

MAYO



RECIRCULATING TANK

OPERATOR'S 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 STATUE, 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 outfox 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 judgement 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 RECIRCULATING TANK 8000 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 and Wheel Bolts Torqued
 Trash Screen Clean Inspect Electrical System
 Water Lines and Fittings Tight
 Machine Lubricated
 Conveyor Tensioned and Aligned
 Roller Chain Tensioned and Aligned
 Speed Reducer Gearbox Oil Level Checked

SAFETY

All Safety Signs Installed
 Lights, 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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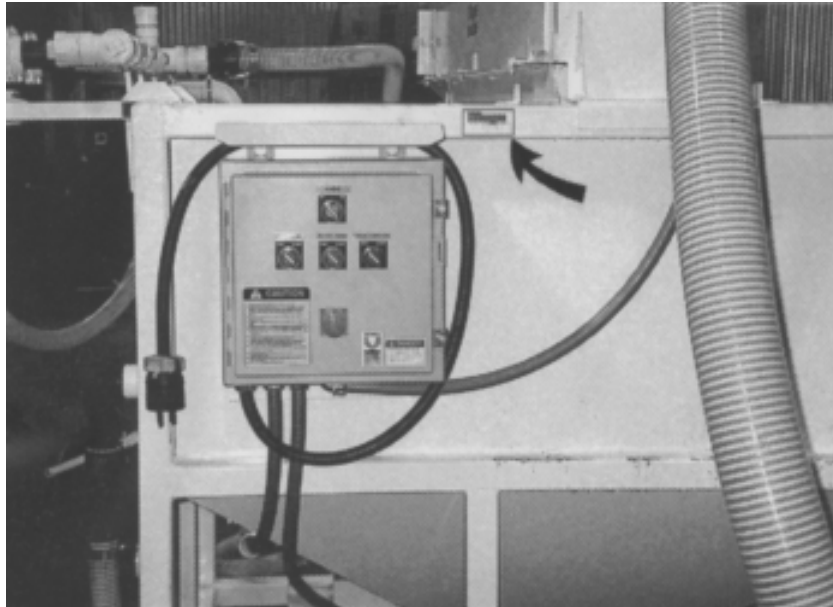
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SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Mayo Recirculating Tank 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 8000 Series Recirculating Tank 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 Recirculating Tank requires that you, and anyone else who will be operating or maintaining the Tank, read, understand and practice ALL of the Safety, Operation, Maintenance and Trouble Shooting recommendations contained within this Operator's Manual.



This manual applies to the Model 8000 Series Recirculating Tank manufactured by Mayo. Certain options may be available to specifically tailor the Tank 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 Tank is the front. All controls are on the front end.

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 Recirculating Tank 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 Recirculating Tank. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Tank 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 Tank.

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.

- Recirculating Tank owners must give operating instructions to operators or employees before allowing them to operate the Tank, 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 Tank.



2. Only trained, competent persons shall operate the Tank. 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. 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



6. 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).
7. Know the emergency medical center number for your area.
8. 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 Recirculating Tank 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 elevating, 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 Tank 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 Recirculating Tank.
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. Clear the area of bystanders, especially small children, before starting.
6. Make sure all control switches are in the off position before connecting power supply.
7. 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.
8. Keep the working area clean and dry.
9. 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 Recirculating Tank.
5. Do not work on Recirculating Tank electrical system unless the power cord is unplugged and the power supply is locked out.



2.5 ELECTRICAL SAFETY

1. Have only a qualified electrician supply power.
2. Make certain that the Recirculating Tank is properly grounded at the power source.
3. Make certain that all electrical switches are in the OFF position before plugging the Recirculating Tank 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 Tank 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. Wrap up and bind to the frame all loose water lines and electrical ends.
6. 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.
7. Be sure that the Recirculating Tank is positively hitched to the towing vehicle. Use a proper safety chain to assure a safe hitch hook-up when transporting.
8. Adhere to local regulations regarding maximum weight, width and length.
9. Do not exceed 20 MPH (32 Km/H). Reduce speed on rough roads and surfaces.
10. Do not allow anyone to ride on the Tank or towing vehicle during transport.
11. Always use hazard flashers on the towing vehicle when transporting.

2.8 STORAGE SAFETY

1. Store the Recirculating Tank 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 Recirculating Tank.
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 Recirculating Tank.

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.

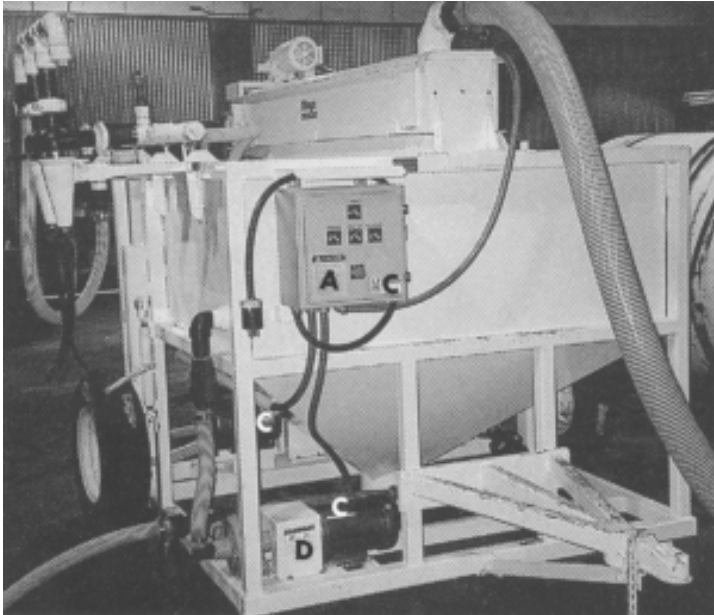
How to Install Safety Signs:

- 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.

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

⚠ CAUTION

1. Read Operator's Manual before starting.
2. Turn machine OFF, shut down and lock out power source, unplug power cord and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Keep all electrical components tight, dry and in good repair.
4. Keep all hydraulic components tight and in good repair.
5. Replace all worn or failed components immediately.
6. Install and secure all guards before operating.
7. Keep hands, feet, hair and clothing away from moving parts.
8. Install safety locks on the boom and elevator before transporting or working under them.
9. Lower boom and elevator to safety locks, center boom and install all safety locks before transporting.
10. Use pilot vehicles when transporting.
11. Stay away from overhead power lines and obstructions when moving. Electrocutation can occur without direct contact.
12. Do not stand or climb on machine when running. Keep others off.
13. Have only a qualified electrician provide power to the machine.
14. Review safety instructions annually.

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B

⚠ **WARNING**
MISSING GUARD HAZARD
Install and secure guard
before operating.

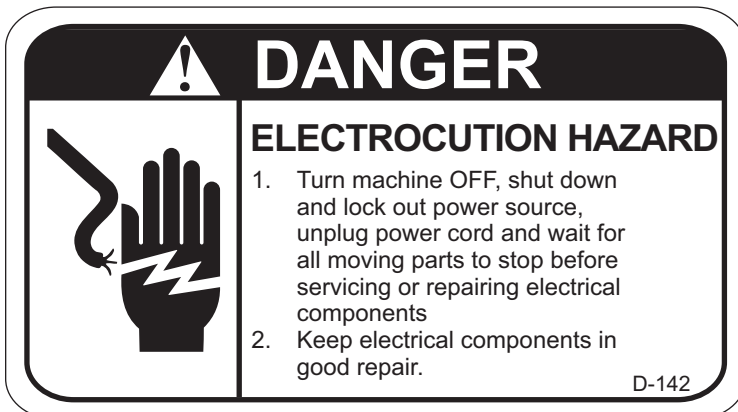
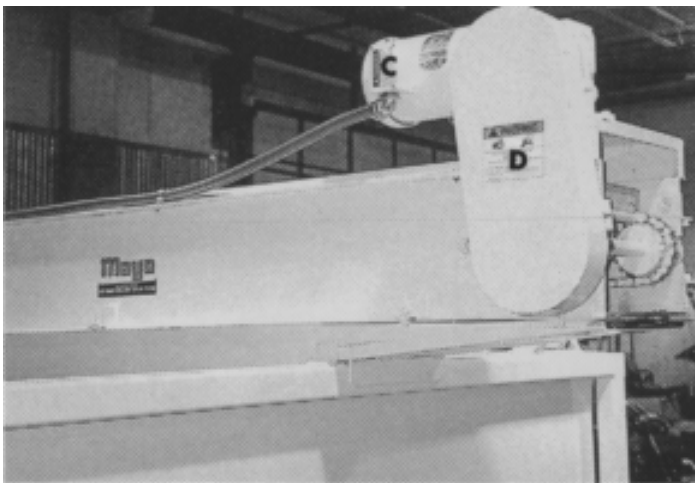
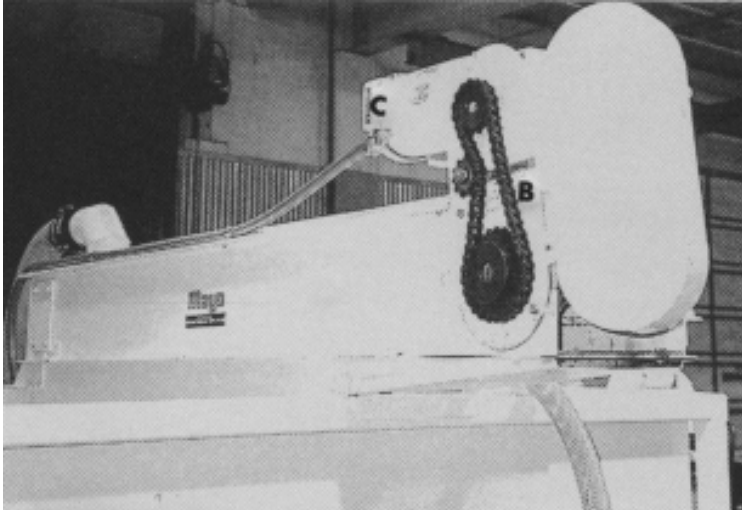
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REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

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!



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 Recirculating Tank.
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. Clear the area of bystanders, especially small children, before starting.
6. Make sure all control switches are in the off position before connecting power supply.
7. 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.
8. Keep the working area clean and dry.
9. Review safety instructions annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Mayo Manufacturing Recirculating Tank is designed to remove dirt, trash and large particle contaminants from wash water. Be familiar with the machine before starting.

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 Recirculating Tank will provide many years of trouble-free service.

4.2 MACHINE COMPONENTS

The Mayo Manufacturing Recirculating Tank consists of a trash screen, tank, cyclone cleaners and pumps. As dirty water flows from a potato washer, it enters the machine at the trash screen where large pieces of trash and debris are removed. The water flows through the screen and drops into the tank where it is pumped from the bottom sump through the cyclones for cleaning.

Clean or recycled water is pumped from above the sump back to the washer. An overflow outlet is on the side of the tank to prevent over-filling of the system.

The controls are mounted on a central control panel next to the hitch.

The machine is equipped with wheels for moving and transporting and a removable hitch on the front end. Ratchet jacks on each wheel assembly raise the wheels and lower the frame to ground.



- A Wheels
- B Hitch
- C Sump
- D Sump Outlet
- E Trash Pump
- F Cyclone Lines
- G Cyclones
- H Trash Conveyor
- J Water Intake
- K Recirculation Pump
- L Recirculation Line

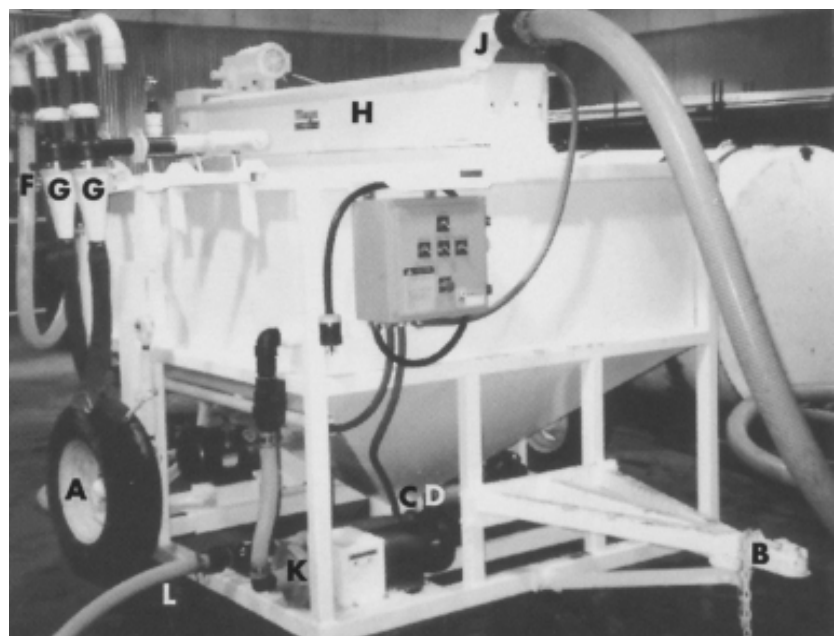


Fig. 1 MACHINE COMPONENTS

4.3 GENERAL OPERATION THEORY

The Recirculating Tank is normally used in conjunction with a Potato Washer and is used to remove contaminants from the wash water. After the trash and large contaminants are removed, the water is recycled and pumped back to the Washer for re-use.

The customer must provide a means to collect and remove the slurry of contaminants from under the cyclone discharges and also a method to collect and remove trash from the trash conveyor on top of the machine.

It will also be necessary to provide a drain should the volume of water increase in the system from the fresh water rinse circuit.

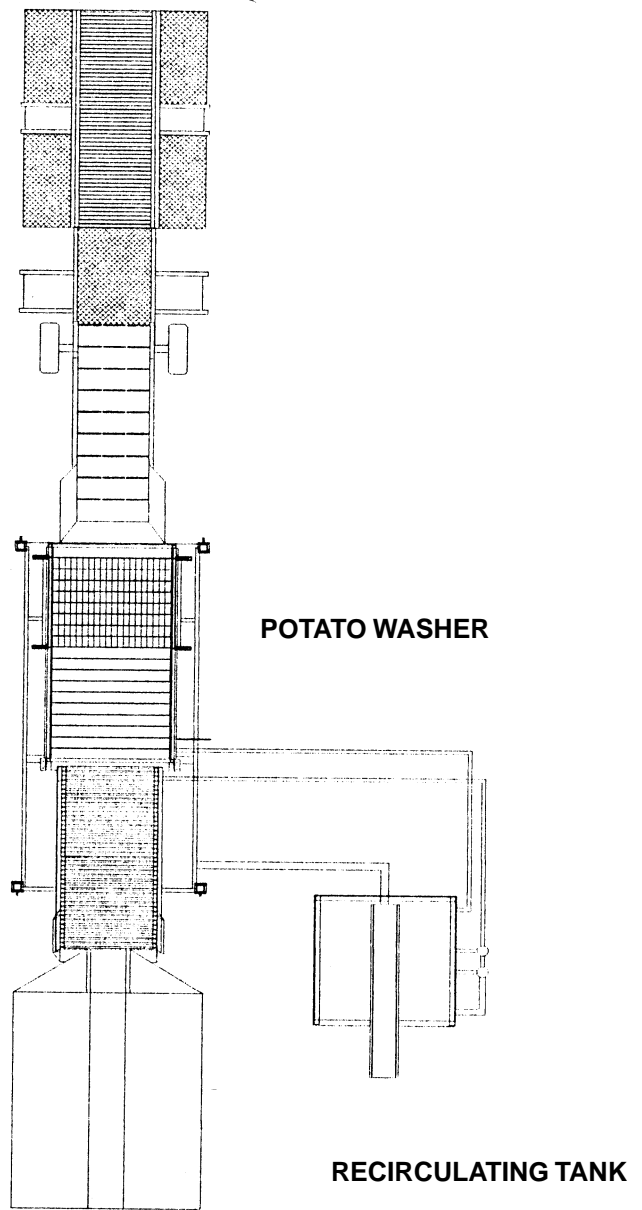


Fig. 2 POSITIONED (TYPICAL)

4.4 MACHINE BREAK-IN

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

A. Read Recirculating Tank, Washer and auxiliary equipment manuals before starting.

B. After operating for 1/2 hour:

1. Retorque all wheel bolts.
2. Retorque all fasteners and hardware.
3. Check the tension and alignment of the trash conveyor chain. Realign as required.
4. Check that all electrical connections are tight and cords are routed out of the way or protected.
5. Check for leaks in water system. Retorque fittings that leak.
6. Check that no water lines are being pinched or crimped. Reroute as required.
7. Check the alignment and tension of the drive chain. Realign or tighten as required.
8. Check all drive sprockets to make sure none have moved. Re-align and tighten any that have moved.
9. Check oil level in the speed reduction gear box. Top up as required.
10. Lubricate all grease fittings.

C. After 2,5 and 10 hours of operation:

1. Retorque all fasteners and hardware.
2. Check the tension and alignment of the trash conveyor chain. Realign as required.
3. Check that all electrical connections are tight and cords are routed out of the way or protected.
4. Check for leaks in water system. Retorque fittings that leak.
5. Check that no water lines are being pinched or crimped. Reroute as required.
6. Check the alignment and tension of the drive chain. Realign or tighten as required.
7. Check all drive sprockets to make sure none have moved. Re-align and tighten any that have moved.
8. Check oil level in the speed reduction gear box. Top up as required.
9. Then 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 Recirculating Tank 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 Tank. The checklist should be performed before operating the machine 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. Check for water leaks. Tighten fittings or reroute hoses as required to maintain a leak-free system.
4. Insure that all safety guards and shields are in good repair and securely in place.
5. Check that the conveyor chain is centered on the head and tail rollers. Adjust if necessary as outlined in the "Maintenance Section".
6. Check for and remove all entangled material.
7. Make sure that all electrical switches are in the OFF position before supplying power.
8. Check that all electrical connections are tight and cords are routed out of the way or protected.
9. 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. Master OFF/ON

This 2 position rotary switch controls the power to the control panel. Turn counter-clockwise to turn OFF and clockwise to turn ON. The switch must be turned ON before using any other switch or function.

2. Cyclone Pump STOP/START:

This 2 position rotary switch controls the power to trash pump electric motor. Turn counterclockwise to STOP and clockwise to START. This pump removes the water from the sump at the bottom of the machine and pumps it through the cyclones for cleaning.

3. Recirculation Pump STOP/START:

This 2 position rotary switch controls the power to the electric motor driving the recirculation pump. Turn counter-clockwise to STOP and clockwise to START.

4. Trash Conveyor STOP/START:

This 2 position rotary switch controls the power to the electric motor that drives the trash conveyor. Turn counter-clockwise to STOP and clockwise to START.

5. Emergency STOP Control:

This red push/pull button is the emergency STOP control for the machine and stops all functions. Push the control in for emergency STOP. Place all the individual controls in their OFF position. Before the machine can be restarted, the Emergency STOP button must be pulled out. If the individual controls are not all placed in their OFF position when the STOP button is pulled out, all the motors will try to start at the same time. **DO NOT use the emergency STOP switch as a master start switch.**

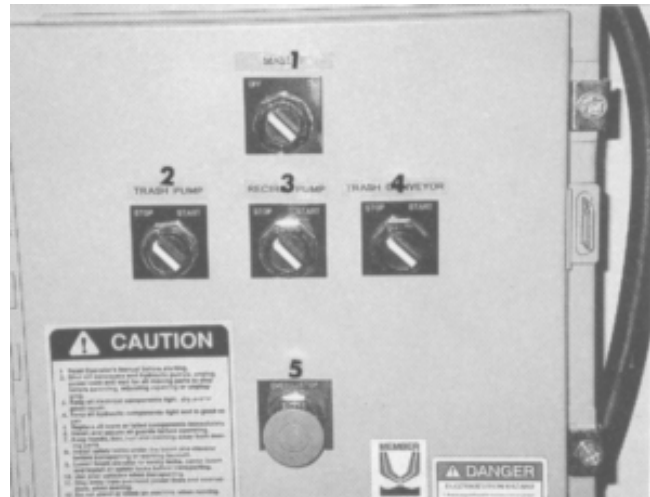


Fig. 3 ELECTRIC PANEL CONTROLS

6. **Water System Ball Valves:**

a. **Sump Valve:**

This ball valve controls the flow of water out of the tank sump and into the cyclone cleaners. Place the handle parallel to the line to open it and at right angles to close it or stop the flow. The line is always wide open during operation.



Fig. 4 SUMP VALVE

b. **Cyclone Valve:**

This ball valve controls the system pressure through the cleaning cyclones. Close slightly and set a small back-pressure in system to remove contaminants from the water.

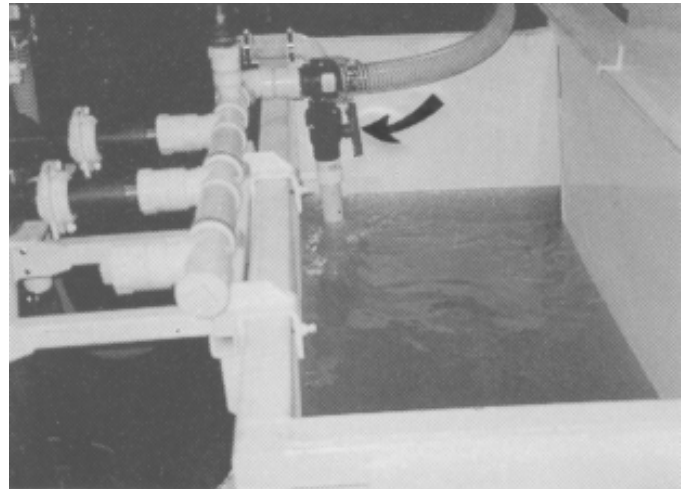


Fig. 5 CYCLONE VALVE

c. **Recirculation Tri-Valve:**
This 3 direction ball valve directs the flow of water from the recirculation pump. Move the handle to point in the direction of flow:

i. Point toward the sump to direct the flow to the sump.

ii. Point toward the washer to direct the flow to the washer.

iii. Point toward the recirculation pump to direct the flow to both the sump and washer.

d. **Recirculation Valve:**
This valve controls the flow to the recirculation system. Place the handle parallel to the line to open the valve and provide flow. Place at right angles to the line to close the valve and stop the flow. Always open the valve during operation.

7. Cyclone System

Backpressure:

This gauge measures the backpressure in the cyclone system. Use the cyclone valve to set and control the backpressure. Some pressure is required for the cyclones to function.

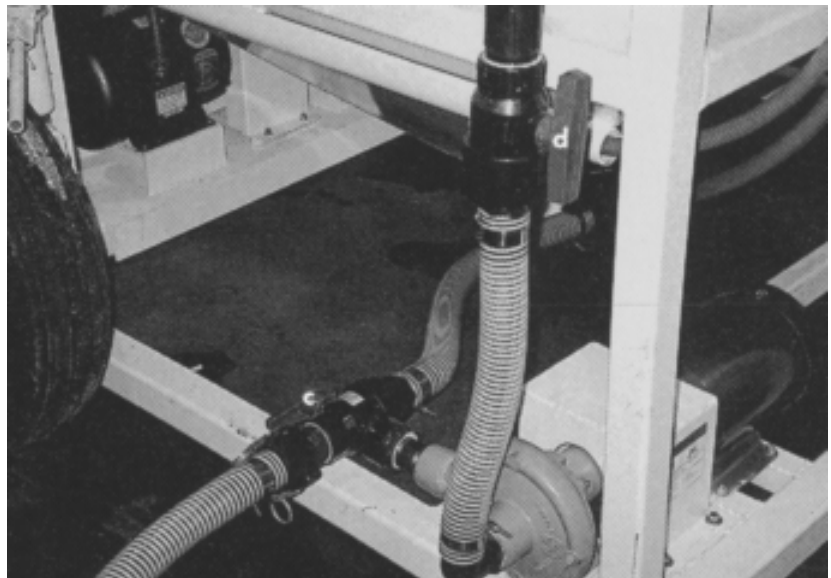


Fig. 6 RECIRCULATION SYSTEM

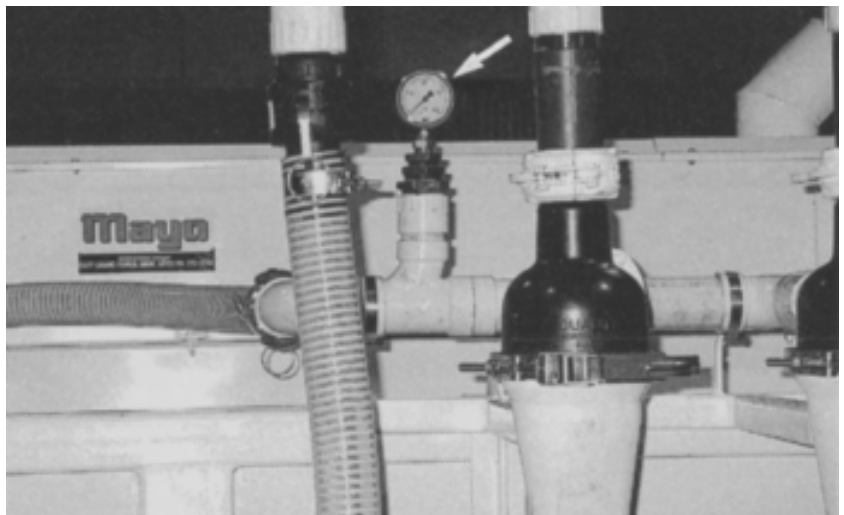


Fig. 7 PRESSURE GAUGE

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. **Wheel Assembly Jacks:**
Each machine is equipped with 2 wheels for moving and transporting. The wheels are attached to an assembly that can move up and down as required and is positioned by a ratchet jack. Use the ratchet jack to raise the wheels and rest the frame on the ground during operation. Lower wheels for moving and transporting.

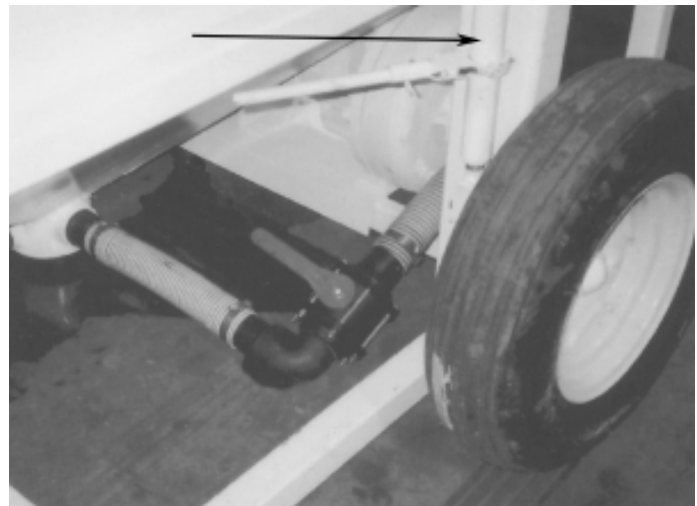


Fig. 8 WHEEL ASSEMBLY JACKS

3. **Water:**
The machine must be filled with water until the level is just below the overflow port and covers the recirculation pump outlet a few inches. Add during operation if required to maintain this level.

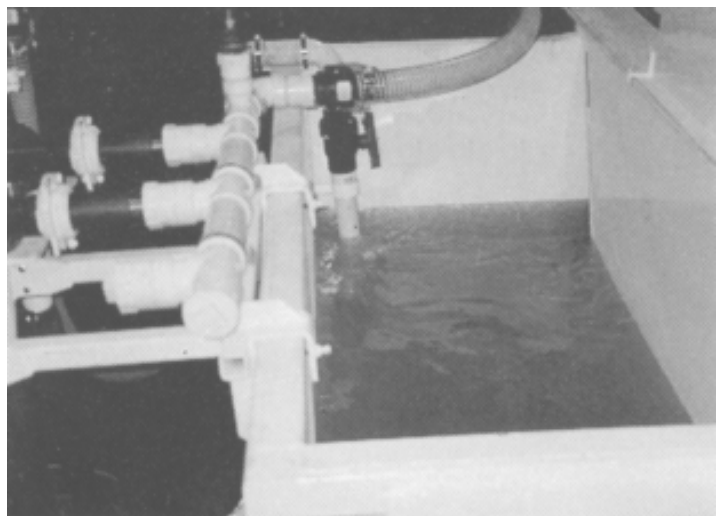


Fig. 9 WATER LEVEL

4. Auxiliary Equipment:

Each customer must provide a means to collect and hold the slurry being expelled by the cyclones and to remove the trash from the end of the trash conveyor.

- a. A barrel(s) or tank work well to collect the slurry. 2 to 5 gallons per minute of slurry can be expected. Size your collector accordingly.
- b. Use a conveyor or holding system to remove the trash.

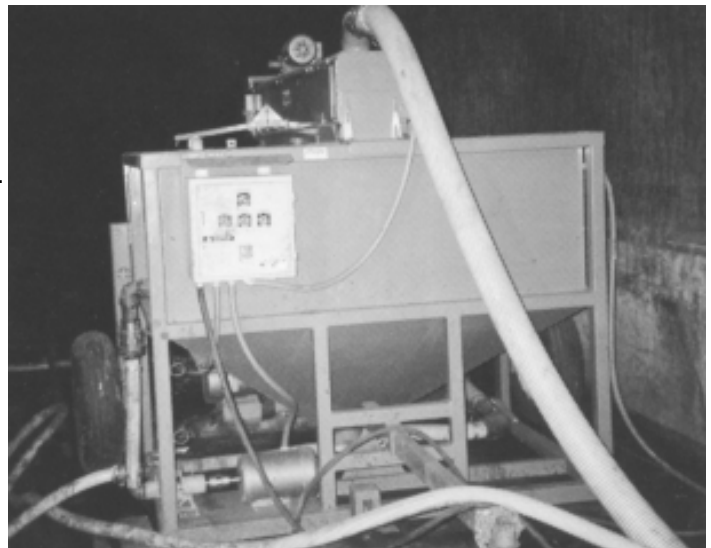


Fig. 10 AUXILIARY EQUIPMENT

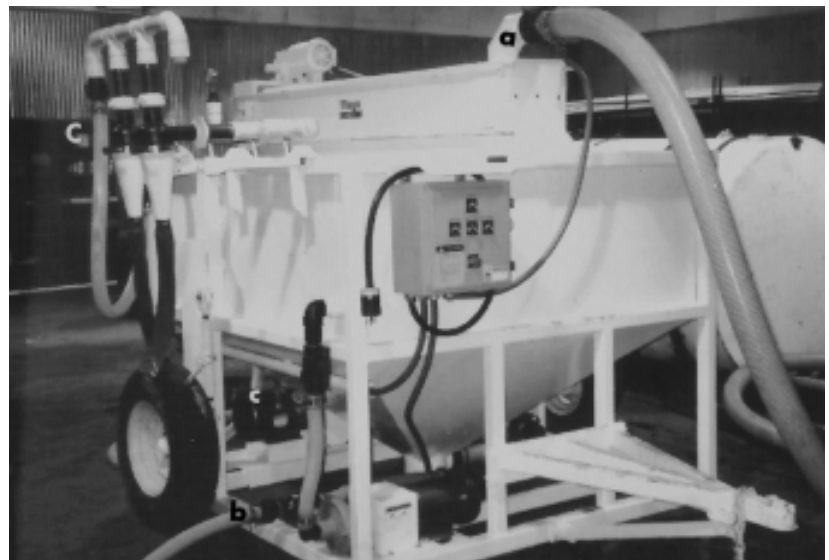
5. Water Lines:

Water lines must be installed between the tank and the Washer to transfer water between the two machines.

- a. Connect the 4 inch line between the Washer sump and the trash conveyor intake using the cam lock coupler.
- b. Connect the 2 inch recirculation line between the recirculation pump and input line using the cam lock couplers.
- c. Connect the 2 inch line between the cyclone pump and the cyclones using the cam lock couplers.



Washer



Tank

Fig. 11 WATER LINES

4.8 OPERATING



OPERATING SAFETY

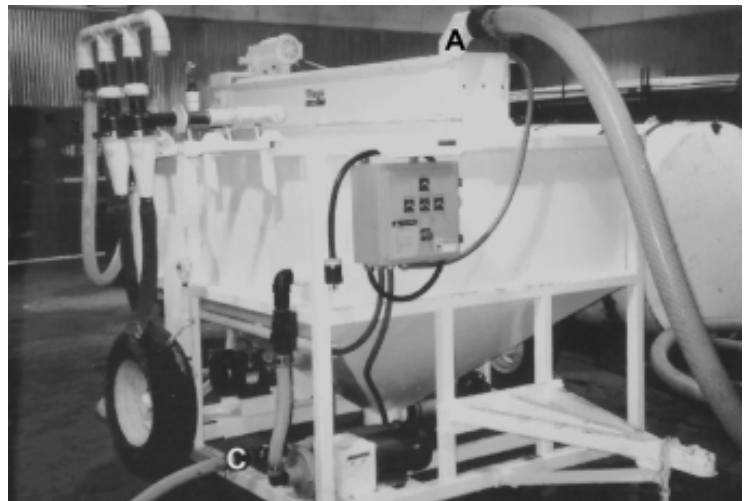
1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Recirculating Tank.
2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), and wait for all moving 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. Clear the area of bystanders, especially small children, before starting.
6. Make sure all control switches are in the off position before connecting power supply.
7. 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.
8. Keep the working area clean and dry.
9. Review safety instructions annually.

Follow this procedure when using the Recirculating Tank:

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).
4. **Water Line Attachment:**
 - a. Attach the input line to the top of the trash conveyor and secure.
 - b. Attach the input line to the Washer sump and secure.
 - c. Attach the recirculation line and secure.
 - d. Attach the water inlet line to Washer and secure.
 - e. Attach a 3/4" fresh water hose to washer and secure.



Washer



Recirculating Tank

Fig. 12 WATER LINE ATTACHMENT

5. Starting Recirculating Tank:

- a. Clear the area of bystanders. Know where everyone is before starting.
- b. Place all controls in the OFF or neutral position.
- c. Turn the power to the machine ON at the master panel.
- d. Turn the master power switch ON (Refer to Section 4.7 Controls).

NOTE

Be sure the red Emergency Stop switch is pulled out.

- e. Turn the cyclone pump ON.
- f. Turn the recirculation pump ON.
- g. Turn the trash conveyer ON.
- h. Turn the conveyor ON that removes trash from the trash conveyer.
- i. Turn the washer trash pump ON.

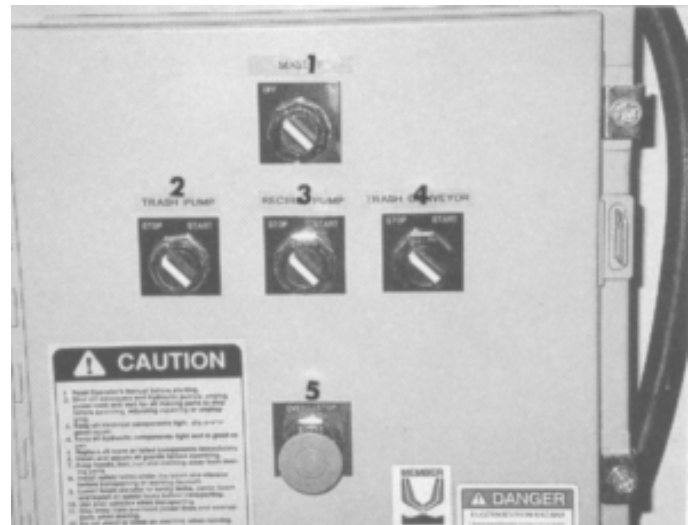
6. Stopping machine:

- a. Turn the Washer OFF.
- b. Turn the conveyor OFF that removes trash from the trash conveyor.
- c. Turn the trash conveyor OFF.
- d. Turn the recirculation pump OFF.
- e. Turn the cyclone pump OFF.
- f. Turn the master power switch OFF.
- g. Turn the power OFF at the master panel and lock out.

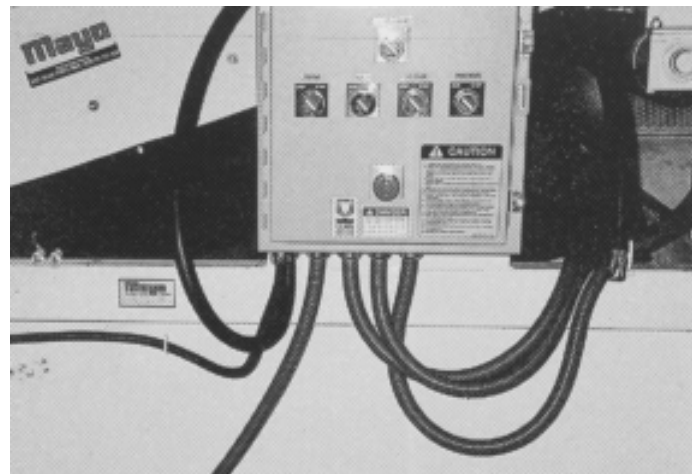
An alternative is to depress the red Master STOP button on the control panel but then the operator must go through steps a through g to turn all the controls OFF before restarting.

7. Emergency STOP:

Depress the large red STOP button on the control panel. This will stop the conveyor and pumps. Be sure to turn all the individual control switches to their OFF position and pull the Emergency Stop button out before restarting the machine.



Recirculating Tank



Washer

Fig. 13 CONTROL PANELS

8. Start-Up:

At the beginning of each day, it is recommended that the recirculation pump be used to flush any sludge out of the sump. After the machine sits for a time (overnight or longer), contaminants can settle out of the water and collect in the sump. Although the trash pump will eventually pull this sludge out of the sump, it works best to direct the flow from recirculation pump into the sump to remove this sludge. Use the tri-valve in the recirculation circuit to direct the flow into the sump. After 1 or 2 minutes, direct the flow back to the Washer.

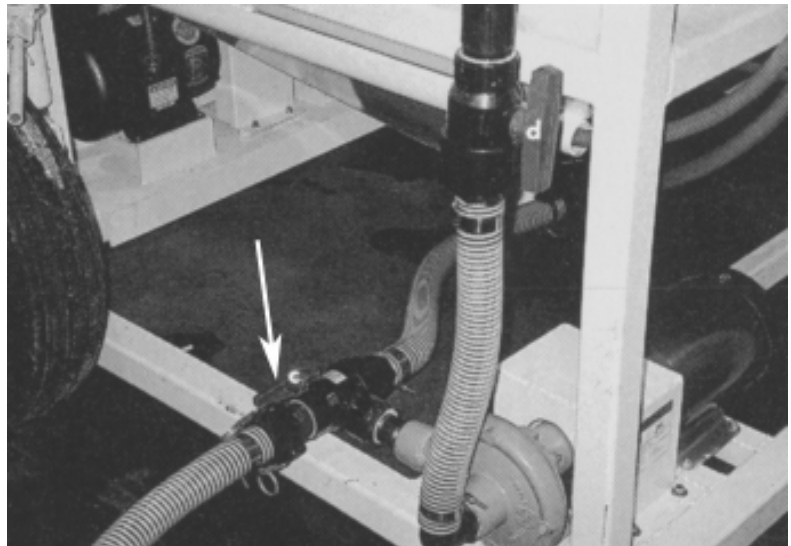


Fig. 14 TRI-VALVE

9. Auxiliary Equipment:

Provide a means for collecting and holding the slurry from the cyclones. Size the barrel/tank to hold the slurry (Cyclone discharge) with a 2 to 5 gpm flow rate. Provide another conveyor or system to remove the trash from the trash conveyor. Do not allow this conveyor to move. Normally connecting them keeps them from moving apart.

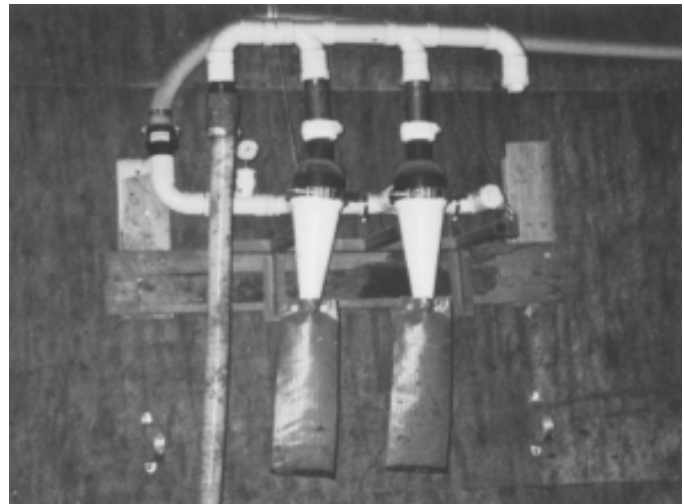


Fig. 15 AUXILIARY EQUIPMENT

10. Moving:

All machines are equipped with wheels that are mounted to a movable assembly. Raise the assembly and lower the frame to the ground during operation. Lower the wheels for moving. The hitch can also be removed if desired.

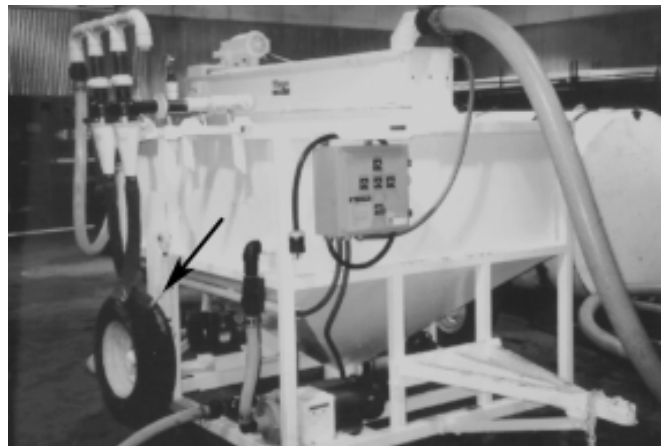


Fig. 16 MOVING

11. **Dirt Removal:**

Dirt and trash are removed from potatoes as they move through the Washer. They are conveyed to the Recirculating Tank on the flow of wash water for removal. Large particles and debris are removed by the trash conveyor on top of the tank.

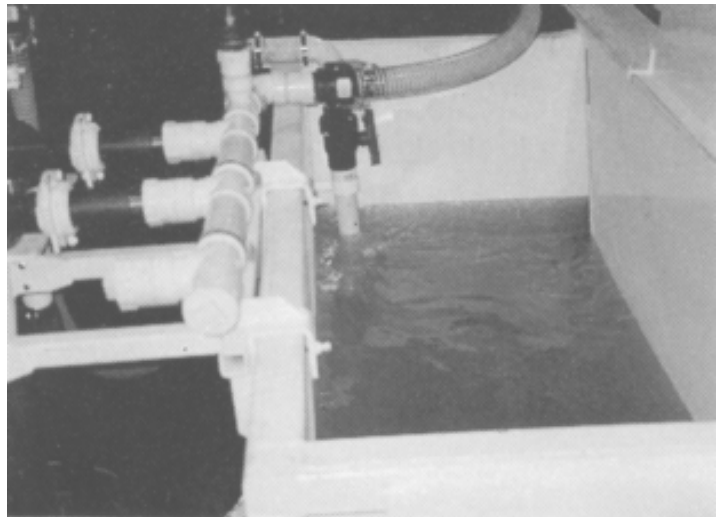
The large particles in solution are removed by the cyclones as the water is pumped through the cyclone segment of the cleaning circuit.

Set the dirt removal rate with the cyclone discharge valve. Close Slightly to provide a small back pressure in the system. This back pressure should be set to provide a flow of 2 to 5 gpm of water out of the cyclones. Flow rates that are set too low will have mud coming out of the cyclones. If too high, too much water will be pulled out of the system.

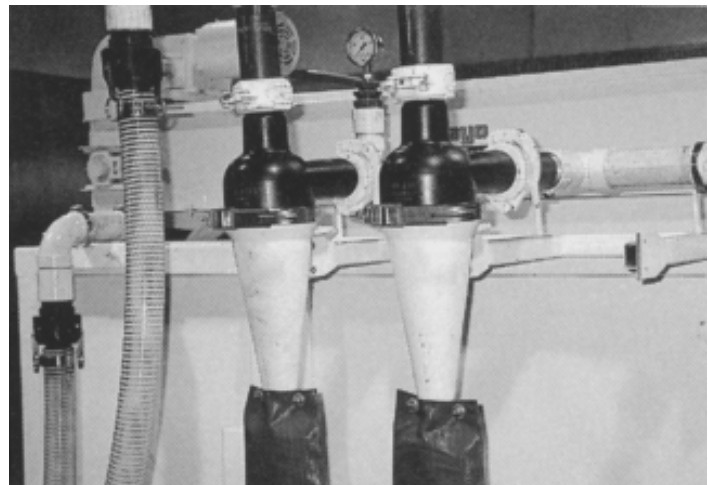
The cyclones remove the majority of the large particles in the water but not the fines. As a result, after a period of time, the fines will color the water and it will be dirty. Change the water at this time.

12. **Disposal:**

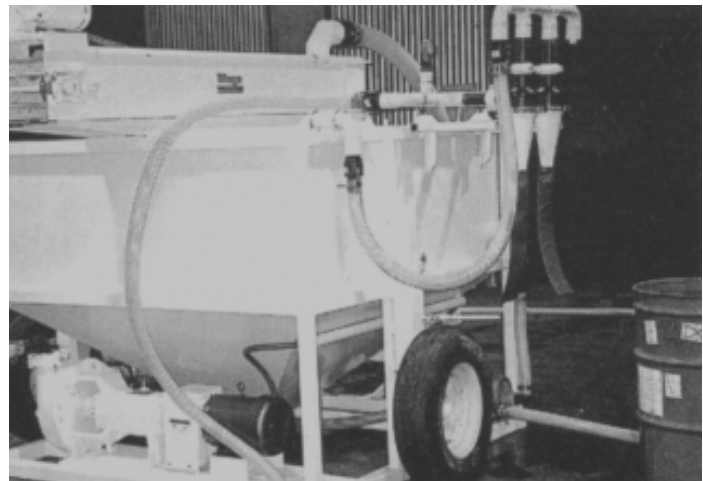
When the collecting barrels/tanks are full, dispose of the slurry in an environmentally safe manner. Dispose of dirty wash water in the same manner.



Cyclone Valve



Pressure Gauge



Collecting Barrels (Typical)

Fig. 17 DIRT REMOVAL

13. 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 water lines with the cam couplers to prevent leaks.
- e. Set the cyclone system to expel 2 to 5 gpm of slurry from the cyclones for the best results.
- f. Use the recirculation pump to flush the fines out of the sump at the start of each working day.
- g. Replace the water when the fines get the water dirty.

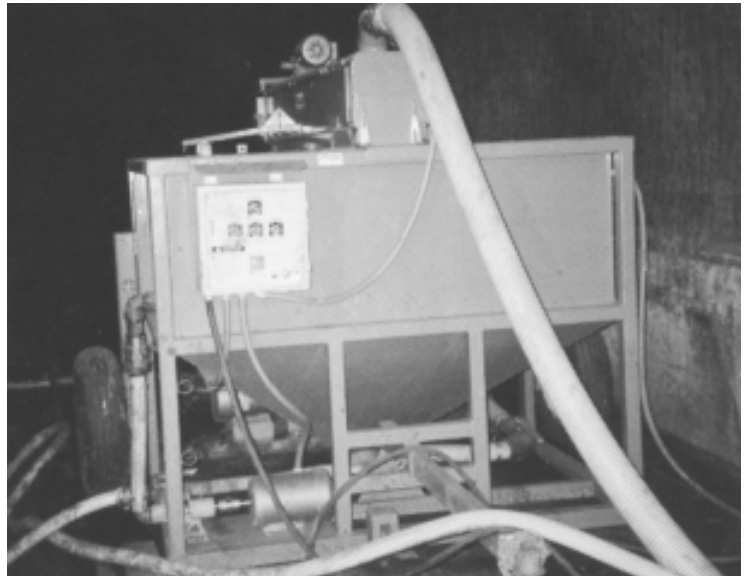


Fig. 18 OPERATING SYSTEM

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.
6. Wrap up and bind to the frame all loose water lines and 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 Recirculating Tank 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 Recirculating Tank or towing vehicle during transport.
12. Always use hazard flashers on the towing vehicle when transporting.

Mayo Recirculating Tanks are designed to be easily and conveniently moved from location to location. The term moving is used to describe the action of moving the machine within a storage facility. Transporting is used to describe when the machine is being towed by a tractor or other power unit on a public highway. When transporting, follow this procedure:

1. Disconnect and remove all auxiliary equipment from the Recirculating Tank and position so the tractor can back up to the front of the machine.
2. Turn the sump and recirculation line valves OFF and disconnect the inlet and water hoses. Drain the sump and plumbing if desired.

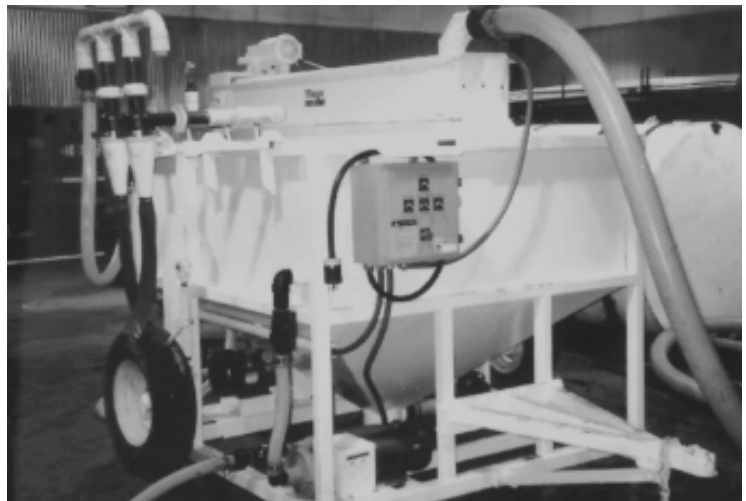
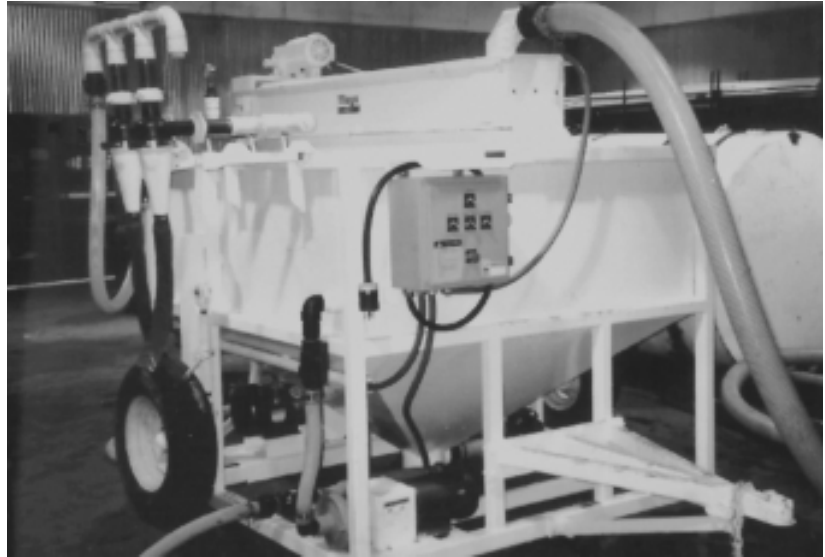


Fig. 19 WATER HOSES

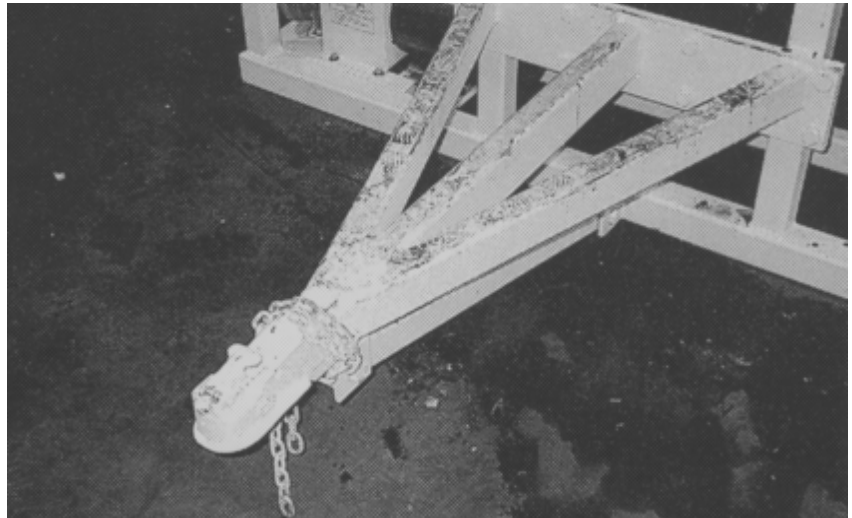
4.9 TRANSPORT (cont'd)

3. Install and secure the tow hitch if removed.
4. Use the ratchet to lower the wheel assembly and raise the frame off the ground.
5. Attach the tow hitch to the ball on the tractor and close the jaws. Be sure to use a mechanical retainer through the hitch.
6. Attach a safety chain between the hitch and the drawbar cage to prevent unexpected separation.



Wheels

7. Install an SMV on the rear frame.
8. Use pilot vehicles or install extra lights on the machine when transporting.
9. Clean all the reflectors.
10. Place all controls in their OFF or neutral position.
11. Turn the power OFF at the master panel and lock out.
12. Unplug and remove the power cord.
13. Be sure all bystanders are clear of the machine.



Tow Hitch

14. 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.

Fig. 20 MOVING

15. 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.

16. 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 Recirculating Tank

17. Do not allow riders on the machine or tractor.

18. Always use hazard flashers on the tractor when transporting unless prohibited by law.

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 Recirculating Tank 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 Recirculating Tank.
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 Recirculating Tank.

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. Use fresh water to flush the tank and water system to remove all contaminants.
2. Check all rotating parts for entangled material. Remove.
3. Inspect the trash conveyor chain. Properly tension the chain if required.
4. Turn the power OFF at the master electrical panel and lock out.
5. Unplug and remove power cord from machine.
6. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris or residue.

7. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from the washing.
8. Inspect all the water hoses, lines, fittings and nozzles. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or separating from a fitting. Replace any damaged components.
9. 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.
10. Inspect each conveyor drive system. Check the condition of the roller chain. Replace any if badly worn. Check the alignment of the sprockets. Align if required. Properly tension each drive chain.
11. Apply a light coat of oil to each roller chain to prevent rusting.
12. Touch up all paint nicks and scratches to prevent rusting.
13. Select a storage area that is dry, level and free of debris.
14. 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. Water and electrical systems and components.
 - b. Conveyor chain and drive systems.
 - c. All hardware. Tighten 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 Recirculating Tank.
5. Do not work on Recirculating Tank 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. 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 and roller 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.)

5.1.3 SERVICING INTERVALS

8 Hours or Daily

1. Oil the trash conveyor drive system roller chain (1 location).

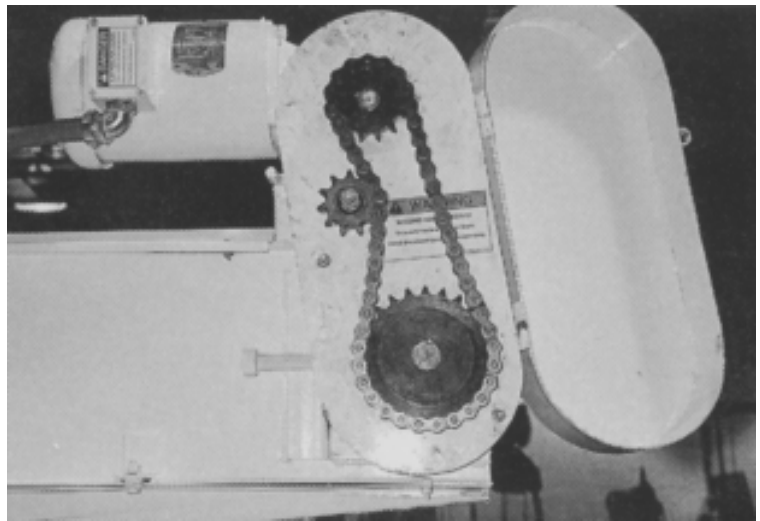


Fig. 21 TRASH CONVEYOR DRIVE



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

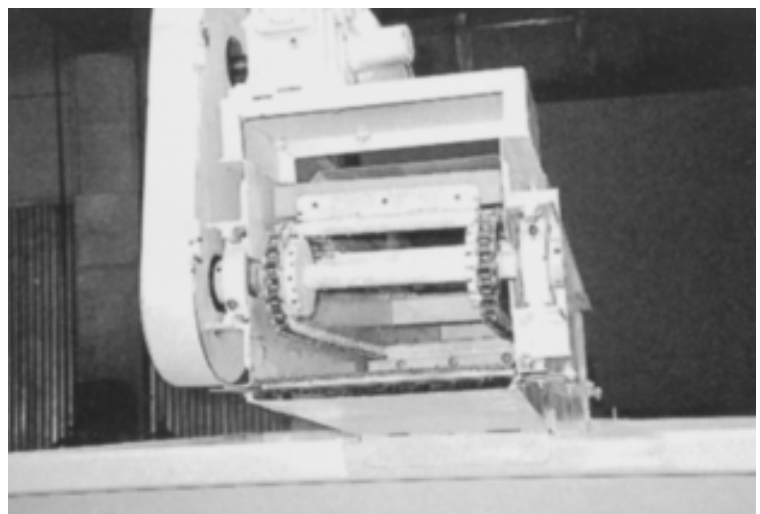


Fig. 22 TRASH CONVEYOR

Weekly or 50 Hours

1. Grease trash conveyor drive shaft bearings with 1 shot of grease (2 locations).

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.

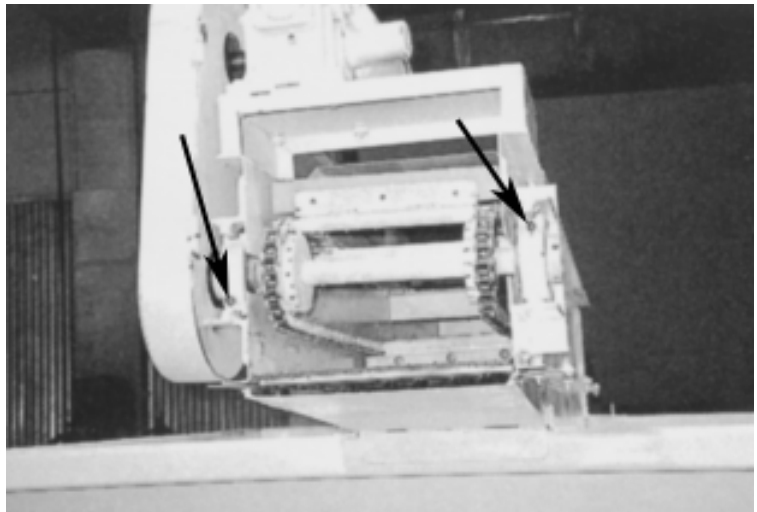


Fig. 23 TRASH CONVEYOR BEARINGS

2. Check the oil level in the gearbox (1 location).



Fig. 24 LEVEL PLUG

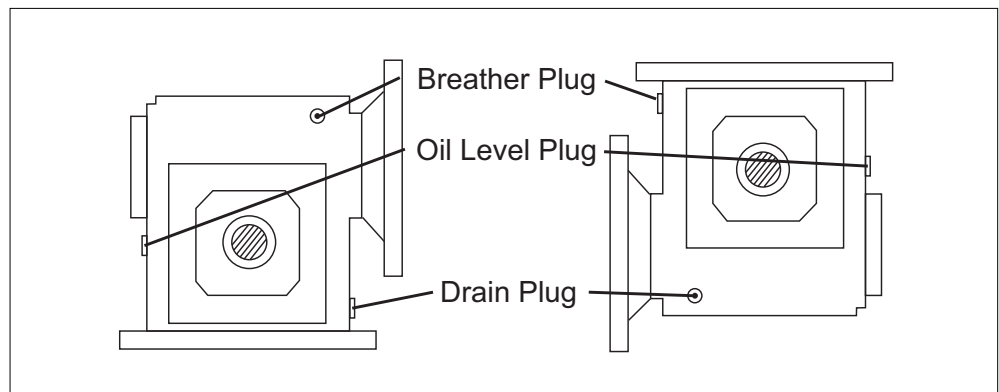


Fig. 25 GEAR BOX SCHEMATIC (TYPICAL)

Weekly or 50 Hours (cont'd)

3. Check the roller chain tension and sprocket alignment.

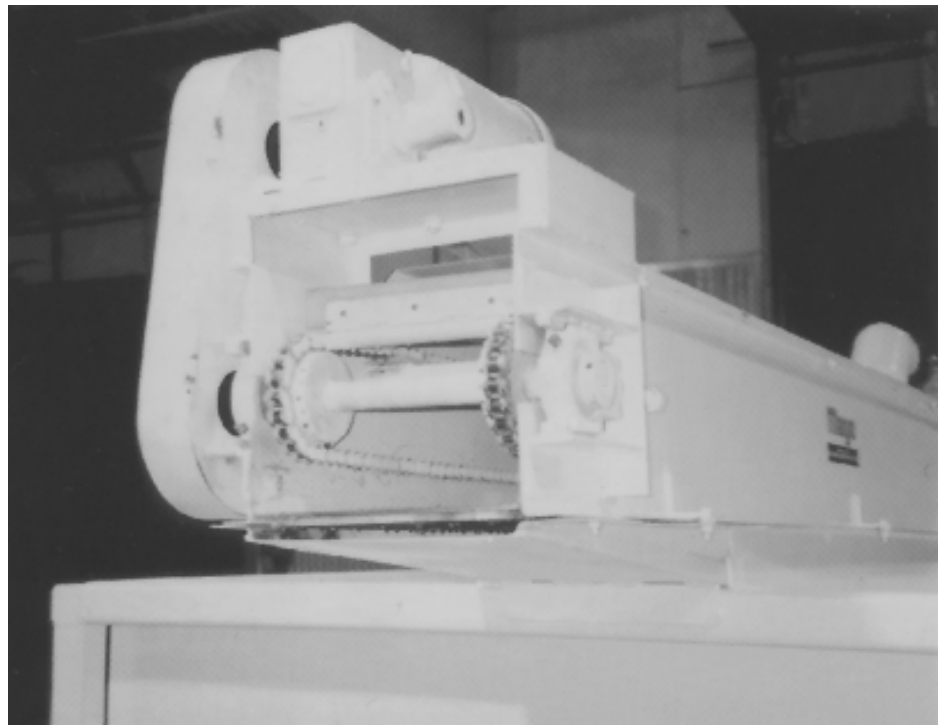


Fig. 26 ROLLER CHAIN TENSION

200 Hours or Annually

1. Grease the ratchet jacks (2 locations each jack).

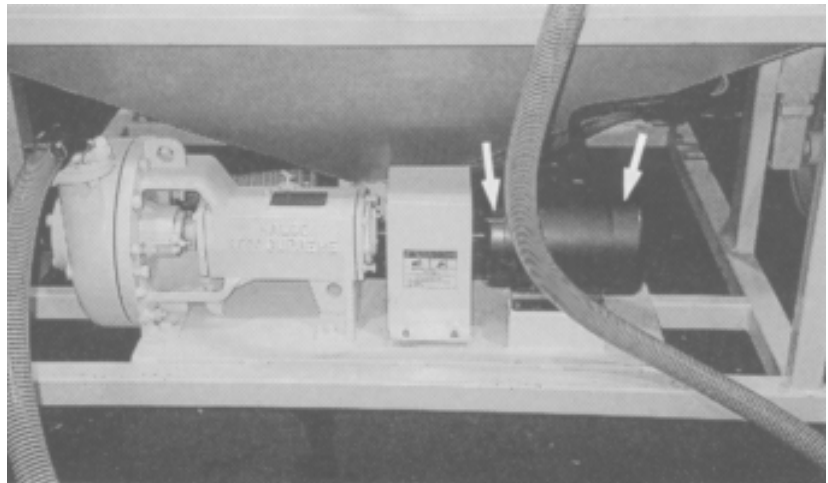


Fig. 27 RATCHET JACK (TYPICAL)

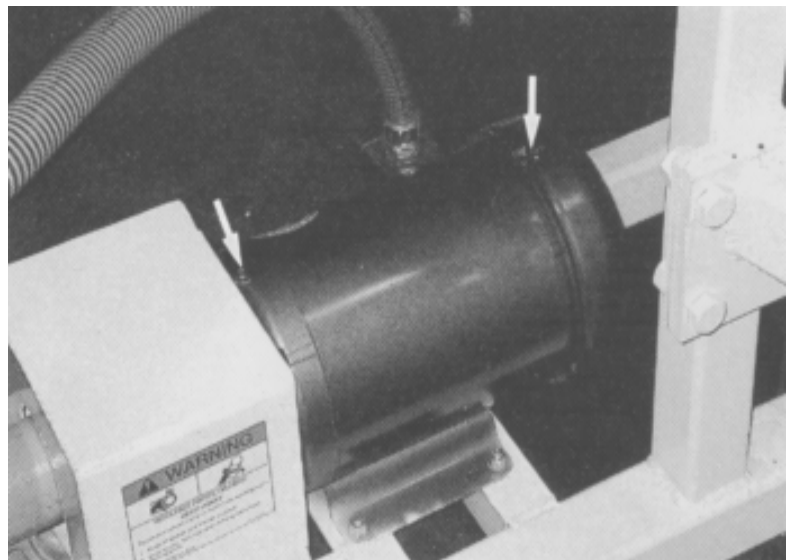
- Grease the electric motor bearings with 1 shot of grease (2 locations each motor).

IMPORTANT

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



Cyclone Pump



Recirculation Pump

Fig. 28 ELECTRIC MOTORS

200 Hours or Annually (cont'd)

3. Change the oil in the speed reducing gear box in the drive system (1 location).



WARNING

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

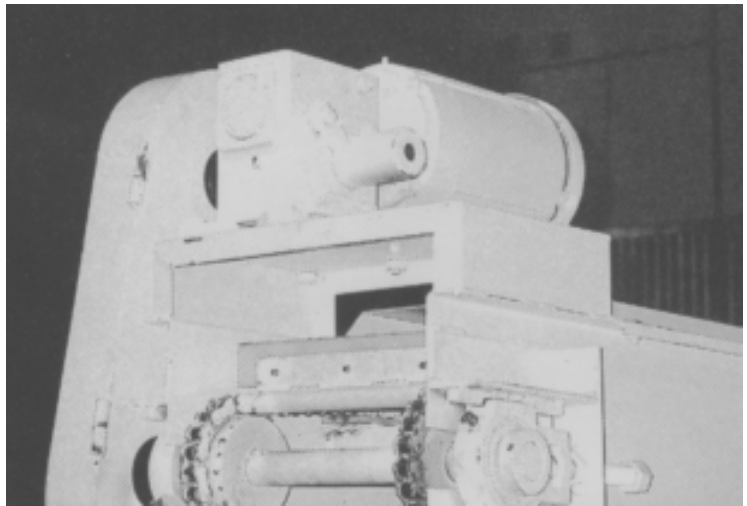


Fig. 29 GEAR BOX

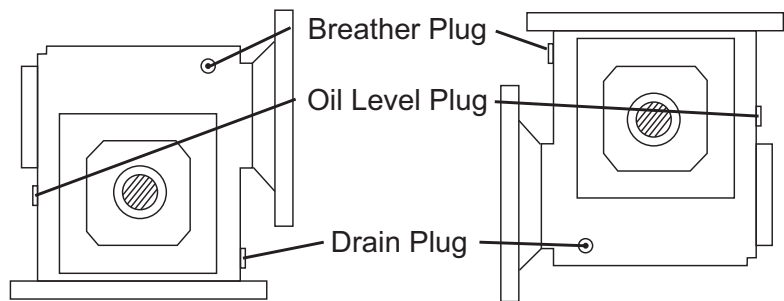
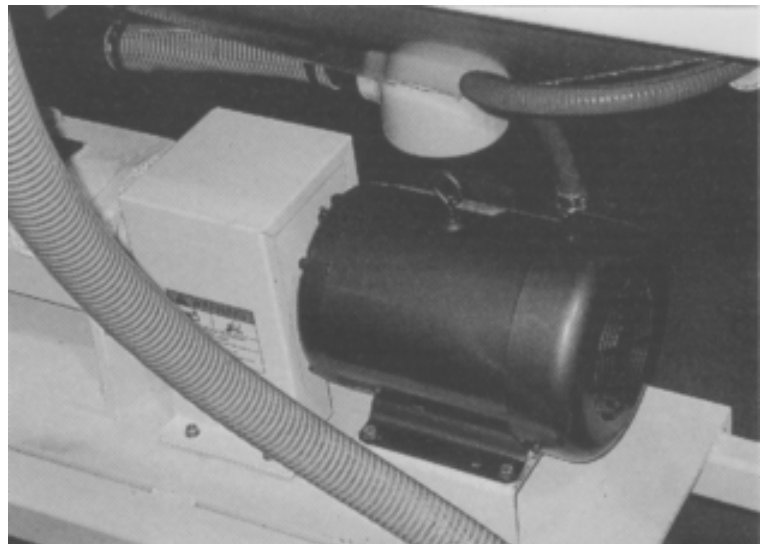


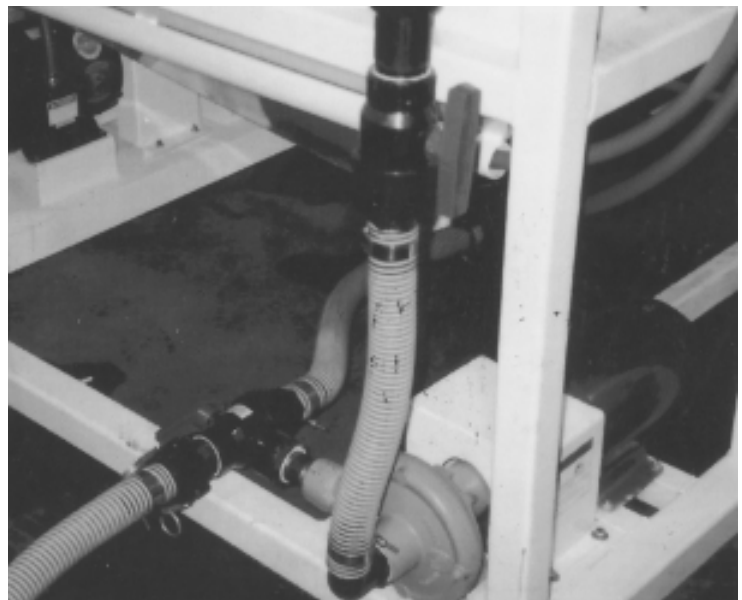
Fig. 30 GEAR BOX SCHEMATIC (TYPICAL)

200 Hours or Annually (cont'd)

4. Oil the roller chain in the pump input drive couplers (2 locations).



Cyclone Pump



Recirculation Pump

Fig. 31 PUMP INPUT DRIVE COUPLER

200 Hours or Annually (cont'd)

5. Clean the gearbox breather plug (1 plug).



Fig. 32 BREATHER PLUG

6. Repack each wheel bearing.



Fig. 33 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**

MAINTENANCE	HOURS																		
	SERVICED BY																		
8 HOURS OR DAILY																			
L Trash Conv Dr. Sys Roller Chain																			
✓ Trash Conveyor Tens & Align.																			
IN Water System & Components																			
IN Electrical Syst & Components																			
50 HOURS OR WEEKLY																			
L Trash Conveyor Dr. Shaft Brgs																			
✓ Oil Level in Gearbox																			
✓ Roller Chain Tension																			
✓ Sprocket Alignment																			
200 HOURS OR ANNUALLY																			
L Ratchet Jacks																			
L Electric Motor Bearings																			
C Oil in Speed Reduce Gearbox																			
L Roller Chain-Pump Dr. Coupler																			
CL Gearbox Breather Plug																			
R Each Wheel Bearing																			

5.2 MAINTENANCE

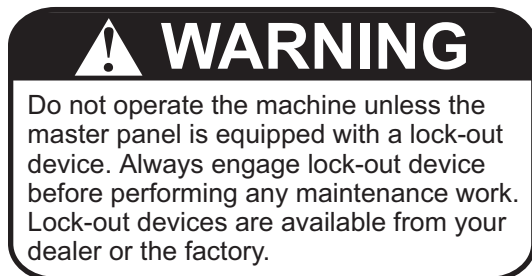
By following a careful service and maintenance program on your machine, you will enjoy many years of trouble-free use.

5.2.1 ELECTRICAL SYSTEM INSPECTION

Electricity provides power to all systems on the Recirculating Tank. 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 switches 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. Damaged plugs.
 - b. Frayed 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.

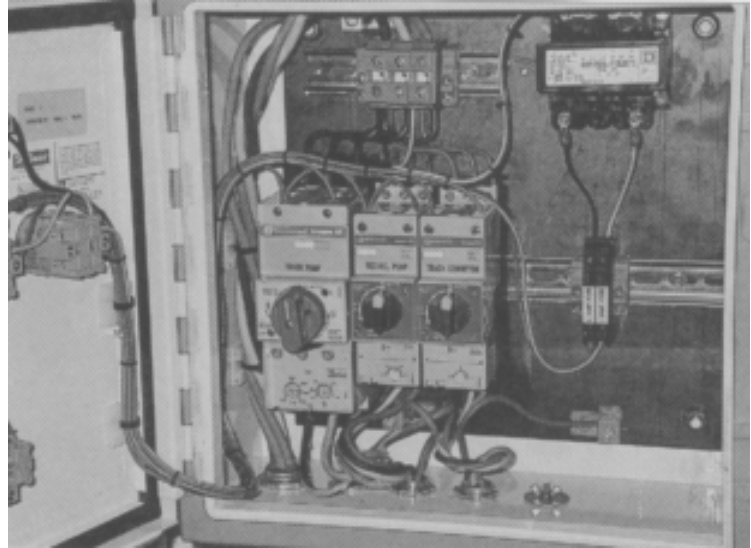
All electric motors are supplied with power through an individual circuit that includes a circuit breaker, switch, contactor and overload relay that are all incorporated into a single electrical component inside the control panel. The contactor is the main connecting device for power to the motor. If the current is greater than the adjustable dial of the relay, the relay will trip and cut off power to the coil of the contactor. When this happens, the contactor dial will move to a new position and indicates the cause of the overload. It must be reset before the motor can be restarted.

When a motor will not start:

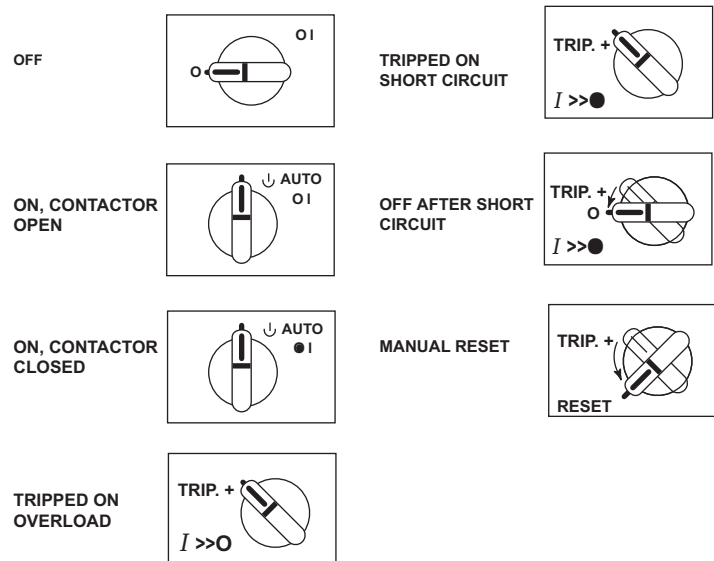
1. Turn the switch to its OFF position.
2. Turn the switch to its ON position.
3. If the motor will not start, turn machine OFF and lock out power at the master control panel before opening the control panel.
4. Turn the contactor dial counter-clockwise to the manual reset position. Then, turn the contactor dial clockwise to the ON contactor open position.
5. Close and secure the panel door and turn the power to the machine ON.
6. If the motor still will not start you have one of the following conditions:
 - a. The motor is hot and must cool a period of time before attempting to restart.

NOTE

If your conveyor 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.



Circuitry



Schematics

Fig. 34 MOTOR RESTART

- b. The overload is adjusted incorrectly for the amperage of the motor and must be properly adjusted.
- c. The overload and/or contactor has fulfilled its service life and is in need of replacement.
- d. The motor is bad and needs replacing.
- e. An electrical short exists somewhere in the circuit.

5.2.3 SPEED REDUCER GEARBOX OIL

The trash 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 50 hours, the oil level should be checked. Every 200 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 trash conveyor until the gearbox is warm.
Warm oil will remove more contaminants than cold stagnate oil.
2. Stop the drive.
3. Place all controls in their OFF position.
4. Turn the power OFF at the master panel and lockout.
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, level and fill plugs.
 - 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. Add Browning Worm Gear GL 32HT lubricant or equivalent. Use the level plug to determine the proper amount of oil.
- f. Check that the air passage through the breather is open.
- g. Install and tighten the fill and level plugs.
- h. Dispose of the used oil in an environmentally safe manner.

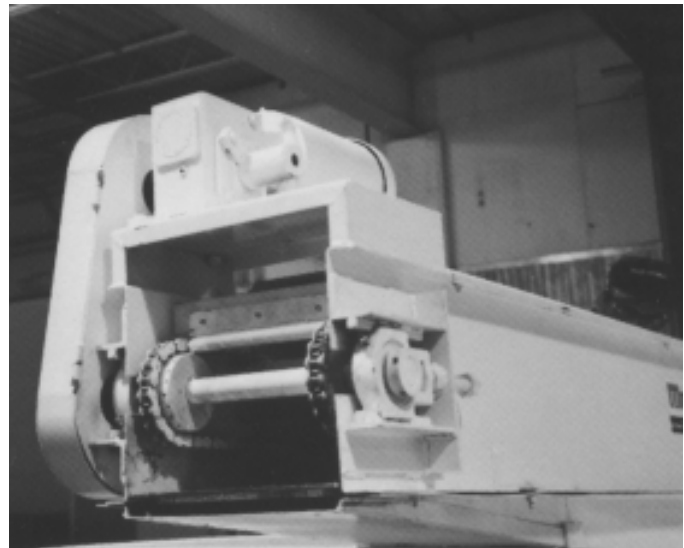


Fig. 35 GEARBOX

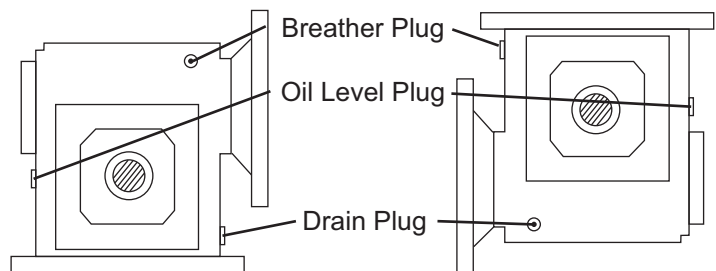


Fig. 36 GEARBOX SCHEMATIC (TYPICAL)

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.

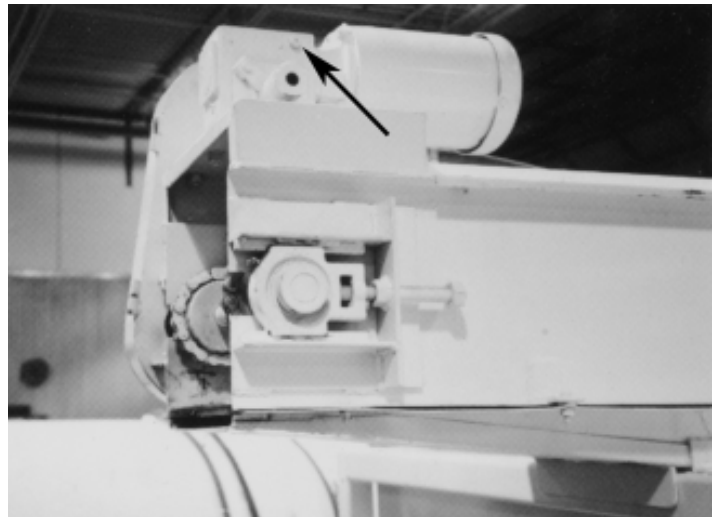


Fig. 37 BREATHER



WARNING

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

5.2.5 TRASH CONVEYOR CHAIN TENSION/ALIGNMENT OR REPLACEMENT

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

1. Turn the power OFF at the master panel and lock-out.
2. **Tension:**
It is tensioned correctly when the cross bar link can be turned 45° when twisted.
3. **Alignment:**
It is properly aligned when the chain links center on the drive sprockets. If the links run on the side of the sprockets, align by centering the drive sprockets in the chain links as well as the conveyor sides. Move the sprockets on the drive shaft but always maintain the proper tension.
4. **Replacement:**
 - a. Move the drive shaft into its loosest position.
 - b. Open the conveyor by splitting the links on the side chain.
 - c. Attach the replacement chain to the end of the old chain.
 - d. Slowly pull the old chain out of the machine and thread the new one into position.
 - e. Disconnect the old chain and connect the ends of the new one together.
 - f. Move the shaft into position to set the tension of the chain and secure the bearing assemblies.
 - g. Check the tension and alignment of the chain 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. 38 TENSION ADJUSTING (TYPICAL)

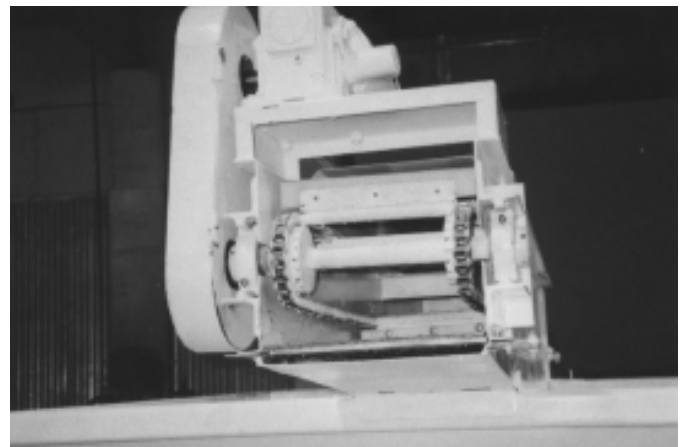


Fig. 39 CHAIN ALIGNMENT

5.2.6 ROLLER CHAIN DRIVES

The trash conveyor is driven by a roller chain system with sprockets and an idler or a tightening system. 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:

- a. Open the guard over the roller chain drive system.
- b. Use an oil can or brush to apply oil to the slack side of the chain.



- c. Refer to the following table for oil type.

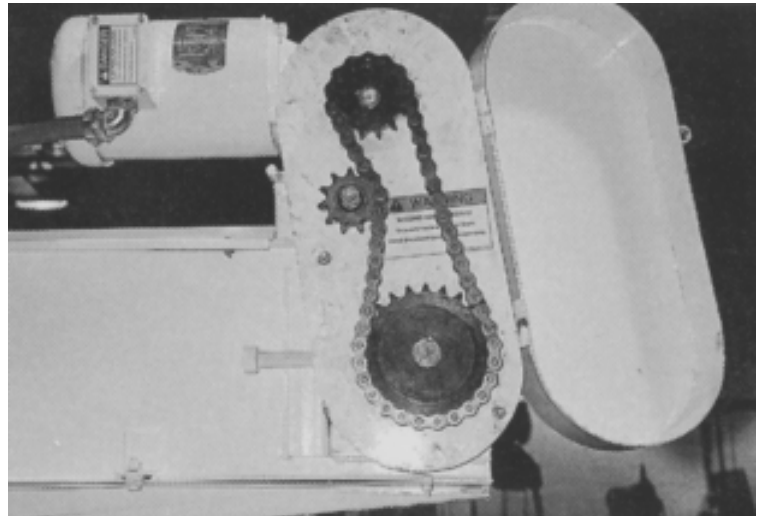
CHAIN TYPE*	AMBIENT TEMPERATURE RANGE		
	14°F-32°F	32°F-104°F	104°F-122°F
RS-50-less	SAE 10	SAE 20	SAE 30
RS-60/RS-80	SAE 20	SAE 30	SAE 40
RS100	SAE 20	SAE 30	SAE 40
RS120/MORE	SAE 30	SAE 40	SAE 40

* Stamped on chain link side plate

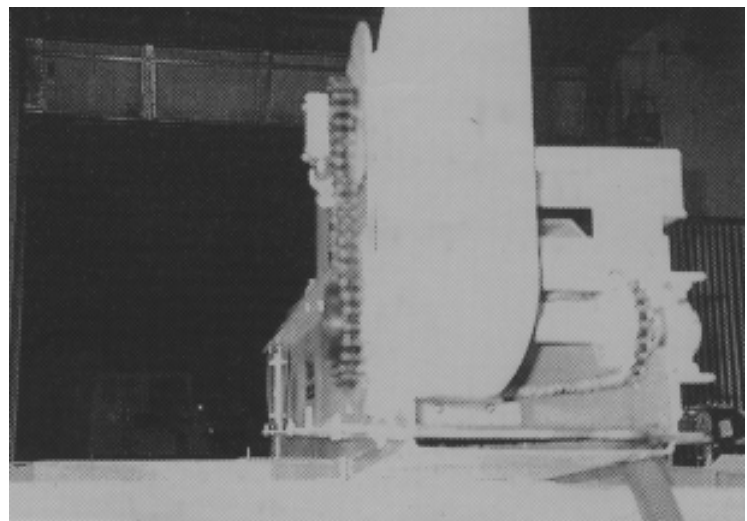
- d. Close and secure the guard.

2. Weekly Sprocket Alignment:

- a. Check alignment by:
 - i. Lay a straightedge across the faces of the sprockets. When the straightedge 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 set screw in sprocket hub if alignment is required.
- c. Move sprocket to required position.
- d. Tighten set screw's to their specified torque.
- e. Close and secure all the guards.



Tension



Alignment

Fig. 40 ROLLER CHAIN



5.2.6 ROLLER CHAIN DRIVES (cont'd)

3. Weekly Roller Chain Tension:

Each roller chain drive system is equipped with an idler sprocket to maintain the required tension on the chain during operation. Check the idler when the machine is OFF and not moving. The chain should be snug when the machine is at rest. Without being snug when stopped, there will not be sufficient tension on the system during operation. Set the tension by:

- a. Loosening the idler sprocket anchor bolt nut.
- b. Move idler sprocket to its required position.
- c. Tighten anchor bolt nut to its specified torque.



6 TROUBLE SHOOTING

The Mayo Recirculating Tank uses a flow of water through cyclones to remove the dirt in solution. 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
Recirculating Tank won' run.	No power. Tripped circuit breaker. Tripped motor starter.	Plug machine in. Turn power ON at master panel. Reset circuit breaker. Reset starter.
Trash conveyor won' run.	No power. Tripped motor starter. Failed drive chain. Conveyor binding.	Plug machine in. Turn conveyor ON. Reset starter. Replace drive chain if broken. Install chain on sprockets and set tension. Align drag chain.
Recirculation pump surging.	Low water level.	Add water to system to bring over suction outlet.
Cyclone pump not running.	No power. Tripped motor starter.	Turn pump ON. Reset starter.
Water not clean.	Dirt not being expelled from cyclones. Water full of fines.	Close cyclone valve to increase back pressure and expel more dirt/slurry. Replace water.

7 SPECIFICATIONS

7.1 MECHANICAL

DIMENSIONS	
Length:	9'5"
Width:	8'9-1/2"
Height:	Wheels Retracted: 7'6" Wheels Extended: 8'2"
POWER	
Type:	1 ph, 230v, 63a 3 ph, 230v, 40.3a
Conveyor:	1-1/2 HP
Cyclone Pump:	7-1/2 HP
Recirculation Pump:	5 HP
WATER SYSTEM	
Total Volume:	710 Gallons
TIRES	
Size:	7.60-15
Pressure:	30 psi

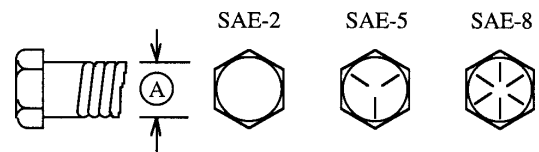
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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.

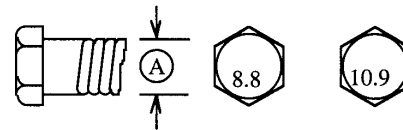
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque					
	SAE 2		SAE 5		SAE 8	
	(N.m)	(ft-lb)	(N.m)	(ft-lb)	(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



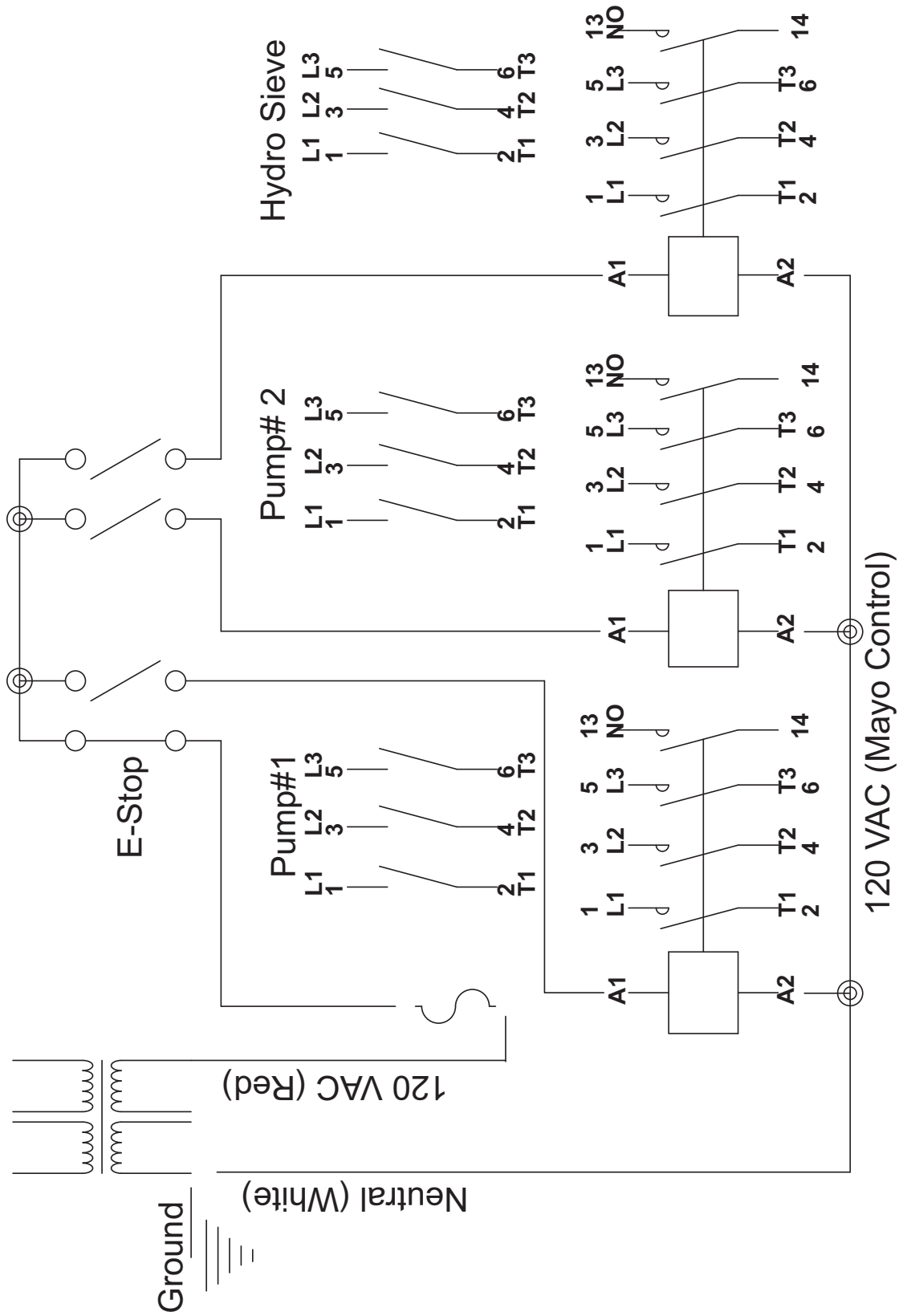
METRIC TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque			
	8.8		10.9	
	(N.m)	(ft-lb)	(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



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