



BALE TITAN



Technical Training

Purpose

- The purpose of this document is to help the operator or technician quickly troubleshoot the cause of an issue on the ProAG Bale Titan RXR. It is not intended to replace the operators manual or any tech bulletins. Please refer to the operators manual for a more in-depth understanding or information.

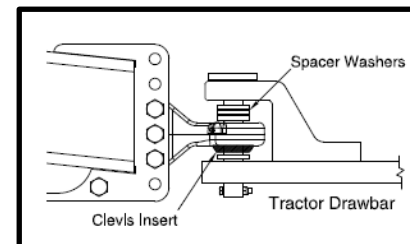
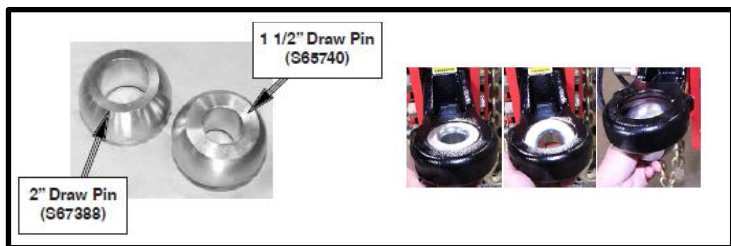
Tractor Requirements

Horsepower: 220 HP

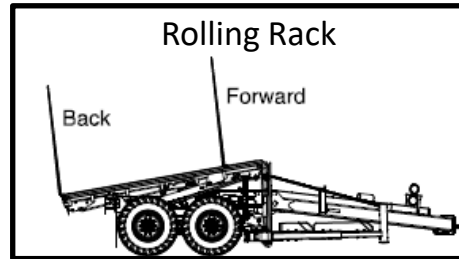
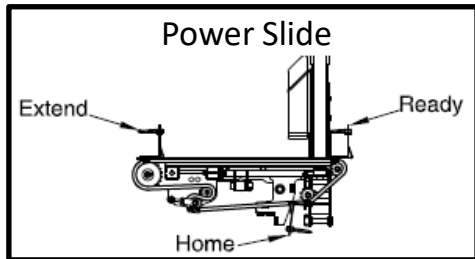
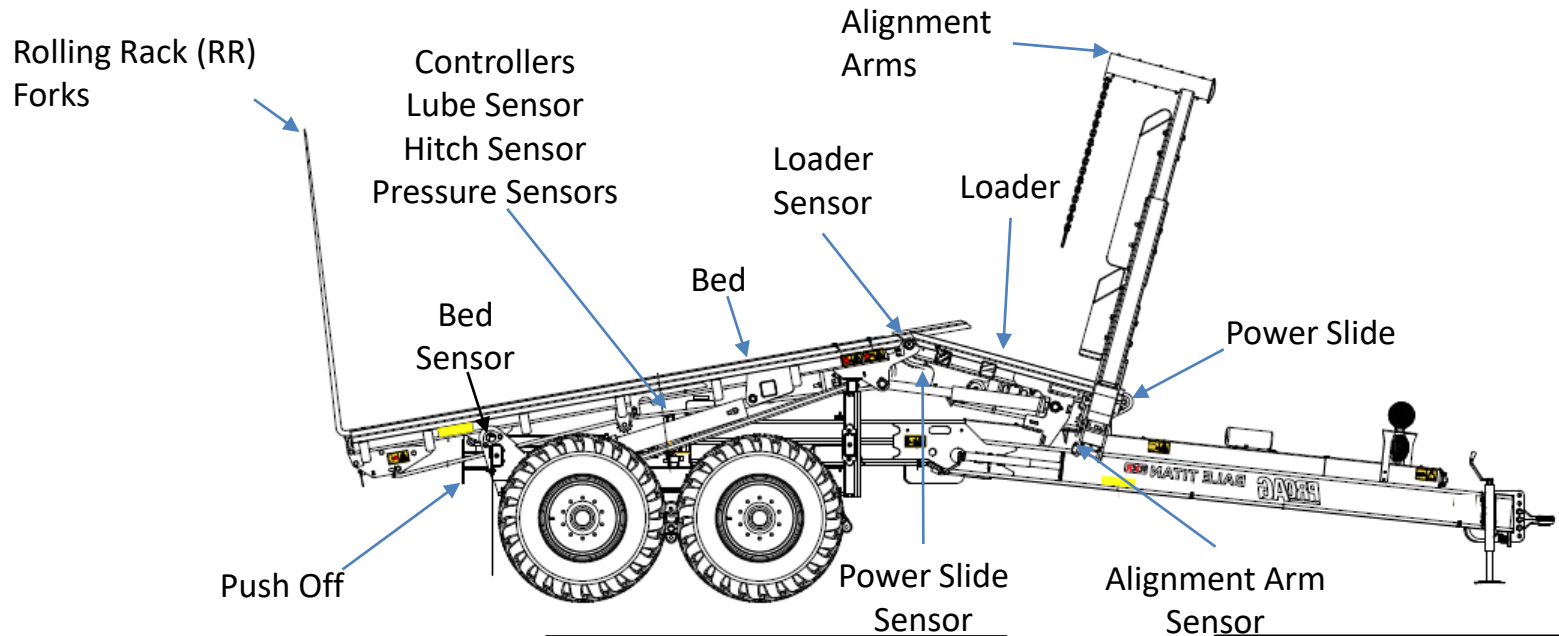
Minimum Weight: 27,000 lbs

Minimum Hydraulics: 25 gmp
2500 psi
Closed Center-Load Sense
(Optional Open Center Kit – K71744)

Drawbar: CAT 3 or CAT 4
Different inserts available from ProAG
Install spacers to minimize hitch
bounce



Machine Overview



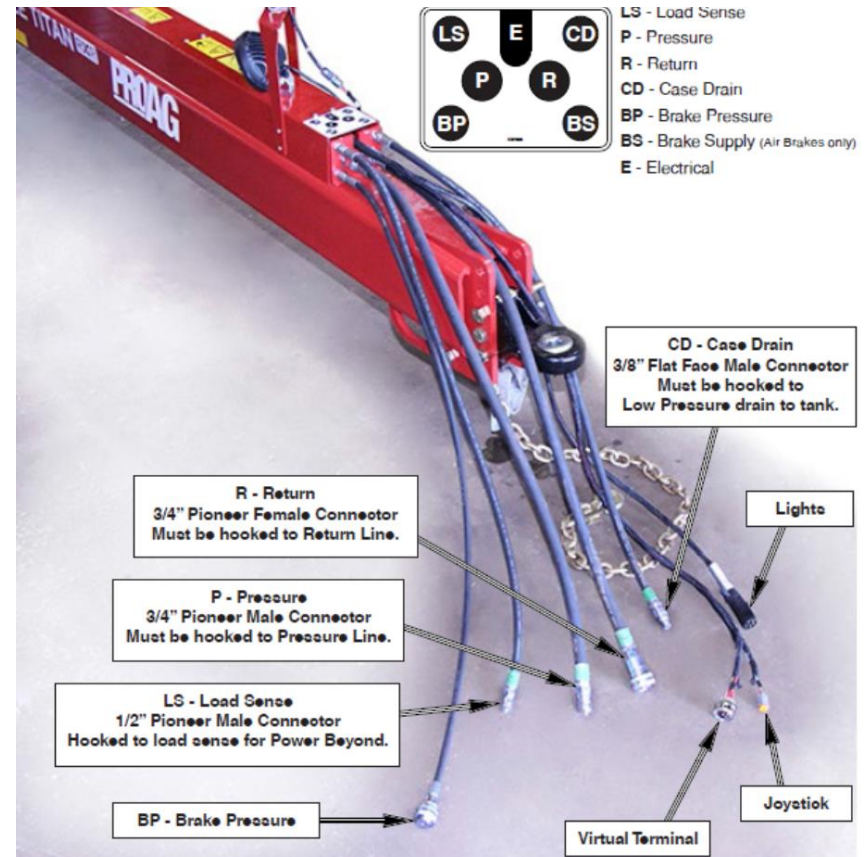
Alignment Arm Chains

- Alignment arm chains should be as tight as possible to prevent the arms from excessive bounce.
 - This helps prevent wear on the arms and the bushings.
- Raise the loader all the way up and tighten the chains as best tight as you can.



Hydraulics

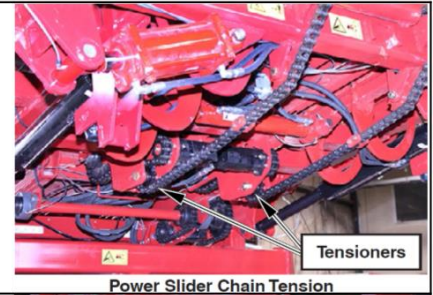
- Closed center hydraulic system.
 - Open center conversion kit (part # K71744) is available.
- Uses a load sense power beyond system with a case drain.
- Creates flow when there is demand to do work, otherwise leaves tractor's hydraulics in standby.
- Connect the case drain first when hooking to tractor.
- Some tractors require a stronger load sense signal to activate the hydraulics.
 - Slow response of hydraulics is an indicator of this.
 - A Load Sense Amplifier Kit (part no. K71750) is available.



Chain Tensioning

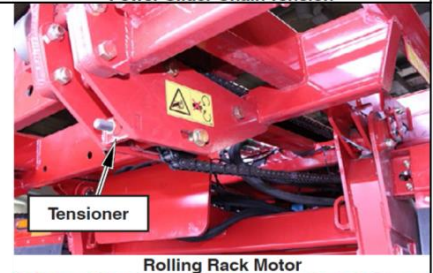
Power Slide Chain Tension

Should have approximately $\frac{3}{4}$ " of slack in the middle of the lower side of the chain with Power Slide moved to the top of the loader.



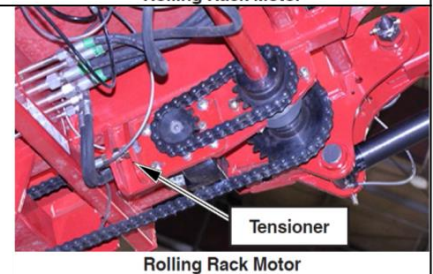
Rolling Rack Chain Tension

Should have approximately $\frac{3}{4}$ " of slack in the middle of the slack side of the chain.



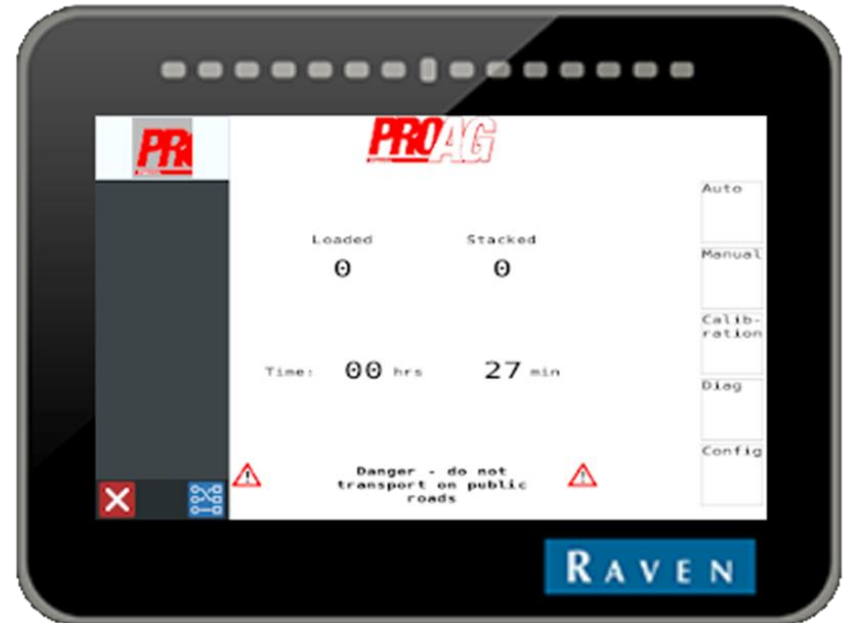
Rolling Rack Motor Chain Tension

Should have approximately $\frac{1}{2}$ " of slack in the middle of the slack side of the chain.

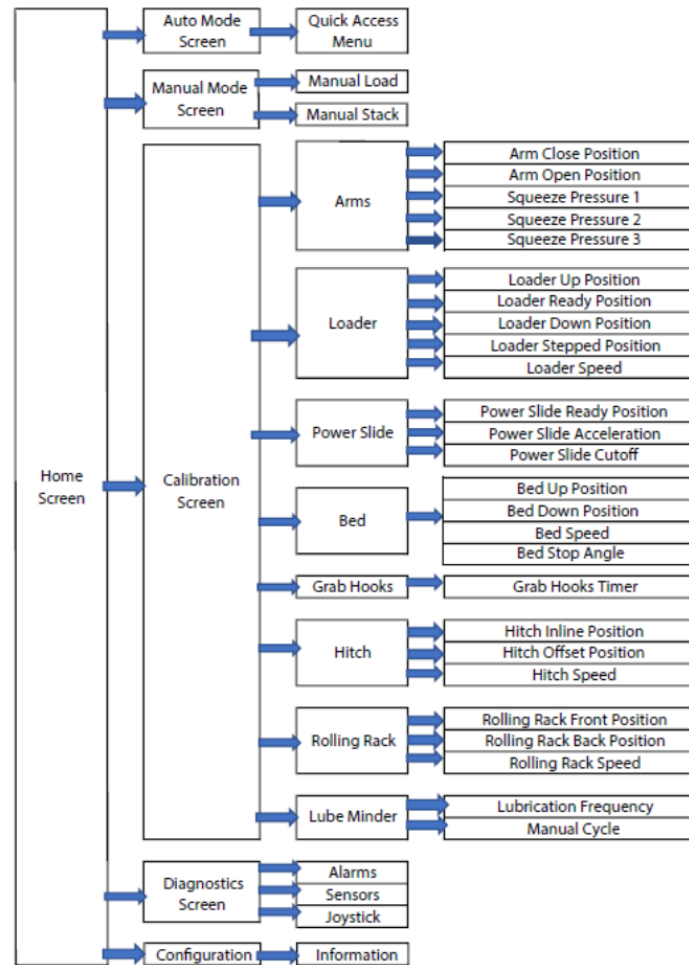


Control System

- Software is displayed on ISOBUS Universal Terminal.
 - Optional Raven CR7 kit for non ISOBUS tractors
 - Part number K69472
- Known not to work on the following terminals:
 - New Holland IntelliView III
 - Fendt
 - May be others that have not been tried yet.
- Known to work correctly on the following terminals:
 - New Holland IntelliView IV
 - Case AFS Pro 700
 - John Deere CommandCenter
 - John Deere GS2 (2600)
 - John Deere GS3 (2630)
 - Topcon X35
 - Raven CR7
 - Raven Viper 4+



Software Layout



Software

+ Price Book - CAN

+ Price Book - ProAG

- ProAG Bale Titan Software


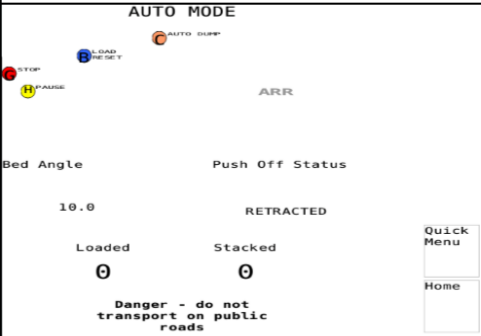
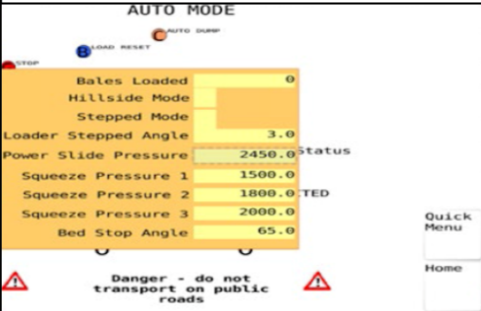
- [Morris Titan Controller Update Master 1.5.14 \(June 15, 2020\)](#) [hex : 394.16 Kb]
- [Morris Titan IOP File v1.5.1400 \(July 13, 2020\)](#) [iop : 42.23 Kb]
- [Morris Titan Slave Controller Update 1.5.14 \(June 15, 2020\)](#) [hex : 394.16 Kb]
- [Morris Titan WindTools 2.1.0.23 \(June 11, 2020\)](#) [exe : 126654.19 Kb]
- [Titan Falcon Software Update Instructions \(July 13, 2020\)](#) [pdf : 526.05 Kb]
- [WindTools User Manual \(Oct. 2, 2019\)](#) [pdf : 1507.87 Kb]

+ ProAG Logos

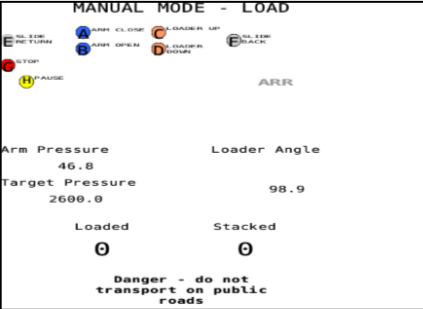
+ Product Video - Morris

- The firmware, IOP file, Windtools, and Firmware update instructions can be found on the dealer portal under “ProAG Bale Titan Software”.
- When performing a Firmware update you must load the IOP file. If the IOP file is not loaded, or fails during loading this will prevent the firmware propagation to the ISO screen (example: the ProAG icon will not appear in the Monitor).
- Note: the IOP file and the Master/Slave need to be matching versions.

User Interface






	<h2><u>Home Screen</u></h2> <ul style="list-style-type: none"> • No electronic or hydraulic functions can move when this screen is shown. • This is the screen shown when the system is powered on. • Pressing the STOP button on the joystick always returns to this screen. • Should be on this screen when transporting the machine.
	<h2><u>Auto Mode</u></h2> <ul style="list-style-type: none"> • Click the Trigger and the button shown on the screen to start the next auto function. • Auto Picking and Auto Stacking provides for different joystick functions. • Can still move some functions manually while in auto. • Best to try not to switch between Auto and Manual very often. • ARR should be ON after picking the first two bales.
	<h2><u>Diagnostics</u></h2> <ul style="list-style-type: none"> • Allows you to quickly change settings without leaving auto. <ul style="list-style-type: none"> • Hillside Mode – Used on Steep hills. Prevents bales from auto loading when loader raises. • Stepped Mode – When picking second bale the loader lowers to Stepped position instead of all the way down.

User Interface

	<p>MANUAL STACK</p> <p>GRAB HOOKS IN</p> <p>GRAB HOOKS OUT</p> <p>ROLLIN RACK FORWARD</p> <p>ROLLIN RACK BACK</p> <p>Home</p>	<h2><u>Manual Mode</u></h2> <ul style="list-style-type: none"> • Use the joystick or buttons on the monitor to manually move the functions. • Press the “ROLLING RACK FORWARD” button to turn ARR on. • Manual Stack and Manual Load modes.
<p>Calibration</p> <p>Arms</p> <p>Loader</p> <p>Power Slide</p> <p>Bed</p> <p>Grab Hooks</p> <p>Hitch</p>	<p>Up</p> <p>Down</p> <p>Enter</p> <p>Back</p> <p>Home</p>	<h2><u>Calibration</u></h2> <ul style="list-style-type: none"> • This screen is used to select the function that is to be calibrated.
<p>Loader</p> <p>→ Loader up position</p> <p>Loader ready position</p> <p>Loader down position</p> <p>Loader stepped position</p> <p>Loader speed</p>	<p>Up</p> <p>Down</p> <p>Enter</p> <p>Back</p> <p>Home</p>	<h2><u>Calibration Screens</u></h2> <ul style="list-style-type: none"> • Not all functions have the same settings. • Typically it is the Position that gets recalibrated.

Calibration Settings

Power Slide	
Power Slide Auto Home	Up
Power Slide Ready Position	Down
Power Slide Extend Position	Enter
Power Slide Acceleration	Back
Power Slide Pressure Cutoff	
Max Duty Cycle	
Min Duty Cycle	Home

Loader Calibration	
<p> Loader up</p> <p> Loader down</p> <p> Accept</p> <p>To calibrate, use the A/B Key to move the component into the desired position.</p> <p>Once desired position is reached, press the C key to save it.</p> <p> Danger - do not transport on public roads </p>	<p>Loader Down Position -209.5</p> <p>Up</p> <p>Down</p> <p>Enter</p> <p>Back</p> <p>Fctry Reset</p> <p>Home</p>

Home	<ul style="list-style-type: none"> Unique to the Power Slide. This is the position where the power slide is fully retracted against the mechanical stops.
Position	<ul style="list-style-type: none"> Setting this sets the position the controller will move the function to.
Pressure Cutoff	<ul style="list-style-type: none"> When the function reaches this hydraulic pressure it will stop driving. Too high can cause damage to bales. Too low can not apply enough force resulting in bales not pushing onto the bed or the arms not squeezing the bales enough to pick them up.
Max Duty Cycle	<ul style="list-style-type: none"> The maximum speed the function can be driven at. Typically this is set to 100.
Min Duty Cycle	<ul style="list-style-type: none"> The minimum setting to make a function move. Too high and the controller could be jerky. Too low and the controller may never reach the target position.
Time Settings	<ul style="list-style-type: none"> The time a function will be driven for. Only the grab hooks have this.
Lube Frequency	<ul style="list-style-type: none"> How often the grease system will operate. Manual Cycle starts the grease system for one lube cycle.

User Interface

<div><div>Diagnostics - Sensors</div><div><div>Arm Angle-142.3 °</div><div>Arm Pressure40.8 psi</div><div>Bed Angle9.9 °</div><div>Hitch Angle45.6 °</div><div>Loader Angle88.2 °</div><div>Power Slide Position0</div><div>Power Slide Pressure61.8 psi</div><div>Push off switchRETRACTED</div><div>Rolling Rack Forward SwitchOFF</div><div>Rolling Rack Back SwitchOFF</div></div><div><div>Danger - do not transport on public roads</div></div></div> <div><div>Alarms</div><div>Sensor</div><div>Joysti</div><div>Home</div></div>	<div><div>Diagnostics</div><ul style="list-style-type: none">Alarms<ul style="list-style-type: none">Displays any active alarms with an error code for more reference.Sensors<ul style="list-style-type: none">Displays values of all sensors on the machine.Joystick<ul style="list-style-type: none">Used to test the joystick functionality.</div>
<div><div>Configuration</div><div><div>Bales Loaded:0</div><div>Bales Stacked:0</div><div>Bale Mode:3x4</div><div>Hillside Mode:</div><div>Stepped Mode:</div><div>Accumulator Mode:</div><div>Time:00 hrs27 min</div><div>Danger - do not transport on public roads</div></div><div><div>Unlock</div><div>Toggle Mode</div><div>Reset Timer</div><div>Info</div><div>Home</div></div></div> <div><div><div>Configuration</div><ul style="list-style-type: none">Used to set some of the machine options and change bale information.Bales Loaded – number of bales loaded on the machine at that time.Bales Stacked – bales stacked since last power up.Bale Mode – Select the size of bales that are being stacked.<ul style="list-style-type: none">Press the Toggle Mode button to change the size of bale.Accumulator Mode- Used when picking bundles.</div></div>	
<div><div>Information</div><div><div>Machine Hours6</div><div>Total Bales Picked12</div><div>Master Controller Version 1.5.0.1</div><div>Slave Controller Version 1.5.0</div><div>1.5.0</div></div><div><div>Back</div><div>Home</div></div></div> <div><div><div>Information</div><ul style="list-style-type: none">Displays machine information and controller versions.</div></div>	

General Troubleshooting

Hydraulic vs Electric/Control

- The first step is to determine if the problem is a hydraulic or an electric/control issue. The easiest way to determine this is to manually check the function at the Hydac valve/main block.
- If the function or functions work manually at the main hydraulic block then it is most likely an electric/control issue.
- If the function or functions do not work manually at the main hydraulic block then the issue is most likely a hydraulic issue.

General Troubleshooting

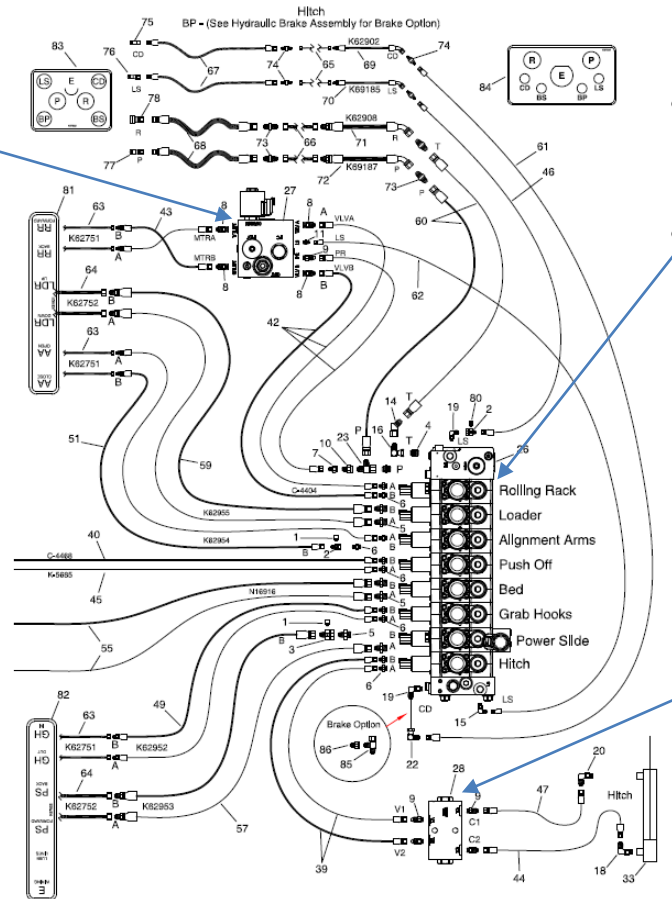
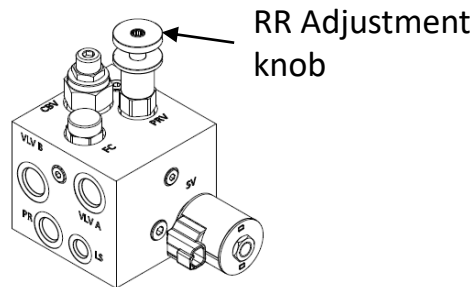
- To check this use a 10mm wrench to manually move the “rocker arm” located underneath the Hydac valve/main block.
- Note: each function will have a dedicated “rocker arm” adjacent to its specific slice/valve.



Hydraulic Troubleshooting

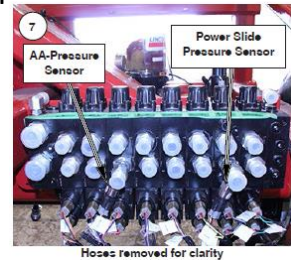
Rolling Rack (RR) Block

- Has an adjustment for RR pressure.
- Turning the knob in increases pressure against the bales.
- Later machines have a larger motor allowing higher bale pressure with lower hydraulic pressure.
- Located just inside the right side tires.



Main Block

- Contains Manual Overrides on each function.
- Power Slide and Alignment Arms both have a pressure transducer installed on them.



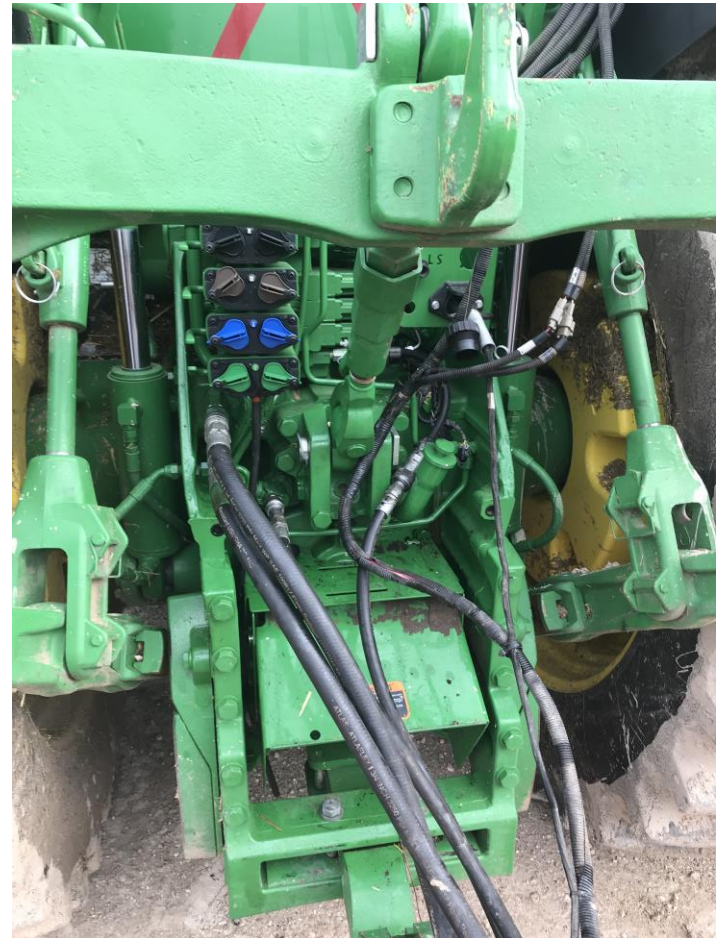
Hitch Counter Balance Valve

Hydraulic Cont.

- Is it one function or all functions that are “not working”?

Hydraulic Cont.

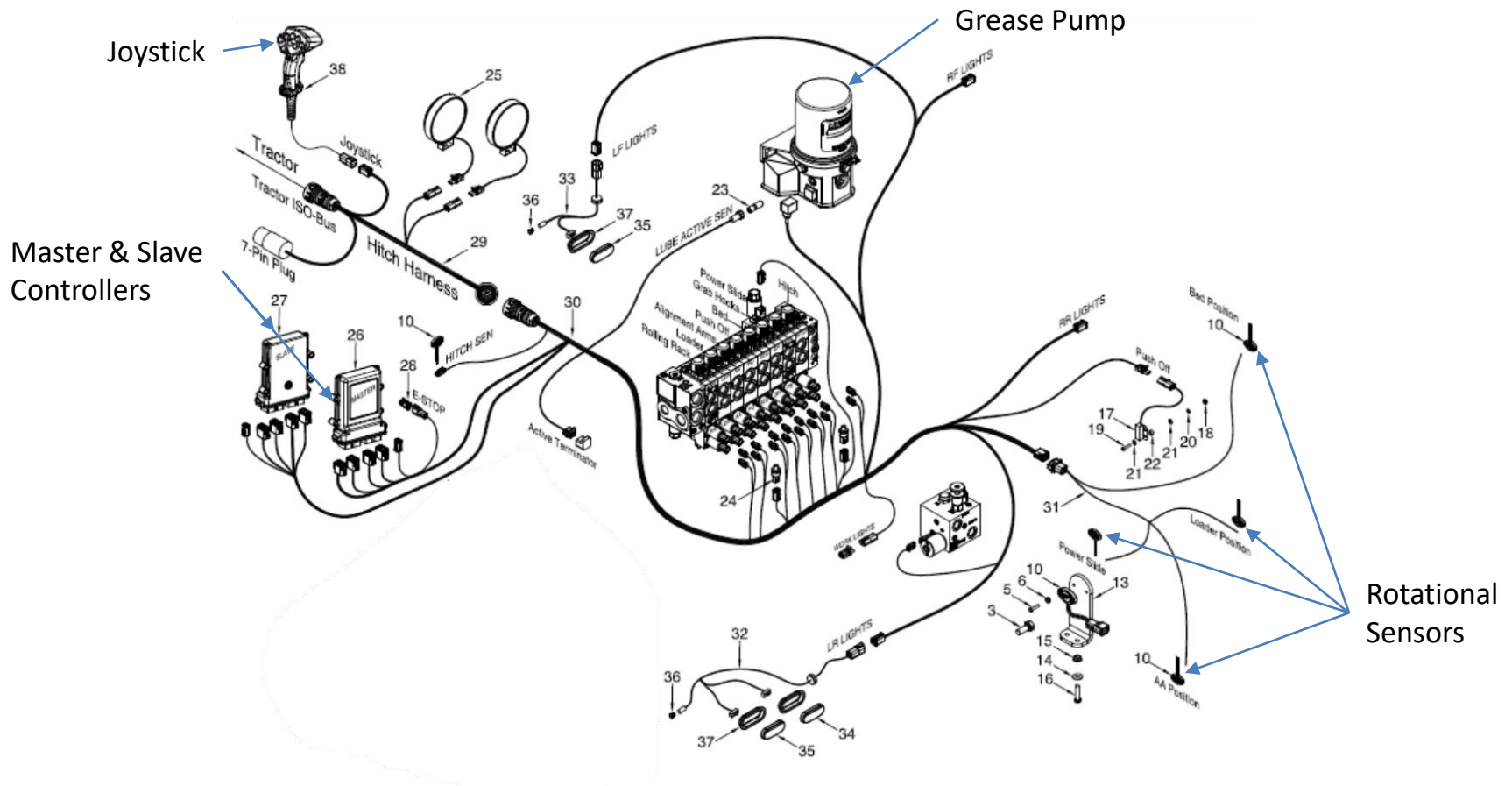
- If all functions are not working manually then common sources for hydraulic flow need to be checked.
- Verify positive flow from the source, e.g. make sure Tractor or power supply is actually providing flow.
- Other possible causes, incorrect plumbing, bad hydraulic tips, restricted flow in pressure/return (pinched hose/line), hydraulic leak and tractor/power supply itself.
- **Note** if the tractor/power supply seem to be the problem check with the manufacture that the Load sensing system is installed correctly also check if there is any tech bulletins on your specific model. Example: John Deere bulletin solution 92115 “Power Beyond Flow or Pressures not high enough tractors equipped with CAN SCV’s.



Hydraulic Cont.

- If it is only one function that is “not working” manually then the following items should be checked.
 - Check for flow restrictions to that specific function, pinched line or leak.
 - Check for correct plumbing, e.g. the loader, verify that the counter balance valve is plumbed correctly.
 - Check cylinder for specific function. Is there flow going to cylinder, is flow coming out of cylinder, internal or external leak, bad seal or visible damage.
 - Check motor for specific function. Is there flow going to the motor, is flow coming out of the motor, internal or external leak, bad seal or visible damage.

Electric/Control System



Electric/Control System

- The first thing that needs to be determined is if it's all functions, half of the functions or just one function that is “not working”.

Electric/Control System Cont.

- If all functions are not working check the following common sources:

- Verify power source, tractor, batteries, etc...
- Check connection at ISO breakaway
- Check connection on joystick
- Verify power is going to the ECUs
- Check connection at ECUs
- Check for broken wires
- Check harness connections
- Verify current Firmware and IOP are loaded
- Reload or update Firmware and IOP

Note: Contact Local Dealer, they will need to access the current Firmware slave and master, current IOP file, windtools and instructions from the dealer portal.

- Last resort should be swapping out hardware, e.g. ECUS, sensors, harnesss, etc..

Note: Any time a firmware update or ECU swap is done you will need to ensure that the matching IOP file is loaded and a complete calibration of the stacker is completed.

Electric/Control System Cont.

- If half the functions are “not working” this is typically an issue with one of the ECUs. Half of the functions are on the Master and the other half are on the Slave.
 - Check connection at ECUs
 - Check for broken wires
 - Verify current Firmware and IOP are loaded
 - Reload or update Firmware and IOP

Note: Contact Local Dealer, they will need to access the current Firmware slave and master, current IOP file, windtools and instructions from the dealer portal.

- Last resort should be swapping out hardware, e.g. ECUS, sensors, harness, etc...

Note: Any time a firmware update or ECU swap is done you will need to ensure that the matching IOP file is loaded and a complete calibration of the stacker is completed.

Electric/Control System Cont.

Master ECU

- Alignment Arms
- Lube Minder
- Hitch
- Loader
- Grabhooks

Slave ECU

- Bed
- Rolling Rack
- Push off
- Powerslide

Electric/Control System

Falcon Controller

The Bale Titan is controlled with two Falcon ECUs. Both ECUs have three LEDs that indicate their status as follows.

- The **Top LED** needs to be green to indicate it is getting power and the program is running.
LED_OPERATING_STATUS SOLID GREEN - turned on when application starts running
- The **Second LED** should be flashing green and red to indicate it is transmitting and receiving. It may stay on green or red for extended periods as well.
 - * LED_STATUS_1 RED - CAN_BUS_1 transmit
 - * LED_STATUS_1 GREEN - CAN_BUS_1 receive
- The **Third LED** works similar to the first. The Slave ECU should not have the lowest LED illuminated since it is not connected to CAN 2.
 - * LED_STATUS_2 RED - CAN_BUS_2 transmit
 - * LED_STATUS_2 GREEN - CAN_BUS_2 receive

Note: Can 2 is only used for communication with the joystick. The third LED should be blinking green when in communication with joystick. This can be used to verify that the joystick is communicating with the master controller.



Electric/Control System Cont.

- If one function is not working check the following:
 - Verify function does not work in Auto, Manual or Calibration, if it works in calibration, but not Auto or manual, a recalibration of that function is recommended.
 - Test Joystick to ensure all buttons are registering.
 - Check for broken wires.
 - Check solenoid for that function, located under the Hydac/main hydraulic block. You can swap the control lines on solenoids around with a known working function to determine if the solenoid is working.
 - Check the Min and Max duty cycle for that specific function. Min and Max duty cycles are based on a 0-100% scale, so if the min is under 0 or the Max is set higher than 100 it will “confuse” the machine and the signal will not be sent to the solenoid. This issue is commonly misdiagnosed as a wire or solenoid problem.
 - Check the sensor for that specific function (refer to Sensor Troubleshooting section)

Electric/Control System Cont.

⊕ Price Book - CAN

⊕ Price Book - ProAG

⊖ ProAG Bale Titan Software

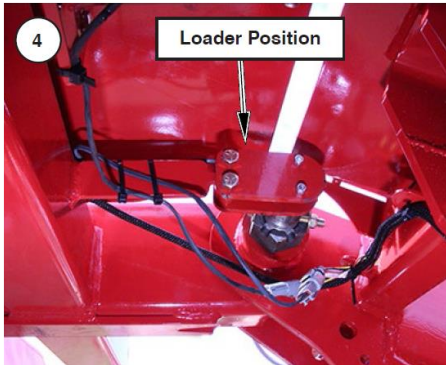
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⊕ ProAG Logos

⊕ Product Video - Morris

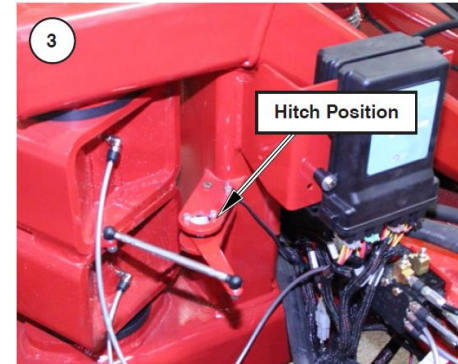
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- When performing a Firmware update you must load the IOP file. If the IOP file is not loaded, or fails during loading this will prevent the firmware propagation to the ISO screen (example: the ProAG icon will not appear in the Monitor).
- **Note:** ISO breakaway should be checked first if the ICON does not appear on the screen.
- **Note:** the IOP file and the Master/Slave need to be matching versions.

Sensor Troubleshooting



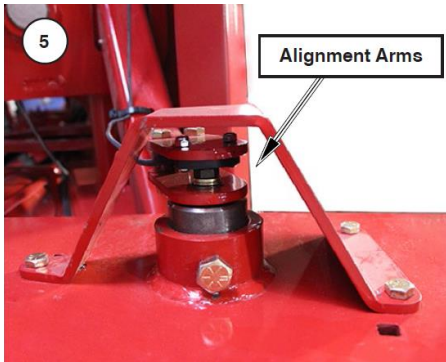
Loader Sensor

- Located under the bed and loader in the location where the two join.
- On the right hand side of the machine.



Hitch Sensor

- Located in the middle of the machine at the back of the hitch.
- Raise bed to get access.
- Linkage must stay tight.



Alignment Arm Sensor

- Located on top of the alignment arm pivot.
- On the right hand side alignment arm.



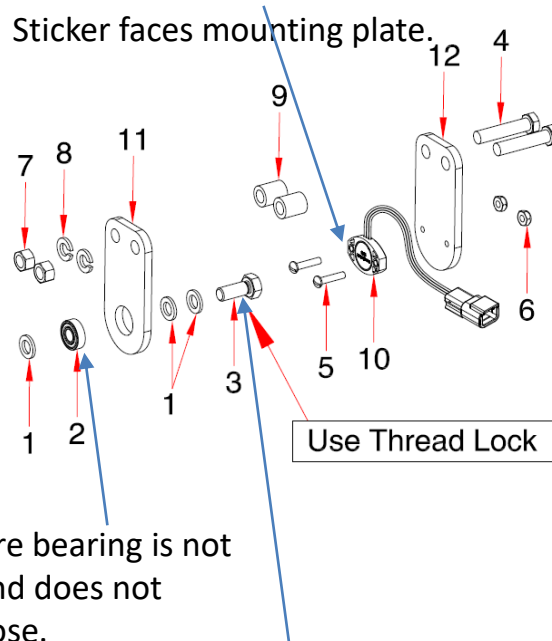
Bed Sensor

- Located on the right hand side bed pivot.

Sensor Troubleshooting Cont.

Sensor writing facing bolt head.

Sticker faces mounting plate.



Make sure bearing is not seized and does not come loose.

Magnet in bolt head

- Gap between magnetic bolt head and sensor should not exceed 1/8".
 - If the gap is too large a reading of -180 degrees will be displayed on the monitor.
- Thread locker must be used on the magnetic bolt.
- Tech bulletin 492 and the Operator Manual explain how to adjust the sensor.
- May have to clean the sensor face of debris.

MOORE INDUSTRIES
No. 492
Date: October 7, 2019
Machine: Bale Titan FORK

Reference: Angular Position Sensor

Angular Position Sensors are used for the Bed Position, Hitch Position, Loader Position, Alignment Arms and Power Side Position on the Bale Titan.

Adjusting Angular Position Sensor Gap and Alignment

In order for the angular sensors to properly function, the gap between the magnetic head bolt and the sensor must not exceed 1/8-inch. The gap on all functions except the Power Side can be adjusted with the following procedure.

- Shut off tractor and remove key before servicing or adjusting loader. If working on the Loader, Alignment Arm, or Power Side sensor please ensure that the loader is reeled on the back of the bale pole or fully in the down position.
- Loosen and remove bolts #4 shown below.
- Loosen and remove magnetic head bolt #3 carefully not to lose or misplace shim washers #1.
- To bring the sensor closer to the magnetic bolt, simply take shim washers from the back side of bearing plate and place them on the magnetic bolt head side. Move one washer at a time. Inspect pivot bearing condition and replace if necessary.
- Reinstall and tighten magnetic head bolt to 3.75K-lbs. (5 Nm) **use Thread Lock.**

Note: Top surface of magnet is sealed for corrosion protection - not to be damaged.

- Reinstall bolts #4.
- Center sensor over magnetic bolt using the edges of plates #11 and #12 as a guide. Tighten bolts #4.
- Verify the gap between the sensor and the magnetic head bolt is less than 1/8-inch.
- Reassemble all positions of the adjusted sensor.

Note:
Be sure that one shim washer is always left between end of the pin and the bearing. Failing to have a washer here could result in the sensor bolt coming loose.

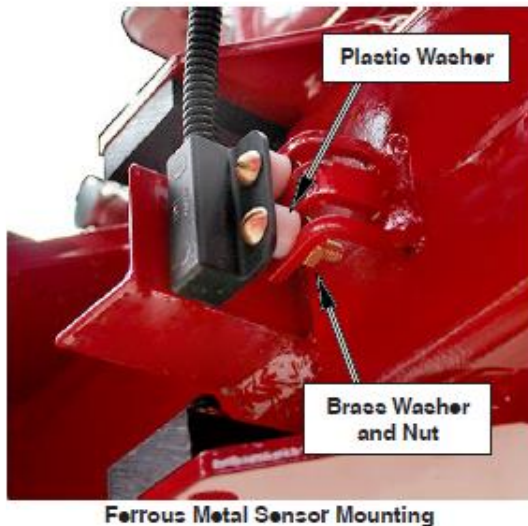
Item	Part No.	Description	Qty
1	W-542	Flatwasher - 13/32 ID x 11/16 OD x 12 Ga.	3
2	KE7016	Bearing - 3/8 ID x 7/8 OD x 9/32 thick	1
3	KE7231	Hex Bolt - 3/8 x 1 1/2 - Stainless with Magnetic Head	1
4	W-619	Hex Bolt - 3/8 x 1 3/4 Lg.	2
5	KE5233	Machine Screw #8-32 UNC x 3/4 Lg.	2
6	N16304	Locknut #8-32 UNC	2
7	W-514	Pin Nut - 3/8	2
8	W-523	Lockwasher - 3/8	2
9	N25279	Bushing - 1/8 ID x 5/8 OD x 3/4 Lg.	2
10	KE7298	Sensor - Angular Position	1
11	KE7019	Sensor Bolt Bracket	1
12	KE5646	Sensor Mount	1

MOORE INDUSTRIES | 2131 Airport Drive | Savannah, GA 31406 | moore-industries.com

Sensor Troubleshooting Cont.

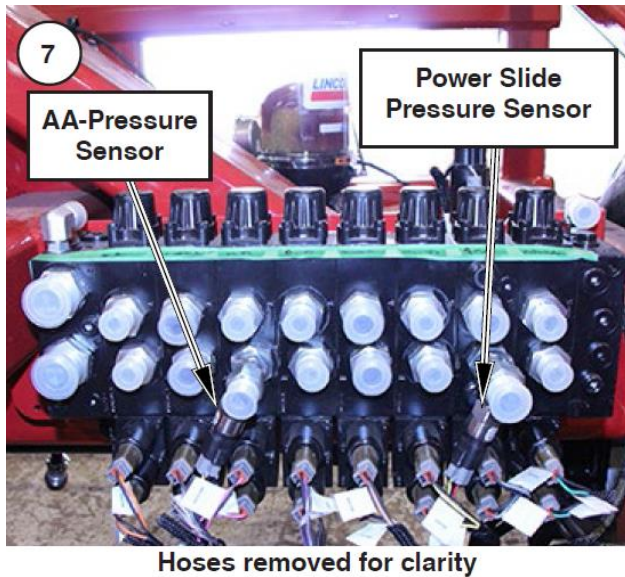
- Physically inspect the sensor for damage, broken wire, etc...
- Ensure correct gap is set between the magnetic bolt head and the sensor itself.
- Verify correct orientation of the sensor itself, if the sensor is installed backwards it will give a reading that's 180 degrees out, this is typically seen by negative values.
- Verify that the magnetic bolt is not moving, this can be done via the calibration screen. Example, for the loader go into calibration, choose loader up or loader down. Next (if you chose loader up) manually move the loader all the way up till it stops write down the value on the screen. Next lower the loader all the way to the ground and then raise it all the way up again and write down that value, repeat this process 3-4 times. If the value stays the same, then your magnetic bolt is secure, if the value changes each time or steadily increases or decreases then this is a good indicator that your magnetic bolt is loose. Before you tighten the bolt, be sure to install with locktite or threadlocker and inspect the bearing. A loose or damaged bearing can cause a bad reading as well.

Sensor Troubleshooting Cont.



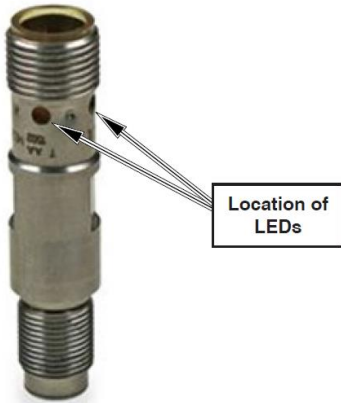
- Push Off Sensor
- Located at the rear of the machine on the push off.
- Gap between sensor and metal should be 1/8" to 1/4".
- May have to wipe filings off the sensor face to keep it functioning.
- Can measure the continuity between the connector pins.
 - Should be no continuity when a piece of steel is on the sensor face.
- The sensor must be installed using brass nuts and plastic spacers to avoid interference.

Sensor Troubleshooting Cont.



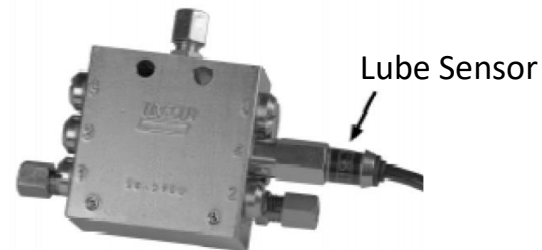
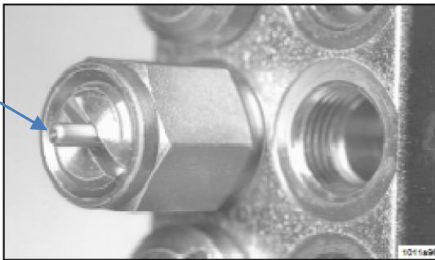
- Power Slide Pressure Sensor Diagnostics
 - Put bales on the loader with the loader in the up position.
 - Check that the Power Slide Cut Off Pressure is set to a pressure larger than 2000 psi in the calibration or Quick Menu.
 - In the calibration menu for the Power Slide Extend Position, drive the Power Slide against the bales.
 - The displayed pressure should increase when pushing on the bales.
- Alignment Arm Pressure Sensor Diagnostics
 - Enter Manual Mode.
 - Manually close the Alignment Arms on a set of bales.
 - The Alignment Arm Pressure displayed on the monitor should increase as the bales are squeezed.

Sensor Troubleshooting Cont.



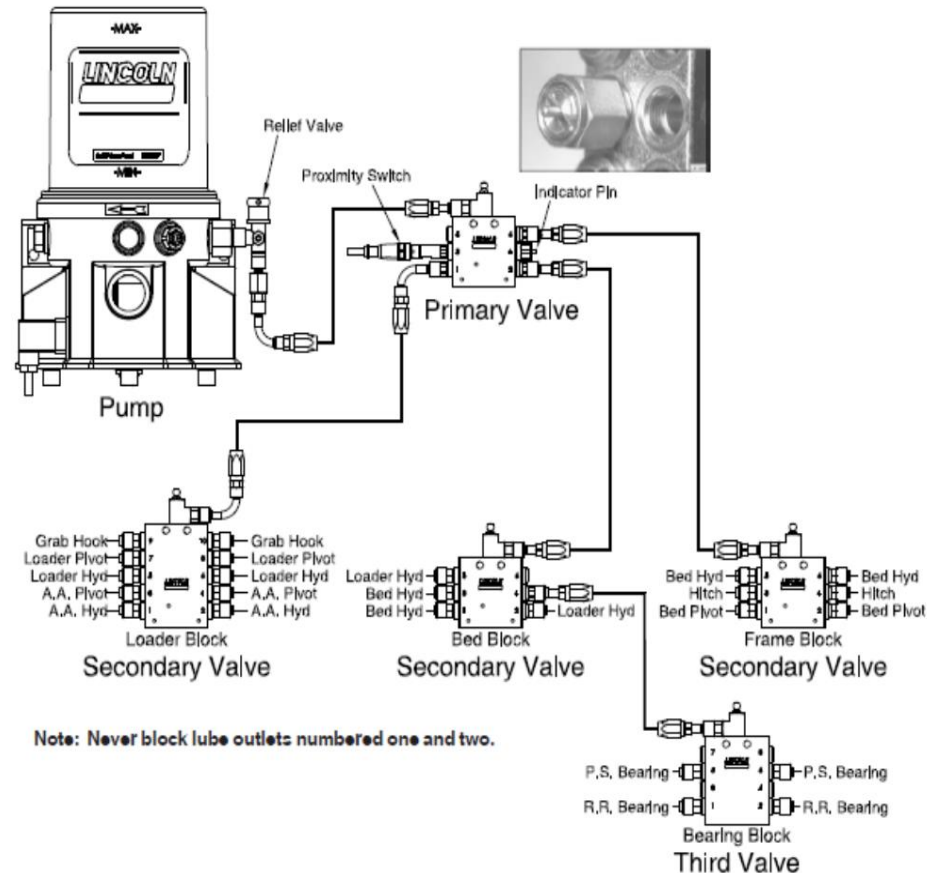
- Located on the primary valve of the grease system.
- Has LEDs to indicated operation.
- Counts the number of lube cycles based off a pin inside the block.
 - The pin is also visible.

Grease Pin



Lube System

- Grease flows from pump to primary valve then to secondary and third valves.
 - Each secondary valve gets grease one at a time.
- Can tell when pump is running because the wiper will turn.
- The indicator pin shows that the primary valve is getting grease and distributing it to each secondary valve.
- The lube system is controlled through the controller.
 - Can initiate a manual grease.
 - Can adjust how frequently the lube system runs (ie. once every 12 bales loaded).
- Lines can push out of the fittings or become pinched.
 - Check fittings and lines regularly.
 - A line can push out of a fitting due to a plugged bushing.
- Starting on page 5-39 of the Operators Manual the lube system is described in more details with links to videos describing how the system works.



Lube Minder Troubleshooting

- Locating Blockage
 - If a blockage exists in a Quicklub lubrication it is caused by one of the following:
 1. Crushed transmission line in the system.
 2. Blocked outlet in the system.
 3. Improperly drilled fitting in the system.
 4. Blocked divider head.

Lube Minder Troubleshooting

- Procedure

1. Use a manual pump with a gauge. Fill the pump with clean, filtered lubricant common to the system. Connect the manual pump into the inlet of the primary divider valve and slowly operate pump. If system will not cycle freely below 1,500 PSI, see step 2.
2. With pressure on the primary as outlined in step 1, remove one at a time each supply line (if the supply lines cannot be removed, remove outlet fittings starting from the bottom and working towards the valve inlet) and attempt to operate manual pump after each line is removed. Do not exceed 2,000 PSI. If pressure drops and primary cycles freely after a line is removed, then blockage is downstream in the area that is being served from that outlet. See step 3 if all feed lines are removed and primary will not cycle, blockage is in this divider valve. Note: When a feed line of a blocked area is removed a small shot of trapped lubricant will usually surge out of this outlet as the inlet pressure on the divider valve drops. If testing in step 2 indicates a blockage in the primary divider valve, this divider valve must be replaced.
3. Testing accomplished in Step 2 has indicated the blockage is downstream of the primary divider valve. Reinstall the feed line into the primary valve and proceed to downstream secondary divider valve and repeat step 2 on the secondary valve. If lubricant can be discharged freely through the secondary valve, the blockage is in the supply line between the primary and the secondary valve.
4. If high pressure exists on one of the secondary outlets, blockage has been located. Look for crushed line, tight bearing, improperly drilled fittings and/or lube inlet port. Correct as necessary.

Lube Minder Troubleshooting

Symptom	Probable Cause	Solution
1. Pump will not operate	<ol style="list-style-type: none">1. Not receiving voltage2. Blocked pump cam	<ul style="list-style-type: none">-Check electrical supply-Check electrical supply to the pump.-If the pump receives no current, trace to the electrical source and repair.-Verify electrical continuity between Lube SYS PWR Pin 1 and M-FLCN-A Pin 11
2. The Pump Motor is running but there is no grease being discharged.	<ol style="list-style-type: none">1. Air pocket at pump element inlet.2. Blocked Inlet	<ul style="list-style-type: none">-Disconnect the main delivery hose from the pump outlet. Run the pump until solid grease (no bubbles) flows from the outlet. If solid grease does not discharge after 20 minutes of operation, the pump inlet is blocked with a contaminant. Note: Depending on operating temps and types of grease, it may require 10 minutes achieve full volume at the outlet.-Remove the pump element from the pump body and inspect the suction inlet port for foreign particles. Remove any particles found. Reassemble the pump and element and cycle the pump. If the pump element does not discharge grease, replace the pump element.

Lube Minder Troubleshooting

Symptom	Probable Cause	Solution
3. Pump was operated with an empty reservoir.	No grease	<ul style="list-style-type: none">- Fill the reservoir to the “Max” level. Disconnect the main delivery hose from the pump and watch grease flow until solid grease (not air bubbles) is discharged. Reconnect the main delivery hose to the pump outlet.
4. Grease is discharged at the relief valve.	Blockage in the metering valves, hose, tube or connected component.	<ul style="list-style-type: none">-Switch the pump on and loosen each outlet in the primary valve one at a time. The blocked outlet will start discharging grease and the indicator pin will index.-Retighten all the outlets on the primary valve.-Trace the hose that discharged grease to its second valve.-Repeat the process of loosening each outlet one at a time until the blocked feed line is detected.-Retighten all outlets.-Repair the component blockage if found.-If a metering valve is creating the blockage, replace metering valve.

Lube Minder Troubleshooting

Symptom	Probable Cause	Solution
5. Indicator pin on the primary valve does not move.	Refer to #4	Refer to #4
6. Lube point not receiving grease	Hose or tubing is cut or has chaffed through.	<ul style="list-style-type: none">-Replace the complete hose or tube.-If Tube is broken, cut tube at break and repair using tube union (Lincoln part number 244058).-If Hose is broken, cut ends at the break and install new reusable hose ends (Lincoln part number 246002) and screw into 1/8" NPT female connector (Lincoln part number 67063).

Questions?

