

PhiBer Vertical Stacking Accumulator



Model: VS1204

Limitation of Liability

PhiBer[®] Manufacturing Inc. shall not be liable for special, incidental or consequential damages arising out of the use of, the misuse of, or the inability to use any product sold by PhiBer[®] Manufacturing Inc. including, but without limitation: damages or loss of other property or equipment, personal injury, loss of life, loss of profits or revenue, or claims of purchaser for any such damage or loss.

Warranty

PhiBer[®] Manufacturing Inc. warrants its products to be free from defect in factory workmanship and material under normal use and service, when set-up and operated according to factory instructions. Warranty should be handled through PhiBer[®] or an authorized selling dealer. Warranty is subject to the following conditions:

Warranty Claims: Must be completed within 30 days of replacement of part(s). Claim must include serial number of accumulator, date of delivery, explanation of problem and all other necessary particulars.

Warranty Parts: Must be kept for PhiBer's[®] inspection unless otherwise specified.

Warranty Labor: PhiBer[®] must authorize any labor subject to warranty. PhiBer[®] Manufacturing Inc. reserves the right to set the labor rate and time required to complete a warranty repair.

Warranty Limitations: Warranty will not be granted on any accumulator that has been misused, altered, or modified in any way. Diagnostic and service calls are not covered by warranty. Warranty covers only the cost of repair and parts; it does not include shop supplies, mileage and freight costs.

Government Legislation: Warranty terms and conditions are subject to provincial or state legislation and laws.

Warranty on cylinders, hydraulic components, electronic components, and other trade accessories are limited to the warranties made by the respective manufacturers and not by PhiBer[®] Manufacturing Inc.

The following table shows the available warranty:

Item	Time from Purchase
Frame and other structural components	One (1) Year
Electronic components	One (1) Year
Hydraulic components	One (1) Year
Hydraulic cylinders	One (1) Year

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Introduction

Congratulations on your purchase of the PhiBer® Vertical Stacking Accumulator. The PhiBer® Vertical Stacking Accumulator offers the agricultural industry a machine for uniformly arranging bales into a desired package that can be handled more efficiently.

All persons authorized to operate this equipment should read and understand the contents of this Operator's Manual, especially the *Safety* section. The owner or operator should seek assistance from the dealer, distributor or PhiBer® for any information not fully understood regarding the safe operation, adjustment, maintenance or repair of this equipment.

Keep this Operator's Manual in a clean, dry place that is easily accessible for reference when more detailed information is required to perform tasks related to the operation, adjustment, maintenance or repair of this equipment. It is further recommended that the contents of this Operator's Manual be reviewed at least annually by persons operating, adjusting, maintaining or repairing this PhiBer® Vertical Stacking Accumulator and any time a new person is assigned to any of the above-mentioned tasks.

Any information in this Operator's Manual that is not fully understood should be clarified by contacting the dealer, distributor or manufacturer.

The contents of this Operator's Manual are accurate up to the time of printing.

PhiBer® reserves the right to make design changes without prior notice to the end user.

Description of the Machine

The operator can choose from three different automatic discharge patterns or manually eject the bales. With the PhiBer[®] Vertical Stacking Accumulator you can select the desired bale packaging mode that will compliment the preferred method of bale handling in the field.

There are two options of control: automatic unloading and manual unloading. The bales can be unloaded when stacks of two, three or four bales have been completed. If a bale is halfway out of the baler, or more, the accumulator will not allow manual dumping until that bale has completed its cycle. Automatic unloading is recommended. Refer to *ISOBUS Software* for more information on manual and automatic settings.

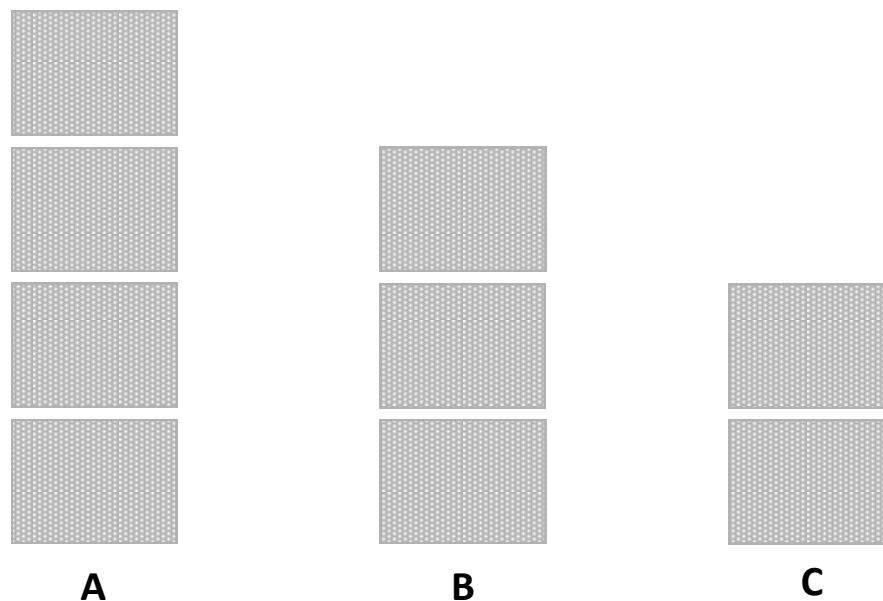


Fig. 1.1

Bale Packaging Modes* (Figure 1.1)

**shown from front view*

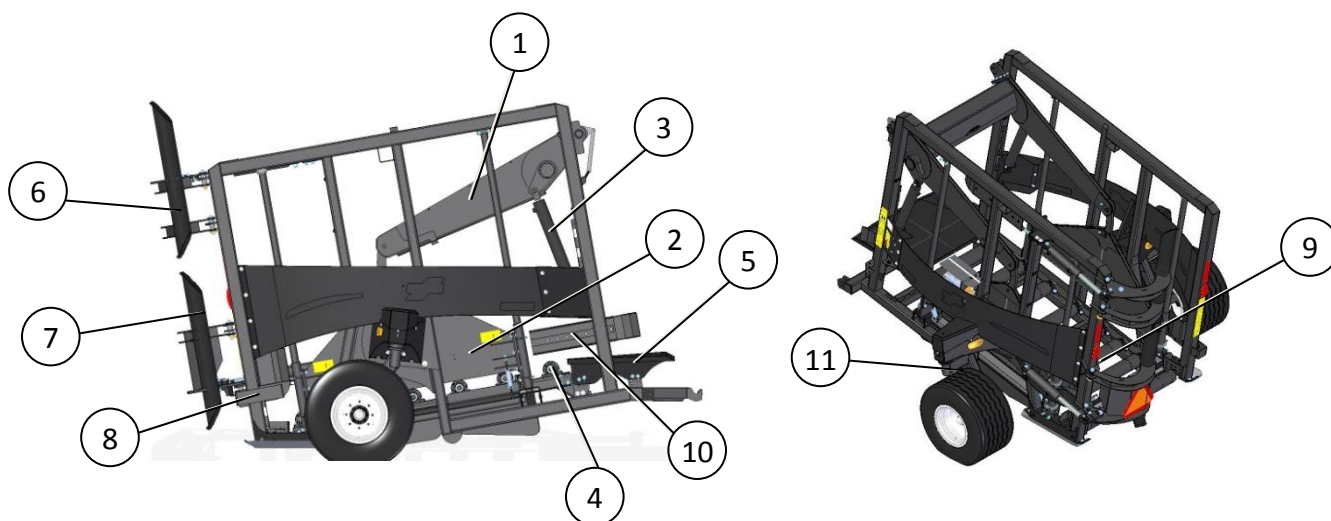
- A.** Four (4): 2¼ ft x 4 ft (70 cm x 120 cm) Bales
- B.** Three (3): 2¼ ft x 4 ft (70 cm x 120 cm) Bales
- or -
Three (3): 3 ft x 4 ft (90 cm x 120 cm) Bales
- C.** Two (2): 2¼ ft x 4 ft (70 cm x 120 cm) Bales
- or -
Two (2) 3 ft x 4 ft (90 cm x 120 cm) Bales
- or -
Two (2) 4 ft x 4 ft (120 cm x 120 cm) Bales

Illustration of the Machine

IMPORTANT! All references to “LEFT” and “RIGHT”, as used throughout this Operator’s Manual, are determined by facing the direction of forward travel when in use.

Vertical Stacking Accumulator Assembly

1. Load Arm
2. Lift Trucks: left and right
3. Lift Cylinders
4. Roller Bed
5. Bale Transition Pan
6. Top Tail Gate
7. Bottom Tail Gate
8. Rear Optic Sensor
9. Floor Switch
10. Front Optic Sensor
11. Caster



Virtual Terminal

This accumulator uses a standard ISOBUS (ISO11783) terminal.

Serial Number Location

The serial number plate (Figure 1.2) is located on the front left hand side of the frame, above the emergency stop button.

Record the machine Model and Serial Number in the spaces provided below. Use these numbers when contacting the dealer for repair parts or service assistance.

Model Number: _____

Serial Number: _____

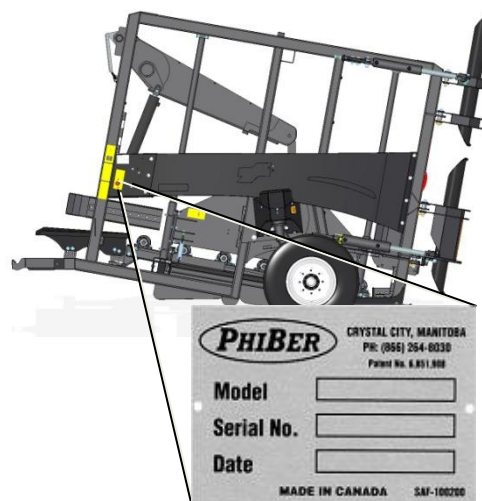


Fig. 1.2

Safety

Safety Alert Symbols

Safety Alert Symbols are intended to draw attention of the machine operator to important safety information both published in the Operator's Manual and applied to the machine. Whenever a Safety Alert Symbol is seen, it means that associated information is provided for recognizing, responding appropriately to and avoiding potentially hazardous situations.

An equilateral triangle surrounding an exclamation point or a double line equilateral triangle surrounding symbols or graphics indicates a potentially hazardous situation. Information included on a safety sign or printed in the Operator's Manual describes the hazardous situation and indicates appropriate response and/or avoidance procedures.

Remember:

**ACCIDENTS DISABLE AND KILL
ACCIDENTS ARE COSTLY
ACCIDENTS CAN BE AVOIDED**



Signal Words

DANGER

Indicates an imminently hazardous situation that, if not avoided, **WILL** result in death or serious injury if proper precautions are not taken.



WARNING

Indicates a potentially hazardous situation that, if not avoided, **COULD** result in death or serious injury if proper precautions are not taken.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, **MAY** result in minor or moderate injury if proper precautions are not taken, or it serves as a reminder to follow appropriate safety practices.



Operator Responsibility

Remember, YOU, the operator, are responsible for the safe operation, adjustment, maintenance and repair of this PhiBer[®] Vertical Stacking Accumulator. It is the responsibility of the owner, or authorized person in charge, to ensure that all persons who operate, adjust, maintain and/or repair this implement are familiar with the information provided in this Operator's Manual.

A safe operator is the key to safety. Good safety practices not only protect you, but also persons who may be in the vicinity of the accumulator. Make good safety practices a part of your farming operation. Ensure that all persons operating, adjusting, maintaining and/or repairing this equipment are familiar with the procedures recommended in this Operator's Manual.

Always heed safety warnings and follow recommended safety precautions to avoid hazardous situations. Do not risk personal injury or death by ignoring safety warnings and safety precautions.

Key Safety Reminders:

- The most important safety device is a safe and qualified operator.
- A safe operator is one who has read and understood the contents of this Operator's Manual prior to performing any tasks related to the machine.
- Owners have a responsibility to provide training to persons who may operate, adjust, maintain and/or repair the equipment prior to performing any of these tasks.
- Do not perform any unauthorized modifications to the accumulator or use the accumulator for any purpose other than what is described in the contents of this Operator's Manual.
- Plan tasks and work schedules to reduce exposure to unnecessary stress and fatigue.
- Observe all workplace safety and health requirements.

General Safety Practices

- Read and understand the contents of this Operator's Manual prior to operating, adjusting, maintaining and/or repairing the bale accumulator.
- Locate, read and understand all safety signs applied to the accumulator before performing any tasks.
- Review the contents of this Operator's Manual at least annually, and any time a new person is assigned to perform any task with the accumulator.
- Press the emergency stop button and ensure that all bystanders, especially small children, are kept at a safe distance while performing any tasks with the accumulator.
- Do not allow riders on any part of the accumulator.
- Ensure all guards and shields are intact and in place prior to operating the accumulator.
- Keep hands, feet, hair and loose clothing away from moving and/or rotating parts.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.
- Ensure that all equipment lighting and marking is intact, clean and operating properly prior to traveling on public roads. Check with local highway authorities to confirm that the accumulator is properly equipped for highway travel.
- Provide a fully stocked First-Aid kit in a highly visible and easily accessible location.
- Keep a fully charged fire extinguisher in a highly visible and easily accessible location.
- Ensure that the accumulator is securely blocked and supported prior to working underneath (if it needs to be raised for repair).
- Ensure that all persons operating, adjusting, maintaining and/or repairing the accumulator know how to seek or summon medical assistance should an injury occur.

Maintenance Safety

- Read and understand all of the information provided in this Operator's Manual covering the operation, adjustment, maintenance and repair prior to performing any of these tasks.
- Ensure proper tools, equipment and personal protective equipment is available prior to working on the accumulator.
- Stop the engine, lower the equipment, set the parking brake, remove the ignition key and allow time for moving parts to stop prior to adjusting, maintaining or repairing the equipment.
- Ensure that all moving parts have come to a complete stop before performing adjustments, maintenance or repairs.
- Securely block main frame if adjustment, maintenance or repair is required for wheels and tires.
- Wear personal protective equipment, such as gloves, eye protection, etc. when inspecting hydraulic system for leaks. Use a small piece of cardboard or wood to detect leaks.
- Prior to operating equipment, ensure that all guards and shields are intact and in place after performing adjustment, maintenance or repairs.
- Check for bushing wear and weldment fatigue on moving parts.
- Store flammable fluids in approved containers and store out of access by unauthorized persons, especially children.
- Wear appropriate clothing when performing tasks around the accumulator. Ill-fitting and/or frayed clothing as well as loose or dangling items should not be worn when working near the equipment.
- Ensure that hydraulic oil pressure in hoses, lines and components is fully relieved prior to performing maintenance or repairs to the hydraulic system.

Hydraulic Safety

- Ensure that all hydraulic system components are kept clean and in proper working condition.
- Periodically inspect condition of hydraulic hoses, lines and components. Remove and replace any parts showing damage or deterioration.
- Use only repair or replacement parts specified by the manufacturer.
- Follow instructions provided by the manufacturer when making repairs.
- Wear appropriate personal protective equipment when unsure if residual pressure may exist in hydraulic components during trouble-shooting and/or making repairs.
- Use a piece of cardboard or wood to check for hydraulic leaks. Hydraulic fluid under pressure can penetrate human skin.
- Ensure all fittings, couplings and other hydraulic connections are intact and properly tightened before operating hydraulics.
- Store flammable fluids in approved containers and store out of reach by unauthorized persons, especially children.
- Ensure that hydraulic oil pressure in hoses, lines and components is fully relieved prior to performing maintenance or repairs to the hydraulic system.
- Ensure that all persons operating, adjusting, maintaining and/or repairing the accumulator know how to seek or summon medical assistance should an injury occur.

Installation Safety

- Read, review and understand all bale accumulator installation instructions before attempting to attach accumulator to baler.
- Ensure the baler is properly hitched to the tractor and that the baler is lowered fully to the ground.
- Ensure that tractor engine is shut off, key is removed from the ignition and the parking brake is set and/or wheels blocked.
- Block bale accumulator tires and support the front end of the bale accumulator frame until the accumulator is securely attached to the baler.

Transport Safety

- Ensure that the accumulator is attached to the baler properly.
- Ensure the drawbar hitch pin retainer for baler is in place and engaged properly.
- Ensure the safety tow chain is securely attached between baler and tractor.
- Ensure all lighting and implement marking devices are intact and visible.
- Ensure equipment is properly marked according to local road regulations and heed all local traffic regulations.
- The accumulator adds length to baler and covers a wide path when making turns.
- Ensure the accumulator is fully unloaded before road travel.
- Do not exceed 20 mph (32 km/h).
- Reduce travel speed on rough roads and surfaces.
- Do not allow riders on the accumulator at any time.



NOTE:

- Avoid travelling across steep inclines, particularly when accumulator is partially loaded.
- When travelling, lock steering axle on baler.
- This accumulator makes wide turns.
- Come on and off approaches or roads slowly; too much speed can cause the baler to tip.



Storage Safety

- Store the accumulator away from areas of human activity.
- Do not allow children to play on or around accumulator.

Tire Safety

- Ensure tire inflation pressure is maintained per specifications.
- Follow proper procedures for tire repairs, especially when mounting tire to rim.
- Seek assistance from a trained person for tire repairs or mounting, especially if special equipment is required.

Safety Signs

Safety Sign Location



Fig. 2.1

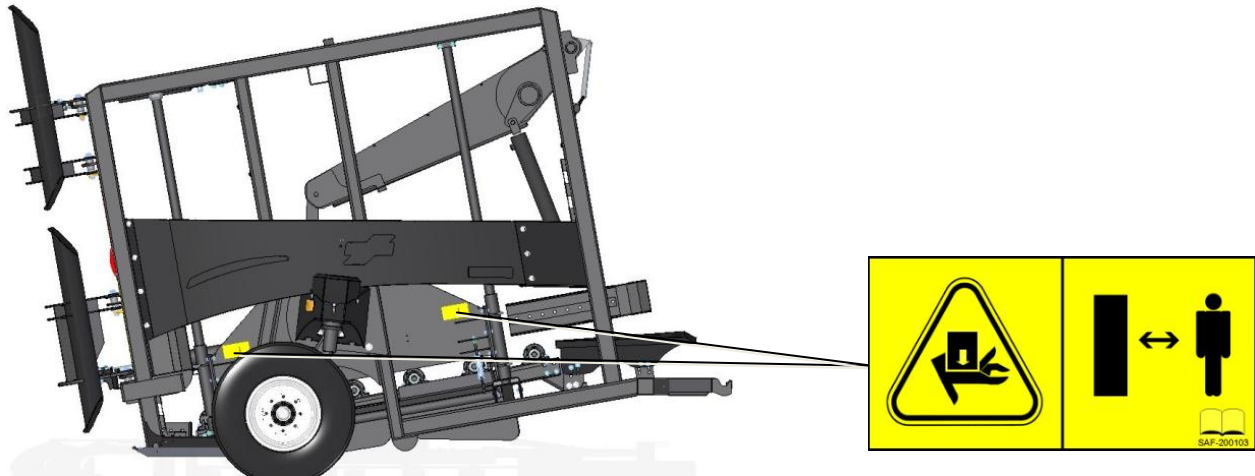


Fig. 2.2

Safety Sign Explanation

SLIPPING HAZARD (Figure 2.3)

WARNING! SLIPPING HAZARD. Keep off the rollers inside the accumulator during operation, maintenance and repair.



Fig. 2.3

CRUSHING HAZARD (Figure 2.4)

WARNING! CRUSHING HAZARD. Keep a safe distance away from the end of the accumulator during operation.



Fig. 2.4

CRUSHING HAZARD (Figure 2.5)

WARNING! CRUSHING HAZARD. Stay out of space under the bales in the accumulator during operation, maintenance and repairs.



Fig. 2.5

PINCH POINT HAZARD (Figure 2.6)


 **WARNING!** PINCH POINT HAZARD. Keep head and all body parts, particularly hands and feet, away from area around lift and loader when machine is operating.



Fig. 2.6

READ THE OPERATOR'S MANUAL (Figure 2.7)


 **WARNING!** Read and understand the contents of the Operator's Manual before performing any tasks related to the operation, adjustment, maintenance or repair of the machine.



Fig. 2.7

TIPPING HAZARD (Figure 2.8)


 **WARNING!** TIPPING HAZARD. Travelling at speeds over 20 mph (32 km/h) may cause the accumulator to sway and tip over.



Fig. 2.8

EMERGENCY STOP (Figure 2.9)


 **WARNING!** This machine has been equipped with an emergency stop button. In the event of its use, it immediately disables the machine.



Fig. 2.9

Road Safety Sign Location



Road Safety Sign Explanation

RED CONSPICUITY TAPE (Figure 2.11)

Tape serves as reflectors to render vehicle visible in low light or dark driving conditions.



Fig. 2.11

SLOW-MOVING VEHICLE SIGN (Figure 2.12)

A slow-moving vehicle (SMV) sign warns other road users that the vehicle is moving at 40km/h (25mph) or less.



Fig. 2.12

Safety Sign Maintenance

Safety Sign Legibility

All safety signs applied to the accumulator must be visible and legible. Keep dust and dirt cleared from safety signs and ensure that visibility is not obscured.

Damaged or Deteriorated Safety Signs

Remove and replace any safety signs that have been damaged or show signs of deterioration.

Safety Sign Replacement

Replacement safety signs may be ordered through your dealer or distributor. Contact PhiBer[®] if you are unable to obtain replacement safety signs from a dealer or distributor.

Safety Signs on Replacement Parts

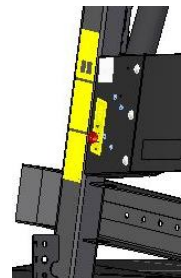
Ensure that replaced parts or components on the accumulator, that had a safety sign attached originally, include a safety sign when they are shipped to you.

Affixing Safety Signs to Machine

1. Ensure proper position and orientation before installing.
2. Ensure installation area is clean and dry.
3. Ensure ambient temperature is above 50° F (10° C).
4. Remove backing material to expose label adhesive.
5. Place one edge of label to machine surface.
6. Slowly press the label onto the surface.
7. Ensure no air pockets exist under surface of the label.

Emergency Stop

This machine has been equipped with an emergency stop button. In the event of its use, it immediately disables the machine. If it is necessary to climb onto the deck of the machine, be sure the emergency stop button has been pressed. To resume motion, twist the emergency stop button clockwise.



DANGER! DO NOT CLIMB IN MACHINE
while it is running or with bales inside.

Specifications

Vertical Stacking Accumulator

VS1204

Bale Capacity	2 - 4 (depends on bale size)
Bale Size	2¼ ft x 4 ft (70 cm x 120 cm) 3 ft x 4 ft (90 cm x 120 cm) 4 ft x 4 ft (120 cm x 120 cm)
Bale Ejection	Manual or Automatic
Width (wide casters) (narrow casters)	133 in (3.38 m) 118 in (3.00 m)
Tire Size (wide casters) (narrow casters)	18L - 16.1 8 ply 12.5L x 16SL 14 ply
Length	169 in (4.29 m)
Height	118 in (3.00 m)
Weight	5,200 lbs (2,359 kg)
Electrical Power Supply	12 V
Hydraulics	14 US gal/min (53 L/min) continuous flow
Bale Length (range)	7 ft - 8 ft 6 in (2.13 m - 2.60 m)

Tractor Requirements

Hydraulics	
# of circuits required	1
hydraulic flow	9 - 14 US gal/min (34.1 - 53 L/min)
Electrical Power Supply	12 V @ 5 amps
ISOBUS	ISO Compatible Tractor or Baler

Hardware Torque

SAE

Bolt Diameter	Bolt Torque		
inches	SAE 2 n·m (lb-ft)	SAE 5 n·m (lb-ft)	SAE 8 n·m (lb-ft)
1/4	8 (6)	12 (9)	19 (12)
5/16	13 (10)	25 (19)	36 (27)
3/8	27 (20)	45 (33)	63 (45)
7/16	41 (30)	72 (53)	100 (75)
1/2	61 (45)	110 (80)	155 (115)
9/16	95 (70)	155 (115)	220 (165)
5/8	128 (95)	215 (160)	305 (220)
3/4	225 (165)	390 (290)	540 (400)
7/8	230 (170)	570 (420)	880 (650)
1	345 (225)	850 (630)	1320 (970)

Metric

Bolt Diameter	Bolt Torque	
mm	8.8 n·m (lb-ft)	10.9 n·m (lb-ft)
M3	0.5 (0.4)	1.8 (1.3)
M4	3 (2.2)	4.5 (3.3)
M5	6 (4)	9 (7)
M6	10 (7)	15 (11)
M8	25 (18)	35 (26)
M10	50 (37)	70 (52)
M12	90 (66)	125 (92)
M14	140 (103)	200 (148)
M16	225 (166)	310 (229)
M20	435 (324)	610 (450)
M24	750 (555)	1050 (774)
M30	1495 (1103)	2100 (1550)
M36	2600 (1917)	3675 (2710)

Flare-Type Tube Fittings

Tube Size OD	Nut Size across flats	Torque	Recommended # Turns (after finger tightening) turns (flats)
in	in	n·m (lb-ft)	
3/16	7/16	8 (6)	1/6 (1)
1/4	9/16	12 (9)	1/6 (1)
5/16	5/8	16 (12)	1/6 (1)
3/8	11/16	24 (18)	1/6 (1)
1/2	7/8	46 (34)	1/6 (1)
5/8	1	62 (46)	1/6 (1)
3/4	1-1/4	102 (75)	1/8 (0.75)
7/8	1-3/8	122 (90)	1/8 (0.75)

NOTE: Torque values listed are based on lubricated connections in reassembly.

Operation

Hydraulic Set-up

Proper set-up of tractor hydraulics ensures optimum operation of the PhiBer[®] Vertical Stacking Accumulator and will greatly increase system reliability. The hydraulic system on your accumulator is designed to function with open-center, closed-center and closed-center load-sensing tractor hydraulic systems. For tractors configured with closed-center hydraulic systems, some adaptation may be required to achieve optimum performance. Contact your dealer or PhiBer[®] for assistance.

There are two crucial elements that must be heeded to ensure optimum Stacking Accumulator performance:

1. Tractor hydraulic output flow must be set between 9 - 14 US gal/min (34.1 - 53 L/min) and be in a continuous operating mode.
NOTE: Hydraulic oil flow in excess of 14 US gal/min (53 L/min) may cause hydraulic lock up of the system. Flow rates below 9 US gal/min (34.1 L/min) will cause lower cycle times and can impede productivity.
2. The low pressure tank return line must discharge directly into the tractor hydraulic reservoir with negligible system back pressure.
NOTE: This accumulator is sent with a non-locking Pioneer tip that can be plugged into the remote, when hose kit option is ordered.

Component Cycle Times

Component / Action 12 US gal/min (45.4 L/min) flow rate	Open/Up (sec.)	Close/Down (sec.)
Lift	4	4
Gate	2.5	2.5

Cycle Initiation

This start-up or cycle initiation procedure ensures that both the bale eject and bale side shift trucks are in their respective *home* positions and hydraulic cylinders are fully retracted before operating the Bale Accumulator in the field.

Shear Bolt & Tail Gate

*photos are top view

Shear Bolt (Bottom Gate)

The shear bolt is located on the bottom of the hinge, on the gate. In the event of the accumulator being overloaded, the shear bolt will break and need to be replaced (Figure 4.1). This is a protection mechanism to prevent other parts from breaking. Shear bolt must be tightened to **220 lb-ft (n-m)**.

**see Recommended Settings on page 34

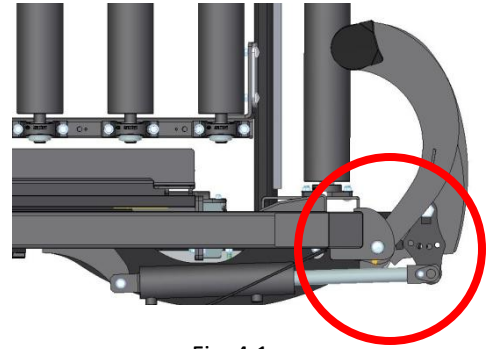


Fig. 4.1

Bottom Gate Adjustment

The bottom tail gate has to be adjusted according to the size of bale being made. This may require adjusting sensors; refer to *Sensor Adjustment* on the following page. In this case the bale can be as large as 102 in (260 cm). The adjustment is done by removing and repositioning the bolts into four different positions. The bottom gate needs to be adjusted first, before the top gate.

Set Top to Bottom Rear Gate

Be sure the top rear gate bracket is set in the same location as the bottom shear bolt setting. This is to align the top gate to the bottom gate, assuring rear gate alignment (Figure 4.2).

**see Recommended Settings on page 34



Fig. 4.2

Top Gate Fine-tune Adjustment

Be sure bottom rear gate has been adjusted prior to adjusting this top gate. Loosen the two 5/8" carriage bolts and the jam nut on the top cylinder lug on the frame, then use the 5/8" all thread bolt to fine tune the top gate position (Figure 4.3). Turn bolt in to open the gate and out to close the gate.

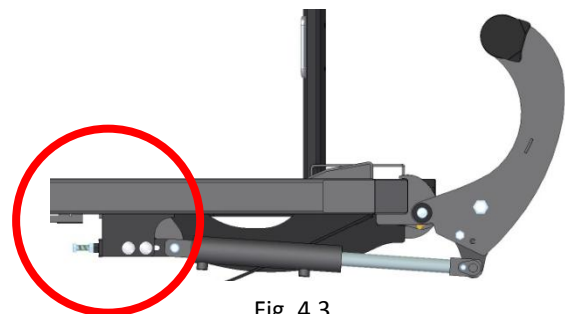
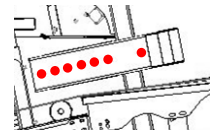


Fig. 4.3

Sensor Adjustment

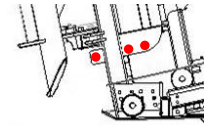
The incoming photo emitter and sensor can be found at the front of the accumulator, on each side of the frame. The two must align with each other (Figure 4.4 & Figure 4.5). They are adjusted by moving them to the various holes; further forward for longer bales or further back for shorter bales. If the bale is longer than the distance between the front and rear sensors, the gate will open and eject the bale.

**see Recommended Settings on page 37



Front Sensors

Fig. 4.4



Rear Sensors

Fig. 4.5

Cycle Mode Selection

The PhiBer[®] Vertical Stacking Accumulator allows the operator to select one of three bale ejection modes, depending on bale size (Figure 4.6):

- A. 4 bales
- B. 3 bales
- C. 2 bales

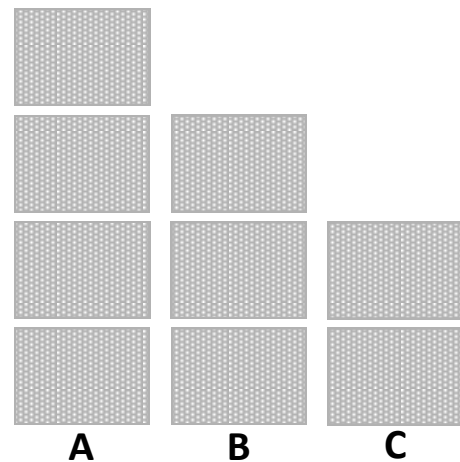


Fig. 4.6

Hydraulic Time-out

A hydraulic time-out safety is provided to prevent damage to the machine in case of a machine error. The hydraulic time-out will be activated if up or down travel of lift mechanism is not completed within a preset time; an error will appear. The hydraulic time-out safety will prevent any further automatic operations.



WARNING Stop baler immediately

In case of a Hydraulic time-out baling must be stopped immediately.

Proceed as Follows

1. Stop tractor and baler.
2. Locate problem (usually missed sensor or no hydraulic flow).
3. Use manual mode to clear accumulator if necessary.
4. Engage hydraulics to accumulator.
5. Use manual control to open tail gate and raise or lower lift mechanism as needed to free trapped material.
6. Restart Bale Accumulator in automatic mode.

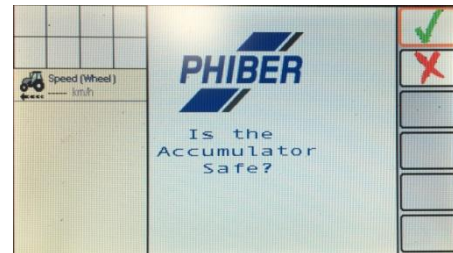
Start-up Procedure

The *Start-up Procedure* ensures that there are no bales in the accumulator, and that the bale lift mechanism and tail gate are in their respective *home* positions before operating the PhiBer® Vertical Stacking Accumulator in the field. During the start-up procedure any remaining bales in the accumulator will be ejected.



WARNING! MOVING PART HAZARD.

BALES MAY EJECT. Ensure that the accumulator is clear of any foreign objects and that all bystanders are at a safe distance before starting the tractor, baler and the Stacking Accumulator. Distances to be given: 21 ft (6.4 m) back and 12 ft (3.7m) to the sides.



Field Operation

Automatic Bale Ejection

Once the Stacking Accumulator has been started, the accumulator will function automatically, lifting bales that enter the accumulator chamber and ejecting them in stacks as selected. The number of bales in the accumulator as well as their position will be displayed on the screen.

Manual Bale Ejection

Single bales or partial stacks can be ejected during the baling process. To do that, press the *eject bales* button on the virtual terminal and all bales in the accumulator will be ejected immediately or upon completion of next bale.

Solid Bales Required

Solid bales are required for proper operation of accumulator. Allow soft or deformed bales to roll through before starting the accumulator. To do this, use the manual mode to open the rear gate and the bale will roll through. Close the gate when the soft bale passes. Start in automatic mode to resume auto accumulating.

Hold Mode

If hold mode is enabled the accumulator will not eject a full stack until the operator presses manual eject or the accumulator detects the next incoming bale.

Unstable Stacks

A forward speed range between a minimum of 3 mph (5 km/h) and a maximum of 13 mph (21 km/h) is required for stacks to stand properly; this will vary with conditions. On uneven ground reducing stack height may be required.

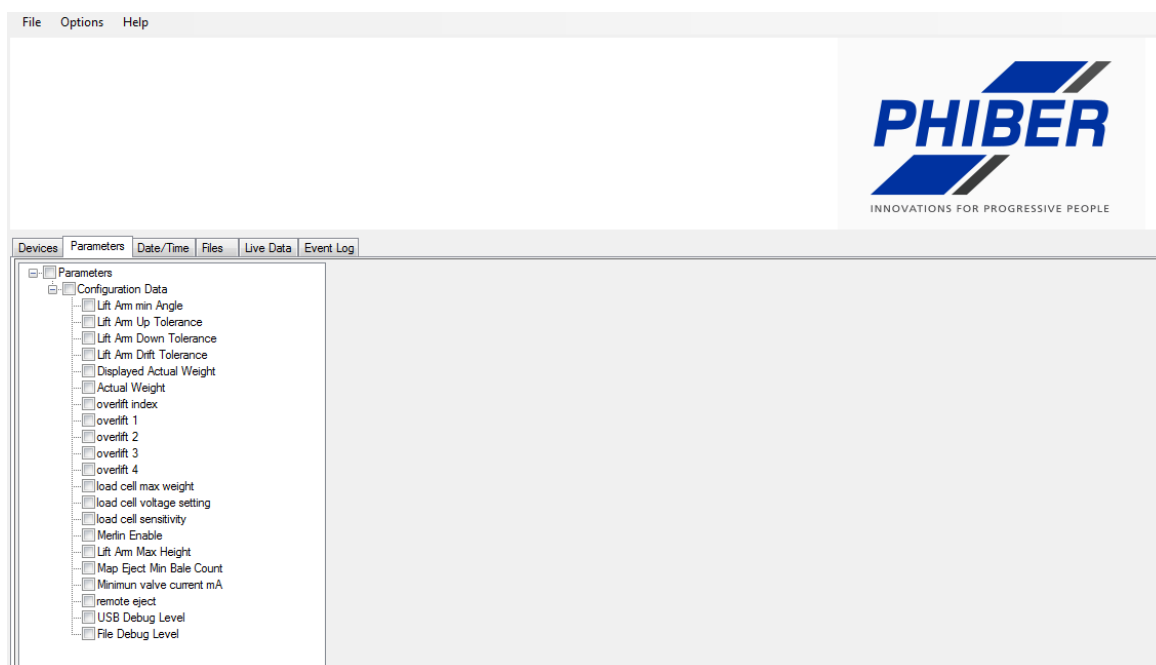
Broken or Oversize Bale Safety

An oversize bale safety is provided which will prevent malfunctions in the event of broken bales or any bale(s) that exceed(s) the maximum length allowed for the accumulator chamber. In such event the bottom tail gate will open to allow oversized bale(s) to roll out. The tail gate will close automatically and accumulation will resume normally on the next good bale. In the event you have one or two bales lifted and the next bale covers both sensors, it will roll through without the lifted bales coming down. In the diagnostic screen both front and rear sensors will be enabled.























ISOBUS Software


Updating Software and Advanced Configuration

Each machine is shipped with a USB cable located in the Operator's Manual holder on the machine. There is an application for windows computers available from PhiBer[®] that is used for machine software updated and advanced configuration of the accumulators. User instructions are provided with the software application.



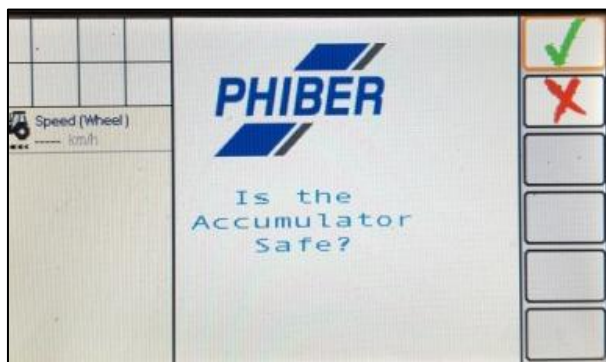
Stacker Icon Guide

STANDARD ICONS		ACCUMULATOR ICONS	
	Start Operation		Reset Current Job
	Do Not Start Operation		Scale Setup
	change to/re-enable Automatic Mode	ZERO	Zero Weight
	change to/re-enable Manual Mode		More Options
	Stop Machine		Back to Previous
	Enable Hold Mode		Save & Exit
	Calibration/Setup		Exit
	Diagnostics		Home Screen
			Lift Calibration
			Lower Lift Truck
			Raise Lift Truck
			Manually Open Bale Eject Gate
			Manually Close Bale Eject Gate
			Manually Open Bottom Gate
			Automatic Eject



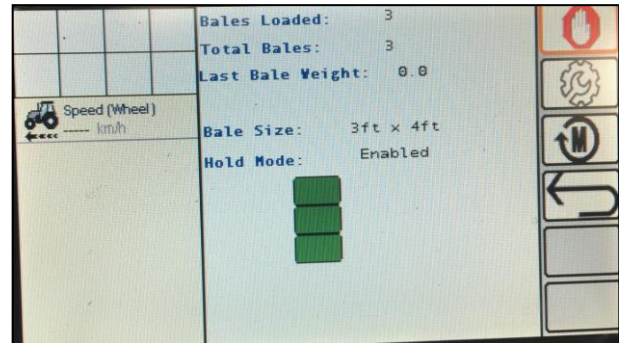
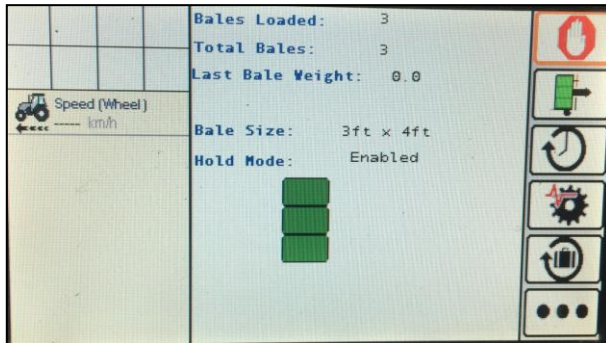
Start-up

Upon startup, the PhiBer Bale Accumulator will always ask “Is the accumulator safe?”. Ensure no one is near the machine and it is safe to begin operation. Before pressing *Start Operation*, make sure the accumulator has hydraulic pressure supplied. The accumulator will then go through the startup procedure.



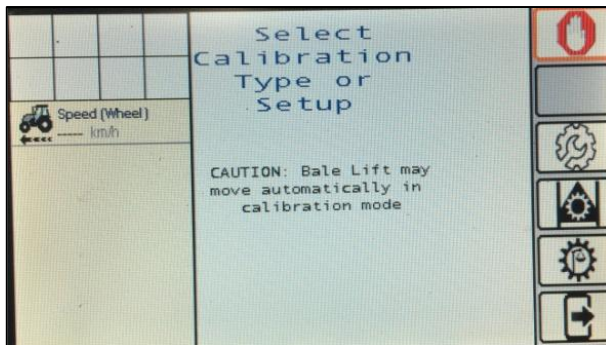
Home Page

This is the home page in automatic mode (the same screen but with different buttons on the side). From here the operator can see how many bales are on the accumulator, be able to eject bales and access other features of the software. If the settings need to be changed press *Calibration/Setup*.



Calibration

Press the appropriate button to calibrate machine. See instructions below.



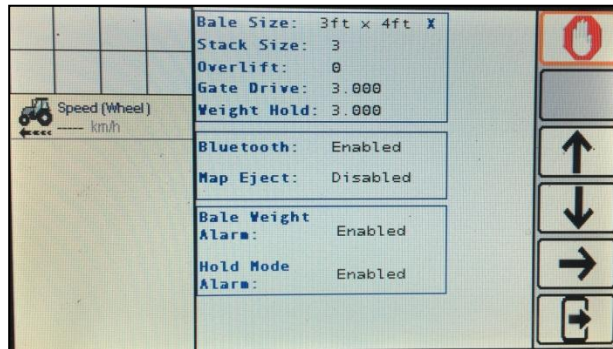
Accumulator Setup

Lift Calibration

Scale Setup

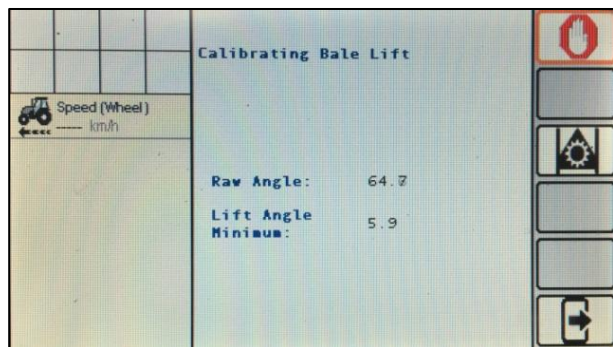
Accumulator Setup Page

This function of this page is various setups. The Weight Hold Time is the time the scale needs to accurately weigh a bale if the accumulator is equipped with a scale. The Bale Wait Delay is there to prevent false hits on the incoming bale hitting the bale button when going through steep ditches. Increase the time if the operator is getting false hits. Also on this page are the settings to enable the Bluetooth to control the accumulator with a Bluetooth device and a Map Eject can be enabled to help row the ejected bales.



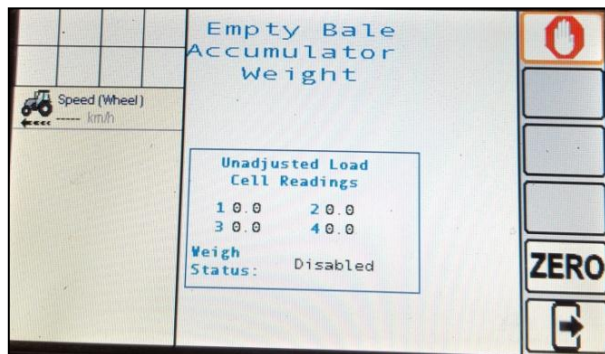
Lift Calibration Page

Press *Lift Calibration* to calibrate the lift.



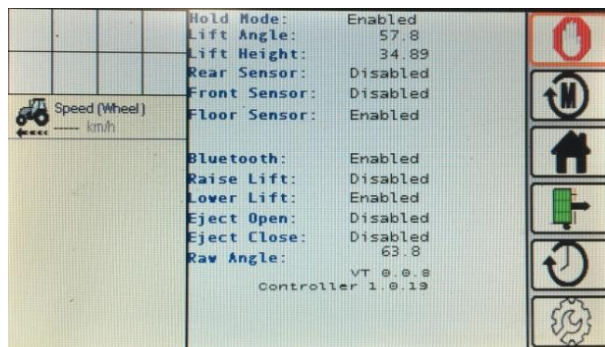
Scale Setup Page

This page shows the information for the scale. The scale should be zeroed out periodically using the *Zero Weight* button. Use *PC Tools* top calibrate scale.



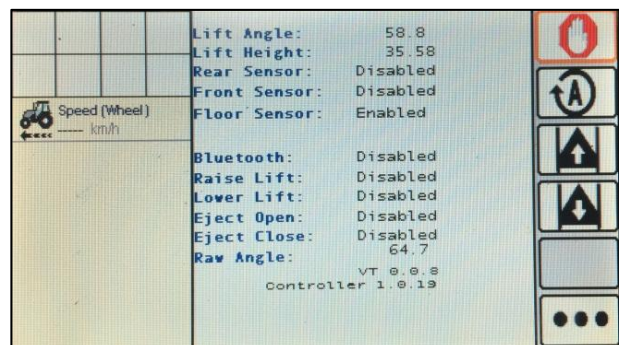
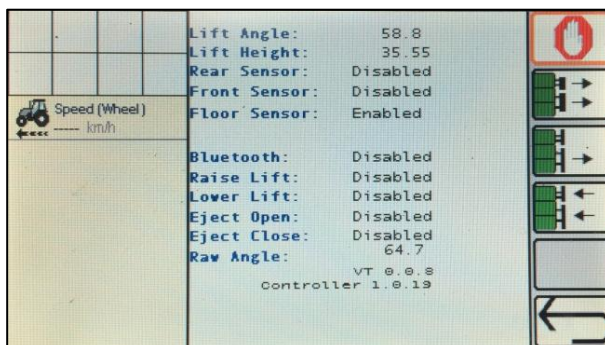
Diagnostic Page

In the automatic mode operators can see what is happening during operation. The operator can see the status of all inputs and outputs.



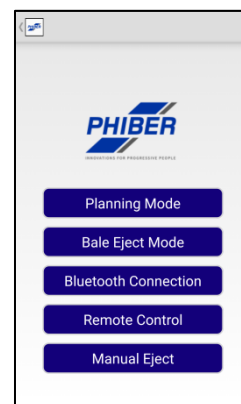
Manual Mode Home Page

In manual mode the operator can move any hydraulic functions manually. This is mostly used for testing purposes or to manually move bales on the deck.




PhiBer[®] Accumulator App

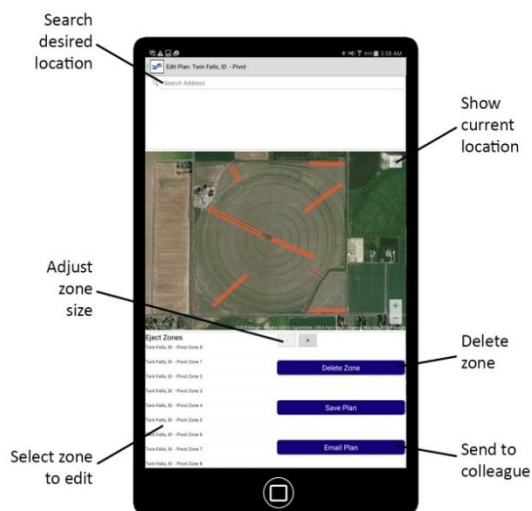
PhiBer[®] has created an app for a phone or tablet to help maximize efficiency when handling large square bales. With this app the operator can plan ahead of time where to eject the bales and then to automatically drop them in those locations during baling. The App is called *PhiBer Accumulator*.



Planning Mode

The operator has two planning options; choose from *Create New Plan* or edit a plan in *Existing Plans*. To create new, choose the *Planning Mode* button, name the plan and then tap *Create New Plan*. PhiBer is utilizing Google satellite images to view the field. To find the field there are two options.

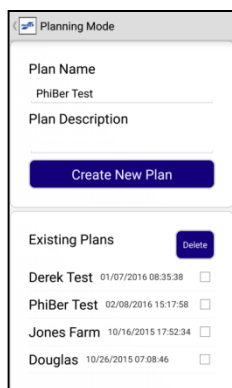
- With GPS enabled, click the GPS icon  in the top right hand corner of the map and it will show the current location.
- In the search bar, type in desired location.



Once the desired field can be viewed on the map, create the eject zones. A zone is created between two dropped pins. To drop a pin, press and hold in the desired location and a pin will appear. On the other end of the zone press and hold to drop a second pin, your zone will immediately appear as a green line. A zone has now been created between the two pins. To change the size of the zones, use the plus and minus buttons above the *Delete Zone* button.

Note: The plus and minus buttons located on the map are used for zooming in and out, these do not change the size of the zone.

Tip: The closer you zoom in on your screen, the more accurate your pins will be.



To add more zones, repeat the process of dropping pins in desired locations. If more than one zone has been created, only the active zone will appear green, all others will be pink. All zones created are listed in the bottom left corner of the screen, tap chosen zone to make it active. To delete a zone, select zone and press *Delete Zone*. When field is complete, tap *Save Plan*. Plan can be emailed to colleagues by tapping *Email Plan*, it will then prompt to default email program.

Tip: Create zones in such a way that you are never leaving a zone while turning.

How the Zones Work

As the handheld device enters into a zone, it will send a signal to the accumulator to eject the bales. If the accumulator is not full it will wait to eject bales. The purpose of this is to maximize the number of bales in the desired package. A second eject signal is sent from the device when leaving the zone, forcing an immediate eject if possible.

Tip: Create small zones if location is important (ie, flood irrigation). Create larger zones if bale grouping is important for faster handling (ie, dry land or pivot irrigation).

Note: Data connectivity is required when planning fields. While the map is running, connectivity is not required; the App saves the GPS coordinates and will eject based on coordinates.

Bale Eject Mode

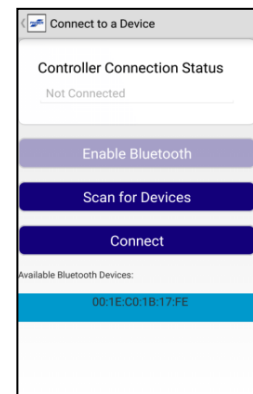
To run the automatic eject mode, the handheld device has to be paired with the accumulator. See *Bluetooth Connection*. Select *Bale Eject Mode*, then choose from the list of existing plans, enable automatic eject.



Bluetooth Connection

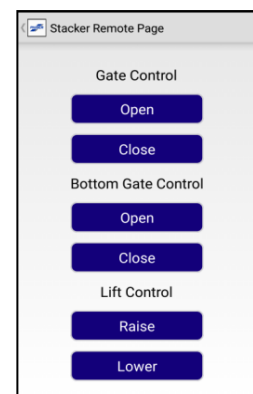
Tap *Bluetooth Connection*, enable Bluetooth and then scan for devices (in the App). If Bluetooth is not already enabled on the device, tap *Enable Bluetooth*. It will list all available Bluetooth devices, select desired accumulator and tap *Connect*.

Note: The pairing to Bluetooth is done through the App, not through the device Bluetooth configuration.



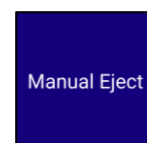
Remote Control

To run the *Remote Control Mode*, the device has to be paired with the accumulator. Once paired, operators can manually override any hydraulic function. In the remote control mode the VT Terminal will be locked out so that only one operator has access to this feature for safety reasons.



Manual Eject

Tap *Manual Eject* to unload current bales on accumulator.



Transporting

! WARNING! Unload all bales from accumulator deck before traveling on public roads.

! WARNING! WIDE TURNING PATH.

Ensure that all oncoming and/or overtaking traffic is clear before making turns on public roads. Slow down and look for both oncoming and overtaking traffic before making turns.

Allow oncoming and overtaking traffic to clear before making turns when traveling on public roads (Figure 4.7).

Always travel on public roads with the Stacking Accumulator within the lane of travel (Figure 4.8).

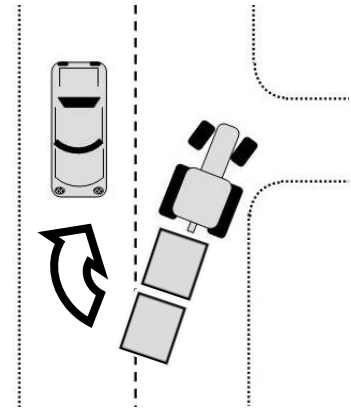


Fig. 4.7

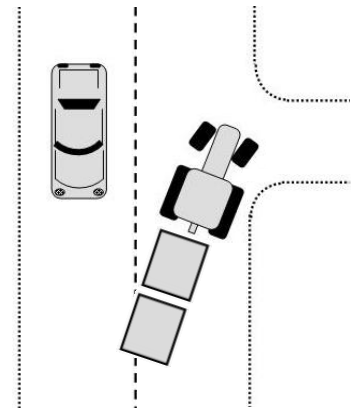


Fig. 4.8

Storage

! WARNING! Store Bale Accumulator away from human activity. DO NOT allow children to play on the Bale Accumulator at any time.

To ensure optimum operation of the Stacking Accumulator for the next season:

1. Clean all crop material and dirt from Stacking Accumulator frame and deck.
2. Retract hydraulic cylinders fully.
3. Lubricate casters to prevent rusting.
4. Lubricate bearings in rollers.

Recommended Settings

Hitch Height Settings

Hitch Height: The distance from the ground to the center of the bolt should be between 24 in (61 cm) and 28 in (71 cm). The optimum height is 26 in (66 cm).

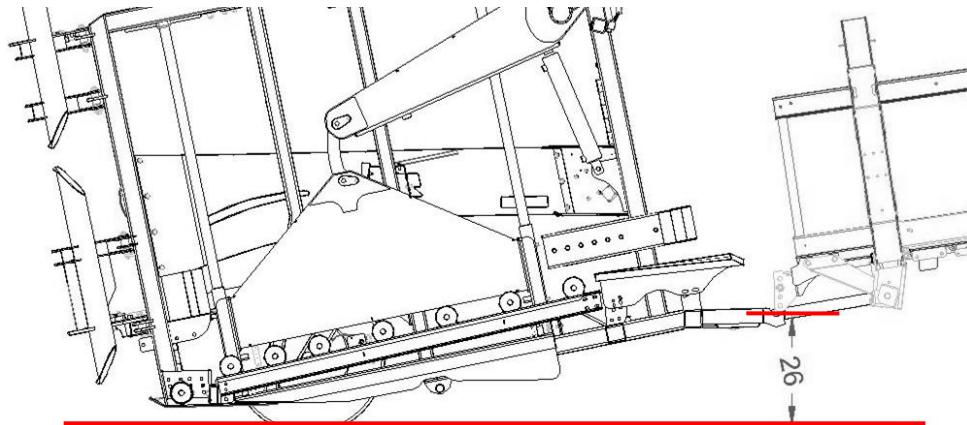


Fig. 5.1

Roller Bed Settings

26-28" Hitch Height: The Stacking Accumulator is shipped with the roller bed in a position that is optimal at this hitch height. Should the transition from the bale chamber to the bale transition pan not be smooth, take the time to adjust the pan higher or lower accordingly.

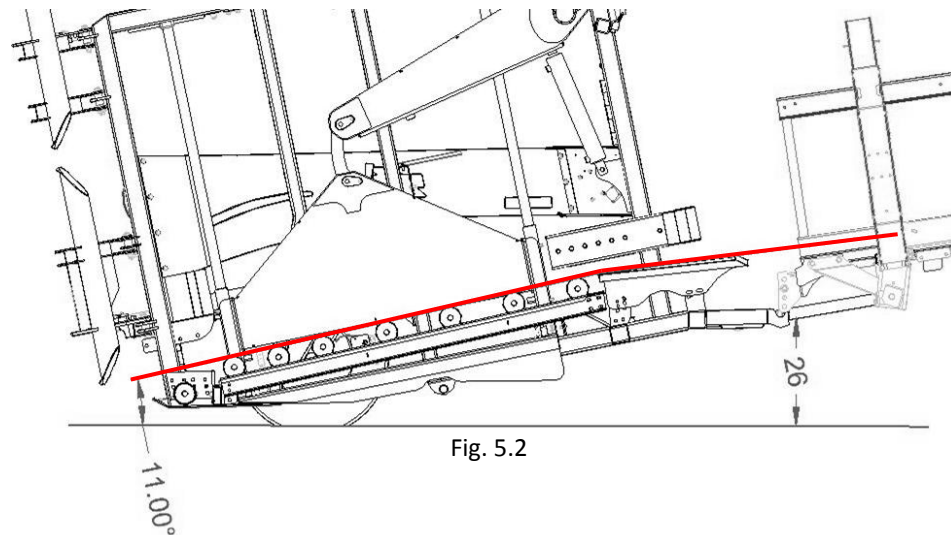
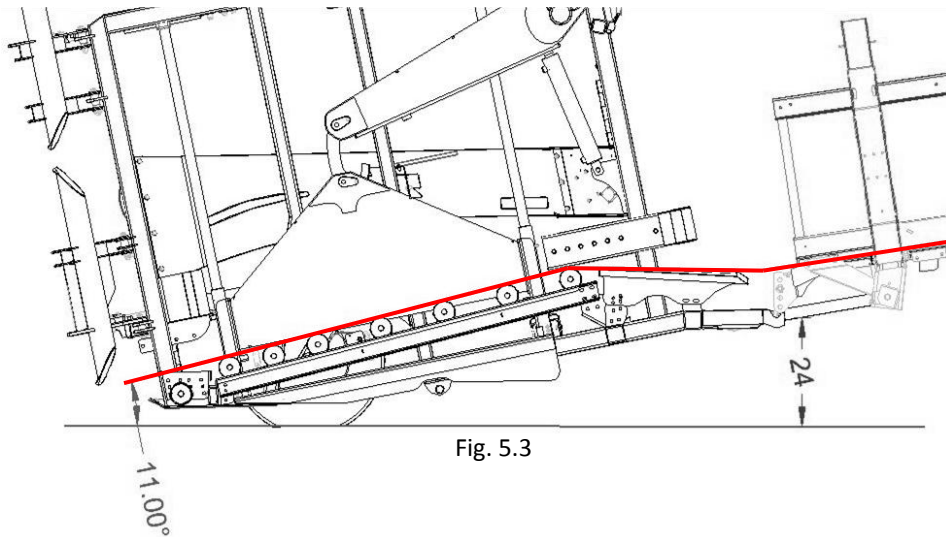


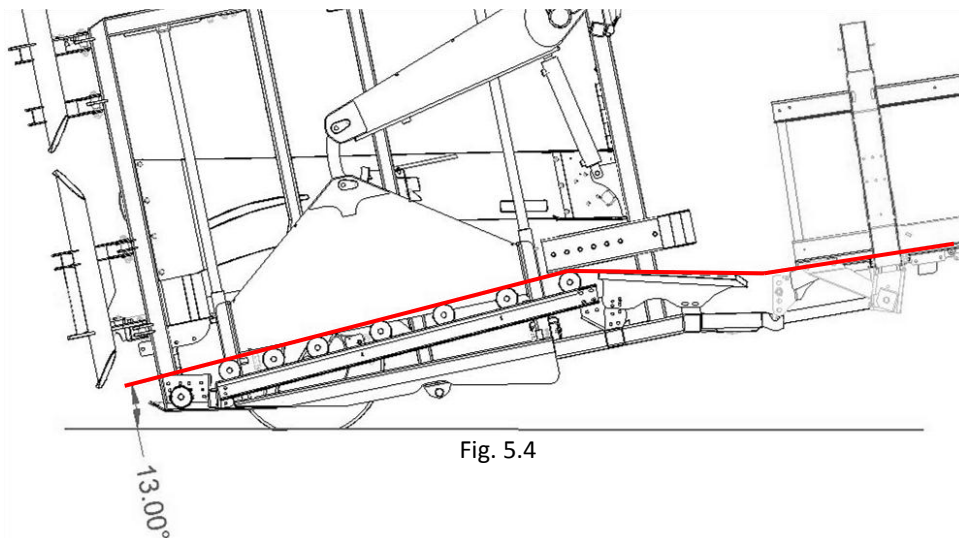
Fig. 5.2

24" Hitch Height: This will require moving the front of the roller bed up, accordingly. Adjust the bale transition pan to make a smooth transition between the bale chamber floor and the roller bed. The minimum is 11° from the ground to the angle of the roller bed.



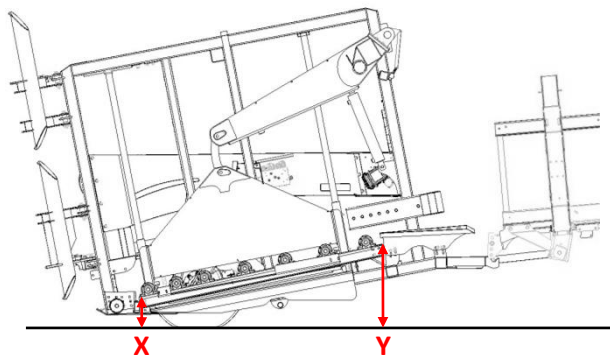
NOTE: The bale transition pan should be level with the bale chamber. If the pan is too high at the front, the strings on the bale may break.

Hills: This will require moving the front of the roller bed up, accordingly. Adjust the bale transition pan to make a smooth transition between the bale chamber floor and the roller bed. The minimum is 13° from the ground to the angle of the roller bed.



Roller Bed Angle Settings

On flat ground the machine should have an 11-12 degree roller bed angle. On hills the machine should have a 13-14 degree roller bed angle. Use the table below to calculate the optimum roller bed angle setting.



(Y)-(X) = Rise	Degrees	(Y)-(X) = Rise	Degrees	(Y)-(X) = Rise	Degrees
16.46	11.0	18.08	12.1	19.55	13.1
16.61	11.1	18.23	12.2	19.70	13.2
16.75	11.2	18.37	12.3	19.84	13.3
16.90	11.3	18.52	12.4	19.99	13.4
17.05	11.4	18.67	12.5	20.13	13.5
17.20	11.5	18.81	12.6	20.28	13.6
17.34	11.6	18.96	12.7	20.43	13.7
17.49	11.7	19.11	12.8	20.57	13.8
17.64	11.8	19.26	12.9	20.72	13.9
17.79	11.9	19.40	13.0	20.87	14.0
17.93	12.0				

Tail Gate Adjustment

The photos below are from the top view of the tail gate, showing the different positions the tail gate can be in, depending on the length of bales.

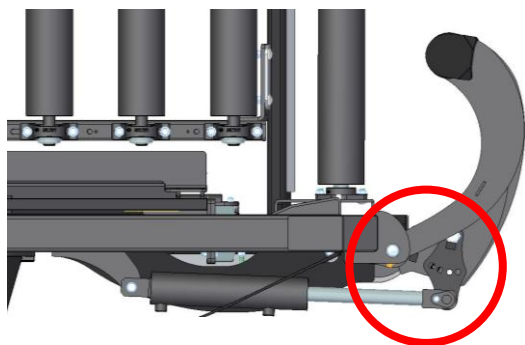
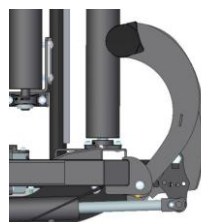


Fig. 5.5

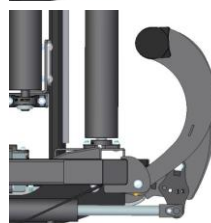
Position 3

98 in (249 cm) +/- 3 in (+/- 8 cm)
max. bale length *shipping position



Position 1 Fig. 5.6

91 in (231 cm) +/- 3 in (+/- 8 cm) max.
bale length



Position 2 Fig. 5.7

94 in (239 cm) +/- 3 in (+/- 8 cm) max.
bale length

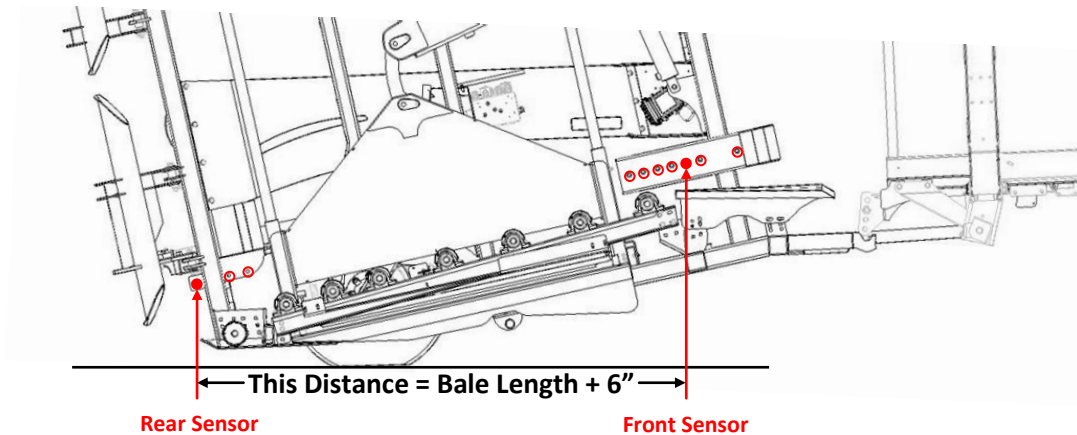


Position 4 Fig. 5.8

102 in (259 cm) +/- 3 in (+/- 8 cm) max.
bale length

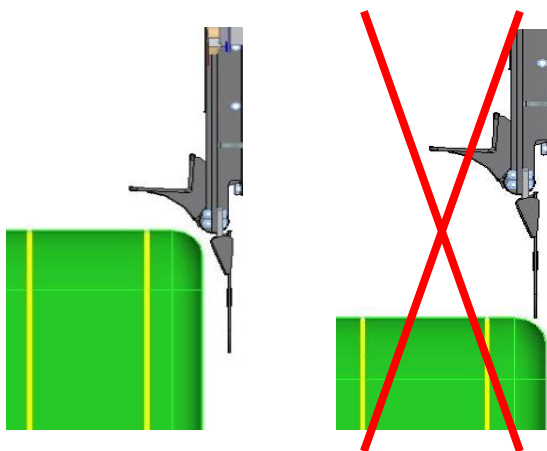
Sensor Adjustment

- 1) The rear optic sensor should be adjusted as far back as possible without the bottom tail gate interfering with the line of sight.
- 2) The front optic sensor should be adjusted as far back as possible. The distance between the rear and front sensor must be minimum of the desired bale length plus 6" apart (ex. $94" + 6" = 100"$). Bales that cover both sensors at once will open the bottom gate.



Overlifting

If the incoming bales are dragging on the upper bales go to the setup screen and select the overlift 0-2-4-6 can be selected which is 2"-4"-6" over the set standard lift. Lifting too high can cause the bottom bale entering the bale chamber to be unsupported by the bale guides causing it to slide sideways and catch on the bale guides when they come down when the next bale sensor is activated causing physical damage to the machine.



Maintenance

Proper maintenance of the accumulator will result in more reliable performance. Please refer to the chart below for recommended maintenance information:

Key				Maintenance Record											
✓	check		hours												
⬆	lubricate		by												
◇	clean		date												
▲	change														
⌚	hours														
12 ⌚															
✓	Sensors														
50 ⌚															
⬆	Caster														
⬆	Caster Detent														
⬆	Hitch Receiver														
✓	Floor Switch Spring Tension														
100 ⌚															
⬆	Roller Bearings														
✓	Wheel Lug Nuts														
500 ⌚															
⬆	Wheel Bearings														



WARNING!

Before any work is done to the Vertical Stacking Accumulator, the Loader Arm must be raised and blocked with a suitable block; wood or metal (Figure 6.5). Failure to do so may result in bodily harm while maintaining this machine.

Sensors

Check optic and limit sensors daily to ensure they are clear of accumulation of foreign material.
Check electrical sensors periodically.

Wheel Lug Nuts

Check wheel lug nut (Figure 6.1) tightness after the first two (2) hours of operation, again after the first ten (10) hours, then periodically.



Fig. 6.1

Wheel Bearings

Remove, clean and re-pack wheel bearings, every 1000 hours or annually.

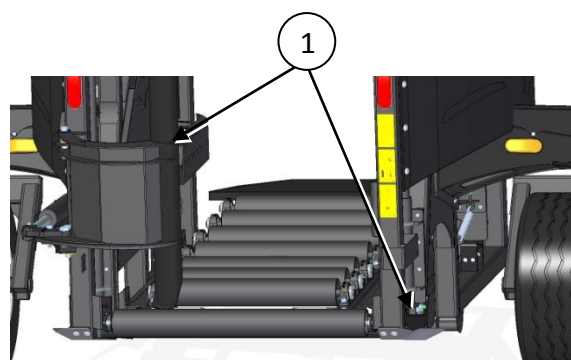


Fig. 6.2

Roller Bearings

Grease roller bearings (Figure 6.2) every 100 hours or monthly.

Caster Detent

Grease caster detent (Figure 6.3) every 100 hours or monthly.

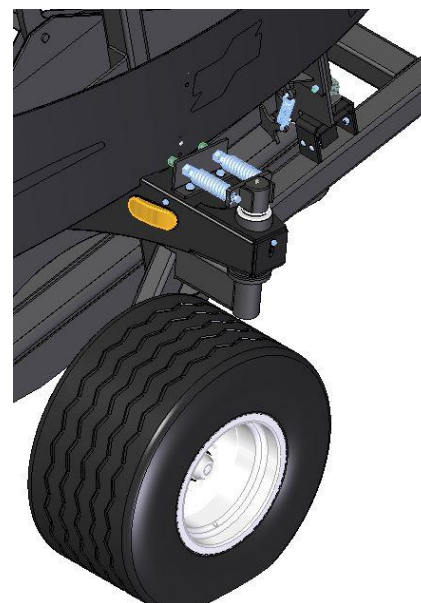


Fig. 6.3

Floor Switch

Check spring tension in floor switch (Figure 6.4).

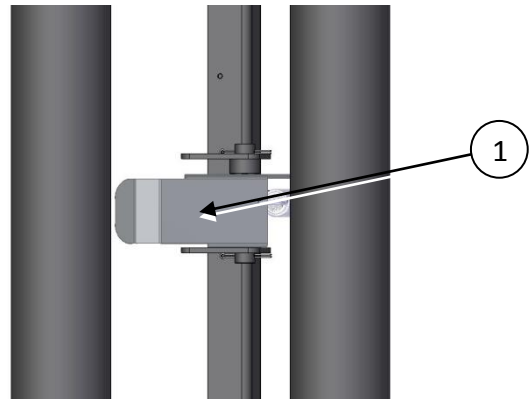


Fig. 6.4

Hydraulic Cylinder and/or Component Replacement



WARNING! UNEXPECTED MOTION HAZARD. Before removing any hydraulic components, lift mechanism must be securely locked in place to prevent injury from parts moving unexpectedly.

Once lift mechanism has been securely locked, service to the hydraulic system may be performed. The lift can be locked as follows:

1. Install new component and insure that all seals are seated properly and all fittings and hoses are tightened to specs given.
2. Connect Hydraulic lines to tractor as indicated on page 22, *Hydraulic Set-up*.

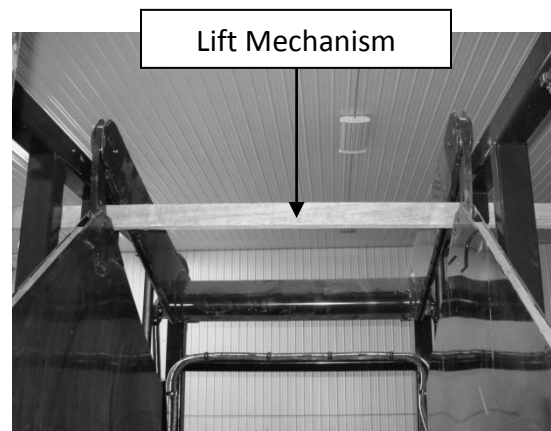


Fig. 6.5

Note: Place board through safety block holder to block loader arm from falling unexpectedly.

NOTE: After servicing hydraulic components, the subsequent procedure must be followed in order to remove air from the hydraulic system.



WARNING! UNEXPECTED MOTION HAZARD. Ensure all bystanders are clear of accumulator and at a safe distance from tail gate and other moving parts during this air removal procedure.

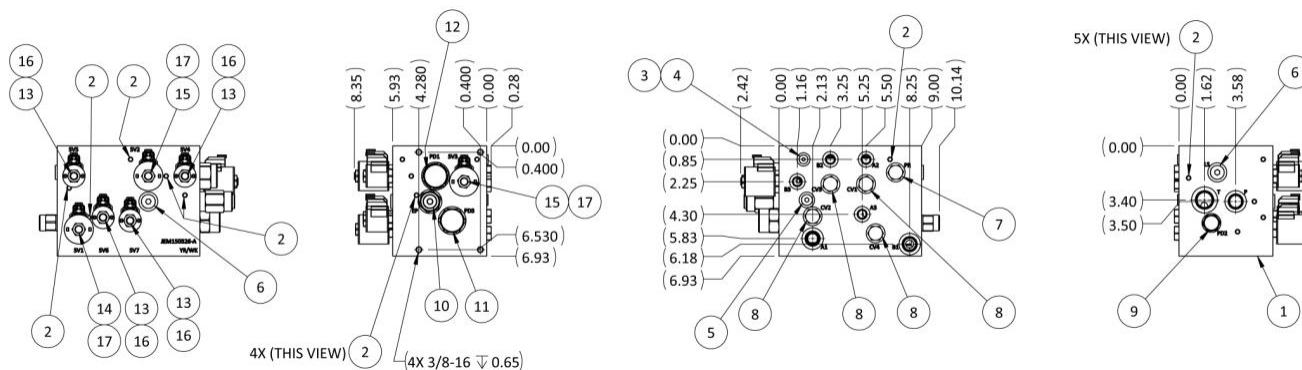
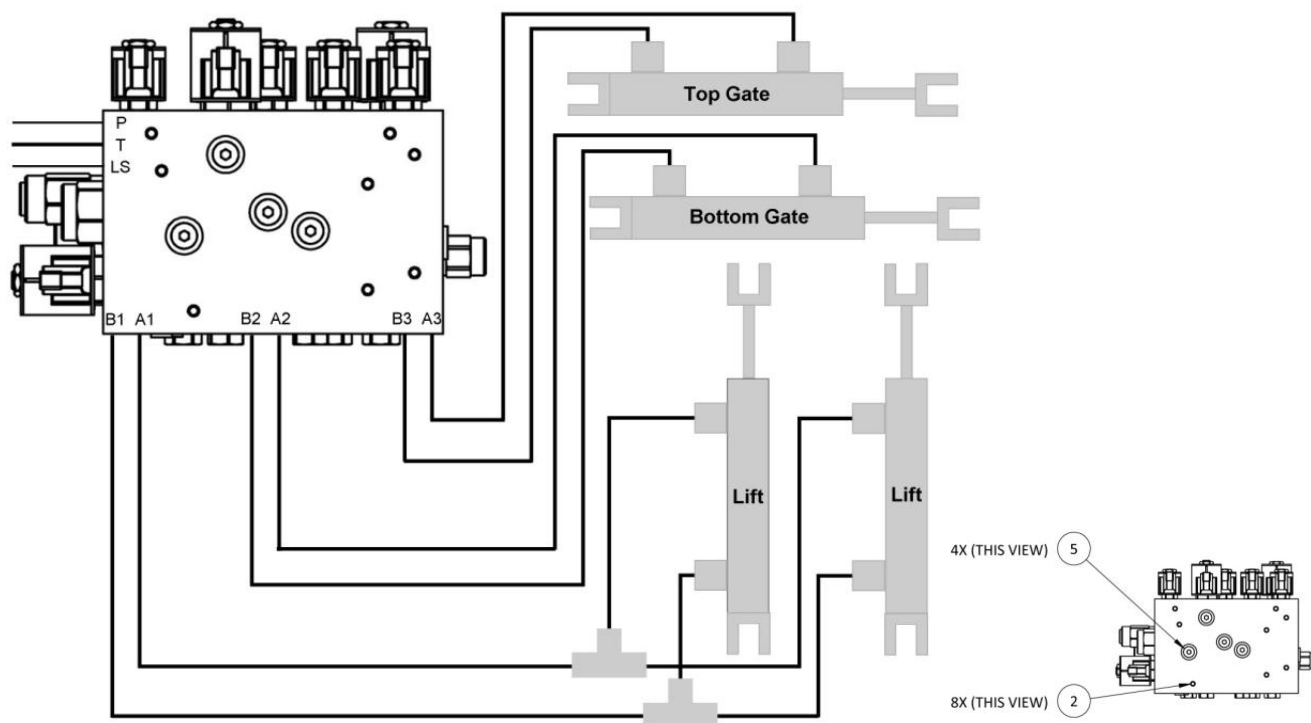
1. Block loader arm, see page 40 Figure 6.5.
2. Install new component and insure that all seals are seated properly and all fittings and hoses are tightened to specs given. Where possible fill hydraulic cylinder(s) with oil before connecting hydraulic lines.
3. Connect Hydraulic lines to tractor.
4. Enter *Manual Mode* on software.
5. Start tractor and engage hydraulic flow to accumulator.
6. Operate tail gate cylinder using until cylinder extends and retracts smoothly.
7. Lift loader arm to take pressure off of safety block (board).
8. Remove safety block from lift mechanism.
9. Operate lift cylinders until cylinders extend and retract smoothly.
10. Switch to *Automatic Mode*, on software.



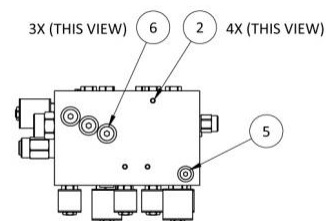
WARNING! MOVING PART HAZARD.

Use caution when activating any function. NEVER climb inside accumulator while the tractor is running.

Hydraulic Schematic

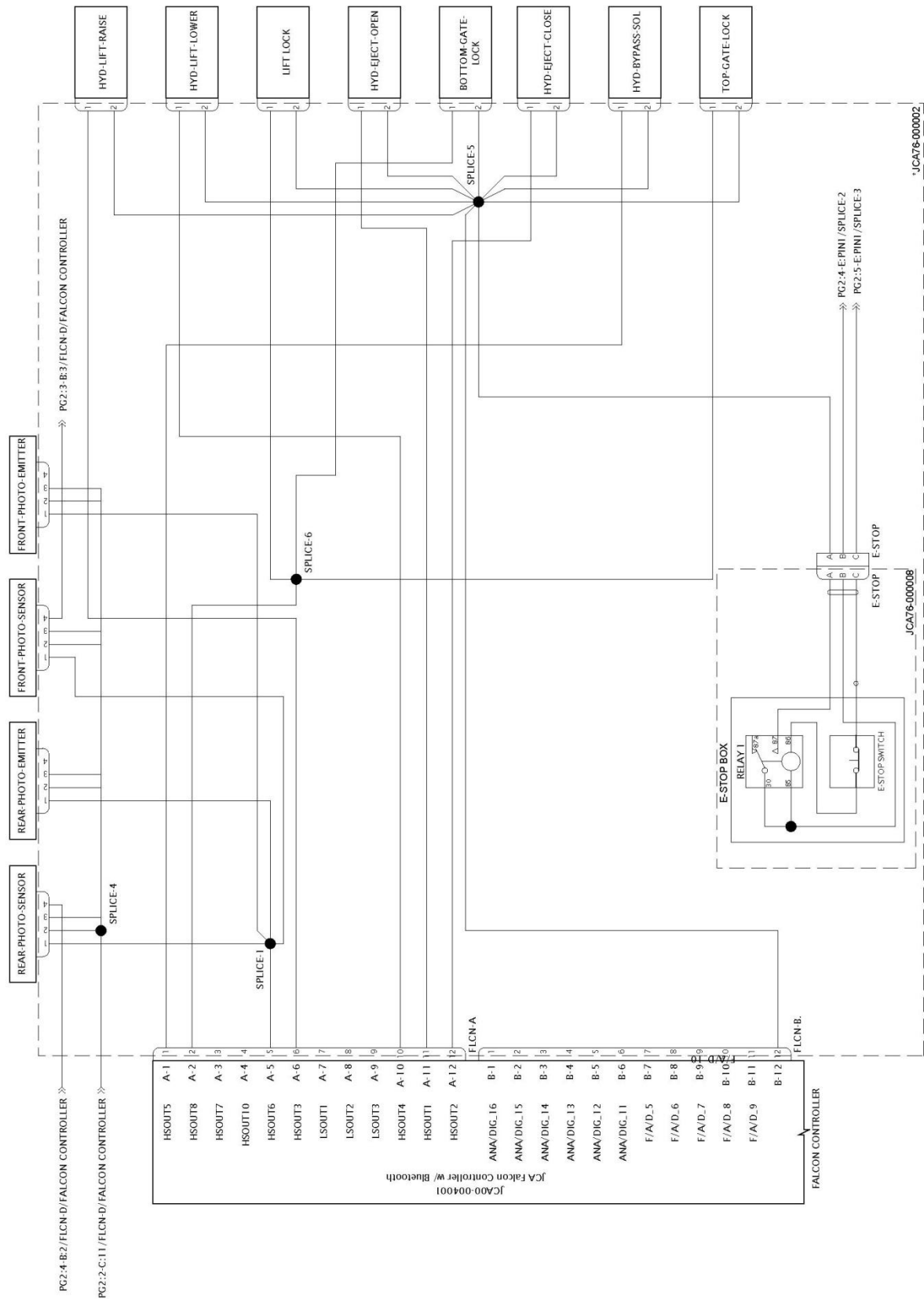


Item	Part Number	QTY.	Description
1	150326M-A	1	JEM Manifold Block
2	HW10286-070	26	Expander Plug, 7 mm
3	OR10079-050	1	Orifice, 1/16-27 NPT, 0.050 Diameter
4	515-04	1	SAE Plug, Socket
5	515-06	6	SAE Plug, Socket
6	515-08	5	SAE Plug, Socket
7	CP08-30-N	1	VC08-3 Cavity Plug, All Ports Blocked
8	CV08-20-0-N-4	4	Check Valve, 4 PSI Bias Spring
9	PD10-41-0-N-110	1	Piloted, 3-way, Spool Valve, 110 PSI
10	EPFR52-S35T-0-N-240	1	Pressure Compensator
11	PD16-41-0-N-110	1	Piloted 3-way Spool
12	PD16-S67C-0-N-170	1	Directional Valve
13	SV08-31-0-N-00	4	3/2 Solenoid Valve
14	SV10-22-0-N-00	1	Poppet-Type, 2-way, N.C., Solenoid Valve
15	SV12-22-0-N-00	2	N.C. Solenoid Valve
16	4303612	4	12 VDC E-Coil -08 Deutsch
17	4303712	3	12 VDC E-Coil -10 Deutsch

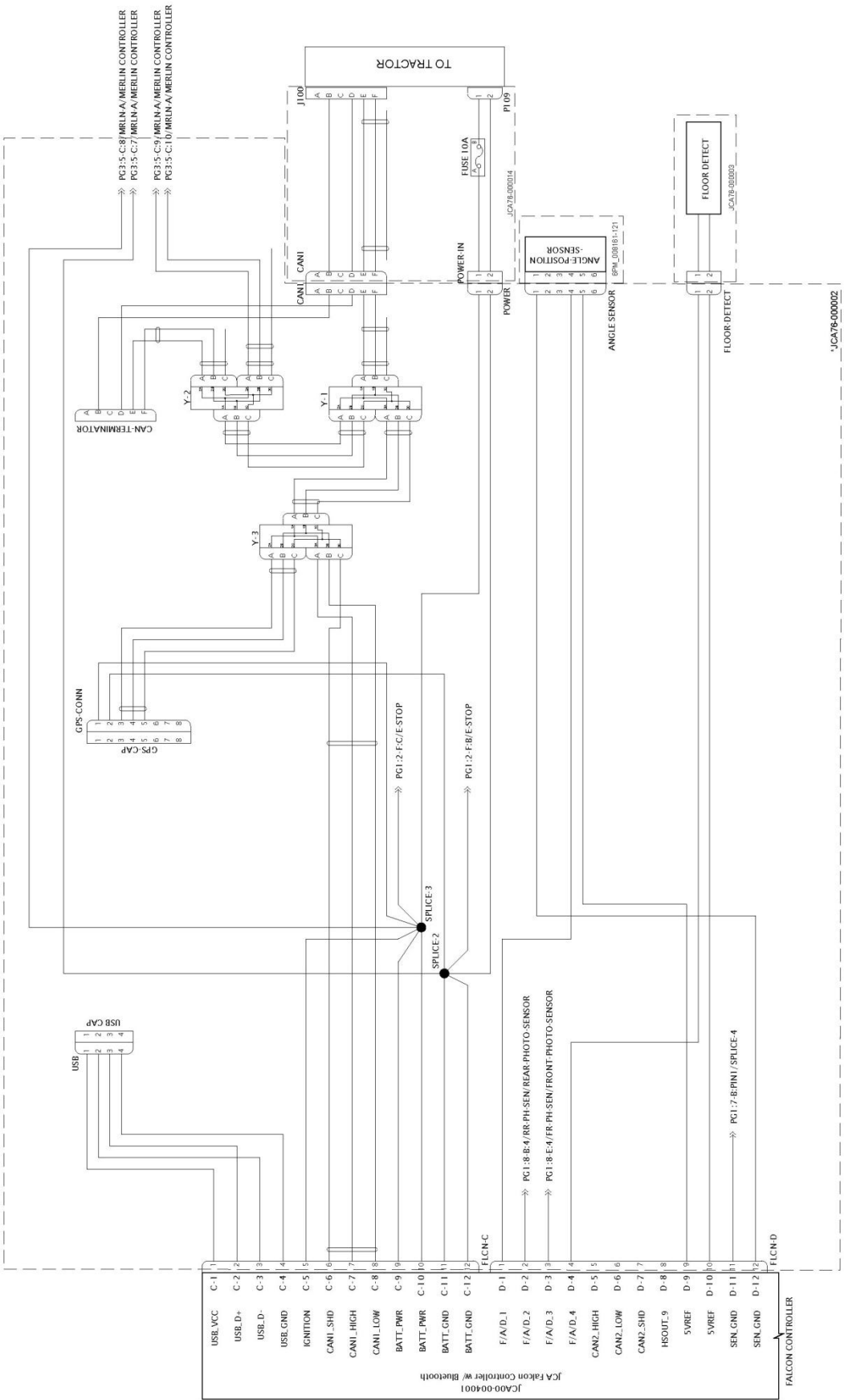


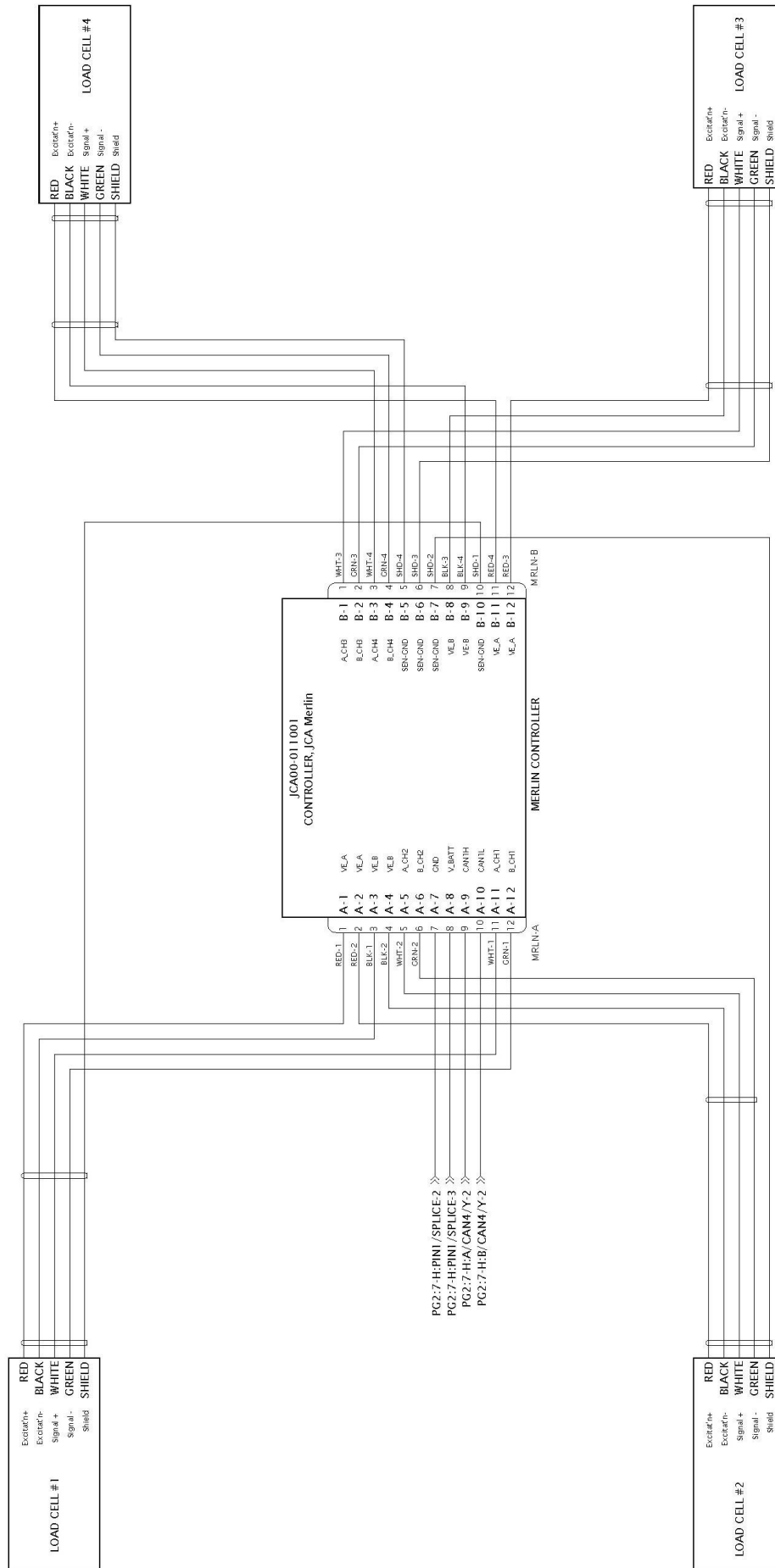
Electrical Schematic

Accumulator Controls

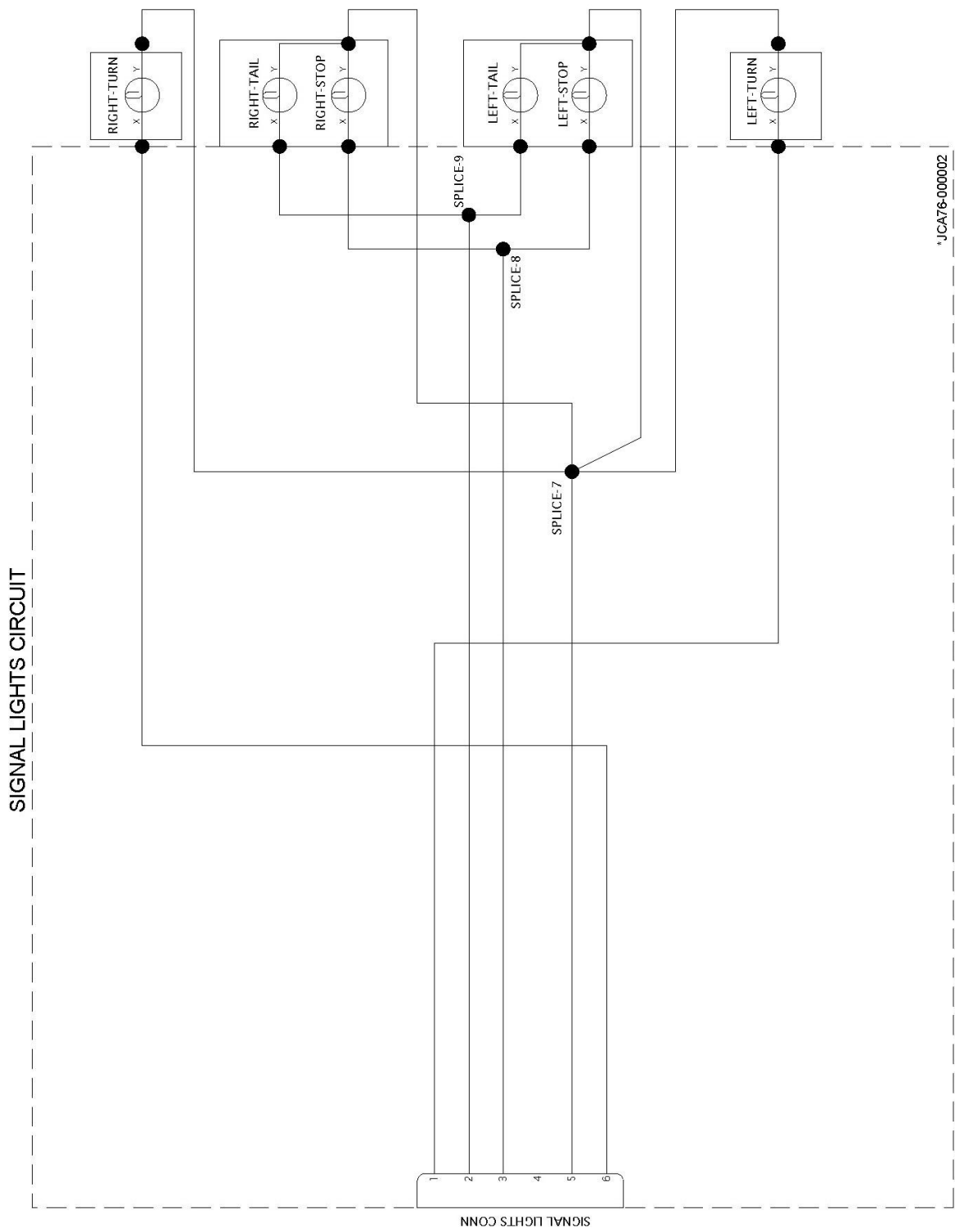


Wire Harness





Lights



Troubleshooting

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Accumulator does not work	Emergency Stop Switch pushed in Poor electrical connection Electronic system malfunction	Turn clockwise to reset. Inspect the wiring harness coupling and clean, if necessary. Check settings on angle sensors for lift mechanism. Adjust the settings if necessary.
Front and rear photo sensors enabled	Oversize bale safety is active. Both front and rear optic sensors are "enabled" Bale may be broken. Both front and rear optic sensors may be covered by loose material Poor bale separation. (Bales stay connected)	Allow oversize bale to roll out. And normal operation will resume. Turn off accumulator and clear loose material away from optic sensors. Raise front of accumulator. Adjust hitch height of accumulator into interference mode to aid bale separation.
Machine Function Halted	Hydraulic flow not turned on. Hydraulic time out due to sensor failure	Enable remote on tractor. Check all sensors on diagnostics page.
Lift mechanism and tail gate do not move when tractor hydraulic lever actuated	Hydraulic hose connections reversed Hydraulic lock. Due to high return flow, hydraulic quick couplers can cause flow checking Hydraulic lock Hydraulic lock	Change hose connections at tractor hydraulic quick couplers. Place tractor hydraulic control lever in float position or disconnect return hydraulic hose coupler to drain off excessive oil. Re-connect hydraulic hose coupler. Inspect quick coupler tips for proper action and/or blockage. Ensure that return oil is discharging into tractor hydraulic reservoir. Reduce tractor hydraulic flow to 12 US gal/min (45.4 L/min) or less.
Fuse	Blown fuse on power cord.	Check fuse.

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Tractor hydraulic oil overheating	<p>Open/closed center mismatch</p> <p>Tractor hydraulic oil flow set too high</p> <p>Low pressure return oil flow is not discharging into tank properly</p>	<p>See section on hydraulic setup.</p> <p>Reduce tractor hydraulic oil flow setting.</p> <p>Ensure that low pressure return flow is discharging directly into the tractor hydraulic reservoir. Newer tractor hydraulic systems have provisions for setting oil flow return directly into the tractor reservoir. With older model tractors, it may be necessary to plumb return flow to a port or fitting to allow direct discharge into the reservoir.</p>
Drops only single bales	<p>Incoming and emitter sensors are closer together than the bale length.</p> <p>Incoming and emitter sensors are closer together than the bale length.</p> <p>Incoming and emitter sensors are closer together than the bale length.</p>	<p>Move the front sensor forward.</p> <p>Adjust rear tail gate and sensor rearward.</p> <p>Shorten bale length.</p>

Installation

Hitch Kit Mounting Guidelines

All PhiBer® Vertical Stacking Accumulator hitch kits are similar in design, but each specific baler make and model require certain specific hitch parts. All hitch kits consist of two main components:

1. Center mount hitch assembly that carries the weight of the accumulator.
2. Pair of link arms with associated hardware for towing the accumulator.

NOTE: All PhiBer® Vertical Stacking Accumulator hitch kits are shipped with a complete set of installation instructions. Refer to the provided install instructions first. The information provided here is only a guideline for preparing the baler for installation of the Stacking Accumulator.

Read, understand and follow all installation instructions prior to installing the Stacking Accumulator onto the baler. Failure to follow these instructions may result in improper installation and the PhiBer® Vertical Stacking Accumulator may not perform as intended.

Prepare Tractor and Baler

1. Hitch baler to tractor per instructions found in baler Operator's Manual.
2. Park tractor and baler on firm, level surface.
3. Shut tractor engine off and remove key from ignition.
4. Set tractor parking brake.
5. Support bale chute securely and remove retaining hardware.
6. Carefully lower bale chute to the ground and move it away from the baler.

General Installation Tips

Accumulator Placement

Ensure that the Stacking Accumulator, (1), is mounted squarely to the rear of the baler (2) (Figure 8.1). Begin installation procedures with Stacking Accumulator set on a firm, level surface behind the baler. The deck should be evenly spaced behind the baler.

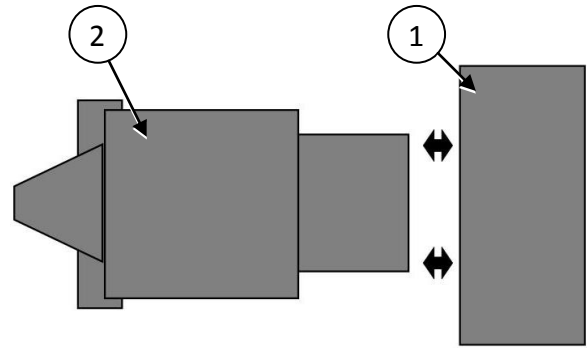


Fig. 8.1

After-Market Baler Attachments

Check for potential interference with any after-market baler attachments such as bale ejectors, preservative tanks, etc. Contact PhiBer® if any modifications are necessary.

Hitch Receiver

Grease hitch receiver (Figure 8.2) every 50 hours or weekly.

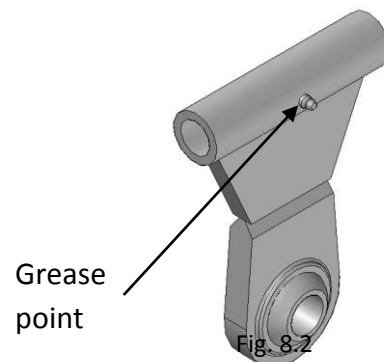


Fig. 8.2

Hitch Height

The optimum hitch height is 26 in (660 mm) from the centre of the 1½ in bolt to the ground as shown in (Figure 8.3). Minimum hitch height is 23 in and maximum is 28 in (584mm-711mm).

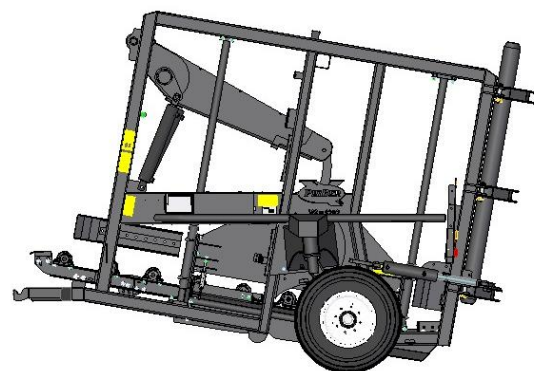


Fig. 8.3

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