

Portable Roller Mill M15



Operator's Manual



WE MEET YOUR PRODUCTION NEEDS

Portable Roller Mill M15

Operator's Manual

This manual

Richiger has endeavored to provide the most accurate and clear information on this equipment. Because of efforts to produce the best equipment possible, upgrades and improvements may precede this or subsequent manuals' updates. Therefore, contents of this manual are based on development in effect at the time of publication and are subject to change without notice.

Important

Before attempting machine operation, read this manual's instructions carefully.

This manual contains information and recommendations that may vary in accordance with user experience, climate, grain type, tractor weight and other variable conditions.

Important information



This is the safety alert symbol. It is used to alert the operator about personal safety and risk factors involved when using this equipment. Always observe and follow these important instructions in order to promote safe operation with good work habits.

Richiger machines are designed and manufactured for years of dependable service when used for the purpose for which it is intended, and when proper maintenance is carried out.

This operator's manual should be thoroughly studied and understood for safe and efficient use of the machine. Keep it near at hand for consultation and ensure that anyone who uses the machine reads it before he operates it for the first time.

READ THIS MANUAL CAREFULLY. Pay special attention to symbols and safety decals, and their meaning detailed here, that you will find on the roller mill and throughout this manual.

NEVER OPERATE THIS EQUIPMENT UNTIL USER FULLY UNDERSTANDS THE COMPLETE CONTENTS OF THIS MANUAL. FOR OWNERS WHO DO NOT OPERATE THIS EQUIPMENT, IT IS THE OWNER'S RESPONSIBILITY THAT THE USER IS PROPERLY INSTRUCTED AND IS FULLY AWARE OF THIS MANUAL' S CONTENTS.

This is important in the safe handling of this equipment and to promote an efficient operation. If there are any questions about sections in this manual, it is important to contact your dealer for clarification.

This machine is guaranteed as stated on the next page. A Warranty Registration Card is to be filled and signed with data pertaining to the machine, the buyer and the seller, and promptly returned to the factory. The card provides a ready reference to help you in securing warranty and in answering questions that you may have at some later date.

The serial number and identification tag is located in the forward section of the frame. Please refer to these numbers when parts or warranty communication is necessary.

PLEASE WRITE DOWN THE INFORMATION ABOUT YOUR MACHINE MODEL, UNIT NUMBER AND SERIAL NUMBER AS INDICATED IN THE REGISTRATION PLATE SO THAT YOU HAVE IT AT HAND IF NEEDED.

MACHINE MODEL:

UNIT N°:

SERIAL N°:

Warranty policy

Warranty terms

Unit: **Portable roller mill model M15**

Richiger Maquinarias SA, located in Avellaneda 661, (S2322BCM) Sunchales, Province of Santa Fe, Argentina, warrants its products **Portable roller mill model M15** from defects in materials and workmanship under normal operating conditions and proper application, in accordance with the specifications for operation as described by the manufacturer, for the period of 12 months from date of delivery to buyer. The buyer of the machine, or the Service Center, representative or dealer of the machine in his representation shall return this certificate to **Richiger Maquinarias SA** within 30 days after delivery of the product for the warranty terms to apply. Repairs performed under guarantee and the related parts replaced are guaranteed until termination of the normal warranty validity period.

Limitations on Warranty

This warranty is expressly in lieu of any other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.

Buyer's sole and exclusive remedy under this warranty shall be limited to the repair, replacement or exchange of warranted products at our option, F.O.B. our factory, or designated Service Center, representative or dealer. Should one of them grant any warranty greater in scope or time period or labor allowance than that detailed herein, **Richiger Maquinarias SA** shall not be liable beyond the herein stated limitations.

Equipment and accessories not of our manufacture are not covered by this warranty. Any claim with regards to defective aforementioned equipment and accessories shall be submitted by **Richiger Maquinarias SA** to the original manufacturers for analysis and subsequent non-approval or approval of repair, replacement or exchange, at their option. No special, incidental, consequential or other damages or contingent liabilities including, but not limited to, loss of life, personal injury, loss of production, loss due to fire or water damage, loss of business or business income, down time costs and trade or other commercial loss arising out of the failure of product. The term product and products as used in this warranty designates the whole finished unit in its entirety, i.e. the complete assembled machine, and/or all and every individual component, part, equipment and accessory that forms said complete assembled machine. Normal wear and tear associated with use is expressly excluded from this warranty.

No products shall be returned without prior authorization from **Richiger Maquinarias SA**.

Buyers and their agents shall prepay all transportation charges for the return of such products to **Richiger Maquinarias SA** or designated Service Center. There will be no acceptance of any charges for labor and/or parts incidental to the removal and remounting of product repaired or replaced under this warranty.

This warranty does not cover conditions over which **Richiger Maquinarias SA** has no control, including, without limitation, contamination, pressures in excess of recommended maximum, products damaged or subject to accident, abuse or misuse after shipment from factory, products altered and repaired by anyone other than **Richiger Maquinarias SA** factory personnel or dealer or source approved by **Richiger Maquinarias SA** in writing prior to commencement of said work.

The first buyer is responsible for proof of delivery date of product for the purpose of establishing warranty time of validity. Warranty can continue for new user should product be resold by first buyer during valid period of warranty, only if this situation is reported in writing, with enclosed documentation as proof of purchase. Warranty will not be applicable if series number or other identification markers are erased, obliterated or otherwise altered.



Limitations on Warranty

The following are types of failures which are not attributable to defects in materials and/or workmanship and which are not considered by **Richiger Maquinarias SA** as part of the warranty extended hereunder. This listing is by way of example and not intended to be exhaustive:

- 1) Product suffered damages attributable to accident, abuse, neglect or ignorance.
- 2) Product was not used in accordance with manufacturer's recommendations.
- 3) Product did not receive required maintenance.
- 4) Failure ensued after replacement of original parts without express consent of **Richiger Maquinarias SA**, or modifications that in **Richiger Maquinarias SA's** judgement may have affected performance, safety and/or dependability parameters.
- 5) Product was used in a manner or for a purpose for which it was not designed or intended to be used by the manufacturer.
- 6) Incorrect mounting of external gears, pulleys, etc.
- 7) Stripped splines or keyways on drive shafts.
- 8) Damage due to deterioration during periods of storage by the purchaser prior to operation.
- 9) Damage of any kind from erosive or corrosive action of any gases or liquids handled by the machinery.
- 10) Lack of or incorrect type of hydraulic fluid, lubricant, oil and/or grease.
- 11) Contamination of the hydraulic fluid.
- 12) Operating beyond recommended maximum speeds, pressures and temperatures.
- 13) Repairs or disassembly by unauthorized personnel.
- 14) Misalignments of drive shafts, gears, sprockets and power driven elements.
- 15) Damage due to voltage spikes, static discharge, electrical storms, physical abuse, externally controlled device failure and improper fusing.

Buyer inspection and acceptance

Within 8 days after delivery to or receipt of product, buyer (User Customer) shall inform seller (Service Center, representative or dealer) in writing if product is found defective or short in any respect. Failure to so inform seller or any use by buyer of product shall constitute conclusive evidence that seller satisfactorily performed and buyer waives any right to reject product thereafter.

About the Warranty Registration Card

The Warranty Registration Card is to be filled in completely and signed by the buyer, and promptly returned to factory by the buyer or by the Service center, representative or dealer. It certifies delivery and provides a ready reference to help you is securing parts and in answering questions that you may have at a later time.

This card does not put you on a mailing list. Nor is the information on the card made available to anyone else.

We urge the return of this card so that you will receive maximum service benefits.

Cut the Warranty Registration Card on next page along the dotted lines and hand over to the Service Center, representative or dealer who sold and delivered the machine, or mail directly to:

Richiger Maquinarias SA
Avellaneda 661,
S2322BCM Sunchales,
Province of Santa Fe,
Argentina



Machine Description:			
Model #:			
Unit #:			
Date of Purchase:			Date of Delivery: <input type="text"/>
Customer Name:			
Address:			
City:		State:	
Dealer Name:			
Address:			
City:		State:	

The machine detailed above and the Operator's Manual have been received and I understand and have been thoroughly instructed by my dealer about how to operate the machine, Operator's Manual content, equipment care, safe operation & warranty terms, and have personally reviewed the Warranty Policy Terms.

Buyer's signature:



Cut-Out Warranty Registration Card

This form must be filled out and signed by the customer at the time of delivery, and sent to factory within 30 days of delivery.





RICHIGER[®]

WE MEET YOUR PRODUCTION NEEDS

Richiger Maquinarias SA
Avellaneda 661,
S2322BCM Sunchales,
Province of Santa Fe,
Argentina

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WE MEET YOUR PRODUCTION NEEDS

The following Safety Alert Symbols mean **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!** They stress an attitude of “Active Safety” and can be found throughout this Operation Manual and on the machine itself. **BEFORE YOU ATTEMPT TO OPERATE THIS EQUIPMENT, READ AND STUDY THE FOLLOWING SAFETY INFORMATION. IN ADDITION, MAKE SURE THAT EVERY INDIVIDUAL WHO OPERATES OR WORKS WITH THIS EQUIPMENT IS FAMILIAR WITH THESE SAFETY PRECAUTIONS.**



DANGER

Indicates one of the most serious potential hazards. Death or serious injury will occur.



WARNING

Indicates a hazard less serious than one indicated by a DANGER decal. Death or serious injury could occur.



CAUTION

Reminds operators of a safety instruction and identifies a hazard less serious than one indicated by a WARNING decal. Minor or moderate injury may occur.



IMPORTANT

Offers reminders or supplementary information.



Mandatory safety shutdown procedure

READ and follow the instructions on all decals.

REMEMBER! It is the owner's responsibility to inform operators about the safe use and proper maintenance of the machine. This includes providing understandable interpretation of the present instructions to **all** who operate this bagger.

Safety reminders

BEFORE cleaning, adjusting, lubricating or servicing the unit:

1. Remove the ignition key from the power unit engine.
2. Make sure that **all** movement of the unit has ceased. **ONLY** when you have taken this precaution can you be sure it is safe to proceed with any hands-on maneuver. Failure to follow the above procedure could lead to death or serious bodily injury.
3. Disconnect the PTO before starting actual work on the machine.

USER/OPERATOR SAFETY PRACTICES are included in this Operation Manual and are intended to promote **SAFE OPERATION** of the unit.

The safety guidelines presented here are not a substitute for security codes, insurance company constraints or traffic regulations. Make sure your machine is equipped with the elements required in your country for towing or fifth if travel on roads. These guidelines do not preclude the use of good judgment, care, and common sense as may be indicated by the particular job site work conditions.

It is important, in order to avoid accidents involving oneself or others, to be familiar with this machine. The study the location and operation of **all** controls. Survey the controls in a safe area before actually operating in the field.

It is essential that operators be physically and mentally free of mind altering drugs and chemicals and thoroughly trained in the safe operation of the unit. Such training should be presented completely to **all** new operators and not condensed for those claiming previous experience.

Some photographs used in this manual may show Doors, Guards, and Shields open or removed for illustration purposes.

BE SURE that all doors, guards, and shields are in their proper operating positions **BEFORE** operating the unit. **NEVER** operate this unit with any guards or shields not in place. Replace any missing or damaged ones.

Keep hands and feet away from all moving parts. Do not wear loose clothing, scarves or pendants that can get caught in moving parts.

NEVER assume that everybody is as safety conscious as you are.



Personal safety

Whenever the roller mill is working,

Do not allow minors and any unqualified trained personnel to operate or be near the unit unless properly supervised!

Do not allow anyone to ride on the unit at anytime!

Never leave the unit running unattended! Whenever the roller mill is working, tractor should not be left unattended so that PTO shaft can be stopped in the event of an unforeseen situation.

Always wear appropriate personal safety gear as called for by the job or working conditions!

Never wear loose clothing while working around moving parts.

Always be aware of pinch point areas on the unit!

Always keep hands, feet, hair and clothing away from moving parts.

Stop and disengage PTO and shut off tractor before doing any adjusting or servicing to unit.

Never step on or over PTO drive-line at any time.

Always use appropriate personal protection equipment (gloves, head and eye protection gear) when doing maintenance work.

Decals with safety indications and warnings should be strictly heeded, kept in good condition and replaced if necessary.

Pre-operation and operation safety

Follow a regular maintenance program.

DO NOT pull the unit without having safety chains attached to the tractor.

Do not have anyone stand in front, behind, or along side of the machine when machine is running.

Always use a hitch pin with a retaining clip!

Check wheel bolts regularly and tighten them as required.

Check recommended tire pressures of 60 PSI.

Keep hands, feet, hair and clothing away from moving parts.

Make sure all guards are in place before using the bagger.

Replace any parts which show signs of excessive wear, cracking, or likelihood of failure, with original equipment service parts.

Be familiar with the levers controlling all hydraulically controlled components.

Before loading grain, make sure that the unit does not have any foreign object or material lodged in it that could cause equipment damage or personal injury.

Check that PTO slides freely, is not damaged and is secured properly to tractor and unit. Make sure that there is approximately 1/3 over-lap of engagement.

Never use a tractor that is not recommended for the unit you are using. If you have any questions contact your Richiger dealer.

Keep hands, feet, hair and clothing away from moving parts.

Disconnect hydraulic hoses and drive shaft when performing maintenance chores on the machine.

Make sure there is a fire extinguisher on board the tractor and that the date has not expired.

Do not have anyone stand in front, behind, or along side of the machine when machine is running.

When parking unit, leave it hitched to tractor – the latter with brakes applied – to prevent movement.



Towing safety

Drive with caution when travelling with the machine on public roads.
Drawbar hitch pin and retaining clip must be properly secured.
Attach safety chains between tractor and machine for added security on roads.
Verify tire pressures (60 Lbs. standard for work) and wheel bolts.
Hydraulic hoses and hoist remote control cables should be adequately secured in place.
The PTO drive shaft should be properly secured in its vertical stow-away position.

Hydraulic system safety

Do not smoke while working on hydraulic systems!
Never use your hand to search for hydraulic fluid leaks; escaping fluid under pressure can be invisible and can penetrate the skin and cause a serious injury!
USE A SCRAP PIECE OF CARDBOARD TO CHECK FOR LEAKS!
If any fluid is injected into your skin, see a doctor at once! Notify medical staff that there is an injection injury with hydraulic fluid. Injected fluid must be surgically removed by a doctor familiar with this type of injury or gangrene may result!
Do not attempt to loosen or disconnect any hydraulic lines, hoses or fittings without first relieving hydraulic circuit pressure. Also, be careful not to touch any hydraulic components that have been in recent operation because they can be extremely hot!
Always replace hydraulic components with manufacturer recommended replacement parts. Improperly rated components may result in system failure and/or injuries.
Contact your local Richiger dealer to order replacement parts.

Importance of safety signs

Safety signs or decals provide very important information and instructions designed to alert you to dangers and hazards that can be present during operation of this equipment. However, safety sign instructions must be read, understood and followed to be effective.

Replacing safety signs

Safety signs or decals must be kept clean and readable. If they become unreadable for any reason, they must be replaced with an identical replacement decal. Safety decals must also be replaced if parts are repaired or replaced with new parts that do not already include the necessary safety decals.

This operator's manual has been prepared with the latest information available. Read it through before using the roller mill.

The terms “left” and “right” when mentioned in the manual in relation to the machine are used from the operator's point of view, seated in the tractor facing forward.

All information used in the manual was updated at the time of printing, but changes carried out in factory could show some differences between pictures, illustrations and data depicted here and the actual product. The manufacturer reserves the right to modify the models described in this user's manual without prior notice.



WARNING

Some of the pictures in this manual show the machine with protective covers and shields removed in order to show a feature more clearly. Do not operate the bagger if any of the protective covers is missing.

Serial number and operator's manual

Serial number and machine model is important information pertaining to your machine. This information is required when ordering spare parts.

		<input type="text"/>
RICHIGER MAQUINARIAS S.A. AGRICULTURAL MACHINERY FACTORY		
AV. LLANEDA 961 - SUNCHALES (2022) SANTA FE - ARGENTINA WWW.FLEDDORMINSTORAGE.COM		
DESCRIPTION:	<input type="text"/>	MODEL: <input type="text"/>
UNIT N°:	<input type="text"/>	SERIAL N°: <input type="text"/>
WEIGHT:	<input type="text"/>	MANUFACT. YEAR: <input type="text"/>
MADE IN ARGENTINA		

The PTO drive shaft should not exceed a 360 millimeter (14") length, measured from end of PTO stub shaft to drawbar hitch pin (Fig. 1) This is to ensure adequate torque transference between the two sections of the drive shaft.

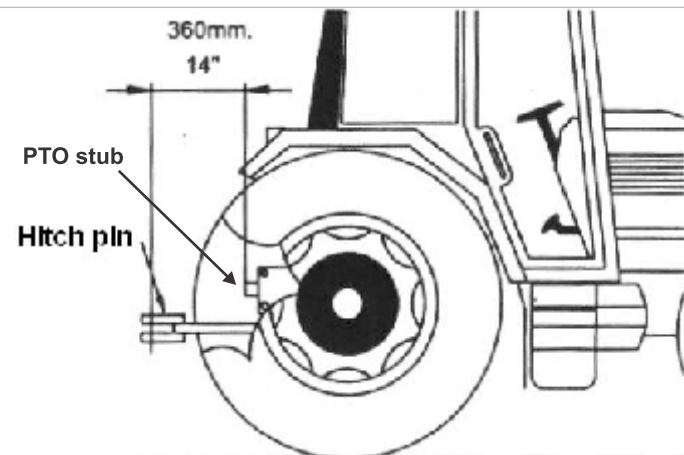


Fig.1

Hitch pin "A" should be 30 to 32 mm. (1 3/16" to 1 1/4") in diameter and have its corresponding retaining clip "B" (Fig. 2). A spacer should be placed between hitch tongue and drawbar to prevent vertical rocking motion.

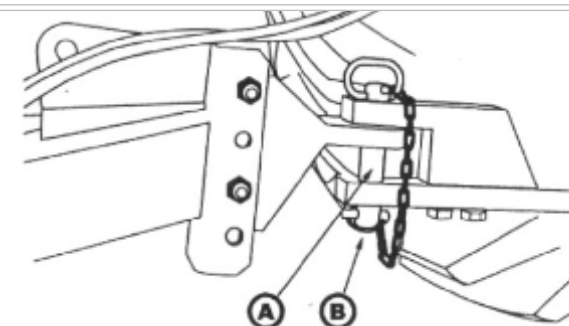


Fig.2

Hoses connect to tractor hydraulic system through 1/2" NPT quick couplings (Fig. 3, "A").

Before connecting hoses to tractor: stop tractor engine and depressurize hydraulic circuit by moving control lever in both directions. Remove female plugs (Fig. 3, "B") and wipe clean coupling ends before connecting.

Before disconnecting hoses from tractor: stop tractor engine and depressurize hydraulic circuit by moving control lever in both directions. Pull out quick connect couplings and cover ends with plugs.

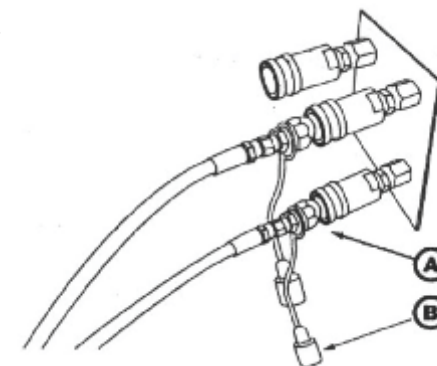


Fig.3



CAUTION

After connecting the hoses, check that they are not left so short that the bagger cannot maneuver without pulling at them, nor too long that there is risk of them snagging a machine part.



Make sure that the correct extremity (i.e., the square bar) of the drive shaft is connected to the tractor's PTO. This is clearly indicated on the shaft itself.

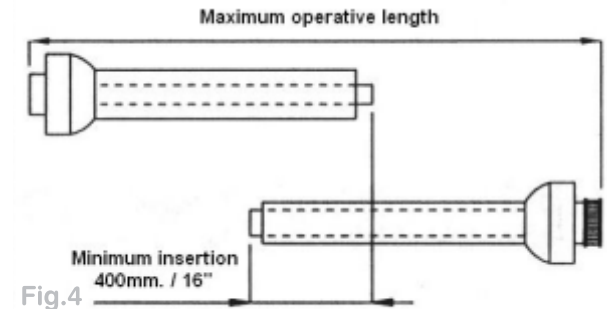


CAUTION

The PTO drive shaft demands that the operator be attentive and use maximum caution around it. Make sure that protection shields installed on tractor and shaft do not interfere with each other or with normal shaft movement during work. Verify there is no excessive angle disparity between connection points: drive shaft should be as horizontal as possible.

Check maximum and minimum lengths of shaft when open and closed. Read following instructions to adjust length:

- Disassemble shaft into its male and female component halves.
- With bagger hitched to tractor and square bar telescoping section (male half) connected to PTO, place round tube section (female half) alongside and verify that there are at least 400 mm. (16") of square bar that will insert (Fig. 4).
- This maximum allowable length should not be exceeded because torsion effort could damage the shaft, or even worse, the sections could come loose.
- Also check that drive shaft is not left so short that adjoining sections could make contact.
- Apply grease to sliding parts.
- When connecting yokes to tractor and bagger, ensure that they lock properly.
- The protection shields have chains attached to their ends so that they can be secured and be prevented from rotating simultaneously with drive shaft. Check that they turn freely before chaining them down.



DANGER

A drive shaft connected to a live PTO that comes loose at the bagger's end will flail around uncontrollably, posing a mortal danger to operator and bystanders, and can badly damage equipment at the very least. To avoid this possibility ensure that:

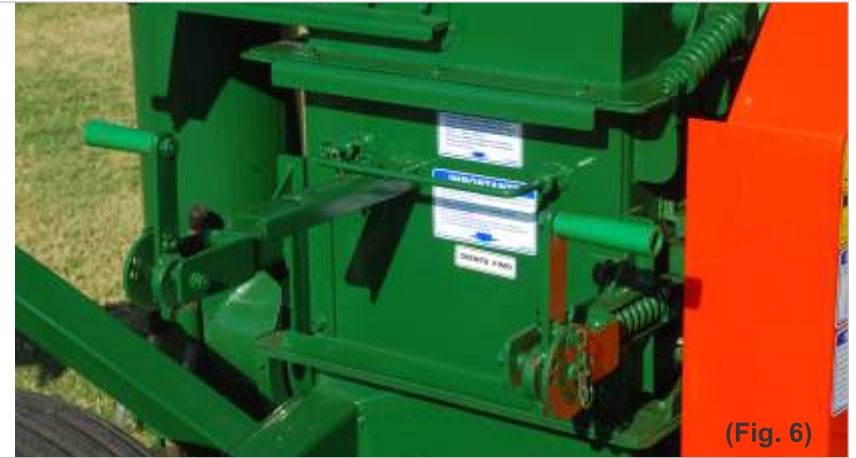
- a) Enough length of square shaft is inserted in adjoining female section
- b) Quick release yokes are securely locked to splined stubs on tractor and bagger
- c) Regular maintenance is carried out and U-joints are replaced if necessary

The M15 roller mill is a take-anywhere, nimble machine powered by a tractor PTO (Fig. 5).



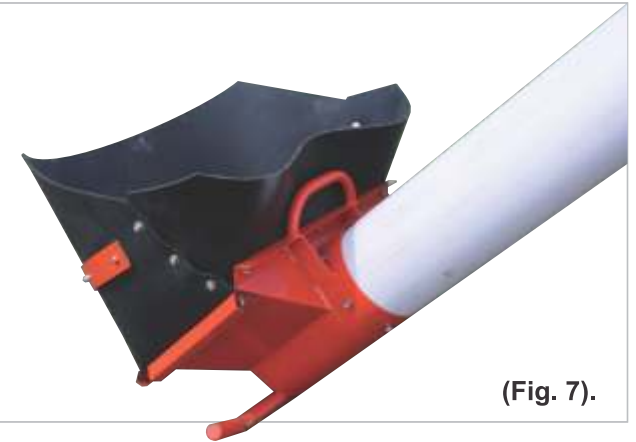
(fig. 5)

Rollers are available with three types of grooving: 4, 6.5 and 9.5 teeth per inch to handle large, medium or small grains. The rollers are driven at differential speeds of 950 rpm and 700 rpm to aid in shearing the grain (Fig. 6).



(Fig. 6)

It has an optional loading auger, which is hydraulically driven and has an outer tube made of plastic for easier handling (Fig. 7).



(Fig. 7).

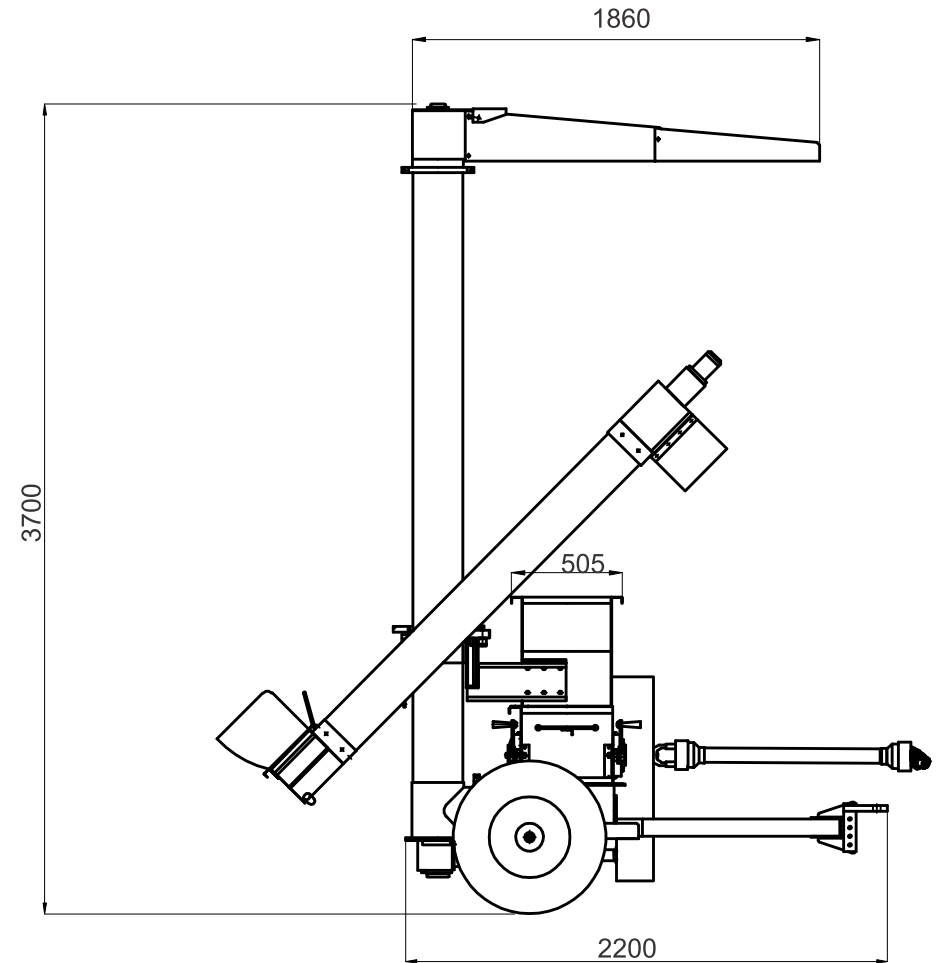
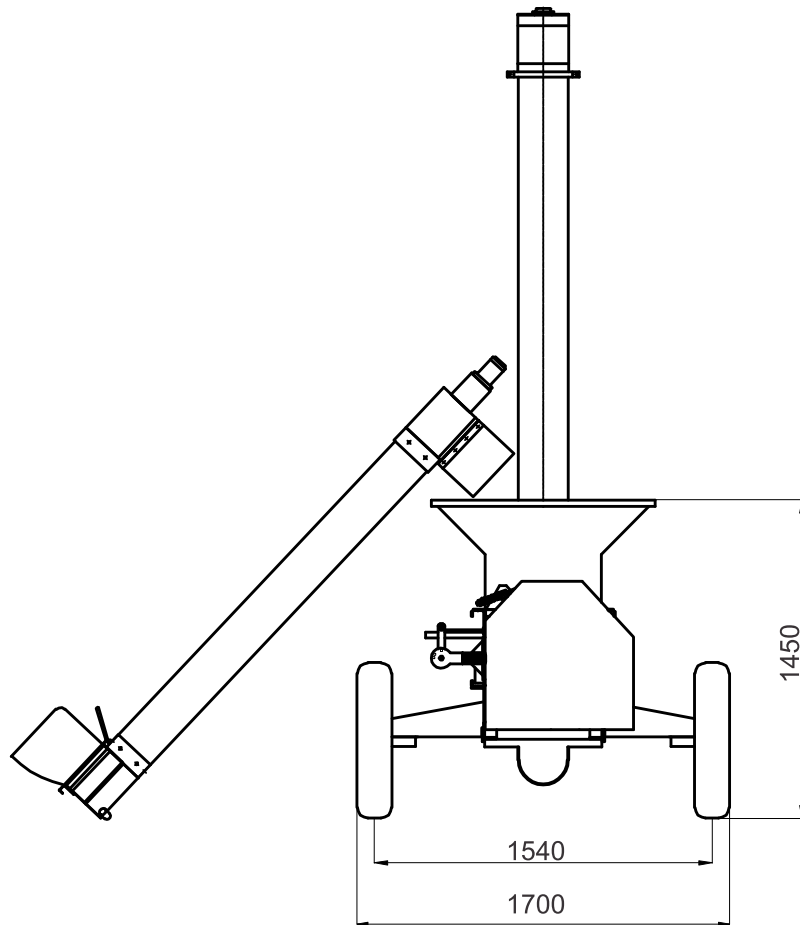
The discharge auger can be tilted to either side and its end spout is extensible and rotates to facilitate proper placement (Fig. 8)



(Fig. 8).

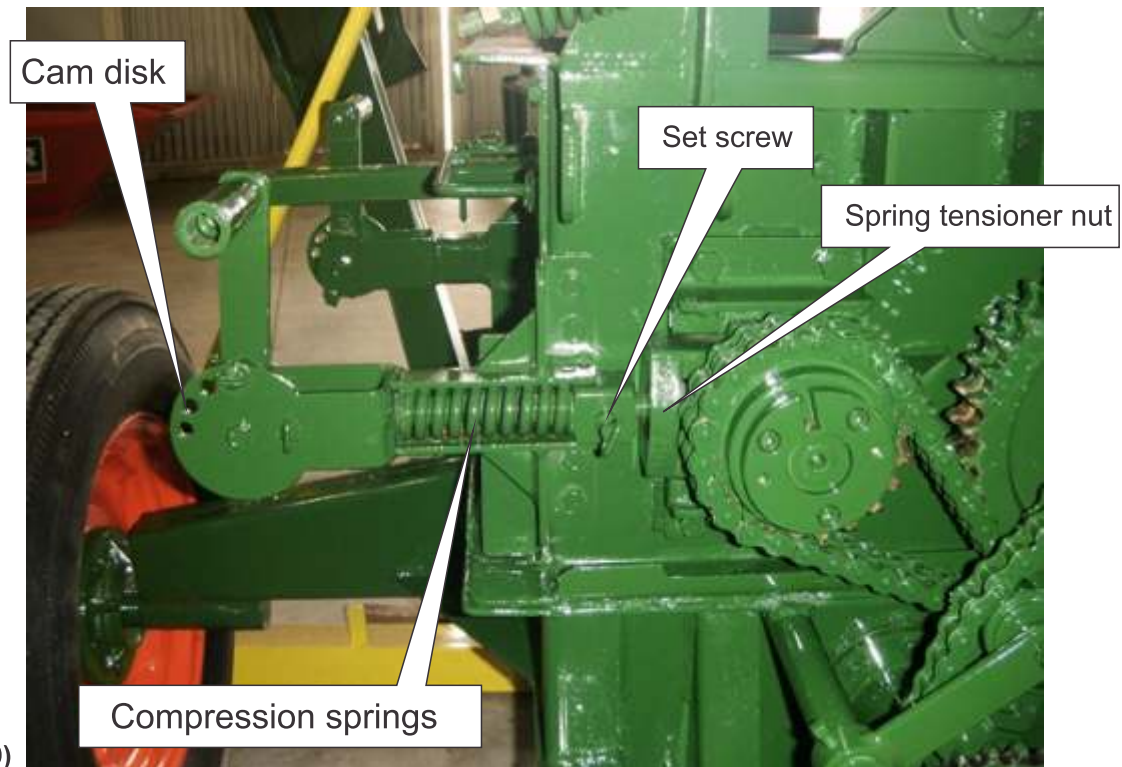
M15

Tractor requirement	55 HP
Drive	Tractor PTO
Capacity	15 tons/hr
Transport position	Same as work position
Discharge	3.3 m (10 ft) auger w/tilt movement left & right, with a revolving and extendable spout
Wheels	6.00 x 16" tires
Weight	690 kg.



The extent to which grain is rolled or crimped (that is, the particle size that is attained), is dependent on the pressure applied by the rollers, and also on the amount of grain going through the rollers at one given time. The tighter the roller compression springs are adjusted, the smaller the resultant particles, and the more power will be employed in grinding them.

Roller pressure is managed through dual spring regulating levers located on the right and left sides of the roller mill (Fig. 9).



(fig. 9)

When the levers are in a vertical position as in Fig. 10 (the front lever is shown, the rear lever is out of the picture), the springs apply no pressure on the rollers. As the levers are lowered, they progressively compress the springs. There are four points at which the spring levers can be locked, each progressively increasing roller pressure from zero to maximum. The maximum spring compression is attained in the last position, with the levers set horizontally (Fig. 11).

NO ROLLER PRESSURE

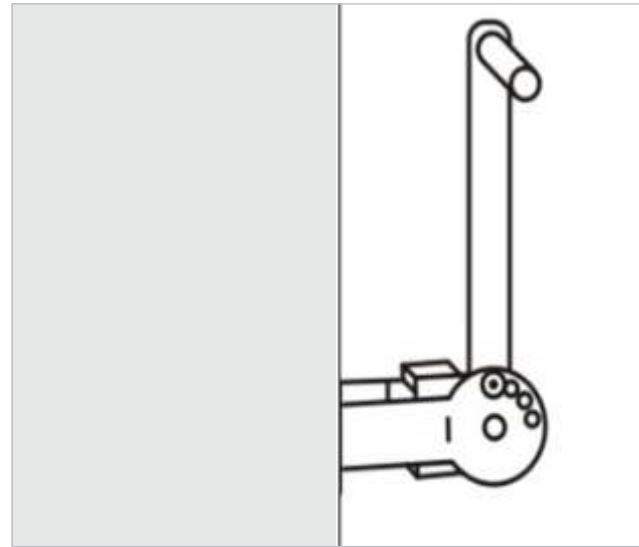


Fig. 10

MAXIMUM ROLLER PRESSURE

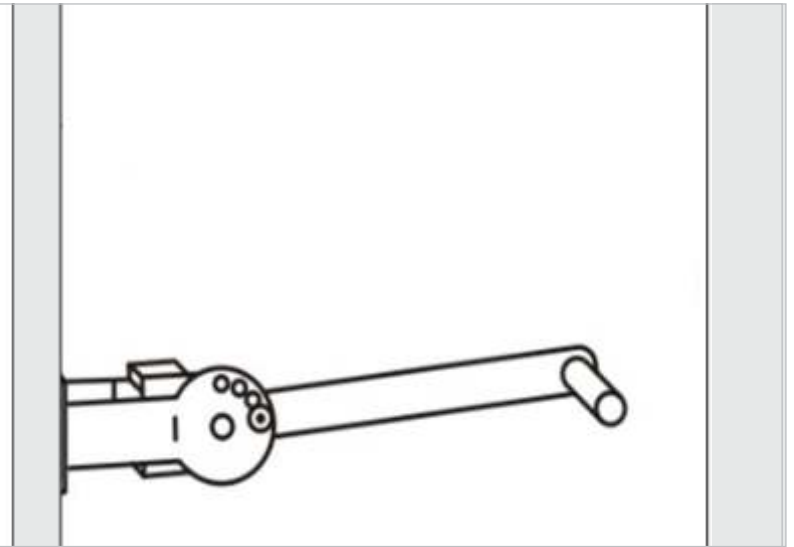


Fig. 11

Controlling grain input

Access or exclusion of grain to the rollers is controlled through a cover plate, positioned just above the rollers, that slides open and shut. This sliding action is accomplished by means of a handle that is either pulled out to allow more grain flow, or pushed in to restrict it. Fig. 12 shows the cover open, and Fig. 13 shows it closed. The intermediate positions are used to control the inflow of grain to the rollers. The handle end rests on a perforated bracket (Fig. 14) and a pin allows it to be locked in several intermediary points. This allows more or less grain to go through the rollers, and to regulate grain particle size.

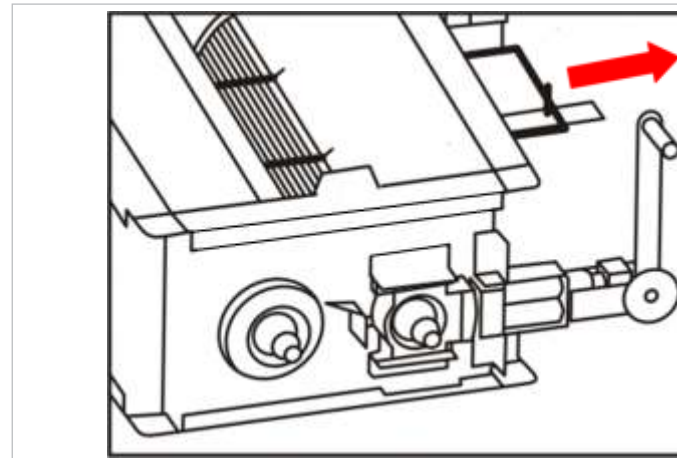


Fig. 12

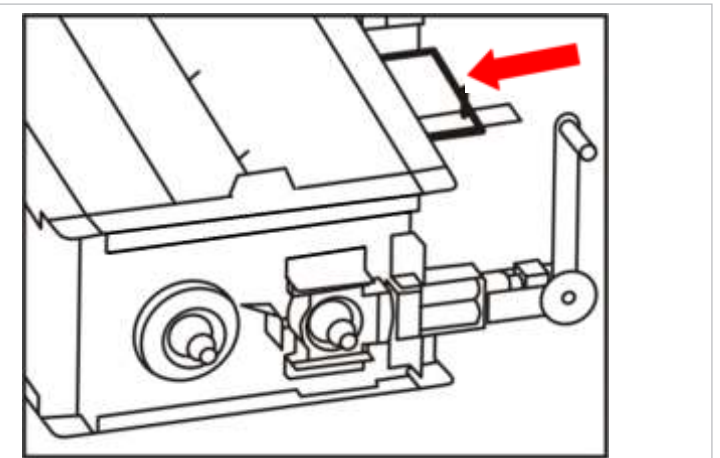
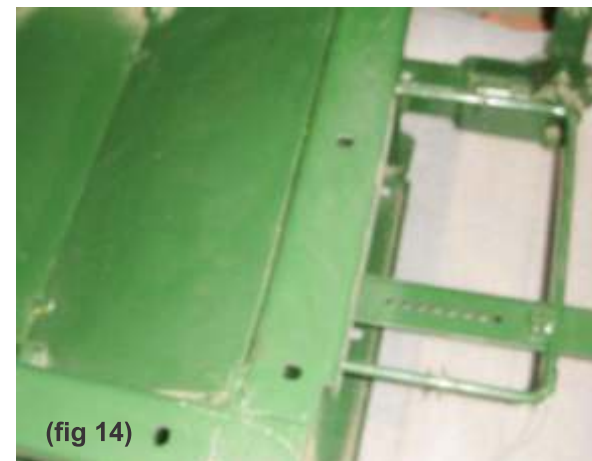


Fig. 13

Upon starting work, the cover plate should be closed (Fig. 13) until the tractor PTO is turning at full 540 RPM and only then opened so as not to place undue load on the transmission. The spring levers should be locked in the second slot position (next to vertical) for lesser compression. Further positions can be tried if the desired particle size is not obtained. In general, it is recommended that one begin work with the lowest compression and evaluate the resulting product before increasing roller pressure. This is because as the rollers increase their crushing force, they consume more horsepower. Yield per unit of time will also tend to diminish as roller pressure increases. The spring lever position can be modified during work, while the rollers are actually turning



If desired particle size is not reached with maximum spring compression, it is still possible to obtain smaller sized particles. The cover plate above the rollers has several intermediate positions, determined by positioning and locking the handle (Fig. 14). This constrains grain flow in varying degrees. If more grain fragmentation is desired than is achieved with full spring compression, the cover plate can be closed partly. As material passes through at a slower rate, the rollers perform a more thorough grinding job that results in smaller particle size.

Points to remember during operation and once work is finished

The roller mill mechanisms are geared for standard 540 rpm tractor PTO's.

Compression spring pressure can be modified during operation, while the rollers are turning.

Upon beginning operation, the roller cover plate should be left closed. Only when the rollers are turning at their normal speed should the handle be pulled out, opening the cover plate and allowing passage of grain to the roller mill.

If the feed rate is excessive and the rollers should come to a standstill while powered by the PTO, first stop the entrance of grain by closing the cover plate, and then release the compression springs by setting levers in the vertical position (Fig. 10), which will dislodge the wedged grain as the rollers start turning again. Then open the cover plate partially and reset the springs so that grain can be processed with more ease. Never attempt to introduce any object between the rollers to try to dislodge a buildup of material.

Too much roller pressure under certain conditions could also cause stalling, since output will fall as roller pressure increases. To lighten the load, spring tension can be lessened as long as grain particle size remains adequate.

If the roller mill stalls, one important point to make sure of is that the problem is not due to transmission problems.

Before ending operation, close the cover plate and allow a few seconds for the rollers to turn free of grain, in order to prevent a buildup of material.



IMPORTANT

The roller mill's hopper is fitted with a safety grid placed at the point where the sides taper down to the hopper's vertical section, a few inches above the rollers' cover plate. This safety grid must stay in place, under all circumstances, when the machine is in use.



DANGER!

**DEATH OR MAIMING OF THE MOST SEVERE KIND WILL RESULT IF THE ROLLER MILL TRAPS A HUMAN LIMB, HAIR OR CLOTHING!
NEVER INTRODUCE ARM OR HAND INSIDE THE HOPPER COMPARTMENT!**

The operator must never introduce any foreign object in the hopper while the machine is working, be it with the intention of loosening compacted material or for any other reason. The operator's hand or arm must never go past the hopper edges.



DANGER!

**DEATH OR MAIMING OF THE MOST SEVERE KIND WILL RESULT IF THE ROLLER MILL TRAPS A HUMAN LIMB, HAIR OR CLOTHING!
NEVER REMOVE THE HOPPER SAFETY GRID!**



DANGER!

MOVING PARTS, ESPECIALLY THE ROLLERS, WILL MAIM OR KILL IF THEY TRAP CLOTHES OR A HUMAN EXTREMITY!

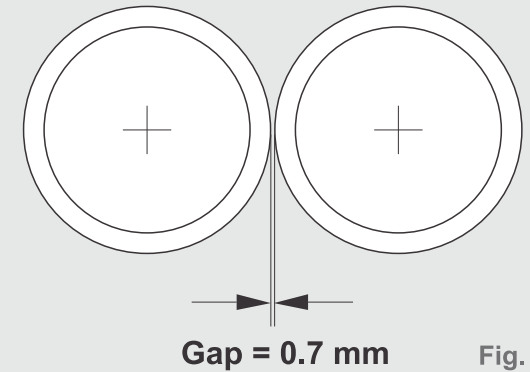
Do not wear loose clothing or jewelry near moving parts. Never remove protection shields. Never introduce hand or arm inside the grain hopper when the machine is working or its drive is connected to a tractor PTO.

Roller spring tension

The roller springs as adjusted in factory are uncompressed. The springs carry only a very slight load when the levers are in vertical position, enough so that there is no slack but still allowing them to turn around if rotated by hand. Their length when not compressed is 105 millimeters and every millimeter that a spring is shortened adds about 20 kg (44 lbs) of pressure on the rollers. Loosening the set screw and readjusting the spring tensioner nut (Fig. 9) can be done if necessary, but under no circumstance should supplemental bushings be inserted to achieve more compression. When the springs lose too MUCH tension over time, they should be replaced by new springs.

Gap between rollers

The gap separating the rollers is 0.7 millimeters and is preset in factory (Fig. 15), so normally there is no need to reset it. Nevertheless, a grinding noise would indicate there is contact between both rollers, so in that case the gap should be checked. To this end, a feeler gauge is employed. The location of the gap clearance screw is indicated in Fig. 9. This gap clearance screw is in turn locked in place by a set screw, also shown in Fig. 9. On inspection, both ends of the roller should be checked in order to ensure uniform separation along roller length.



Drive chain adjustment

The drive chain should be inspected regularly to ensure that adequate tautness is maintained. To this end, compression spring "A" and chain tensioner "B", shown in Fig. 16, can be adjusted accordingly.

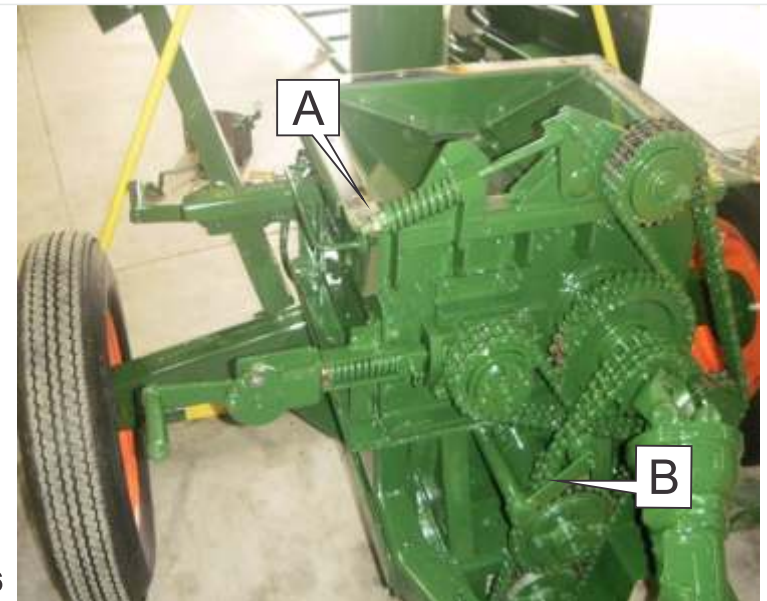


Fig. 16

Before its initial use, it is advisable that operators run through and lubricate the greasing points indicated in the lubrication chart and diagram below, in order to become familiar with them.



WARNING!

Always disconnect drive shaft from tractor PTO when performing lubrication work.

Lubrication chart

Pos	Section	Part	Grease fittings	Lube	Frequency
1	Drive	Chain & tensioner	Apply w/brush	Grease	50
2	Roller unit	Bearings	4	Grease	25
3	Drive shaft	Plastic protectors	2	Grease	25
4		Telescoping sections	Apply w/brush		25
5		U-Joint	2		25
6	2nd drive	U-joint	2	Grease	25
7	Gearbox	Gearbox	-	Oil	100 ⁽¹⁾
8	Horizontal auger	Collar	1	Grease	50
9	Discharge auger chain conduit	Chain	Apply w/brush	Grease	25
10	Wheels	Hubs	-	Grease	100
11	Load auger	Gears & chain	Apply w/brush	Grease	50
12	Discharge auger	Collar	1	Grease	50

(*) Check oil level every 100 hours. Use SAE 140 gear oil (1 liter/1 quart per gearbox)



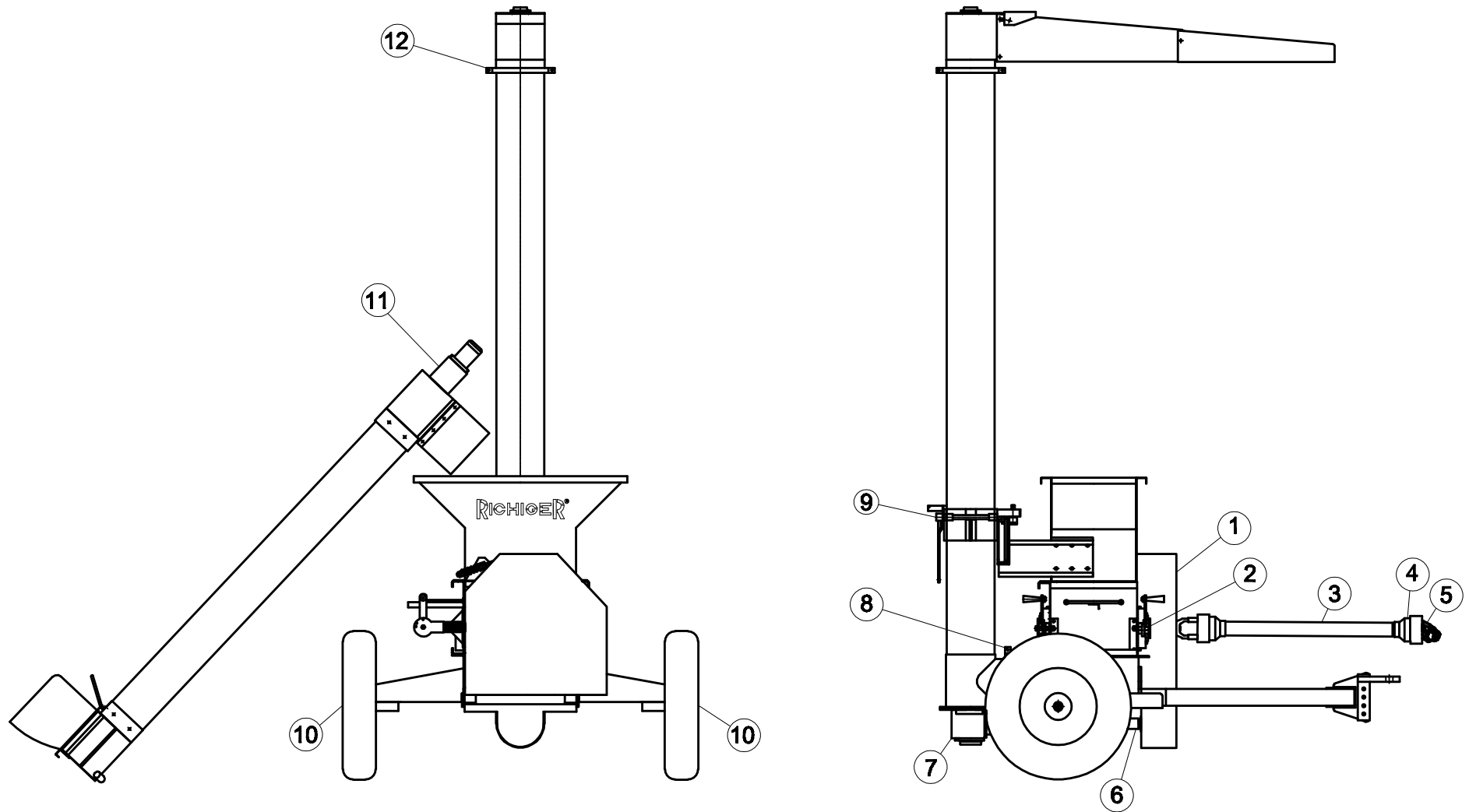


Fig. 17

It is important, in order to avoid accidents that affect oneself and others, to be familiar with the operation of agricultural machinery.

Therefore, please follow these guidelines:

1. Allow only people with a working knowledge of the machine, controls and safety rules to operate it.
2. Verify that all safety and instructional decals are in place and in good condition. If they're not, replace them.
3. For machinery that uses the PTO:



- a) Confirm that all protective shields are in place and do not interfere with moving parts. Drive shaft shields should be secured with chains to prevent them from turning.
 - b) Follow instructions regarding minimum coupling lengths for drive shaft sections. Disconnection during operation can have dire consequences.
 - c) Check correct PTO rpm's indicated for your machine, either 540 or 1,000.
4. Do not tow agricultural machinery with automotive vehicles at high speeds on public roads. They are mostly designed to be towed by tractors on country roads at low speeds of not more than 15 mph.
 5. Make sure the total width of machinery you are towing on public roads does not exceed what is legally permitted. Use signaling lights or banners, or travel with a signaling companion vehicle.
 6. Do not allow people on machines, either working or in transport.
 7. Check that all nuts and bolts are properly tightened.
 8. Follow maintenance indications detailed in user's manual.
 9. Do not attempt to revise or repair anything if there are moving parts or tractor's engine is running.
 10. Hands, feet, hair and loose clothing are especially at risk of being snagged by moving shafts and driveline components. Operator should use adequate shoes and tight fitting clothes, and avoid using rings, watches, chains or other types of jewelry. He should also wear head, eye and ear protection if necessary.
 11. In all machines equipped with hydraulic circuits used for elevation or rotation, do not perform maintenance work without ensuring that:
 - a) Engine is off.
 - b) Nobody has ignition keys to inadvertently turn engine on.
 - c) Safety stops are in place
 - d) There are supporting stands between machine and ground.
 12. Ensure that operator is familiar with fire hazard procedures and proficient with a fire extinguisher.

Following all safety routines involves a high degree of responsibility. Be responsible to yourself and others.

Hand signals have been developed to provide a uniform means of communication between workers on the ground and equipment operators. They are especially useful when noise, distance, or language barriers make voice communication difficult.

There are eleven recognized hand signals found in ASAE Standard S351. They are illustrated here in figures.

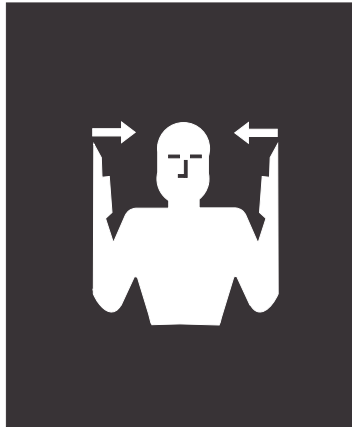


Fig. 1 THIS FAR TO GO.
Put hands in front of face, palms facing each other. Move hands together or farther apart to indicate how far to go.



Fig. 2 COME TO ME.
(May mean "Come help me" in an emergency). Raise arm straight up palm to the front and move arm around in a large circle.



Fig. 3 MOVE TOWARD ME FOLLOW ME.
Look toward person or vehicle you want moved. Hold one hand in front of you, palm facing you, and move your forearm back and forth.

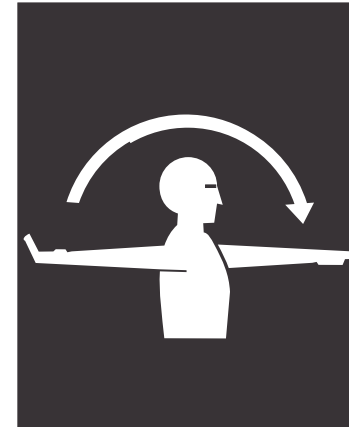


Fig. 4 MOVE OUT TAKE OFF.
Face desired direction of movement. Extend arm straight out behind you, then swing it overhead and forward until it's straight out in front of you.



Fig. 5 STOP.
Raise arm straight up, palm to the front.

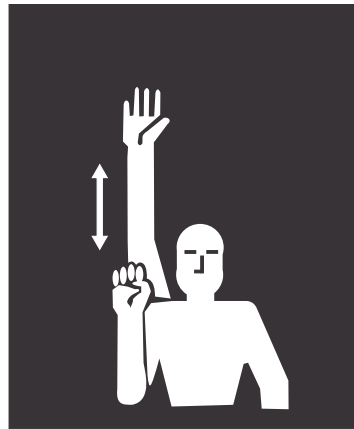


Fig. 6 SPEED IT UP.
Clenching your fist, bend your arm so your hand is at shoulder level. Thrust arm rapidly straight up and down several times.

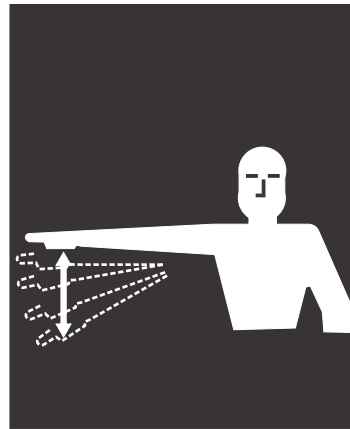


Fig. 7 SLOW IT DOWN.
Extend arm straight out to the side palm down. Keeping arm straight, move it up and down several times.

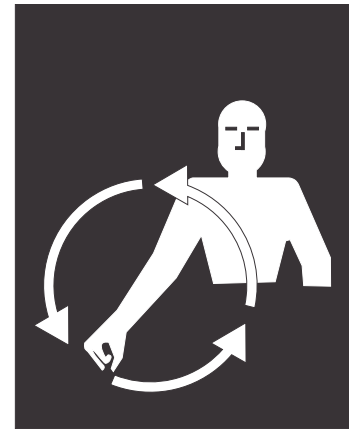


Fig. 8 START THE ENGINE.
Move arm in a circle at waist level as though you were cranking an engine.

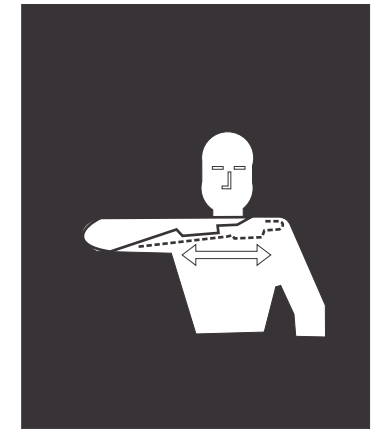


Fig. 9 STOP THE ENGINE.
Move your right arm across your neck from left to right in a "throat-cutting" motion.

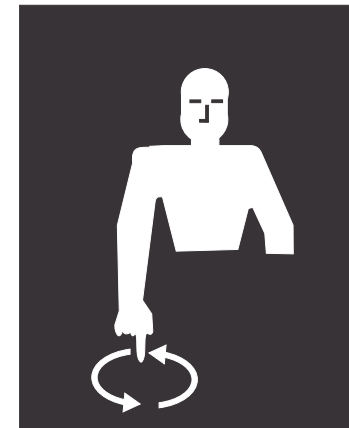


Fig. 10 LOWER EQUIPMENT.
Point toward the ground with the forefinger of one hand while moving the hand in a circle.



Fig. 11 RAISE EQUIPMENT.
Point upward with forefinger, while making a circle at head level with your hand.

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