

Instruction Book



XLR Horizontal Mixer Feeders



Stationary Model



Trailer Model

Manufactured By:
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Warranty Information

Helm Welding (1983) Limited warrants to the original user that goods & equipment of its manufacture are free from defects in material and workmanship under normal use and service from the date of shipment, or where applicable from the date of installation by the dealer for the periods of time indicated below:

- ◆ one year parts & labour for the mixer assembly
- ◆ two years parts & labour for the planetary and reversing gearboxes (if applicable)
- ◆ three years parts & labour for the scale system

Helm Welding (1983) Limited will, at its option, repair or replace parts (f.o.b. point of shipment) that are found to be defective.

This warranty is on these further terms and conditions:

1. The equipment must be installed (when applicable), operated and maintained in accordance with Helm Welding's instructions.
2. The equipment will fulfill the function it is designed to perform but due to wide variation in farm animals, management practices on farms and other conditions beyond the equipment manufacturer's control, no specific level of performance is guaranteed.
3. Excluded from the warranty are damages caused by late delivery, ordinary wear and tear, erosion or corrosion, lightning and other acts of God, accident or alteration, repair or attempted repair or adjustments made by persons not authorized by Helm Welding (1983) Limited, by misuse, abuse or improper handling or operation of the equipment by the purchaser or any third party or poor or no servicing of machine.
4. Helm Welding (1983) Limited shall in no event be responsible for any consequential damages of any nature whether special or general, direct or indirect.
5. Equipment, parts or accessories manufactured by others and not sold under Helm Welding (1983) Limited trademark(s) carry the warranty and remedy provided by their manufacturer only.
Any gearbox related component that has been opened or tampered with will void the warranty on that component. Do not attempt any repair on any of these items if seeking warranty coverage.
6. Any warranty or claim, which differs from that herein set out is unauthorized by Helm Welding (1983) Limited and is the warranty solely of the party making it. Helm Welding (1983) Limited makes no other warranty express or implied and the original user's sole remedy for breach thereof is as set forth above.

To properly qualify for warranty, all maintenance criteria and service schedules must be followed (including oil changes and greasing).

As well, the pre-delivery check list and warranty registration forms must also have been completed at the time of product delivery and returned to us the manufacturer for proper record keeping. In extreme warranty situations, the service record must be provided to Helm Welding upon request at any time.

Failure to follow and provide any of the above information will void warranty.

The warranty registration card must be completed and mailed within thirty (30) days of delivery or installation of the equipment to validate this warranty.

Note: Credits or replacements will not be issued unless documentation is complete and correct.

Date of installation _____ Serial Number _____

Your Luck//Now Dealer _____

Name _____

Address _____

Telephone Number _____



This Copy Must
Be Returned To
HELM WELDING (1983) LIMITED

Helm Welding (1983) Limited
P.O. Box 158
Lucknow, Ontario, Canada
N0G 2H0

Horizontal Series
Pre-Delivery Check List & Warranty Registration

- 1. Inspect machine for loosened bolts during transit (eg. wheel bolts, hitch).
- 2. Inspect machine for loose bearing locking collars.
- 3. Check all roller chains for alignment.
- 4. Check oil in all gearboxes and/or planetary drives.
- 5. Ensure that PTO drive line has been fitted properly and holding bolts tightened to proper tightness.
- 6. Grease all bearings and chains.
- 7. Run machine and make sure all functions work properly before delivery to user.
- 8. Fill oil bath (horizontal mixers only) with good grade of gear oil to the center of the chain on the bottom sprocket.
- 9. Check all door fasteners to ensure proper fit.
- 10. Check weigh bars of weighing system to ensure that bolts holding bars in place are tight and no damage has been done during transit.
- 11. Check all scale wires for any damage during transit.
- 12. Power the scale indicator and do a weight test by putting some weight on each corner of the mixer.
- 13. Ensure client has the scale manual.
- 14. Check to make sure all safety equipment is in place.

Dealer Signature: _____ Date: _____

Client Signature: _____ Date: _____

Client Address: _____

Model # _____ Serial # _____

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ATTENTION:
 Technical Customer Service

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 Fax: (519) 529-3260

Number of pages _____
 including front-page _____

Reader's comments

Helm Welding (1983) Limited is committed to providing excellent documentation. Please, fax or write us your comments on this manual.

Your suggestions help us improve our technical information.

General

Please check appropriate square.

Agree Disagree

- | | | |
|--------------------------|--------------------------|---------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | * I can find the information I want |
| <input type="checkbox"/> | <input type="checkbox"/> | * The table of contents is thorough |
| <input type="checkbox"/> | <input type="checkbox"/> | * Instructions are complete |
| <input type="checkbox"/> | <input type="checkbox"/> | * There are enough illustrations |
| <input type="checkbox"/> | <input type="checkbox"/> | * Illustrations are clear and helpful |

Comments:

Name & Address

Important Information

This manual has been prepared to provide the owner and operator with the information required to properly operate and maintain his unit. It is important that you, the owner or operator, read this manual prior to operating or performing any maintenance work on the unit. This manual is for all mixer models.

Date of purchase: _____

Serial Number: _____

Information needed for ordering parts.

Model Number: _____

Indicator Model #: _____ Serial # Of Head: _____

Remote: _____ Serial # Of Head: _____

Bar Serial # _____

Planetary Gearbox: Type _____ Ratio _____

Serial # _____ Date _____ Code _____

Serial # _____ Date _____ Code _____

Reversing Gearbox Serial # (if equipped) _____

Special Options: _____

Table of Contents

1. Safety	1
2. Assembly	7
Mixer PTO	7
Discharge Chute	8
Discharge Chute Manual Flap	8
Safety Grate	9
3. Start-Up	10
New Mixer Break-in	10
Tractor Requirements	11
Loading a Mixer	12
4. Operation	14
Trailer Operation	14
Stationary Operation	15
Overnight Or Short Term Storage	16
Scale Operation	17
5. Maintenance	19
Trailer Models	19
Discharge Maintenance	19
Roller Chain	20
Determination of Chain Wear	21
Installing New Chain	22
Sprocket Inspection	22
Grease Bearings	22
Planetary Gearbox	23
Adjustable Hitch	23
PTO Drive Shaft	23
Rear Drive Compartment	25
Door Adjustment	25
Grease Auger Bearings	26
Stationary Units	26
6. Maintenance Schedule	27
Service Record*	28
7. Lubrication Specifications	29
8. Appendix - Digi-Star Scale Setup	30

1. Safety

SAFETY TIPS!

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH!



THIS SYMBOL MEANS

ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. They are limited typically to hazards, which cannot be guarded for functional purposes.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that occur when guards are removed. Also 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 dealer or

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Equipment Safety Guidelines

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. 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, study the following precautions and insist that those working with 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 during repairs, replace the shield prior to use.

Replace any **CAUTION, WARNING, DANGER** or instruction safety decal that is not readable or is missing.

Do not attempt to use this equipment under the influence of alcohol or drugs.

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 adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed thorough understanding of the safety precautions and how it works.**

To prevent injury or death, use a tractor equipped with Roll Over Protection System (ROPS). Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

*Never exceed the limits on a piece of machinery. If its ability to do a job, or to do so safely is in question - **DO NOT TRY IT!***



Safety Sign Care

- 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 Distributor or the factory.

How to install safety signs:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before removing the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with exposed sticky backing in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.



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 experience to do the job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
- Always order and install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be placed on the equipment.



Before Operation

- Carefully study and understand this manual.
- Do not wear loose-fitting clothing that may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable protective hearing and eye protection be worn.
- Keep wheel lug nuts or bolts tightened to specific torque.
- Ensure that agricultural implement tires are inflated evenly.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow maintenance safety instructions included in this manual.
- Make sure there are no tools lying on or in the unit.
- Do not use the equipment until you are sure that the area is clear, especially of children and animals.
- Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.
- Don't hurry the learning process or take the unit for granted. Ease into it and familiarize yourself and other operators with its operation before use.
- Use a tractor equipped with Roll Over Protection System (ROPS) and fasten your seat belt prior to starting the engine.
- Do not allow anyone to stand between the tongue or hitch and the towing vehicle when backing up to the equipment.



During Operation

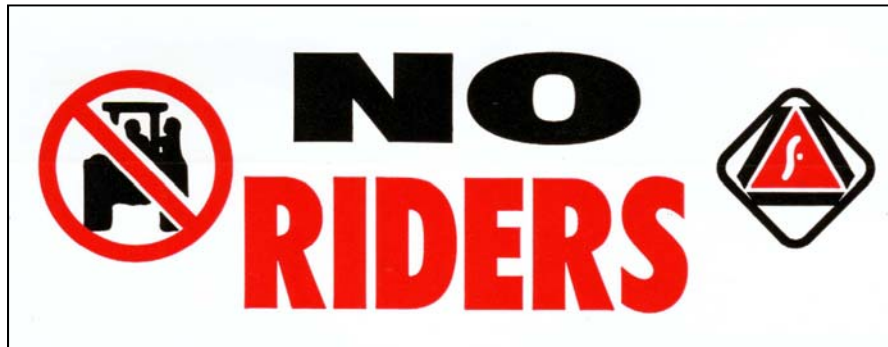
- Install a safety chain by crossing the chains under the tongue and secure to the draw bar cage or hitch or bumper frame.
- Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with higher noise levels and quite cabs, as you may not hear people shouting.

- **NO PASSENGERS ALLOWED** - Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.
- Keep hands and clothing clear of moving parts.
- When halting operation, even periodically, set the brakes, disengage PTO, shut off engine and remove ignition key.
- Pick the most level route when transporting. Avoid edges of ditches or gullies and steep hillsides or inclines.
- Allow for unit length when making turns.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside unit.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow procedures.



Transport Operation

- This unit is **NOT** designed to be towed behind a pick-up truck or any other highway vehicle. Always tow with a tractor of adequate size and weight capable of towing and stopping safely.
- *All highway regulations and lighting requirements must be followed.*
- Comply with federal, state/provincial and local laws governing highway safety and movement of farm machinery on public roads.
- Plan your route to avoid heavy traffic.
- Watch for obstructions overhead and to the side while transporting.
- **Don't Drink and Drive**
- Be observant of bridge load ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- Obey all general traffic laws.



Before operating the mixer, carefully read the instructions in the following chapters. Proper handling of the equipment is the basis of trouble-free use. The equipment must be used only for the intended application.



SW1: Proper handling of the equipment is the basis of trouble-free functioning. The equipment **MUST** be used **ONLY** for intended use.

	⚠ WARNING
	<p>To Prevent Serious Injury or Death</p> <ul style="list-style-type: none"> Avoid unsafe operation or maintenance. Do not operate or work on this machine without reading and understanding the operator's manual. If manual is lost, contact your nearest dealer for a new manual. <p style="text-align: right; font-size: small;">SW1</p>



WARNING
Turning gears, chains and augers can cause serious injury. To avoid injury, keep hands, loose clothing and jewelry away from the mixer while operating.

⚠ DANGER
<p style="text-align: center;">ROTATING DRIVELINE HAZARD</p> <p>To prevent serious injury or death from rotating driveline:</p> <ul style="list-style-type: none"> Keep all guards in place when operating. Operate only at 540 RPM. Keep hands, feet, hair and clothing away from moving parts. <p style="text-align: right; font-size: small;">SW104</p>



SW104: Operate at correct PTO speed. **DO NOT** exceed 540 RPM's. If the machine was ordered with 1000 RPM option, **DO NOT** exceed 1000 RPM's.

⚠ DANGER
<p style="text-align: center;">To Prevent Serious Injury Or Death From Moving Parts:</p> <ul style="list-style-type: none"> KEEP AWAY, Moving parts can crush and dismember. Do not operate without guards and shields in place. Disconnect and lockout power source before adjusting and servicing. <p style="text-align: right; font-size: small;">SW108</p>



SW108: Keep chain drive guards closed when operating. **STOP** unit to lubricate. An exception to this is on Horizontal models where a SFCW bearing is used. These bearings must be greased with the machine operating and the shields closed.



SW103: Mixing Augers are very dangerous - NEVER climb at the top of the mixer or throw feed into the mixer from above by hand.



SW806: Discharge chute augers MUST only be operated when the mixer is discharging and all personnel are clear.



SW205: Do not raise/lower discharge chute unless unit is ready to discharge and all personnel are clear.



None of our current Mixer Feeders are designed to be towed behind a pick-up or highway vehicle. All units must be towed by a farm tractor of size and weight capable of towing and stopping safely when required.

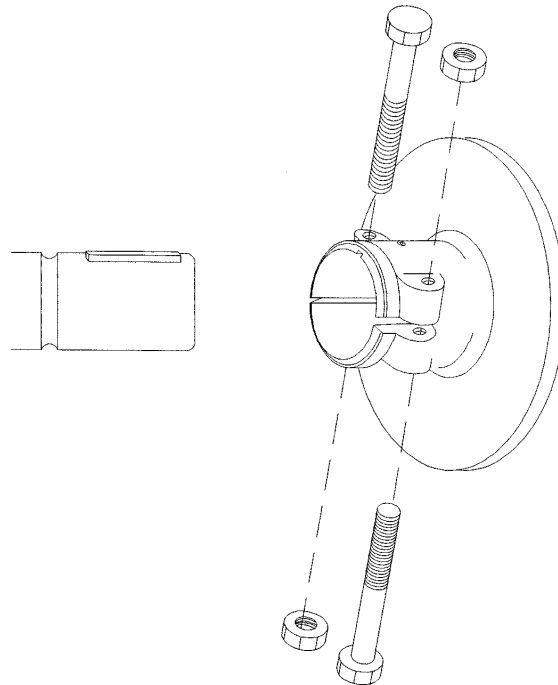
All highway regulations and lighting requirements must be followed.



2. Assembly

Mixer PTO

1. Remove bolts from yoke on mixer end of PTO and loosen set screw.
2. Using a flat screwdriver to "spread" end of yoke to slip over shaft while making sure keyway is lined up with key. Slide until bolts will pass through groove on shaft.
3. Tighten bolts evenly on yoke running opposite way from each other.
4. Tighten set screw over key.
5. Connect safety chain to hole on PTO shield.
6. Connect "quick-connect" end to tractor PTO.



Danger: PTO Spline Adaptors

It is dangerous to use a PTO spline adaptor to change your tractor PTO shaft spline to accommodate a different implement PTO spline. Match the right tractor PTO spline and speed with the PTO driveshaft provided with the implement. *Use of a PTO spline adaptor will void the warranty on your implement PTO shaft and driveline.*

Discharge Chute

1. Using a forklift or loader, lift chute close to proper height at bottom of door. Line up hinges by hand, slide the hinge pin through the aligned holes (see fig. 1). Note : the hinge pin may be assembled through the front side or the rear side depending on the mixer model.
2. For a fixed position chute, using supplied bolts, determine the height required and bolt side shields into place.
3. Assembly of hydraulic raise and lower cylinder & height adjustment bar. Attach cylinder from the top lug mounted on the bin to the bottom lug mounted on the discharge chute, making sure that the height adjustment bar is positioned on the outside of the lug brackets on both bottom and top (see fig. 2).
4. Connect hydraulic hoses (in-line flow hose is tagged).

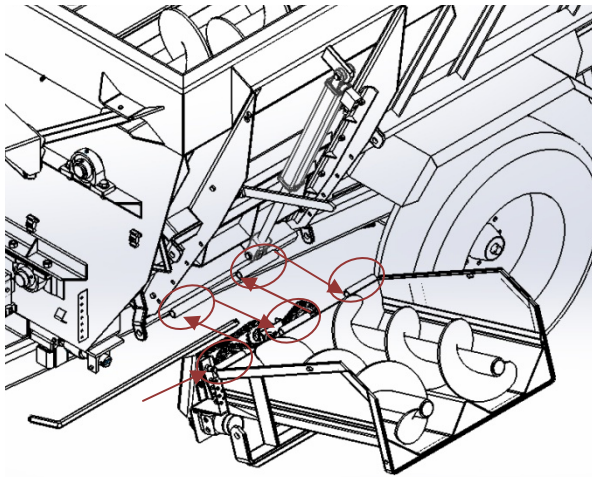


Figure 1

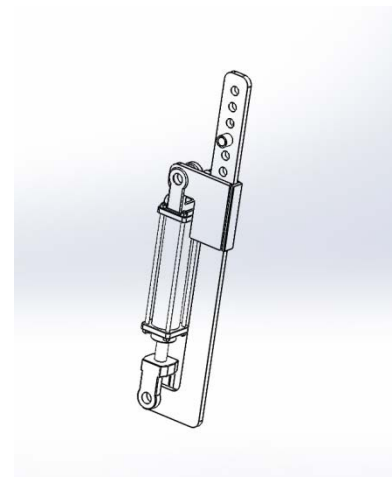
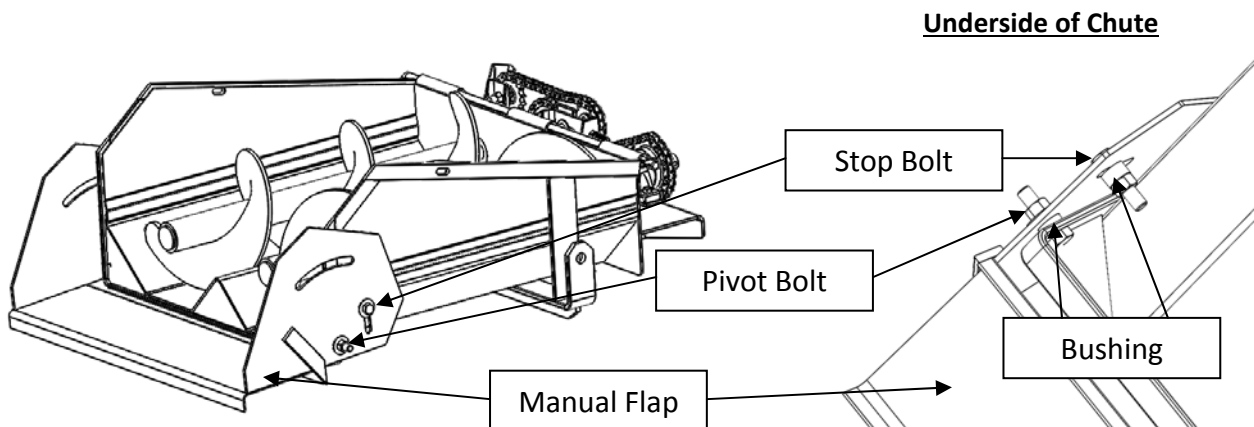


Figure 2

Discharge Chute Manual Flap

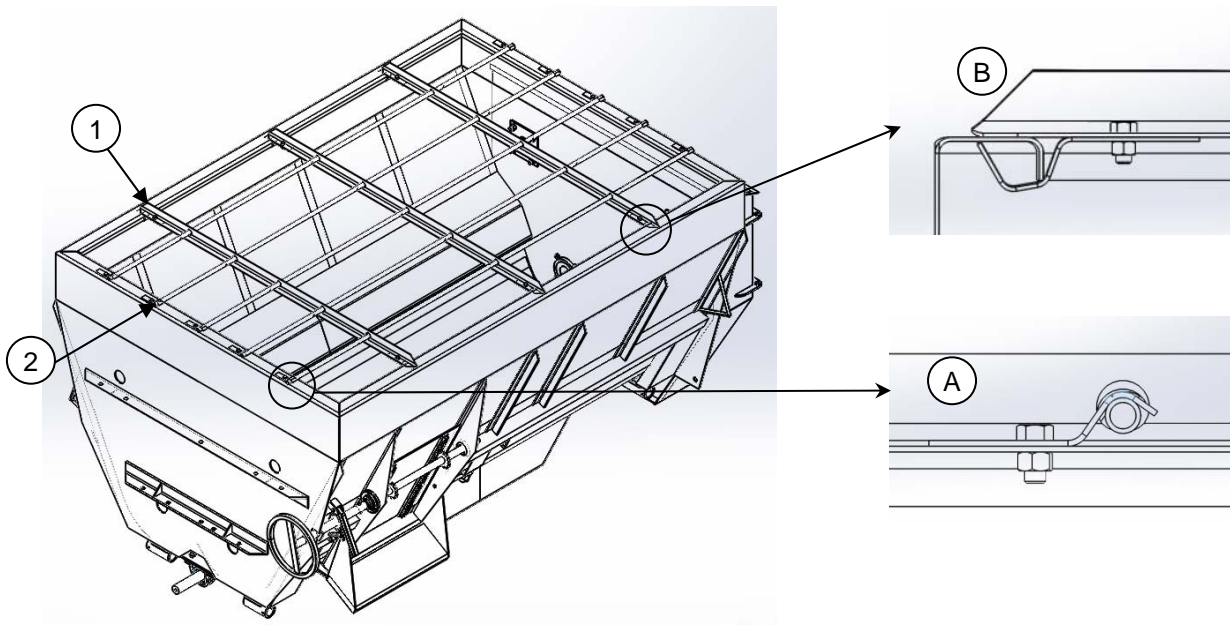
1. Attach Manual Flap to discharge chute by attaching the Pivot Bolt to each side of the flat bar at the end of the discharge chute. The bolt goes on from the inside out, and the bushing fits in the hole on the flatbar.
2. Attach Stop Bolt to the manual flap only, with bolt on outside and bushing and nut on the inside. This acts only as a stop, and can be adjusted as needed.



Underside of Chute

Safety Grate

1. Set part marked #1 on top of mixer wagon.
 2. Slide tubes (#2) through part #1.
 3. Tighten tubes onto mixer using bracket (A) as in diagram.
 4. Tighten down formed angle (#1) using bracket (B) as in diagram
- Ensure formed angles are evenly spaced across the length of the mixer.



3. Start-Up

New Mixer Break-in

Note: retorque the sprocket bushing bolts to the standard specification for that size grade 5 bolt after the first 10 to 15 loads.



Grade 5 Torque Spec's

1/4-20	114 in-lb.
5/16-18	234 in-lb.
3/8-16	416 in-lb.
7/16-14	670 in-lb.
1/2-13	1020 in-lb.

On trailer models check the wheel lug bolts to make sure that they are tightened. Tighten the rim bolts to minimum 280 ft./lbs. Check tire sidewall for rated pressure

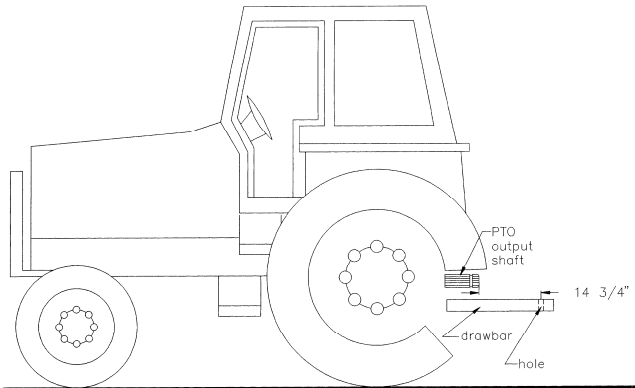


DO NOT EXCEED MAX. TIRE PRESSURE!

Tractor Requirements

Use an adequately sized tractor that can handle the PTO, hydraulic, and maneuverability requirements of the unit.

Ensure that the tractor drawbar is adjusted properly to meet PTO properly. It should measure 14 3/4" from the end of the PTO output shaft to the drawbar hole.



It should measure 14 3/4" from the end of the PTO output shaft to the drawbar hole for 540rpm models and 16" for 1000 rpm models.



The pto should be checked for proper minimum and maximum length to ensure adequate tube overlap and prevent the shafts from bottoming out.

The PTO speed requirement of the standard unit is 540 RPM. 1000 RPM is an option on bigger units. The PTO horsepower required to operate the unit will vary according to the ration being mixed, volume of the load, and will be determined by actual use.

The tractor must have dual hydraulic outlets to meet the hydraulic requirements of the mixer unless an integral hydraulic system has been installed. One outlet is needed to operate the discharge door and a second outlet to operate the discharge spout and discharge augers. The hydraulic discharge drive system requires a minimum of 7 gal/min for the hydraulic motor to maintain auger speed. A minimum of 1500 PSI is required to operate the door and drop chute under load.

The empty weight of the unit plus the weight of the ration must be added together to obtain the gross mixer weight. The size and weight of your tractor must be adequate to start, maneuver, and stop the total load under the ground conditions and environment that will be encountered during operation. Ensure you have a drawbar of sufficient strength which will accept a hitch pin of the same size as is provided in the mixer hitch. Use a drawbar pin that has a locking device on the tractor drawbar.



Loading a Mixer



Note: When loading the mixer, it **MUST** be coupled to a tractor of adequate size and weight to handle the total weight of the mixer plus the weight of the products to be loaded. **NEVER LOAD THE MIXER STANDING ON THE JACK ALONE!**

Position the unit on level ground and set the parking brake to prevent the unit from moving. Make sure the discharge door is closed before loading. Start the PTO with the engine at idle. Increase the engine speed to the rated PTO speed for loading. During loading, **DO NOT** strike the augers with the loading device. **Avoid feed lengths over 6" long, hard frozen silage, chunky and foreign materials like dirt or rocks.**



The mixer is designed to provide maximum mixing efficiency when loaded from 40% to 90% of the total volume. This will ensure that enough feed ration is in the unit to allow the lower augers to move it forward and the upper augers to move the ration to the rear, giving a more complete mix. If you are loading the unit slowly you may not want to start the mixing action until the lower augers are completely covered. Overloading the unit will decrease the efficiency of the processing action. One characteristic of an overloaded unit is that the feed is forced over the front, rear, or sides of the mixer. **Always load material to the front of the mixer to allow the ration to fall in the rear.**

The mixing time will depend on the ration being processed and will vary. When you are confident it is processed as desired, you should stop the mixing action until you begin the unloading process.



Note: When loading hay or other commodities manually, never climb above the side of the mixer. You could fall into the processing chamber while the unit is running causing serious injury or death.



Never use your hands to throw hay or any feed into the mixer. You could get entangled in hay or twine and pulled into the chamber.



Always use a fork or shovel when loading the unit manually.

Quality, type, and condition of your hay are very important points to consider when obtaining hay to be used in your mixer. The unit is intended for only **good quality alfalfa hay**. This means that the alfalfa hay must be fine stemmed and without the coarse stems found in some hay. It is not recommended that the unit be used to mix grass hays, corn stalks or other non-alfalfa hays or grasses. The hay should have 15% moisture content or less. In some conditions, the unit will process hay with 15 - 20% moisture, however, the amount of hay used should be decreased by up to 50%, and loaded much slower. Never use hay with moisture over 20% as it may wrap around the augers, pack against the mixer wall or between the augers. If this happens, severe damage may result to the drive system. Many operators use a moisture tester to confirm the moisture content of their hay. This is very helpful when you do not know the conditions that the hay was put up or stored.

The hay can be loose or in square bales. NEVER try to put whole round bales into the unit. The best procedure to follow is to cut the twine and pile the hay in a commodity shed. After the bales are cut use a loader to gently break them apart by pushing them into a pile. The commodity shed will prevent the hay from becoming wet from the weather.

Breaking bales apart also makes it easier to load smaller quantities at a time and helps prevent large slabs of the bale from falling into the mixer. You should always make sure that all the twine or wire has been removed from the hay prior to loading which prevents the twine from wrapping the augers, flighting and kickers. Excessive amounts of twine can affect the torque requirements of the unit and cause component failure.

Before loading the mixer, position the unit on level ground and set the parking brake to prevent the unit from moving. Make sure that the discharge door is closed before loading. Engage the PTO with the engine at idle. Increase the engine speed to the recommended RPM for loading.

When beginning the loading process, load the dry commodities first. This will allow the hay to be broken and processed down to a point where the other commodities will fit into the box. The size of the mixer will determine how much hay you can load at a time. As you put more hay into the unit you should decrease the amount of each bucket to allow the new hay a chance to be fully processed. The time between buckets of hay should be adequate to allow the hay to go through the auger cycle several times before the next load of hay is added.

As the hay is loaded into the mixer it will be moved to the rear of the bin by the top augers. As it approaches the rear of the mixer it should fall down into the bottom augers which will bring the hay forward to the door area. The hay will now move upward and begin the flow cycle again. As you load more hay you must always maintain room in the rear of the unit for the hay to fall. This helps break the hay apart and also prevents the hay from packing against the rear wall. If the hay does pack against the rear of the unit and this flow is bridged, you can damage the auger drive system by overloading it. Overloading can occur by loading the unit too quickly, loading with too much hay, or loading the unit with wet hay.

Allow the hay to process by running the unit with the hay for a period of time prior to adding the commodities. If you have additional dry commodities such as grain, you can add them first with the hay. Once you introduce wet commodities such as silage, etc. into the mixer, the hay will begin to absorb the moisture immediately, become tough, and the breaking process stops. This tough hay with long stems can also pack between the augers and sides and cause excessive torque loads on the drive.

After the dry commodities have been added you can begin to add the wet ingredients at a rate that allows the mixer to process them evenly. After all of the ingredients have been added and mixed you are ready to feed.

If the mixer stops running with the PTO still turning, the slip clutch may have been released or broken indicating an excessive torque situation, which must be corrected. The Slip Clutch Assembly is located near the front of the mixer on the PTO drive shaft on trailers.

4. Operation

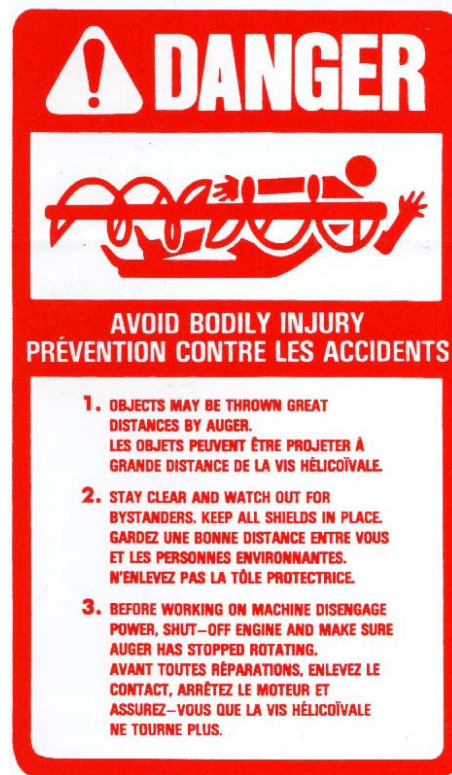
Trailer Operation

During the unloading procedure, the mixing augers must be in operation to move the feed to the mixer discharge door. This is done by engaging the PTO of the tractor.

The discharge operation is controlled by one of the below instructions based on how the mixer is equipped.

Fixed Position Discharge Chute - One hydraulic remote operates the discharge augers, a separate hydraulic remote opens and closes the mixer door. The discharge augers must be running at full operating speed before the mixer door is opened.

Hydraulic Raise & Lower Discharge Chute - One hydraulic remote operates both the chute raise & lower cylinder and the discharge augers. A second hydraulic remote opens and closes the mixer door. To operate, engage the remote to lower the chute. Once the chute has reached the furthest down position, the discharge augers will begin to rotate. The discharge augers must be running at full operating speed before the mixer door is opened.



To begin feeding into the bunk, open the discharge door to the desired height. This will allow the feed to flow to the discharge. Put the tractor in gear and drive along the feed bunk. The tractor should be operated at the rated PTO speed and lower gears used for the proper ground speed. The operator will determine the proper speed of the tractor, distance to the feed bunk for the chute height, and how far to open the discharge door.

To stop the unloading process, close the discharge door and shut off the tractor PTO. Allow the discharge chute to fully empty and then stop the discharge augers from rotating. On hydraulic raise & lower chutes, lifting the discharge chute will stop the discharge augers from rotating.



Stationary Operation

During unloading, the mixing augers must be in operation to move the feed to the discharge door. This is accomplished by turning on the drive motor for the mixer. To unload, use the hand wheel to open the discharge door, and use the locking handle to hold the door in place while unloading. To stop unloading, hold the hand wheel to prevent the door from shutting rapidly and release the locking handle. Let the discharge door close to stop the feed and turn the electric motor off.

⚠ WARNING	
MOVING PART HAZARD	
<p>To prevent serious injury or death from moving parts:</p> <ul style="list-style-type: none"> • Close and secure guards and shields before starting. • Keep hand, feet, hair and clothing away from moving parts. • Disconnect and lockout power source before adjusting or servicing. • Do not stand or climb on machine when operating. 	
<small>SW404</small>	



Overnight Or Short Term Storage

Never allow feed ration or water to remain in the mixer or discharge. If feed or water is allowed to remain in the unit, the metal will deteriorate due to the corrosive nature of the feed. Also, during freezing temperatures, moist hay may freeze causing serious damage. The unit should be completely emptied and cleaned prior to storage. There are two drain plugs located in the rear of the mixer bottom that may be removed. The discharge also has drain holes provided for cleaning.



Scale Operation

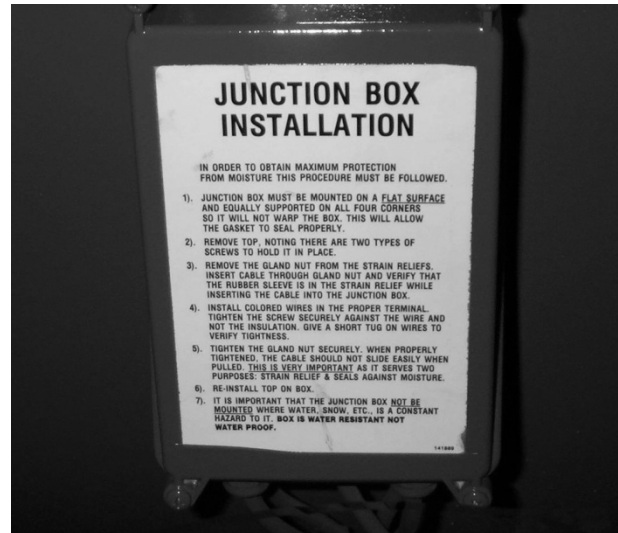
The detailed operation instructions for your specific scale are supplied in another manual. Please review it prior to use. We recommend a yearly scale system check and recalibration by your local Mixer Electronics Department to catch problems before they become costly and cause downtime.



Checking Scale

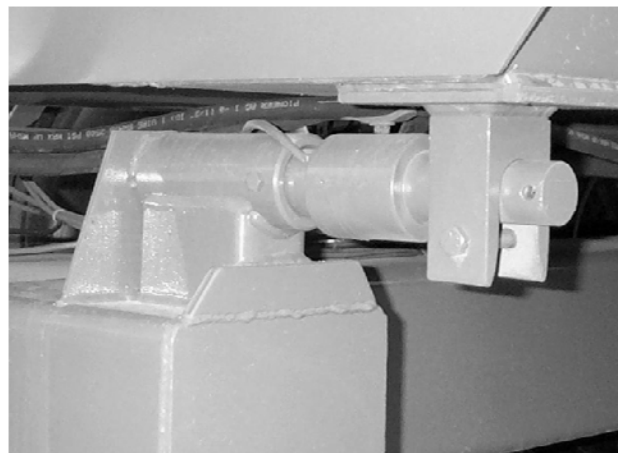
A. Weight Readings Are Unstable (fluctuating)

1. Make sure Indicator and Scale Bars are grounded.
2. Make sure all screw terminals in the Junction Box and Indicator are tight.
3. Check for mechanical binding in the mixer.
4. Check for damaged Scale Bar cables.
5. Check for moisture in Junction Box.
6. If moisture is apparent, the Junction Box should be dried out using a fan, hairdryer, etc.



B. Weight Readings Are Not Accurate

1. Check Scale Bar mountings for mechanical binding or interference.
2. Check mechanical binding for interference in the mixer.
3. Make sure all Scale Bars are properly mounted.



In the case of Digi-Star Scales, Scale Bars should be mounted as follows:

Stationary Applications

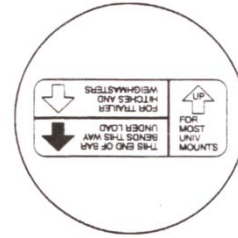
*the "Bar Bends This Way Under Load" arrow (black arrow) on the end of the bar points UP.

Trailer Applications

*the "Bar Bends This Way Under Load" arrow (black arrow) on the end of the bar points DOWN.



Stationary Applications
(Black arrow up)



Trailer Applications
(Black arrow down)

- C. Scale can be checked to see if all bars are operating in a similar fashion by placing a known weight on each corner of the mixer. This should be done only when unit and tractor are placed on level ground with the parking brake set, the engine SHUT OFF, and the wheels blocked, both front and back. In the case of a stationary mixer the power must be shut OFF at the main power source and locked.

IMPORTANT

If the Scale is required for a feeding program and cannot be corrected with this Scale Check, the mixer should be taken out of service immediately, until the Scale can be repaired by your Local Dealer.

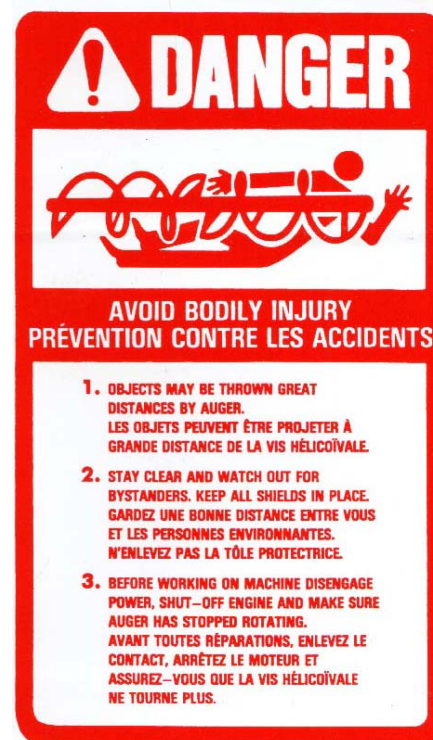
5. Maintenance

Trailer Models



Warning: STOP the unit before making adjustments or service.

The trailer models use the tractor's hydraulic pump and control valves to operate the discharge door and discharge chute. The discharge augers are powered by a hydraulic motor connected with the discharge chute (optional). When the discharge chute is fully lowered, the fluid is diverted to the hydraulic motor which turns the augers. When raising the discharge chute, fluid is stopped from rotating the augers backwards by a one way check valve. If the discharge augers operate in reverse, contact your dealer. The discharge door is controlled by two separate hoses; one to make the door open and the other to close the door.



Discharge Maintenance

The hydraulic motor drives the discharge augers with the use of drive chain. Be sure to oil the chain regularly to extend chain life. On the mixer discharge a chain tensioner is used for taking up chain slack. The auger bearings can be greased at the grease bank on the front side of the discharge with grease lines going to the bearing housings. Keep the bearing housings filled with grease. There are two bearings found on each auger and must be kept adequately lubricated to force grease through the bearings until the grease is visible. This extends their life by forcing out water and contaminants.



It is necessary to keep water from accumulating in the bottom of the discharge. To clear the water you should open the clean out slides or holes at the bottom of the discharge allowing the water to drain out. In severe applications, it may be necessary to grease the bearings daily due to excessive use or in heavy moisture conditions.

For units with grease nipples located on the drop chute hinge, grease the hinge for smooth operation.

⚠ **DANGER**



To Prevent Serious Injury Or Death From Moving Parts:

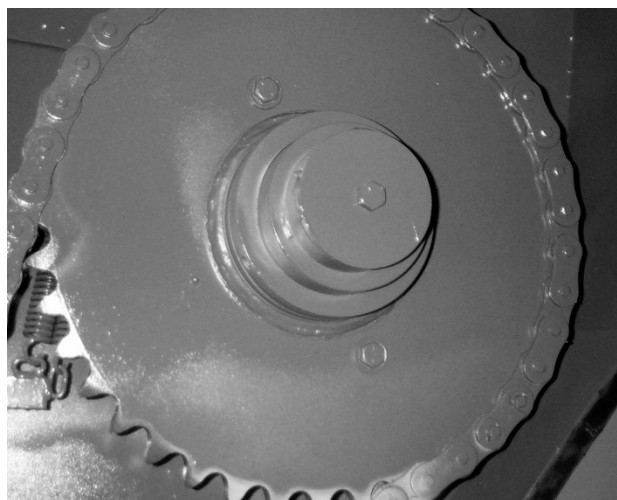
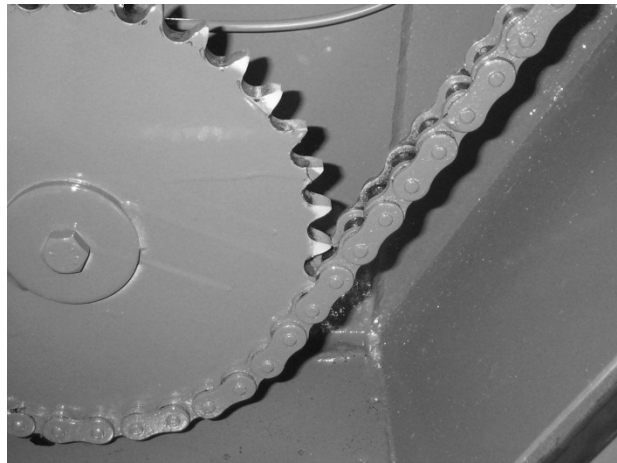
- KEEP AWAY**, Moving parts can crush and dismember.
- Do not operate without guards and shields in place.
- Disconnect and lockout power source before adjusting and servicing.

SW108

Roller Chain

Roller chain is a dependable means for the transmission of power. For maximum efficiency, anticipate the need for chain replacement. This avoids unexpected delays in operation. Joint wear, overload conditions, metal fatigue or pitch elongation will limit the life of the chain, therefore, the following information will aid in determining when the chain requires replacement. During operation, chain pins and bushings slide against each other as the chains engages, wraps, and disengages from its sprockets. Even when the parts are well lubricated, some metal to metal contact does occur, and these parts will wear. This progressive joint wear elongates chain pitch, causing the chain to lengthen and ride higher on the sprocket teeth.

The number of teeth in the large sprocket determines the amount of joint wear tolerated before the chain jumps or rides over the ends of the sprocket teeth. When this critical elongation is reached, the chain must be replaced.



Determination of Chain Wear

An evaluation of a chain's useful service life requires an analysis of pitch elongation. By placing a certain number of pitches under tension, elongation can be measured. When elongation equals or exceeds the limits in **Table 1**, the chain should be replaced.

- A. Remove chain from sprockets and lay on a smooth, horizontal surface or suspend vertically. To remove the slack from a chain in a horizontal position, refer to **Table 2** and apply the load indicated for that size of chain. If the chain must be measured while on the sprockets, remove the slack on a span of chain and apply sufficient tension to keep the chain taut.
- B. When the chain is properly tensioned, consult **Table 1** for the number of pitches that should be measured. The chain size and the number of teeth in the largest sprocket determine the number. Pitches should be measured from centre to centre of the pins. If the chain has offset links, do not include them in the measured segment.
- C. Select the appropriate column according to the number of teeth in the largest sprocket and compare the published figure with the measurement taken. If the measurement equals or exceeds the figure in **Table 1**, the chain should be replaced. If a chain breaks or fails due to broken pins, sidebars, or rollers, emergency temporary repairs may be done to avoid a long shut down. However, replacement of the entire chain is preferred for the following reasons:
 1. If one section of a chain has broken due to fatigue, other sections were subject to the same fatigue and are likely to fail.
 2. If the chain has been broken by a single high overload, parts other than those at the point of failure are usually bent or weakened.

Table 1

Chain Number ANSI	Pitch In Inches	Number of Pitches	Nominal Length	Number of Teeth in Largest Sprocket		
				0-67	68-73	74-81
				Maximum Elongation (Inches)		
60	0.75	16	12.0	12.38	12.34	12.31
80	1.00	24	24.0	24.75	24.69	24.63
100	1.25	20	25.0	25.75	25.69	25.63
120	1.50	16	24.0	24.75	24.69	24.63
140	1.75	14	24.5	25.25	24.19	25.13

Table 2

Chain Measuring Chart	
Chain Number	Applied Load In Pounds
60	70
80	125
100	195
120	289
140	386

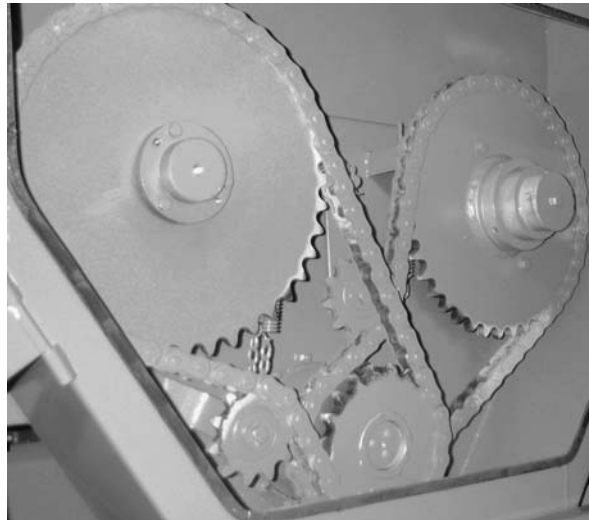
Installing New Chain

Before installing a new chain, carefully check the teeth on the sprocket. If the teeth are worn to a hooked shape, the sprockets should be replaced to ensure full performance and long life from the new chain. Proper tension is essential when installing new chain. Tight chain causes an additional load which increases wear on chain joints, sprockets and shaft bearings. Slack chain produces vibration that may result in excessive chain wear, noise, or shock loading.

Sprocket Inspection

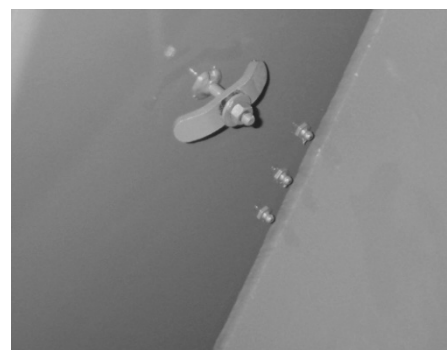
Check for these common sprocket problems which lead to replacement.

1. Wear on the sides are due to misalignment.
2. Tooth wear (indicated by hooking).
3. Broken teeth.
4. Cracks that might lead to failure.
5. Wobbling of sprockets on shaft.



Grease Bearings

For the best results, the grease should be pumped into the bearings slowly until a very slight bead of grease forms around the bearing seals on the shaft. This bead, in addition to acting as an indication of adequate lubrication, provides additional protection against the entry of foreign matter. To prevent premature bearing failure, always ensure that the grease nipple, grease gun end, and the grease itself, is clean and free of any dirt, grit, paint or foreign matter.



Planetary Gearbox

To check the oil in the gearbox, remove the check plug(s) located on the side of the gearbox. Add oil until it reaches the level of the check plug.

To drain the oil, remove the drain plug(s) located on the bottom of the gearbox. Always replace the drain plug(s) and tighten immediately after the oil is drained. Refill per the above instructions with the correct oil found in the Lubrication Spec's Chart.



Adjustable Hitch

The bolts holding the adjustable hitch must be kept tight at all times. Check bolts regularly.

If bolts need to be replaced, they must be Grade 8 bolts.

Use an adequate length of bolt to ensure the shoulder contacts the mounting plate at each side.

The bolts holding the hitch to the frame should be alternating (one pointing one way, one the other).



PTO Drive Shaft

(Trailer Models)

It is **important** that the owner/operator read this section and the information supplied by the PTO manufacturer. The trailer unit incorporates a PTO coupling shaft containing several important features and warnings:

1. **Safety Shields**

These shields should be left in place at all times to prevent injury.

2. **Slip Clutch**

The PTO shaft used on current models uses a slip clutch mechanism to protect the tractor and mixer from serious damage. The slip clutch springs should be tightened to a length of 33 mm for 540 rpm units and 33.5 mm for 1000 rpm units.

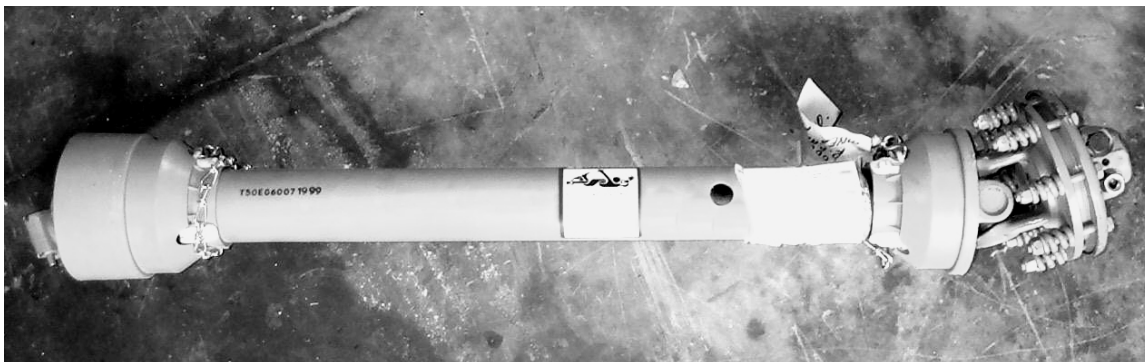
3. Do not wear loose clothing when operating the PTO, or when near any rotating equipment.

4. When operating stationary PTO driven equipment, apply the tractor parking brake lock and block the rear wheels front and back.



5. To avoid injury, do not clean, adjust, unclog or service PTO driven equipment when tractor is running.
6. Never exceed the recommended operating speed for the particular equipment in use.
7. PTO shafts must only be used for their intended purpose and are designed for only that machine.
8. Ensure clamping collar bolts are securely tightened to fasten on to mixer input shaft. Tighten set screw on key.
9. Push locking pin and simultaneously push PTO drive shaft onto PTO shaft until the locking device engages. Ensure that the PTO shaft is securely connected before use.
10. The maximum joint angles must be observed or serious injury and damage could occur.

Continuous Operation-	25 deg.
Short duration-	80 deg.
Non-rotating-	80 deg.
11. Avoid contact between the PTO shaft and tractor or implement.
12. The chain is intended to prevent the shield from rotating against non-moving parts, preventing shield damage. A properly installed chain will increase the service life of the shield.
13. Chains must be fitted so as to allow sufficient rotation of the shaft in all positions. Be sure that chain does not become entangled with drawbar hitch or other restrictions during operation or transport.
14. The PTO drive shaft must not be suspended from the chain.
15. ***Lubricate with lithium based grease before starting work and every 8 operating hours.*** Clean and grease the PTO drive shaft before each period of prolonged non-use. The molded nipples on the shield near each bearing are intended as grease fittings and should be lubricated every 8 hours of operation. Telescoping members must have lubrication to operate successfully regardless of whether a grease fitting is provided. Those without fittings should be pulled apart and grease should be added manually. Check and grease the guard tubes in winter to prevent freezing.



16. ***Slip clutch regular maintenance (every 50 hrs)*** - remove the bolts and springs and disassemble the two slip clutch halves. Clean all rust, dirt and debris from the steel plates and slip clutch discs (do not lubricate). Inspect the slip clutch discs for wear, replace if necessary. Retighten the bolts according to the measurements given in item 2. on the previous page.

17.

Rear Drive Compartment

The Rear Drive Compartment or Oil Bath Compartment on horizontal models encloses the chain and sprockets used to drive the mixing augers. This dual purpose design keeps out dirt and other contamination as well as providing a sealed oil bath for the chains and sprockets.



Ensure that the oil drain plug is installed in the bottom of the oil sump and the enclosure is free of any contamination or obstruction. Fill the enclosure with oil to the centre of the chain on the lowest drive gear. To check the oil level, open the rear door when the unit is stopped.



Door Adjustment

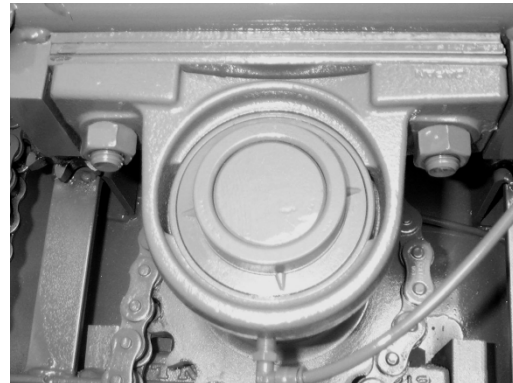
The rear oil bath (**horizontal**) door has a series of locking latches which provide the pressure to hold the seal tight between the door and the body of the oil bath. If the door seals becomes damaged or compressed so it will not seal it should be replaced.



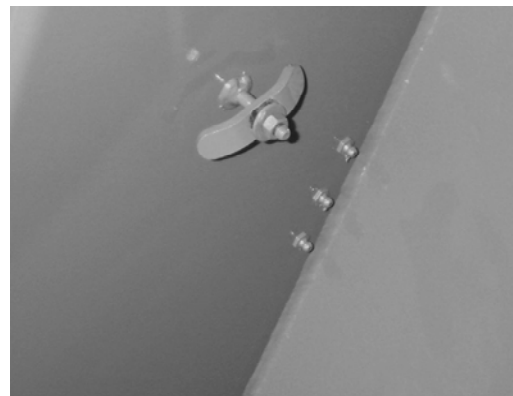
Grease Auger Bearings

The front auger bearings located on the front of each unit are greased individually. The grease should be pumped into the bearing slowly until a bead forms around the bearing seal. This bead, in addition to acting as an indication of adequate lubrication, provides protection against the entry of foreign matter. To prevent premature wear or failure, always ensure the grease zerk, grease gun end, and grease are clean and free of any grit, dirt, paint, feculent matter or foreign matter.

For greasing of front bearings on trailer and stationary models the power system must be shut off and disconnected.



Note: *Rear Bearings on Planetary mixers must be greased through grease bank while drive is running. Ensure safety shield is closed.*



Stationary Units

Stationary units are in many ways the same as a trailer unit, and should be operated and serviced as such, according to the Operator's Manual. The basic parts on a stationary mixer to be serviced:

- A. Drive Components
 - 1. Chain
 - 2. Sprockets
 - 3. Belts and Sheaves
- B. Auger Bearings
- C. Oil Bath Maintenance
- D. Scale System
- E. Discharge Door Assembly
- F. Hydraulic System (if applicable)

Note: For special application parts to be replaced contact your dealer.

6. Maintenance Schedule

The following items are to be checked and, if necessary, corrective action taken. This schedule is designed for units operating under normal conditions. If the unit is operating in adverse or severe usage conditions it may be necessary for the items to be checked and serviced more frequently.

Check & Inspect the Following Every:	Daily or 8 HRS	Weekly or 50 HRS	Quarterly or 500 HRS
Auger Drive System			
PTO bearings, slides & crosses - lube	X		
Disassemble PTO shaft - wash and lube steel tubes		X	
Disassemble slip clutch - clean plates and check wear		X	
Planetary oil level (sight glass on planetary) - check	*X		
Planetary - drain & refill			**X
Discharge System			
Bearings - grease	X		
Raise & lower hinge - lube	X		
Chain, sprockets & bearings - check for wear & adjustment		X	
Hydraulic System			
Hydraulic Fluid	X		
Hydraulic Fluid Drain & Refill			**X
Leaks in System	X		
Hydraulic Filter Change			**X
Tire, Hub & Spindle			
Tire pressure - check	X		
Hub & spindle (trailer axle style) - check oil	X		
Hub & spindle (trailer axle style) - change oil			X
Hub & spindle (standard hub style) - grease	X		
Hub & spindle - check wheel bolts		X	
Scale Operation			
Check weigh bars for loose bolts		X	
Check scale wires for damage		X	
Power up scale and do a weight test (put weight on each corner of machine)		X	

* When mixer is sitting level and oil is warm

** Drain & Refill after the first 100 Hours

Maintenance Schedule

Mixer Information *Please fill in the following:*

Model # _____ Serial # _____

PTO Speed: 540 or 1000 rpm

Date Machine Put Into Service _____

of Times Feeding / Day _____ Average Load Size _____ lbs or kg

Time per load _____ min

Farm / Operation Name: _____

Dealer: _____

Service Record*

Hours	Date	Signature	Service Performed / Comments
100			
600			
1100			
1600			
2100			
2600			
3100			
3600			
4100			
4600			
5100			
5600			
6100			
6600			
7100			
7600			
8100			
8600			
9100			

** Note: hours given are for planetary oil changes and major services, all regular service must be completed as per service schedule.*

7. Lubrication Specifications

Drive line Bearings
 Splined Drive Line Yokes
 Shear Bolt Yokes
 PTO Shaft
 Discharge Auger Bearings
 Main Auger Bearings.....NLGI #2 or #3 Lithium Base Grease

Planetary Gearbox.....

Mobil SHC 629	*
Esso SHP 150	
Shell Morlina S4 B 150	
<i>(synthetic oils listed)</i>	

Approximate Oil Capacities: *Models 4260/4310/4360/4410 - 2.5 L (3/4 gallon)*
 Models 4440/4500/4550 - 3.25 L (1 gallon)
 Models 4625/4750/4900 - 4.5 L (1.25 gallon)

Drive Chain (Rear Drive)
 Drive Chain (Discharge).....SAE-20 to SAE-30 Motor Oil

Hydraulic Oil.....SAE-10 ISO 32 or Equivalent
 Indol #32
 Dextron #32

* - Helm Welding recommends the use of synthetic oils in all planetary gearboxes.
 Gearboxes are filled with synthetic oils at time of manufacture.

8. Appendix - Digi-Star Scale Setup (Pounds to Kilograms)

1. Press (ON) to turn on power
2. Press and hold (ZERO) button first and then press and hold (ON) button while (ZERO) button is still being pressed. Hold down both buttons for 3 seconds. (If (ON) button is pressed before (ZERO) button then scale head will go into TEST mode so shut off head and start again)
3. SETUP will appear and then a 6 digit number will display. This is the setup number telling the scale whether pounds or kilograms are being used along with the weighing increments. See the chart below for various setup numbers.
4. Using the (TARE) key, move the cursor (the flashing number) from the right side to the left.
5. Using the (NET/GROSS) key, change the numbers one at a time until the number is changed to the one desired.
6. Press the (ON) key twice to exit the setup mode.
7. To change the calibration number, repeat steps 1. and 2. above. Press (ON) once to enter the calibration mode. A five digit number will display. See the chart below for various calibration numbers.
8. Repeat steps 4. and 5. to change the calibration number.
9. Press the (ON) key once to exit the calibration mode. (If (ON) is pressed twice it will enter TEST mode).

Bar Setup	Weight Setup	Setup number	Calibration number
4 bar - 2 1/8	pounds (10 lbs)	146040	32640
4 bar - 2 1/8	pounds (5 lbs)	145040	32640
4 bar - 2 1/8	pounds (2 lbs)	144040	32640
4 bar - 2 1/8	kilograms (10 kg)	546040	14805
4 bar - 2 1/8	kilograms (5 kg)	545040	14805
4 bar - 2 1/8	kilograms (2 kg)	544040	14805
3 bar - 2 1/8	pounds (10 lbs)	146030	24410
3 bar - 2 1/8	pounds (5 lbs)	145030	24410
3 bar - 2 1/8	pounds (2 lbs)	144030	24410
3 bar - 2 1/8	kilograms (10 kg)	546030	11072
3 bar - 2 1/8	kilograms (5 kg)	545030	11072
3 bar - 2 1/8	kilograms (2 kg)	544030	11072
3 bar axle - 2 1/2	pounds (10 lbs)	146030	24080
3 bar axle - 2 1/2	pounds (5 lbs)	145030	24080
3 bar axle - 2 1/2	pounds (2 lbs)	144030	24080
3 bar axle - 2 1/2	kilograms (10 kg)	546030	10922
3 bar axle - 2 1/2	kilograms (5 kg)	545030	10922
3 bar axle - 2 1/2	kilograms (2 kg)	544030	10922

Suggested Weight Increments based on mixer cubic foot capacity:

Models under 300 cu. ft. set to 5 pound or 2 kilogram increments

Models of 300 cu. ft. and larger set to 10 pound or 5 kilogram increments