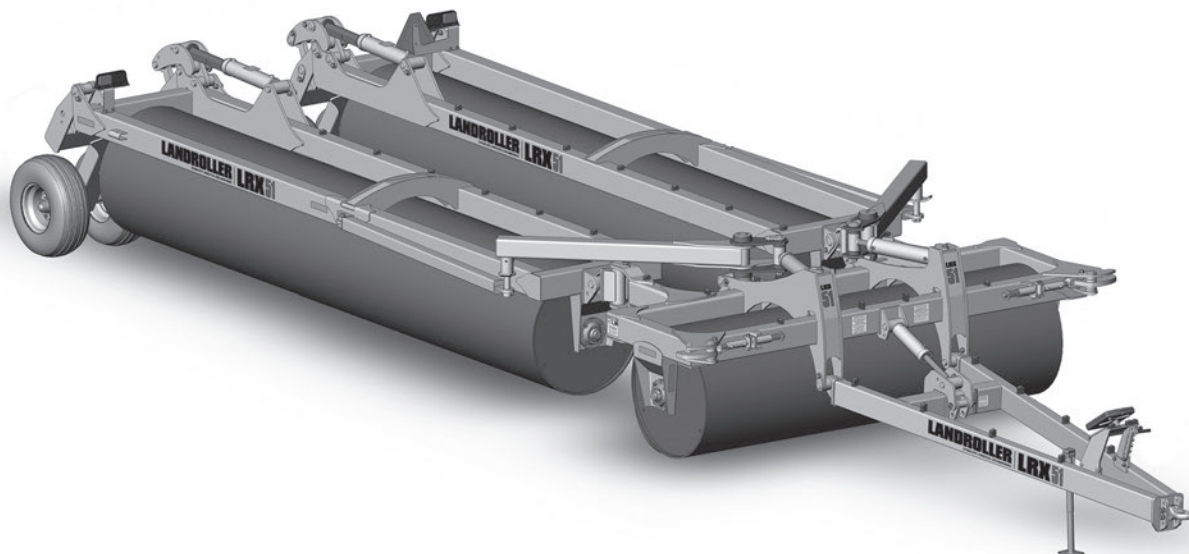
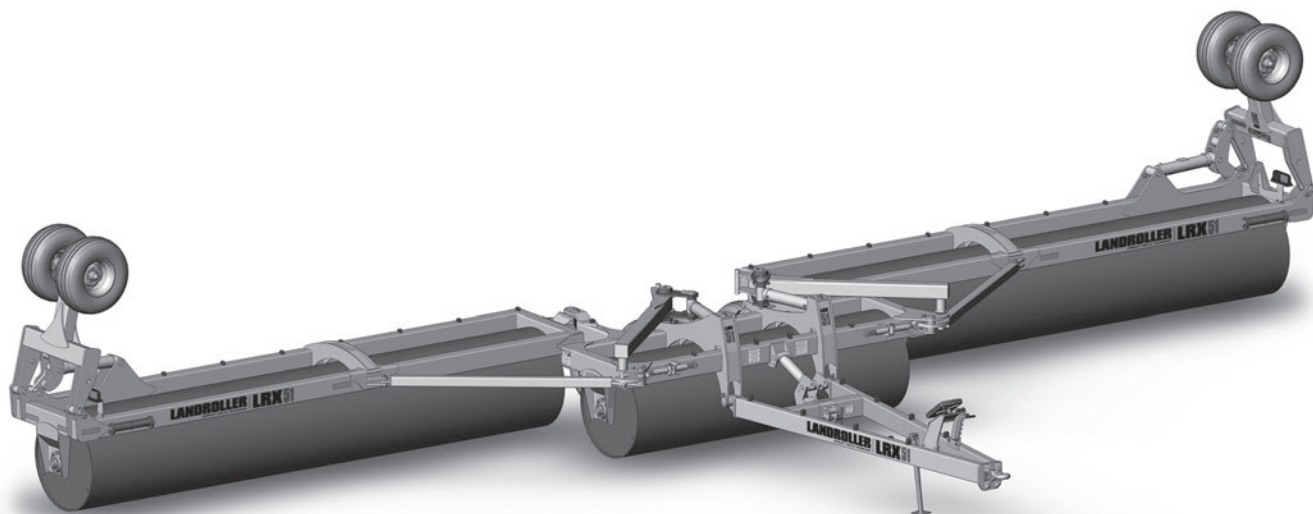


LANDROLLER | LRX

EXTREME DUTY • POWER FOLD • ZERO MAINTENANCE



LRX36|41|46|51

143375 v1.0

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**LANDROLLER
LRX
LRX 36/41/46/51**

QUICK-START GUIDE* for **LRX LANDROLLERS**

* Refer to operators manual for complete safety and operation info.



DeGelman

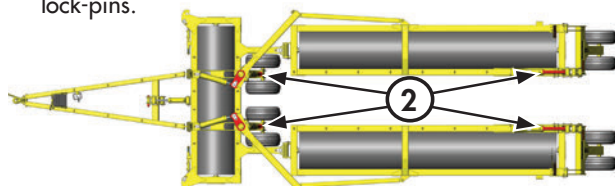
A Connect Hydraulics

- ① **LATCH & END WHEELS....**Latch & End Wheel Cylinders
- ② **SWING ARM CIRCUIT.....**Power-fold Cylinders
- ③ **CTR WHEEL & FLOAT....**Hitch & Center Wheel Cylinders

B Opening into Field Position

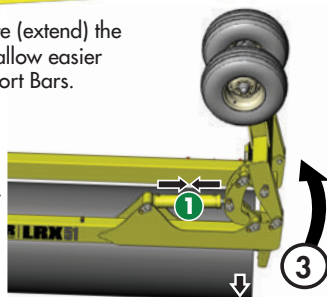
1) Drive the **LRX Landroller** onto an area of level ground large enough to open the wings. Ensure the Landroller is positioned straight behind the tractor.

2) Remove the four **Red Transport Bars** from the End Wheel & Center Wheel cylinders. Place the transport bars onto the frame mounted storage brackets and secure with the lock-pins.

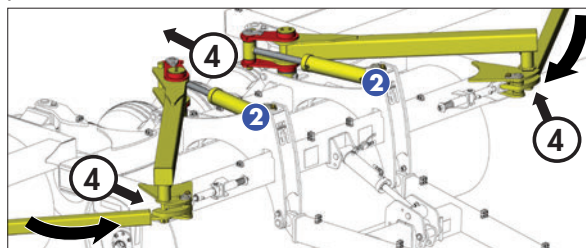


Note: You may need to activate (extend) the hydraulic cylinders slightly to allow easier removal of the cylinder Transport Bars.

3) Activate the **End Wheel Cylinders ①** to completely raise the end wheels and lower the ends of the drums to the ground.

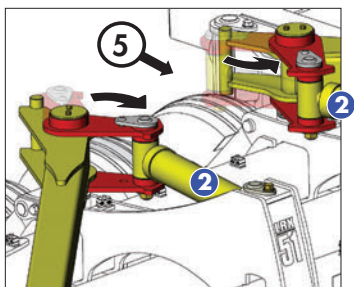


4) Extend the **Power-fold Cylinders ②** to fully open the wings. Ensure the swing-arm shafts properly latch into place.

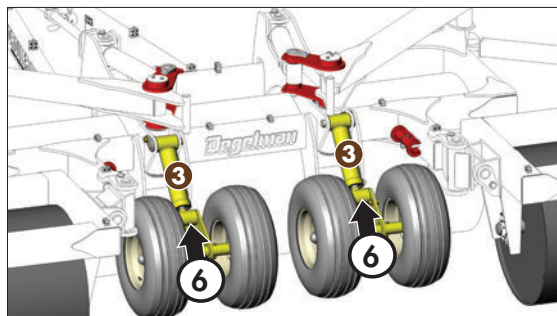


5) **IMPORTANT:**
Retract the POWER-FOLD Cylinders

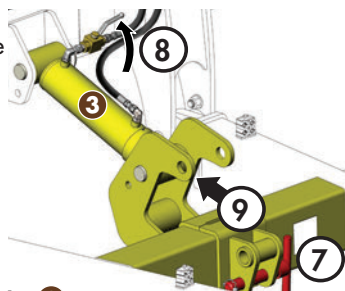
Remember to retract the **Power-fold Cylinders ②** back into the fully closed position before use.



6) Retract the **Center Frame Cylinders ③** to raise the center frame wheels (lowering the center section to the ground).



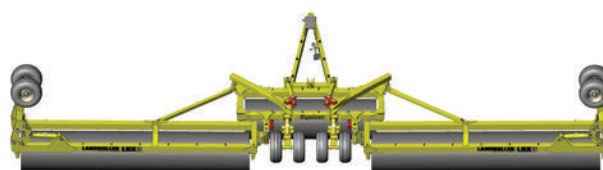
7) Remove the **Red Transport Pin** from the float hitch and secure it in storage position.



8) Open the **Hydraulic Ball Valve**.

9) Retract the **Hitch Cylinder ③** to place the Landroller into Float Position.

10) The LRX Landroller should now be in the proper position for field use. Read manual for further information.



(Refer to operators manual for complete safety and operation info.)

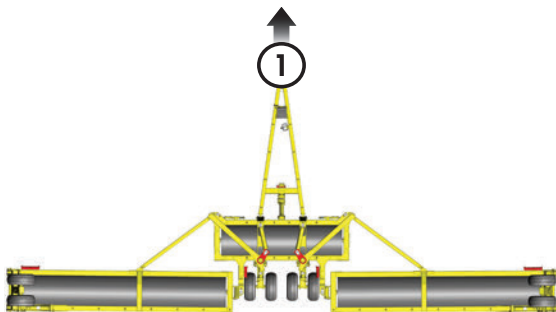


Maintenance (Check Machine Daily)

- Check for missing, worn or damaged parts.
- Working points & pins
- Hydraulic Connections & Hoses
- Hubs & Spindles

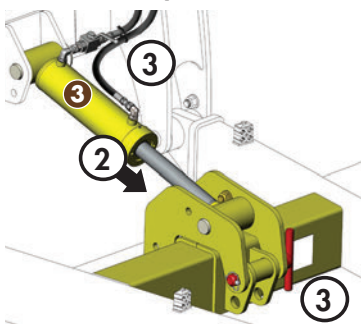
C Moving Into Transport Position

- 1) Drive the **LRX Landroller** onto an area of level ground with plenty of room to drive straight forward.



- 2) Fully extend the **Front Hitch & Center Frame Cylinders**. ③

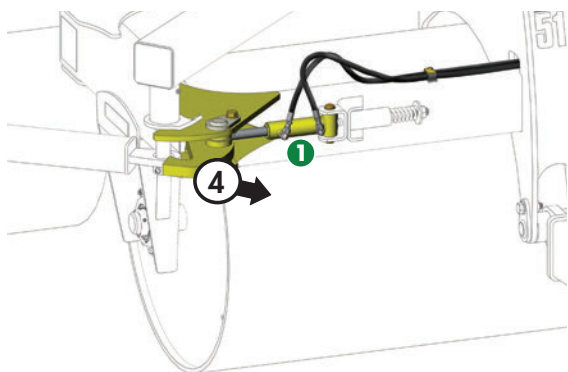
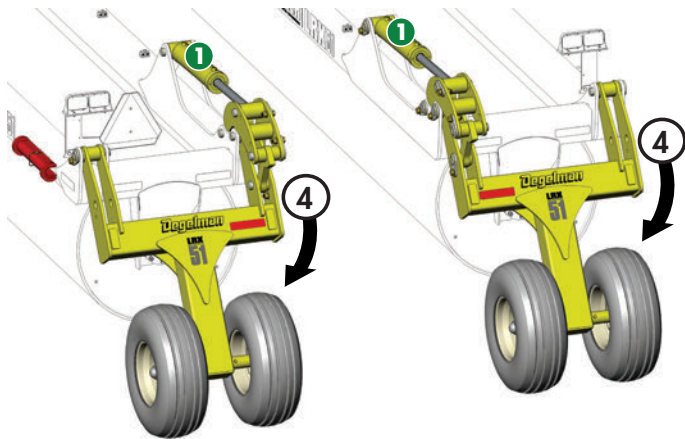
This places the float hitch into **Transport Position** and also fully lowers the Center Frame Wheels (raising the center section off the ground).



- 3) **⚠ IMPORTANT:**

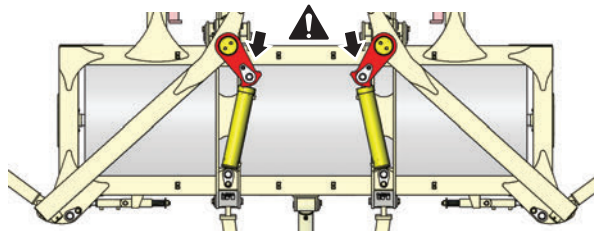
- Secure the Float Hitch in place with the **Red Transport Pin**.
- Close the Hydraulic Ball Valve.

- 4) Completely extend the **End Wheel & Latch Cylinders** ① to lower the End Wheels and open the Swing-Arm Latches.

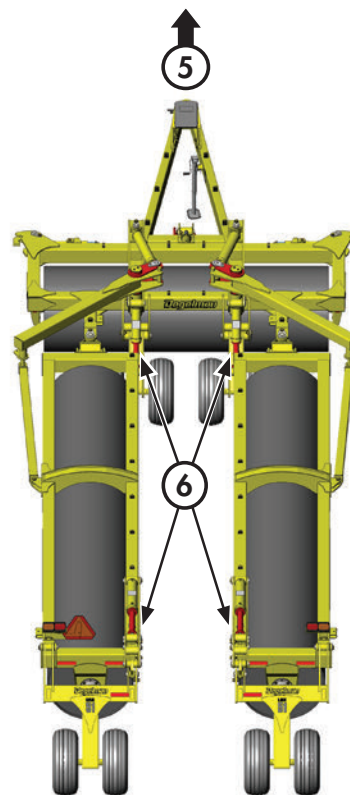


- 5) **⚠ IMPORTANT:** **Ensure the POWER-FOLD Cylinders ② are RETRACTED (closed)**

Ensure that the Power-Fold Cylinders have been fully retracted *before* moving forward. Failure to do so could damage the Power-Fold cylinders and require replacement.



- 6) Drive forward until roller wings trail straight behind tractor.



- 7) Install the four **Red Transport Bars** onto the **End Wheel & Center Wheel** cylinder shafts and secure in place using the lock-pins.

Ensure front **Red Transport Pin** has also been installed correctly into the float hitch (refer to step 3).

- 8) Read and follow necessary safety procedures outlined in Transport Safety section of the manual.

LRX36|41|46|51

*** Reference Sheet Quick-Start Guide**

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 **IMPORTANT:**



READ MANUAL

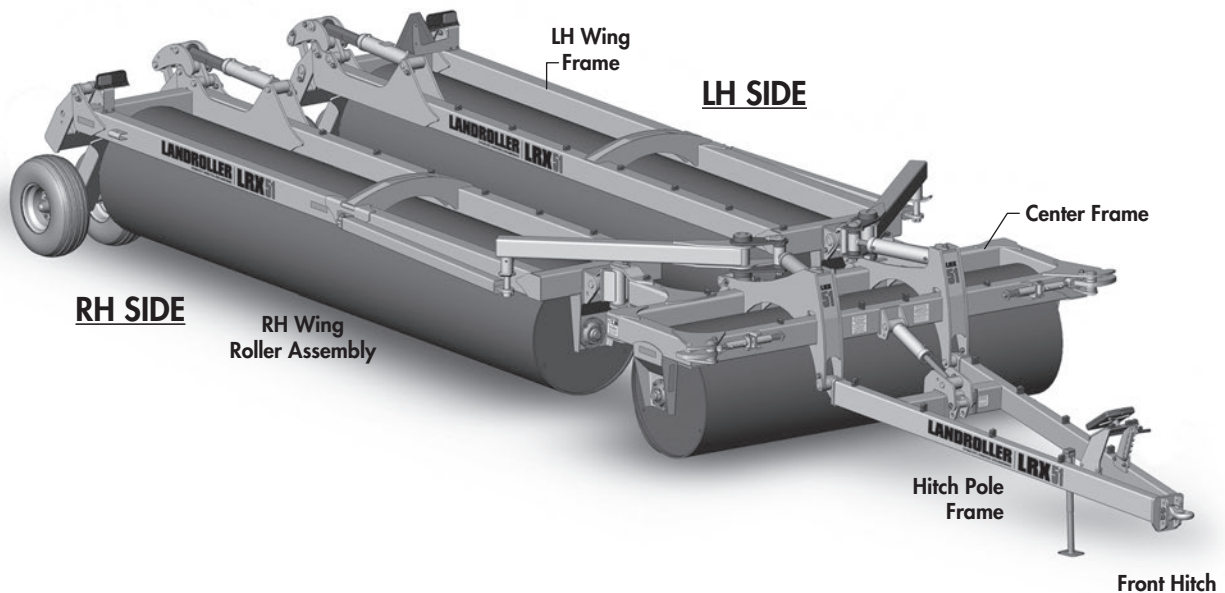
Introduction

LRX36|41|46|51

CONGRATULATIONS on your choice of a Degelman Landroller to complement your farming operation. It has been designed and manufactured to meet the needs of a discerning agricultural market for increasing yields for high quality pulse crops and preparing the perfect bed for haying, grasses and silage. Degelman rollers provide a smooth and level surface for faster, easier harvest operations and better seed-to-soil contact. Use this manual as your first source of information about this machine.

TO THE NEW OPERATOR OR OWNER - Safe, efficient and trouble free operation of your Degelman Landroller requires that you and anyone else who will be operating or maintaining it, read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within this manual.

By following the operating instructions in conjunction with a good maintenance program your machine will provide many years of trouble-free service. Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Degelman Dealer if you need assistance, information, or additional copies of the manual.



OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the tractor drivers' seat and facing in the direction of travel.

Why is **SAFETY** important to **YOU**?

3 **BIG** Reasons:

- **Accidents Can Disable and Kill**
- **Accidents Are Costly**
- **Accidents Can Be Avoided**



SAFETY ALERT SYMBOL

The Safety Alert Symbol identifies important safety messages applied to the equipment and in this manual. When you see this symbol, be alert to the possibility of **injury or death**. Follow the instructions provided on the safety messages.

The Safety Alert Symbol means:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

SIGNAL WORDS

Note the use of the Signal Words: **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate Signal Word has been selected using the following guidelines:



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



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



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

SAFETY

YOU are responsible for the safe operation and maintenance of your equipment.

YOU must ensure that you and anyone else who is going to operate, maintain or work around the equipment be familiar with the operating and maintenance procedures and related **safety** information contained in this manual.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the **safety** precautions.

Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Equipment owners must give operating instructions to operators or employees before allowing them to operate the equipment, and at least annually thereafter per OSHA regulation 1928.51.
- The most important safety device on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think **Safety!** Work **Safely!**

GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining or adjusting.



2. Install and properly secure all shields and guards before operating. Use hitch pin with a mechanical locking device.

3. Have a first-aid kit available for use should the need arise and know how to use it.

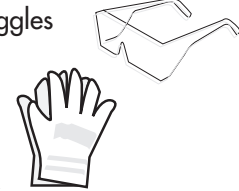


4. Have a fire extinguisher available for use should the need arise and know how to use it.



5. Wear appropriate protective gear. This list includes but is not limited to:

- A hard hat
- Protective shoes with slip resistant soles
- Protective glasses or goggles
- Heavy gloves
- Wet weather gear
- Hearing protection
- Respirator or filter mask



6. Clear the area of people, especially small children, and remove foreign objects from the machine before starting and operating.
7. Do not allow riders.
8. Stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
9. Review safety related items with all operators annually.

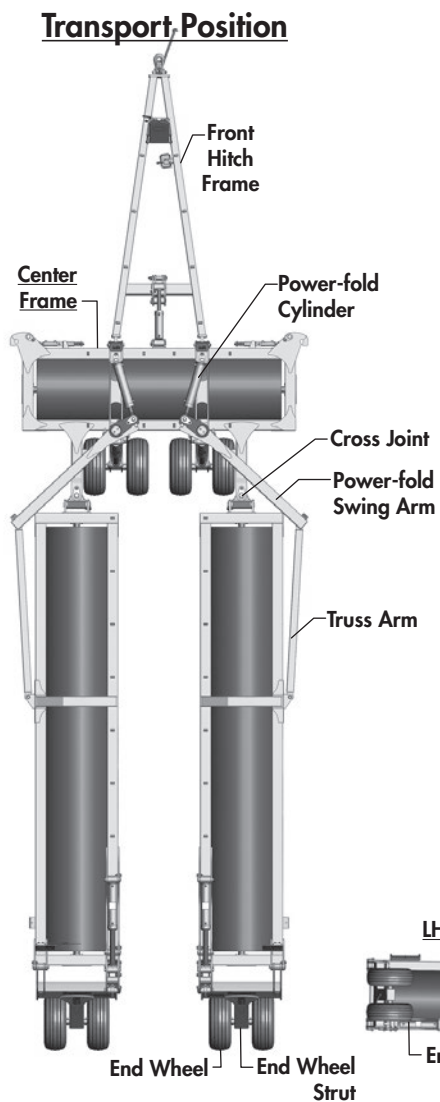
Operation

TO THE NEW OPERATOR OR OWNER

The Degelman Landroller is designed to provide a smooth and level surface.

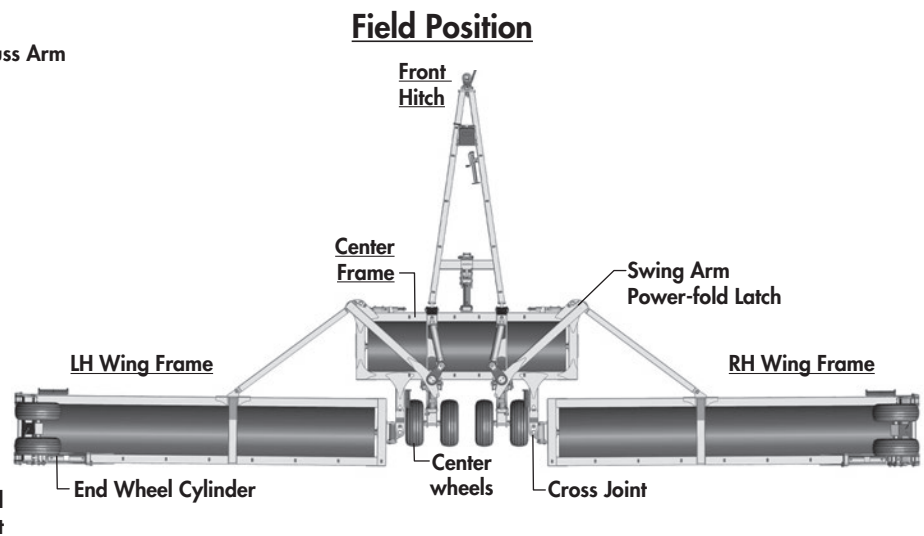
It is the responsibility of the owner or operator to read this manual carefully to learn how to operate the machine safely. Safety is everyone's business. By following safe operating practices, a safe environment is provided for the operator and bystanders.

By following the operating instructions in conjunction with a good maintenance program your machine will provide many years of trouble-free service.



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.
2. Stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
4. Do not allow riders on the Landroller tractor during operation or transporting.
5. Keep all shields and guards in place when operating (if applicable).
6. Clear the area of all bystanders, especially children, before starting.
7. Do not operate machine on overly steep side hills or slopes.
8. Be careful when working around or maintaining a high-pressure hydraulic system. Ensure all components are tight and in good repair before starting.
9. Clean all reflectors, lights and the SMV sign before transporting on a highway or public road. Be sure to check with local highway authorities and comply with their lighting requirements.



Operation

BREAK-IN

Although there are no operational restrictions on the Landroller when it is new, there are some checks that should be done when using the machine for the first time, follow this procedure:

⚠ IMPORTANT: *It is important to follow the Break-In procedures especially those listed in the "Before using" section below to avoid damage:*

A. Before using:

1. Read Safety Info. & Operator's Manual.
2. Complete steps in "Pre-Operation Checklist".
3. Check all bolt tightness.

B. After operating for 2 hours:


1. Check all hardware. Tighten as required.
2. Check all hydraulic system connections. Tighten if any are leaking.

C. After operating for 8 hours:

1. Repeat Step B.
2. Go to the service schedule as outlined in the "Service & Maintenance" section.

PRE-OPERATION CHECKLIST

It is important for both personal safety and maintaining good operational condition of the machine that the pre-operational checklist be followed.

Before operating the machine and each time thereafter, the following areas should be checked off: 

- ☐ Lubricate the machine per the schedule outlined in the "Maintenance Section".
- ☐ Use only a tractor with adequate power to pull the Landroller under ordinary operating conditions.
- ☐ Ensure that the machine is properly attached to the tractor using a drawbar pin with provisions for a mechanical retainer. Make sure that a retainer such as a Klik pin is installed.

NOTE: *It is important to pin the draw bar in the central location only.*

- ☐ Before using, inflate tires to:
Center & End Wheel Tires - LRX
12.5L x15 - 12 PLY: **90 PSI (620 kPa)**
- ☐ Ensure that a safety chain is installed on the hitch.
- ☐ Check oil level in the tractor hydraulic reservoir. Top up as required.
- ☐ Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Tighten if there are leaks. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the tractor's hydraulic system.

Operation

HOOK-UP / UNHOOKING

The Landroller should always be parked on a level, dry area that is free of debris and foreign objects. Follow this procedure to hook-up:

1. Clear the area of bystanders and remove foreign objects from the machine and working area.
2. Make sure there is enough room to back the tractor up to the trailer hitch.
3. Start the tractor and slowly back it up to the hitch point.
4. Stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before dismounting.
5. Use the jack to raise or lower the hitch to align with the drawbar.
6. Install a drawbar pin with provisions for a mechanical retainer such as a KLIK pin. Install the retainer.
7. Install a safety chain between the tractor and the hitch.
8. Connect the hydraulics. To connect, proceed as follows:
 - Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor. Remove the plastic plugs from the couplers and insert the male ends.
 - Be sure to match the pressure and return line to one valve bank.
9. Connect lights (electrical socket plug) to tractor.
10. Raise the hitch jack and rotate it 90° to place in its stowed position.
11. When unhooking from the tractor, reverse the above procedure.



TRANSPORT SAFETY

1. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Landroller in the field/yard or on the road.
2. Check with local authorities regarding machine transport on public roads. Obey all applicable laws and regulations.
3. Always travel at a safe speed. Use caution when making corners or meeting traffic.
4. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
5. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.
6. Always use hazard warning flashers on tractor when transporting unless prohibited by law.
7. Always use a pin with provisions for a mechanical retainer and a safety chain when attaching to a tractor or towing vehicle.

TRANSPORTING

Use the following guidelines while transporting the Landroller:

1. Use a safety chain.
2. Ensure all transport locks are securely in place.
3. Be sure hazard lights are flashing and SMV decal is visible.
4. MAXIMUM RECOMMENDED TRANSPORT SPEED: 30 km/h or 19 mph. (Road Conditions. Field speeds may be lower.)

⚠ IMPORTANT: UNDER NO CIRCUMSTANCES SHOULD THERE EVER BE RIDERS WHILE THE LANDROLLER IS IN TRANSPORT.

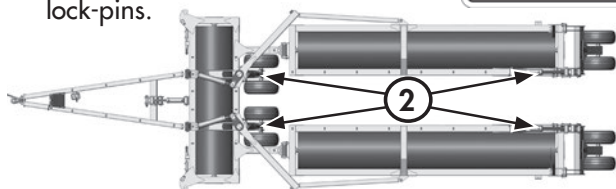
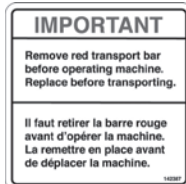


Operation

TRANSPORT TO FIELD POSITION

1. Drive the **LRX Landroller** onto an area of level ground large enough to open the wings. Ensure the Landroller is positioned straight behind the tractor.

2. Remove the four **Red Transport Bars** from the End Wheel & Center Wheel cylinders. Place the transport bars onto the frame mounted storage brackets and secure with lock-pins.

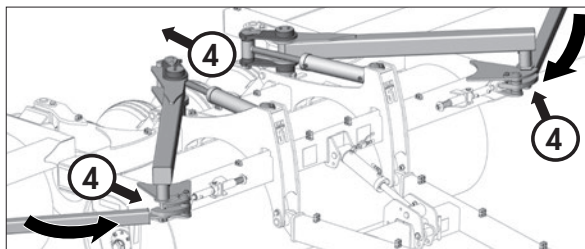


Note: You may need to activate (extend) the hydraulic cylinders slightly to allow easier removal of the cylinder Transport Bars.

3. Activate the **End Wheel Cylinders** to completely raise the End Wheels and lower the ends of the drums to the ground.



4. Extend the **Power-fold Cylinders** to fully open the wings. Ensure the swing-arm shafts properly latch into place.



5. **IMPORTANT:** **Retract the POWER-FOLD Cylinders**

Remember to retract the **Power-fold Cylinders** back into the fully closed position before use.

IMPORTANT
Fully RETRACT the POWER FOLD Cylinders after wings are latched into Field Position.

FAILURE TO RETRACT POWER FOLD CYLINDERS AFTER USE MAY RESULT IN EQUIPMENT DAMAGE

1. To open the float position, swing the float arm to the open position.

2. Retract all transport bars and store in proper location.

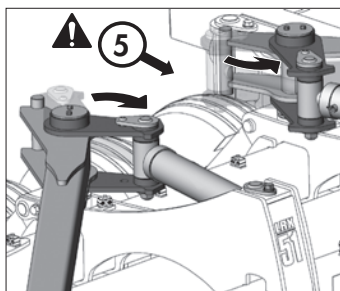
3. Retract End Wheel Cylinders to lower end wheels to the ground.

4. Retract Power Fold Cylinders to close wings and latch into place.

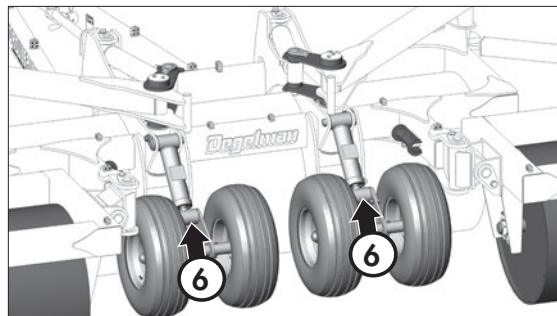
5. Fully RETRACT POWER FOLD CYLINDERS BACK UNTIL FULLY CLOSED.

6. Retract Center Wheel Cylinders to lower center wheels to the ground.

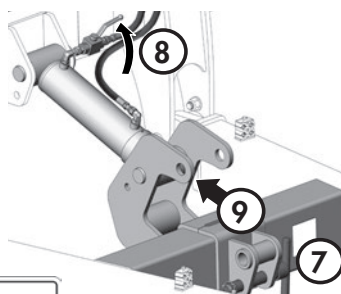
7. Open Ball Valve and place Hitch Cylinder in Float position when operating.



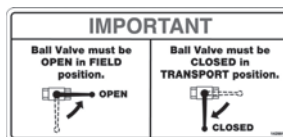
6. Retract the **Center Frame Cylinders** to raise the center frame wheels (*lowering the center section to the ground*).



7. Remove the **Red Transport Pin** from the float hitch and secure it in storage position.



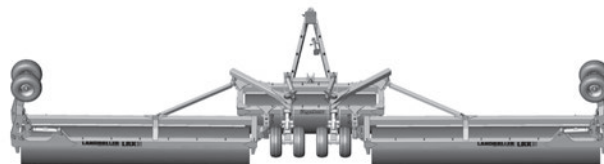
8. Open the **Hydraulic Ball Valve**.



9. Retract the **Hitch Cylinder** to place the Landroller into Float Position.

IMPORTANT
HITCH Cylinder Circuit must be in FLOAT position when operating in the FIELD.
Le Circuit Hydraulique de la barre de tire devrait être en position flottante lors des opérations au champs.

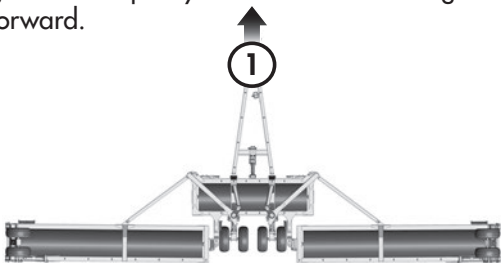
10. The LRX Landroller should now be in the proper position for field use.



Operation

FIELD TO TRANSPORT POSITION

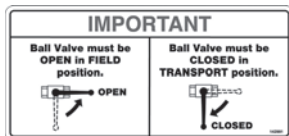
1. Drive the **LRX Landroller** onto an area of level ground with plenty of room to drive straight forward.



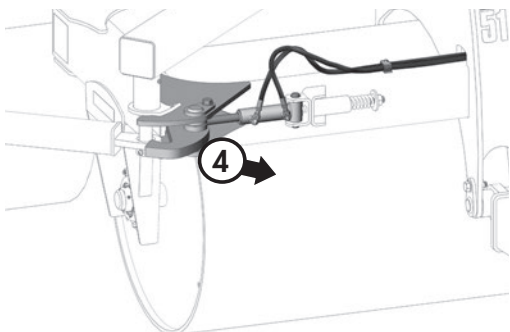
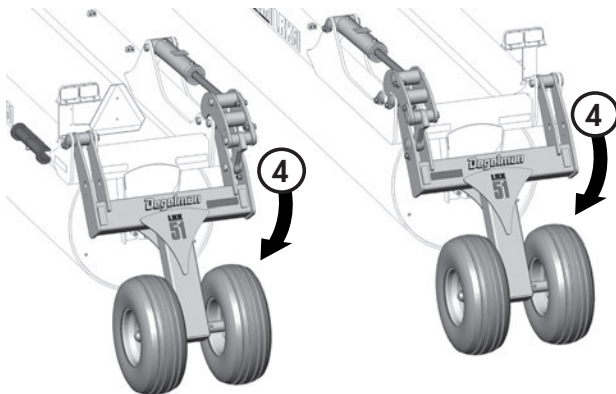
2. Fully extend the **Front Hitch & Center Frame Cylinders**. This places the float hitch into **Transport Position** and also fully lowers the Center Frame Wheels (raising the center section off the ground).

3. **IMPORTANT:**

- Secure Float Hitch in place with the **Red Transport Pin**.
- Close the **Hydraulic Ball Valve**.

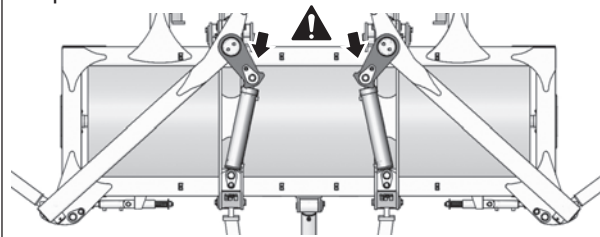


4. Completely extend the **End Wheel & Latch Cylinders** to lower the End Wheels and open the Swing-Arm Latches.

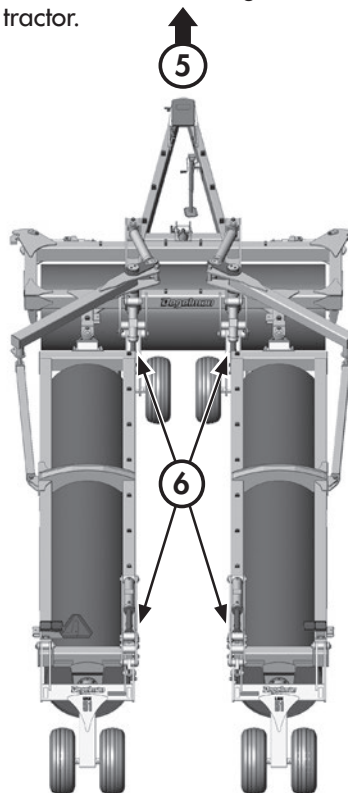


- 5) **IMPORTANT: Ensure POWER-FOLD Cylinders are RETRACTED (closed)**

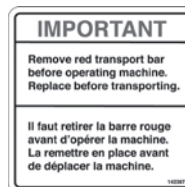
Ensure that the Power-Fold Cylinders have been fully retracted *before* moving forward. Failure to do so could damage the Power-Fold cylinders and require replacement.



6. Drive forward until roller wings trail straight behind tractor.



7. Install the four **Red Transport Bars** onto the **End Wheel & Center Wheel** cylinder shafts and secure in place using the lock-pins.



Ensure front **Red Transport Pin** has also been installed correctly in to the float hitch (refer to step 3).

8. Read and follow necessary safety procedures outlined in Transport Safety section of the manual.

Service & Maintenance

MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the LRX Landroller.
2. Stop the tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
4. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
5. Place safety stands or large blocks under the frame before removing tires or working beneath the machine.
6. Be careful when working around or maintaining a high-pressure hydraulic system. Wear proper eye and hand protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a backstop when searching for a pin hole leak in a hose or a fitting.
7. Always relieve pressure before disconnecting or working on hydraulic system.



MAINTENANCE CHECKLIST

After reviewing the Maintenance and Hydraulic Safety Information, use the Maintenance Checklist provided for regular service intervals and keep a record of all scheduled maintenance:

(Initial break-in review.)

A. Before using:

1. Read Safety Info. & Operator's Manual.
2. Complete "Pre-Operation Checklist"
3. Check all Bolt Tightness.

B. After operating for 2 hours:

1. Check all hardware. Tighten as required.
2. Check all hydraulic system connections. Tighten if any are leaking.

Maintenance Check - 10 Hours

- Check for worn or damaged parts
- Hydraulic fluid leaks
- Damaged hoses
- Check tire pressure:

LRX - Center Frame & End Wheel Tires

12.5L x15 - 12 PLY: 90 PSI (620 kPa)



Maintenance Check - 50 Hours

- Grease hubs & spindles
- Check working points & pins
- Safety signs clean

Annually

- Bolt tightness
- Wheel bearings
- Latch mechanism



Service & Maintenance

HARDWARE SPECIFICATIONS



Note: Unless stated otherwise, hardware is typically:
Hex, Plated GR5 UNC or P8.8 (metric)

TORQUE SPECIFICATIONS



TORQUE

Checking Bolt Torque

The tables below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check the tightness of bolts periodically, using these bolt torque charts as a guide. Replace hardware with the same strength (Grade/Class) bolt.

IMPERIAL TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



| Size | Grade 5 lb.ft (N.m) | Grade 8 lb.ft (N.m) |
|--------|------------------------|------------------------|
| 1/4" | 7 (10) | 10 (14) |
| 5/16" | 15 (20) | 20 (28) |
| 3/8" | 25 (35) | 35 (50) |
| 7/16" | 40 (55) | 60 (80) |
| 1/2" | 65 (90) | 90 (120) |
| 9/16" | 90 (125) | 130 (175) |
| 5/8" | 130 (175) | 180 (245) |
| 3/4" | 230 (310) | 320 (435) |
| 7/8" | 365 (495) | 515 (700) |
| 1" | 550 (745) | 770 (1050) |
| 1-1/8" | 675 (915) | 1095 (1485) |
| 1-1/4" | 950 (1290) | 1545 (2095) |
| 1-3/8" | 1250 (1695) | 2025 (2745) |
| 1-1/2" | 1650 (2245) | 2690 (3645) |

METRIC TORQUE SPECIFICATIONS

(Coarse Thread - based on "Zinc Plated" values)



| Size | Class 8.8 lb.ft (N.m) | Class 10.9 lb.ft (N.m) |
|------|--------------------------|---------------------------|
| M6 | 7 (10) | 10 (14) |
| M8 | 16 (22) | 23 (31) |
| M10 | 30 (42) | 45 (60) |
| M12 | 55 (75) | 80 (108) |
| M14 | 90 (120) | 125 (170) |
| M16 | 135 (185) | 195 (265) |
| M18 | 190 (255) | 270 (365) |
| M20 | 265 (360) | 380 (515) |
| M22 | 365 (495) | 520 (705) |
| M24 | 460 (625) | 660 (895) |
| M27 | 675 (915) | 970 (1315) |
| M30 | 915 (1240) | 1310 (1780) |
| M33 | 1250 (1695) | 1785 (2420) |
| M36 | 1600 (2175) | 2290 (3110) |

HYDRAULIC SAFETY



- Make sure that all components in the hydraulic system are kept in good condition and are clean.
- Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.
- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
- Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.



HYDRAULIC HOSE SPECIFICATIONS



Note: Unless otherwise stated, Hydraulic Hoses are either 3/8 or 1/2 with 3/4 JIC female swivel ends.

HYDRAULIC HOSE INSTALLATION TIPS



The following tips are to help you identify some possible problem areas in the installation of hydraulic hoses.

1. Ensure hoses are not twisted during installation as this may weaken the hose. Also, the pressure in a twisted hose may loosen fittings or connections.
2. Allow sufficient bend radius in hoses when installing to prevent lines from collapsing and flow becoming restricted.
3. When installing hoses in an area of movement or flexing, allow enough free length for motion and to ensure fitting connections are not stressed.
4. Ensure hoses are properly clamped and secured in position after routing is complete to provide a cleaner installation and prevent possible damage or hazards.

Service & Maintenance

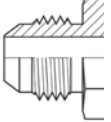
HYDRAULIC FITTING INSTALLATION



The following info is to help you identify and properly install some of our standard hydraulic fittings.

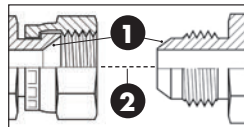
SAE (JIC) 37° Flare

JIC fittings - Metal-to-metal sealing type fittings featuring a 37° flare (angle of sealing surface) and straight UNF (United National Fine) Threads.

| (Lubricated Values) | Dash | Thread Size | Torque - lb.ft (N.m) |
|---|------|-------------|----------------------|
|  | -4 | 7/16 - 20 | 9-12 (12-16) |
| | -6 | 9/16 - 18 | 14-20 (19-27) |
| | -8 | 3/4 - 16 | 27-39 (37-53) |
| | -10 | 7/8 - 14 | 36-63 (50-85) |
| | -12 | 1-1/16 - 12 | 65-88 (90-119) |

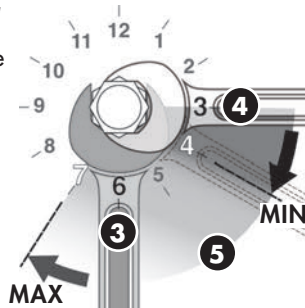
Tightening JIC 37° Flare Type Fittings

1. Check flare and flare seat for defects that might cause leakage.
2. Align fittings before tightening. Lubricate connections & hand tighten swivel nut until snug.
3. Using two wrenches, torque to values shown in table.



Alternate Installation Method

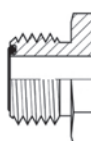
3. Using two wrenches. Place one wrench on the fixed connector body at a clock position of 6 o'clock.
4. Place the second wrench on the second connection as close to the 3 o'clock position as possible.
5. Tighten by rotating the second connection firmly to at least the 4 o'clock position, but no more than the 7 o'clock position. Typically, the larger the fitting size the less rotation required.



ORFS (O-Ring Face Seal)

ORFS fittings use an O-ring compression method to seal. This method offers a high level of sealing along with good vibration resistance. Male fittings include an O-ring located in a groove on the flat face. Female fittings feature a flat face and UNF straight threaded swivel nut.

The **Torque** method is recommended for ORFS installation.

| | Dash | Thread Size | Torque - lb.ft (N.m) |
|---|------|-------------|----------------------|
|  | -4 | 9/16 - 18 | 18 (25) |
| | -6 | 11/16 - 16 | 30 (40) |
| | -8 | 13/16 - 16 | 40 (55) |
| | -10 | 1 - 14 | 60 (80) |
| | -12 | 1-3/16 - 12 | 85 (115) |

Tightening ORFS (O-Ring Face Seal) Fittings

1. Inspect components and ensure the O-Ring seal is undamaged and properly installed in the groove of the face seal. Replacing the O-Ring may be necessary.
2. Align, thread into place and hand tighten.
3. Tighten to proper torque from the table shown above.

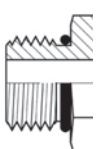
Note: A **DASH** size refers to a diameter of a hose (*inside*) or of a tube (*outside*) measured in 1/16" increments.

For example, a **Hose** specified as **dash 8** or **-8** would have an **inside** diameter of 8/16" or 1/2".

Alternatively, a **Tube** specified as **dash 8** or **-8** would have an **outside** diameter of 8/16" or 1/2".

ORB (O-Ring Boss)

Male ORB fittings have straight UNF threads, a sealing face and an O-ring. The female fittings are generally found in the ports of machines and feature straight threads, a machined surface, and a chamfer to accept the O-ring. Sealing is achieved through the compression of the male O-ring against the chamfered sealing face of the female fitting.

| (Lubricated Values) | Dash | Thread Size | Torque Non-Adjustable lb.ft (N.m) | Torque Adjustable lb.ft (N.m) |
|---|------|-------------|--------------------------------------|----------------------------------|
|  | -4 | 7/16 - 20 | 30 (40) | 15 (20) |
| | -6 | 9/16 - 18 | 35 (46) | 35 (46) |
| | -8 | 3/4 - 16 | 60 (80) | 60 (80) |
| | -10 | 7/8 - 14 | 100 (135) | 100 (135) |
| | -12 | 1-1/16 - 12 | 135 (185) | 135 (185) |

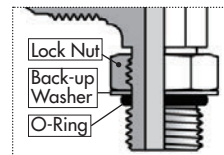
Tightening ORB (O-Ring Boss) Fittings

Non-adjustable Port End Assembly

1. Inspect the components to ensure that male and female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide past the port entrance corner and avoid damaging it.
4. Screw the fitting into position tighten to proper torque value from the table shown above.

Adjustable Port End Assembly

1. Inspect the components to ensure male & female threads and sealing surfaces are free of nicks, burrs, scratches, or any foreign material.
2. Ensure O-Ring seal is properly installed and undamaged.
3. Lubricate threads and O-ring to help the O-ring slide smoothly into the port and avoid damage.
4. Loosen back the lock nut as far as possible. Make sure back-up washer is not loose and is pushed up as far as possible.
5. Screw the fitting into port until the back-up washer or the retaining ring contacts face of the port. Light wrenching may be necessary. Over tightening may damage washer.
6. To align the end of the fitting to accept incoming tube or hose assembly, unscrew the fitting by the required amount, but not more than one full turn.
7. Using two wrenches, hold the fitting in desired position and tighten the locknut to the proper torque value from the table located above.
8. Inspect to ensure that O-ring is not pinched and that washer is seated flat on the face of the port.



Service & Maintenance

HYDRAULIC CYLINDER REPAIR

PREPARATION

When cylinder repair is required, clean off unit, disconnect hoses and plug ports before removing cylinder.

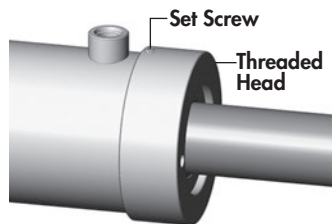
When removed, open the cylinder ports and drain the cylinder's hydraulic fluid.

Examine the type of cylinder. Make sure you have the correct tools for the job.

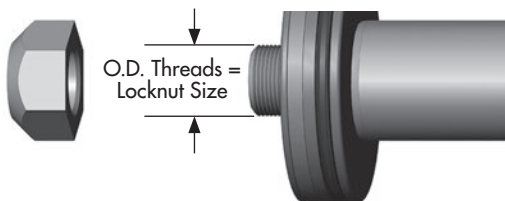
You may require the following tools:

- Proper **Seal Kit**
- Allen Key Set
- Emery cloth
- Torque Wrench

Threaded Head Cylinder (Monarch)



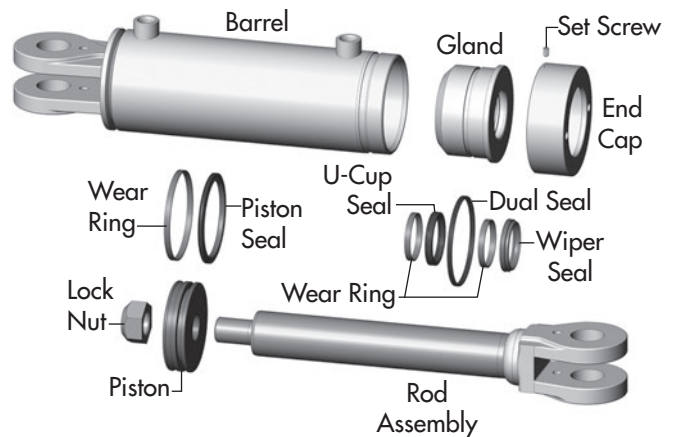
CYLINDER ROD LOCKNUT TORQUE VALUES



| LOCKNUT SIZE (PISTON) | TORQUE VALUE |
|-----------------------|--------------------------------------|
| 3/8 - 24 UNF | 25-30 lb.ft (35-42 N.m) |
| 1/2 - 20 UNF | 40-60 lb.ft (55-80 N.m) |
| 5/8 - 18 UNF | 95-105 lb.ft (130-140 N.m) |
| 3/4 - 16 UNF | 175-225 lb.ft (240-305 N.m) |
| 7/8 - 14 UNF | 200-275 lb.ft (270-370 N.m) |
| 1 - 14 UNF | 300-380 lb.ft (405-515 N.m) |
| 1 1/8 - 12 UNF | 400-500 lb.ft (540-675 N.m) |
| 1 1/4 - 12 UNF | 500-600 lb.ft (675-810 N.m) |
| 1 1/2 - 12 UNF | 700-800 lb.ft (950-1085 N.m) |
| 1 3/4 - 12 UNF | 800-900 lb.ft (1085-1220 N.m) |

REPAIRING A THREADED HEAD CYLINDER

Set Screw Style



DISASSEMBLY

1. Loosen Set Screw and turn off end cap.
2. Carefully remove piston/rod/gland assemblies.
3. Disassemble the piston from the rod assembly by removing lock nut.

NOTE: DO NOT clamp rod by chrome surface.

4. Slide off gland assembly & end cap.
5. Remove seals and inspect all parts for damage.
6. Install new seals and replace damaged parts with new components.
7. Inspect the inside of the cylinder barrel, piston, rod and other polished parts for burrs and scratches. Smooth areas as needed with an emery cloth.

REASSEMBLY

1. Reinstall rod through end cap & gland assembly.
2. Secure piston to rod with lock nut. Torque lock nut to proper value (refer to chart for proper torque value).
3. Lube inside of barrel, piston seals, and gland seals with hydraulic oil.
4. With cylinder body held gently in a vise, insert piston, gland, end cap and rod combination using a slight rocking motion.
5. Apply Loctite anti-seize before installing cylinder end cap.
6. Torque cylinder end cap to 440 lb.ft (600 N.m).
7. Tighten Set Screw on end cap to 6 lb.ft (8 N.m).

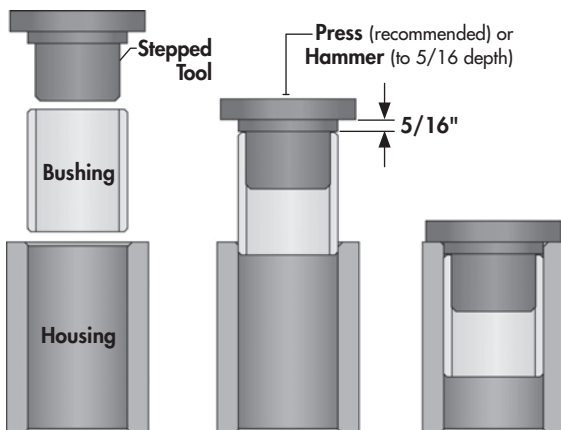
Service & Maintenance

REPLACING A PRESSED BUSHING

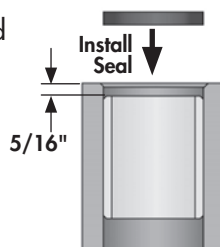
NOTE: You may need the following tools:
Press, hammer, punch, pry-bar, "Step-Tool"

Use the following as a guideline for repair:

1. Ensure the area and frame are properly secured, supported, and safe to work on. Safely remove the pin(s), cylinder, and/or components necessary in order to access and work on the damaged bushing.
2. Remove the existing bushing using required tools. In some instances, you may need to cut the damaged bushing in order for easier removal (use proper safety precautions and try not to damage other components if using this method).
3. With the bushing removed, clean and prepare the location for the new bushing insert.
Note: It is recommended to use a mixture of "Dish Soap and Water" as a lubricant on the outside of the composite bushing. **IMPORTANT:** DO NOT use oil or grease on outside or inside of composite bushings.
4. Use a stepped tool to ensure the edge of the bushing is not damaged when inserting.



5. Ensuring the bushing is properly aligned, press into hole (preferred method) or hammer into position by striking the stepped tool.
6. Continue to install until the bushing edge is recessed in to a distance of 5/16" to allow for the outer seal to be properly installed. Do not exceed this depth.
7. Repeat procedure for bushing on opposite side.
8. When both bushings are installed to the proper depth, install new seals.
9. Re-assemble all other necessary components.



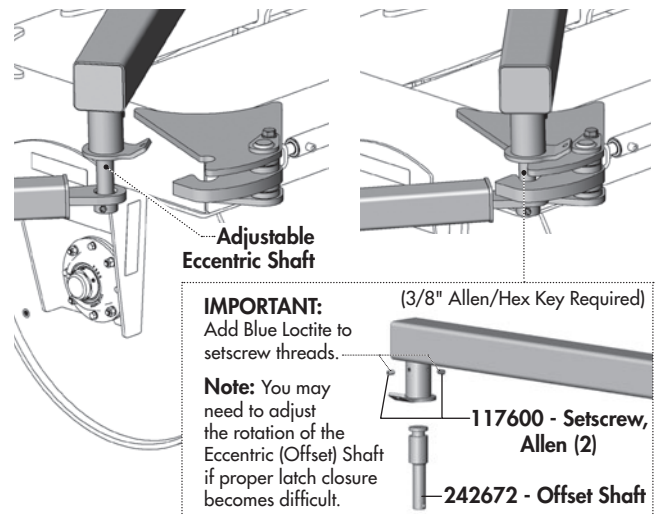
ADJUSTING POWER-FOLD LATCH CLOSURE

NOTE: You may need the following tools:
3/8" Allen/Hex Key, Blue Loctite

Use the following as a guideline for repair:

1. Ensure the area and frame are properly secured, supported, and safe to work on.
2. Loosen the two 3/4" setscrews that hold the adjustable shaft in position.
3. Adjust the shaft by rotating it in the required direction to allow a better latch alignment.
4. When satisfied with the alignment, re-install the two setscrews and tighten.

IMPORTANT: It is recommended to add blue Loctite to the setscrew threads before reinstalling.



Service & Maintenance

WHEEL HUB REPAIR

DISASSEMBLY

1. Remove dust cap.
2. Remove cotter pin from nut.
3. Remove nut and washer.
4. Pull hub off spindle.
5. Dislodge the inner cone bearing and dust seal.
6. Inspect cups that are press fitted into hub for pits or corrosion and remove if necessary.
7. Inspect and replace defective parts with new ones.

IMPORTANT: Be sure to block up unit securely before removing tires.

COMMON HUB & SPINDLE COMPONENTS



Spindle



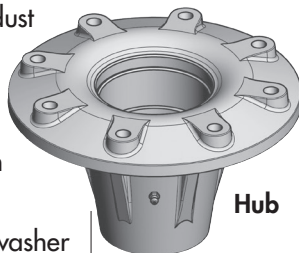
Dust Seal



Inner Cone



Inner Cup



Hub



Outer Cup



Outer Cone



Flat Washer



Slotted Nut & Cotter Pin



Dust Cap

ASSEMBLY

1. If cups need replacing, be careful to install them gently and evenly into hub until they are fully seated.
2. Apply a thick wall of grease inside hub. Pack grease in cones.
3. Install inner cone and dust seal as illustrated.
4. Position hub onto spindle and fill surrounding cavity with grease.
5. Assemble outer cone, washer and nut.
6. Tighten nut while rotating hub until there is a slight drag.
7. Turn nut back approximately 1/2 turn to align cotter pin hole with notches on nut.
8. Install cotter pin and bend legs sideways over nut.
9. Fill dust cap half full of grease and gently tap into position.
10. Pump grease into hub through grease fitting until lubricant can be seen from dust seal.

WHEEL NUT & WHEEL BOLT TORQUE

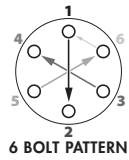


TORQUE

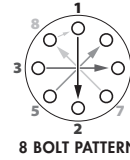
BOLT PATTERNS



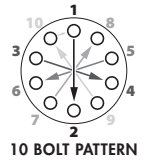
5 BOLT PATTERN



6 BOLT PATTERN



8 BOLT PATTERN



10 BOLT PATTERN

Wheel Nut/Bolt Torque

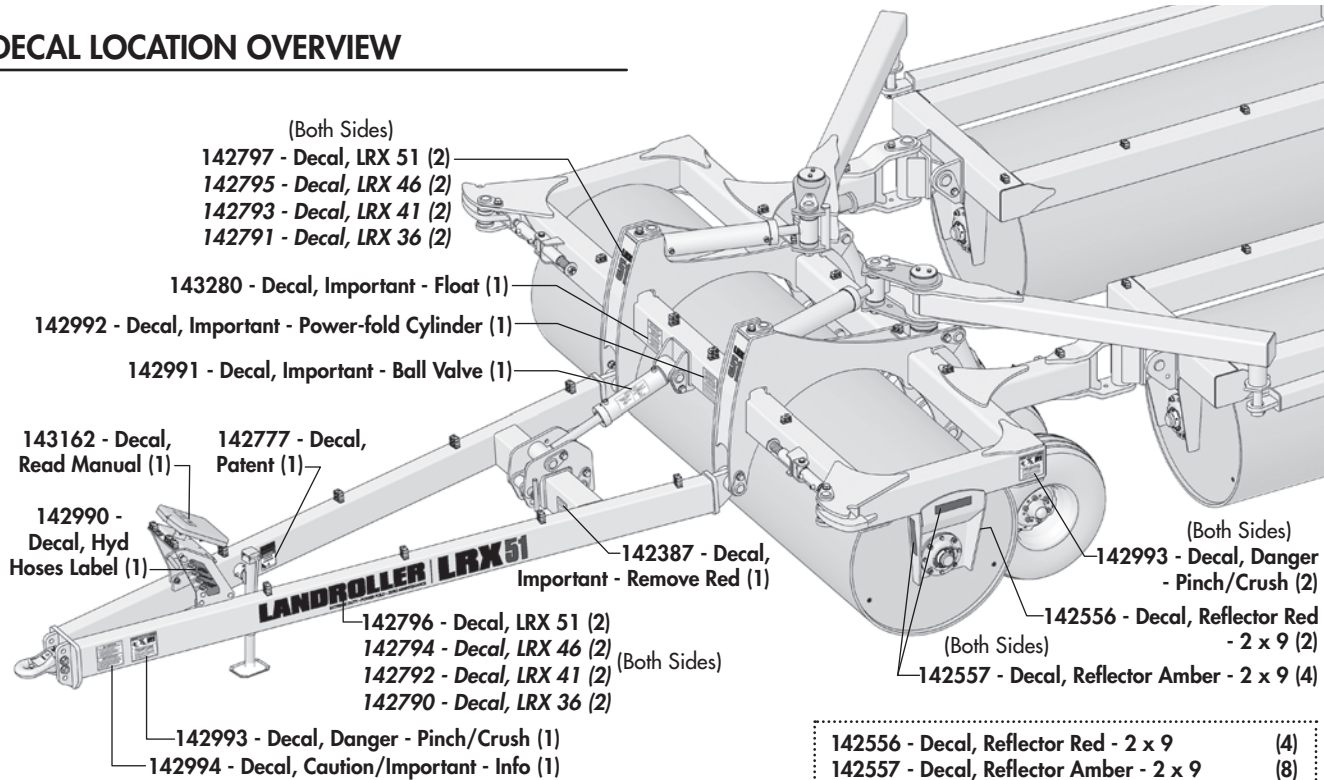
| Size | lb.ft | (N.m) |
|------|---------|-----------|
| 9/16 | 120-130 | (165-175) |
| 5/8 | 185-190 | (250-260) |
| 3/4 | 280-300 | (380-405) |

Wheel Tightening Procedure

1. Install and **hand tighten** nuts/bolts.
2. Tighten to approx. **20% Torque** value using the Bolt **Star** or **CrissCross** patterns shown above.
3. Tighten to **Full Torque** value using the **Star** or **CrissCross** pattern.
4. If applicable, install **Rear Locknuts** using **Wheel Torque Values**.

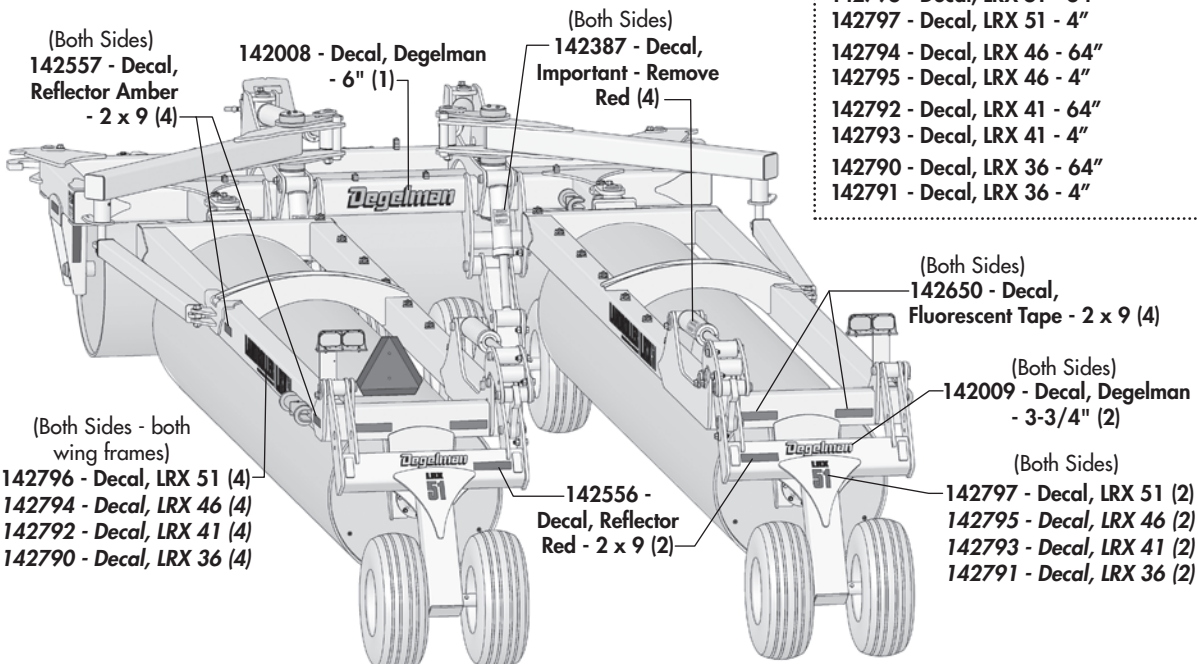
Service & Maintenance

DECAL LOCATION OVERVIEW



SAFETY DECALS & REFLECTORS

Keep safety decals and signs clean and legible at all times. Replace safety decals and signs that are missing or have become illegible. Safety decals or signs are available from your Dealer Parts Department.



| | |
|--|-----|
| 142556 - Decal, Reflector Red - 2 x 9 | (4) |
| 142557 - Decal, Reflector Amber - 2 x 9 | (8) |
| 142650 - Decal, Fluorescent Tape - 2 x 9 | (4) |
| 142387 - Decal, Important - Remove Red | (5) |
| 142991 - Decal, Important - Ball Valve | (1) |
| 142992 - Decal, Important - Power-fold | (1) |
| 142993 - Decal, Danger - Pinch / Crush | (3) |
| 142994 - Decal, Caution/Important - Info | (1) |
| 143280 - Decal, Important - Float | (1) |
| 142990 - Decal, Hydraulic Hose Label | (1) |
| 143162 - Decal, Read Manual | (1) |
| 142777 - Decal, Patent Pending | (1) |
| 142008 - Decal, Degelman - 6" | (1) |
| 142009 - Decal, Degelman - 3-3/4" | (2) |
| 142796 - Decal, LRX 51 - 64" | (6) |
| 142797 - Decal, LRX 51 - 4" | (4) |
| 142794 - Decal, LRX 46 - 64" | (6) |
| 142795 - Decal, LRX 46 - 4" | (4) |
| 142792 - Decal, LRX 41 - 64" | (6) |
| 142793 - Decal, LRX 41 - 4" | (4) |
| 142790 - Decal, LRX 36 - 64" | (6) |
| 142791 - Decal, LRX 36 - 4" | (4) |

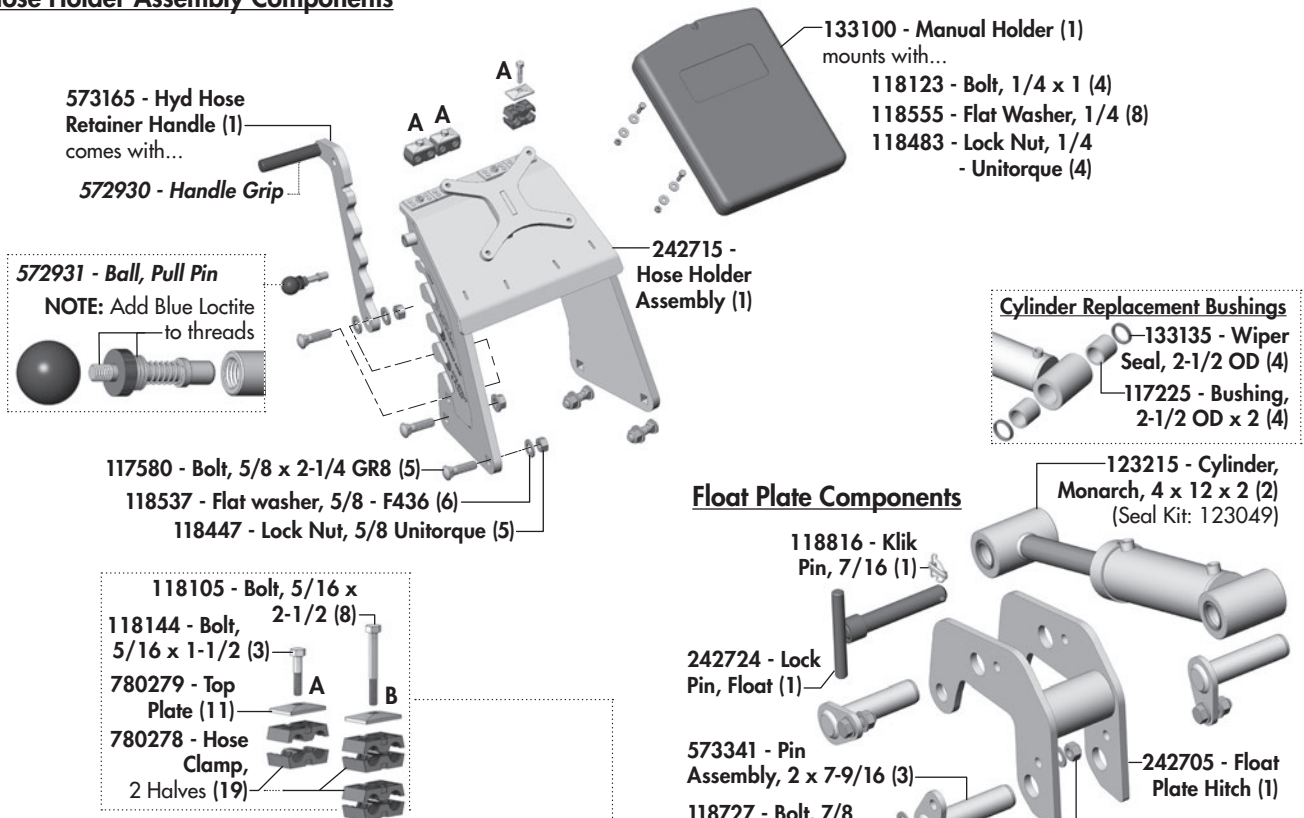
Troubleshooting

GENERAL TROUBLESHOOTING

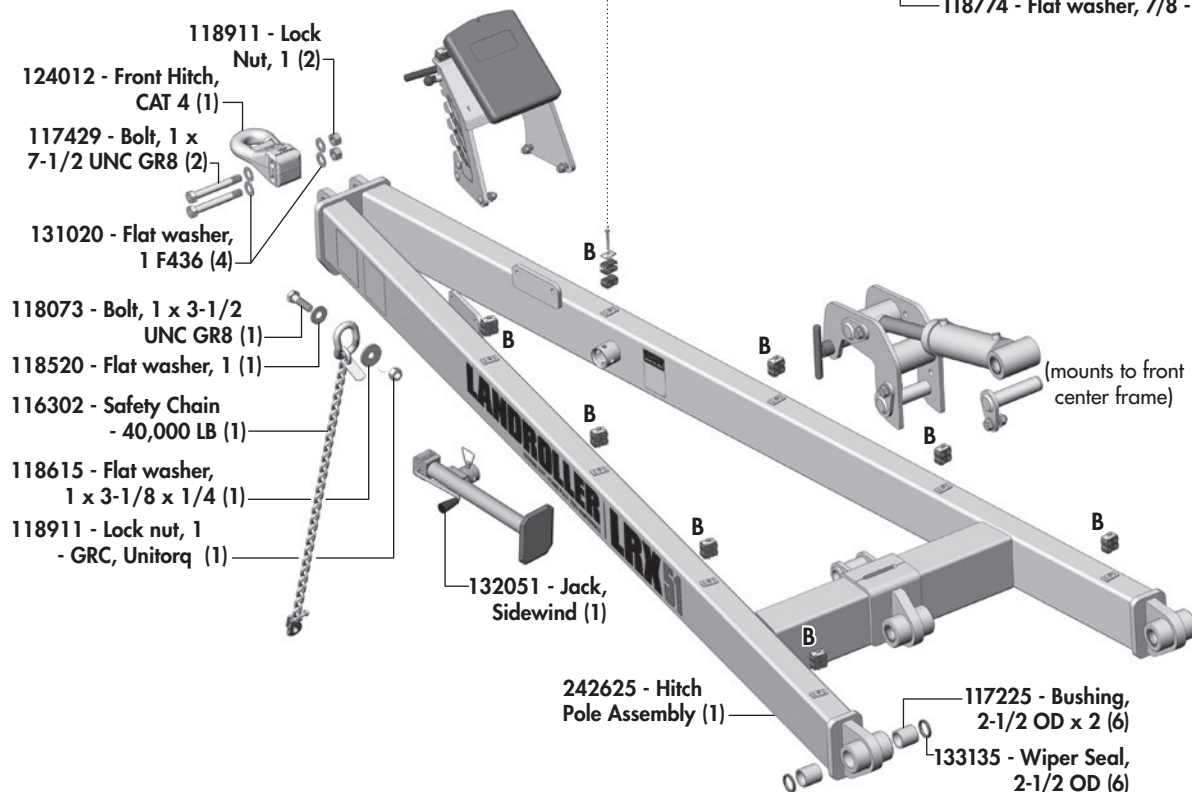
| SYMPTOM | PROBLEM | SOLUTION |
|---|---|--|
| Uneven ground contour, and more compaction on the center section of the Landroller. | The center hitch frame is not in the float position. | Ensure that the Landroller float hitch frame has been fully opened and placed into the proper float position. Also ensure that the tractor's hydraulic circuit for this Hitch Cylinder is in "Float". |
| When driving in the field position, the wings fall back. | When putting the Landroller into field position it is not latching correctly. | Ensure the Landroller is on level ground when backing up to the latch mechanism. Ensure that the swing-arm shafts fully engage into the latches. If problem still occurs, you may need to adjust the adjustable swing arm latch shaft to align properly. |
| One wing won't open up into field position. | Uneven ground or misaligned swing arm shaft. | Ensure the Landroller is on level ground when backing up to the latch mechanism. Ensure that the swing-arm shafts fully engage into the latches. If problem still occurs, you may need to adjust the adjustable swing arm latch shaft to align properly. |
| Landroller rollers won't turn. | Material build-up around rollers. If it is only one roller that doesn't turn, it might be a faulty bearing. | Ensure that there is no material build-up around rollers. |

Hitch Pole / Front Frame Components

Hose Holder Assembly Components

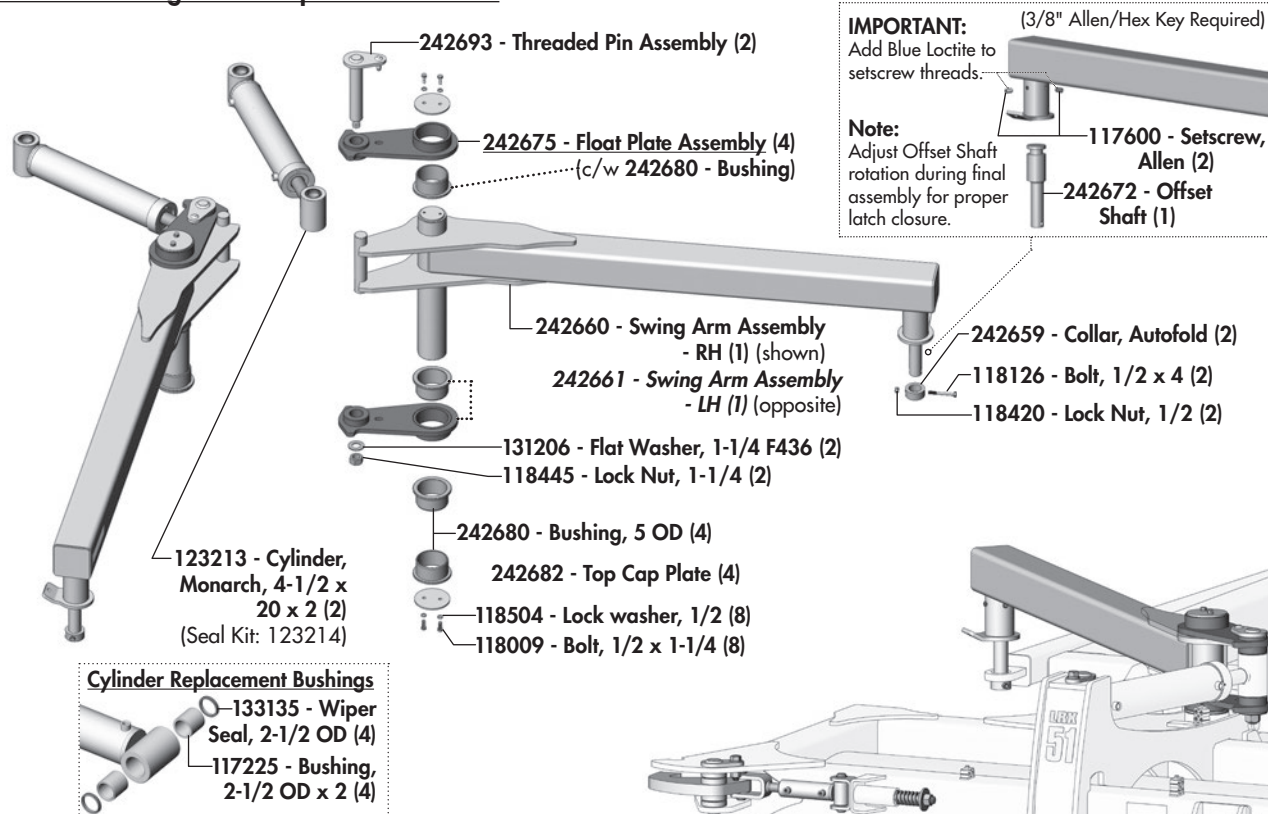


Front Hitch Pole Components

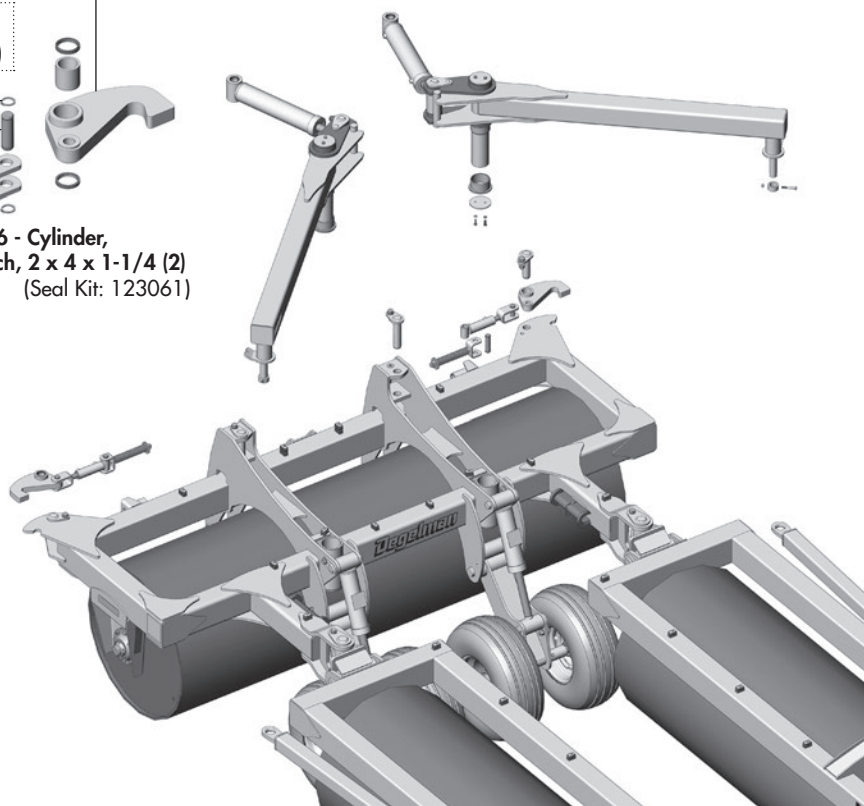
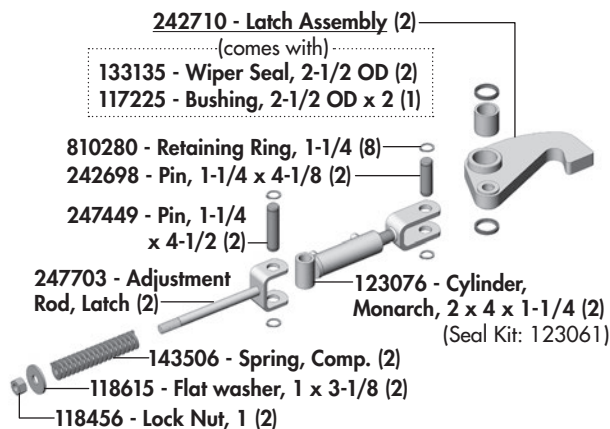


Power-fold Swing Arm & Latch Components

Power-fold Swing-Arm Component Overview

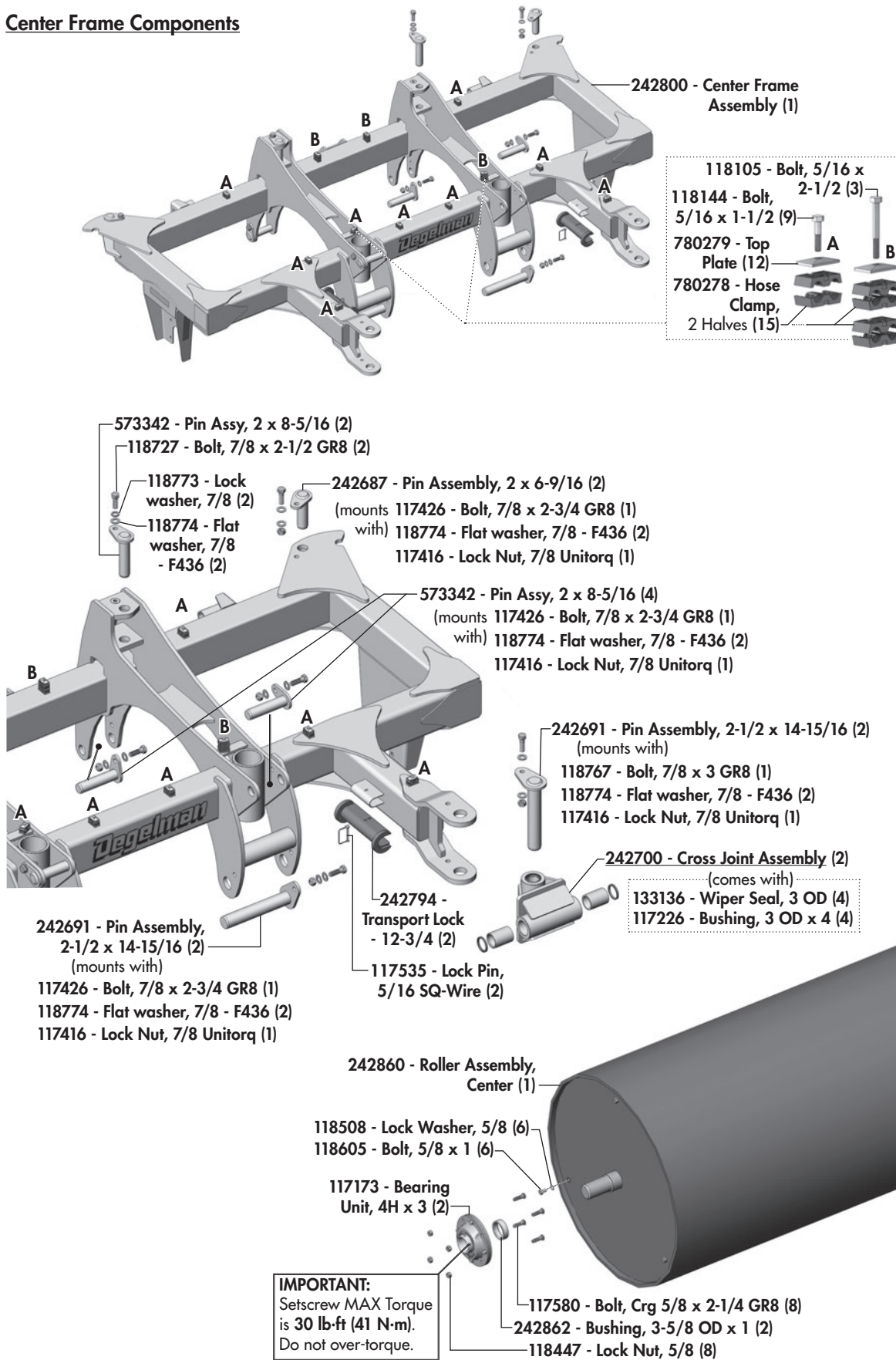


Power-fold Swing-Arm Latch Components



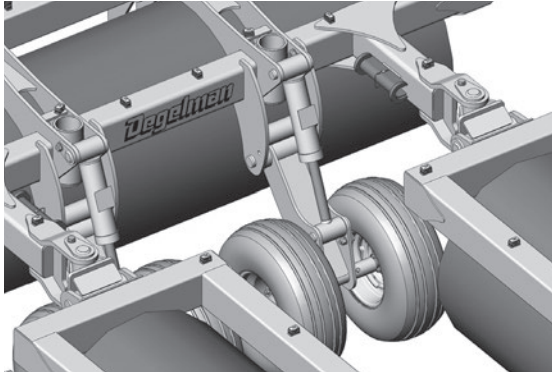
Center Frame Components

Center Frame Components

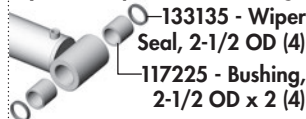


Center Wheel Components

Center Wheels Components



Cylinder Replacement Bushings



242720 - Center Wheel Strut Assembly (2)

(comes with)

133136 - Wiper Seal, 3 OD (2)

117226 - Bushing, 3 OD x 4 (2)

573341 - Pin Assembly, 2 x 7-9/16 (2)

(mounts with)

118727 - Bolt, 7/8 x 2-1/2 GR8 (1)

118774 - Flat washer, 7/8 - F436 (2)

117416 - Lock Nut, 7/8 Unitorq (1)

131515 - Tire Assembly (4)

(comes with)

127018 - Tire, 12.5L x 15 - 12 PLY (1)

131328 - Rim, 15 x 10

- 6 Bolt (1)

127006 - Valve Stem

- TR415 (1)

131709 - Wheel Nut, 9/16
- 18 UNF (24)

123215 - Cylinder, Monarch, 4 x 12 x 2 (2)
(Seal Kit: 123049)

118126 - Bolt, 1/2 x 4 (4)

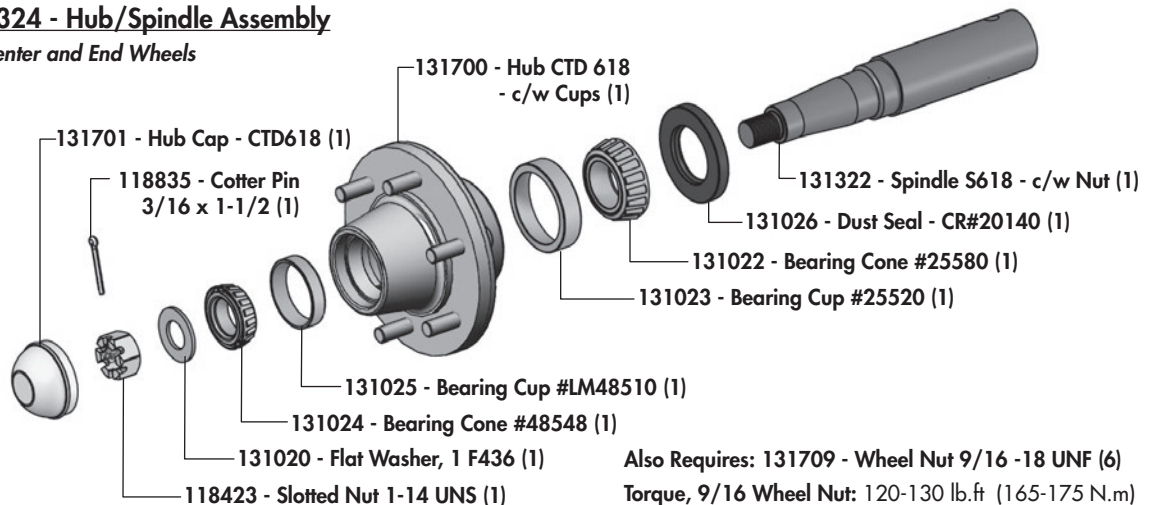
118420 - Lock Nut, 1/2 (4)

131324 - Hub & Spindle Assembly (4)

**Tire Pressure
Center Wheels**
12.5L x 15 - 12 PLY:
90 PSI (620 kPa)

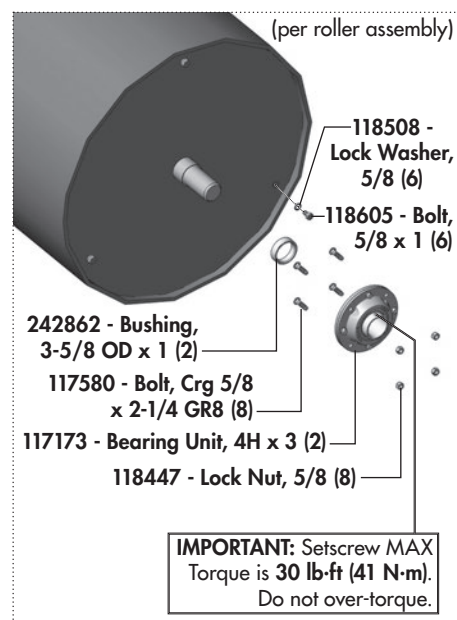
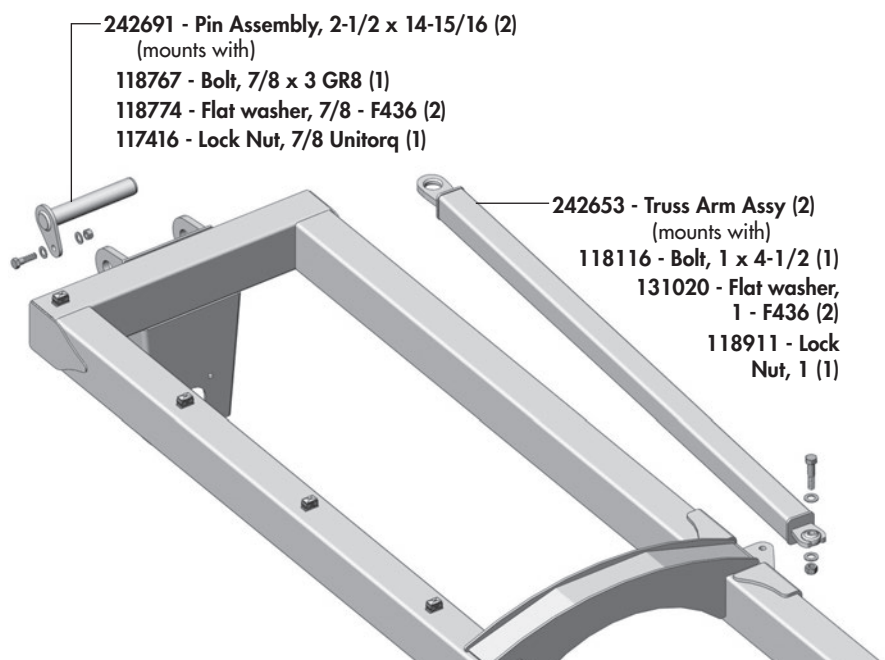
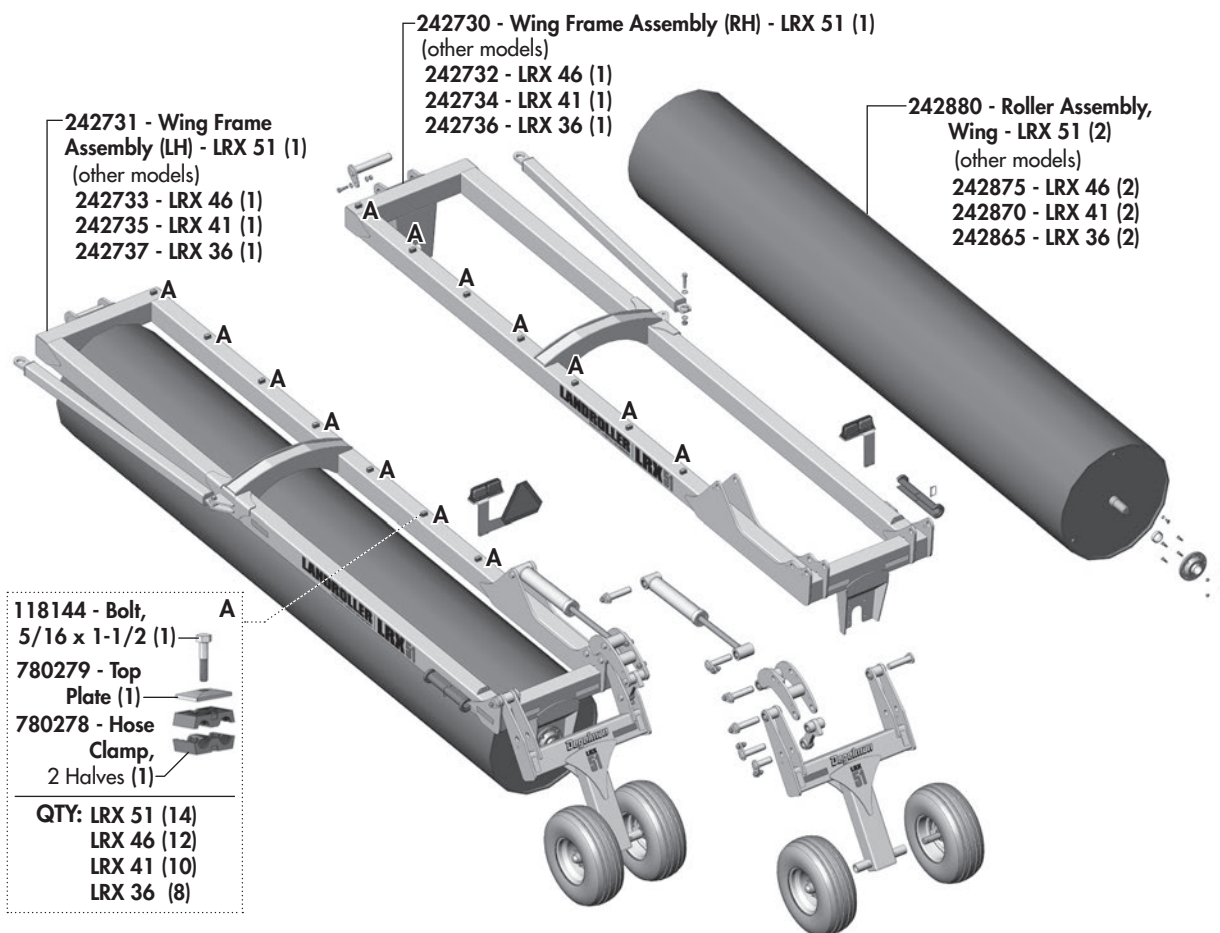
131324 - Hub/Spindle Assembly

Center and End Wheels



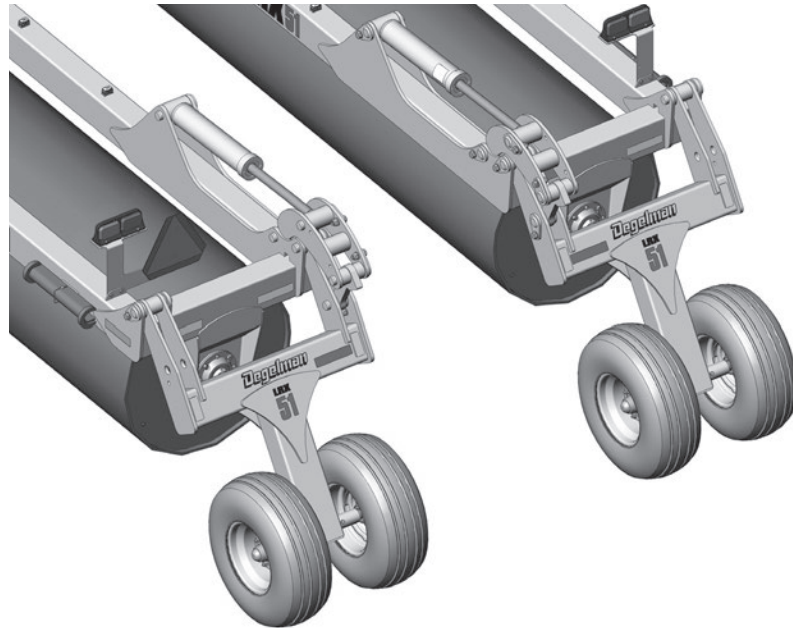
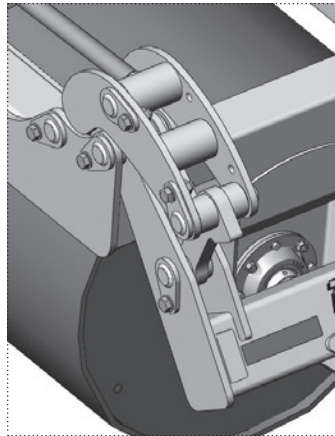
Wing Frame Components

Wing Frame Components

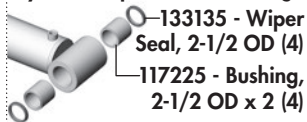


End Wheel Frame Components

End Wheel Frame Components



Cylinder Replacement Bushings



123413 - Cylinder, Monarch
LRX 51
& 46 5 x 20 x 2 (2)
(Seal Kit: 123415)
- or -

123213 - Cylinder, Monarch
LRX 41
& 36 4-1/2 x 20 x 2 (2)
(Seal Kit: 123214)

573342 - Pin Assy, 2 x 8-5/16 (12)
(mounts with)

117426 - Bolt, 7/8 x 2-3/4 GR8 (1)

118774 - Flat washer, 7/8 - F436 (2)

117416 - Lock Nut, 7/8 Unitorq (1)

242685 - Pin Assy, 2 x 5-9/16 (2)
(mounts with)

117426 - Bolt, 7/8 x 2-3/4 GR8 (1)

118774 - Flat washer, 7/8 - F436 (2)

117416 - Lock Nut, 7/8 Unitorq (1)

**Tire Pressure
End Wheels**
12.5L x 15 - 12 PLY:
90 PSI (620 kPa)

117535 - Lock Pin,
5/16 SQ-Wire (2)

242790 - Transport
Lock, 20-3/4 (2)

242845 - Rear Lift Arm Assembly (2)

(comes with)

133135 - Wiper Seal, 2-1/2 OD (2)

117225 - Bushing, 2-1/2 OD x 2 (2)

242640 - Rear Lift Strut Assembly (2)

(comes with)

133135 - Wiper Seal, 2-1/2 OD (4)

117225 - Bushing, 2-1/2 OD x 2 (4)

242850 - Rear Lift Link Plate Assy (2)

(comes with)

133135 - Wiper Seal, 2-1/2 OD (4)

117225 - Bushing, 2-1/2 OD x 2 (3)

131324 - Hub
& Spindle
Assembly (4)

131709 - Wheel
Nut, 9/16 - 18
UNF (24)

118420 - Lock
Nut, 1/2 (4)

118126 - Bolt,
1/2 x 4 (4)

131515 - Tire Assembly (4)
(comes with)









127018 - Tire, 12.5L x 15 - 12 PLY (1)

131328 - Rim, 15 x 10 - 6 Bolt (1)

127006 - Valve Stem - TR415 (1)

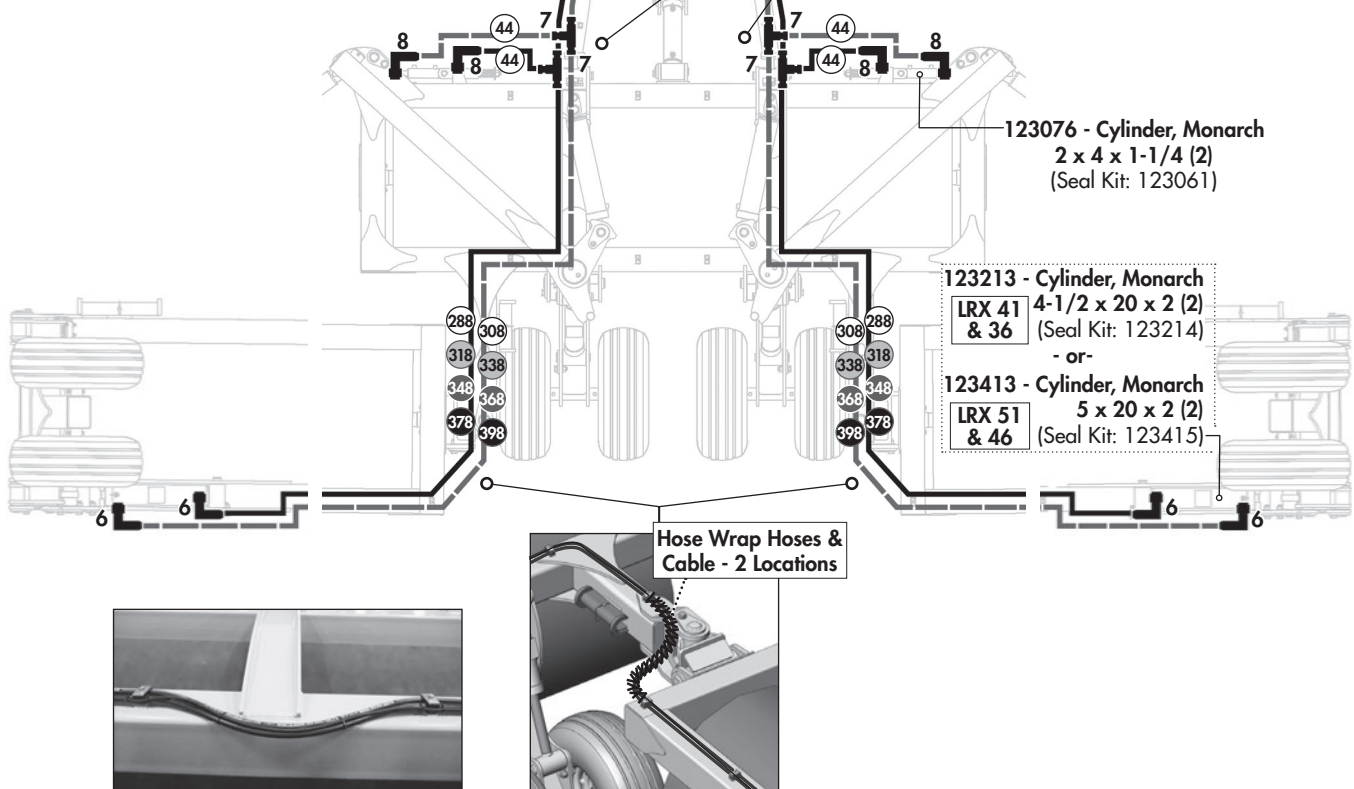
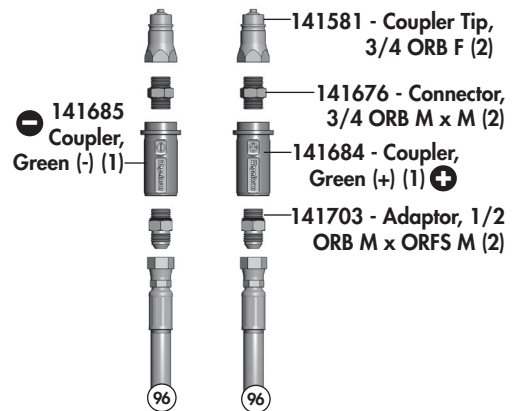
Hydraulic Layout - Latch & End Wheels

Hydraulic Fittings Required

- 1  141581 - Coupler Tip, 3/4 ORB F (2)
- 2  141676 - Connector, 3/4 ORB M x M (2)
- 3  141684 - Coupler, Green (+) (1)
- 4  141685 - Coupler, Green (-) (1)
- 5  141703 - Adaptor, 1/2 ORB M x ORFS M (2)
- 6  141704 - Elbow, 90° 1/2 ORB M x ORFS M (4)
- 7  141712 - Tee, 1/2 ORFS M x M x M (6)
- 8  141711 - Elbow, 90° 1/2 ORFS x 9/16 ORB M (4)









Required Hoses for Latch & End Wheel Cylinders

- 51' Models Only
- 398 242919 - Hose, 3/8 x 398 - 1/2 ORFS F-SW (1)
 - 378 242918 - Hose, 3/8 x 378 - 1/2 ORFS F-SW (1)
- 46' Models Only
- 368 242917 - Hose, 3/8 x 368 - 1/2 ORFS F-SW (1)
 - 348 242916 - Hose, 3/8 x 348 - 1/2 ORFS F-SW (1)
- 41' Models Only
- 338 242915 - Hose, 3/8 x 338 - 1/2 ORFS F-SW (1)
 - 318 242914 - Hose, 3/8 x 318 - 1/2 ORFS F-SW (1)
- 36' Models Only
- 308 242913 - Hose, 3/8 x 308 - 1/2 ORFS F-SW (1)
 - 288 242912 - Hose, 3/8 x 288 - 1/2 ORFS F-SW (1)
- 144 242910 - Hose, 3/8 x 144 - 1/2 ORFS F-SW (1)
 - 96 242909 - Hose, 3/8 x 96 - 1/2 ORFS F-SW (1)
 - 44 242903 - Hose, 3/8 x 44 - 1/2 ORFS F-SW (1)



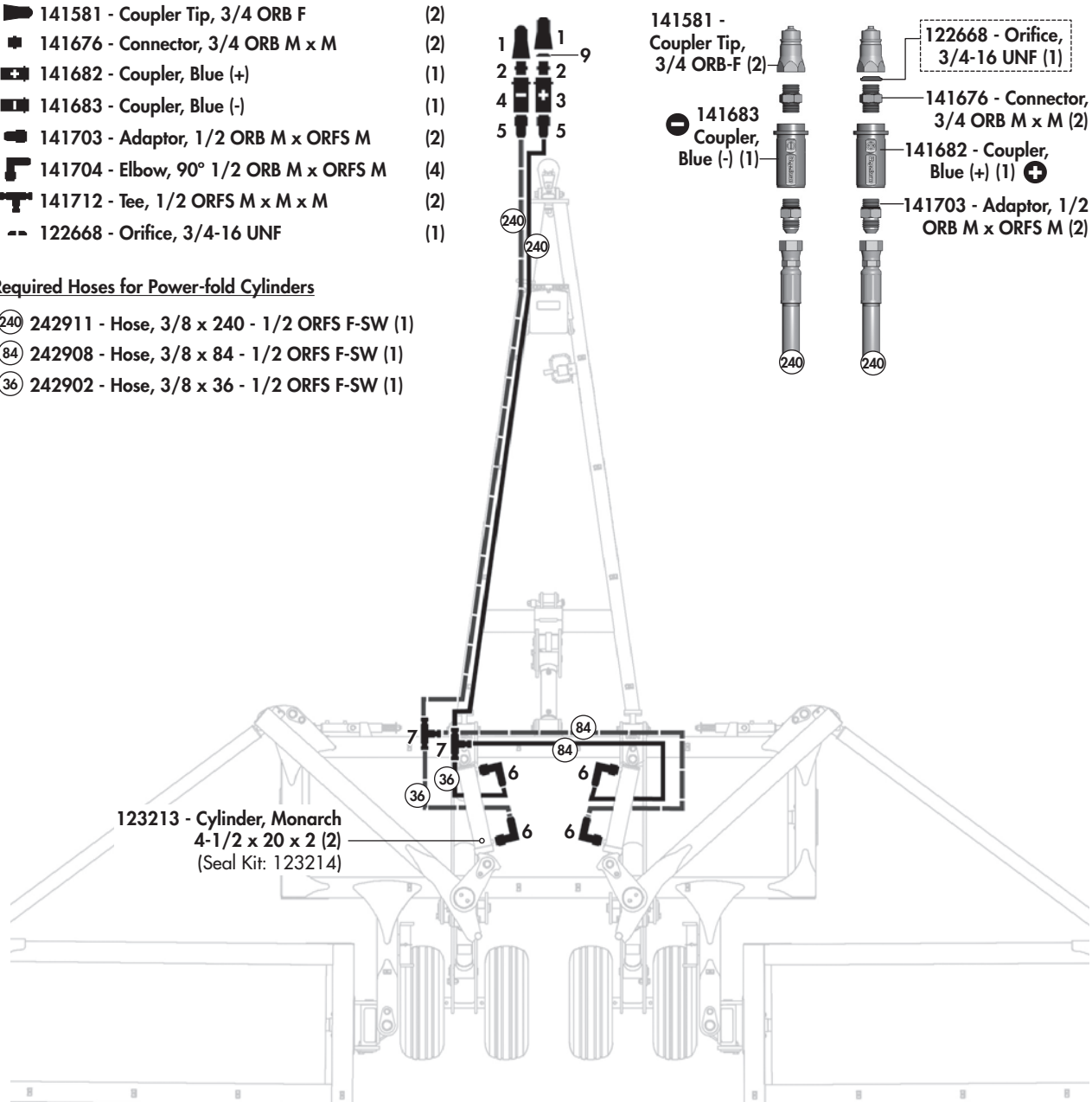
Hydraulic Layout - Power-fold

Hydraulic Fittings Required

- | | | | |
|---|---|--|-----|
| 1 |  | 141581 - Coupler Tip, 3/4 ORB F | (2) |
| 2 |  | 141676 - Connector, 3/4 ORB M x M | (2) |
| 3 |  | 141682 - Coupler, Blue (+) | (1) |
| 4 |  | 141683 - Coupler, Blue (-) | (1) |
| 5 |  | 141703 - Adaptor, 1/2 ORB M x ORFS M | (2) |
| 6 |  | 141704 - Elbow, 90° 1/2 ORB M x ORFS M | (4) |
| 7 |  | 141712 - Tee, 1/2 ORFS M x M x M | (2) |
| 9 |  | 122668 - Orifice, 3/4-16 UNF | (1) |










Required Hoses for Power-fold Cylinders

- | | | |
|-----|--|-----|
| 240 | 242911 - Hose, 3/8 x 240 - 1/2 ORFS F-SW | (1) |
| 84 | 242908 - Hose, 3/8 x 84 - 1/2 ORFS F-SW | (1) |
| 36 | 242902 - Hose, 3/8 x 36 - 1/2 ORFS F-SW | (1) |



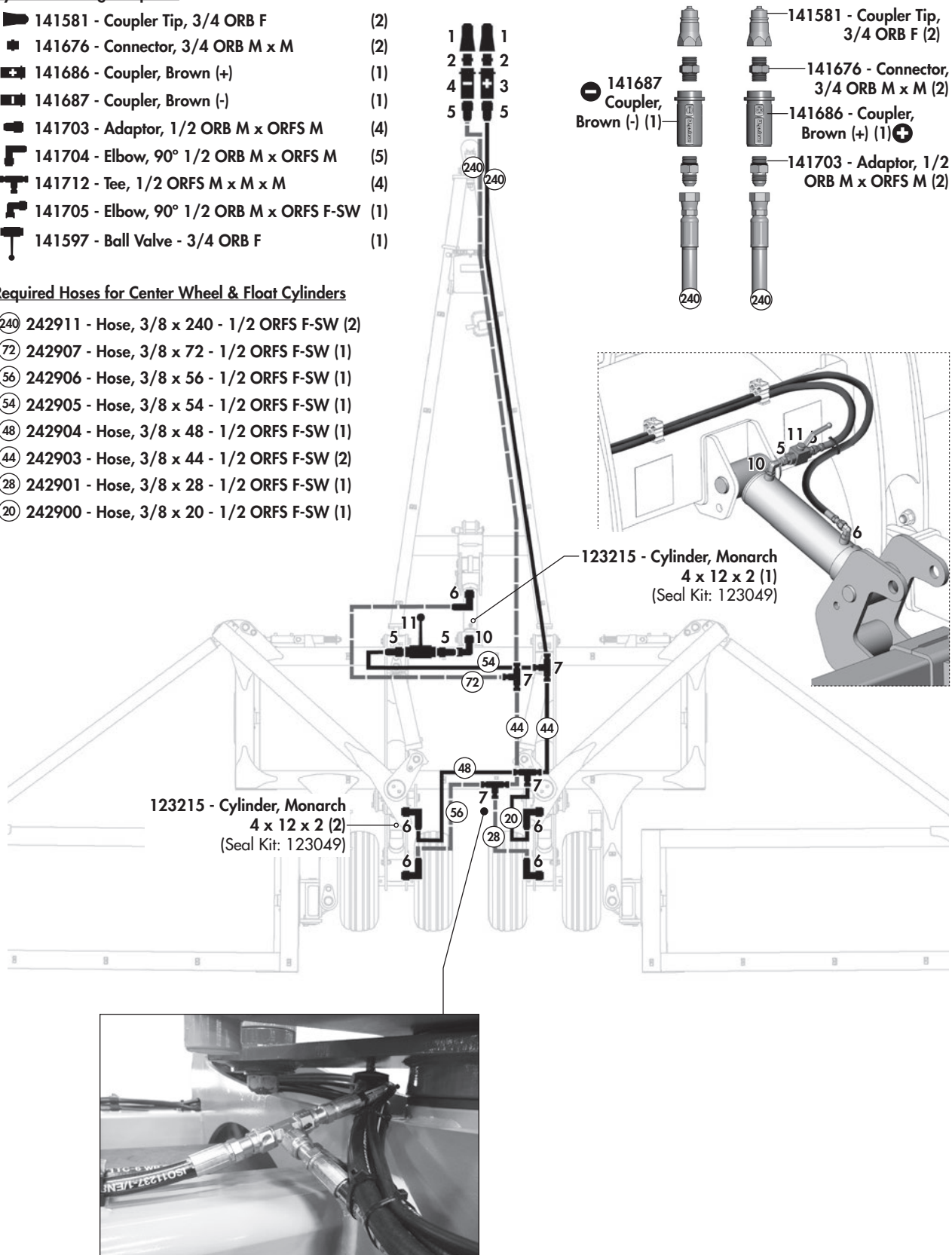
Hydraulic Layout - Center Wheels & Float

Hydraulic Fittings Required

- | | | | |
|----|---|---|-----|
| 1 |  | 141581 - Coupler Tip, 3/4 ORB F | (2) |
| 2 |  | 141676 - Connector, 3/4 ORB M x M | (2) |
| 3 |  | 141686 - Coupler, Brown (+) | (1) |
| 4 |  | 141687 - Coupler, Brown (-) | (1) |
| 5 |  | 141703 - Adaptor, 1/2 ORB M x ORFS M | (4) |
| 6 |  | 141704 - Elbow, 90° 1/2 ORB M x ORFS M | (5) |
| 7 |  | 141712 - Tee, 1/2 ORFS M x M x M | (4) |
| 10 |  | 141705 - Elbow, 90° 1/2 ORB M x ORFS F-SW | (1) |
| 11 |  | 141597 - Ball Valve - 3/4 ORB F | (1) |

Required Hoses for Center Wheel & Float Cylinders

- | | |
|-----|--|
| 240 | 242911 - Hose, 3/8 x 240 - 1/2 ORFS F-SW (2) |
| 72 | 242907 - Hose, 3/8 x 72 - 1/2 ORFS F-SW (1) |
| 56 | 242906 - Hose, 3/8 x 56 - 1/2 ORFS F-SW (1) |
| 54 | 242905 - Hose, 3/8 x 54 - 1/2 ORFS F-SW (1) |
| 48 | 242904 - Hose, 3/8 x 48 - 1/2 ORFS F-SW (1) |
| 44 | 242903 - Hose, 3/8 x 44 - 1/2 ORFS F-SW (2) |
| 28 | 242901 - Hose, 3/8 x 28 - 1/2 ORFS F-SW (1) |
| 20 | 242900 - Hose, 3/8 x 20 - 1/2 ORFS F-SW (1) |



Electrical Layout / Light Components

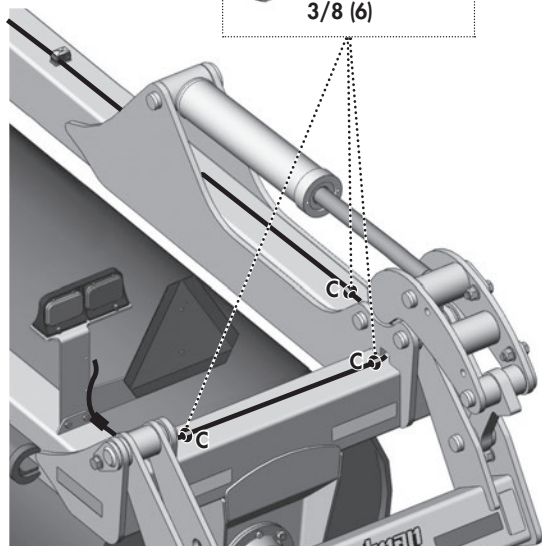
Right Wing Light Components

- 129126 - LED Lamp (RH) (1)
- 118123 - Bolt, 1/4 x 1 (4)
- Orange
- Red
- 118483 - Lock Nut, 1/4 - Unitorque (4)
- 242887 - Light Bracket (1)
- 118420 - Lock Nut, 1/2 (2)
- 118009 - Bolt, 1/2 x 1-1/4 (2)

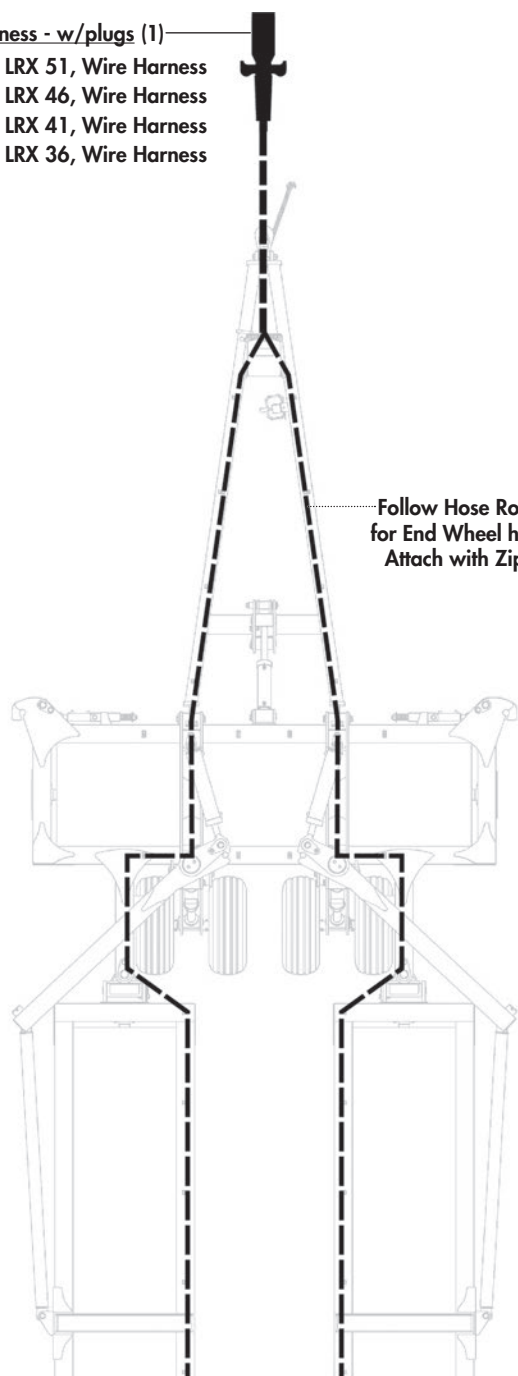
Left Wing Light Components

- 129125 - LED Lamp (LH) (1)
- Orange
- Red
- 118123 - Bolt, 1/4 x 1 (6)
- 118483 - Lock Nut, 1/4 - Unitorque (6)
- 142135 - SMV Sign (1)
- 242886 - Light/Sign Bracket (1)
- 118009 - Bolt, 1/2 x 1-1/4 (2)
- 118420 - Lock Nut, 1/2 (2)

- C 118735 - Screw, 1/4-20 x 3/4 (6)
- 129042 - Clamp, Rubber Cushion, 3/8 (6)

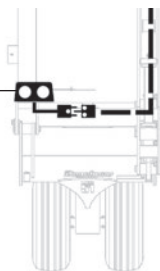


- Wire Harness - w/plugs (1)
- 242953 - LRX 51, Wire Harness
- 242948 - LRX 46, Wire Harness
- 242943 - LRX 41, Wire Harness
- 242938 - LRX 36, Wire Harness

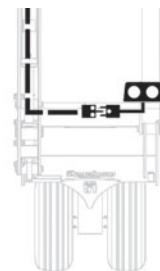


Follow Hose Routing for End Wheel hoses. Attach with Zip Ties

129125 - LED Lamp (LH) (1)



129126 - LED Lamp (RH) (1)



Warranty

2 Year **Limited Warranty - Agricultural Products**

Degelman Industries Ltd. ("Degelman") warrants to the original purchaser of any new Degelman equipment, purchased from an authorized Degelman dealer, that the equipment will be free from defects in material and workmanship for a period of two (2) years from the date of delivery, for non-commercial use (including farm, institutional, government, and municipality) and (1) year from the date of delivery for commercial use. The obligation of Degelman to the purchaser under this warranty is limited to the repair or replacement of defective parts in the first year and to the provision, but not the installation of replacement parts in the second year. Degelman reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This warranty limits its replacement or repair coverage to what is consistent with the warranty of Degelman's suppliers of purchased components.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of delivery of such part or the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Degelman dealer during regular working hours. Warranted replacement parts will either be replaced or rebuilt at Degelman's discretion.

Disclaimer of implied warranties & consequential damages

This warranty shall not be interpreted to render Degelman Industries Ltd. liable for injury, death, property damage or damages of any kind, whether direct, consequential, or contingent to property. Without limiting the generality of the foregoing, Degelman shall not be liable for damages resulting from any cause beyond its reasonable control, including, without limitation, loss of crops, any expense or loss of labour, supplies, rental machinery or loss of use.

No other warranty of any kind whatsoever, express or implied is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale. This exclusion shall not apply in any jurisdiction where it is not permitted by law.

This limited warranty shall not apply:

1. If, in the sole opinion of Degelman, the unit has been subjected to misapplication, abuse, misuse, negligence accident or incorrect off-site machine set-up.
2. To any goods that have sustained damage or deterioration attributable to a lack of routine maintenance (eg. Check and Re-torque of fastening hardware, Hydraulic fluid purities, drive train alignments, and clutch operation)
3. If parts not made or supplied by Degelman have been used in the connection with the unit, if, in the sole judgement of Degelman such use affects its performance, safety, stability or reliability.
4. If the unit has been altered or repaired outside of an authorized Degelman dealership in a manner which, in the sole judgement of Degelman, affects its performance, safety, stability or reliability.
5. To expendable or wear items such as (eg. Harrow tines, Rock Picker and Rock Rake wear teeth and replaceable bushings and pins.) and any other items that in the company's sole judgement are a wear item.

No employee or representative of Degelman Industries Ltd. is authorized to change this limited warranty in any way or grant any other warranty unless such change is made in writing and signed by the Degelman Service Manager.

This limited warranty is subject to any future availability of supply, which may directly affect Degelman's ability to obtain materials or manufacture replacement parts.

Degelman reserves the right to make improvements in design or changes in specifications at any time, without incurring obligations to owners of equipment previously delivered.

This limited warranty is subject to compliance by the customer to the enclosed *Retail Customer's Responsibility Under Degelman Warranty*.

Warranty

Retail Customer's Responsibility Under Degelman Warranty.

It is the retail customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the equipment in accordance with all instructions and safety procedures. Failure of the operator to read the operators manual is a misuse of this equipment.

It is the retail customer and/or operators responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause safety hazard.

It is the retail customer's responsibility to deliver the product to the authorized Degelman dealer, from whom he purchased it, for service or replacement of defective parts, which are covered by warranty. Repairs to be submitted for warranty consideration must be made within forty-five days of failure.

It is the Retail Customer's responsibility for any cost incurred by the dealer for hauling of the product for the purpose of performing a warranty obligation or inspection.

WARRANTY INFORMATION

Make certain the warranty registration card has been forwarded to:

**Degelman Industries Ltd.
Box 830 -272 Industrial Dr.
Regina, SK, Canada
S4P 3B1**

Always give your dealer the serial number of your Degelman product when ordering parts or requesting service or other information.

The serial number is located on the machine as shown in the diagram below. In the space provided record the model number, the serial number and the date of purchase to assist your dealer in providing you with prompt and efficient service.

SERIAL NUMBER: _____

MODEL NUMBER: _____

DATE OF PURCHASE: _____

