521R and 421R Round Bale Accumulators

For John Deere Round Balers

Operator Manual

Includes installation, operating, adjustment, maintenance, technical, repair parts and safety information for the 521R and 421R Accumulators

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RCI Engineering LLC
www.RCI.ag

RC3190544 Rev B (27Augr25)

1 Table of Contents

2 WARRANTY STATEMENT

RCI Engineering LLC, hereinafter referred to as RCI, warrants new RCI attachments and implements to the Original Retail Purchaser to be free from defects in material and workmanship for a period of one (1) year from the date of sale.

RCI warranty includes:
Genuine RCI parts costs and labor required to repair or replace equipment at the selling dealer's business location.

RCI MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE), EXCEPT AS EXPRESSLY STATED IN THIS WARRANTY STATEMENT.

RCI WARRANTY DOES NOT INCLUDE:

1. Transportation to the selling dealer's business location or, at the option of the Original Retail Purchaser, the cost of a service call.
2. Freight costs above standard shipping costs for the replacement parts.
3. Used equipment.
4. Components covered by their own non-RCI warranties, such as tires and trade accessories.
5. Normal maintenance service and expendable, high-wear items.
6. Sacrificial components designed to fail to prevent damage to other components when obstructions are encountered (i.e., shear bolts, pickup teeth)
7. Repairs or adjustments caused by: improper use; non-intended use; failure to follow recommended maintenance procedures; use of unauthorized attachments; accident or other casualty.
8. Liability for incidental or consequential damages of any type, including, but not limited to lost profits or expenses of acquiring replacement equipment or damage to machines to which the attachment is installed.

No agent, employee, or representative of RCI has any authority to bind RCI to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms will continue to apply.

3 SAFE OPERATION OF MACHINE

Operator Authorization

The machine owner must provide the operator of the machine this manual and ensure that the operator reads and understands the contents. This must be performed before the machine is put into operation.

Safety Alert Symbol

This safety alert symbol is used to alert the operator to the potential for personal injury. Whenever this symbol is noticed in this manual or on the machine, be alert to the situation and read the message near the symbol. Always be alert for the potential for personal injury.

General Safety Precautions / Accident Prevention

Before operation of the accumulator each time, check the entire machine for operational and road safety. Refer to the Operator Manual for the Tractor for all information regarding the Tractor. Refer to the Operator Manual for the Round Baler for all information regarding the Round Baler. This manual is for the Accumulator and only covers items related to the operation of the Accumulator.

1. The warning and safety decals on the accumulator provide important information to ensure safe operation of the machine. Always read and follow these instructions and remain safe. Replace any missing safety decals before using machine.

2. Familiarize yourself with all controls of the accumulator, baler and tractor as well as the function of the unit before operation of the accumulator.

3. Check all guards and shields to make sure they are in place and functional. Replace any defective or missing guards, shields or components before operation.

4. Avoid loose fitting clothing. The operator should always wear close-fitting clothing and sturdy footwear.

5. When traveling on public roads or transporting the machine, obey all regulations for the area. See the *Transporting the Accumulator* section for more information on the proper machine setup for transportation.

6. Before starting the tractor each time the machine is operated, inspect the area around the machine. Check that no one is close to the machine to ensure bystander safety.

7. Keep clear of the moving and dangerous areas of the machine.

8. Use caution when working on moveable components of the accumulator. There are many pinch and shear points.

4 SAFETY WARNING SIGNS

Safety Messages
Whenever the words and symbols shown below are used in this manual or on the machine, the instructions MUST be followed as they relate to personal safety.

Safety Decal (1). Manual Reference. Before operating the machine, make sure to read this manual in it's entirety.

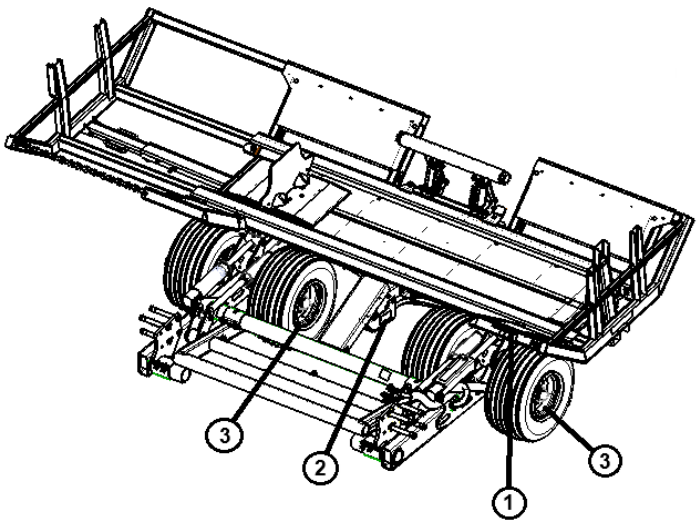
Safety Decal (2). This safety sign is a warning of injury due to escaping hydaulic fluid under presssure. Keep away from this area when the hoses have hydraulic pressure to avoid the hazard. Failure to do so may result in serious injury.

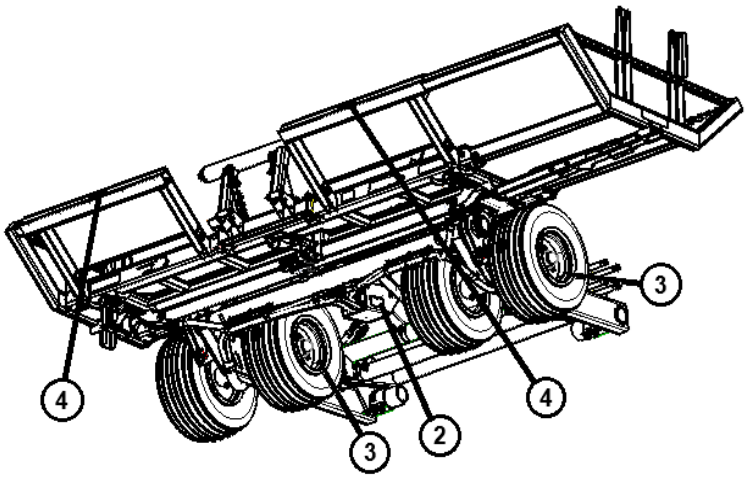
Safety Decal (3). This safety sign is a warning to set and check the tire pressure and wheel bolt torque. See Maintenance section of this manual for more information.

Safety Decal (4). This safety sign is a warning of injury due to tilting of the bale cart. Lock out the bale cart before performing any work on or near the accumulator. Keep away from this area during operation.

Information Decal (5). This information decal is a warning decal located at the control panel to indicate that machine damage may result if the baler gate is moved without the transfer arm in the home position.

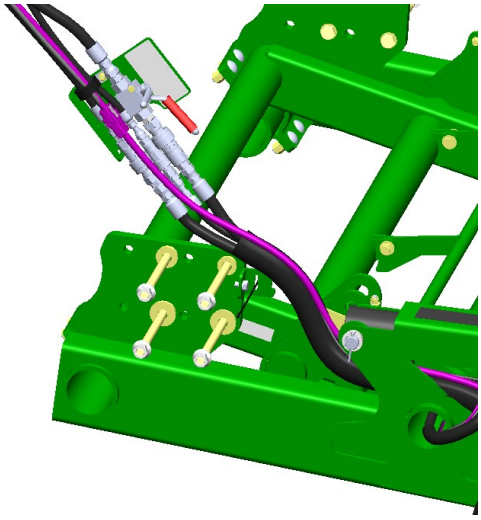
5 SAFETY SIGN LOCATIONS

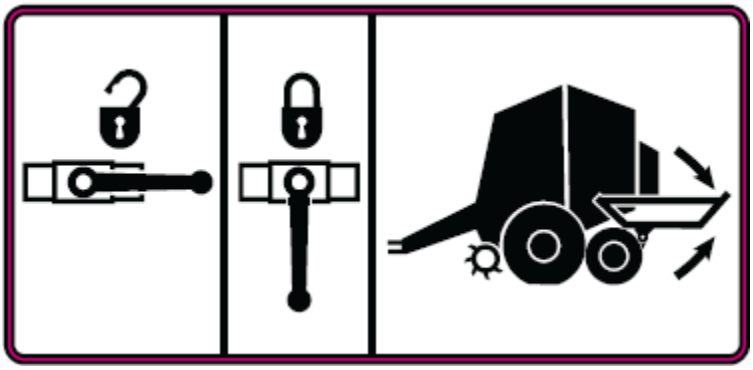




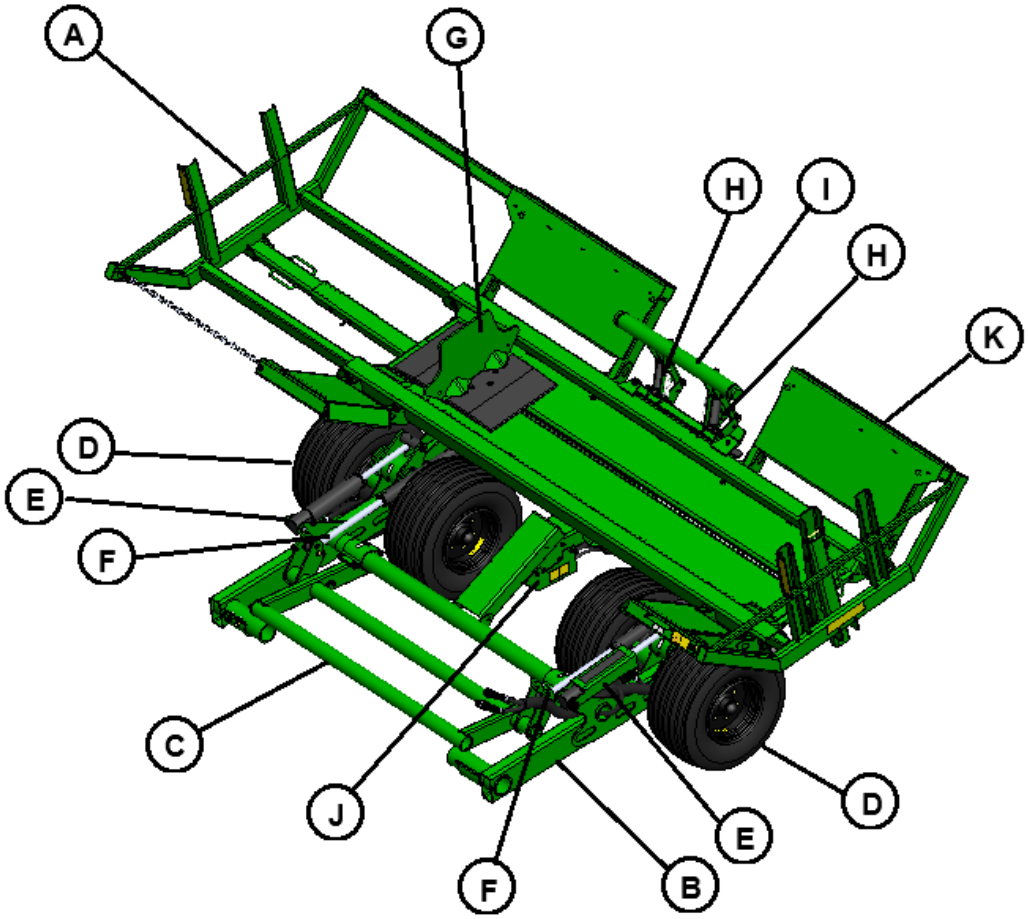
6 OPERATION OF SAFETY LOCK

CAUTION: Operation of accumulator can cause crushing or serious injury. ENGAGE accumulator safety lock valve before working on or around accumulator. STAND CLEAR before unlocking accumulator safety lock valve.





7 COMPONENT IDENTIFICATION AND LOCATION



A – Cart Wing
B – Main Frame
C – Transfer Arm
D – Tires
E – Cart Drop Cylinder
F – Transfer Arm Cylinder
G – Slider
H – Damper Shock
I – Damper Arm
J – Hydraulic Manifold
K – Cart Frame

8 PREPARING THE UNIT

Prepare Bale Accumulator
Verify that the following items have been performed before starting the Bale Accumulator Operation:

1. Check hydraulic hoses and connections for oil leaks.
2. Check slider cylinders and tilt cylinders are operating properly.
3. Check electrical harnesses and connections.
4. Check lubrication and maintenance is completed properly. (See *Maintenance* Section of this manual.)
5. Check that all hardware components are installed and tightened properly.
6. Check tire pressures. (See *Maintenance* Section of this manual.)
7. Check decals and reflective labels are intact and legible.
8. Check accumulator cart wings are fully extended and locked when in the field.
9. Check operating functions of any optional equipment installed.

Extend Bale Accumulator Cart Wings
At each wing, press the self-locking latch (Key 1, Fig. 1) of linkage and extend the cart wing (Key 2, Fig. 1).

Pull each wing out fully such that the linkage (Key 1, Fig. 2) is in the over-center position.

See Figures 1 and 2.

The over-center linkage (Key 1, Fig. 2) keeps the wing in extended position during operation.

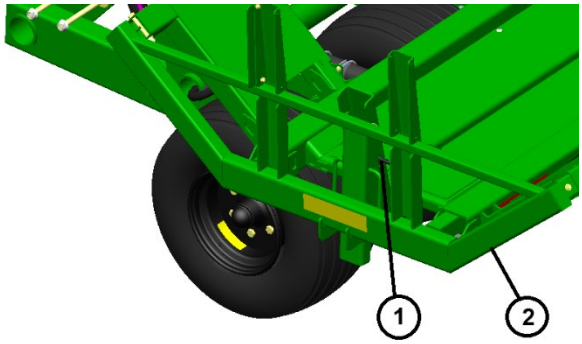


Fig. 1 Cart Wing in Transport Position
Key 1 – Latch Key 2 – Wing

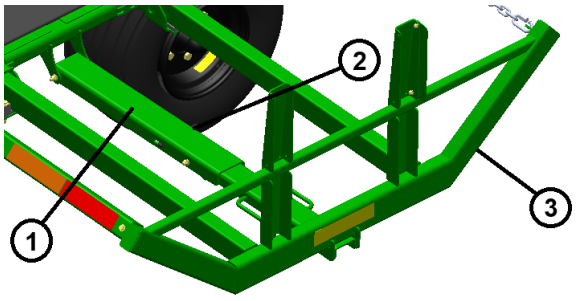


Fig. 2 Cart Wing in Extended Position
Key 1 – Linkage Key 2 – Latch
Key 3 – Wing

Activating the Tractor SCV

The Tractor SCV is used to power the Accumulator hydraulic system.

CAUTION: Operation of accumulator can cause crushing or serious injury.

Ensure there are no bystanders around the tractor, baler and accumulator before actuating the SCV to power the Accumulator Hydraulics.

Actuate the SCV to activate the Accumulator hydraulics.

With Manual Controls, the flow rate of the SCV will control the speed of the hydraulic functions. Adjust the hydraulic flow rate of the SCV such that any accumulator hydraulic cylinder movement for full travel for any function takes at least 1.5 seconds from limit to limit.

With Automatic Controls, the speed of the functions is adjustable in the controls. (See *Automatic Control Operation* Section of this manual.) The SCV must still be set such that any accumulator hydraulic cylinder movement for full travel for any function takes at least 1.5 seconds from limit to limit.

Baler Gate Operation – CRITICAL

IMPORTANT: Do not operate the baler gate without the transfer arm of the accumulator in the home position. Machine damage may result from interference in the travel of the baler gate if the transfer arm is in a raised position.

IMPORTANT: If the accumulator is used on a 1-Series or newer round baler equipped with Baler Automation, make sure the setting for the bale push bar in the baler automation settings is turned off (not installed).

This will result in a pause in automatic operations for the closing of the baler gate and resuming of baling. The operator will need to press the resume button once the transfer arm is returned to the home position, whether using Automatic Controls or Manual Controls.

For previous models of balers using Baler Automation, disable the automatic gate control in baler automation settings.

The baler gate must not be moved when the accumulator transfer arm is in any raised position.

The baler gate can only be safely moved when the accumulator transfer arm is in the home (down) position.

Failure to follow this information will void any warranty claims for damage from the transfer arm to the baler gate.

9 OPERATING THE UNIT

9.1 How the Bale Accumulator Works

NOTE: Slider position alternates between left-hand and right-hand side, depending on position during the previous cycle.

See Figure 3.

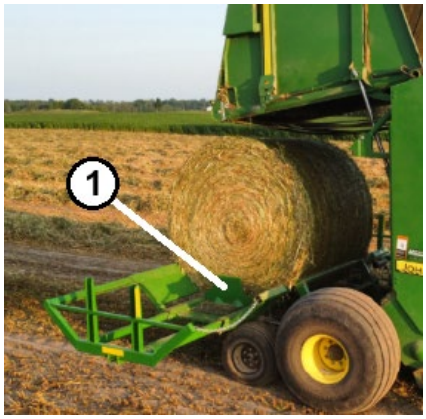


Figure 3. Slider
Key 1 –Slider Position
(Bale in middle of cart)

1. After the baler has completed the tie or net wrap cycle, the operator opens the gate and the bale will fall onto the accumulator. Once the gate is open, do not operate the baler gate until the transfer arm returns to the home position. See previous section for more information.

    a. If Manual Controls are installed, the bale will fall onto the transfer arm. The operator then actuates the hydraulic cylinder to move the bale to the center position of the cart.

    b. If Automatic Controls are installed, the bale will fall onto the transfer arm and trigger the bale sensing bar, which depresses the bale sensing switch. This allows the controls to automatically move the bale transfer arm to move the bale to the center position of the cart.

    If the bale is lodged in the chamber, the operator should not operate the bale transfer arm (or the automatic controls will not proceed).

2. The Slider is now actuated to move the bale to the side of the cart.

    a. If Manual Controls are installed, the operator activates the middle switch to select which side of the cart the bale is to be moved to.
    b. If Automatic Controls are installed, the system will automatically move the bale to either side of the accumulator cart.

    See Figure 4.

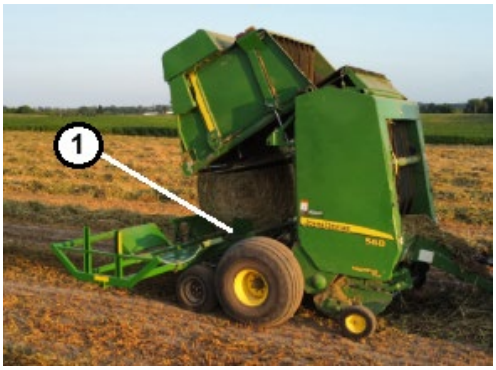


Figure 4. Left-hand Slider Position
Key 1 – Slider Position
(Bale on left wing)

3. Once a bale is placed on the accumulator, it can be dropped to the ground at any time. The machine must always be stationary or moving forward when dropping bales. The machine is intended to drop bales on-the-go at normal harvesting speed if

desired. Never drop bales when driving backwards.

a. If Manual Controls are installed, the operator selects the lower part of the right switch to Drop the cart and then the upper direction to return the cart to the home position.

b. If Automatic Controls are installed, the operator presses the button corresponding to the cart Drop function. The system will automatically drop the cart and return the cart to the home position.

4. This procedure repeats to load the second bale on the cart. The slider always moves the opposite direction of the last move due as selected by the operator or automatically with the controls.

   See Figure 5.

CAUTION: Do not attempt to operate or transport with gate open and three bales on the accumulator.

When dropping three bales in the field, it is recommended to drive to the preferred location with the third bale in the chamber, then eject and drop all three.

IMPORTANT: Do not operate the baler in reverse when the accumulator cart is tipped back for dropping.

NOTE: The cart can be dropped with one, two, or three bales on it, depending on operator preference. A bale can also be dropped straight through without sliding to the side. The cart can be dropped at any time on-the-go by activating the function for the Drop cylinders.

Figure 5. Third Position of the Slider
Key 1 – Slider

5. If a third bale is transferred to the accumulator, the cart must be dropped before the gate can close.

   See Figure 6.

Figure 6. Emptying the Cart

6. Operate the drop function to drop the three bales on the ground. Once the bales are dropped on the ground, return the cart and the transfer arm to the home position before closing the baler gate.

   In Automatic Mode, these functions will happen automatically and indicate when it is safe to close the baler gate. The slider will also move to the left side during this cycle, if not in that position already.

9.2 Operating in Hilly Conditions

If operating the baler in hilly conditions, the following guidelines help to optimize the performance of the bale accumulator:

NOTE: 4' wide bales are more prone to tipping in an extreme side hill condition, both during transfer to the cart and from the cart to the ground.

- Do not eject bales onto the cart when the baler is in an extreme nose-down position. Bales may not transfer properly to cart. Back baler perpendicular to slope and eject onto cart.

- Do not eject bales onto the cart if the baler and accumulator are in the bottom of a steep ditch. The narrow clearance can cause bale sliding difficulties.

- Use the ability to carry bales on the cart and Drop on-the-go to place them in optimum field position to prevent rolling and aid retrieval.

9.3 Operating on Pivots

If operating the baler on pivot-irrigated fields, the following guidelines help optimize the performance of the bale accumulator:

- Do not eject bales onto the cart if the accumulator wheels are down in deep pivot tracks. Pull the baler ahead or back out so the baler and accumulator wheels are on level ground relative to each other.

- Use the ability to Drop 3 bales in a line to reduce stops of the retrieval equipment and prevent it from going through difficult parts of the field.

9.4 Operating in Irregular Fields

When operating the baler in irregular or small fields, or if there are many obstructions in the field, follow these guidelines to get the most out of the bale accumulator:

- Carry two bales and Drop on-the-go at an optimum loading location in the field.

- Use the ability to Drop 3 bales in a line to reduce stops of the retrieval equipment and prevent it from going through difficult parts of the field.

9.5 Handling Round Bales

See the loader and/or tractor Operator's Manual on proper procedures for lifting and handling round bales.

9.6 Replacing Net Wrap

Release the quick-lock pin (Fig. 7, Key 1) as shown at the rear of the accumulator, to gain access to the rear of the baler. The pin is spring-applied.

Replace the net wrap following your baler operator's manual. Close the damper arm until the pin latches the gate into position. See Fig. 7.

IMPORTANT: Failure to close damper arm and latch pin can result in significant machine damage.

9.7 Adjusting Hydraulic Speed

In general, the speed of the hydraulic functions of the bale accumulator are controlled by the flow setting of the tractor SCV.

The top end of the speed of the hydraulic functions is limited by the valve assembly of the accumulator.

With automatic controls, flow can be slowed through the adjustments of the screen, as long as the tractor hydraulics are set fast enough. With manual controls, flow is limited by the manifold and the tractor SCV.

The minimum hydraulic flow for the accumulator is 10 gpm. Flow can be increased until it is noted that the speed is no longer increasing for the functions, or approximately 13 gpm. The ideal configuration is to use a tractor with closed-center hydraulics.

MPORTANT: If using a tractor with open-center hydraulics, a plug must be removed in the manifold of the accumulator to prevent heating of the oil. See *Installation Instructions* section of this manual for more information.

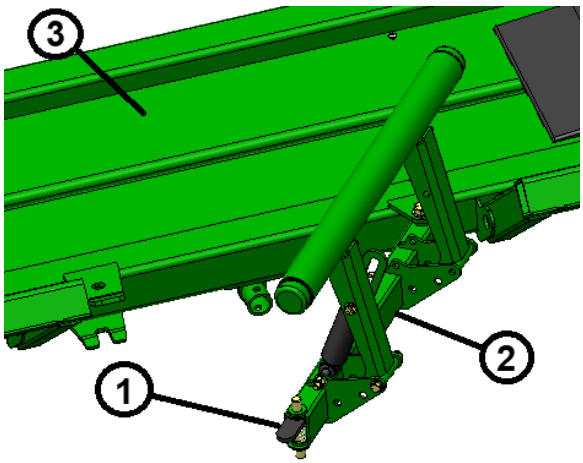


Figure 7. Damper Arm Opening
Key 1 – Quick-Lock Pin
Key 2 – Damper Arm Key 3 – Cart

NOTE: The damper arm shock absorbers are adjustable, but do not need to be adjusted as the hydraulic transfer arm will push the bale against the arm in all conditions. Too low of a damper arm shock setting may permit bales to pass over the damper arm during transfer. Consult with RCI before adjusting the bale damper arm.

9.8 Transfer Area Access

CAUTION: To avoid injury or death caused by unexpected movement:

- **Move the tractor and baler to level ground and power down controls.**
- **Stop the tractor and remove key.**

CAUTION: To avoid injury or death caused by unexpected movement of the gate or of moving the slider or transfer arm (with manual controls or automatic controls), engage accumulator lock before working on, around or under the accumulator with the cart in the raised position. Always stop the engine and remove the key from the tractor before performing any service.

To access the transfer area for service or cleanout, tilt the cart into the Droped position. See Figure 8.

9.9 Accumulator Removal

CAUTION: To avoid injury or death caused by unexpected movement:

- **Move the tractor and baler to level ground and power down controls.**
- **Stop the tractor and remove key.**

The accumulator can be removed from the round baler for service or for operating in conditions outside of the specifications for the accumulator as needed.

To remove the accumulator, first move the tractor and baler to level ground and power down all controls. Stop the tractor and remove the key.

Open the rear damper arm door on the accumulator.

Use the jackstand from the round baler and attach it to the stand coupler at the rear of the accumulator. See Figure 9.

Use the jackstand to take the load of the accumulator off the frame of the baler.

Disconnect the hoses and electrical connections at the left side of the machine.

Remove the mounting bolts around the round tube at the front of the accumulator.

Leave the accumulator and pull the baler forward to clear the accumulator.

To reinstall, carefully reverse these steps.

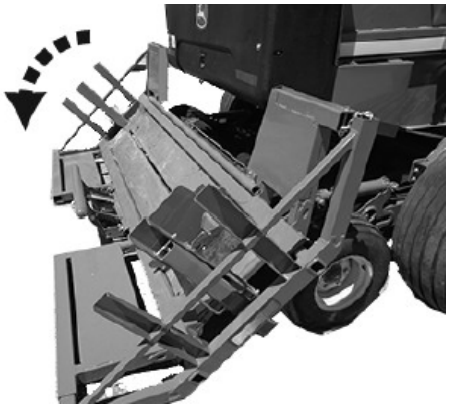


Figure 8. Cart in Dropped Position

Figure 9. Jack Stand Installation

10 Manual Control Operation

When using the manual controls, all functions are controlled through the control panel. The tractor SCV powers all functions and must be engaged for the controls to operate.

The Green LED (Key 2, Fig. 10), indicates when the transfer arm is in the “Home” position. Once the bale has been transferred and the transfer arm returned to the home position and the green light enabled, the baler gate can be closed without interference with the transfer arm or the bale.

The transfer arm control (Key 3, Fig. 10), controls the movement of the transfer arm to transfer the bale to the cart.

With closed-center hydraulic systems, the switch has a latching function to the “Home” position to make it easier for the operator to control the system. With open-center hydraulics, a momentary switch is used. In any case, the switch should be returned to the center, off position when not in use and when the transfer arm is in the “Home” position.

The bale slide control (Key 4, Fig. 10) is the center switch and is momentary in both directions. The operator holds the switch for the duration of the bale move to the side and selects the side corresponding to the desired position on the cart.

The cart Drop control (Key 5, Fig. 10), is momentary in both directions and is used to Drop the cart when the operator desires to do so. It is also used to return the cart to the “Home” position once the bales are Dropped.

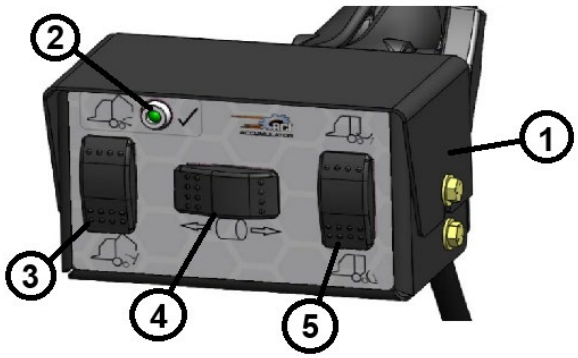


Figure 10. Manual Controls
Key 1–Control Box Key 2–Green LED (Transfer Arm *Home*)
Key 3 – Transfer Arm Control
Key 4 – Bale Slide Control
Key 5 – Cart Drop Control

Manual Control can also be used when Automatic Controls are installed. To access manual controls, press the “M” on the automatic screen. Automatic controls are automatically disabled.

The manual control page operates the same as the Manual Control option, with the screen buttons replacing the rocker switches.

See Figure 11.

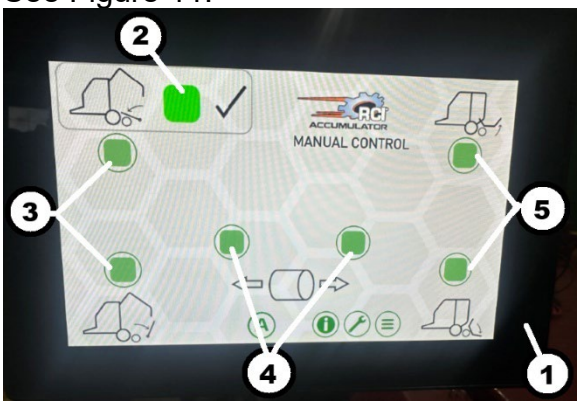


Figure 11. Manual Control Page
Key 1–Control Panel Key 2–Green LED (Transfer Arm *Home*)
Key 3 – Transfer Arm Control
Key 4 – Bale Slide Control
Key 5 – Cart Drop Control

11 Automatic Control Components

The Automatic Control system is comprised of a display controller, controller near the accumulator manifold, a pressure transducer in the hydraulic manifold, and wire harness.

A power switch is located at the side of the display controller. It will illuminate red when turned on and power is present.

An alarm is present above the switch. The volume of the alarm is adjustable by rotating the bezel over the alarm housing.

See Figures 12 and 13.

12 Automatic Control Operation

CAUTION: To avoid injury or death caused by unexpected movement:

- **Ensure that the area around the machine is clear of bystanders.**
- **Engage the tractor SCV slowly while observing the unit to ensure no unintended operation.**
- **Always disengage the baler, turn off the tractor SCV to the accumulator, disable Automatic Mode, place the tractor in park, turn off the tractor, and switch the baler gate valve and accumulator valve at the left side of the baler before performing any work on the baler or accumulator.**
- **Always start with an empty accumulator when starting Automatic Mode.**
- **Never operate the baler gate with the transfer arm of the accumulator in a raised position. It must always be in the Home (down) position when operating the baler gate or machine damage may result.**

WARNING:
Turn on the Automatic Control Display before starting the tractor SCV. Engage the tractor SCV slowly while observing the unit to ensure no unintended operation. Make sure the area around the accumulator is clear of obstructions prior to starting any functions, including to the area behind the accumulator where bales may discharge to. Make sure the accumulator is empty before enabling Automatic Mode.

Failure to do so may result in machine damage.

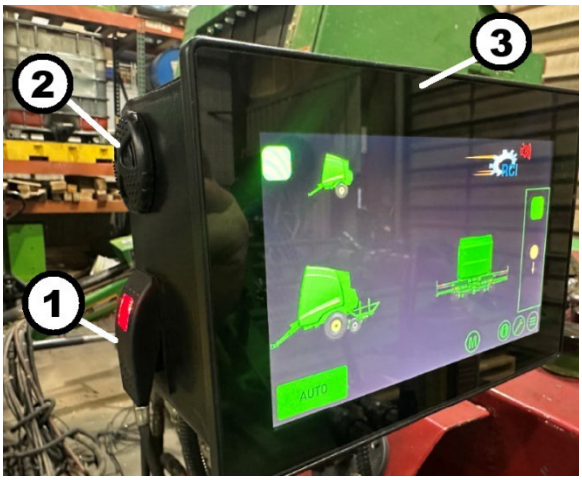


Figure 12. Automatic Control Display
Key 1 – Power Switch
Key 2 – Alarm with Rotating Bezel
Key 3 – Display Controller

Figure 13. Automatic Control Startup and Automatic Control Screen

Automatic Home Screen Controls

On the Automatic Control Screen, the transfer arm home switch indicates status with the green light (Fig. 14, Key 1). This indicator is used to show when it is safe to move the Baler Gate. When it transitions to solid green, it accompanies a beep from the alarm to alert the operator it is time to close the baler gate after a transfer cycle. It will blink green when it indicates that the baler gate is in operation or when the system is cycling. It will be red when the gate should not be moved.

The status of the Baler Gate, as determined by the pressure in the Baler Gate cylinder, is indicated by the graphic (Fig. 14, Key 2).

To enable the Automatic Operation, the Auto button (Fig. 14, Key 10) is pressed and will illuminate green when engaged.

The status of the operation of the accumulator is shown through the rear view and side view of the unit (Fig. 14, Key 3 and 11).

The Automatic Drop function for the accumulator is triggered by pressing the button at the right side of the display (Fig. 14, Key 5).

The alarm can be muted by pressing the mute button (Fig. 14, Key 4).

The menu button (Fig 14, Key 6) will lead to the menu of the display. See the Automatic Control Settings in the Service Section of this manual for more information on this menu.

The Service Button (Fig 14, Key 7) will lead to a page containing all the status of all inputs and outputs to the system. See the Service Section of this manual for more information.

A link to the page containing this operator manual is visible when the Information button (Fig. 14, Key 8).

The Manual Mode Button (Fig 14, Key 9) leads to the Manual Control Page.

IMPORTANT:
Automatic Control is always disabled automatically when changing to other pages, but not when changing to the system menu (Fig 14, Key 6). Always disable the Automatic Controls when entering the system menu to prevent unintended operation.

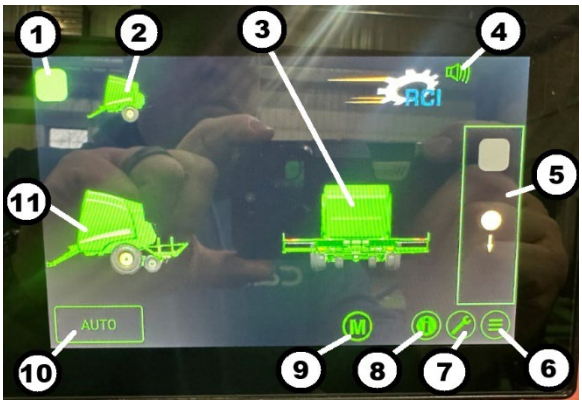


Figure 14. Automatic Control Screen
Key 1 – Bale Gate Operation Status
Key 2 – Baler Gate Status
Key 3 – Rear View Status
Key 4–Alarm Mute Key 5-Auto Drop
Key 6-System Menu Key 7-Service Pg
Key 8 – Manual Link Page
Key 9 -Manual Control Page Link
Key 10–Automatic Mode Enable/Disable

Engaging Automatic Mode

Automatic control will need to be enabled when returning to the Automatic Page through the “A” button at the bottom of any other pages. (Fig. 15, Key 1).

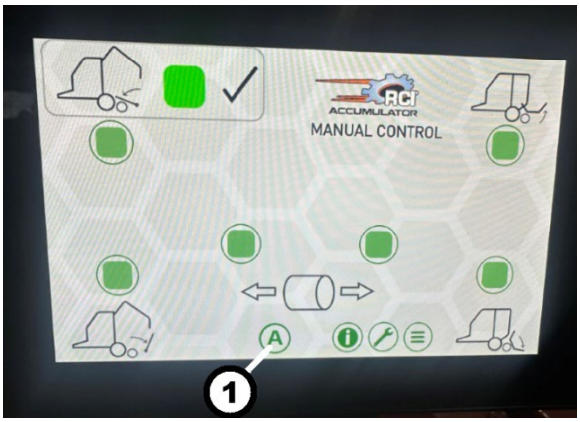


Figure 15. Manual Control Page
Key 1 – Automatic Control Button “A”

Once the baler is running, ensure the Accumulator cart is empty. Check to make sure that no bales are on the cart and that the transfer arm is in the home position such that the indicator for gate status is solid green. The baler gate should be closed prior to starting.

If needed, slowly turn on the tractor SCV and use manual mode to move any components needed to reset the system or to empty the accumulator before starting.

Engage the Automatic Mode by pressing the “Auto” button. See Figure 15. The “Auto” button will illuminate green.

A warning will appear on the screen to warn the operator to check that the cart is empty prior to using Automatic Mode. The warning will disappear in approximately 5 seconds or with the press of the “OK” button. See Figure 16.

Next engage the tractor SCV to provide hydraulic flow to the valve.

Note: Tractor SCV flow should be set to provide just enough flow to the manifold such that the speed no longer decreases when lowering the flow, or to slow the hydraulic functions to the desired speed of approximately 1.5 to 2 seconds per cylinder stroke on any function. This will be approximately 20 gpm. The valve also has a limiting valve that is adjustable as outlined in the Service section of this manual. With an open-center system, this adjustment is more important than with closed-center systems.

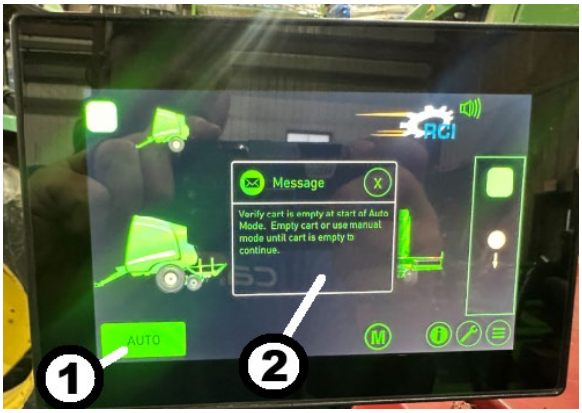


Figure 16. Enabling Automatic Control
Key 1 – Auto Button (Green
Key 2 – Temporary Warning

Note: If any alarms are present, the operator will observe the STOP indicator and hear an audible alarm. When this occurs, bring the machine to a stop and resolve any issues present. The baler and tractor SCV can remain on initially during the event for a short time until the situation that caused the error can be identified. See Service section for more information. See Figure 17.

Note: If desired, the operator can switch to manual mode to control any functions independently as needed. This can be used to prepare the accumulator for automatic use (i.e. removing bales) or to move components as needed (i.e. lowering transfer arm) for operation. Refer to the manual control section in this manual for more information on the functions used.

Automatic controls will disable when this screen is selected and will need to be enabled again when returning to Automatic controls. Press the “A” button at the bottom of the screen to return to the Automatic Controls page. See Figure 18.

When Automatic Mode is engaged, the cart can be dropped at anytime to unload the bales by pressing the Cart Drop Control at the right side of the screen. This will engage an automatic operation of retracting the cart drop cylinders, dropping the bales to the ground, and extending the cylinders to raise the cart to the collection position automatically.

This operation can be completed when the unit is stationary or moving.

Be sure to check the area around the baler and accumulator prior to dropping the bales. See Figure 19.

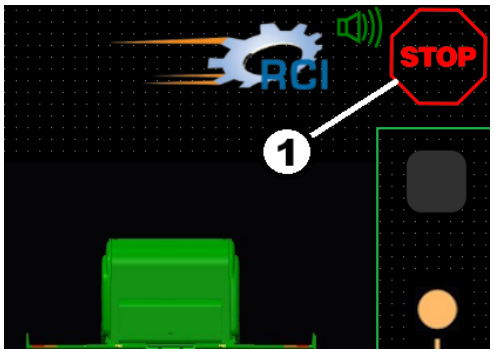


Figure 17. Stop Indicator
Key 1 – Stop Indicator

Automatic Bale Drop can be selected anytime that another transfer operation is not in process (i.e.. between bales).

If the accumulator is filled completely, the cart will automatically dump when the third bale is transferred to the cart. This is required for the bale to clear the baler gate for the gate to be closed. The cart will return to home position automatically.

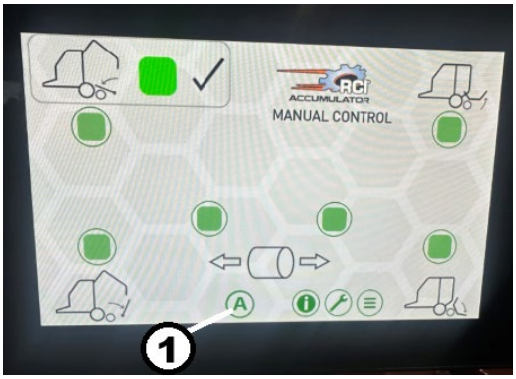


Figure 18. Manual Control Page
Key 1–Automatic Controls Shortcut

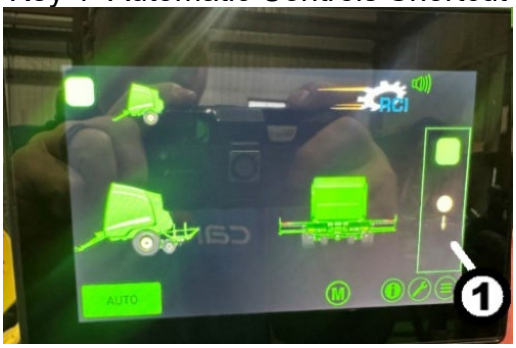


Figure 19. Auto Drop Control
Key 1 – Auto Drop Button

With Automatic Control enabled, the tractor SCV engaged, and all baler operations engaged, the operator can begin baling.

Once the first bale is complete, the operator must verify the green light in the top left corner is solid green, indicating it is okay to open the baler gate.

This ensures that the bale presence switch (located under the baler gate) has no bale in place, and that the transfer arm is in the home position.

With the indicator green, the operator can eject the bale. As the gate opens, the bale will drop onto the transfer arm and engage the bale presence switch.

During the baler gate opening, the Baler Gate Operation status indicator will begin blinking green. This indicates that the pressure in the baler gate cylinder has reached threshold A and that the gate is in operation.

The transfer arm will not move until the pressure at the baler gate cylinder reaches threshold B, indicating that the baler gate is fully open.

Once this condition is met, along with having the bale at the bale presence switch, the transfer arm will transfer the bale to the slider.

The transfer arm will engage the Transfer Arm Up switch and the system will engage the slider to the other side of the cart, moving the bale out of the way of the gate. This will engage the bale slide switch at the end of stroke.

Once the bale slider has completed the travel, the transfer arm will return to the home position and engage the Transfer Arm Home Switch. The bale presence switch should be open at this time, as no bale is present.

Once the Transfer Arm is in the Home position and the bale is no longer present, the Baler Gate Operation status indicator will turn back to solid green and an audible beep will alert the operator that it is time to close the baler gate and proceed to the next bale.

Once the second bale is complete, the operation is repeated, and the second bale will slide to the opposite side.

The operator can select a Bale Drop at any time between transfer operations or at the end of a full cart.

If a third bale is transferred to the cart, the Automatic Controls will automatically drop all three bales as soon as the third bale reaches the bale cart. Once the third bale is ejected, the system will reset, and the sequence starts again.

If the Auto Bale Drop is selected with one or two bales on the cart, the sequence resets once the Auto Drop operation is completed.

The system will detect which side the slider is on and automatically slide the first bale to the opposite side. The slider does not need to be returned to any specific position.

If the slider is stopped anywhere between the two sides for any reason, the system will automatically move the slider to a side before operating again.

See the Service section of this manual for any adjustments of any parameters as needed.

Always disable the Automatic Controls when not in use and turn off the tractor SCV when not baling.

13 Transporting the Unit

Follow Safe Transport Procedures

CAUTION: Follow recommended transport procedures for safety of operator and bystanders. Non adherence causes severe injuries or even death.

- **Transport with bale chamber empty.**
- **Transport with the bale accumulator empty.**
- **Raise pickup fully.**
- **Transport only with accumulator wings retracted.**
- **Transport Speed: Road speed maximum limit (unloaded) – 20 mph (32 km/h)**
- **Transport only with accumulator cart in fully raised position.**
- **Stop slowly.**
- **Avoid possible loss of control or tractor overturn. Tow only with correctly ballasted tractor.**
- **Check baler lighting, reflectors, and SMV emblem.**
- **Tow only with correctly rated safety chain.**

If necessary, add ballast as described in the tractor Operator Manual. Add ballast to tractor as required to maintain stability.

Retract the Wing

Lift handle on over-center linkage (Key 1, Figure 21) to retract the cart wing. Push the wing towards the inside the cart until fully retracted. Repeat on the opposite side.

Check that self-locking latch (Key A, Figure 20) is locked to the linkage for transporting mode.

Ensure the cart is fully tilted forward and damper arm is locked in closed position.

See Figures 20 and 21.

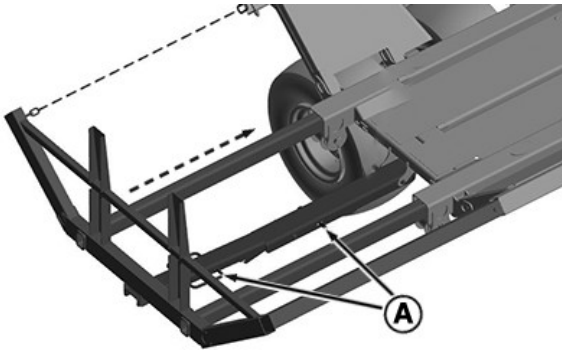


Figure 20. Wing Over-Center Linkage
Key A – Over-Center Linkage

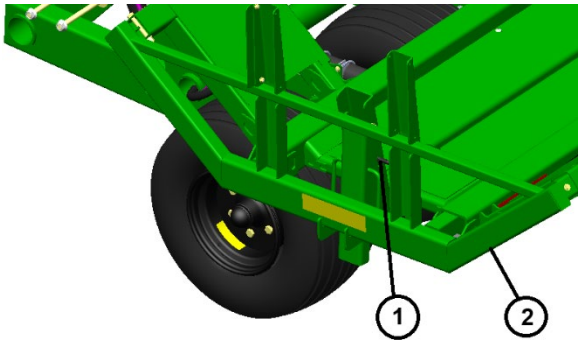


Fig. 21 Cart Wing in Transport Position
Key 1 – Latch Key 2 – Wing

14 Adjustments

CAUTION: To avoid injury or death caused by unexpected movement:

- **Move the tractor and baler to level ground and power down controls.**
- **Stop the tractor and remove key.**

Adjusting Slider Chains
To adjust the slider chains, approach the slider assembly from the rear of the unit, beneath the cart.

There are two slider chains, one per direction of travel.

Start with the adjuster that has less threads exposed past the tension nut.

Loosen the jam nut. Adjust the tension nut to have 1" side-to-side slack at the center of the accumulator. Do not adjust the chain too tight.

Once the slack is removed, tighten the jam nut.

Adjust the opposite chain as needed.

See Figure 22.

Adjust Bale Damper Arm for Light Bales

When making lighter full size (60" to 72" diameter) bales ,the damper arm may need to be adjusted so the bale can clear the baler gate and slide properly.

To adjust the damper arm, install a 5/8" diameter hitch pin or long bolt (not provided) in the holes to limit the travel of the damper arm.

Holes are provided to store the pins for future use as needed. See Figure 23.

IMPORTANT:
If the chains are overtightened, the cylinders will bottom out internally and may be damaged over time.

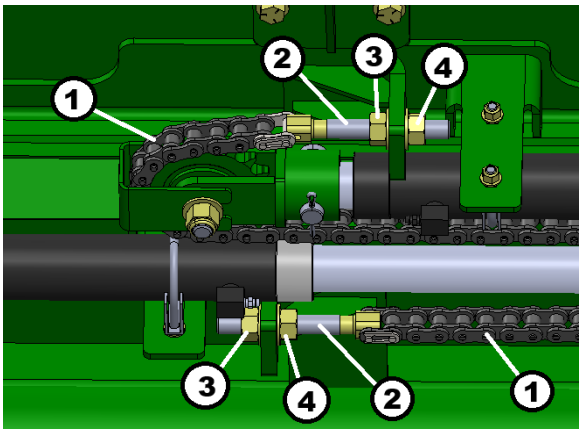


Figure 22. Slider Chain Adjustment
Key 1 – Chains Key 2 – Threaded Rod
Key 3–Jam Nuts Key 4–Tension Nuts

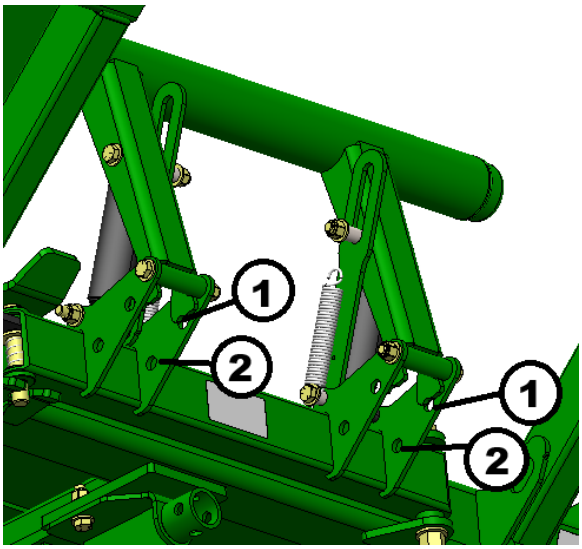


Figure 23. Damper Arm Adjustment
Key 1 – Pin Location for Limiting Travel
Key 2 – Storage Location

Adjust Bale Presence Switch
(Only used with Automatic Controls)
To adjust the Bale Presence Switch, loosen the carriage bolts on the bracket at the sensor and adjust their position to move the switch relative to the arm from the bar. Adjust such that the switch is not over-pressed when in the down position (bale present). Tighten all hardware properly. See Figure 24.

Adjust the Transfer Arm Home Switch
(Used with both controls)
To adjust the Transfer Arm Home Switch, first align the center of the switch with the carriage bolt on the transfer arm.

Loosen the support brackets as needed to align the center of the switch properly.

The switch displacement depth is adjusted through the position of the carriage bolt in the transfer arm frame.

To adjust the switch displacement depth, loosen the nuts securing the carriage bolt to the transfer arm frame. Adjust the position of the carriage bolt as needed. Do not overextend the carriage bolt as switch damage may result. Tighten all hardware properly. See Figure 25.

An additional view of both switches is shown in Figure 26.

IMPORTANT:
Make sure that neither switch bottoms-out when the slack in the transfer arm to the frame pivot is pulled towards the rear of the accumulator by the transfer arm cylinders. As the cylinders raise the transfer arm, they will pull the transfer arm towards the switch, taking up the slack in the pivot. Push the components by hand to verify the condition.

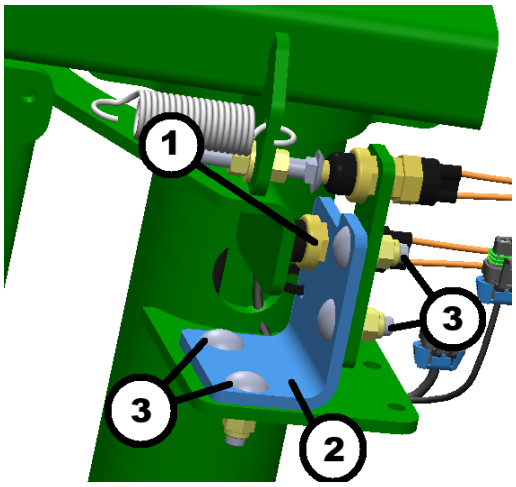


Figure 24. Bale Presence Switch
Key 1 – Switch Key 2 – Bracket
Key 3 – Carriage Bolts

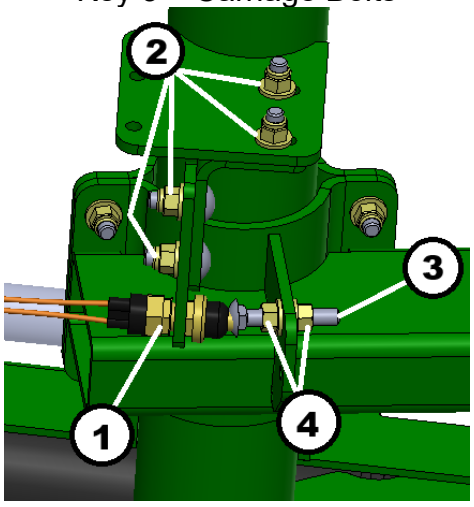


Figure 25. Transfer Arm Home Switch
(Bale Presence Switch Removed for Clarity)
Key 1 – Switch
Key 2 – Bracket Adjustment bolts
Key 3 – Carriage Bolt Key 4 - Nuts

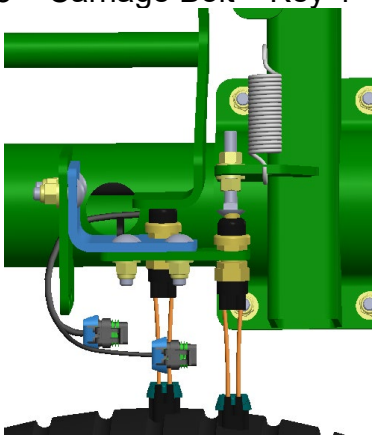


Figure 26. Switch Adjustment View

Adjust Transfer Arm Up Switch
(Used with Automatic Controls)
To adjust the Transfer Arm Up Switch, move the transfer arm to the fully raised position.

Loosen the U-bolts that support the switch.

Move the U-bolts to adjust the position of the switch against the stop.

See Figure 27.

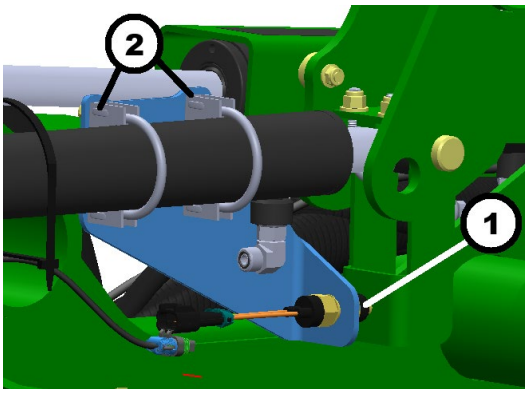


Figure 27. Transfer Arm Up Switch
Key 1 – Switch Key 2 – U-Bolts

Adjust Slider Switches
(Only used with Automatic Controls)

There is one switch per end of the slider.

For each switch, loosen the hardware that holds the switch support bracket to allow the switch to move left and right.

With the slider chains properly tensioned and the slider shifted completely to each end of the unit for adjustment on each switch, adjust the support properly so that each switch is depressed at the end of travel.

See Figures 28 and 29.

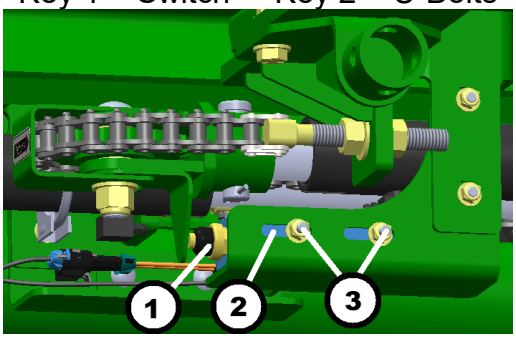


Figure 28. Slider Switch Adjustment
Key 1- Switch Key 2 – Bracket
Key 3 – Switch Support Hardware

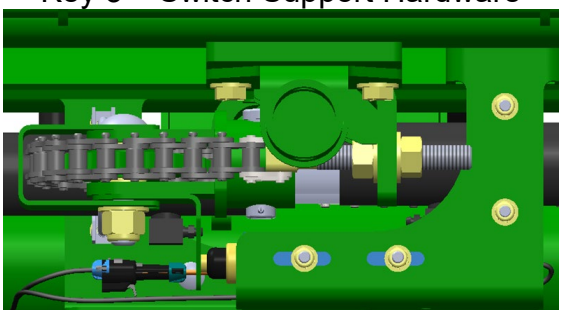


Figure 29. Alternate View of Switch

Adjust Wing Angle
The wings of the unit may lower over time with wear and use. The angle of the wing can be adjusted by adding shims under the slider blocks. See Repair Parts Pages for components used and available through spare parts.

See Figure 30.

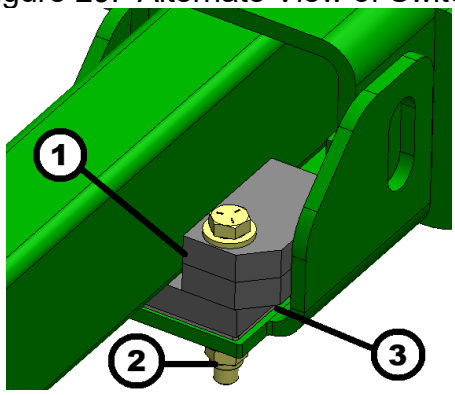


Figure 30. Wing Angle Adjust
Key 1 – Blocks Key 2 – Bolt
Key 3 – Shim Position

15 Maintenance

CAUTION: To avoid injury or death caused by unexpected movement:

- **Move the tractor and baler to level ground and power down controls.**
- **Stop the tractor and remove key.**

Check Tire Inflation Pressure

Maintain required tire inflation pressure. A decal is present at the wheels as a reminder of the SPECIFICATION.

SPECIFICATION
Tire Inflation Pressure
30 psi (107 kPa) (2.1 bar)

NOTE:
For heavier bales or on steep side hill slopes, maintain a tire inflation pressure of 40 psi (276 kPa)(2.75 bar).

See Figure 31.

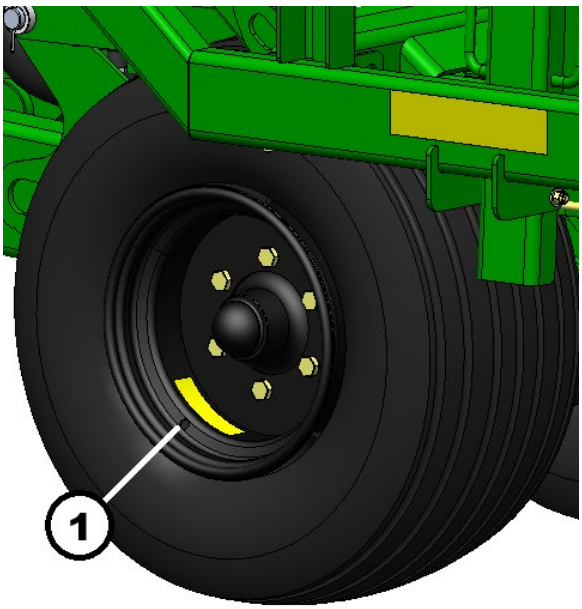


Figure 31. Tire Inflation Pressure
Key 1 - Valve

Wheel Bolt Torque

Wheel bolts must be tightened to specification.

SPECIFICATION
Wheel Bolt Torque
130 lb-ft (176 Nm)

See Figure 32.

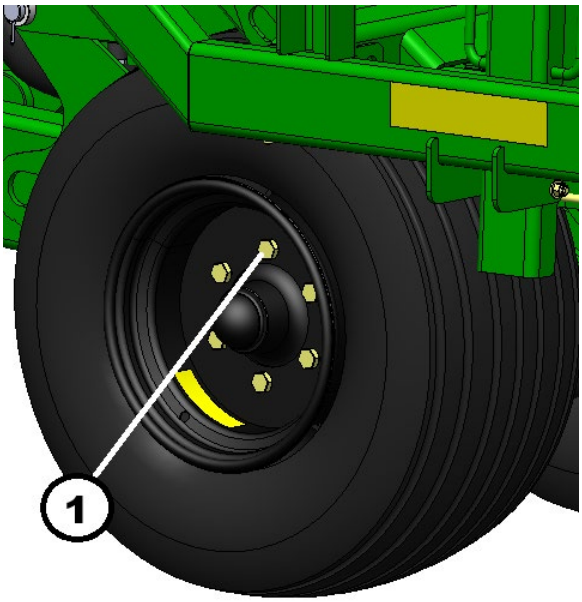


Figure 32. Wheel Bolt Torque
Key 1 – Wheel Bolt

Check and Oil Slider Chains

Inspect Slider Chain for proper tension.

See Adjustments section for more information.

Oil slider chain at the same interval of the chains on the round baler, using the same oil.

See Figure 33.

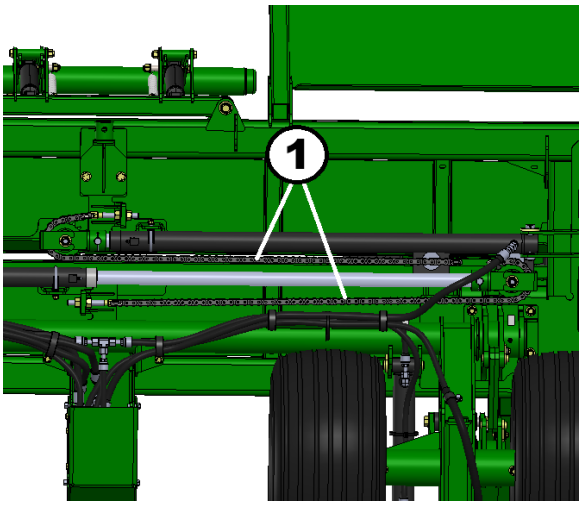


Figure 33. Slider Chains
Key 1 - Chains

Greasing

Accumulator should be lubricated on the same interval as the round baler, using the same grease.

Grease Transfer Arm and Main Frame Pivots

Grease the two fittings per side on the transfer arm.

Grease the transfer cylinder rod ends.

Repeat for the opposite side.

See Figure 34.

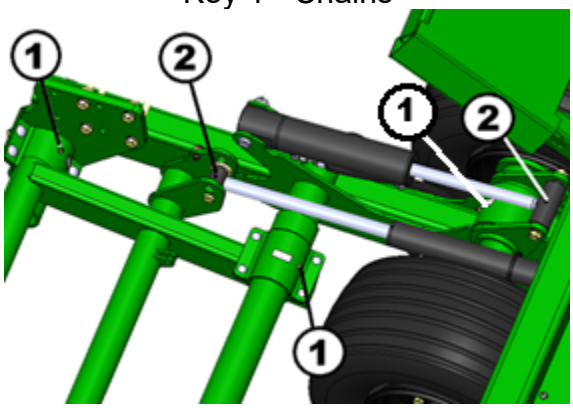


Figure 34. Grease Points
Key 1 – Transfer Arm, Cart and Main Frame Pivots
Key 2- Cylinder Ends

Grease the Cart Dump Cylinder rod ends.

See Figure 34.

At the lower side of the unit, grease the Cart Dump Pivot.

Grease the base end of the transfer cylinder.

Grease the wheel hubs of all wheels.

See Figure 35.

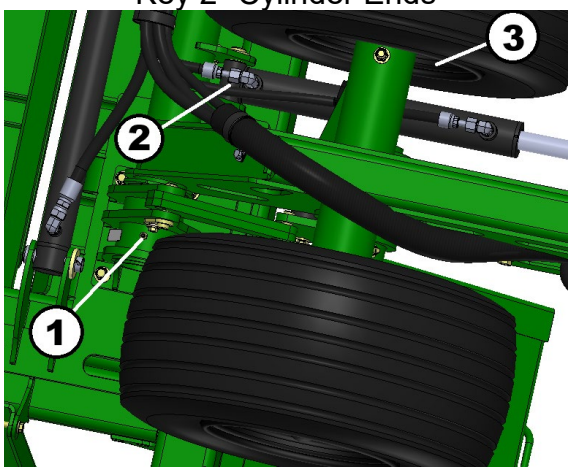
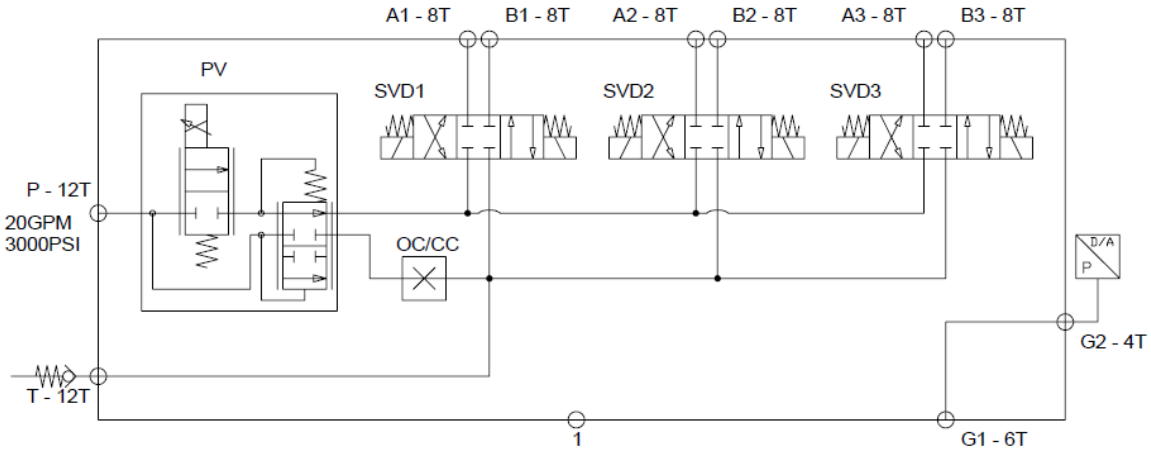


Figure 35. Grease Points
Key 1 – Dump Pivot
Key 2 – Transfer Arm Cylinder Base
Key 3 – Wheel Hub

16 Theory of Operation

16.1 Hydraulic System

Figure 36. Manifold Schematic



The hydraulic system is designed for 20 GPM and 3,000 PSI maximum pressure.

The operator sets the tractor SCV flow rate to control the speed of the functions. It is best to adjust the flow to the minimum flow needed for desired speed.

The valve also has a flow control that can be adjusted through the menu of the controller with Automatic Controls. With Manual Controls, this valve defaults to full flow. See Service Section of this manual for more information for flow control with Automatic Controls.

The relief pressure is set by the tractor SCV.The OC/CC location is to allow for the changing between closed-center and open-center tractor SCV systems.
From the factory, the system is set up for closed-center systems.

To convert to open-center tractors, remove the middle D3 valve from the manifold. Then remove the plug in the OC/CC port, inside the PV valve port. Store the plug in the 1 port on the side of the valve assembly. Reinstall the middle D3 valve. See Fig. 37 for plug location.

The pressure transducer is installed in port G2 to measure the baler gate cylinder pressure when automatic controls are used. G1 connects to a hydraulic hose that leads to a T-Fitting at the baler gate cylinder.

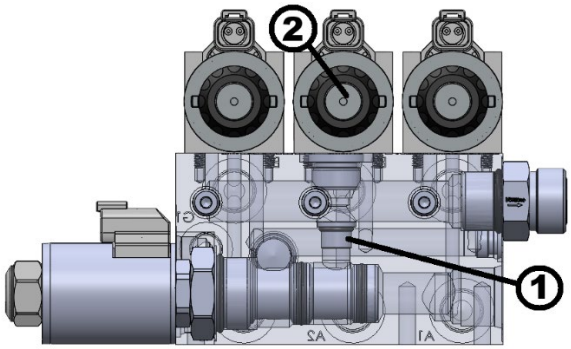


Figure 37. Accumulator Manifold
Key 1 – Plug Key 2 – D3 Valve

16.2 Electrical System

Manual Control Schematic
Figure 38. Cab Schematic

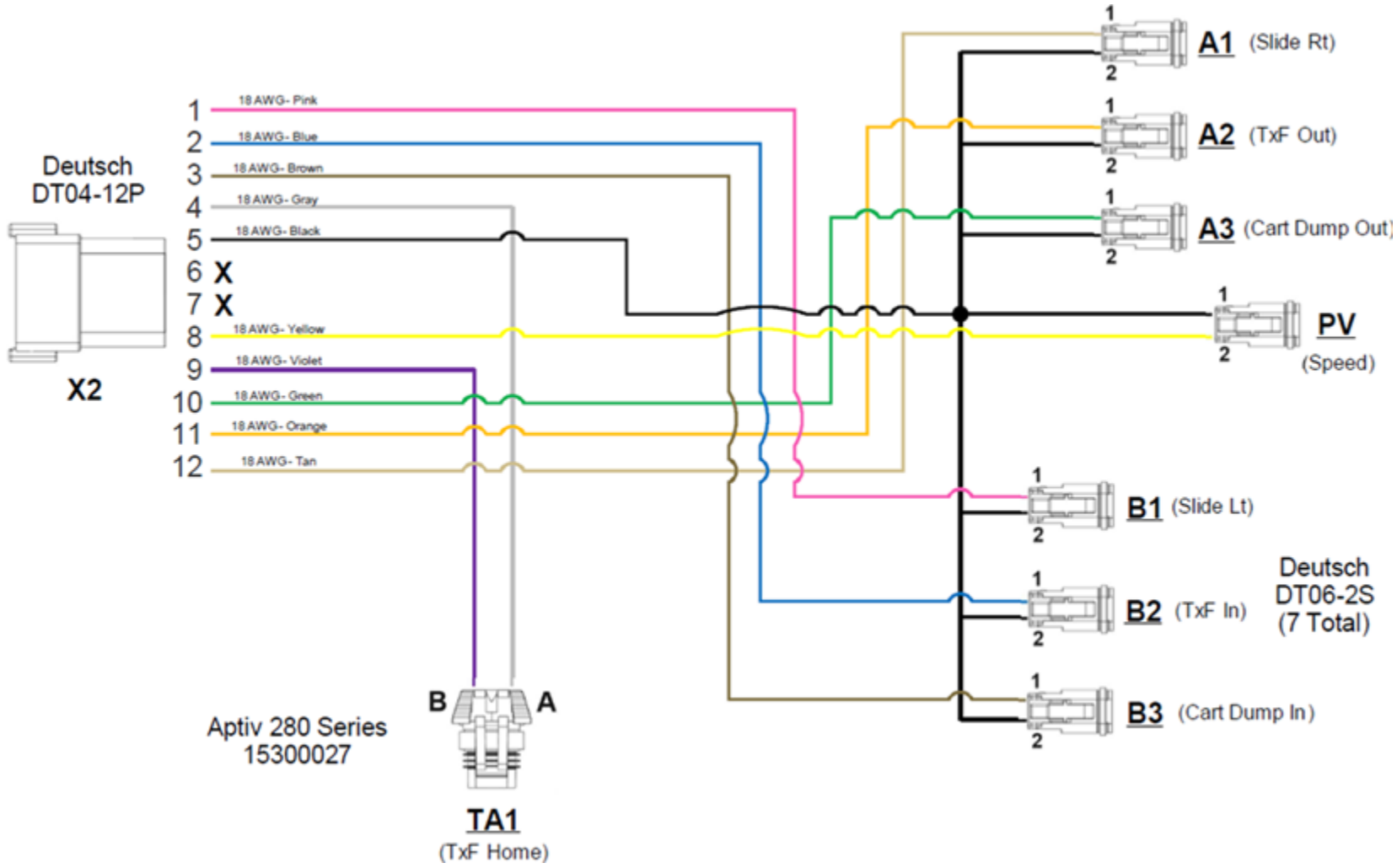


Figure 39. Accumulator Harness (Manual Control)

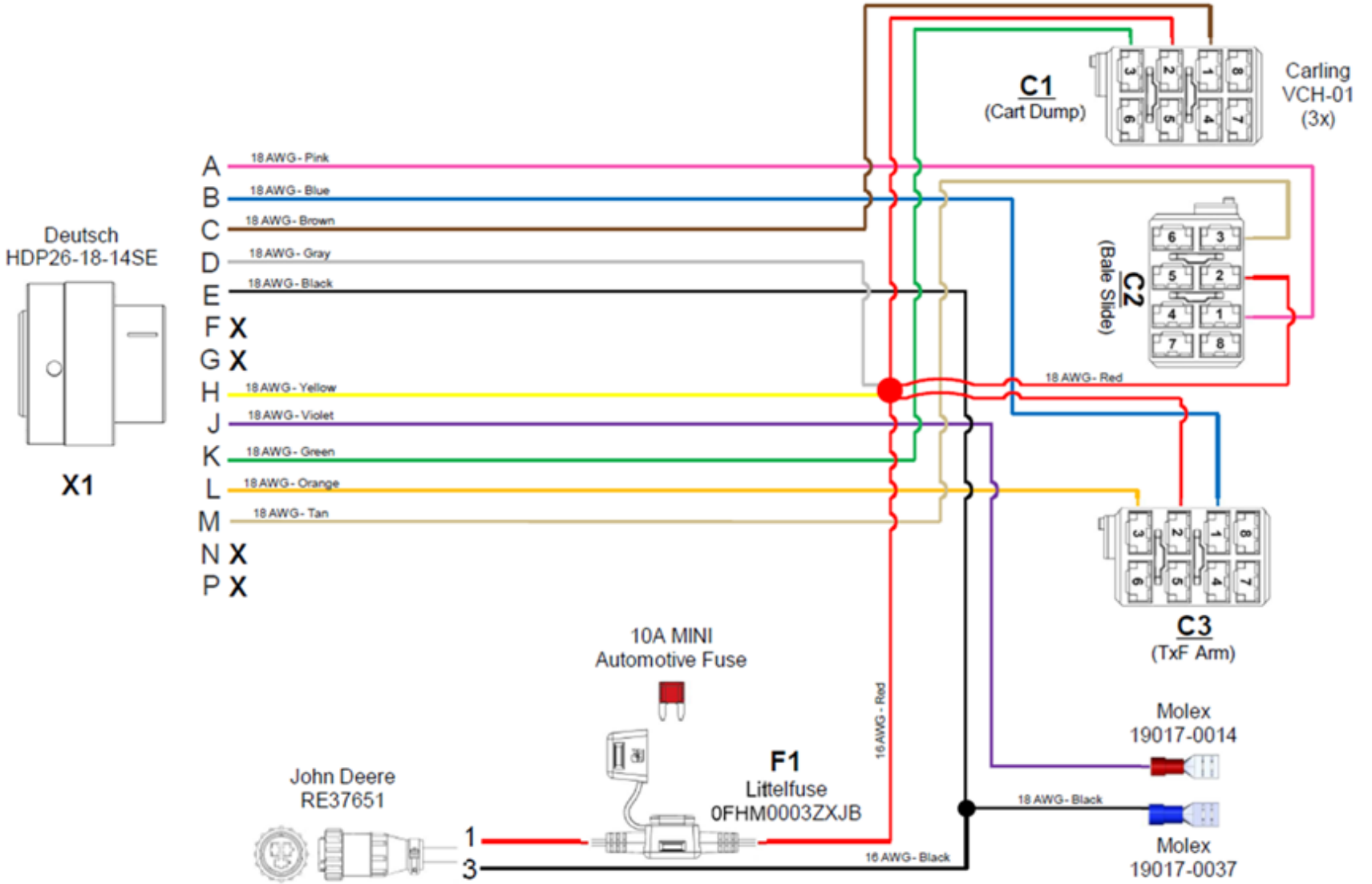


Figure 40. Accumulator Extension Harness (Manual Control)

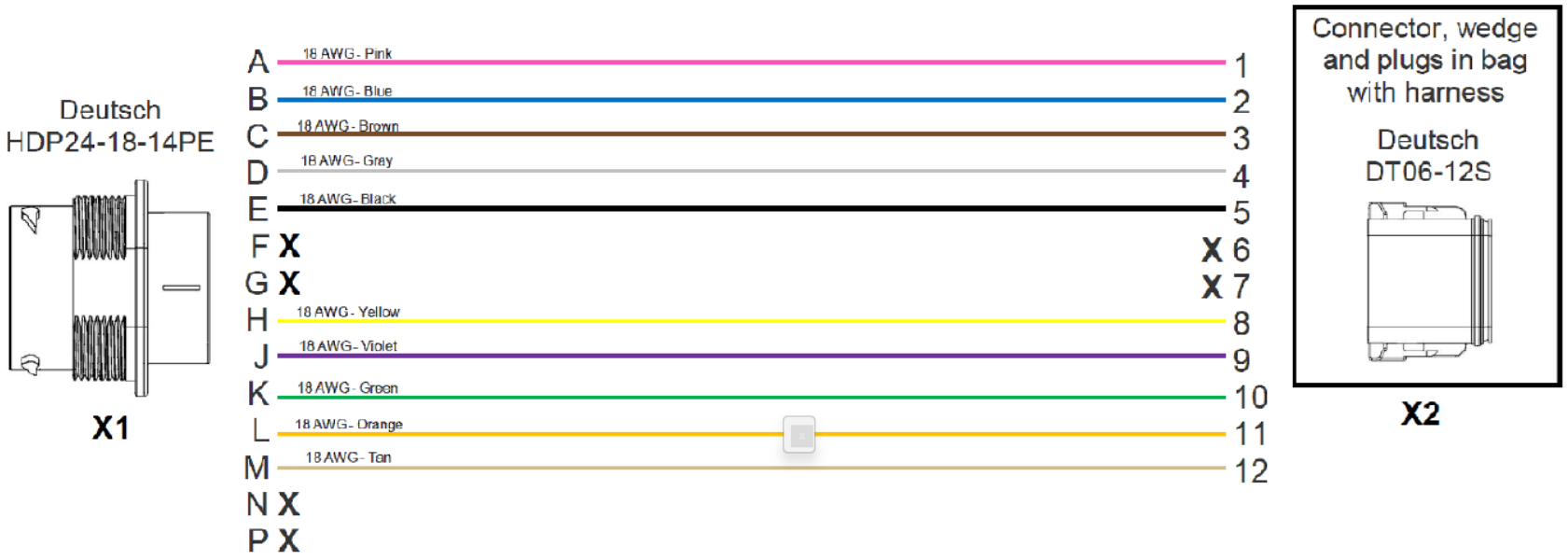
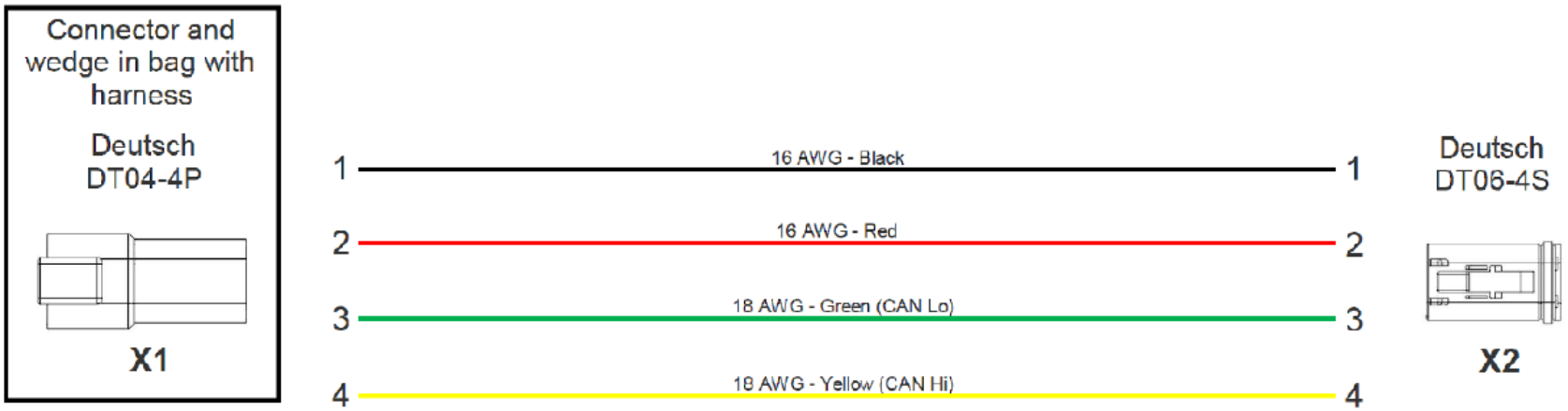


Figure 41. Accumulator Extension Harness (Automatic Control)



Automatic Control Schematic

Figure 42. Cab Harness

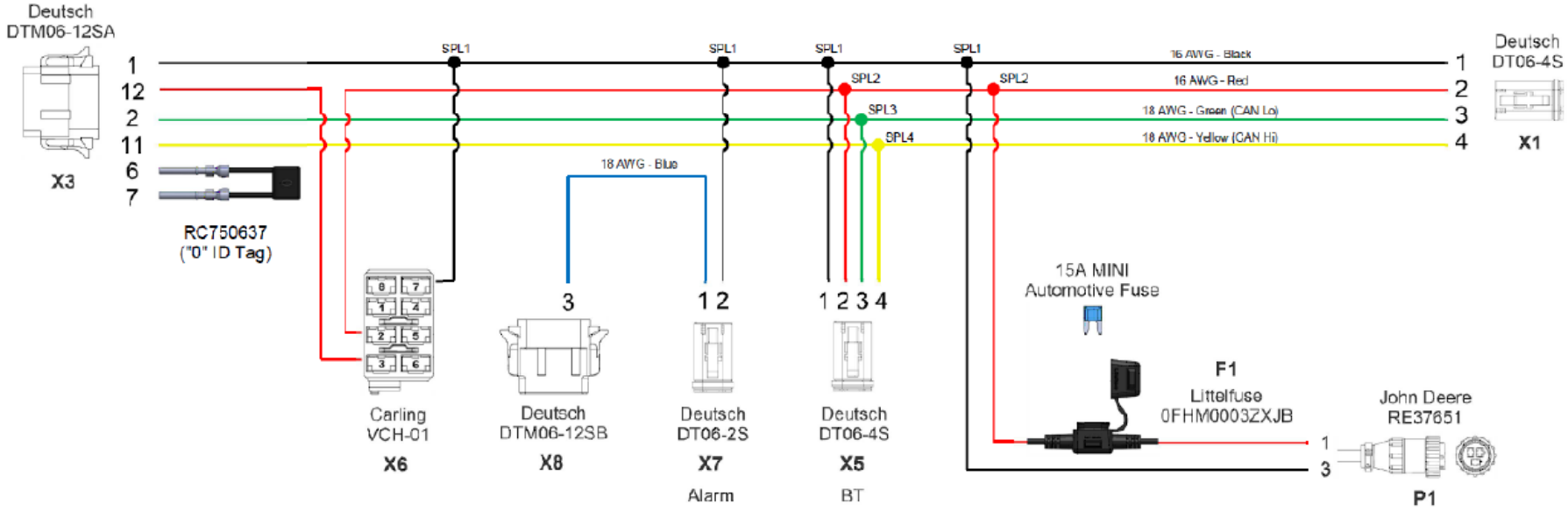
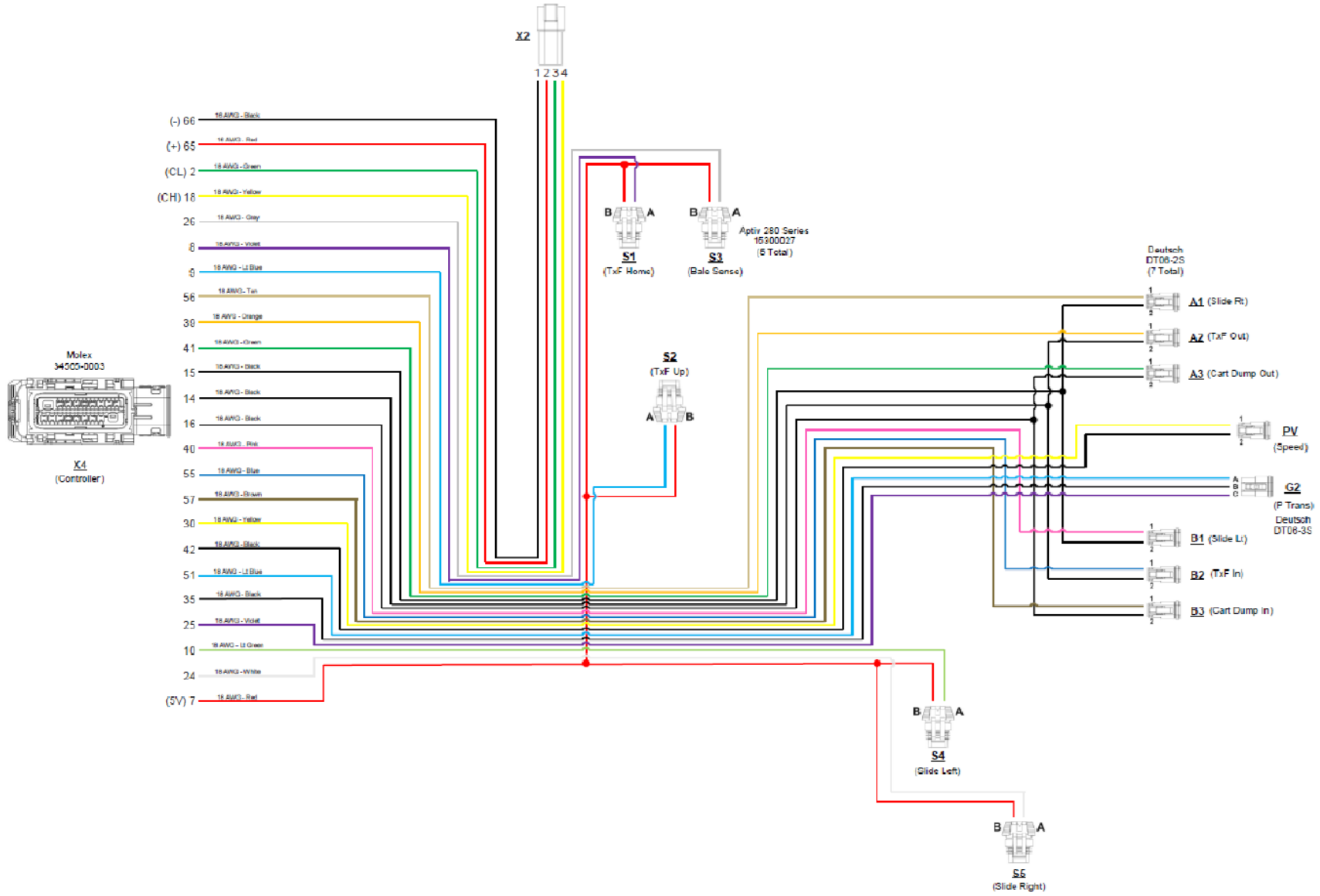


Figure 43. Accumulator Harness (Automatic Control)



17.0 521R and 421R Specifications (Fig. 44)			**421R**		**521R**	
Area	**Specification**	**Notes**	**Standard**	**Metric**	**Standard**	**Metric**
Overall	Length	accumulator + baler	216.5 in	550 cm	216.5 in	550 cm
	Height	accumulator on baler	49.2 in	125 cm	49.2 in	125 cm
	Working Width		13.71 ft	4.18 m	17.71 ft	5.4 m
	Transport Width		9.61 ft	2.93 m	10.99 ft	3.35 m
	Ground Clearance		9.84 in.	205 mm	9.84 in.	205 mm
	Added Weight to Baler	when installed	2645 lb	1200 kg	2834 lb	1285 kg
Bale	Bale Width Compatibility		4 ft	1.21 m	5 ft	1.52 m
	Bale Size	range	23 to 72 in	58.4 to 182.9 cm	23 to 72 in	58.4 to 182.9 cm
	Max Bale Weight	one bale	2500 lb	1134 kg	2500 lb	1134 kg
	Max Space Between Bales		8.97 in	258 mm	8.97 in	258 mm
	Max Total Weight Capacity	with three bales	6000 lb	2722 kg	6000 lb	2722 kg
	Max Wing Weight Capacity	one bale	2500 lb	1134 kg	2500 lb	1134 kg
Parts	Tires		12-ply, 26 x 12 x 12 low-profile agricultural tire			
	Operational Tire Pressure		30 psi	2.07 bar	30 psi	2.07 bar
	Transfer Arm	hydraulic	Standard		Standard	
	Recutter Baler Components	incl with base unit	Standard		Standard	
	Camera System		Standard		Standard	
	Cart Hydraulic Lockout	near baler lockout	Standard		Standard	
Tractor	Min Tractor Horsepower		75 hp	56 kW	85 hp	63 kW
	Number of Tractor SCVs		3		3	
	Location of Tractor SCVs		Rear		Rear	
	Tractor Hyd Pressure	recommended	2750 psi	190 bar	2750 psi	190 bar
	Minimum Hydraulic Flow		10 gpm	38 L/min	10 gpm	38 L/min
	Hydraulic Temp	range	32 to 212 deg F	0 to 100 deg C	32 to 212 deg F	0 to 100 deg C
Controls	Manual Controls		Optional		Optional	
	Automatic Controls		Optional		Optional	
General	Baler Model Compatibility	All round balers must be equipped with 21.5L x 16.1 tires	467, 468 Silage Special, 468, 469, 469 Premium, 469 Silage Special, 460M, 461M, 460R and 461R Round Baler models including HC2 feed system machines		567, 568 Silage Special, 569, 569 Premium, 569 Silage Special, 560M, 561M, 560R, and 561R Round Baler Models including HC2 feed system machines	
	Baler Model Incompatibility		This unit is NOT compatible with the 450E, 450M, 451E, 451M, 451R, 550, 550M, 551M, 854, 960, 990, V460R and V461R* Balers			
	Max Ground Incline	damper arm function	16 degrees			

*Future compatibility with the V460R and V461R is currently being considered.

18.0 SERVICE

18.1 Torque Specifications

NOTE: Use these torque values when tightening hardware, excluding lock nuts, self-tapping screws, thread forming screws, and sheet metal screws unless otherwise specified. All torque values are in lb-ft except those marked with an (*) which are lb-in.

For metric torque value Nm, multiply lb-ft by 1.355 or for lb-in multiply by 0.113).

Unified National Thread	Grade 2		Grade 5		Grade 8	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32 8-36	19* 20*	14* 15*	30* 31*	22* 23*	41* 43*	31* 32*
10-24 10-32	27* 31*	21* 23*	43* 49*	32* 36*	60* 68*	45* 51*
1/4-20 1/4-28	66* 76*	50* 56*	9 10	75* 86*	12 14	9 10
5/16-18 5/16-24	11 12	9 9	17 19	13 14	25 25	18 20
3/8-16 3/8-24	20 23	15 17	30 35	23 25	45 50	35 35
7/16-14 7/16-20	32 36	24 27	50 55	35 40	70 80	55 60
1/2-13 1/2-20	50 55	35 40	75 90	55 65	110 120	80 90
9/16-12 9/16-18	70 80	55 60	110 120	80 90	150 170	110 130
5/8-11 5/8-18	100 110	75 85	150 180	110 130	220 240	170 180
3/4-10 3/4-16	175 200	130 150	260 300	200 220	380 420	280 320
7/8-9 7/8-14	170 180	125 140	430 470	320 360	600 660	460 500
1-8 1-14	250 270	190 210	640 710	480 530	900 1000	680 740
Metric Course Thread	**Grade 8.8**		**Grade 10.9**		**Grade 12.9**	
	Dry	**Lubed**	**Dry**	**Lubed**	**Dry**	**Lubed**
M6-1	8	6	11	8	13.5	10
M8-1.25	19	14	27	20	32.5	24
M10-1.5	37.5	28	53	39	64	47
M12-1.75	65	48	91.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

Figure 45. Torque Specification Chart

18.2 Hydraulic Fitting

WARNING: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. DO NOT use your hand to search for leaks.

Tightening O-Ring Fittings*
Inspect O-ring and seat for dirt or defects.

On angle fittings, loosen the lock nut until the washer bottoms out at top of groove.

Hand-tighten fitting until backstop washer or washer face (if straight fitting) bottoms on face and O-ring is seated properly.

Position angle fittings by unscrewing less than one turn.

Tighten straight fittings to torque indicated in the provided chart.

Tightening Flare-Type Fittings*
Check flare and flare seat for defects.

Align hose end with fitting prior to tightening.

Lubricate connection and hand tighten swivel nut until snug.

To prevent twisting of the hose, use two wrenches. Place one wrench on the hose end body. With the second wrench, tighten the swivel nut to the torque indicated in the chart provided.

*Torque values shown are based on lubricated connections in reassembly.

Thread Size	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
(In.)	(In.)	(Nm)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

Figure 46. O-Ring Fitting Torque Chart

Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
(In.)	(In.)	(Nm)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

Fig. 47.Flare-Type Fitting Torque Chart

18.3 Automatic Control Settings

Service information, system settings and a link to this manual are all accessible from any of the screens in the Automatic Control Display.

Always disable Automatic Mode before leaving the Automatic Control Home page.

At the bottom of the screen, locate the shortcuts at the bottom right of the screen.

The System Menu is accessible from the far right shortcut, Figure 48, Key 1. This menu will not cancel Auto Mode. This menu is covered in the following section.

The Service page is accessible from the middle shortcut, Figure 48, Key 2.

This page will indicate the following:
- Switch Status
- Coil Status
    - (illuminate when powered)
- System Pressure
    - Gauge at right

Note: The coil status buttons can be used to activate each function and will illuminate when activated if everything is working properly. See Figure 49.

The Info page is accessible from the left shortcut, Figure 48, Key 3.

The info page contains a link to a webpage that contains this manual. See Figure 50.

Use the shortcut links at the bottom of all pages to navigate to another page.

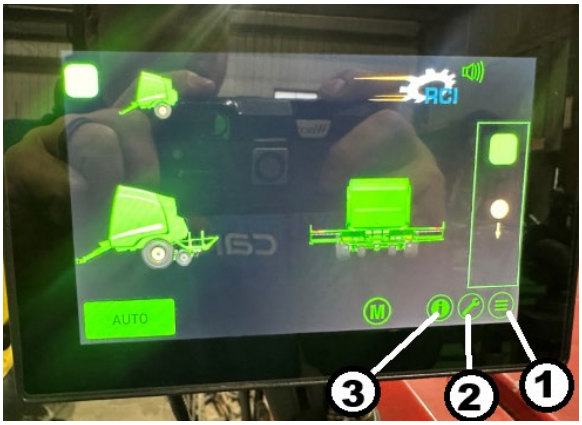


Figure 48. Home Screen
Key 1 – System Menu
Key 2 – Service Button
Key 3 – Info Button

Figure 49. Service Page

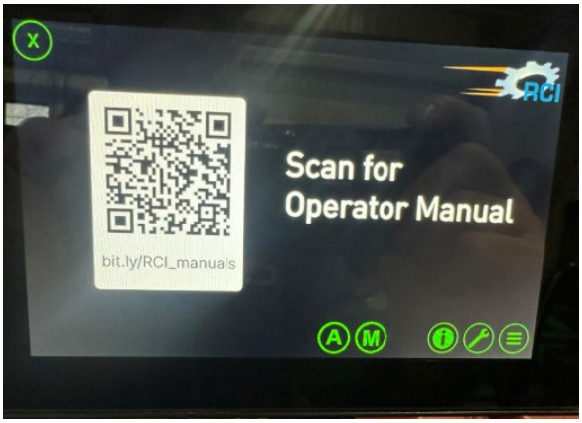


Figure 50. Info Page

18.4 System Menu

The System Menu is accessible from the shortcut on the bottom right corner of any other page.

This menu contains pre-set settings and should only be adjusted by a technician with the help of RCI. Contact RCI for more information.

When the System Menu shortcut is pressed, a page will appear with multiple options, as shown in Figure 51. To access additional options, drag a finger up across the screen to scroll to the desired page.

To exit the System Menu, press the “X” in the top right corner. To back out of a page, press the left arrow icon in the top left corner.

The Info shortcut will lead to a page about the system and program revision. This is where the software revision is indicated. See Figure 52.

The Modules shortcut will lead to a page that will list the components of the CAN system. See Figure 53.

The Logs shortcut will lead to a page that contains log files for the controller. This is for factory use only. See Figure 54.

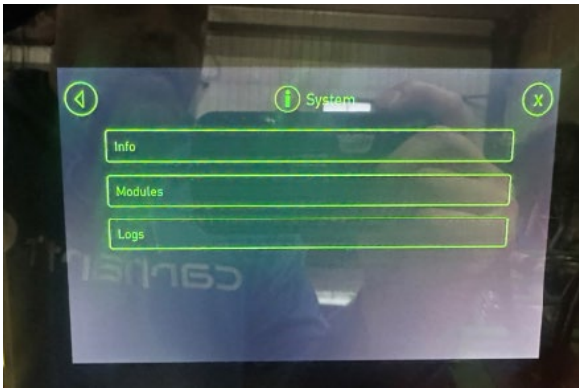


Figure 51. System Menu Page

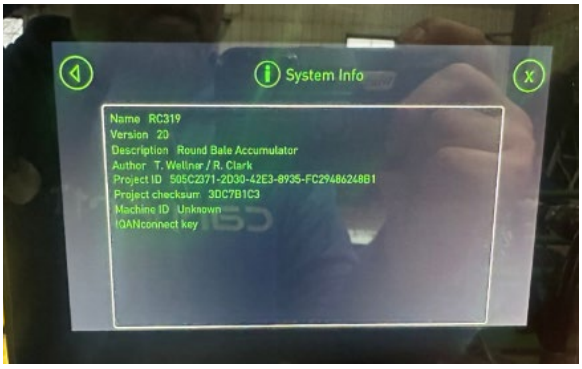


Figure 52. Info Page

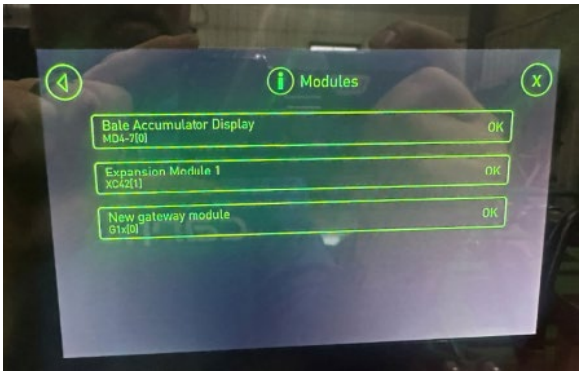


Figure 53. Modules Page

Figure 54. Logs Page

Measure Page
The Measure Page contains a sub-menu for Hydraulics, Electrical Errors, and Cycles. See Figure 55.

The Hydraulics Page displays all of the measured inputs from the Accumulator. See Figure 56.

The Errors Page displays the status of the Timeouts of the system waiting for inputs. It also displays if there is a pressure error and if the outputs are disabled (Freeze Outputs). See Figure 57.

The Cycle Page displays the cycle of the system, for factory use. It also indicates if Auto Cycling is enabled and if the pressure thresholds are met for the pressure of the Baler Gate lift cylinder. See Figure 58.

For reference, Cylinder Pressure Setpoint A is a threshold of pressure that indicates that the baler gate is no longer closed and is moving. Cylinder Pressure Setpoint B is a threshold that indicates the baler gate is fully open. This setpoint must be higher than any pressure measured during opening and must be less than the tractor SCV relief pressure.

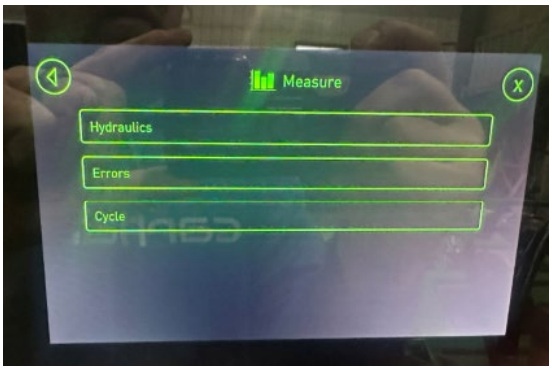


Figure 55. Measure Page

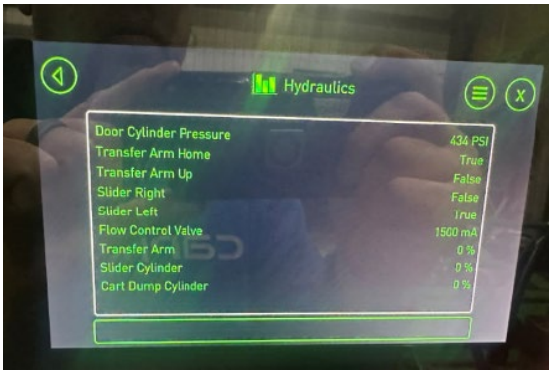


Figure 56. Hydraulics Page

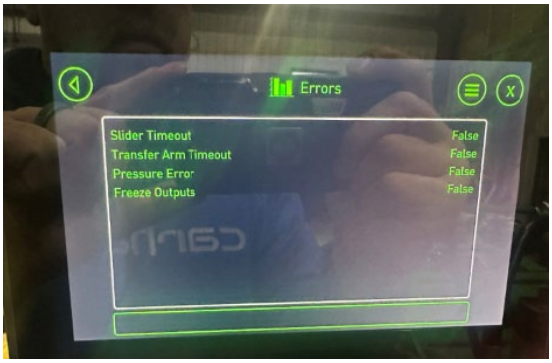


Figure 57. Errors Page

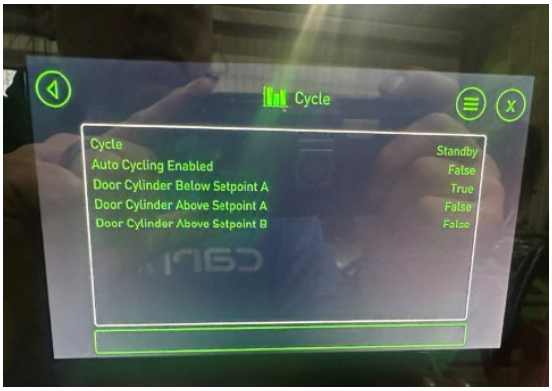


Figure 58. Cycle Page

Adjust Page

The Adjust Page Contains the settings for proper operation of the system and has a menu with three options. See Figure 59.

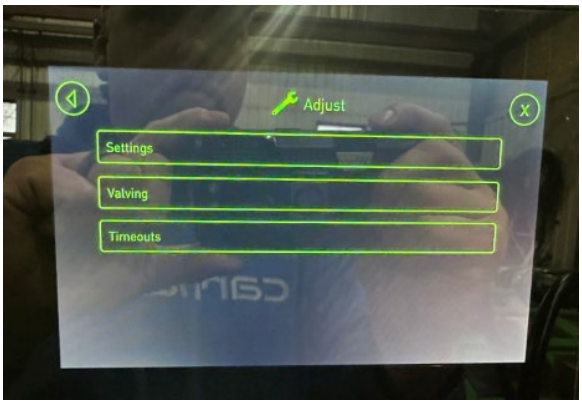


Figure 59. Adjust Screen

The Settings Page contains all the primary settings for the program. While defaults are listed here, take care when making adjustments to these settings as they may cause unintended machine movement. The screen may be scrolled to access additional settings. See Figure 60.

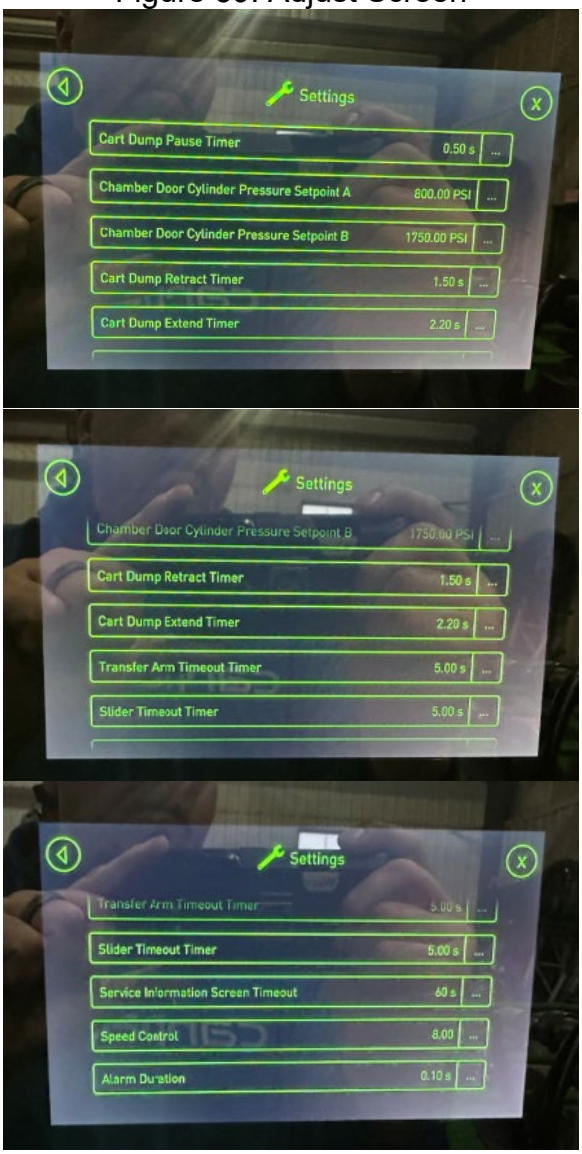


Figure 60. Settings Screens

Contact RCI directly for more information or assistance in changing these settings.

Cart Dump Pause Timer 0.50 s

- Sets the delay between dropping bales and returning to raised position

Chamber Door Cylinder Pressure Setpoint A 800 psi

- Setpoint that indicates the baler gate is opening or not closed.
- Must be set above resting pressure of the baler gate SCV hose.

Chamber Door Cylinder Pressure Setpoint B 1750 psi

- Setpoint that indicates the baler gate is fully open and no longer moving.
- Must be set above any pressure level observed during opening of the baler gate.
- Must be set below the tractor SCV relief pressure.

Cart Dump Retract Timer 1.5 s

- Timer to activate cylinder for dropping bales.

Cart Dump Extend Timer 2.2 s

- Timer to activate cylinder to return cart to home.

Transfer Arm Timeout Timer 5.00 s

- Time delay of alarm for transfer arm not reaching home switch or up switch.

Slider Timeout Timer 5.00 s

- Time delay of alarm for slider not reaching position switch.

Service Information Screen Timeout 60 s

- Timer for Service Information Screen to return to home screen.

Speed Control 8.0

- Setting for hydraulic flow speed.
- Controls output of PV valve on manifold to limit hydraulic flow to accumulator.
- Scale of control is 1 to 10.
- Below 5, control is less effective.
- 8.0 is ideal flow rate from factory.
- Too high and damage to bales may occur.
- Too low and efficiency is decreased.

Alarm Duration 0.10s

- This controls the beep at the end of the cycle, indicating that the operator can close the baler gate.

See Figure 61.

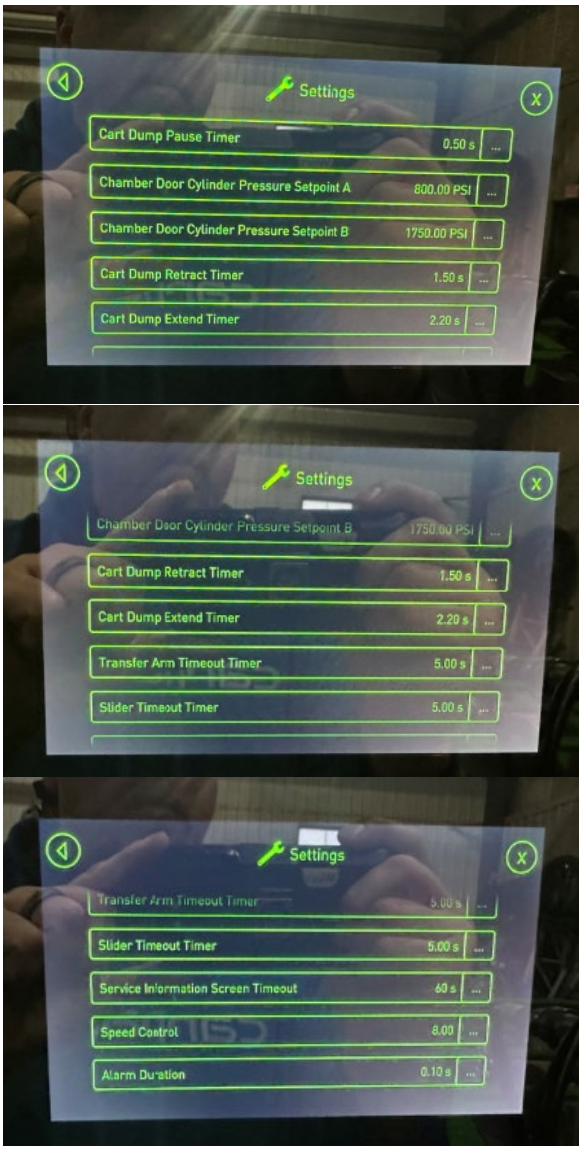


Figure 61. Settings Screens

18.5 Automatic Control Error Codes

The error codes for Automatic Control will indicate that an expected operation may have been missed.

When an error code is present, the STOP indicator will appear on the screen as shown in Figure 62.

Error Codes are self-clearing. If the condition causing the code is eliminated, the system will resume normal operation.

The most common error codes are from timeout timers expiring, waiting for a function to complete its operation, such as when the operator forgets to engage the tractor SCV.

Other faults will display a message on the screen indicating what the fault is. Examples include any issues with the pressure transducer or a wiring issue. The system will define the error and give the operator an indication of how to resolve the situation.

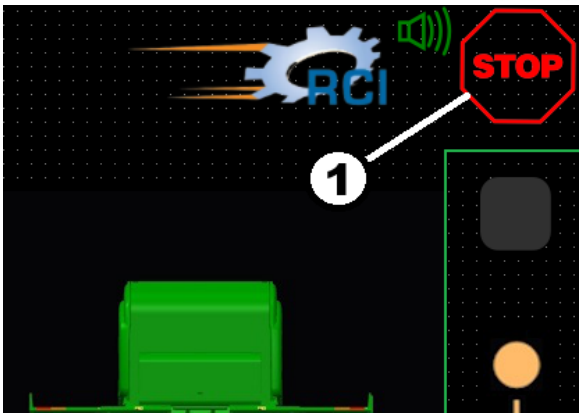


Figure 62. Stop Indicator
Key 1 – Stop Indicator

19 Troubleshooting

The most common occurrences of problems with operation are due to operator error, especially if using Manual Controls.

With either control system, the most common operator error is activating the Baler Gate to close it after a bale while the transfer arm is in the up position. Failure to wait for the indicator to close the gate may result in machine damage.

Baler Gate Operation – CRITICAL

IMPORTANT: Do not operate the baler gate without the transfer arm of the accumulator in the home position. Machine damage may result from interference in the travel of the baler gate if the transfer arm is in a raised position.

IMPORTANT: If the accumulator is used on a 1-Series or newer round baler equipped with Baler Automation, make sure the setting for the bale push bar in the baler automation settings is turned off (not installed).

This will result in a pause in automatic operations for the closing of the baler gate and resuming of baling. The operator will need to press the resume button once the transfer arm is returned to the home position, whether using Automatic Controls or Manual Controls.

For previous models of balers using Baler Automation, disable the automatic gate control in baler automation settings.

The baler gate must not be moved when the accumulator transfer arm is in any raised position.

The baler gate can only be safely moved when the accumulator transfer arm is in the home (down) position.

Failure to follow this information will void any warranty claims for damage from the transfer arm to the baler gate.

Pressure Settings

With automatic controls, the most common operational issues can usually be resolved through the settings.

These settings are Setpoint A and Setpoint B.

For reference, Cylinder Pressure Setpoint A is a threshold of pressure that indicates that the baler gate is no longer closed and is moving. Cylinder Pressure Setpoint B is a threshold that indicates the baler gate is fully open. This setpoint must be higher than any pressure measured during opening and must be less than the tractor SCV relief pressure.

The next common issues with Automatic Control are with properly adjusting the speed of the system.

If the system is too fast, damage may result to bales and to components. If the system is too slow, timers may need to be extended to avoid error messages. Typically, the hydraulic flow is adjusted on the tractor SCV such that it is just fast enough to have the desired cylinder speed.

Timers in the settings generally do not need to be adjusted. Contact RCI for assistance in making any changes to the settings.

Another possible occurrence is a bale not clearing the baler gate during bale slide. This can be caused by oversized bales or by extremely light bales that do not press against the Damper Arm.

To resolve this occurrence, the Damper Arm can be adjusted to limit the travel and allow the bale to rest on the cart in a lower position.

See Damper Arm Adjustment in the Adjustments section.

Switch Engagement

If automatic controls are used and the system will not advance or cycle through the operations, and the pressure settings are set correctly, check to see if the switches are engaging properly.

The Service Screen (Wrench Icon) will indicate when switches are activated, indicating the function is at that position.

From this screen, each function can be activated manually and the icons will illuminate when each switch is activated by the mechanical components against the switch.

Carefully use the manual functions and determine if the switches are engaging properly when the function reaches the switch.
If adjustments are needed, follow the procedures in the adjustment section.

General Notes:

1. On the automatic and manual screens, there are small icons that illuminate when the switches are engaged, to provide for ease of diagnosis while operating the unit.

2. The transfer arm switch status is directly linked to the icon for the bale gate movement and the audible alert at the end of the cycle, making it easier to diagnose during automatic operation.

3. When switching between screens, automatic mode is disabled. Remember to reset the system and empty the cart before returning to automatic mode in the field.

For further assistance with diagnosing any conditions with the accumulator, please contact RCI directly.

20.0 Installation Instructions

20.1 Handling of Shipping Skid

Proper equipment must be used to unload the Bale Accumulator from the delivery trailer. Ensure the safety of those unloading machine and maintain proper support of the machine during unloading.

NOTE: At least two people are required for the unloading procedure.

Approximate weight of skid is 3,000 lb (1,360 kg). Use proper forklift and/or crane.

CAUTION: Always lift the bale accumulator on the pallet using a forklift in the direction as shown. Lifting from any other direction results in machine damage and personnel injury or even death.

Use a forklift with long forks (80” / 2m) or fork extensions.

See Figure 63 and 64.

Before Releasing Trucking Company

Always check the delivery against the packing slip, including serial number. Check for overages, shortages and/or damages and record them on the freight bill and any paperwork from the trucking company before signing for receipt of the product.

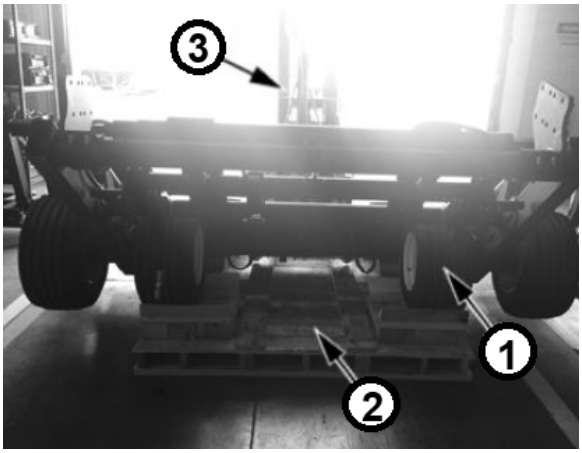


Figure 63. Shipping Configuration
Key 1 – Bale Accumulator
Key 2 – Pallet Key 3 – Forklift

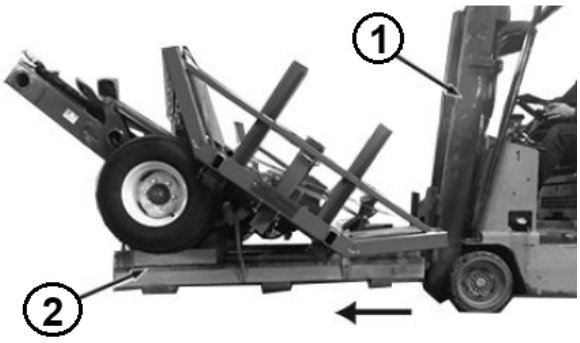


Figure 64. Forklift Handling
Key 1- Forklift
Key 2 – Skid and Bale Accumulator

Wash Machine After Unloading

IMPORTANT: Road transport during winter months exposes equipment to corrosive materials. As soon as possible after transporting on treated roads, thoroughly wash and rinse machines to avoid corrosion.

20.2 Preparing Baler

Confirm and verify the Round Baler meets the following requirements before attaching the accumulator.

- Compatible model in *Specifications* section in this manual.
- 6' Diameter Bale Chamber
- 21.5L x 16.1 Jumbo Tires
- MegaWide Plus or MegaWide HC2 Feed System

Confirm Customer Requirements

Ensure that the following items are considered during the accumulator pre-delivery to the customer:

- Tractor drawbar height and baler hitch position. See Round Baler Operator Manual.
- Desired bale size, to confirm within the limits of the *Specification* Section
- Tractor size is adequate for proper power, ballasting and handling of baler and accumulator.

Prepare Round Baler

For baler preparation, refer to the Operator Manual for the round baler. Watch closely for "CAUTION" and "IMPORTANT" statements as they address the safety of the operator, the safety of others, and the safe operation of the machine.

Verify using the round baler Operator Manual that the following items have been performed before starting operation:

- Adjust baler tongue height according to desired bale size. Refer baler hitch setting according to bale size section for the chart on what position to have tongue set.
- Set baler gate open and close speed.
- Check bale size sensor calibration.
- Check bale shape sensor calibration.

Set Up Raise Time for Baler Gate

To ensure proper hydraulic function and to avoid possible damage to the baler, adjust tractor flow control valve to provide gate opening time of 5 seconds or longer.

IMPORTANT: If using manual controls on the bale accumulator, disable the automatic closing of the baler gate.

NOTE: If the gate open time is less than 5 seconds, the transfer of the bale to accumulator may be compromised.

NOTE: When lowering the baler gate, avoid putting hydraulics into float position. SCV lever must return to neutral position.

Lock Baler Gate

CAUTION: While working inside or around the baler with an open gate, the gate lock lever must be moved to locked position. Use this safety feature any time the gate is open. Close gate any time the baler must be left unattended.

The gate lock valve locks each gate lift cylinder independently with gate in any position. If the hydraulic lift system failed on one side of machine, the gate would still be held open by the other side.

See Figures 65 and 66.

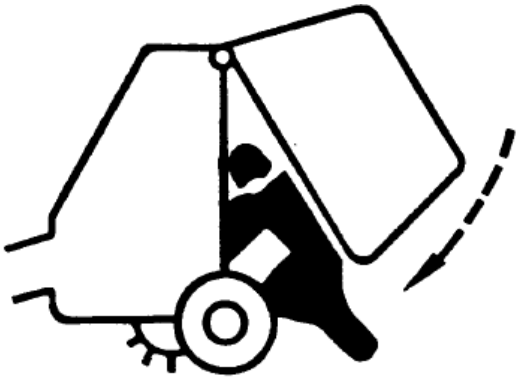


Figure 65. Baler Gate Caution

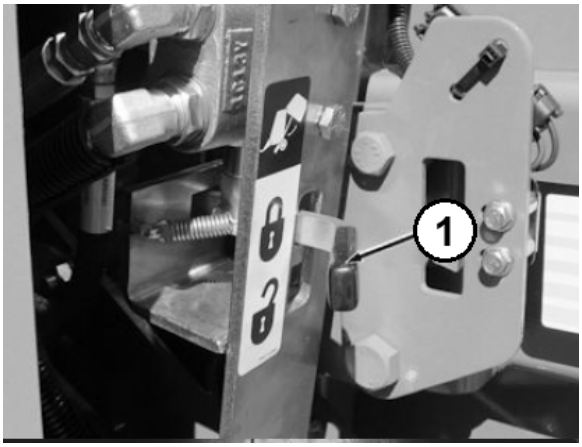


Figure 66. Gate Lock Lever
Key 1 - Locked Position

Baler A-Arms

Baler A-Arms are not required for use with the RCI Accumulator due to the use of a hydraulic transfer arm. They can be removed if desired or remain in place for ease of reinstallation of the push bar in the future.

Remove Baler Push Bar (if equipped)

CAUTION: Use proper tools and lifting equipment. Lifting heavy components incorrectly can cause severe injury or machine damage.

Remove chain (Key 1, Fig. 67) from the gate (Key 2, Fig. 67) on each side of the machine. Retain hardware with all push bar parts for potential future use.

See Figure 67.

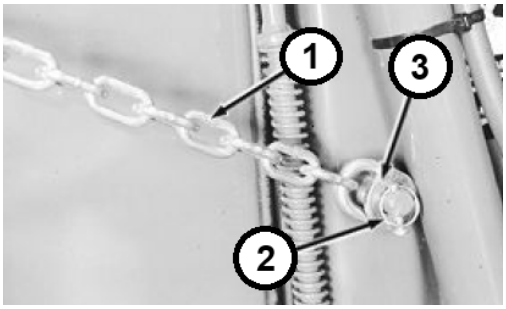


Figure 67. Push Bar Chain Removal
Key 1 - Chain Key 2 – Pin
Key 3 - Washer

Swing push bar rearward to resting steady state as shown in Figure 68.

NOTE: If push bar legs are not fully raised, some stored energy is present and when cross-tube is removed the push bar legs will swing up or down until equalized depending on position.

Support cross tube with strap and hoist or support jackstand.

See Figure 68.

Figure 68. Baler Push Bar
Key 1 – Cross-Tube
Key 2 – Push Bar Legs

To remove the cross-tube from the push bar leg, loosen the eight carriage bolts and flange nuts as shown in Figure 69.

Remove washer and pin.

Repeat on opposite side.

See Figure 69.

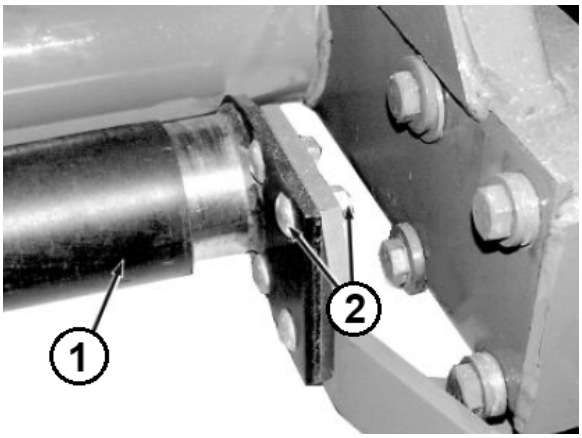


Figure 69. Cross-Tube Hardware
Key 1 – Cross-Tube
Key 2 – Carriage Bolt and Flange Nut

To remove the push bar leg, raise the push bar leg high enough to retract the spring.

Repeat on opposite side.

See Figure 70.

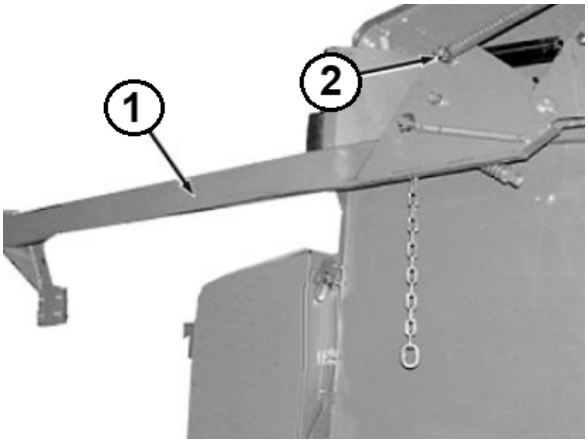


Figure 70. Push Bar Leg
Key 1 - Push Bar Leg Key 2 - Spring

Remove the roll pin, outer washers, spring and clevis pin from the arm.

See Figure 71.

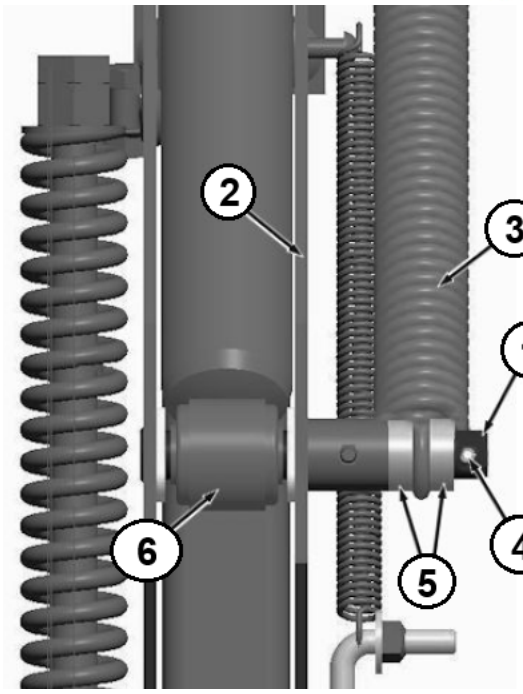


Figure 71. Arm Hardware
Key 1 – Clevis Pin Key 2 – Arm
Key 3 – Spring Key 4 – Roll Pin
Key 5 – Washer
Key 6 – Shock Absorber

Remove spring from tab.

Repeat on opposite side.

See Figure 72.

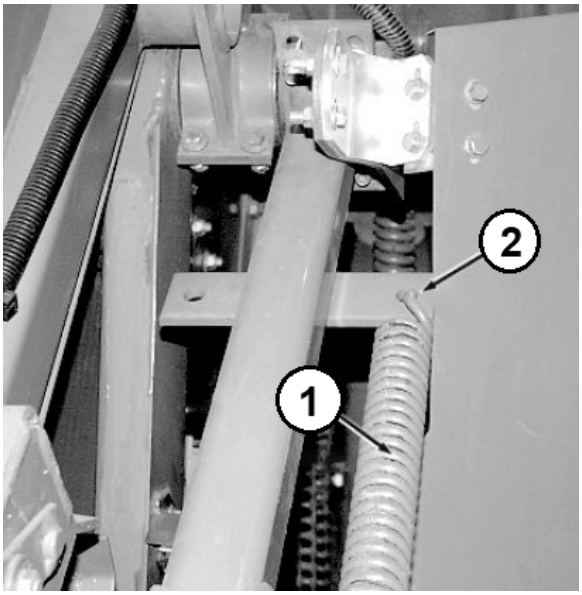


Figure 72. Spring Removal
Key 1 – Spring Key 2 – Tab

Remove cap screw through A-arm and washers.

Remove lock nut.

Remove shock absorber from A-arm and swing it back, allowing it to hang down.

See Figure 73.

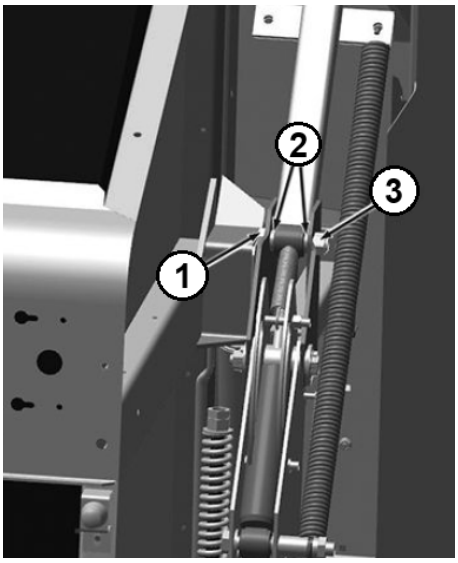


Figure 73. A-arm Pivot Removal
Key 1 - Cap Screw Key B – Washer
Key C – Lock Nut

Place floor jack under the push bar leg to support for removal.

See Figure 74.

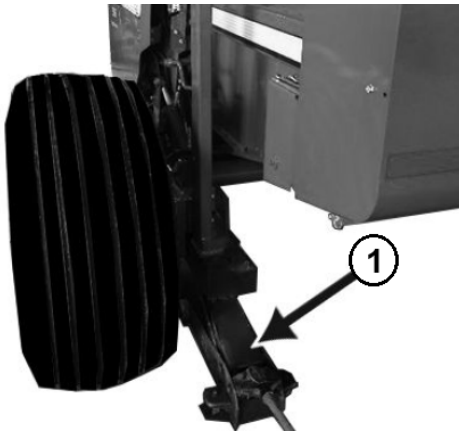


Figure 74. Jack Support (LH shown)
Key 1 - Jack

Remove right-hand push bar leg.

Remove push bar leg from A-arm by loosening six cap screws, two bushings, and nylon lock nuts.

Remove inner pivot bushing and then the outer bushing. When removing outer, steady push bar leg on jack.

Remove push bar leg assembly.

Repeat the entire push bar leg assembly removal for the opposite side.

NOTE: Return removed components to customer if installing on customer baler.

See Figure 75.

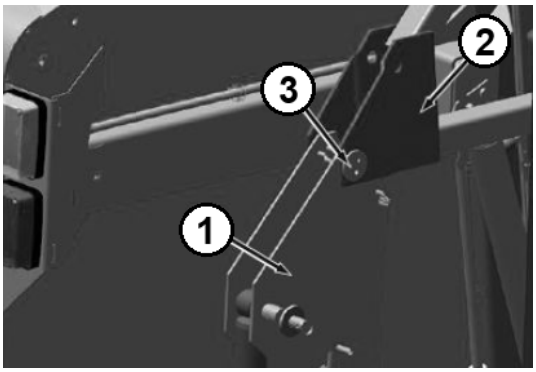


Figure 75. Removal of Push Bar Arm
Key 1 – Arm Key 2 – A-Arm
Key 3 - Bushing

Auxiliary Take-Up Roller Required

Auxiliary take-up roller is included with the bale accumulator. For the baler and accumulator to operate correctly, the auxiliary take-up arms provided with the accumulator must be used.

IMPORTANT: Any auxiliary take-up arms already installed on the Round Baler will not be compatible with the accumulator. Performance of machine will be compromised if supplied arms are not installed.

See Figure 76.

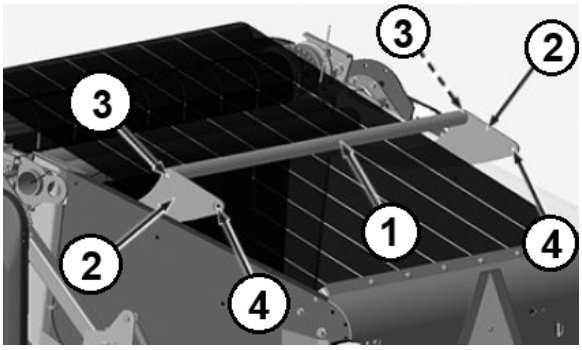


Figure 76. Take-Up Roller
Key 1 – Auxiliary Take-Up Roller
Key 2 – Auxiliary Take-Up Arms
Key 3 – Hole position for bales less than 69” diameter
Key 4 – Hole position for bales 69” diameter and larger

Install Auxiliary Take-Up Roller

To install auxiliary take-up roller, first safely start tractor.

Open bale gate approximately halfway.

Shut off engine and remove key.

IMPORTANT: Do not tension belts as it makes access to mounting holes difficult.

Engage gate lock in locked position.

Safely start tractor.

Lower tension arm approximately 12 inches (0.3 m).

Shut off engine and remove key.

See Figures 77 and 78.

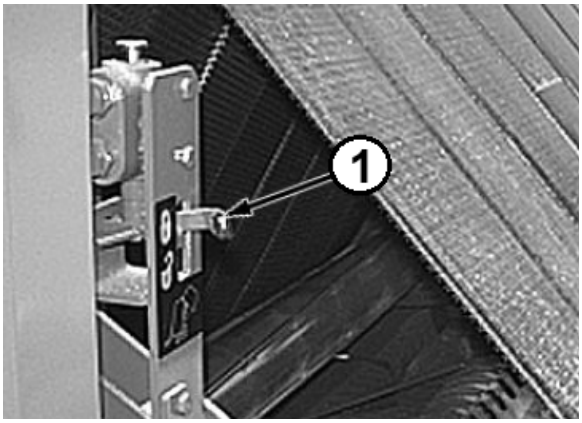


Figure 77. Gate Lock
Key 1 – Gate Lock in Locked Position

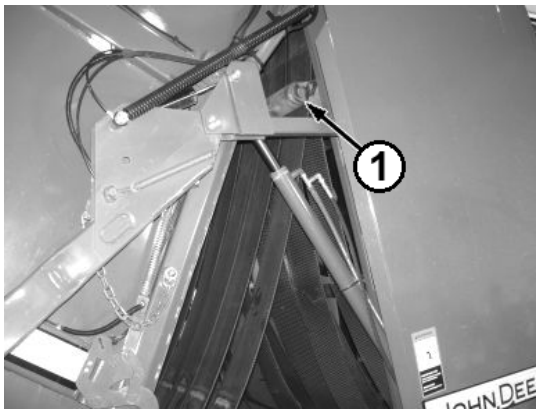


Figure 78. Tension Arm
Key 1 – Tension Arm

Remove bolt holding wire harness clamp. Move wire harness to allow access to rear nut on the roller bracket

Remove two carriage bolts and nuts. 0-Series and newer machines can reuse the hardware. See Figure 79.

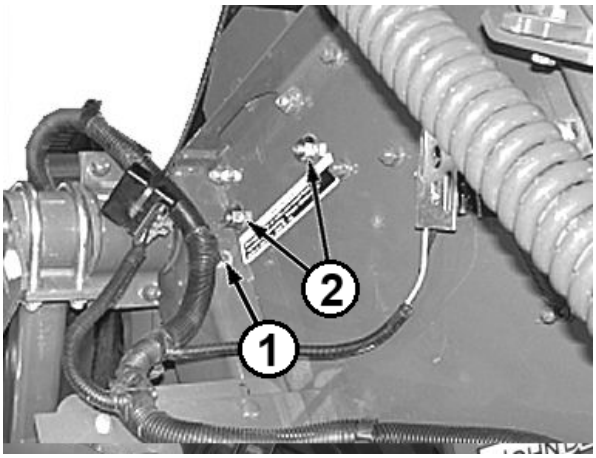


Figure 79. Tension Arm Hardware
Key 1 – Bolt and Clamp
Key 2 – Carriage Bolts and Nuts

Install right-hand bracket to inside of the baler frame with offset down (under roll) and countersunk hole toward outside.

Install two M12 x 35 carriage bolts and existing nuts.

Lift up on the rear end of the bracket and tighten nuts. Bracket is in position to install roller.

IMPORTANT: To limit or diminish belt indexing / movement, check setting squareness to the top edge of the gate. Arms should be within +/- 0.197 in (+/- 5mm) on both sides.

Repeat on opposite side. See Figures 80 through 82.

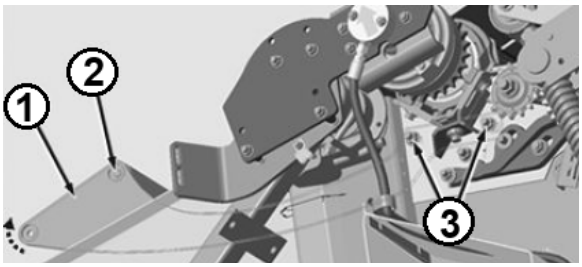


Figure 80. Take-Up Roller Bracket
Key 1 – Roller Mounting Bracket
Key 2 – Countersink
Key 3 – Bolts and Nuts

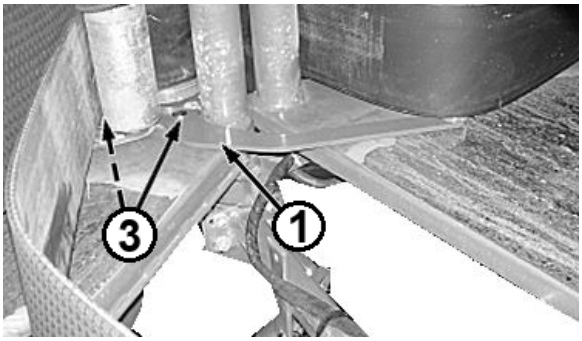


Figure 81. Inside View of Bracket
Key 1 – Roller Mounting Bracket
Key 3 – Bolts and Nuts

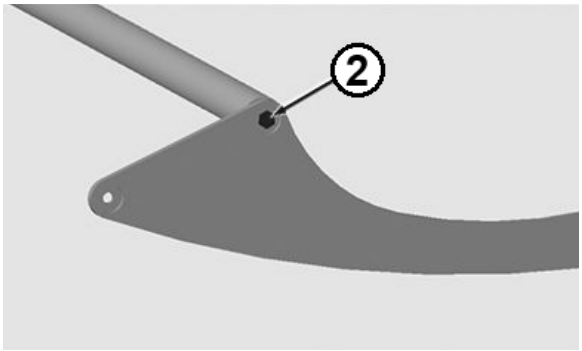


Figure 82. Bracket Hardware
Key 2 - Countersink

Remove existing Cap Screws from end of roller.

Install roller between brackets in the same set of holes.

Fasten with new 3/8” x ¾” cap screws provided. Hole location must be set up according to specification.

SPECIFICATION:
Auxiliary Take-Up Arm Position

Bales less than 69” diameter……..
…….Front Position

Bales greater than 69” diameter…..
…….Rear Position

See Figures 83 and 84.

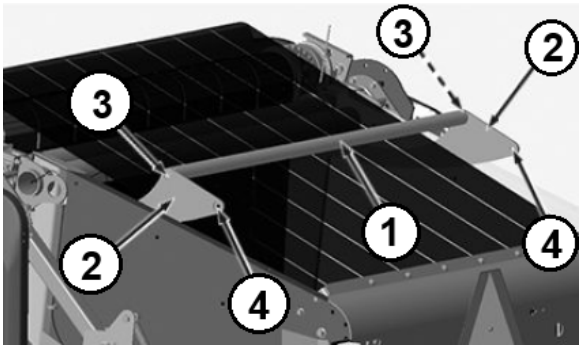


Figure 83. Take-Up Roller
Key 1 – Auxiliary Take-Up Roller
Key 2 – Auxiliary Take-Up Arms
Key 3 – Hole position for bales less than 69” diameter
Key 4 – Hole position for bales 69” diameter and larger

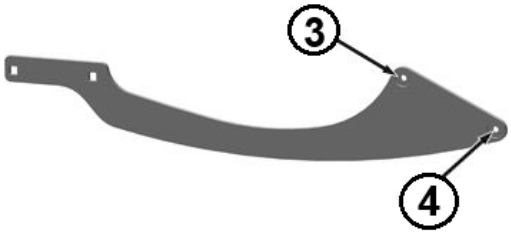


Figure 84. Hole Positions
Key 3 – Hole position for bales less than 69” diameter
Key 4 – Hole position for bales 69” diameter and larger

20.3 Attaching Accumulator

Position the bale accumulator behind the baler, in approximate alignment with baler. This will make it easier to install the accumulator on the baler when removed from the pallet.

Cut and remove all banding and packaging off the accumulator.

Remove all parts from the skid and arrange on a table for ease of reference.

See Figure 85.

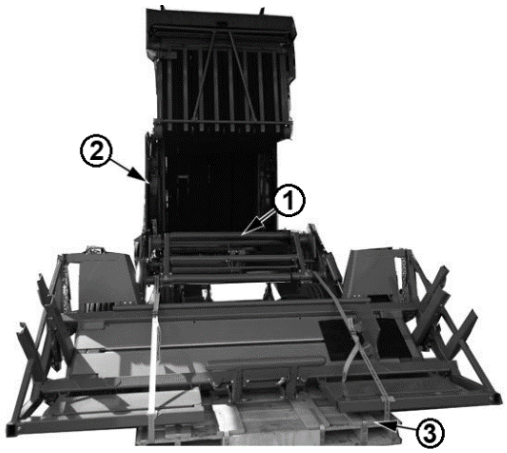


Figure 85. Accumulator Alignment
Key 1 – Bale Accumulator
Key 2 – Baler Key 3 - Pallet

With baler hitched to tractor, loosen the baler wheel bolts and raise the tire off the ground by using proper lifting equipment.

Support machine with proper jack stands.

NOTE: For balers with the HC2 feed system, there is no need to remove wheel or spindle from the baler. Machine will still need to be lifted using proper lifting equipment. Support the machine with appropriately sized jack stands.

See Figure 86.

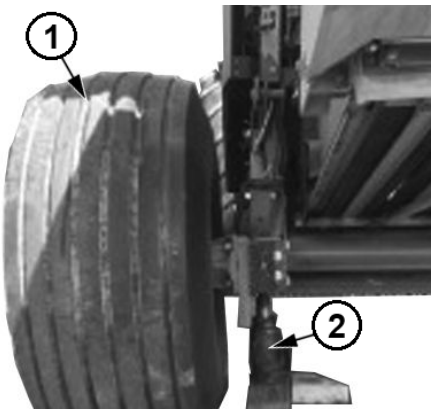


Figure 86. Baler Wheel
Key 1 – Tire Key 2 – Jack Stand

Open gate and lock all hydraulics. Then remove wheel nuts and wheel.

See Figure 87.

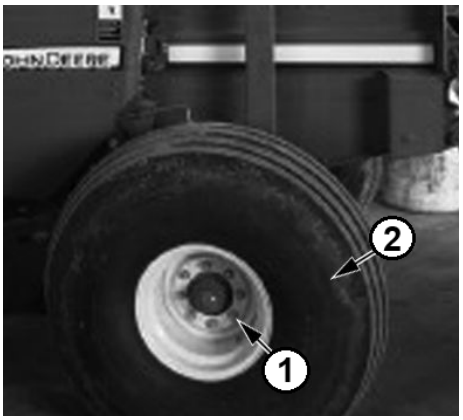


Figure 87. MegaWide Baler Wheel
Key 1 – Nut Key 2 – Wheel

Remove axle assembly or shipping shoe from baler.

Note position of the hub support plate for reinstallation.

Do not reuse the hardware.

See Figures 88 and 89.

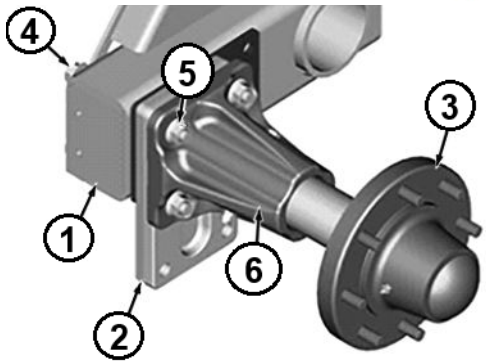


Figure 88. MegaWide Hub
Key 1 – Baler Frame Key 2 – Spacer
Key 3 – Hub Key 4 – Cap Screw
Key 5 – Flange Nut Key 6 – Axle

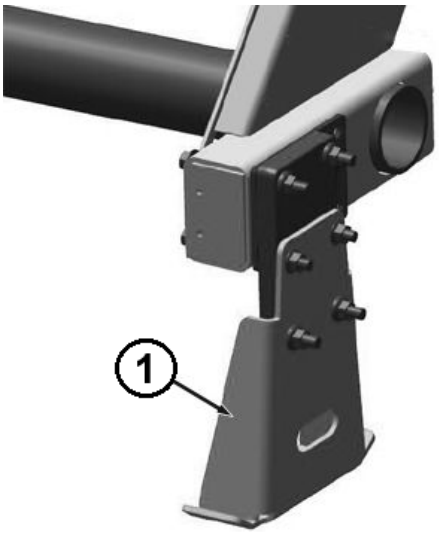


Figure 89. Shipping Shoe
Key 1 - Shoe

Locate the new accumulator attachment plates on the accumulator assembly.

Remove the four bolts at the clamshell mount to the accumulator assembly to remove the attachment plates. Keep all long bolts installed on the plates at this time.

NOTE: To compensate for the built-in twist in the wheel drops the attachment plate must be installed with various tapered washers. It assures the accumulator cross-tube is properly clamped without the binding in both attachment plates.

Identify holes on the attachment plate depending on the configuration.

The rear set of holes (Key 1, Fig. 91) are used by MegaWide Feed System Machines and the forward set of holes (Key 2, Fig. 91) are used by HC2 feed system machines.

See Figures 90 and 91.

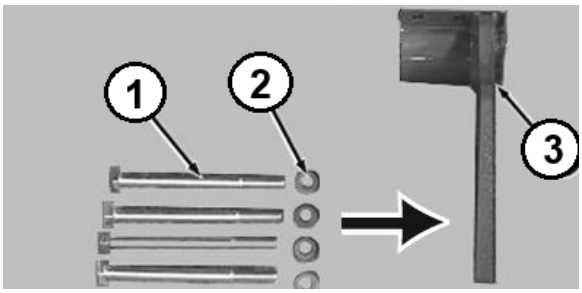


Figure 90. Attachment Plate and Hardware
Key 1 - Bolt Key 2 - Washer (2 mm thick, 32 mm OD)
Key 3 – Plate

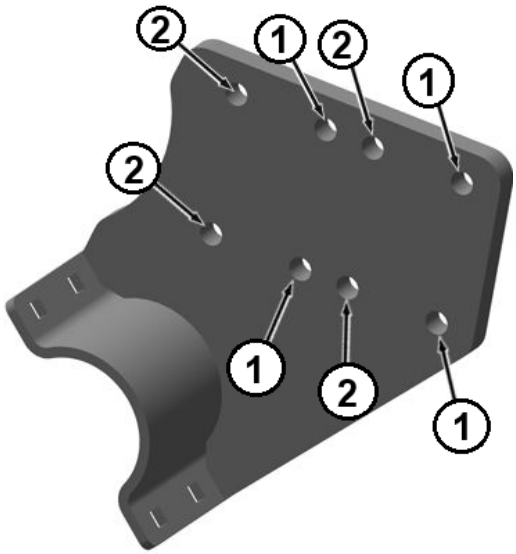


Figure 91. MegaWide and HC2 Configurations
Key 1 – MegaWide Feed System Configuration
Key 2 – HC2 Feed System Configuration

Install washers between attachment plate and baler frame tube as shown in Figure 92.

IMPORTANT: Confirm orientation of attachment plate is facing the inside of the baler for left and right hand sides.

NOTE: Additional washers have been provided to obtain proper fit up with no gap. Use as needed in place of the washers. See the following steps for more details.

See Figure 92.

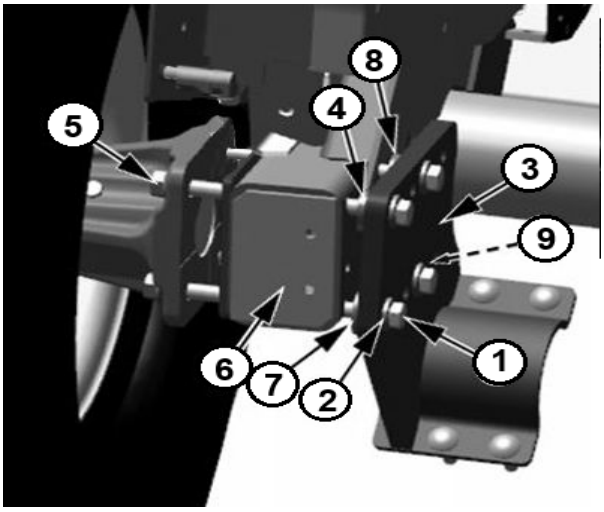


Figure 92. MegaWide Frame Mounting
Key 1 – Bolt (M16 x 220 mm)
Key 2-Washer (5/32” thick, 1-5/16” OD)
Key 3 – Plate
Key 4 – Washer (3/8” thick, 1-3/8” OD)
Key 5 – Nut Key 6 – Washer
Key 7 – Washer (1/4” thick, 1-7/8” OD)
Key 8 – Washer (3/8” thick, 1-1/2” OD)
Key 9 – Washer (5/16” thick, 1-7/8” OD)

Check the front to rear shimming by holding a framing square between the baler frame cross-tube and the front pivot support.

These surfaces must be nearly 90 deg to each other.

Adjust washers as needed to bring the plate to within 0.080” (2 mm) to square with the baler frame.

See Figures 93 and 94.

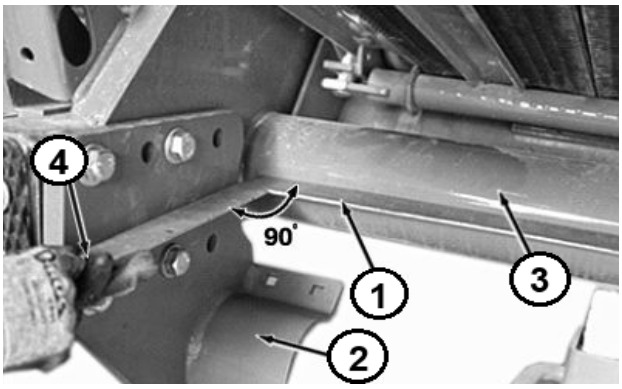


Figure 93. Pivot Support Alignment
Key 1 – Framing Square
Key 2 – Front Pivot Support
Key 3 – Cross-Tube Key 44 – Space

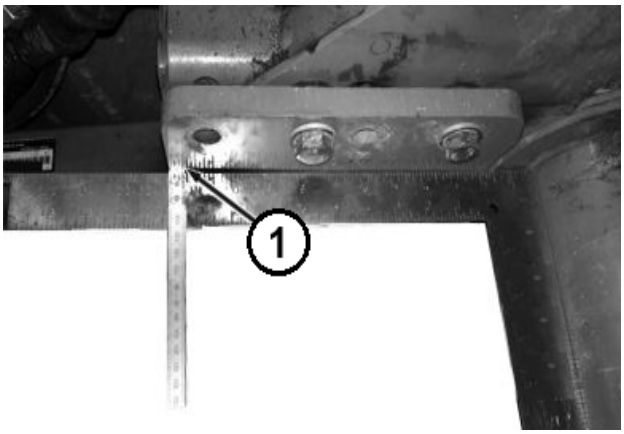


Figure 94. Clearance Check
Key 1 – Space (0.080” / 2mm to square)

Check the top to bottom shimming by holding an angle finder on the bottom of the baler frame cross-tube.

If the baler is parked on a level surface, it is zero.

See Figure 95.

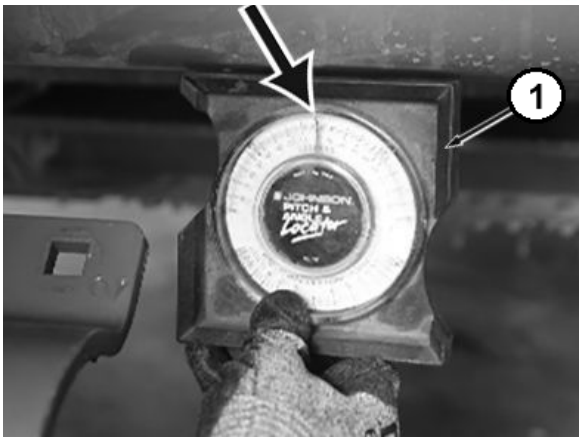


Figure 95. Frame Angle Measurement
Key 1 – Angle Finder

Hold angle finder vertically on the inner surface of attachment plate. Get angle reading from near axle tube.

Cross tube to plate surfaces must be nearly 90 deg to each other.

Tighten spindle bolts to specification. Adjust washers as required and bring plate within one deg of square with the baler frame.

NOTE: Add or remove washers to the two top bolts between the wheel drop and the attachment plate to adjust the squareness in this direction.

SPECIFICATION:
Accumulator Attachment Plate Bolt Torque Specification

Plate Nut Torque……..
……255 lb-ft (350 Nm)

Install wheel so valve stem is toward the outside.

Fasten wheel nuts.

IMPORTANT: Install wheels with tires so valve stem is towards the OUTSIDE. Incorrect assembly can cause wheel nuts to loosen.

See Figures 96 through 98.

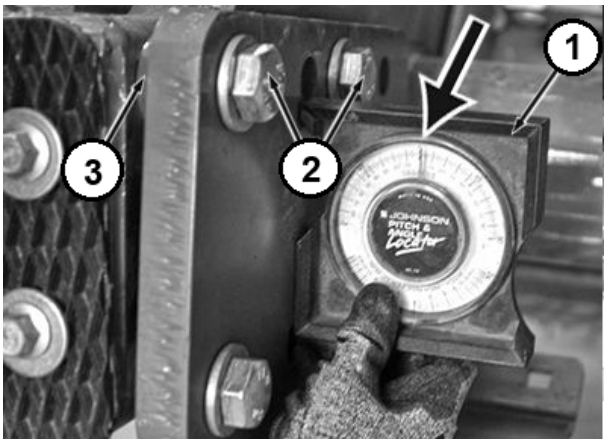


Figure 96. Plate Angle Measurement
Key 1 – Angle Finder Key 2 – Bolt
Key 3 – Washer

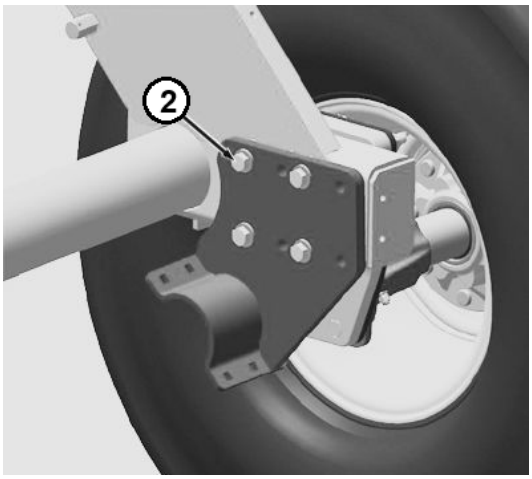


Figure 97. HC2 Feed System Installation
Key 2 – Bolt

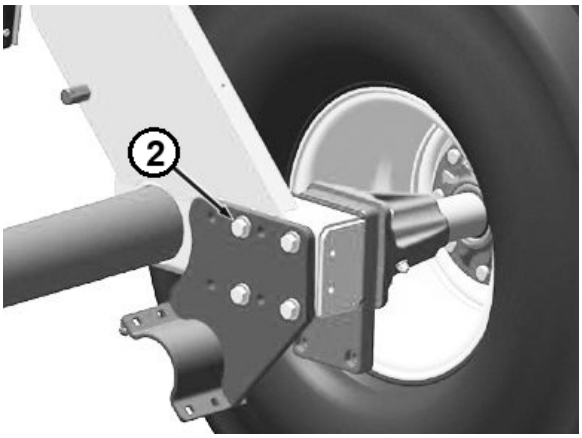


Figure 98. MegaWide Feed System Installation
Key 2 - Bolt

Remove jack stand and tighten wheel nuts to specifications

SPECIFICATION:
Baler Wheel Nut Torque ……
……175 lb-ft (240 Nm)

See Figure 99.

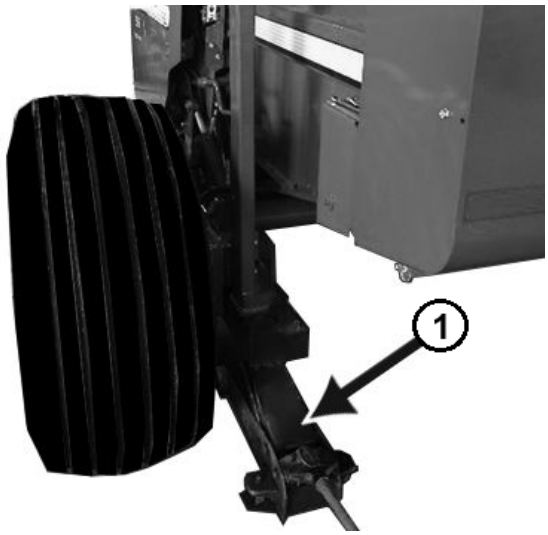


Figure 99. Jack Stand Removal
Key 1- Jack Stand

Place two blocks under the front cross-tube of accumulator.

IMPORTANT: Add moly grease around tubes at sides before installing accumulator to baler.

See Figure 100.

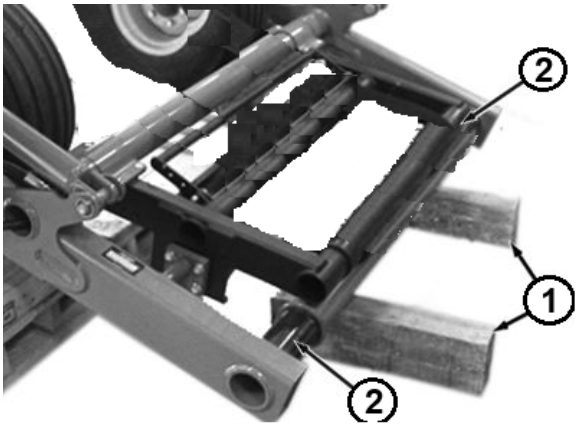


Figure 100. Block Installation
Key 1 – Blocks Key 2 – Grease Points

Raise rear of accumulator with loader, forklift or overhead crane.

Lift accumulator high enough so that the front cross-tube is resting on the wood blocks and the accumulator wheels slightly clear the pallet.

Pull the pallet out from under the accumulator wheels and lower rear of accumulator so wheels are on the ground.

See Figure 101.

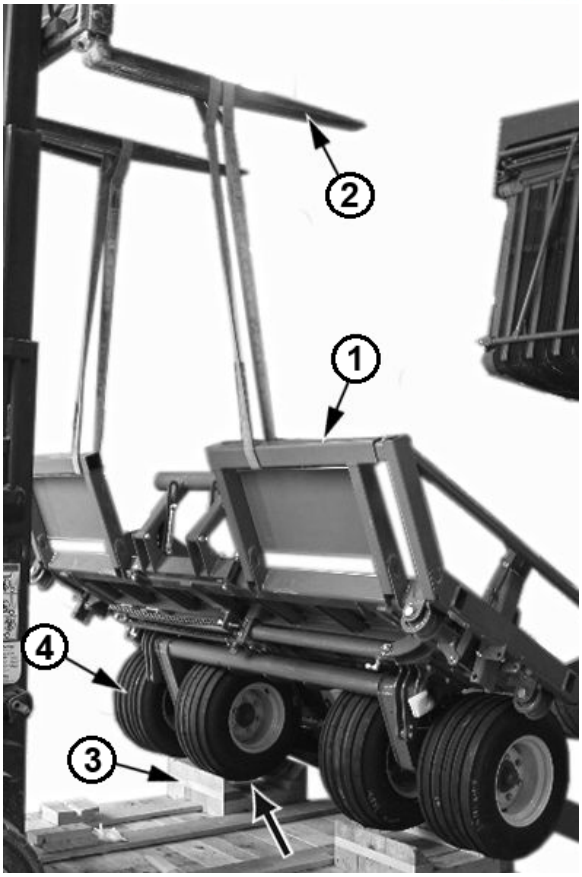


Figure 101. Lifting of Accumulator
Key 1 – Bale Accumulator
Key 2 – Forklift
Key 3 – Wood Blocks Key 4 - Wheel

Lower rear of accumulator enough to bring front cross-tube off the blocks.

Accumulator can be slowly pushed up to the baler.

Guide accumulator cross-tube into alignment with plate.

See Figure 102.

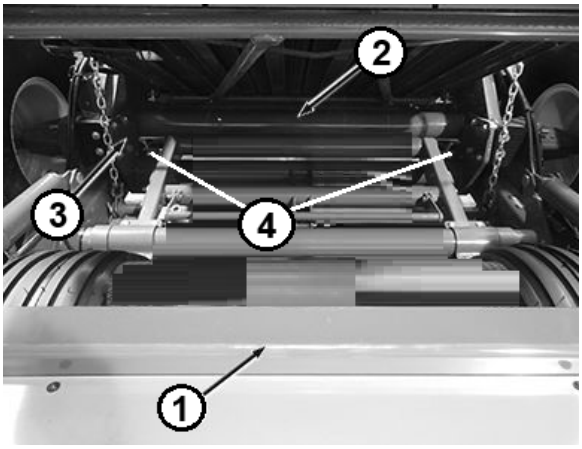


Figure 102. Alignment to Baler
Key 1 – Accumulator
Key 2 – Baler Cross-Tube
Key 3 – Plate
Key 4 – Accumulator Cross Tubes

Once the accumulator front cross-tube is aligned with the front pivot support, lower the rear of the accumulator and assemble bracket around cross-tubes.

NOTE: Keep rear of accumulator supported until both front clamps are secure around the frame tubes.

SPECIFCATION:
Cross-Tube Clamp Nut Torque……
……70 lb-ft (95 Nm)

Install nut and torque to specification. Then install jam nut and torque to half of the specified value.

See Figures 103 and 104.

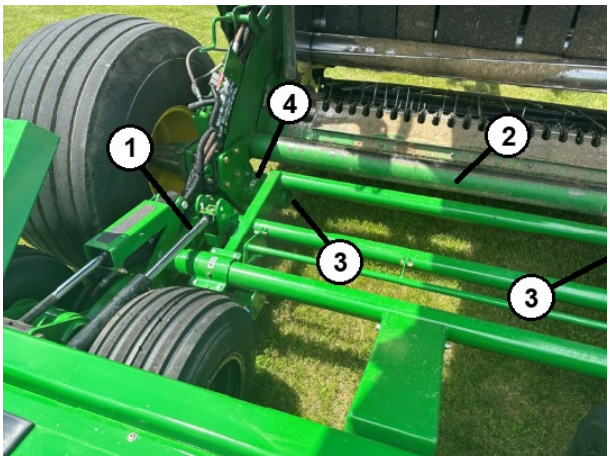


Figure 103. Accumulator Cross Tubes
Key 1 – Accumulator
Key 2 – Baler Cross Tube
Key 3 – Accumulator Cross Tubes
Key 4 – Front Pivot Supports

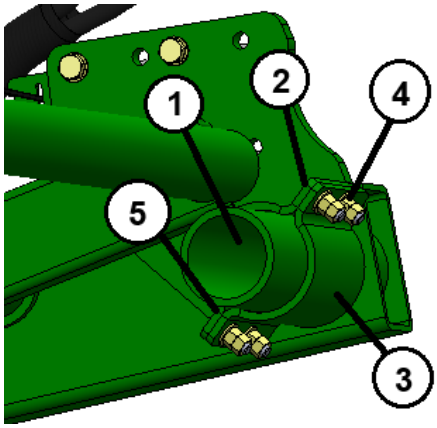


Figure 104. Cross-Tube Clamp Hardware
Key 1 – Accumulator Cross-Tube
Key 2 – Front Pivot Supports
Key 3 – Bracket Key 4 – Nuts (qty 8)
Key 5 – Carriage Bolt (qty 8)

The accumulator assembly is now mounted to the baler.

Remove lifting straps from accumulator and clear area of any tools or parts.

20.4 Installing Camera

A camera system is included as standard equipment with each bale accumulator.

The system is to be installed at the left side of the baler using the lower mount holes of the A-arm support.

Using provided hardware, install the camera support arm at the lower two holes of the A-arm support. The A-arm does not need to be installed for the camera to be installed.

Install the camera on the camera support. Align it as best as possible to focus on the area of the hydraulic manifold of the accumulator. This will allow the operator to see the transfer arm, slider, and cart during operation.

Route the harness along the camera support arm and secure to the support using provided zip ties.

The rest of the harness will be routed when the main wiring harness is installed in the machine.

See Figures 105 through 107.

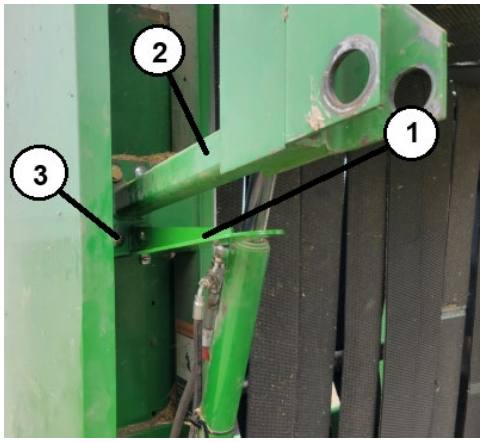


Figure 105. Camera Bracket Mounting
Key 1 – Bracket Key 2 – A-Arm
Key 3 – Mounting Holes

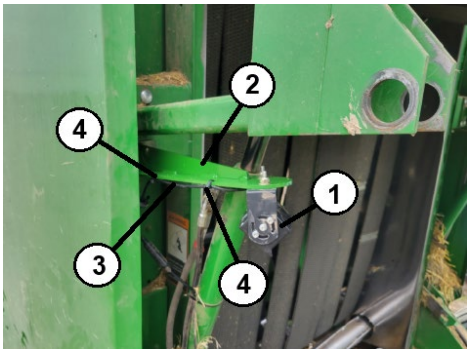


Figure 106. Camera Installation
Key 1 - Camera Key 2 – Bracket
Key 3 – Harness Key 4 – Zip Ties

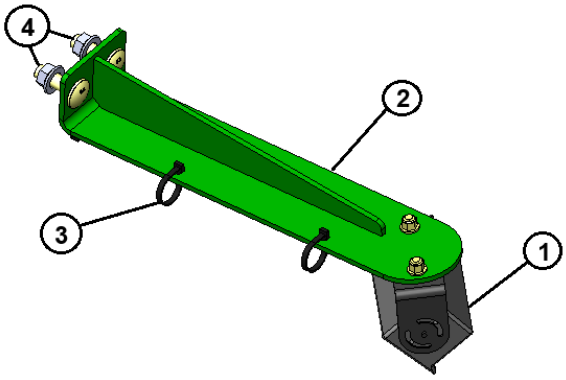


Figure 107. Camera Assembly
Key 1 – Camera Key 2 – Bracket
Key 3 – Zip Ties Key 4 – Hardware

20.5 Install Hydraulic Hoses on Baler

Install Support on Baler

At the left side of the baler, remove the rubber bumper for the push bar from the rear of wheel drop, if installed.

Install bracket DXFH334419 on the left side wheel drop, in front of the cylinder and with self-tapping bolt provided.

Secure the hydraulic hoses to the bracket using provided zip ties.

IMPORTANT: When routing the hoses and wire harness in this area, route wiring harness on the outside edge of hydraulic hoes and make sure everything is out of the path of travel of the transfer arm and tires. Use additional zip ties to secure to the baler frame or pickup lift mount as needed.

See Figures 108 and 109.

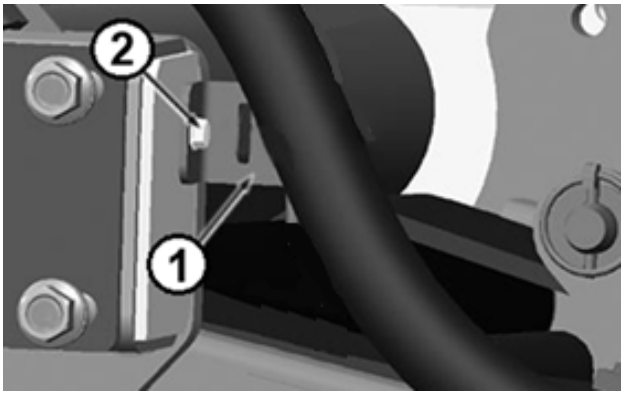


Figure 108. Bracket Installation
Key 1 – Bracket Key 2 – Bolt

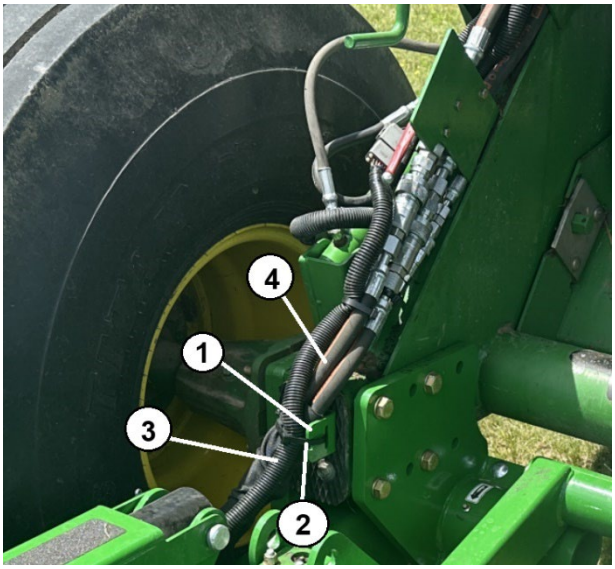


Figure 109. Hose and Harness Routing
Key 1 – Bracket Key 2 – Zip Tie
Key 3 – Harness Key 4 - Hoses

Install the Lock-Out Valve Assembly

At the left wheel drop frame of the baler, locate the support clamp for the hoses for the pickup cylinder.

Remove the hardware and the clamps and reuse for installation of the assembly.

Install the plate, using the removed hardware, under the p-clamp. Reuse original hardware and tighten properly.

Reroute the original hoses from the pickup cylinder to the new hoses for the accumulator using zip ties provided.

Route the harness up the baler wheel drop to the main frame, under the adjustment support as shown in Figure 110.

Secure harnesses and hoses such that no interference can occur with the bale gate.

See Figures 110 through 113.

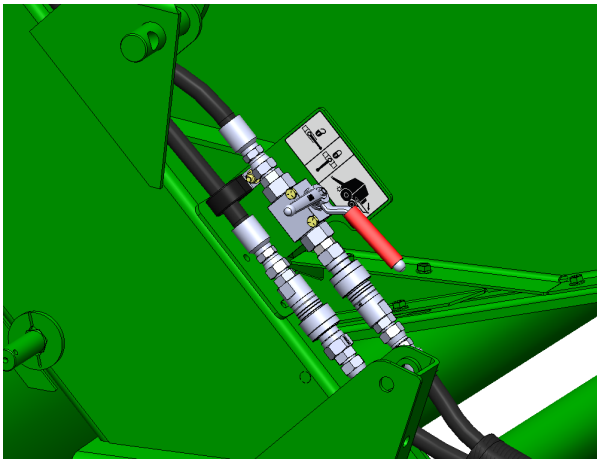


Figure 110. Result of Installation
(Parts removed for clarity.)

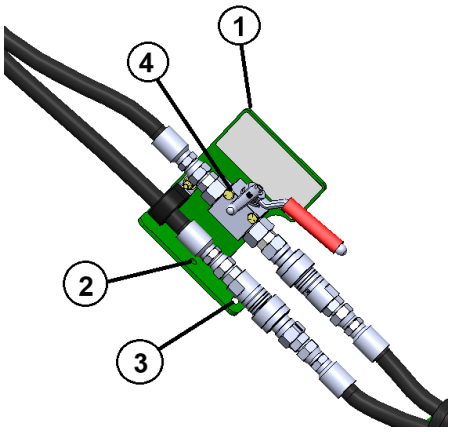


Figure 111. Lock-Out Valve Assembly
Key 1 – Plate Key 2 – Small Bolt Hole
Key 3 – Large Bolt Hole Key 4 - Valve

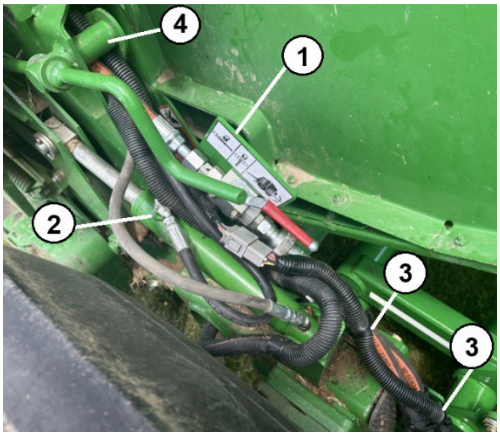


Figure 112. Side View of Assembly
Key 1 – Plate Key 2 – Lift Cylinder
Key 3–Zip Ties Key 4 – Adjust Support

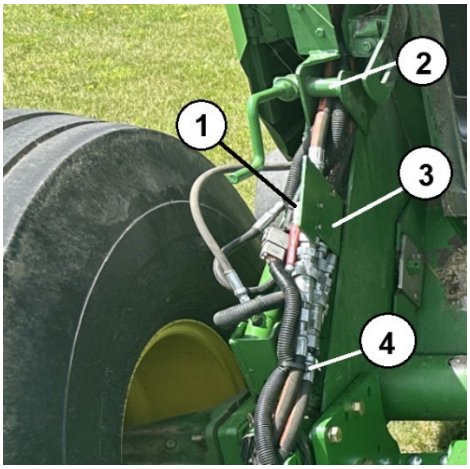


Figure 113. Inside View of Assembly
Key 1- Valve Key 2- Adjuster Support
Key 3 – Plate Key 4 – Zip Tie

Install the Hydraulic Hoses

Route the two hydraulic hoses through the round baler and to the tractor SCV.

The line leading to the lock-out valve is the pressure line.

The other line is the return.

At the side of the baler, route the hoses along the hoses from the pickup cylinder all the way to the tractor.

At the hitch and cross frame, route the hoses across the cross frame and into the right side of the hitch, with other hoses, to the tractor.

Secure hoses properly with zip ties as appropriate. Take care to prevent contact with any moving parts or sharp edges as it may impact reliability.

See Figures 114 through 117.

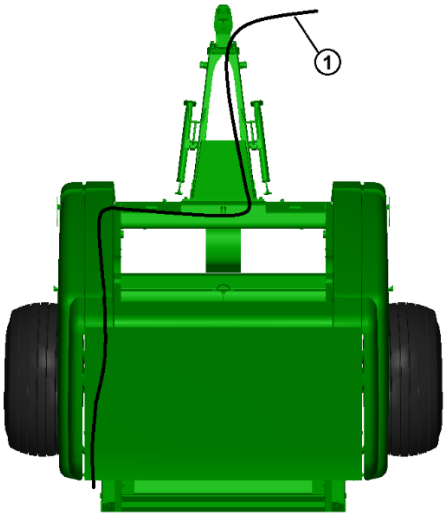


Fig. 114. Routing Path Through Baler
Key 1 – Path

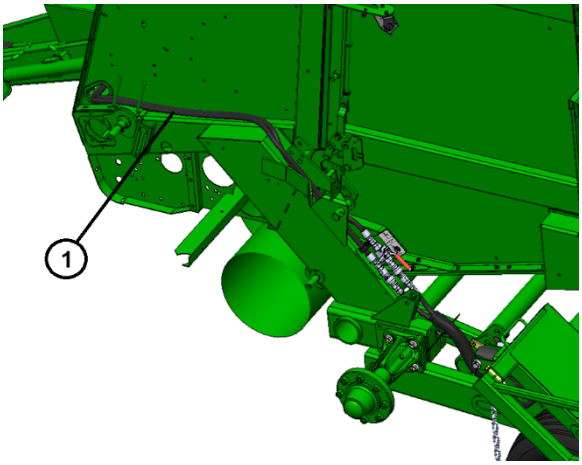


Figure 115. Left Side Routing
Key 1 – Routing Path

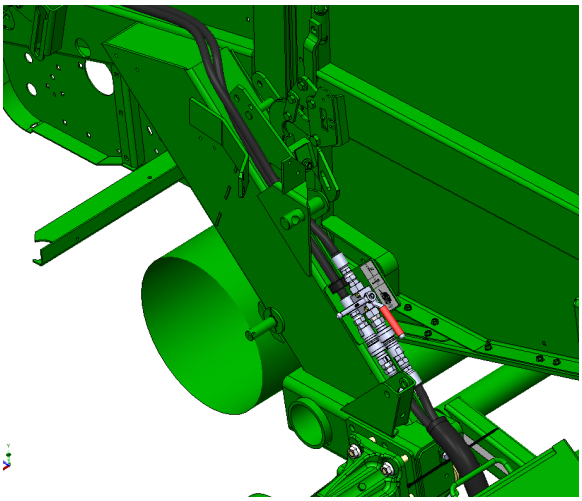


Figure 116. Routing At Lock Valve

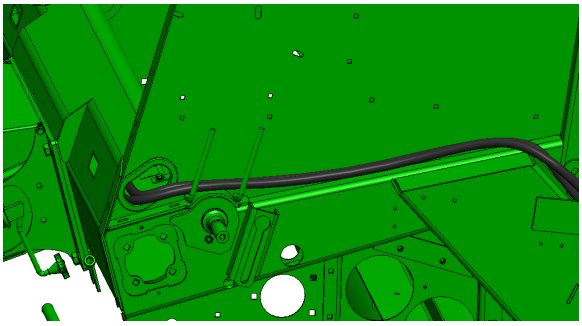


Figure 117. Routing to Cross Frame

Route the hoses through the cross frame and to front hitch.

See Figures 118 through 120.

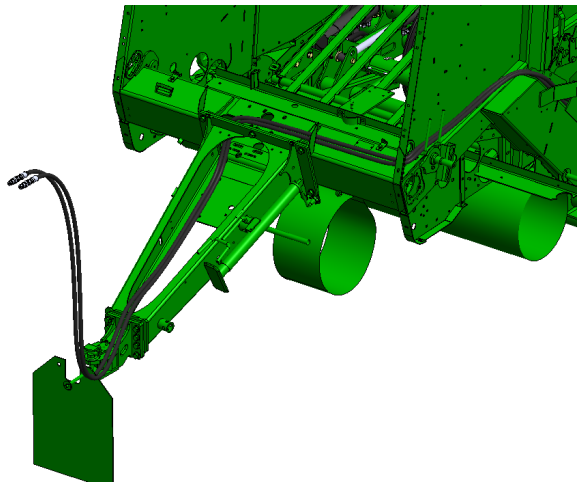


Fig. 118 Routing Through Cross Frame

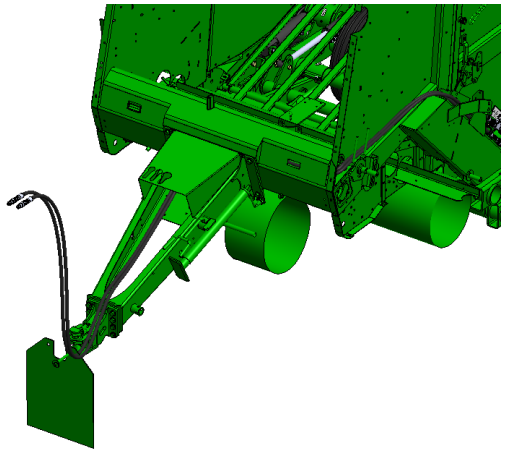


Fig. 119 Routing To Front (with shields)

Fig. 120 Routing Through Hitch Frame

IMPORTANT:
This hydraulic system is set up at the factory for closed-center hydraulics. To convert the system to open-center hydraulics, remove the middle D3 valve (Fig. 118, Key 2) and remove the plug under the valve. Store the valve in Port 1 on the manifold (Fig 118., Key 1). Reinstall the valve.

See Fig. 121 through 123 for more info.

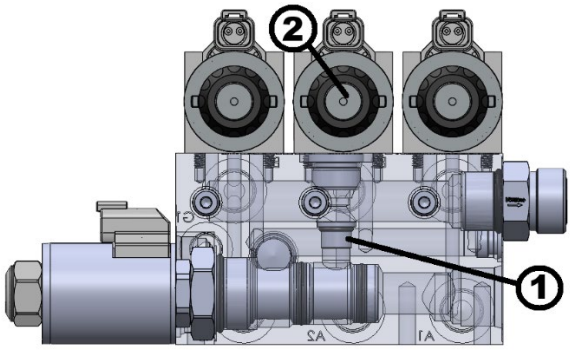


Figure 121. Accumulator Manifold
Key 1 – Plug Key 2 – D3 Valve

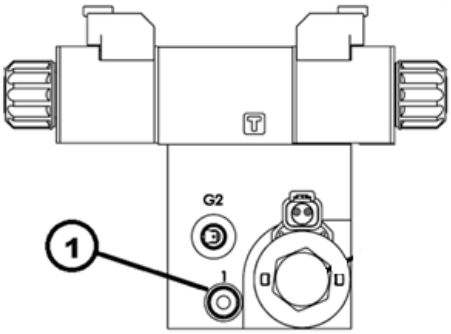


Figure 122. Manifold Assembly
Key 1 – Storage Port

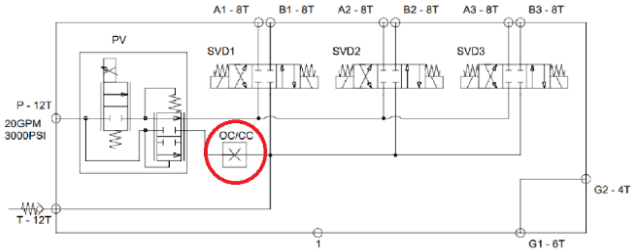


Figure 123. Manifold Schematic
(see Theory of Op. section for lg. image)

Automatic Controls
Baler Gate Pressure Hose

If the unit is equipped with Automatic Controls, a hose must be connected to the pressure line for raising the baler gate.

With the baler pressure relieved, baler gate closed and from the side of the unit, locate the baler gate lockout valve on the left side of the baler.

Disconnect the upper hydraulic hose at the baler gate lockout valve. (This is the hose that leads to the base end of the gate cylinder.)

Install the provided T-Fitting at the fitting in the valve.

Install the -04 hydraulic hose (RC3190386) from the provided assembly parts and route it along the pressure and return hoses added for the accumulator to the coupler area by the Accumulator Lock Out Valve.

Connect the 90-deg JIC end of the hose to the side port of the T-Fitting as shown in Figure 124.

Install the existing baler gate cylinder hose to the straight side of the T-Fitting.

See Figure 124.

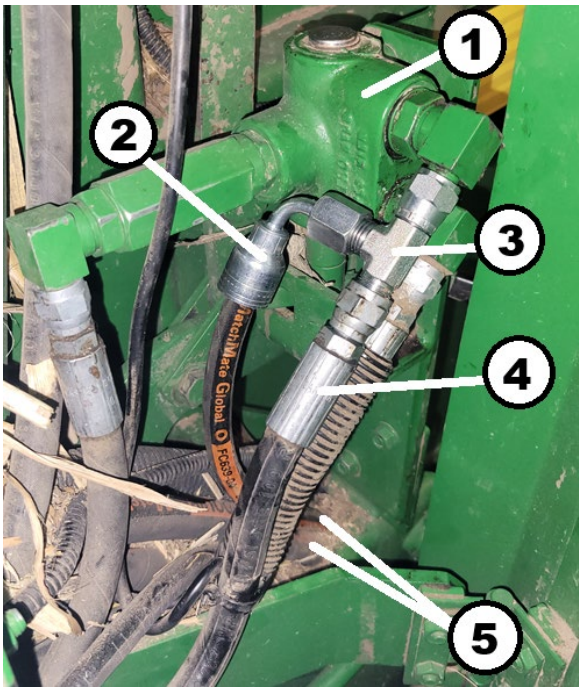


Figure 124. Baler Gate Pressure Hose
Key 1 – Gate Lockout Valve
Key 2 – Pressure Hose
Key 3 – T-Fitting
Key 4 – Cylinder Hose
Key 5 – Hoses to Tractor

20.6 Install Harness on Baler

Start at the tractor end and route through the baler to the accumulator for the manual controls. The large DT Connector (round) will be at the tractor end for manual controls. For automatic controls, place the female DT connector at the tractor end.

Use provided zip ties to secure harness to the return hose.

Only secure the harness to the return line. Do not secure the harness to any pressure lines as the vibration can impact long term durability of the harness.

Avoid sharp bends and contact with any moving parts.

Route the cable for the camera along the main wire harness in the same manner.

With the extension harness, the connector by the baler gate is located in a bag attached to the harness. This is to allow the harness to be routed through the machine without the restriction of the large connector.

Once the harness is installed, install the connector on the end as shown by the corresponding diagrams in Figures 125 and 126.

NOTE: An extra switch is provided with the Automatic Control kit. This is to be used in the event of a switch failure on the accumulator. Keep the switch with the Operator Manual in the tractor.

The Automatic Control Harness connections are as follows:

Wire Color	Pin Location
Pink	1
Blue	2
Brown	3
Gray	4
Black	5
Yellow	8
Violet	9
Green	10
Orange	11
Tan	12

To	Conductor	Color
X1.1	W1.Pink	
X1.2	W2.Blue	
X1.3	W5.Brown	
X1.4	W4.Gray	
X1.5	W3.Black	
X1.8	W6.Yellow	
X1.9	W7.Violet	
X1.10	W8.Green	
X1.11	W9.Orange	
X1.12	W10.Tan	

Figure 125. Wire Connector Install (Automatic Control Extension Harness)

The Manual Control Extension Harness Connections are as follows:

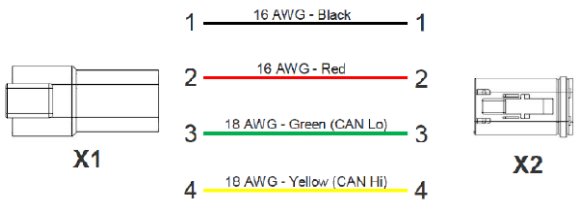


Figure 126. Wire Connector Install (Manual Control Extension Harness)

20.7 Install Pre-cutter Components

If the round baler is equipped with a pre-cutter, additional spacers and a change in linkage are required to fit the change in geometry of the round baler.

These parts are shipped on the shipping skid and attached with wood screws. The hardware needed is in the box supplied with every unit.

With the accumulator fully installed, remove and flip the linkage arms for the accumulator cart. Use the other hole in the linkage arms where the arm attaches to the pivot mechanism. See Figure 127.

Remove the four bolts between the pivot mechanism and the cart frame. Install the provided spacer between the cart frame and the pivot frame using the provided hardware. Tighten all hardware properly. See Figures 127 through 130.

IMPORTANT:

Failure to install spacers will result in machine damage from interference between frame and tires during operation when a pre-cutter baler is used. The profile of the plate installed must match the profile of the pivot brackets or tire interference will occur during operation.

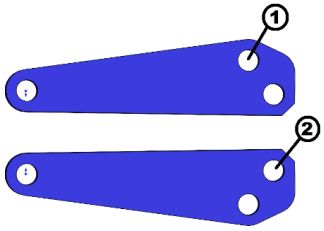


Figure 127. Pivot Linkage
Key 1 – Standard Key 2 – Pre-cutter
(Invert part for Pre-Cutter Use)

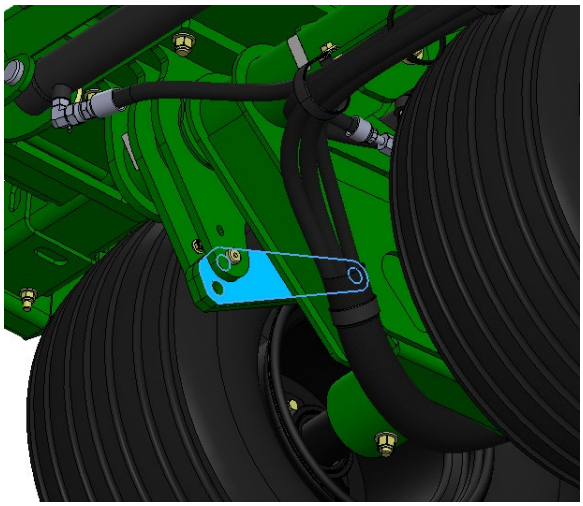


Figure 128. Linkage Location
Standard Position Shown

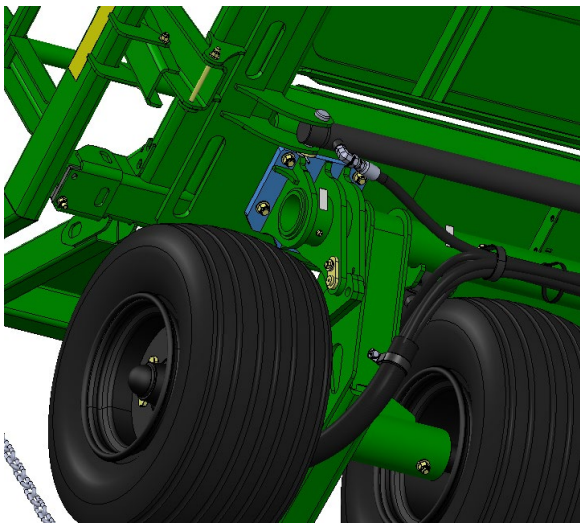


Figure 129. Spacer Plate Location
(fit between cart and pivot frame)

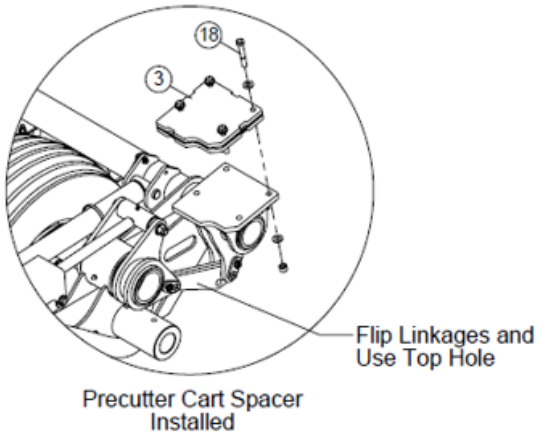


Figure 130. Spacer Plate Installation

20.8 Install Controls in Tractor

Each tractor may have a different configuration that impacts the installation of the control box and camera.

In general, install the camera display near the baler controls and to the right of the operator.

The control box should be installed as close as possible to the SCV controls to allow the operator to see or reach the functions quickly and efficiently.

Extra mounting parts are provided to allow for several different configurations.

Harness connections are provided for connecting to various ports for power and ground. The system operates on 12 volts and requires less than 15 amps of power.

20.9 Baler Automation Settings

Baler Gate Operation – CRITICAL

IMPORTANT: Do not operate the baler gate without the transfer arm of the accumulator in the home position. Machine damage may result from interference in the travel of the baler gate if the transfer arm is in a raised position.

IMPORTANT: If the accumulator is used on a 1-Series or newer round baler equipped with automatic controls, make sure the setting for the bale push bar is turned off (not installed). This will result in a pause in automatic operations for the closing of the baler gate and resuming of baling. The operator will need to press the resume button once the transfer arm is returned to the home position, whether using Automatic Controls or Manual Controls.

For previous models of balers using Automatic Controls, disable the automatic gate control in baler automation settings.

The baler gate must not be moved when the accumulator transfer arm is in any raised position.

The baler gate can only be safely moved when the accumulator transfer arm is in the home (down) position.

Failure to follow this information will void any warranty claims for damage from the transfer arm to the baler gate.

See Round Baler Operator Manual for information regarding settings for Baler Automation if equipped and adjust accordingly.

20.10 Testing and Documentation

Prior to testing, review the operation section of this manual to understand the functions of the machine.

Set up the baler and the accumulator and test all functions properly. Once all systems are functioning, check for any leaks and repair as necessary. Check the hydraulic system of the tractor and fluid level and fill as necessary.

Complete the Predelivery Check List at the end of this manual. Keep a copy for your records and present the customer with the copy in the manual.

21 Repair Parts

General Comments

The following includes information regarding parts for the 521 and 421 Round Bale Accumulator.

Right-hand or left-hand parts are determined by sitting in the operator's seat facing forward.

The abbreviation "A.R." in the "USED" column indicates "As Required." This is because a different number of the specific component may be needed for proper assembly depending on the tolerance of the individual machine.

All parts listed are available through your local dealer.

Attention: Dealer – Contact RCI directly for all part orders for this unit.

Please include a serial number and model of the attachment when placing a parts order. The serial number plate is located left of the damper arm door on the cart frame, at the rear of the unit.

Replacement Hardware

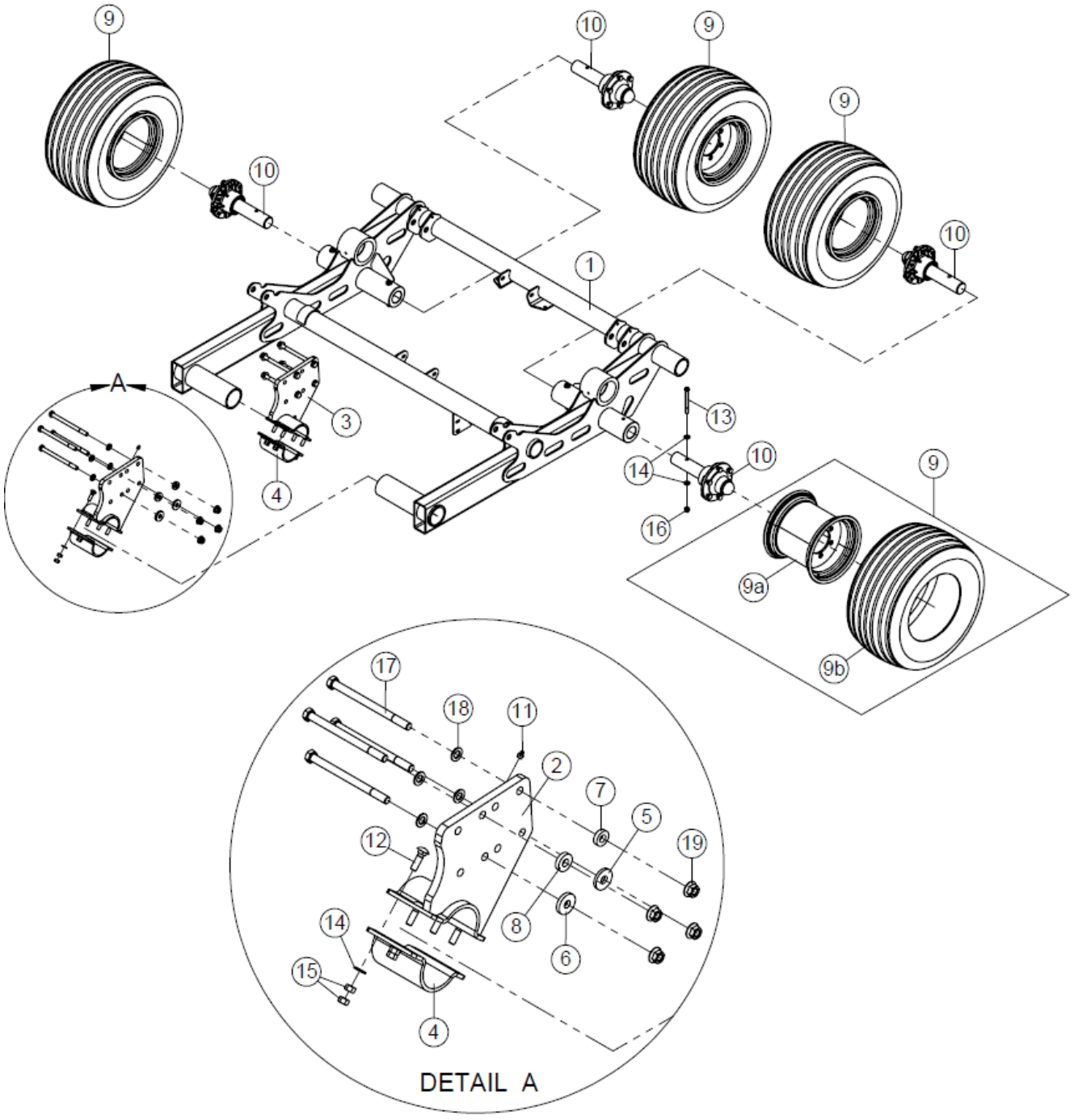
The use of improper hardware in any location can result in the failure of the component fastened with the hardware or related structures, and can cause personal injury, further damage to the product, or loss of property.

Replacement Parts

Replacement parts may have occasional differences to the parts being replaced. This difference is typically providing the benefit of a design change made after the release of this publication.

Repair Parts Index

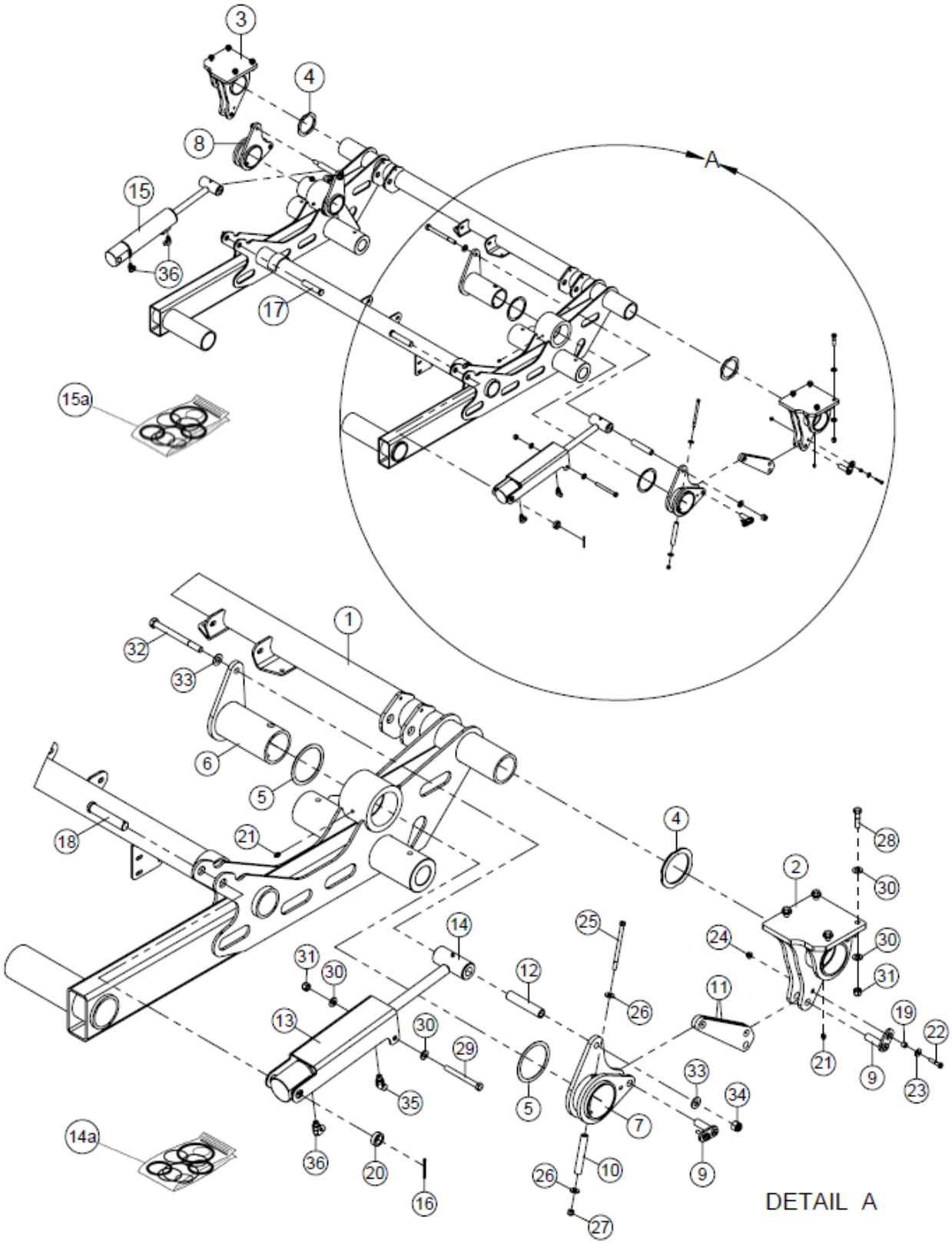
1.1 – Frame Mounting & Wheels



1.1 – Frame Mounting & Wheels

Key	Part Number	Description	Qty	Comments
1	RC3190460	Frame, 4 Ft Main	1	421R
	RC3190335	Frame, 5 Ft Main	1	521R
2	DXAFH211638	Support, Front Left Pivot	1	
3	DXAFH211637	Support, Front Right Pivot	1	
4	DXFH325322	Bracket, SBP	2	
5	DXFH327277	Spacer, .250	2	
6	DXFH327295	Spacer, .313	2	
7	DXFH327299	Spacer, .375	2	
8	DXFH327278	Spacer, Large .375	2	
9	RC3190362	Assembly, Wheel & Tire	4	
10	RC3190419	Assembly, RBA Spindle	4	
11	RC901873	Zerk, 1/8 NPT Straight Grease	2	
12	RC901882	Bolt, 1/2-13 x 1-3/4 Gr 5 CZ Carriage	8	
13	RC901598	Bolt, 1/2-13 x 5 Gr 8 YZ Hex	4	
14	RC900691	Washer, 1/2 SAE YZ Hard Flat	16	
15	RC900529	Nut, 1/2-13 YZ Hex	16	
16	RC900588	Nut, 1/2-13 YZ Nylock	4	
17	RC902938	Bolt, M16-2.0 x 220mm Gr 10.9 YZ Hex	8	
18	RC901945	Washer, M16 YZ Flat	8	
19	RC902930	Nut, M16-2.0 CZ Flange	8	

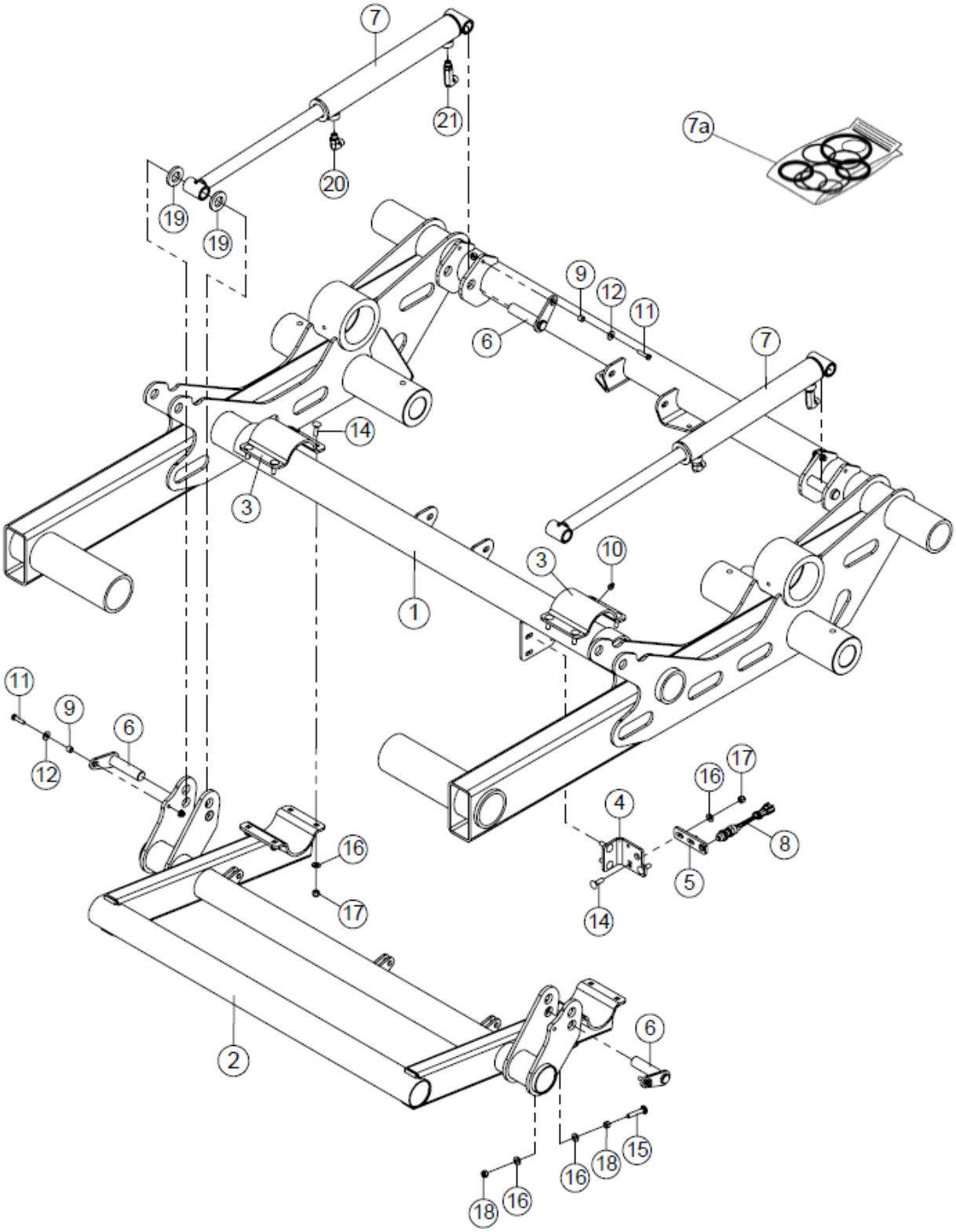
1.2 – Cart Pivot



1.2 – Cart Pivot

Key	Part Number	Description	Qty	Comments
1	RC3190460	Frame, 4 Ft Main	1	421R
	RC3190335	Frame, 5 Ft Main	1	521R
2	RC3190319	Bracket, LH Cart Pivot	1	
3	RC3190317	Bracket, RH Cart Pivot	1	
4	DXFH334643	Washer, Green Pivot	2	
5	DXFH323806	Washer, SBP 4 Inch ID	4	
6	DXAFH214718	Arm, Tilt Mechanism	2	
7	DXAFH214720	Arm, Left Tilt Mechanism	1	
8	DXAFH214719	Arm, Right Tilt Mechanism	1	
9	DXAFH214483	Pin, Flag	4	
10	RC3190258	Bushing, Tilt Mechanism Connector	2	
11	RC3190265	Linkage, Adjustable Overcenter	4	
12	RC3190522	Bushing, Tilt Cylinder	2	
13	DXFH335163	Guard, Cylinder Step	1	
14	RC3190492	Cylinder, 2.5" x 8" Small Rephase	1	
14a	RC950834	Kit, Seal Kit	1	
15	RC3190493	Cylinder, 2.75" x 8" Large Rephase	1	
15a	RC950835	Kit, Seal Kit	1	
16	RC900834	Pin, 3/16 x 2 CZ Cotter	2	
17	RC901809	Pin, 1 x 4-1/2 CZ Clevis	1	
18	RC902627	Pin, 1 x 5 CZ Clevis	1	
19	RC903040	Spacer, .364" ID x .531" OD x .394" SS	4	
20	RC902997	Spacer, 1" ID x 1-1/2" OD x 1/2" CZ	2	
21	RC901873	Zerk, 1/8 NPT Straight Grease	4	
22	RC900065	Bolt, 5/16-18 x 1-1/2 Gr 5 YZ Hex	4	
23	RC902698	Washer, 5/16 USS YZ Hard Flat	4	
24	RC900656	Nut, 5/16-18 YZ Nylock Flange	4	
25	RC900115	Bolt, 3/8-16 x 5-1/2 Gr 5 YZ Hex	2	
26	RC902699	Washer, 3/8 USS YZ Hard Flat	4	
27	RC900583	Nut, 3/8-16 YZ Nylock	2	
28	RC900137	Bolt, 1/2-13 x 2 Gr 5 YZ Hex	8	
29	RC900150	Bolt, 1/2-13 x 5 Gr 5 YZ Hex	1	
30	RC900691	Washer, 1/2 SAE YZ Hard Flat	18	
31	RC900588	Nut, 1/2-13 YZ Nylock	9	
32	RC903037	Bolt, 5/8-18 x 7 Gr 8 YZ Hex	2	
33	RC900694	Washer, 5/8 SAE YZ Hard Flat	4	
34	RC900593	Nut, 5/8-11 YZ Nylock	2	
35	RC700880	Elbow, -06 MORFS -06 MORB 45°	1	
36	RC700118	Elbow, -06 MORFS -06 MORB 90°	3	

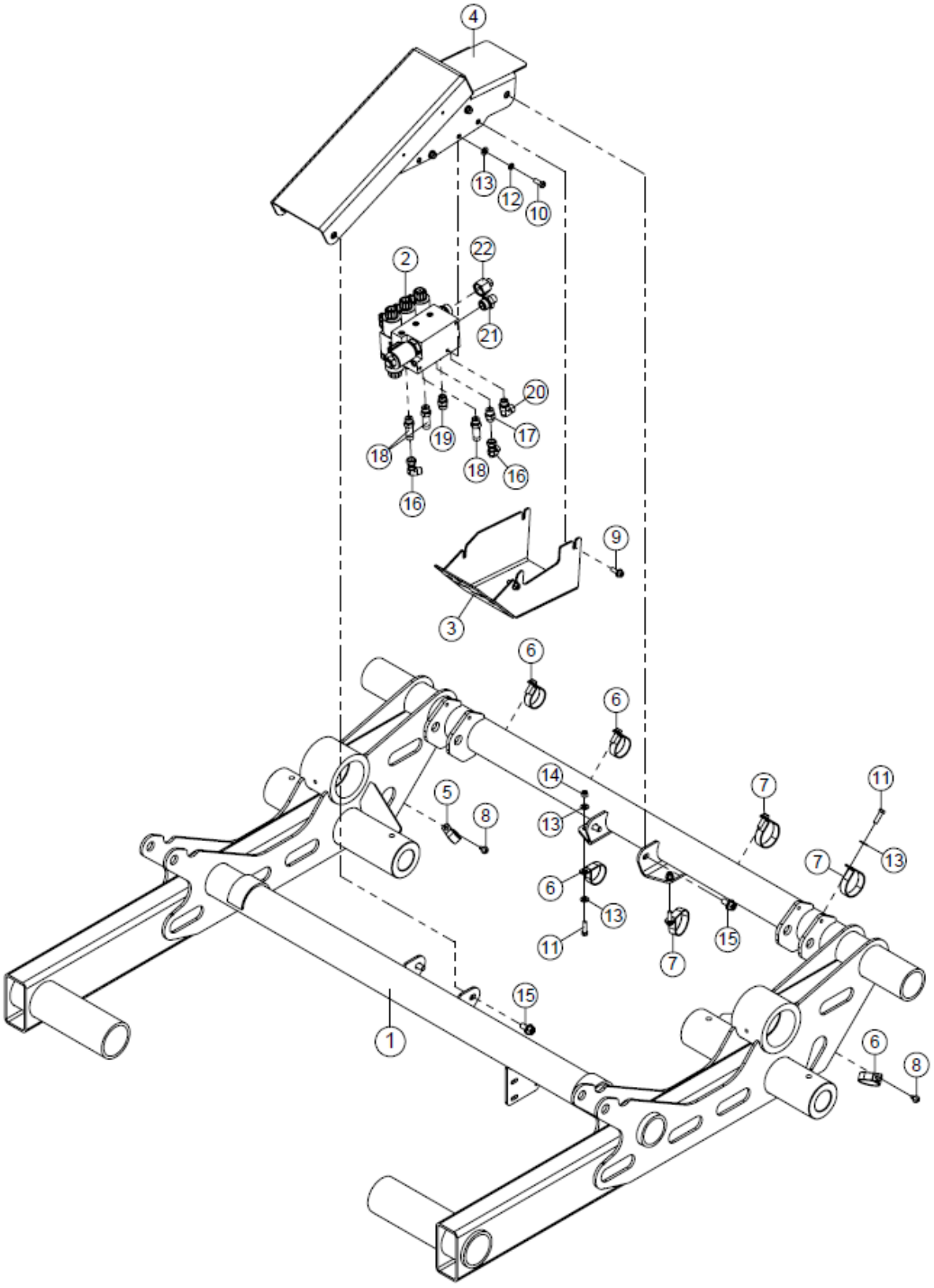
1.3 – Transfer Arm



1.3 – Transfer Arm

Key	Part Number	Description	Qty	Comments
1	RC3190460	Frame, 4 Ft Main	1	421R
	RC3190335	Frame, 5 Ft Main	1	521R
2	RC3190455	Arm, 4 Ft Transfer	1	421R
	RC3190339	Arm, 5 Ft Transfer	1	521R
3	RC3190263	Bracket, Greaseable Transfer Arm Joint	2	
4	RC3190435	Bracket, Bale Sensing Switch Mount	1	
5	RC3190433	Plate, Arm Home Switch	1	
6	RC3190276	Pin, 1 Flag Pin	4	
7	RC950759	Cylinder, 2" x 14" Welded	2	
7a	RC950833	Kit, Seal	1	
8	RC750604	Switch, Normally Off Push Button	1	
9	RC903040	Spacer, .364" ID x .531" OD x .394" SS	4	
10	RC901873	Zerk, 1/8 NPT Straight Grease	2	
11	RC900064	Bolt, 5/16-18 x 1-1/4 Gr5 YZ Hex	4	
12	RC902698	Washer, 5/16 USS YZ Hard Flat	4	
13	RC900656	Nut, 5/16-18 YZ Nylock Flange	4	
14	RC902649	Bolt, 3/8-16 x 1-1/4 Gr 5 CZ Carriage	12	
15	RC902216	Bolt, 3/8-16 x 2-1/4 CZ FT Carriage	1	
16	RC900677	Washer, 3/8 SAE YZ Hard Flat	14	
17	RC900583	Nut, 3/8-16 YZ Nylock	12	
18	RC900524	Nut, 3/8-16 YZ Hex	2	
19	RC903044	Washer, 1 x 1/4 YZ Flat	2	
20	RC700118	Elbow, -06 MORFS -06 MORB 90°	2	
21	RC700308	Elbow, -06 MORFS -06 MORB Long 90°	2	

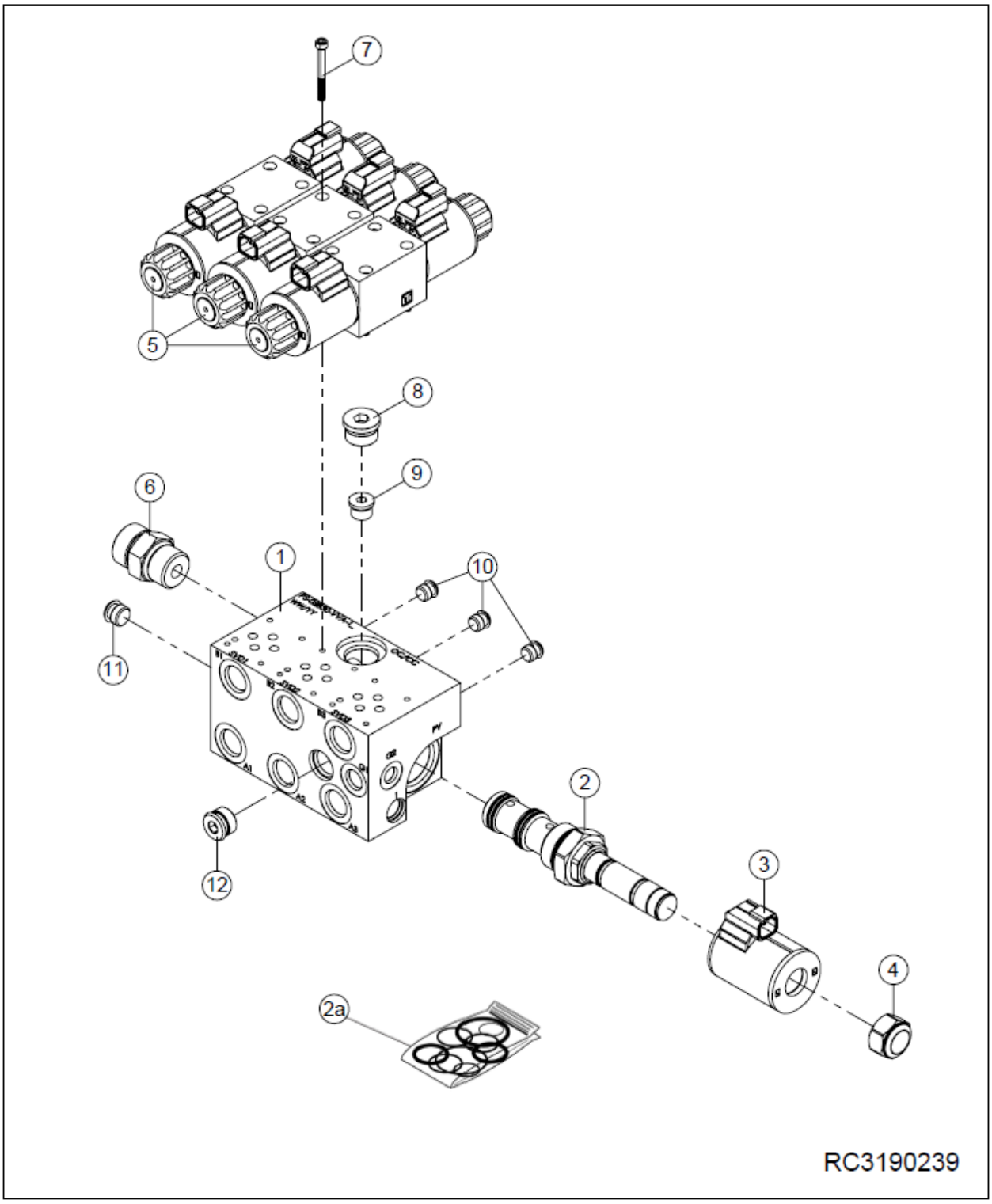
1.4 – Manifold Mounting



1.4 – Manifold Mounting

Key	Part Number	Description	Qty	Comments
1	RC3190460	Frame, 4 Ft Main	1	421R
	RC3190335	Frame, 5 Ft Main	1	521R
2	RC3190239	Assembly, RBA Hydraulic Manifold	1	See breakdown on Parts Page 1.5
3	RC3190368	Cover, Manifold	1	
4	RC3190373	Rest, Manifold Mount Bale	1	
5	RC902064	P-Clamp, 1 Cushion	1	
6	RC902066	P-Clamp, 2 Cushion	4	
7	RC902067	P-Clamp, 2-1/2 Cushion	3	
8	RC902939	Screw, 5/16-18 x 3/4 CZ Thread Cutting	2	
9	RC902177	Bolt, 3/8-16 x 1 Gr 5 CZ Serrated Flange	5	
10	RC900088	Bolt, 3/8-16 x 1 Gr 5 YZ Hex	3	
11	RC900091	Bolt, 3/8-16 x 1-1/4 Gr 5 YZ Hex	6	
12	RC900728	Washer, 3/8 YZ Lock	3	
13	RC900677	Washer, 3/8 SAE YZ Hard Flat	15	
14	RC900583	Nut, 3/8-16 YZ Nylock	6	
15	RC903007	Bolt, 1/2-13 x 1 Gr 8 CZ Serrated Hex Flange	4	
16	RC700181	Elbow, -06 MORFS -06 FORFS Swivel 90°	2	
17	RC700078	Adapter, -06 MORFS -08 MORB Straight	1	
18	RC700108	Adapter, -06 MORFS x -08 MORB Straight Long	3	
19	RC700083	Adapter, -08 MORFS -08 MORB Straight	1	
20	RC700125	Elbow, -08 MORFS -08 MORB 90°	1	
21	RC700085	Adapter, -08 MORFS -12 MORB Straight	1	
22	RC700236	Reducer, -12 FORFS -08 MORFS	1	

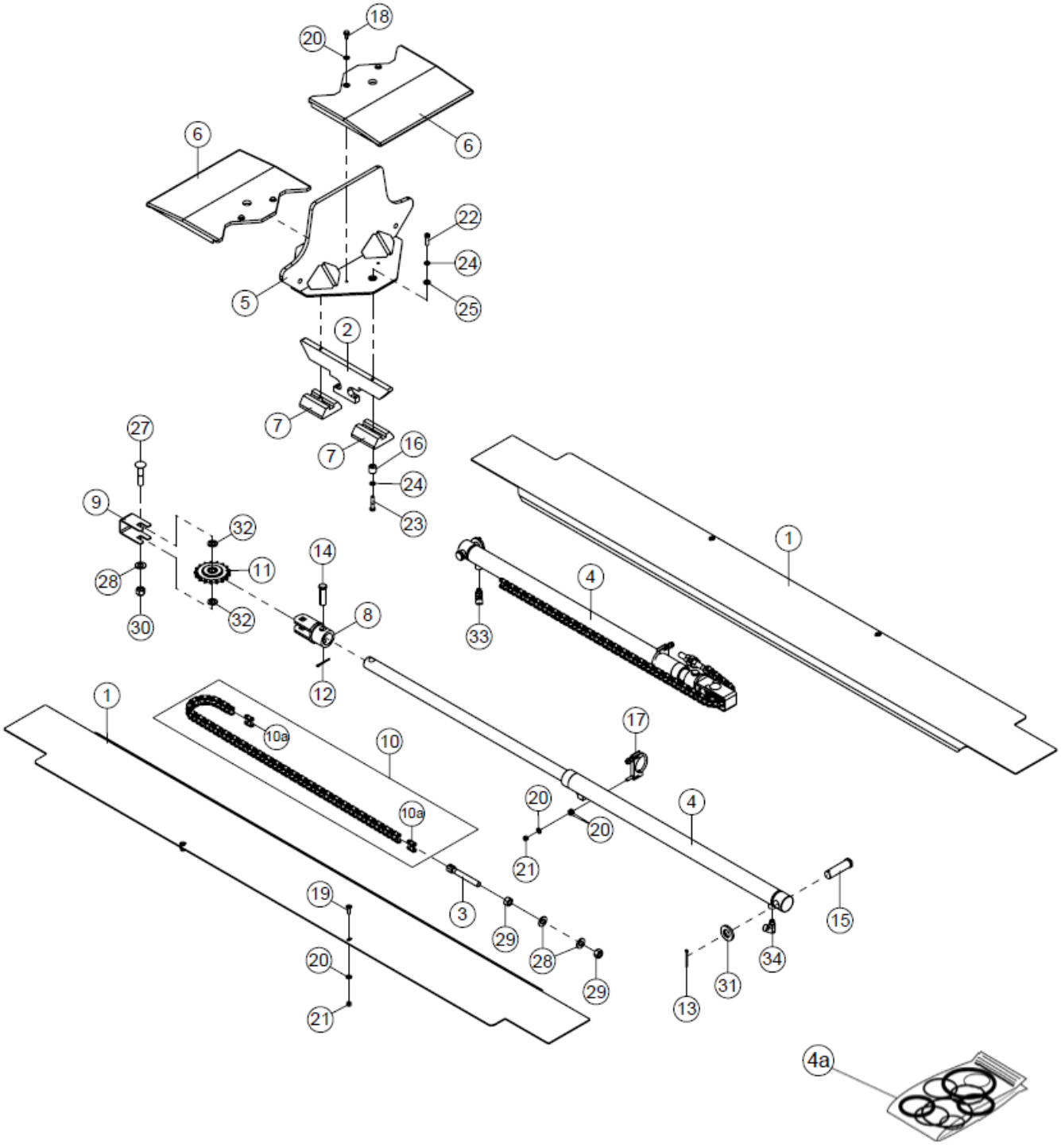
1.5 – Hydraulic Manifold



1.5 – Hydraulic Manifold

Key	Part Number	Description	Qty	Comments
1	RC950813	Housing, 3 Station D03 with Prop. Control Inlet	1	
2	RC950814	Valve, Proportional Flow Control	1	
2a	RC950382	Kit, #16 3 Way, Buna N Seal	1	
3	RC950815	E-Coil, #70 12 VDC, Deutsch DT04-2P	1	
4	RC950816	Nut, Coil	1	
5	RC950817	D03 Valve, Closed Center Spool 12V Deutsch	3	
6	RC703196	Valve, -12 MORB -12 MORFS Inline Check	1	
7	RC903011	Screw, #10-24 x 1-3/4 CZ SH Cap	12	
8	RC700622	Plug, -10 MORB Socket Head	1	
9	RC700620	Plug, -06 MORB Socket Head	1	
10	RC950362	Stop, #4 Cavity Plug	3	
11	RC950361	Stop, #6 Cavity Plug	1	
12	RC950360	Stop, #8 Cavity Plug	1	

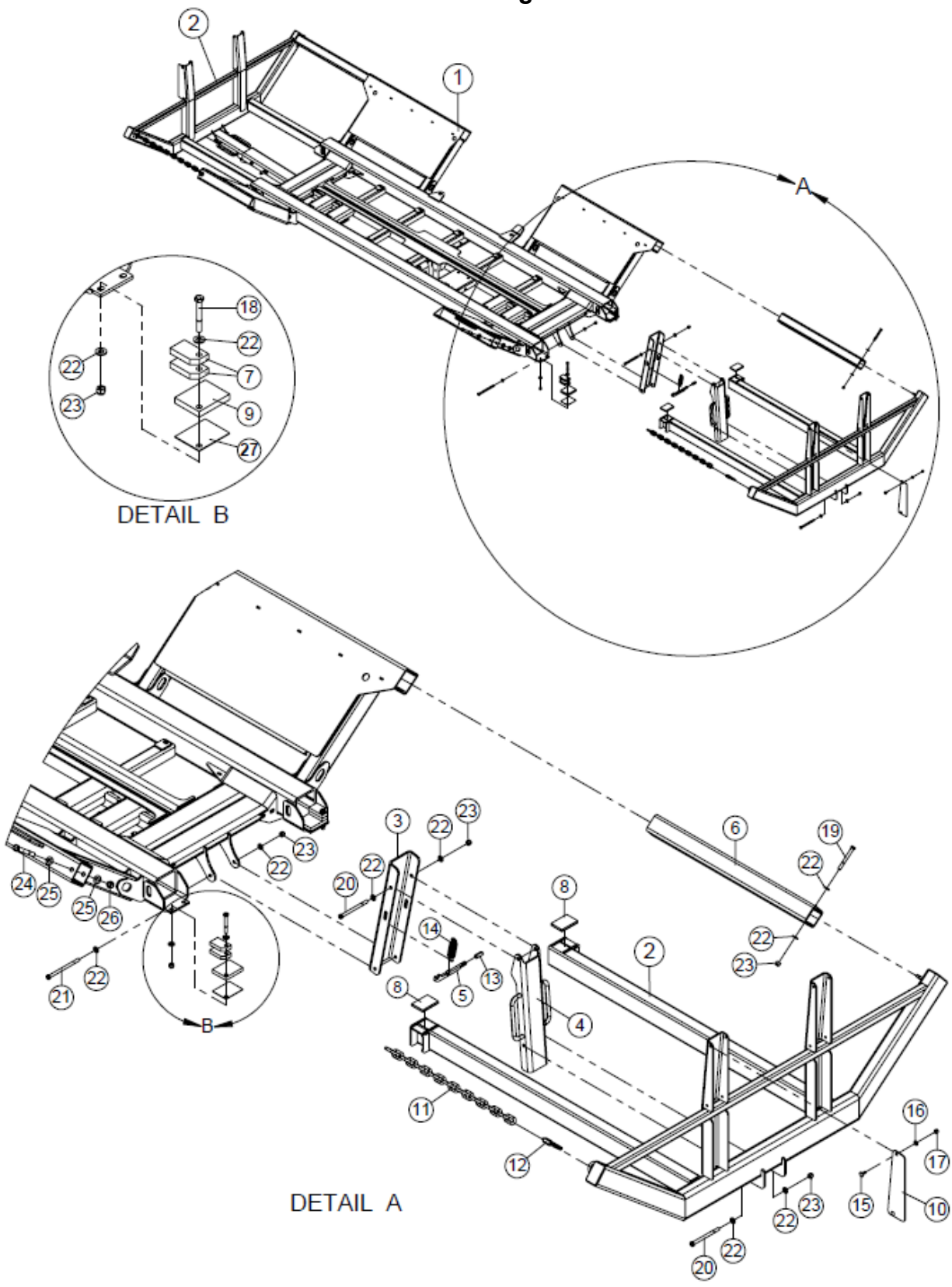
2.1 – Bale Slide



2.1 – Bale Slide

Key	Part Number	Description	Qty	Comments
1	RC3190470	Cover, 4 Ft Cart	2	421R
	RC3190341	Cover, 5 Ft Cart	2	521R
2	RC3190254	Support, Slider Attachment	1	
3	RC3190256	Bolt, Cart Slider	2	
4	RC3190521	Cylinder, 1.75" x 32" Hydraulic	2	421R
	RC3190494	Cylinder, 1.75" x 40" Hydraulic	2	521R
4a	RC950836	Kit, Cylinder Seal	1	
5	DXAFH211635	Slider, Bale	1	
6	DXFH332584	Deflector, Slider	2	
7	DXFH326112	Guide, UHMW Slider	2	
8	DXAFH211489	Clevis, Slider Chain Sprocket	2	
9	DXFH332339	Guard, Chain	2	
10	DXAFH215232	Chain, 4 Ft Slider	2	421R
	DXAFH213168	Chain, 5 Ft Slider	2	521R
10a	RC950300	Link, #60HR Connecting	1	
11	DXAFH205818	Assembly, #60 x 17T Idler Sprocket	2	
12	RC901824	Pin, 5/32 x 1-1/2 CZ Cotter	2	
13	RC900834	Pin, 3/16 x 2 CZ Cotter	2	
14	RC902311	Pin, 3/4 x 2-1/4 CZ Clevis	2	
15	RC902648	Pin, 1 x 3-1/2 CZ Clevis	2	
16	RC903043	Spacer, .404" ID x 7/8" OD x .787" SS	2	
17	RC902973	U-Bolt, 5/16-18 x 2-3/8" CZ Clamping	2	
18	RC902939	Screw, 5/16-18 x 3/4 CZ Thread Cutting	4	
19	RC902995	Screw, 5/16-18 x 1 SS Flange BH Socket	4	
20	RC902162	Washer, 5/16 SAE YZ Hard Flat	20	
21	RC900579	Nut, 5/16-18 YZ Nylock	8	
22	RC902631	Bolt, 3/8-16 x 1-1/4 Gr 8 YZ Hex	2	
23	RC901723	Bolt, 3/8-16 x 1-3/4 YZ Hex	2	
24	RC900728	Washer, 3/8 YZ Lock	4	
25	RC900677	Washer, 3/8 SAE YZ Hard Flat	2	
26	RC901862	Washer, 3/8 Heavy Fender (2 O.D.)	2	
27	RC901580	Bolt, 5/8-11 x 3 Gr 5 CZ Carriage	2	
28	RC900694	Washer, 5/8 SAE YZ Hard Flat	6	
29	RC900535	Nut, 5/8-11 YZ Hex	4	
30	RC900593	Nut, 5/8-11 YZ Nylock	2	
31	RC903044	Washer, 1 x 1/4 YZ Flat	2	
32	RC901945	Washer, M16 YZ Flat	4	
33	RC700883	Elbow, -08 MORFS -06 MORB 45°	1	
34	RC700124	Elbow, -08 MORFS -06 MORB 90°	1	

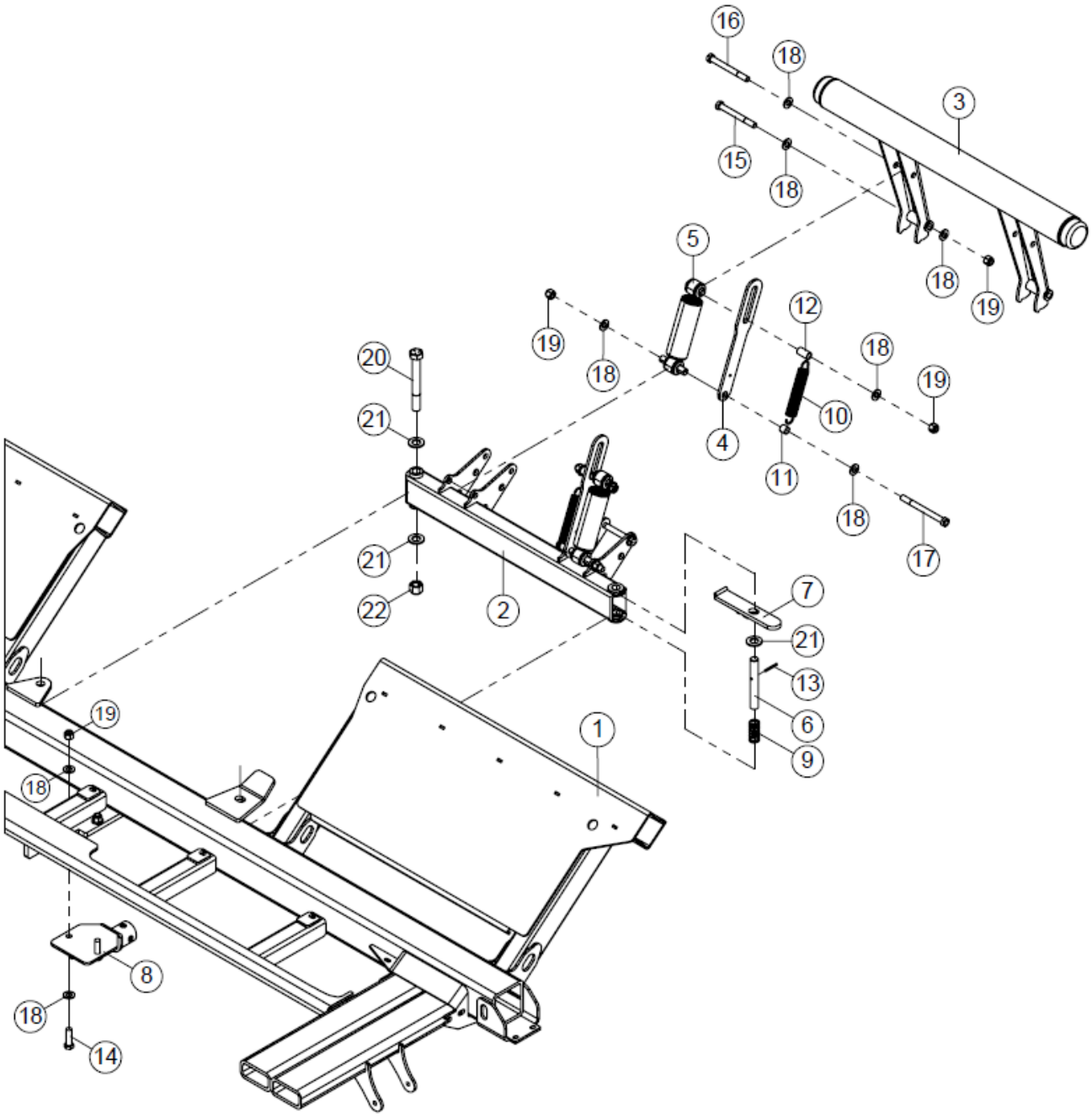
2.2 – Wings



2.2 – Wings

Key	Part Number	Description	Qty	Comments
1	RC3190467	Cart, 4 Ft	1	421R
	RC3190328	Cart, 5 Ft	1	521R
2	RC3190450	Wing, 4'	2	421R
	RC3190310	Wing, 5'	2	521R
3	DXFH326482	Arm, 4 Ft Inside Wing Auto-Lock	2	421R
	DXFH332209	Arm, 5 Ft Inside Wing Auto-Lock	2	521R
4	DXAFH214463	Arm, 4 Ft Wing Lock with Handle	2	421R
	DXAFH213965	Arm, 5 Ft Wing Lock with Handle	2	521R
5	DXFH333387	Handle, Wing Lock	2	
6	DXFH326481	Tube, Telescoping	2	
7	RC3190324	Spacer, Wing	8	
8	RC3190322	Pad, Inner Wing Wear	4	
9	RC3190323	Pad, Outer Wing Wear	4	
10	RC3190312	Plate, Reflector	2	
11	RC950748	Chain, 5/16 CZ Grade 43 x 18 Links	2	
12	RC950749	Link, 3/8 CZ Quick Chain	2	
13	RC902916	Cap, 3/8 ID x 1 Round EPDM	2	
14	RC950819	Spring, 4 x .969 O.D. Extension	2	
15	RC902039	Bolt, 1/4-20 x 3/4 CZ SN Carriage	4	
16	RC902696	Washer, 1/4 SAE YZ Hard Flat	4	
17	RC900575	Nut, 1/4-20 YZ Nylock	4	
18	RC900103	Bolt, 3/8-16 x 2-3/4 Gr5 YZ Hex	4	
19	RC901705	Bolt, 3/8-16 x 3-1/4 Gr 8 YZ Hex	2	
20	RC900113	Bolt, 3/8-16 x 4-3/4 Gr 5 YZ Hex	4	
21	RC900115	Bolt, 3/8-16 x 5-1/2 Gr 5 YZ Hex	2	
22	RC900677	Washer, 3/8 SAE YZ Hard Flat	24	
23	RC900583	Nut, 3/8-16 YZ Nylock	12	
24	RC900147	Bolt, 1/2-13 x 4 Gr 5 YZ Hex	2	
25	RC900691	Washer, 1/2 SAE YZ Hard Flat	4	
26	RC900588	Nut, 1/2-13 YZ Nylock	2	
27	RC3190326	Shim, Wing Wear Pad	AR	

2.3 – Damper

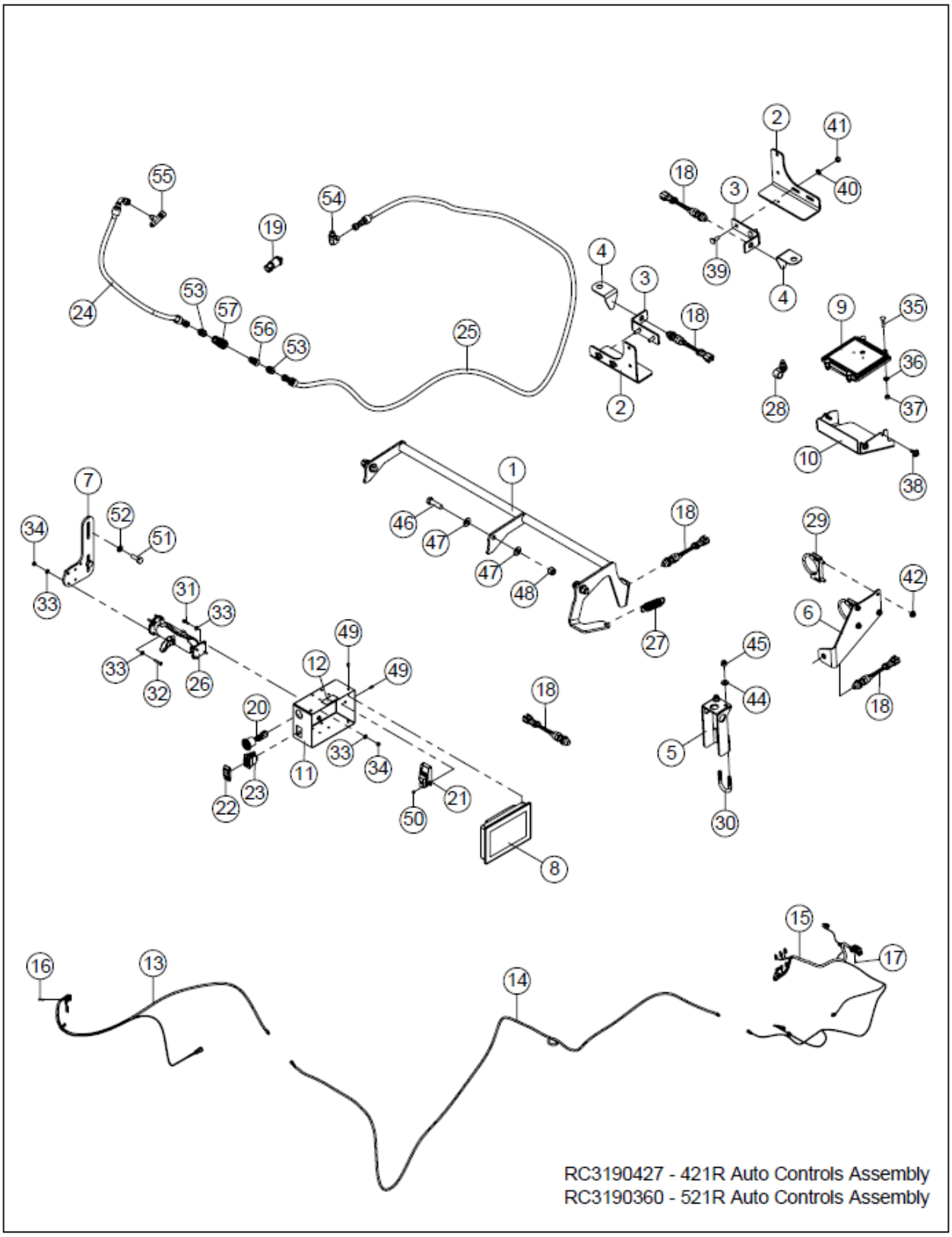


*Some Cart Frame Parts
Hidden for Clarity

2.3 – Damper

Key	Part Number	Description	Qty	Comments
1	RC3190467	Cart, 4 Ft	1	421R
	RC3190328	Cart, 5 Ft	1	521R
2	RC3190246	Base, Damper Arm	1	
3	DXAFH213979	Arm, Dampener	1	
4	DXFH330062	Arm, Damper Arm Stop	2	
5	DXFH329557	Absorber, Shock	2	
6	RC3190329	Pin, Damper Arm Door Lock	1	
7	RC3190431	Arm, Damper Door Release	1	
8	RC3190348	Bracket, Jack Mount	1	
9	RC950794	Spring, 0.97" OD x 2 CZ Compression	1	
10	RC950753	Spring, 6-1/2" x 1" O.D. Extension	2	
11	RC903041	Spacer, .531" ID x 11/16" OD x 5/8" SS	2	
12	RC903042	Spacer, .531" ID x 11/16" OD x 1-1/4" SS	2	
13	RC903010	Pin, 3/16 x 1-1/2 SS Coiled Roll	1	
14	RC900136	Bolt, 1/2-13 x 1 3/4 Gr 5 YZ Hex	2	
15	RC901989	Bolt, 1/2-13 x 4-1/2 Gr 8 YZ Hex	2	
16	RC901594	Bolt, 1/2-13 x 4-3/4 Gr 8 YZ Hex	2	
17	RC901748	Bolt, 1/2-13 x 5-1/2 Gr 8 YZ Hex	2	
18	RC900691	Washer, 1/2 SAE YZ Hard Flat	16	
19	RC900588	Nut, 1/2-13 YZ Nylock	8	
20	RC900216	Bolt, 3/4-10 x 6 Gr 5 YZ Hex	1	
21	RC902416	Washer, 3/4 SAE YZ Hard Flat	3	
22	RC900597	Nut, 3/4-10 YZ Nylock	1	

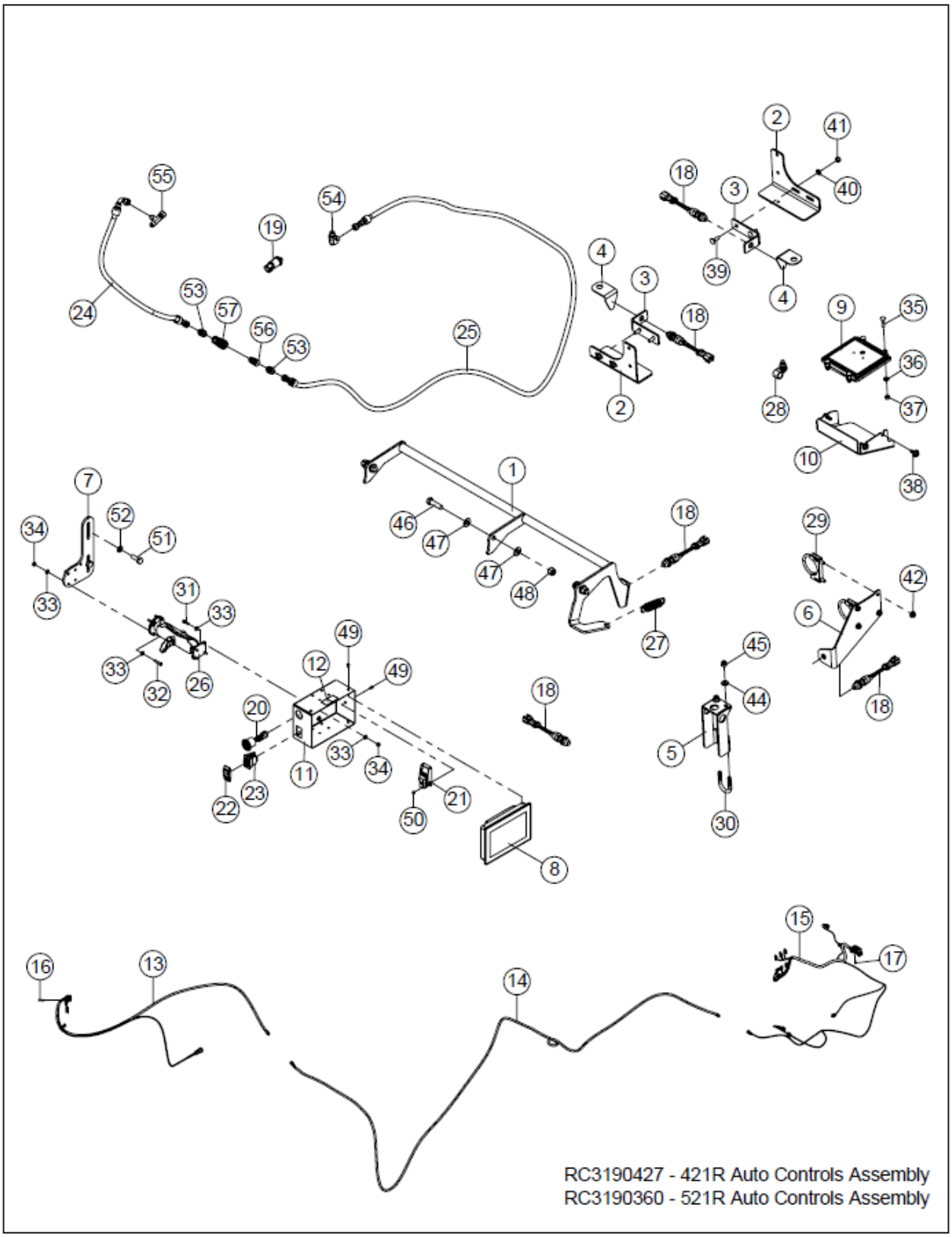
3.1 – Auto Controls



3.1 – Auto Controls

Key	Part Number	Description	Qty	Comments
1	RC3190457	Bracket, 4 Ft Bale Sensor	1	421R
	RC3190281	Bracket, 5 Ft Bale Sensor	1	521R
2	DXFH335304	Bracket, Slider Switch	2	
3	DXFH331363	Plate, Sensor Mounting	2	
4	DXFH335303	Plate, Slider Switch Sensing	2	
5	RC3190172	Bracket, Cylinder Switch Strike	1	
6	RC3190384	Bracket, Cylinder Switch Mount	1	
7	RC3190359	Plate, Deere Cab Ram Mount Base	1	
8	RC3190350	Display, Programmed 7" Touch Screen	1	
9	RC3190298	Controller, RBA	1	
10	RC3190542	Cover, Controller	1	
11	RC3190548	Cover, Touch Screen Display	1	
12	RC903032	Decal, Small RCI Product Manuals QR Code	1	
13	RC3190425	Harness, Cab	1	
14	RC3190424	Harness, Extension	1	
15	RC3190423	Harness, Accumulator Wire	1	
16	RC750637	Tag, Deutsch DTM Address 0 ID	1	
17	RC750636	Tag, Molex MX64 Address 1 ID	1	
18	RC750604	Switch, Normally Off Push Button	5	1 spare included
19	RC950818	Transducer, SAE #4 .5-4.5VDC 0-4000 PSI Press	1	Hyd Manifold Port G2
20	RC750635	Buzzer, Panel Mount 2 Pin Deutsch Connector	1	
21	RC750633	Module, IQAN-G12 Bluetooth Connection	1	
22	RC750279	Switch Actuator, Black with Red Lens	1	
23	RC750278	Switch, 12V/20A SPST One Light On/Off Rocker	1	
24	RC3190386	Assembly, Hydraulic Hose	1	
25	RC3190487	Assembly, Hydraulic Hose	1	421R
	RC3190388	Assembly, Hydraulic Hose	1	521R
26	RC750609	Kit, Ram 1.5" Ball Round and Rectangle Mount	1	
27	RC950819	Spring, 4 x .969 O.D. Extension	1	
28	RC902970	P-Clamp, 3/4 Cushion	1	

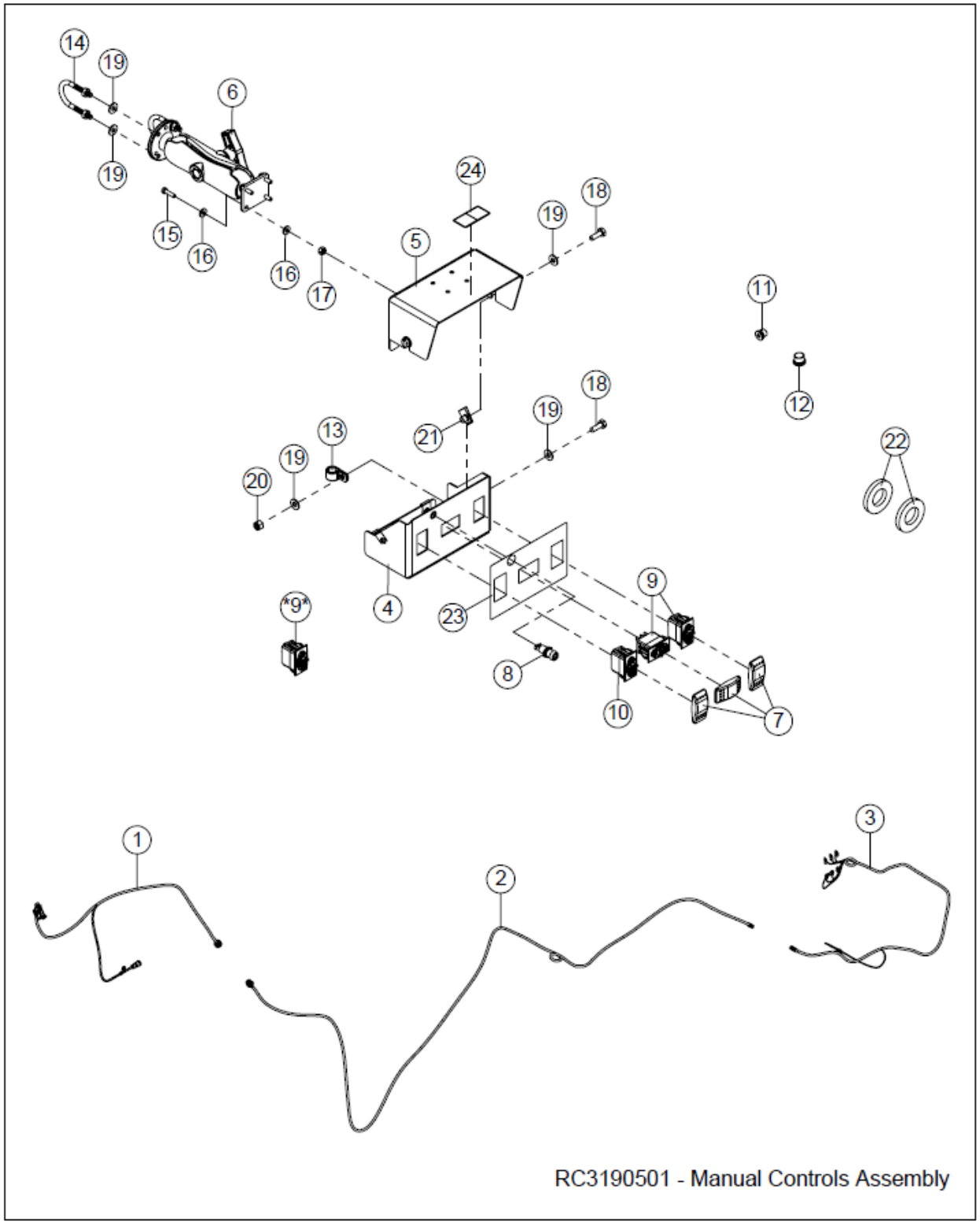
3.1 – Auto Controls - Continued



3.1 – Auto Controls - Continued

Key	Part Number	Description	Qty	Comments
29	RC902973	U-Bolt, 5/16-18 x 2-3/8" CZ Clamping	2	
30	RC902042	U-Bolt, 3/8-16 x 2-1/4 x 1-1/4 CZ Round	1	
31	RC902490	Screw, #10-24 x 3/4 CZ Hex	4	
32	RC900474	Screw, #10-24 x 1 CZ Hex	4	
33	RC900667	Washer, #10 SAE YZ Flat	16	
34	RC902420	Nut, #10-24 YZ Nylock	8	
35	RC902089	Bolt, 1/4-20 x 1-1/4 CZ SN Carriage	4	
36	RC902696	Washer, 1/4 SAE YZ Hard Flat	4	
37	RC900575	Nut, 1/4-20 YZ Nylock	4	
38	RC901942	Bolt, 5/16-18 x 3/4 Gr 5 CZ Serrated Flange	3	
39	RC901668	Bolt, 5/16-18 x 1 Gr 5 CZ Carriage	4	
40	RC902162	Washer, 5/16 SAE YZ Hard Flat	4	
41	RC900579	Nut, 5/16-18 YZ Nylock	4	
42	RC900656	Nut, 5/16-18 YZ Nylock Flange	4	
43	RC900091	Bolt, 3/8-16 x 1-1/4 Gr 5 YZ Hex	1	
44	RC900677	Washer, 3/8 SAE YZ Hard Flat	4	
45	RC900583	Nut, 3/8-16 YZ Nylock	3	
46	RC900136	Bolt, 1/2-13 x 1 3/4 Gr 5 YZ Hex	3	
47	RC900691	Washer, 1/2 SAE YZ Hard Flat	6	
48	RC900588	Nut, 1/2-13 YZ Nylock	3	
49	RC903047	Screw, M4-0.7 x 10mm SS BH Socket	6	
50	RC902095	Nut, M4-0.7 CZ Nylock	2	
51	RC901188	Bolt, M10-1.5 x 30mm Gr 10.9 YZ Hex	2	
52	RC901704	Washer, M10 YZ Flat	2	
53	RC700074	Adapter, -04 MORFS -06 MORB Straight	2	
54	RC700115	Elbow, -04 MORFS -06 MORB 90°	1	
55	RC702508	Tee, -06 JIC Run Thru	1	
56	RC702812	Coupler, Male	1	
57	RC702811	Coupler, Female	1	

3.2 – Manual Controls

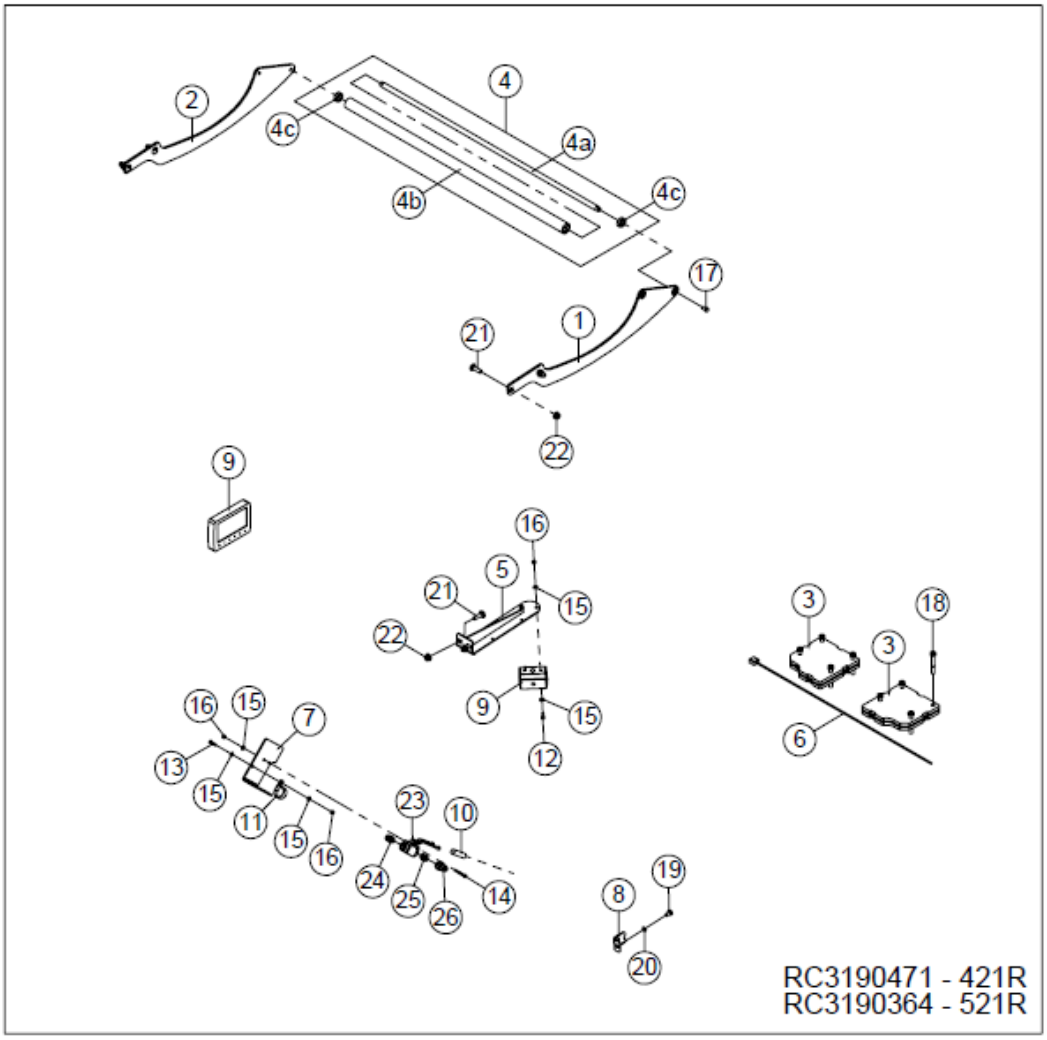


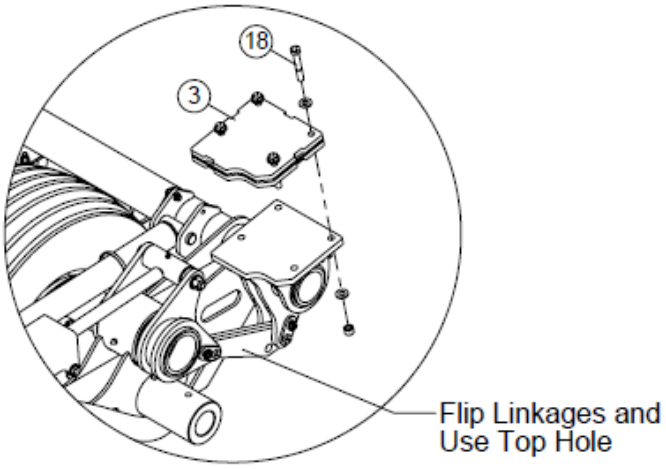
RC3190501 - Manual Controls Assembly

3.2 – Manual Controls

Key	Part Number	Description	Qty	Comments
1	RC3190504	Harness, Manual Control Cab Wire	1	
2	RC3190503	Harness, Manual Control Extension	1	
3	RC3190502	Harness, RBA Manual Control Wire	1	
4	RC3190500	Box, RBA Lower Control	1	
5	RC3190497	Cover, RBA Control Box	1	
6	RC750609	Kit, Ram 1.5" Ball Round and Rectangle Mount	1	
7	RC750280	Switch Actuator, Black with No Lens	3	
8	RC750613	Indicator, Green Panel Mount 12V LED	1	
9	RC750621	Switch, 12V/20A SPDT (On)-Off-(On) Rocker	2	
9	RC750621	Switch, 12V/20A SPDT (On)-Off-(On) Rocker	1	Optional use for Transfer Arm
10	RC750622	Switch, 12V/20A SPDT On-Off-(On) Rocker	1	
11	RC700619	Plug, -04 MORB Socket Head	1	Hyd Manifold Port G2
12	RC700620	Plug, -06 MORB Socket Head	1	Hyd Manifold Port G1
13	RC902783	P-Clamp, 1/2 Cushion	1	
14	RC902110	U-Bolt, 1/4-20 x 2-1/4 x 1-1/4 CZ Round	2	
15	RC902490	Screw, #10-24 x 3/4 CZ Hex	4	
16	RC900667	Washer, #10 SAE YZ Flat	8	
17	RC902138	Nut, #10-32 YZ Nylock	4	
18	RC901956	Bolt, 1/4-20 x 3/4 Gr 5 YZ Hex	5	
19	RC902696	Washer, 1/4 SAE YZ Hard Flat	10	
20	RC900575	Nut, 1/4-20 YZ Nylock	1	
21	RC903020	Nut, 1/4-20 Clip Barrel	4	
22	RC903044	Washer, 1 x 1/4 YZ Flat	2	For use on LH Transfer Arm Cylinder
23	RC3190505	Decal, Control Box	1	
24	RC903032	Decal, Small RCI Product Manuals QR Code	1	

3.3 – Completion Bundle



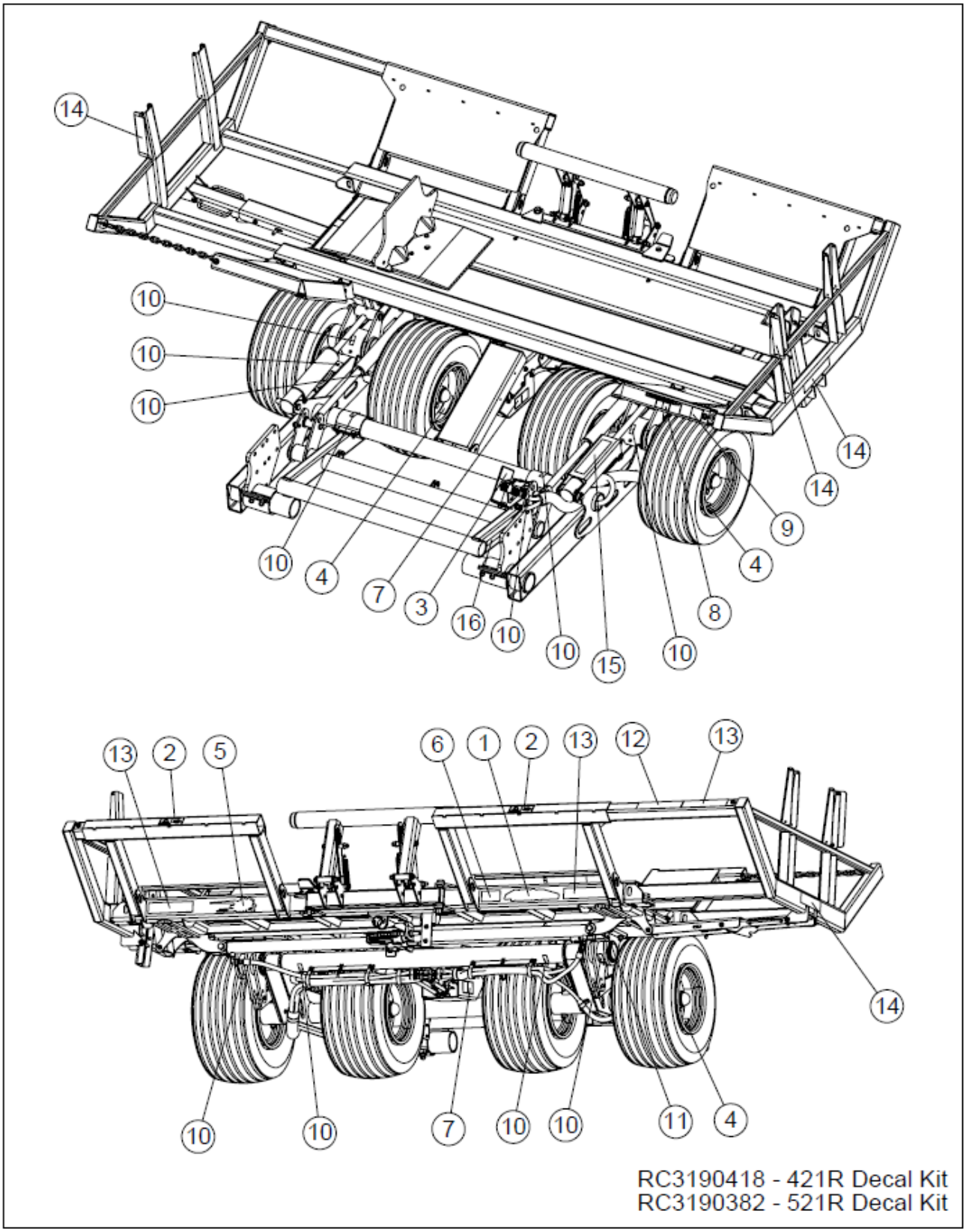


Precutter Cart Spacer
Installed

3.3 – Completion Bundle

Key	Part Number	Description	Qty	Comments
1	DXFH335507	Arm, LHS Takeup	1	
2	DXFH335508	Arm, RHS Takeup	1	
3	RC3190269	Spacer, Precutter Cart	2	For use with precutter
4	RC3190531	Assembly, 4 Ft Roller	1	421R
	RC3190527	Assembly, 5 Ft Roller	1	521R
4a	RC3190529	Shaft, 4 Ft Roller	1	421R
	RC3190526	Shaft, 5 Ft Roller	1	521R
4b	RC3190530	Roller, 4 Ft	1	421R
	RC3190524	Roller, 5 Ft	1	521R
4c	RC950757	Bearing, 5/8" Bore x 1-3/8" O.D. Cylindrical	2	
5	RC3190535	Bracket, Camera	1	
6	RC750579	Cable, 3' Aux Power Strip	1	
7	RC3190352	Bracket, Valve Holder	1	
8	DXFH334419	Bracket, Harness Retention	1	
9	RC750623	Kit, HD CabCAM Monitor with 1 Camera	1	
10	RC3190343	Tube, 0.625" ID x 3" C.L. Red Heatshrink	1	
11	RC901689	P-Clamp, 1-1/2 Cushion	1	
12	RC901956	Bolt, 1/4-20 x 3/4 Gr 5 YZ Hex	2	
13	RC900042	Bolt, 1/4-20 x 1 Gr 5 YZ Hex	1	
14	RC900047	Bolt, 1/4-20 x 2 Gr 5 YZ Hex	2	
15	RC902696	Washer, 1/4 SAE YZ Hard Flat	8	
16	RC900575	Nut, 1/4-20 YZ Nylock	5	
17	RC901745	Bolt, 3/8-16 x 3/4 Gr 8 YZ Hex	2	
18	RC900144	Bolt, 1/2-13 x 3-1/4 Gr 5 YZ Hex	8	For use with precutter
19	RC901212	Bolt, M10-1.5 x 16mm Gr 10.9 YZ Hex	1	
20	RC902965	Washer, M10 CZ Flat	1	
21	RC903004	Bolt, M12-1.75 x 40mm Gr 8.8 YZ Carriage	6	
22	RC901702	Nut, M12-1.75 CZ Flange	6	
23	RC703194	Valve, -08 FORB Ball	1	
24	RC700083	Adapter, -08 MORFS -08 MORB Straight	1	
25	RC700318	Adapter, -8 MORB Straight Union	1	
26	RC702936	Quick Coupler, 1/2" Body -08 FORB Poppet	1	

4.1 – Decals

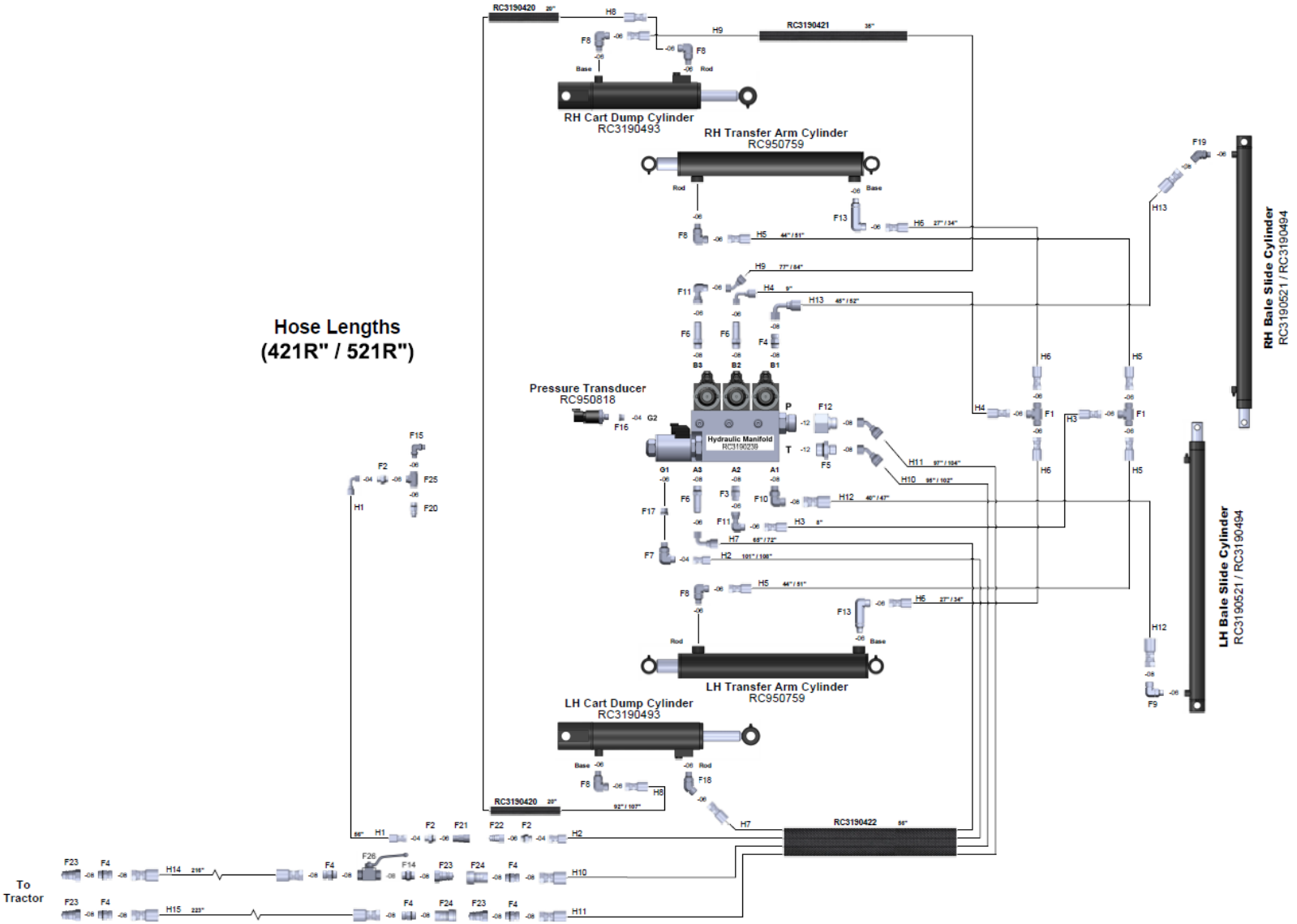


RC3190418 - 421R Decal Kit
RC3190382 - 521R Decal Kit

4.1 – Decals

Key	Part Number	Description	Qty	Comments
1	RC3190377	Decal, 421R	1	421R
	RC3190378	Decal, 521R	1	521R
2	RC3190379	Decal, Drop Lock Warning	2	
3	RC3190416	Decal, Cart Drop Lockout	1	
4	RC3190380	Decal, Tire Pressure/Wheel Nut Torque Warning	4	
5	RC3190381	Decal, 2.875 x 9.5 RCI Logo Black Background	1	
6	RC901937	Decal, American Flag	1	
7	RC901935	Decal, ISO High Pressure Fluid Hazard	2	
8	RC903009	Decal, RCI Product Manuals QR Code	1	
9	RC901934	Decal, Read OPM	1	
10	RC901933	Decal, Grease	16	
11	RC901986	Decal, Oil	2	
12	RC901941	Decal, Flourescent Orange 2 x 9 Marker	2	
13	RC901940	Reflector, Red 2 x 9	4	
14	RC901939	Reflector, Yellow 2 x 9	4	
15	DXFH333998	Tape, 2" x 10" C.L. Anti-Slip	1	
16	RC3190342	Tape, 1" x 8" C.L. White Reflective	1	

4.1 – Hydraulic Hoses and Fittings



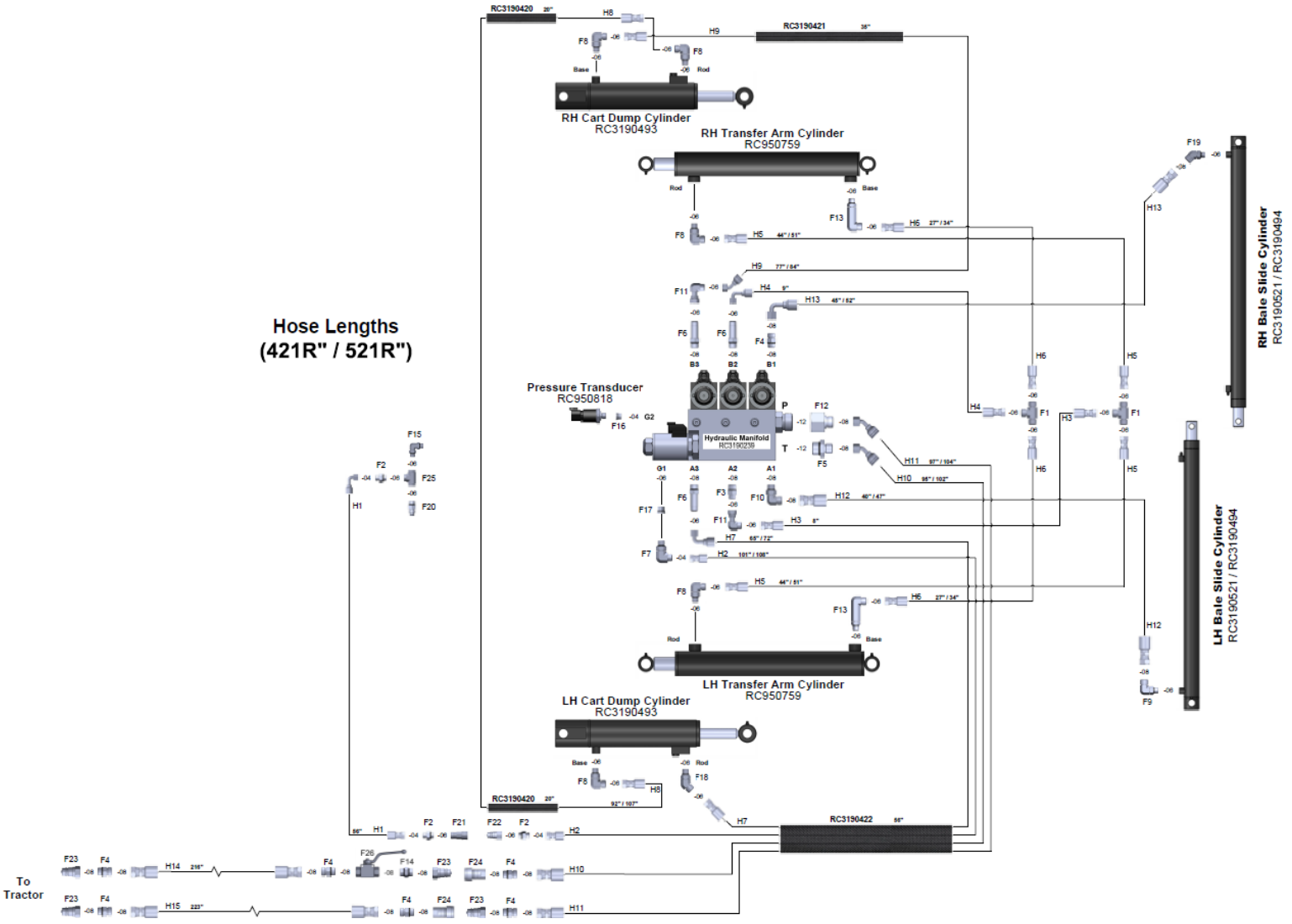
*Download PDF version of manual from website to enlarge schematic for ease of component identification. *

5.1 – Hydraulic Hoses and Fittings

Hydraulic Fittings

Fitting#	Part Number	Description	Qty	Comments
F1	RC700051	Adapter, -06 MORFS Union Tee	2	
F2	RC700074	Adapter, -04 MORFS -06 MORB Straight	3	For use with Auto Controls
F3	RC700078	Adapter, -06 MORFS -08 MORB Straight	1	
F4	RC700083	Adapter, -08 MORFS -08 MORB Straight	7	
F5	RC700085	Adapter, -08 MORFS -12 MORB Straight	1	
F6	RC700108	Adapter, -06 MORFS x -08 MORB Straight Long	3	
F7	RC700115	Elbow, -04 MORFS -06 MORB 90°	1	For use with Auto Controls
F8	RC700118	Elbow, -06 MORFS -06 MORB 90°	5	
F9	RC700124	Elbow, -08 MORFS -06 MORB 90°	1	
F10	RC700125	Elbow, -08 MORFS -08 MORB 90°	1	
F11	RC700181	Elbow, -06 MORFS -06 FORFS Swivel 90°	2	
F12	RC700236	Reducer, -12 FORFS -08 MORFS	1	
F13	RC700308	Elbow, -06 MORFS -06 MORB Long 90°	2	
F14	RC700318	Adapter, -8 MORB Straight Union	1	
F15	RC700395	Union, -06 MORB 90°	1	For use with Auto Controls
F16	RC700619	Plug, -04 MORB Socket Head	1	For use with Manual Controls
F17	RC700620	Plug, -06 MORB Socket Head	1	For use with Manual Controls
F18	RC700880	Elbow, -06 MORFS -06 MORB 45°	1	
F19	RC700883	Elbow, -08 MORFS -06 MORB 45°	1	
F20	RC701777	Adapter, -06 MJIC -06 MORB Straight	1	For use with Auto Controls
F21	RC702811	Coupler, Female	1	For use with Auto Controls
F22	RC702812	Coupler, Male	1	For use with Auto Controls
F23	RC702936	Quick Coupler, 1/2" Body -08 FORB Poppet	4	
F24	RC703134	Quick Coupler, 1/2" Body -08 FORB Poppet Female	2	
F25	RC703154	Tee, -06 FORB Union	1	For use with Auto Controls
F26	RC703194	Valve, -08 FORB Ball	1	

5.1 – Hydraulic System – Hoses and Fittings



*Download PDF version of manual from website to enlarge schematic for ease of component identification. *

5.1 – Hydraulic Hoses and Fittings - Continued

Hydraulic Hoses

Hose #	Part Number	Qty	Comments
H1	RC3190386	1	For use with Auto Controls
H2	RC3190487	1	For use with Auto Controls on 421R
	RC3190388	1	For use with Auto Controls on 521R
H3	RC3190390	1	
H4	RC3190392	1	
H5	RC3190477	2	421R
	RC3190394	2	521R
H6	RC3190479	2	421R
	RC3190396	2	521R
H7	RC3190489	1	421R
	RC3190398	1	521R
H8	RC3190475	1	421R
	RC3190400	1	521R
H9	RC3190491	1	421R
	RC3190402	1	521R
H10	RC3190485	1	421R
	RC3190408	1	521R
H11	RC319546	1	421R
	RC3190410	1	521R
H12	RC3190483	1	421R
	RC3190412	1	521R
H13	RC3190481	1	421R
	RC3190414	1	521R
H14	RC3190404	1	
H15	RC3190406	1	

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5.1 – Hydraulic System - Continued

Hydraulic Components

Part Number	Description	Qty	Comments
RC3190239	Assembly, RBA Hydraulic Manifold	1	
RC950818	Transducer, SAE #4 0-4000 PSI Press	1	For use with Auto Controls
RC3190521	Cylinder, 1.75" x 32" Hydraulic	2	421R (Seal Kit: RC950836)
RC3190494	Cylinder, 1.75" x 40" Hydraulic	2	521R (Seal Kit: RC950836)
RC950759	Cylinder, 2" x 14" Welded	2	Seal Kit: RC950833
RC3190492	Cylinder, 2.5" x 8" Small Rephase	1	Seal Kit: RC950834
RC3190493	Cylinder, 2.75" x 8" Large Rephase	1	Seal Kit: RC950835
RC3190420	Sleeve, 20" C.L. -06 Single Hose	2	
RC3190421	Sleeve 35" C.L. -06 Single Hose	1	
RC3190422	Sleeving, 56" C.L. 8" Ballistic Nylon	1	

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22 Predelivery Checklist

(Keep in Manual – Send Copy to RCI)

After the machine is completely set up and prior to delivery, the following inspections MUST be made before delivery to the customer. Check off each item after prescribed action is taken.

- ☐ Review manual and machine for safety signs.
- ☐ Review manual for proper:
  - Installation
  - Operation
  - Adjustment
  - Service
- ☐ Review manuals for regular lubrication and intervals.
- ☐ Review manual for lighting and devices available when transporting machine.
- ☐ Review manual for attachment / connection process to tractor, baler, and control devices:
  - Hitch
  - Hydraulic
  - Electrical
- ☐ Review additional documents:
  - Instructions
  - Warranty
  - Serial Numbers
- ☐ Machine is assembled according to the instructions:
  - All components installed properly.
  - All hardware tightened properly.
  - All hoses and harnesses routed properly.
- ☐ Equipment is lubricated, rotates, or moves freely without dragging or interference.
- ☐ Paint all unpainted bolts and nuts or any parts scratched in shipment or installation.
- ☐ Properly connect machine to baler.
- ☐ All grease fittings are installed and lubricated.

Initials: _____ Dealer Representative

_____ Customer

Model:

- 521R
- 421R

Serial Number: _____

23 Delivery Checklist

(Keep in Manual – Send Copy to RCI)

The following checklist is an important reminder of valuable information that must be passed on to the customer at the time the machine is delivered.

Check off each item as you explain it to the customer.

- ☐ Present the customer the Operator Manual. Instruct them to be sure to read and completely understand its contents BEFORE attempting to operate the unit.
- ☐ Review the warranty.
- ☐ Explain and review with the customer the controls and safety equipment on the accumulator.
- ☐ Review with the customer the lubrication and maintenance chapters of the Operator Manual.
- ☐ Direct the customer on how to use the table of contents of the Operator Manual as a quick page-locating guide.
- ☐ Direct the customer to visit RCI.ag for a digital copy of this manual.
- ☐ Explain and review with the customer the safety information in the Operator Manual.
- ☐ Explain to the customer that regular lubrication and proper adjustments are required for continued, proper operation and long life.
- ☐ Explain and review with the customer the proper tractor and accumulator preparation for safe operation.
- ☐ Review the checklists and have the customer and the dealer representative initial the pages.
- ☐ Complete the Warranty Registration and Acknowledgements page and make copies of it and both checklist pages to send to RCI and keep copies for the dealership.

Initials: _____ Dealer Representative

_____ Customer

Model:

- 521R
- 421R

Serial Number: _____

24 Warranty Registration and Acknowledgements

(Keep in Manual – Send Copy to RCI)
Save time sending copy to RCI and fill out online after this page is complete.

Bit.ly/RCI_Reg

I acknowledge that all pre-delivery and all delivery checklist items were performed on this unit as outlined and reviewed with the customer at the time of delivery.

All work must be complete, and information provided, to properly register for warranty. Save copy of each inspection and this form at the dealership. Fill out form online for warranty or send to RCI directly.

(Photocopy, screen shot, and fax are all acceptable means of data transmission.)

Online: bit.ly/RCI_Reg

Email: info@RCI.ag

Mail: RCI Engineering
208 River Knoll Drive
Mayville, WI 53050

Fax: 920-387-9806

Customer Signature

Model Number

Serial Number

Dealer Representative Name

Dealer Representative Signature

Dealer Name and Location

Date

Customer Contact Name

Customer Business Name

Customer Business Address

Customer Business City, State, ZIP

Customer Business Phone

Customer Business Email

25 Suggestions to RCI

(Remove from Manual – Send Copy)

Use this page to provide feedback to RCI regarding this product, manual, or other ways for RCI to improve in the future. Or save time and fill out online!

Bit.ly/RCI_Improve

RCI Engineering
Email: info@RCI.ag
Fax: 920-387-9806
Mail: 208 River Knoll Drive
Mayville, WI 53050

Name

Title

Company

Model

Contact Email

Contact Phone

Setup Time (hours)

Comments:

RCI Engineering LLC
208 River Knoll Dr
Mayville, WI 53050
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www.rci.ag