

MAYO



Portable Metering Bin Operators Manual

MAYO MANUFACTURING, INC. LIMITED WARRANTY

THE FOLLOWING WARRANTIES FOR MACHINERY, EQUIPMENT OR PARTS SOLD BY MAYO MANUFACTURING, INC. ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, OR THOSE WARRANTIES IMPOSED BY STATUTE, INCLUDING, BUT NOT LIMITED TO ANY AND ALL IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND OF ANY AND ALL OTHER WARRANTY OBLIGATIONS ON THE PART OF MAYO MANUFACTURING, INC. (The Company).

The Company warrants the machinery, equipment or parts delivered against faulty workmanship or the use of parts delivered against faulty workmanship or the use of defective materials for a period of one (1) year from the date of shipment.

The Company's warranties set forth above are the only warranties made by the Company and shall not be enlarged, diminished or affected by, and no obligation or liability shall arise out of the Company's rendering technical or other advice or service in connection with the machinery, equipment or parts.

Parts or components furnished to the Company by third persons are guaranteed only to the extent of the original manufacturer's guarantee to the Company, a copy of which will be supplied to the Purchaser upon written request to the Company.

LIABILITY

THE COMPANY'S SOLE AND EXCLUSIVE MAXIMUM LIABILITY, AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY under the above warranty shall be, at the Company's option, the repair, or replacement of the machine, equipment or part which is found to be defective due to faulty workmanship or defective materials, and is returned by the Purchaser to the Company within the warranty period. Shipment both ways and in transit damage shall be at the purchaser's risk and expense. If the Company elects to repair or replace the machine, equipment, or part, the Company will have a reasonable time within which to do so.

The remedies set forth above are available upon the following conditions:

1. Purchaser has promptly notified Company upon discovery that the machinery, equipment, or parts are defective due to faulty workmanship or defective materials; and
2. Purchaser provides Company with a detailed description of the deficiencies; and
3. Company's examination discloses that the alleged deficiencies exist and were not caused by accident, fire, misuse, neglect, alteration, or any other hazard or by Purchaser's improper installation, use or maintenance.

Such repair or replacement shall constitute fulfillment of all Company's liability to Purchaser, whether based on contract or tort.

This warranty does not apply to any machine that has been altered outside the factory in any way so as, in the judgment of Mayo, to affect its operation, reliability or safety, or which has been subject to misuse, neglect or accident.

In the event the Company breach any other provisions of the Purchase Agreement, the Company's EXCLUSIVE MAXIMUM LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY, whether in contract or tort, otherwise shall not in any event exceed the contract price for the particular machine, piece of equipment or parts involved.

IN NO EVENT SHALL COMPANY BE LIABLE TO ANYONE FOR SPECIAL, COLLATERAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY PROVISIONS OF THIS CONTRACT OR WARRANTY. SUCH EXCLUDE DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, costs of REMOVAL AND REINSTALLATION OF ITEMS, Loss of GOODWILL, LOSS OF PROFITS, LOSS OF USE OR INTERRUPTION OF BUSINESS.

WARRANTY VOID IF NOT REGISTERED

MAYO
METERING BIN 4000 SERIES

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION (please print)

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

Customer's Name _____	Dealer Name _____
Address _____	Address _____
City, State/Province, Code _____	City, State/Province, Code _____
Phone Number (____) _____	Phone Number (____) _____
Contact Name _____	
Model _____	
Serial Number _____	
Delivery Date _____	

DEALER INSPECTION REPORT

____ Tire Pressure Checked
____ Wheel Bolts Torqued
____ Inspect Electrical System
____ Machine Lubricated
____ Conveyor Tensioned and Aligned
____ Roller Chains Tensioned and Aligned
____ Speed Reducer Gearbox Oil Level Checked

SAFETY

____ All Decals Installed
____ All Guards and Shields Installed
and Secured
____ Lights, Reflectors, SMV Clean
____ Review Operating and
Safety Instructions

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

Date _____ Dealer's Rep. Signature _____

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

Date _____ Owner's Signature _____

WHITE	YELLOW	PINK
MAYO MFG., INC	DEALER	CUSTOMER

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SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Mayo Metering Bin when ordering parts or requesting service or other information.

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



SERIAL NUMBER LOCATION

Model _____

Serial Number _____

1 INTRODUCTION

Congratulations on your choice of a Mayo Model 4000 SERIES Metering Bin and welcome to Mayo's quality line of potato handling equipment. This equipment is designed and manufactured to meet the needs of a discriminating buyer in the agricultural industry for the loading and processing of harvest yields.

Safe, efficient and trouble free operation of your new Mayo Metering Bin requires that you, and anyone else who will be operating or maintaining the Metering Bin, read, understand and practice ALL of the Safety, Operation, Maintenance and Trouble Shooting recommendations contained within this Operator's Manual.



This manual applies to most Model 4000 Series Metering Bins manufactured by Mayo. Certain options may be available to specifically tailor the Metering Bin to your operation and may not be included in this manual. Please contact the manufacturer regarding additional information about these options. Use the Table of Contents and Index as a guide to find specific information.

Keep this manual handy for frequent reference and so that it will be passed on to new operators or owners. Call your Mayo dealer if you need assistance, information or additional copies of this manual.

MACHINE ORIENTATION -The hitch end of the conveyor is the front. The electrical controls are on the front side.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on your Mayo Metering Bin and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost You Money
Accidents Can Be Avoided

SIGNAL WORDS:

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

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

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Mayo, P.O. Box 497, Bus Highway 2, East Grand Forks, Minnesota, 56721. (Telephone) 218-773-1234, (FAX) 218-773-6693 or toll free at 1-800-223-5873.

SAFETY

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

Remember, **YOU** are the key to safety. Good safety practices not only protect you but, also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this machine is familiar with the procedures recommended and follows safety precautions. Remember, most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

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

2.1 GENERAL SAFETY

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



2. Only trained, competent persons shall operate the Metering bin. An untrained operator is not qualified to operate this machine.

3. Provide a first-aid kit for use in case of an accident. Store in a highly visible place.



4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.



5. Install and properly secure all guards and shields before operating.

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

- Protective shoes with slip resistant soles
- Protective glasses or goggles
- Heavy gloves
- Hearing protection



7. Turn machine OFF, shut down and lockout power supply, and wait for all moving parts to stop before servicing, adjusting, maintaining, repairing or cleaning. (Safety lockout devices are available through your Mayo dealer parts department).
8. Know the emergency medical center number for your area.
9. Review safety related items with all operators annually.

2.2 INSTALLATION SAFETY

1. Disconnect and remove all mechanical locks, anchor chains and any other transport devices that would hinder or prohibit the normal functioning of the Metering Bin upon start up. Serious damage to the machine and/or personal injury to the operator and bystanders may result from attempting to operate the machine while mechanical locking devices are still attached.
2. Position the machine on firm, level ground before operating.
3. Have at least one extra person available to assist when moving or connecting to other equipment.
4. Make certain that sufficient amperage, at the proper voltage and frequency is available before connecting power. If you are uncertain, have a licensed electrician provide power to the machine.
5. If using Metering Bin as part of material handling system, anchor securely to other conveying equipment before starting.

2.3 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Metering Bin.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
3. Install and properly secure all guards and shields before operating.
4. Keep hands, feet, hair and clothing away from all moving parts.
5. Do not climb into the bin during operation. Keep others out.
6. Clear the area of bystanders, especially small children, before starting.
7. Make sure all control switches are in the off position before connecting power supply.
8. Before supplying electrical power to the machine, be sure that you have adequate amperage at the proper phase and voltage to run it. If you do not know or are unsure, consult a licensed electrician.
9. Keep the working area clean and dry.
10. Review safety instructions annually.

2.4 MAINTENANCE SAFETY

1. Read and understand all the information contained in the Operator's Manual regarding operating, servicing, adjusting, maintaining and repairing.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
3. Follow good shop practices:

- Keep service area clean and dry.
- Be sure electrical outlets and tools are properly grounded.
- Use adequate light for the job at hand.



4. Make sure all guards and doors are in place and properly secured when operating the Metering Bin.
5. Do not work on Metering Bin electrical system unless the power cord is unplugged or the power supply is locked out.



2.5 ELECTRICAL SAFETY

1. Have only a qualified electrician supply power.
2. Make certain that the Metering Bin is properly grounded at the power source.
3. Make certain that all electrical switches are in the OFF position before plugging the Metering Bin in.
4. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
5. Disconnect power before resetting any motor or breaker overload.
6. Replace any damaged electrical plugs, cords, switches and components immediately.
7. Do not work on Metering Bin electrical system unless the power cord is unplugged or the power supply is locked out.

2.6 TIRE SAFETY

1. Inflate tires to proper pressure as specified on the side wall of each tire. Do not overinflate or underinflate.
2. 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.
3. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
4. Have a qualified tire dealer or repair service perform required tire maintenance.

2.7 TRANSPORT SAFETY

1. Make certain that you are in compliance with local, state/provincial and federal regulations regarding transporting agricultural equipment on public roadways.
2. Make certain that all wheels and tires are in good repair and that tires are inflated to proper pressure. Do not underinflate or overinflate.
3. Make certain that all wheel bolts/lug nuts are tightened to proper torque specifications (refer to specification chart in Section 7.2).
4. Make certain that all mechanical locks and integral anchor chains are safely and positively connected before loading or transporting.
5. Raise and secure all jack stands, if applicable.
6. Wrap up and bind to the frame all loose electrical ends.
7. Be sure that any necessary SMV (slow moving vehicle) signs, reflectors and lights required by law are in proper place and are clearly visible to oncoming and overtaking traffic.
8. Be sure that the Metering Bin is positively hitched to the towing vehicle. Use a proper safety chain to assure a safe hitch hook-up when transporting.
9. Adhere to local regulations regarding maximum weight, width and length.
11. Do not exceed 20 MPH (32 Km/H). Reduce speed on rough roads and surfaces.
11. Do not allow anyone to ride on the Metering Bin or towing vehicle during transport.
12. Always use hazard flashers on the towing vehicle when transporting.

2.8 STORAGE SAFETY

1. Store the Metering Bin on a firm level surface.
2. If required, make sure the unit is firmly blocked up.
3. Make certain that all mechanical locks are safely and positively connected before storing.
4. Store away from areas of human activity.
5. Do not allow children to play on or around the stored Metering Bin.
6. Lock out power by turning off master control panel or junction box and padlocking the door shut to prevent electrocution or unauthorized start up of the Metering Bin.

2.9 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. 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 you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.10 EMPLOYEE SIGN-OFF FORM

Mayo Manufacturing, Inc. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining a Mayo built machine must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

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

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

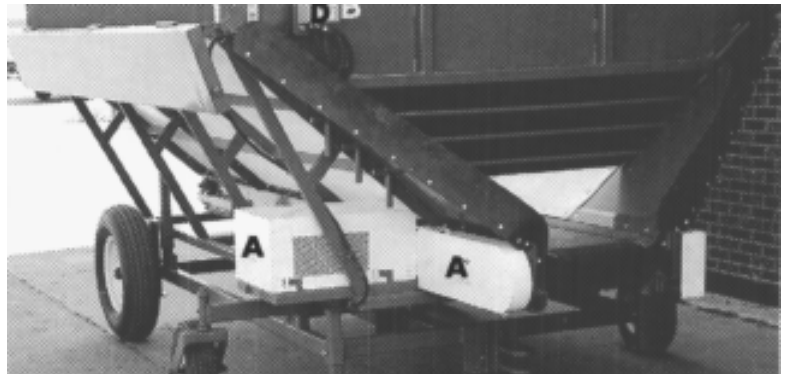
SIGN-OFF FORM

[illegible]

3 SAFETY SIGN LOCATIONS

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

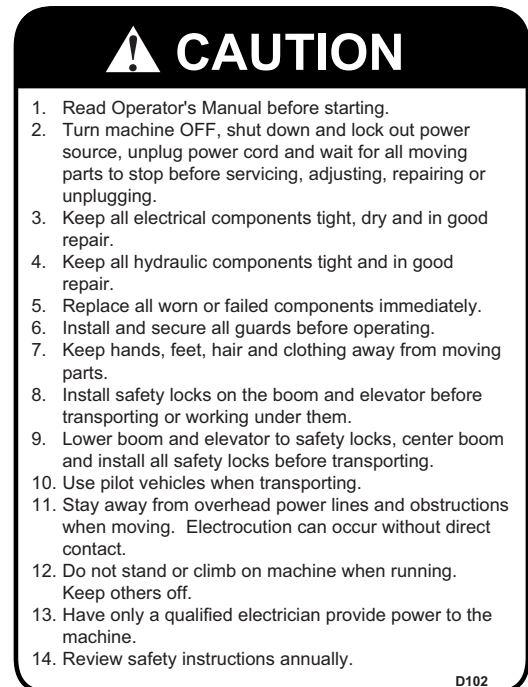
- Think SAFETY! Work SAFELY!



A



B

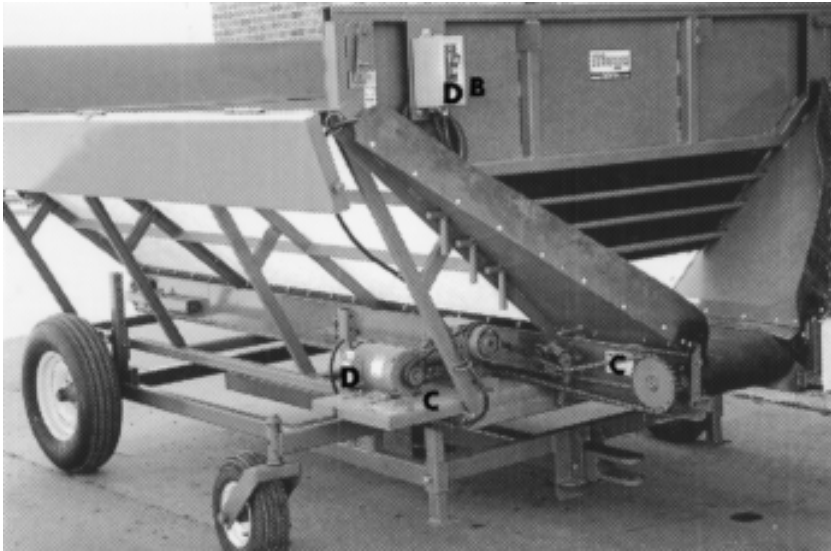


REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

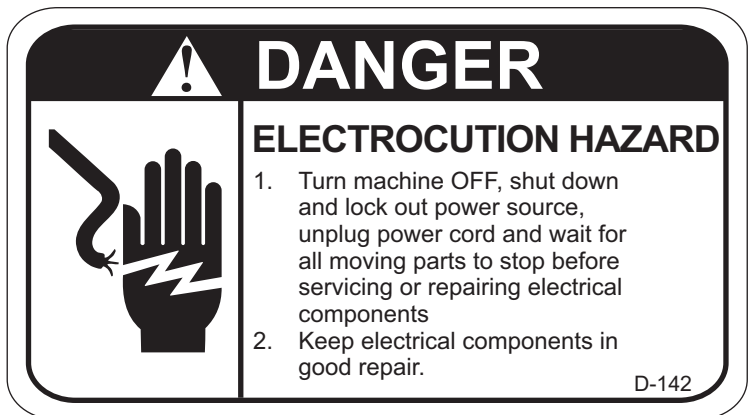
SAFETY SIGN LOCATIONS (cont'd)

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

- Think SAFETY! Work SAFELY!



D



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

4 OPERATION



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Metering Bin.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
3. Install and properly secure all guards and shields before operating.
4. Keep hands, feet, hair and clothing away from all moving parts.
5. Do not climb into the bin during operation. Keep others out.
6. Clear the area of bystanders, especially small children, before starting.
7. Make sure all control switches are in the off position before connecting power supply.
8. Before supplying electrical power to the machine, be sure that you have adequate amperage at the proper phase and voltage to run it. If you do not know or are unsure, consult a licensed electrician.
9. Keep the working area clean and dry.
10. Review safety instructions annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Mayo Manufacturing Metering Bin is designed to be used as a stand alone unit or part of a system to hold and meter out potatoes into another machine and/or system. Be familiar with the machine before starting.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, and prudence of personnel involved in the operation, transport, maintenance, and storage of equipment or in the use and maintenance of facilities. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety Instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

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

4.2 MACHINE COMPONENTS

The Mayo Metering Bin is a large holding tank that meters out potatoes at a preset rate. Potatoes are placed into the Bin by a conveyor, loader, or scoop and metered out by a conveyor belt in the bottom. Metering rods in the discharge opening allow the operator to set the size of the discharge opening.

The moveable sheave of the driven pulley in the drive belt system allows the operator to adjust the speed of the belt conveyor and set the discharge rate.

Jacks at each corner of the frame are used to carry the weight of the machine. Adjustable stands in the frame allow the operator to set the height of the discharge to match other equipment and/or systems. Hinged side and rear panels can be lowered to reduce the drop when loading the Bin.

The control switch is located on the right front corner of the frame.



- A Hinged Panels
- B Control Switch
- C Bin
- D Corner Stands
- E Frame Stand
- F Input Drive
- G Primary Chain Drive
- H Secondary Chain Drive
- J Discharge
- H Metering Rods
- L Drive Belt System

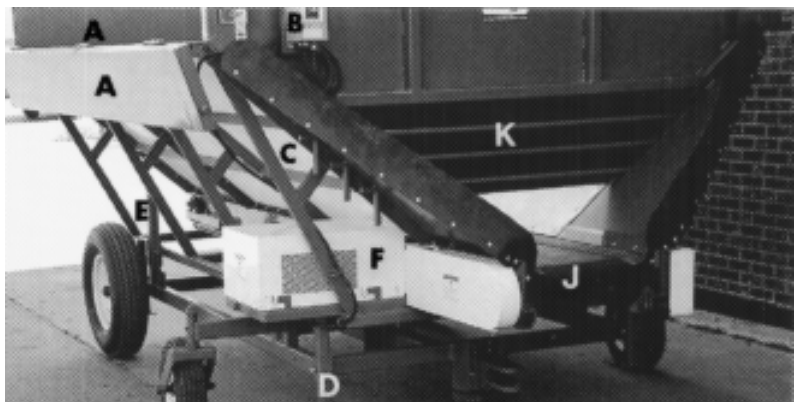


Fig. 1 MACHINE COMPONENTS

4.3 GENERAL OPERATION THEORY

Metering Bins can be used as a holding tank or a metering bin in a potato handling system per the requirements. Potatoes can be loaded into the tank by a conveyor, loader, or scoop and metered out as required. This machine can provide a steady, even flow of potatoes to a handling system.



Fig. 2 MACHINE

4.4 MACHINE BREAK-IN

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

- A. Read Metering Bin and auxiliary equipment manuals before starting.
- B. **After operating for 1/2 hour:**
 1. Retorque all wheel bolts.
 2. Retorque all other fasteners and hardware.
 3. Check the alignment of the conveyor belt. Realign as required.
 4. Check that all electrical connections are tight and cords are routed out of the way or protected.
 5. Check the alignment and tension of all drive belts and chains. Realign or tighten as required.
 6. Check all drive sprockets and pulleys to make sure none has moved. Re-align and tighten any that has moved.
 7. Check oil level in the speed reduction gear box. Top up as required.
 8. Lubricate all grease fittings.
- C. **After 2, 5 and 10 hours of operation:**
 1. Retorque all fasteners and hardware.
 2. Check the alignment of the conveyor belt. Realign as required.
 3. Check that all electrical connections are tight and cords are routed out of the way or protected.
 4. Check the alignment and tension of all drive belts and chains. Realign or tighten as required.
 5. Check all drive sprockets and pulleys to make sure none has moved. Re-align and tighten any that has moved.
 6. Check oil level in the speed reduction gear box. Top up as required.
 7. Go to the regular servicing and maintenance schedule as defined in the Maintenance Section.

4.5 PRE-OPERATION CHECKLIST

Safe and efficient operation of your new Metering Bin requires that each operator reads and follows all safety precautions and operating procedures contained in this section. Performing the following pre-operation checklist is important for personal safety as well as for continued mechanical soundness and longevity of your new Mayo Metering Bin. The checklist should be performed before operating the Metering Bin and prior to each operation thereafter.

1. Lubricate the machine according to the schedule prescribed in the "Maintenance Section".
2. Insure that proper protective gear is in good repair and available for use by each operator. Make certain that each operator uses the protective gear. Protective gear includes but, is not limited to:
 - Leather gloves
 - Safety glasses or face shield
 - Full-length protective clothing
 - Steel toed boots with slip resistant soles.
3. Insure that all safety guards and shields are in good repair and securely in place.
4. Check that the conveyor belt is centered on the head and tail rollers. Adjust if necessary as outlined in the "Maintenance Section".
5. Make sure that all electrical switches are in the OFF position before supplying power.
6. Check that all electrical connections are tight and cords are routed out of the way or protected.
7. Be sure the working area is clean and dry to prevent tripping or slipping.



4.6 CONTROLS

It is recommended that all operators review this section of the manual to familiarize themselves with the location and function of all machine controls before starting. Some machines may vary slightly due to custom features but they are similar and all controls are labeled.

1. Conveyor OFF/ON:

These 2 buttons control the power to the conveyor. Depress the top black button to turn the conveyor ON. Depress the bottom red button to turn the conveyor OFF.



Fig. 3 ELECTRIC CONTROLS

2. Stands:

- a. Each corner is equipped with a stand that can be lowered to help carry the weight of the machine.
- b. The frame is equipped with a stand at each corner that is used to set the height of the discharge to match other equipment.

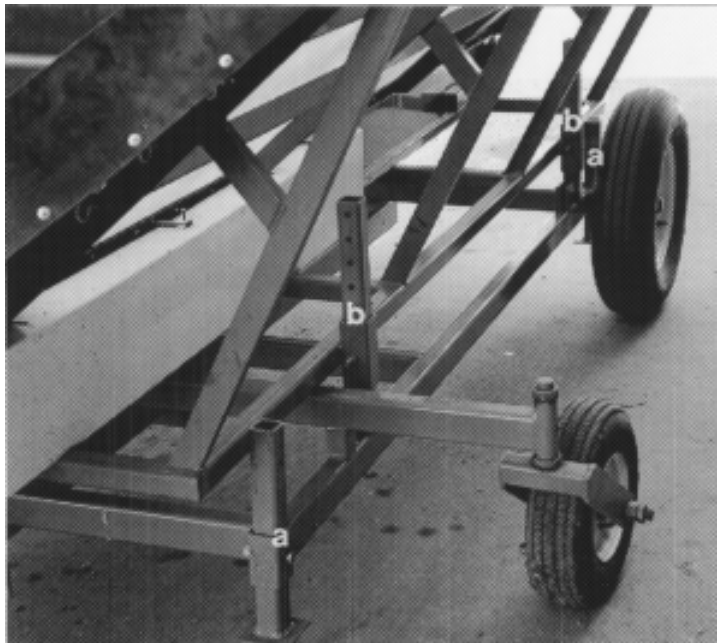
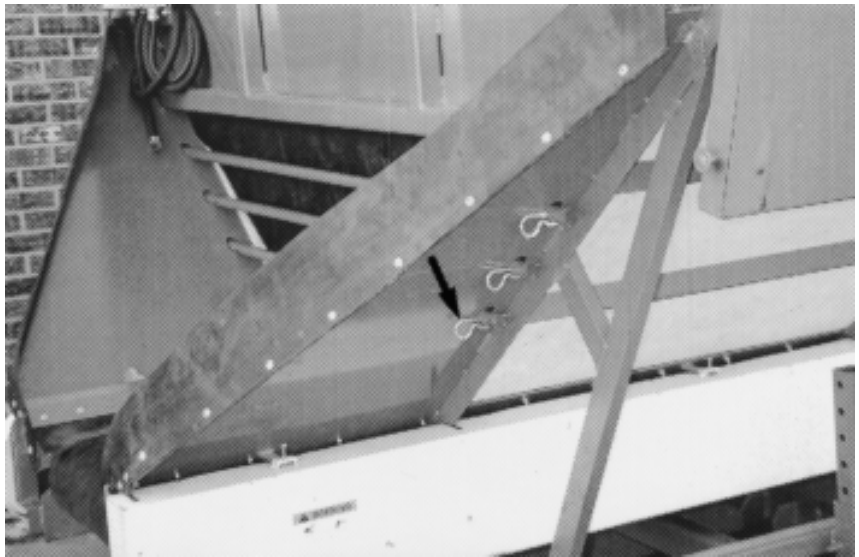


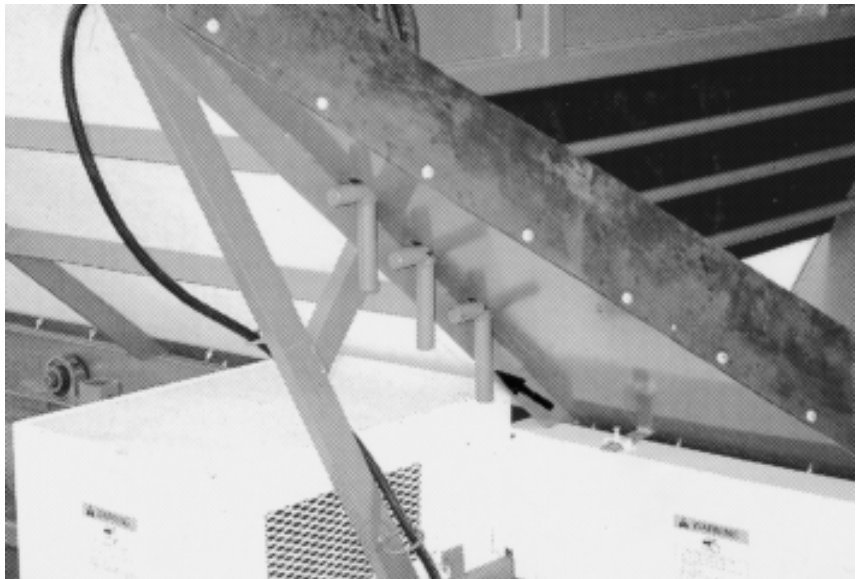
Fig. 4 STANDS

3. Metering Rods:

The discharge is equipped with 3 rods to set the discharge rate of potatoes from the bin. Remove the rods from the bottom to increase the discharge rate.



Locks



Handles

Fig. 5 METERING RODS

4.7 MACHINE PREPARATION

The machine must be properly prepared prior to using. Before starting machine, be sure that the following items are appropriate for your machine and operating requirements:

1. Power:

Have a licensed electrician provide power at the required voltage, phase and amperage for your machine. An Improper source of power will cause damage to electrical components and could create an electrical hazard to the operator, worker or bystanders.

Be sure to use an extension cord of the correct specifications for the power being carried. Route the cord so that it does not interfere with the working area. Provide appropriate protection when people or equipment must go over the cord. Inspect the cord occasionally to be sure it is not damaged. Replace immediately if it is damaged.

2. Hitch:

Each machine is equipped with a retractable hitch. Extend the hitch for moving and transport. Retract for operation to prevent tripping.

3. Equipment Attachment:

Each customer must provide a means of supplying potatoes to the Metering Bin. Normally this is done by using a conveyor, loader, or scoop. When the Bin is used as a component in a conveying system, it is recommended that it be securely attached to the adjacent piece of equipment. Connect securely using a chain, straps, or other means.

Place the hitch in its retracted position for operation to prevent tripping.



Extended



Retracted

Fig. 6 HITCH RETRACTION

4. **Stands:**

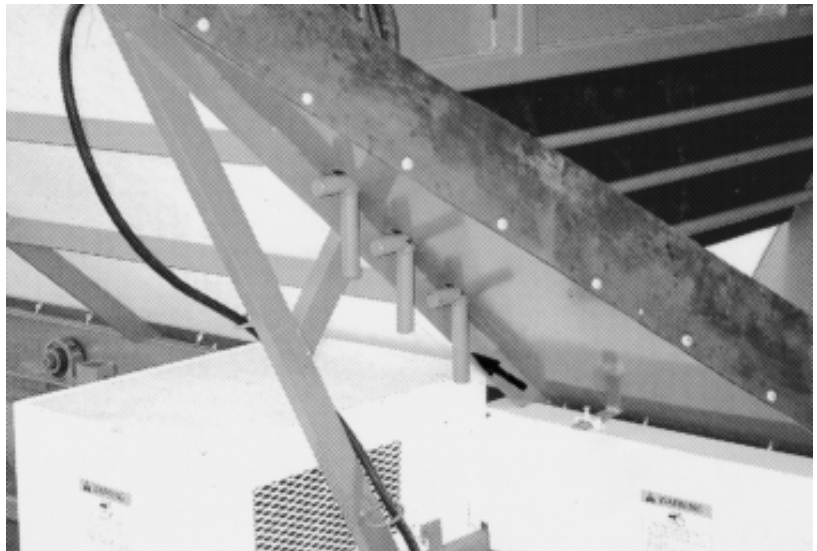
- a. Lower the stands on each corner to support the weight of the machine during operation. Always lower the stands when the machine is empty.
- b. Adjust the position of the frame stands to set the height of the discharge to match adjacent equipment. Set to minimize the drop height to prevent bruising. Use a forklift, jack or hoist to raise the frame when setting the stands.



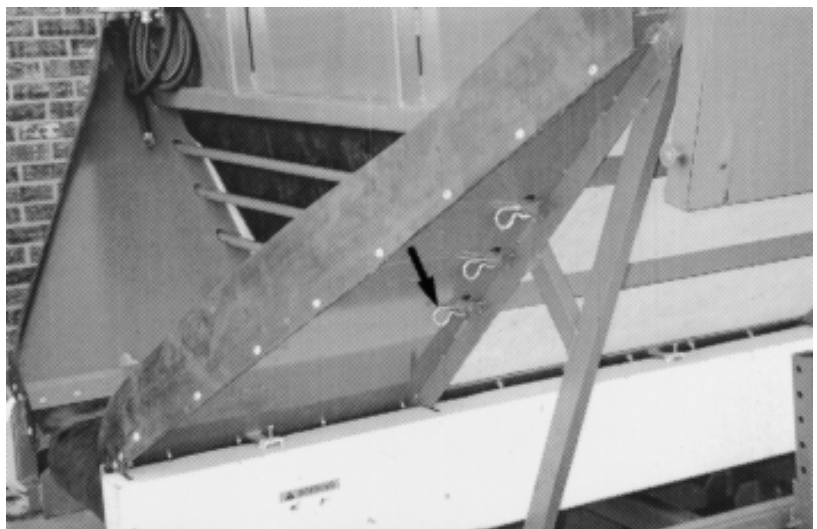
Fig. 7 STANDS

5. **Discharge Rate Rods:**

The discharge opening is designed for setting the discharge rate. Remove rods, starting at the bottom, to obtain the desired discharge rate.



Handles

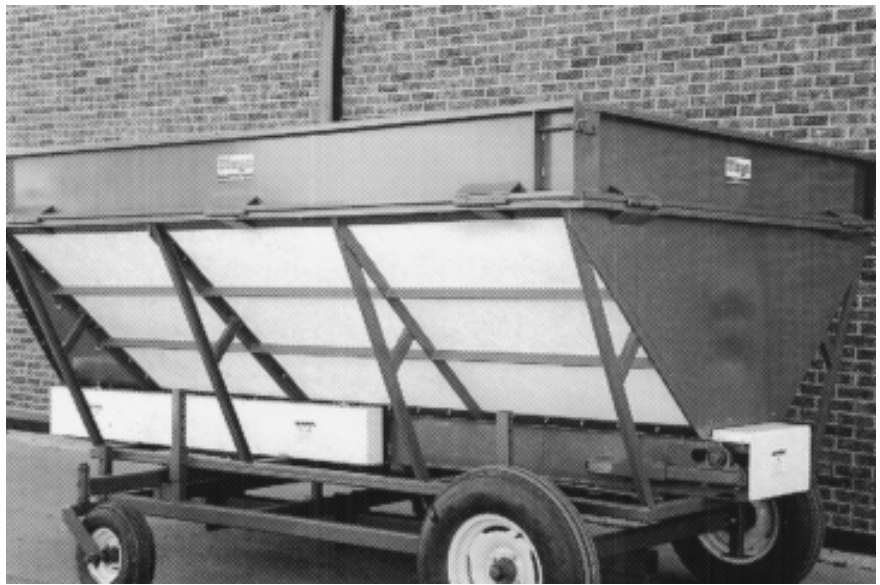


Locks

Fig. 8 DISCHARGE RATE RODS

6. Hinged Sides:

The upper portion of the sides and rear of the machine are hinged to allow the operator to set the height of the loading side. Lower these sides to reduce drop height. Raise the sides to increase the capacity of the Bin.



Up



Down

Fig. 9 HINGED SIDES

4.8 OPERATING



OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Metering Bin.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
3. Install and properly secure all guards and shields before operating.
4. Keep hands, feet, hair and clothing away from all moving parts.
5. Do not climb into the bin during operation. Keep others out.
6. Clear the area of bystanders, especially small children, before starting.
7. Make sure all control switches are in the off position before connecting power supply.
8. Before supplying electrical power to the machine, be sure that you have adequate amperage at the proper phase and voltage to run it. If you do not know or are unsure, consult a licensed electrician.
9. Keep the working area clean and dry.
10. Review safety instructions annually.

Follow this procedure when using the Metering Bin:

1. Review Section 4.7 Machine Preparation and follow all the instructions.
2. Review and follow the pre-operation checklist (See Section 4.5).
3. Review the location and function of all controls (See Section 4.6).



Fig. 10 METERING BIN

4. Starting Metering Bin:

- a. Clear the area of bystanders. Know where everyone is before starting.
- b. Place all controls in the OFF position.
- c. Turn the power to the machine ON at the master panel.
- d. Turn the equipment ON that moves potatoes away from the Metering Bin.
- e. Turn the Metering Bin ON.
- f. Turn the equipment ON that moves potatoes to the Metering Bin or load the Bin.



Fig. 11 CONTROLS

5. Stopping machine:

- a. Turn OFF the equipment that brings potatoes to the Bin or stop loading.
- b. Wait until the potatoes have moved out of the Bin.
- c. Turn the Metering Bin OFF.

NOTE

If the machine is wired up as a part of a conveying system, wait until all the potatoes have moved through the system. Then turn the system OFF.

6. Emergency STOP:

Depress the red STOP button on the control panel as required.

7. Equipment Attachment:

Each customer must provide a means of supplying potatoes to the Metering Bin. Normally this is done by a conveyor, loader, or scoop. When the Bin is used as a component in a conveying system, it is recommended that it be securely attached to the adjacent piece of equipment. Connect securely using a chain, straps, or other means.

Place the hitch in its retracted position for operation to prevent tripping.

8. Moving:

The machine is designed to be easily moved from location to location as required. To prepare for moving, follow this procedure:

- a. Clear the area of bystanders. Know where everyone is before starting.
- b. Disconnect the adjacent equipment from the bin.
- c. Raise and secure the stands on each corner.
- d. Extend and secure the hitch.
- e. Attach to the moving vehicle.
- f. Move to the new location.
- g. Unhook for tow vehicle and reverse the above procedure to prepare for operation at the new location.
- h. Refer to Section 4.9 for transporting on public roads.



Retracted



Extended

Fig. 12 HITCH

9. Metering Rate Rods:

The discharge is designed with removable rods that determine the size of the opening to set the discharge rate of the machine. Set the discharge rate to keep adjacent equipment full to optimize production and minimize bruising.

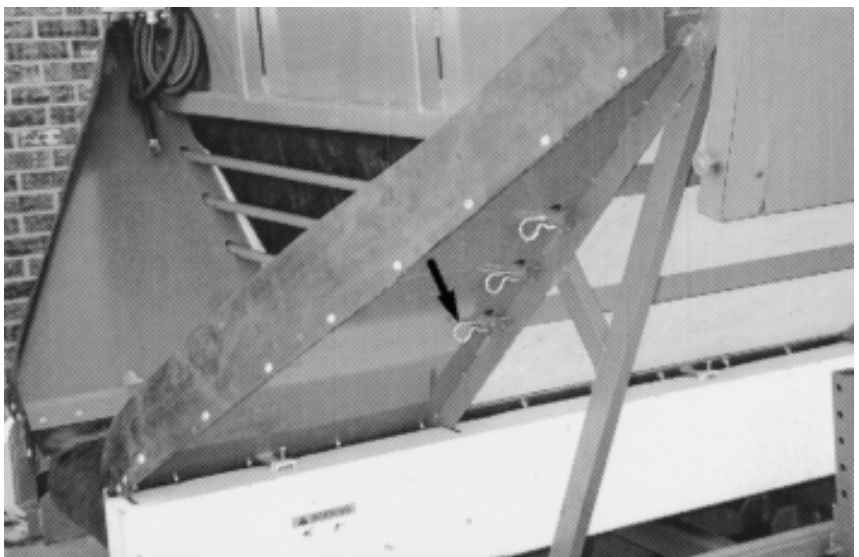


Fig. 13 METERING RATE RODS

10. Conveyor Speed:

The conveyor speed can be adjusted to set the discharge rate through the belt drive system. The driven pulley is spring-loaded and will maintain the proper tension as it adjusts to set the ratio and speed. Use the engine position adjusting bolt to set the pulley ratios.

NOTE

Adjusting bot is accessible without removing guard.



WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.

11. Drop Height:

Potatoes are sensitive to bruising during the gathering, transporting, and handling phases of harvesting. Bruising is kept to a minimum by maintaining a full flow of potatoes through each machine and minimizing all drop heights. Bruising during the metering and conveying phase can be minimized by keeping the drop height between each piece of conveying equipment as small as possible. Use the frame stands on each corner of the frame to set the discharge height to minimize the drop height.

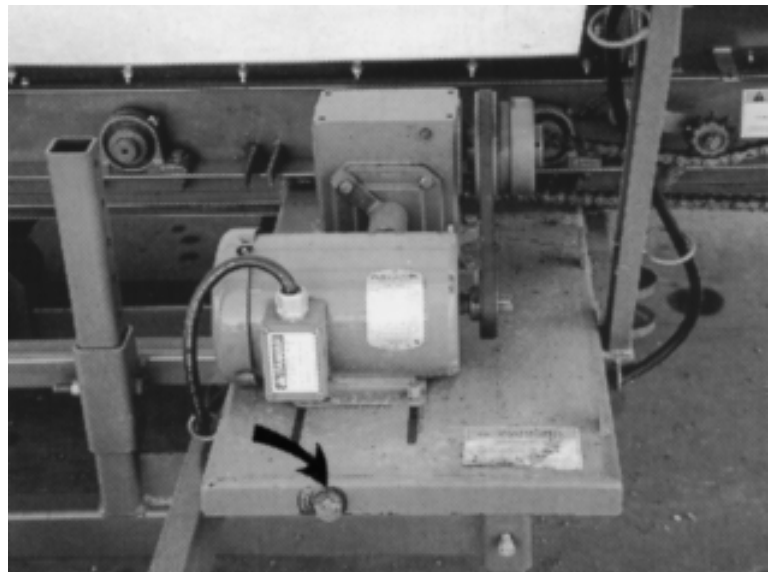


Fig. 14 CONVEYOR SPEED ADJUSTOR

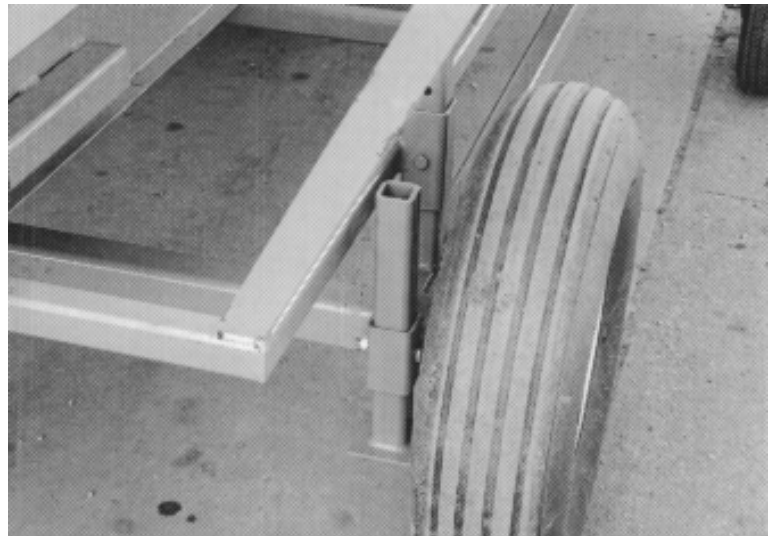


Fig. 15 FRAME STANDS

12. Operating Hints:

- a. Be sure that all workers and operators are supplied with and use the required safety gear.
- b. Keep the working area clean and as dry as possible to prevent slipping and tripping.
- c. Train all operators before starting. An untrained operator is not qualified to operate this machine and can expose himself and others to needless hazards.
- d. Secure all pieces of equipment together to prevent unexpected movement and separation.
- e. Keep the Metering Bin as full as possible to minimize bruising during the conveying process.
- f. Set the height of the discharge so the drop height to the adjacent piece of equipment is a minimum to prevent bruising.



Fig. 16 OPERATING SYSTEM

4.9 TRANSPORT



TRANSPORT SAFETY

1. Make certain that you are in compliance with local, state/provincial and federal regulations regarding transporting agricultural equipment on public roadways.
2. Make certain that all wheels and tires are in good repair and that tires are inflated to proper pressure. Do not underinflate or overinflate.
3. Make certain that all wheel bolts/lug nuts are tightened to proper torque specifications (refer to specification chart in section 7.2).
4. Make certain that all mechanical locks and integral anchor chains are safely and positively connected before loading or transporting.
5. Raise and secure all jack stands, if applicable.
6. Wrap up and bind to the frame all loose electrical ends.
7. Be sure that any necessary SMV (slow moving vehicle) signs, reflectors and lights required by law are in proper place and are clearly visible to oncoming and overtaking traffic.
8. Be sure that the Metering Bin is positively hitched to the towing vehicle. Use a proper safety chain to assure a safe hitch hook-up when transporting.
9. Adhere to local regulations regarding maximum weight, width and length.
10. Do not exceed 20 MPH (32 Km/H). Reduce speed on rough roads and surfaces.
11. Do not allow anyone to ride on the Metering Bin or towing vehicle during transport.
12. Always use hazard flashers on the towing vehicle when transporting.

Mayo Metering Bins are designed to be easily and conveniently moved from location to location. The term moving is used to describe the action moving the machine and is covered in Section 4.8 Operating. Transporting is used to describe when the machine is being towed by a tractor or other power unit. When transporting, follow this procedure:

1. Clear the area of bystanders. Know where everyone is before starting
2. Disconnect and remove all auxiliary equipment from the Bin and position so the tractor can back up to the front of the machine.
3. Extend and secure the hitch.
4. Install the steering wheel anchor pin so the wheels won't inadvertently turn during transport.
5. Raise and secure the corner stands.

6. Place all controls in their OFF or neutral position.
7. Turn the power OFF at the master panel and lock out.
8. Unplug and remove the power cord.
9. Attach the hitch to the tractor. Be sure to use a mechanical retainer through the drawbar pin.
10. Attach a safety chain between the hitch and the drawbar cage to prevent unexpected separation.
11. Install an SMV on the rear frame.
12. Use pilot vehicles or install extra lights on the machine when transporting.
13. Clean all the reflectors.
14. Be sure all bystanders are clear of the machine.
15. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.
16. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
17. It is not recommended that the machine be transported faster than 15 mph (25 km/hr). Table 1 gives the acceptable transport speed as the ratio of tractor weight to Bin weight.
18. Do not allow riders on the machine or tractor.
19. Always use hazard flashers on the tractor when transporting unless prohibited by law.



Stands



Hitch Extended

Fig. 17 MACHINE PREPARATION

Table 1 Travel Speed vs Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of towing machine
Up to 25 km/h (15 mph)	1 to 1, or less
Up to 16 km/h (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

4.10 STORAGE



STORAGE SAFETY

1. Store the Metering Bin on a firm level surface.
2. If required, make sure the unit is firmly blocked up.
3. Make certain that all mechanical locks are safely and positively connected before storing.
4. Store away from areas of human activity.
5. Do not allow children to play on or around the stored Metering Bin.
6. Lock out power by turning off master control panel or junction box and padlocking the door shut to prevent electrocution or unauthorized start up of the Metering Bin.

4.10.1 PLACING IN STORAGE

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

1. Turn the power OFF at the master electrical panel and lock out.
2. Unplug and remove power cord from machine.
3. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris or residue.
4. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from the washing.
5. Inspect all the electrical cords, lines, junction boxes and motors. Tighten any loose connections. Replace any cord that is badly cut, nicked or abraded. Replace any damaged components.

6. Inspect each conveyor drive system. Check the condition of the roller chains. Replace if badly worn. Check the alignment of the sprockets and pulleys. Align if required. Properly tension each drive chain.
7. Apply a light coat of oil to each roller chain to prevent rusting.
8. Inspect the conveyor belt. Realign if the belt is not tracking in the center of the frame. Replace if the edges are damaged from rubbing on the frame. Properly tension the belt.
9. Check all rotating parts for entangled material. Remove.
10. Touch up all paint nicks and scratches to prevent rusting.
11. Select a storage area that is dry, level and free of debris.
12. Cover with a weather-proof tarpaulin and tie down if stored outside.

4.10.2 REMOVING FROM STORAGE

When preparing to use the machine at the start of the season, follow this procedure:

1. Remove the tarpaulin if covered.
2. Transport or move to the working area.
3. Check
 - a. Electrical systems and components.
 - b. Conveyor belt and drive systems.
 - c. All hardware. Tighten as required.
 - d. Air pressure in tires. Add as required.
4. Replace any defective components.
5. Go through the pre-operation checklist (Section 4.5) before starting.

5 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

1. Read and understand all the information contained in the Operator's Manual regarding operating, servicing, adjusting, maintaining and repairing.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
3. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
4. Make sure all guards and doors are in place and properly secured when operating the Metering Bin.
5. Do not work on Metering Bin electrical system unless the power cord is unplugged and the power supply is locked out.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. Grease
Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance meeting or exceeding the NLGI #2 rating for all requirements.
2. Speed Reducer Gear Box Lubricant
Use a Browning Worm Gear high-temperature GL32HT lubricant (AGMA Compo #8) or equivalent.

3. Roller Chain Lubricating Oil

CHAIN TYPE*	AMBIENT TEMPERATURE RANGE		
	14°F-32°F	32°F-104°F	104°F-122°F
RS-50-less	SAE 10	SAE 20	SAE 30
RS-60/RS-80	SAE 20	SAE 30	SAE 40
RS100	SAE 20	SAE 30	SAE 40
RS120/MORE	SAE 30	SAE 40	SAE 40

* Stamped on chain link side plate

4. Hydraulic Oil

Use - Amoco All-Purpose Hydraulic Oil or equivalent.

5. Storing Lubricants

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

5.1.2 GREASING

Refer to Section 5.1.1 for recommended grease. Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing. Air powered greasing systems can damage the seals on bearings and lead to early bearing failure.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If a fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5. Conveyor Bearings:

Only sealed bearings are used on the conveyor. Sealed bearings should never be greased more often than weekly or every 50 hours. Do not over grease. Do not give bearing more than 1 shot of grease each time it is greased. Once the bearing seal is broken, the bearing must be greased each day or the bearing will fail.

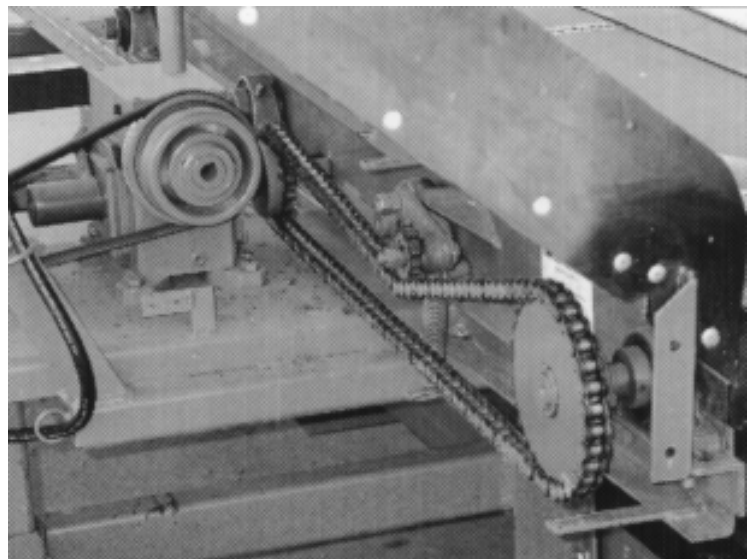
5.1.3 SERVICING INTERVALS

8 Hours or Daily

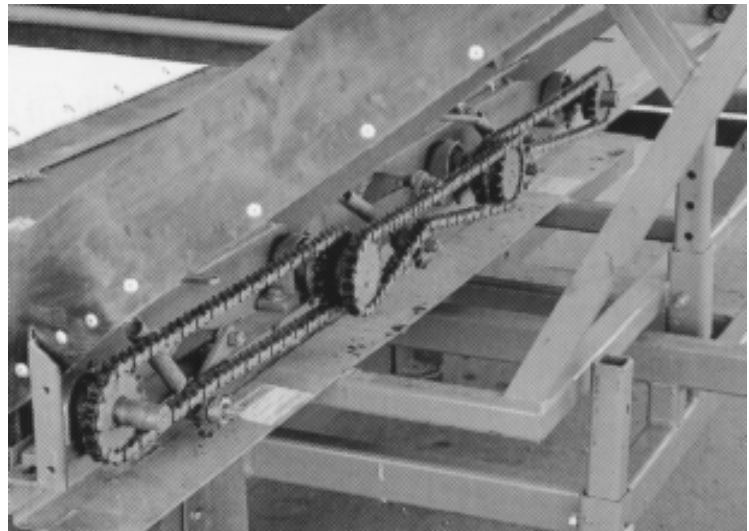
1. Oil each conveyor drive system roller chain (2 chains).



2. Check the conveyor tension and alignment. Tension or align as required.
3. Inspect electrical system and all components.



Primary Drive



Secondary Drive

Fig. 18 ROLLER CHAIN

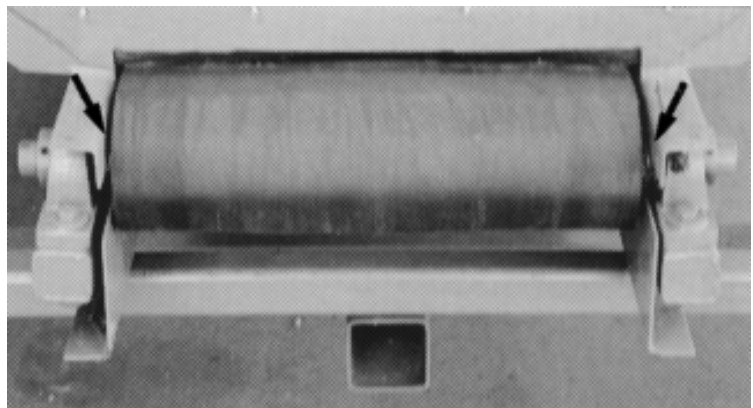


Fig. 19 ALIGNMENT

Weekly or 50 Hours

1. Grease conveyor shaft bearings with 1 shot of grease.

IMPORTANT

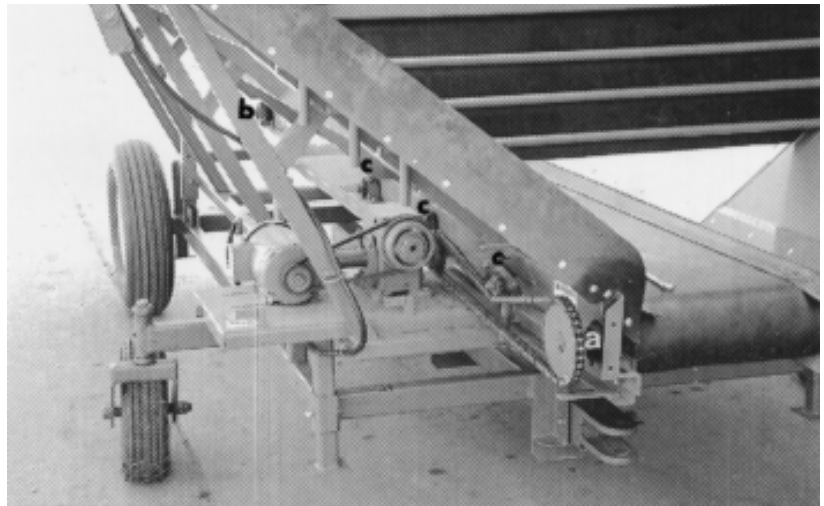
Only sealed bearings are used on the conveyor bearings. Sealed bearings should never be greased more often than weekly or every 50 hours. Do not over-grease. Do not give bearing more than 1 shot of grease each time it is greased. Once the bearing seal is broken, the bearing must be greased each day or the bearing will fail.

- a. Drive shaft
- b. Driven shaft
- c. Carrier shafts

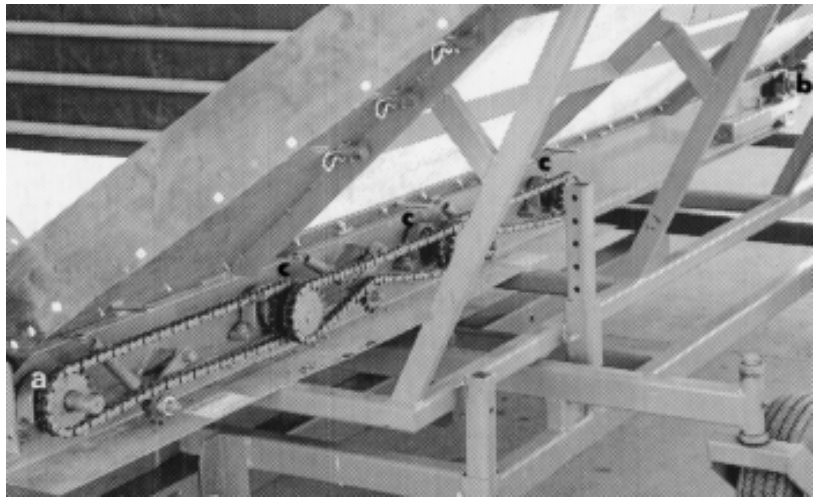


WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.



Right Side



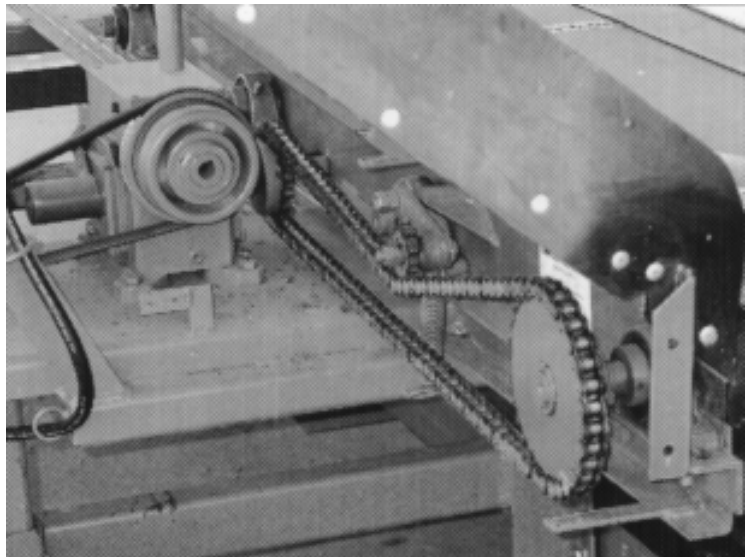
Left Side

Fig. 20 CONVEYOR SHAFTS (TYPICAL)

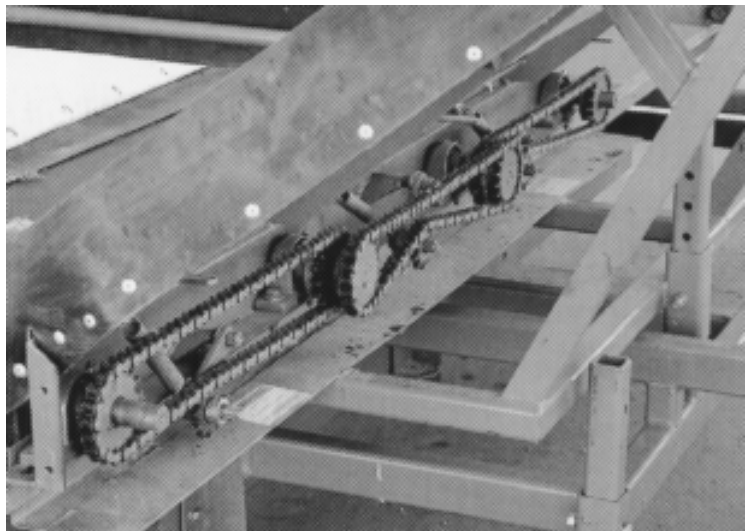
Weekly or 50 Hours (cont'd)

2. Check the conveyor drive system sprocket alignment.
3. Check the conveyor drive system roller chain tension.

Each tensioning spring should be under tension when the machine is not running.



Primary Chain



Secondary Chain

Fig. 21 CONVEYOR DRIVE SYSTEM (TYPICAL)

100 Hours or Annually

1. Grease the electric motor bearings with 1 shot of grease (2 locations each motor).

IMPORTANT

Do not over-grease electric motors. Over-greasing can render the electric motor inoperative.



WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.

2. Check the oil level in the speed reducing gearbox in the drive systems (1 location).

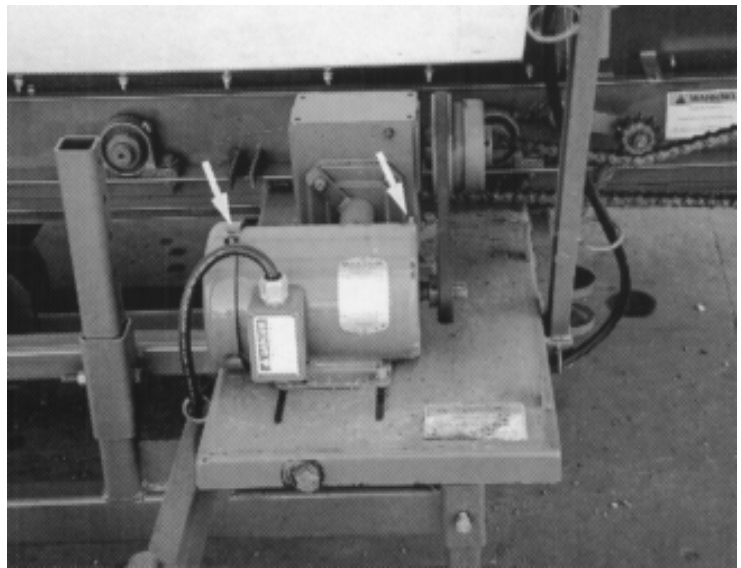


Fig. 22 ELECTRIC MOTOR

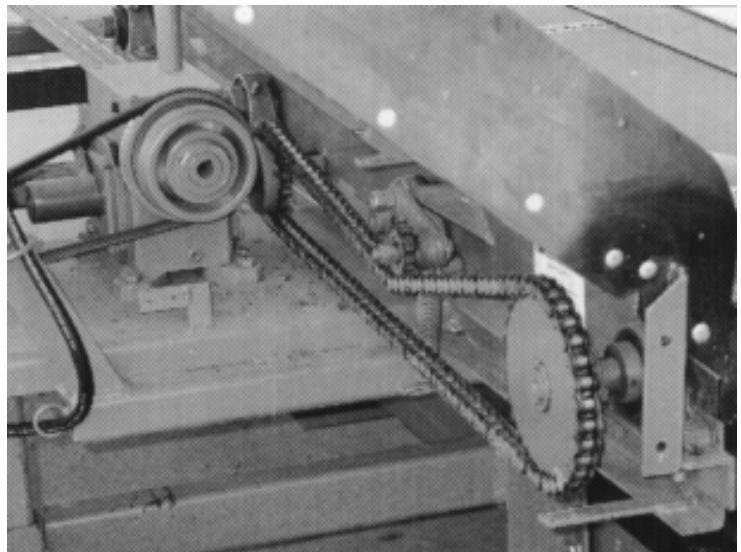


Fig. 23 LEVEL PLUG (TYPICAL)

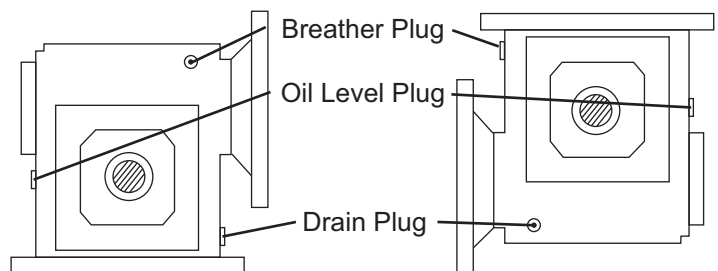


Fig. 24 GEAR BOX SCHEMATIC (TYPICAL)

500 Hours or Annually

1. Change the oil in each gearbox.
2. Clean each gearbox breather plug.



WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.

3. Repack each wheel bearing.

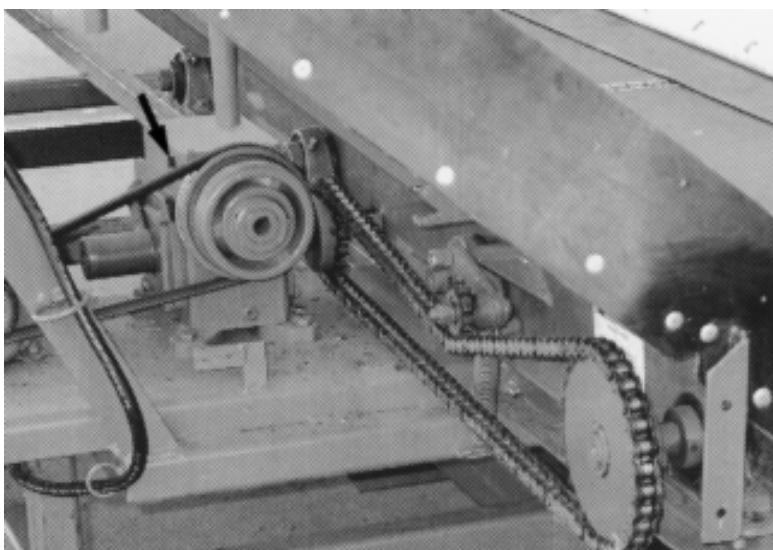


Fig. 25 BREATHER PLUG (TYPICAL)



Fig. 26 WHEELS (TYPICAL)

5.1.4 SERVICE RECORD

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

ACTION CODE: ✓ **CHECK** **C** **CHANGE** **CL** **CLEAN** **R** **REPACK**
 L LUBRICATE **RE** **REMOVE** **IN** **INSPECT**

<div> <div>HOURS</div> <div>SERVICED BY</div> <div>MAINTENANCE</div> </div>																		
8 HOURS OR DAILY																		
L Conveyor Drive System Roller Chain (2)																		
✓ Conveyor Tension & Alignment																		
IN Electrical System & Components																		
50 HOURS OR WEEKLY																		
L Conveyor Shaft Bearings																		
✓ Conveyor Drive System Sprocket Alignment																		
✓ Conveyor Drive System Roller Chain Tension																		
100 HOURS OR ANNUALLY																		
L Electric Motor Bearings 1 Shot (2 each)																		
✓ Oil Level Speed Reducing Gearbox (1 each)																		
500 HOURS OR ANNUALLY																		
C Oil in Gearbox																		
CL Gearbox Breather Plug																		
R Each Wheel Bearing																		

5.2 MAINTENANCE

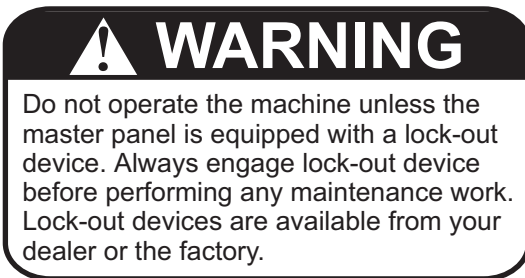
By following a careful service and maintenance program on your machine, you will enjoy many years of trouble-free use.

5.2.1 ELECTRICAL SYSTEM INSPECTION

Electricity provides power to all systems on the Metering Bin. To maintain the integrity of each system and provide a safe working environment for the operator, it is important that a daily inspection be done to make sure that all systems and components are in good working condition. To provide a safe working environment, have a licensed electrician provide power to the machine.

When inspecting the electrical system and components, follow this procedure:

1. Place all controls in the OFF position.
2. Turn power OFF at the master panel and lockout before starting the inspection.



3. Inspect all electrical components looking for:
 - a. Physical damage (includes all components: starters, switches, enclosures, as well as plugs).
 - b. Frayed or loose wires.
 - c. Cut or cracked insulation.
4. Replace any damaged components immediately.
5. Be sure all components are grounded.
6. Be sure there is no water or moisture in any junction box or enclosure. Dry the components before turning power on. Be sure that all compartments seal properly when closed.

5.2.2 ELECTRIC MOTOR RESTART

It is recommended that only a licensed electrician perform maintenance work on the electrical system.

The electric motor is supplied with power through a manual push button starter switch box. Depress the top green button to start and bottom button to stop. Each starter switch box contains a current sensing device, known as a heater, to measure or monitor the amount of current going to the motor. When the motor draws too much current, the heater will cut-off or break the circuit to motor (like a circuit breaker) and the motor/conveyor will stop. To reset the heater and start the motor again, fully depress the red stop button, Then depress the green start button to start the motor. If the motor doesn't start, go through the reset and restart sequence again. If the motor still won't start, one of the following 5 conditions exist:

1. The motor is hot and must cool a period of time before attempting to restart.

NOTE

If your Metering Bin utilizes single phase motors, chances are good that the motor has a thermal overload located on the electrical junction box of the motor itself. If this is the case then, fully depress the reset button to make certain that the overload circuit is closed.

2. The heater is of the wrong size and must be replaced with one that is the correct size.

NOTE

The proper heater size can be determined by consulting the table and instructions affixed to the inside of the front cover of the manual starter box.

3. The heater and/or starter has fulfilled its service life and is in need of replacement.
4. The motor is bad and needs replacing.
5. An electrical short exists somewhere in the circuit.

5.2.3 SPEED REDUCER GEARBOX OIL

The conveyor is driven by an electric motor that is attached to a high ratio speed reducing gearbox to give the required operating speed. The gearbox is equipped with a drain, level and fill plug. Every 100 hours, the oil level should be checked. Every 500 operating hours or annually, whichever comes first, the oil should be replaced. Check more frequently if there are leaks around any of the plugs or shaft seals. When checking oil level or changing oil, follow this procedure.

1. Run the bin conveyor until the gearbox is warm. Warm oil will remove more contaminants than cold stagnate oil.
2. Stop the conveyor.
3. Place all controls in their OFF or neutral position.
4. Turn the power OFF at the master panel and lock-out.
5. **Checking oil level:**
 - a. When the gearbox is cold, remove the level plug from the side of the gearbox.
 - b. When the oil just fills the threads of the level plug, it is at the correct level.
 - c. Add oil through the fill plug as required.
 - d. Install and tighten level and fill plugs.
6. **Changing oil:**
 - a. Place a container under the drain plug.
 - b. Remove the drain plug.
 - c. Allow 10 minutes to drain.
 - d. Install and tighten the drain plug.

NOTE

It may be necessary to add teflon tape or pipe sealant to the drain plug prior to installation to prevent leaking.

- e. Remove the level and fill plugs.
- f. Add Browning Worm Gear GL 32HT lubricant or equivalent. Use the level plug to determine the proper amount of oil.
- g. Check that the air passage through the breather is open.
- h. Install and tighten the fill and level plugs.
- i. Dispose of the used oil in an environmentally safe manner.

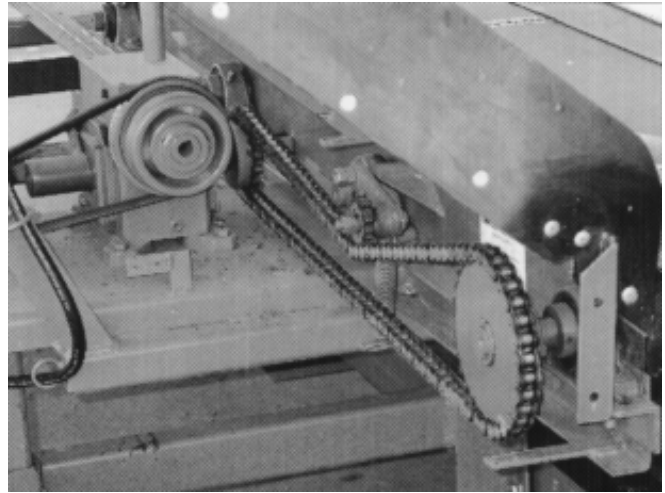


Fig. 27 GEARBOX

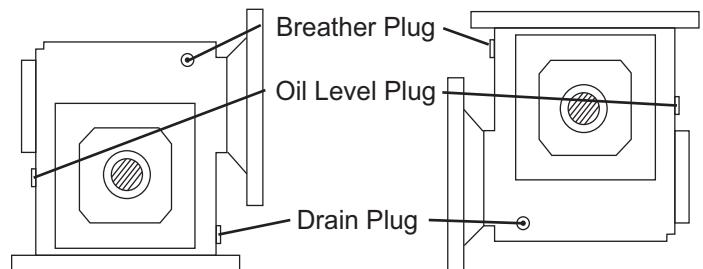


Fig. 28 GEAR BOX SCHEMATIC (TYPICAL)

5.2.4 BREATHER CLEANING

The gearbox is equipped with a breather in the fill plug that vents the internal pressure to atmosphere. As the gearbox temperature increases and decreases during the operating and stopped modes, the pressure in the gearbox will increase or decrease if it is not vented to atmosphere. An increase in internal pressure will cause the shaft seals to leak until the gearbox runs low on or out of oil. To check on or clean the breather, follow this procedure:

1. Place all controls in their OFF or neutral position.
2. Turn the power OFF at the master panel and lock-out.
3. Remove the fill plug/breather from the gearbox.
4. Check that the vent passage through the plug is open.
5. If plugged, soak in a solvent over night.
6. Use a high-pressure air hose to blow the passage open. Use a probe to clear the passage if the hole is caked with dirt.
7. Install and tighten the breather plug.

IMPORTANT

Always clean the breather if any leaks are noticed around shafts.

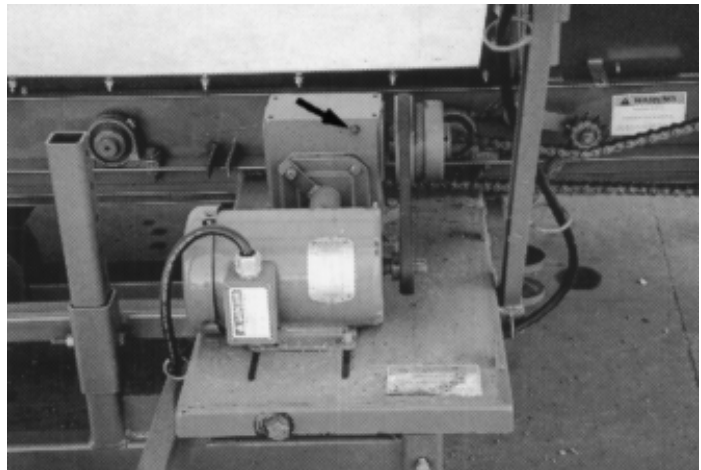


Fig. 29 BREATHER



WARNING

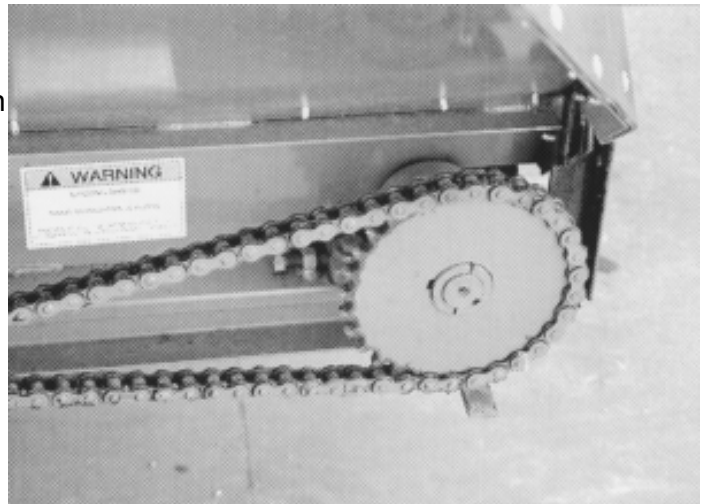
Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.

5.2.5 CONVEYOR TENSION/ ALIGNMENT OR REPLACEMENT

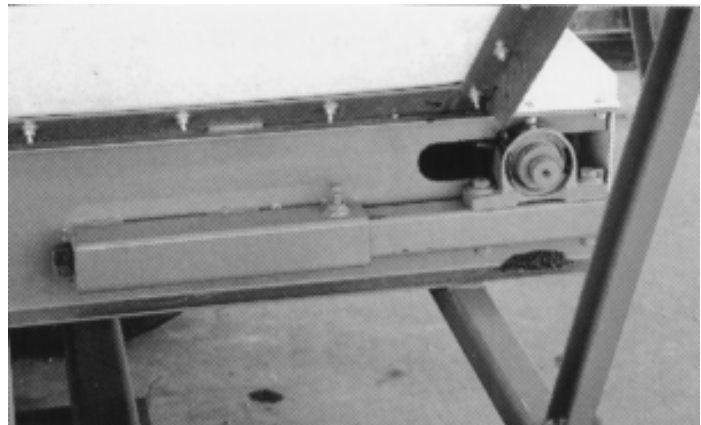
A rubber belt is used to empty the bin. The tension and alignment of the conveyor should be checked daily to insure proper function. Replace the conveyor when damaged or badly worn. To maintain conveyor, follow this procedure:

1. Place all controls in their OFF or neutral position.
2. Turn the power OFF at the master panel and lock-out.
3. **Tension:**

It is tensioned correctly when there is a 1 to 2 inch (25 to 50 mm) sag between the guide rollers on the bottom or slack side of the conveyor during operation.



Drive



Driven

Fig. 30 BELT TENSION ADJUSTING (TYPICAL)

4. **Alignment:**

They are properly aligned when the belt runs in the center of the frame panels and the shafts. Be sure to run the conveyor a full revolution to check the entire belt. The belt can move from side-to-side while it is turning as long as it doesn't contact the sides. If it contacts the sides, it must be aligned. Align by loosening the shaft bearing assembly on the tight side or tightening the bearing assembly on the loose side. Move the bearing assemblies on the drive shaft but always maintain the proper tension.

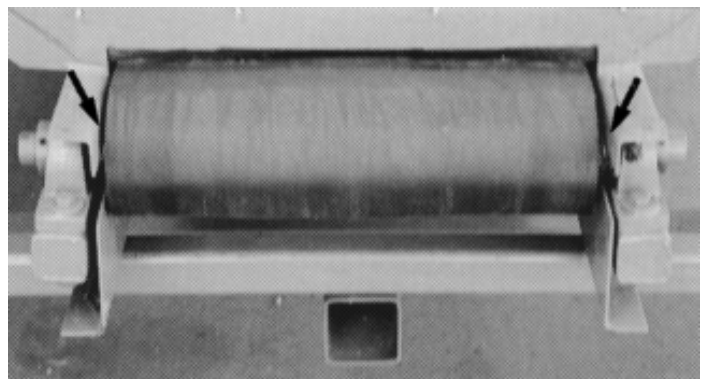


Fig. 31 BELT ALIGNMENT (TYPICAL)

5. Replacement:

- a. Move one or both of the drive shafts into their loosest position.
- b. Open the conveyor by removing the connecting rod through the splice.
- c. Attach the replacement conveyor to the end of the old conveyor.
- d. Slowly pull the old conveyor out of the machine and thread the new one into position.
- e. Disconnect the old conveyor and connect the ends of the new one together.
- f. Move the shaft into position to set the tension of the conveyor and secure the bearing assemblies.
- g. Check the tension and alignment of the conveyor frequently during the first 10 hours of operation and set as required. Then, go to the regular maintenance schedule. Normally a conveyor will seat itself during the first 10 hours of operation and then require less adjustment.

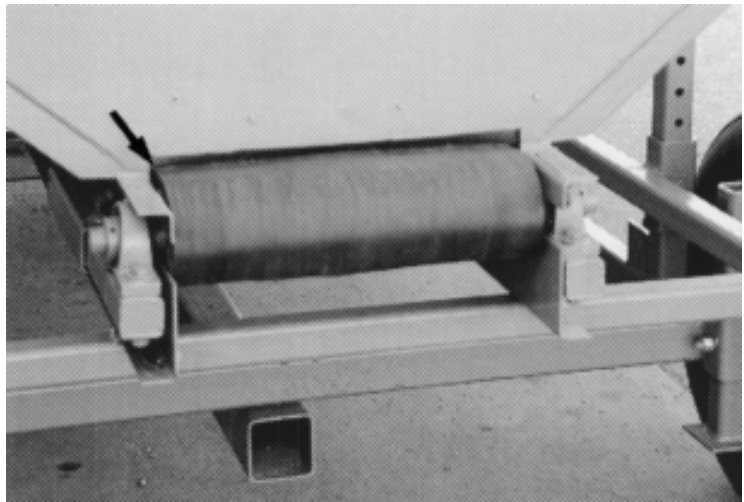


Fig. 32 BELT CONNECTOR (TYPICAL)

5.2.6 ROLLER CHAIN DRIVES

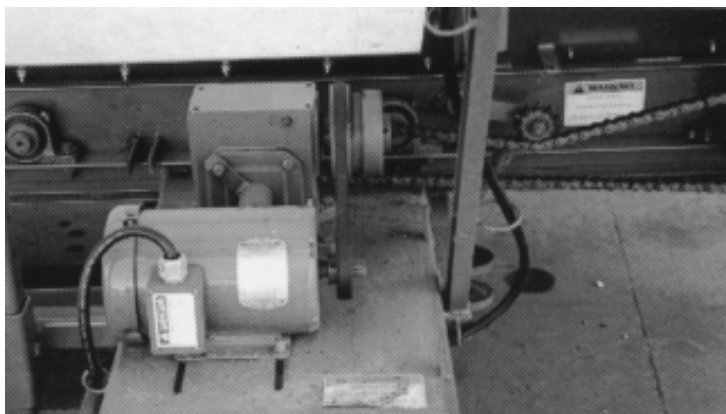
The conveyor is driven by a roller chain system with sprockets and an idler. The roller chain must be oiled on a daily basis and the tension and alignment checked weekly during the season. When maintaining the roller chain, follow this procedure:

1. Daily Oiling:

- Turn machine off. Disconnect power cord and lock out.
- Remove the guards over the conveyor drive system.
- Use an oil can or brush to apply oil to the slack side of the chain.

WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.



Primary



Secondary

Fig. 33 ROLLER CHAIN DRIVE

- Refer to the following table for oil type.

CHAIN TYPE*	AMBIENT TEMPERATURE RANGE		
	14°F-32°F	32°F-104°F	104°F-122°F
RS-50-less	SAE 10	SAE 20	SAE 30
RS-60/RS-80	SAE 20	SAE 30	SAE 40
RS100	SAE 20	SAE 30	SAE 40
RS120/MORE	SAE 30	SAE 40	SAE 40

* Stamped on chain link side plate

- Install and secure all the guards.

2. Weekly Sprocket Alignment:

- a. Check alignment by:
 - i. Lay a straight edge across the faces of the sprockets. When the straight edge is flush with the faces of the sprockets, they are aligned, or
 - ii. Visually sight across the faces of the sprockets. If sprockets are in the same plane they are aligned.
- b. Loosen jam nut and set screw through sprocket hub if alignment is required.
- c. Move sprocket to required position.
- d. Tighten set screw and jam nut to their specified torque.
- e. Install and secure all the guards.

3. Weekly Roller Chain Tension:

Each roller chain drive system is equipped with a spring-loaded idler sprocket to maintain the required tension on the chain during operation. Check the idler when the machine is OFF and not moving. There should be some tension on the spring attached to the idler sprocket when the machine is at rest. Without spring tension when stopped, there will not be sufficient tension on the system during operation. Provide spring tension by:

- a. Check the condition of the spring itself. If it has a permanent set, it has reached the end of its useful life and must be replaced.
- b. Shorten the roller chain itself by removing a half link, full link or more until the spring is under tension.
- c. Move the driven sprocket (drive shaft of the conveyor) away from the gearbox. Be sure to maintain the required tension and alignment on the conveyor (refer to Section 5.2.6).



5.2.7 BELT DRIVE SPEED SETTING

Each machine is designed with a drive belt system that can be used to change the conveyor speed. To change the conveyor speed, follow this procedure:

1. Place all controls in their OFF or neutral position.
2. Turn the power OFF at the master panel and lock-out.
3. Use the motor position bolt to move the motor.
4. The driven pulley moveable sheave is spring-loaded and will move on the shaft as required. The moveable sheave will always maintain the required belt clamping force to prevent slipping.
5. As the motor (drive pulley) is moved away from the driven pulley, the belt is pulled deeper into the groove. As the belt goes deeper into the groove, the effective pulley radius gets smaller and the conveyor runs faster.
6. Move the motor closer to the driven pulley to reduce the conveyor speed.

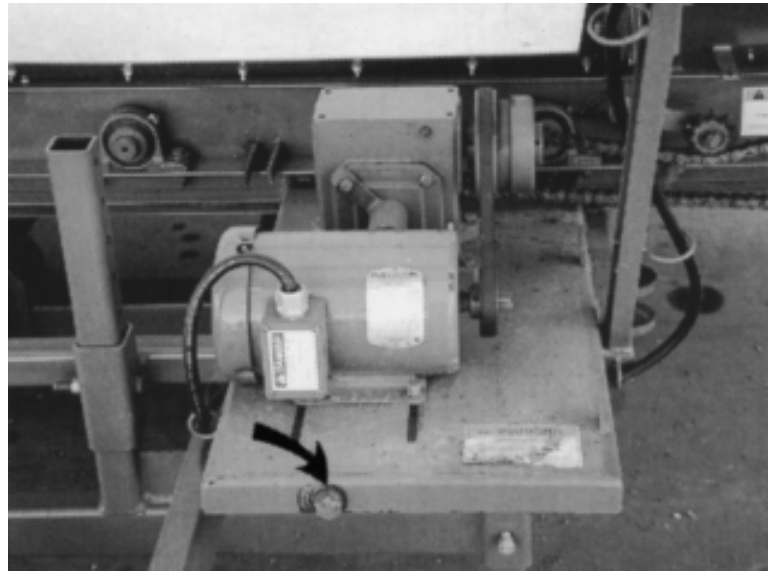


Fig. 34 SPEED ADJUSTER

NOTE

The guard over the belt drive does not have to be removed to adjust conveyor speed.



WARNING

Machine is shown with guards removed for illustrative purposes only. Do not operate with guards removed.

6 TROUBLE SHOOTING

The Mayo Metering Bin is a large holding tank with a belt conveyor on the bottom. It is a simple and reliable system that requires minimum maintenance.

In the following section, we have listed many of the problems, causes and solutions to the problems that you may encounter.

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

PROBLEM	CAUSE	SOLUTION
System won't run.	No power. Tripped circuit breaker.	Plug machine in. Turn power ON at master panel. Reset circuit breaker.
Conveyor won't run.	No power. Tripped motor starter. Failed drive chain. Sheared motor key. Sheared reducer key. Binding.	Plug machine in. Turn elevator or rollers ON. Reset starter. Replace drive chain if broken. Install chain on sprockets and set tension. Replace key. Replace key. Align conveyor.

7 SPECIFICATIONS

7.1 MECHANICAL

DIMENSIONS	Standard 8' x 10' Bin
Length:	12' 9"
Width:	9' 0"
Height:	6' 7"
Weight:	2000 lbs.
POWER	
Type	1 ph, 230v, 18A 3 ph, 230v, 9A 3 ph, 230v, 4.3A
Conveyor:	3HP
TIRES	
Steering:	4.80-8
Fixed:	7.60-15

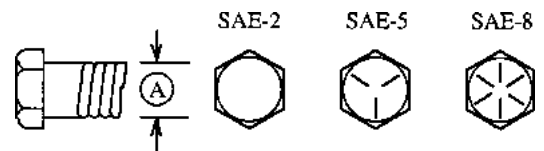
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

7.2 BOLT TORQUE

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

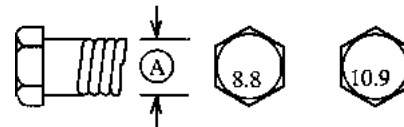
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque					
	SAE 2 (N.m) (ft-lb)		SAE 5 (N.m) (ft-lb)		SAE 8 (N.m) (ft-lb)	
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970



METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque			
	8.8 (N.m) (ft-lb)		10.9 (N.m) (ft-lb)	
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	575	1550
M36	2600	1917	3675	2710



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

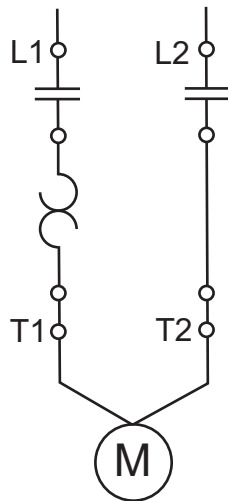
7.3 ELECTRICAL SCHEMATIC

Line phasing, line voltage, control voltage, drum switches, and accessory options can vary for each machine.

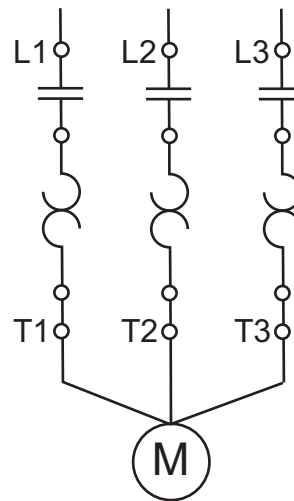
Please contact factory at 1-800-223-5873 for your machine's specific electrical layout.

METERING BIN CONVEYOR (TYPICAL)

STANDARD 230V, 1-PHASE



STANDARD 230V/460V, 3-PHASE



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MAYO MANUFACTURING CO.
P.O. BOX 497, BUS. HIGHWAY 2
EAST GRAND FORKS, MINNESOTA 56721

PHONE (218) 773-1234
(800) 223-5873
FAX (218) 773-6693

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