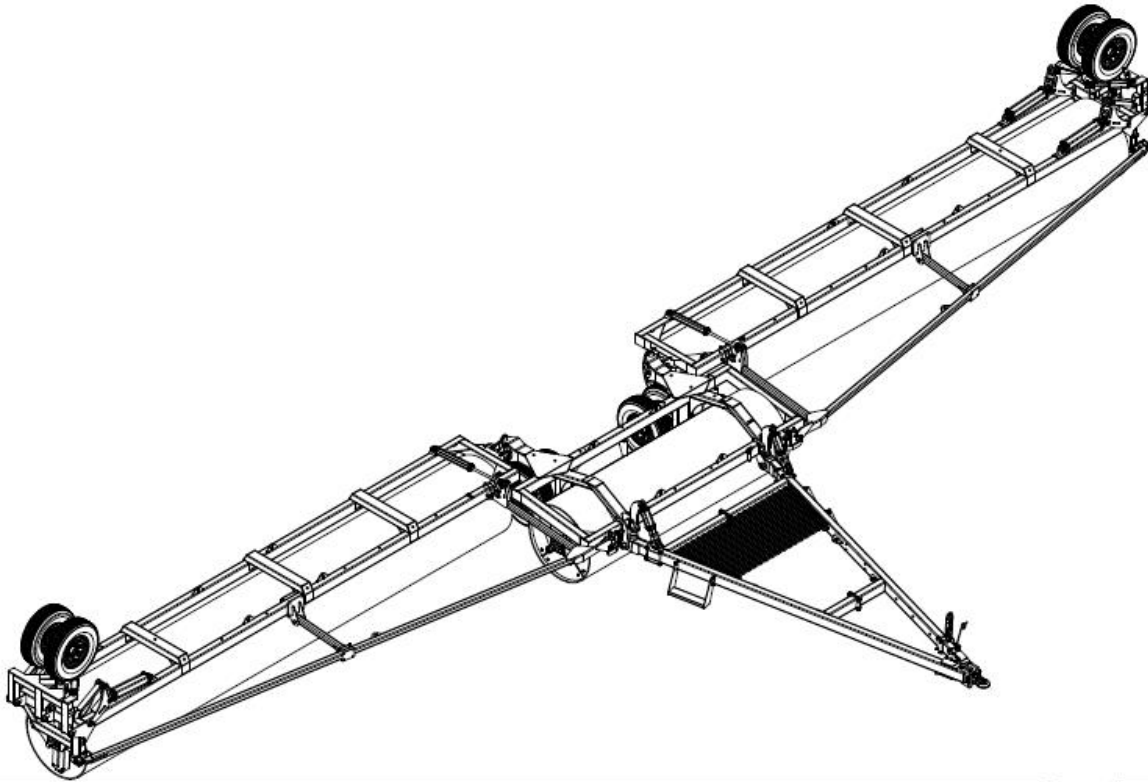




## OPERATOR'S MANUAL



### **Land Roller 3 section (31 – 60 Ft)**

**Ag Shield Manufacturing**  
**Box 9, Benito, Manitoba R0L 0C0**  
**Phone 800-561-0132 or 204-539-2000**  
**Fax 204-539-2130**  
**[www.agshield.com](http://www.agshield.com)**  
**E-mail address [office@agshield.com](mailto:office@agshield.com)**

Printed in Canada

May 2022 R7

**Serial no. 12223XX-up**





## AG SHIELD LTD.

BOX 9, BENITO, MANITOBA CANADA R0L 0C0

Phone 1-800-561-0132 or 204-539-2000 Fax 204-539-2130

[www.agshield.com](http://www.agshield.com)

E-mail: [office@agshield.com](mailto:office@agshield.com)

**Warranty Registration Form** - Warranty registration must be filled out by the dealer at the time of delivery, and emailed, faxed, or mailed to Ag Shield within 10 days of customer invoice to validate warranty.

Machine type-e.g. Recon, Land Roller	Model - e.g., 400 or 12- 46- 3	Delivery Date
Serial Number e.g. 1815125	Size - e.g. 7 ft or 46 ft	Options
Additional Serial Number e.g. 1415103	Size - e.g. 7 ft or 46 ft	Options

Customer Name	Phone Number
Mailing Address	City
State / Province	Country
Postal Zip code	Email Address for service & updates- required

enter X

Customer agrees that the equipment was complete with all parts in good working order except as noted below, that the customer has received the owner's handbook, and the customer has been thoroughly instructed in the use of it. Customer agrees that they have been instructed in the care, adjustments, the safe operation of the machine, and the applicable warranty policy. Max lo dot the tires has been identified.

Dealer Name	Phone Number
Mailing Address	City
State / Province	Country
Postal Zip Code	Email Address for service & updates- required

enter X

Dealer agrees to have thoroughly instructed the customer on the above described equipment, including the contents of the Owner's Handbook, equipment care, adjustments, safe operation, and applicable warranty policy.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# 1.INSPECTION

## PRE-DELIVERY INSPECTION CHECK LIST

### General

- ☐ Remove wrapping and wash unit, removing all road debris. (Road salt, mud, snow, etc)
- ☐ Inspect paint, decals and general appearance of unit.
- ☐ Verify that the owner's manual is in the manual storage tube.
- ☐ Verify "SLOW MOVING VEHICLE" sign (SMV) is on unit.
- ☐ Verify that the jack is with the unit and function properly.
- ☐ Check wheel bolts for proper torque, proper wheel size and all tires are the same make.
- ☐ Check for proper tire pressure (PSI)
- ☐ Verify that locking pins are in place.
- ☐ Lubricate all components as per operator's manual recommendation.
- ☐ Check that all bolts and fasteners are at the proper torque specifications.
- ☐ Check locking collars and set screws for proper torque.
- ☐ Verify operation of lights.
- ☐ Verify the unit moves "IN" and "OUT" of transport without binding.

### Hydraulics

- ☐ Ensure that all hydraulic hoses and lines are routed properly and secured.
- ☐ Verify that all hydraulic fittings / hoses are secure and there are no oil leaks.
- ☐ Inspect all cylinders for leakage and the cylinder shaft for rust, pits, or scratches.
- ☐ Verify operation of all hydraulic functions – Cycle hydraulic cylinders to remove air from the system.

### Delivery

- ☐ Verify that the customer is aware of warning decals and proper jack placement for transport.
- ☐ Verify that the customer is aware of proper operation and transportation of the unit.
- ☐ Verify that the customer has received an operator's manual.
- ☐ Explain all maintenance and service intervals to the customer (From operations manual).
- ☐ Advise the customer of grease locations and maintenance schedules.
- ☐ Level the unit per operator's manual and instruct the customer on proper procedures.

Date: \_\_\_\_\_ Signature of Technician who performed the inspection: \_\_\_\_\_

## 2.TABLE OF CONTENTS

1.	INSPECTION .....	4
2.	TABLE OF CONTENTS .....	5
3.	INTRODUCTION AND SIGN-OFF FORM .....	6
4.	SPECIFICATIONS .....	7
5.	SAFETY .....	9
5.1.	SAFETY OVERVIEW .....	10
5.2.	GENERAL SAFETY .....	10
5.3.	MAINTENANCE SAFETY .....	11
5.4.	HYDRAULIC SAFETY .....	11
5.5.	STORAGE SAFETY .....	11
5.6.	TRANSPORT SAFETY .....	11
5.7.	REFUELING SAFETY .....	12
5.8.	TIRE SAFETY .....	12
5.9.	IN FIELD OPERATION .....	12
5.10.	SAFETY DECALS .....	13
6.	SETUP FROM SHIPPING MODE .....	14
6.1.	TRUCK SHIPPING .....	14
6.2.	EXAMPLES OF THE FOUR (4) POINT HITCH LIFT SETUP .....	14
6.3.	TOWED OUT SHIPPING .....	14
7.	MAINTENANCE .....	15
8.	OPERATION .....	16
8.1.	EASIFOLD - FOLDING FROM ROAD TO FIELD. ....	16
8.2.	“EASIFOLD” FOLDING FROM FIELD TO ROAD PROCEDURE .....	19
8.3.	LEVELING BLADE OPERATION (FOR MODELS WITH A LEVELING BLADE) .....	22
8.4.	WATER FILLING ROLLER TANK .....	25
8.5.	ACRE METER OPTION .....	26
9.	PARTS .....	27
9.1.	60 FT LANDROLLER 800019 .....	27
9.2.	HITCH - 831009 .....	28
9.3.	CENTER ASSEMBLY 800019 .....	29
9.4.	CENTER ASSEMBLY 801737 .....	30
9.5.	WING ASSY LH 60 FOOT LAND ROLLER 800019 .....	31
9.6.	LH WING ASSEMBLY 802374 .....	33
9.7.	WING ASSY RH 60 FOOT LAND ROLLER 800019 .....	34
9.8.	RH WING ASSEMBLY 802370 .....	36
9.9.	DECALS LOCATIONS AND PART NUMBERS .....	37
9.10.	BOLT HUB ASSEMBLY 113686 .....	38
10.	HYDRAULIC SCHEMATICS, HOSE SPECIFICATIONS .....	39
10.1.	HYDRAULIC SCHEMATIC 60 FT ROLLER .....	39
10.2.	BOLT GRADE CHART .....	41
10.3.	BOLT TORQUE CHART .....	42
11.	WARRANTY .....	43

### 3.INTRODUCTION AND SIGN-OFF FORM

**Congratulations!** on your choice of an Ag Shield Land Roller. This equipment has been designed and manufactured to meet the needs of the discerning farmers and contractors, and rental agencies.

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

Ag Shield follows the general safety standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration OSHA). Anyone who will be operating and/or maintaining the Ag Shield Land Roller must read and clearly understand ALL Safety, Operating, and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Review this information annually before season start-up. Make these reviews of safety and operation a standard practice for all your equipment. An untrained operator is **not qualified** to operate this machine.

A sign off sheet is provided for your record keeping showing that all personnel who will be working with the equipment have read and understood the information in the Operators Handbook and have been instructed in the operation of the equipment.

#### SIGN-OFF FORM

DATE	OPERATORS SIGNATURE	EMPLOYERS SIGNATURE

## 4. SPECIFICATIONS

# AG SHIELD LAND ROLLER

## 3 SECTION 46 to 60 ft

## SPECIFICATIONS



### Standard Equipment

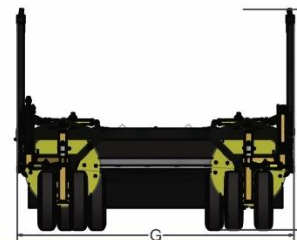
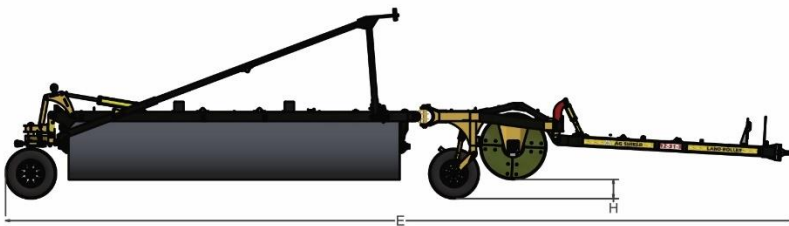
42" Diameter Drum  
5/8" Thick Drum (min 15.2mm)  
2 1/2" Ball Bearings  
#213 Ductile Iron Bearing Flanges  
Replaceable 2 1/2" 1045 Drum Shafts  
Hwy Speed Rated Hub & Spindles  
235/80R16 10 ply Radial Tires  
Tandem Hydraulic Folding Rear Wheels  
Patented Diagonal Brace Arm  
Hydraulic Floating Hitch  
Sealed Drum Ends  
Clearance Lights  
Acre Meter

### Optional Equipment

7/8" Extreme Duty Drum (21mm)  
Comes with:  
235/80R16 14 ply Radial Tires  
2 1/2" Double Row Spherical Roller Bearings  
Forged Bearing Housings  
Adds 108 Lbs per ft

Water Fill Kit, add 575 Lbs per ft  
Roller Barrel Mud Scraper  
Levelling Blade  
Valmar 4056/6056 Seeder

Model	12-46-3	12-52-3	12-60-3
Working Width	46'	52'	60'
Number Of Drum Segments	3	3	3
Drum Width Configuration	17'6"   11'6"   17'6"	20'6"   11'6"   20'6"	24'6"   11'6"   24'6"
Drum Diameter	42"	42"	42"
Standard Heavy Duty Drum Thickness	5/8" (min 15.2mm)	5/8" (min 15.2mm)	5/8" (min 15.2mm)
Optional Extreme Duty Thickness	7/8" (min 21mm)	7/8" (min 21mm)	7/8" (min 21mm)
Drum Overlap	3"	3"	3"
Drum Width - Center	11'6"	11'6"	11'6"
Drum Width - Inner Wings	17'6" LH   17'6" RH	20'6" LH   20'6" RH	24'6" LH   24'6" RH
Drum Bearings ( Heavy Duty)	2 1/2" Ball	2 1/2" Ball	2 1/2" Ball
Drum Bearings (Extreme Duty)	2 1/2" Double Spherical	2 1/2" Double Spherical	2 1/2" Double Spherical
Drum Shaft (Replaceable)	2 1/2"	2 1/2"	2 1/2"
Transport Width	12'6"	12'6"	12'6"
Transport Length	41'6"	48'	52'
Transport Height	120"	120"	120"
Working Weight (Heavy Duty)	21,390 lbs	24,388 lbs	28,398 lbs
Weight per ft	465 lbs/ft	469 lbs/ft	473 lbs/ft
Hitch Pole Construction	6 x 3 x .250	6 x 3 x .250	6 x 4 x .250
Center Frame Construction	6 x 4 x .250	6 x 4 x .250	6 x 4 x .250 / .375
Wing Frame Construction	6 x 4 x .250	6 x 4 x .250	6 x 4 x .250 / .375
Wing Pins	1 3/4" Hardened w Chrome	1 3/4" Hardened w Chrome	1 3/4" Hardened w Chrome
Diagonal Brace Arm Construction	3 x 3 x .250, 1" plate	3 x 3 x .375, 1" plate	3 x 3 x .375, 1" plate
Hydraulics - Hydraulic Hitch	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft
Hydraulics - Center Raise	2x 3" x 10", 1 3/8" shaft	2x 3" x 10", 1 3/8" shaft	2x 3" x 10", 1 3/8" shaft
Hydraulics - Outer Wing Raise	2x 4" x 20", 1 3/4" shaft	2x 4" x 20", 1 3/4" shaft	4x 4" x 20", 1 3/4" shaft
Hydraulics - Diagonal Arm Lock	2x 2" x 20", 1 1/8" shaft	2x 2" x 20", 1 1/8" shaft	2x 2" x 20", 1 1/8" shaft
Hydraulics - Wheel Turn	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft
Tires (Center Frame)	235/80R16, 10 ply	235/80R16, 10 ply	235/80R16, 10 ply
Tires (Outer Wing)	235/80R16, 10 ply	235/80R16, 10 ply	235/80R16, 10 ply
Tires (Extreme duty)	235/80R16, 14ply	235/80R16, 14ply	235/80R16, 14ply
Extreme Duty Drum	7/8" (min 21mm)	7/8" (min 21mm)	7/8" (min 21mm)
Extreme Duty Additional Wt/FT	108 lbs	108 lbs	108 lbs
Floating Hitch	Std (Hydraulic)	Std (Hydraulic)	Std (Hydraulic)
Mud Scraper	optional	optional	optional
Water Fill Kit	optional	optional	n/a
Leveling Blade	optional	optional	n/a
Safety Lights	Std	Std	Std



# AG SHIELD LAND ROLLER

## 3 SECTION 31 to 42 ft

## SPECIFICATIONS



### Standard Equipment

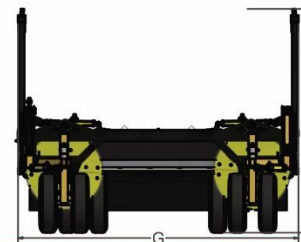
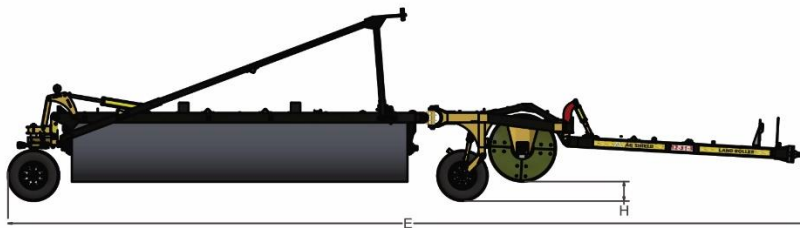
42" Diameter Drum  
5/8" Thick Drum (min 15.2mm)  
2 1/2" Ball Bearings  
#213 Ductile Iron Bearing Flanges  
Replaceable 2 1/2" 1045 Drum Shafts  
Hwy Speed Rated Hub & Spindles  
235/80R16 10 ply Radial Tires  
Tandem Hydraulic Folding Rear Wheels  
Patented Diagonal Brace Arm  
Hydraulic Floating Hitch  
Sealed Drum Ends  
Clearance Lights  
Acre Meter

### Optional Equipment

7/8" Extreme Duty Drum (21mm thick)  
Comes with:  
235/80R16 14 ply Radial Tires  
2 1/2" Double Row Spherical Roller Bearings  
Forged Bearing Housings  
Adds 108 Lbs per ft

Water Fill Kit, add 575 Lbs per ft  
Roller Barrel Mud Scraper  
Levelling Blade  
Valmar 4056/6056 Seeder

Model	12-31-3	12-36-3	12-42-3
Working Width	31'	36'	42'
Number Of Drum Segments	3	3	3
Drum Width Configuration	10'   11'6"   10'	12'6"   11'6"   12'6"	15'6"   11'6"   15'6"
Drum Diameter	42"	42"	42"
Standard Heavy Duty Drum Thickness	5/8" (min .600)	5/8" (min .600)	5/8" (min .600)
Optional Extreme Duty Thickness	7/8" (min 21mm)	7/8" (min 21mm)	7/8" (min 21mm)
Drum Overlap	3"	3"	3"
Drum Width - Center	11'6"	11'6"	11'6"
Drum Width - Inner Wings	10' RH   10' LH	12'6" LH   12'6" RH	15'6" LH   15'6" RH
Drum Bearings ( Heavy Duty)	2 1/2" Ball	2 1/2" Ball	2 1/2" Ball
Drum Bearings (Extreme Duty)	2 1/2" Double Spherical	2 1/2" Double Spherical	2 1/2" Double Spherical
Drum Shaft (Replaceable)	2 1/2"	2 1/2"	2 1/2"
Transport Width (G)	12'6"	12'6"	12'6"
Transport Length (E)	34'6"	36'6"	39'6"
Transport Height	120"	120"	120"
Working Weight (Heavy Duty)	14,647 lbs	16,972 lbs	19,530 lbs
Weight per ft	465 lbs/ft	465 lbs/ft	465 lbs/ft
Hitch Pole Construction	6 x 3 x .250	6 x 3 x .250	6 x 3 x .250
Center Frame Construction	6 x 4 x .250	6 x 4 x .250	6 x 4 x .250
Wing Frame Construction	6 x 4 x .250	6 x 4 x .250	6 x 4 x .250
Wing Pins	1 3/4" Hardened w Chrome	1 3/4" Hardened w Chrome	1 3/4" Hardened w Chrome
Diagonal Brace Arm Construction	3 x 3 x .250, 1" plate	3 x 3 x .250, 1" plate	3 x 3 x .250, 1" plate
Hydraulics - Hydraulic Hitch	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft
Hydraulics - Center Raise	2x 3" x 10", 1 3/8" shaft	2x 3" x 10", 1 3/8" shaft	2x 3" x 10", 1 3/8" shaft
Hydraulics - Outer Wing Raise	2x 4" x 20", 1 3/4" shaft	2x 4" x 20", 1 3/4" shaft	2x 4" x 20", 1 3/4" shaft
Hydraulics - Diagonal Arm Lock	2x 2" x 20", 1 1/8" shaft	2x 2" x 20", 1 1/8" shaft	2x 2" x 20", 1 1/8" shaft
Hydraulics - Wheel Turn	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft	2x 3" x 6", 1 3/8" shaft
Tires (Center Frame)	235/80R16, 10 ply	235/80R16, 10 ply	235/80R16, 10 ply
Tires (Outer Wing)	235/80R16, 10 ply	235/80R16, 10 ply	235/80R16, 10 ply
Tires (Extreme duty)	235/80R16, 14ply	235/80R16, 14ply	235/80R16, 14ply
Extreme Duty Drum	7/8" (min 21mm)	7/8" (min 21mm)	7/8" (min 21mm)
Extreme Duty Additional Wt/FT	108 lbs	108 lbs	108 lbs
Floating Hitch	Std (Hydraulic)	Std (Hydraulic)	Std (Hydraulic)
Mud Scraper	optional	optional	optional
Water Fill Kit	optional	optional	optional
Leveling Blade	optional	optional	optional
Safety Lights	Std	Std	Std



## 5. SAFETY

# SAFETY ALERT SYMBOL

This Safety Alert symbol means:

**ATTENTION! BECOME ALERT!  
YOUR SAFETY IS INVOLVED!**

The Safety Alert symbol identifies important safety messages on the Ag Shield Land Roller and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message



## 3 Big Reasons

**Accidents Disable and Kill  
Accidents Cost  
Accidents Can Be Avoided**

## SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines:

- DANGER** - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components, which for functional purposes, cannot be guarded.
- WARNING** - Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.
- CAUTION** - Indicates a potentially hazardous situation that, if not avoided, could result in minor injury. It may also be used to alert against unsafe practices.

## 5.1. SAFETY OVERVIEW

**YOU** are responsible for the **SAFE** operation and maintenance of your Ag Shield Land Roller. **YOU** must ensure that you and everyone who is going to operate maintain or work around the Land Roller be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Land Roller.

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.

- Land Roller owners must give operating instructions to operators or employees before allowing them to operate the Land Roller, and at least annually thereafter per OSHA regulation 1928.57.
- 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!

## 5.2. GENERAL SAFETY

- 1) Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or transporting the Land Roller.
- 2) Only trained competent persons shall operate the Land Roller. An untrained operator is not qualified to operate the machine.
- 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.
4. Do not allow riders.
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
  - Hearing protection
6. Stop the engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
7. Review safety related items with all personnel annually.

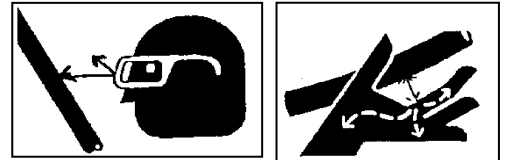


### 5.3. MAINTENANCE SAFETY

- 1) Review the Operators Manual and all safety items before working with, maintaining or operating the Land Roller.
- 2) Stop the tractor engine, place all controls in neutral, set park brake, remove ignition key, wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- 3) Before applying pressure to a hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are not damaged.
- 4) Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
- 5) Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
- 6) Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
- 7) Place stands or blocks under the frame before working beneath the machine.

### 5.4. HYDRAULIC SAFETY

- 1) Always place all tractor hydraulic controls in the off position before dismounting.
- 2) Make sure that all components in the hydraulic system are kept in good condition and are clean.
- 3) Replace any worn, cut, abraded, flattened or crimped hoses and steel lines.
- 4) 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 can fail suddenly and create a hazardous and unsafe condition.
- 5) 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.
- 6) 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.



### 5.5. STORAGE SAFETY

- 1) Store unit in an area away from human activity.
- 2) Do not permit children to play on or around the stored Land Roller.
- 3) Store in a lower position so persons cannot be injured, or property cannot be damaged by mechanical failure.

### 5.6. TRANSPORT SAFETY

- 1) Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Land Roller in the field and/or on the road.
- 2) Check with local authorities regarding machinery 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. Daybreak and dusk are particularly dangerous and pilot vehicles are recommended.
- 5) Ensure that the Land Roller is hitched positively to the towing vehicle. Always use a safety chain between the machine and the tractor.
- 6) 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.
- 7) Always use hazard warning flashers on the Land Roller when transporting unless prohibited by law.
- 8) Install cylinder stops/transport lock brackets and close valves in hydraulic lines before transporting or working under the frame.
- 9) It is recommended that only 3/4 tonne or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide recommended stability and control when towing.

## **5.7. REFUELING SAFETY**

- 1) Handle fuel with care. It is highly flammable.
- 2) Do not refuel the machine while smoking or when near open flame or sparks
- 3) Stop engine before refueling. Clean up spilled fuel before restarting engine.

## **5.8. TIRE SAFETY**

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion, which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.
4. Operate the tires at the pressures, loads, and speeds suggested by the manufacturer.
5. Operate the tires at the pressures, loads, and speeds suggested by the manufacturer.

## **5.9. IN FIELD OPERATION**

1. Read and understand the Operator's Manual and all safety signs before using.
2. Lower machine to the ground, place all controls in neutral, stop 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. Be familiar with all potential hazards: trees, rocks ditches, gullies, etc. Plan your route to avoid hazards. Keep Land Roller width in mind when maneuvering to avoid obstacles.
5. Fasten seatbelt.
6. Max speed of 10 km/hr (6 MPH).
7. Be aware of sharp turns/jackknifing.
8. Be aware of surroundings and blind spots when reversing.
9. DO NOT exceed max hitch weight capabilities of your tractor.
10. Attach safety chains.
11. Make certain the tractor pin fits hitch perfectly.
12. Do not allow riders on the Land Roller or tractor during operation or transporting.
13. Clear the area of all bystanders, especially children, before starting.
14. Stay away from all frames and components when folding or extending. Keep others away.
15. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are not damaged.
16. Review safety instructions annually

## 5.10. SAFETY DECALS

The various safety decals, and their locations on the equipment are shown in the illustrations to follow. Good safety practices require familiarizing yourself with the decals. Read the warning messages, and note the area, or specific function related to that area, that the decal highlights. If safety decals have been damaged, removed, become illegible, or replacement parts do not have the decal; new ones must be applied. Safety decals are available from your authorized dealer. Ag Shield reserves the right to update safety decals without notice. Safety decals may not be to scale or exactly as shown.



## 6. Setup from Shipping Mode

### 6.1. TRUCK SHIPPING

There are many variations to truck shipping Refer to instructions delivered with your shipment

#### Items required or preferred for setup

1. Forklift rated 6000 pounds or more.
2. Tractor with hydraulic system to raise and lower the machine, as required.
3. Hand tools

### 6.2. EXAMPLES OF THE FOUR (4) POINT HITCH LIFT SETUP



### 6.3. TOWED OUT SHIPPING

Towed out units should be field ready, Follow the inspection instructions included in this manual.

## 7.MAINTENANCE

### General

- Repack the wheel hubs after the first 500 travel miles; then yearly thereafter.
- Visually inspect the wheel bolts for tightness each day. (See torque Specifications)

### Every 10 hours (Daily)

- Grease all pivot points

### Every 100 hours (Monthly)

- Visually inspect hydraulic hoses & fittings for leaks or damage.
- Inspect lighting system and electrical harness for damage.

### Annually (or every 300 hours)

- Inspect wheel bearings / hubs and grease.
- Grease roller bearings.
- Check wheel bolts and re-torque.
- Check tire pressure, follow tire manufactures inflation recommendations.
- Visually inspect unit for loose, worn, or damaged components.

## 8. OPERATION



**DANGER**

### **WATCH FOR PEDESTRIAN TRAFFIC-**

#### **8.1. EASIFOLD - FOLDING FROM ROAD TO FIELD.**

**EasiFold** is the standard Ag Shield configuration where each outer wheel is rotated 25-45 degrees by a hydraulic cylinder, and the operator must then **back up the whole unit** to have the wings fold out behind the center section to the field position.

There are 2-3 hydraulic circuits on all Ag Shield: Land Rollers:

- A. This first circuit (**WHITE / GREEN COLOUR**) hereafter on “Lever 1” that turns the wheels so that a backing up motion will move the Land Roller wings to field position.
  - B. The second circuit (**RED AND BLUE COLOUR**) (Lever2) that raises or lowers the center and outer wheels for road transport and is teed together with the diagonal arm locking function, the hydraulic hitch locking cylinder.
  - C. The third (optional) circuit (**YELLOW/BLACK COLOUR**) (Lever3) that raises and lowers the land leveling blade.
- 1) Chose a reasonably level location with no bystanders or small children in the vicinity.
  - 2) Operate the whole unit in a forward direction until the wings are trailing out behind the center section at an equal and perpendicular angle to the center section.



**FIGURE 1 WINGS TRAILING DIRECTLY BEHIND & STARTING TO UNFOLD**

- 3) Operate Lever 2 to raise the rollers up ALL the Way to top to allow transport locks to be removed.
- 4) If so equipped, use lever 3 to raise the leveling blade to the highest position.
- 5) Set parking brake, place tractor transmission in Neutral, leave the tractor cab tractor,
- 6) Remove the road transport locks from front floating hitch cylinders.

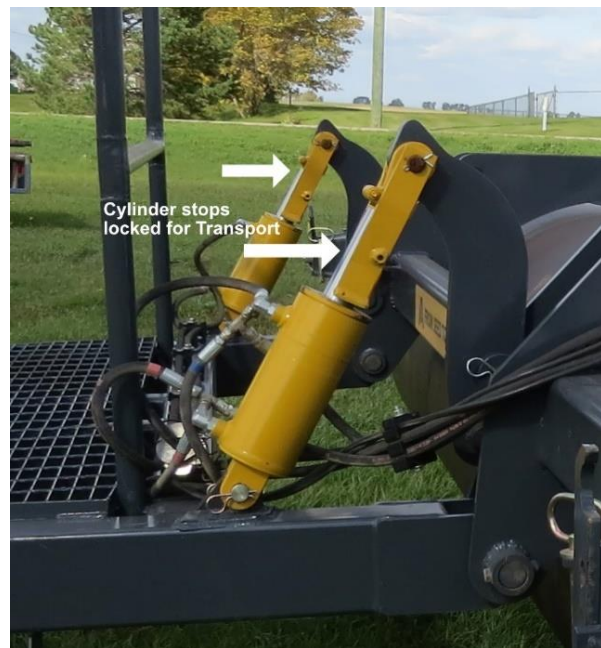


FIGURE 2 CYLINDER LOCKS FOR FLOATING HITCH

- 7) Remove the Floating Hitch pins and place them into their holders.
- 8) Unlock the hydraulic valve for the Diagonal Pull Arm

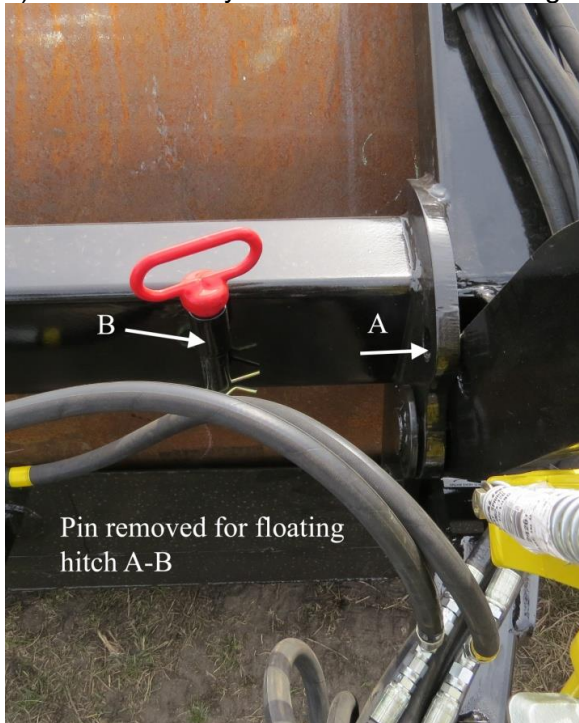


FIGURE 3 FLOATING HITCH PIN REMOVED & HYD VALVE FOR DIAG ARM

- 10) Unlock the Yellow Rear Transport From Pin A to B
- 11) Unlock the Rear Wheel Pivot Hydraulic Valve.



FIGURE 4 REAR TRANSPORT LOCK & REAR HYD VALVE

- 12) Remove the Yellow cylinder locks on the center section wheels, both LH and RH.



FIGURE 5 CENTER WHEELS UNLOCKED

- 13) Repeat Steps 6 Through 10 on the RH side of the machine
- 14) Enter tractor cab, operate lever 1 to rotate the outer wheels to angled position stop on the cylinder.
- 15) Carefully back up the unit until the wings are running parallel with the center section DO NOT CONTINUE TO BACK UP IF ONE WING IS NOT SQUARE. as wheel and frame damage will result. Instead pull ahead and get the 2 wings to be similar then attempt again.
- 16) Move Lever 1 to rotate the wheels back to the road position
- 17) Move lever 2 to lower the rollers to the ground and raise the wheels completely up into field operation position.
- 18) Observe that the diagonal pulling arms are fully rotated into the slots on front corner of both ends of the center section.
- 19) Observe that the front floating hitch cylinder has moved to fully retracted position. The hitch is free to float as the roller follows ground contours.

- 20) Set parking brake, place transmission in neutral, exit the cab.
- 21) Remove the pin from the floating hitch tab, and place in the holding socket provided, place retaining key through end of pin. **(See Figure 3)**
- 22) Normally the locking pins that hold diagonal arms into the slots on front of frame are not required. The diagonal pulling arms will stay in the slots during field work. However, if your tractor hydraulics and field conditions combine to have the diagonal pulling arm rise out of the slots while travelling across the field, now is the time to install the retaining pins above the diagonal pulling bar.



FIGURE 6 PIN FOR DIAGONAL PULL ARM IN LOCKED POSITION

- 23) Enter the cab, lower the leveling blade if desired, and begin to smooth and firm your field to perfection.
- 24) **Maximum speed selection** depends upon field conditions. Mellow fields with corn root balls and few 8-inch diameter stones may be rolled at 5-8 mph. When using the leveling blade to move several inches of earth, **3-4 mph is THE MAXIMUM SPEED**, even less if there are a lot of larger square cornered stones protruding out of the ground. If there are a lot of 8-inch diameter stones, **speeds above 7 mph may dent the rollers**. Rollers with Leveling blades **MUST** operate slower than rollers without leveling blades.

## 8.2. “EASIFOLD” FOLDING FROM FIELD TO ROAD PROCEDURE

1. Choose a reasonably level location with no bystanders or children in the vicinity.
2. Move lever 1 to confirm that the outer wheels are rotated to the road position.
3. If so equipped use lever 3 to raise the leveling blade to the highest position.
4. If diagonal pull arm locks were inserted, set parking brake, place tractor transmission in Neutral, leave the tractor cab tractor, remove the diagonal arm lock pins.
5. Enter tractor cab.
6. Operate Lever 2 to raise the rollers up ALL the Way to top to allow transport locks to be engaged.
7. Observe that the diagonal pull arms have risen to road position.
8. Observe that the front floating hitch cylinder has been fully extended.
9. Set parking brake, place tractor transmission in Neutral, leave the tractor cab tractor,

10. Engage the road transport locks on the front hitch
11. Install the floating hitch pins for transport

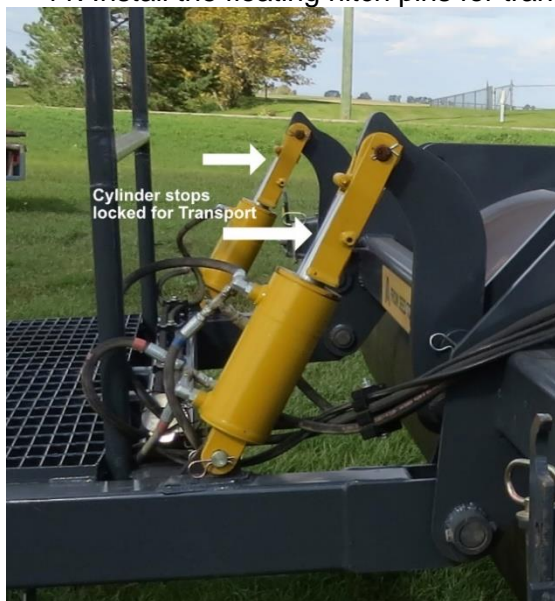


FIGURE 7 TRANSPORT LOCKS FOR HITCH

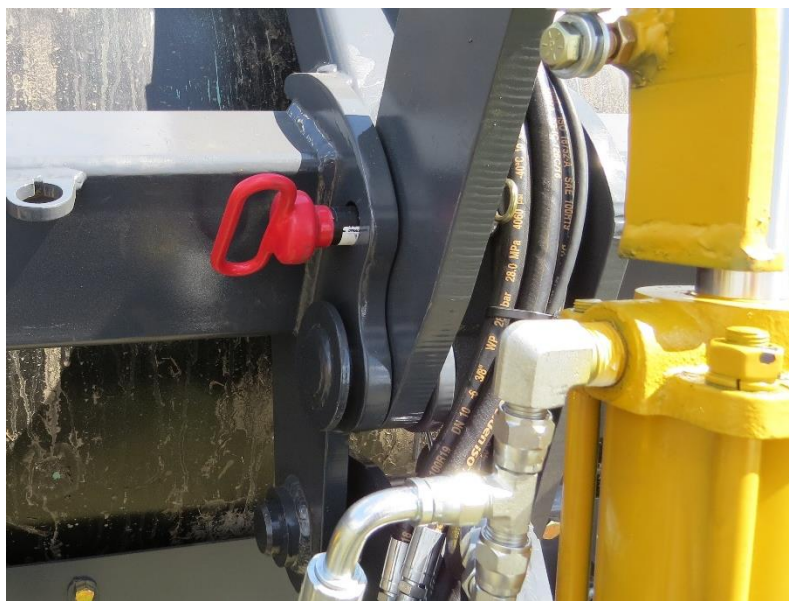


FIGURE 8 FLOATING HITCH PINS LOCKED

12. Move the diagonal arm hydraulic valve into the locked position.
13. Place the outer wheel yellow lock back onto pin A



FIGURE 9 DIAGONAL ARM LOCKED



FIGURE 10 OUTER WHEEL LOCKED IN TRANSPORT

14. Move the outer wheel hydraulic valve to the locked position.
15. Move the center wheel transport locks to the locked position



FIGURE 11 REAR HYD LEVER LOCKED & REAR CENTER WHEELS LOCKED

16. Repeat Steps 10 through 15 on the RH side of the machine.
17. Enter the cab.
18. Drive forward, observing that the wings trail in behind the center section to the normal 12.5-foot-wide transport width. Continue to next location.

### 8.3. LEVELING BLADE OPERATION (FOR MODELS WITH A LEVELING BLADE)

The leveling blade is intended to move occasional or frequent rodent and badger mounds up to 12" high and several feet across. It is **not** designed to replace an earth moving scraper, reshaping the contours of a field, or doing drainage functions. There are 2 hydraulic cylinders to raise the blade when required, check chains to keep the blade from digging too deep, and wheel cam adjustments to operate at different heights.

The blade is designed to operate on steel gauging wheels on each end of the blade, with an average space of  $\frac{3}{4}$ " between the ground and the bottom of the leveling blade. Longer leveling blades have a third wheel at the center of the span to assist in keeping the blade from digging too deeply into the ground at the center.



FIGURE 12 IN FIELD OPERATION



FIGURE 13 LEVEL BLADE HEIGHT ADJUST

The wheel height is determined by rotation of the cam above the support stop.

The wheels have a cam for height setting on both sides of each wheel, when changing the wheel setting, change both sides equally.

To change the height of the blade for various field conditions:

- 1) Use a 1 ½ inch wrench to loosen the 1" Bolt
- 2) Rotate the cam by turning with the wrench to desired setting on both sides.
- 3) Tighten bolt A again as tight as you can, 200-300 lb ft preferred.

The optimal wheel projection will change when operating in different field conditions--that is when operating on sod, set the wheel to project ¾ of one inch below the cutting blade. When operating in stubble fields consider lowering the wheel farther below the blade to keep the blade ¾" plus above softer ground. When operating in a soft ploughed or summer fallowed field, the wheels may be set to hold the blade at ¾" by sinking into the ground 2 inches or more.

There are several "check" chains attached between the frame and the blade which prevent the blade from rotating under the roller when a large stone is contacted. These chains are factory set to allow the blade to float along on the gauging wheels, having less than 1 inch of slack on a level floor surface.

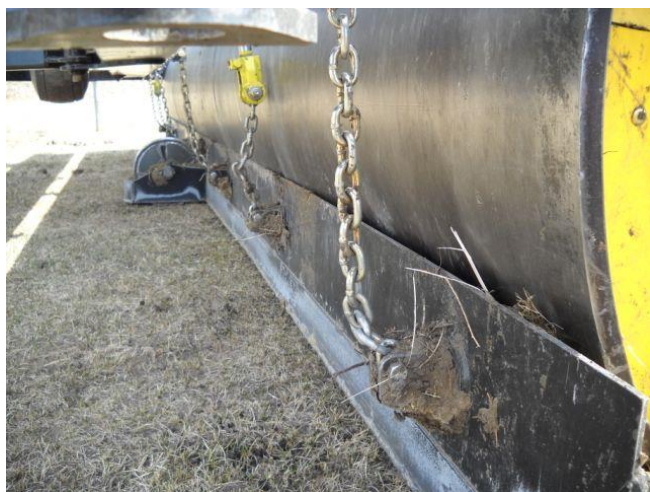


FIGURE 14 CHECK CHAINS LOOSE

The hydraulic lift cylinders are attached to the blade by chains that are factory set to allow blade to travel down about one inch compared to the level floor condition. The cylinder may be used to lift the blade completely up or part way up as may be desired. The cylinders are not synchronized, so uneven lifting may occur if some parts of some sections are more heavily loaded with dirt or sod. To get the blade operating level, raise all the way to the top and lower down to suit the field conditions. The blade may be raised when required to dump sod into lower spots, or to allow stones to pass under and be pushed into the ground.

The blade may be raised above stubble in fields where the blade will not be used.

Raise the blade up when road transporting to provide additional clearance for obstacles that may be encountered on approaches or road.



FIGURE 15 BLADE RAISED FOR TRANSPORT, CLEAR STONE, OR DUMP SOD

When operating in sod conditions, a significant buildup of sod in front of the blade is normal. In some conditions it is desirable to raise the blade up to 2 inches above the ground to allow sod to flow evenly out from under the blade, and then lower again when more mounds are spotted to get a complete cut of the mounds to near original ground level.



FIGURE 16 SOD SPREADING FROM MOUNDS

The leveling blade spreads all type of manure, horse, cattle, and sheep in the normal course of leveling the rodent mounds.



FIGURE 17 SPREADING MANURE

## 8.4. WATER FILLING ROLLER TANK

The larger 3 – 5 section Land Rollers typically used in grain farming are seldom filled with water. If your conditions require the extra weight, a water fill option may be factory installed, or field installed any time after initial purchase.

The water fill option added about 550 pounds per lineal foot (820 kg/ meter). for example- a nominal 20 foot roller would hold water in about 18 feet of the barrel, and therefore add a maximum of 10350 pounds (4490 kg/ 6 meter).

When planning to fill a 42" roller expect to use 55 Imperial gallons per foot, 66 USG per foot, 250 liters per foot, or 820 liters /meter

Ag Shield Land Rollers are not designed to be transported while filled. **Damage to machine components would occur if a water filled roller is even attempted to be raised hydraulically to road position.**

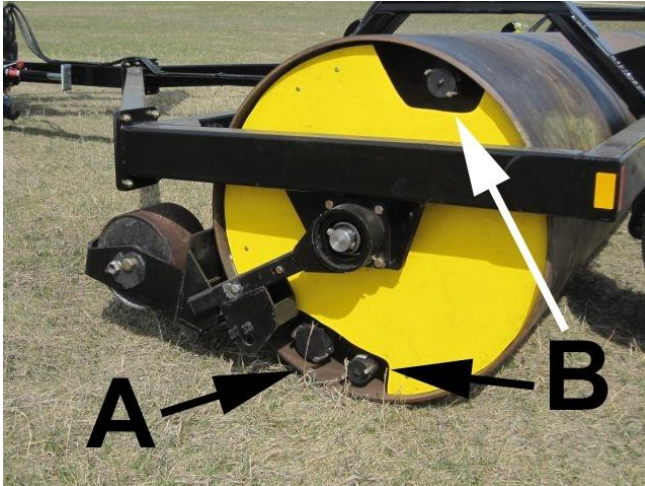


FIGURE 18 WATER FILL PORTS OPTION & WATER FILL DRAINING

There are 3 quick coupler attachments to allow the fastest filling and emptying of the roller. See Figure 18 WATER FILL PORTS OPTION. Port A is a 3" quick coupler, port B are both 2" quick couplers.

The fastest fill is to attach the hose to the 3" connection at the bottom and open a 2" vent at the top. The water may be sucked out with a pump via either a 2 or 3" quick coupler. The tank can be drained the fastest (< 5 minutes per 17-foot barrel) by opening all 3 connections and rolling ahead until the 3"/2" combination is at the bottom.

## 8.5. ACRE METER OPTION

The option electronic hub odometer threads into a ½" fine hole tapped into the end of the right-hand center roller shaft. Install the acre meter with a oil filter wrench to 23 lb foot of torque with a lock washer to ensure that the unit is not lost. It is protected by a flange welded onto the Veeder-Root electronic acre meter.

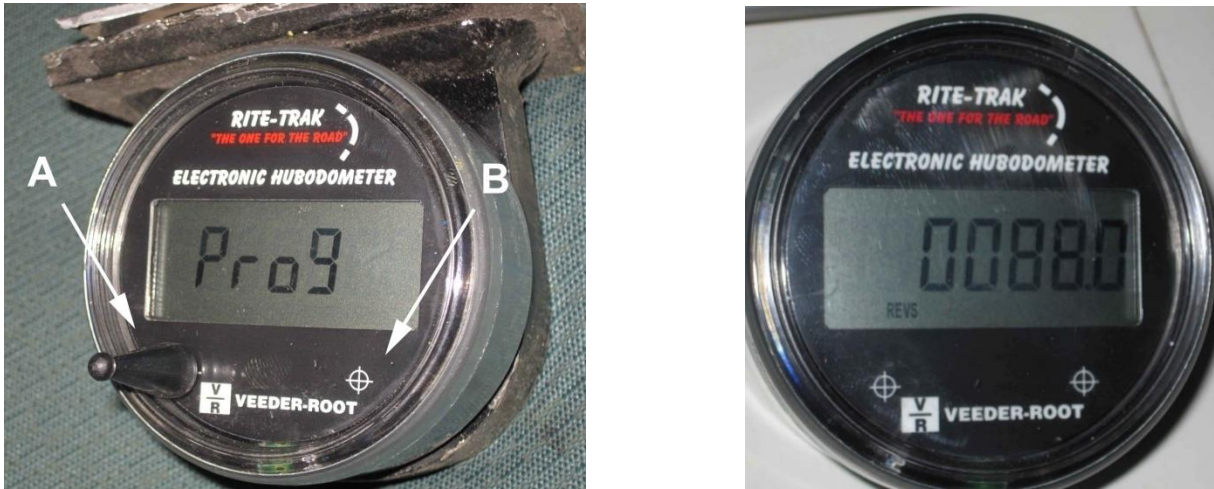


FIGURE 19 ACREMETER TO PROGRAM MODE (60 FT WILL SHOW 0066.0)

See Figure 19 ACREMETER TO PROGRAM MODE above.

The acre meter calibration is done by touching a magnet to the outside of the face of the odometer on a Left spot marked "A" and Right spot marked "B" The simplified instructions to set to 66.0 for a 60 foot Land Roller are:

- 1) Hold magnet on the left position- "A" – in 6 seconds will read serial number, leave on MUCH longer – until PROG shows on screen.
- 2) Lift off of left calibration for 1 second, touch magnet down to see units= "acres" set already
- 3) Lift and touch left again, advance to revolutions per acre, 0000.0 acres per revolution should be 0066.0 For a 60 foot.
- 4) Touch left to advance to second left zero-
- 5) Touch left again to have the third left digit of 0000.0 flashing,
- 6) Touch right "B" six times to have the 0 advance to first "6" of 0066.0
- 7) Touch left to advance to fourth left digit of 0000.0.
- 8) Touch right "B" 6 times to advance to "6" in the fourth digit.
- 9) Do nothing for 10-20 seconds, and front screen will come up reading 66.0 revs acres in lower left. DO NOT continue to more programming as the counter may become locked and of no value.

Consult the table below for other calibration numbers.

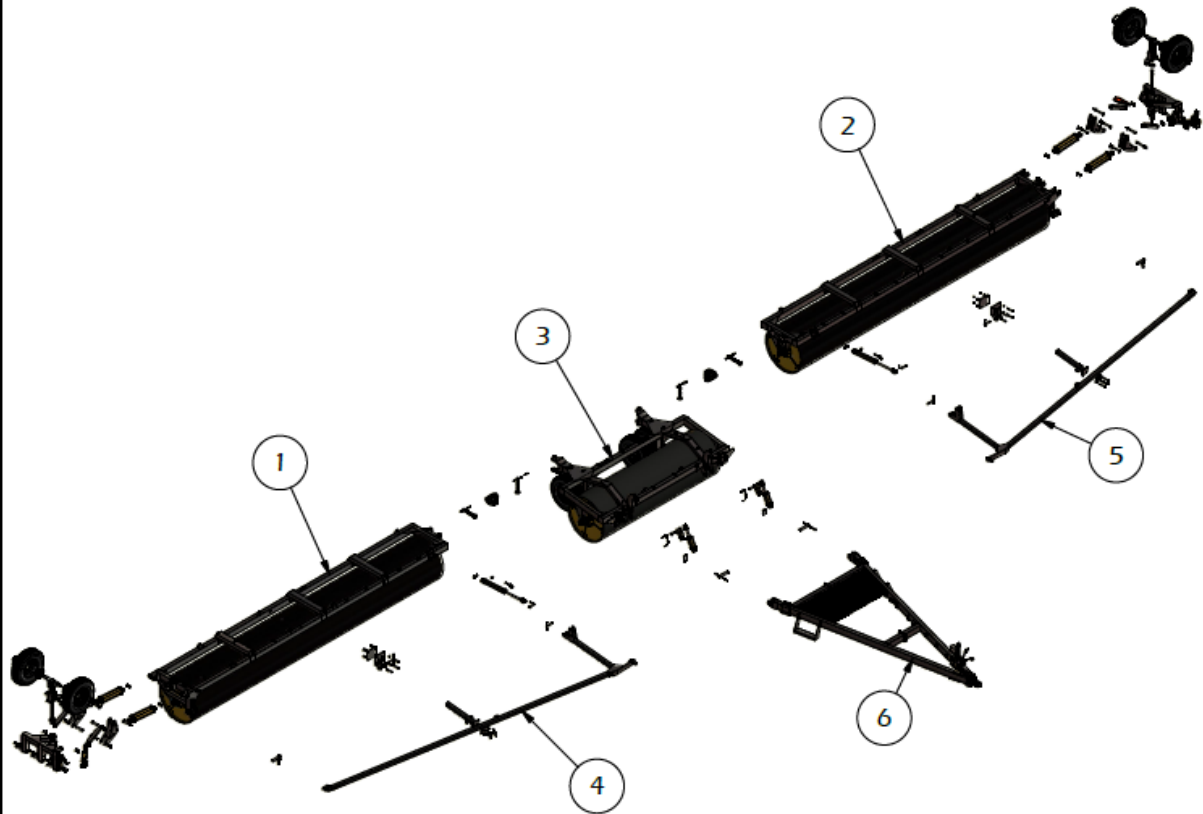
<b>machine width in feet</b>	31	36	42	45	46	52	60
<b>machine width in meters</b>	9.5	11.0	12.8	13.7	14.0	15.9	18.3
<b>acres per 1/2 mile</b>	1.9	2.2	2.5	2.7	2.8	3.1	3.6
<b>rev per one acre</b>	127.8	110.1	94.3	88.1	86.1	76.2	66.0
<b>rev per one hectare</b>	316.0	272.1	233.2	217.7	212.9	188.4	163.2
<b>acres / hour @5 mph</b>	18.8	21.8	25.4	27.3	27.9	31.5	36.4

9.Parts

9.1. 60 FT LANDROLLER 800019

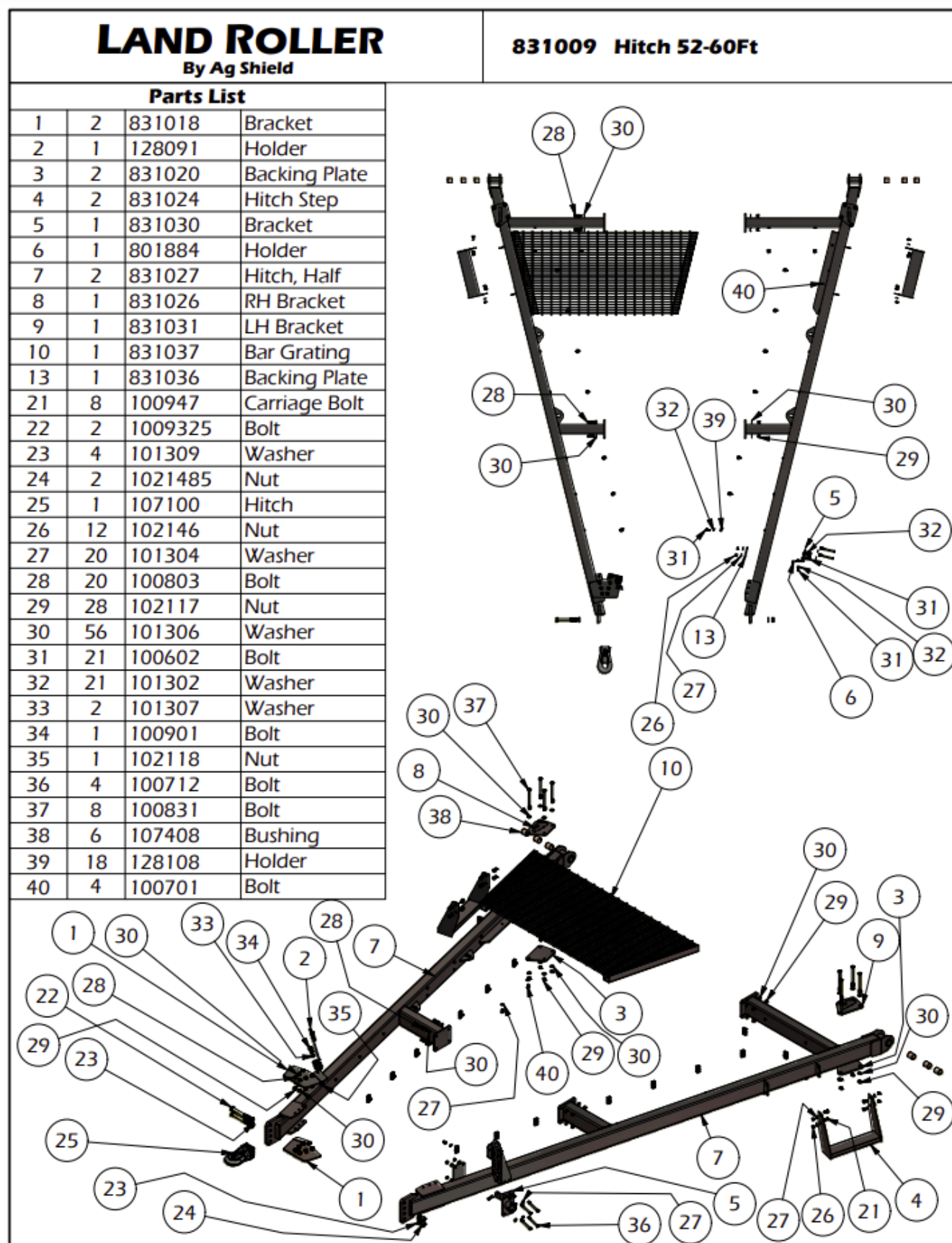
**LAND ROLLER**  
By Ag Shield

800019 60Ft Complete



Parts List			
1	1	802370	Wing RH
2	1	802374	Wing LH
3	1	801737	Center
4	1	831002	Pull Arm RH
5	1	831001	Pull Arm LH
6	1	831009	Hitch

## 9.2. HITCH - 831009



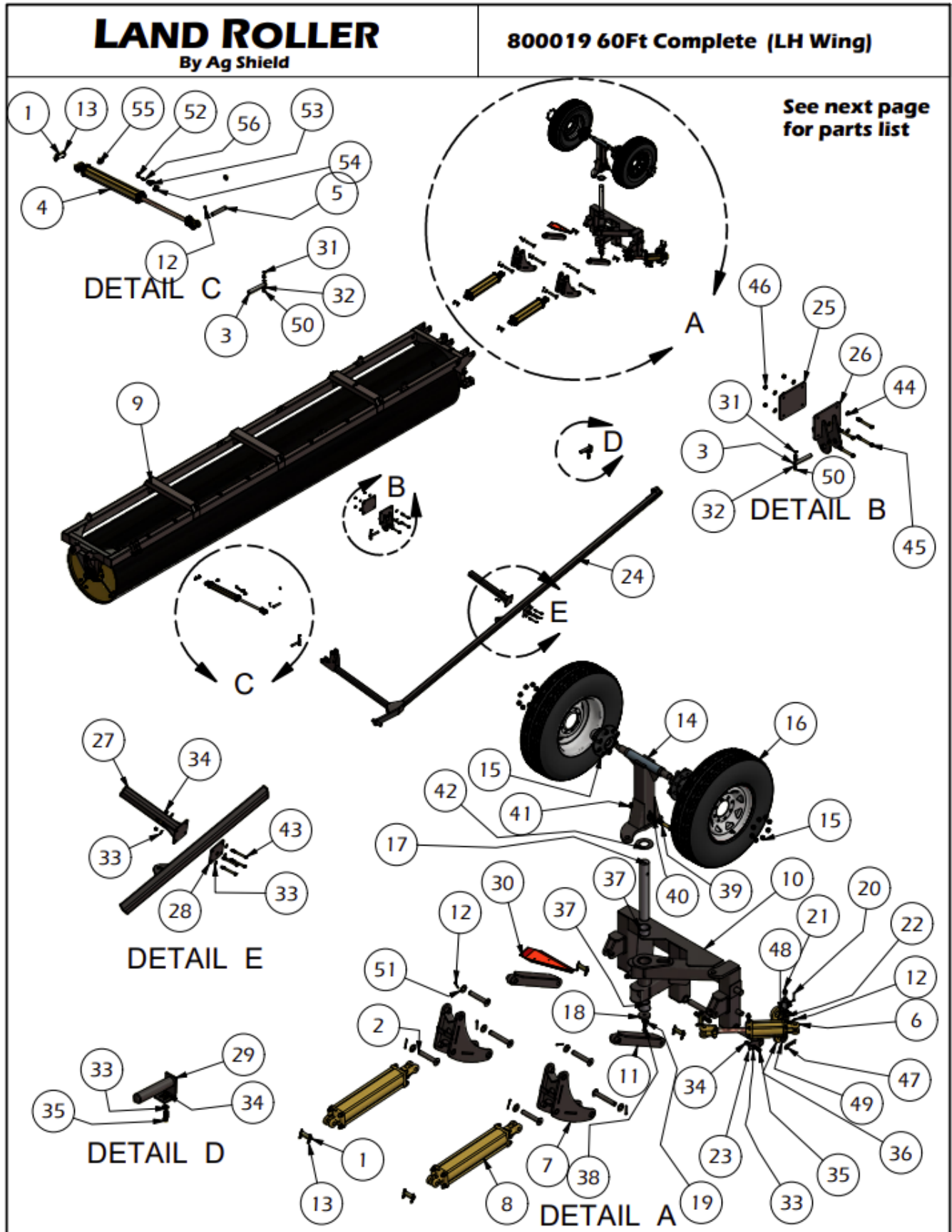
### 9.3. CENTER ASSEMBLY 800019

<b>LAND ROLLER</b> By Ag Shield		<b>800019 60Ft Complete</b>	
<b>Parts List</b>			
1	16	117324	Pin
2	2	800280	Wheel Lock
3	2	800426	Pin
4	4	117339	Cylinder
5	1	801737	Center Section
6	2	808150	Knuckle
7	32	104099	Hairpin
8	4	801935	Pin
9	1	831009	Hitch
10	2	851148	Pin
11	2	113952	Spring
12	2	100602	Bolt
13	6	100606	Bolt
14	12	101302	Washer
15	44	101304	Washer
16	22	102146	Nut
17	6	100706	Bolt

## 9.4. CENTER ASSEMBLY 801737

<b>LAND ROLLER</b>				<b>801737 Center Section</b>			
<b>By Ag Shield</b>							
<b>Parts List</b>							
1	2	800999	Bearing				
2	1	800106	Shaft				
3	1	803248	Shaft				
4	2	114438	Bushing				
5	2	117342	Cylinder				
6	2	800285	Lock				
7	1	801703	Frame				
8	1	800110	Barrel				
9	2	802086	Bushing				
10	2	104516	Pin				
12	2	105639	Zerk				
16	2	800406	Pin				
20	2	800426	Pin				
23	2	101127	Washer				
24	2	101128	Washer				
25	2	804115	Lock				
26	2	804111	Pin				
27	4	113986	Tire & Wheel				
28	4	113686	Hub				
29	2	800540	Arm				
30	2	104517	Pin				
33	11	800472	Clamp				
35	2	804667	Wear Plate				
36	2	804670	Wear Plate				
37	4	100947	Bolt				
44	1	106010	Acre Meter				
45	32	113655	Lugnut				
46	8	102146	Nut				
47	12	101304	Washer				
48	25	101302	Washer				
49	45	100602	Bolt				
51	8	102117	Nut				
52	16	101306	Washer				
53	8	100814	Bolt				
54	2	102123	Nut				
55	4	100707	Bolt				
56	6	100604	Bolt				
57	2	808262	Cover				
58	8	808263	Cover				
59	32	101405	Washer				
60	2	117324	Pin				
61	4	104099	Hairpin				
62	2	113952	Spring				
63	2	100606	Bolt				
<b>Parts List</b>							
64	4	104907	Cotter Pin				
65	2	100614	Bolt				

## 9.5. WING ASSY LH 60 FOOT LAND ROLLER 800019



# LAND ROLLER

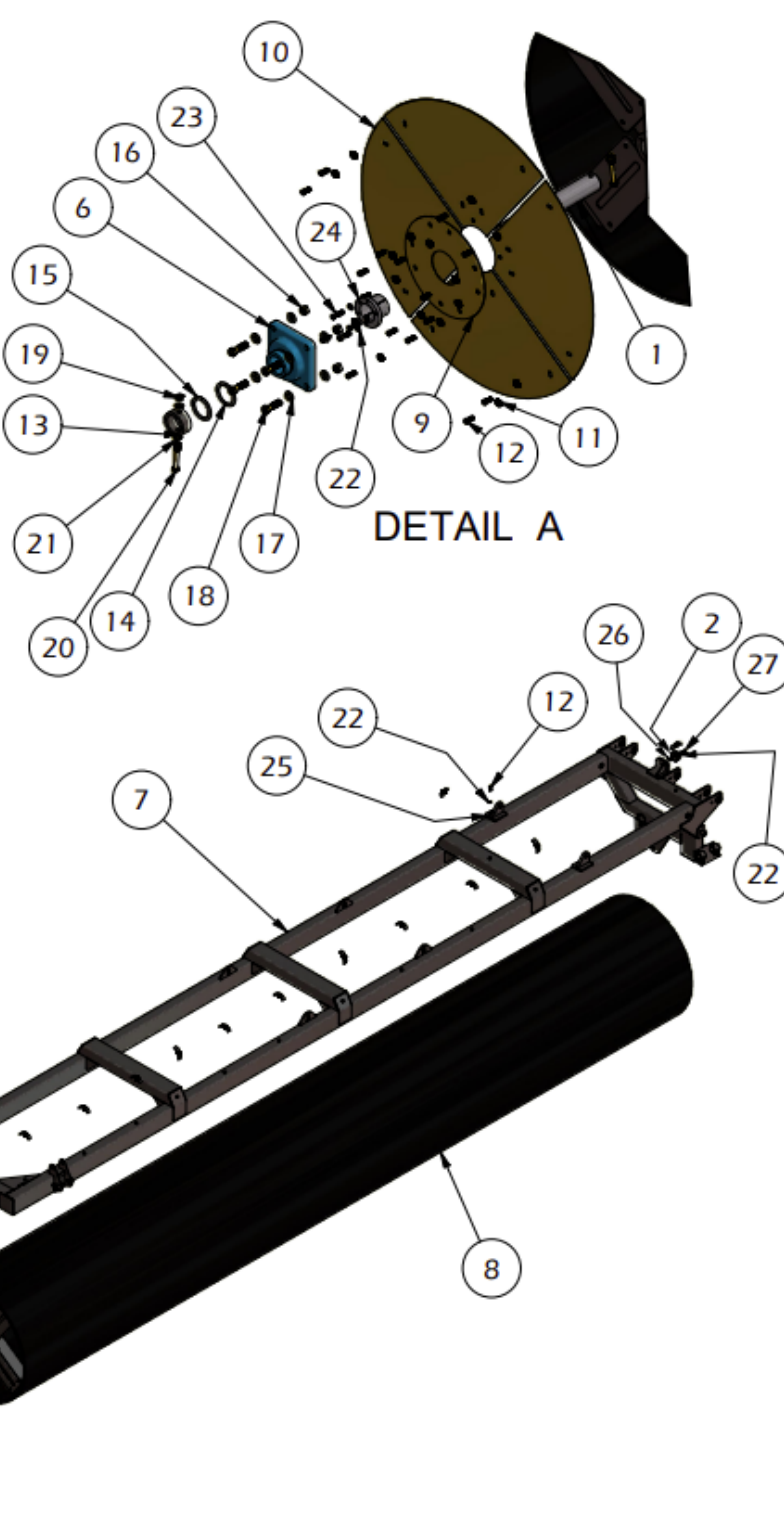
By Ag Shield

## Parts List for Previous Page (LH Wing)

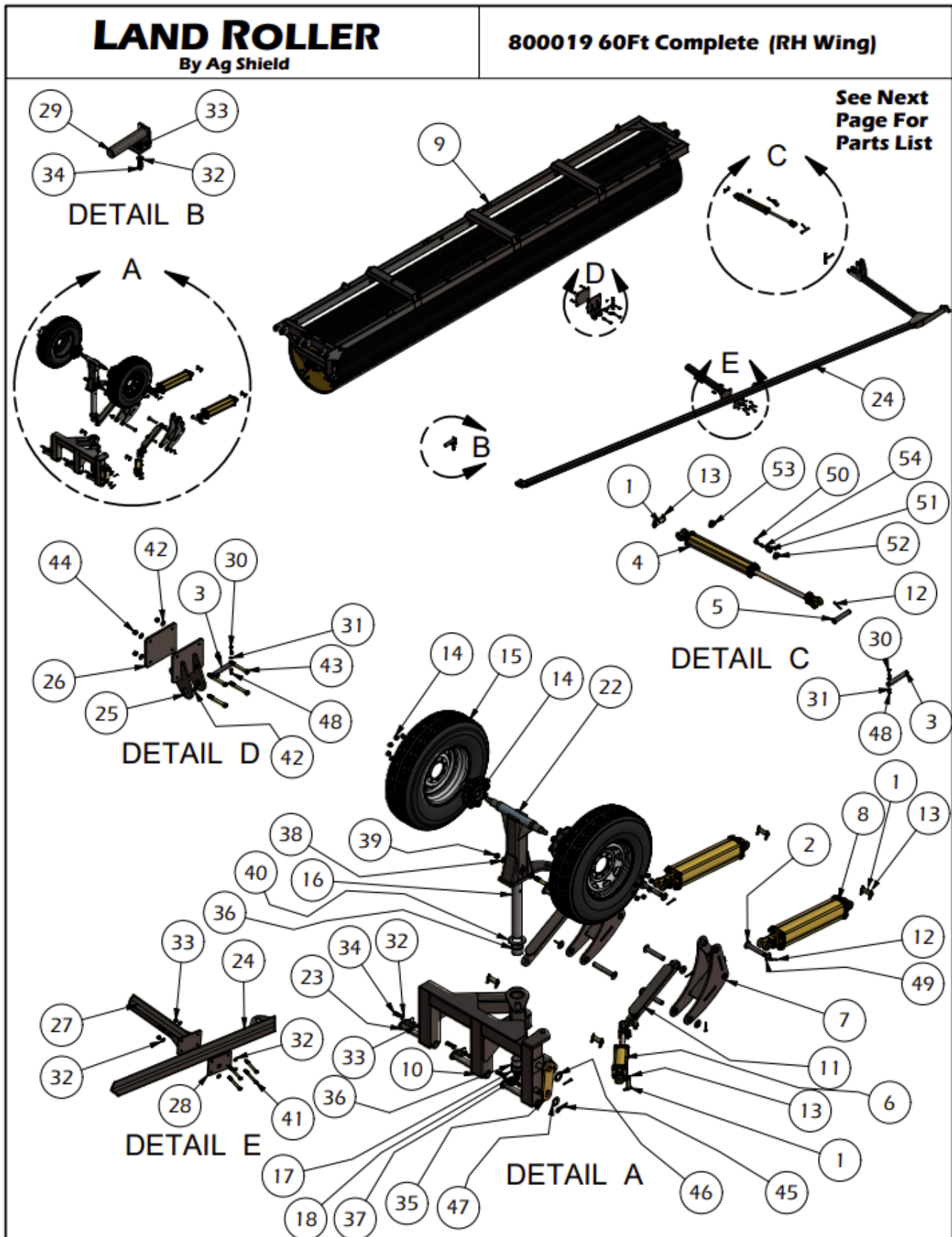
Parts List				Parts List			
1	16	117324	Pin	44	16	101306	Washer
2	8	800415	Pin	45	8	100808	Bolt
3	4	801596	Pin	46	8	102117	Nut
4	2	117378	Cylinder	47	2	104401	Hair Pin
5	2	801605	Pin	48	2	808193	Washer
6	4	117339	Cylinder	49	2	808194	Washer
7	4	801600	T-Link	50	4	102123	Nut
8	4	117337	Cylinder	51	12	101309	Washer
9	1	802374	LH Wing	52	2	118199	Elbow
10	1	851211	Wheel Arm LH	53	2	117659	Ball Valve
11	4	800485	Link	54	2	118217	Elbow
12	16	104907	Cotter Pin	55	2	117961	Adapter
13	32	104099	Hairpin	56	2	1181021	Restrictor
14	1	808213	Spindle	77	9	107403	Bushing
15	4	113686	Hub & Lugnuts				
16	4	113986	Wheel & Tire				
17	2	808217	Pin				
18	2	808220	Washer				
19	2	101409	Washer				
20	2	117657	Ball Valve				
21	4	118195	Adapter				
22	2	118008	Nipple				
23	6	811091	Pin				
24	1	831001	Pull Arm				
25	2	804751	Truss Plate				
26	1	804753	Mount, Pull Arm				
27	2	831044	Mount, Pull Arm				
28	2	831041	Bolt Plate				
29	2	804661	Pin				
30	1	113565	SMV				
31	6	100606	Bolt				
32	12	101302	Washer				
33	44	101304	Washer				
34	22	102146	Nut				
35	8	100702	Bolt				
36	2	808242	Lock Bar				
37	4	107402	Bushing				
38	2	100703	Bolt				
39	2	100904	Bolt				
40	4	101307	Washer				
41	2	102118	Nut				
42	2	808246	Washer				
43	8	100710	Bolt				

## 9.6. LH WING ASSEMBLY 802374

<b>LAND ROLLER</b>				<b>802374 Wing LH</b>
<b>By Ag Shield</b>				
<b>Parts List</b>				
1	2	800106	Shaft	
2	1	800153	Puck	
6	2	800999	Bearing	
7	1	802375A1	Frame	
8	1	802378	Barrel	
9	2	808262	Cover	
10	8	808263	Cover	
11	32	101405	Washer	
12	45	100602	Bolt	
13	2	802086	Bushing	
14	2	101128	Washer	
15	2	101127	Washer	
16	8	102117	Nut	
17	16	101306	Washer	
18	8	100814	Bolt	
19	4	102146	Nut	
20	4	100707	Bolt	
21	8	101304	Washer	
22	21	101302	Washer	
23	6	100604	Bolt	
24	2	114438	Bushing	
25	13	800472	Clamp	
26	1	102123	Nut	
27	1	100605	Bolt	

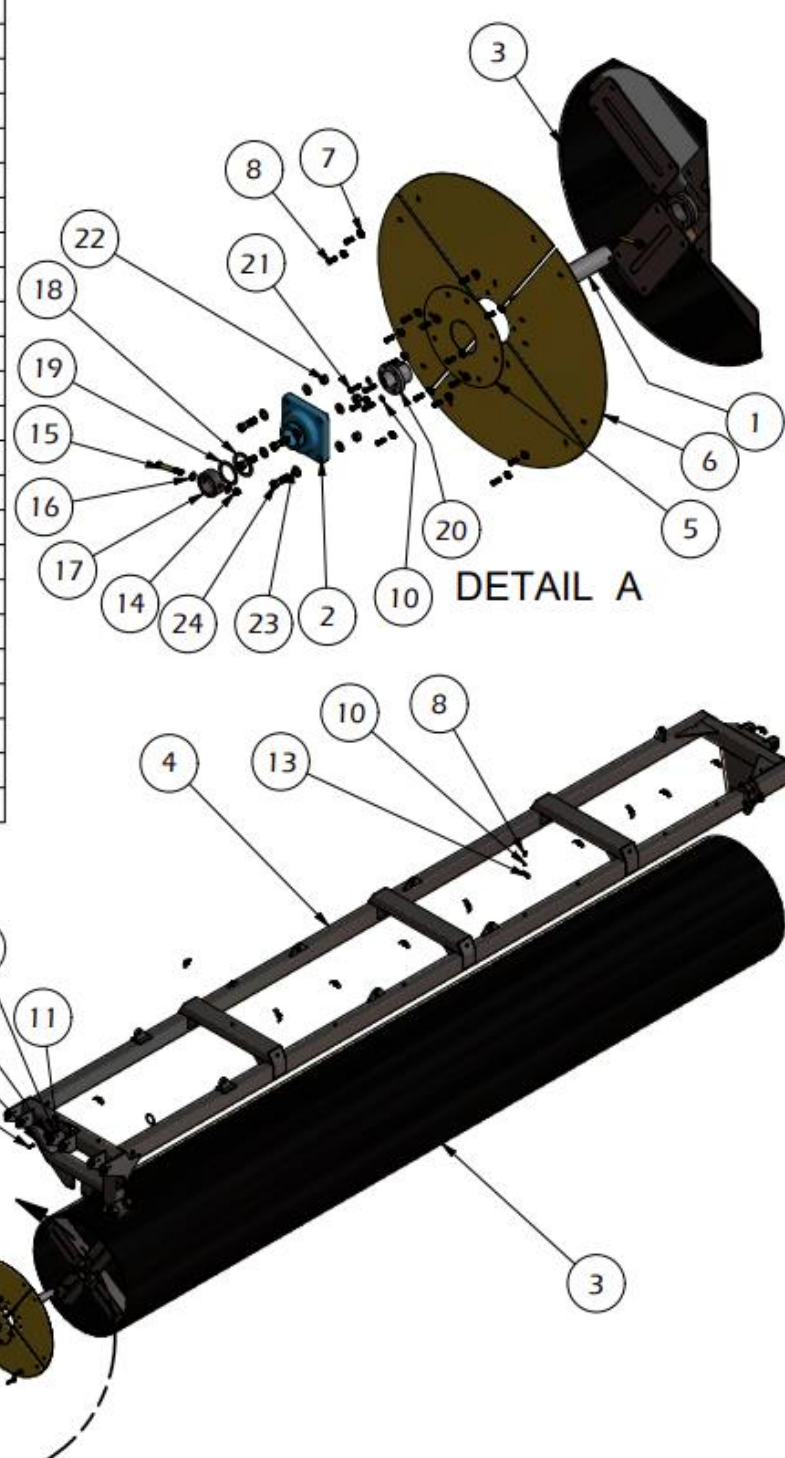


## 9.7. WING ASSY RH 60 FOOT LAND ROLLER 800019

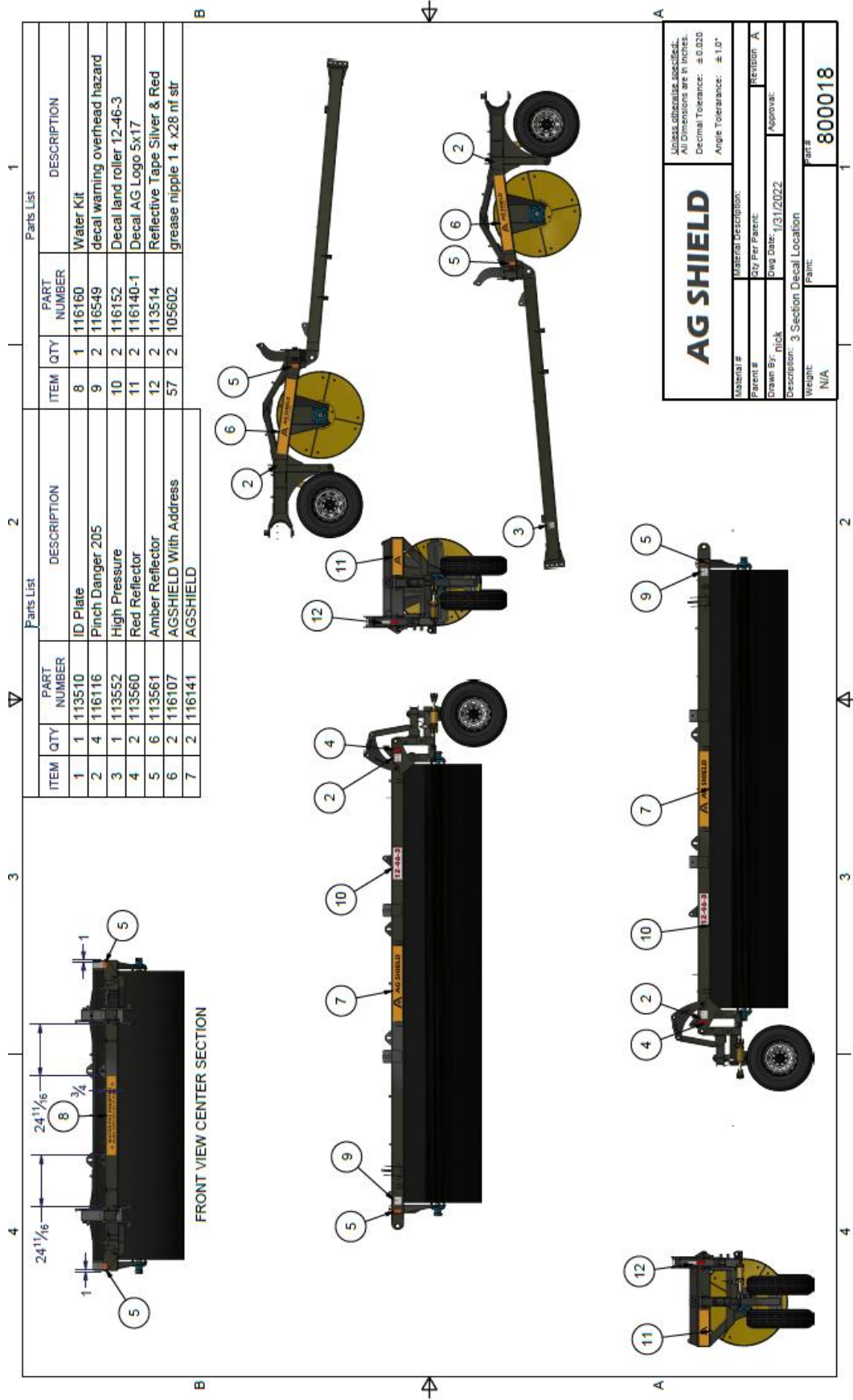


<b>LAND ROLLER</b> By Ag Shield				<b>Parts List For Previous Page (RH Wing)</b>			
<b>Parts List</b>				<b>Parts List</b>			
1	16	117324	Pin	44	8	102117	Nut
2	8	800415	Pin	45	2	104401	Hair Pin
3	4	801596	Pin	46	2	808193	Washer
4	2	117378	Cylinder	47	2	808194	Washer
5	2	801605	Pin	48	4	102123	Nut
6	4	117339	Cylinder	49	12	101309	Washer
7	4	801600	T-Link	50	2	118199	Elbow
8	4	117337	Cylinder	51	2	117659	Ball Valve
9	1	802370	Wing RH	52	2	118217	Elbow
10	1	851260	Wheel Arm RH	53	2	117961	Adapter
11	4	800485	Link	54	2	1181021	Restrictor
12	16	104907	Cotter Pin	77	9	107403	Bushing
13	32	104099	Hairpin				
14	4	113686	Hub & Lugnuts				
15	4	113986	Wheel & Tire				
16	2	808217	Spindle				
17	2	808220	Lock Plate				
18	2	101409	Washer				
19	2	117657	Ball Valve				
20	4	118195	Adapter				
21	2	118008	Nipple				
22	1	808214	Spindle				
23	6	811091	Pin				
24	1	831002	Pull Arm				
25	1	804752	Mount, Pull Arm				
26	2	804751	Truss Plate				
27	2	831044	Pull Arm Mount				
28	2	831041	Bolt Plate				
29	2	804661	Pin				
30	6	100606	Bolt				
31	12	101302	Washer				
32	44	101304	Washer				
33	22	102146	Nut				
34	8	100702	Bolt				
35	2	808242	Lock Bar				
36	4	107402	Bushing				
37	2	100703	Bolt				
38	4	101307	Washer				
39	2	102118	Nut				
40	2	808246	Washer				
41	8	100710	Bolt				
42	16	101306	Washer				
43	8	100808	Bolt				

## 9.8. RH WING ASSEMBLY 802370

<b>LAND ROLLER</b> By Ag Shield				<b>802370 Wing RH</b>
<b>Parts List</b>				
1	2	800106	Shaft	
2	2	114490	Bearing	
3	1	802378	Barrel	
4	1	802371A1	Frame	
5	2	808262	Cover	
6	8	808263	Cover	
7	32	101405	Washer	
8	45	100602	Bolt	
9	1	800153	Puck	
10	21	101302	Washer	
11	1	102123	Nut	
12	1	100605	Bolt	
13	13	800472	Clamp	
14	4	102146	Nut	
15	4	100707	Bolt	
16	8	101304	Washer	
17	2	802086	Bushing	
18	2	101128	Washer	
19	2	101127	Washer	
20	2	114438	Bushing	
21	6	100604	Bolt	
22	8	102117	Nut	
23	16	101306	Washer	
24	8	100814	Bolt	

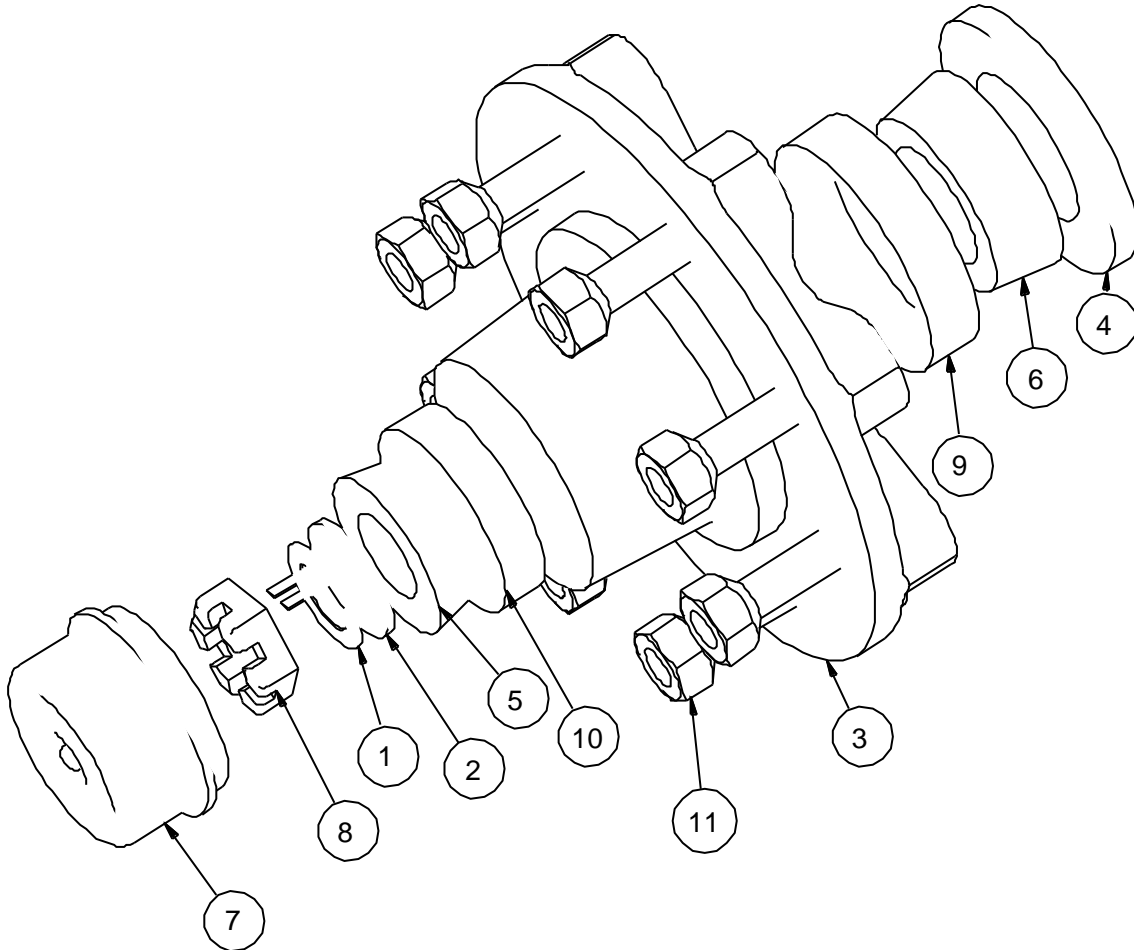
9.9. DECALS LOCATIONS AND PART NUMBERS



## 9.10. BOLT HUB ASSEMBLY 113686

### 113686 hub assy 8 bolt 3500 pound hwy

with cup cones caps nut washers

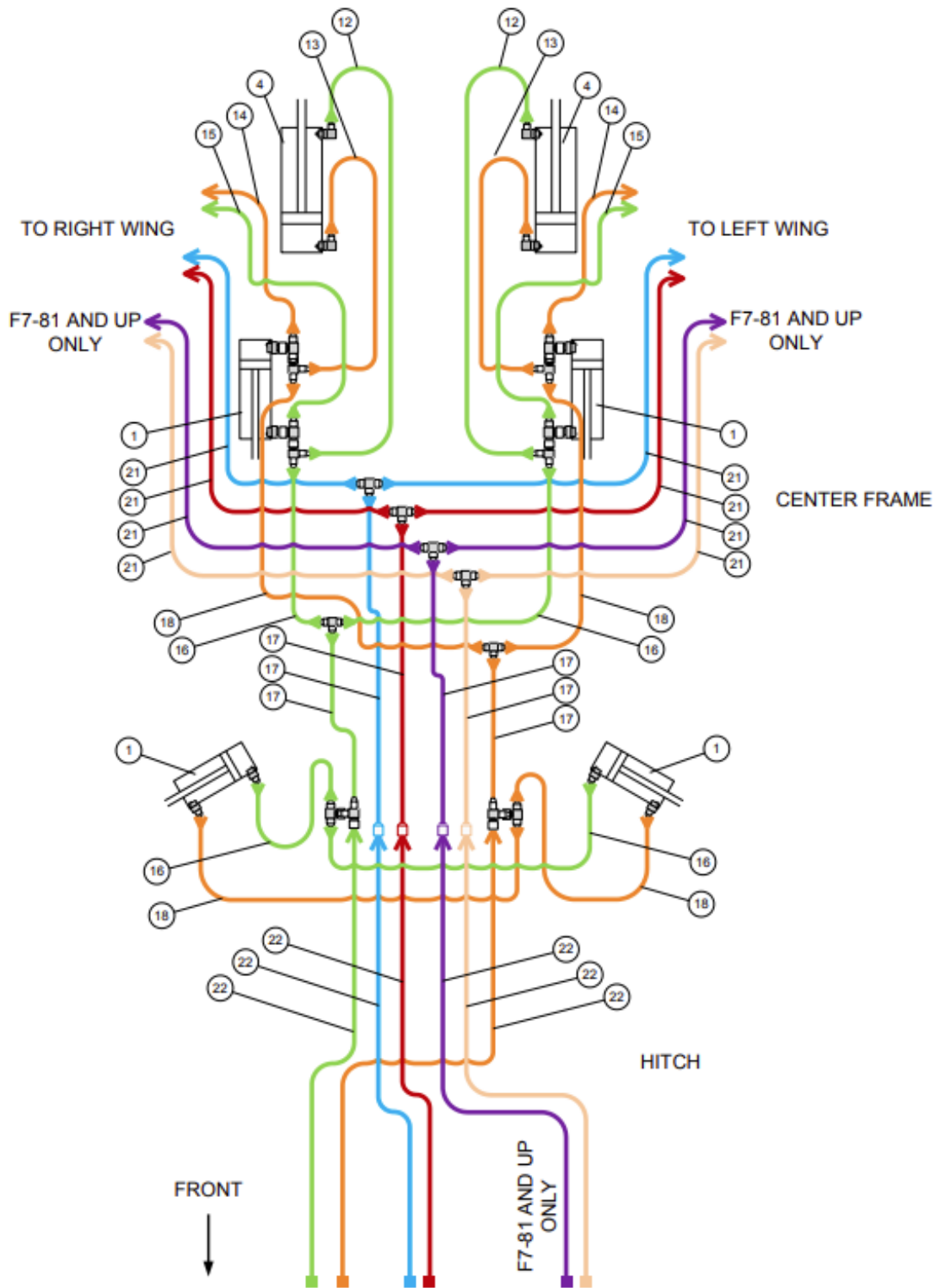


1	1	1136975 washer locking castle nut hub
2	1	1136965 flat washer 1 ID x 1.7OD flat side on hole x .115th
3	1	113686 hub 8 bolt 6 5 bc 3500lb
4	1	113698 plug rubber
5	1	113694 bearing 14125A 3500M 1.25in
6	1	113695 bearing 25580 3500M 1.25in
7	1	113697 grease cap 2.72 OD x 1.53 hg
8	1	1136795 nut castle 1 -14 UNS
9	1	1136955 cup inner 3500M 8 bolt assy 100-2162
10	1	1136945 cup outer 3500M 8 bolt assy 100-2158
11	8	113655 wheel nut 9 16 nf wb40

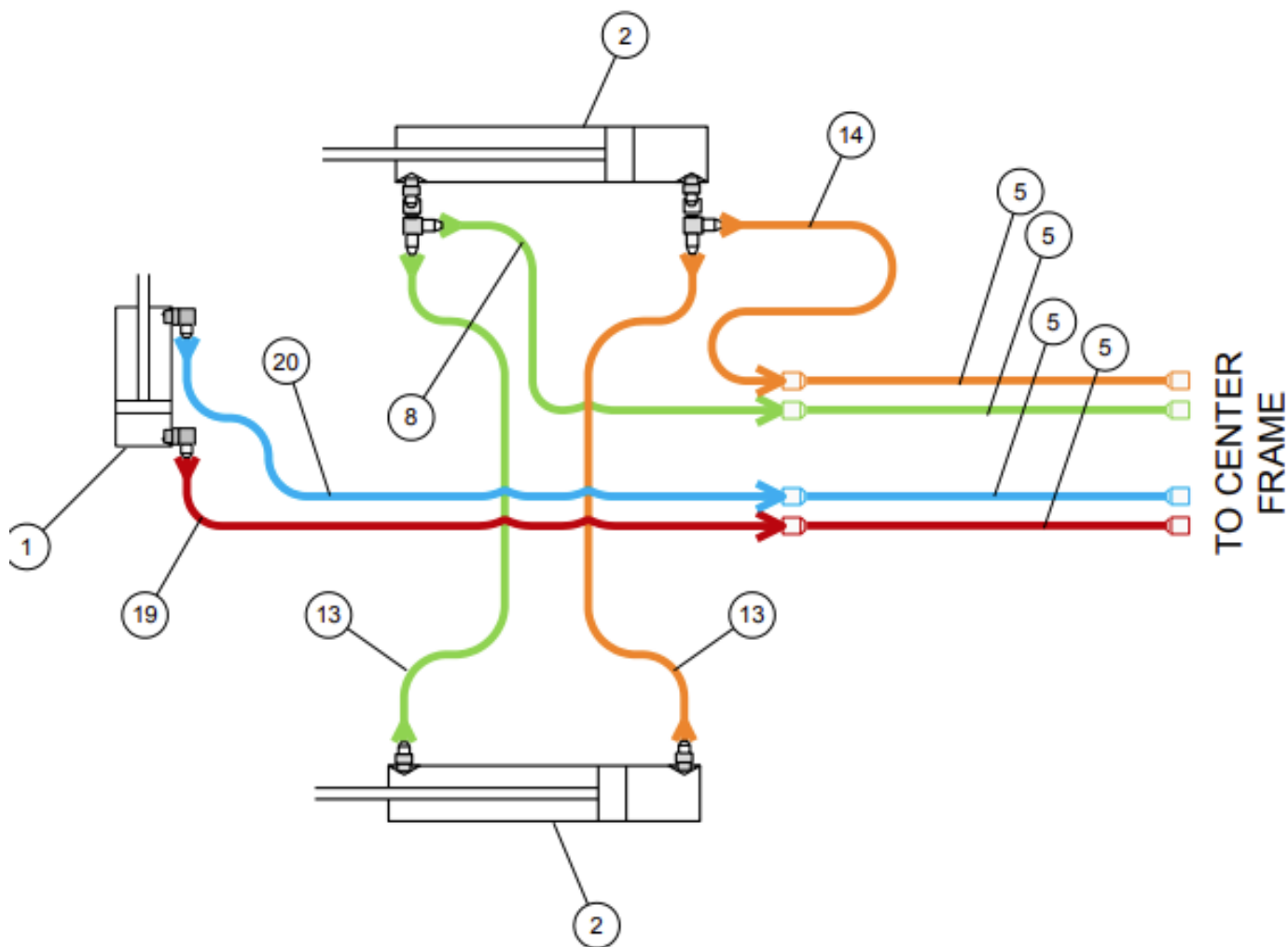
## 10. Hydraulic schematics, hose specifications

### 10.1. HYDRAULIC SCHEMATIC 60 FT ROLLER

#### Hydraulic Schematic - Center Frame & Hitch



## Hydraulic Schematic - 3 Plex Wing










Right wing pictured, left wing similar.

Item #	Part #	Description
1	030-5993	Cylinder, Tie-Rod, 2-1/2" X 6" (Monarch PN 662386)
2	030-5982	Cylinder, Tie - Rod, 3-1/2" X 24" (Monarch PN 671642)
5	311-2066	Pipe, Hydraulic, 66 Inch, 3/8" FJIC Swivel End Fittings
*	311-2083	Pipe, Hydraulic, 83 Inch, 3/8" FJIC Swivel End Fittings
*	311-2104	Pipe, Hydraulic, 104 Inch, 3/8" FJIC Swivel End Fittings
*	311-2132	Pipe, Hydraulic, 132 Inch, 3/8" FJIC Swivel End Fittings
8	313-7823	Hose, Hydraulic, 3/8" Hose, 3/8" FJIC X 3/8" FJIC - 23"
13	313-7950	Hose, Hydraulic, 3/8" Hose, 3/8" FJIC X 3/8" FJIC - 50"
14	313-7852	Hose, Hydraulic, 3/8" Hose, 3/8" MJIC X 3/8" FJIC - 52"
19	313-7892	Hose, Hydraulic, 3/8" Hose, 3/8" MJIC X 3/8" FJIC - 92"
20	313-7808	Hose, Hydraulic, 3/8" Hose, 3/8" MJIC X 3/8" FJIC - 98"

## 10.2. BOLT GRADE CHART

### Bolt Grade Chart

Specification	Material	Size Range (inches)	Min. Proof Strength (psi)	Min. Tensile Strength (psi)	Min. Yield Strength (psi)	Grade Identification Marking
Grade 1	Low or Medium Carbon Steel	1/4 to 1-1/2	33,000	60,000	36,000	
Grade 2		1/4 to 3/4 7/8 to 1-1/2	55,000 33,000	74,000 60,000	57,000 36,000	
Grade 5	Medium Carbon Steel: Quenched and Tempered	1/4 to 1 1-1/8 to 1-1/2	85,000 74,000	120,000 105,000	92,000 81,000	
A325		1/2 to 1 1-1/8 to 1-1/2	85,000 74,000	120,000 115,000	109,000 99,000	
Grade BC	Medium Carbon Alloy Steel: Quenched and Tempered	1/4 to 2-1/2 2-1/2 to 4	105,000 95,000	125,000 115,000	109,000 99,000	
Grade BD		1/4 to 2-1/2 2-1/2 to 4	120,000 105,000	150,000 140,000	130,000 115,000	
Grade 8		1/4 to 1-1/2	120,000	150,000	130,000	
Grade 8.2	Low Carbon Boron Steel: Quenched and Tempered	1/2 to 1-1/2	120,000	150,000	130,000	

## 10.3. BOLT TORQUE CHART

### Bolt Torque Chart

Nominal Thread Size	Grade 2		Grade 5		Grade 8	
	Clamping Load	Tightening Torque	Clamping Load	Tightening Torque	Clamping Load	Tightening Torque
<b>Coarse Thread</b>						
<b>1/4-20</b>	1,300 lbs	65 in-lbs	2,000 lbs	100 in-lbs	2,850 lbs	143 in-lbs
<b>5/16-18</b>	2,150 lbs	134 in-lbs	3,350 lbs	210 in-lbs	4,700 lbs	305 in-lbs
<b>3/8-16</b>	3,200 lbs	20 ft-lbs	4,950 lbs	31 ft-lbs	6,950 lbs	44 ft-lbs
<b>7/16-14</b>	4,400 lbs	30 ft-lbs	6,800 lbs	50 ft-lbs	9,600 lbs	70 ft-lbs
<b>1/2-13</b>	5,850 lbs	49 ft-lbs	9,050 lbs	75 ft-lbs	12,800 lbs	107 ft-lbs
<b>9/16-12</b>	7,500 lbs	70 ft-lbs	11,600 lbs	109 ft-lbs	16,400 lbs	154 ft-lbs
<b>5/8-11</b>	9,300 lbs	97 ft-lbs	14,500 lbs	151 ft-lbs	20,300 lbs	211 ft-lbs
<b>3/4-10</b>	13,800 lbs	173 ft-lbs	21,300 lbs	266 ft-lbs	30,100 lbs	376 ft-lbs
<b>7/8-9</b>	11,425 lbs	166 ft-lbs	29,435 lbs	430 ft-lbs	41,550 lbs	606 ft-lbs
<b>1-8</b>	15,000 lbs	250 ft-lbs	38,600 lbs	640 ft-lbs	54,540 lbs	900 ft-lbs
<b>Fine Thread</b>						
<b>1/4-28</b>	1,500 lbs	75 in-lbs	2,300 lbs	115 in-lbs	3,250 lbs	163 in-lbs
<b>5/16-24</b>	2,400 lbs	150 in-lbs	3,700 lbs	230 in-lbs	5,200 lbs	325 in-lbs
<b>3/8-24</b>	3,600 lbs	23 ft-lbs	5,600 lbs	35 ft-lbs	7,900 lbs	50 ft-lbs
<b>7/16-20</b>	4,900 lbs	36 ft-lbs	7,550 lbs	55 ft-lbs	10,700 lbs	78 ft-lbs
<b>1/2-20</b>	6,600 lbs	55 ft-lbs	10,200 lbs	85 ft-lbs	14,400 lbs	120 ft-lbs
<b>9/16-18</b>	8,400 lbs	79 ft-lbs	13,000 lbs	112 ft-lbs	18,300 lbs	172 ft-lbs
<b>5/8-18</b>	10,600 lbs	110 ft-lbs	16,300 lbs	170 ft-lbs	23,000 lbs	240 ft-lbs
<b>3/4-16</b>	15,400 lbs	193 ft-lbs	23,800 lbs	298 ft-lbs	33,600 lbs	420 ft-lbs
<b>7/8-14</b>	12,610 lbs	184 ft-lbs	32,480 lbs	473 ft-lbs	45,855 lbs	668 ft-lbs

## 11.WARRANTY

1. Ag Shield Manufacturing warrants each new Ag Shield Land Roller to be free from factory defects in material and workmanship under normal use and service, when set up and operated in accordance with factory instructions for one year from the date of delivery to the original purchaser.
2. Ag Shield's obligation under this warranty is limited to the supplying of parts to replace those which are defective due to factory workmanship or material.
3. Your Ag Shield Dealer is responsible for providing warranty labour. Credit for required labour is specifically agreed to on an individual case basis.
4. The warranty is void on any unit which has been tampered with, or modified in any way not authorized in writing by the factory.
5. This warranty is void on any unit which is subject to misuse, negligence or accident, or which has had the serial number tampered or removed.
6. A "Warranty Claim Form" (sample at end of handbook) must be submitted to Ag Shield with returned parts in order for parts to be considered for warranty examination.
7. A warranty registration page from the front of this manual must be returned to the factory in order to qualify for warranty examination.
8. All returned parts must be sent to the factory freight prepaid, and warranty parts will be returned to you freight collect.
9. Replacement parts shipped pending receipt of parts for examination will be invoiced, and remain on your account until such time as examination indicates that a credit for those parts be issued or that payment is due.
10. Parts not returned for warranty examination within 30 days must be paid for at that time. Ag Shield will immediately reimburse any cash paid for items that are later determined defective.
11. Warranty terms and conditions are subject to provincial and state legislation.



# AG SHIELD LTD.

BOX 9, BENITO, MANITOBA CANADA R0L 0C0  
 Phone 1-800-561-0132 or 204-539-2000 Fax 204-539-2130

[www.agshield.com](http://www.agshield.com) E-mail: [sales@agshield.com](mailto:sales@agshield.com)

## WARRANTY CLAIM FORM

Dealer		End User				
Address		Address				
City	State/Prov.	Zip/Postal	City	State/Prov.	Zip/Postal	
Date of Sale	Date Failed	Repair Date	Acres/Hours	Model	Serial Number	
Labour Hours	Labour Rate	Labour Amount	Parts Must Be Returned To Benito			
Quantity Item	Part #	Description	Price Each	Total Price	Describe The Cause Of Failure And Corrective Action Taken	Approve /Reject
I certify that the information is accurate and That the parts were replaced on the machine			PARTS		Date Parts Rec'd By	Rec'd
			LABOUR		Items To Suppliers	
			TOTAL			

SHADED AREAS AG SHIELD USE ONLY – PLEASE ADD DETAILS FOR ITEM NUMBER ON BACK

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