiliary input receptacle (1) is located in the storage compartment to the rear right-hand side of the operator's seat. Open the cover to expose the receptacle. Close the cover when not using the port.



RAIL17SP00369AA 6



## 4 - OPERATING INSTRUCTIONS

### Commissioning the unit

### Before starting the engine - Tier 3

#### **▲ WARNING**

**Inhalation/asphyxiation hazard!**  
**Make sure there is proper ventilation before starting the engine.**  
**Failure to comply could result in death or serious injury.**

W0091A

#### **▲ WARNING**

**Hazard to bystanders!**  
**ALWAYS make sure the work area is clear of bystanders and domestic animals before starting this procedure. Know the full area of movement of the machine. Do not permit anyone to enter the area of movement during this procedure.**  
**Failure to comply could result in death or serious injury.**

W0245A

#### **▲ WARNING**

**Unexpected machine movement!**  
**Before starting the engine, move all operating controls to neutral or park lock position. This prevents accidental movement of the machine or start up of power-driven equipment.**  
**Failure to comply could result in death or serious injury.**

W0302A

### First sprayer use

Before starting your unit for the first time, make the following checks:

- Make sure the sprayer engine is properly lubricated and greased as described in the Maintenance chapter of this manual.
- Check the oil level in the engine crankcase. Check the fluid level in the pump drive gear box and the hydraulic reservoir. See the maintenance chapter of this manual.
- Check that the fuel tank is filled with clean fuel that meets the specifications given in this manual.
- Check the engine, hydraulic system, fuel and cooling system for air or oil leaks.
- Check that the air conditioner compressor belt is adjusted correctly. The alternator belt is self-tensioning.
- Remove any water or sediment from the water separator on the primary fuel filter.
- Check the air pressure in the tires and check the wheel bolt torque.
- Check the coolant level in the coolant overflow bottle. Add **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** as needed.

### Daily inspection

- Walk around and visually inspect the sprayer daily. Check for such items as hoses or wires rubbing against other components, oil leaks, trash buildup, loose bolts or anything that would affect the normal operation of the sprayer.
- Inspect the exhaust system and repair if leaking, failed, or damaged.
- Make any necessary corrections before operating the sprayer.

## Seat belts

### **⚠ WARNING**

#### **Avoid injury!**

**Before starting the engine, securely fasten the seat belt. The seat belt can help ensure your safety if it is properly used and maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt if it is twisted or pinched between the seat structures. Failure to comply could result in death or serious injury.**

W0142A

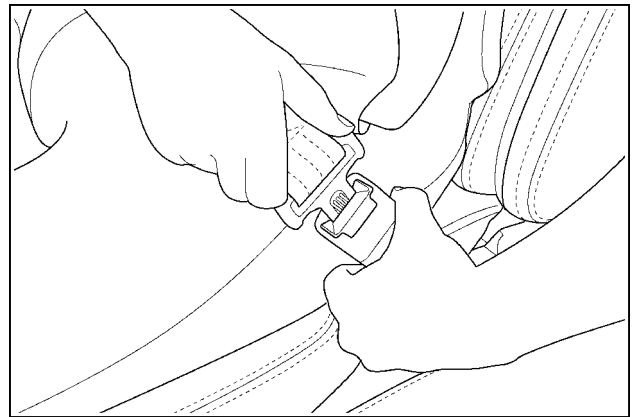
### **⚠ WARNING**

#### **Fall hazard!**

**The instructional seat shall only be used when training a new operator or when a service technician is diagnosing a problem. Do not permit others, especially children, to ride in the seat. Keep the cab door(s) closed. Wear a seat belt at all times. Failure to comply could result in death or serious injury.**

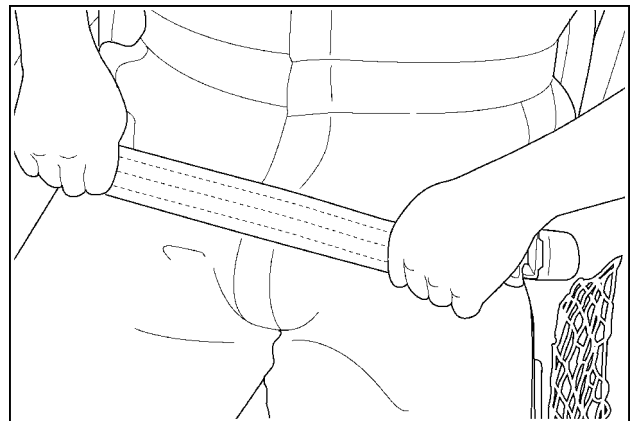
W0301A

Always securely fasten your seat belt before operating the sprayer. From time to time, carefully inspect the seat belts for worn areas and replace belts when needed. Adjust the position of the operator's seat. Pull the seat belt completely across your body. Push the metal eye into the buckle until it locks.



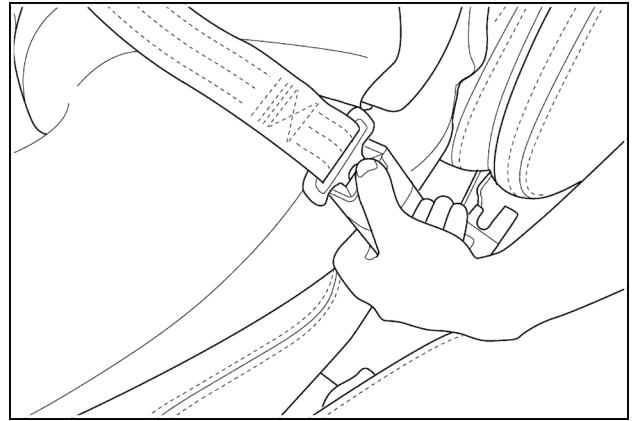
RCPH08CCH268AAC 1

Adjust the position of the seat belt as low across your body as possible.



RCPH08CCH267AAC 2

To release the seat belt, push the button in the center of the buckle and separate the buckle and metal eye. When you are training an operator, be sure the instructional seat belt is also securely fastened.



RCPH09FWD037AAJ 3

### Steering column adjustment

#### **⚠ WARNING**

**Loss of control hazard!**

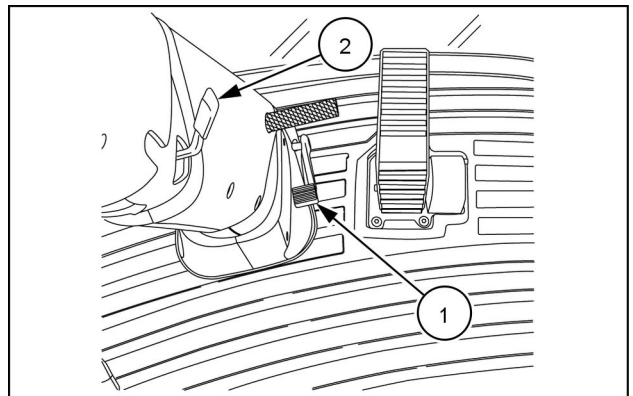
**DO NOT make seat adjustments while the machine is in motion. All seat adjustment should be made with the machine stationary and the parking brake applied.**

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

W0293A

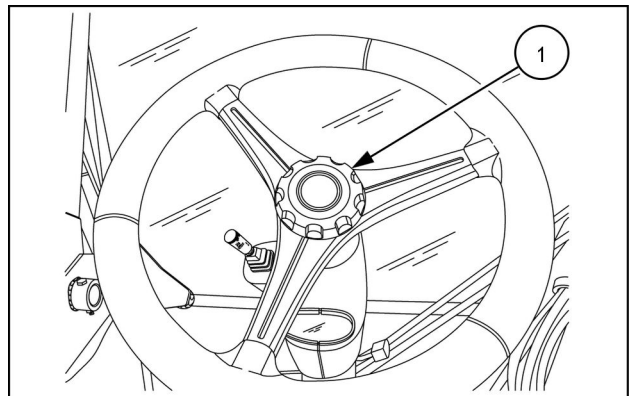
Lower steering column tilt control — Press down on the foot pedal (1) at the base of the steering column to tilt the lower steering column toward or away from you

Upper steering column tilt control — Push the adjustment lock handle (2) toward the steering column and tilt the upper steering column toward or away from you.



RAIL17SP00226AA 4

Steering wheel telescoping adjustment - The steering wheel can be telescoped in or out by turning the center cap (1) counterclockwise, reposition the steering wheel as needed and then turning the center cap clockwise to tighten.



RAIL17SP00299AA 5

## Starting the unit

### Normal engine starting

#### Run-in Procedure

**NOTICE:** After the engine starts, operate the engine at low idle speed for a few minutes so enough lubricant reaches the turbocharger bearings and engine parts before operating the engine at rated speed.

**NOTICE:** If run-in instructions for a new engine are not followed, damage to piston rings and the cylinder bores could occur.

#### Load

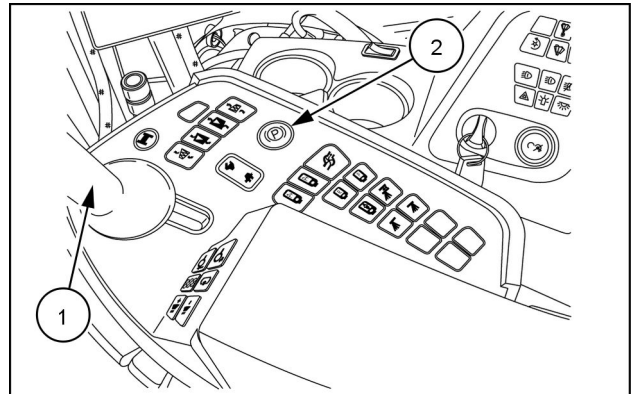
During the first eight hours of operating the sprayer in the field, operate at a lower speed than normal. During the next 12 operating hours, the engine must not be operated with excessive loads at low engine revolutions per minute

**NOTICE:** Do not overload the engine.

#### Start up

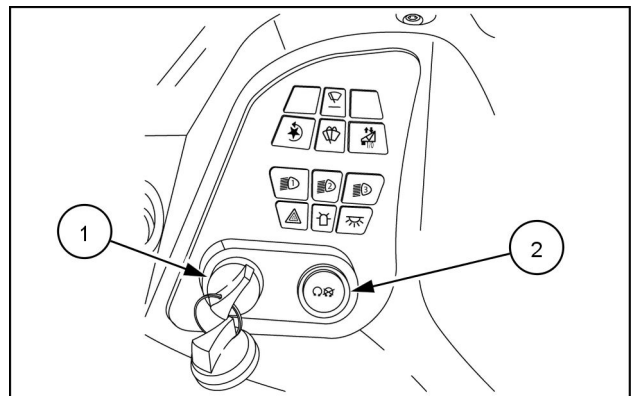
Make sure the joystick control handle (1) is in the "Neutral" position. The park brake (2) must be engaged and the operator is seated in the operator's seat.

**NOTE:** The starter will not engage unless the joystick control handle is in the "Neutral" position and the park brake is engaged and the operator is seated in the operator's seat.



RAIL17SP00287AA 1

Sound the horn by pushing on the end of the turn signal lever before starting the engine. Turn the ignition switch (1) from the OFF position to the ON position. Push the START/STOP button (2) to start the engine.



RAIL17SP00263AA 2

Whenever the ignition is turned On, if the engine senses that the temperature is too cold, the "Wait to Start" message will display on the arm rest display. It will remain on until the preheat temperature has been satisfied. The engine will not start with the wait to start lamp on. Once the light goes out, with the key in the ON position and press and hold the START/STOP button to crank the engine. Hold the START/STOP button until the engine starts.

**NOTICE:** Do not use the starting motor for more than 15 seconds without stopping. Wait 2 to 3 minutes between starting attempts to allow the starting motor to cool.

**NOTICE:** If the engine starts and then stops, wait for the starter motor to stop turning before you press the START/STOP button again.

After the engine is warm, check that the oil pressure and coolant temperature indicators are in the normal range and that all operating values, displayed on the arm rest display, are indicating normal operation. If not, shut down the engine and locate the cause.

### Warm up period

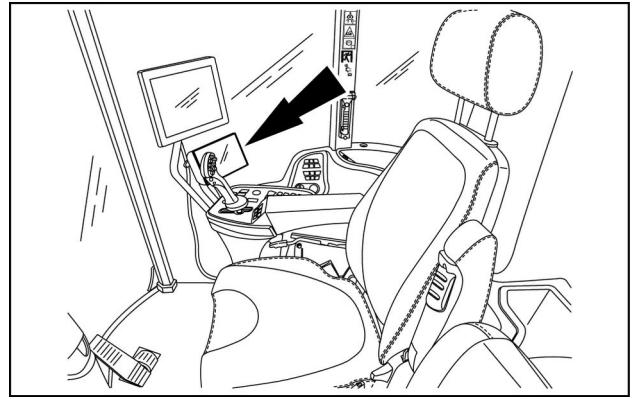
Both the engine and the hydraulic system require a warm-up period before operation.

- When a diesel engine is operated cold at high throttle, it will miss and run rough. This is normal and will subside as the engine warms.
- When hydraulic oil is operated cold, it will create a whining noise. The noise will subside as the hydraulic oil warms.
- Normal warm up for engine and oil is within 2 minutes at **1200 RPM**. In severe cold it may be necessary to continue warm up for an additional 4 minutes. But, after hydraulic oil reaches **4 °C (40 °F)**, the fault has turned off and the engine or oil is not ready, check for other causes.

Before the drive system can operate efficiently, the following conditions must be met.

- The hydraulic oil in the reservoir must be higher than **4 °C (40 °F)**. If the oil is below **4 °C (40 °F)**, the drive system will de-rate to **5 km/h (3 mph)** and a fault will appear on the arm rest display. Once the oil warms to greater than **4 °C (40 °F)**, the fault will turn off, however the drive must be returned to Neutral to reset the drive. Then move joystick to desired range and normal operation can be resumed.
- Once the oil warms to greater than **4 °C (40 °F)**, the fault will turn off, however the drive must be returned to Neutral to reset the drive. Then move joystick to desired range and normal operation can be resumed.

**NOTE:** If the hydraulic oil is less than **2 °C (35 °F)**, the vehicle will be limited to a speed of **5 km/h (3 mph)**. After the hydraulic oil has warmed to a temperature of **4 °C (40 °F)**, normal operation of the vehicle will resume.



RAIL17SP00310AA 3

## Cold temperature operation

### **⚠ DANGER**

**Explosion hazard!**

**DO NOT use ether starting fluid. Explosion, death, serious personal injury, or serious engine damage could occur.**

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

D0085A

An engine block heater is factory installed. The electrical plug is located on the turbo side of the engine, between the oil filter and flywheel housing, between the engine and the radiator. Preheat the engine using this heater for several hours prior to cold weather starting.

Two batteries provide 2000 Cold Cranking Amps (CCA).

The engine is equipped with intake air heaters to aid in cold weather starting.

1. Turn the ignition key to the on position and the preheat sequence will start.  
The duration of the preheat sequence depends on the ambient temperature.
2. When the preset temperature is reached, press the start button and crank the engine until it starts.

**NOTE:** *The start button will not function until the preset temperature is reached.*

**NOTE:** *If the engine does not start, repeat the preheat process.*

3. Do not crank the starter for more than 15 seconds.
4. Allow the starter to cool between tries.

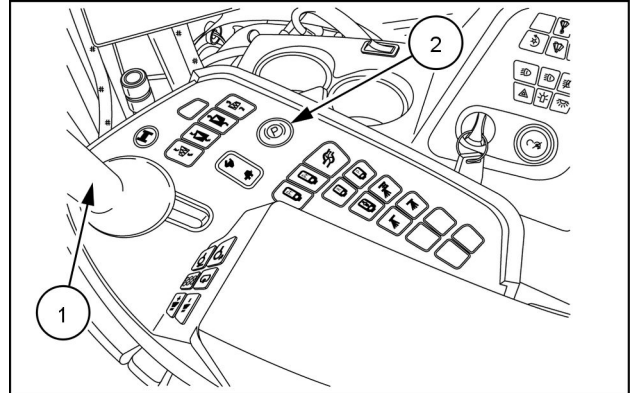


## Stopping the unit

### Stopping the engine

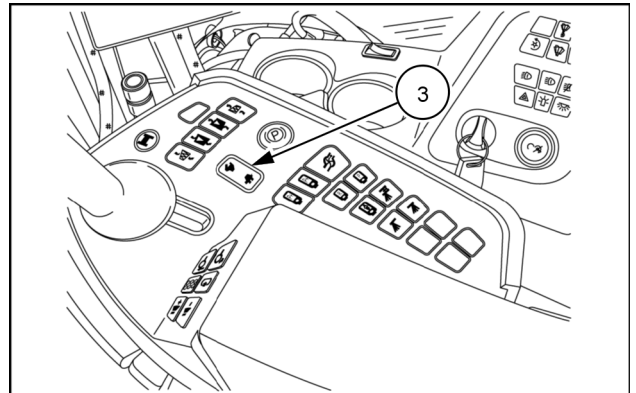
**NOTICE:** Before stopping the engine after operating under heavy load, run the engine at low idle speed of **900 RPM** for a short period of time (3 to 5 minutes). This allows the engine and turbocharger temperature to decrease gradually. If the engine stops when operating under a load, start the engine immediately to prevent excessive heat buildup due to the lack of cooling and lubrication oil flow.

1. Slow the unit and bring the vehicle to a complete stop by moving the joystick control handle (1) to the neutral position and depressing the brake pedal more than 65% of the pedal travel. Apply the parking brake (2) by pressing the parking brake switch.



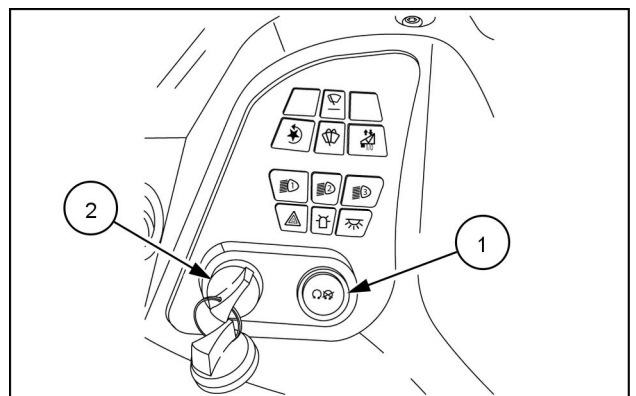
RAIL17SP00287AA 1

2. Decrease the speed of the engine with the engine speed control switch (3) to idle position for 3 to 5 minutes to decrease the temperature of the engine and turbocharger.



RAIL17SP00287AA 2

3. Press the START/ STOP button (1) to stop the engine. Turn the accessory switch (2) to OFF to turn off electrical power to both the engine and electrical components in the cab. Remove the accessory key from the accessory switch.



RAIL17SP00263AA 3

## Moving the unit

### Moving the unit

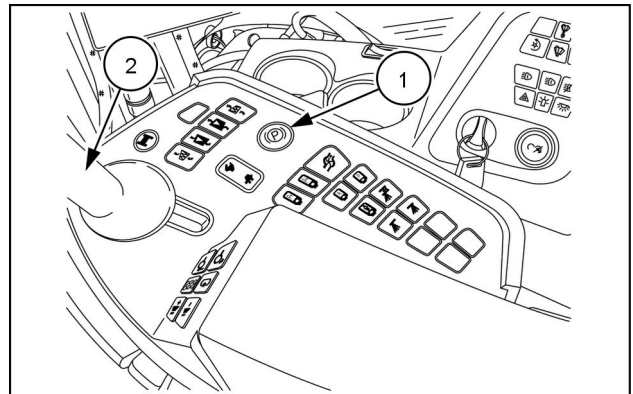
#### ⚠ WARNING

**Avoid injury!**  
**Operate controls only when seated in the operator's seat.**  
**Failure to comply could result in death or serious injury.**

W0956A

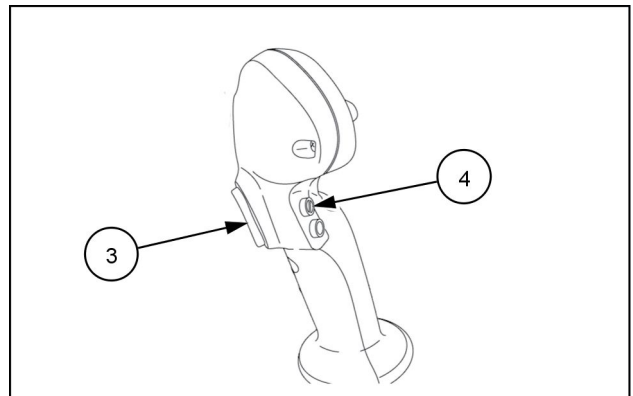
**NOTICE:** If the engine stops when operating with a load, immediately start the engine again to prevent excessive heat, caused by stopping the flow of oil for cooling and lubrication.

1. With the parking brake (1) engaged and the joystick control handle (2) in neutral, turn the accessory key to the ON position. Press the START/STOP button to start the engine.
2. Set the engine speed to **1200 RPM** with the engine speed trigger (3) on the joystick control handle in conjunction with the engine speed control button (4) and let the engine warm up to operating temperature. Once the engine is at operating temperature the machine is ready to drive.
3. Depress the brake pedal completely and hold. Release the park brake by pushing the park brake button. With the joystick control handle (2) in neutral, push the joystick forward to move the vehicle forward. Pushing the joystick further forward also increases the travel speed within that range. Pushing the joystick full forward will take the speed up to the preset speed in that range. Pushing the joystick halfway will take the speed up to half of the preset speed in that range. Depending how far the joystick is pushed forward will determine how fast the vehicle will move in that range.



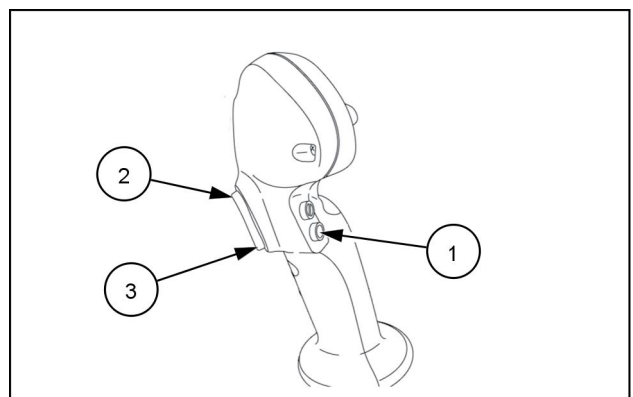
RAIL17SP00287AA 1

**NOTE:** An audible alarm will sound if the joystick control handle is moved from neutral (N) with the park brake engaged.



RAIL17SP00396AA 2

4. Hold the range selector button (1) in and slowly press the top of the trigger (2) on the joystick. Each press of the top of the trigger (2) will shift up one range at a time to higher ranges (4 ranges) which will increase speed. Each press of the bottom of the trigger (3) will shift down one range at a time to a lower range and will decrease speed. Pull the joystick control handle back to neutral to stop the machine and use the service brake.



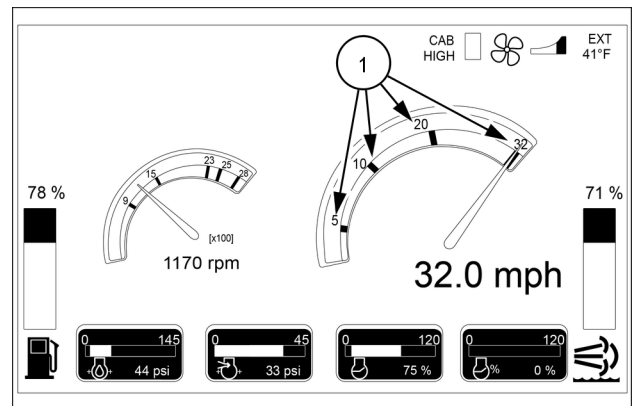
RAIL17SP00396AA 3

**NOTICE:** Be sure to slow the ground speed of the vehicle with the joystick before changing the range selector to a slower speed range. If changing from high speed to low speed with the range selector without slowing the vehicle with the joystick, the operator maybe jolted forward unexpectedly.

- Note the different characteristics of the hydrostatic drive. The range selector button and trigger will let you select your desired ground speed by changing the speed range. The speed range can be changed up or down at any time with the vehicle in motion forward or reverse “shift on the go”. Each of these ranges will work in any speed increment of the joystick. Move the lever forward from neutral to increase speed, and move lever backward to neutral to decrease ground speed, which also acts as a built in braking device for the unit. To put machine in reverse move lever back from neutral. Machine will increase reverse speed the further the lever is pulled backward.

The hydrostatic control system will respond slowly during cold weather start up until hydraulic fluid reaches operating temperature.

- The range marks on the speedometer gauge (1) will move as you set the speed desired for each range.



RAIL18SP00380FA 4

- To move the vehicle in reverse, from the center (neutral) position, pull the joystick backward to move the vehicle in reverse. Pulling the joystick further backward also increases the travel speed up to a preset speed of **8 km/h (5 mph)**.

## Battery combiner

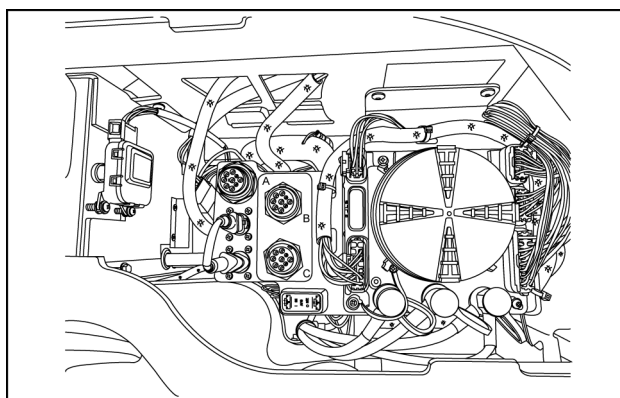
Your vehicle is equipped with a battery combiner. The combiner functions to protect sensitive electronic equipment during cranking by separating the battery banks (starting – two batteries, electronics - one battery)

When engine cranking is completed, the combiner senses a charging level voltage over **13.1 V** (direct current) and combines the battery banks. This allows machine to have all three batteries at its disposal during operation.

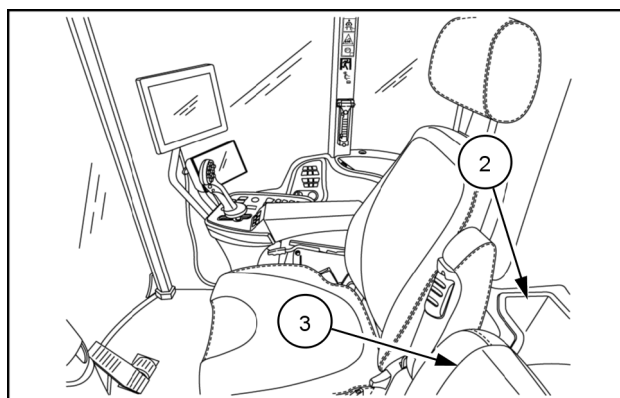
When the machine is shut off (engine turned off), the combiner will once again separate the battery banks when the voltage drops below **12.7 V** (direct current).

With the batteries separated, the normal loads on the machine are isolated to only the electronics battery. If the operator was to drain this battery (leave lights on, leave the field computer on, etc.), the starting battery bank would see no ill effect, meaning they would stay completely charged since they are separated from the electronics battery.

The battery combiner switch (1) is located under the storage tray (2) behind the training seat (3). To access the combiner switch, remove the storage tray.



RAIL18SP01077AA 1



RAIL17SP00310AA 2

The combiner switch is intended for use only if the electronics battery has been drained. By turning the switch to the ON position, the combiner manually combines the battery banks, and back feeds the system, which allows the machine to start using the fully charged starting batteries.

**NOTE:** When the switch is in the "On" position, the batteries are combined at all times. Leave the combiner switch in the "On" position until the drained battery is charged. Whenever the batteries are combined the combiner switch (1) will be illuminated. The combine state is also shown on the electrical page in the second home page of the armrest display.

When the machine has started and the alternator begins to charge the drained battery, the switch must be placed in the Auto position to ensure intended functionality of combiner system.

**NOTE:** Leave the combiner switch in the On position until the drained battery is charged.

## Four Wheel Steer (4WS) if equipped

Your vehicle may be equipped with four wheel steer (4WS) steering. The following are descriptions and operating steps for the use of 4WS. **Four Wheel Steer (4WS) modes**

The Four Wheel Steer (4WS) option provides the operator with an choice of two steering control modes; Two Wheel Steer (2WS) and Four Wheel Steer (4WS). There is a significant difference in the operation of the machine between these two modes. The 2WS mode provides for better control of increased guidance but prevents the operator from making tight turns. The 2WS mode is desirable when operating at higher speeds, or when more precise vehicle positioning is required. The 4WS mode helps the vehicle reduce soil disturbance and crop damage. 4WS also provides for quicker vehicle direction changes (tight turning), to assist minor path corrections (guidance).

**NOTE:** Care should always be taken on hills, 4WS operation does not reduce the probability of roll-over.

### Operation characteristics

In 4WS mode, the rear wheel steering angle 100% matches, or coordinates, with the front wheels at speeds from 0 to 8 mph. Two measures of 4WS performance are tracking and actual crop damage. Tracking performance varies with the relationship between steering wheel speed and vehicle speed. The best tracking occurs, driving straight or in turns, when the steering wheel position is set and held constant, and the vehicle has traveled forward beyond one wheelbase length. The best reduction of crop damage occurs with practiced coordination of vehicle speed and steering wheel speed. Below 8 mph, tracking performance also depends upon other factors, including the amount of traction available, topography of the operating arena, soil type and moisture, vehicle weight and its distribution, and the amount, type and moisture content of any vegetative layer. These factors contribute to lateral slip of the front and rear tires, resulting in less wheel tracking and possible damage to crops.

Above 8 mph, lateral wheel slip and vehicle stability become more pronounced. The rear wheel steering command is reduced, proportional to increasing speed, from 100% matching of the front wheels at 8 mph to 35% matching at 12 mph and above. Also, the system will disengage 4WS mode entirely in the higher speed ranges. The higher speed ranges are 3rd and 4th speed. Upon switching to these ranges, the machine will revert to 2WS mode, whether or not 4WS is the selected. In either case, when in 2WS mode, the machine will turn the rear wheels straight and then hydraulically engage mechanical locks built into the rear kingpins. The locks are supplemental security, and are intended to keep the rear wheels straight in case of hydraulic or electric failure. In normal operation, the steering cylinders determine the rear wheels position, and the locks are never responsible for holding the toe.

## 4WS operation

### ⚠ WARNING

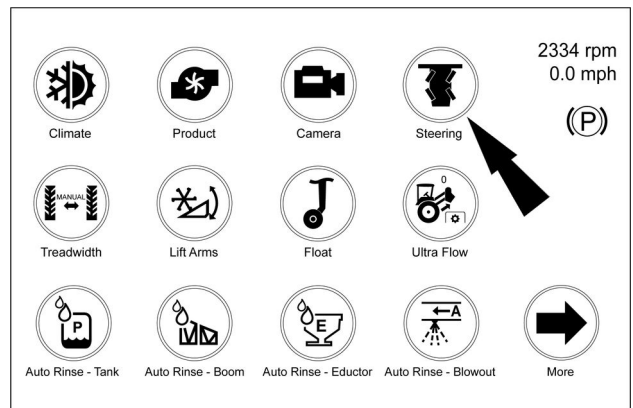
#### Unexpected machine movement!

When the machine is stationary and the engine is running, the parking brake must be ON. Failure to comply could result in death or serious injury.

W1107A

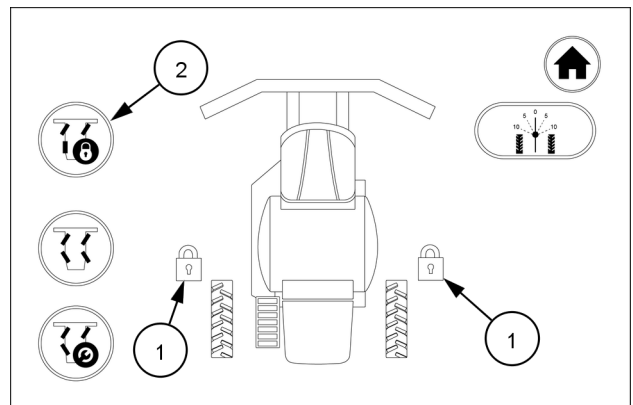
**NOTE:** The 4WS function is initiated through the armrest display or the multi function button on the joystick.

1. Drive the vehicle on to a hard, level surface and bring the vehicle to a complete stop. Apply the park brake.
2. Touch the Steering icon on the armrest display first home page. The four wheel steer setting page will display.



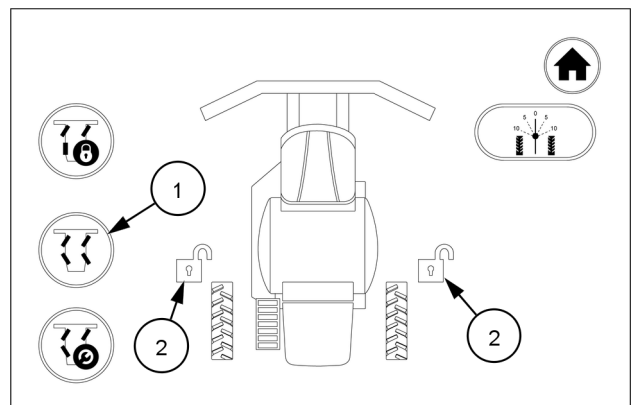
RAIL18SP00852FA 1

3. Switch from two wheel steer to four wheel steer: Verify that the rear wheels are locked, indicated by the locked padlock icons (1). This will verify that the vehicle is in two wheel steer mode, with the rear wheels locked and not steerable and the 2 wheel steer icon (2) will turn yellow.



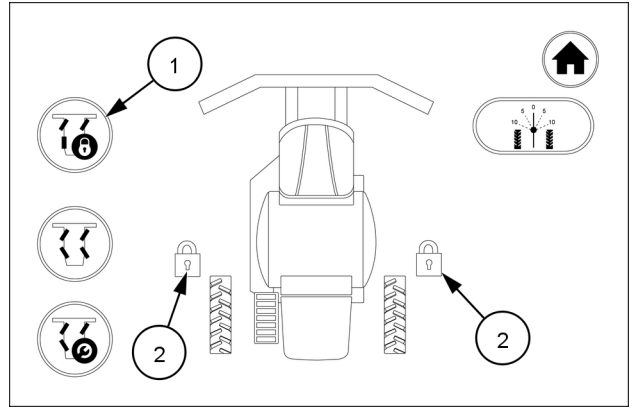
RAIL18SP00745FA 2

4. Touch the four wheel steer button (1) to activate the four wheel steer function. The padlock icons (2) will change from locked to unlocked, indicating that the rear wheels are unlocked and are steerable.



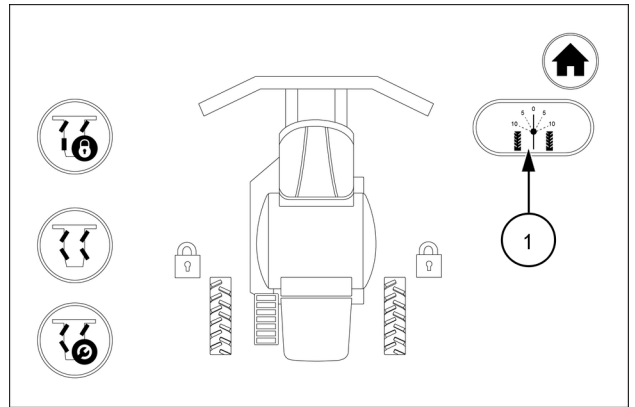
RAIL18SP00846FA 3

- To place the vehicle back into two wheel steer mode, touch the two wheel steer button (1). The padlock icons (2) will change from unlocked to locked, indicating that the rear wheels are locked in the forward position and are not steerable. Also the multi function button on the joystick can be used to switch back to two wheel steer.

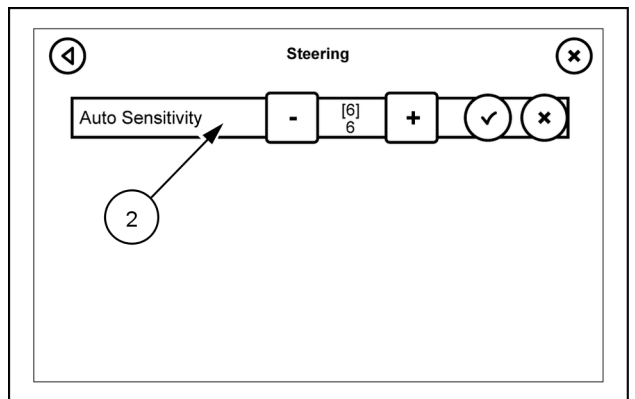


RAIL18SP00745FA 4

To set the sensitivity of the rear wheels reacting to the movement of the front wheels touch the sensitivity button (1). This will bring up the setting window (2) to set new values for the rear wheel sensitivity. Use the plus and minus keys to adjust. Setting the value higher will widen the zone that the front wheels can be steered in without the rear wheels steering. Setting the value lower will narrow the zone that the front wheels can be steered in without the rear wheels steering. Set this value for personal preference.



RAIL18SP00745FA 5



RAIL15SP00880AA 6

## Steering cylinder phasing

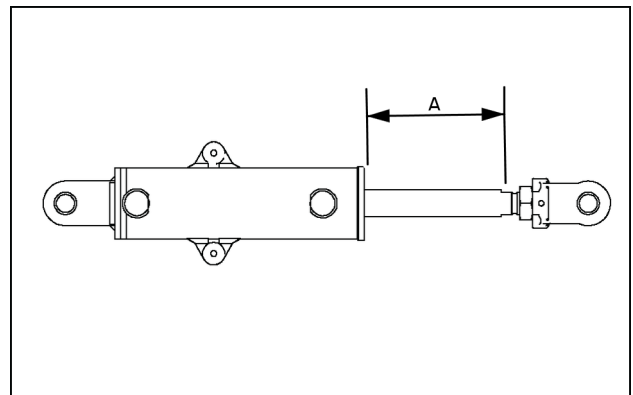
The steering cylinders re-phase at the end of each stroke. Every time the cylinders reach the end of the stroke, they re-time themselves and compensate for misalignment. This procedure must be done several times a day. A sharp turn at the end of the field will accomplish this. When the cylinders reach the end of the stroke, keep turning the steering wheel to purge the oil in the system, which realigns the cylinders. Repeat this procedure by turning in the other direction. The frequency of this procedure will increase as the seals in the cylinders wear. If the cylinders seem to drift, see your dealer for a seal repair kit.

### 4 Wheel steer (if equipped)

If wheels left to right are not in alignment, phasing of the cylinders will be required. Switch to 4WS mode and in adequate area proceed to steer and hold hard right, then hard left while driving in a figure eight motion. The phasing will synchronize the left and right wheels.

### Phasing steer cylinders

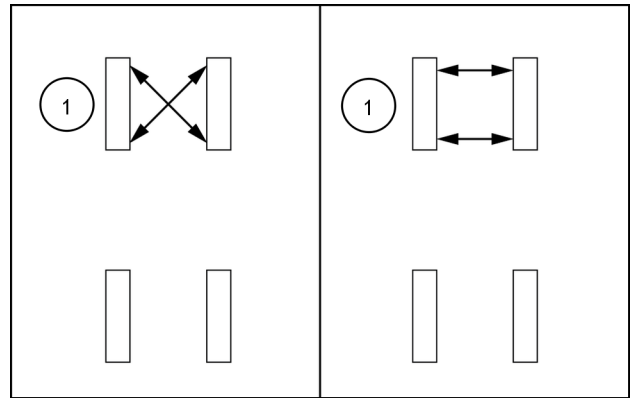
1. Start the engine and with the vehicle in two wheel steer, turn the front wheels full left and then full right to purge all the air out of the steer cylinders. Do this several times. Hold the steering wheel hard over to completely purge all the air. Repeat in CAL mode using the green buttons on the display to steer the rear wheels. Switch to the 4 wheel steer mode and drive the vehicle in a figure eight pattern, steering hard left and then hard right. Hold the steering wheel hard over to completely purge all the air. Do this at least 6 to 8 times.
2. Check for any leaks.
3. While driving the vehicle, use the leg widening switch and retract the leg widening cylinders all the way in. Be sure all four cylinders are completely retracted by visual inspection.
4. Be sure you are on level ground, disconnect the suspension linkage rods from the suspension valves and position the suspension cylinders so they are extended within **6.350 mm (0.250 in)** of each other.
5. Manually steer the front and rear wheels until the steer cylinders are at half stroke. Measure from the edge of the cylinder barrel to the beginning of the wrench groove in the rod just behind the clevis. This dimension must be **28.89 cm (11.38 in) (A)** for 4WS units only. For 2WS units this dimension must be **15.558 cm (6.125 in) (A)**.



RAIL15SP01234AA 1

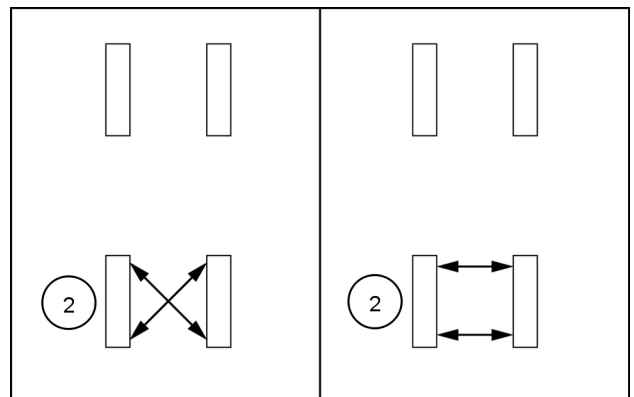


6. Check the toe at the front wheels **(1)**. Be sure the wheels are square with each other first. Find the center of the rim at the front and rear of each front tire. Mark the rims at both of these points. Use a tape measure to measure the distance from the inside of the front of the left rim to the inside of the rear of the right rim. Repeat by measuring from the front of the right rim to the rear of the left rim. These two dimensions should be the same. Measure the distance across the front of the rims. At the rear of the rim measure the distance across rear of the rims. The front dimension should be **6.35 – 19.05 mm (0.25 – 0.75 in)** less than the rear measurement. If the toe-in is not within this range front to back, adjust both cylinder rods equally until proper toe is achieved. Be sure to retighten the clevis jam nuts after adjusting.



RAIL14SP01012AA 2

7. Check the toe at the rear wheels. Be sure the wheels are square with each other first. Find the center of the rim at the front and rear of each rear tire. Mark the rims at both of these points. Use a tape measure to measure the distance from the inside of the front of the left rim to the inside of the rear of the right rim. Repeat by measuring from the front of the right rim to the rear of the left rim. These two dimensions should be the same. Measure the distance across the front of the rims. At the rear of the rim measure the distance across rear of the rims. The front dimension should be **0.00 – 12.70 mm (0.00 – 0.50 in)** less than the rear measurement. If the toe-in is not within this range front to back, adjust both cylinder rods equally until proper toe-in is achieved. Be sure to retighten the clevis jam nuts after adjusting.



RAIL14SP01013AA 3

## Parking the unit

### Parking the unit

#### **⚠ DANGER**

**Run-over hazard!**  
**Apply the parking brake before leaving the cab.**  
**Failure to comply will result in death or serious injury.**

D0028A

#### **⚠ WARNING**

**Avoid injury and/or machine damage!**  
**Apply the parking brake only when the machine is stationary. While driving, apply the parking brake only in an emergency. The braking action is abrupt.**  
**Failure to comply could result in death or serious injury.**

W1132A

### Park Brake

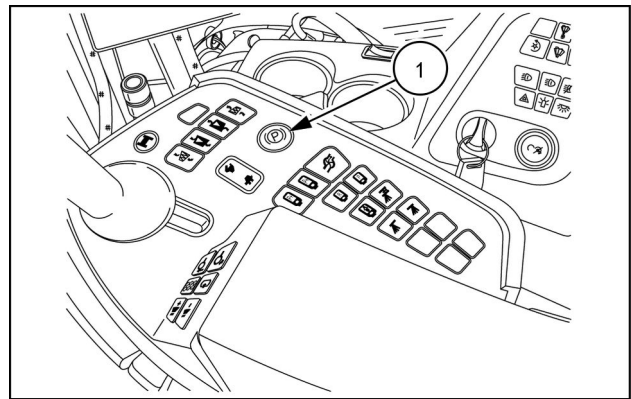
Whenever parking the unit, the parking brake must be engaged. The parking brake control switch is located on the right control panel. When the park brake is applied, the switch will turn blue. When the park brake is disengaged the switch will turn yellow. Apply the parking brake by pressing the switch. When the park brake is applied, the ladder will lower.

Hydraulic pressure is required to disengage the park brake. If the engine and/or hydraulic system are inoperable and the machine must be moved, special procedures must be followed to disengage the park brake. See your dealer for these procedures.

**NOTE:** The parking brake switch (1) must be in the engaged position when starting the machine. The machine will not start if the park brake is disengaged. After the machine is started the parking brake must be disengaged for the machine to move.

**NOTE:** The floor brake pedal must be engaged in order for the park brake to be released. This is only required at each initial engine start.

**NOTE:** Always apply the parking brake when vehicle is stopped. Setting the park brake will also lower the ladder. Disengaging the park brake will raise the ladder.



RAIL17SP00287AA 1

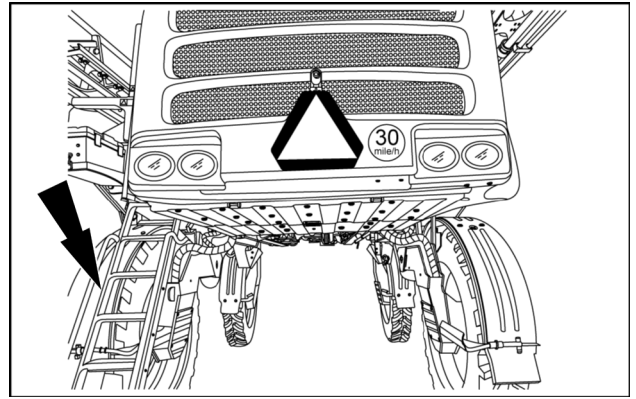
**⚠ CAUTION**

**Unexpected machine movement!**  
**The ladder may move suddenly without warning. Stand clear of the swing path of the ladder.**  
**Failure to comply could result in minor or moderate injury.**

C0212A

**Ladder**

The ladder on the left rear side gives access to the walkway and cab. The hydraulic ladder is activated by the parking brake. When the parking brake is engaged the ladder will go down. When the parking brake is disengaged, the ladder will go up.



RAIL17SP00863AA 2



## 5 - TRANSPORT OPERATIONS

### Road transport

### Warning lamps and SMV symbol

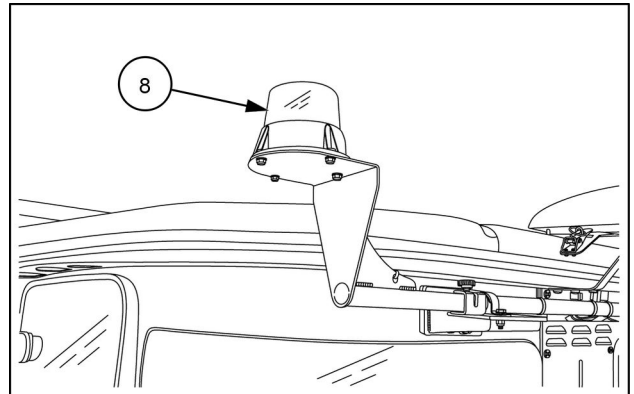
#### ⚠ WARNING

##### Collision hazard!

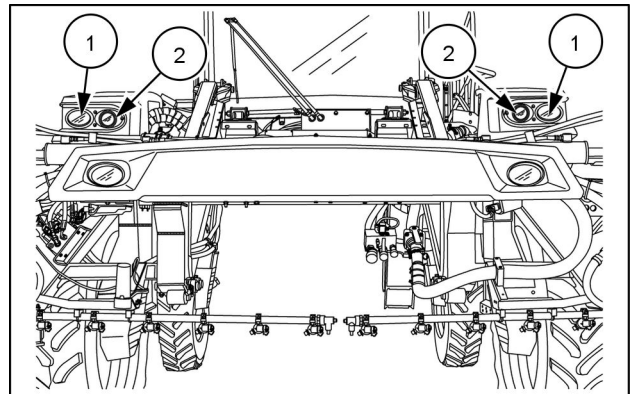
Collision of high speed road traffic and slow moving machines can cause death or personal injury. On roads use transport lighting according to local laws. Make sure the slow moving vehicle (SMV) emblem is visible. Pull over to let faster traffic pass. Slow down and signal before turning off. Failure to comply could result in death or serious injury.

W0316A

Your sprayer has front flashing amber warning lights (1), rear flashing and directional amber warning lights (2), front high/low beam headlights (3), a slow moving vehicle (SMV) symbol (4) and stop and directional lights (5). It also has an SIS (Speed Identification Sign) (6) to inform traffic of the sprayer's maximum speed and a fluorescent orange/red reflector tape (7) on left and right rear sides of the rear boom and yellow reflector tape on the left and right front sides of the rear boom. Your unit is also equipped with beacon lights (8) which is visible from the front or the rear of the unit. Make sure to use these items correctly when operating the sprayer on the road. The proper use of these items will provide safety and protection for the sprayer operator and other vehicle operators.



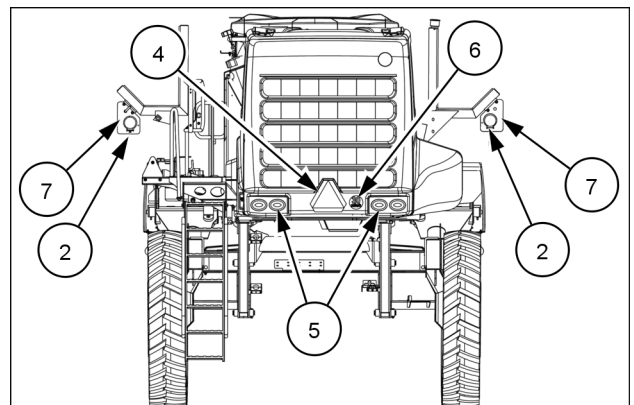
RAIL17SP00858AA 1



RAIL17SP00861AA 2

The flashing amber warning lights and beacon light must be operating when the sprayer is operated on a road during day or night. A vehicle operator that comes near the sprayer must see the SMV symbol on the rear and the flashing amber warning lights from the front and the rear.

The SMV symbol must be replaced when the bright orange, center triangle has faded to a pale orange color. This fading of the orange fluorescent center will occur due to long exposure to sunlight, and reduces daytime identification by approaching vehicle drivers.



RAIL14SP00997FA 3

## Safe road travel

### ⚠ WARNING

#### Collision hazard!

Collision of high speed road traffic and slow moving machines can cause death or personal injury. On roads use transport lighting according to local laws. Make sure the Slow Moving Vehicle (SMV) emblem is visible.

Failure to comply could result in death or serious injury.

W0115A

### ⚠ WARNING

#### Equipment failure could cause accident or injury!

Always fasten seat belt securely before operating the machine. Inspect seat belt parts for wear and/or damage. To ensure operator safety, replace any and all worn or damaged parts of the seat belt prior to operation.

Failure to comply could result in death or serious injury.

W0046B

Before road travel:

1. Use the leg widening icon on the armrest display to adjust the wheel width to the minimum width. You must be driving the vehicle forward or backward over **0.8 km/h (0.5 mph)** when adjusting the tread width.
2. Fold and store the booms in the storage cradles. Be sure to lower the booms completely onto the cradles, relieve all pressure on the tilt cylinders by holding the right and left tilt lower buttons on the joystick. This will allow the booms to rest completely on the storage cradles and eliminate any boom bounce during transport.
3. Shut the Master On button on the joystick control handle to the Off position (button will glow blue).
4. Check the service brake for proper operation.
5. Empty all product from the product tank before leaving the field. Do not attempt to drive this vehicle at high speeds with product in the tank. Fill product tank once you have reached the area of operation.
6. Turn on the hazard lights, beacon and the road lights before entering onto a public road. Keep them on while traveling on the road.
7. A Slow Moving Vehicle (SMV) sign is installed on the rear of the sprayer. Check local requirements regarding removal or covering the SMV sign when traveling at speeds greater than **40 km/h (25 mph)**.
8. Clean off all hazard and road lights when going from the field to the road.

The operator should always be ready to use the service brake should a rapid stop be necessary.

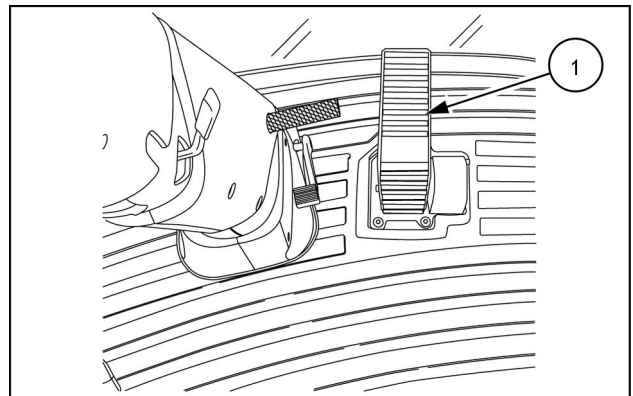
During road travel, turn on hazard warning lamps and headlights, do not use front or rear flood lights.

**NOTICE:** Do not transport with loaded product tank. Transport with product in the product tank could result in premature wear.

Slowing Vehicle with Joystick: Use the joystick to slow the vehicle under normal operating conditions.

**Brake Pedal:** The brake pedal (1) is located on the right side of the steering column. The pedal is used to slow the vehicle to a smooth stop. The pedal applies the brake to all four wheels and reduces the propel command to the hydrostat pumps. If the brake pedal is pressed more than 65% of travel, the machine will come to a complete stop. Return the joystick to the neutral position to reset the propel system and then continue normal operation. If the brake is pressed less than 65% of travel and then released, the drive will return to the preset speed set by the joystick and range selector.

The brake pedal can be used in conjunction with the joystick to rapidly slow the vehicle.



RAIL17SP00226AA 1

## Shipping transport

### Shipping on trailer

#### ⚠ WARNING

**Driving hazard!**

**Know all rules, regulations, laws, and required safety equipment for transporting or operating this machine on a road or highway. See your dealer to obtain a rotating beacon, backup alarm, Slow Moving Vehicle (SMV) emblem, and other safety equipment.**

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

W0154A

Before shipping the vehicle on a trailer, the tread width of the vehicle must be narrowed to its least widest position, the suspension must be lowered to the lowest position, and the booms must be folded and stored in the boom cradles and the center section set down against the cylinder stops.

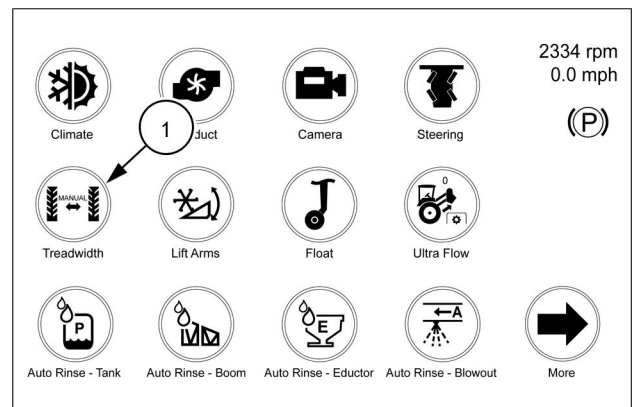
#### Tread width adjustment

Use the tread width control, on the arm rest display, to narrow the tread width to **305 cm (120 in)**.

The vehicle must be driven forward in order for the tread width to adjust.

Setting the tread width on the arm rest display:

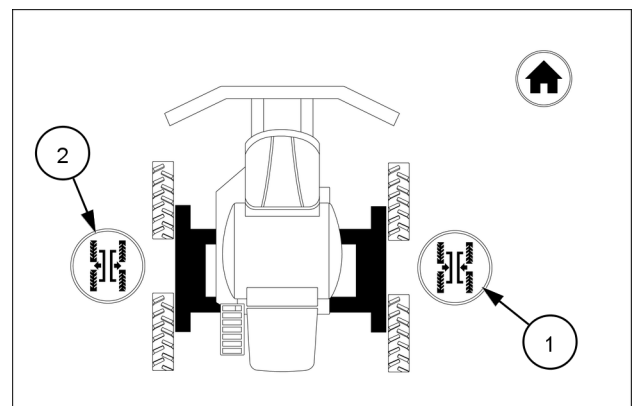
From the arm rest display first home page, touch the tread width (manual) icon (1). The Manual Tread Width screen displays.



RAIL18SP00852FA 1

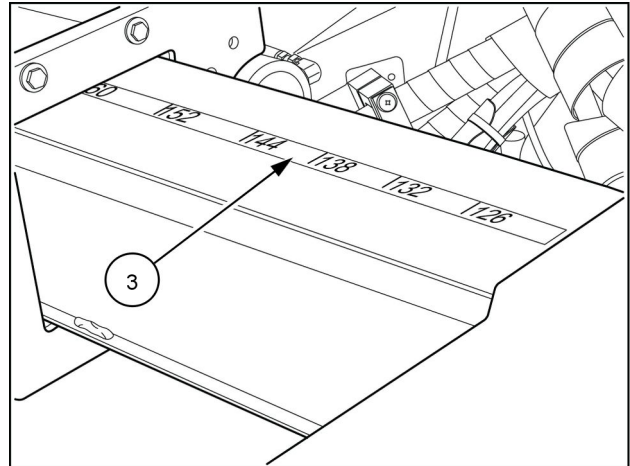
From the Manual Tread Width screen, touch and hold the appropriate button tread width in (1) or tread width out (2) while driving the vehicle slowly forward.

As the tread width changes, the tread width values will be displayed on the right-hand front axle tube.



RAIL18SP00847FA 2

While moving the axles in or out, the tread width can be monitored by watching the tread width indicator **(3)** located on the top of the front right-hand axle. This indicator can be seen from the operators seat by looking out the right-hand side cab window.



RCPH11SPR010BAM 3

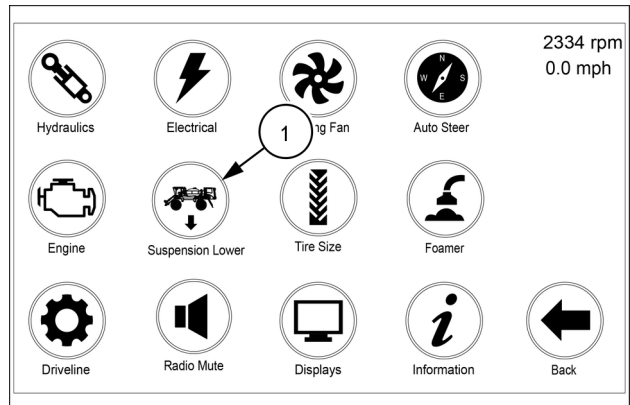
### Suspension lowering

**⚠ DANGER**  
**Pinch hazard!**  
 Keep your hands, feet, and body clear of all moving parts and oscillating points.  
 Failure to comply will result in death or serious injury.

D0206A

To lower the vehicle suspension, press the Suspension lower button **(1)** found on the arm rest display second home page.

The vehicle suspension will lower all the way down. Press the suspension lower button again and the suspension will raise up to the preset height.



RAIL18SP00743FA 4

### Boom storage

**⚠ DANGER**  
**Pinch hazard!**  
 Keep your hands, feet, and body clear of all moving parts and oscillating points.  
 Failure to comply will result in death or serious injury.

D0206A

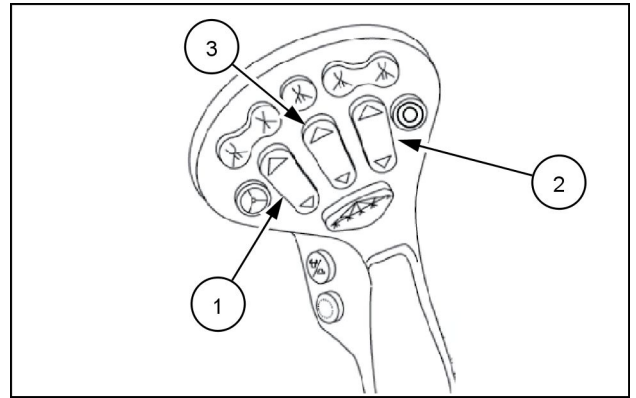
**⚠ WARNING**  
**Crushing hazard!**  
 The boom may drop suddenly without warning. Always install the cylinder stops to hold the boom in the raised position during storage, transport, and service.  
 Failure to comply could result in death or serious injury.

W1532A



Use the joystick control to lower boom against the transport stops.

1. Completely raise the left-hand and right-hand booms using the left-hand tilt raise button **(1)** and the right-hand tilt raise button **(2)** on the joystick.
2. Lower the boom center section down against the transport stops on the lift cylinders using the center section raise/lower button **(3)** on the joystick.
3. Lower the left-hand and the right-hand booms back into the transport saddles using the left and right raise/lower buttons **(1)** **(2)**. Lower until all tension is off the tilt cylinders.



RAIL17SP00391AA 5

### Transport preparation final procedure

1. Rotate the amber rotating beacons in to the storage position.  
Loosen the retainer thumb screw located on the warning light post and rotate the entire post with beacon rearward. Tighten the thumb screw to hold the light in its stored position.
2. Drive the vehicle onto a properly sized trailer.
3. Place the joystick control in the neutral (N) position lower the suspension all the way down and apply the vehicle parking brake. Turn off the vehicle engine.
4. Secure the vehicle to a trailer. Tie down the vehicle to the trailer using the four corner tie down method.  
Refer to local law for tie down methods in your area. Secure tie downs to the vehicle, but never to vulnerable areas such as cylinder rods or sheet metal areas.
5. Cover the exhaust opening by taping over the opening with duct tape or use a exhaust pipe cover if available. This will keep the turbocharger from spinning without lubrication.  
Be sure to remove the tape or the cover from the exhaust before starting the engine.

### Recovery transport

### Towing the unit

If the vehicle must be towed and the vehicle has lost engine and/or hydraulic system power, the parking brakes will automatically apply. The parking brake is spring applied when hydraulic pressure is lost. Contact your dealer for proper procedure to disable the parking brake. Tow the vehicle at very slow speeds and only for a very short distance.

**NOTICE:** Contact your dealer for proper towing procedure. Failure to do so can cause severe damage to the drive system.



# 6 - WORKING OPERATIONS

## General information

### Axle width adjust

From the armrest display first home page touch the tread width (manual) icon. This will bring up the screen which is the tread width screen.

**NOTE:** The icons will remain grayed out until movement of the vehicle has started. The icons will turn to the appropriate in or out once moving.

From this screen you can move both sides in or out at the same time. The icons will be grayed out indicating no vehicle movement. While moving slowly touch the IN icon (1) to move both sides in at the same time. Watch the tread width indicator decal on the right-hand front leg for width value.

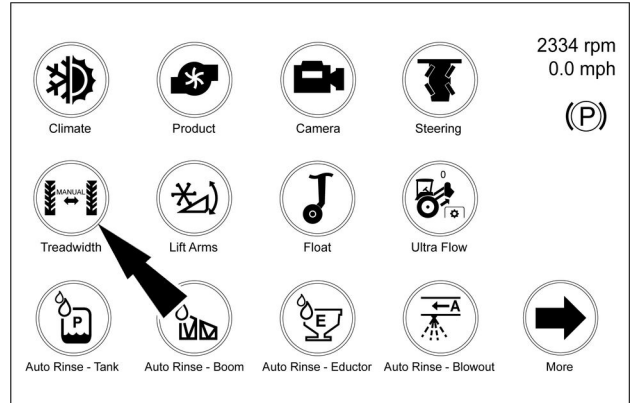
**NOTE:** Dimensions are from center to the center of the tires.

While moving slowly touch the OUT icon (2) to move both sides out at the same time. Watch the tread width indicator decal on the right-hand front leg for width value as the wheels move out.

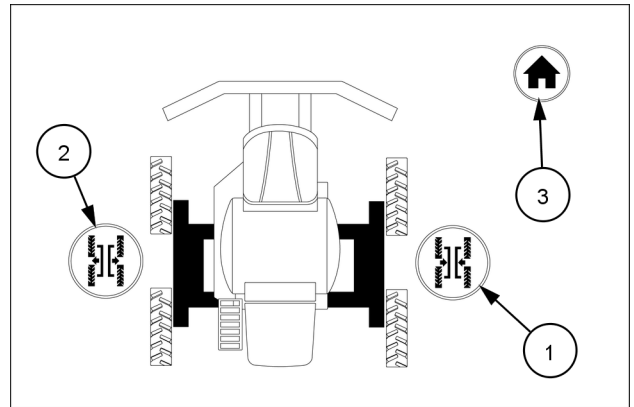
**NOTE:** Dimensions are from center to the center of the tires.

Touch the home icon (3) in the upper right-hand corner to return to the home page.

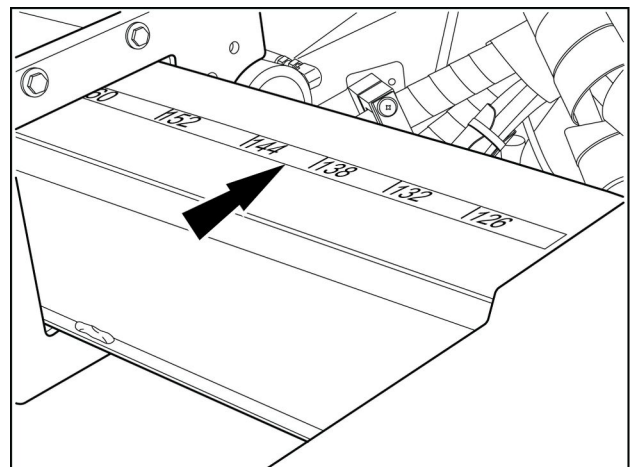
**NOTE:** The machine must be moving 0.8 – 8 km/h (0.5 – 5 mph) while adjusting the tread width.



RAIL18SP00852FA 1



RAIL18SP00847FA 2



RCPH11SPR010BAM 3

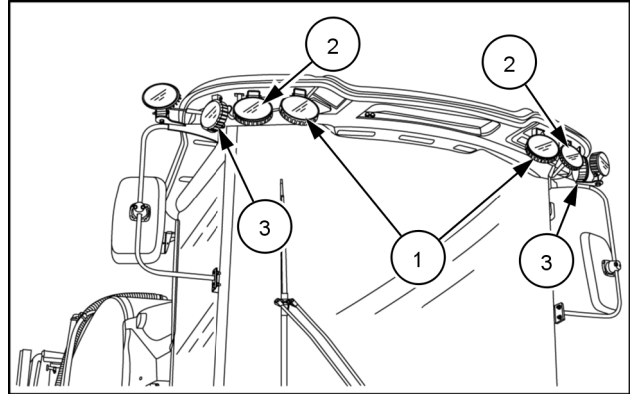
## Exterior lights

The following lamps are provided for field application:

Front cab inner work lights (1)

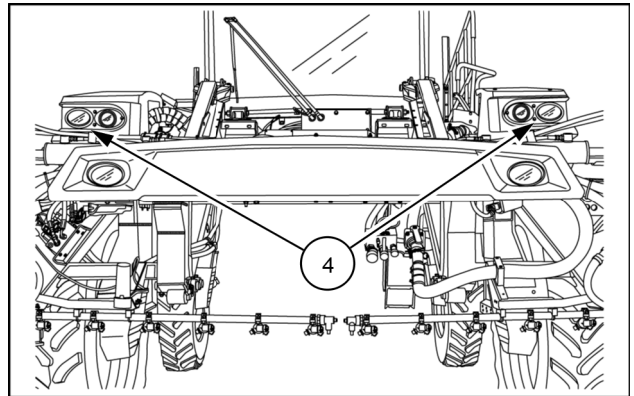
Front cab center work lights (2)

Front cab outer work lights (3)



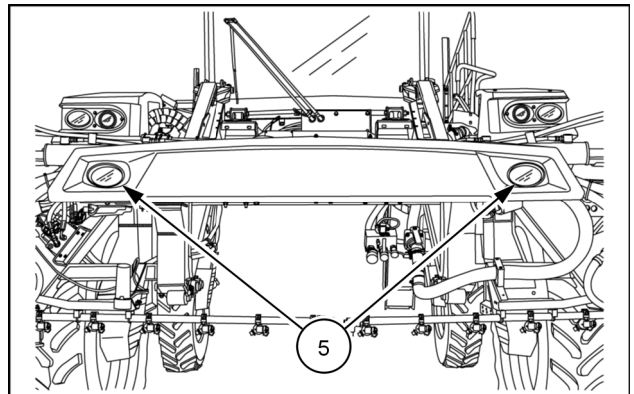
RAIL17SP00860AA 1

Front fender lights (4) (both sides)



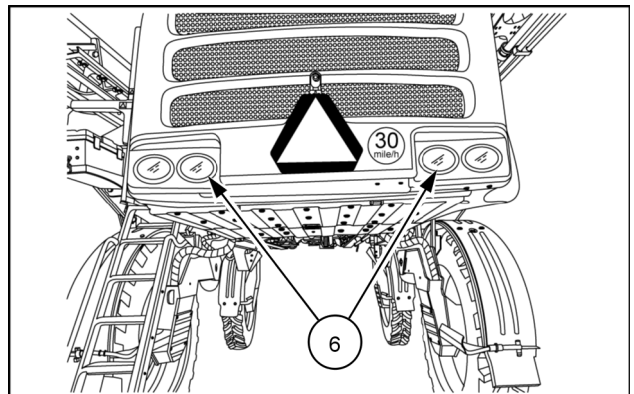
RAIL17SP00861AA 2

Center boom lights (5) (both sides)



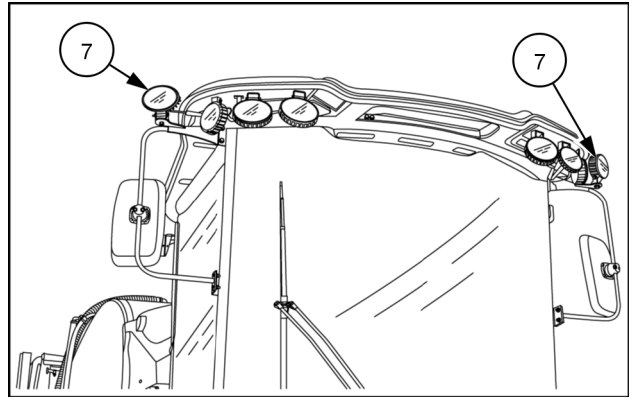
RAIL17SP00861AA 3

Reverse lights (6)



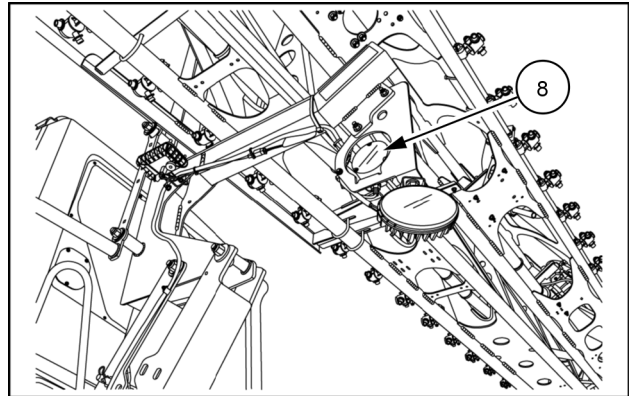
RAIL17SP00863AA 4

Light Emitting Diode (LED) **(7)** (cab mirror brackets)



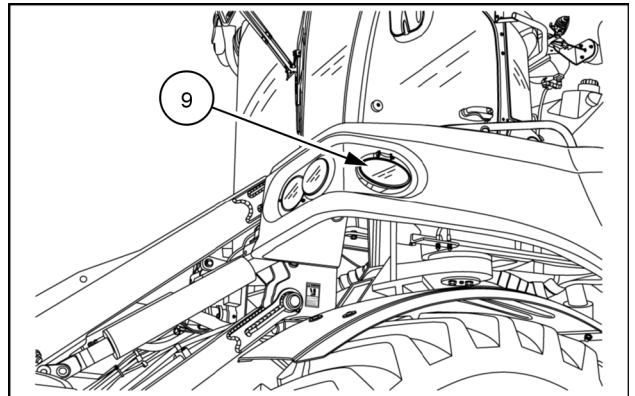
RAIL17SP00860AA 5

Hazard lights, directional lights, and running lights **(8)** (mounted on the boom cradles).



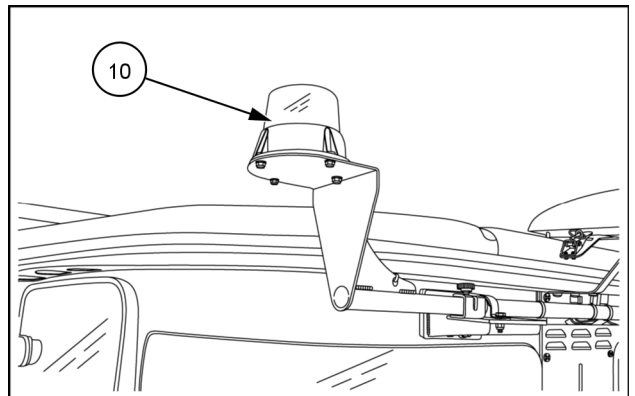
RAIL17SP00856AA 6

Light Emitting Diode (LED) **(9)** (side of fenders)



RAIL17SP00862AA 7

Rotating beacon lights **(10)** (rear corners of cab)

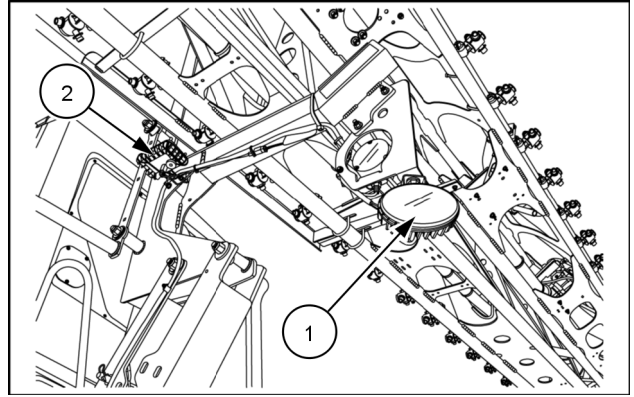


RAIL17SP00858AA 8

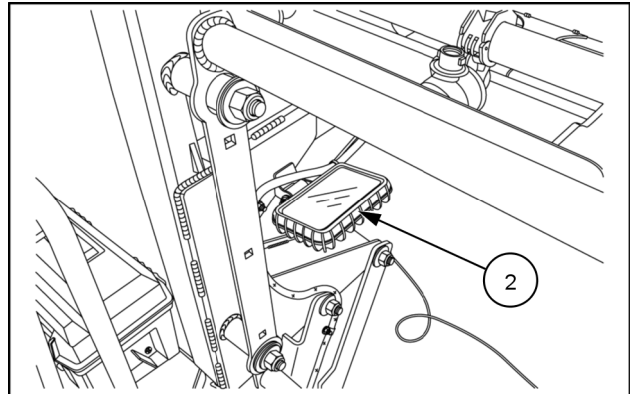
### Optional lights

Light Emitting Diode (LED) (1) (attached to the boom cradles). Premium light option are hi intensity lights standard lights are not.

Light Emitting Diode (LED) (2) (attached to the boom cradles) used to light up the boom cradle for positioning the boom in the cradle



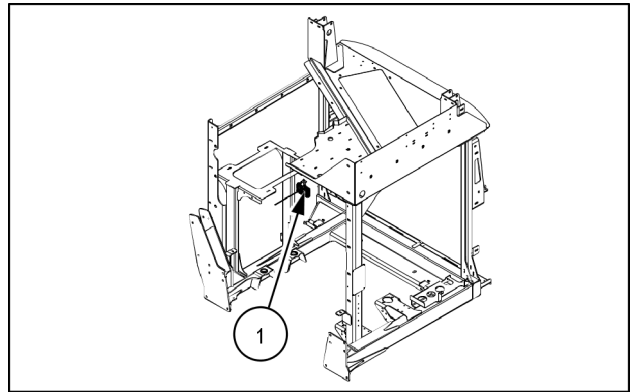
RAIL17SP00856AA 9



RAIL17SP00857AA 10

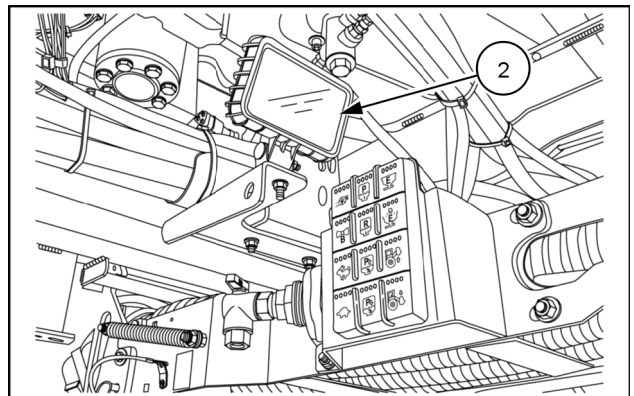
### Work lights (premium light option only)

There is a work light (1) inside the engine compartment. This light is controlled by a push button switch on the side of the light. Be sure to turn this light off when not in use.



RAIL17SP00795AA 11

There is a work light (2) inside the frame next to the fast fill snorkel. This light is controlled by a push button switch on the side of the light. Be sure to turn this light off when not in use.



RAIL17SP00859AA 12

## Boom operation

### Right side primary boom fold in/out — Mono boom

#### **⚠ DANGER**

##### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTICE:** Before unfolding the right side boom, be sure to raise the boom out of the stored position on the transport saddles.

To Unfold the right side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button (1).

**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

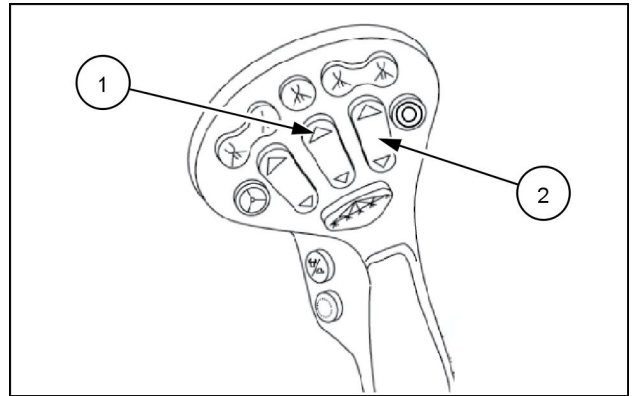
2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button (2).
3. Push and hold the top of the switch (3) to unfold the primary boom (move away from the vehicle).

**NOTE:** The right side boom fold switch is spring loaded to return to the center (Off) position when released.

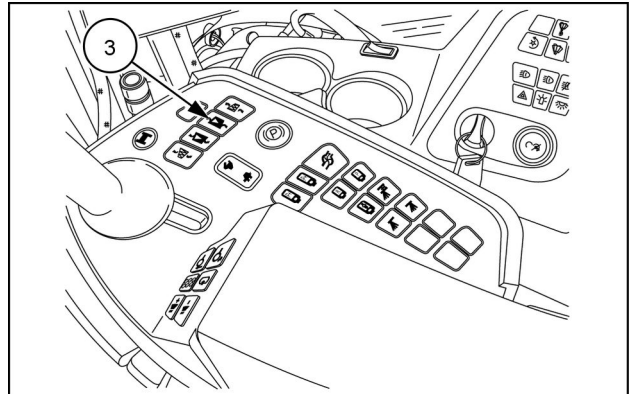
To fold the right side primary boom (swing toward the vehicle):

1. Raise the center section to full height by pressing the top of the center section button (1).
2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button (2).
3. Push and hold the bottom of the switch (3) to fold the primary boom (move back to the vehicle). Be careful that the boom does not go over the top of the boom rest back stop.
4. Press the bottom of the right side boom tilt switch (2) to lower the boom onto the boom rest.

**NOTE:** To change your joystick grip button preferences, use the arm rest display. Select "Op Preference" then "Grip."



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Right side secondary boom tip fold in/out — Mono boom

### **⚠ DANGER**

**Electrocution hazard!**

Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.

D0024A

**NOTICE:** Before unfolding the right side boom tip, be sure to unfold the right side primary boom.

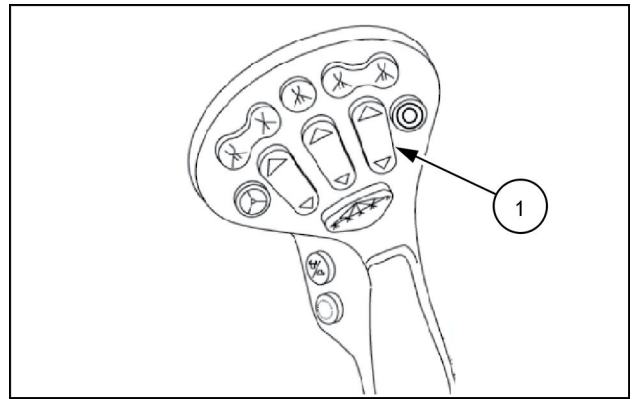
When folding or unfolding the secondary wing:

- Unfolding: Have the primary boom tilted slightly down with the right side boom tilt button to aid in the over center travel of the boom tip.
- Folding: Have the primary wing tilted up slightly with the right side boom tilt button to aid in bringing the boom back over center.

**NOTE:** The right side boom tilt switch (1) is spring loaded and will return to the center (Off) position when released.

To Unfold the right side secondary boom tip:

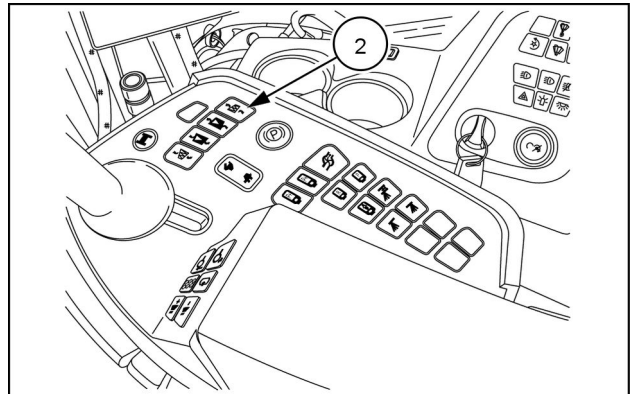
1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the switch (2) to unfold the boom tip (move away from the primary boom). Switch will illuminate red when not active. Just as the boom tip reaches the 90° position, push and hold the bottom of the switch to finish unfolding the boom tip.



RAIL17SP00391AA 1

To fold the right side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the switch (2) to fold the boom tip (move back to the primary boom). Switch will illuminate red when not active. Just as the boom tip reaches the 90° position, push and hold the bottom of the switch to finish folding the boom tip.



RAIL17SP00287AA 2



## Left side primary boom swing in/out — Mono boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTICE:** Before unfolding the left side boom, be sure to raise the boom out of the stored position on the transport saddles.

To Unfold the left side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.

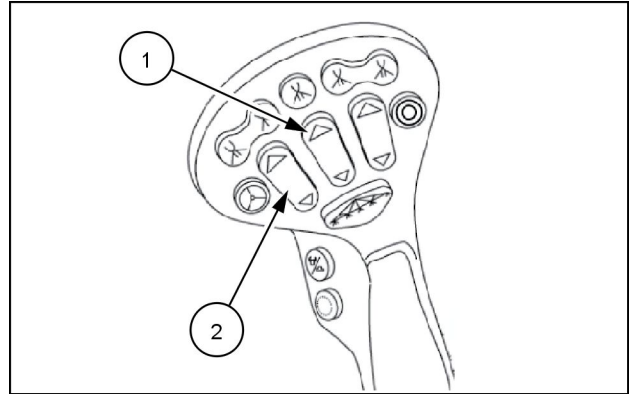
**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

2. Raise the left wing tilt to full lift height by pressing the top of the left side boom tilt button **(2)**.
3. Push and hold the top of the switch **(3)** to unfold the primary boom (move away from the vehicle).

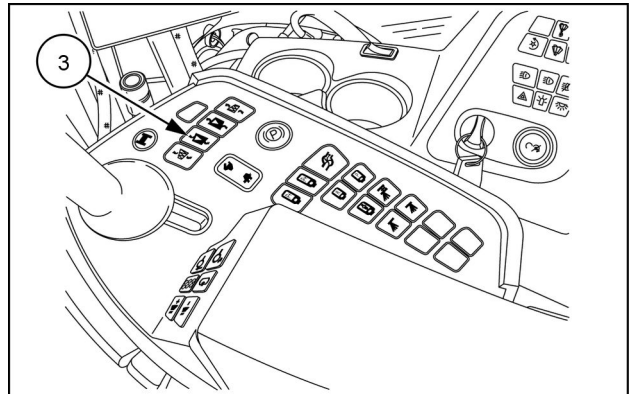
**NOTE:** The left side boom fold switch is spring loaded to return to the center (Off) position when released.

To fold the left side primary boom (swing toward the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.
2. Press the top of the left side boom tilt button **(2)** to tilt the boom to full height.
3. Push and hold the bottom of the switch **(3)** to fold the primary boom (move back to the vehicle). Be careful that the boom does not go over the top of the boom rest back stop.
4. Press the bottom of the left side boom tilt switch **(2)** to lower the boom onto the boom rest.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Left side secondary boom tip fold in/out — Mono boom

### **⚠ DANGER**

**Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTICE:** Before unfolding the left side boom tip, be sure to unfold the left side primary boom.

Helpful Tip when folding or unfolding the secondary wing:

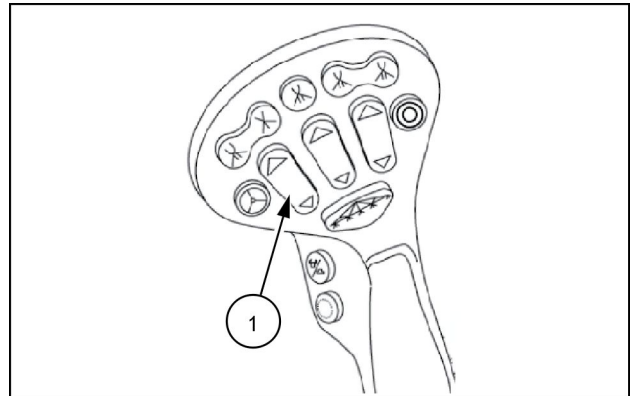
- When unfolding, have the primary boom tilted slightly down with the left side boom tilt button to aid in the over center travel of the boom tip.
- When folding, have the primary wing tilted up slightly with the left side boom tilt button to aid in bringing the boom back over center.
- The left side boom tilt switch (1) is spring loaded to return to the center (Off) position when released.

To Unfold the left side secondary boom tip:

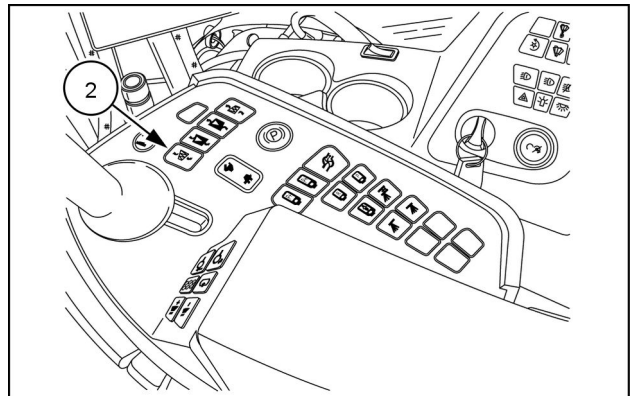
1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the switch (1) to unfold the boom tip (move away from the primary boom). Switch will illuminate red when not active. Just as the boom tip reaches the 90° position, push and hold the bottom of the switch to finish unfolding the boom tip.

To fold the left side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the switch (2) to fold the boom tip (move back to the primary boom). Switch will illuminate red when not active. Just as the boom tip reaches the 90° position, push and hold the bottom of the switch to finish folding the boom tip.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Right side primary boom swing in/out - Truss boom — Truss boom

### **⚠ DANGER**

#### **Electrocution hazard!**

Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.

D0024A

**NOTICE:** Before unfolding the right side boom, be sure to raise the boom out of the stored position on the transport saddles.

Use the tilt control buttons on the joystick to tilt the booms all the way up before starting to unfold or fold the booms. When folding the booms, be sure to fold the secondary booms before folding the primary booms. Use the tilt buttons on the joystick to level the booms after they are folded and to position the booms correctly in the boom rest saddles.

To Unfold the right side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)** on the joystick.

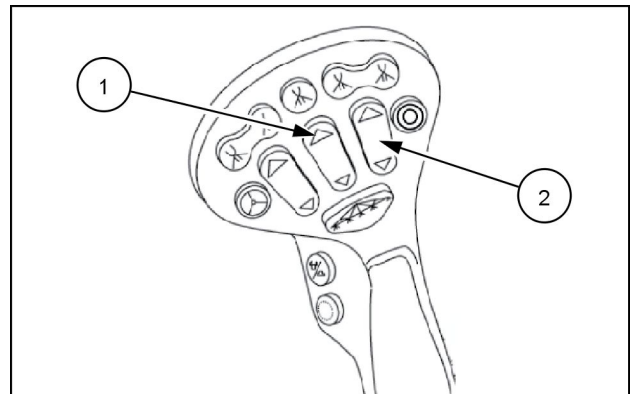
**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button **(2)** on the joystick.
3. Push and hold the top of the switch **(3)**, on the main console control panel, to unfold the primary boom (move away from the vehicle).

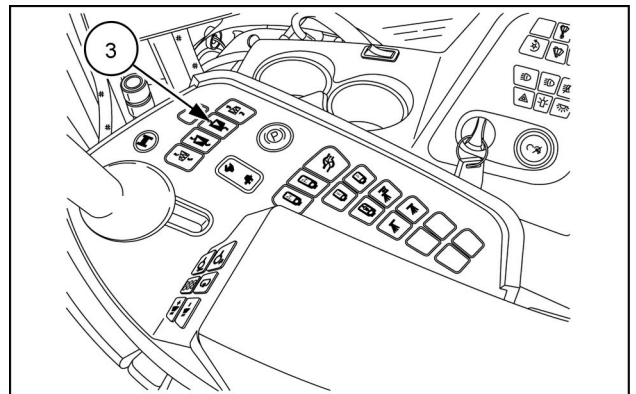
**NOTE:** The right side boom fold switch is spring loaded to return to the center (Off) position when released.

To fold the right side primary boom (move back to the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.
2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button **(2)**.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Right side secondary boom tip fold in/out — Truss boom — Truss boom

### **⚠ DANGER**

#### **Electrocution hazard!**

Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.

D0024A

**NOTE:** *Unfold the right side primary boom before unfolding the right side secondary boom. Refer to 6-5*

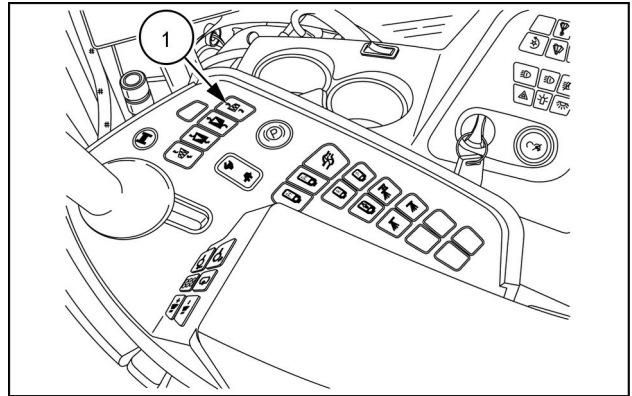
**NOTE:** *The right side secondary boom fold switch (1) is spring loaded to return to the center (Off) position when released.*

To Unfold the right side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the right side secondary boom switch (1) on the main console control panel (move away from the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely unfolded.

To fold the right side secondary boom:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the bottom of the right side secondary boom switch (1) (move back to the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely folded.



RAIL17SP00287AA 1

## Left side primary boom fold in/out — Truss boom — Truss boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTICE:** Before unfolding the left side boom, be sure to raise the boom out of the stored position on the transport saddles.

To Unfold the left side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)** on the joystick.

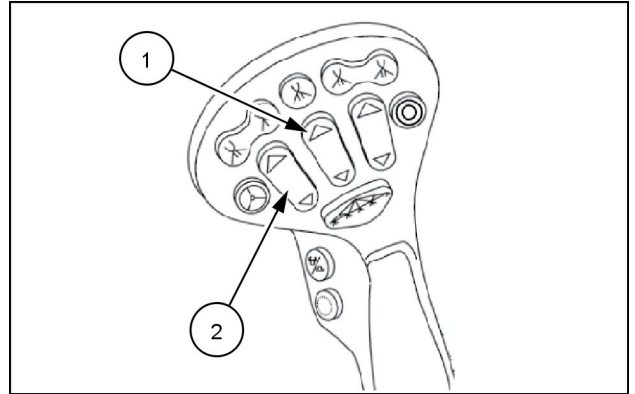
**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

2. Raise the left wing tilt to full lift height by pressing the top of the left side boom tilt button **(2)** on the joystick.
3. Push and hold the top of the left side primary boom switch **(3)** on the main console control panel (move away from the vehicle).

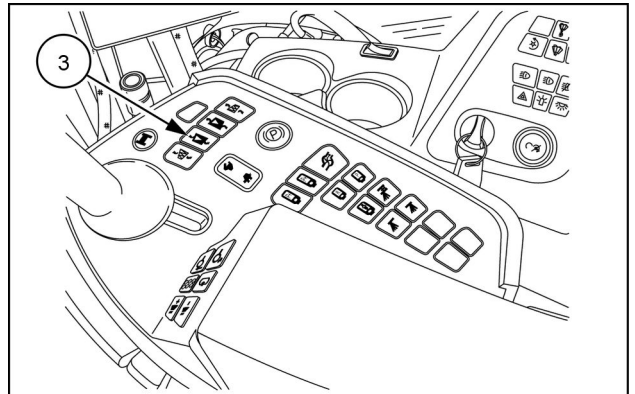
**NOTE:** The left side primary boom switch is spring loaded to return to the center (Off) position when released.

To fold the left side primary boom (swing toward the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.
2. Raise the left wing tilt to full lift height by pressing the top of the left side boom tilt button **(2)**.
3. Push and hold the bottom of the left side primary boom switch **(3)** (move back to the vehicle).
4. Press the bottom of the left side boom tilt switch **(2)** to lower the boom onto the boom rest.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Left side secondary boom tip fold in/out - Truss boom — Truss boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTE:** *Unfold the left side primary boom before unfolding the left side secondary boom.*

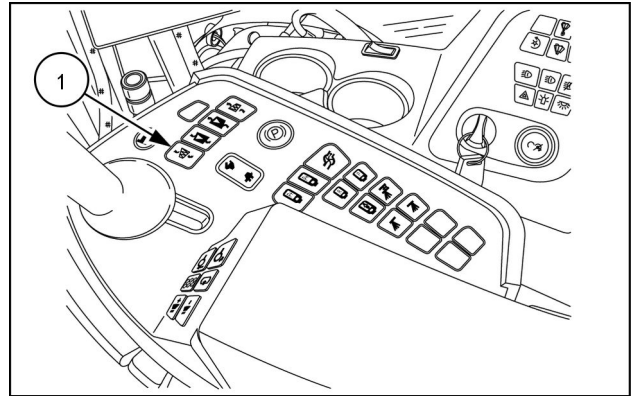
**NOTE:** *The left side secondary boom fold switch (1) is spring loaded to return to the center (Off) position when released.*

To Unfold the left side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the left side secondary boom switch (1) on the main console control panel (move away from the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely unfolded.

To fold the left side secondary boom:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the bottom of the left side secondary boom switch (1) (move back to the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely folded.



RAIL17SP00287AA 1

## Right side primary boom swing in/out — Spray Air boom

### **⚠ DANGER**

#### **Electrocution hazard!**

Contact with overhead power lines can cause severe electrical burns or death from electrocution.  
 Make sure there is enough clearance between equipment and overhead power lines.  
 Failure to comply will result in death or serious injury.

D0024A

**NOTICE:** Before unfolding the right side boom, be sure to raise the boom out of the stored position on the transport saddles.

Use the tilt control buttons on the joystick to tilt the booms all the way up before starting to unfold or fold the booms. When folding the booms, be sure to fold the secondary booms before folding the primary booms. Use the tilt buttons on the joystick to level the booms after they are folded and to position the booms correctly in the boom rest saddles.

To Unfold the right side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)** on the joystick.

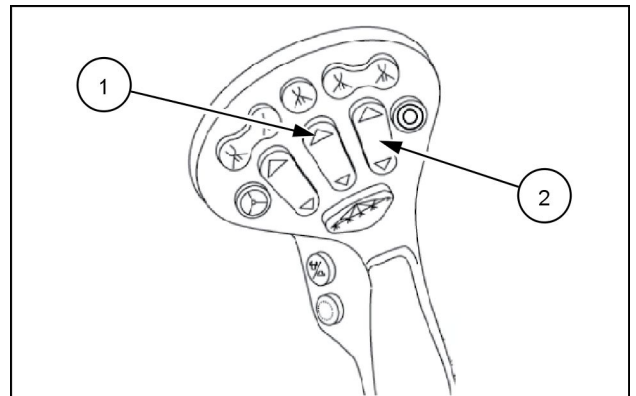
**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button **(2)** on the joystick.
3. Push and hold the top of the switch **(3)**, on the main console control panel, to unfold the primary boom (move away from the vehicle).

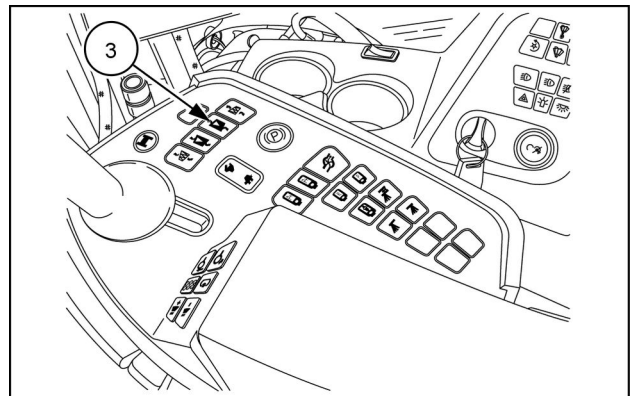
**NOTE:** The right side boom fold switch is spring loaded to return to the center (Off) position when released.

To fold the right side primary boom (move back to the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.
2. Raise the right wing tilt to full lift height by pressing the top of the right side boom tilt button **(2)**.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Right side secondary boom tip fold in/out — Spray Air boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTE:** *Unfold the right side primary boom before unfolding the right side secondary boom. Refer to 6-5*

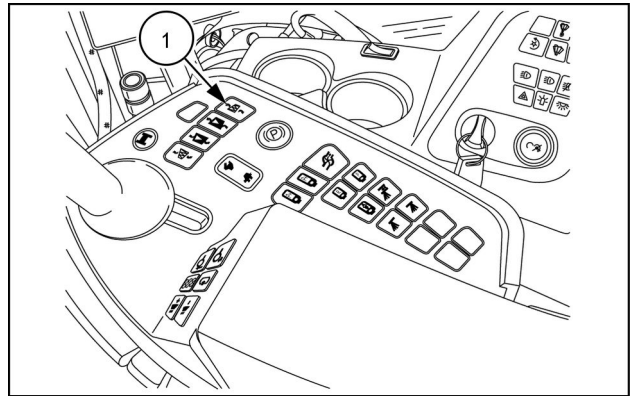
**NOTE:** *The right side secondary boom fold switch (1) is spring loaded to return to the center (Off) position when released.*

To Unfold the right side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the right side secondary boom switch (1) on the main console control panel (move away from the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely unfolded.

To fold the right side secondary boom:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the bottom of the right side secondary boom switch (1) (move back to the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely folded.



RAIL17SP00287AA 1



## Left side primary boom swing in/out — Spray Air boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTICE:** Before unfolding the left side boom, be sure to raise the boom out of the stored position on the transport saddles.

To Unfold the left side primary boom (swing away from the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)** on the joystick.

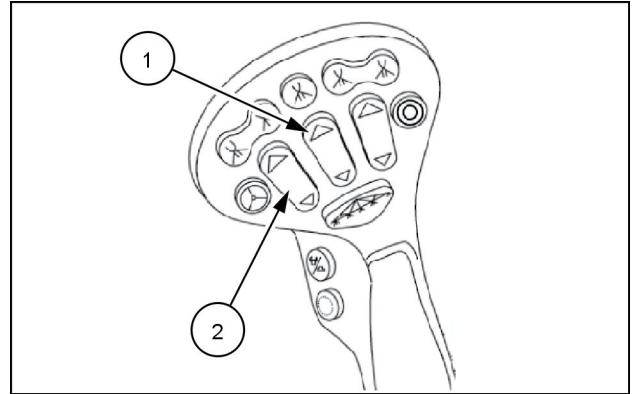
**NOTICE:** Be sure to remove the center section transport locks from the lift cylinders.

2. Raise the left wing tilt to full lift height by pressing the top of the left side boom tilt button **(2)** on the joystick.
3. Push and hold the top of the left side primary boom switch **(3)** on the main console control panel (move away from the vehicle).

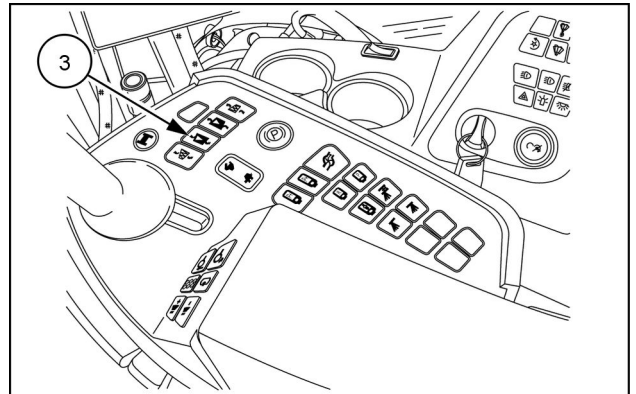
**NOTE:** The left side primary boom switch is spring loaded to return to the center (Off) position when released.

To fold the left side primary boom (swing toward the vehicle):

1. Raise the center section to full height by pressing the top of the center section button **(1)**.
2. Raise the left wing tilt to full lift height by pressing the top of the left side boom tilt button **(2)**.
3. Push and hold the bottom of the left side primary boom switch **(3)** (move back to the vehicle).
4. Press the bottom of the left side boom tilt switch **(2)** to lower the boom onto the boom rest.



RAIL17SP00391AA 1



RAIL17SP00287AA 2

## Left side secondary boom tip fold in/out — Spray Air boom

### **⚠ DANGER**

#### **Electrocution hazard!**

**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines. Failure to comply will result in death or serious injury.**

D0024A

**NOTE:** *Unfold the left side primary boom before unfolding the left side secondary boom. Refer to 6-15*

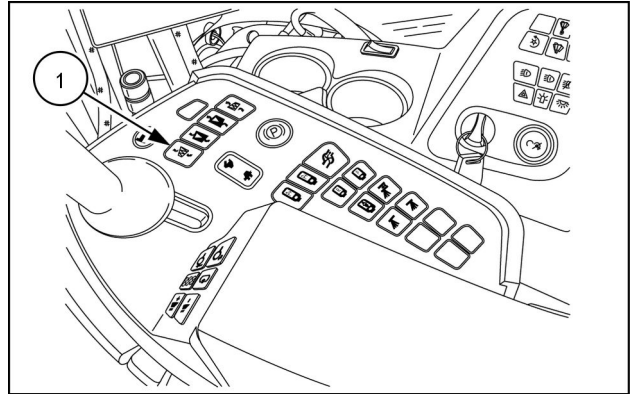
**NOTE:** *The left side secondary boom fold switch (1) is spring loaded to return to the center (Off) position when released.*

To Unfold the left side secondary boom tip:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the top of the left side secondary boom switch (1) on the main console control panel (move away from the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely unfolded.

To fold the left side secondary boom:

1. Place the drive in neutral. System will not operate unless the joystick is in neutral.
2. Push and hold the bottom of the left side secondary boom switch (1) (move back to the primary boom). Switch will illuminate red when not active. Hold the switch position until the secondary boom is completely folded.



RAIL17SP00287AA 1

## Spray system

### Spraying safety rules

#### **⚠ WARNING**

**Personal Protective Equipment (PPE) required.**

**When assembling, operating, or servicing the machine, wear protective clothing and PPE necessary for the particular procedure. Some PPE that may be necessary includes protective shoes, eye and/or face protection, hard hat, heavy gloves, filter mask, and hearing protection.**

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

W0353A

Observe the following rules:

- Wash the sprayer after the application of any pesticides/herbicides/ fungicides, etc. Wash the sprayer to reduce the potential of operators coming in contact with the pesticides/herbicides/fungicides, etc.
- Be sure to clean and flush all residual chemicals from the sprayer before changing to another type of chemical. In some cases a decontamination solution is recommended by the chemical manufacturer.
- Always follow chemical manufacturers safety instructions when mixing and applying herbicides and chemicals to prevent serious harm to people or the environment.
- Observe all Federal and State EPA regulations and all Local, State and Federal codes and/or laws regarding licensing, handling, storage, transportation, application and waste disposal of herbicides or other chemicals.
- Do not use this equipment for fumigants.

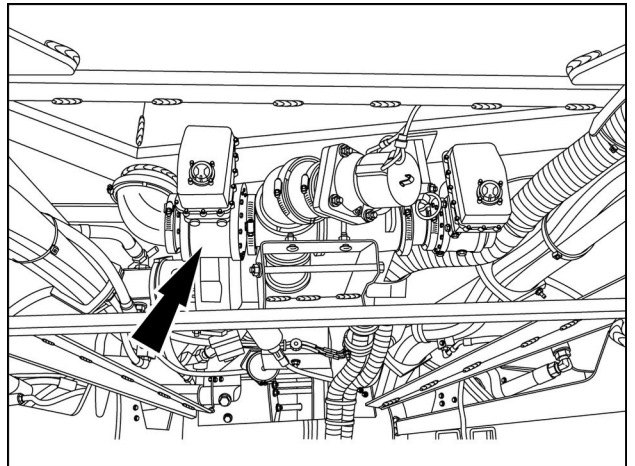
### Control valve locations

**NOTE:** Valves are closed when the handle is perpendicular to the flow. Valves are open when the handle is in line with the flow.

There are several valves located under the product tank and on the top side of the frame. They are:

#### **Product tank sump shut off valve**

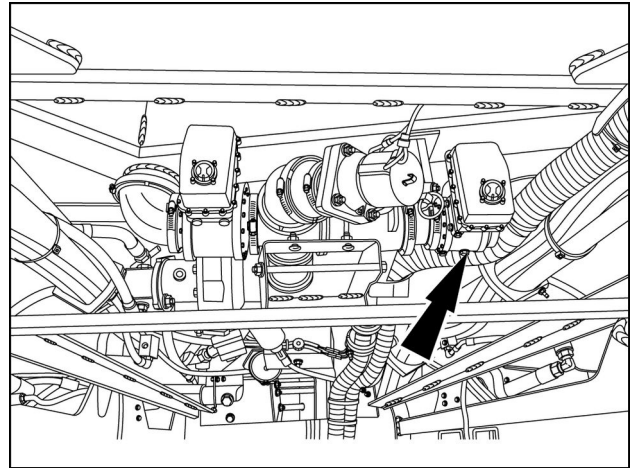
Electric ball valve located under the product tank.



RAIL18SP00240AA 1

### Rinse water tank sump shut off valve

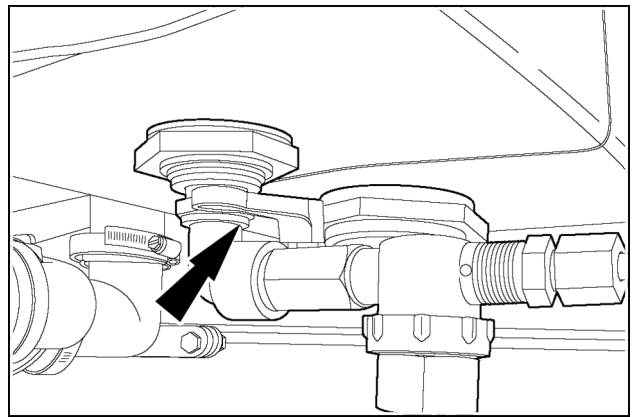
Electric ball valve located next to the product tank sump shut off valve.



RAIL18SP00240AA 2

### Foamer line shut off valve

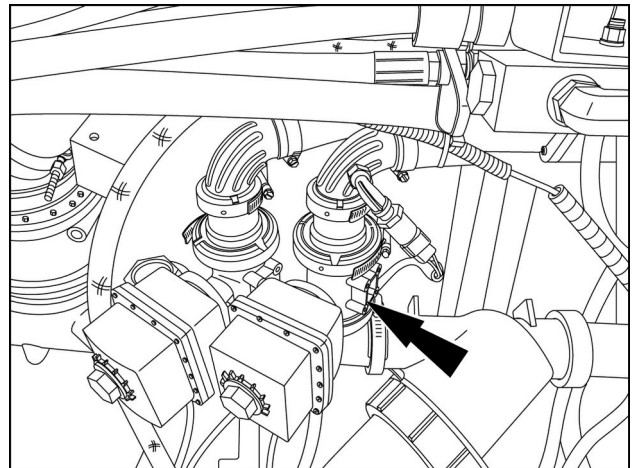
Located under rinse water tank.



RCPH11SPR019BAM 3

### Sparge valve

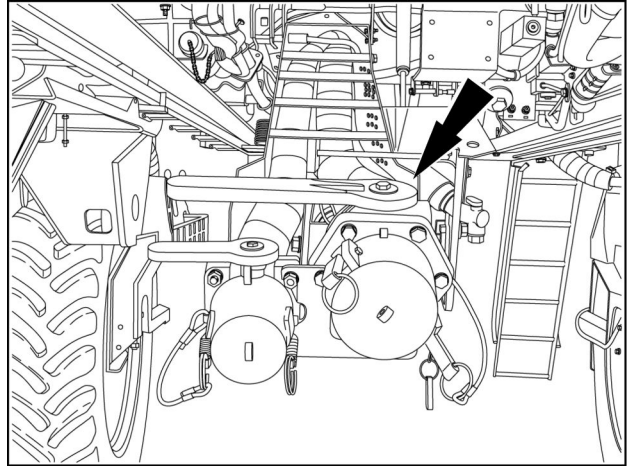
Located next to the Y strainer..



RAIL18SP00242AA 4

### Product tank fast fill

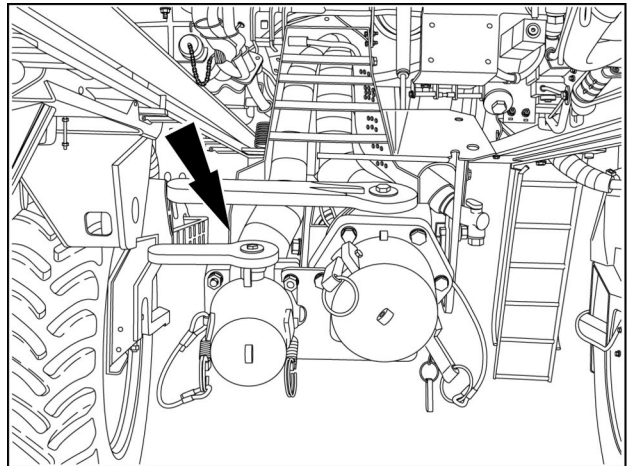
Front of unit below cab.



RAIL12SP01059AA 5

### Rinse water tank fast fill

Front of unit below cab.

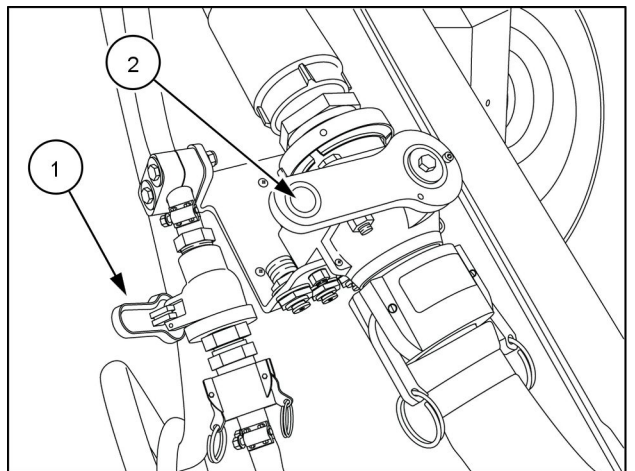


RAIL12SP01059AA 6

### Quick attach valves

There are several valves on the lift arms (depending on options installed). Be sure to close these valves before disconnecting the main product circuit **(2)** disconnect or the rear nozzle **(1)** disconnect. These valves should remain closed when the boom is removed.

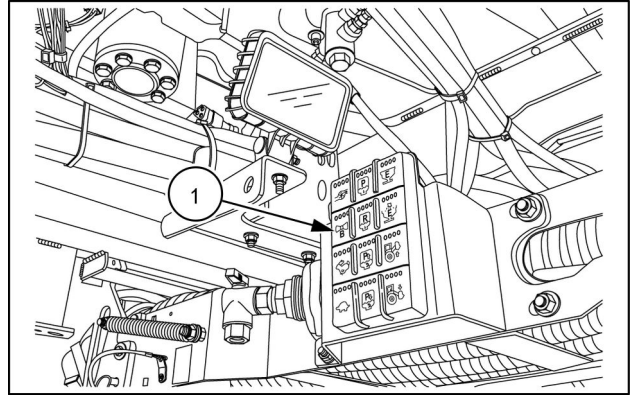
If your vehicle has a 10 section boom, there will be an additional rear nozzle shut off and disconnect on the right side lift arm.



RAIL12SP01217AA 7

### Bypass valve

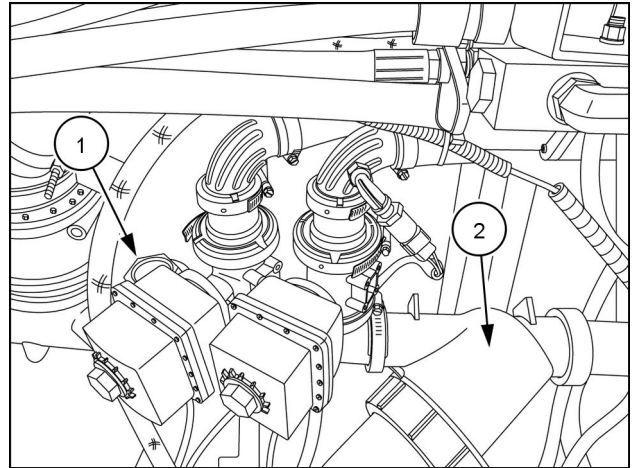
Electric bypass valve is controlled by a button (1) on the remote key pad located on the side of the product fill snorkel



RAIL17SP00859AA 8

### Eductor valve

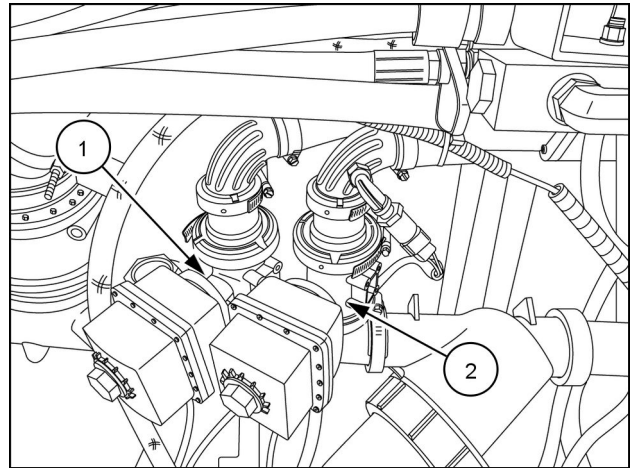
The eductor valve (1) is located in the row of valves, farthest from the Y strainer (2).



RAIL18SP00242AA 9

### Rinse valve

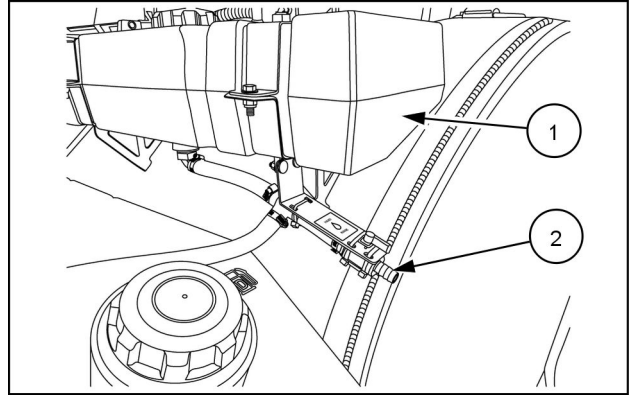
The rinse valve (1) is located next to the sparge valve (2).



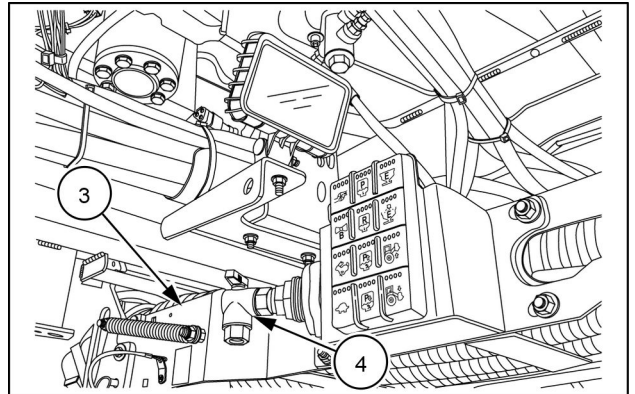
RAIL18SP00242AA 10

### Hand rinse water valves

There are two hand rinse water valves. One is located at the left-hand side of the rinse water tank (1) and is a hand operated on/off valve (2). The second is located on the fast fill snorkel (3) and is also a hand operated on/off valve (4).



RAIL17SP00763AA 11



RAIL17SP00859AA 12

## Product tank sump valve switch

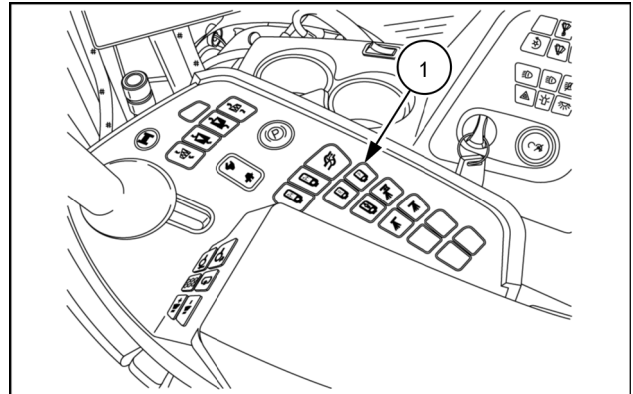
### Product tank sump valve on/off switch

This momentary switch (1) allows the operator to open and close the product tank sump from the operator cab. Press the button once to open the sump. Press the button again to close the sump. Be sure to open the sump valve before starting any spraying operation. The product tank sump MUST be open before starting the product pump. The product tank sump can also be opened and closed from outside the operator cab using the remote sump control switch. The product tank sump icon (2) on the front overhead display will illuminate when the sump is open.

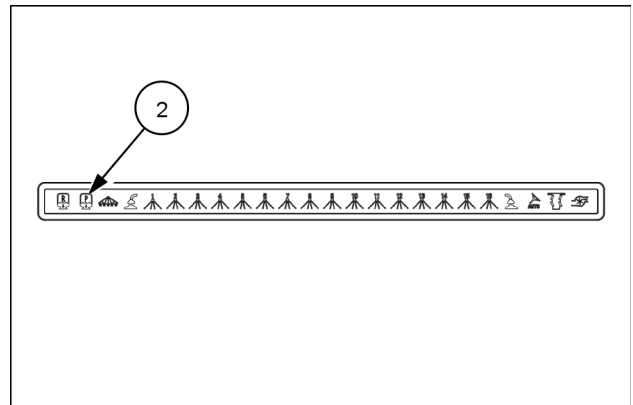
Sump MUST be open when using the remote fast fill feature.

**NOTE:** Sump MUST be open when using the remote fast fill feature.

**NOTE:** When you shut the engine off with the sump open, the sump will remain open. However, when you restart the engine, the sump will close. You will need to re-open the sump before starting the product pump.



RAIL17SP00287AA 1

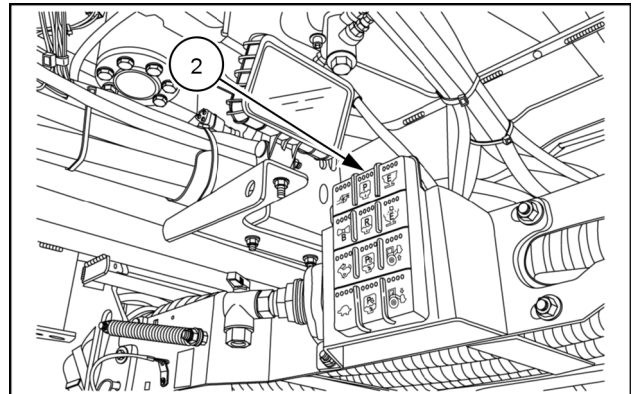


RAIL17SP00309FA 2

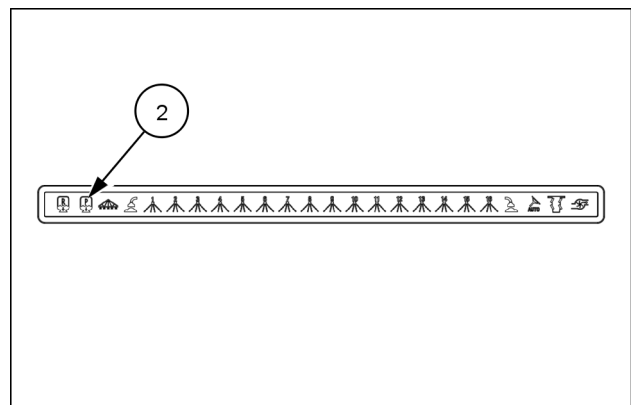
### Remote product tank sump valve open/close switch

The remote product tank sump switch (1) allows the operator to open and close the sump from outside the cab. The remote sump switch is located under the frame on the side of the fast fill snorkel. Press the switch on the key pad once to open the sump. Press the switch again to close the sump.

The “Sump is Open” light (2) in the front overhead display will also come on when opening the sump with this switch. When this feature is active with the remote key pad, the lights at the top of the switch will illuminate signifying that the sump is open. Refer to the following table to understand what each light or combination of lights represent.



RAIL17SP00859AA 3



RAIL17SP00309FA 4



6 - WORKING OPERATIONS

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Light color combination	Percentage of sump open
Red	0-6%
Red and Yellow	7-23%
Yellow	24-41%
Yellow and Green	42-58%
Green	59-77%
Green and Blue	78-99%
Blue	100%

## Foam marker system overview (if equipped)

The foam marking system needs little maintenance, but regular routine cleaning of the foam heads and filters is essential.

The foam heads have been designed so that the elements inside may be cleaned as necessary. The screens inside this unit should be washed periodically with hot water. The in-line filter element should be cleaned occasionally to ensure sufficient liquid flow to the foam head assemblies.

VERSATRAC model foam markers utilize a manifold style control module for routing and control of the air and liquid to each side. The control module is made of a durable plastic block with the solenoid valves mounted directly to the block. The unit should have hot water run through each side periodically to ensure proper flow. Be certain that all of the foam solution is removed from the control module before storing it for the winter. Refer to Storage for procedure.

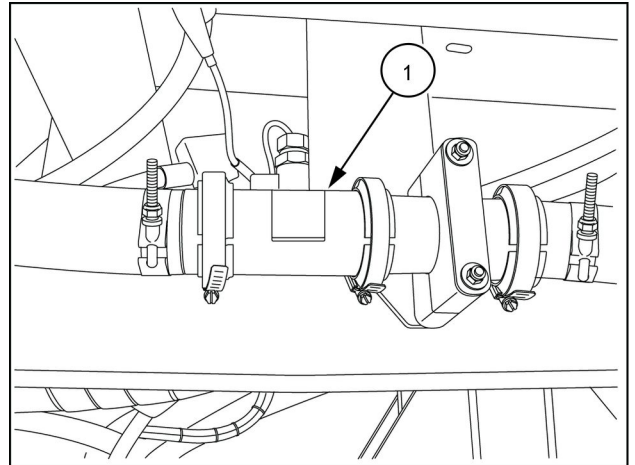
VERSATRAC model foam markers are equipped with a relief valve that has been factory set at **20 psi**. This valve prevents over-pressurization of the system. Check its operation periodically. Do not attempt to operate the system or adjust the relief valve above **20 psi**.

## Spray system operation

Refer to the Controller's Installation and Operator's manual supplied in the documentation packet for calibration and operating instructions. Calibrate the system for the speed and rate desired.

This sprayer is equipped with a flow meter (1) that is sized to optimize the performance of the product application system. Two flow meter sizes are available depending on the machine option that was installed on your machine. Please look at the flow meter located on the right side of the machine near the engine to see how your machine is configured.





**NOTE:** This valve is never truly "closed". Product will flow through in both positions.



RAIL12SP00761AA 1

## Pressure transducer calibration

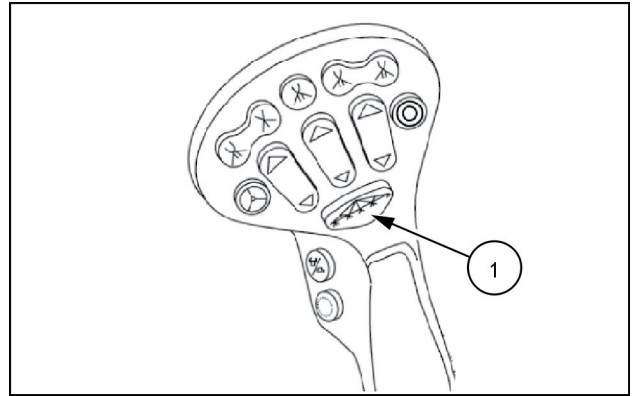
It is important to calibrate the pressure transducers initially and at the beginning of each spray season.

1. Ensure that the product system plumbing is completely drained.
2. Turn the ignition key to the run position and wait for the controller display to start up.
3.  Open the VT Menu and select the PC II Menu button.
4.  Select the Tools menu soft key along the right side of the display.
5.  Select the Systems Settings tab along the top of the display.
6. Select the Pressures Settings button.
7. With no liquid in the product system and the product pump turned off, enter "0" for the Boom Pressure Cal and Sparge Pressure Cal.
8. Select the OK button.
9.  Select the Home to return to the VT run screen.

**NOTE:** If your machine is equipped with **IntelliSpray™**, leave the throttling valve open at all times.

Operation:

1. Turn On rate controller and product pump (see the controller manual).
2. Turn On desired boom sections.
3. Begin forward motion and push the top of the spray on/off switch **(1)** to turn liquid flow On.
4. Increase forward speed until desired operating speed is reached.
5. Observe control console to determine if proper application rate is taking place. If not, stop operation and refer to controller manuals.
6. To turn Off liquid flow, push the master button **(1)**.

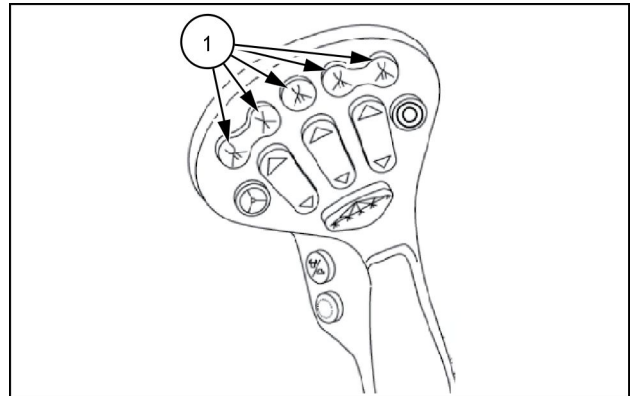


RAIL17SP00391AA 2

**NOTICE:** Operation with boom pressures above **827 kPa (120 psi)** is not recommended. Use caution when increasing rates in the manual mode to avoid high pressure.

**Boom shut-off**

The boom plumbing package is equipped with an electric shut-off valve for each boom section. These electric shut-off valves are controlled by the boom shut-off switches **(1)** on the joystick control. Each of these sections are connected to the spray controller so proper acres are counted as various boom sections are shut-off. Each section must have correct swath width programmed into the monitor.



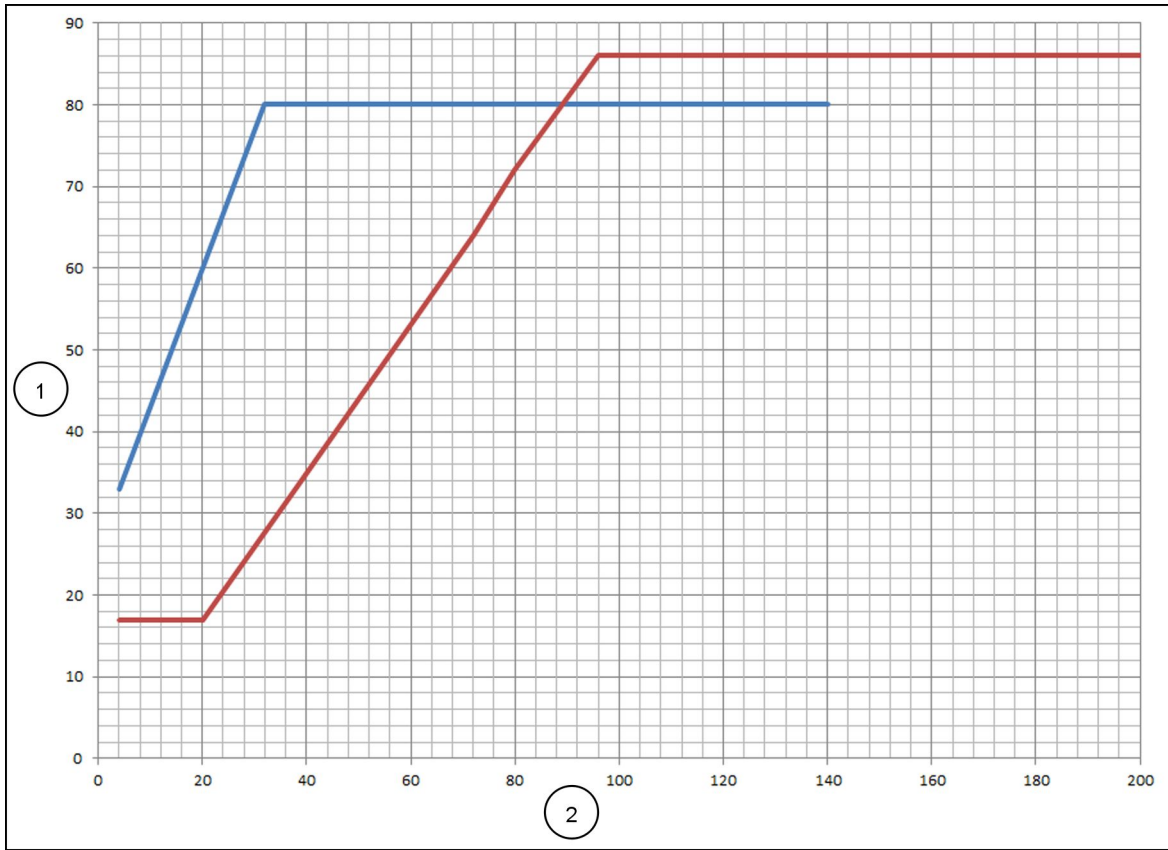
RAIL17SP00391AA 3

**IntelliSpray™ factory default settings**



Valve type	PWM
PWM frequency	50
Min PWM	10%
Min PWM nozzle	25%
Max PWM	85%

Response rate	35 (default)
Deadband	1 (default)
Pressure reponse	default
Min pressure	15 PSI
Max pressure	135 psi

**Product control pressure response rate calibration recommendations**



RAIL16SP00412FA 4

1.	Pressure control 'response rate'
2.	Application flowrate, Gallons Per Minute (GPM)
	<b>IntelliSpray™</b> , standard and VP mode
	Conventional 'bypass, ON/OFF, and high-flow/high-flow VP mode

**NOTE:** Increase pressure control response rate value for improved rate change response. Decrease pressure control response rate value for improved rate change stability.

**NOTICE:** Increasing pressure control 'Response Rate' above 80 (IntelliSpray), or 86 (Conventional control) IS NOT recommended.

**NOTICE:** Adjustments to the product control response rate is not recommended. Reference the ISO Product Control settings table.

## Tank fill monitor operation (if equipped)

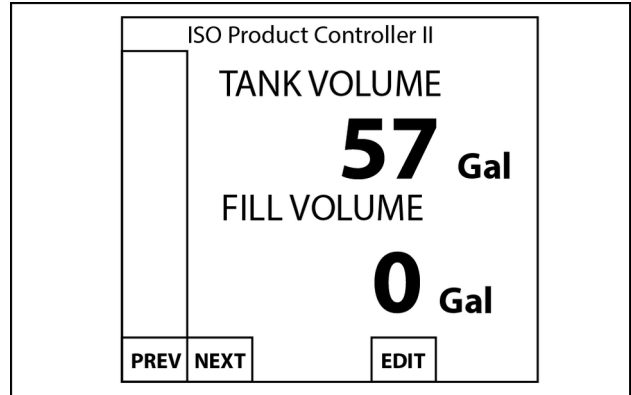
The tank fill monitor is an option that can be fitted to the vehicle and is used to monitor the filling of the product tank when using the snorkel fill system. This optional monitor does not communicate with the IntelliSpray™ monitor. Access the tank fill monitor by lowering the quick-fill door. The tank fill monitor is mounted to the topside of the quick-fill door frame. The tank fill monitor has four different screens that are accessible. They are: Home Screen, Fill Meter Cal Screen, Main Run Screen and Information Screen. The description of the screens is as follows:

### Home screen

**Tank Volume** - The amount of product currently in the tank.

**Fill Volume** - Amount of product added to the tank through the fill flow line.

**EDIT** - Press the EDIT button to open a screen to edit the tank volume.



RAIL16SP00239AA 1

### Main Run Screen

**Tank Capacity** - Displays the maximum tank capacity.

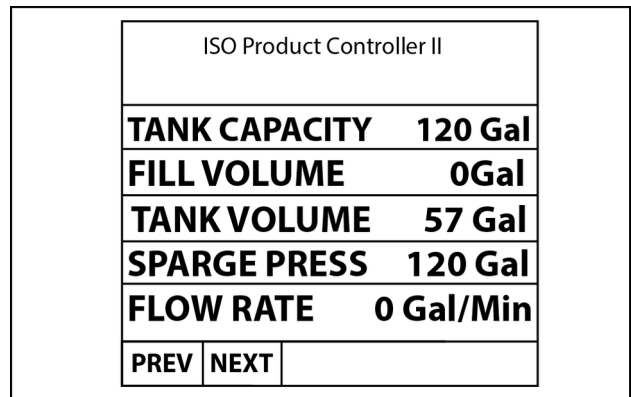
**Fill Volume** - Amount of product added to the tank through the fill flow line.

**Tank Volume** - The amount of product currently in the tank.

**Sparge Pressure** - Displays the product pump pressure (if available).

**Total Volume (not shown)** - The total amount applied. As the tank volume decreases, the total volume increases.

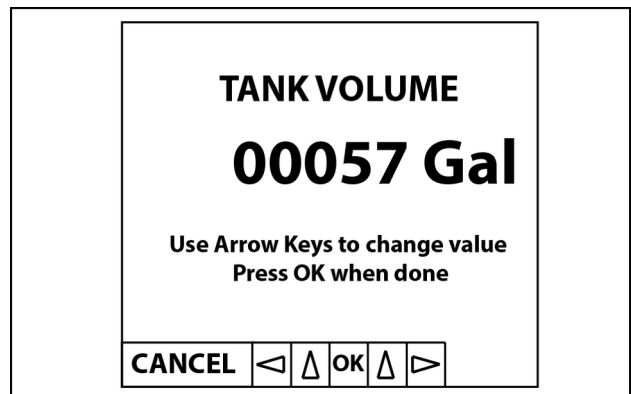
**Flow Rate** - Current flow rate of the product through the fill flow line.



RAIL16SP00241AA 2

### Fill Meter Cal Screen

Use the arrow keys to manually adjust the current tank volume. Press the OK button after adjusting.



RAIL16SP00240AA 3

### Information Screen

The information screen displays the hardware and software version information.

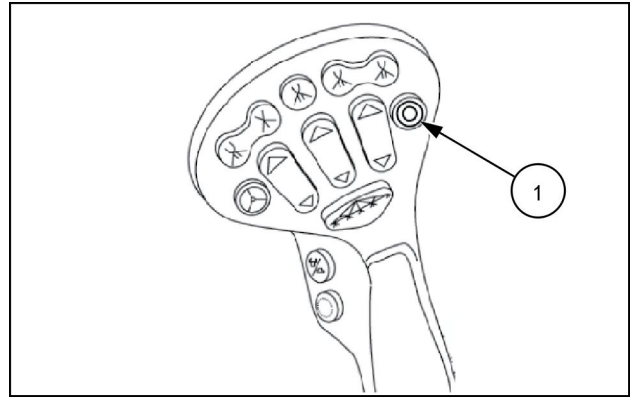
<u>MONITOR INFORMATION</u>	
<b>PART NUMBER</b>	<b>063-0173-638</b>
<b>SOFTWARE NUMBER</b>	<b>077-0171-392</b>
<b>SOFTWARE VERSION</b>	<b>1.1.4.1</b>
<b>MONITOR ADDRESS</b>	<b>0x15</b>
<b>SERIAL NUMBER</b>	<b>206995</b>
<b>INSTANCE</b>	<b>0</b>
<b>PREV</b>	<b>INST</b>

RAIL16SP00242AA 4

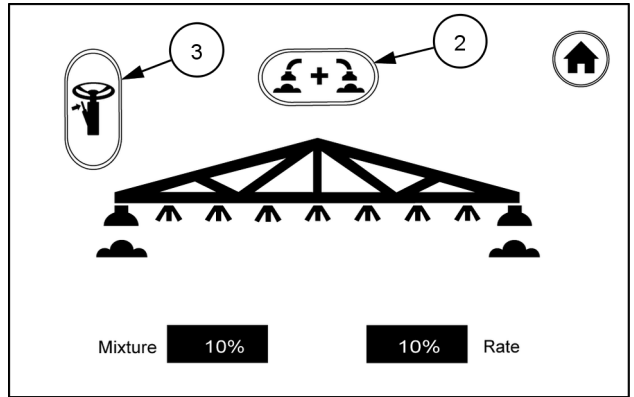
## Foam marker operation (if equipped)

The multi-function button (1) on the joystick will work as off-right-off-left-off by pressing in this order.

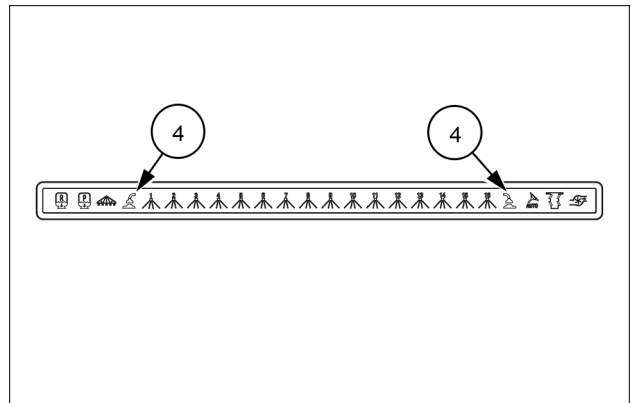
The multi-function button on the joystick will toggle both sides (off-both-off) when the dual foamer is turned on with the screen (2), and the turn signal lever icon on the screen has been activated (3). The appropriate foam marker icons (4) will illuminate in the front overhead display.



RAIL17SP00391AA 1

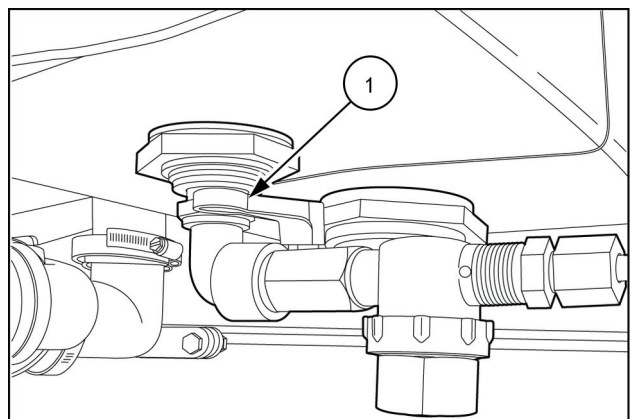


RAIL17SP00205AA 2



RAIL17SP00309FA 3

Turn on the foamer water supply valve (1) under the rinse water tank before operating the foamer. Turn the lever to open.

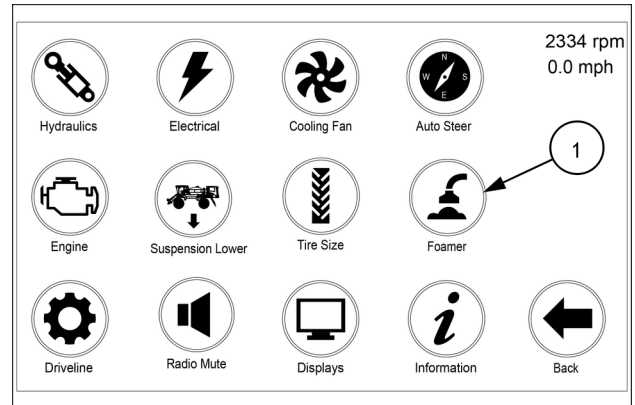


RCPH11SPR019BAM 4



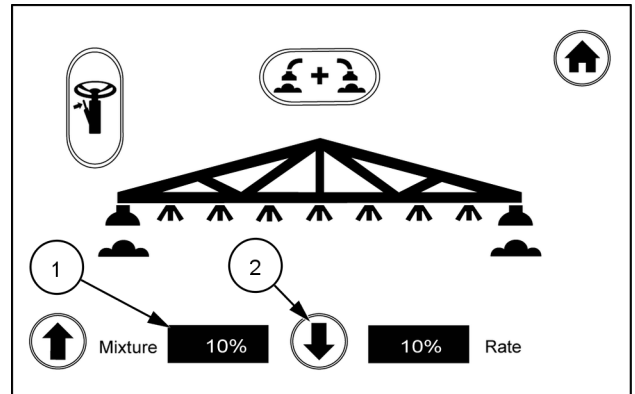
### Foamer Rate and Mixture

From the armrest display first home page touch the foamer icon (1). This will bring up the where you can select the turn signal lever control, dual foamer on/off icon, set the concentrate mixture and rate.



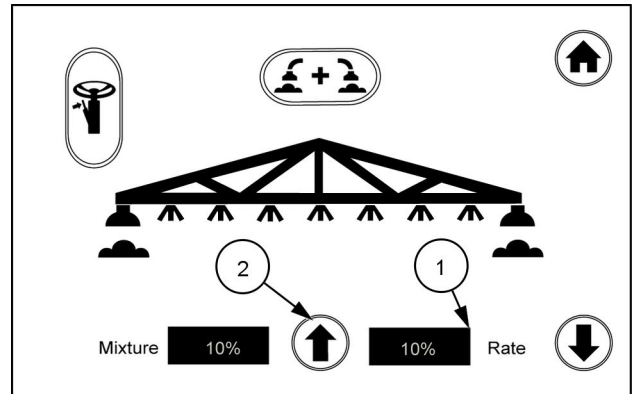
RAIL18SP00743FA 5

From the Foamer screen, touch the mixture icon (1), the up and down arrows will appear (2). Use the arrows to adjust the mixture from dry to wet, depending on conditions.



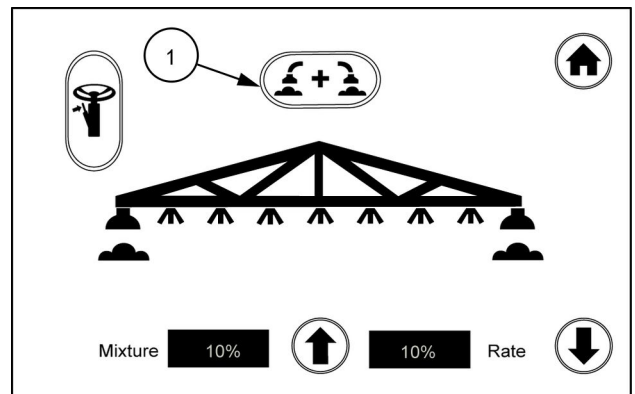
RAIL17SP00206AA 6

From the foamer screen, touch the rate icon (1) and the up and down arrows (2) will appear. Use the arrows to adjust the rate of the foam, depending on conditions.



RAIL17SP00207AA 7

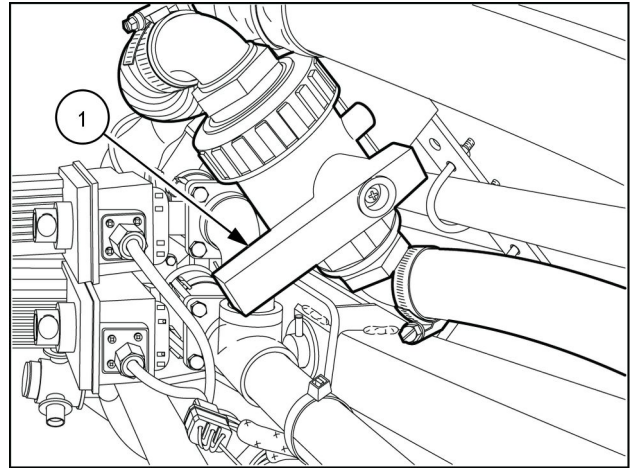
From the foamer screen, touch the dual foamer (1) icon to turn the foamer on or off. With the dual foamer ON, the system ignores switch status (turn signal position) and continuously dispenses foam out both sides until button is cycled OFF.



RAIL17SP00207AA 8

## 6 - WORKING OPERATIONS

The second foam marker locations are turned on manually at the foam directional valve **(1)** on each boom. To direct foam to the second location (mid boom) the control valve has to be turned to direct foam to the second location. When foam is directed here the flow is shut off to the outer foam markers. The foam system is still controlled from inside the cab.

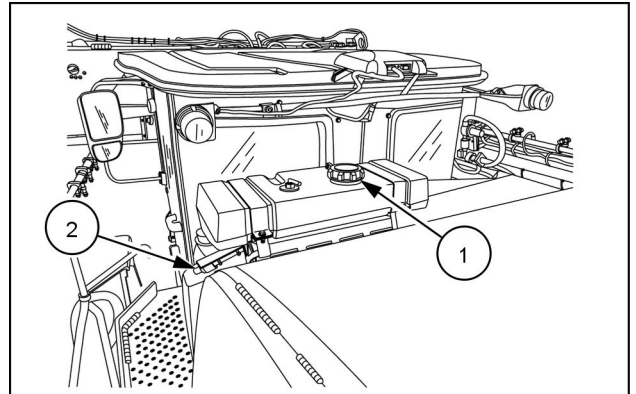


RCPH11SPR025BAM 9

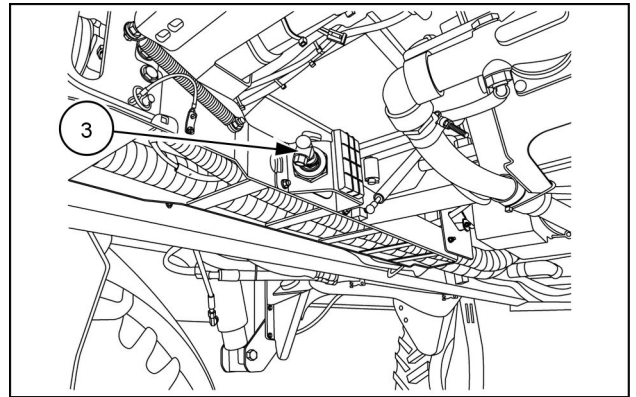
## Filling the tanks

### Hand rinse water tank

The hand rinse water tank is located on the rear left corner of the cab. Fill this tank with clean water only. Remove the lid (1), fill completely with clean water and replace the lid. The valve on the bottom of the tank (2) is used to dispense water for hand washing only. There is an additional dispensing valve (3) located on the carrier for the fast fill valves under the frame.



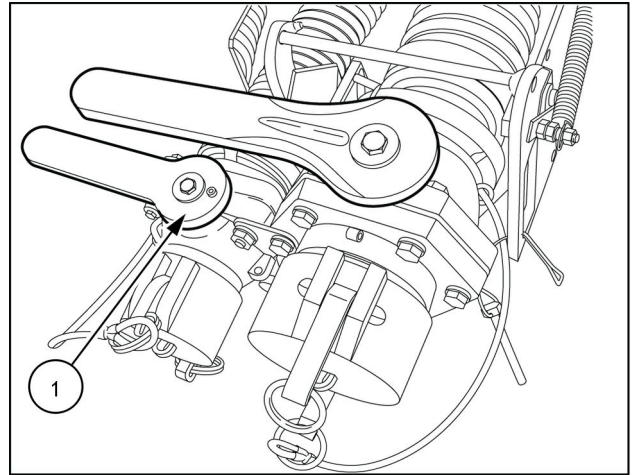
RAIL17SP00762AA 1



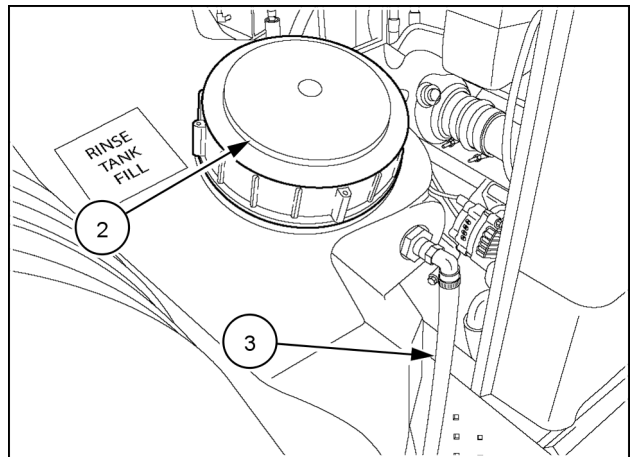
RAIL17SP00752AA 2

## Rinse water tank

The **568 I (150 US gal)** rinse water tank is used for rinsing of the product tank as well as supplying water to the foam marker system. The tank is located to the rear of the product tank. The fast fill **(1)** for the rinse tank is located on a carrier under the front of the frame. Close the product tank sump valve before filling. Be sure to close the fast fill ball valve **(1)** after filling. The tank can also be filled through the lid **(2)** at the top of the tank. The tank is equipped with a sight gauge **(3)** on the side of the tank for level of water in the tank.



RCPH11SPR071BAM 3



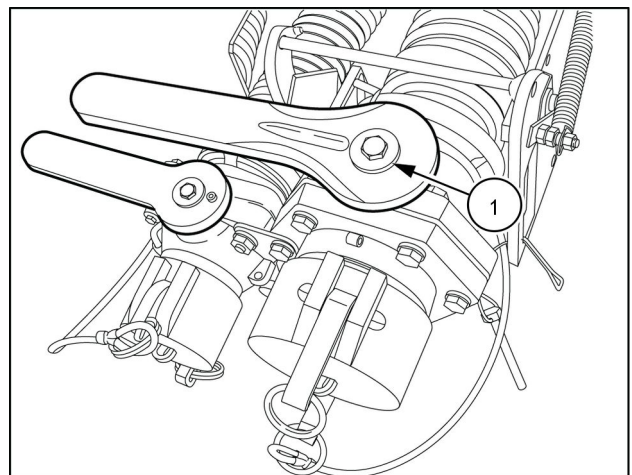
RCPH11SPR074BAM 4

## Product tank

The product tank can be filled using the product tank fast fill valve **(1)** located on a carrier under the front of the frame. Open the valve after external source has been connected. Close the rinse water tank valve and open the product tank sump valve. Fill the product tank. Be sure to close the product tank sump valve and product tank fill valve before disconnecting the fill hose.

The product tank can also be filled through the product tank lid at the top of the tank. Be sure to replace the lid when finished.

**NOTE:** *When traveling long distances between fields, be sure to close the product tank sump valve. Close this valve to prevent any accidental spilling of chemicals if a line should fail.*

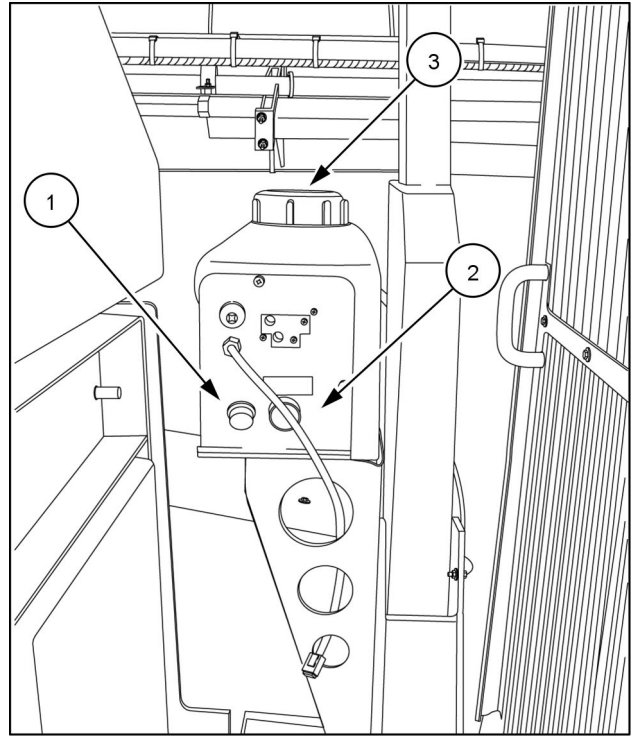


RCPH11SPR071BAM 5

**Foam tank**

1. Add foam concentrate only to the foamer unit tank through the foamer tank lid (3). The foamer will automatically mix the concentrate with water from the rinse water tank during application. Make sure the foamer water supply shut off valve (4) located under the rinse water tank is open.
2. An adjustment knob (1) and pressure gauge (2) is provided on the foamer unit/tank to regulate the pressure of the foaming system. Increasing the pressure will result in dryer foam.

**NOTE:** The filter element in the strainer (5) under the rinse water tank may require periodic cleaning, depending on condition of the water inside the rinse tank. Clean as necessary.

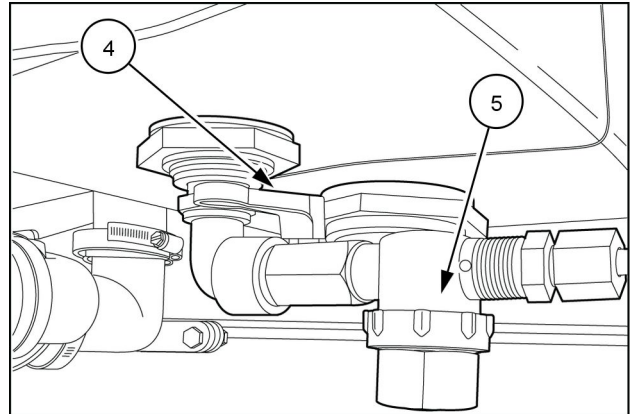


RAIL12SP01188AA 6

3. If hard water is a problem, commercial softening agents are available. You can make your own softening agent by dissolving a commercial water softening powder (available in most grocery stores) in hot water and adding a portion of this mixture to your tank each time you fill. Experimentation will reveal the correct amount to use. A good starting point is **44.4 mL (1.5 US fl oz)** per gallon of water.
4. Heat, humidity, wind and crop cover will also affect the life of foam. Using a good quality marking agent, such as “Goodmark” may be very important.

**NOTE:** Always completely rinse the foam system before changing brands of foam marking concentrate.

**NOTE:** Goodmark premium life, “hot weather” foam concentrate has up to one hour life in cooler weather, **20 – 40 min** in hot weather and has good hard water tolerance.



RCPH11SPR019BAM 7

## Chemical eductor operation

### **⚠ WARNING**

**Chemical hazard!**

**Wear protective clothing and a face shield when working with chemicals. Do not allow chemicals to contact skin or eyes. Always follow the chemical manufacturer's instructions.**

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

W0052A

### **⚠ WARNING**

**Inhalation hazard! Risk to operators and bystanders.**

**For protection against hazardous dust, aerosols, and vapors, refer to the instructions provided by the chemical agent supplier, the sprayer manufacturer, and the basic rules contained in this manual.**

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

W0043A

### **⚠ WARNING**

**Chemical hazard!**

**Always wash your hands with clean water from the hand rinse tank after handling chemicals.**

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

W1134A

### **⚠ WARNING**

**Chemical hazard!**

**Use caution when opening the eductor valve to avoid being splashed with agricultural chemicals.**

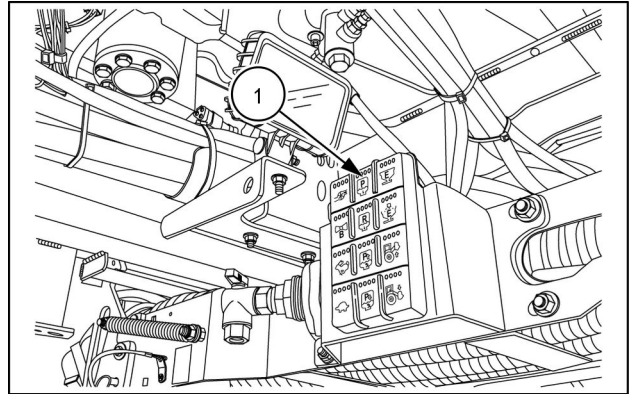
**Failure to comply could result in death or serious injury.**

W1135A

A chemical eductor is available for filling the product tank with the required chemicals from the ground level.

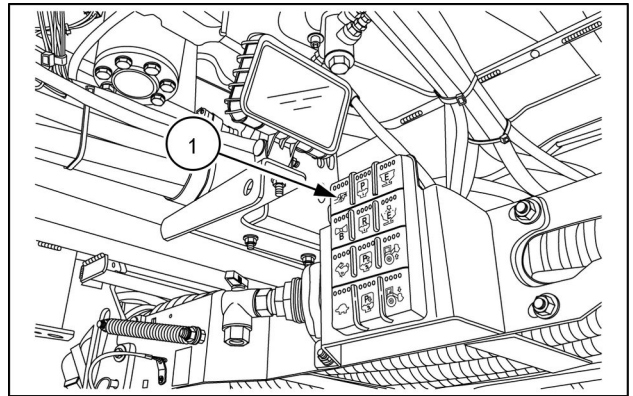
**NOTE:** Shut all the boom controls off before operating the chemical eductor.

1. Fill the product tank with **757 – 1893 l (200 – 500 US gal)** of water..
2. Unlatch and lower the chemical eductor down to the operating position.
3. Press product tank sump button **(1)** to open the product tank sump.



RAIL17SP00859AA 1

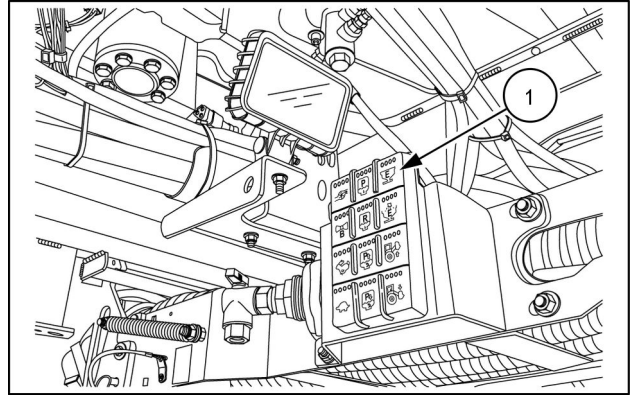
4. Press product pump button **(1)** to start the product pump and maintain at least **50 psi** system pressure.



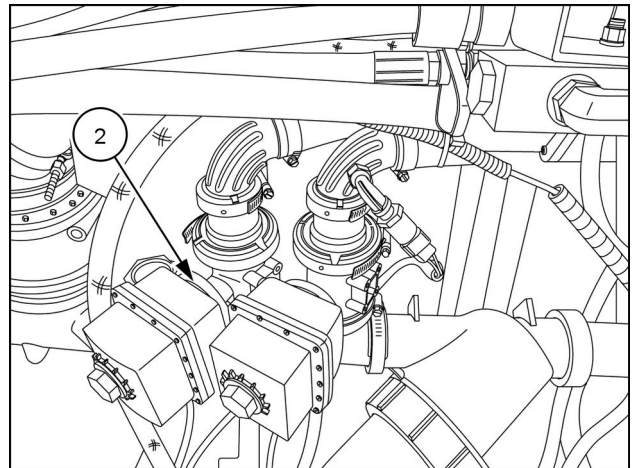
RAIL17SP00859AA 2

## 6 - WORKING OPERATIONS

5. To operate the eductor, on the side of the quick fill snorkel, locate the eductor switch **(1)** on the key pad. Actuate the switch to close the dump valve, increase the hydraulic flow to the product pump to 100%, open the valve to the tank, and move the throttle to the mid range. The pressure side valve **(2)** for the eductor will open when the eductor switch on the key pad is activated located between the eductor and the product pump.

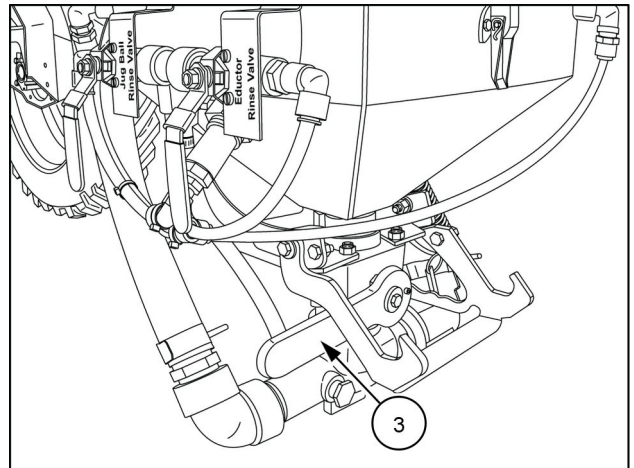


RAIL17SP00859AA 3



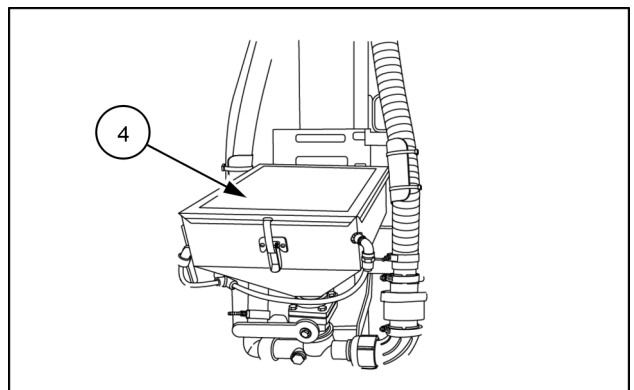
RAIL18SP00242AA 4

6. To transfer chemical from the eductor to the product tank, open the main valve **(3)** on the front of the eductor.



RAIL12SP01171AA 5

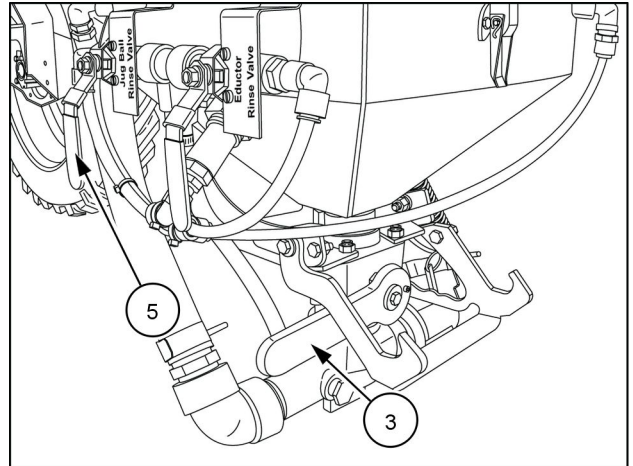
7. Open the lid **(4)** of the eductor and carefully fill with required amount of chemical.



RAIL18SP00797AA 6

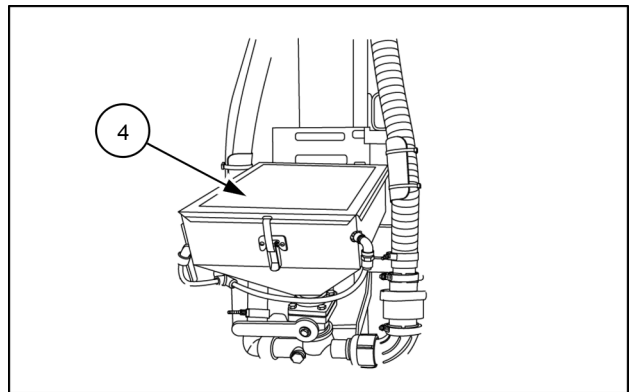


8. To rinse the chemical jug, place the jug over the rinse ball inside the eductor. With the pressure side valve and main eductor valve **(3)** open, use the jug rinse valve **(5)** to rinse the inside of the container.



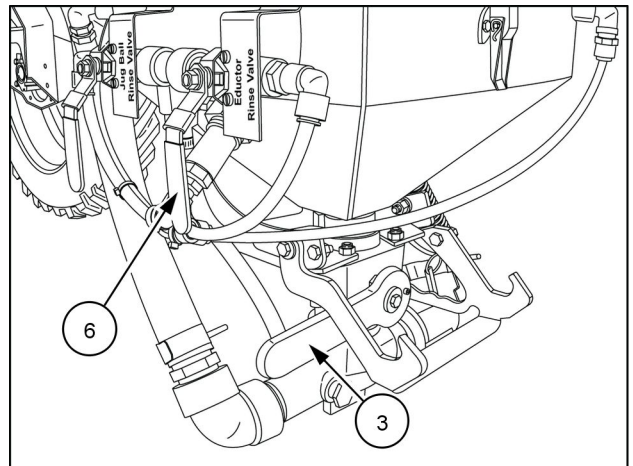
RAIL12SP01171AA 7

9. Close the eductor lid **(4)** when all chemicals have been transferred and for rinsing the inside of eductor.



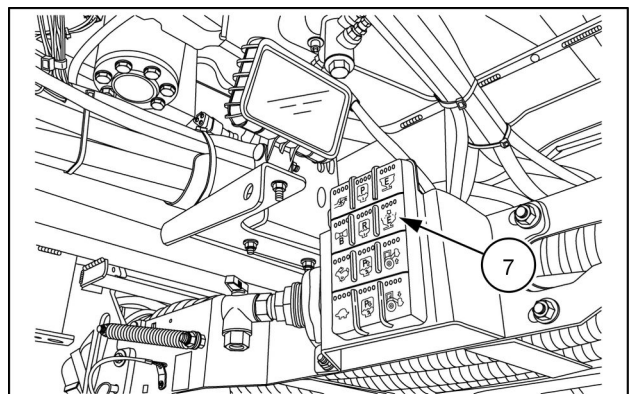
RAIL18SP00797AA 8

10. With the product pump running and the pressure side valve and main eductor valve **(3)** open, the inside of the eductor can be rinsed with the eductor rinse valve **(6)** on the side of the eductor. Be sure lid is closed during rinsing of eductor.



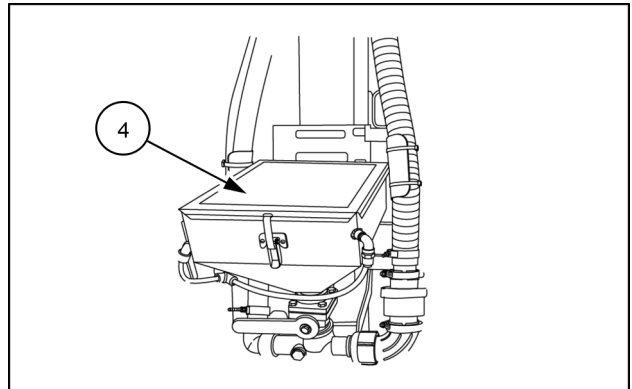
RAIL12SP01171AA 9

11. To supply clean water for rinsing, touch the eductor rinse button **(7)** on the key pad to turn the electric rinse pump (if equipped) on.



RAIL17SP00859AA 10

12. When transfer of chemicals and rinsing is complete, close all eductor valves. Turn off the eductor rinse on the key pad. Press the eductor button on the key pad to turn the eductor system off.
13. Close and latch the eductor lid **(4)**. Latch the eductor up in the transport position before moving the sprayer.

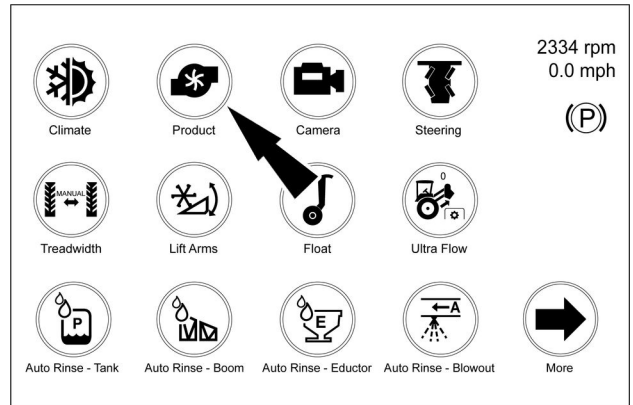


RAIL18SP00797AA 11

# Agitating the product tank

## Product circuit icon and screens

From the armrest first home display touch the product icon to bring up the product screen.

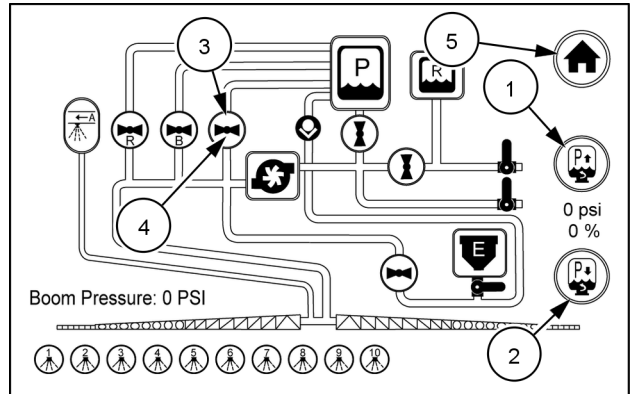


RAIL18SP00852FA 1

From this screen you can adjust the sparge pressure up or down as needed by touching the sparge up icon (1) or sparge down icon (2) to prevent foaming in the product tank and to keep the chemical in suspension. You can also adjust the sparge by touching the sparge valve icon (3) to open or close the valve.

When a valve is open, the icon will turn green and be parallel with the flow in that line. When a valve is closed (4) it will turn red and be perpendicular to the flow in that line.

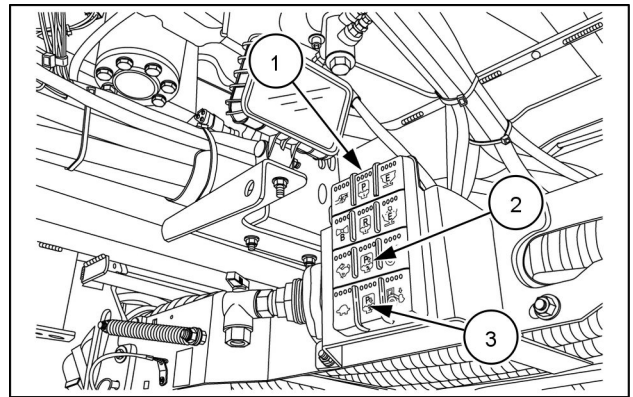
Once all the settings are complete, touch the "Home" icon (5) to return to the home page.



RAIL17SP00183AA 2

The sparge can also be adjusted up or down by using the remote key pad (1) mounted to the side of the fast fill snorkel at the front of the frame. Touch the sparge increase button (2) to increase the sparge pressure. As the sparge increases the four lights at the top of the button will illuminate in sequence to show increase in pressure. refer to the table for these percentages. These lights will correspond with the percentage on the screen.

Touch the sparge decrease button (3) to decrease the sparge pressure. As the sparge decreases the four lights at the top of the button will illuminate in sequence to show decrease in pressure. These lights will correspond with the percentage on the screen.



RAIL17SP00859AA 3

Light color combination	Percentage of sparge
Red	0–6%
Red and Yellow	7–23%
Yellow	24–41%
Yellow and Green	42–58%
Green	59–77%
Green and Blue	78–99%
Blue	100%

## IntelliSpray (optional)

**NOTE:** Refer to the software guide supplied with the system for full set-up and operating instructions.

**IntelliSpray™** uses pulse width modulation technology and standard spray tips. It works along with the rate controller to give the operator independent control of speed, flow rate and pressure. This technology provides for greater operator convenience and improved application practices.

**NOTICE:** Disconnect the power wires or pull the **IntelliSpray™** fuses at the battery before jump starting or welding on the sprayer to prevent damage to the **IntelliSpray™** components.

**NOTICE:** If the machine is equipped with **IntelliSpray™**, install 80 mesh boom strainer screens. Check boom strainers on a regular basis to keep them clean and flowing correctly.

**NOTICE:** Frequently wash the boom and valves with low pressure spray to remove dirt and fertilizer to help prevent corrosion of the valve housings. Do not wash the boom with high pressure spray; the high pressure spray can force fertilizer and other corrosive materials into connectors and housings, causing corrosion and failures.

### IntelliSpray™ Nozzle Control Valves (NCV)

Each nozzle body is equipped with a Nozzle Control Valve (NCV). The Nozzle Control Valves (NCV) control flow by varying the duty cycle (on time/off time) of the pulses, when used with a rate controller the flow control is done automatically.

Each Nozzle Control Valve (NCV) should make noticeable clicking sound and can be operated without flow to the boom section.

### Rate Controller settings

**IntelliSpray™** works with the rate controller. Use the rate controller settings as shown in Spray system operation for machines equipped with **IntelliSpray™**:

### Drift control

#### **⚠ WARNING**

##### **Chemical hazard!**

**Wear protective clothing and a face shield when working with chemicals. Do not allow chemicals to contact skin or eyes. Always follow the chemical manufacturer's instructions.**

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

W0052A

**IntelliSpray™** is designed to allow for independent flow and pressure control. This feature allows for pressures to be modified as necessary to allow droplet size changes on the go. It is best to select the target pressure to get the target droplet size desired for the product that is being used. Then, using the pressure set-point function, set the second pressure at a suitable pressure that offers coarser droplets for drift sensitive areas. This allows the target pressure and target droplet sizes to be used where efficacy is the priority and for lower pressure and larger droplets to be used when drift control is the priority.

### Coverage

**IntelliSpray™** overcomes skipping by several methods; one is that there are two control signals being used to control the pulsing Nozzle Control Valves (NCV). This allows for adjacent nozzles to be one half of a cycle out of phase. The second is to recommend 110° tips for 100% overlap. If 80° tips are selected, the boom must be operated at a height which provides 100% overlap. The third is the fact that the spray pattern fans out from the front to back as it moves from the tip to the ground, this coupled with the ground speed and wind turbulence combine to form "Blended Pulse Spraying".

### Tip selection for IntelliSpray™

Tip selection with **IntelliSpray™** is simple. **IntelliSpray™** will work with most common agricultural tips on the market with the exception of the air induction nozzles. The air venturi of these tips does not work with the rapid pulsing. Do not use air induction tips with **IntelliSpray™**.

Select the tip that allows you to spray the rate and speeds at the lowest desired spray pressure. It is important to remember that **IntelliSpray™** can only reduce the flow from a nozzle, so always oversize the nozzles. A good rule of thumb is, "Double the size (flow rate) of the spray tip you would have used, if spraying conventionally (without **IntelliSpray™**)".

Use the spray chart included in the documentation packet that came with your machine to select a spray tip for your application. Select the tip size based on rate and speed; select the tip style based on droplet size and coverage, then select tip.

Spray tip angle and tip overlap are always important; however, with **IntelliSpray™** and the pulsing nozzles they are even more important. It is recommended to use **110°** tips when possible. If **110°** tips are not available in the style you desire, **80°** tips can be used if the boom is set at a height that provides **100%** overlap of the spray pattern.

### IntelliSpray™ start up/shut down procedures

#### **⚠ WARNING**

##### **Chemical hazard!**

**Misuse including excessive application rate, uneven application, spray drift, and label violations can cause injury to crops, livestock, persons, and the environment. Follow all instructions on the container label. Always operate spray equipment according to the chemical manufacturer's instructions. Failure to comply could result in death or serious injury.**

W0053A

#### **⚠ WARNING**

##### **Avoid injury!**

**Use Personal Protective Equipment (PPE), including protective goggles, gloves, and safety footwear. Failure to comply could result in death or serious injury.**

W1036A

Start Up:

1. Start the sprayer.
2. Turn On the rate controller. Verify the Rate 1, Rate 2 and pressure response settings.
3. With the throttle at an idle, engage pump.
4. Confirm **IntelliSpray™** is in Automatic control mode.
5. Move the throttle to half.
6. Pressure should move to the pressure set point.
7. Touch the **IntelliSpray™** pressure gauge to activate soft keys on the right-hand side of the rate controller until increase (+)/decrease (-) buttons are shown. Press +/- to increase the pressure to set the desired pressure.
8. Touch the **IntelliSpray™** pressure gage again until the pressure set-point soft keys are displayed (default is **138 kPa (20 psi)** and **414 kPa (60 psi)**), pressure should move to the second pressure set point.
9. Touch the first pressure set-point soft key, the pressure should move back the first set pressure.
10. Touch the second pressure set-point soft key to return to the second set pressure.
11. Move the throttle to full, pressure should jump then return to the set point.
12. You are ready to spray. Turn On your booms and spray.

**NOTICE:** Flush the boom with clean water daily to insure proper operation of the **IntelliSpray™** Nozzle Control Valves (NCV).

Shut down:

1. Turn Off booms.
2. Turn the pump Off.
3. Turn the rate controller Off.
4. Shut Off the machine.

## Learning to use IntelliSpray™

Make sure to understand how to use the spray rate controller (see the controller operators manual).

Use the following procedure for testing the system:

1. Estimate the speed and application rate and desired spray pressure.
2. Check to see that the nozzle tips are oversized for the average rate at the above conditions.
3. Fill the tank with water, drive unit at average speed.
4. Set spray pressure at what is normally used.
5. See if the rate controller can maintain the desired rate. If not, change nozzle tips or adjust pressure to correct.
6. Use the controller to boost the application rate upward and downward to cover the desired control range. If you cannot achieve the desired range, change nozzle tips or pressure settings.
7. Once the range is set, go back to the average desired spray rate, drive along and vary the pressure to see the range of droplet sizes possible.
8. Once the pressures and rates are set, drive along and vary the ground speed. See that **IntelliSpray™** maintains the pressure and droplet size while making flow corrections for the speed changes.

## Nozzle Control Valves (NCV) troubleshooting

Plugged Nozzle Control Valves (NCV) can be classified into two categories; plunger blockage, and plunger stuck. Plunger blockage occurs when larger debris catches between the orifice and plunger seal. This is the smallest flow passage within the Nozzle Control Valve (NCV). Stuck plungers occur when smaller debris collects around the barrel of the plunger and binds the plunger in place. Symptoms of a blocked or stuck plunger are; constant spray, and dripping when the nozzle is shut off. Pinched or split O-rings will also cause the nozzles to drip when shutoff.

Operating a plugged Nozzle Control Valve (NCV) for an extended period of time may result in a Nozzle Control Valve (NCV) coil failure. Immediately clean any plugged Nozzle Control Valves (NCV). If plugged nozzles or nozzle valves are a frequent problem in a particular boom section, inspect the machine's boom filter screens for plugged or damaged screens. An 80 mesh screen is recommended to reduce occurrence of plugged valves. Check the mesh size of the strainers and replace strainers if they are too coarse or damaged. Reference **IntelliSpray™** operator manual for additional nozzle solenoid diagnostics and troubleshooting details.

## Nozzle Control Valve (NCV) cleaning

### ⚠ WARNING

#### Chemical hazard!

**Wear protective clothing and a face shield when working with chemicals. Do not allow chemicals to contact skin or eyes. Always follow the chemical manufacturer's instructions.**

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

W0052A

### ⚠ WARNING

#### Pressurized system!

**System is still under pressure. Release pressure according to instructions in this manual.**

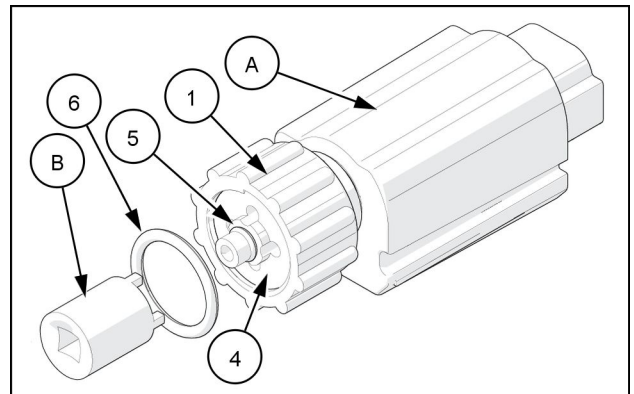
**Failure to comply could result in death or serious injury.**

W1044A

1. Turn the rate controller off.
2. Disengage the product pump.
3. Turn off the engine and remove the key from the unit.
4. Release the pressure from the sprayer lines by slowly loosening a sprayer bar end cap, opening a flushing valve, or similar fitting.

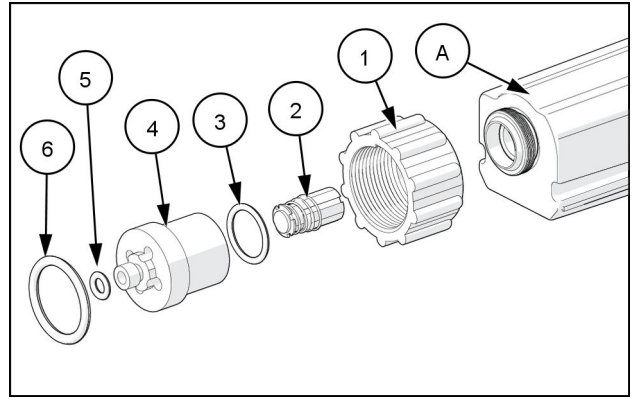
**NOTE:** Before removing or installing nozzle valves, ensure that the pressure has been released from the sprayer lines.

5. Loosen the fly nut (1) and remove the nozzle control valve (A) from the nozzle body.



RAIL16SP00353AA 1

6. Inspect the large O-ring **(6)** on the face of the valve body **(4)**. Replace if necessary.
7. Inspect the small O-ring **(5)** on the tip of the valve body **(4)**. Replace if necessary.
8. Using a valve body removal tool **(B)**, loosen and remove the valve body **(4)** from the nozzle control valve.
9. Inspect the O-ring **(3)** on the inside of the valve body. Replace if necessary.
10. Clean and inspect the plunger assembly **(2)**. Replace the plunger assembly if the rubber seal is worn or damaged. Refer to the following section on plunger seal inspection.
11. Inspect fly nut **(1)**. Replace if worn or damaged.
12. Remove any debris from the nozzle components by washing the components in clean water. Reassemble the nozzle components



RAIL16SP00352AA 2

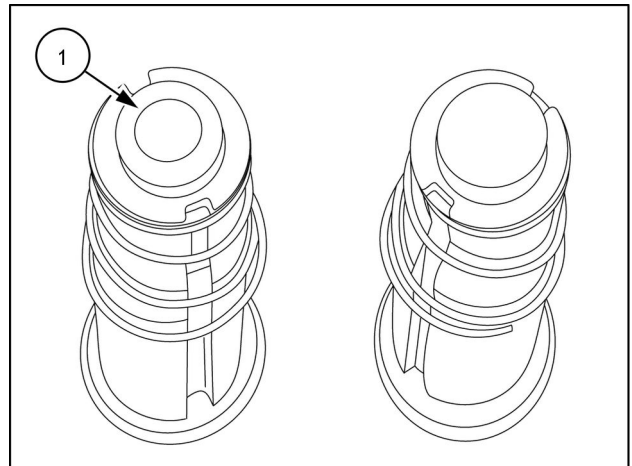
**NOTE:** Refer to ISO Product Control operation manual for additional maintenance and testing procedures.

**Plunger seal inspection**

After extended use, the soft plunger seal **(1)** will develop a wear groove at the location where the seal impacts the hard orifice seat.

As the groove deepens, the pressure capacity of the valve will decrease until it interferes with the operating pressure of the sprayer.

The system will operate normally at lower pressures until replacement parts can be acquired. High operating pressures and abrasive spray solutions will accelerate the wear of the plunger seal material.



RAIL13SP04058AA 3



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## Clean up at end of operation

**NOTE:** It is recommended that the sprayer be washed after the application of any pesticides, herbicides, fungicides, etc. Wash the sprayer to reduce the potential of operators coming in contact with the pesticides, herbicides, fungicides, etc.

**NOTICE:** If using a pressure washer to clean the vehicle, be careful not to pressure wash the node areas under the cab or the electrical box containing nodes on the frame next to the engine. The node areas are identified by a decal stating do not pressure wash.

Chemicals cause corrosion. It is also dangerous to allow certain chemicals to contaminate each other. Therefore, thorough clean up is required at the end of each operation.

1. The first step to simplify clean up problems, is to plan to use up all the chemical in the tank at the end of the spraying job. If all the chemical is not used up, you must drain the product from the product tank. Connect a feeder hose to the "product tank fast-fill" coupler. Close the boom valves. Open the "product tank fast-fill" valve and drain the chemical back into a suitable sized tank or container. Small amounts of chemical can be drained back into containers/tank for temporary storage. Close the product tank fast-fill valve.
2. After the product tank is empty, Close the main product tank sump valve. Open the rinse tank valve, but leave the boom valve closed.
3. Open the rinse line valve and turn on the product pump. This will force clear water through the rinse tube to the top of the product tank and wash down the sides of the tank. Then close the rinse line valve and open the sparge valve to clean the sparge lines. When you have enough rinse water in circulation, shut off the rinse tank valve, eductor valve and by pass valve. Conserve the clean rinse water in the rinse tank because it may be necessary to repeat the rinse cycle several times.
4. Thoroughly rinse the chemical eductor if so equipped by opening the eductor valve and the pressure side valve between the product pump and eductor.
5. Shut off both the rinse and sparge lines and open the boom valve. Open the sump valve and pump the rinse water from the product tank, through the product pump, boom lines and nozzles. Always spray the rinse on the field. Keep the chemical product in the field where it was used.
6. Start over with Step 2 and rinse again. Do this thoroughly. Some chemicals cannot be contaminated with each other and it is usual in these cases to do the rinse procedure five to six times, using up all the water in the rinse tank.
7. If this is an end of the season clean up, drain the product tank sump completely by removing the drain plug or hose in the sump. Remove the bottom volute pipe plug from the bottom of the pump to drain the pump completely. Crack open the end drains on the boom pipes and remove the drain plugs in the boom line filters to remove all liquid. Remove the drain plug from the "Y" strainer to drain the strainer.
8. If conditions are freezing, you may want to charge the lines with **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F**. Add the antifreeze to the rinse tank, per label instructions. First pump the antifreeze with the rinse tank, sparge line and rinse lines, eductor lines and by pass lines open. Keep all the boom valves closed. Then open the boom valves and pump until the **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** comes out of the spray nozzles. All wet system lines should now be charged. Close the boom valves.
9. Rinse the foamer reservoir with water and drain completely. Drain the complete foamer system.
10. If conditions are freezing, add **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** to the tank. Do not use windshield washer fluid because it can clog the foamer. Turn on machine and system until antifreeze reaches each foam head.

### Flush product pump after use

**NOTICE:** To avoid damage to the pump, NEVER run the pump dry. Always be sure there is liquid in the pump before starting.

One of the most common causes for faulty pump performance is "gumming" or corrosion inside the pump. Flush the pump and entire system with a solution that will chemically neutralize the liquid pumped. Mix according to the manufacturer's directions. This will dissolve most residue remaining in the pump, leaving the inside of the pump clean for the next use.

After cleaning the pump as directed above, flush it with **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F**. Plug the ports to keep out air during storage. For short periods of idleness, noncorrosive liquids may be left in the pump, but air must be kept out. Plug the ports or seal the port connections.

## Auto-rinse operation (if equipped)

### ⚠ CAUTION

#### Chemical hazard!

Wear protective clothing and a face shield when working with chemicals. Do not allow chemicals to contact skin or eyes. Always follow the chemical manufacturer's instructions. Failure to comply could result in minor or moderate injury.

C0101A

### ⚠ CAUTION

#### Hazardous chemicals!

Drain the machine only after it has been rinsed. Rinse the machine while still in the field. Never contaminate the farmyard or drainage system with rinse. Spray the rinse water thinly over the field you already sprayed. Failure to comply could result in minor or moderate injury.

C0040A

**NOTICE:** Lower booms all the way down and completely unfold booms before rinsing.

**NOTICE:** The operator is responsible for the cleanliness of the sprayer circuit and for the full rinsing of the system.

**NOTICE:** The sprayer must have the engine running to perform any of the Auto-rinse functions.

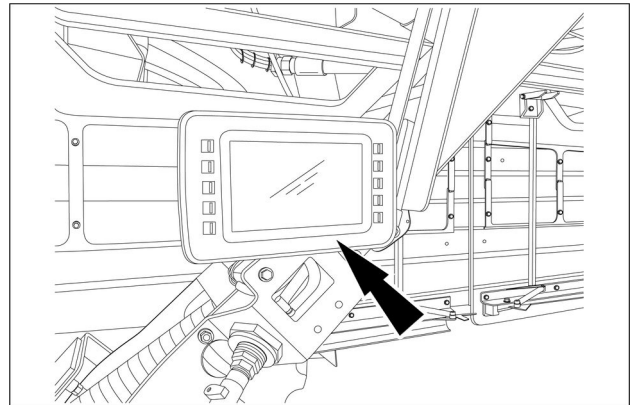
**NOTICE:** Fill the rinse tank with clean water before you perform the rinse functions.

**NOTICE:** When using the Auto-rinse display panel to perform rinsing functions, attach the product tank fill hose to appropriate supply/discharge equipment.

Emptying the rinse water from the product tank will be performed through the product tank fill hose.

## Auto-rinse display operation

The Auto-rinse display panel is located on the side of the drop down quick fill carrier at the front of the frame..

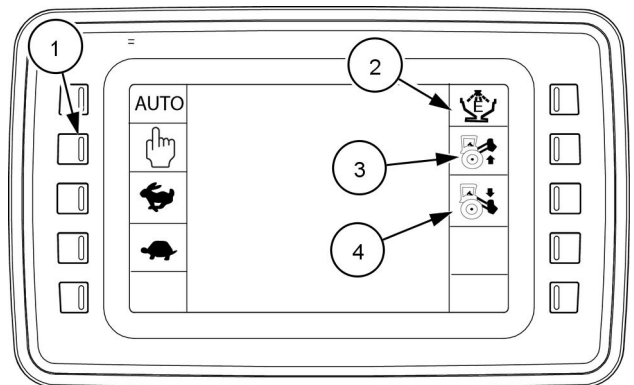


RAIL18SP00853FA 1

## Manual mode

Press the Manual mode auto-rinse button (1) to place the auto-rinse function into the manual mode. The Product circuit screen displays.

There are three icons on the right-hand side of the screen. They are eductor wash (2), remote lift arm raise (3), and remote lift arm lower (4). Refer to 3-51 for button operation.



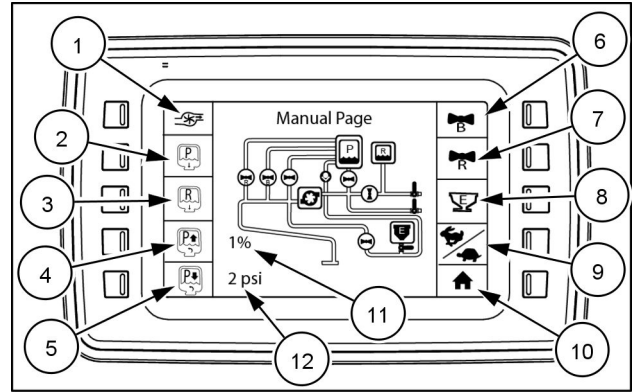
RAIL17SP01569FA 2

The Manual control mode product circuit page provides the operator with the means of controlling the rinsing system manually.

Press the desired rinse buttons to manually control product tank rinse or Eductor rinse.

The rinse function buttons present on the display control are:

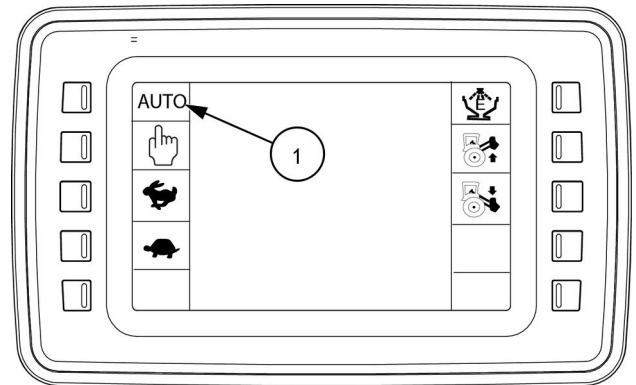
1. Product pump start/stop
2. Product tank sump valve
3. Rinse tank sump valve
4. Product tank sparge open
5. Product tank sparge closed
6. Bypass valve open/close (if equipped)
7. Rinse valve open/close
8. Eductor valve open/close
9. Throttle up/down
10. Home button
11. Sparge position (monitoring only)
12. Sparge pressure (monitoring only)



RAIL17SP01594AA 3

### Auto Mode

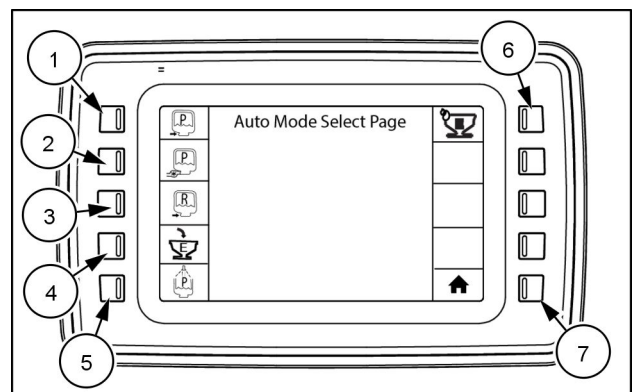
Operate the auto-rinse in the automatic mode by pressing the AUTO button (1) on the Auto-rinse display panel. The AUTO page displays.



RAIL17SP01569FA 4

The functions availability on the Auto Mode select page are:

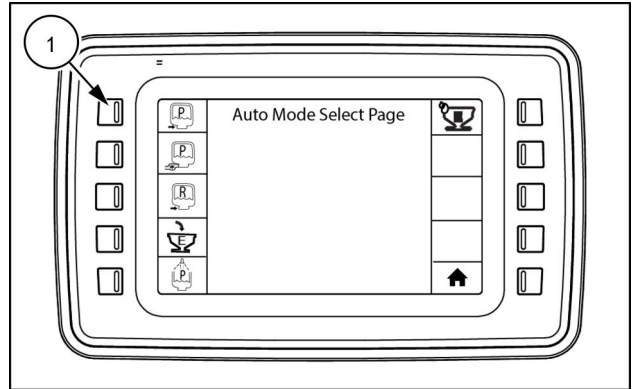
1. Product tank filling with external pump
2. Product tank filling with product pump
3. Rinse tank filling with external pump
4. Eductor function (if equipped)
5. Product tank rinse
6. Eductor wash (if equipped)
7. Home button



RAIL17SP01570AA 5

### Product tank filling with external pump

Press the Product Tank filling button (1). The Filling Product Tank screen displays.

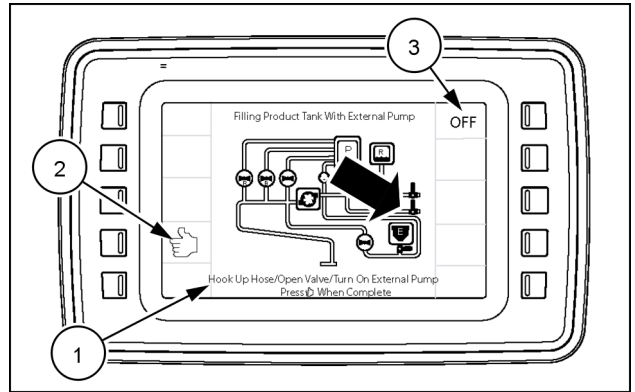


RAIL17SP01570AA 6

Filling the product tank will require the operator to hook a hose to the product tank fill hose, open the product tank fill valve, turn on the external pump.

The operator will be prompted on the screen to meet the conditions (1). Once the conditions are met, the operator must press the thumbs-up button (2).

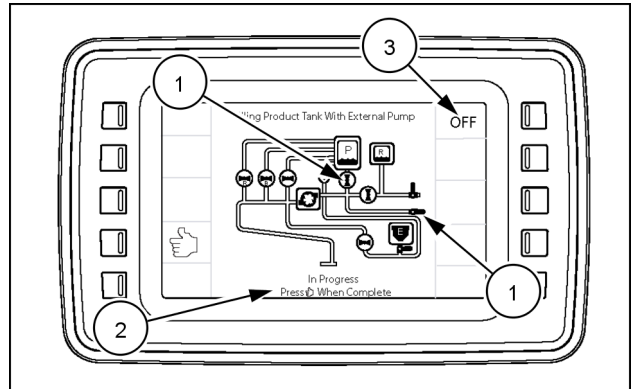
**NOTICE:** Pressing the OFF key (3) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01590AA 7

The product tank will begin filling from the external source. The screen will show the product tank valves open (1), as well as the "In Progress" note (2) indicating filling progression. Press the Thumbs-up button when the product tank is full. The Fill Complete screen appears.

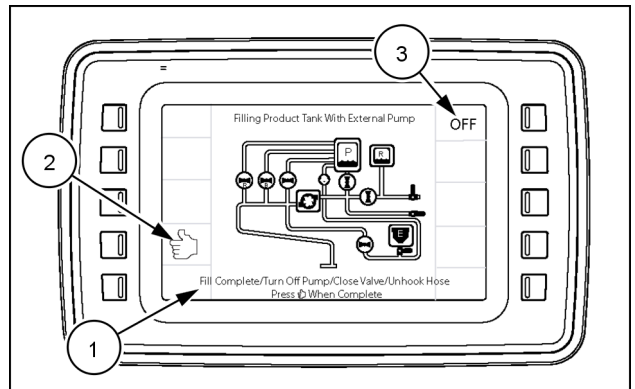
**NOTICE:** Pressing the OFF key (3) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01606AA 8

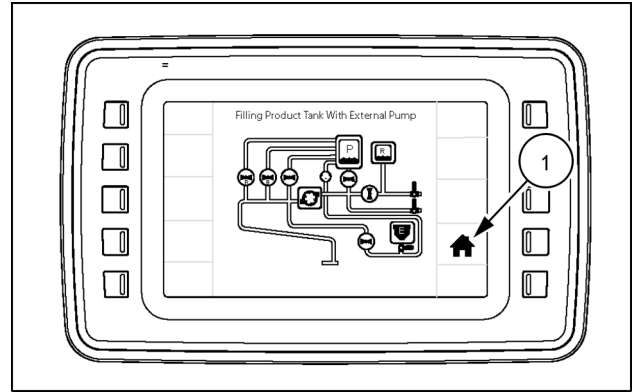
The screen will prompt the operator to turn off the pump, close the valve, unhook the hose (1), and then press the thumbs-up button (2) to indicate that the filling process is complete.

**NOTICE:** Pressing the OFF key (3) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01607AA 9

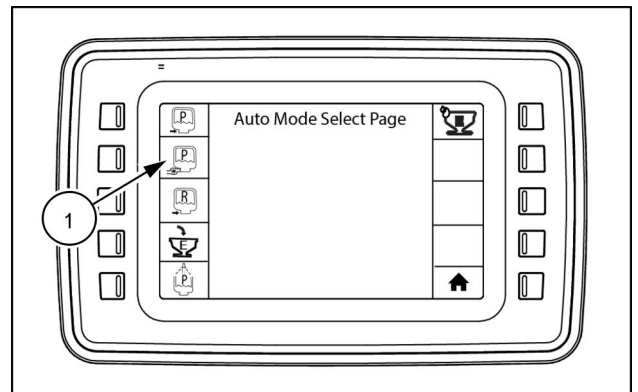
The display will return to the home state. Press the Home button **(1)** to return to the Auto-rinse screen.



RAIL17SP01608AA 10

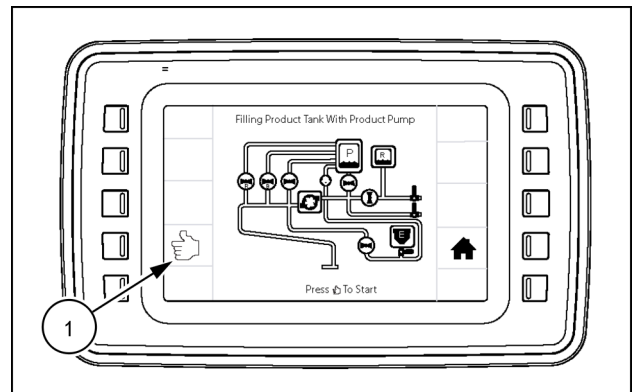
**Product tank filling with product pump.**

Press the fill with product pump button **(1)**. The Filling Product Tank screen displays.



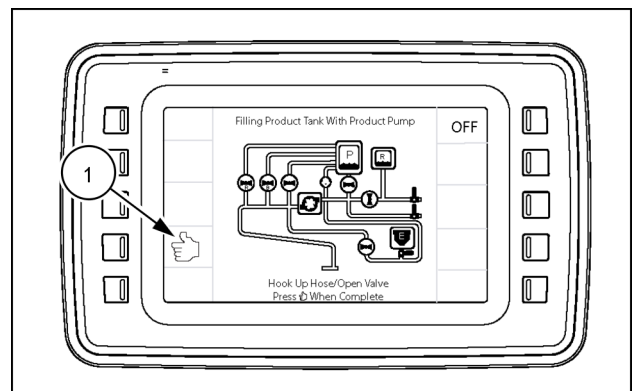
RAIL17SP01570AA 11

Press the thumbs-up button **(1)**. The Prompt screen displays with the conditions listed at the bottom.



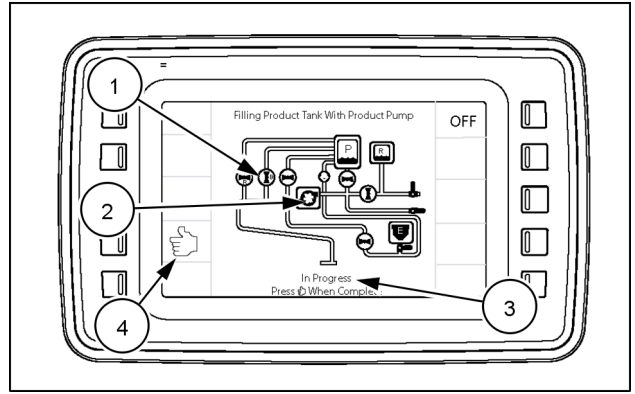
RAIL17SP01609AA 12

Once the conditions listed at the bottom of the screen are met, press the thumbs-up button **(1)**.



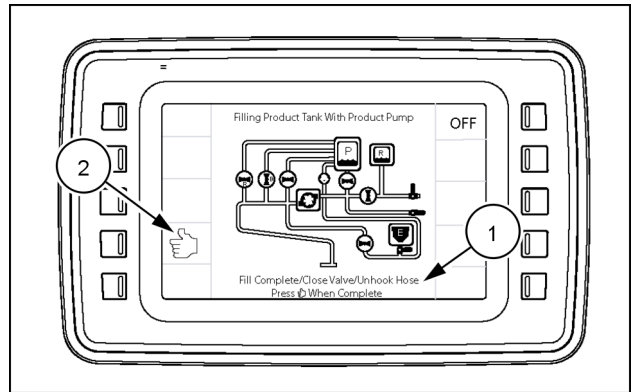
RAIL17SP01610AA 13

The display will indicate that the bypass valve is open (1), the pump (2) is on and process is in progress (3). When the process is complete, press the thumbs-up button (4). The process complete screen displays.



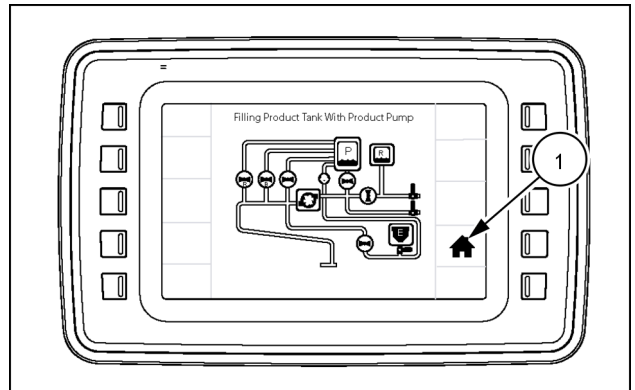
RAIL17SP01611AA 14

Be sure the pump is primed before self filling. The operator is prompted to complete the conditions listed at the bottom of the screen (1). Press the thumbs-up button (2) once the conditions are completed. The product page will display.



RAIL17SP01612AA 15

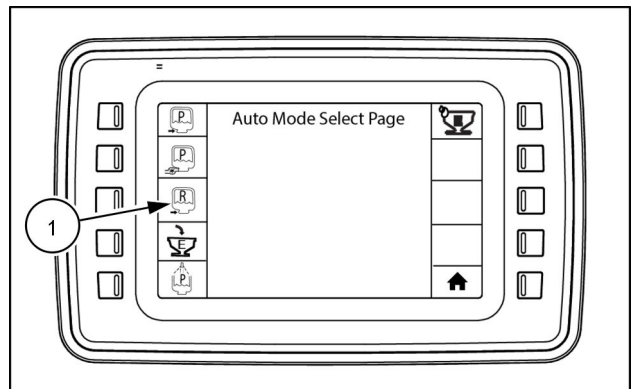
Press the Home button (1) to return the display to the Auto-rinse page.



RAIL17SP01613AA 16

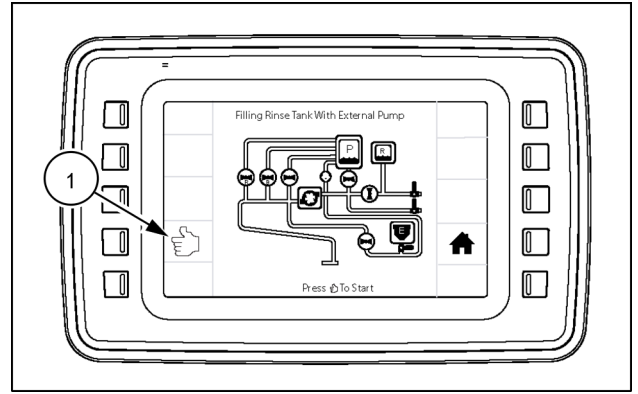
### Rinse tank filling with external pump

Press the fill with external pump button (1). The Filling Rinse Tank With External Pump screen displays.



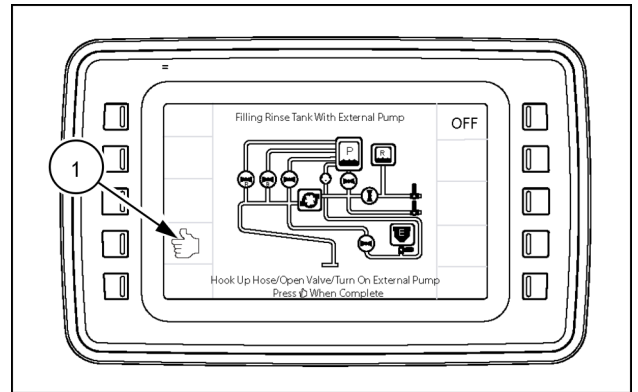
RAIL17SP01570AA 17

Press the thumbs-up button (1). The prompt screen displays with the conditions listed at the bottom.



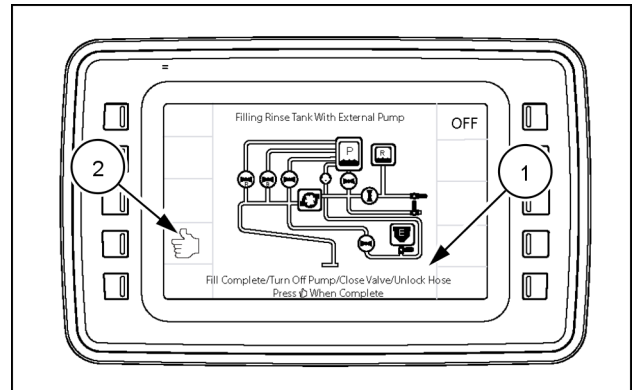
RAIL17SP01614AA 18

Once the conditions listed at the bottom of the screen are met, press the thumbs-up button (1).



RAIL17SP01615AA 19

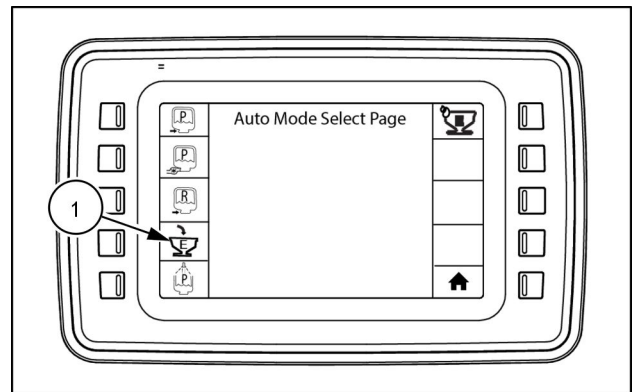
The operator is prompted to complete the conditions listed at the bottom of the screen (1)  
Press the thumbs-up button (2) once the conditions are completed. The Auto-rinse page will display.



RAIL17SP01616AA 20

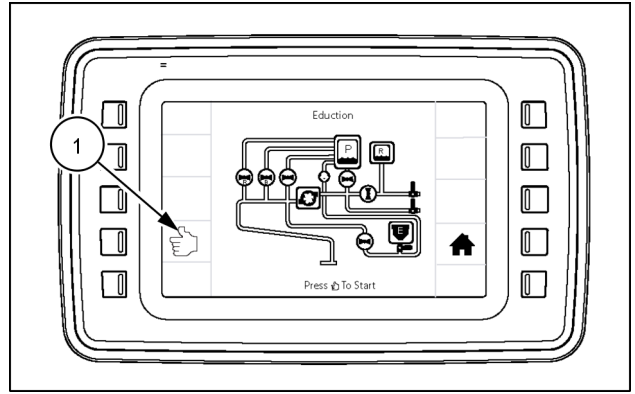
### Eductor function

Press the Eductor function button on the Auto-rinse page. The Education page displays.



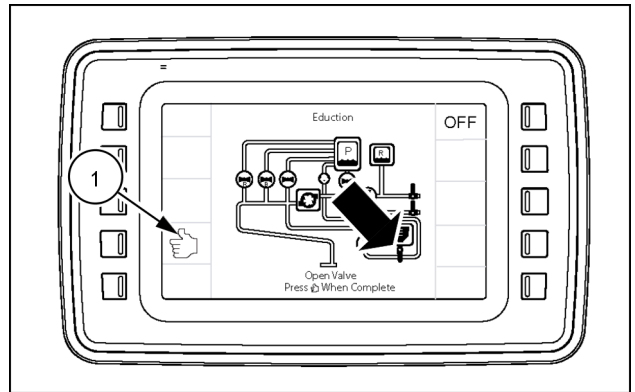
RAIL17SP01570AA 21

Press the thumbs-up button **(1)** to begin the education process. The prompt screen displays with the conditions listed at the bottom.



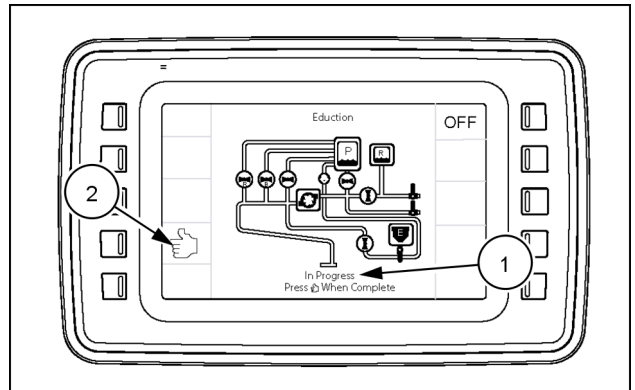
RAIL17SP01617AA 22

Once the conditions listed at the bottom of the screen are met, press the thumbs-up button **(1)**.



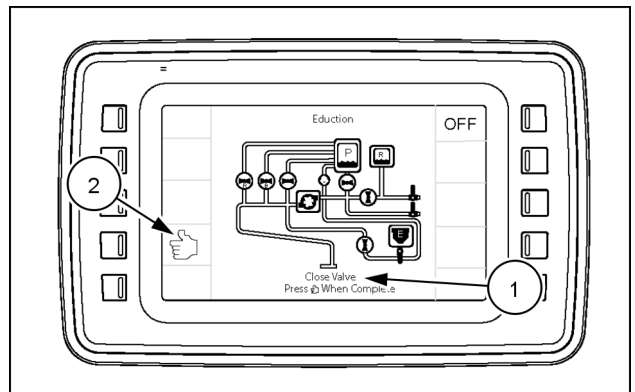
RAIL17SP01618AA 23

The display will show In Progress **(1)**. Press the thumbs-up button **(2)** when the process is complete.



RAIL17SP01619AA 24

The operator is prompted to complete the conditions listed at the bottom of the screen **(1)**  
 Press the thumbs-up button **(2)** once the conditions are completed. The Auto-rinse page will display.

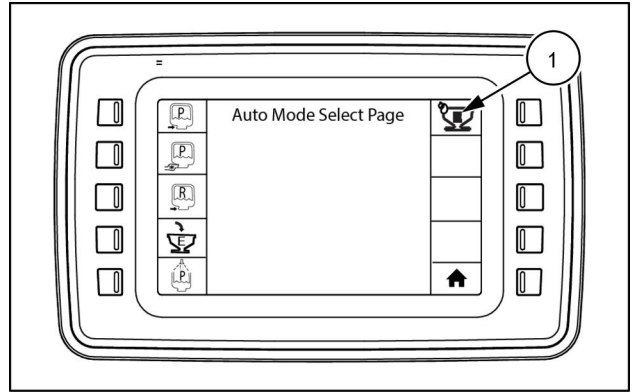


RAIL17SP01620AA 25



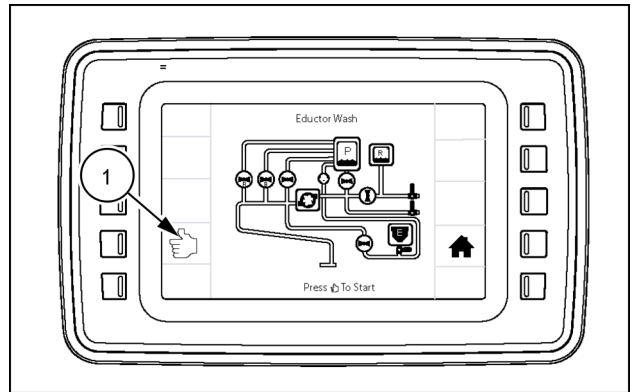
### Eductor wash

Press the eductor rinse button **(1)**. The Eductor wash page displays.



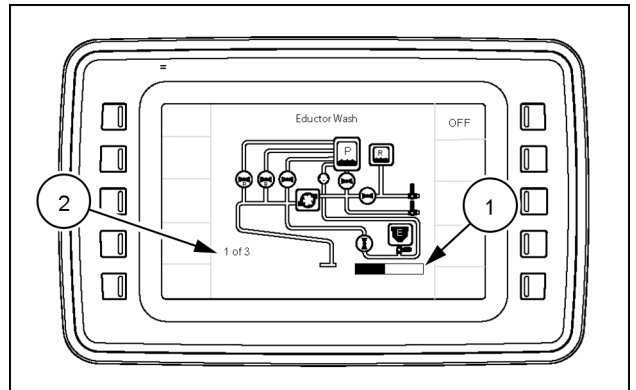
RAIL17SP01570AA 26

Press the thumbs-up button **(1)** to begin the process.



RAIL17SP01621AA 27

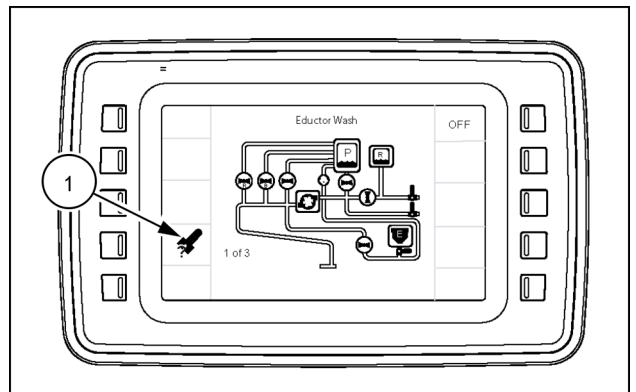
The progression page will display, showing the progression bar **(1)** and step 1 of 3 wash cycles **(2)**.



RAIL17SP01622AA 28

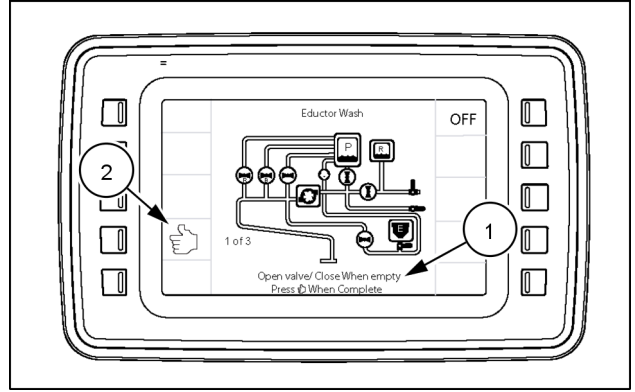
When the first wash cycle is complete, press the valve button **(1)**. The prompt screen displays with the conditions listed at the bottom.

**NOTICE:** This operation will place potentially chemical filled water on the ground.



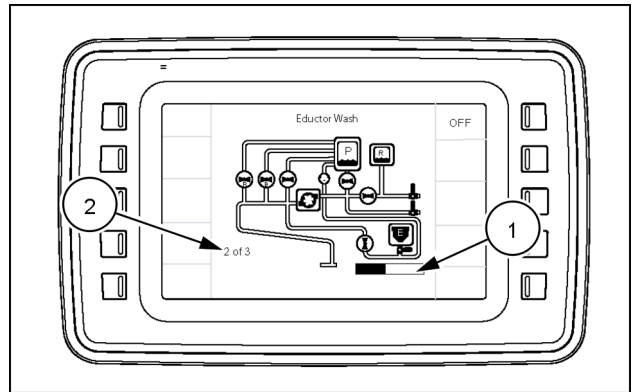
RAIL17SP01623AA 29

The operator is prompted to complete the conditions listed at the bottom of the screen **(1)**  
 Press the thumbs-up button **(2)** once the conditions are completed. The progression page will display.



RAIL17SP01624AA 30

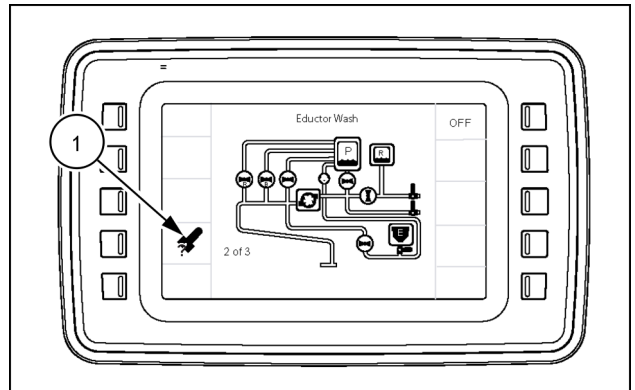
The progression page will display, showing the progression bar **(1)** and step 2 of 3 wash cycles **(2)**.



RAIL17SP01625AA 31

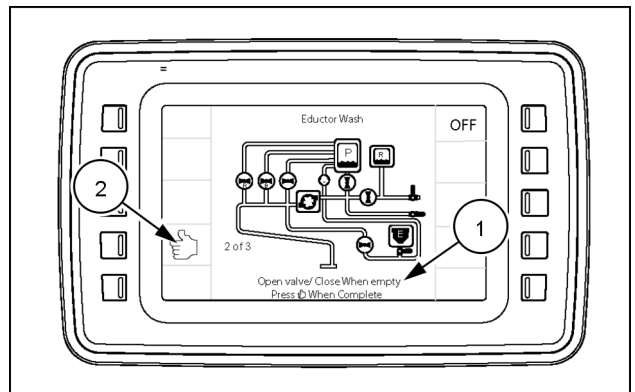
When the second wash cycle is complete, press the valve button **(1)**. The prompt screen displays with the conditions listed at the bottom.

**NOTICE:** This operation will place potentially chemical filled water on the ground.



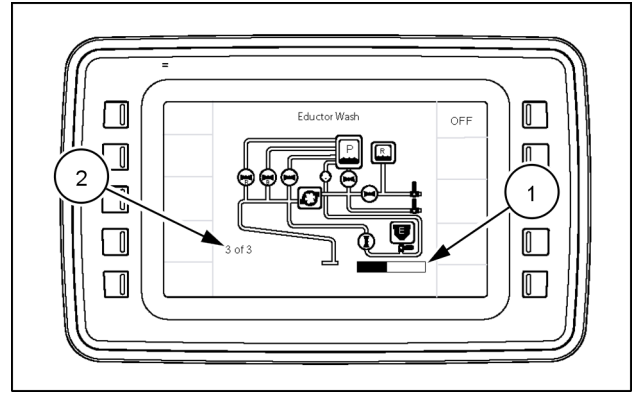
RAIL17SP01626AA 32

The operator is prompted to complete the conditions listed at the bottom of the screen **(1)**  
 Press the thumbs-up button **(2)** once the conditions are completed. The progression page will display.



RAIL17SP01627AA 33

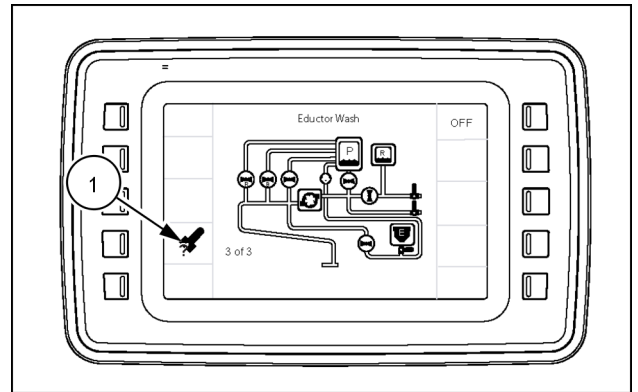
The progression page will display, showing the progression bar (1) and step 3 of 3 wash cycles (2).



RAIL17SP01628AA 34

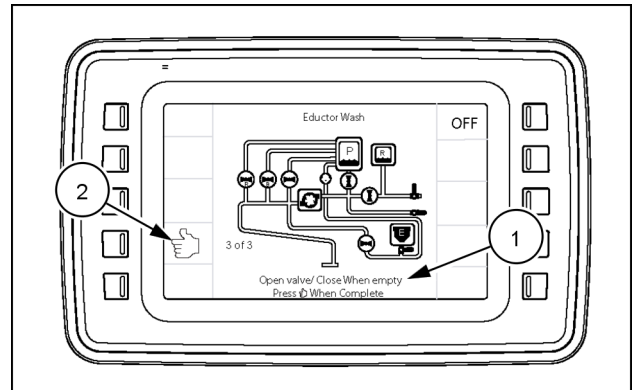
When the third wash cycle is complete, press the valve button (1). The prompt screen displays with the conditions listed at the bottom.

**NOTICE:** This operation will place potentially chemical filled water on the ground.



RAIL17SP01629AA 35

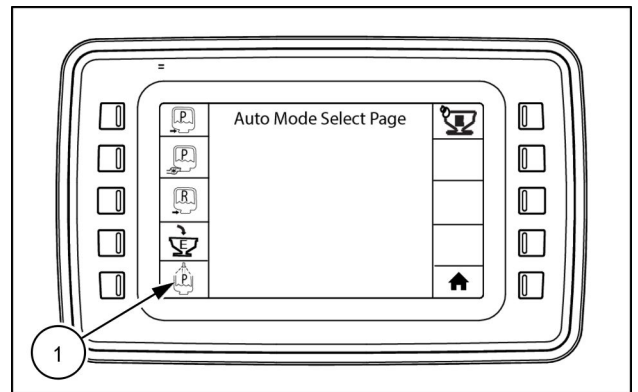
The operator is prompted to complete the conditions listed at the bottom of the screen (1). Press the thumbs-up button (2) once the conditions are completed. The complete page will display. Press the Home button to return to the Auto-rinse page.



RAIL17SP01630AA 36

### Product tank rinse

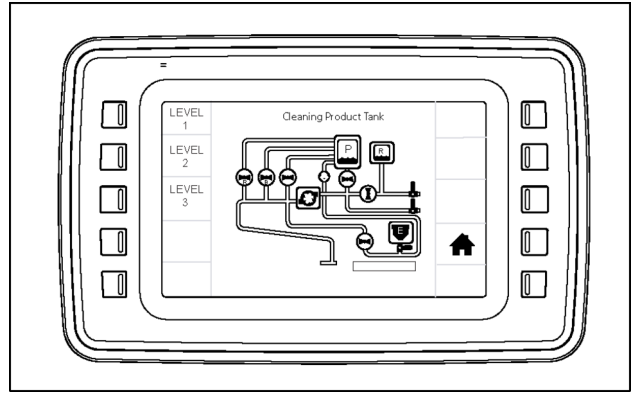
Press the product tank rinse button (1). The Product tank rinse page displays.



RAIL17SP01570AA 37

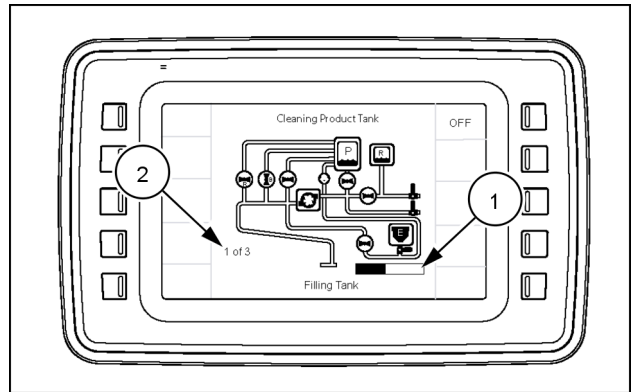
Select the preferred cleaning level 1, 2, or 3. Each level of cleaning is more intense than the next. Press the level one button. The time duration of each level can be changed.

Refer to **6-66** for setting procedure.



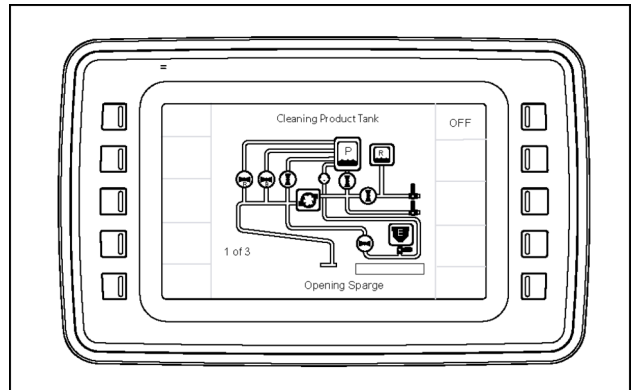
RAIL17SP01631AA 38

The progression screen will display showing progress bar (1) and step 1 of 3 rinse cycles (2).



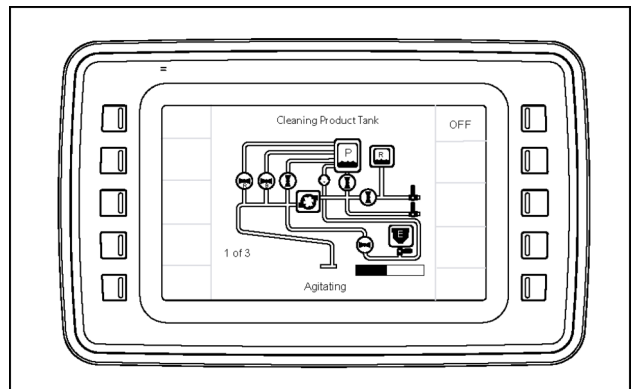
RAIL17SP01632AA 39

Once the rinse is complete, the open sparge process screen displays.



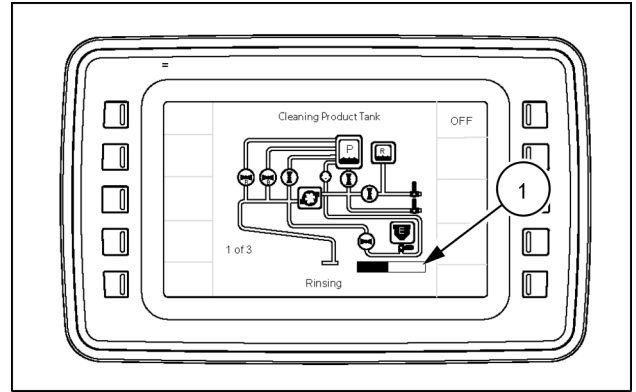
RAIL17SP01633AA 40

Once the tank is filled with clean water the cycle advances to the agitating cycle.



RAIL17SP01634AA 41

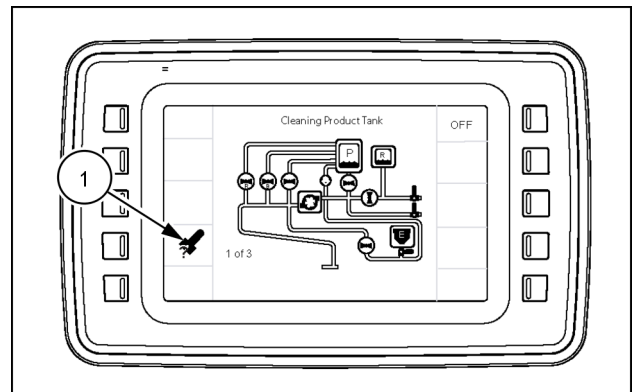
The cycle continues to the opening sparge step and then to the rinsing step of the cycle. The rinsing step progress is indicated by the progress bar (1).



RAIL17SP01635AA 42

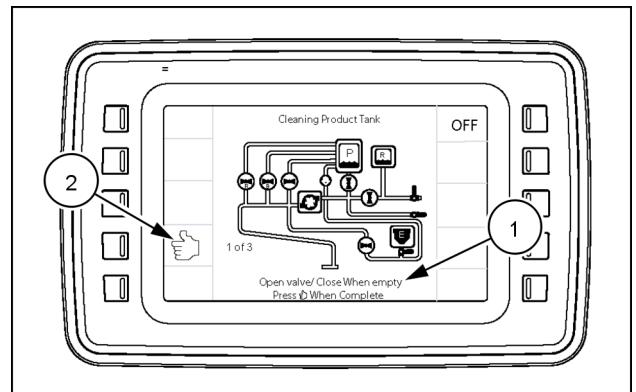
Once the rinse cycle is complete the cycle stops and the valve screen displays. Press the valve button (1). The prompt screen displays with the conditions listed at the bottom.

**NOTICE:** This operation will place potentially chemical filled water on the ground.



RAIL17SP01636AA 43

The operator is prompted to complete the conditions listed at the bottom of the screen (1). Press the thumbs-up button (2) once the conditions are completed.



RAIL17SP01637AA 44

Once the thumbs-up button is pressed, the system will cycle to the second cycle of the product tank rinsing. Follow the steps from the beginning of the first rinse cycle through to completion to perform the second rinsing cycle.

Once the thumbs-up button is pressed after the second rinse cycle, the system will cycle to the third cycle of the product tank rinsing. Follow the steps from the beginning of the first rinse cycle through to completion to perform the third rinsing cycle.

### Auto rinse using the armrest display

**NOTICE:** Lower booms all the way down and completely unfold booms before rinsing.

**NOTICE:** Fill the rinse tank with clean water before you perform the rinse functions.

**NOTICE:** The operator is responsible for the cleanliness of the sprayer circuit and for the full rinsing of the system.

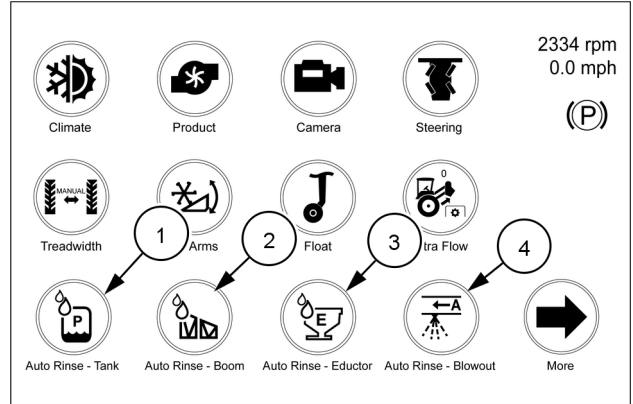
### Product tank auto rinse

From the arm rest display first home screen page, press the Auto Rinse – Tank button (1). The operator is responsible for the cleanliness of the sprayer circuit and for the full rinsing of the system.

The lower icons (1), (2), (3), and (4) will not appear without the lower display installed.

**NOTICE:** The PWM Pump value and the PWM Nozzle value must each be set at 50. Set each value through the spray control monitor.

**NOTICE:** When the Auto-rinse function is in operation the icons on the armrest switch panel will turn red indicating that the switches have no present function. This is because the sprayer circuit is in the automatic mode.



RAIL18SP00852FA 45

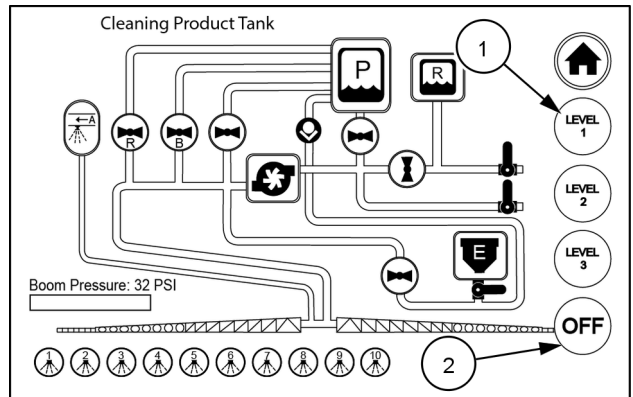
From the Cleaning Product Tank screen, press the desired rinsing level (1) button. The higher the Level number equals a longer rinsing cycle. The rinse level selection is dependant upon the chemical needing to be rinsed from the system.

The duration of each level can be changed. Refer to 6-66 for setting procedure.

When choosing the rinse level, the operator must be aware of the amount of rinse water in the rinse tank. Higher level rinsing will require more rinse water.

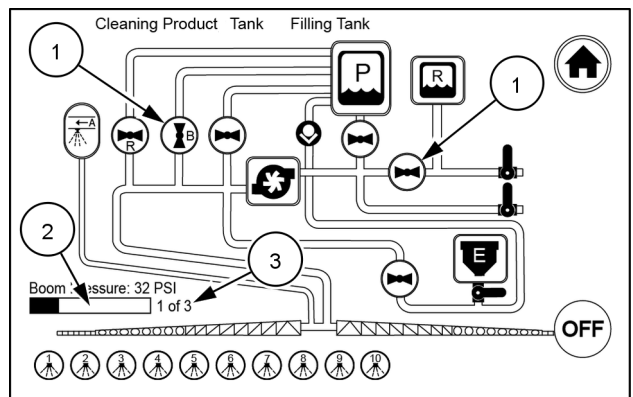
Press the Level 1 button (1). The Tank rinsing process will begin.

At any time, the operator may press the OFF button (2) to stop the rinsing process.



RAIL17SP01573AA 46

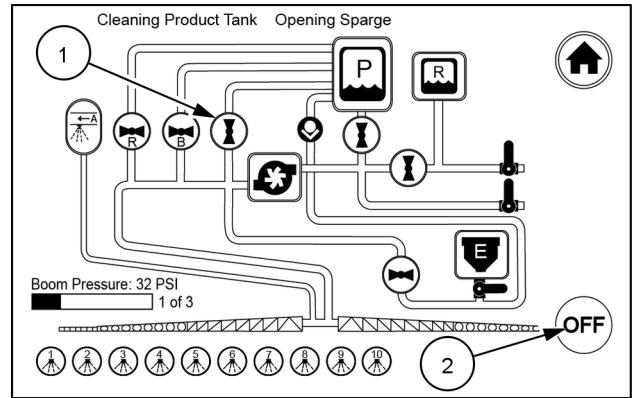
The Tank filling screen displays. The appropriate valves will open or close (1), the progress bar (2) will display the Level 1 process progression, and the process level (3) will be indicated as 1 of 3, meaning that the rinsing process is one of three rinsing cycles.



RAIL17SP01574AA 47

After the rinse tank is filled, the Opening Sparge screen displays. The Sparge valve (1) will open.

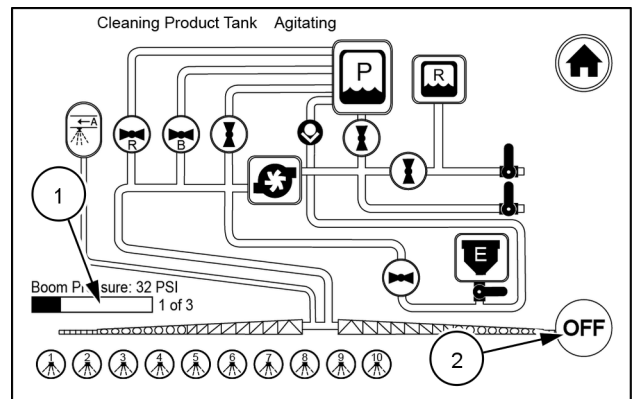
**NOTICE:** Pressing the OFF key (2) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01575AA 48

After the Sparge valve is opened the Agitating screen will display. The progress bar (1) will indicate the agitating, or rinsing, progress.

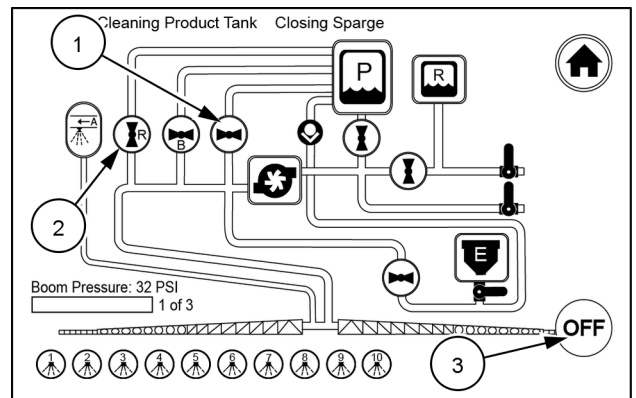
**NOTICE:** Pressing the OFF key (2) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01576AA 49

After the rinse water in the product tank has been agitated, the Sparge valve (1) will close and the Rinse valve (2) will open.

**NOTICE:** Pressing the OFF key (3) at any time will close all valves, stop the pump, and rev the engine down.



RAIL17SP01577AA 50

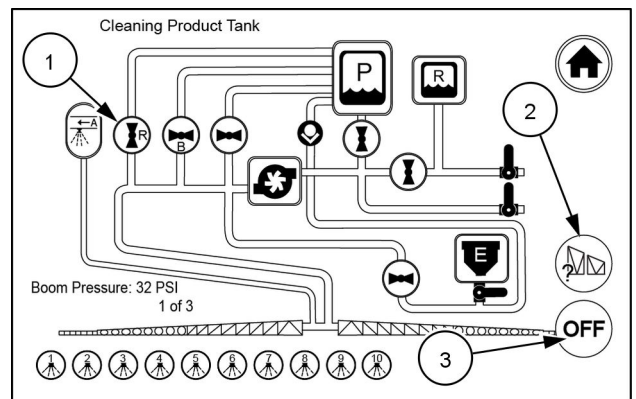
When rinsing is complete, the rinse valve (1) will close (shown as open in the illustration).

The operator will then press the boom button (2) in order to pass the rinse water from the tank through the booms.

Be sure to lower and unfold the booms before pressing the boom button.

**NOTICE:** This operation will place potentially chemical filled water on the ground.

**NOTICE:** Pressing the OFF key (3) at any time will close all valves, stop the pump, and rev the engine down.



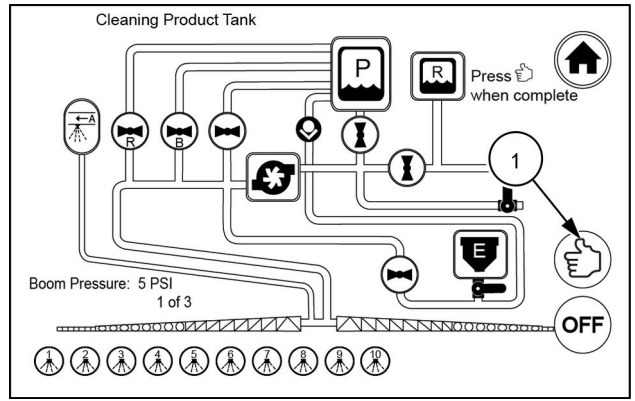
RAIL17SP01579AA 51

When the boom button is pressed, the Press when complete screen displays.

At this point, the rinse water will be removed from the system through the boom nozzles.

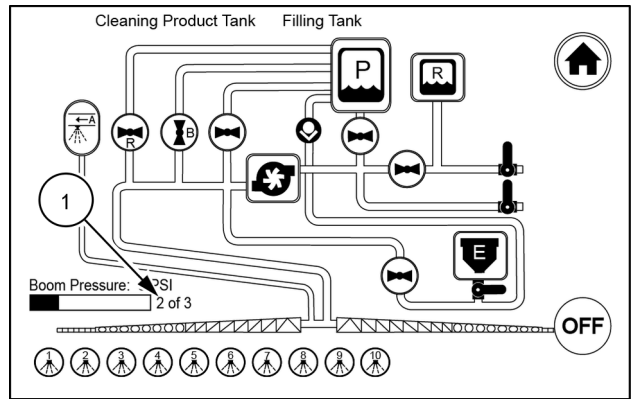
Be sure to lower and unfold the booms before pressing the boom button.

The operator must observe the rinse water being sprayed from the boom nozzles. When the rinse water is no longer spraying from the nozzles, the operator must press the Process Complete button (1) to stop the process.



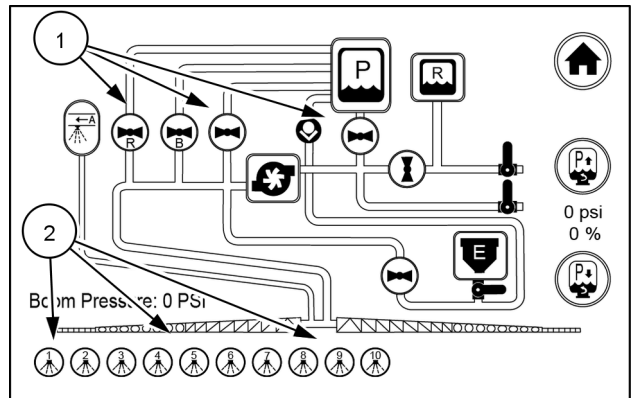
RAIL17SP01580AA 52

Once the Process Complete button is pressed, the tank rinsing process will advance to second rinsing process (1), and the tank rinsing process begins again. The second rinsing process will continue until finished and then the third rinsing process will begin.



RAIL17SP01581AA 53

When the third rinse cycle is complete, the screen will return to normal operation mode.

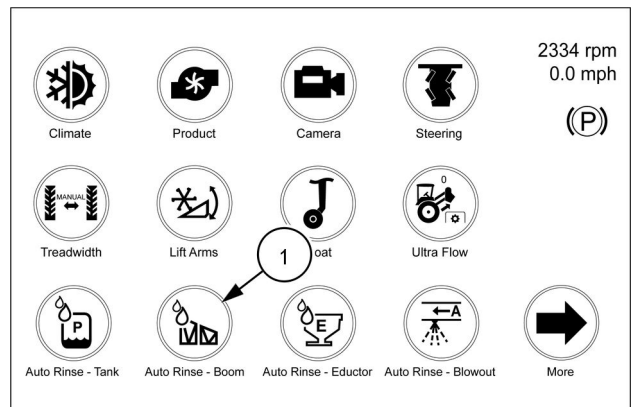


RAIL17SP01582AA 54

### Boom auto rinse

From the arm rest display first home screen page, press the Auto Rinse – Boom button (1). The Cleaning Boom screen will display.

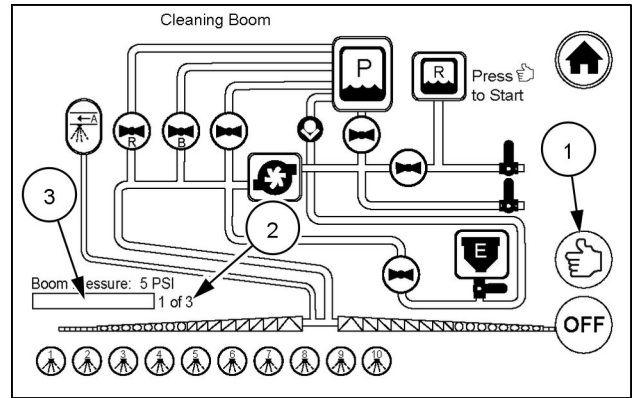
**NOTICE:** Operation will place potentially chemical filled water on the ground.



RAIL18SP00852FA 55

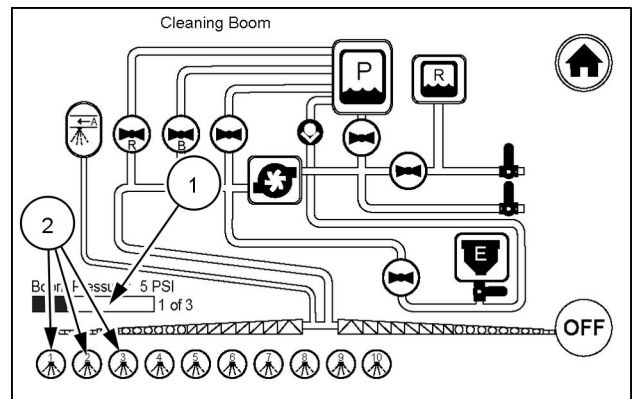


Press the Start button (1) to begin the boom rinsing process.  
 Be sure to lower and unfold the booms before pressing the boom button.  
 The 1 of 3 process indicator (2) will appear on the screen as well as the progress bar (3).



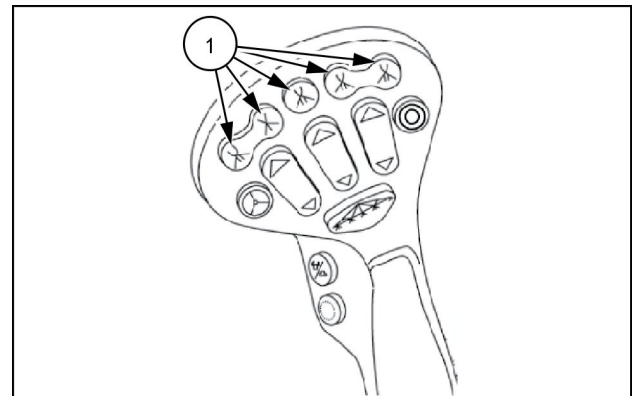
RAIL17SP01583AA 56

The boom rinsing time will be indicated by the progress bar (1). Each boom section, one through ten (2), will high-light green when that section is being rinsed.

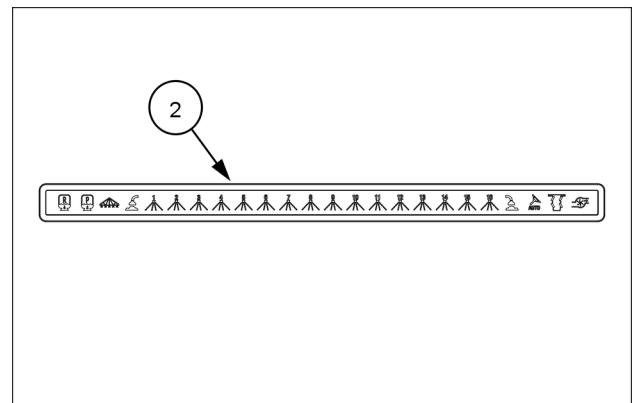


RAIL17SP01584AA 57

The individual section rinsing will also be displayed and sequenced on the joystick grip (1) and the overhead display (2)



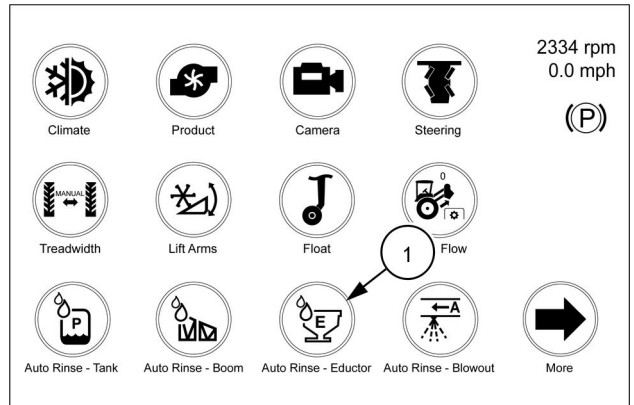
RAIL17SP00391AA 58



RAIL17SP00309FA 59

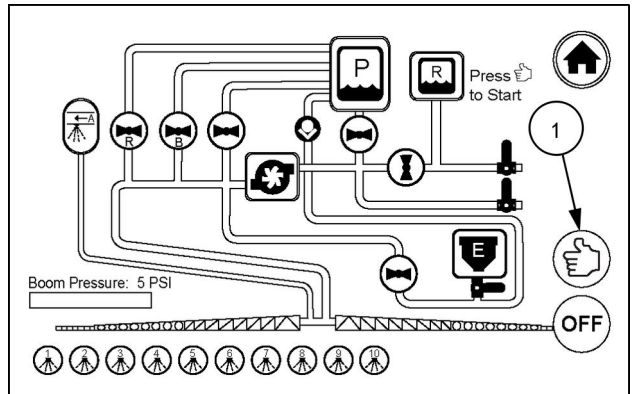
### Eductor auto rinse

Press the Auto Rinse – Eductor button (1). The product circuit screen displays.



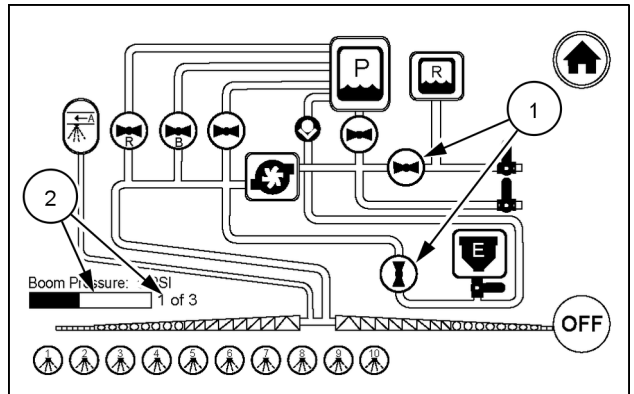
RAIL18SP00852FA 60

Press the start button (1) to begin the Eductor rinsing.



RAIL17SP01585AA 61

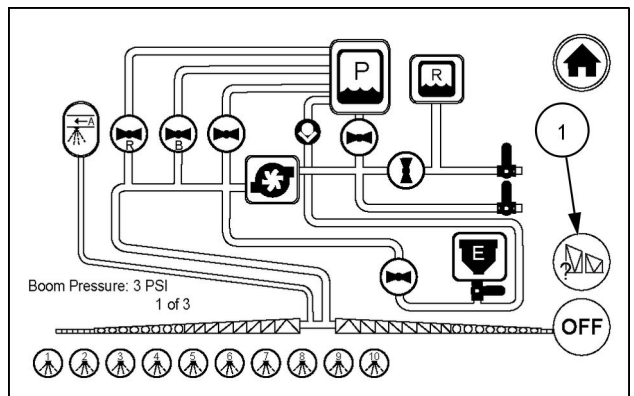
The valves (1) will open, and the Eductor rinsing progress bar and the rinsing cycles (2) will show progression of the rinsing cycle.



RAIL17SP01586AA 62

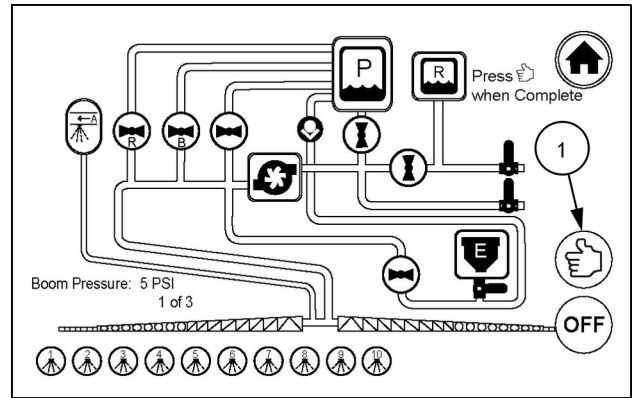
After the Eductor has been rinsed, the product circuit rinsing screen displays. The operator must press the Boom button (1) to completely rinse the product circuit.

**NOTICE:** This operation will place potentially chemical filled water on the ground.



RAIL17SP01587AA 63

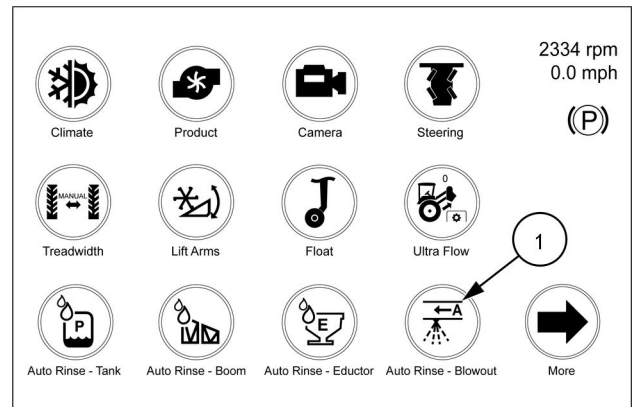
After the circuit rinse is complete the operator must press the Completed button (1) to take the system out of the rinse operation.



RAIL17SP01588AA 64

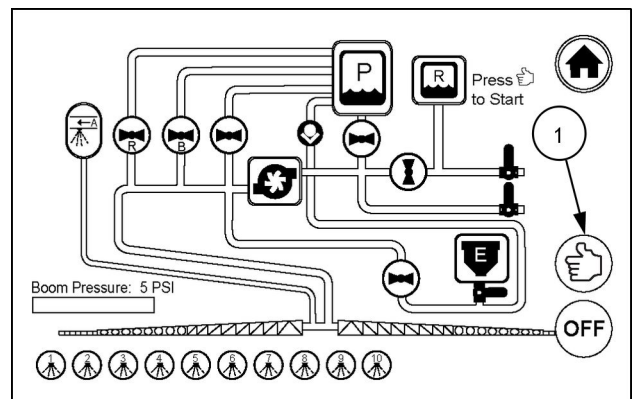
### Boom blow-out auto rinse

From the arm rest display first home page press the Auto-Rinse — Blowout button (1) to begin cleaning of the boom blowout operation. The product circuit screen displays.



RAIL18SP00852FA 65

Press the start button (1). The product screen displays blowout operation.



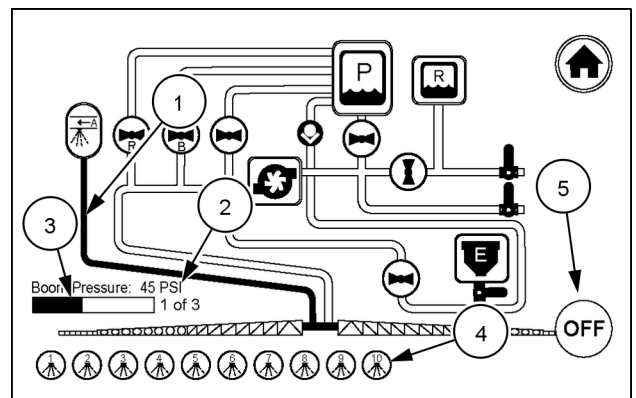
RAIL17SP01585AA 66

The blowout will be indicated as functioning (1), the air pressure will build (2), the progress bar (3) will indicate operation, and each boom section (4) will be sequenced as it is cleared.

The blowout of the boom will sequence two times for complete boom blowout clearing. Three times if all boom sections are on.

Press the OFF button (5) at any time to cancel the blowout function.

**NOTE:** The boom section icons on the joystick and the overhead display will also sequence as the rinsing progresses.

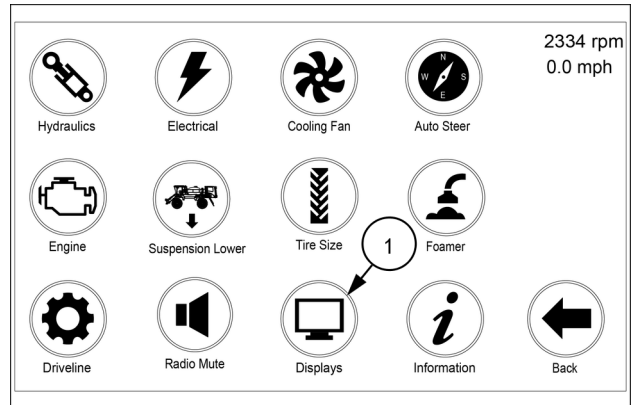


RAIL17SP01589AA 67

## Auto-rinse level duration setting

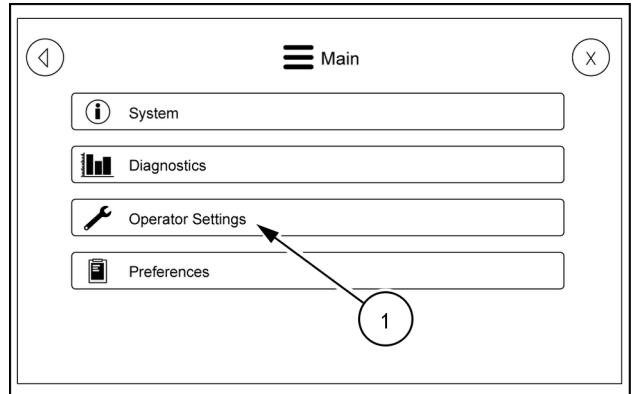
Each level duration can be increased or decreased according to length of rinse time needed and type of chemical used.

On the second arm rest home display page touch the Displays icon (1).



RAIL18SP00743FA 1

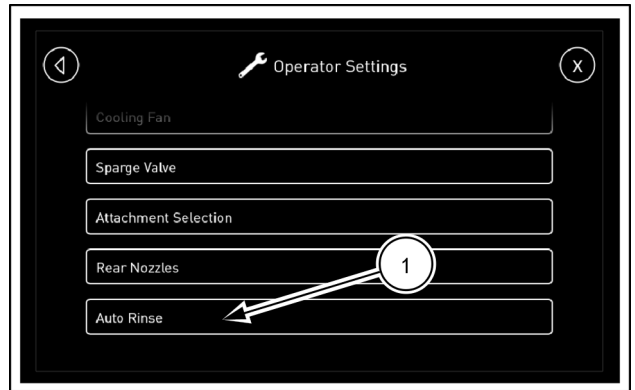
This will bring up the Main screen. On the Main screen touch the Operator Setting icon (1).



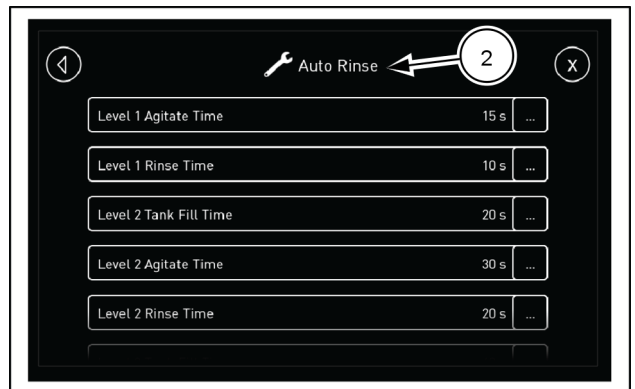
RAIL17SP00118AA 2

This will bring up the Operator Settings screen. The Operator Setting screen is a scroll screen. Use the finger swipe method to scroll through the menu until the Auto Rinse icon (1) appears.

Touch the Auto Rinse icon to bring up the Auto Rinse screen (2)



RAIL17SP01646AA 3



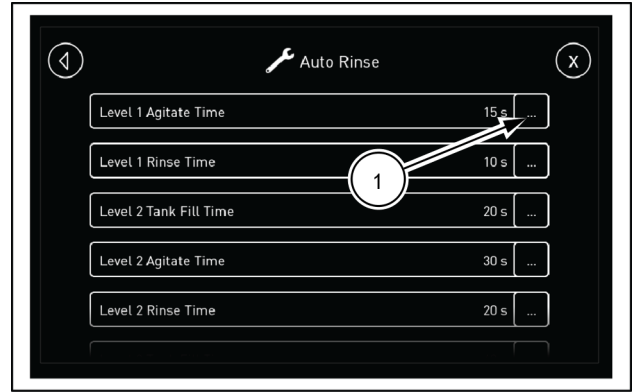
RAIL17SP01647AA 4

The Auto Rinse screen is a scroll screen. Use the finger swipe method to scroll through the menu. When the level and category to be changed is located, touch that icon at the right-hand side **(1)** to change the duration.

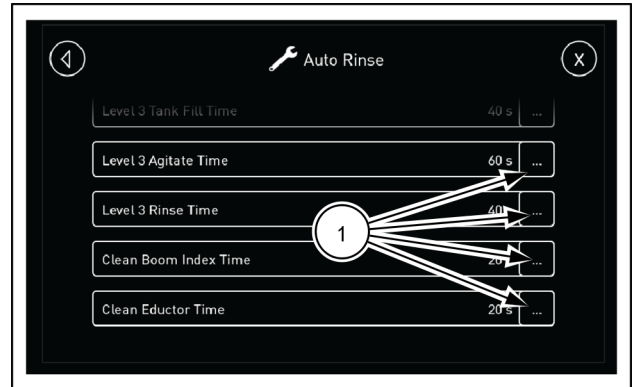
The changing screen will appear where the duration can be increased by touching the (+) **(2)** or decreased by touching the (-) **(3)**.

Touch the check mark **(4)** to lock the setting in.

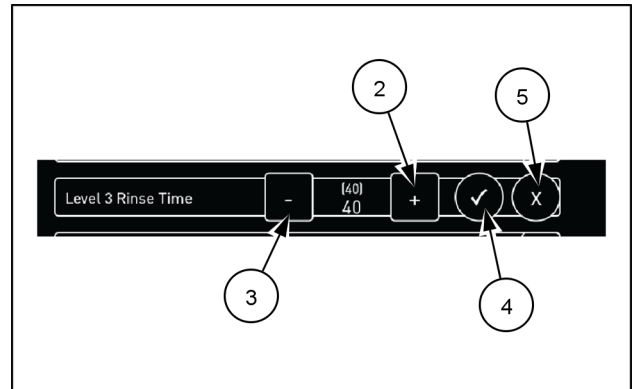
Touch the (X) icon **(5)** to close the setting screen



RAIL17SP01647AA 5



RAIL17SP01648AA 6



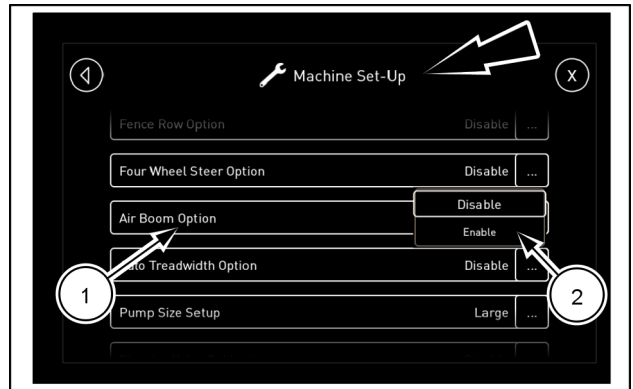
RAIL17SP01649AA 7

## Spray Air boom operation

Prior to operation of the spray air system, the spray air boom must be set up. Refer to the spray air boom set up section that follows.

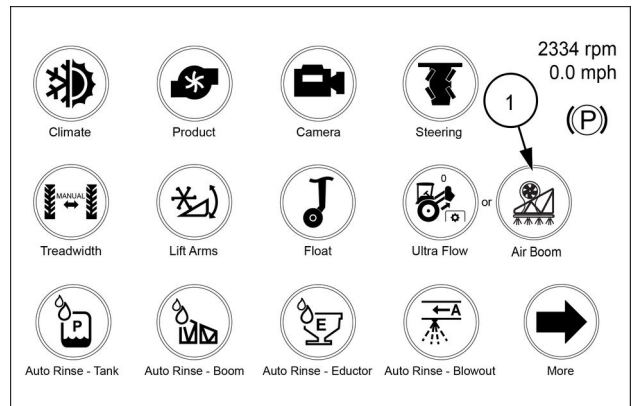
1. Find the Air Boom option (1) on the Machine Set-Up page. Touch enable (2) to activate the system.

**NOTE:** If the air boom option has not been disabled, there is no need to enable the air boom each time.



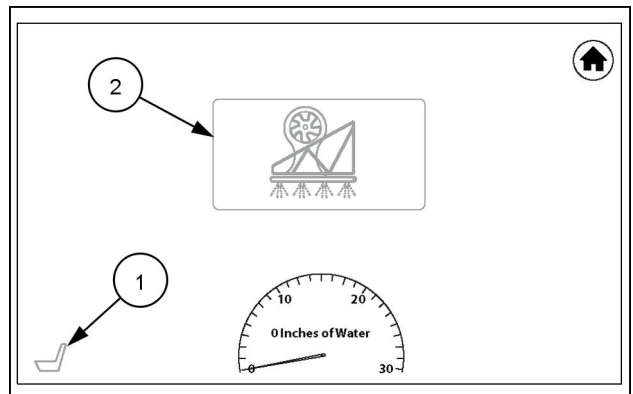
RAIL18SP00047AA 1

2. Return to the Home page. Touch the Air Boom icon (1). The Air Boom page will display.



RAIL18SP00742FA 2

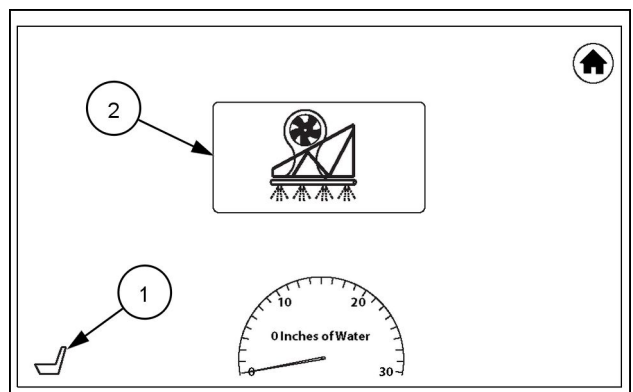
3. The Air Boom screen will display with the operators seat icon (1) and the Air Boom icon (2) greyed-out, indicating that the system is not active.



RAIL18SP00060AA 3

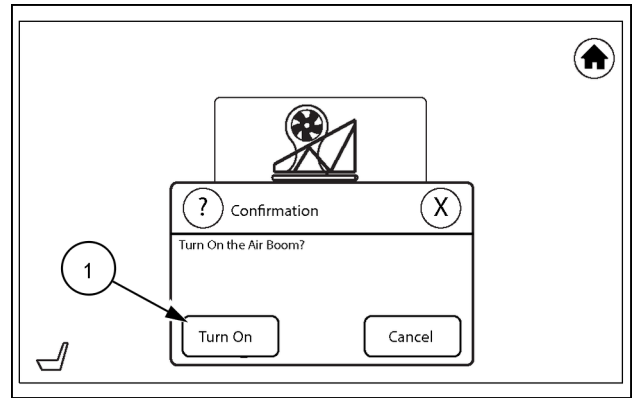
4. Sit in the seat and touch the seat icon (1). The seat icon will turn green and air boom icon turn blue and be active. Touch air boom icon (2) to bring up confirmation screen.

**NOTE:** If the operator leaves the operators seat with the system running, the system will deactivate. The operator will need to sit in the seat again, in order to re-activate the system.



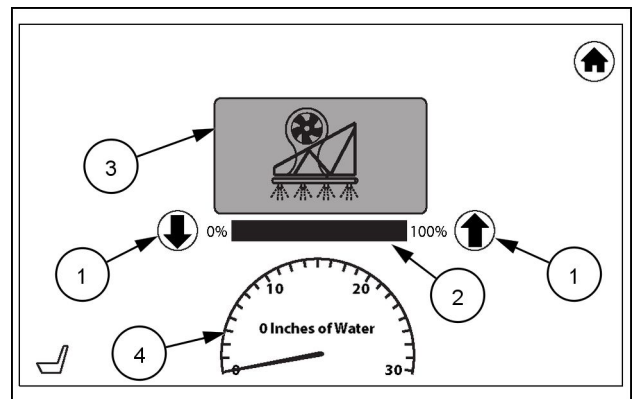
RAIL18SP00059AA 4

5. Touch the Turn On button (1).



RAIL18SP00061AA 5

6. The pressure adjustment screen will display. The up and down arrows (1) and the pressure indicator bar (2) will appear, as well as the spray air icon (3), which will be highlighted yellow. Use the arrows to adjust pressure. When the pressure is adjusted, the pressure indicator bar (2), and the pressure gauge (4) will move to the adjusted pressure level. Touch the spray air icon to bring up Home screen.

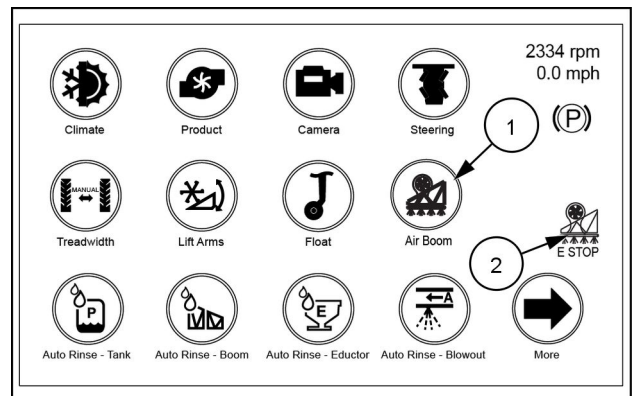


RAIL18SP00062AA 6

7. The Home screen will display the air pressure ( 0 ) as set on the pressure adjustment screen (1). Touch the air boom icon to shut off, or touch the E-STOP icon (2) for emergency shut off.

**NOTE:** On the lower portion of the Air Boom icon, a number representing system set pressure will be displayed. This pressure will change as the air pressure in the system changes.

**NOTE:** The air pressure setting in the system will be maintained when the system is shut off and turned back on.



RAIL18SP01012AA 7

## Spray air boom set up

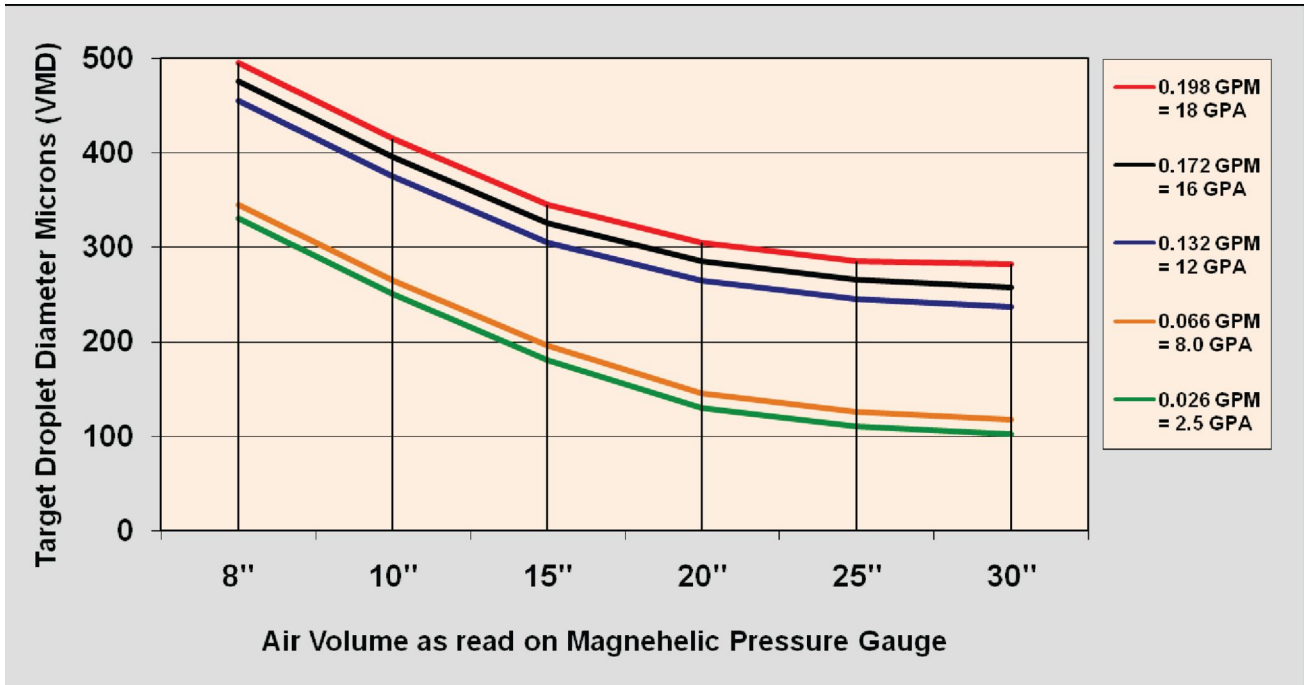
### Dial-A-Drop chart

To “Dial-A-Drop” with the Spray-Air air nozzle, adjust the pressure gauge as indicated on the display using the chart below. Adjust the pressure with the pressure adjustment knob.

To dial in a specific droplet size, first identify the closest line rate in Gallons per acre (GPA) for the product being applied. Second, choose the target droplet size (diameter) from the range on the left of the chart. Third, set the pressure gauge to the air setting shown on the bottom of the chart.

**NOTE:** The target droplet size/diameter is the Volume Median Diameter (VMD). It is an average. Half of the droplets will be the VMD or larger, and half of the droplets will be the VMD or smaller. With the Spray-Air nozzle,

90% of the spray volume typically contains droplets within 100 microns of the target size (VMD), an exceptionally tight and accurate range.



RAIL15SP00764FA 8

Gallons per Acre (GPA)	Graph line color
18	Red
16	Black
12	Blue
8	Orange
2.5	Green

### Calculate Spray Air application rate

Use the following formulas, and charts, to determine the proper nozzle orifice required for different application rates.

Rate calculation formulas:

$$\text{GPA} \times \text{MPH} \times \text{Constant} = \text{OZ/M/N}$$

$$\text{OZ/M/N} \div \text{MPH} \times \text{Constant} = \text{GPA}$$

Constants — US Gallons:

10 inch nozzle spacing — .2154

Values:

GPA = Gallons per Acre

MPH = Miles per Hour

OZ/M/N = Ounces per Minute per Nozzle



6 - WORKING OPERATIONS

U.S. GPA (10 in. Nozzle Spacing) Pink (.022) Orifice - Range 3.8 to 12.5																		
MPH	Gallons per Acre																	
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4			4.3	5.2	6.0	6.9	7.8	8.6	9.5	10.3	11.2							
4.5		3.9	4.8	5.8	6.8	7.8	8.7	9.7	10.7	11.6								
5		4.3	5.4	6.5	7.5	8.6	9.7	10.8	11.9									
5.5		4.7	5.9	7.1	8.3	9.5	10.7	11.9										
6	3.9	5.2	6.5	7.8	9.1	10.3	11.6											
6.5	4.2	5.6	7.0	8.4	9.8	11.2												
7	4.5	6.0	7.5	9.1	10.6	12.1												
7.5	4.9	6.5	8.1	9.7	11.3													
8	5.2	6.9	8.6	10.3	12.1													
8.5	5.5	7.3	9.2	11.0														
9	5.8	7.8	9.7	11.6														
9.5	6.1	8.2	10.2	12.3														
10	6.5	8.6	10.8															
11	7.1	9.5	11.9															
12	7.8	10.3																
13	8.4	11.2																
14	9.1	12.1																
15	9.7																	

U.S. GPA (10 in. Nozzle Spacing) Orange (.028) Orifice - Range 5.5 to 16.8																		
MPH	Gallons per Acre																	
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4					6.0	6.9	7.8	8.6	9.5	10.3	11.2	21.1	12.9	13.8	14.7			
4.5				5.8	6.8	7.8	8.7	9.7	10.7	11.6	12.6	13.6	14.5	15.5	16.5			
5				6.5	7.5	8.6	9.7	10.8	11.9	12.9	14.0	15.1	16.2					
5.5			5.9	7.1	8.3	9.5	10.7	11.9	13.0	14.2	15.4	16.6						
6			6.5	7.8	9.1	10.3	11.6	12.9	14.2	15.5	16.8							
6.5			7.0	8.4	9.8	11.2	12.6	14.0	15.4	16.8								
7		6.0	7.5	9.1	10.6	12.1	13.6	15.1	16.6									
7.5		6.5	8.1	9.7	11.3	12.9	14.5	16.2										
8		6.9	8.6	10.3	12.1	13.8	15.5											
8.5		7.3	9.2	11.0	12.8	14.7	16.5											
9	5.8	7.8	9.7	11.6	13.6	15.5												
9.5	6.1	8.2	10.2	12.3	14.3	16.4												
10	6.5	8.6	10.8	12.9	15.1													
11	7.1	9.5	11.9	14.2	16.6													
12	7.8	10.3	12.9	15.5														
13	8.4	11.2	14.0	16.8														
14	9.1	12.1	15.1															
15	9.7	12.9	16.2															

6 - WORKING OPERATIONS

U.S. GPA (10 in. Nozzle Spacing) Green (.034) Orifice - Range 9.0 to 23.8																			
MPH	Gallons per Acre																		
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
4												12.1	12.9	13.8	14.7	15.5	16.4	17.2	
4.5											12.6	13.6	14.5	15.5	16.5	17.5	18.4	19.4	
5										12.9	14.0	15.1	16.2	17.2	18.3	19.4	20.5	21.5	
5.5										13.0	14.2	15.4	16.6	17.8	19.0	20.1	21.3	22.5	23.7
6									12.9	14.2	15.5	16.8	18.1	19.4	20.7	22.0	23.3		
6.5								12.6	14.0	15.4	16.8	18.2	19.6	21.0					
7								13.6	15.1	16.6	18.1	19.6	21.1	22.6					
7.5							12.9	14.5	16.2	17.8	19.4	21.0	22.6						
8							13.8	15.5	17.2	19.0	20.7	22.4							
8.5						12.8	14.7	16.5	18.3	20.1	22.0	23.8							
9						13.6	15.5	17.5	19.4	21.3	23.3								
9.5						14.3	16.4	18.4	20.5	22.5									
10				12.9	15.1	17.2	19.4	21.5	23.7										
11				14.2	16.6	18.9	21.3	23.7											
12			12.9	15.5	18.1	20.7	23.3												
13			14.0	16.8	19.6	22.4													
14			15.1	18.1	21.1														
15		12.9	16.2	19.4	22.6														

U.S. GPA (10 in. Nozzle Spacing) Purple (.043) Orifice - Range 13.0 to 33.2																			
MPH	Gallons per Acre																		
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
4																15.5	16.4	17.2	
4.5																17.5	18.4	19.4	
5															17.2	18.3	19.4	20.5	21.5
5.5														17.8	19.0	20.1	21.3	22.5	23.7
6													18.1	19.4	20.7	22.0	23.3	24.6	25.9
6.5												18.2	19.6	21.0	22.4	23.8	25.2	26.6	28
7											18.1	19.6	21.1	22.6	24.1	25.6	27.2	28.7	30.2
7.5										17.8	19.0	21.0	22.6	24.2	25.9	27.5	29.1	30.7	32.3
8									17.2	19.0	20.7	22.4	24.1	25.9	27.9	29.3	31.0	32.8	
8.5									18.3	20.1	22.0	23.8	25.6	27.5	29.3	31.0	32.8		
9									17.5	19.4	21.3	23.3	25.2	27.2	29.1	31.0	33.0		
9.5									18.4	20.5	22.5	24.6	26.6	28.7	30.7	32.7			
10							17.2	19.4	21.5	23.7	25.9	28.0	30.2	32.3					
11							18.9	21.3	23.7	26.1	28.4	30.8	33.2						
12						18.1	20.7	23.3	25.9	28.4	31.0								
13						19.6	22.4	25.2	28.0	30.8									
14				18.1	21.1	24.1	27.1	30.2	33.2										
15				19.4	22.6	25.9	29.1	32.3											

## **7 - MAINTENANCE**

### **General information**

### **Safety rules**

#### **Environment**

Before you service the machine and before you dispose of the old fluids, lubricants and filters, always remember the environment

- Do not pour oil or fluids on the ground, down drains or into containers that can leak.
- Dispose of all old fluids, lubricants and filters in accordance with local regulations.
- Check with your local environmental recycling center or you local dealer for correct information.

#### **Plastic and resin parts**

- Avoid using gasoline, paraffin, paint thinner, etc., when cleaning plastic, e.g.; console, instrument cluster, monitors and gauges, etc.
- Use only water, mild soap and a soft cloth when you clean these parts.
- Using gasoline, paraffin, paint thinner, etc., will cause color fading, cracking or deformation of the parts being cleaned.

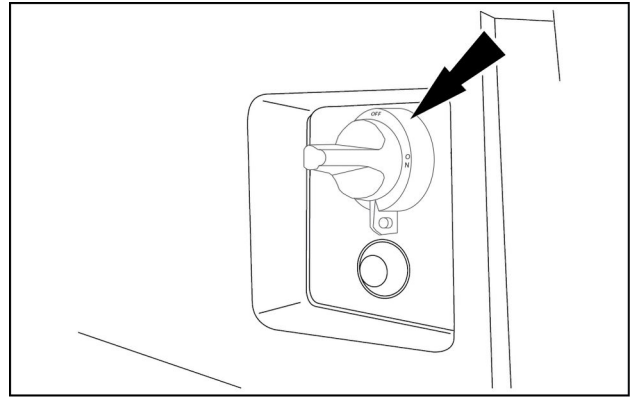
## Maintenance advice

Regular maintenance is vital to dependable operation of the machine. To avoid down time, perform the maintenance and service scheduled in this section.

**NOTICE:** *While any company can perform necessary maintenance or repairs on your equipment, MILLER strongly recommends that you use only authorized MILLER dealers and products that meet given specifications. Improperly or incorrectly performed maintenance and repair voids the equipment warranty and may affect service intervals.*

## Battery disconnect switch

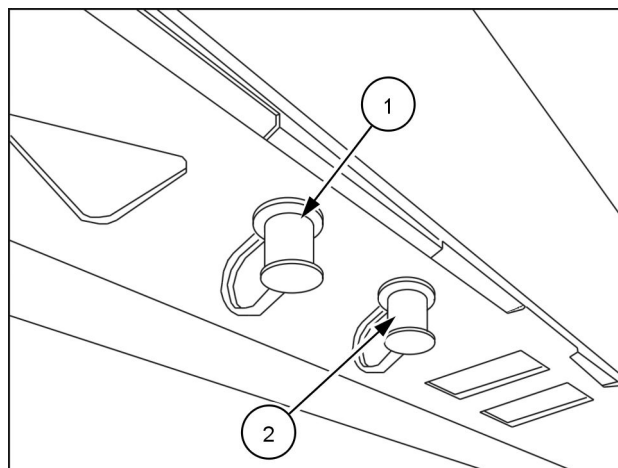
On the side of the engine cowling, next to the ladder grab rail is a battery disconnect switch. Turning the switch off (straight up) will disconnect the batteries from the vehicles electrical system. Turn the switch on (horizontal) to enable the entire electrical system. The electrical system can be disconnected when the vehicle is left for extended periods of time or if there is a drain on the batteries. The switch can also be locked (with a pad lock) when the vehicle is left unattended.



RAIL15SP01232AA 1

## Battery jump starting posts

There are battery jump starting posts under the rear engine belly pan door. Unlatch and open the door. The battery jump starting posts are located directly below the batteries. Be sure to replace the rubber protective caps when not using the posts.



RAIL14SP01018AA 1

Use the following procedure to connect a battery charger or a **12 V** external power source to these posts.

1. Remove the plastic covers from the positive **(1)** and negative **(2)** posts.

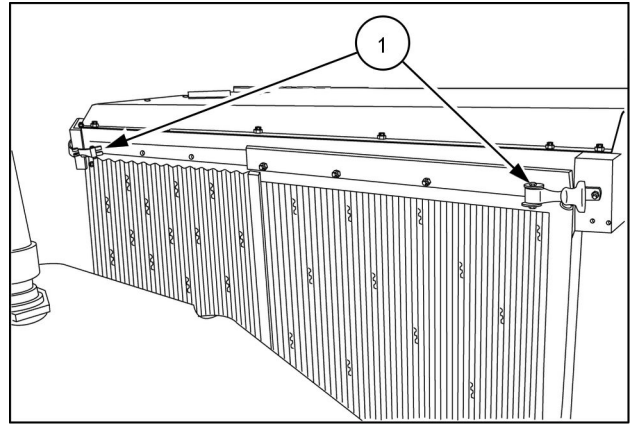
**NOTICE:** Never connect a **24 V** supply to the jump starting posts.

2. Connect the positive cable from the charger or **12 V** power source to the positive jump starting post **(1)**.
3. Connect the negative cable from the charger or **12 V** power source to the negative jump starting post **(2)**.
4. If boost starting, start the sprayer in the normal manner while sitting in the operator's seat.
5. After the sprayer is running, disconnect the negative cable first and then the positive cable.
6. Install the plastic covers on both jump starting posts.

## Front engine cowling access doors

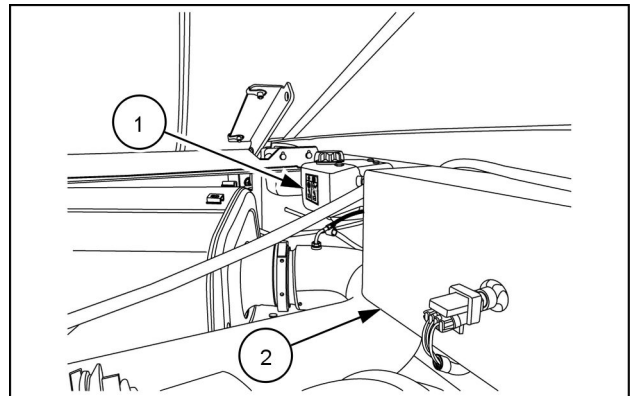
The access doors are located at the front of the engine compartment at the rear of the machine. The access doors are secured with two rubber hold downs (1). Remove the rubber hold downs from the retainer and slide the desired door to the side.

Be sure to close and latch both doors before operating.



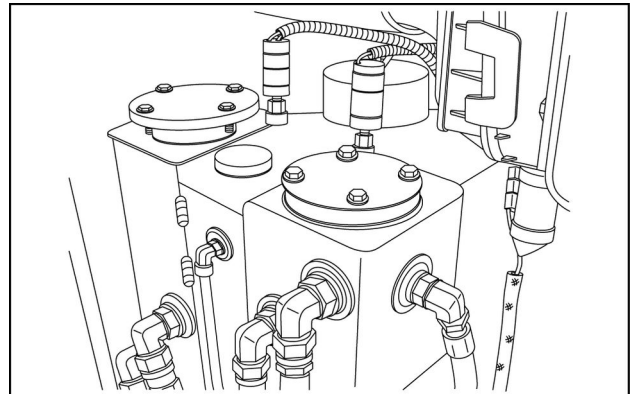
RAIL14SP01014AA 1

Opening the door toward the left-hand side of the unit along with raising the roof will give you access to the engine, air cleaner, overflow bottle (1), and coolant surge tank (2).



RAIL17SP00766AA 2

Opening the door toward the right-hand side of the unit will give you access to the hydraulic tank and filters.



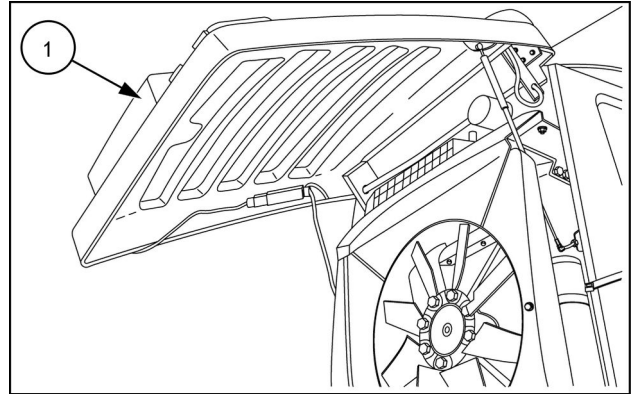
RAIL14SP00811AA 3

## Engine compartment access

To access the engine, hydros, batteries and cooling fan there are separate engine compartment covers that can be unlatched and opened. Be sure to close and latch all the covers before operating the vehicle.

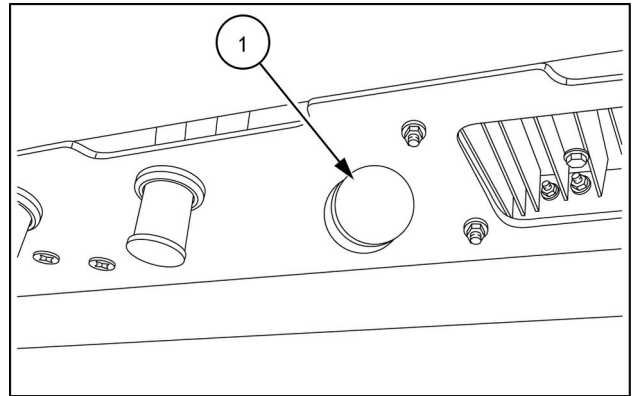
### Rear engine access cover

The rear engine cover (1) will give access to the cooling fan, the batteries, and the relays.



RAIL14SP00791AA 1

Unlatch the rear cover by sliding the latch knob (1) to the side to unlatch. The latch knob is located under the cooling package next to the remote battery terminals

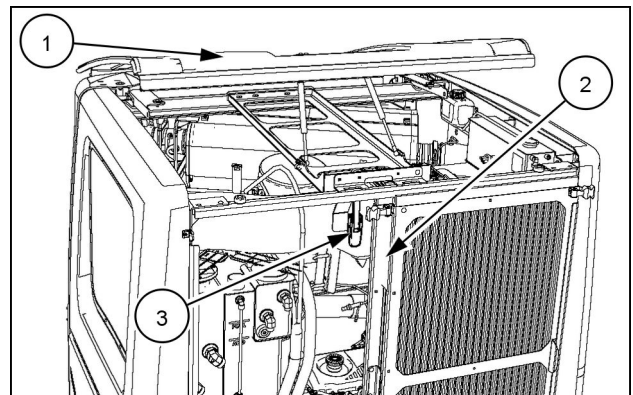


RAIL14SP00792AA 2

### Engine compartment roof

The engine compartment roof (1) can be unlatched at the front inside edge and pivoted open to access the hydraulic oil reservoir as well as the engine coolant overflow bottle and surge tank.

Open the right-hand side engine screen door (2). Access the rubber draw latch (3). Unhook the latch and open the roof.

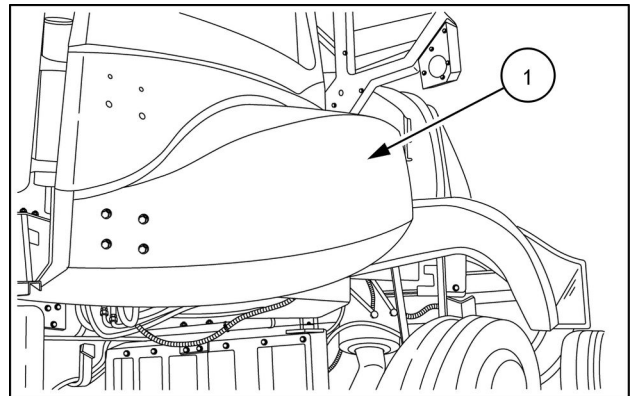


RAIL18SP01194AA 3



### Right side hydro cover

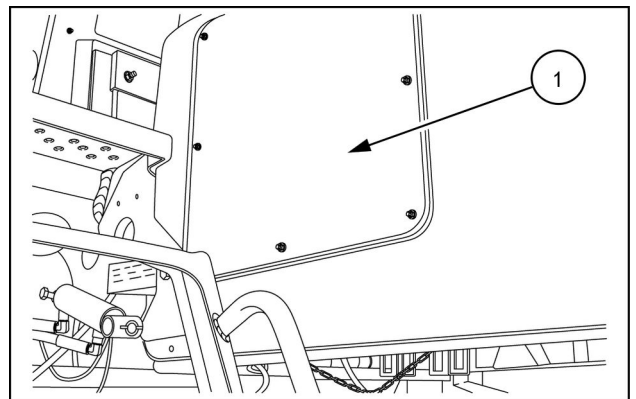
The right side hydro cover (1) can be unlatched (by pushing the latch knob up) at the front and pivoted open toward the rear to access the hydro filters and the hydros. To open the right side hydro cover the suspension must be raised up for the cover to clear the rear fender. Once the hydro cover is released with the latch knob, pull the cover away slightly and push up on the secondary catch (located at the front inside of the cover) to fully open. The secondary catch is spring loaded and will automatically latch when the cover is closed.



RAIL14SP00794AA 4

### Left side engine cover

To access the left side of the engine, the left side cover (1) will have to be removed. Remove the screws attaching the cover to the vehicle. Be sure to secure this cover in place with the screws before operating.



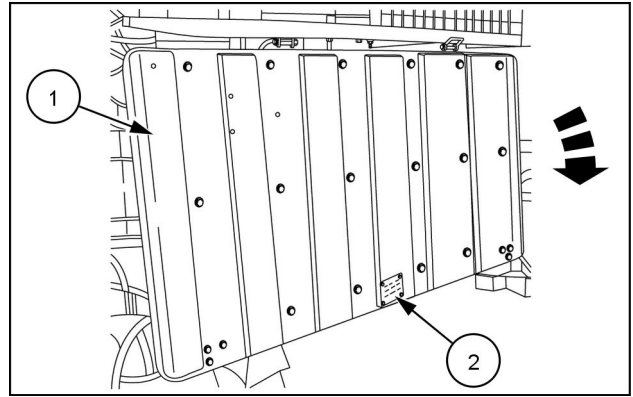
RAIL14SP00795AA 5

## Lower engine access cover

The lower engine access cover (1) has a turn latch (2) to open the cover. The cover is hinged on the opposite side of the latch. Unlatch and swing the cover down to access the batteries, air tank and lower items on the engine.

The lower engine cover gives you access to the oil pan, and oil filter.

Be sure to swing the cover up and securely latch to the underside before operating.

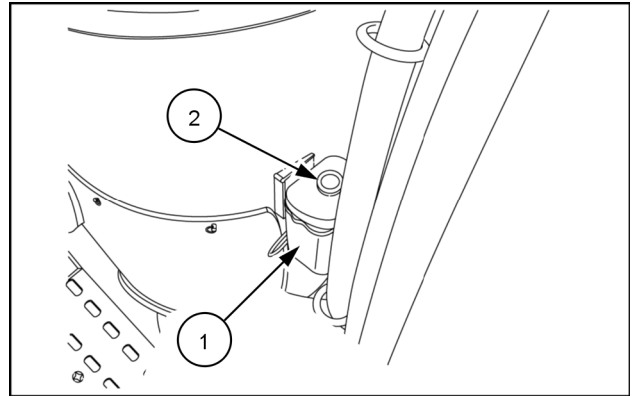


RAIL14SP00788AA 1

## Windshield washer reservoir

The windshield washer reservoir **(1)** is located outside the left rear corner of the cab.

1. Remove the reservoir cap **(2)** and fill reservoir with windshield washer fluid only.
2. Install reservoir cap **(2)**.



RAIL17SP00306AA 1

## Filling the fuel tank

### **⚠ WARNING**

**Fire hazard!**

**When handling diesel fuel, observe the following precautions:**

1. Do not smoke.
2. Never fill the tank when the engine is running.
3. Wipe up spilled fuel immediately.

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

W0099A

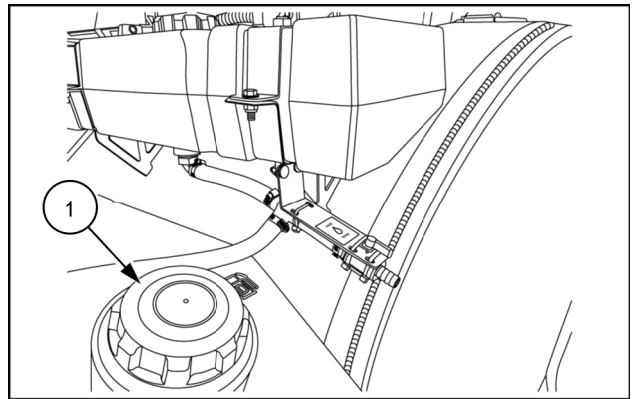
The fuel tank and cap (1) is located between the product tank and cab door. Make sure the fuel cap vent hole remains open at all times.

The fuel tank capacity is **568 l (150 US gal)**.

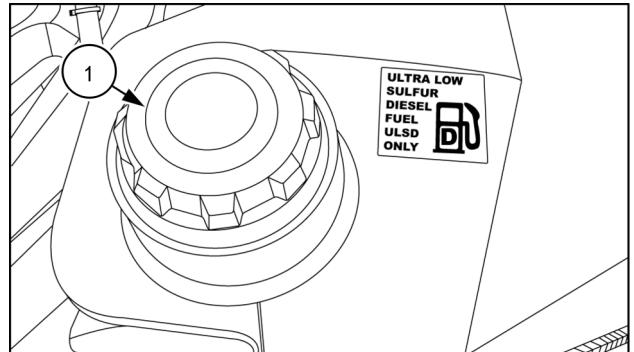
**NOTICE:** Use only Ultra Low Sulfur Diesel (ULSD) fuel. ULSD fuel must contain 15 Parts Per Million (PPM) or less sulfur content.

Replace fuel cap before operating. Wipe up any spilled fuel.

Check to be sure fuel cap vent hole in the middle of the fuel cap remains open at all times.



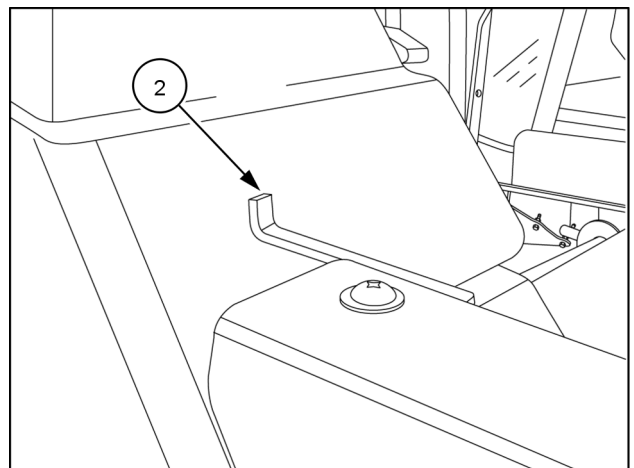
RAIL17SP00763AA 1



RAIL13SP03865AA 2

Use the fuel nozzle tab (2) (located on front side of shroud next to walkway) to hold the nozzle while you climb up on the walkway to refuel.

Hang the fuel nozzle on the tab, hang the nozzle by the trigger guard to prevent any fuel spillage.



RAIL12SP01185AA 3

## General specification - Biodiesel fuels - Biodiesel fuels

### Biodiesel fuel usage in MILLER products

#### Introduction to biodiesel fuel

Fatty Acid Methyl Ester (FAME) biodiesel fuel, called biodiesel fuel in the following paragraphs, consists of a family of fuels derived from vegetable oils that producers treat with methyl esters.

There are two main biodiesel fuel types: Rapeseed Methyl Ester (RME) and Soybean Methyl Ester (SME). RME is a blend of rapeseed and sunflower methyl ester. RME is the preferred crop in Europe. SME is the preferred crop in the United States.

Biodiesel fuel is a renewable alternative fuel source. Its use and development is promoted worldwide, especially in Europe and in the United States.

**NOTICE:** *It is imperative that you check with your MILLER dealer to learn which biodiesel fuel blend MILLER approves for use in your engine. Be aware that the use of biodiesel fuel blends that do not comply with **ASTM D6751** or **EN14214** could cause severe damage to the engine and fuel system of your machine. The use of non-approved biodiesel fuel blends may void MILLER Warranty coverage.*

Biodiesel fuel blends use the following labels to indicate the percentage of biodiesel fuel in the blend:

- B5: indicates the blend of **5%** biodiesel fuel and **95%** diesel fuel.
- B7: indicates the blend of **7%** biodiesel fuel and **93%** diesel fuel.
- B20: indicates the blend of **20%** biodiesel fuel and **80%** diesel fuel.
- B100: indicates **100%** biodiesel fuel.

Biodiesel fuel has several positive features in comparison with diesel fuel:

- Biodiesel fuel adds lubricity to the fuel. Additional lubricity is beneficial in many circumstances, particularly as fuels contain less sulfur and aromatics.
- Biodiesel fuel has a greater cetane number and burns more cleanly.
- Biodiesel fuel produces less particulate matter and reduces smoke emissions.
- Biodiesel fuel is fully biodegradable and non-toxic.

#### Specifications for diesel fuel and biodiesel fuel

The following standards apply to diesel fuel specifications:

- **ASTM D975**, Standard Specification for Diesel Fuel Oils. (15 ppm sulfur maximum.)

- **EN 590** -Automotive fuels - Diesel - Requirements and test methods. ( **10 ppm** sulfur maximum.)

The following standards apply to biodiesel fuel blends:

- United States Diesel Fuel Specification **ASTM D6751** allows up to **5%** biodiesel since 2009. United States fuel suppliers are allowed to use up to **5%** biodiesel fuel (B5) to supply the network.
- United States Biodiesel Fuel Specification **ASTM D7467** provides specifications for diesel and biodiesel blends from B5 to B20.
- European Diesel Fuel Specification **EN 590** allows up to **7%** biodiesel since 2009. European fuel suppliers are allowed to use up to **7%** biodiesel fuel (B7) to supply the network.

The following standards apply to pure biodiesel fuel (B100):

- **ASTM D6751** - Standard specification for biodiesel fuel blend stock (B100) for middle distillate fuels.

**NOTE:** *ASTM updated **ASTM D6751** to improve the quality of biodiesel in the market place.*

- **EN14214** - Liquid petroleum products - Fatty acid methyl esters (FAME) for use in diesel engines and heating applications - Requirements and test methods

Before producers can convert raw oil into usable biodiesel fuel, it must undergo transesterification to remove glycerides. During the transesterification process, the oil reacts with an alcohol to separate the glycerin from the fat or vegetable oil. This process leaves behind two products: methyl ester (the chemical name for biodiesel) and glycerin (a byproduct usually sold for use in soaps or other products).

**NOTICE:** *MILLER only approves transesterified biodiesel fuel blends that comply with **ASTM D6751** or **EN14214**.*

**NOTICE:** *Non-transesterified fuels made from rapeseed oil or similar high oil content crops include cold-pressed biodiesel, cold-pressed oil, Straight Vegetable Oil (SVO), or more generally unrefined vegetable oils used as motor fuel. Because these types of fuel are not transesterified, they do not fulfill the requirements of **ASTM D6751** or **EN14214**. There is no recognized quality standard available for these types of fuel; therefore, MILLER DOES NOT APPROVE the use of cold-pressed biodiesel, cold-pressed oil, Straight Vegetable Oil (SVO), or more generally unrefined vegetable oils as motor fuel at any blend in any MILLER product.*

**NOTICE:** *MILLER will discontinue Warranty coverage of any engine equipment and fuel injection equipment you fit to a MILLER machine that is found to have run with blend of NON-APPROVED fuel (fuel that does not fulfill the requirements of **ASTM D6751** or **EN14214**).*

## Biodiesel fuel usage conditions

You must stringently follow the biodiesel fuel usage conditions. Incorrect application of the biodiesel fuel usage conditions could lead to severe damage to the engine and fuel injection equipment.

The main concerns about operation of equipment with biodiesel fuels are:

- Filter and injector blockage caused by poor fuel quality
- Wear and corrosion of internal components due to water content, which affects lubricity
- Deterioration of some rubber sealing compounds in the fuel system
- Biodiesel oxidation, which can lead to the formation of deposits that may harm the fuel injection system

**NOTICE:** *MILLER Warranty will not cover any problem in the engine fuel injection equipment that results from non-compliance with the following conditions for biodiesel fuel handling and biodiesel fuel maintenance.*

Purchase biodiesel fuel from a trusted supplier who understands the product and maintains acceptable fuel quality. It is highly recommended that you use biodiesel from BQ 9000 accredited suppliers to maintain the quality and consistency of the fuel. The BQ 9000 Quality Management Program is accredited by the National Biodiesel Board for producers and marketers of biodiesel fuel. See the National Biodiesel Board website at [www.biodiesel.org](http://www.biodiesel.org) for more information.

The supplier must pre-blend biodiesel fuel. Mixing biodiesel fuel blends on-site can result in an incorrect mixture that may damage the engine and/or fuel system.

**NOTICE:** *MILLER may void your warranty if the problem is associated with poor fuel quality due to improper blending. It is the responsibility of the fuel supplier and/or yourself to ensure the right type of fuel and blend is delivered and used.*

## Maintenance intervals

For machines using the all-electronic engines with a high-pressure common rail fuel system, the use of biodiesel blends up to B20 reduces the engine oil and filter change interval to **250 h**. For all engines, see the operator's manual for specific maintenance intervals.

Check all hoses, connections and gaskets to ensure integrity and cleanliness every 3 months or 150 hours of operation, whichever comes first.

Regular oil sampling is highly recommended to monitor for oil deterioration and engine deterioration.

**NOTE:** *Oil sampling kits are available from your authorized MILLER dealer.*

When switching back from biodiesel to regular #2 diesel, you should change all fuel filters, oil and oil filter even if the changeover falls between routine service intervals.

## Storage

You should not store the machine for more than three months with biodiesel fuel in the fuel system. For longer storage time, MILLER strongly suggests that you use only regular #2 or **EN 590** diesel fuel.

**NOTE:** *If you must store a machine for longer than 3 months, you must run the engine regular #2 or EN 590 diesel fuel for a minimum of 20 h prior to storage. This will flush the biodiesel fuel out of the fuel system.*

Biodiesel fuel is highly hygroscopic and tends to collect water more than diesel fuel. Water collection increases the risk of algae and bacteria growth that can cause severe damage to the fuel injection system. Keep the machine fuel tanks and on-site storage tanks as full as possible to limit the amount of air and water vapor inside. Drain water from the tanks at least once a week.

**NOTICE:** *Use only MILLER approved biocide additives.*

## Diesel fuel - Diesel fuel

Only use diesel fuel that conforms to European standard **EN 590** or equivalent in your engine. Do not use any other low grade diesel fuel.

**NOTICE:** Use of other low grade diesel fuels will result in loss of engine power, high fuel consumption, and damage to the exhaust aftertreatment system (if equipped).

**NOTE:** When operating the machine in very cold climates, the use of winter blended fuel is permitted for a short period of time. See your fuel supplier for winter fuel requirements in your area.

## Fuel conditioner

---

Diesel fuel conditioner is available from your MILLER dealer. Instructions for the use of the fuel conditioner is on the container.

The use of diesel fuel conditioner will:

- Clean fuel injectors, valves, and manifolds for increased service life
- Disperse insoluble gummy deposits that form in the fuel system

- Separate moisture from the fuel
- Stabilize fuel in storage

**NOTICE:** Use only MILLER approved biocide additives to prevent damage to the exhaust aftertreatment system (if equipped).

## Tire and rim service

### Tire and rim repair

#### ⚠ WARNING

##### Explosion hazard!

Do not remove, install, or make repairs to a tire on a wheel rim. Take the tire and rim to a tire shop where persons with special training and special safety tools are available. Failure to comply could result in death or serious injury.

W0365A

Always have a qualified tire mechanic service the tires and rims on this machine. If the tire has lost all air pressure, take the tire and rim to a tire shop for service. The use of correct equipment and correct procedures will prevent accidents. Explosive separation of the tire can cause serious injury.

### Tire air pressure

It is recommended that the tire manufacturer's tire pressure as indicated on the side wall of the tire be maintained. If your vehicle is equipped with the Michelin Spraybib 177D tires the maximum pressure is **359 kPa (52 psi)**.

### Tire inflation procedure

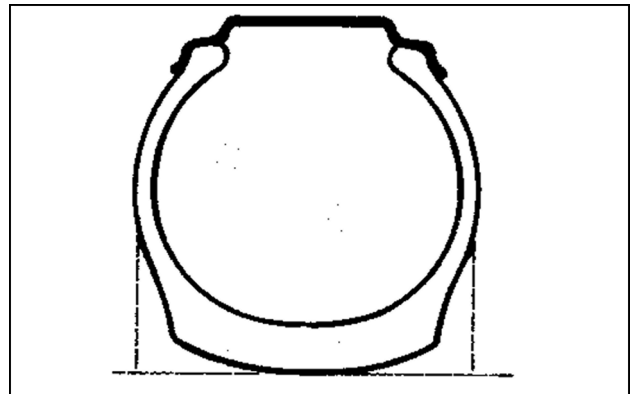
Do not inflate a tire that has had a complete loss of air. If the tire has lost all air pressure, have a qualified tire mechanic service the tire.

To add air to a partly inflated tire, use the following procedure:

1. Use an air hose with a remote shutoff valve and a self-locking air chuck.
2. Stand behind the tread of the tire and make sure all persons are away from the side of the tire before you start to add air.
3. Inflate the tire to the recommended air pressure. DO NOT inflate the tire more than the recommended pressure.

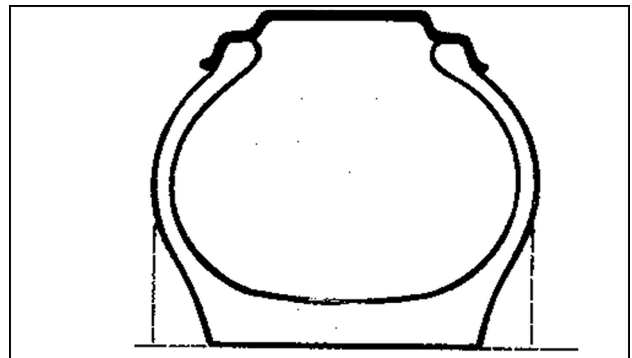
### Tire inflation examples

This example shows the cross section of a tire inflated for maximum load but with a minimum load on the tire. The tire tread is not making full contact with the ground which will give poor performance.



RCIL08CCH012AAB 1

This example shows the cross section of a tire with the inflated pressure correctly adjusted to the load on the tire. The tire tread is making full contact with the ground which will give maximum performance.



RCIL08CCH013AAB 2



## Tire size chart

The following chart lists the tire sizes recommended for the vehicle.

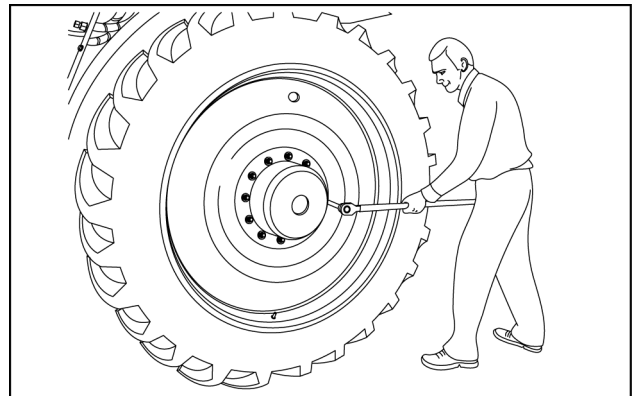
**ATTENTION:** Do not drive or load tires beyond their rated specifications for load and speed ratings for your particular tire. Check the tire manufacturers speed and load capabilities.

Tire Size	Tire Brand	Air Pressure	Load Rating	Load capacity (per tire)	Speed	Models	Rolling Circumference
380/90R50	GOODYEAR	<b>441 kPa</b> (64 psi)	170	<b>5987 kg</b> (13200 lb)	<b>64 km/h</b> (40 mph)	7370 7380 7410 7420	<b>5842 mm</b> (230 in)
380/105R50	FIRESTONE	<b>483 kPa</b> (70 psi)	177	<b>7302.8 kg</b> (16100.0 lb)	<b>48 km/h</b> (30 mph)	7370 7380 7410 7420	<b>6198 mm</b> (244 in)
420/95R50	MICHELIN	<b>359 kPa</b> (52 psi)	177D	<b>7300 kg</b> (16094 lb)	<b>64 km/h</b> (40 mph)	7370 7380 7410 7420	<b>6118.9 mm</b> (240.9 in)
IF 520/ 85R42	GOODYEAR	<b>359 kPa</b> (52 psi)	169	<b>5806 kg</b> (12800 lb)	<b>40 km/h</b> (25 mph)	7370 7380 7410 7420	<b>5766 mm</b> (227 in)
650/75R42	GOODYEAR	<b>317 kPa</b> (46 psi)	170	<b>5987 kg</b> (13200 lb)	<b>48 km/h</b> (30 mph)	7370 7380 7410 7420	<b>5740 mm</b> (226 in)

## Wheel lug nut torque

Check the wheel lug nut torque. Torque the lug nuts to **610 N·m (450 lb ft)**.

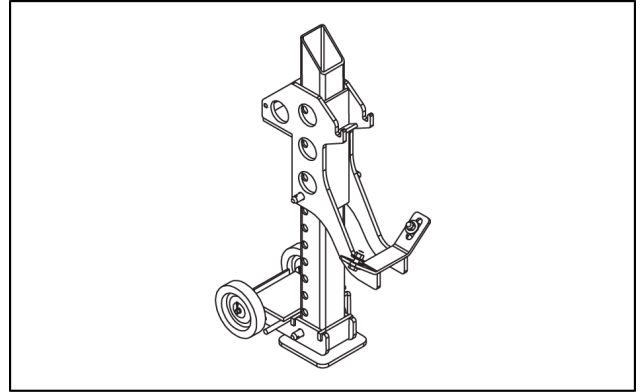
Re-torque the wheel lug nuts each time a wheel is re-installed onto the vehicle. Check and re-torque the lug nuts again after one hour of use.



RAIL15SP00828AA 3

### Using the vehicle jackstand

When jacking the vehicle up to remove or install a tire a kit 21.60052 with complete instructions is available from your local dealer. Use this jackstand to properly lift the wheel off the ground



RAIL18SP00200AA 4

## Hydraulic system

### ⚠ WARNING

Pressurized fluid can penetrate the skin and cause severe injuries.

Keep hands and body away from any pressurized leak. **DO NOT** use your hand to check for leaks. Use a piece of cardboard or paper. If fluid penetrates the skin, seek medical attention immediately.

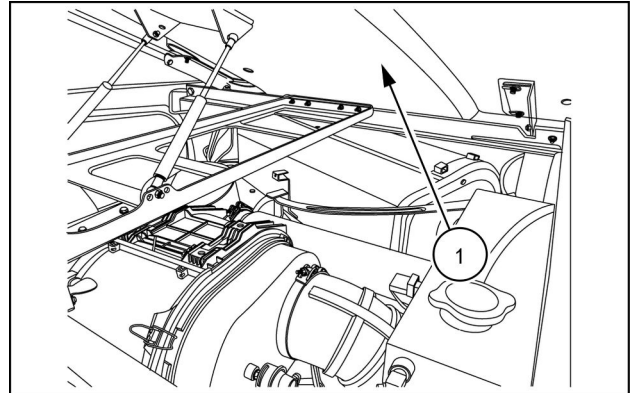
Failure to comply could result in death or serious injury.

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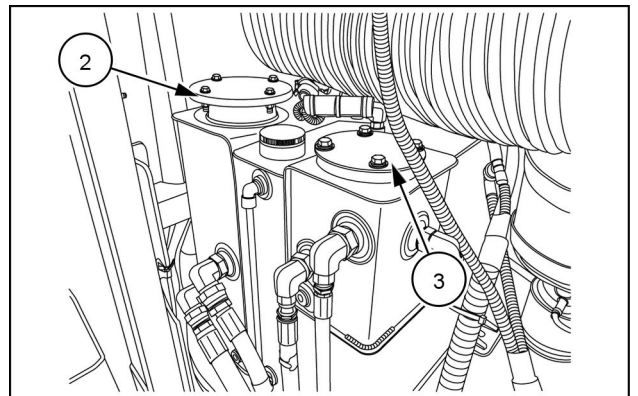
### Hydraulic oil filter system

The hydraulic tank oil filters are attached to the top of the hydraulic oil tank. The hydraulic tank is accessed by opening the engine compartment roof (1). The hydraulic oil return filter (2) is located on the top of the hydraulic oil reservoir and is the filter assembly closest to the rear of the tank.

The case drain filter (3) is located on the top of the hydraulic oil reservoir and is the filter assembly closest to the front of the tank.



RAIL17SP00764AA 1



RAIL17SP00755AA 2

### Hydraulic system cleanliness

The greatest contributor to hydraulic component failure is contamination of the oil with dirt and other debris. Keep all hydraulic access areas completely clean, such as around the hydraulic filter and filler cap. Immediately repair any fittings, hoses or other components where leakage is observed. Wipe up any leakage.

If the hydraulic system should be disconnected for service, protect the ends of hoses, tubing and ports of components from contamination with clean lint free towels or clean plastic bags, plugs or caps.

Before installing any replacement hose, flush the inside of the hose with clean diesel fuel or unused commercial petroleum cleaning solvent. Do not use water, water soluble cleaners or compressed air.

## Propel system

The propel system contains 2 electronically controlled hydrostatic pumps and 4 electronically controlled wheel motors. The propel system is controlled by an electronic driveline controller which determines the displacement of the hydrostatic pumps and motors based on the operators command. The system is a closed loop circuit which combines the flow of both hydrostatic pumps and distributes it to the four wheel motors. Each hydrostatic pump has an integral charge pump. The purpose of the charge pump is to supply oil into the closed loop propel circuit which is lost due to inefficiencies of the pumps, motors and provide make-up oil which is removed by a loop flushing valve in each motor.

The oil in the hydraulic reservoir is pulled into the charge pump where it is pressurized to approximately **3447 kPa (500 psi)**. The oil is then pushed through the high pressure filters mounted on the back side of the propel pumps. From the high pressure filters it goes into the low pressure side of the hydrostatic pump (return flow). From the propel pumps (**37921 kPa (5500 psi)** or greater) the oil is pumped according to demand (the amount of displacement by the joystick in the cab) to the wheel drive motors. The displacement of the electronically control wheels motors is control by the joystick.

The pressure in the charge pressure circuits is also monitored with two identical pressure switches. These switches trigger lights and alarms in the cab if the pressure drops below **1600 kPa (232 psi)** in their respective circuits. Loss in charge pressure could be due to a number of items: a burst hose, or a failure in a charge pump, a valve or propel pump. Propel system damage can occur if a charge pressure warning lamp is ignored.

Extra flow from the charge pumps (as they are positive displacement) is emptied into the case of each hydrostatic pumps (propel). A set amount of oil is also drained off the propel circuit (low pressure side) to allow new oil into the system (this is accomplished by the loop flushing valve in each wheel motor). This allows clean, filtered oil to enter the system via the charge pump. The oil which is drained off the propel loop is then directed through a heat exchanger and then combines with the hydrostatic pumps case flows to a return filter located inside the oil reservoir.

Since the park brakes are pressure released, a minimum of **1379 kPa (200 psi)** is required in the parking brake circuit to prevent the park brakes from engaging. When the pressure drops below this value, the parking brakes will start to engage. Continued use with the park brake light on may damage the brakes and other components. The brakes are protected with a pressure switch which monitors pressure in the brake circuit. The parking brake circuit is fed by the parking brake/ladder valve which in part of the auxiliary hydraulic circuit.

## Auxiliary circuit

The auxiliary circuit operates at **176 Kg/cm<sup>2</sup> (2500 psi)**. The pump senses how much flow is needed for the auxiliary circuit. Oil is drawn from the oil reservoir into the pump, which maintains **176 Kg/cm<sup>2</sup> (2500 psi)** at all times. The oil flows from the pump to the priority valve. The priority valve gives the steering system priority over all other functions. Only after the steering circuit oil needs are satisfied, is any oil passed through the priority valve to the other functions: spray pump motor, park brake, ladder cylinder, lift and boom cylinders, leg widening, etc. All of the oil in this circuit returns to a return filter located in the oil reservoir.

## Charge pressures

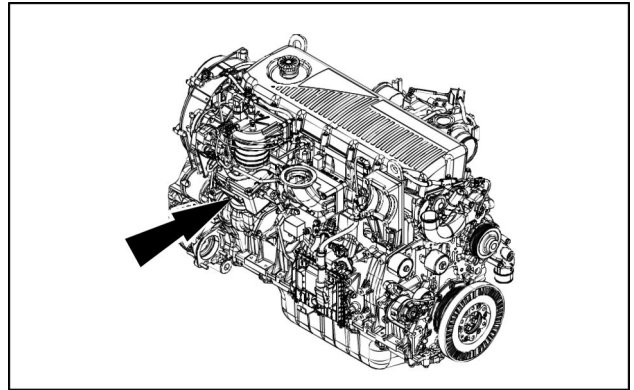
The individual charge pressures can be monitored on the chassis display monitor by accessing the chassis diagnostic page. The following table lists the pressure setting values for the machine.

<b>Pressure settings</b>			
	<b>Minimum</b>	<b>Nominal</b>	<b>Maximum</b>
Priority pressure	<b>15341 kPa (2225 psi)</b>	<b>15858 kPa (2300 psi)</b>	<b>16375 kPa (2375 psi)</b>
Auxiliary pump — Running (high)	<b>16892 kPa (2450 psi)</b>	<b>17237 kPa (2500 psi)</b>	<b>17237 kPa (2500 psi)</b>
Auxiliary pump — Cranking (low)	<b>1207 kPa (175 psi)</b>	<b>1379 kPa (200 psi)</b>	<b>1551 kPa (225 psi)</b>
UltraFlo Aux. pump — Running (high)	<b>19650 kPa (2850 psi)</b>	<b>19995 kPa (2900 psi)</b>	<b>20340 kPa (2950 psi)</b>
UltraFlo Aux. pump — Cranking (low)	<b>1207 kPa (175 psi)</b>	<b>1379 kPa (200 psi)</b>	<b>1551 kPa (225 psi)</b>
Charge pressure	<b>3172 kPa (460 psi)</b>	<b>3378 kPa (490 psi)</b>	<b>3585 kPa (520 psi)</b>
Park brake pressure	<b>2586 kPa (375 psi)</b>	<b>2758 kPa (400 psi)</b>	<b>2930 kPa (425 psi)</b>
High pressure forward	<b>44126 kPa (6400 psi)</b>	<b>44816 kPa (6500 psi)</b>	<b>44816 kPa (6500 psi)</b>
High pressure reverse	<b>44126 kPa (6400 psi)</b>	<b>44816 kPa (6500 psi)</b>	<b>44816 kPa (6500 psi)</b>
Air pressure	<b>793 kPa (115 psi)</b>	<b>827 kPa (120 psi)</b>	<b>862 kPa (125 psi)</b>
Boom tilt accumulators — 60 ft — 100 ft booms	<b>12066 kPa (1750 psi)</b>	<b>12411 kPa (1800 psi)</b>	<b>12755 kPa (1850 psi)</b>
Boom tilt accumulators — 120 ft booms	<b>14134 kPa (2050 psi)</b>	<b>14479 kPa (2100 psi)</b>	<b>14824 kPa (2150 psi)</b>
Boom lift accumulator — 90 ft booms	<b>4309 kPa (625 psi)</b>	<b>4482 kPa (650 psi)</b>	<b>4654 kPa (675 psi)</b>
Boom lift accumulator — 120 ft booms	<b>8101 kPa (1175 psi)</b>	<b>8274 kPa (1200 psi)</b>	<b>8446 kPa (1225 psi)</b>
Suspension accumulators	<b>1551 kPa (225 psi)</b>	<b>1724 kPa (250 psi)</b>	<b>1724 kPa (250 psi)</b>
Brake accumulators	<b>9480 kPa (1375 psi)</b>	<b>9653 kPa (1400 psi)</b>	<b>9825 kPa (1425 psi)</b>
Charge pressure accumulators	<b>862 kPa (125 psi)</b>	<b>1034 kPa (150 psi)</b>	<b>1207 kPa (175 psi)</b>

## Air system overview

### Air compressor

The air compressor (located on the side of the engine toward the front of the vehicle) is used for the foam marker system, boom blow out, and the cab air suspension.



RAIL18SP00245AA 1

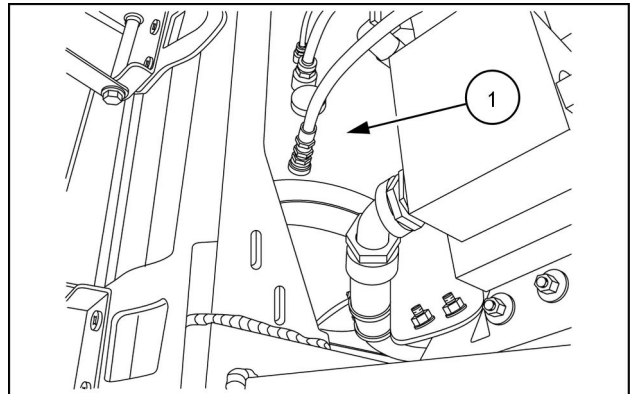
### Air compressor discharge inspection

All air compressors have a small amount of lubricating oil carry over which lubricates the piston rings and moving parts. When this lubricating oil is exposed to normal air compressor operating temperatures over a period of time, the lubricating oil will form varnish or carbon deposits. If the following inspections are not done, the air compressor piston rings will be affected by high operating temperatures and pressures and will not seal correctly. Locate the air system tank located inside the right-hand rear corner of the engine compartment.

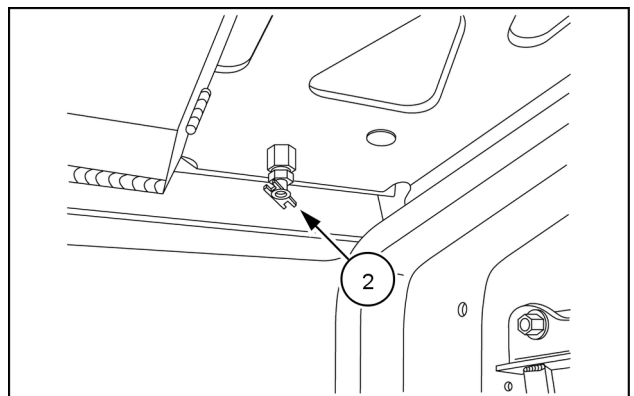
1. Drain the air system to remove all pressure.
2. Remove the air discharge line from the air compressor.
3. Measure the total carbon deposit thickness inside the air discharge line. If the total carbon deposit exceeds **2 mm (0.08 in)**, clean and inspect the air compressor cylinder head, the valve assembly and the discharge line. Replace if necessary. Contact your dealer for proper procedures.

### Air tank

Drain the water from the air tank **(1)** daily to prevent corrosion inside the tank. Open the rear belly pan door to access the remote petcock **(2)** located at the bottom right-hand corner of the engine frame. Open the remote petcock to remove moisture. Close the petcock after all moisture has been removed.



RAIL14SP00816AA 2



RAIL14SP00817AA 3

## Recommended lubricants and coolants

<b>Engine</b>	
Oil type	<b>NEW HOLLAND AMBRA UNITEK MASTERGOLD SBL CJ-4 SAE 10W-40</b>
Oil Capacity	<b>25.0 L (6.6 US gal)</b>
<b>Cooling system</b>	
Coolant type	<b>NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT</b>
Coolant capacity	Approximately <b>38 l (10 US gal)</b> (does not include the heater core or cab plumbing).
<b>Hydraulic system</b>	
Oil type	<b>NEW HOLLAND AMBRA HYDROSYSTEM 68</b>
Tank capacity	Approximately <b>132 l (35 US gal)</b>
<b>Planetary hub</b>	
Oil type	<b>TUTELA 50 HD</b>
Hub capacity	<b>2.47 L (2.61 US qt)</b>
<b>Air conditioning system</b>	
Refrigerant type	<b>CNH REFRIGERANT HFC-134A</b>
Refrigerant capacity	<b>3.4 kg (7.5 lb)</b>
<b>Lubricating grease</b>	
Grease type	<b>NEW HOLLAND AMBRA GR 75 MD</b>

## Consumables - Engine oil

**NEW HOLLAND AMBRA UNITEK MASTERGOLD SBL CJ-4 SAE 10W-40** is recommended for use in your engine. This multi-viscosity oil will lubricate your engine correctly under all operating conditions. This oil meets API engine oil service category CJ-4.

**NOTE:** Do not use low ash API CJ-4 engine oil unless used with ultra-low sulfur diesel (less than 15 parts per million).

**NOTE:** Do not put performance additives or other oil additive products in the engine crankcase. The oil change intervals given in this manual are developed from tests with New Holland lubricants.

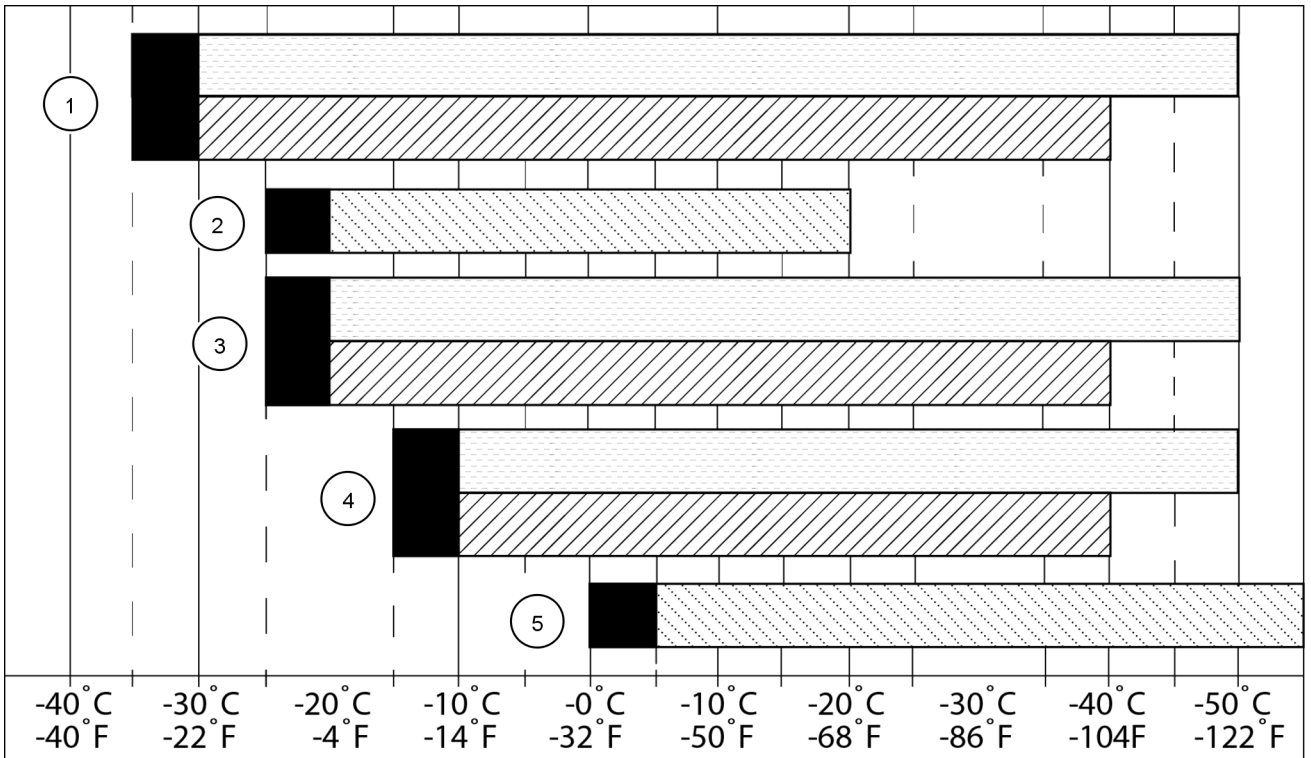
### Synthetic lubricants

Synthetic lubricants are available from your dealer for your machine. Synthetics are used just as you would use mineral-based lubricants.

**NOTICE:** The use of synthetic lubricants does not permit extension of recommended service intervals. All synthetic oils must meet or exceed the API service requirements.







The following chart states the recommended viscosity at ambient air temperature ranges.



RAIL14SP01039FA 1

Engine oil/ambient temperature recommendations

Item	Oil type
1	0w-40
2	10W-30
3	10W-40
4	15W-40
5	20W-50

Item	Description
 RAIL14SP01040AA 2	Engine oil pan or coolant block heater recommended in this range.
 RAIL14SP01041AA 3	Recommendation applies to use of CJ-4 UNITEK oils only
 RAIL14SP01042AA 4	Recommendation applies to use of API CI-4 or CJ-4 oils only
 RAIL14SP01043AA 5	Recommendation applies to use of API CJ-4 SAE 10W-30 oils

## Engine coolant

### ⚠ WARNING

**Entanglement hazard!**

**Do not attempt any inspection or adjustment with the machine running.**

1. Set the parking brake.
2. Turn off the engine.
3. Remove key from key switch.

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

W0103A

### ⚠ WARNING

**Maintenance hazard!**

**Never try to service the air-conditioning system yourself. Contact your dealer for service.**

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

W0268A

### ⚠ WARNING

**Burn hazard!**

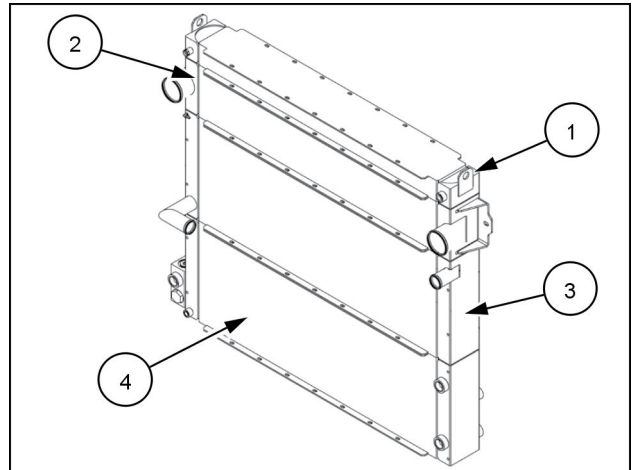
**Hot coolant can spray and scald if you remove the radiator or deaeration tank cap while the system is hot. To remove the cap: allow the system to cool, turn the cap to the first notch, and wait for all pressure to release. Remove the cap only after all pressure has released.**

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

W0367A

The air conditioning condenser (1), charge air cooler (2), engine radiator (3), and the hydraulic oil cooler (4) are in a top to bottom stacked arrangement.

The cooling fan pushes air from the rear of the vehicle through the coolers.



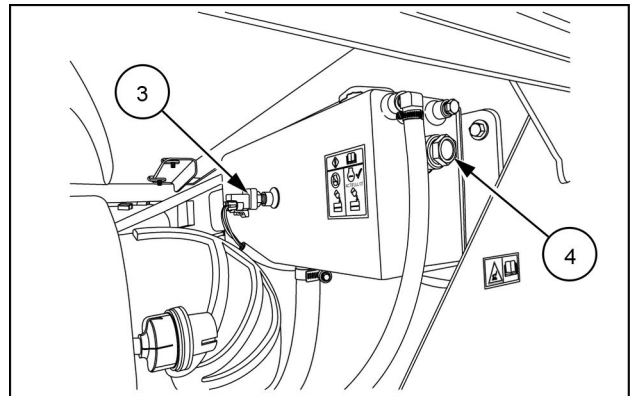
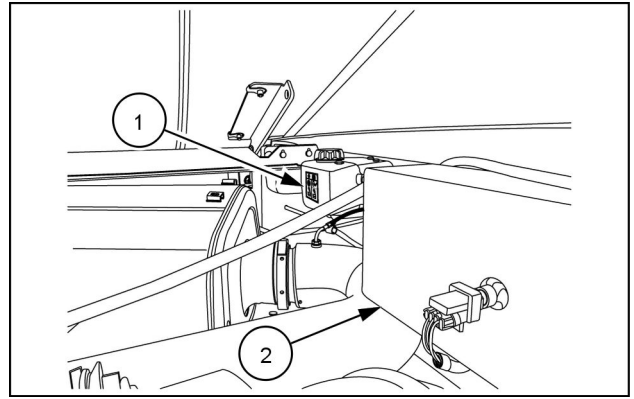
RAIL14SP01819AA 1

### Coolant overflow bottle

The coolant overflow bottle (1) is located behind the surge tank (2). The overflow bottle should not be used to add coolant to the surge tank. The bottle is used to catch overflow from the surge tank. The overflow bottle is not to be used as a coolant level check.

### Coolant level sensor

Your sprayer is equipped with a coolant level sensor (3) which will automatically detect and warn the operator when the coolant level is too low. The coolant level can also be checked by using the sight gauge (4) attached to the surge tank.



### Surge tank

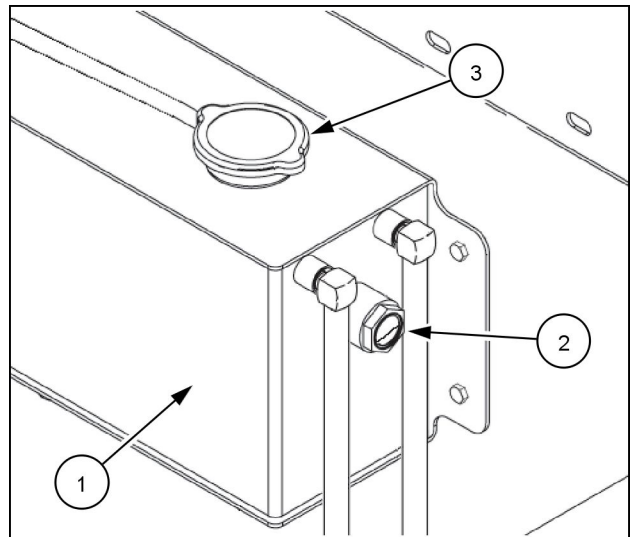
The surge tank (1) allows for hot coolant expansion and keeps the expanded coolant volume within the cooling system.

The level of coolant in the system can be checked by observing the sight gauge (2) attached to the front surface of the surge tank.

Coolant is added to the system through the filler neck on the surge tank.

If the coolant level is low, allow the engine and radiator to cool before attempting to open the surge tank cap (3). Add **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** as needed to bring the coolant level up into the sight gauge of the surge tank. Do not mix different coolant types. Replace cap when finished adding coolant to the system.

The capacity of the cooling system is **38 L (10 US gal)**. This capacity does not include the heater core or cab plumbing.



### Adding coolant to the system

The following steps are to be followed when draining and refilling the cooling system.

1. Shut off the vehicle engine and allow the system to cool.
2. Open the surge tank cap slowly to relieve system pressure
3. Remove the surge tank cap and fill the surge tank with coolant.
4. Allow the coolant to fill completely the system and then wait 2 to 3 minutes.
5. Refill the surge tank again.
6. Leave the surge tank cap off and run the engine at idle for several minutes.

7. Top off the coolant level in the surge tank.
8. Run the engine at high idle until the thermostats open.
9. Shut off the engine and top off the coolant level in the surge tank.
10. Restart and run the engine up to operating temperature.
11. Shut off the engine and allow the engine to cool.
12. Top off the coolant level in the surge tank and reinstall the surge tank cap.

## Organic Acid Technology (OAT) coolant

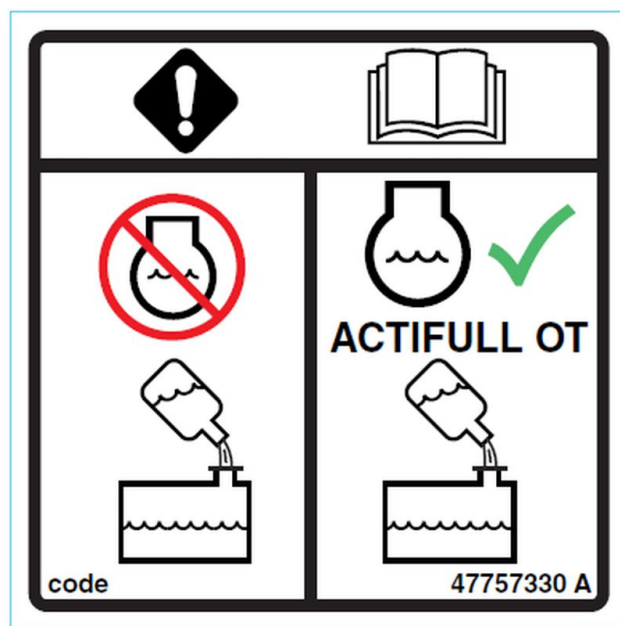
Your cooling system is factory fill with **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**, an Organic Acid Technology (OAT) coolant solution. You can easily identify **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** by its yellow color. You should never mix the coolant types.

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

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

The coolant solution used must meet the following CNH Industrial material specifications for either coolant type:

- **MAT3624** for OAT coolant
- **MAT3620** for conventional coolant



47757330 1

**NOTICE:** 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 **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**. Change the coolant solution at the recommended change interval.

If you need to change a machine from OAT coolant to conventional coolant or vice versa, you should follow the “Changing coolant types” procedure below to attain the full benefit of the coolant.

### Changing coolant types

To change coolant from OAT coolant to conventional coolant (or vice versa):

1. Empty the engine cooling system by draining the coolant into a suitable container.
2. Fill the system with clean water.
3. Start the engine and run the engine for at least **30 min**.

**NOTE:** Make sure that you activate the heating system (if equipped) to circulate fluid through the heater core.

4. Repeat Steps 1 to 3 for a total of two washes.
5. Fill the system with conventional coolant (or OAT coolant).
6. Operate the engine until it is warm. Inspect the machine for leaks.
7. If you are changing to OAT coolant, then attach the decal (CNH Industrial part number 47757330) to indicate the use of OAT coolant in the cooling system.

### Definitions

Conventional coolant:

A coolant that relies on inorganic inhibitors such as silicates, nitrites, and phosphates for corrosion and cavitation protection.

Organic Acid Technology (OAT) coolant:

A coolant that relies on inhibitors such as organic acid salts for corrosion and cavitation protection.

## General battery maintenance

### ⚠ WARNING

#### Chemical hazard!

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

Failure to comply could result in death or serious injury.

W0349A

### ⚠ WARNING

#### Hazardous chemicals!

Battery electrolyte contains sulfuric acid. Contact with skin and eyes could result in severe irritation and burns. Always wear splash-proof goggles and protective clothing (gloves and aprons). Wash hands after handling.

Failure to comply could result in death or serious injury.

W0006A

### ⚠ WARNING

#### Explosion hazard!

If battery electrolyte is frozen, attempting to charge the battery or jump-start the engine can cause the battery to explode. Always keep batteries at full charge to prevent frozen battery electrolyte. Never charge a frozen battery.

Failure to comply could result in death or serious injury.

W0203A

The batteries are located inside the engine compartment and are accessed through the rear engine compartment door.

There are three batteries installed into the vehicle. The batteries are connected in series. The batteries are of sealed type construction.

Battery specifications are as follows:

Nominal Voltage – **12 V**

Cold Cranking Amps — 1000 A SAE CA **0 °C (32 °F)**

Reserve capacity **25 A** at **27 °C (80 °F)** — 200

Battery type — Flooded

Electrolyte specific gravity range – 1.270 – 1.300

Float voltage **27 °C (80 °F)** – **13.5 – 13.8 V**

Cycling voltage **27 °C (80 °F)** – **14.5 – 14.9 V**

Maximum discharge current – **1400 A ( 5 s)**

Approximate weight – **26 kg (58 lb)**

Battery terminal type — post

**NOTE:** The full charge specific gravity will usually be shown on the battery. Cold temperatures of approximately **-17.8 °C (0.0 °F)** will cause freezing of a battery with a specific gravity of 1.175.

## Battery maintenance

The three batteries are located inside the engine compartment and are accessed through the rear engine compartment door.

Keep your batteries in good operating condition as follows:

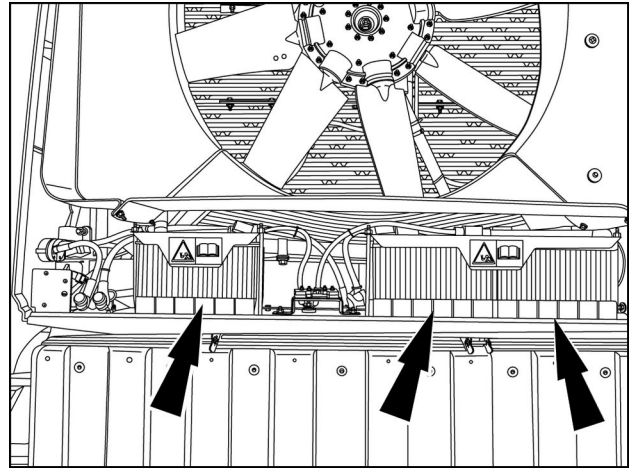
1. Keep the batteries with a full charge.
2. Keep the batteries clean and dry.
3. Keep the batteries fastened into their mounting position.
4. If a battery will not keep a charge, install a new battery that has the specifications given in this manual.
5. When using a battery charger, charge at the lowest rate possible to reduce gas formation. Do not charge a frozen battery.
6. The batteries will discharge when the machine is not in use. Charge the batteries every six weeks. A discharged battery can freeze at low ambient temperatures and cause battery damage.

**NOTE:** The full charge specific gravity will usually be shown on the battery. Cold temperatures of approximately  $-17.8\text{ }^{\circ}\text{C}$  ( $0.0\text{ }^{\circ}\text{F}$ ) will cause freezing of a battery with a specific gravity of 1.175.

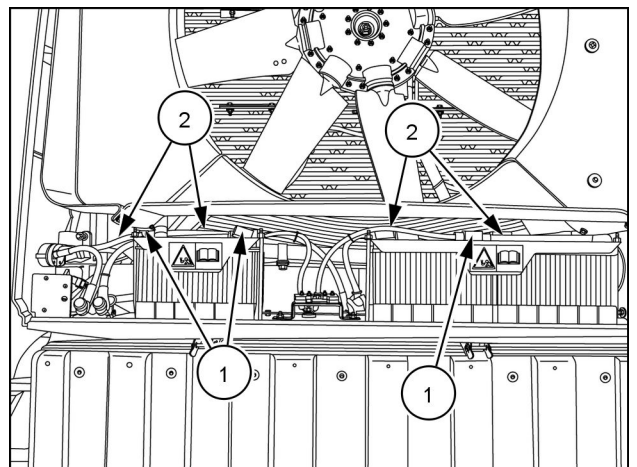
## Battery terminals and cables

The battery cable terminals must be kept clean and tight. Keep your battery cable terminals in good operating condition as follows:

1. Tighten loose connections by tightening the nuts (1) attaching the battery cable lugs to the batteries.
2. Inspect the battery cables (2) for damage. Replace any battery cable that has damage.
3. Remove all corrosion with a wire brush, then wash with a weak solution of baking soda or ammonia.
4. Put some petroleum jelly or light grease on terminals to prevent more corrosion.



RAIL18SP00243AA 1



RAIL18SP00243AA 2

**When batteries are not in use**

When the sprayer is not in use, the batteries will need a charge every six weeks. A storage battery not in use will slowly discharge. A battery that has discharged can freeze at low ambient temperatures and cause damage to the battery and sprayer.



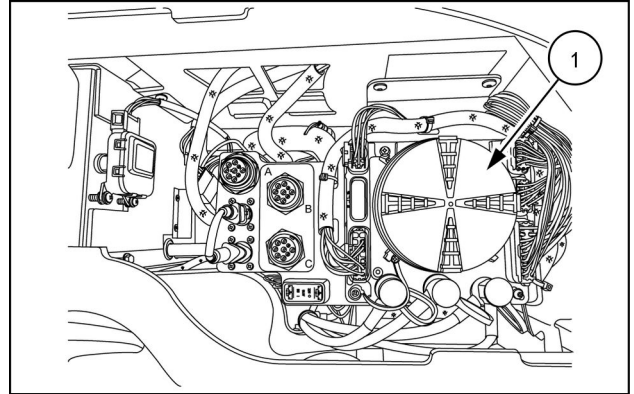
## Fuse locations

### Cab fuse/relay block

The Cab fuse/relay block (1) is located under the storage bin behind the training seat.

Remove the bin to access the fuse block. Remove the fuse block cover to access the fuses.

Reinstall the fuse block cover and the storage bin before operating the vehicle.



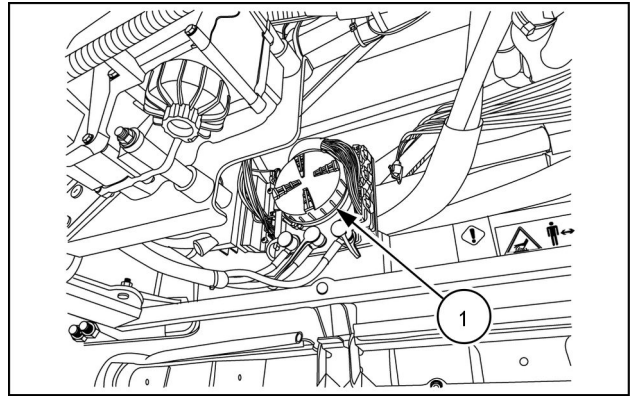
RAIL18SP01077AA 1

The fuses and relays located on the Cab fuse/relay block are listed in the table.

Fuse number	Relay number	Amperage	Description
F1	K1	20 A	Stadium Lights 1 and 6
F2	K2	20 A	Stadium Lights 2 and 5
F3	K3	20 A	Stadium Lights 3 and 4
F4	K4	10 A	Beacons
F5	K5	20 A	Boom Lights
F6	K6	30 A	Wiper Low
F7	K7	20 A	Low Beams
F8	K8	20 A	High Beams
F9	K9	30 A	Wiper High
—	K10	-	Auto Steer
—	K11	-	Auto Steer
—	K12	-	Pressure Fan Relay
—	K13	-	Door Switch Relay
—	K14	-	Wiper Fluid Relay
—	K15	-	Egress Lighting Relay
F10	—	10 A	Switched Display Power
F11	—	10 A	Switched Radio Power
F12	—	15 A	Switched Driveline Control Power
F13	—	10 A	110 V Outlet Power
F14	—	20 A	Auto Steer Valve Power
F15	—	30 A	Switched Outlet Power
F16	—	30 A	Evaporator Blower Power
F17	—	20 A	Seat Power
F18	—	15 A	Switched Field Computer Power
F19	—	10 A	HVAC Pressure Blower
F20	—	10 A	HVAC Pressure Sensor
F21	—	10 A	Switched HVAC Control Power
F22	—	10 A	Constant HVAC Control Power
F23	—	10 A	Cooler Power
F24	—	10 A	Wiper Fluid Pump Power
F25	—	30 A	Constant Outlet Power
F26	—	10 A	Constant Display Power
F27	—	10 A	Powered Mirrors
F28	—	10 A	Steering Column
F29	—	10 A	Spare

### Engine fuse/relay block

The Engine fuse/relay block (1) is located on the cross frame below the engine compartment. Open the lower engine access doors. Reinstall the fuse block cover and close the lower engine access doors before operating the vehicle.



RAIL17SP00758AA 2

The fuses and relays located on the Engine fuse/relay block are listed in the table.

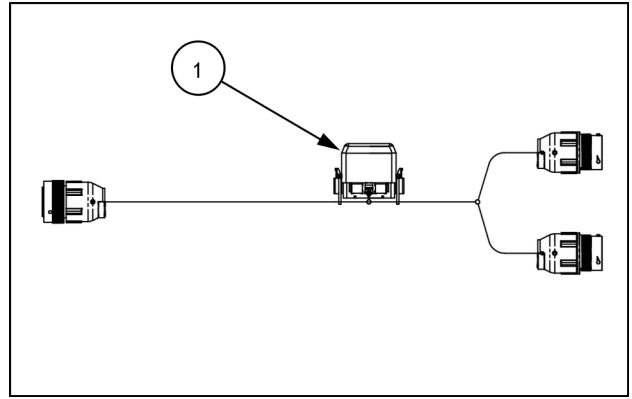
Fuse number	Relay number	Amperage	Description
F1	K1	20 A	Boom Rest Lights
F2	K2	10 A	Right Amber
F3	K3	20 A	Power Beyond
F4	K4	10 A	Suspension Dump
F5	K5	20 A	Reverse Light/Back Up Alarm
F6	K6	10 A	Engine Control Module (ECM) Switched Power
F7	K7	10 A	Eductor Wash
F8	K8	10 A	Left Amber
F9	K9	15 A	Air-conditioning clutch
—	K10	-	Spare
—	K11	-	Spare
—	K12	-	Spare
—	K13	-	Spare
—	K14	-	Engine Auxiliary Relay
—	K15	-	Spare
F10	—	20 A	Spare
F11	—	10 A	Foamer Power
F12	—	15 A	Sensor Power
F13	—	25 A	Product Valves
F14	—	15 A	Node Power
F15	—	15 A	Boom Valves
F16	—	20 A	Control Nodes High Current power
F17	—	15 A	Spare
F18	—	10 A	Alternator Exciter
F19	—	30 A	Injection High Current Power #2
F20	—	30 A	Injection High Current Power #3
F21	—	30 A	Injection High Current Power #1
F22	—	30 A	Engine Control module (ECM) Constant power
F23	—	20 A	ISOBUS Constant power
F24	—	10 A	Egress Lights
F25	—	25 A	IntelliSpray™ High Current Power #1
F26	—	25 A	IntelliSpray™ High Current Power #2
F27	—	25 A	IntelliSpray™ High Current Power #3
F28	—	20 A	Engine Auxiliary Relay Power
F29	—	25 A	IntelliSpray™ High Current Power #4

### IntelliSpray™ fuse and relay locations

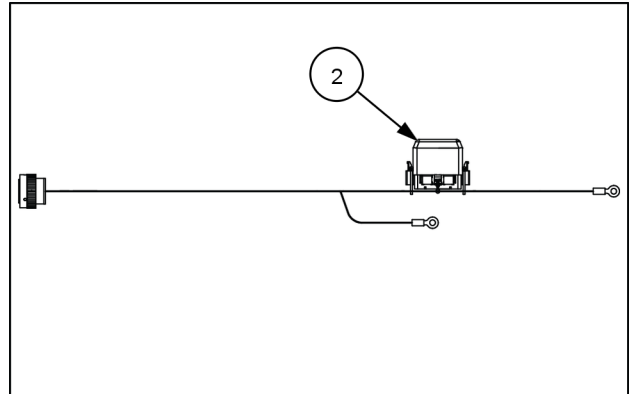
The fuses and relay for the **IntelliSpray™** system are located within the three wiring harnesses for the system. The right hand and left hand boom sections harness is located at the boom node controller attached to the center boom. A total of six 15 amp fuses are installed into the fuse holder attached to the harness **(1)**.

The power harness for the **IntelliSpray™** node is located under the chassis. A total of three 25 amp fuses are installed into the fuse holder attached to the harness **(2)**.

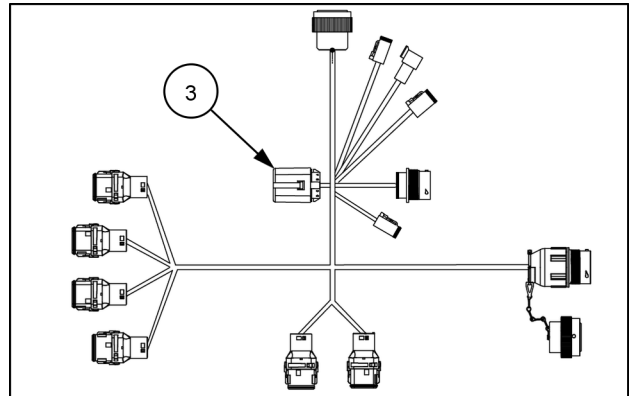
The **IntelliSpray™** node harness is located on the cab of the sprayer. A single relay is installed into the holder attached to the harness **(3)**.



RAIL16SP00792AA 3



RAIL16SP00793AA 4



RAIL16SP00791AA 5

Maintenance planning

Maintenance chart

Maintenance action	Tighten				Change fluid				Page no.
	Cleaning	Grease	Check	Drain fluid	Lubricate	Replace	Adjust	Test	
At warning message display									
Fuel filter	x								7-36
Engine coolant level		x							7-37
First 10 hours									
Tire lug nuts		x							7-38
Every 10 hours or daily									
Air cleaner restriction indicator		x							7-38
Engine air filters		x							7-40
Engine oil level		x							7-42
Engine coolant level		x							7-43
Hydraulic oil level		x							7-44
Air tank	x								7-45
Mono boom - Grease - Mono boom			x						7-46
Truss boom or Spray Air boom - Grease - Truss or Air boom			x						7-50
Strainers				x					7-56
King pins - Grease			x						7-57
Steering cylinder ball joints			x						7-59
Fuel filter	x								7-60
Suspension system			x						7-61
Trash and debris				x					7-63
Hydraulic components		x							7-64
Cooling fan		x							7-65
Air intake lines					x				7-66
First 50 hours									
Planetary drive hub						x			7-67
Tire lug nuts				x					7-68
Every 50 hours									
Tire lug nuts					x				7-69
Foam heads and in-line filter			x						7-70
Suspension valve linkage pivots						x			7-71
Cooling package		x							7-72
Leg widening axle slide pads			x						7-73
Planetary drive hub		x							7-74
Every 100 hours									
Tire inflation		x							7-75
Every 250 hours									
Engine air filters							x		7-75
Air compressor		x							7-77
Charge air cooler		x							7-78
Radiator hoses		x							7-79
Radiator		x							7-80
Hydro filters							x		7-81
Walkway railing lock			x						7-82
Air cleaner restriction indicator		x							7-83
Every 400 hours									

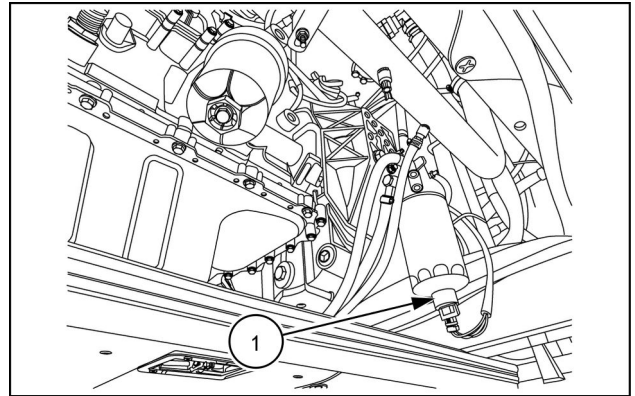
7 - MAINTENANCE

Maintenance action	Tighten				Change fluid				Page no.
	Cleaning				Lubricate				
	Grease				Replace				
	Check				Adjust				
	Drain fluid				Test				
Hydraulic oil filters							x		7-84
Hydraulic reservoir breather							x		7-85
UltraFlow pump filter (if equipped)							x		7-86
Every 500 Hours									
Primary fuel filter							x		7-87
Secondary fuel filter							x		7-88
Change planetary final drives oil						x			7-89
Tire lug nuts				x					7-90
Every 600 hours									
Engine oil and filter							x		7-91
Once a year									
Cab air filter							x		7-92
Engine air intake system		x							7-94
Every 1000 hours									
Hydraulic oil						x			7-95
Every two years									
Engine coolant						x			7-95
Cooling system thermostat		x							7-97
Air compressor discharge lines			x						7-98
Every 2000 hours									
Engine crankcase breather filter							x		7-99
Every 4500 hours									
As required									
Cooling package			x						7-99
Flow meter							x		7-100
Flow meter cable								x	7-101
Chassis suspension							x		7-102
Boom breakaway tension							x		7-103
Steering toe in							x		7-104
Boom cylinder speed							x		7-105
Spray Air boom			x						7-106
Engine cleaning			x						7-107
Cab air filter							x		7-108

## At warning message display

### Fuel filter

A water-in-fuel sensor is installed in the bottom of the secondary fuel filter (1) (water separator). When water covers the sensor, the monitor display panel will show a water in fuel warning. Refer to **7-60** for water draining procedure.



RAIL17SP00757AA 1

## Engine coolant level

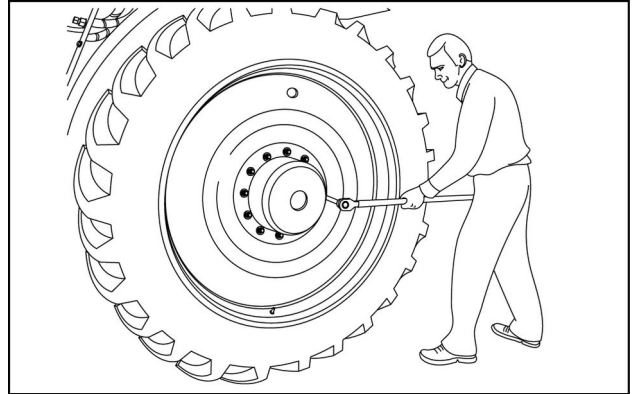
Refer to **7-43** for instruction.

**First 10 hours**

**Tire lug nuts**

Check the wheel lug nut torque.  
Torque the lug nuts to **610 N·m (450 lb ft)**.

**NOTE:** When a wheel is replaced, retorque the lugs nuts after the first hour of initial use.



RAIL15SP00828AA 1

**Every 10 hours or daily**

**Air cleaner restriction indicator**

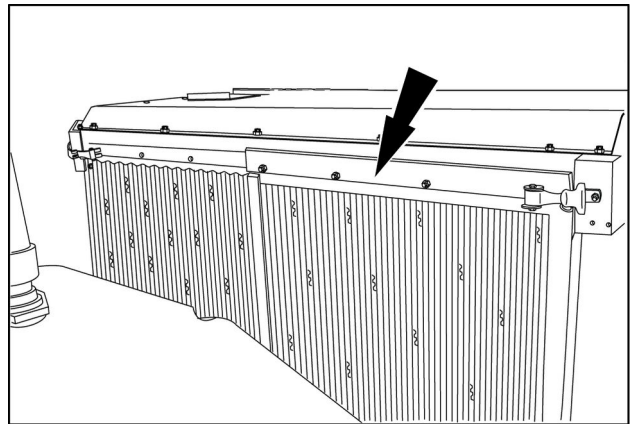
**⚠ WARNING**

Hot surface possible!  
Wait for all components to cool before performing any operation.  
Failure to comply could result in death or serious injury.

W0251A

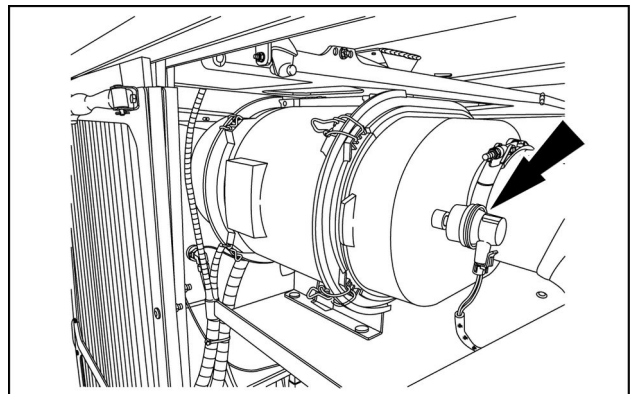
**NOTE:** 1 — Check daily in severe conditions.

1. Shut the engine off and remove the key.
2. Open the left hand engine access door.



RAIL14SP01014AA 1

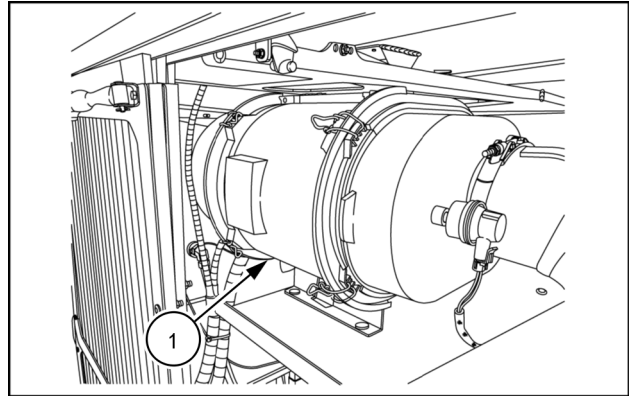
3. Check the restriction indicator located on the side of the air filter canister. If the indicator shows the filter is restricted, replace the filter as per instructions on **7-75**.



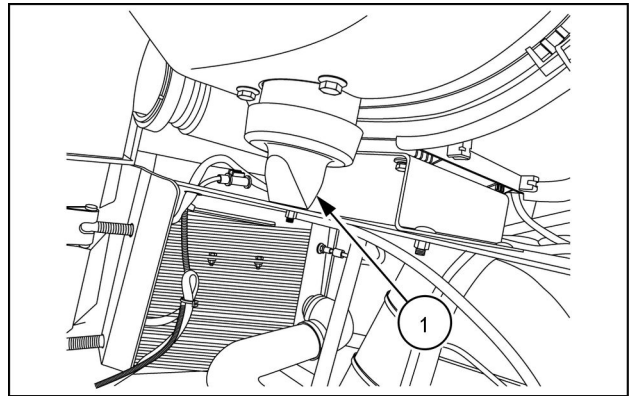
RAIL17SP00845AA 2



4. Check the vacuator valve **(1)** on the lower part of the air cleaner to make sure it is closing and sealing.



RAIL17SP00845AA 3



RAIL17SP00756AA 4

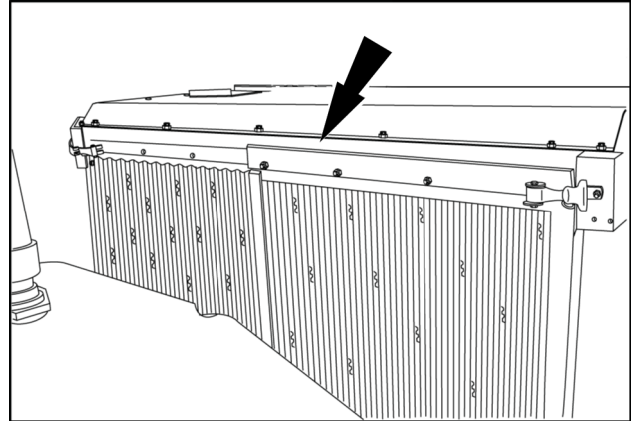
## Engine air filters

### ⚠ WARNING

Hot surface possible!  
Wait for all components to cool before performing any operation.  
Failure to comply could result in death or serious injury.

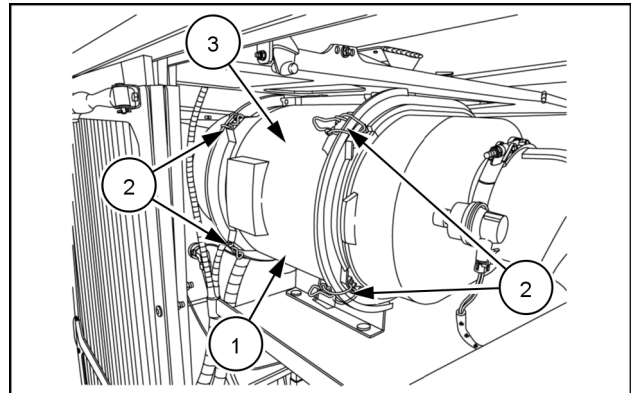
W0251A

1. Shut off the vehicle engine. Remove the key from the ignition switch.
2. Open the engine access door.



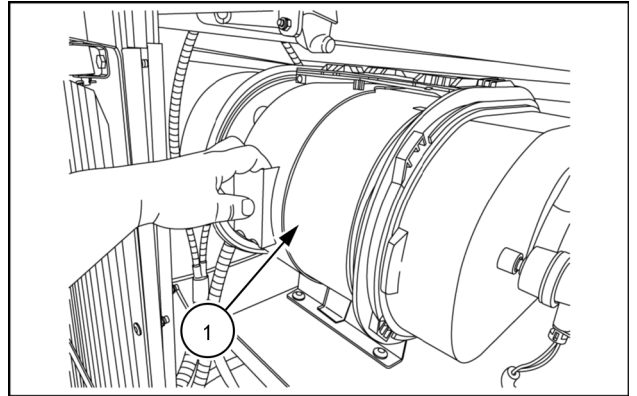
RAIL14SP01014AA 1

3. Access the engine air cleaner (1) . The air cleaner is mounted above the engine inside the engine cowling.
4. Release the four locks (2) holding the cover (3) . Remove the cover

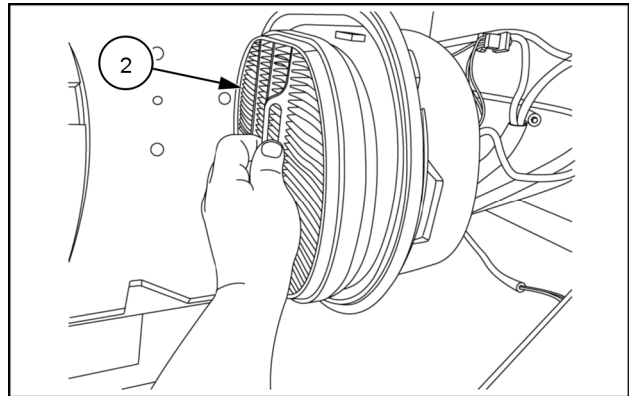


RAIL17SP00845AA 2

5. Pull the primary filter **(1)** out of the housing. Do not remove the inner (secondary) filter **(2)** unless it is to be replaced.
6. With the secondary filter in place, use a rag to wipe the inside of the filter housing and cover clean.
7. Check the primary filter for any damage and replace if any is discovered. Do not clean the primary filter, always replace the filter when the indicator indicates replacement



RAIL17SP00846AA 3

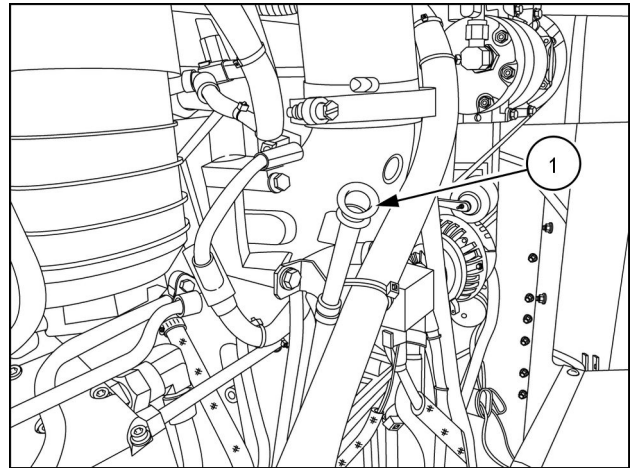


RAIL17SP00849AA 4

8. After servicing is complete, reinstall cover onto the air cleaner housing and lock in place. Lock the cover in place with the locking tabs.
9. If necessary, replace the air cleaner filters. Refer to **7-75** for replacement procedure.

## Engine oil level

1. The dipstick (1) is mounted on the front side of the engine. Access the dip stick by sliding the engine access doors open.
2. To check the engine oil level, the vehicle should be on level ground. Check the oil before starting the unit.
3. Make sure the dipstick (1) is pushed in completely.



RAIL18SP00244AA 1

4. If the oil level is below the add mark, add **NEW HOLLAND AMBRA UNITEK MASTERGOLD SBL CJ-4 SAE 10W-40** engine oil through the fill cap to raise the oil level to the full mark. Do not raise the level above the full mark.  
Engine oil capacity is **25.0 L (6.6 US gal)**

## Engine coolant level

### **⚠ WARNING**

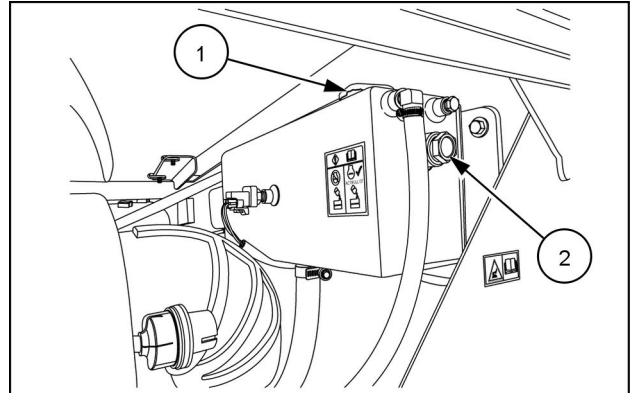
#### **Burn hazard!**

Hot coolant can spray and scald if you remove the radiator or deaeration tank cap while the system is hot. To remove the cap: allow the system to cool, turn the cap to the first notch, and wait for all pressure to release. Remove the cap only after all pressure has released.

Failure to comply could result in death or serious injury.

W0367A

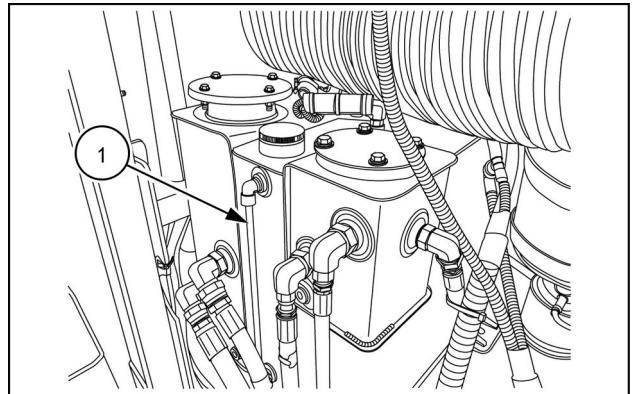
Allow the engine and radiator to cool before attempting to open the surge tank cap (1) on the surge tank. Add **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** as needed to bring the level up into the sight gauge (2) on the surge tank. Replace cap when finished.



RAIL17SP00760AA 1

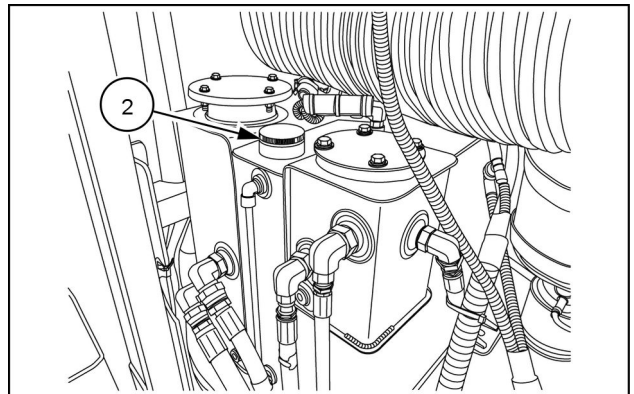
## Hydraulic oil level

1. With the engine shut off and the key removed, check the hydraulic oil level on the sight gauge (1).



RAIL17SP00755AA 1

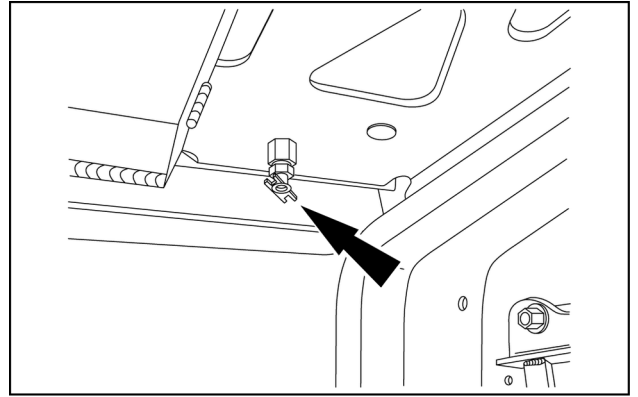
2. If the oil is not to the full mark, add **NEW HOLLAND AMBRA HYDROSYSTEM 68** through the fill cap (2). Hydraulic oil tank capacity is **132 L (35 US gal)**. Use a filter cart to filter all hydraulic oil before it enters the reservoir.



RAIL17SP00755AA 2

## Air tank

Open the air tank remote drain petcock attached to the bottom frame plate. Allow the moisture in the air tank to drain out. Close the petcock after all moisture has been removed.



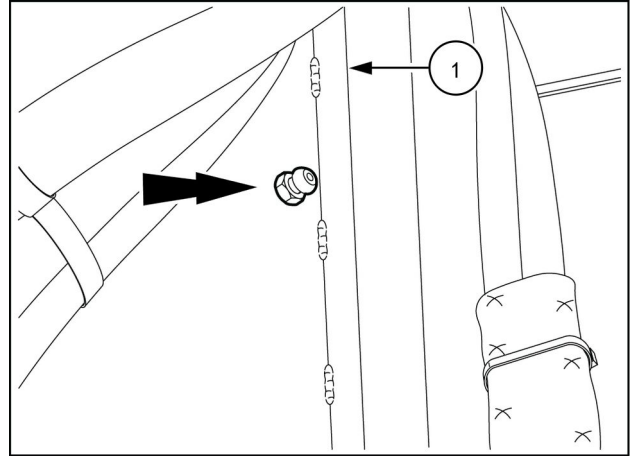
RAIL14SP00817AA 1

## Mono boom - Grease — Mono boom

**NOTE:** To lubricate the boom fittings it maybe necessary to lower and/or unfold the boom. Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

### Primary boom pivots (each end of center section)

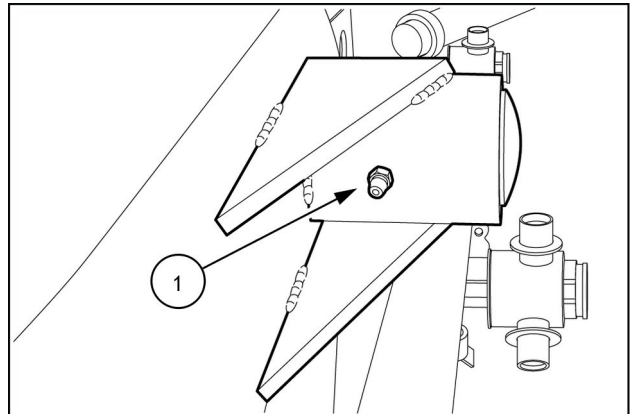
Locate the five grease fittings equally spaced along the tube (for **100 ft** booms and shorter) on each primary pivot on each side of the center boom section. The units equipped with **120 ft** booms have two grease fittings per side (one in the top bushing and one in the lower bushing). Clean off the grease fittings before attaching the grease gun. Grease until grease comes out of the top and bottom of the pivot. Wipe up any excess grease. Outer edge (1) of center section shown



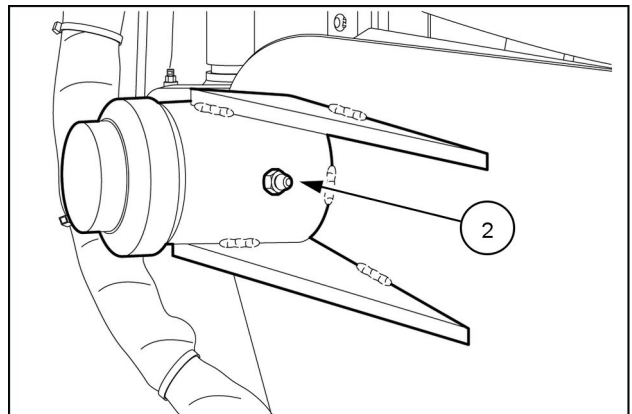
RCPH11SPR081BAM 1

### Primary boom tilt pivots

Locate the inner (1) and outer (2) primary boom tilt pin grease fittings on each primary boom. Clean off the grease fittings before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up any excess grease.



RCPH11SPR082AAM 2

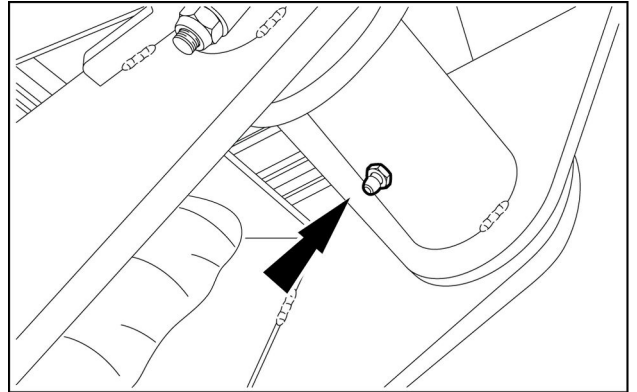


RCPH11SPR083AAM 3



### Secondary boom pivots

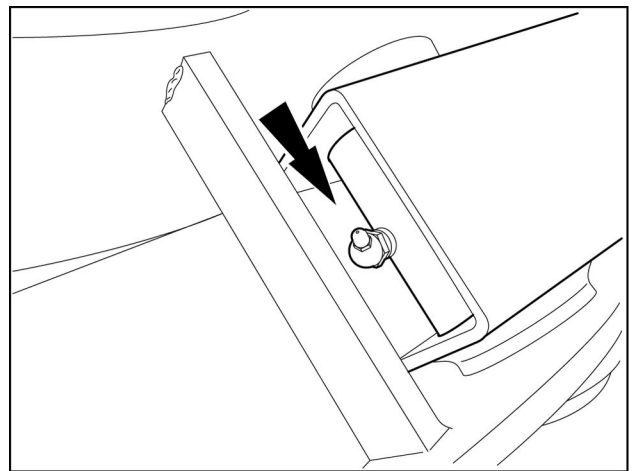
Locate the grease fitting on the pivot pin between the primary and secondary booms. Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up any excess grease. Repeat for the other side.



RCPH11SPR084AAM 4

### Boom breakaway pivots

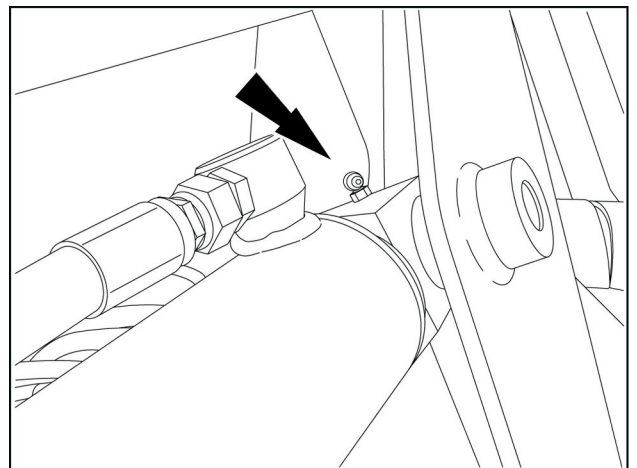
Locate the grease fitting on the pivot pin between the secondary boom and the boom breakaway. Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up any excess grease. Repeat for the other side.



RCPH11SPR085BAM 5

### Boom lift cylinder base end

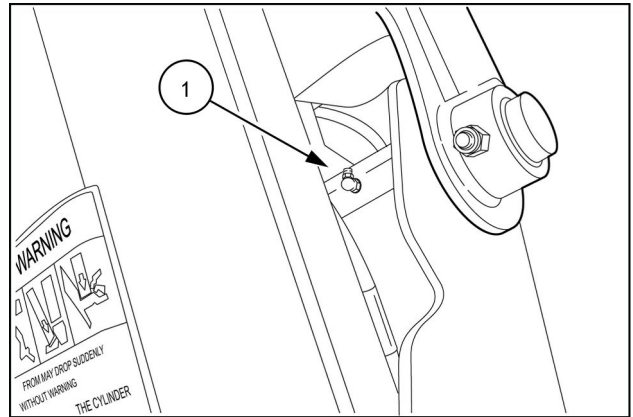
Locate the grease fitting on the base end of each boom lift cylinder. Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up any excess grease. Repeat for the other lift cylinder.



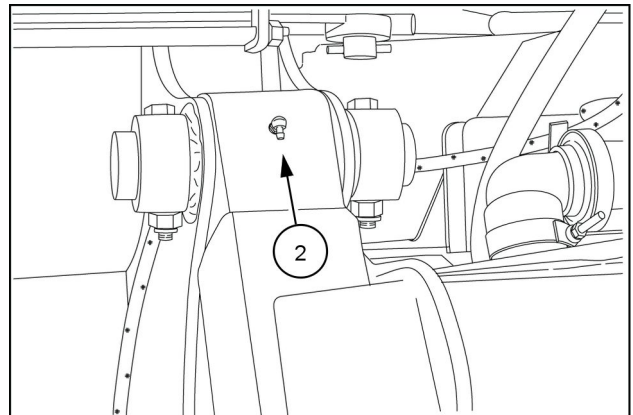
RCPH11SPR086BAM 6

## Upper lift arm assembly pivots

Locate the grease fitting on the frame end of upper lift arm assembly (1) and the center boom end of each side of the upper lift arm assembly (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of each pivot. Wipe up any excess grease. Repeat for the other side of the upper lift arm assembly.



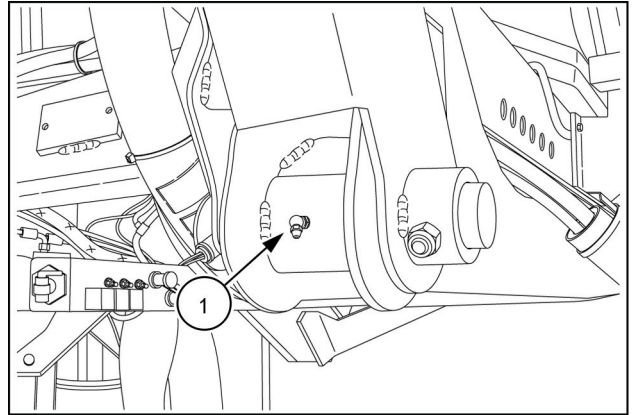
RCPH11SPR087AAM 7



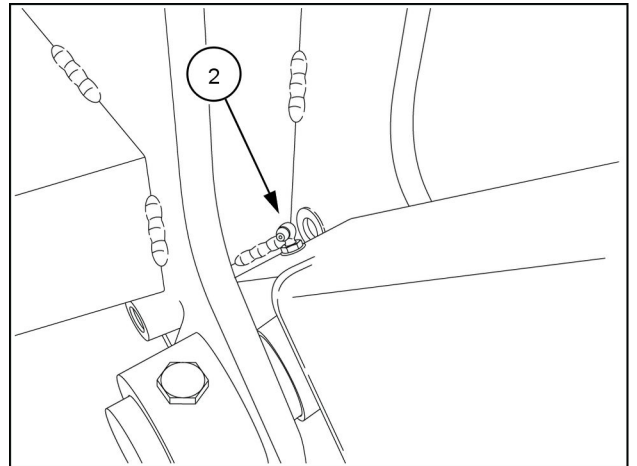
RCPH11SPR088AAM 8

**Lower lift arm assembly pivots**

Locate the grease fitting on the frame end of the lower lift arm (1) and the center boom end of each side of the lower lift arms (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of each pivot. Wipe up any excess grease. Repeat for the other lower lift arm.



RCPH11SPR089AAM 9



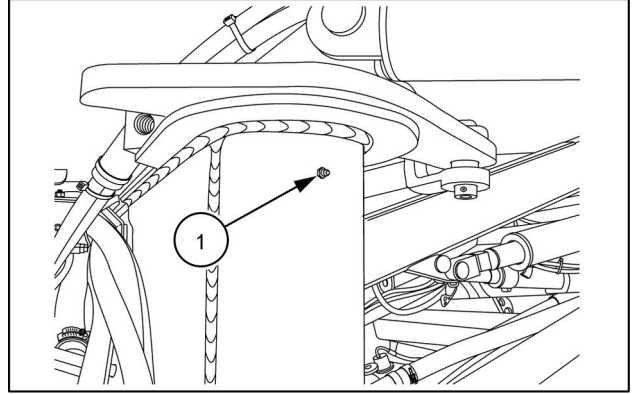
RCPH11SPR090BAM 10

## Truss boom or Spray Air boom - Grease — Truss or Air boom

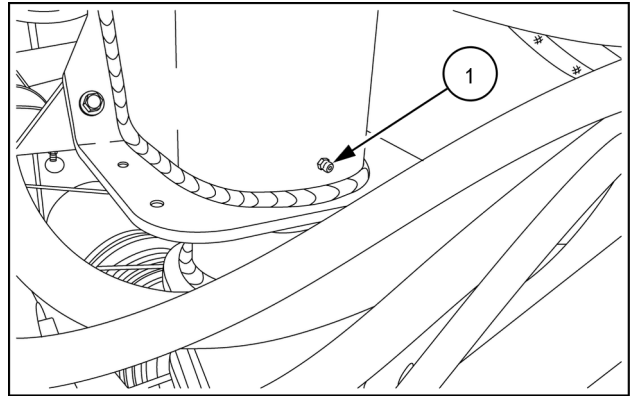
**NOTE:** To lubricate the boom fittings it maybe necessary to lower and/or unfold the boom. Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

### Primary boom swing pivots

Locate the primary boom swing pivots on each side of the center boom section. Locate the two grease fittings (1) per side (one in the upper bushing and one in the lower bushing). Clean off the grease fittings before attaching the grease gun. Grease until grease comes out of the top and bottom of the pivot. Wipe up any excess grease.



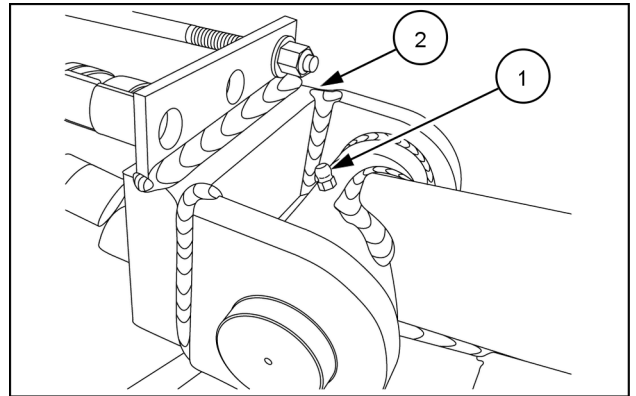
RAIL15SP00901AA 1



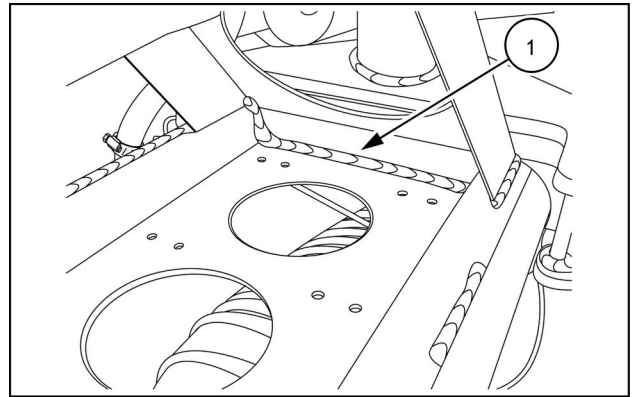
RAIL15SP00902AA 2

### Primary boom tilt pivots

Locate the grease fitting (1) on each primary boom upper and lower tilt pins. The upper tilt pin is the rod end of the tilt cylinder (2) where it is pinned to the primary boom assembly. Clean off the fitting before attaching the grease gun. Grease until grease comes out of the pivot. Remove any excess grease. Repeat for the other side.



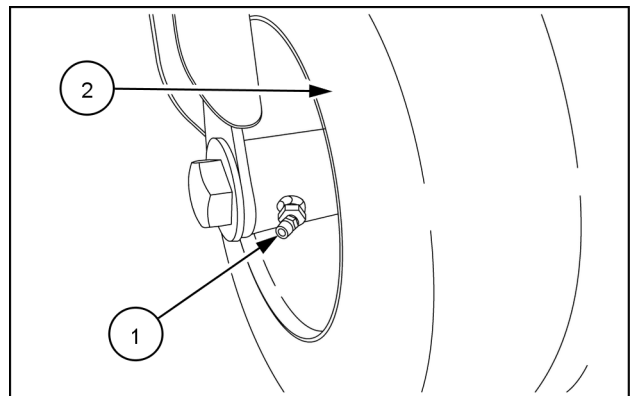
RAIL15SP00903AA 3



RAIL15SP00904AA 4

### Boom guide wheel

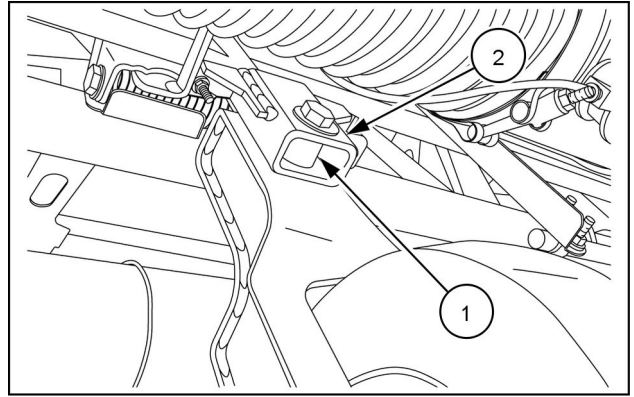
Locate the grease fitting (1) on the guide wheel (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of the center of the wheel. Wipe up excess grease. Repeat for the guide wheel on the other boom.



RAIL15SP00905AA 5

### Boom guide wheel pivot

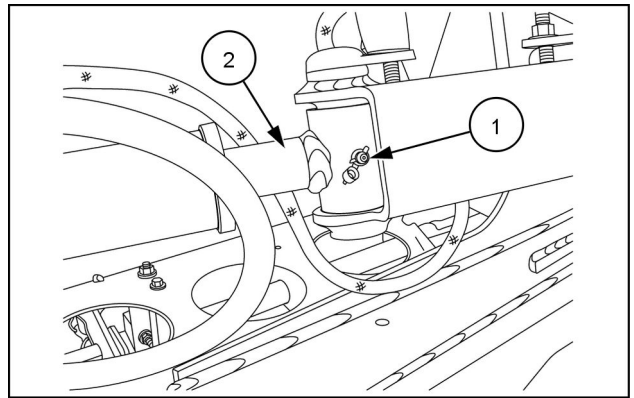
Locate the grease fitting (1) on the guide wheel pivot tube (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up excess grease. Repeat for the guide wheel pivot on the other boom.



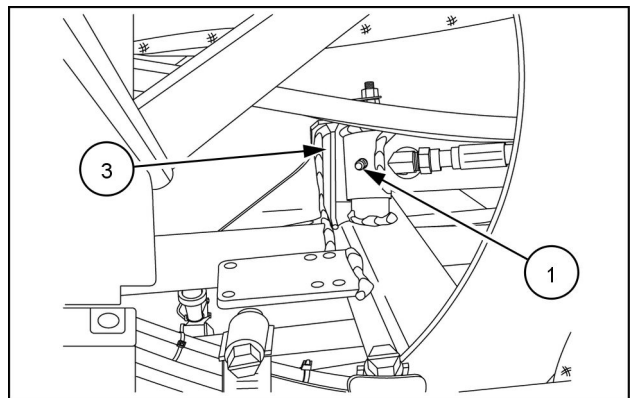
RAIL15SP00906AA 6

### Secondary boom cylinder rod and base end pivots

Locate the grease fittings (1) on the cylinder rod end (2) and the cylinder base end (3) between the primary and secondary booms. Clean off the grease fittings before attaching the grease gun. Grease until grease comes out of the pivots. Wipe up excess grease. Repeat for the secondary boom cylinder pivots on the other boom.



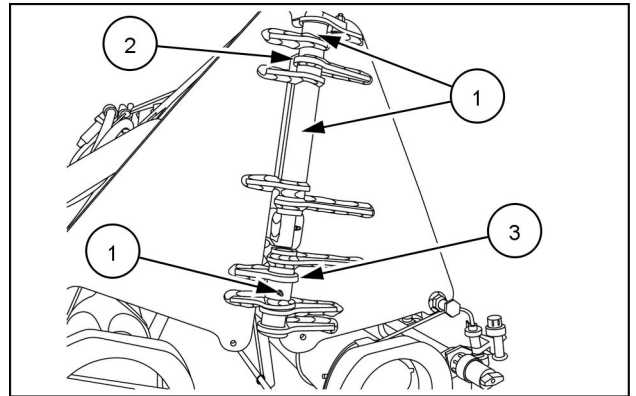
RAIL15SP00907AA 7



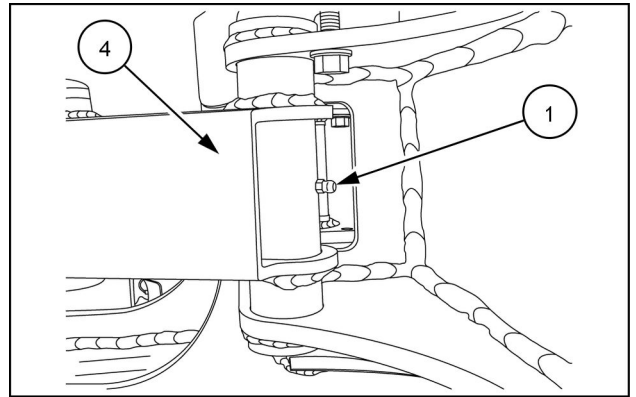
RAIL15SP00908AA 8

### Secondary boom pivots

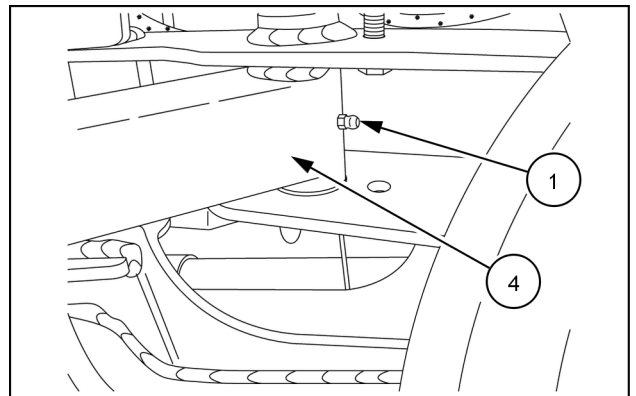
Locate the six grease fittings on the pivot between the primary and secondary booms. Two fittings (1) are on the upper pivot rod (2) between the primary and secondary booms. One fitting (1) is on the lower pivot rod (3) between the primary and secondary boom. There are three fittings (1) on the pivot linkage plates (4) between the primary and secondary booms. Clean off the grease fittings before attaching the grease gun. Grease until grease comes out of the pivot. Wipe up excess grease. Repeat for the secondary boom pivot on the other boom.



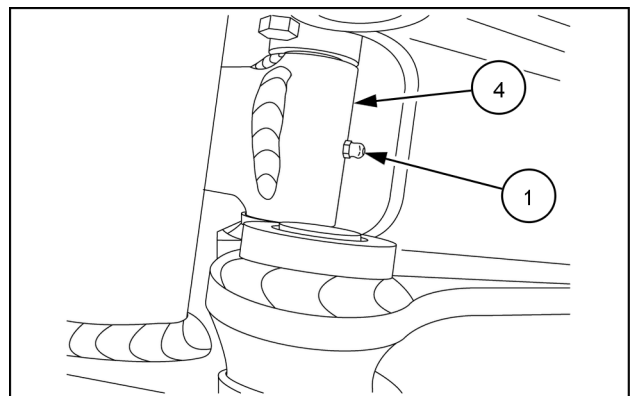
RAIL15SP00909AA 9



RAIL15SP00910AA 10



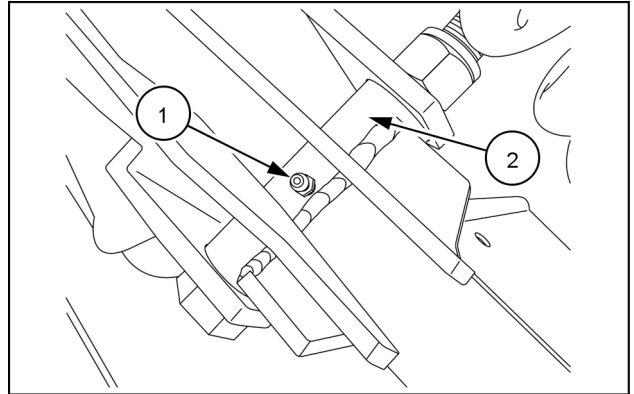
RAIL15SP00911AA 11



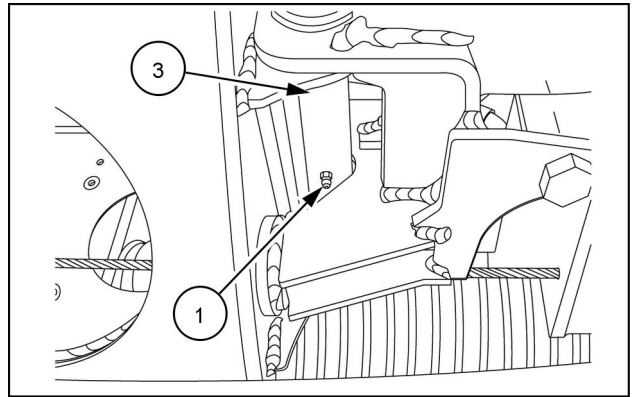
RAIL15SP00912AA 12

### Boom breakaway pivots

Locate the two grease fittings (1) on the pivot pins between the secondary boom and the boom breakaway. One fitting is on the horizontal pivot (2) and one is on the upper surface of the vertical pin (3). Clean off the fittings before attaching the grease gun. Grease until grease comes out of the pivots. Remove any excess grease. Repeat for the other side.



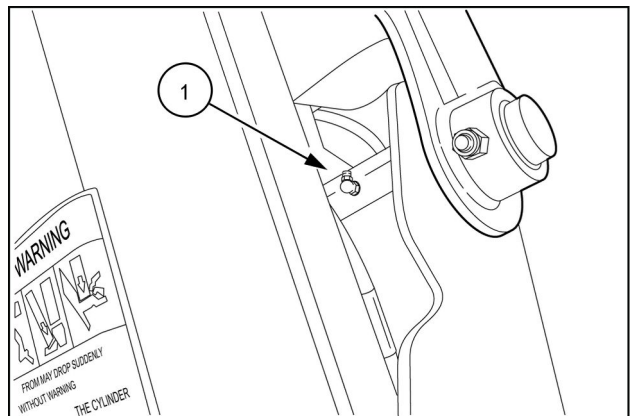
RAIL15SP00913AA 13



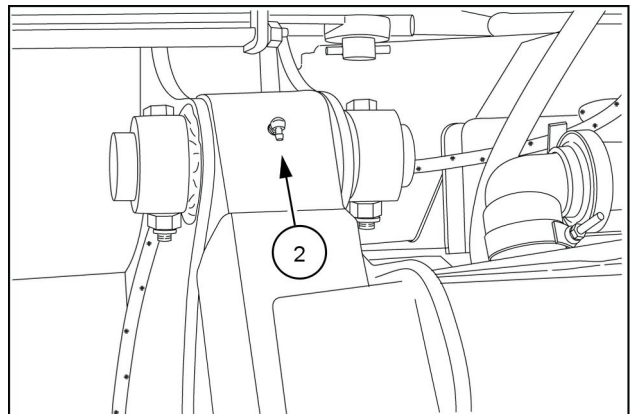
RAIL15SP00914AA 14

### Upper lift arm assembly pivots

Locate the grease fitting on the frame end of upper lift arm assembly (1) and the center boom end of each side of the upper lift arm assembly (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of each pivot. Wipe up any excess grease. Repeat for the other side of the upper lift arm assembly.



RCPH11SPR087AAM 15

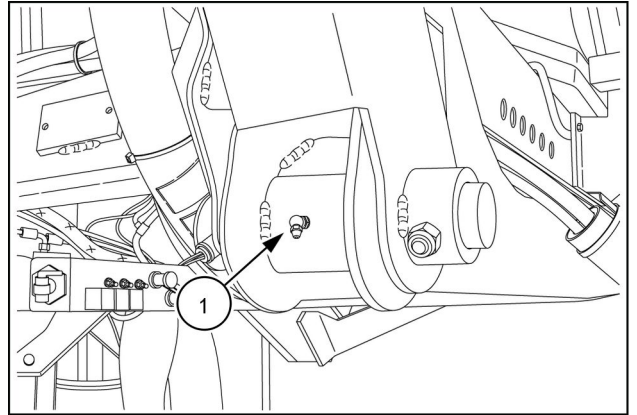


RCPH11SPR088AAM 16

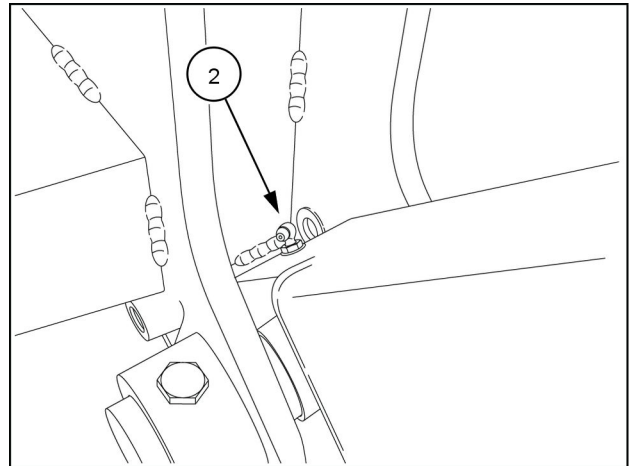


**Lower lift arm assembly pivots**

Locate the grease fitting on the frame end of the lower lift arm (1) and the center boom end of each side of the lower lift arms (2). Clean off the grease fitting before attaching the grease gun. Grease until grease comes out of each pivot. Wipe up any excess grease. Repeat for the other lower lift arm.



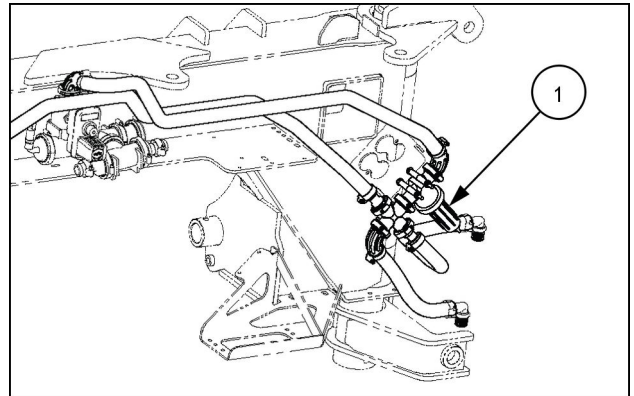
RCPH11SPR089AAM 17



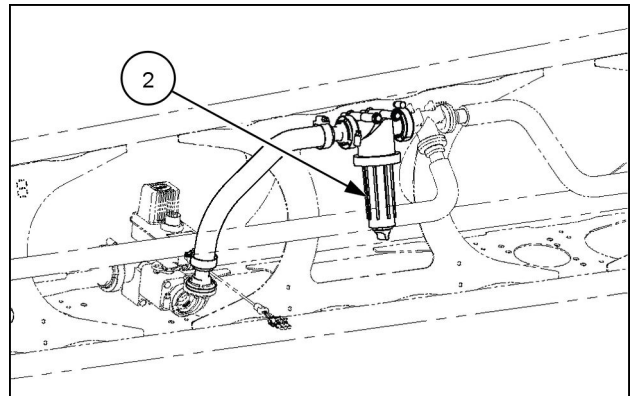
RCPH11SPR090BAM 18

## Strainers

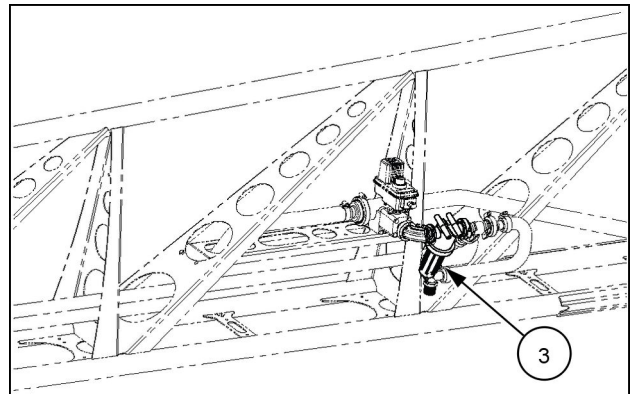
1. Remove and clean the boom strainers present on your machine.  
The number and type of strainers on your machine is dependant upon your boom setup.
2. Locations for the strainers are as follows:
  - (1) Center section
  - (2) Secondary boom section
  - (3) Primary boom section



RAIL17SP01480AA 1



RAIL17SP01481AA 2



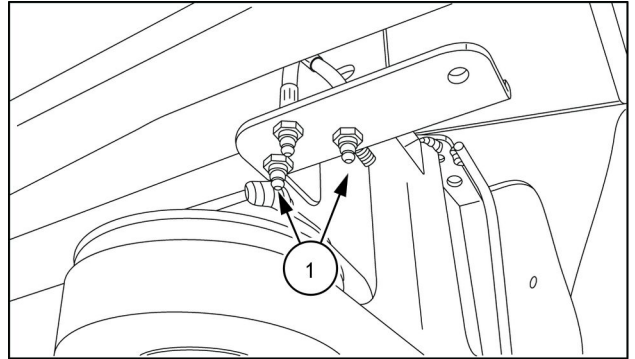
RAIL17SP01482AA 3

## King pins - Grease

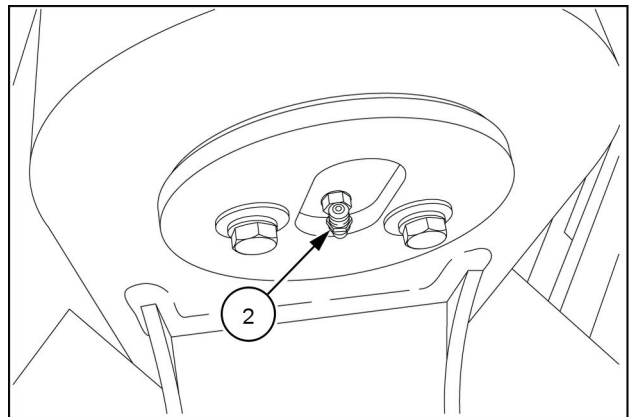
**NOTE:** Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

### Front steering pivot king pins

Locate the grease fittings on each of the front steering pivot king pins. Two remote fittings on the top **(1)** (remote mounted toward front of unit) and one fitting on the bottom **(2)** of each pivot. Clean off grease fittings before attaching the grease gun. Grease both fittings until grease comes out of the king pin tube. Wipe up excess grease.



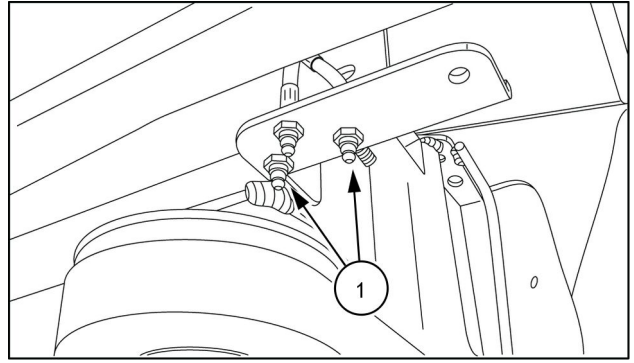
RAIL12SP01190AA 1



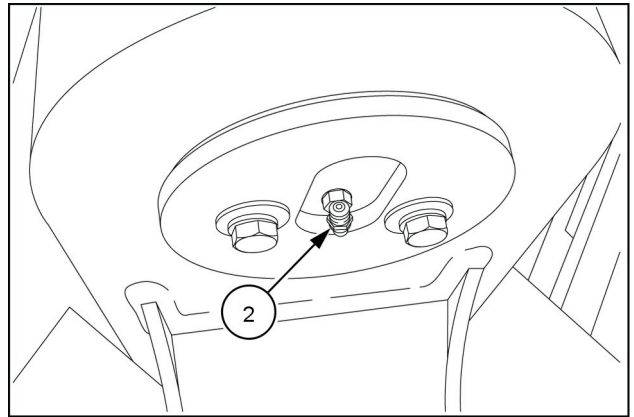
RCPH11SPR092AAM 2

**Rear steering pivot king pins (if equipped)**

Locate the grease fittings on each of the rear steering pivot king pins. Two remote fittings on the top **(1)** (remote mounted toward rear of unit) and one fitting on the bottom **(2)** of each pivot. Clean off grease fittings before attaching the grease gun. Grease both fittings until grease comes out of the king pin tube. Wipe up excess grease.



RAIL12SP01190AA 3



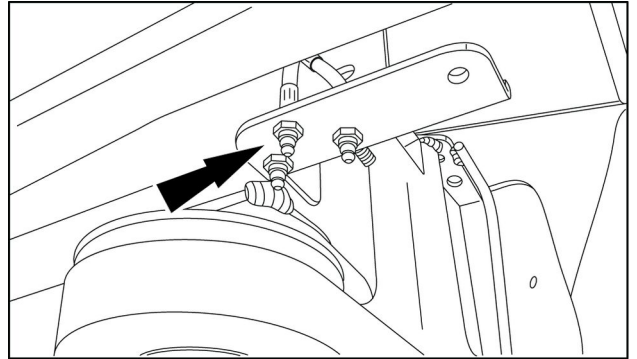
RCPH11SPR092AAM 4

## Steering cylinder ball joints

**NOTE:** Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

### Front steering cylinder ball joints

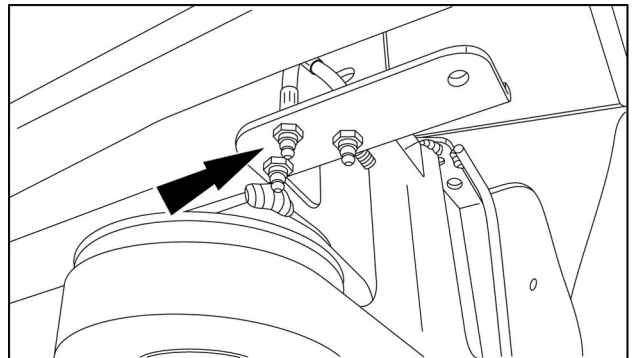
Locate the remote mounted grease fittings to the rod end ball joint of each front steer cylinder. Clean off grease fittings before attaching the grease gun. Grease the fittings until grease comes out of each ball joint. Wipe up excess grease.



RAIL12SP01190AA 1

### Rear steering cylinder ball joints (if equipped)

Locate the remote mounted grease fittings (center fitting) to the rod end ball joint of rear each steer cylinder. Clean off grease fittings before attaching the grease gun. Grease the fittings until grease comes out of each ball joint. Wipe up excess grease.



RAIL12SP01190AA 2

## Fuel filter

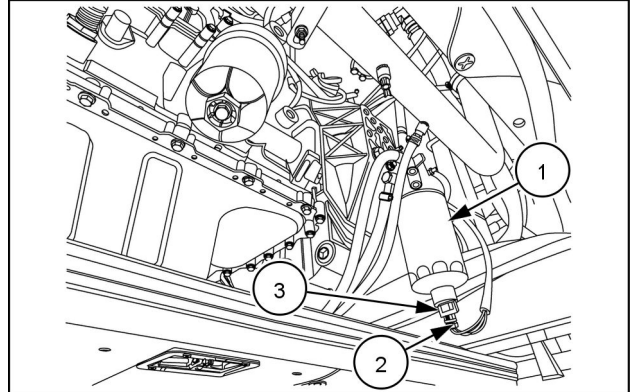
### ⚠ WARNING

**Hot surface possible!**  
**Wait for all components to cool before performing any operation.**  
**Failure to comply could result in death or serious injury.**

W0251A

**NOTE:** A water-in-fuel sensor is installed in the bottom of the primary fuel filter (water separator). When water covers the sensor, the Armrest display will show a water in fuel warning.

1. Open the lower engine access cover. The filter (1) is mounted to the rear of the engine.
2. Disconnect the wire harness connector (2) from the sensor located at the bottom of the filter housing. Press the retainer clip inward and pull down on the connector to disconnect.
3. Turn the drain housing (3) to the left approximately one turn until liquid comes out of the drain pipe. Collect the fluids in an appropriate container. Dispose of the fluid properly.
4. Once the fluid has drained, turn the drain housing to the right to tighten. Reconnect the wire harness connector to the sensor. Close the lower engine access cover when complete.



RAIL17SP00757AA 1

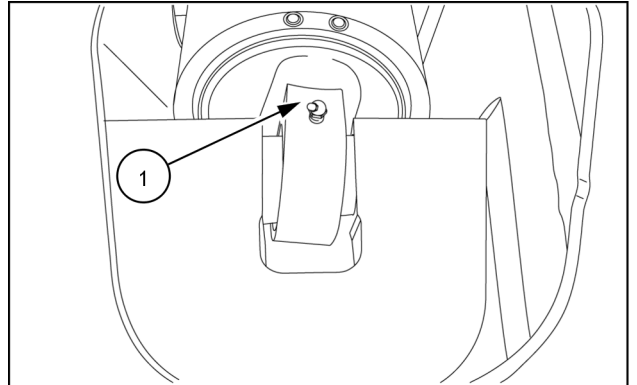
**NOTE:** Be sure to close and latch the lower engine access covers before operating.

## Suspension system

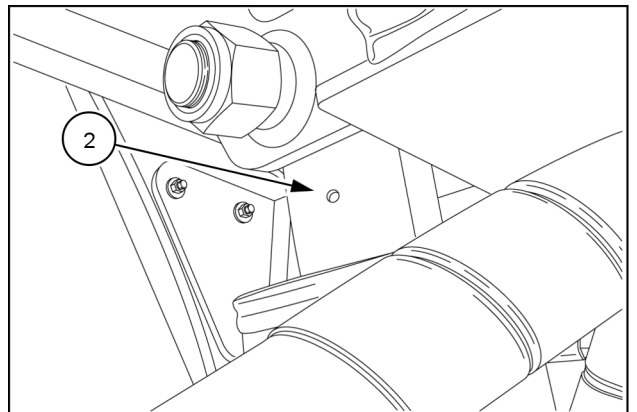
**NOTE:** Grease all fittings with **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE**.

### Suspension cylinder rod and base end

Locate the grease fittings on the suspension cylinder rod (lower) **(1)** and base (upper) **(2)** end pivots on each side of the vehicle. The base (upper) grease fitting is located on the side of the base end ear. Clean off grease fittings before attaching the grease gun. Grease the fittings until grease comes out of each pivot. Wipe up excess grease. The lower (rod end) of the cylinder is accessed through an opening in the frame behind the sheet metal between the wheels.



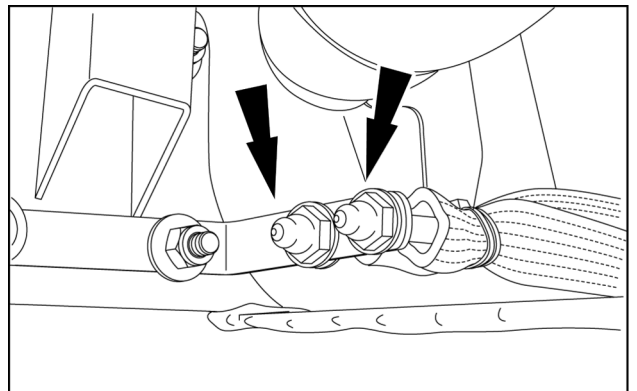
RCPH11SPR096AAM 1



RCPH11SPR095AAM 2

### Rear suspension cylinder rod and base end (remote grease fittings)

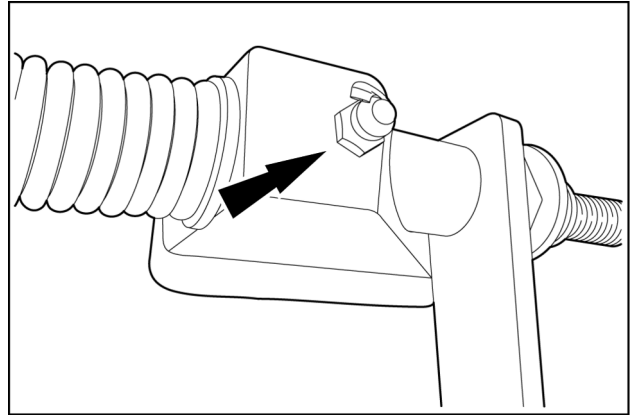
Locate the two remote grease fittings for each rear suspension cylinder. The fittings are located in a mounting plate on top of each rear leg. Clean off the fittings before attaching the grease gun. Grease each fitting until grease comes out of each pivot.



RAIL12SP00763AA 3

### Suspension linkage pivot points

Locate the grease fittings on the linkage rod pivots on each side of the vehicle behind the formed shield between the front and rear wheels. Clean off grease fittings before attaching the grease gun. Grease the fittings until grease comes out of each pivot. Wipe up excess grease.



RCPH11SPR094AAM 4



## **Trash and debris**

Inspect for and remove all trash and debris from around and on any hot components such as the exhaust, engine, turbocharger, batteries and cooling system at least once during each day and at the end of the day. Inspect and clean more often if operating conditions are severe. Keep these areas clean to avoid the possibility of fire and over-heating.

## Hydraulic components

### **⚠ CAUTION**

#### **Escaping fluid!**

**Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.**

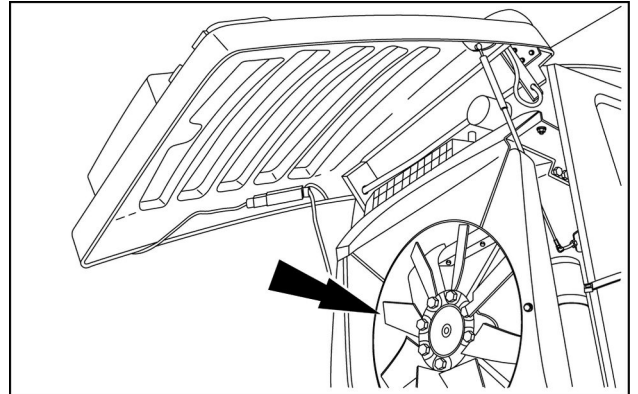
**Failure to comply could result in minor or moderate injury.**

C0104A

1. Carefully make a visual inspection of all hoses and fittings, looking for leaks and/or other damage. If a problem or defect is found, make all necessary repairs before operating machine.
2. Carefully make a visual inspection of all hydraulic cylinders, looking for leaks and/or other damage. If hydraulic cylinder damage is found, make all necessary repairs before operating machine.

## Cooling fan

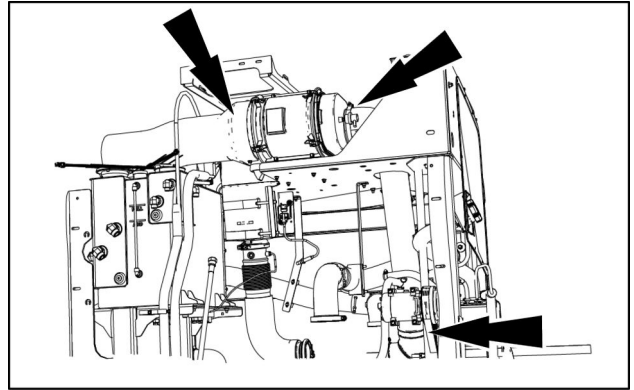
1. Lift the rear access door to gain access to the cooling fan. Visually inspect the cooling fan. Clear away any debris. Replace or repair any damaged components.



RAIL14SP00791AA 1

## Air intake lines

1. Check the connections for the air intake lines. Ensure that all clamps are tightened and that the air intake tubing is properly attached.

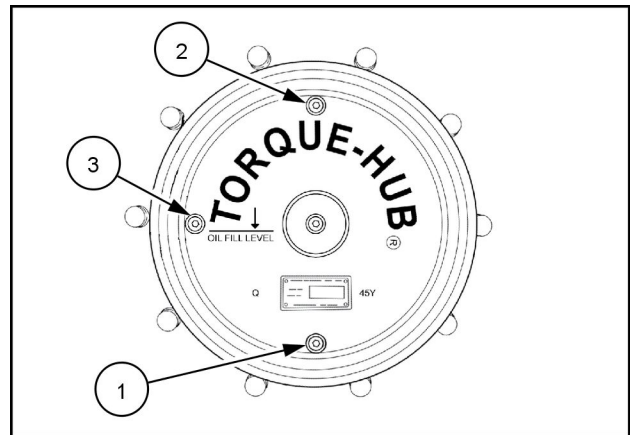


RAIL18SP00246AA 1

## First 50 hours

### Planetary drive hub

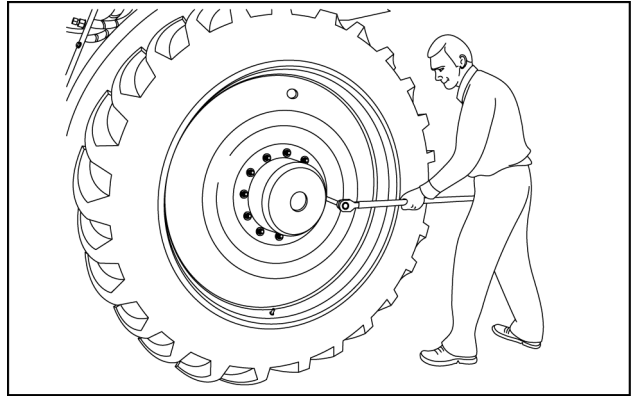
1. Drive the vehicle onto a hard, level surface. Turn off the engine and remove the key from the ignition.
2. Ensure that the planetary drive hub is positioned with the drain plug (1) in the 6 o'clock position.
3. Place a container under the drain plug to catch the gear lube when draining.
4. Remove the drain plug (1) and the upper plug (2). Allow the planetary to drain completely.
5. Clean and reinstall the drain plug and the upper plug after all gear lube has been drained from the planetary drive hub.
6. Remove the level plug (3) from the planetary drive.
7. Fill the planetary drive hub with **TUTELA 50 HD** gear lube. Fill the planetary drive hub until the gear lube level is at the bottom of the level plug hole. Approximate capacity is **2.47 L (2.61 US qt)**.
8. Install the level plug (3) into the planetary drive hub.
9. Repeat for the gear lube change for the remaining planetary drive hubs.
10. After the planetary drive hubs have been filled to the proper level, drive the vehicle for a short distance. Stop the vehicle and recheck the level in each planetary drive hub.



RAIL15SP00883AA 1

## Tire lug nuts

Torque the lug nuts to **610 N·m (450 lb ft)**.

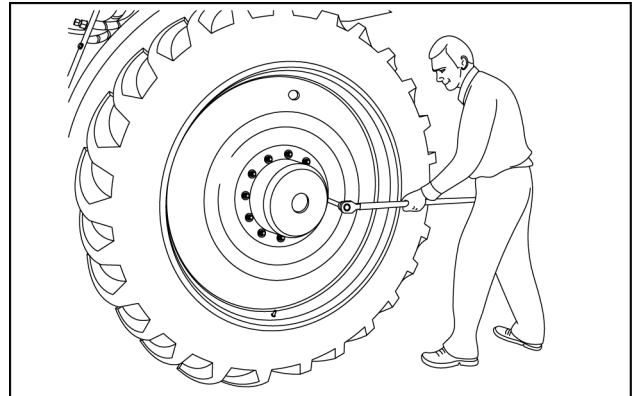


RAIL15SP00828AA 1

**Every 50 hours**

## **Tire lug nuts**

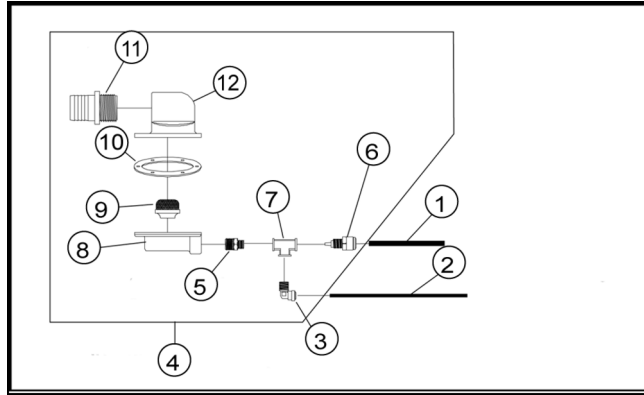
Torque the lug nuts to **610 N·m (450 lb ft)**.



RAIL15SP00828AA 1

## Foam heads and in-line filter

The foam heads have been designed so that the elements inside may be cleaned as necessary. The screens inside this unit should be washed periodically with hot water. The in-line filter element should be cleaned occasionally to ensure sufficient liquid flow to the foam head assemblies.



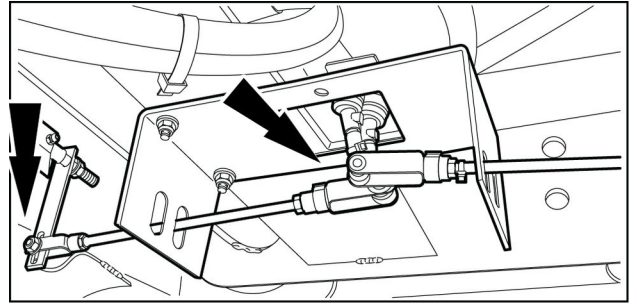
RCPH11SPR199AAM 1

1. 3/8 black poly tubing	7. Brass tee
2. 1/4 black poly tubing	8. Base housing
3. Elbow	9. 3/8 screen
4. Foamhead assembly	10. Gasket
5. Brass reducer	11. Nipple
6. Venturi	12. Top housing



## Suspension valve linkage pivots

Lubricate suspension valve linkage pivots with clean oil.

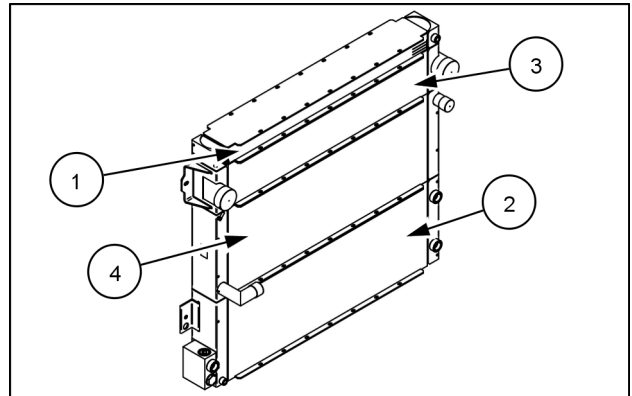


RCPH11SPR078AAM 1

## Cooling package

Inspect the cooling package for debris, and any leakage of the fittings. Inspect more often if operating in adverse conditions. Repair any leaks immediately. Straighten any dented or damaged cooling fins.

Inspect the air conditioner condenser **(1)**, the hydraulic oil cooler **(2)**, the charge air cooler **(3)**, and the radiator **(4)** for any debris. Remove any debris and dirt. Straighten any bent cooling fins.

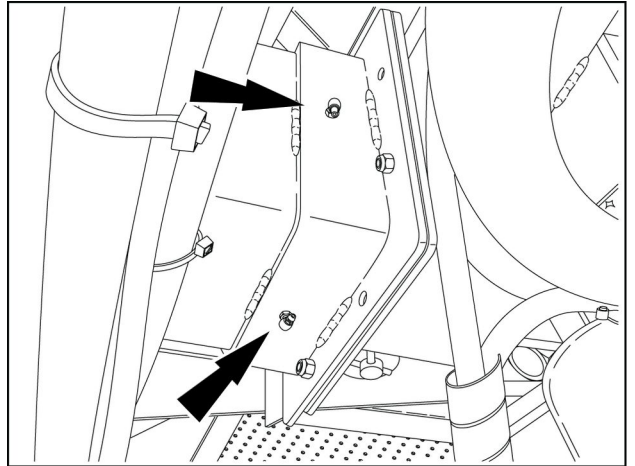


RAIL16SP00236AA 1

## Leg widening axle slide pads

**NOTE:** Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

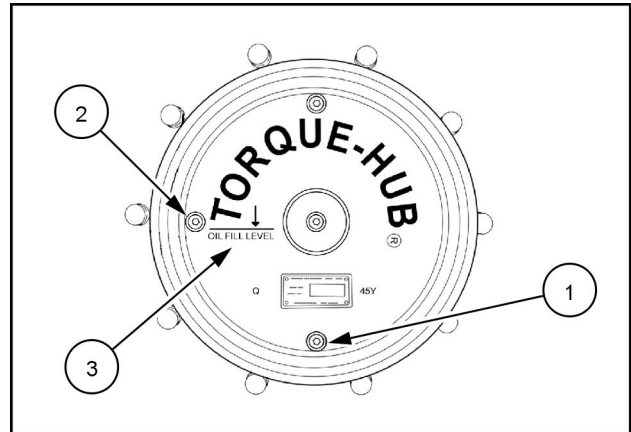
Locate the four grease fittings (front, rear, top and bottom) on each axle tube at each of the leg widening slides (2 shown). The top fittings are remote mounted fittings in the flange just below the outer end of each axle slide cylinder. Clean off grease fittings before attaching the grease gun. Give each fitting several pumps of grease.



RCPH11SPR093BAM 1

## Planetary drive hub

1. Drive the vehicle onto a hard, level surface. Turn off the engine and remove the key from the ignition.
2. Ensure that the planetary drive hub is positioned with the drain plug **(1)** in the 6 o'clock position.
3. Remove the level plug **(2)** from the planetary drive.
4. Observe the oil level in the planetary housing by looking into the level plug hole. The oil level should be at the level line **(3)** indicated on the planetary housing.



RAIL15SP00883AA 1

5. If required, fill the planetary to the proper level.
6. Install the level plug **(2)** into the planetary drive hub.
7. Perform the gear lube level inspection for the remaining planetary drive hubs.

**Every 100 hours****Tire inflation**

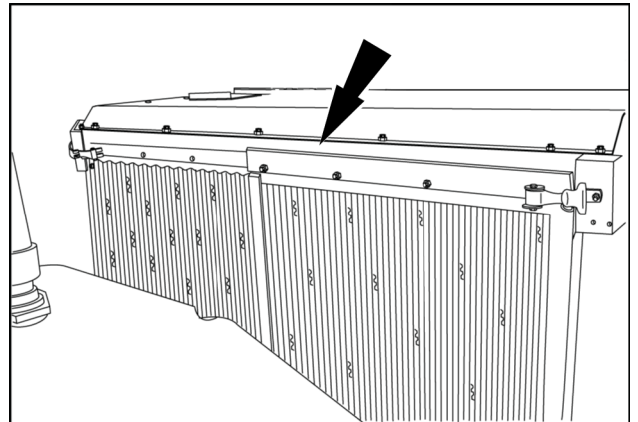
It is recommended that the tire manufacturer's tire pressure as indicated on the side wall of the tire be maintained. If your vehicle is equipped with the Michelin Spraybib 177D tires the maximum pressure is **359 kPa (52 psi)**. Refer to **7-14** for specific tire type inflation pressures.

**Every 250 hours****Engine air filters****⚠ WARNING**

**Hot surface possible!**  
**Wait for all components to cool before performing any operation.**  
**Failure to comply could result in death or serious injury.**

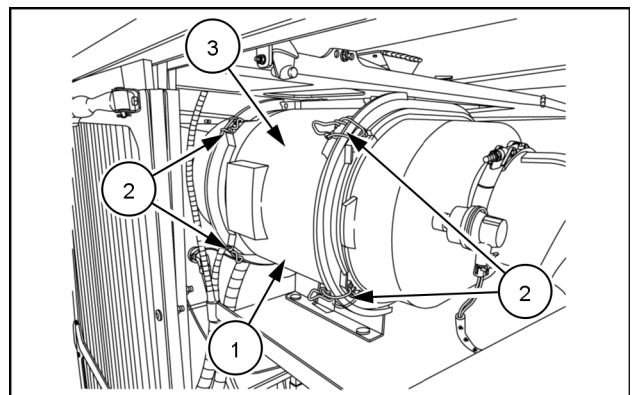
W0251A

1. Shut off the vehicle engine. Remove the key from the ignition switch.
2. Open the engine access door.



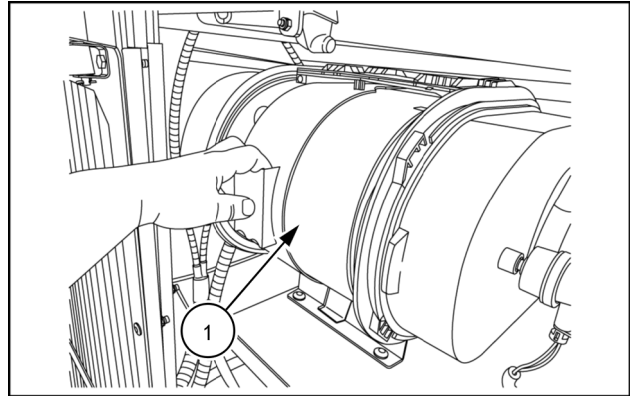
RAIL14SP01014AA 1

3. Access the engine air cleaner (1) . The air cleaner is mounted above the engine inside the engine cowling.
4. Release the four locks (2) holding the cover (3) . Remove the cover

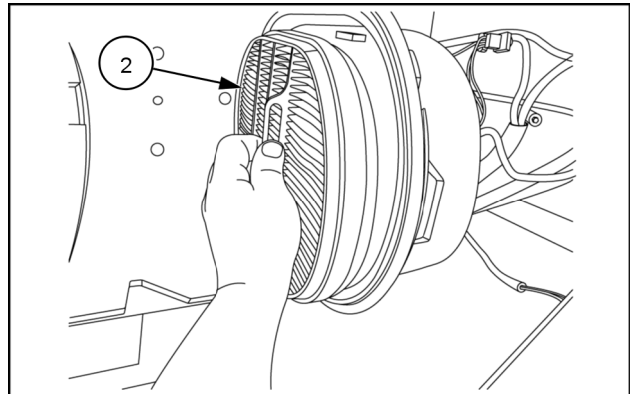


RAIL17SP00845AA 2

5. Pull the primary filter **(1)** out of the housing. Do not remove the inner (secondary) filter **(2)** unless it is to be replaced. If the secondary filter is replaced, be sure it is completely seated in the air cleaner housing. Be sure the locating tab is installed correctly and the filter seals into the slot in the housing.
6. With the secondary filter in place, use a rag to wipe the inside of the filter housing and cover clean.
7. Check the primary filter for any damage and replace if any is discovered. Do not clean the primary filter, always replace the filter when the indicator indicates replacement

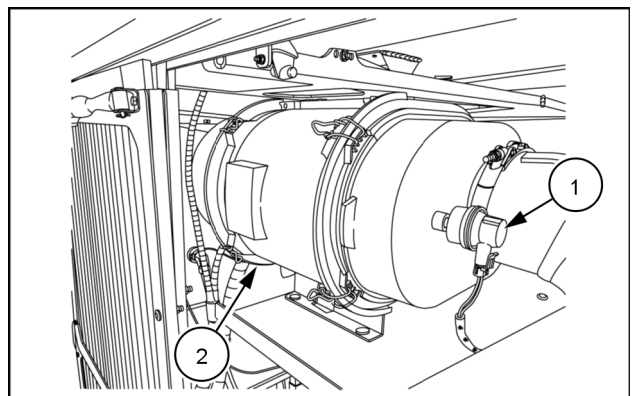


RAIL17SP00846AA 3

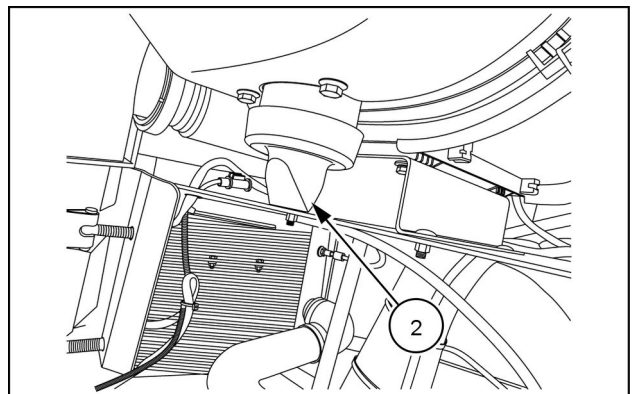


RAIL17SP00849AA 4

8. After servicing is complete, reinstall cover onto the air cleaner housing and lock in place. Lock the cover in place with the four locks.
9. Reset the restriction indicator **(1)** after filters are replaced. Press the yellow button on the indicator to reset
10. Visually check the evacuator valve **(2)** (not shown) on the lower part of the air cleaner to make sure it is closing and sealing when the engine is running. If the evacuator valve does not close and seal properly it must be replaced. Also visually check the evacuator valve to be sure it is not stuck in the closed position. It must open and close freely. Do not use your hand to check the evacuator valve with the engine running



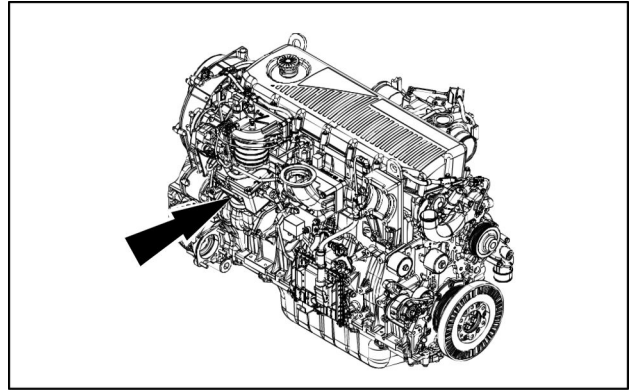
RAIL17SP00845AA 5



RAIL17SP00756AA 6

## Air compressor

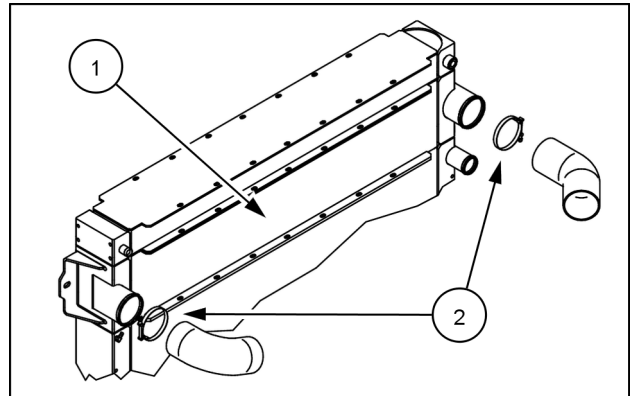
Check to make sure that all mounting hardware on the air compressor is tight.



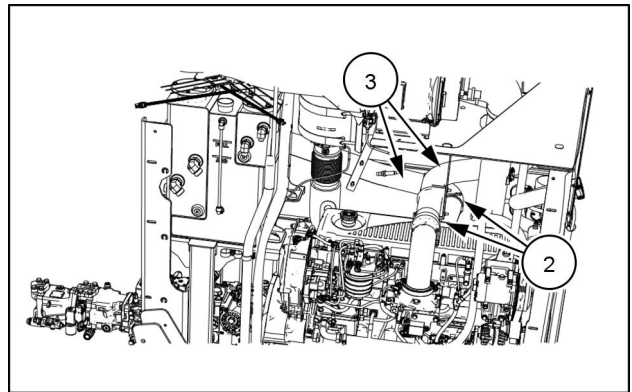
RAIL18SP00245AA 1

## Charge air cooler

Inspect the charge air cooler **(1)** for debris or damage. Check the fittings. Tighten all hose clamps **(2)** as required. Check the charge air cooler lines **(3)** repair or replace as needed.



RAIL16SP00235AA 1

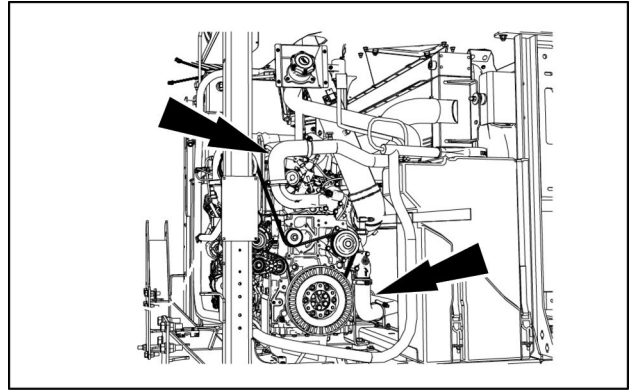


RAIL18SP00248AA 2



## Radiator hoses

Check the radiator hoses for cracks and or leaks. Repair or replace as required.

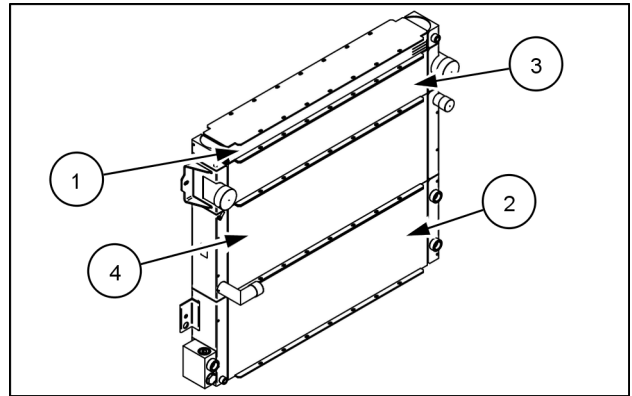


RAIL18SP00249AA 1

## Radiator

Inspect the cooling package for debris, and any leakage of the fittings. Inspect more often if operating in adverse conditions. Repair any leaks immediately. Straighten any dented or damaged cooling fins.

Inspect the air conditioner condenser **(1)**, the hydraulic oil cooler **(2)**, the charge air cooler **(3)**, and the radiator **(4)** for any debris. Remove any debris and dirt. Straighten any bent cooling fins.



RAIL16SP00236AA 1

## Hydro filters

### ⚠ CAUTION

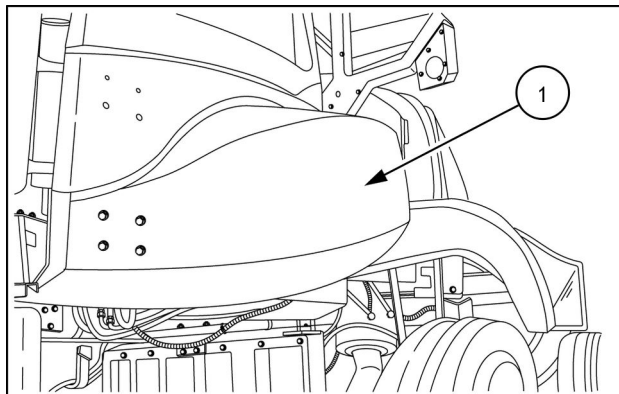
#### Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in minor or moderate injury.

C0104A

1. Open the Hydro cover (1). Release the cover latch by pushing up on the release.
2. Once the hydro cover is released with the latch knob, pull the cover away slightly and push up on the secondary catch (located at the front inside of the cover) to fully open. The secondary catch is spring loaded and will automatically latch when the cover is closed.

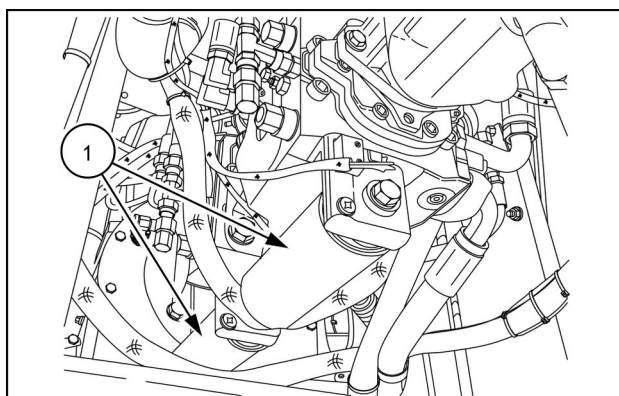


RAIL14SP00794AA 1

**NOTE:** The suspension must be fully extended before opening the hydro cover.

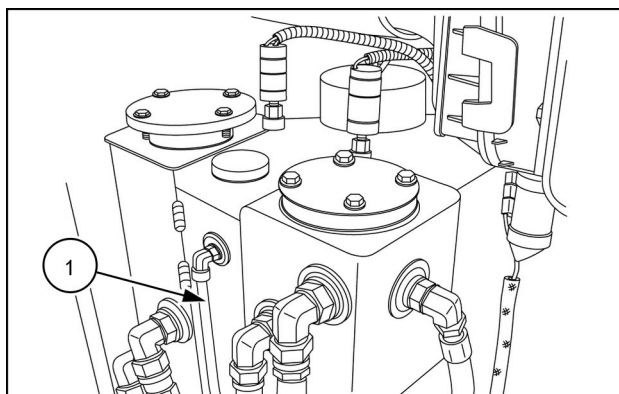
3. Thoroughly clean the area around each filter (1) before removing the filters.
4. Place a container under the filters and with a filter wrench, remove the old filters by turning counterclockwise as viewed from the base of the filter.
5. Lightly oil the seal on the new filters. Install the filters by turning the filters clockwise until the seal contacts the filter head. Tighten the filter an additional 1/2 to 3/4 turn by hand. Dispose of hydraulic fluid and filters properly.

**NOTICE:** Do not use a filter wrench to install the filter or overtightening will occur.



RAIL15SP00898AA 2

6. Start the unit and check for leaks at the filters. Shut the vehicle engine off and allow the hydraulic oil to cool. Check the hydraulic oil level (1) at the reservoir. Fill as needed.
7. Close the hydro cover after filter replacement.

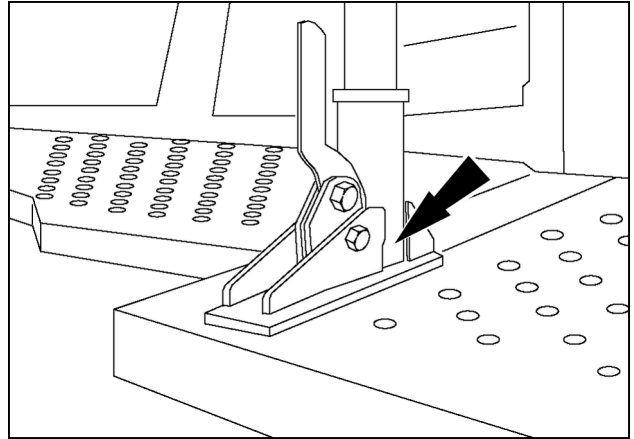


RAIL14SP00811AA 3

## Walkway railing lock

**NOTE:** Use **NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE** on all fittings.

1. Locate the grease fitting on the walkway railing lock pin.
2. Clean off grease fittings before attaching the grease gun. Wipe up excess grease when finished. Move the lock lever several times to distribute the grease.



RAIL15SP01241AA 1

## Air cleaner restriction indicator

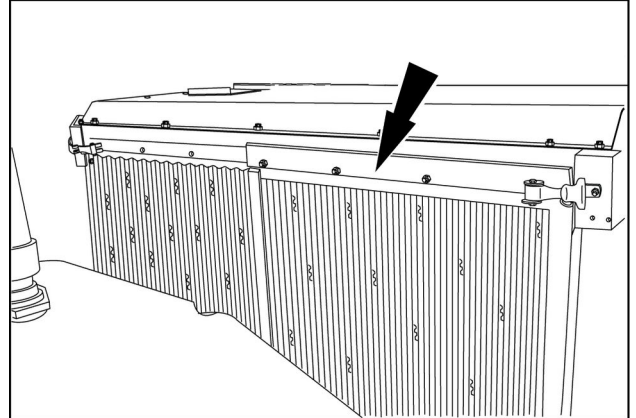
### ⚠ WARNING

Hot surface possible!  
 Wait for all components to cool before performing any operation.  
 Failure to comply could result in death or serious injury.

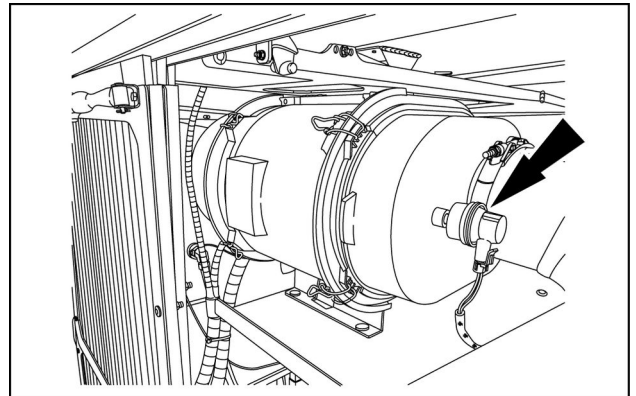
W0251A

**NOTE:** 1 — Check daily in severe conditions.

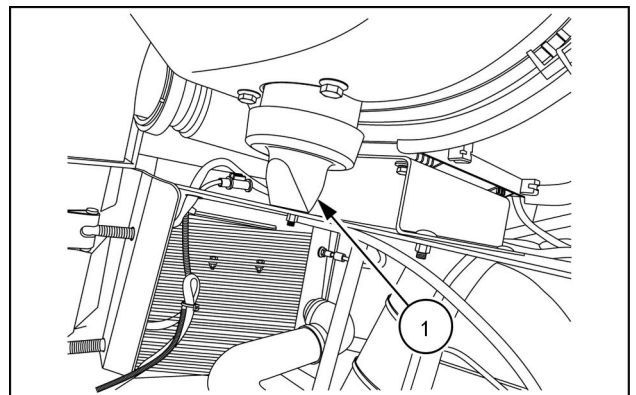
1. Shut the engine off and remove the key.
2. Open the left hand engine access door.
3. Check the restriction indicator located on the side of the air filter canister. If the indicator shows the filter is restricted, replace the filter as per instructions on **7-75**.
4. Check the vacuator valve **(1)** on the lower part of the air cleaner to make sure it is closing and sealing.



RAIL14SP01014AA 1



RAIL17SP00845AA 2



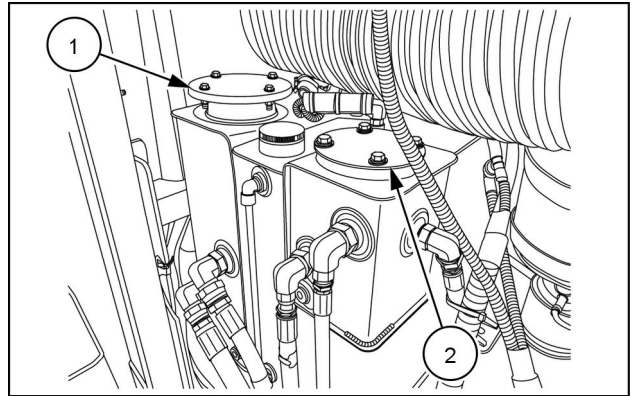
RAIL17SP00756AA 3

Every 400 hours

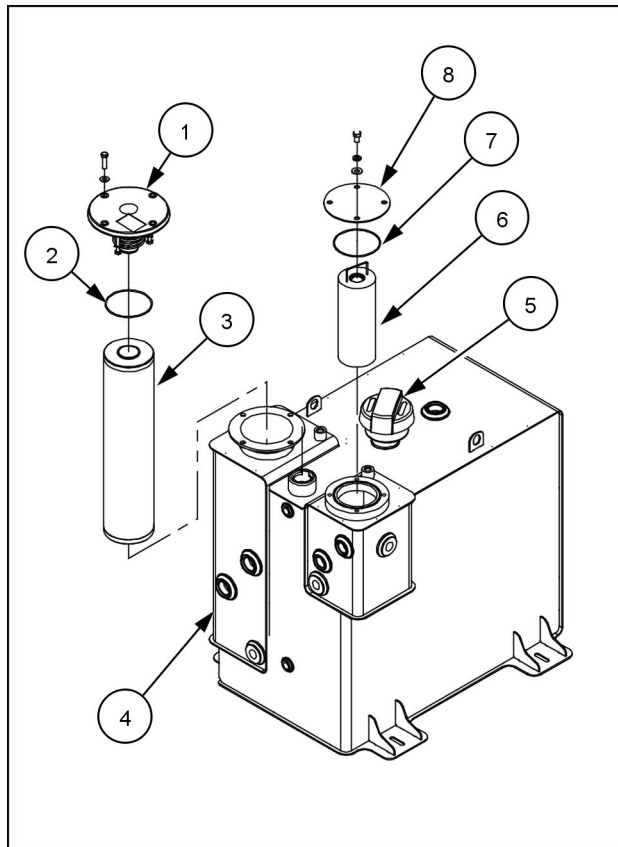
Hydraulic oil filters

This procedure is valid for both the return filter (1) and the case drain filter (2).

1. Remove the bolts and washers attaching the filter cap. Remove the filter element from the filter housing.
2. Replace the element with a new element. Be sure to reinstall all gaskets. If gaskets or O-rings are deteriorated, replace with new parts.
3. Replace the filter assembly into the housing, being careful to line it up to properly seat the filter assembly in the housing.
4. Place the holding spring on the hub of the cap. Make sure to reinstall the O-ring seal. Reinstall the cap and tighten the nuts, being sure the spring and O-ring are properly seated so the suction filter seals to the face of the filter housing.



RAIL17SP00755AA 1

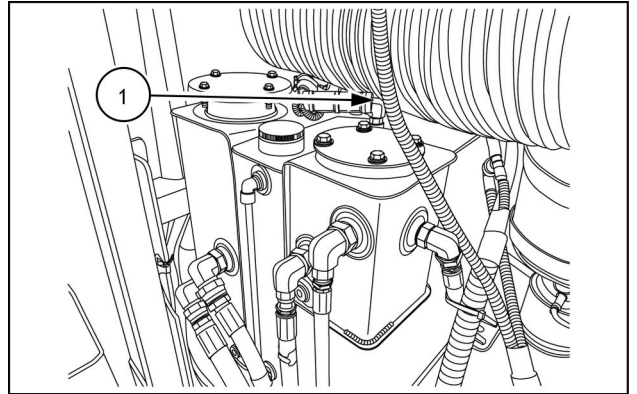


RAIL14SP01015BA 2

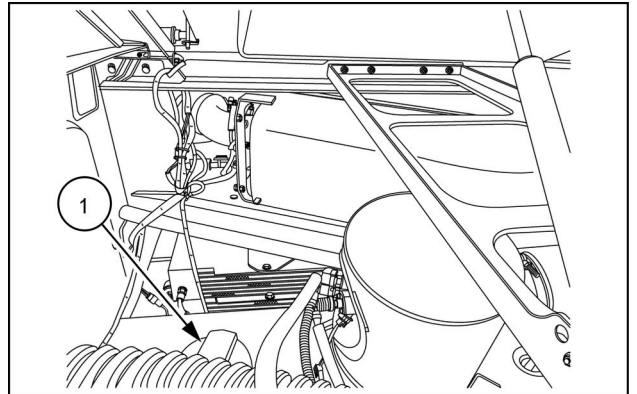
Item	Description
1	Filter cap
2	O-Ring
3	Main return filter element
4	Hydraulic oil reservoir
5	Breather filter element (inside cap)
6	Case drain filter element
7	O-Ring
8	Cover

## Hydraulic reservoir breather

1. Access the hydraulic oil reservoir (1). Unlatch the front of the engine compartment roof and pivot open.
2. Remove the cover from the breather housing by unscrewing the cover.
3. Remove the paper element inside the breather housing and replace with a new paper element.
4. Replace the breather housing cover and tighten.



RAIL17SP00755AA 1



RAIL17SP00769AA 2

## UltraFlow pump filter (if equipped)

### ⚠ WARNING

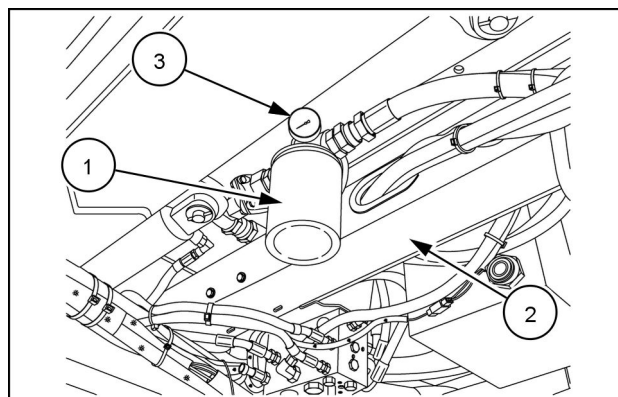
#### Escaping fluid!

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

W0178A

1. Drive the vehicle on to a hard, level surface.
2. Allow the hydraulic oil to reach operating temperature.
3. Access the underside of the vehicle and locate the UltraFlo filter (1). The UltraFlo filter is located between the frame rails just behind the rear axle slider tube and mounted to the cross frame (2).
4. Check the pressure gauge (3) on the filter head. Check the gauge with the engine running. If the gauge indicates filter change, the filter must be changed even if the interval has not been reached.
5. Turn off the engine. Remove the key from the ignition.
6. Allow the hydraulic oil to cool.
7. Access the UltraFlo filter. Clean the area around the filter and the filter head.
8. Place a container under the filter and the filter head to catch any oil when removing the filter. Properly dispose of any used oil and the filter.
9. Remove the old filter from the filter head.
10. Clean the sealing surface of the filter head before installing the new filter.
11. Lightly oil the o-ring seal on the new filter element with clean hydraulic oil.
12. Install a new filter onto the filter head. Tighten the filter 1/2 to 3/4 turn after initial contact with the filter head sealing surface.
13. Start the vehicle engine. Check for any hydraulic leaks from the filter and mounting area.
14. Shut off the vehicle engine and allow the hydraulic oil to cool. Inspect the hydraulic oil level. Add **NEW HOLLAND AMBRA HYDROSYSTEM 68** as needed.



RAIL15SP00900AA 1



## Every 500 Hours

### Primary fuel filter

1. Open the front engine access door. The filter **(1)** is mounted to the front side of the engine.
2. Place a container under the fuel filter. Use a filter wrench to remove the old filter. Turn the filter counter-clockwise as viewed from the base of the filter. Lightly oil the seal on the new filter. Install the filter by turning it clockwise until the seal contacts the filter head. Tighten the filter an additional 1/2 to 3/4 turn by hand.

**NOTICE:** Do not use a filter wrench to install the fuel filter.

3. Install a new filter. Apply clear oil or grease to the gasket on the new filter. Turn the filter clockwise as viewed from the bottom until the filter gasket comes in contact with the filter head. Use your hand to tighten 1/2 turn. To get a correct seal, loosen filter and again tighten 1/2 to 3/4 turn after the gasket comes in contact with the filter head.

#### 4. **⚠ WARNING**

##### **Rotating parts!**

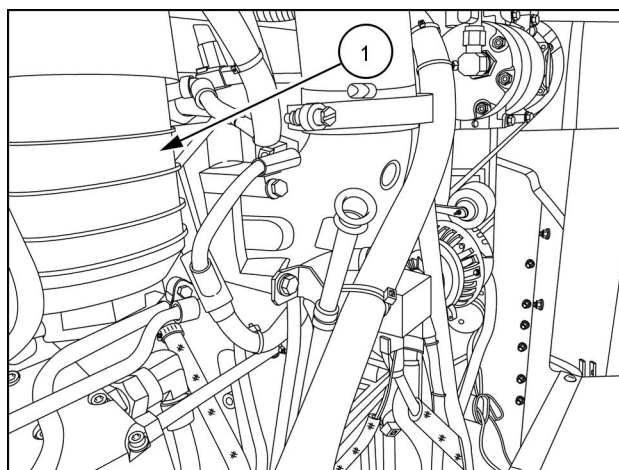
**The engine is running. Keep clear of rotating fans and belts.**

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

W0275A

Start the engine and check for fuel leaks around the fuel filter area.

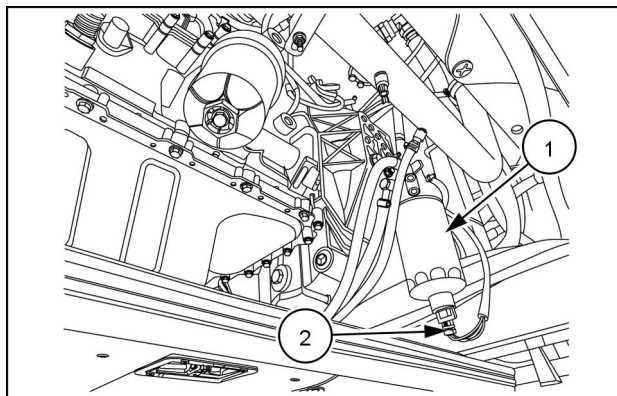
5. Close the front engine access doors when complete.



RAIL18SP00244AA 1

## Secondary fuel filter

1. Open the lower engine access cover.
2. The secondary fuel filter (1) is mounted on the rear of the engine.  
Disconnect the wire harness connector (2) to the secondary fuel filter.



RAIL17SP00757AA 1

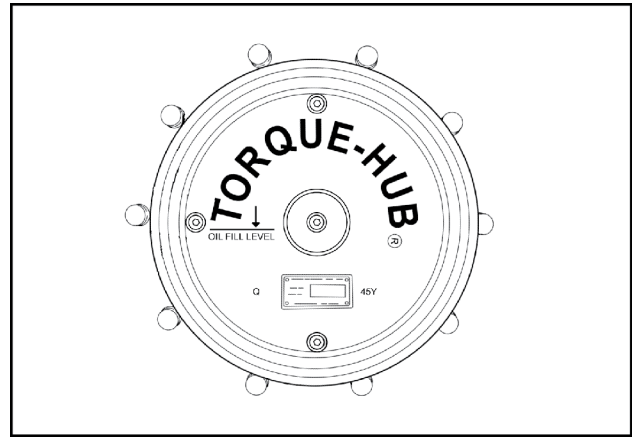
3. Place an appropriate container under the filter. Use a filter wrench and turn the filter counterclockwise as viewed from the bottom, in order to loosen. Remove the primary fuel filter and dispose of properly.

**NOTICE:** Do not use a filter wrench to tighten the filter, damage to the gasket and the filter could result.

4. Install a new filter. Apply clear oil or grease to the gasket on the new filter. Turn the filter clockwise as viewed from the bottom until the filter gasket comes in contact with the filter head. Use your hand to tighten 1/2 turn. To get a correct seal, loosen filter and again tighten 1/2 to 3/4 turn after the gasket comes in contact with the filter head.
5. Connect the wire connector to the secondary fuel filter.

## Change planetary final drives oil

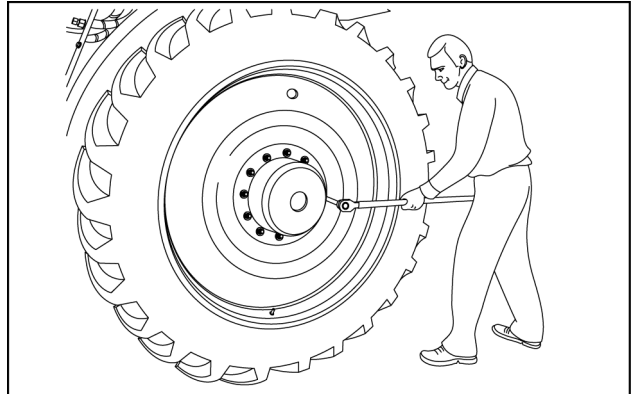
1. Change the gear lube on all four planetary drive hubs on the Vehicle. Refer to **7-67** for complete procedure.



RAIL15SP00883AA 1

## Tire lug nuts

Torque the lug nuts to **610 N·m (450 lb ft)**.

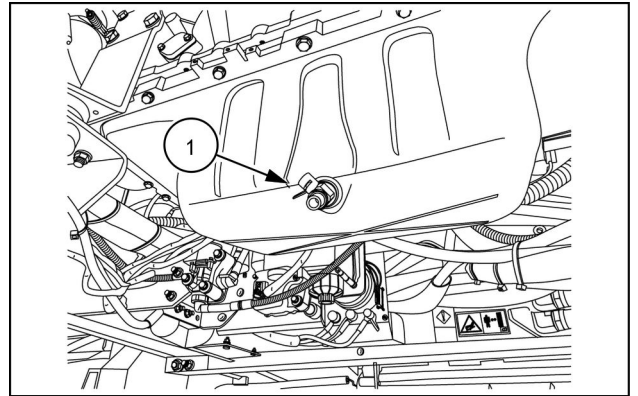


RAIL15SP00828AA 1

## Every 600 hours

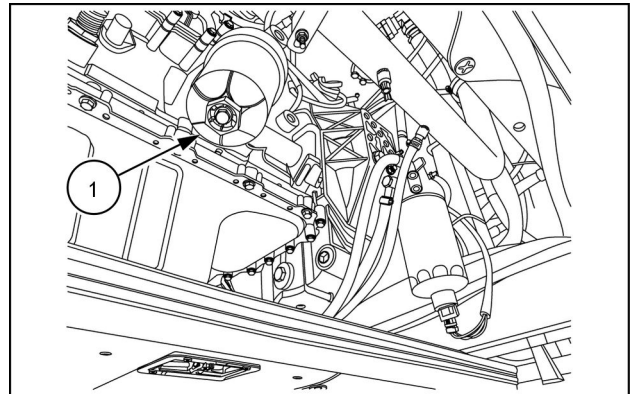
### Engine and crankcase - Replace

1. Open the engine oil drain petcock (1) located on the oil pan. Allow oil to drain completely into a container. Close the drain petcock after all oil is drained.
2. Dispose of used engine oil properly.



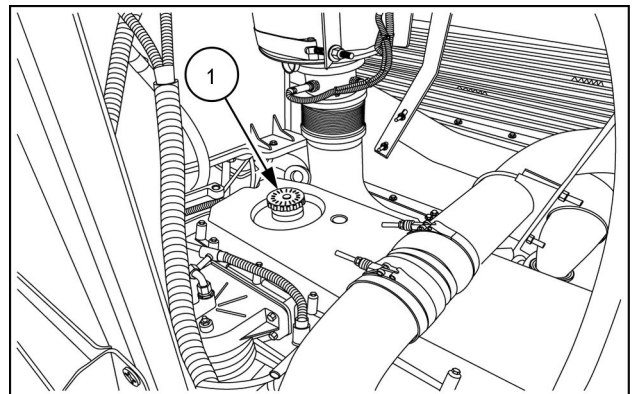
RAIL17SP00759AA 1

3. On the back side of the engine locate the engine oil filter (1). Remove the engine oil filter using a filter wrench. Dispose of the filter properly.



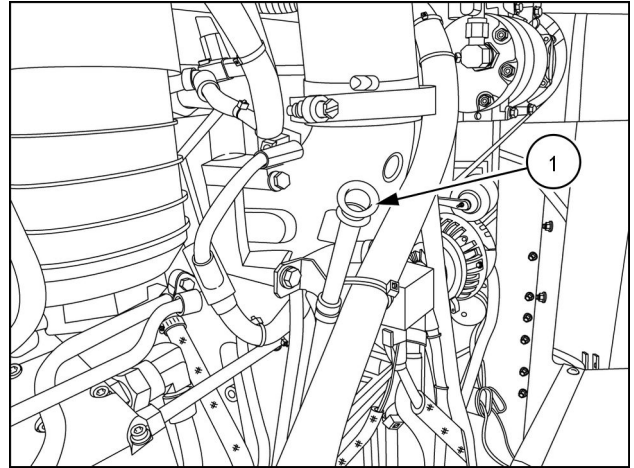
RAIL17SP00757AA 2

4. Install a new engine oil filter. Apply clean oil or grease to the oil filter gasket. Hand tighten the filter to the engine. Do not use a filter wrench to tighten the filter
5. Fill the engine with **NEW HOLLAND AMBRA UNITEK MASTERGOLD SBL CJ-4 SAE 10W-40** engine oil. Open the engine compartment sliding doors to access the engine oil fill (1) in the engine valve cover. Remove the cap and fill the engine with **25.0 L (6.6 US gal)**



RAIL17SP00753AA 3

6. Check the level of oil in the engine with the dip stick. The dip stick (1) is located on the front side of the engine.
7. Start the engine and allow the engine oil to circulate.
8. Stop the engine and recheck the engine oil level. Add oil if needed.
9. Attach the side panel and close the engine compartment hood.



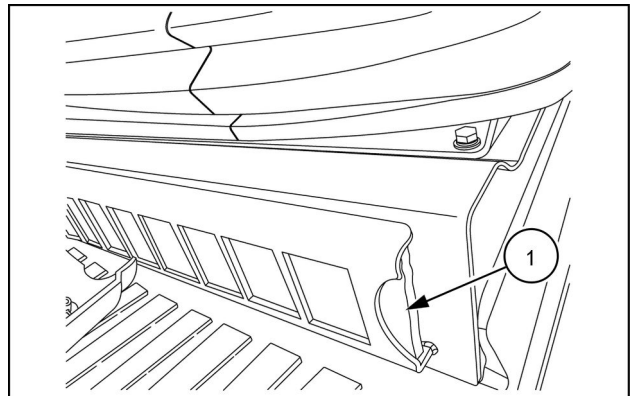
RAIL18SP00244AA 4

Once a year

## Cab air filter

### Recirculation filter

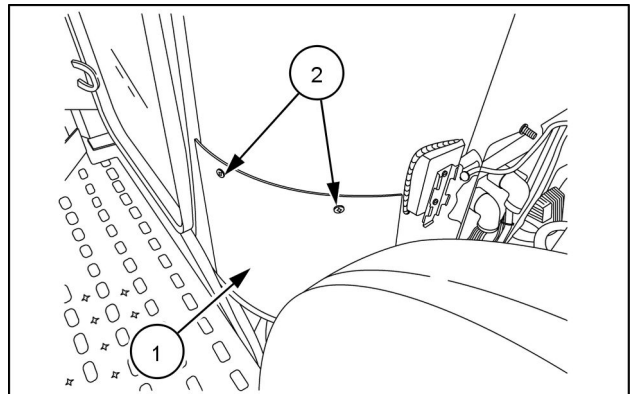
1. Remove the recirculation filter (1). The filter is located on the right side of the operators seat support. Remove the filter from the retainer by pulling the filter out the front of the retainer. Replace the filter with a new filter.



RAIL17SP00285AA 1

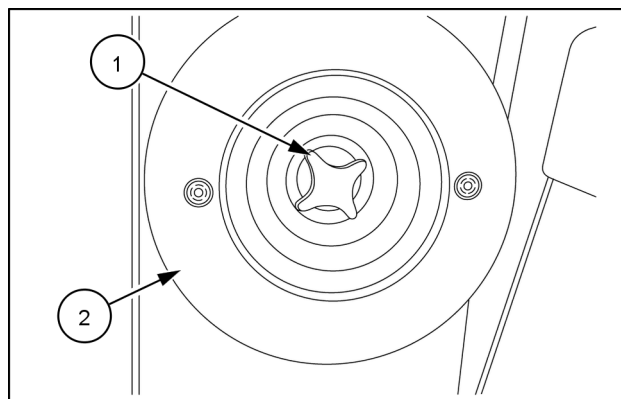
### Cab pressurization filter (charcoal)

1. Replace the cab pressurization filter. Locate the access cover (1) on the left rear corner of the cab. Remove the cover by loosening the two quarter turn fasteners (2).



RAIL17SP00231AA 2

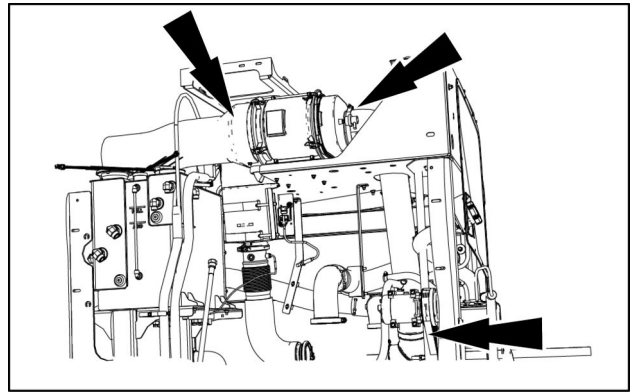
2. Remove the cab pressurization filter. Remove the plastic knob **(1)** which holds the filter in place, then remove the filter **(2)**.
3. Install a new cab pressurization filter. Reinstall the plastic knob and tighten the knob to hold the filter in place.
4. Reinstall the access cover by placing the cover on to the cab mounting area and turning the two quarter turn fasteners. Be sure to secure the access cover in place before operating the vehicle.



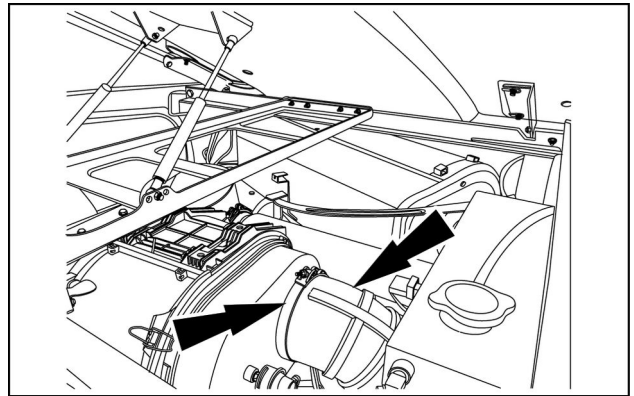
RAIL17SP00232AA 3

## Engine air intake system

Check to make sure all air intake hoses, tubing and clamps are tight on the air intake system. Replace any hoses, tubing and clamps that are damaged or cracked.



RAIL18SP00246AA 1

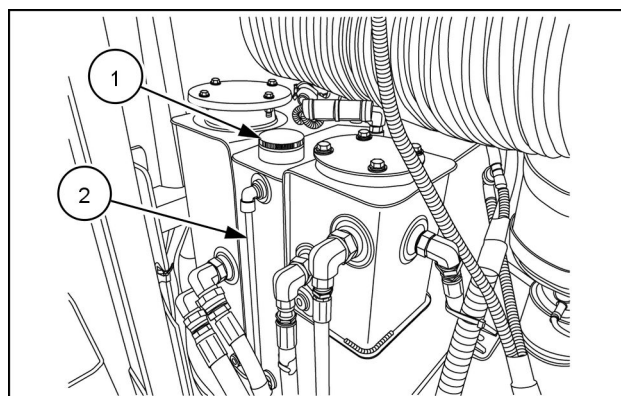


RAIL17SP00764AA 2



**Every 1000 hours****Hydraulic oil**

1. Shut the engine off and remove the key. Allow the hydraulic oil to cool before proceeding.
2. Remove drain plug and drain the oil from the hydraulic oil reservoir into empty containers. The reservoir capacity is approximately **132 L (35 US gal)**. Dispose of used oil properly.
3. Clean and replace the drain plug.
4. Hydraulic oil filters should always be changed the same time the hydraulic oil is replaced. Refer to **7-84** for procedure.
5. Use a filter cart to filter all hydraulic oil before it enters the reservoir. Remove the fill cap **(1)** from the hydraulic oil reservoir and refill with clean **NEW HOLLAND AMBRA HYDROSYSTEM 68**. Fill reservoir until the oil reaches the "FULL" mark in the sight gauge **(2)**. Do not over fill.



RAIL17SP00755AA 1

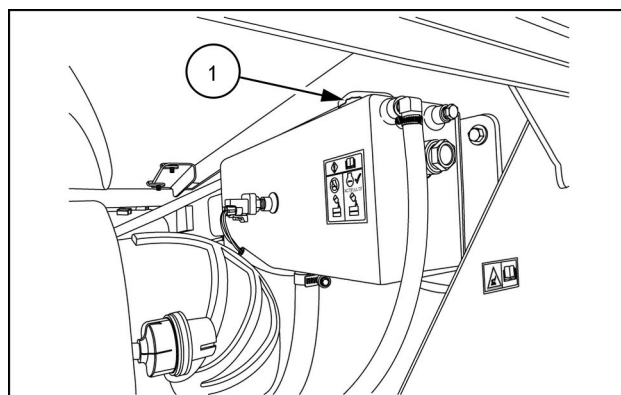
**Every two years****Engine coolant****⚠ WARNING****Burn hazard!**

Hot coolant can spray and scald if you remove the radiator or deaeration tank cap while the system is hot. To remove the cap: allow the system to cool, turn the cap to the first notch, and wait for all pressure to release. Remove the cap only after all pressure has released. Failure to comply could result in death or serious injury.

W0367A

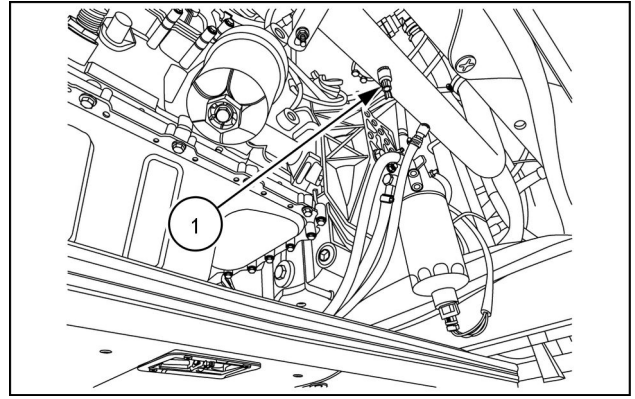
**Draining and filling Organic Acid Technology (OAT) coolant**

1. After the engine and the coolant has cooled down, loosen the surge tank cap **(1)** to the first notch.



RAIL17SP00760AA 1

2. Open the drain **(1)** attached to the lower radiator tube and collect the coolant in a container. Close the drain after all the coolant has been removed.
3. Remove the surge tank cap and fill the surge tank with **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**.
4. Allow the coolant to fill the system. Wait 2 to 3 minutes and refill the surge tank again.
5. Leave the surge tank cap off and run the engine at idle for several minutes.
6. Top off the coolant level in the surge tank again.
7. Run the engine at high idle until the thermostats open.
8. Shut off the engine and top off the coolant level in the surge tank.
9. Restart the engine and run the engine up to operating temperature.
10. Shut off the engine and allow the engine to cool.
11. Top off the coolant level in the surge tank and reinstall the surge tank cap.



RAIL17SP00757AA 2

## Cooling system thermostat

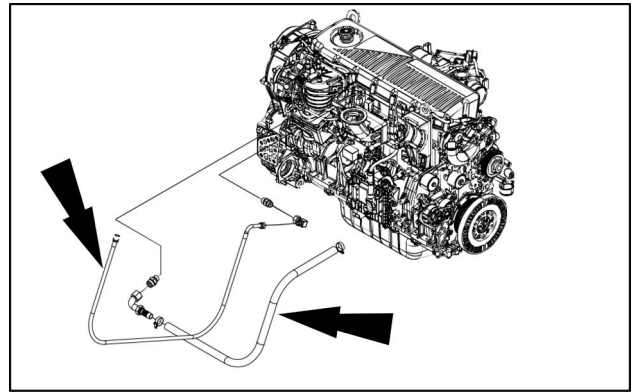
Monitor the temperature gauge during engine operation. If the engine heats slowly, it is possible that the thermostats are held in an opened position. If the temperature gauge is in the red area, it is possible that the thermostats are not operating and are closed.

**NOTICE:** *An engine that is not working with a load will be slow to heat to operating temperature. This is caused by the large capacity cooling system and is normal. When the engine has a load, the engine will heat faster.*

During cold ambient temperatures, if the sprayer is not moving, run the engine at high idle speed to keep the engine heated. If the thermostats do not work, replace the thermostats. Not maintaining the correct engine operating temperature can cause early engine failure.

## Air compressor discharge lines

All air compressors have a small amount of lubricating oil carry over which lubricates the piston rings and moving parts. When this lubricating oil is exposed to normal air compressor operating temperatures over a period of time, the lubricating oil will form varnish or carbon deposits. If the following inspections are not done, the air compressor piston rings will be affected by high operating temperatures and pressures and will not seal correctly. Locate the air system tank located inside the right rear corner of the engine compartment.



RAIL18SP00247AA 1

1. Drain the air system to remove all pressure.
2. Remove the air discharge line from the air compressor.
3. Measure the total carbon deposit thickness inside the air discharge line. If the total carbon deposit exceeds 2 mm (0.08 in), clean and inspect the air compressor cylinder head, the valve assembly and the discharge line. Replace if necessary. Contact your dealer for proper procedures.

**Every 2000 hours**

## **Engine crankcase breather filter**

### **Change the engine breather filter**

Replace the engine breather filter at the specified time interval. See your MILLER dealer to have this service performed.

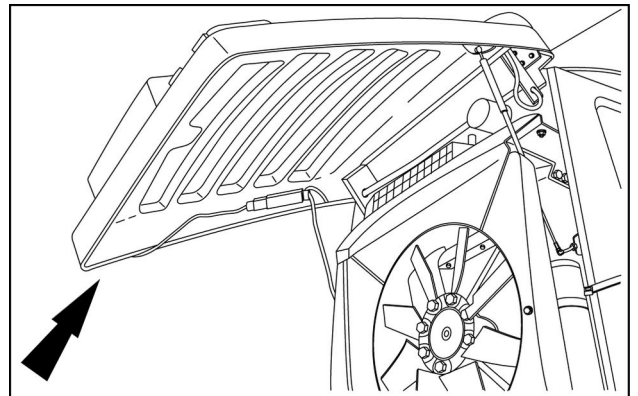
**As required**

## **Cooling package**

Shut off the engine and remove the key. Wait for all movement to stop before proceeding.

Cleaning should be directed from the outside of the cooling package toward the inside.

1. Unlatch and open the rear engine compartment cover to access the cooling package and the fan.



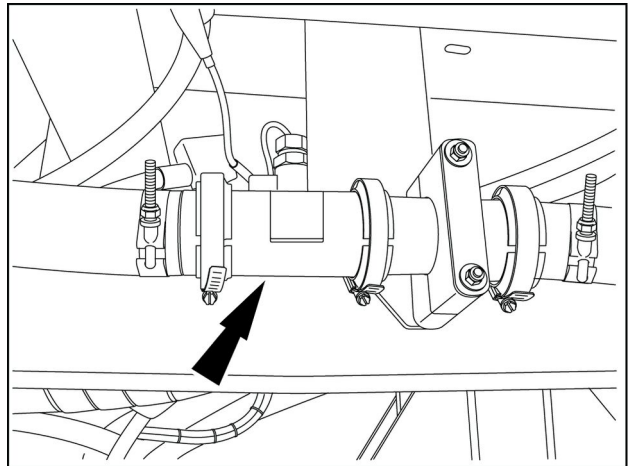
RAIL14SP00791AA 1

2. Use a pressure washer or compressed air to clean the fins. Be careful not to bend the fins. Straighten any dented or damaged cooling fins.
3. Close the rear engine compartment cover.

## Flow meter

1. Remove the flow meter from the sprayer and flush with clean water to remove any chemicals.
2. Remove the flange bolts or clamp from the flow meter.
3. Remove the turbine hub and turbine from inside the flow meter.
4. Clean the turbine hub of metal filings and any other foreign material such as wettable powders. Confirm that the turbine blades are not worn. Hold turbine and turbine hub in your hand and spin turbine. It should spin freely with very little drag.
5. If transducer (XDCR) assembly is replaced or if turbine stud is adjusted or replaced, verify the turbine fit before reassembling. Hold turbine hub with turbine on transducer. Spin turbine by blowing on it. Tighten turbine stud until turbine stalls. Loosen turbine stud 1/3 turn. The turbine should spin freely.
6. Reassemble the flow meter.
7. Using a low pressure **34.5 kPa (5 psi)** jet of air, verify that the turbine spins freely. If there is drag, loosen the hex stud on the bottom of the turbine hub 1/16 turn increments at a time until the turbine spins freely.
8. If the turbine spins freely and if the cables have checked out per "Flow Meter Cable Test" shown on **7-101**, but flow meter still is not totalizing properly, replace the flow meter transducer.

**NOTE:** If the flow meter has been disassembled, the unit will have to be calibrated. Refer to the Raven operators manual referencing the process.

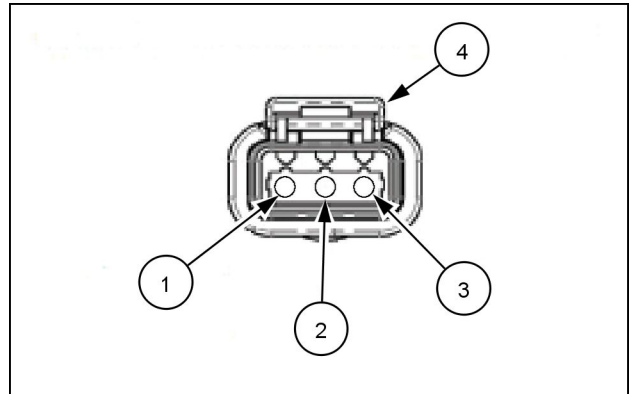


RAIL12SP00761AA 1

## Flow meter cable

Disconnect the cable from the flow meter. Hold flow meter cable so that the "locking tab" **(4)** is at the top.

- (1)** = Signal
- (2)** = Ground
- (3)** = Power



RAIL17SP01389AA 1

### Procedure

1. Find the METER CAL on the console and record that number. Enter a METER CAL number of one (1) in the console.
2. Depress the key on the console labeled "Total Volume" on lower row of key pad.
3. Place boom switches power and master switch to ON.
4. With a small jumper wire, create a short between the **(1)** and **(2)** sockets with a "short - no short" motion. Each time a contact is made, the TOTAL VOLUME should increment up 1 or more counts.
5. If TOTAL VOLUME does not count up, remove the section of cable and repeat the test at the connector next closest to the console. Replace defective cable as required.
6. Perform all voltage checks.
7. If all cables test good, replace the flow meter.

**NOTE:** After testing is complete, re-enter correct METER CAL numbers before application. The meter calibration number will be located on the tag attached to the flow meter wires.

## Chassis suspension

### ⚠ WARNING

#### Crushing hazard!

Use extreme caution during the following procedure. Perform this procedure exactly as instructed in this manual.

Failure to comply could result in death or serious injury.

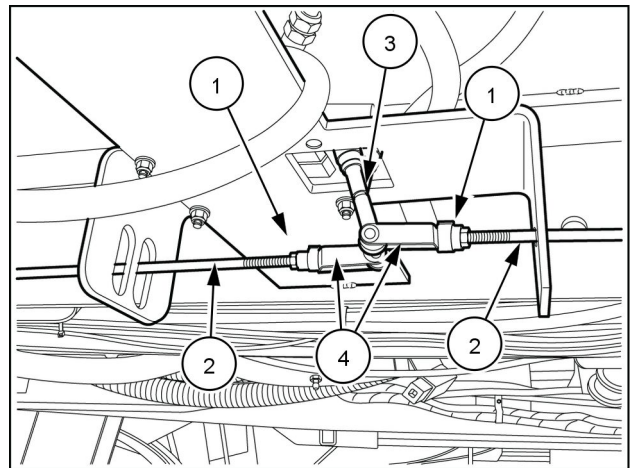
W0368A

**NOTICE:** Never extend suspension cylinders on one side to full stroke and then extend the suspension cylinders on the other side to full stroke. Always leave at least half the cylinder stroke in the cylinder. Cylinder has a total stroke of approximately 8 in.

**NOTICE:** Vehicle suspension cylinders are NOT to be used for jacking purposes.

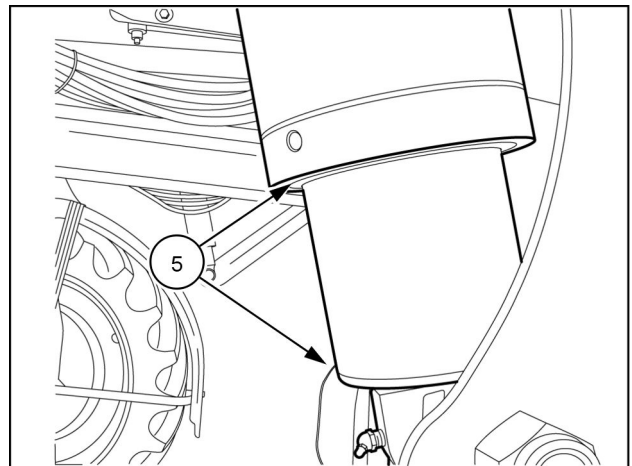
**NOTE:** This adjustment requires two people, one should remain in the operators cab while the second person adjusts the suspension. Use extreme caution while performing this procedure.

1. Start the engine. Make sure you are on level ground. Reduce the engine speed to idle.
2. Release the parking brake.
3. Have the person on the ground loosen the jam nuts (1) at each linkage rod (2), then detach the two right-hand and two left-hand side suspension valve linkage rods from the valve arms (3). Allow the rods to rest in the bottom of the guide slots.
4. Actuate each valve arm manually fore or aft until there is 4 in of unpainted suspension cylinder rod (5) exposed on each of the four suspension cylinders.



**NOTICE:** Actuating a given cylinder may affect the exposed rod length of the opposite (diagonal) cylinder.

5. After setting all four cylinders to 4 in recheck the other cylinders. Repeat as required until the exposed rod on all four cylinders remains at 4 in.
6. Reattach the linkage rods to the valve arms, adjusting the length of each linkage rod by turning the clevis on each rod. Each rod should be adjusted such that the retainer pin can be reinserted through the clevis (4) and valve arm ball without shifting either the valve arm ball or the linkage (valve arm ball and clevis are aligned).
7. Insert the retainer pin through the clevis and valve arm ball and secure in place. Tighten the jam nuts against each clevis to hold in place.

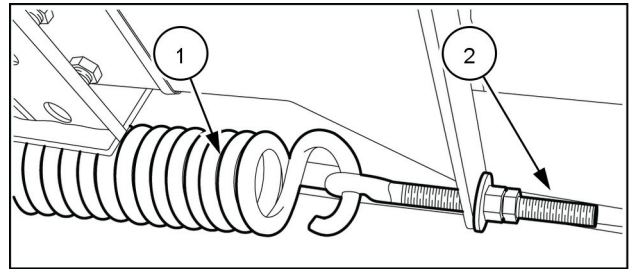




## Boom breakaway tension

The boom breakaway spring (1) regulates the tension on the boom swivel which pivots in the event that the boom accidentally hits an obstruction.

1. Tighten the nuts on the threaded eyebolt (2) to just get the slack out of the spring. Measure the length of the threaded section of the eyebolt which protrudes past the mounting bracket.
2. Add **0.750 in** to the dimension you just measured. Tighten the nut until the threaded portion of the eyebolt protrudes through the mounting bracket by this new dimension. This sets the preload of the spring to the correct amount.
3. Run the second nut up to the first nut and tighten them together to lock the adjustment.

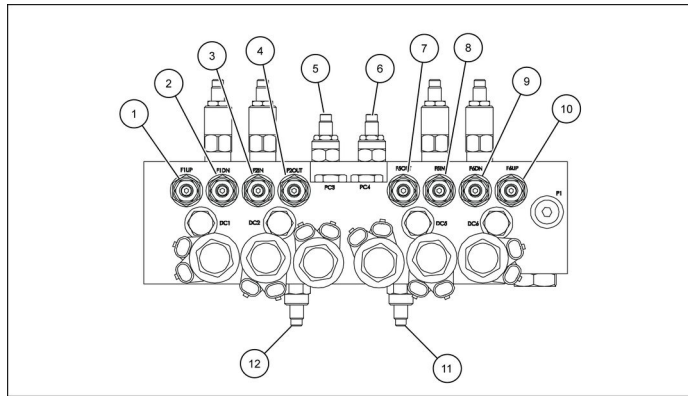


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## Steering toe in

Refer to **4-14** for proper procedure.

## Boom cylinder speed



RAIL12SP00843EA 1

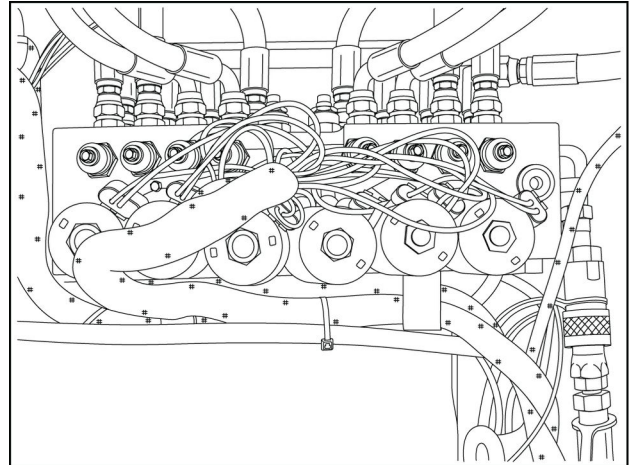
The following are the cylinder adjustment points:	
1. F1 Up — left side fold cylinder up	7. F4 Dn (top of valve) - right side tilt cylinder down
2. F1 Dn — left side fold cylinder down	8. F4 Up (bottom of valve) - right side tilt cylinder up
3. F2 In - left side swing cylinder in	9. F5 Out - right side swing cylinder out
4. F2 Out - left side swing cylinder out	10. F5 In - right side swing cylinder in
5. F3 Dn (top of valve) - Left side tilt cylinder down	11. F6 Dn - right side fold cylinder down
6. F3 Up (bottom of valve) - Left side tilt cylinder up	12. F6 Up - right side fold cylinder up

All cylinder speeds have been preset at the factory. Locate the valve block mounted to the backside of the center boom. Each cylinder for the boom with the exception of the center section lift cylinders are adjusted from this valve.

1. Loosen the jam nut on the adjuster of the cylinder to be adjusted.

**NOTICE:** When adjusting the speed of a cylinder, use care not to over adjust on the speed. If the cylinders move at too high a speed, damage could occur from rapid movement and sudden stops.

2. Turn the adjustment stud in or out 1/8 turn or less at a time.
3. Check the speed of the cylinder being adjusted.
4. Retighten the jam nut after adjustment is complete.

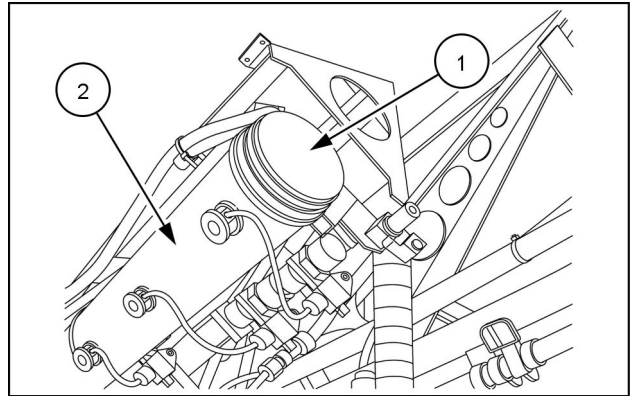


RCPH11SPR132BAM 2

**NOTICE:** Relief valve settings are set by the manufacturer. Do not adjust the relief valve set point. If the relief valve setting is changed, damage could occur from the boom folding joint being too rigid.

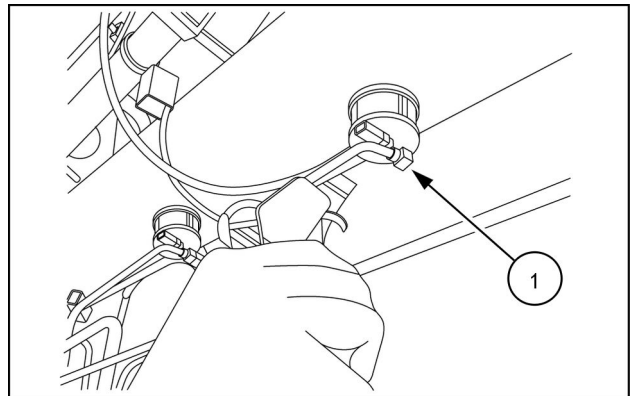
## Spray Air boom

1. Drive the vehicle onto a hard, level surface. Lower and unfold both booms completely.
2. Remove the end cap (1) from the end of each air tube (2).

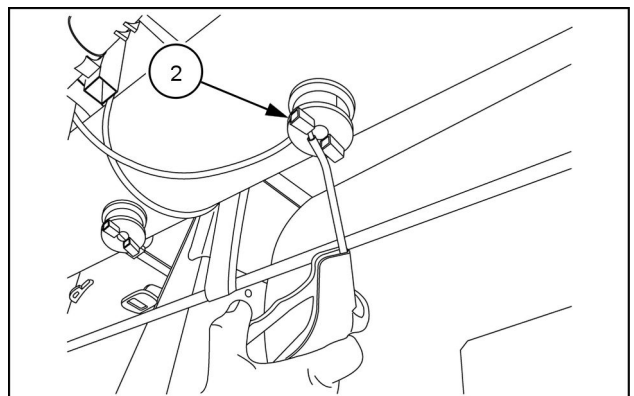


RAIL15SP00655AA 1

3. Start and run the air fan for the booms. This will push any dirt particles out the end of the boom air tubes.
4. Use an air nozzle with compressed air to clean the nozzle fittings on the air tube. Insert the air nozzle into one of the openings on the air tube fitting and clean with compressed air (1). Repeat the cleaning procedure for the second opening at each fitting (2).



RAIL15SP00656AA 2



RAIL15SP00657AA 3

5. Clean all the nozzle fittings as required.
6. Shut off the air fan and replace the end caps. Secure in place before resuming spraying operations.

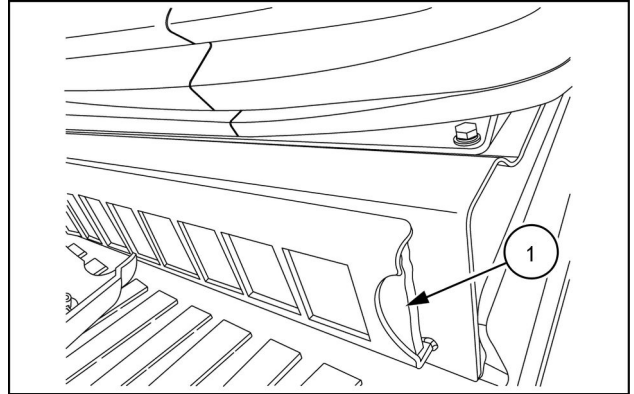
## Engine cleaning

Steam clean the engine as needed. Visually inspect the engine for areas of extreme buildup of dirt and other contamination. Use a steam pressure washer to remove any buildup. Ensure that the steam is kept away from any components attached to the engine which may be damaged from high temperature steam and pressure.

## Cab air filter

### Recirculation filter

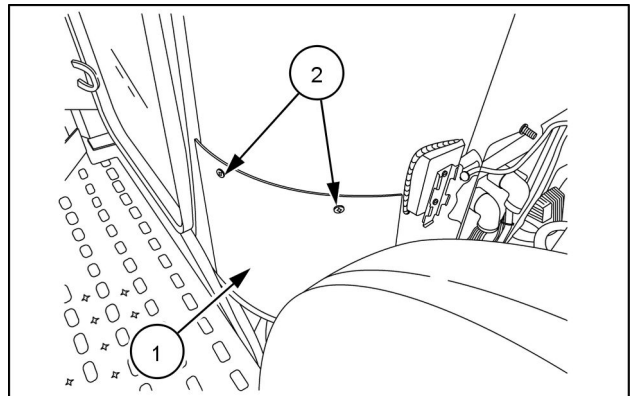
1. Remove the recirculation filter **(1)**. The filter is located on the right-hand side of the operators seat support. Remove the filter from the retainer by pulling the filter out the front of the retainer. Replace the filter with a new filter.



RAIL17SP00285AA 1

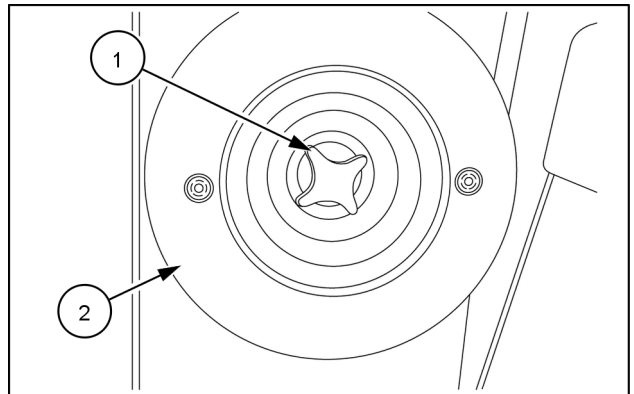
### Cab pressurization filter (charcoal)

1. Replace the cab pressurization filter. Locate the access cover **(1)** on the left-hand rear corner of the cab. Remove the cover by loosening the two quarter turn fasteners **(2)**.



RAIL17SP00231AA 2

2. Remove the cab pressurization filter. Remove the plastic knob **(1)** which holds the filter in place, then remove the filter **(2)**.
3. Install a new cab pressurization filter. Reinstall the plastic knob and tighten the knob to hold the filter in place.
4. Reinstall the access cover by placing the cover on to the cab mounting area and turning the two quarter turn fasteners. Be sure to secure the access cover in place before operating the vehicle.



RAIL17SP00232AA 3

## Storage

### Placing in storage - Tier 3

#### **▲ WARNING**

##### **Crushing hazard!**

**The boom may drop suddenly without warning. Always install the cylinder stops to hold the boom in the raised position during storage, transport, and service. Failure to comply could result in death or serious injury.**

W1532A

When storing the vehicle for periods of time, the following procedures must be followed to lessen the chance of rust forming on the unit:

1. Change engine oil and filter.
2. Wash the vehicle thoroughly taking special care to remove all chemicals, fertilizer, grease and oil. Rinse tank thoroughly. Clean mud from axle knee joints and wheel motor area.
3. Do NOT leave the boom partly unfolded. With the vehicle at a complete stop, completely fold the boom and place into the transport cradles.
4. Install the safety stops onto the lift cylinders.
4. Park the machine in a cool, dry area.
5. Lubricate the machine, especially any sliding parts such as cylinders. If the machine will be exposed to outside elements, the exposed portion of cylinder rods must be protected with a rust preventative. The following steps are recommend for storage:
  - Position equipment as it will be stored.
  - Identify all exposed cylinder rod areas.
  - Remove all dirt, grease or other contaminants from the rod surface by using a soft cloth dampened with an appropriate oil based solvent.
  - Exposed rod surfaces should be cleaned prior to coating.
  - Inspect the rod surface for any noticeable surface defects.
  - Apply a coating of rust preventative such as **WD-40®** to all exposed rod surfaces.
  - Periodically, inspect the rod surfaces and apply additional rust preventative as needed.
6. Remove batteries and store in safe area.

**NOTICE:** *If the batteries are not used for more than four months, they should be periodically recharged to keep them fully charged.*

7. Change hydraulic oil and filters. Fill hydraulic tank to full position.

8. Open the drain on the fuel filter and drain the water and sediment before closing. Fill the fuel tank with a premium grade diesel fuel. If this fuel grade has not been used regularly, drain the fuel tank and fill with premium diesel fuel. Run the engine for five minutes to circulate the fuel through the fuel injection system.

**NOTICE:** *Biodiesel fuel does not have long term stability and should not be left in engines or stored for more than four months. Prior to storing your machine for more than 4 months, the engine should be flushed by running for a minimum of 30 min with conventional diesel fuel.*

9. Clean the engine air filter and body.
10. Drain, flush and fill the cooling system with **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** to protect the sprayer to the lowest anticipated temperature.
11. Check for any parts that need replacing and order them immediately.
12. Sand and clean any rusty areas and repaint with a metal primer and a finish coat. A little paint will retard further corrosion and will make the vehicle more presentable.
13. Remove flow meter at the end of each spraying season. Clean flow meter turbine and inlet hub. Clean off all metal filings and wettable powders which have hardened on the plastic and metal parts. Check the inlet hub and turbine assembly for worn or damaged turbine blades and bearings. Flush flow meter with clear water and drain.
14. Remove console when not in use for extended periods.
15. The following steps should be taken if storing during freezing temperatures:
  - Sprayer plumbing - open valves and remove drain plug from pump to drain system, reinstall pump drain plug or add **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** solution to pump station plumbing.

**NOTICE:** *Never use 28% liquid fertilizer as antifreeze, as it promotes corrosion and could void your warranty.*

- Foam marker - drain unused foam solution from the tank and replace with enough **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** solution to cover strainer. Run unit until the antifreeze is visible at the foam heads.

**NOTICE:** *Glycol antifreeze should never be used in the foam marker, it will damage the foam marker system and void the warranty.*

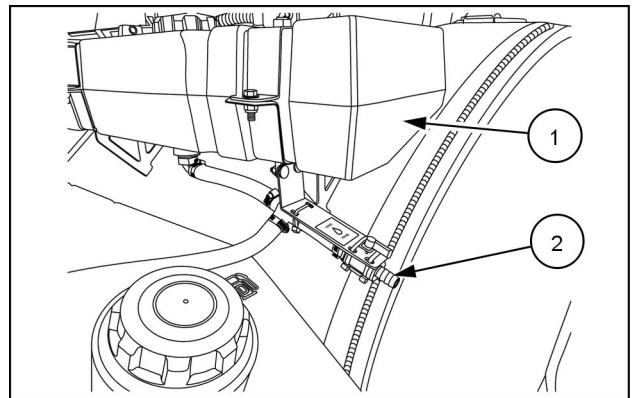


- Blow air through lines and drain water from the air tank.
- If your machine has a chemical eductor - drain the plumbing.
- Rinse tank - open all valves to drain system.

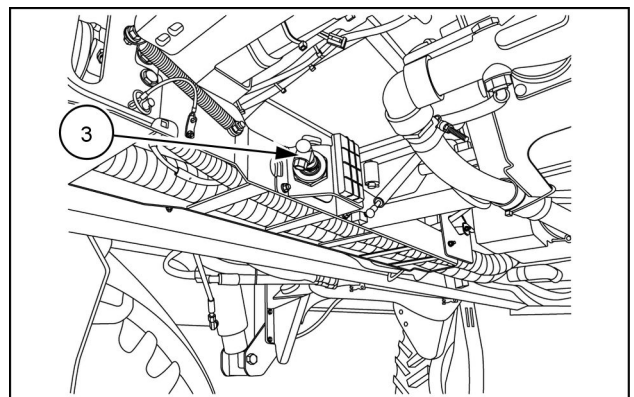
**NOTICE:** The use of **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** solution is suggested for the rinse tank. Remove sparge pressure gauge line located in front of the windshield. Run enough antifreeze solution through the line to flush line. After antifreeze appears in the line reattach line to the sparge pressure gauge.

### Hand rinse water tank and line

1. Hand rinse tank — Drain all fluid from the hand rinse tank. **(1)** of any remaining water using the petcock **(2)** on the tank.
2. Locate the lower hand rinse petcock **(3)** located on the side of the fast fill snorkel. Open the petcock and drain all water from the line.



RAIL17SP00763AA 1



RAIL17SP00752AA 2

### Removing from storage - Tier 3

**NOTICE:** Do NOT drive the vehicle with the booms unfolded or out of the transport cradles.

It is recommended that caution be used when starting an engine that has been in storage.

1. Remove all protective coverings from the machine.
2. Remove the batteries from storage. Check if fully charged, charge if needed. Install batteries and connect cables.
3. Perform all periodic maintenance for appropriate hours.
4. Check the hydraulic fluid level. Change the hydraulic fluid filter.
5. Drain fuel tank and replace fuel, or filter fuel through a clean chamois to remove water and other impurities.
6. Change fuel filter and prime fuel system.
7. Inflate the tires to the correct operating pressures.
8. Place a light coat of grease on the hydraulic cylinder rods.
9. Crank the engine with the starter motor, with the fuel shut off so that the engine will not start, for about 15 seconds. This will lubricate the engine bearings and avoid serious damage. Do not accelerate the engine rapidly, or operate at high revolutions per minute immediately after starting.
10. Start the engine and warm up to the normal operating temperature.
11. If you have a foam marker and it's filled with **PRO PERFORMANCE RV/MARINE ANTIFREEZE -50 °F** , flush thoroughly before filling it with water.
12. Install console back into unit.

# 8 - TROUBLESHOOTING

## Fault code resolution

## Fault code retrieval

### Engine

The engine fault codes are listed in the engine service manual. Contact your MILLER dealer for information on fault codes.

The engine has onboard diagnostic capabilities built into it to troubleshoot the engine fault codes.

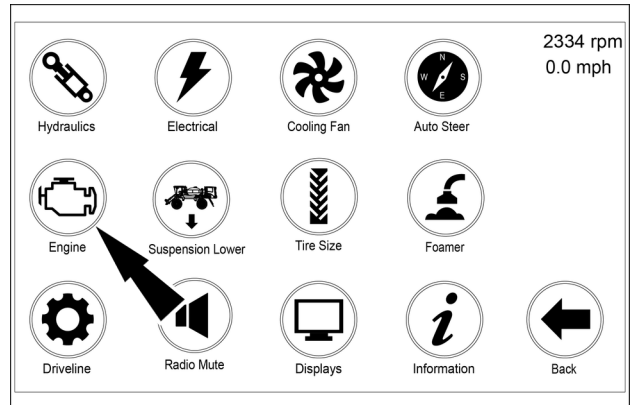
**FAULT DETECTION:** Engine fault codes can be detected while the engine is running. If a fault occurs, the engine computer takes a snapshot of engine operating parameters and logs the fault code into memory.

The arm rest display will display active fault codes as they occur.

To access the engine diagnostic page, press the engine icon on the arm rest display. Press the modules key on the info page, press the armrest display on the modules page, press the engine key on the armrest display page to bring up the errors page.

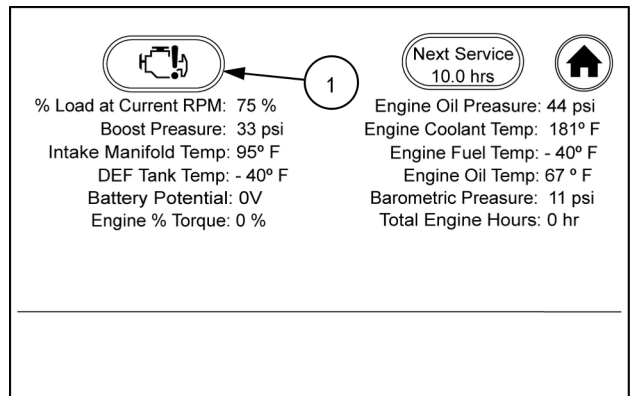
The armrest display panel will display fault codes with a Suspect Parameter Number (SPN) and the Fault Mode Indicator (FMI) code.

1. Press the engine icon button located on the armrest display second home page. The engine faults and service timer screen appears.



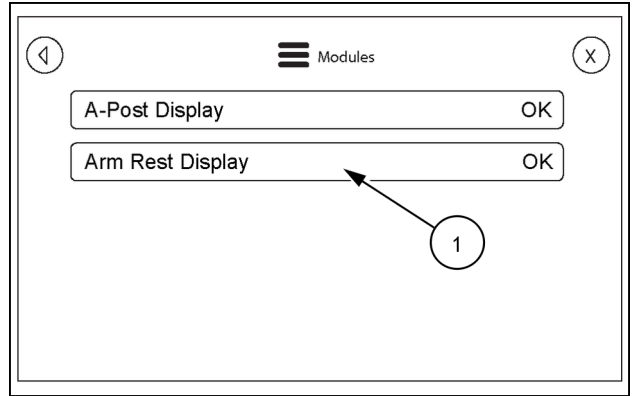
RAIL18SP00743FA 1

2. Touch the engine icon (1) to bring up the Modules screen.



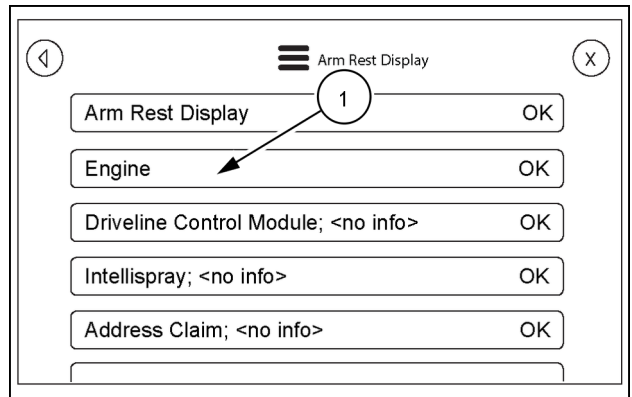
RAIL17SP00200AA 2

3. Touch the Arm Rest Display icon (1) to bring up the Arm Rest Display screen.



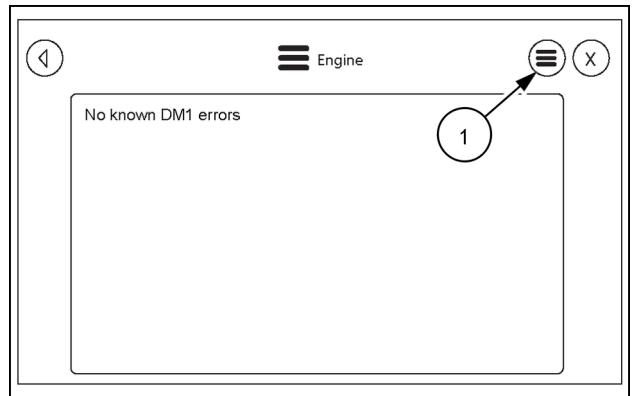
RAIL18SP01190AA 3

4. Touch the Engine icon (1) to bring up the Engine screen.



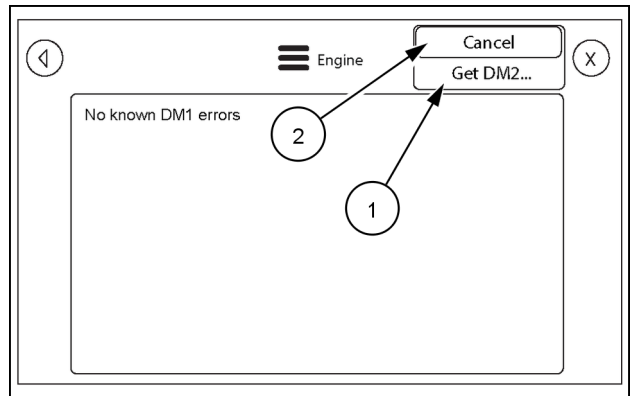
RAIL18SP01191AA 4

5. On the Engine screen, any engine faults will be displayed. To retrieve any stored faults, press the three bar button (1) to get the pop-up engine fault selection menu.



RAIL18SP01192AA 5

6. Press the Get DM2 (1) selection to bring up any stored faults. Press the Cancel button (2) to return to the previous screen.



RAIL18SP01193AA 6

## Hydraulic system

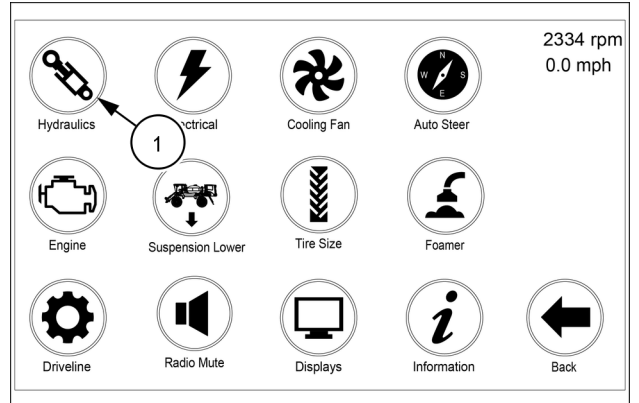
If the hydraulic pressure indicator on the Armrest Monitor comes on, check the hydraulic oil level and/or replace the filter. If the Armrest Monitor indicator continues to come on, contact your local dealer.

Chassis fault codes are available for viewing on the arm rest display.

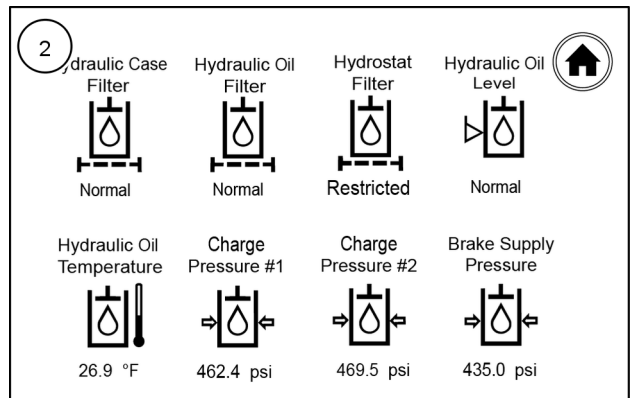
From the armrest home display touch the hydraulics icon **(1)**.

The hydraulics screen displays **(2)**. This screen is a monitoring screen only and has no selectable features.

When a fault is detected the corresponding icon will turn red.



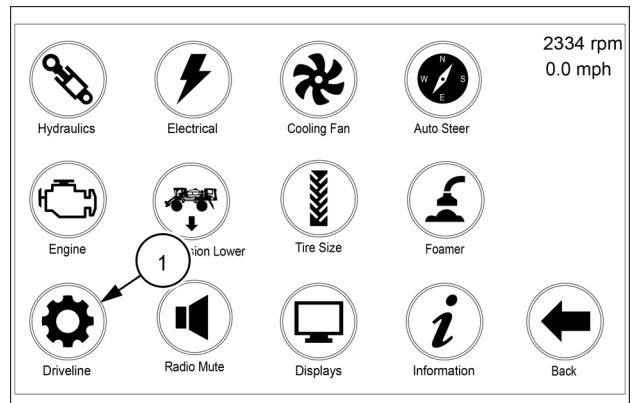
RAIL18SP00743FA 7



RAIL18SP00286AA 8

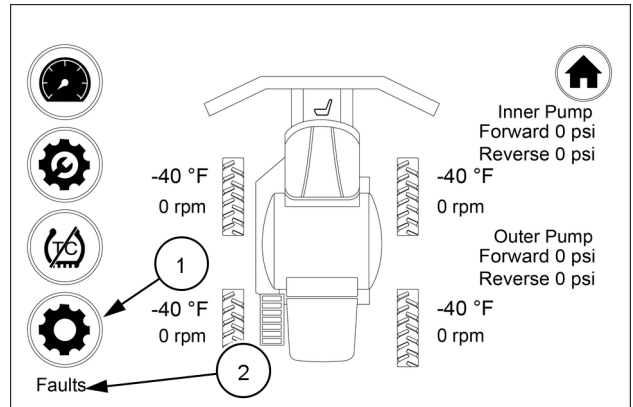
## Driveline

From the home screen, press the Driveline icon **(1)**. The Driveline page will display



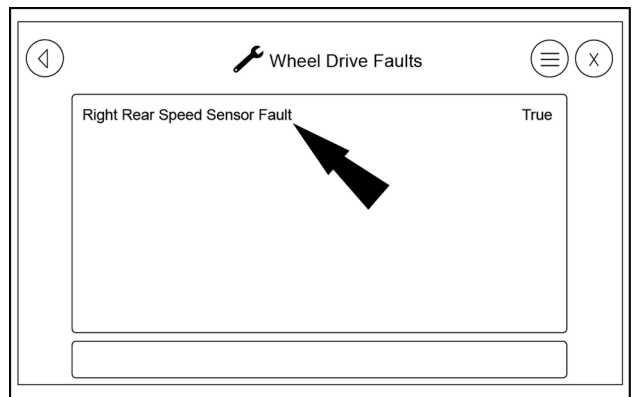
RAIL18SP00743FA 9

When a driveline fault is present on the machine, the Faults icon (1) will display in red, and the “Faults” message (2) will be present. Press the fault icon. The Wheel Drive Faults page displays.



RAIL18SP00744FA 10

The Wheel Drive Faults page will display the fault that is active on the machine. Take corrective action as required. Press the back arrow button to return to the previous screen.



RAIL17SP01458AA 11

## Troubleshooting procedures

The troubleshooting listings are theoretical, systematic searches for malfunctions in your vehicle. If all symptoms are known and properly diagnosed, it is relatively easy to determine what component is malfunctioning and what corrective action is required to restore your machine to proper operation.

Your sprayer consists of five major components not including optional equipment:

- Engine
- Hydraulic system
- Driveline
- Foam marker
- Product pump

The sprayer has the following self-diagnostic equipment installed to simplify troubleshooting of the machine.

- Display monitor
- Battery voltmeter
- Fuel gauge
- Engine temperature gauge and digital display
- Engine oil pressure gauge and digital display
- Air cleaner restriction indication
- Blocked fuel filter indication
- Hydraulic oil tank level sight gauge and lamps
- High hydraulic oil temperature indicator light

- High hydraulic oil return pressure light
- Water in fuel indication
- Engine intake manifold temperature digital display

**Symptom(s)**

**Engine troubleshooting**

If engine performance is unsatisfactory, check the following troubleshooting guide for possible problems and solutions.

Engine will not crank	Check that the drive control lever is in Neutral.
	Check that Neutral start switch is working properly.
	Check that Starter Relay in fuse box is working properly.
	Check that the Operator Presence Switch is working properly.
	Check that battery disconnect switch is turned to on.
Coolant temperature too high	Clean air inlet screens.
	Clean debris out of radiator, oil cooler and AC condenser fins.
	Check coolant level.

## Hydraulic system troubleshooting

### **⚠ WARNING**

#### **Escaping fluid!**

Hydraulic fluid or diesel fuel leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.

Failure to comply could result in death or serious injury.

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If hydraulic system performance is unsatisfactory, check the following troubleshooting guide for possible problems and solutions.

<b>Suspect parameter</b>	<b>Failure mode</b>	<b>Course of action</b>
Hydraulic Oil Level	Oil Level Low	Refer to <b>7-44</b> .
Hydraulic Oil Temperature	Oil Temperature High	See your MILLER dealer.
Brake Supply Pressure	Pressure Low	See your MILLER dealer.
Hydrostat Pressure	Pressure Low	See your MILLER dealer.
Case Filter Pressure	Filter Needs Replacement	Refer to <b>7-84</b> .
Hydraulic Oil Filter	Filter Needs Replacement	Refer to <b>7-84</b> .
Hydrostat Filter	Filter Needs Replacement	Refer to <b>7-81</b>
Auxiliary Pump Pressure	Filter Needs Replacement	See your MILLER dealer.



## Driveline troubleshooting

If the driveline performance is unsatisfactory, check the following troubleshooting guide for possible problems and solutions.

Alarm/Fault code	Possible cause	Symptom	Corrective action
Brake Signal 1	Loss of Brake Sensor Signal 1	None on Performance	See your MILLER dealer
Brake Signal 1 not Calibrated	Brake Pedal not Calibrated	None on Performance	See your MILLER dealer
Brake Signal 2	Loss of Brake Sensor Signal 2	None on Performance	See your MILLER dealer
Brake Signal 2 not Calibrated	Brake Pedal not Calibrated	None on Performance	See your MILLER dealer
Brake Signal 3	Loss of Brake Sensor Signal 3	None on Performance	See your MILLER dealer
Brake Signal 3 not Calibrated	Brake Pedal not Calibrated	None on Performance	See your MILLER dealer
Brake Signal 1 not Calibrated Brake Signal 2 not Calibrated	Brake Pedal not Calibrated	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 1 not Calibrated Brake Signal 3 not Calibrated	Brake Pedal not Calibrated	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 2 not Calibrated Brake Signal 3 not Calibrated	Brake Pedal not Calibrated	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 1 not Calibrated Brake Signal 2 not Calibrated Brake Signal 3 not Calibrated	Brake Pedal not Calibrated	Drive Disabled	See your MILLER dealer
Brake Signal 1 Brake Signal 2	Loss of Brake Sensor Signal 1 and 2	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 1 Brake Signal 3	Loss of Brake Sensor Signal 1 and 3	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 2 Brake Signal 3	Loss of Brake Sensor Signal 2 and 3	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Brake Signal 1 Brake Signal 2 Brake Signal 3	Loss of Brake Sensor Signal 1, 2 and 3	Drive Disabled	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault	Detection of Left Front Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Front H1 Motor Coil/Wiring Fault	Detection of Right Front Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Rear H1 Motor Coil/Wiring Fault	Detection of Left Rear Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Rear H1 Motor Coil/Wiring Fault	Detection of Right Rear Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Right Front H1 Motor Coil/Wiring Fault	Detection of Left Front Motor and Right Front Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor and Left Rear Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer

8 - TROUBLESHOOTING

Alarm/Fault code	Possible cause	Symptom	Corrective action
Left Front H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor and Right Rear Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault	Detection of Right Front Motor and Left Rear Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Front H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Right Front Motor and Right Rear Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Rear H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Left Rear Motor and Right Rear Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Right Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor, Right Front and Left Rear Coil Faults	Drive Disabled	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Right Front H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor, Right Front and Right Rear Coil Faults	Drive Disabled	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor, Left Rear and Right Rear Coil Faults	Drive Disabled	See your MILLER dealer
Right Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Right Front Motor, Left Rear and Right Rear Coil Faults	Drive Disabled	See your MILLER dealer
Left Front H1 Motor Coil/Wiring Fault Right Front H1 Motor Coil/Wiring Fault Left Rear H1 Motor Coil/Wiring Fault Right Rear H1 Motor Coil/Wiring Fault	Detection of Left Front Motor, Right Front, Left Rear and Right Rear Coil Faults	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Forward Coil/Wiring Fault	Detection of Front Pump Forward Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Hydrostatic Pump Reverse Coil/Wiring Fault	Detection of Front Pump Reverse Motor Coil Fault	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Hydrostatic Pump Forward Coil/Wiring Fault	Detection of Front Pump Forward an Rear Pump Forward Motor Coil Faults	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Reverse Coil/Wiring Fault	Detection of Front Pump Reverse an Rear Pump Reverse Motor Coil Faults	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Forward Coil/Wiring Fault Rear Pump Reverse Coil/Wiring Fault	Detection of Front Pump Forward an Rear Pump Reverse Motor Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Hydrostatic Pump Reverse Coil/Wiring Fault Rear Pump Forward Coil/Wiring Fault	Detection of Front Pump Reverse an Rear Pump Forward Motor Coil Faults	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Steer Angle Signal 1	Loss of Steering Angle Sensor Signal	Reduced Performance to Approximately <b>29 km/h (18 mph)</b> After Reset to Neutral	See your MILLER dealer

## 8 - TROUBLESHOOTING

<b>Alarm/Fault code</b>	<b>Possible cause</b>	<b>Symptom</b>	<b>Corrective action</b>
Steer Angle Signal 1 not Calibrated	Steering Sensor Not Calibrated	Reduced Performance to Approximately <b>29 km/h (18 mph)</b> After Reset to Neutral	See your MILLER dealer
Joystick Signal 1	Loss of Joystick Signal 1	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Joystick Signal 1 not Calibrated	Joystick Signal 1 Not Calibrated	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Joystick Signal 2	Loss of Joystick Signal 2	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Joystick Signal 2 not Calibrated	Joystick Signal 2 Not Calibrated	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Joystick Signal 1 Joystick Signal 2	Loss of Joystick Signal 1 and 2	Drive Disabled	See your MILLER dealer
Joystick Signal 1 not Calibrated Joystick Signal 2 not Calibrated	Joystick Signal 1 and 2 Not Calibrated	Drive Disabled	See your MILLER dealer
Joystick Compare Difference Error	Joystick Signal 1 and 2 Comparison Error	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Forward Pressure Transducer Fault	Loss of Front Pump Forward Press Transducer Signal	None on Performance	See your MILLER dealer
Hydrostatic Pump Reverse Pressure Transducer Fault	Loss of Front Pump Reverse Press Transducer Signal	None on Performance	See your MILLER dealer
Hydrostatic Pump Forward Pressure Transducer Fault	Loss of Front Pump and Rear Pumps Forward Press Transducer Signals	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Reverse Pressure Transducer Fault	Loss of Front Pump and Rear Pumps Reverse Press Transducer Signals	Drive Disabled	See your MILLER dealer
Hydrostatic Pump Forward Pressure Transducer Fault	Loss of Front Pump Forward and Rear Pumps Reverse Press Transducer Signals	None on Performance	See your MILLER dealer
Hydrostatic Pump Reverse Pressure Transducer Fault	Loss of Front Pump Reverse and Rear Pumps Forward Press Transducer Signals	None on Performance	See your MILLER dealer
Creep Speed Enabled	Machine Speed is Limited to <b>5 km/h (3 mph)</b> Due to Fault(s)	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Front Speed Sensor Fault	Loss of Left Front Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Front Speed Sensor Fault	Loss of Right Front Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Left Rear Speed Sensor Fault	Loss of Left Rear Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Right Rear Speed Sensor Fault	Loss of Right Rear Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer

8 - TROUBLESHOOTING

<b>Alarm/Fault code</b>	<b>Possible cause</b>	<b>Symptom</b>	<b>Corrective action</b>
Driveline Control Sensor Power Fault	Loss of Sensor Power at Driveline Controller	Drive Disabled	See your MILLER dealer
SAE J1939 Fault	Loss of J1938 Communication	Drive Disabled	See your MILLER dealer
Front Left Frequency Fault	Loss of Left Front Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Front Right Frequency Fault	Loss of Right Front Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Rear Left Frequency Fault	Loss of Left Rear Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
Rear Right Frequency Fault	Loss of Right Rear Speed Sensor Signal	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	Check Speed Sensor, Sensor Connections/Wiring
Steer Angle Fault Speed Enabled	Loss of Steering Angle Sensor Signal	Reduced Performance to Approximately <b>29 km/h (18 mph)</b> After Reset to Neutral	See your MILLER dealer
IQAN Lost CAN message Fault	IQAN Lost CAN Communication	Drive Disabled	See your MILLER dealer
Park Brake Release Coil	Detection of Park Brake Coil Fault	Drive Disabled	See your MILLER dealer
Front CCO Valve	Detection of Front Pump CCO Coil Fault	Reduced Performance to Approximately 1/2 Speed	See your MILLER dealer
Rear CCO Valve	Detection of Rear Pump CCO Coil Fault	Reduced Performance to Approximately 1/2 Speed	See your MILLER dealer
Front CCO Valve Rear CCO Valve	Detection of Front and Rear Pump CCO Coil Faults	Drive Disabled	See your MILLER dealer
No Propel Speed Fault	Machine is Disabled Due to Fault(s)	Drive Disabled	See your MILLER dealer
No Propel Fault	Machine is Disabled Due to Fault(s)	Drive Disabled	See your MILLER dealer
Brake Not Pressed	Brake Pedal was not Pressed Fully before Releasing Park Brake	Drive Disabled	Depress Brake Pedal before Releasing Park Brake
Brake Signal Compare Fault	2 of the 3 Brake Sensor Signals are in Error	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	See your MILLER dealer
FL Motor Temp Fault	Detection of Front Left Motor Temperature Sensor Fault	None on Performance	See your MILLER dealer
FR Motor Temp Fault	Detection of Front Right Motor Temperature Sensor Fault	None on Performance	See your MILLER dealer
RL Motor Temp Fault	Detection of Rear Left Motor Temperature Sensor Fault	None on Performance	See your MILLER dealer
RR Motor Temp Fault	Detection of Rear Right Motor Temperature Sensor Fault	None on Performance	See your MILLER dealer
Joy Neutral Value and Switch Not equal	Joystick Neutral Signal Does not Match Neutral Switch	Drive Disabled	See your MILLER dealer

8 - TROUBLESHOOTING

<b>Alarm/Fault code</b>	<b>Possible cause</b>	<b>Symptom</b>	<b>Corrective action</b>
Joy Held out of Neutral to long and no park brake release	Joystick was out of Neutral Position without First Releasing Park Brake	Drive Disabled	Return Joystick to Neutral and Release Park Brake
Rear Steer No Calibration	Rear Steering not Calibrated on 4WS Model	Reduced Performance to Approximately <b>29 km/h (18 mph)</b> After Reset to Neutral	See your MILLER dealer
Rear Steer Signal Fault	Loss of Rear Steering Sensor Signal	Reduced Performance to Approximately <b>29 km/h (18 mph)</b> After Reset to Neutral	See your MILLER dealer
Depress Brake Pedal before Releasing Park Brake	Brake Pedal was not Pressed Fully before Releasing Park Brake	Drive Disabled	Depress Brake Pedal before Releasing Park Brake
Cold Weather Protection Active - Please Wait For Oil To Warm	Hydraulic Oil is less than <b>2 °C (36 °F)</b>	Reduced Performance to <b>5 km/h (3 mph)</b> After Reset to Neutral	Allow Hydraulic Oil to rise above <b>2 °C (36 °F)</b>
Motor Case Over <b>115 °C (239 °F)</b> .	Case Drain Temperature of One or More Wheel Motors is over <b>115 °C (239 °F)</b>	Reduced Performance to <b>16 km/h (10 mph)</b>	Reduce Speed

## Foam marker troubleshooting

If foam marker performance is unsatisfactory, check the following troubleshooting guide for possible problems and solutions.

Symptom	Possible cause	Corrective action
You do not get foam.	Air supply not properly connected.	To be sure the air line and liquid lines do not have a hole in them or are not pinched. Remove air and liquid tubing at each foam head and check for flow.
	Not enough foam concentrate.	Very hard water may require a greater amount of concentrate to produce good foam. Not having enough foam concentrate may make good foam, but not make enough of it. Use a high quality foam concentrate. Adjust foam concentrate with in cab display panel.
	In-line filter dirty or clogged.	Check and clean the in-line filter.
	Shut off valve closed.	Open shut off valve near filter.
Not enough foam.	Not enough foam concentrate.	Adjust foam concentrate with in cab display panel.
	Hole in air line. Pinched air or liquid lines.	Check air and liquid lines.
	Clogged in-line filter/foam heads.	Check and clean filter/foam heads.
Wet foam.	Not enough foam concentrate.	Adjust foam concentrate with in cab display panel.
	Dirty in-line filter/foam heads.	Check and clean filter/foam heads.
Foam does not last on the ground.	Too little concentrate being used.	Use higher quality foam concentrate or increase concentrate with in cab display panel.
Blowing foam in windy weather.	Foam too light or dry.	Decrease concentrate with in cab display panel.

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## Product pump troubleshooting

If spraying performance is unsatisfactory, check the following troubleshooting guide for possible problems and solutions.

Symptom	Possible cause	Corrective action
Low discharge.	Pump not primed.	Remove top most vent plug from face of pump and run pump to expel trapped air.
	Air leaks in suction line.	Check and reseal inlet fittings.
	Blocked or clogged line strainer.	Inspect strainer and clear any debris from screen.
	Impeller plugged.	Inspect and clear obstruction.
	Clogged or collapsed hose(s).	Replace hose(s).
	Eye of impeller rubbing on volute.	Remove volute (front cover) and inspect the impeller. If wear detected, sand the impeller eye outside diameter with emery cloth.





## 9 - SPECIFICATIONS

### General specification - 7380 (Tier 3)

Model 7380 – Tier 3	
Engine	FPT Cursor 9 Tier 3 <b>237 kW (322 Hp)</b> — power bulge to <b>281 kW (382 Hp)</b>
Fuel capacity and type	<b>568 l (150 US gal)</b> Ultra low sulfur diesel
Cooling package	Stacked top down single pass design, hydraulically driven fan
Engine/transmission	Located in rear - ISO mounted
Transmission	Torq-Trac® hydrostatic drive system with Twin Danfoss heavy duty pumps
Hydro pump displacement	130cc each
Final drives	Planetary drives
Parking brake	4 wheel
Service brake	4 wheel internal wet disc
Steering	
Standard front wheel	Hydrostatic with two steering cylinders, no tie rods, <b>4.6 m (15.0 ft)</b> turning radius
Optional 4 wheel steer	<b>4.6 m (15.0 ft)</b> turn radius in 4 wheel steer, <b>6.4 m (21.0 ft)</b> turn radius in 2 wheel steer
HYDRALINK™ Suspension	Full suspension travel of <b>51 cm (20 in)</b> . 4-wheel independent with integrated hydraulic leveling/shock absorbers, auto leveling for each wheel leg.
Crop clearance	<b>183 cm (72 in)</b> Tire dependant
Wheel width adjustment	<b>305 – 406 cm (120 – 160 in)</b> , hydraulic adjust, wheels move in/out equally on both sides. Operator remains centered.
Air system	Direct engine driven, water cooled air compressor and air storage tank.
Auxiliary hydraulic circuit	<b>98.4 L/min (26.0 US gpm)</b> - Optional <b>166.6 L/min (44.0 US gpm)</b> closed center
Product tank options	
Stainless steel	<b>4542 L (1200 US gal)</b>
Stainless steel	<b>5300 L (1400 US gal)</b>
Stainless steel	<b>6057 L (1600 US gal)</b>
Product pump	
Product pump	Hypro 9306C - <b>795 l/min @ 5.5 bar ( 210 US gpm @ 80 psi)</b>
Product pump high capacity	Hypro 9307C high capacity - <b>1173 l/min @ 5.5 bar ( 310 US gpm @ 80 psi)</b>
Rinse tank standard	<b>568 l (150 US gal)</b> , Poly
Boom options	Mono Boom: <b>90 ft/ 60 ft, 100 ft/ 60 ft, 120 ft/ 70 ft, 27 m/ 18 m, 30 m/ 18 m, 32 m/ 18 m, 36 m/ 22 m</b> Spray Air Boom: <b>90 ft, 100 ft, 120 ft</b> Truss Boom (non-air): <b>120 ft, 132 ft, 135 ft</b>
Boom lines	Standard <b>2.54 cm (1 in)</b> stainless steel — Optional <b>3.81 cm (1.5 in)</b> stainless steel
Cab	Deluxe Cab or Luxury Cab
Height	<b>401 cm (158 in)</b>
Width (transport)	<b>368 cm (145 in)</b>
Length (boom unfolded)	<b>922 cm (363 in)</b>
Wheel base	<b>450 cm (177 in)</b>
Boom travel	Lowered <b>56 cm (22 in)</b> — Raised <b>300 cm (118 in)</b>
Weight (approximate)	<b>15649 kg (34500 lb)</b>

## General specification - 7420 (Tier 3)

Model 7420 – Tier 3	
Engine	FPT Cursor 9 Tier 3 <b>274 kW (373 Hp)</b> — power bulge to <b>320 kW (435 Hp)</b>
Fuel capacity and type	<b>568 l (150 US gal)</b> Ultra low sulfur diesel
Cooling package	Stacked top down single pass design, hydraulically driven fan
Engine/transmission	Located in rear - ISO mounted
Transmission	Torq-Trac® hydrostatic drive system with Twin Danfoss heavy duty pumps
Hydro pump displacement	147cc each
Final drives	Planetary drives
Parking brake	4 wheel
Service brake	4 wheel internal wet disc
Steering	
Standard front wheel	Hydrostatic with two steering cylinders, no tie rods, <b>4.6 m (15.0 ft)</b> turning radius
Optional 4 wheel steer	<b>4.6 m (15.0 ft)</b> turn radius in 4 wheel steer, <b>6.4 m (21.0 ft)</b> turn radius in 2 wheel steer
HYDRALINK™ Suspension	Full suspension travel of <b>51 cm (20 in)</b> . 4-wheel independent with integrated hydraulic leveling/shock absorbers, auto leveling for each wheel leg.
Crop clearance	<b>183 cm (72 in)</b> Tire dependant
Wheel width adjustment	<b>305 – 406 cm (120 – 160 in)</b> , hydraulic adjust, wheels move in/out equally on both sides. Operator remains centered.
Air system	Direct engine driven, water cooled air compressor and air storage tank.
Auxiliary hydraulic circuit	<b>98.4 L/min (26.0 US gpm)</b> - Optional <b>166.6 L/min (44.0 US gpm)</b> closed center
Product tank options	
Stainless steel	<b>4542 L (1200 US gal)</b>
Stainless steel	<b>5300 L (1400 US gal)</b>
Stainless steel	<b>6057 L (1600 US gal)</b>
Product pump	
Product pump	Hypro 9306C - <b>795 l/min @ 5.5 bar ( 210 US gpm @ 80 psi)</b>
Product pump high capacity	Hypro 9307C high capacity - <b>1173 l/min @ 5.5 bar ( 310 US gpm @ 80 psi)</b>
Rinse tank standard	<b>568 l (150 US gal)</b> , Poly
Boom options	Mono Boom: <b>90 ft/ 60 ft, 100 ft/ 60 ft, 120 ft/ 70 ft, 27 m/ 18 m, 30 m/ 18 m, 32 m/ 18 m, 36 m/ 22 m</b> Spray Air Boom: <b>90 ft, 100 ft, 120 ft</b> Truss Boom (non-air): <b>120 ft, 132 ft. 135 ft</b>
Boom lines	Standard <b>2.54 cm (1 in)</b> stainless steel — Optional <b>3.81 cm (1.5 in)</b> stainless steel
Cab	Deluxe Cab or Luxury Cab
Height	<b>401 cm (158 in)</b>
Width (transport)	<b>368 cm (145 in)</b>
Length (boom unfolded)	<b>922 cm (363 in)</b>
Wheel base	<b>450 cm (177 in)</b>
Boom travel	Lowered <b>56 cm (22 in)</b> — Raised <b>300 cm (118 in)</b>
Weight (approximate)	<b>15649 kg (34500 lb)</b>

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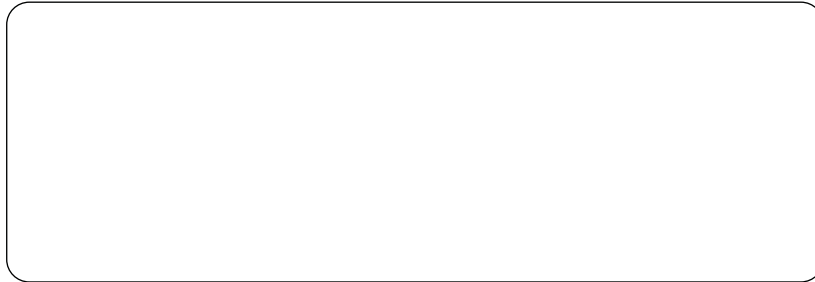
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Dealer's stamp



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