

PRO GRAIN

E Q U I P M E N T



PRO GRAIN BAG ROLLER MODEL R-5

OPERATOR'S MANUAL

ARC ALLOY WELDING PRO GRAIN EQUIPMENT LTD.

WARRANTY POLICY

The warranty policy begins upon delivery of the unit to the original customer.

Pro Grain Equipment (1) one year / or one harvest warranty policy covers the PRO Grain Equipment.

If the Pro Grain Equipment product is used as rental equipment, the warranty period extends for only 30 days from the delivery date to the original customer. Loan to neighbour is deemed as rental.

Pro Grain Equipment, manufacturer of PRO Grain Equipment, manufacturing quality machines since 1986 warrants new machinery and/or attachments at the time of delivery to the original purchaser, when properly set up and operated in accordance with the recommendations set forth in the PRO Grain Equipment Operator's Manual.

Pro Grain Equipment's warranty for any defect with respect to accepted goods shall be limited to repairing the goods at an authorized dealer or other Arc Alloy Welding designated location, or replacing them as Arc Alloy Welding shall elect. The above shall be in accordance with Arc Alloy Welding(1984) warranty adjustment policies. This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the Arc Alloy Welding factory or authorized Arc Alloy Welding(1984) dealership or in any way so as in Arc Alloy Welding(1984)'s judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident, nor to any machine or attachment which shall not have been operated in accordance with Arc Alloy Welding(1984)'s printed instructions or beyond the company recommended machine rate capacity.

WARRANTY REQUIREMENTS

Warranty registration form must be filled out and returned to Pro Grain Equipment to validate all future claims.

LIMITATIONS OF WARRANTY

The Pro Grain Equipment is designed to provide years of dependable service when used with adherence to proper use and maintenance. The potential for misuse in many applications exists, therefore a limited warranty is provided as follows:

Auger wear is considered a maintenance item: its life is dependant on the material being conveyed. Tires are the warranty of the manufacturer of the tire.

To receive a warranty claim, a return authorization from Arc Alloy Welding(1984) must be obtained. The failed part may then be returned in an un-tampered status. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls and pick-up/ delivery charges are the customer's responsibility.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, Pro Grain Equipment makes no representation or warranty of any kind, expressed or implied, and makes no warranty of merchantability in respect to its machinery and/or attachments and makes no warranty that its machinery and/or attachments are fit for any particular purpose. Arc Alloy Welding(1984) shall not be liable for incidental or consequential damages for any breach of warranty, including but not limited to inconvenience, rental or replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability, all personal injury and property damage resulting from the handling, possession or use of the goods by the buyer.

No agent, employee, or representative of Pro Grain Equipment has any authority to bind Pro Grain Equipment to any affirmation, representation or warranty concerning its machinery and/or attachments except as specifically set forth herein.

WARRANTY VOID IF NOT REGISTERED

PRO GRAIN EQUIPMENT

PRO GRAIN BAG ROLLER R-5

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer's Name _____	Dealer Name _____
Address _____	Address _____
City, State/Prov., Code _____	City, State/Prov., Code _____
Phone Number (____) _____	
Bag Roller Model _____	
Serial Number _____	
Delivery Date _____	

DEALER INSPECTION REPORT

- _____ Spear Frame Moves Freely
- _____ Kicker Frame and Twine Guide Move Freely
- _____ Chain Tension Checked
- _____ Sprockets Aligned
- _____ Fasteners Tight
- _____ Lubricate Machine
- _____ Check Tire Pressure
- _____ Retainer Installed in Drawer Pin
- _____ Check for Hydraulic Leaks

SAFETY

- _____ Safety Chain on Hitch
- _____ All Decals Installed
- _____ Guards and Shields Installed and Secured
- _____ Review Operating and Safety Instructions

I have thoroughly instructed the buyer on the above described equipment which review included the Operator's Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Owner's Signature _____

WHITE	YELLOW	PINK
PRO GRAIN EQUIP.	DEALER	CUSTOMER

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Pro Grain Equipment Grain Bag Roller when ordering parts or requesting service or other information.

The serial number plate is located where indicated. Please mark the number in the space provided for easy reference.



Model Number _____

Serial Number _____

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1 INTRODUCTION

Congratulations on your choice of a Pro Grain Equipment Grain Bag Roller to complement your grain storage operation. This equipment has been designed and manufactured to meet the needs of a discerning grain storage industry.

Safe, efficient and trouble free operation of your Pro Grain Equipment Grain Bag Roller requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

This manual covers the Pro Grain Equipment Model R-5 Grain Bag Roller. Use the Table of Contents or Index as a guide to locate required information.



Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Pro Grain Equipment Distributor if you need assistance, information or additional copies of the manuals.

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

2 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 Pro Grain Equipment Grain Bag 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.

Why is SAFETY important to you?

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 guide-lines:

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, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your distributor, dealer or Pro Grain Equipment, Box 188, Colonsay, SK S0K 0Z0, Ph. 306-255-2112, Fax 306-255-2113

SAFETY

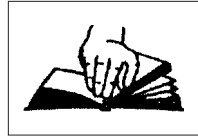
YOU are responsible for the SAFE operation and maintenance of your Pro Grain Equipment Grain Bag Roller. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Bag Roller be familiar with the operating and maintenance procedures and related **SAFETY** information 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 Bag 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.

- Bag Roller owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
- 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. Most 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!

2.1 GENERAL SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the Bag Roller.



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



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



- Do not allow riders.

- 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
- Heavy gloves



- Install and secure all guards before starting.

- Wear suitable ear protection for prolonged exposure to excessive noise.



- 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.

- Clear the area of people, especially small children, before starting the unit.

- Review safety related items annually with all personnel who will operating or maintaining the Bag Roller.

2.2 EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.
- In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.
- Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.
- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.** Review the safety instructions with all users annually.
- This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
- Use a tractor equipped with a Roll Over Protective Structure (ROPS).
- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**
- Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.
- In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the tow vehicle and machine Manuals. Pay close attention to the Safety Signs affixed to the tow vehicle and the machine.

2.3 SAFETY TRAINING

- Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.

- It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator.



It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.

- **Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your power and tow vehicle, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:**
 - a. **Reads and understands the operator's manuals.**
 - b. **Is instructed in safe and proper use.**
- Know your controls and how to stop power and tow vehicle, engine, and machine quickly in an emergency. Read this manual and the one provided with your power and tow vehicle.
- Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. 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. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.

2.4 SAFETY SIGNS

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

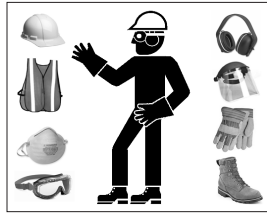
How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 10°C (50°F).
- Determine exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.5 PREPARATION

- Never operate the tow vehicle and machine until you have read and completely understand this manual, the power and tow vehicle operator's manual, and each of the Safety Messages found on the safety signs on the tow vehicle and machine.

- Personal protection equipment including hard hat, safety glasses, safety shoes, and heavy gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around equipment.



- **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!** Power Units with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. **NOTE:** Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.



- Operate the machine only with a tractor equipped with an approved Roll-Over-Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor ---particularly during a turnover when the operator could be pinned under the ROPS or the tractor.



- Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
- Operate only in daylight or good artificial light.
- Be sure machine is properly mounted, adjusted and in good operating condition.
- Ensure that all safety shielding and safety signs are properly installed and in good condition.
- If a pickup truck is used as a tow vehicle, be sure the unit is positively hitched to the truck. Be sure to use safety chains to prevent unplanned separation. Cross the chains under the hitch to support the hitch should unplanned separation occur.

2.6 OPERATING SAFETY

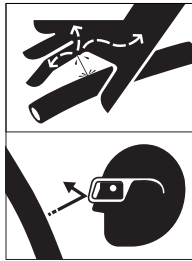
- Read and understand the Operator's Manual and all safety signs before using. Review safety instructions annually.
- Place all controls in neutral, stop engine, set park brake, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Fully retract spear before kicking roll out of machine.
- Always use 2 ply thickness of bag to wrap on spear before starting to roll up bag.
- Do not enter frame unless engine is OFF.
- Do not attach bag while roller is in motion.
- Do not allow riders on the Bag Roller during operation or transporting.
- Clear the area of all bystanders, especially children, before starting.
- Clean reflectors, SMV (Slow Moving Vehicle) emblem and lights when towing with a tractor before transporting. Be sure you are in compliance with all federal and local regulations regarding transport of equipment on public roads and highways.
- Remove bag before transporting.
- Do not exceed a safe travel speed.
- Use hazard flasher on tractor when transporting.
- If a pick-up truck is used as the tow vehicle be sure the trailer is positively hitched to the truck. Be sure and use safety chains to prevent unplanned separation. Cross the chains under the hitch to support the hitch should unplanned separation occur.
- It is recommended that only 3/4 ton or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide the recommended stability and control when towing.
- Always refer to the towing vehicle owner's manual trailer towing section to determine the vehicle's towing capacity and to ensure compatibility and maximum safety.
- Shift towing unit to a lower gear before going down steep down-grades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Do not drink and drive.

2.7 TRANSPORT SAFETY

- Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Bag Roller in the field, yard and/or on the road.
- Maintain wheel bolts to specified torque.
- Check with local authorities regarding Bag Roller transport on public roads. Obey all applicable laws and regulations.
- Always use wiring harness adaptor when attaching to pickup.
- Always travel at a safe speed. Use caution when making corners or meeting traffic.
- Clean reflectors, SMV (Slow Moving Vehicle) emblem when towing with a tractor and lights before transporting. Be sure you are in compliance with all federal and local regulations regarding transport of equipment on public roads and highways.
- Install additional lights on the rear of the machine to safeguard against rear end collisions. Daybreak and dusk are particularly dangerous and pilot vehicles are recommended.
- Attach optional lighting bar on rear of frame before transporting.
- Be sure that the machine is securely hitched to the towing vehicle and a retainer is used through the drawbar pin. Always attach a safety chain between the frame and the towing machine. Cross chains under the hitch to support hitch should unplanned separation occur.
- It is recommended that only 3/4 ton or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide the recommended stability and control when transporting.
- Remove bag before transporting.
- Insert spear fully into frame before transporting.
- Always refer to the towing vehicle owner's manual trailer towing section to determine the vehicle's towing capacity and to ensure compatibility and maximum safety.
- Keep to the right and yield the right-of-way to allow faster traffic to pass.
- Do not exceed 83 km/h (50 mph) on highway transport. Reduce speed on rough roads and surfaces.
- Always use hazard warning flashers on tractor when transporting unless prohibited by law.
- Shift towing unit to a lower gear before going down steep down-grades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Do not drink and drive.

2.8 HYDRAULIC SAFETY

- Make sure that all the 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.
- Stop engine, set park brake, remove ignition key, relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, repairing or cleaning.
- Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tapes, 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.



2.9 MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Follow good shop practices.
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.



- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, shut off the engine, set the brakes, and remove the ignition keys.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy gloves when handling sharp components.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.



- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

2.10 STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks if required.
- Place chocks in front of and behind each wheel before storing and when unhooking from power and tow vehicle.

2.11 TIRE SAFETY

- 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.
- Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.
- When replacing worn tires, make sure they meet the original tire specifications. Never undersize.

2.12 SIGN-OFF FORM

Pro Grain Equipment Ltd. follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Bag 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. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

SIGN-OFF FORM

DATE	EMPLOYEE'S SIGNATURE	EMPLOYER'S SIGNATURE

3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



A

CAUTION

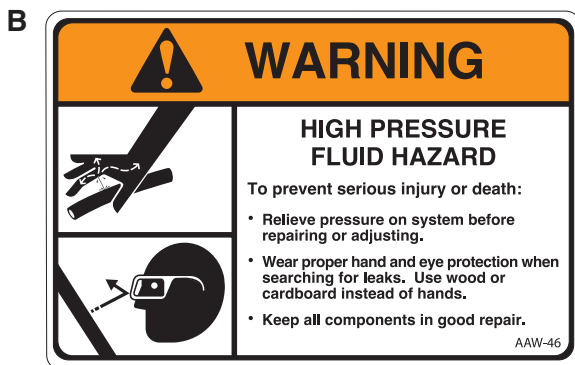
- Read understand and follow instructions in Operator's Manual and on safety signs. Review safety instructions annually.
- Place all controls in neutral, stop engine, set park brake and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not allow riders on the machine during operation or when transporting.
- Install and secure all guards before operating.
- Remove bag before transporting.
- Do not exceed a safe travel speed.
- Always use hazard flasher on tractor when transporting.
- If a pick-up is used as a tow vehicle be sure the machine or trailer is positively hitched to the truck. Be sure to use safety chains to prevent unplanned separation. Cross chains under the hitch for support in case unplanned separation occurs.
- It is recommended only 3/4 ton or larger capacity trucks be used for towing on the road or highway. This size of truck plus careful driving will provide the recommended stability and control when towing.
- Insert spear fully into frame before transporting.
- Fully retract spear before kicking roll out of machine.
- Always use 2 ply thickness of bag to wrap on spear before starting to roll up bag.
- Do not enter frame unless engine is off.
- Do not attach bag while roller is moving.
- Do not drink and drive.

AAW-10

REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

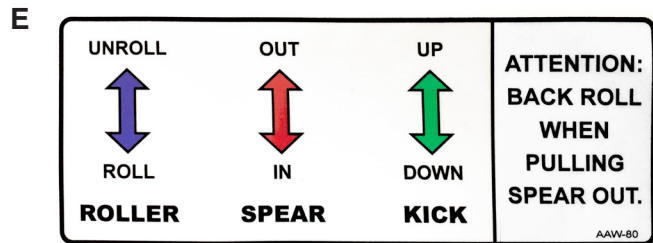
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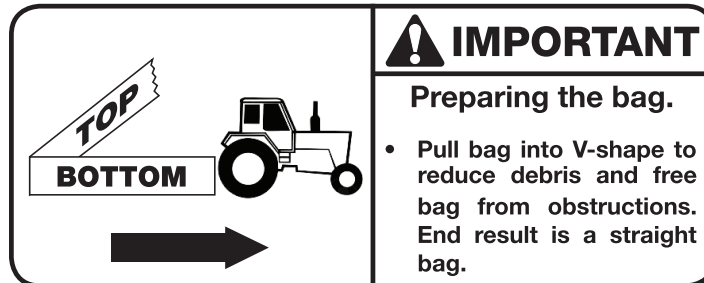
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- Think SAFETY! Work SAFELY!

G

How to roll a bag with your Pro Grain Bag Roller



Prepare the bag

Turn the bag over to remove all snow, ice, dirt and grain from on top of bag plus breaking it loose if it frozen to the ground.

Pull the front of the bag back into a 'V' about 10 feet (3 m).

Take note of wind direction, if any. Roll bag into the wind, when possible.

Attaching the bag

1. Retract spear about 6".
2. Thread plastic through bag guide.
3. Pull plastic up to spear hole (2 plies).
4. Standing by the controls, extend spear into plastic and spear hole.

Rolling the bag

1. Roll the bag at a safe speed making sure the roller turns clockwise on the drive side.
2. Rolling starts at the top.

Tying and dropping the bag

1. With approximately 10' left of the bag to roll, make a small hole in the middle of the bag that is on the roller. Tie the twine to the bag and begin rolling slowly, moving the twine guide back and forth until the desired amount of twine is on the bag.
2. Cut twine and tie.
3. Back roll spear prior to and during extraction.
4. With spear fully retracted, function the bale kicker.

Important: Stand on valve end of roller when dropping the bag.

Bale Size

The bag roller will roll a bale that is 46" wide and 6' high.



AAW-45

REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 OPERATION



OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before using. Review safety instructions annually.
- 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.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Fully retract spear before kicking roll out of machine.
- Always use 2 ply thickness of bag to wrap on spear before starting to roll up bag.
- Do not enter frame unless engine is OFF.
- Do not attach bag while roller is in motion.
- Do not allow riders on the Bag Roller during operation or transporting.
- Clear the area of all bystanders, especially children, before starting.
- Remove bag before transporting.
- Clean reflectors, SMV (Slow Moving Vehicle) emblem and lights when towing with a tractor before transporting. Be sure you are in compliance with all federal and local regulations regarding transport of equipment on public roads and highways.
- Use hazard flasher on tractor when transporting.
- If a pick-up truck is used as the tow vehicle be sure the trailer is positively hitched to the truck. Be sure and use safety chains to prevent unplanned separation. Cross the chains under the hitch to support the hitch should unplanned separation occur.
- It is recommended that only 3/4 ton or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide the recommended stability and control when towing.
- Always refer to the towing vehicle owner's manual trailer towing section to determine the vehicle's towing capacity and to ensure compatibility and maximum safety.
- Shift towing unit to a lower gear before going down steep down-grades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Do not drink and drive.

4.1 TO THE NEW OPERATOR OR OWNER

The Pro Grain Equipment Grain Bag Roller is designed to roll up empty grain storage bags into a bale for convenient transport to a recycling center. It is a simple machine that requires little maintenance to function reliably.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine.

Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance program, your Bag Roller will provide many years of trouble-free service.

4.2 MACHINE COMPONENTS

The Pro Grain Equipment Grain Bag Roller is designed as a transportable system that can be easily moved from location to location where the bags are located. It consists of a square spear mounted to a sliding frame for wrapping empty grain bags into a bale for transporting to a recycling station.

Hydraulic power is provided by the tractor. 3 valves are mounted on the right front corner of the frame and control spear rotation, spear position and kicker frame position.

A hydraulic motor, through a roller chain/sprocket system, rotates the spear for wrapping or unrolling when the bale is completed. The spear is mounted on a sliding frame that moves the spear in and out depending on the wrapping cycle position.

A kicker frame positioned in the bottom of the frame is used to eject the bale out when the rolling is completed. A bag guide frame is mounted on the rear of the frame to direct and control the bag as it wraps on the spear. A sliding twine guide is mounted on the front of the frame to allow the operator to distribute twine across the width of the bale.

- A Hydraulic Valves
- B Spear
- C Spear Sliding Frame
- D Spear Drive
- E Twine Canister
- F Twine Guide
- G Kicker Frame
- H Bag Guide
- J Hydraulic Hoses





4.3 BREAK-IN

Although there are no operational restrictions on the Bag Roller when it is used for the first time, it is recommended that the following mechanical items be checked:

A. After operating for 1 hour:

1. Check alignment of sprockets and spear. Align as required.
2. Check chain tension. Adjust as required.
3. Torque all fasteners and hardware.
4. Check condition of spear bearings.
5. Check function of kicker circuit shut-off valve.
6. Check for entangled material. Remove any entangled material.
7. Check that spear frame and twine guide move freely.
8. Check tire pressure. Inflate as required.

B. After operating for 10 hours:

1. Repeat steps 1 through 8 listed above. (Section A).
2. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Pro Grain Equipment Grain Bag Roller requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both personal safety and for maintaining the machine in good mechanical condition that this checklist be followed.

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

1. Lubricate the machine per the schedule outline in the Maintenance Section.
2. Check the tension and alignment of chain and sprockets. Adjust tension and align as required.
3. Check for and remove any twine, wire or other material that has become entangled in the spool.
4. Check that the spear bearings turn freely. Replace any that are rough or seized.
5. Make sure that all guards and shields are in place, secured and functioning as designed.
6. Check function of kicker circuit shut-off valve.
7. Check that spear frame and twine guide move freely.

4.5 CONTROLS

Before starting to work, all operators should familiarize themselves with the location and function of the controls.

1. Spear Roller:

This 3 position spring-loaded-to-neutral-center lever controls the turning of the spear. Pull and hold the lever to run the spool in the rolling up direction (clockwise when viewed from the drive side). Push and hold the lever to run the spool in reverse. Release the lever and the lever will return to its centre neutral position and the spool will stop turning.

IMPORTANT

If the controls do not respond in this manner, reverse the hose hook up to the tractor.

2. Spear Position:

This 3 position spring-loaded-to-neutral-centre lever controls the position of the spear. Push and hold to move the spear out. Pull and hold to move the spear in. Release the lever and the spear will stop moving.

3. Kicker Frame Position:

This 3 position spring-loaded-to-neutral-centre lever controls the flow of oil to the hydraulic cylinder that controls the position of the bale kicker frame on the bottom of the frame. Push and hold to raise the kicker frame to move the bale out of the frame. Pull and hold to lower the kicker frame back to the bottom of the frame.

NOTE

Spear must be pulled out of the bale to release the shut-off valve before the kicker frame can move.

4. Twine Guide Bracket:

This bracket is designed to slide along the front cross member with the twine threaded through its clamp. Slide the bracket across the frame to distribute the twine over the width of the bale to hold it together when moving to the recycling centre.

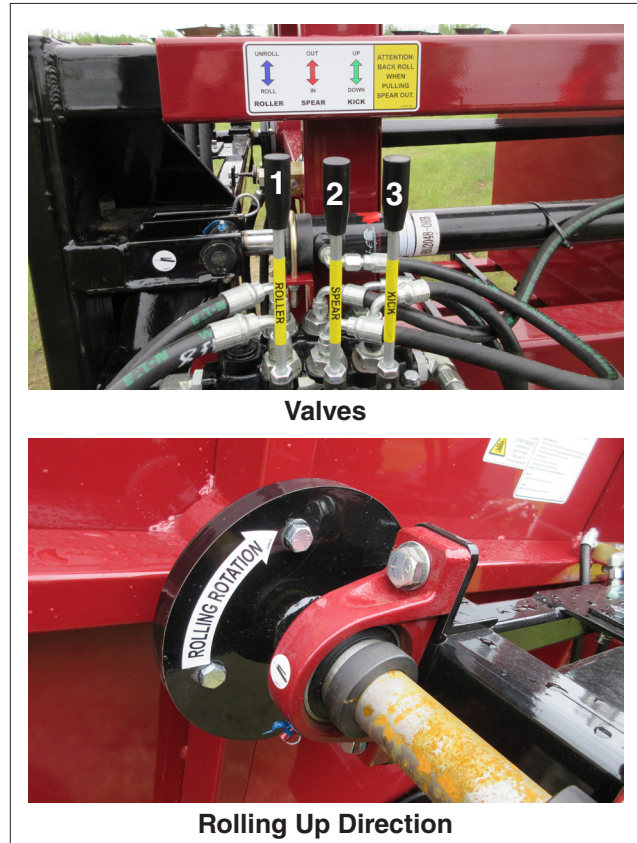


FIG. 2 CONTROLS



FIG. 3 TWINE GUIDE BRACKET

5. **Kicker Frame Shut Off Valve:**

The hydraulic system is designed with a shut off valve in the kicker frame circuit to prevent the kicker frame from moving unless the spear is retracted or pulled out of the bale. When the spear is fully inserted into the frame and through the roll, the frame depresses the valve pin to shut off the circuit. When the spear is withdrawn from the bale, the pin on the shut off valve is opened/released and the kicker frame can move.

IMPORTANT

The shut off valve is necessary to prevent the operator from engaging the kicker frame to eject the bale before the spear is retracted. This feature prevents bending or damaging any frame member.

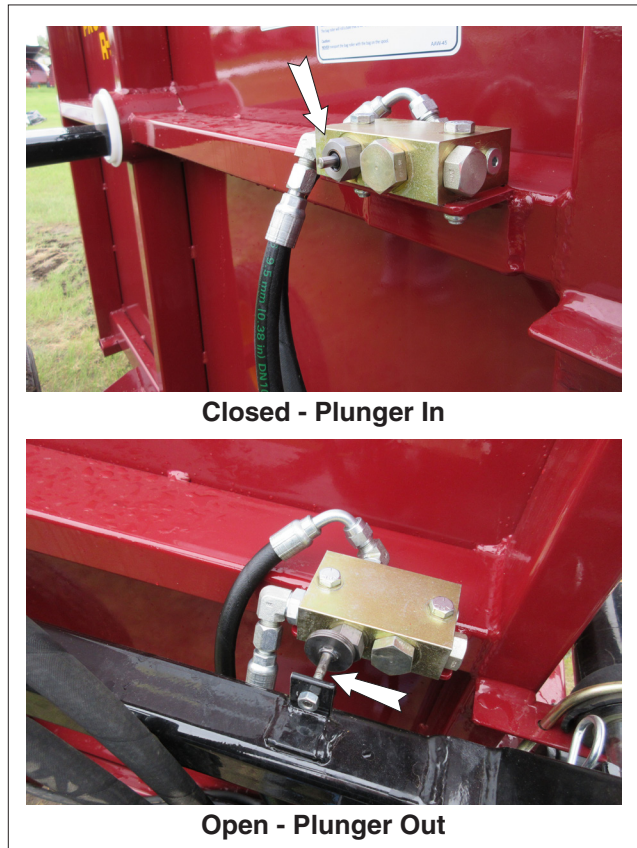


FIG. 4 SHUT-OFF VALVE

4.6 ATTACHING/UNHOOKING

The Grain Bag Roller should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a power unit, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. While backing up, align the hitch with the drawbar.
4. Stop tow vehicle, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.
5. **Hook up to tractor:**
 - a. Use a drawbar pin with provisions for a mechanical retainer. Install the retainer.
 - b. Attach the safety chain around the drawbar cage to prevent unexpected separation.
 - c. Raise jack.
 - d. Pull anchor pin on jack, turn jack to parallel to hitch and re-pin.



Aligning



Drawbar Pin/Retainer



Safety Chain

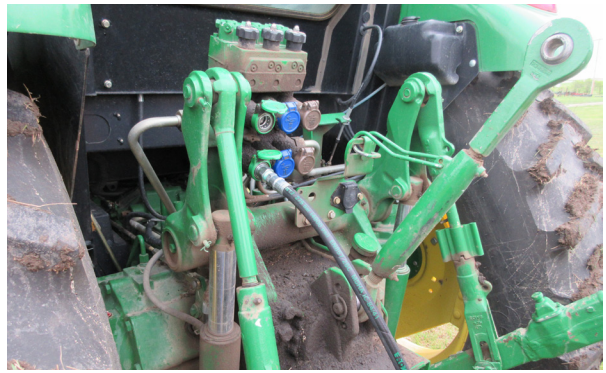


Jack

FIG. 5 ATTACHING TO TRACTOR

6. **Connect the hydraulic system:**

- a. Use a clean cloth or paper towel to clean the dirt and build up from around the couplers and the male tips.
- b. Insert the male tips into the couplers. Make sure they are locked in place.
- c. Route the hoses along the hitch and secure in place with clips, tape or plastic ties. Be sure they do not drop on the ground or get pinched when turning. Provide sufficient slack for turning.



1st Circuit



2nd Circuit



Connected

FIG. 6 HYDRAULIC HOSES

NOTE

Some newer tractors are designed with a flow regulator dial on top of each hydraulic valve. Turn to cylinder, motor, etc. as appropriate.



FIG. 7 SELECTOR DIAL (TYPICAL)

7. **Hook up to Truck:**

a. Align drawbar with hitch on truck.



Aligning

b. Use a drawbar pin with provisions for a mechanical retainer. Install the retainer.



Drawbar Pin/Retainer

c. Attach the safety chain around the drawbar cage to prevent unexpected separation.



Safety Chain

d. Pull anchor pin on jack, turn jack to parallel to hitch and re-pin.

e. Raise jack.



Jack

FIG. 8 ATTACHING TO TRUCK

8. Reverse the above procedures when unhooking from tow vehicle.

4.7 FIELD OPERATION



OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before using. Review safety instructions annually.
- 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.
- Install and secure all guards and shields before starting or operating.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Fully retract spear before kicking roll out of machine.
- Always use 2 ply thickness of bag to wrap on spear before starting to roll up bag.
- Do not enter frame unless engine is OFF.
- Do not attach bag while roller is in motion.
- Do not allow riders on the Bag Roller during operation or transporting.
- Clear the area of all bystanders, especially children, before starting.
- Remove bag before transporting.
- Clean reflectors, SMV (Slow Mov
- Do not exceed a safe travel speed.ing Vehicle) emblem and lights when towing with a tractor before transporting. Be sure you are in compliance with all federal and local regulations regarding transport of equipment on public roads and highways.
- Use hazard flasher on tractor when transporting.
- If a pick-up truck is used as the tow vehicle be sure the trailer is positively hitched to the truck. Be sure and use safety chains to prevent unplanned separation. Cross the chains under the hitch to support the hitch should unplanned separation occur.
- It is recommended that only 3/4 ton or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide the recommended stability and control when towing.
- Always refer to the towing vehicle owner's manual trailer towing section to determine the vehicle's towing capacity and to ensure compatibility and maximum safety.
- Shift towing unit to a lower gear before going down steep down-grades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Do not drink and drive.

Although the Grain Bag Roller is easy to use, each operator should review this section to familiarize himself with the detailed safety and operating procedures. When using the machine, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Review and follow the Pre-Operation Checklist (see Section 4.4).
3. Attach the machine to the tractor vehicle (see Section 4.6).
4. Back the Bagger up to the bag.
5. Stop engine, set park brake and remove ignition key



FIG. 9 BAG (TYPICAL)

6. Prepare the Bag:

- a. Turn the bag over to remove all snow, ice, dirt and grain from on top of the bag.
- b. Break the bag loose if it is frozen to the ground.
- c. Pull the front of the bag back into a 'V' with about 10 feet (3 m) on the short end.

7. Position machine to point into the wind to minimize the chance of the wind catching the plastic and moving it so it catches on the bag guides.



FIG. 10 BAG OVERLAP

8. Back the machine up to the end of the bag and stop short about 3 feet (1 m.) from the bag. Set park brake.



FIG. 11 MACHINE POSITIONING

9. Retract the spear 4 - 6 inches (100 - 150 mm) from its stowed position.

10. Stop engine.



FIG. 12 RETRACTED

11. Pull the end of the bag under the bag guide bar and above the front one.



FIG. 13 THREADING BAG

12. Pull the bag up next to the end of the spear and fold it over to double the thickness of the bag at the end of the spear.
13. Start engine and place the hydraulic circuit in detent. Run tractor at 1/4 to 1/3 throttle position.



FIG. 14 DOUBLING BAG

14. Insert the spear through the bag material and back into its fully stowed position.



FIG. 15 INSERT SPEAR

15. Pull on the left hydraulic lever to start slowly rolling the spear/bag.

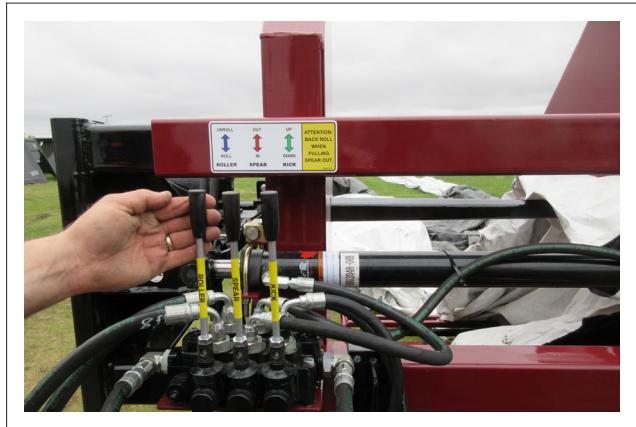


FIG. 16 LEFT HYDRAULIC LEVER

16. Check the rotation of the spear. It must turn clockwise from the drive end.

IMPORTANT

Momentarily pull on the spear turning lever to verify that the spear turns clockwise when viewed from the drive side. If it doesn't turn in the clockwise direction, reverse the hoses connected to the tractor.



FIG. 17 SPEAR ROTATION DIRECTION

17. Roll up the bag on the spear with the bag wrapping on the top side of the spear.



Starting



Rolling

FIG. 18 TOP SIDE

18. Monitor the bag as it wraps on the spear.



Bag



Guide



Wrapping

FIG. 19 BAG ROLLING

19. Stop rolling up the bag when there is 10 feet (3 m.)

20. Bring a knife and the end of the twine.



Knife/Twine

21. Use the knife to cut 2 small holes in the bag.



Cutting

22. Thread the twine through the holes and tie.



Threading



Tied

FIG. 20 TWINE

23. Secure the bale:

a. Slide the twine guide bracket across the front of the bale while rolling up the bag.



Twine Guide

b. Position the twine a minimum of 4 inches (100 mm) apart across the outside of the roll.



Twine

c. Double the amount of twine used if there will be a lot of handling before it gets to the recycling depot.



Cutting

24. Stop the rotation of the spear and cut the twine.

25. Tie the end of the twine to a twine on the bale.



Tying

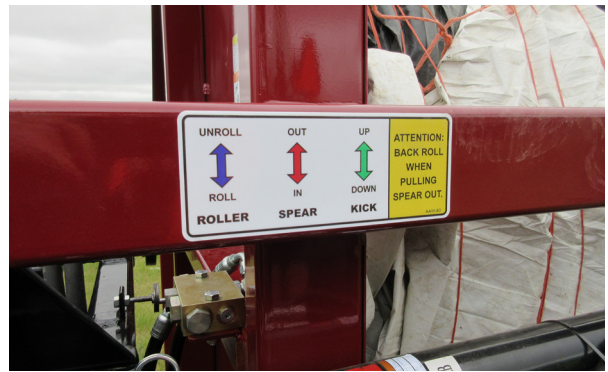
FIG. 21 SECURING

26. Push and hold the Roller and Spear hydraulic levers to unroll the bale while retracting the spear.

NOTE

Unrolling the bag helps to release the bag from the spear when it is being retracted.

27. Fully retract spear from the bale.



Controls



Retracting



Retracted

FIG. 22 RETRACTING SPEAR

28. Slowly raise the kicker frame when the spear has been fully withdrawn from the bale.

IMPORTANT

Stay away from behind the machine when ejecting bale to prevent it from rolling over anyone. Keep others away.



FIG. 23 KICKER FRAME

29. Lower the kicker frame into its fully down position.
30. Fully insert the spear back into the frame.
31. Proceed to the next bag.

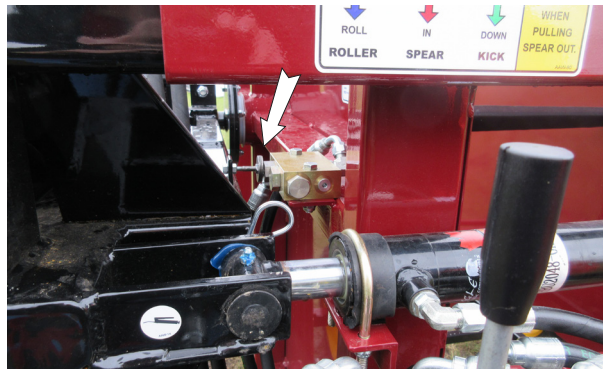
32. The Bag Roller is designed with a square spear to wrap the loose plastic bag into a bale for transporting to the recycler. It mounts on a sliding frame that moves it into and out of the bag. A shut off is designed into the kicker frame hydraulic circuit to prevent the kicker from moving until the spear has been pulled out of the bale. This prevents damaging any components if spear is not withdrawn.



Spear In



Spear Out



Valve Locked



Valve Open

FIG. 24 SPEAR SYSTEM

33. Each Roller is designed with a frame positioned in the bottom of the frame to eject the bale from the machine. Push and hold the right lever to raise the frame and eject the bale. Pull and hold to fully lower the frame before starting to roll the next bag/bale. Do not eject a bale until the spear is pulled completely out of the bale.



Down



Mid-Point



Up

FIG. 26 KICKER FRAME

34. Stopping:

Release the hydraulic controls valve levers to stop rolling, spear motion or kicker frame movement. Move the tractor hydraulic control lever out of detent or stop the engine to stop machine.

35. Filling Twine Bale Canister:

- a. Clear the area of bystanders, especially small children.
- b. Place all controls in their of position, stop engine, set park brake, remove ignition key and wait for all moving parts to stop.
- c. Release latch on canister cover and lift cover.



Lid

- d. Place the bale of twine in the canister.
- e. Pull the end of the twine out of the centre of the twine bale.



Twine from Bale

- f. Thread the end of the twine through the hole in the lid.
- g. Close and latch lid.



Cover

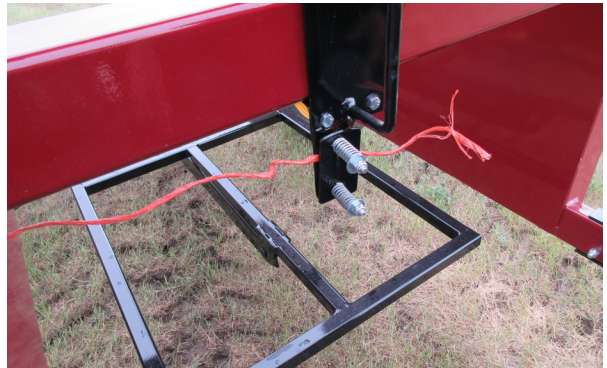
FIG. 27 TWINE

- h. Thread the twine through the bracket on the frame under the hydraulic valves.



Bracket

- i. Thread the twine through the clamp bracket on the bottom of the twine guide frame.



Clamp

FIG. 28 ROUTING

36. Operating Hints:

- a. Align Bag Roller with the end of the bag before starting.
- b. Fold back 10 feet (3 m.) of bag before attaching to Bag Roller.
- c. Double the thickness of bag material before inserting spear through bag.
- d. Roll up the bag while facing into the wind to minimize the chance of edges of the bag blowing over the bag guide brackets.
- e. Do not transport machine with a bale in the frame.



FIG. 29 FOLDED BACK

- f. Always operate the spear in the clockwise direction when viewed from the drive end. Reverse hoses on tractor if required to obtain the desired direction of rotation.

NOTE

This direction of rotation will assist foreign material to fall off bag before entering bale.



FIG. 30 CLOCKWISE

- g. Fully retract the spear before ejecting bale to prevent damaging components.
- h. Make sure the bag isn't frozen to the ground before starting.



FIG. 31 EJECTED BALE

4.8 TRANSPORTING



TRANSPORT SAFETY

- Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Bag Roller in the field, yard and/or on the road.
- Maintain wheel bolts to specified torque.
- Check with local authorities regarding Bag Roller transport on public roads. Obey all applicable laws and regulations.
- Always use wiring harness adaptor when attaching to pickup.
- Clean reflectors, SMV (Slow Moving Vehicle) emblem when towing with a tractor and lights before transporting. Be sure you are in compliance with all federal and local regulations regarding transport of equipment on public roads and highways.
- Install optional lighting bar.
- Always travel at a safe speed. Use caution when making corners or meeting traffic. Do not exceed speed limit.
- Install additional lights on the rear of the machine to safeguard against rear end collisions. Daybreak and dusk are particularly dangerous and pilot vehicles are recommended.
- Be sure that the machine is securely hitched to the towing vehicle and a retainer is used through the drawbar pin. Always attach a safety chain between the frame and the towing machine. Cross chains under the hitch to support hitch should unplanned separation occur.
- It is recommended that only 3/4 ton or larger capacity trucks be used for towing on the road. This size of truck plus careful driving will provide the recommended stability and control when transporting.

When transporting the machine, review and follow these instructions:

1. Clear the area of bystanders, especially small children.
2. Install optional lighting bar to the machine before transporting on a public road.
3. Check and verify that all lights are clean and working as required.
4. Insure that the machine is securely attached to the tow vehicle with a mechanical retainer through the drawbar pin. Always use a safety chain between the tow vehicle and machine.
5. Do not allow riders.
6. Slow down for rough roads and when making turns.
7. Never exceed a safe travel speed.
8. Always shift to a lower gear when going down hill to use the engine as a restraining force.
9. Apply the brakes carefully to prevent jackknifing.
10. Remove bag before transporting.



FIG. 32 TRANSPORTING

4.9 STORAGE



STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks if required.

At the end of the season, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the beginning of the next season. Follow this procedure:

1. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
2. Lubricate all grease points to remove any water residue from washing.
3. Coat the drive chain with a good quality chain lubricant to prevent rusting.
4. Remove any material that has become entangled around any moving part.
5. Touch up all paint nicks and scratches to prevent rusting.
6. Move the machine to its storage area.
7. Store in a dry, level spot.
8. Store in an enclosed building if possible.
9. Unhook from the tow vehicle (see Section 4.6).
10. Place planks under the jack for added support if required.
11. Store in an area away from human activity.
12. Do not allow children to play around the stored unit.



FIG. 33 STORED

5 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Follow good shop practices.
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
- Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, shut off the engine, set the brakes, and remove the ignition keys.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy gloves when handling sharp components.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.
2. **Storing Lubricants:**
Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

5.1.2 GREASING

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5.1.3 SERVICING INTERVALS

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

After Rolling 20 Bags

1. Grease spear bearings.



FIG. 34 SPEAR BEARINGS

Annually

1. Grease spear frame position cylinder end bushings.



FIG. 35 SPEAR FRAME POSITION CYLINDER ENDS

2. Grease kicker frame cylinder end bushings.



FIG. 36 KICK FRAME CYLINDER END

3. Check drive roller chain tension.



4. Apply light coat of lubricant to roller drive chain.



FIG. 37 ROLLER CHAIN

5. Apply a light coat of grease to the spear position sliding frame.



FIG. 38 SPEAR SLIDING FRAME

6. Clean machine.



FIG. 39 MACHINE

5.1.4 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE: CK CHECK CL CLEAN G GREASE CH CHANGE

	Hours																			
	Serviced by																			
After Rolling 20 Bags																				
G	Spear Bearings																			
Annually																				
G	Spear Frame Pos. Cylinder End Bushings																			
G	Kicker Frame Cylinder End Bushings																			
CK	Drive Roller Chain Tension																			
G	Drive Roller Chain																			
G	Spear Position Sliding Frame																			
CL	Machine																			

5.2 MAINTENANCE

By following a careful service and maintenance program for your machine, you will enjoy many years of trouble-free operation.

5.2.1 DRIVE CHAIN TENSION & ALIGNMENT

A roller chain transmits rotational power between a hydraulic motor and the rolling system drive shaft. It must be kept properly tensioned and the pulleys aligned to obtain the expected performance and life.

To check the tension and alignment, follow this procedure:

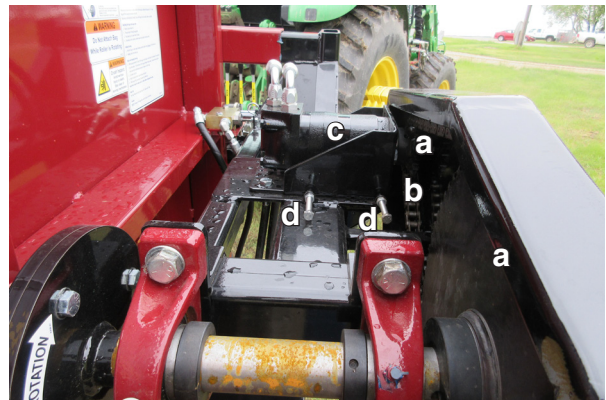
1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.
4. Remove guard over chain.
5. The chain tension is set by moving the hydraulic motor mounting base:
 - a. The chain should be set so it has a small amount of movement on one side.
 - b. One link should turn 30° when twisted for proper tension.
 - c. Move the motor mounting base to the required position to properly tension the chain.



6. Always check and maintain sprocket alignment. Lay a straight edge across the sprocket faces to check the alignment. Adjust alignment if sprocket faces vary more than 1/32 inch (.7 mm).



Drive Side



a. Sprockets b. Chain c. Motor d. Adjusting Bolts

FIG. 40 DRIVE SYSTEM

6 TROUBLE SHOOTING

The Pro Grain Equipment Grain Bag Roller is a large transportable machine for rolling up empty plastic grain storage bags. It is a simple system that requires minimal maintenance.

In the following Trouble Shooting section, we have listed many of the problems, causes and solutions that can help you to solve the problems that you might encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local distributor or dealer. Before you call, please have this Operator's Manual and the serial number of your machine at hand.

PROBLEM	CAUSE	SOLUTION
Spears don't turn	No power.	Place tractor hydraulic system in detent. Pull and hold hydraulic control lever. Check hydraulic connections.
Bag doesn't roll on spear.	Not anchored. Bag frozen to the ground.	Slide spear through double layer of bag. Break bag free from the ground.
Bag bale comes apart.	Not enough twine wraps.	Wrap more twine on bale.
Bag not feeding.	Bag is snagged on machine.	Turn machine and tractor off. Release snag.

7 SPECIFICATIONS

7.1 MECHANICAL

Bag Roller	Width	Length	Height	Weight Kg	Weight lbs
R-5 with hitch	6'6"	13'	7'2'	770	1700
R-5 without hitch		8'10"			
Tire Size	ST 205/75 R15.				

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

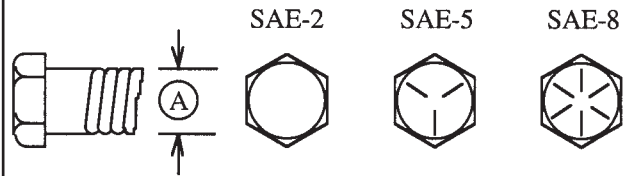
7.2 BOLT TORQUE

CHECKING BOLT TORQUE

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

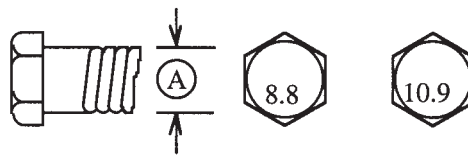
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque *					
	SAE 2		SAE 5		SAE 8	
	N.m	(lb-ft)	N.m	(lb-ft)	N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*			
	8.8		10.9	
	(N.m)	(lb-ft)	(N.m)	(lb-ft)
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

7.3 HYDRAULIC FITTING TORQUE

Tightening Flare Type Tube Fittings *

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

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

- The torque values shown are based on lubricated connections as in reassembly.

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