Mayo

TELESCOPING LOADER

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 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 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 fulfilment 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 MANUFACTURING, INC.

TELESCOPING LOADER 600 SERIES

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

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

Customer's Name _____

Address _____

City, State/Prov., Code _____

Phone Number (_____) _____

Dealer's Name _____

Address _____

City, State/Prov., Code _____

Conveyor Model _____

Serial Number _____

Delivery Date _____

DEALER INSPECTION REPORT

_____ Tire Pressure Checked
_____ Wheel Bolts Torqued
_____ Inspect Electrical System
_____ Oil Reservoir Full
_____ Hydraulic Hoses Free
_____ Hydraulic Fittings Tight
_____ Lubricate Machine
_____ Conveyor Tensioned and Aligned
_____ Speed Reducer Gearbox Oil Level Checked

SAFETY

_____ All Decals Installed
_____ Lights, Reflectors and 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 _____

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

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Mayo Telescoping Loader 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 _____

TABLE OF CONTENTS

1 INTRODUCTION

Congratulations on your choice of a Mayo Telescoping Loader 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, unloading, processing and storing of harvest yields.

Safe, efficient and trouble free operation of your new Mayo Telescoping Loader requires that you, and anyone else who will be operating or maintaining the Telescoping Loader, 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 Telescoping Loader Model 600 manufactured by Mayo. Certain options may be available to specifically tailor the Loader 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 hopper end of the Telescoping Loader is the front. All electrical and hydraulic controls are on the left side.

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 Telescoping Loader 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:

A AIGUIEN QUE SI LO LEA PARA QUE LE TRADUZCA LAS MIDIDAS DE SEGURIDAD.

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

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.

- Read and understand the Operator's Manual and all safety signs before supplying power to, operating, maintaining or adjusting the Telescoping Loader.

- Telescoping Loader owners must give operating instructions to operators or employees before allowing them to operate the Telescoping Loader, and at least annually thereafter.

- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.

- A person who has not read and understood all operating and safety instructions is not qualified to operate 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.

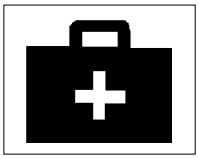
- Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

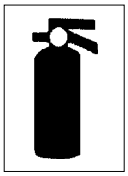
1. Read and understand the Operator's Manual and all safety signs before supplying power to, operating, maintaining or adjusting the Telescoping Loader.

2. Only trained, competent persons shall operate the Telescoping Loader. 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, relieve hydraulic pressure 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 EQUIPMENT SAFETY GUIDELINES

1. Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.

2. In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

3. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.

4. Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

5. **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.** Review the safety instructions with all users annually.

6. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.

7. Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**

8. Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.

9. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the auxiliary equipment and machine Manuals. Pay close attention to the Safety Signs affixed to the auxiliary equipment and the machine.

2.3 STORAGE SAFETY

1. Store the Telescoping Loader 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 Telescoping Loader.

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 Telescoping Loader.

7. If equipped with an optional power pack. stop engine, remove ignition key, and unplug power cord to prevent unauthorized start-up of Telescoping Loader.

2.4 SAFETY TRAINING

1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.

2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.

3. 
It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

4. **Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your auxiliary equipment, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself. It is the machine owner's responsibility to make certain that the operator, prior to operating:**

   a. Reads and understands the operator's manuals.

   b. Is instructed in safe and proper use.

5. Know your controls and how to stop pilers, conveyors and any other auxiliary equipment quickly in an emergency. Read this manual and the one provided with your other equipment.

6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.

2.5 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 authorized Distributor or Dealer Parts Department or the factory.

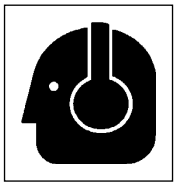
How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Determine exact position before you remove the backing paper. (See Section 3).
- 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.

2.6 PREPARATION

1. Never operate the Telescoping Loader and auxiliary equipment until you have read and completely understand this manual, the auxiliary equipment Operator's Manual, and each of the Safety Messages found on the safety signs on the Telescoping Loader and auxiliary equipment.

2. 
Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelery to be around equipment.

3. 
PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS! Motors or equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. **NOTE:** Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

4. Clear working area of debris, trash or hidden obstacles that might be hooked or snagged, causing injury, damage or tripping.

5. Operate only in daylight or good artificial light.

6. Be sure machine is properly anchored, adjusted and in good operating condition.

7. Ensure that all safety shielding and safety signs are properly installed and in good condition.

8. Before starting, give the machine a "once over" for any loose bolts, worn parts, cracks, leaks, frayed belts and make necessary repairs. Always follow maintenance instructions.

2.7 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 Telescoping Loader 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. Block up machine to level the frame before using. Use a level to be sure.

4. Have at least one extra person available to assist when elevating, moving or positioning to other equipment.

5. Make certain that sufficient amperage, at the proper voltage and frequency (60Hz) is available before connecting power. If you are uncertain, have a licensed electrician provide power to the machine.

6. If using Telescoping Loader as part of material handling system, anchor securely to other equipment before starting.

2.8 LOCK-OUT TAG-OUT SAFETY

1. Establish a formal Lock-Out Tag-Out program for your operation.

2. Train all operators and service personnel before allowing them to work around the Telescoping Loader.

3. Provide tags at the work site and a sign-up sheet to record tag out details.

4. Do not climb on unit unless motors are OFF and the power locked out at the master panel. Never perform any maintenance or service work while power is connected. Keep others away.

5. If equipped with an optional power pack. stop engine, remove ignition key, and unplug power cord to prevent unauthorized start-up of Telescoping Loader.

2.9 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Telescoping Loader.

2. Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), relieve hydraulic pressure 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. Use blocks to level the frame before using.

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. Before applying pressure to the hydraulic system, make sure all components are tight and that all steel lines, hoses and couplings are not damaged.

10. Stay away from overhead obstructions and power lines when raising the discharge end. Electrocution can occur without direct contact. Post an observer at the discharge end to guide the operator.

11. Do not stand between the frame and other structures or machines when raising or swinging the Telescoping Loader. Keep others away.

12. Keep the working area clean and dry.

13. Contact Mayo at (218) 773-1234 or 1 (800) 223-5873 if you have any questions.

14. Review safety instructions annually.

2.10 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), relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.

3. Exercise extreme caution when working around, or with, high-pressure hydraulic systems. Depressurize the system before working on it.

4. 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.

5. Wear heavy gloves and eye protection when searching for suspected hydraulic leaks. Use a piece of wood or cardboard as a backstop instead of hand to isolate and identify a leak. A high pressure concentrated stream of hydraulic fluid can pierce the skin. If such happens, seek immediate medical attention as infection and toxic reaction could develop.

6. Make sure all guards and doors are in place and properly secured when operating the Telescoping Loader.

7. Do not work on Telescoping Loader electrical system unless the power cord is unplugged or the power supply is locked out. Lock-out tag-out power source before performing any maintenance work.

2.11 HYDRAULIC SAFETY

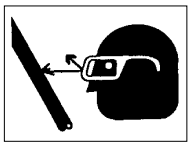
1. Make sure that all the components in the pump system are kept in good condition and are clean.

2. Before applying pressure to the system, make sure all components are tight, and that lines, hoses and couplings are not damaged.

3. Do not attempt any makeshift repairs to the hydraulic lines, fittings or hoses by using tapes, clamps or cements. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.

4. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.

5. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.



2.12 ELECTRICAL SAFETY

1. Have only a qualified licensed electrician supply power.

2. Make certain that the Telescoping Loader is properly grounded at the power source.

3. Make certain that all electrical switches are in the OFF position before plugging the Telescoping Loader in.

4. **Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), relieve hydraulic pressure 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 Telescoping Loader electrical system unless the power cord is unplugged or the power supply is locked-out tagged-out.

2.13 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.

2.14 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.

2. Avoid contact with battery electrolyte: wash off an spilled electrolyte immediately.

3. Wear safety glasses when working near batteries.

4. Do not tip batteries more than 45°, to avoid electrolyte loss.

5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of the electrical system.

2.15 REFUELING SAFETY

1. Handle fuel with care. It is highly flammable.

2. Allow engine to cool for 5 minutes before refueling. Clean up spilled fuel before restarting engine.

3. Do not refuel the machine while smoking or when near open flame or sparks.

4. Fill fuel tank outdoors.

5. Prevent fires by keeping machine clean of accumulated trash, grease and debris.

2.16 TRANSPORT SAFETY

1. Make certain that you are in compliance with local, state/provincial and federal regulations regarding transporting agricultural equipment on public roadways. Install auxiliary light bar on rear of frame and turn lights on before moving.

2. Use pilot vehicles ahead of and behind the unit when transporting on a public highway.

3. Make certain that all wheels and tires are in good repair and that tires are inflated to proper pressure. Do not under-inflate or overinflate.

4. Make certain that all wheel bolts/lug nuts are tightened to proper torque specifications (refer to specification chart in Section 7.2).

5. Fully retract all telescoping conveyor sections and secure before transporting.

6. Make certain that all mechanical locks and integral anchor chains are safely and positively connected before loading or transporting.

7. Raise and secure the jack stand.

8. Lower elevator/hopper to the fully down position before moving or transporting.

9. Wrap up and bind to the frame all loose hydraulic and electrical ends.

10. 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.

11. To prepare the self-contained tractive drive:

    a. Remove and stow the drive chain or

    b. Disengage power wheel gears.

12. Be sure that the Telescoping Loader is positively hitched to the towing vehicle. Use a proper safety chain to assure a safe hitch hook-up when transporting.

13. Adhere to local regulations regarding maximum weight, width and length.

14. Do not exceed 20 MPH (32 Km/H). Reduce speed on rough roads and surfaces.

15. Do not allow anyone to ride on the Telescoping Loader or towing vehicle during transport.

16. Always use hazard flashers on the towing vehicle when transporting.

2.17 EMPLOYEE SIGN-OFF FORM

Mayo Manufacturing, Inc. follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining 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

DATE	EMPLOYEE'S SIGNATURE	EMPLOYER'S SIGNATURE

3 SAFETY SIGN LOCATIONS

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

- Think SAFETY! Work SAFELY!

A

DANGER

MISSING GUARD HAZARD
Install and secure guard before operating.

B

CAUTION

- Read Operator's Manual before starting.
- 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.
- Keep all electrical components tight, dry and in good repair.
- Keep all hydraulic components tight and in good repair.
- Replace all worn or failed components immediately.
- Install and secure all guards before operating.
- Keep hands, feet, hair and clothing away from moving parts.
- Install safety locks on the boom and elevator before transporting or working under them.
- Lower boom and elevator to safety locks, center boom and install all safety locks before transporting.
- Use pilot vehicles when transporting.
- Stay away from overhead power lines and obstructions when moving. Electrocution can occur without direct contact.
- Do not stand or climb on machine when running. Keep others off.
- Have only a qualified electrician provide power to the machine.
- Review safety instructions annually. D-101

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.

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- Think SAFETY! Work SAFELY!

C

D

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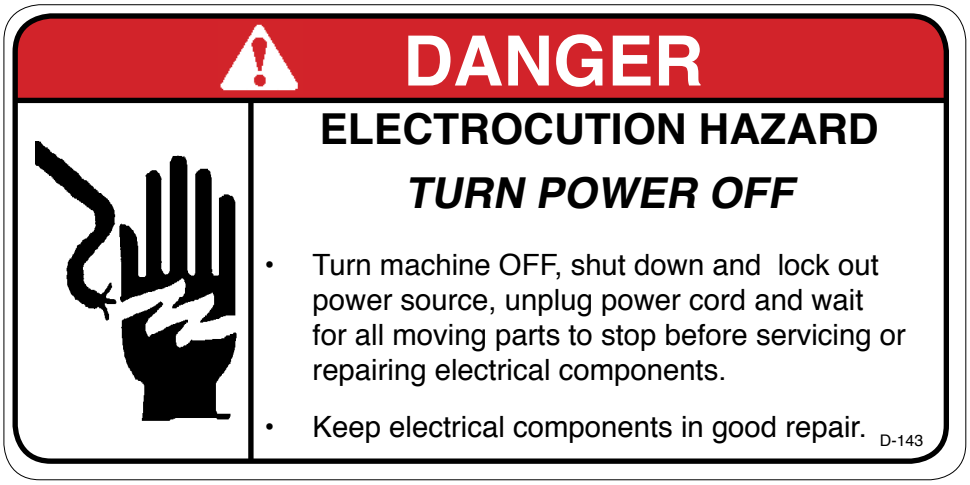
E



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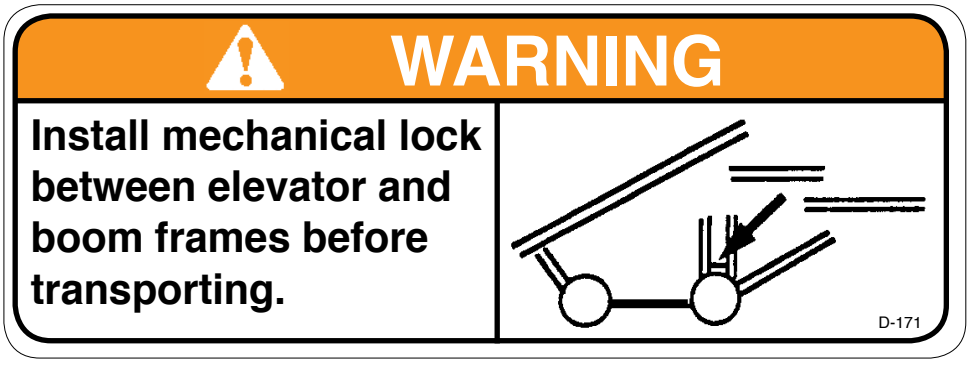


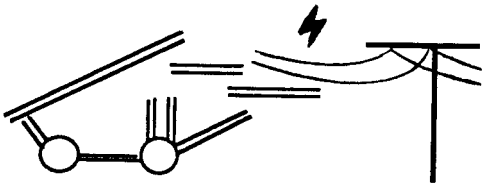
REMEMBER - If Safety Signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

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

- Think SAFETY! Work SAFELY!

G

DANGER



ELECTROCUTION HAZARD

KEEP AWAY FROM POWER LINES

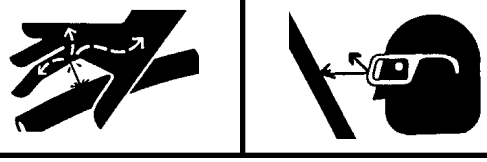
To prevent serious injury or death from electrocution:

- Stay away from power line when moving boom or transporting machine.
- Electrocution can occur without direct contact.

D-501

H

WARNING



HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death from high pressure fluid:

- Relieve pressure on system before repairing, adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

D-151

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

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

- Think SAFETY! Work SAFELY!

J

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

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

- Think SAFETY! Work SAFELY!

K

WARNING

PINCH POINT HAZARD

To prevent serious injury or death from pinching:

- Stay away from this area when the machine is running.
- Keep others away.

D-191

L

WARNING

Connect anchor chain between conveyors before transporting.

D-211

M

DANGER

ELECTROCUTION HAZARD

- **Have a licensed electrician provide power.**
- **Keep electrical components dry and in good repair.**

Failure to follow these instructions can result in serious injury or death.

D-141

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

4 OPERATION

OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Telescoping Loader.
- Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
- Install and properly secure all guards and shields before operating.
- Keep hands, feet, hair and clothing away from all moving parts.
- Clear the area of bystanders, especially small children, before starting.
- Make sure all control switches are in the off position before connecting power supply.
- Use blocks to level the frame before using.
- 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.
- Before applying pressure to the hydraulic system, make sure all components are tight and that all steel lines, hoses and couplings are not damaged.
- Stay away from overhead obstructions and power lines when raising the discharge end. Electrocution can occur without direct contact. Post an observer at the discharge end to guide the operator.
- Do not stand between the frame and other structures or machines when raising or swinging the Loader. Keep others away.
- Keep the working area clean and dry.
- Contact Mayo at (218) 773-1234 or 1 (800) 223-5873 if you have any questions.
- Review safety instructions annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Mayo Manufacturing Telescoping Loader is designed as a conveyor to load or fill tote bags from graders, pilers, conveyors or other auxiliary equipment. 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, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine.

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

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

4.2 MACHINE COMPONENTS

The Mayo Manufacturing Telescoping Loader consists of a hopper, elevator and telescoping boom assembly for conveying material into a planter hopper or transferring material at a remote location. Produce is distributed from side-to-side by swinging the boom. The boom can extend/retract, raise/lower and swing for exact placement of produce where required. Electric motors power each conveyor and an electric motor drives the pump on the hydraulic system. All electrical and hydraulic controls are mounted on the left side.

When the Telescoping Loader is used to fill a planter, it attaches directly behind the truck and uses the boom swing and telescoping feature to convey cut material into the planter hoppers.

Optional steering, tractive drive and remotes are also available for the Telescoping Loader. A unit with an optional self-contained gas engine mounted to the center frame is covered in the manual.

FIG. 1 MACHINE COMPONENTS

4.3 GENERAL OPERATION THEORY

Mayo Telescoping Loader are designed to be used at remote locations to convey cut material from trucks into planters or to transfer material from field trucks into transport trucks. They can also be used as a "mini" bin piler if required.

Material are unloaded from transport trucks into the hopper of the Telescoping Loader. They are then carried by flighted belting up into the hopper of the top boom conveyor. From there they are conveyed out the bottom boom conveyor and ultimately into the hoppers of a potato seeder or other machine or storage facility.

The hydraulic lift, telescope and swing functions allow the Telescoping Loader to access all production made potato seeder hoppers with a minimum of alignment necessary. The boom rises from 7 ft. to 12.5 ft. when fully telescoped (7.5 ft. to 11 ft. when fully retracted). The bottom boom extends 7 ft. and the swing function allows for 120° of sweep. Thus, the seeder hopper can approach the Telescoping Loader from several various angles and still be filled without repositioning the Telescoping Loader.

Telescoping Loaders are available in 3 sizes: 24, 30 and 36 inches. Although any model can be used as a "mini" bin piler, the wider model has sufficient capacity for transfer loading between field and transport trucks in the field. All Telescoping Loaders can be equipped with an optional self-contained generator to supply power that allows them to be used at a remote site where conventional power is not available.

Straight

Angled

FIG. 2 PLANTER TELESCOPING LOADER

4.4 MACHINE BREAK-IN

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

A. Read Conveyor and auxiliary equipment manuals before starting.

B. **After operating for 1/2 hour:**

1. Retorque all wheel bolts and fasteners.
2. Check that all electrical connections are tight and cords are routed out of the way or protected.
3. Check for leaks in hydraulic system. Retorque fittings that leak.
4. Check that no hydraulic lines are being pinched or crimped. Reroute as required.
5. Check oil level in hydraulic reservoir. Top up as required.
6. Check the alignment and tension of the conveyor belt. Realign or tighten as required.
7. Check oil level in each speed reduction gearbox for each drive. Top up as required.
8. Lubricate all grease fittings.

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

1. Retorque all wheel bolts and fasteners.
2. Check that all electrical connections are tight and cords are routed out of the way or protected.
3. Check for leaks in hydraulic system. Retorque fittings that leak.
4. Check that no hydraulic lines are being pinched or crimped. Reroute as required.
5. Check oil level in hydraulic reservoir. Top up as required.
6. Check the alignment and tension of the conveyor belt. Realign or tighten as required.
7. Check oil level in each speed reduction gearbox for each drive. Top up as required.
8. Lubricate all grease fittings.
9. Go to regular servicing and maintenance schedule as defined in the Maintenance Section.

4.5 PRE-OPERATION CHECKLIST

Safe and efficient operation of your new Telescoping Loader 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 conveyor. The checklist should be performed before operating the conveyor 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 the oil level in the hydraulic reservoir as prescribed in the "Maintenance Section".
4. Check for hydraulic leaks. Tighten fittings or reroute hoses as required to maintain a leak-free system.
5. Insure that all safety guards and shields are in good repair and securely in place.
6. Check that the conveyor belt is centered on the head and tail rollers. Adjust if necessary as outlined in the "Maintenance Section".
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.
10. Check all fluid levels in Power Pak (if so equipped). Top up as required.

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 labelled.

1. **Electrical Panel Controls:**

   a. **Belt Conveyors ON:**
   Depress the top green button switch to turn the belt conveyors ON. The Power Pak engine and generator must be started and running at full speed to provide power to the hydraulic pump. When the conveyors are turned on, they start in series with a 2 second delay between each one. First the lower boom telescoping section, then the upper boom and then the elevator.

   b. **Belt Conveyors OFF:**
   Depress the second from the top red button switch to turn the belt conveyors OFF. First the elevator will stop, 5 seconds later the upper boom conveyor will stop and 5 seconds later the lower boom conveyor will stop. This sequenced shut-down allows the loader to empty before stopping.

   c. **Green Light:**
   This green light is illuminated when the hydraulic pump is turned ON.

   d. **Pump ON/OFF:**
   This 2 position rotary switch controls the power to the hydraulic pump. Turn the switch clockwise to turn the pump ON and counter-clockwise to turn OFF. When the pump is turned on, the green light will come on.

   e. **Emergency Stop:**
   This red push/pull button is the emergency STOP control for the machine and stops all electrical and hydraulic functions including the remote. 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.

   f. **Light Switch:**
   This 2 position rotary switch controls the power to the optional lights. Turn the switch clockwise to turn the lights ON and counter-clockwise to turn OFF.

FIG. 3 ELECTRICAL CONTROLS

2. **Front Valves:**
This valve bank controls the hydraulic functions on the front of the loader.

a. **Elevator Height Valve:**
This 3 position spring-loaded-to-neutral-center hydraulic valve controls the position of the elevator/hopper. Move the lever up and hold to raise the elevator/hopper and hold down to lower. Release the lever to stop. It will return to its neutral center position.

b. **Jack Position:**
This 3 position spring-loaded-to-neutral-center hydraulic valve controls the position of the front jack. Move the lever up and hold to raise the front of the frame (lower the jack) and hold down to lower the frame (raise jack). Release the lever and it will return to its neutral center position and the jack will stop.

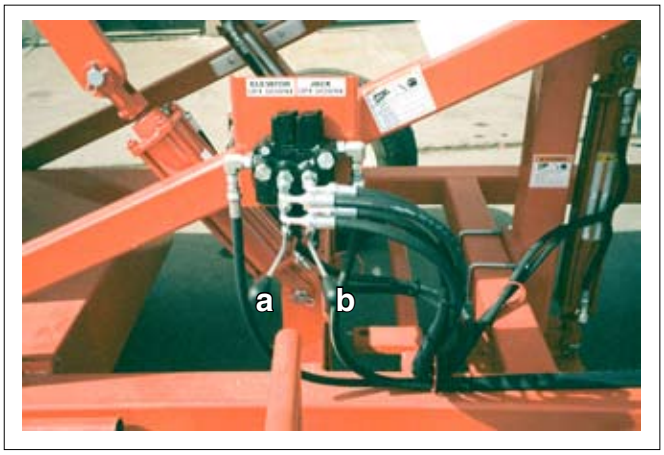


FIG. 4 FRONT VALVES

3. **Rear Valves:**

a. **Boom Swing Valve:**
This 3 position spring-loaded-to-neutral-center hydraulic valve controls the swing function of the boom. Move the lever up and hold to move the boom toward you (right) and move down and hold to move it away (left). Release the lever and it will return to its neutral center position and the boom will stop swinging.

b. **Boom Lift Valve:**
This 3 position spring-loaded-to-neutral-center hydraulic valve controls the lift and lower function of the boom. Move the lever down and hold to lower the boom and move up and hold to raise. Release the lever and it will return to its neutral center position and the boom will stop.

c. **Boom Extend Valve:**
This 3 position spring-loaded-to-neutral-center hydraulic valve controls the extend and retract function of the boom. Move the lever down and hold to retract the boom and move up and hold to extend. Release the lever and it will return to its neutral center position and the boom will stop telescoping.

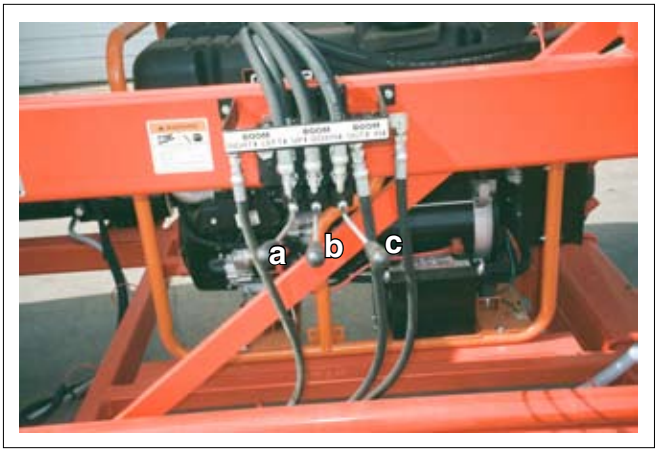


FIG. 5 REAR VALVES

4. **Optional Power Pak:**

   a. **Engine:**
   A manual for the Power Pak is provided with the machine when equipped with this option. Read and be familiar with the manual before starting to use the equipment.

      i. **Start/Stop Switch**:
      This 3 position spring-loaded-to-neutral-center rocker switch controls the engine starting and stopping. Depress and hold the top portion of the switch to start the engine. Release the switch and it will return to its neutral center position and the engine will run. Depress and hold the bottom portion of the switch to stop the engine.

      ii. **Choke:**
      This push/pull cable controls the position of the choke. Push in to open the choke. The choke should always be open during operation.

FIG. 6 ENGINE

   b. **Electrical Panel:**
   Review the manual for detailed information on the electrical panel.

FIG. 7 ELECTRICAL PANEL

5. **Fuel Gauge:**
   This gauge on top of the engine displays the fuel level in the tank.

FIG. 8 FUEL GAUGE

6. **Remote Controls (Optional):**
The Telescoping Loader can be equipped with hand-held radio-controlled remote controls to operate the machine. Several have been and are being used. The remote system(s) being used have the capability of being programmed to control up to 12 functions. Generally 8 functions is sufficient to operate the Telescoping Loader

   a. **Receivers:**
   All systems are equipped with a receiver set box on the frame of the Telescoping Loader itself. The box can be steel or heavy plastic but each is equipped with an antenna for receiving the signal from the hand-held remote.

   Read the remote control operator's manual before using the system.

Steel

Plastic

FIG. 9 RECEIVERS

   b. **Wireless Remote (Optional):**
   This hand-held radio-controlled remote controls the boom movement functions of raise/lower, extend/retract and swing plus starting and stopping the machine. It has a range of approximately 200 feet. Place the mode switch on the electrical panel into the AUTO position to activate the receiver on the machine.

      a. **Emergency Stop:**
      This red button is the emergency stop switch for the machine. Depress the button to stop the Loader. Depress the button to turn machine on. Always turn all the switches off before turning the emergency switch on.

      b. **Key Switch ON/OFF:**
      Insert key into switch and turn fully clockwise to turn ON. Release key and it will return to the run position. Turn counterclockwise to turn OFF. In the OFF position the key can be removed.

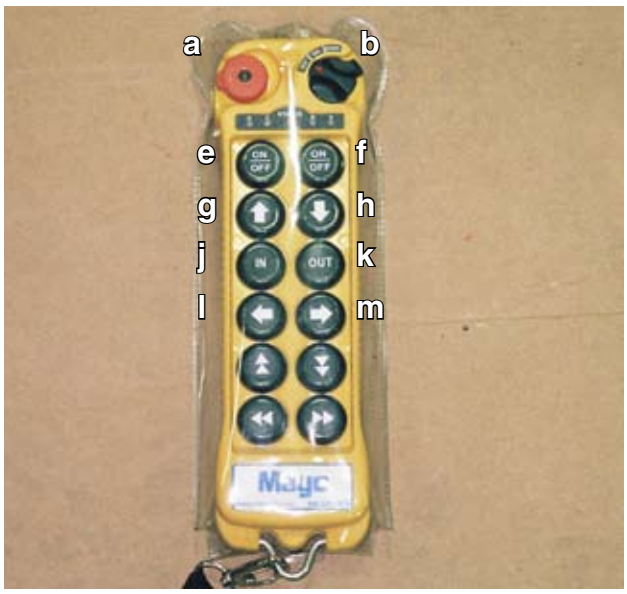


FIG. 10 WIRELESS REMOTE (TYPICAL)

c. **Battery Light:**
This red light indicates the condition of the internal battery. It is illuminated when the battery has insufficient charge and the ON button has been depressed. Replace depleted batteries immediately with fully charged batteries.

d. **Transmit Light:**
This green light will come on when a signal is being transmitted. It should come on whenever a function button is pressed. If it does not come on, check the condition of the internal batteries.

e. **Hydraulic Pump ON/OFF:**
This button controls the power to the hydraulic pump. Depress the button to turn the pump ON. Depress again to turn OFF.

f. **Conveyor ON/OFF:**
This button controls the power to the conveyor drive motor. Depress the button to turn ON. Depress again to turn OFF.

g. **Boom UP:**
This spring-loaded momentary-contact switch controls the boom UP function of the machine. Depress the button and hold to move the boom UP to the desired position. Release the button to stop.

h. **Boom DOWN:**
This spring-loaded momentary-contact switch controls the boom DOWN function of the machine. Depress the button and hold to move the boom DOWN to the desired position. Release the button to stop.

j. **Boom LEFT:**
This spring-loaded momentary-contact button controls the boom swing LEFT function of the machine. Depress this button and hold to swing the boom toward the left to its desired position. Release the button to stop.

k. **Boom RIGHT:**
This spring-loaded momentary-contact button controls the boom swing RIGHT function of the machine. Depress this button and hold to swing the boom toward the right to its desired position. Release the button to stop.

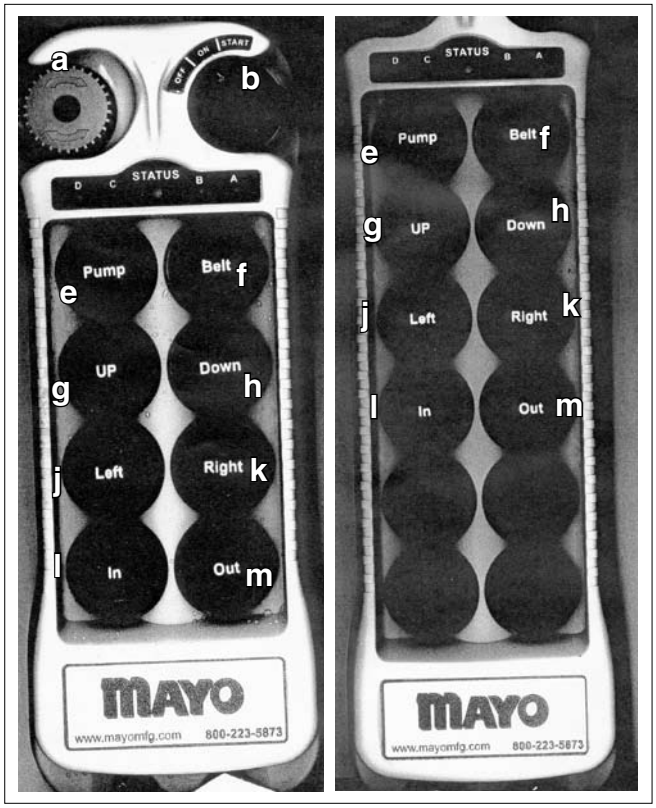


FIG. 11 HAND HELD REMOTES (TYPICAL)

l. **Boom IN:**
This spring-loaded momentary-contact switch controls the boom retract IN function of the machine. Depress this button and hold to retract the boom IN to its desired position. Release the button to stop.

m. **Boom OUT:**
This spring-loaded momentary-contact switch controls the boom extend OUT function of the machine. Depress the button and hold to extend the boom OUT to its desired position. Release the button to stop.

7. **Flow Control - Restrictor Valve:**
This manually-set flow restrictor controls the flow of oil and is used to set the operating speed of the boom raise/lower function. Turn the knob of the needle valve clockwise to increase the restriction and slow the function. Turn the knob counterclockwise to reduce the restriction and increase the speed of the raise/lower function.

Turn the valves all the way in to lock the height of the boom. However, always install the mechanical lock bracket before transporting or working beneath the assembly.

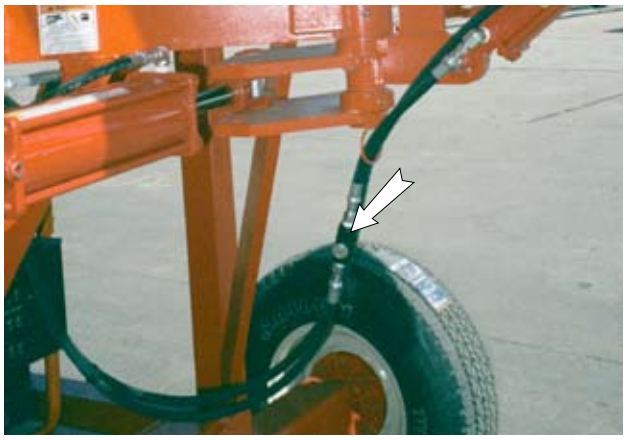
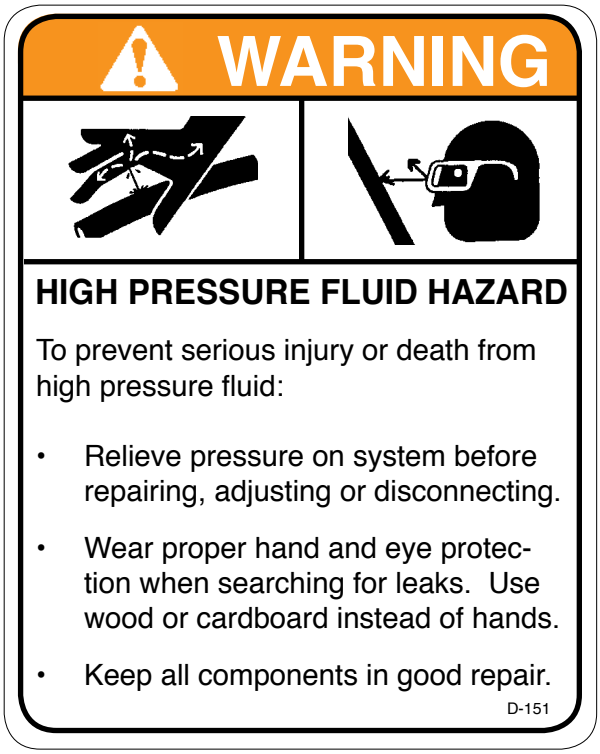


FIG. 12 RESTRICTOR VALVE



8. **Hydraulic Pressure Gauge:**
This gauge displays the pressure in the hydraulic circuit. It normally will not exceed 1000 psi.

FIG. 13 HYDRAULIC PRESSURE GAUGE

9. **Manual Steering (Optional):**
An optional manual steering system is available to steer the Telescoping Loader. Use the pipe on the handle to turn the wheels when the optional hydraulic steering is not installed.

a. Pipe **b. Handle**

FIG. 14 OPTIONAL MANUAL STEERING

10. **Optional Quick-n-Easy Hitch:**
An optional Quick-n-Easy hitch is available for the front of the frame to assist when attaching to another machine or the towing vehicle. Release the latch and extend the hitch as required. Back up until the hitch is fully retracted and latched before using or moving.

Retracted

Extended

FIG. 15 OPTIONAL QUICK-N-EASY HITCH

4.7 MACHINE PREPARATION

The machine must be properly prepared prior to use. Before starting the machine, be sure that the following items are appropriately set for your machine.

1. **Power:**
   If the machine will be used in a location with power, have a qualified electrician install the wiring system to provide power at the required voltage, phase and amperage for your machine.

   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.

   If a generator set is used to provide power, be sure the set can supply the required power at the appropriate voltage, phase and amperage. An improper source of power will cause damage to the electrical components and could create an electrical hazard to the operator, worker or bystanders.

FIG. 16 OPTIONAL POWER PAK

2. **Hitch:**
   A solid or extendable hitch is available for the front of the frame. It is recommended that hitch remain attached to the truck when filling a planter to control the position of the machine.

FIG. 17 EXTENDABLE HITCH

3. **Jack:**
   All machines are equipped with a mechanical or optional hydraulic jack for attaching the hitch to a towing vehicle. Always fully retract the optional hydraulic jack when not in use.

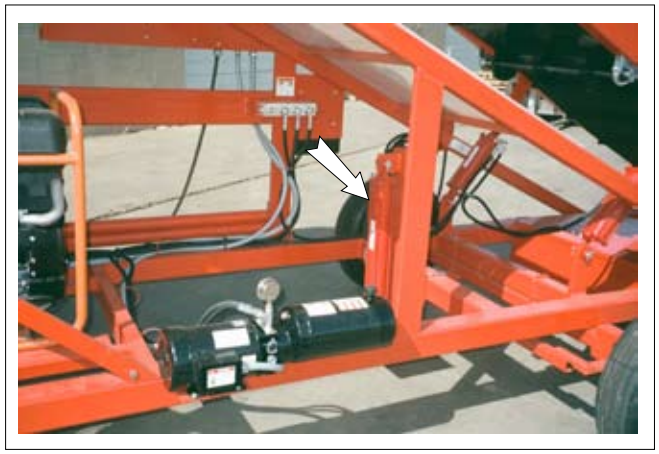


FIG. 18 OPTIONAL HYDRAULIC JACK

4. **Training:**
   Establish a lock-out tag-out policy for your worksite and train all everyone in how it is implemented. Do not allow anyone to operate the machine on the worksite unless they follow the lock-out tag-out policy.

5. **Tractive Drive System (Optional):**
   Configure the optional tractive drive into the mode appropriate for the application.

   a. **Chain Drive:**
      Install and tighten the drive chain if it is required that the machine move under its own tractive power. Remove and tie up the drive chain if the unit will be towed or moved by hand.

   b. **Power Wheel:**
      Disengage the drive gear in the power wheel if the machine will be towed. Engage the drive gear if the unit needs to be moved under its own power.

Chain Drive

Power Wheel

FIG. 19 TRACTIVE DRIVE (OPTIONAL)

4.8 OPERATING

OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or repairing the Telescoping Loader.
- Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
- Install and properly secure all guards and shields before operating.
- Keep hands, feet, hair and clothing away from all moving parts.
- Clear the area of bystanders, especially small children, before starting.
- Make sure all control switches are in the off position before connecting power supply.
- Use blocks to level the frame before using.
- 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.
- Before applying pressure to the hydraulic system, make sure all components are tight and that all steel lines, hoses and couplings are not damaged.
- Stay away from overhead obstructions and power lines when raising the discharge end. Electrocution can occur without direct contact. Post an observer at the discharge end to guide the operator.
- Do not stand between the frame and other structures or machines when raising or swinging the Loader. Keep others away.
- Keep the working area clean and dry.
- Contact Mayo at (218) 773-1234 or 1 (800) 223-5873 if you have any questions.
- Review safety instructions annually.

Follow this procedure when using the Telescoping Loader:

1. Review Section 4.6 Machine Preparation and follow all the instructions.
2. Review and follow the pre-operation checklist (See Section 4.4).
3. Review the location and function of all controls (See Section 4.5).
4. Move the machine into its operating position with the discharge end over the planter hopper or other equipment appropriate to the application.

FIG. 20 POSITIONED

5. **Starting Loader - Electrically Powered:**

   a. Clear the area of bystanders. Know where everyone is before starting.

   b. Place all controls in the OFF or neutral position, including the remote controls (if so equipped).

   c. Turn the power to the machine ON at the master panel if connected to a hard wired power source.

   d. Start the generator set and bring to its full power output.

   e. Turn the hydraulic pump ON (Refer to Section 4.7 Controls).

   f. Turn the conveyors ON. When the conveyors are turned ON, the internal starting sequence will start the lower boom, upper boom and elevator in sequence with a 2-3 second time delay.

   g. Turn the operating mode switch to HAND or AUTO for manual or remote control per your conditions and configuration.

   h. Turn the equipment ON that moves material to the Loader.

6. **Stopping Loader:**

   a. Turn OFF the equipment that brings material to the Loader.

   b. Wait until the material has moved off the end of the lower boom conveyor.

   c. Turn the conveyors OFF.

   d. Turn the operating mode switch to its OFF position if equipped with a remote control.

   e. Turn the hydraulic pump OFF.

   f. Turn generator set off.

   An alternative is to depress the red Master STOP button on the control panel or on the radio controlled remote box but then all controls must be turned OFF.

7. **Emergency STOP:**
   Depress the large red STOP button on the control panel or the STOP button on the hand held radio controlled box. This will stop all the conveyors and the hydraulic pump.

Control Panel

Generator

Wireless Remote (Typical)

FIG. 21 CONTROLS

8. **Machine Attachment - Telescoping (Typical):** The Telescoping Loader attaches to a pintle hitch on the back of the truck carrying the cut material. Adjust the length of the hitch so the truck discharges directly into the hopper of the Loader. Use the height cylinders to set the height of the hopper. Use a mechanical retainer to lock the jaws in the hitch closed. Attach a safety chain between the Loader and the truck to prevent unexpected separation. Turn the front wheels into their straight forward position.

FIG. 22 HITCH

9. **Planter Filling - Telescoping (Typical):**

   a. Set the boom assembly at an appropriate height to clear the planter hopper.

   b. Drive the Loader/Truck past the planter.

   c. Place all controls in their OFF position.

   d. Start the generator and bring to full power.

   e. Start the Loader.

   f. Swing/extend/raise boom to discharge cut material into the planter hopper.

   g. Start the flow of cut material from the truck into the hopper of the Loader.

   h. Move the boom as required to fill the planter.

   i. When the planter hopper is almost full, stop the flow of material into the Loader.

   j. Run until the material is through the system.

   k. Turn the Loader OFF.

   l. Retract and center the boom.

   m. Move the Loader to the next location as required.

Truck

Planter

FIG. 23 FILLING (TYPICAL)

10. **Trans Loading:**
The Telescoping Loader has sufficient capacity to be used to transfer material from field to transport trucks at remote locations. In this application, position the unit to provide easy access for the transport and field trucks.

a. Drive the transport trucks under the boom discharge end.

b. Use the boom movement functions to place the material into the transport truck. Keep the drop height as small as possible to minimize bruising.

c. Back the field truck up to the hopper for unloading.

d. Raise the hopper as high as possible to minimize the drop height and prevent bruising.

e. Start the Telescoping Loader.

f. Move the boom into the required position in the transport truck box.

g. Start the flow of material into the hopper.

h. Move the boom as required to distribute the material in the truck box and keep the drop height as small as possible.

i. When the field truck is empty, stop the Telescoping Loader.

j. Exchange empty and full field and transport trucks respectively as required.

Hopper

Drop Height

FIG. 24 TRANS-LOADING

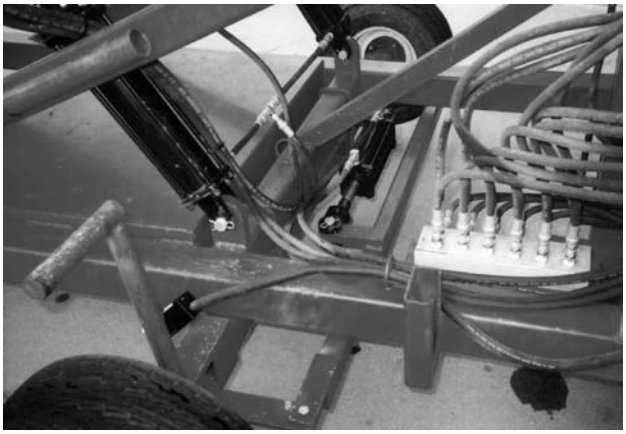
11. **"Mini" Piler:**
A Telescoping Loader can be used as a "mini" piler if required. The Loader will perform in the same way except that it has less boom movement capabilities.

a. **Power:**
Power to run the Loader can be provided by a generator as in the field or plugged into the building power capabilities. Be sure the voltage, phase and amperage are appropriate for your unit. Use a licensed electrician to check the system if you are not sure.

b. **Equipment Attachment:**
To obtain the best performance, it is recommended that auxiliary conveying equipment be attached to the Loader to prevent unexpected machine movement. Use the elevator position cylinders to set the height of the hopper to minimize the drop height.

c. **Moving:**
If the machine is located on a firm level surface, it can normally be moved by the self-contained tractive drive system. If the surface is rough or soft, attach a tow unit and move as required. Reposition the auxiliary equipment as required to finish the job.

d. **Steering/Tractive Drive (Optional):**
An optional steering/tractive drive system is available on the machine for moving as required. Steering and moving is controlled by the hydraulic levers on the left side of the machine. Disengage the optional drive system whenever the machine has to be moved by hand or towed. It is recommended that the machine be moved in 10 foot increments (telescoping length) as the storage facility fills.



Steering

Tractive Drive - Chain

Tractive Drive - Power Wheel

FIG. 25 MOVING

e. **Truck Loading:**
The Loader can be used to load trucks in the field or at a storage facility as required. Position the machine so the truck has convenient access to the boom discharge and yet allow the boom to move as required to distribute material into the box. Provide auxiliary conveying or loading equipment to supply material to the unit. Follow the regular starting and stopping procedures at all times. Move the boom as required to minimize the drop height to prevent bruising.

Stay away from between boom and side of truck when swinging boom during loading.

FIG. 26 TRUCK LOADING

f. **Remote Control (Optional):**
An optional hard-wired or radio transmitter remote control is available with this machine. The machine operates in the same manner with a remote as if the hydraulic levers are used to control it. Refer to the Controls and Starting/Stopping sections on how to use the optional remotes.

FIG. 27 REMOTE (TYPICAL)

12. **Boom Swing:**
The boom is designed to swing from side-to-side as it places the product where required. Do not stand between the boom and the side of the truck or other equipment when positioning the boom. Keep others away.

13. **Manual Steering:**
If the Loader is not equipped with a hydraulic steering system, it will have manual steering. Remove the assist pipe on the frame next to the handle and use it to help turn the wheels. Replace and secure the assist pipe when the Loader is in its final position.

a. **Assist Pipe**

b. **Steering Handle**

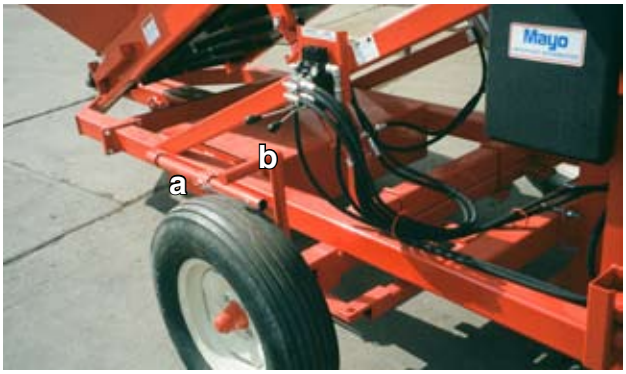


FIG. 28 MANUAL STEERING

14. **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 dry to prevent slipping and tripping.

c. Train all operators before starting. An untrained operator is not qualified to operate this machine and exposes himself and others to needless hazards.

d. Use the machine as Telescoping Loader, trans-loader or "mini" piler per your specific application needs.

e. Use the boom movement functions to keep the end of the boom as close to the pile as possible to minimize the drop height.

f. Establish a Lock-out Tag-out program for your operation and require all employees to follow it.

Planter

Truck

FIG. 29 FILLING (TYPICAL)

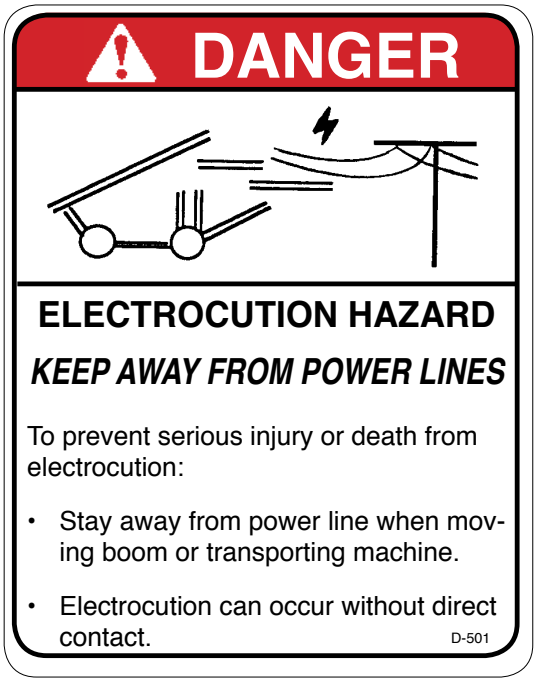
4.9 TRANSPORT

TRANSPORT SAFETY

- Make certain that you are in compliance with local, state/provincial and federal regulations regarding transporting agricultural equipment on public roadways. Install auxiliary light bar on rear of frame and turn lights on before moving.
- Use pilot vehicles ahead of and behind the unit when transporting on a public highway.
- Make certain that all wheels and tires are in good repair and that tires are inflated to proper pressure. Do not underinflate or overinflate.
- Make certain that all wheel bolts/lug nuts are tightened to proper torque specifications (refer to specification chart in Section 7.2).
- Fully retract all telescoping conveyor sections and secure before transporting.
- Make certain that all mechanical locks and integral anchor chains are safely and positively connected before loading or transporting.
- Raise and secure the jack stand.
- Lower elevator/hopper to the fully down position before moving or transporting.
- Wrap up and bind to the frame all loose hydraulic and electrical ends.
- 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.
- To prepare the self-contained tractive drive:
  a. Remove and stow the drive chain or
  b. Disengage power wheel gears.
- Be sure that the Telescoping Loader is positively hitched to the towing vehicle. Use a proper safety chain to assure a safe hitch hook-up when transporting.
- Adhere to local regulations regarding maximum weight, width and length.
- Do not exceed 20 MPH (32 Km/H). Reduce speed on rough roads and surfaces.
- Do not allow anyone to ride on the Telescoping Loader or towing vehicle during transport.
- Always use hazard flashers on the towing vehicle when transporting.

Mayo Telescoping Loaders 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 under its own tractive capability 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. Install auxiliary light bar provided with the machine on rear of frame and turn lights on before moving.
2. Use pilot vehicles ahead of and behind the unit when transporting on a public highway.
3. Disconnect and remove all auxiliary equipment from the Loader and position so the tow unit can back up to the front of the machine.
4. Stay away from overhead power lines. Electrocution can occur without direct contact.



5. Retract the boom to its shortest position and secure with its anchor chain.

6. Straighten the boom and install the pivot lock rod at the pivot frame.

7. Position the boom so the discharge end is a little higher than the center.

8. Install the boom lift locks into their channels.

9. Lower the boom until it rests on the locks.

10. Place the hopper in its lowest position.

11. Use the jack to attach to the tow vehicle.

12. Raise and stow the manual or optional hydraulic jacks.

13. Unplug and stow the power cord.

14. Disconnect the optional tractive drive (if so equipped) and tie up chain to prevent dragging or disengage power wheel.

15. Attach to the tow unit and lock the pintle hitch jaws closed. Attach a safety chain.

16. Connect wiring harness.

17. Install an SMV on the rear frame.

18. Use pilot vehicles and install auxiliary lights on the machine when transporting.

19. Clean all the reflectors.

20. Be sure all bystanders are clear of the machine.

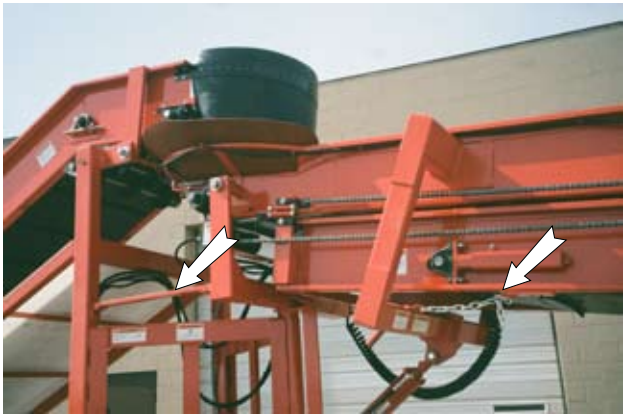
21. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.

22. 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.

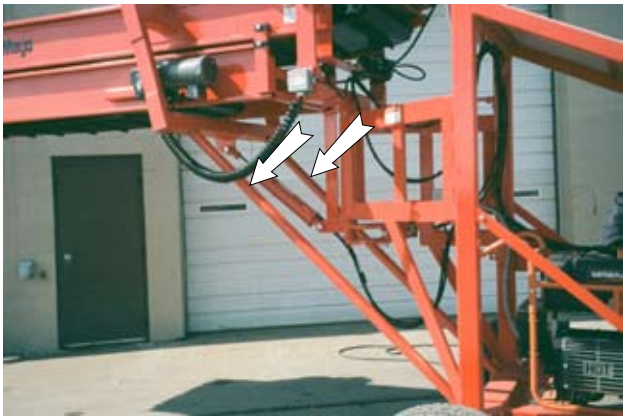
23. It is not recommended that the machine be transported faster than 15 mph (25 km/hr). Table 1 gives the acceptable transport speed as the ratio of tractor weight to Loader weight.

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

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



Boom Swing / Boom Extend



Transport Locks - Boom Height

Front Jack

FIG. 30 LOADER

Table 1 Travel Speed vs Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of tow vehicle.
Up to 15 mph (25 kph)	1 to 1 or less
Up to 10 mph (16 kph)	2 to 1 or less
Do not tow	More than 2 to 1

4.10 STORAGE

STORAGE SAFETY

- Store the Telescoping Loader on a firm level surface.
- If required, make sure the unit is firmly blocked up.
- Make certain that all mechanical locks are safely and positively connected before storing.
- Store away from areas of human activity.
- Do not allow children to play on or around the stored Telescoping Loader.
- 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 Telescoping Loader.

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. Start the hydraulic pump and run for 10 minutes to bring the oil to operating temperature. Change the hydraulic oil if appropriate as specified in the Maintenance Section.
2. 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 each belt.
3. **If plugged into hard wiring:**
    a. Turn the power OFF at the master electrical panel and lock out.
    b. Unplug and remove power cord from machine.
4. If equipped with optional generator:
    a. Remove ignition key from engine.
    b. Unplug and tie up power cord.
5. Thoroughly wash the machine using a pressure washer to remove all dirt, mud, debris or residue.
6. Lubricate all grease fittings. Make sure all grease cavities have been filled with grease to remove any water residue from the washing.
7. Inspect all the hydraulic hoses, lines, fittings and cylinders. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or separating from a fitting. Replace any damaged components.
8. 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.
9. Inspect the conveyor drive system.
10. Check all rotating parts for entangled material. Remove.
11. Touch up all paint nicks and scratches to prevent rusting.
12. Select a storage area that is dry, level and free of debris.

4.10.2 REMOVING FROM STORAGE

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

1. Transport or move to the working area.
2. Check
    a. Hydraulic tank oil level.
    b. Hydraulic and electrical systems and components.
    c. Conveyor belt and drive system.
    d. All hardware. Tighten as required.
3. Replace any defective components.
4. Go through the pre-operation checklist (Section 4.4) before starting.

5 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

- Read and understand all the information contained in the Operator's Manual regarding operating, servicing, adjusting, maintaining and repairing.
- Turn machine OFF, shut down and lock out power supply (safety lockout devices are available through your Mayo dealer parts department), relieve hydraulic pressure and wait for all moving parts to stop before servicing, adjusting, maintaining or repairing.
- Exercise extreme caution when working around, or with, high-pressure hydraulic systems. Depressurize the system before working on it.
- 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.
- Wear heavy gloves and eye protection when searching for suspected hydraulic leaks. Use a piece of wood or cardboard as a backstop instead of hand to isolate and identify a leak. A high pressure concentrated stream of hydraulic fluid can pierce the skin. If such happens, seek immediate medical attention as infection and toxic reaction could develop.
- Make sure all guards and doors are in place and properly secured when operating the Telescoping Loader.
- Do not work on Telescoping Loader electrical system unless the power cord is unplugged or the power supply is locked out. Lock-out tag-out power source before performing any maintenance work.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
   Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance rating meeting or exceeding the NLGI #2 rating for all requirements.

2. **Engine Oil:**
   Use an SAE 10W30 or 10W40 multi-viscosity oil meeting the American Petroleum Institute (API) classification of SF, SG, SH or SJ for normal operating temperatures. Consult the engine manual for unusual operating conditions. Do not mix oil types or viscosities.

   Crankcase Capacity: 2.1 US qt (2.0 L)

3. **Engine Fuel:**
   Use a standard automotive unleaded gasoline for all operating conditions.

   Fuel Tank Capacity: 4.0 US gal (14.8 L)

4. **Hydraulic Oil:**
   Use- Amco All-Purpose Hydraulic Oil or Equivalent.

   Reservoir Capacity: (3 US. gals, 11 liters).

5. **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.

6. **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.

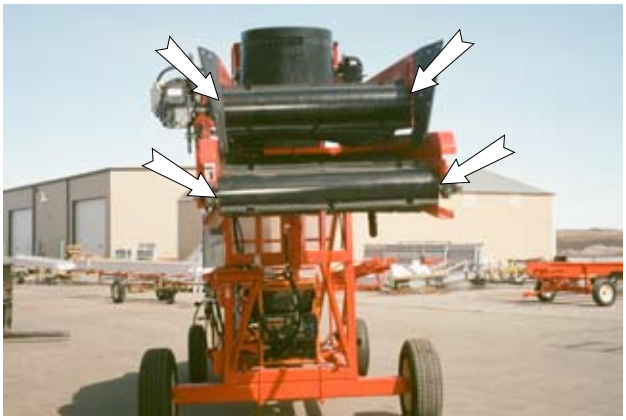
5. **Conveyor Bearings:**
   Only sealed bearings are used on the conveyor bearings. Sealed bearings should never be greased more often than weekly or every 50 hours. Do not over-grease. Do not give bearing more than 1 shot of grease each time it is greased (Once the bearing seal is broken, the bearing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

5.1.3 SERVICING INTERVALS

8 Hours or Daily

1. Check the conveyor tension and alignment. Tension or align as required.

Elevator



Booms

FIG. 31 CONVEYOR TENSION/ALIGNMENT

2. Inspect hydraulic system and all components.

3. Inspect electrical system and all components.

4. Check fuel level.

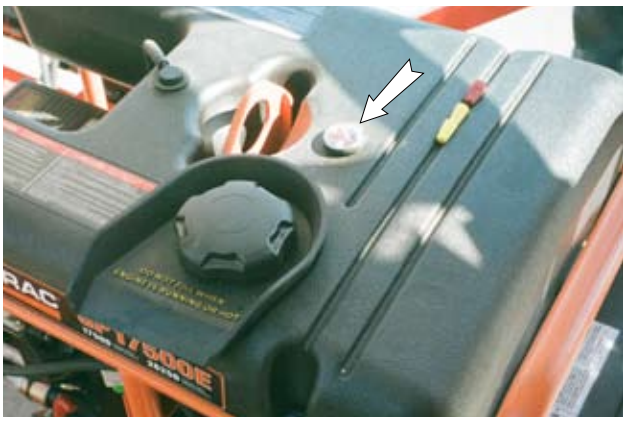


FIG. 32 FUEL GAUGE

5. Check crankcase oil level.

FIG. 33 DIP STICK

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. Elevator drive, driven and guide shafts (2 locations each shaft).

Drive and Guide (Typical)

Driven (Typical)

FIG. 34 ELEVATOR CONVEYOR SHAFTS

b. Upper boom drive and driven shafts (2 locations each shaft).

Outer End

Inner End (Typical)

FIG. 35 BOOM CONVEYOR SHAFTS

100 Hours or Annually

1. Grease the boom swing pivot (2 locations).

FIG. 36 BOOM SWING PIVOTS

2. Grease the boom lift pivot shaft (2 locations).

FIG. 37 BOOM LIFT PIVOT (TYPICAL)

3. Check the oil level in the hydraulic reservoir.

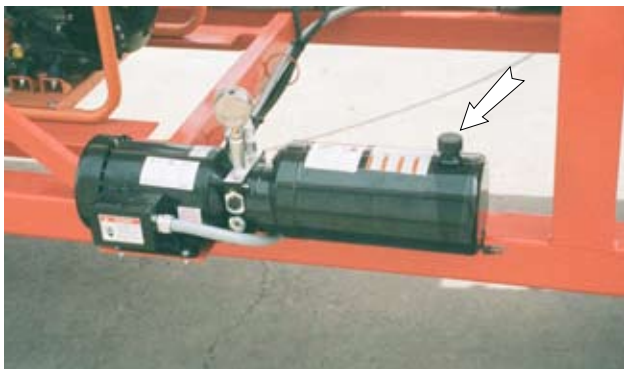
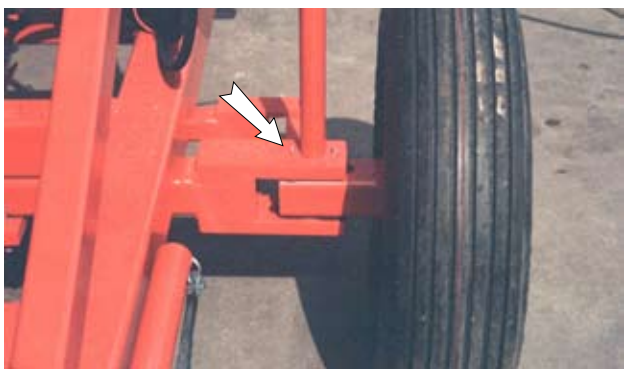


FIG. 38 HYDRAULIC OIL LEVEL

4. Grease steering system plates (manual steering system).

Left



Right

FIG. 39 STEERING SYSTEM PLATES

5. Check the oil level in each speed reducing gear box in the drive systems (1 location each gear box).

Elevator

Lower Boom

Upper Boom

FIG. 40 GEARBOXES (TYPICAL)

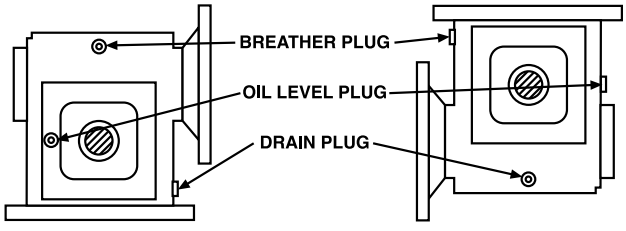


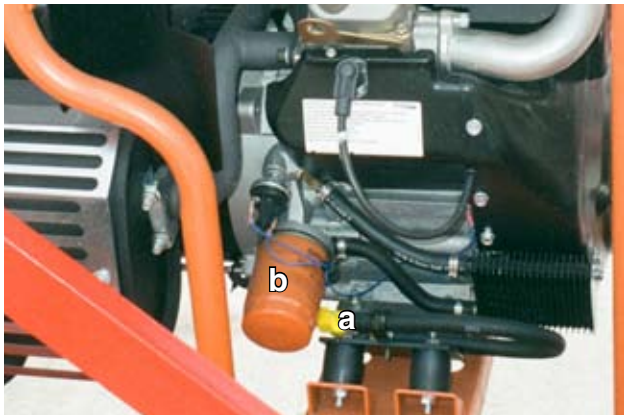
FIG. 41 GEARBOX SCHEMATIC (TYPICAL)

6. Clean engine air filter.

FIG. 42 AIR FILTER

7. Change engine crankcase oil.

8. Change engine oil filter.



a. Drain Plug b. Oil Filter

FIG. 43 ENGINE

500 Hours or Annually:

1. Clean the hydraulic system filter (1 location).
2. Change the oil in the hydraulic system.

FIG. 43 HYDRAULIC SYSTEM

3. Repack each wheel bearing.

FIG. 44 WHEELS (TYPICAL)

5.1.4 SERVICE RECORD

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

ACTION CODE:	CK	CHECK	CH	CHANGE	CL	CLEAN
	LU	LUBRICATE	RE	REPACK	IN	INSPECT

Maintenance

Hours																							
Serviced by																							
8 Hours or Daily																							
CK Conveyor Tension and Alignment																							
IN Hydraulic System and Components																							
IN Electrical System and Components																							
CK Fuel Level																							
CK Crankcase Oil Level																							
50 Hours or Weekly																							
LU Conveyor Shaft Bearings																							
100 hours or Annually																							
LU Boom Swing Pivot (2)																							
LU Boom Lift Pivot (2)																							
CK Hydraulic Oil Level																							
LU Steering System Plates (manual steering)																							
CK Gearbox Oil Level (1 location per gearbox)																							
CL Engine Air Cleaner																							
CH Engine Oil																							
CH Engine Oil Filter																							
500 Hours or Annually																							
CL Hydraulic System Filter																							
CH Hydraulic System Oil																							
RE Wheel Bearings																							

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 HYDRAULIC MAINTENANCE

A hydraulic system provides power to move the machine. The system consists of an electrically powered pump, reservoir, lines, hoses, solenoid valves, directional valves, motors and cylinders. To maintain the integrity of the system and provide a safe working environment for the operator, it is important that a daily inspection be done to make sure that the entire system and all components are in good working condition.

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

1. Place all controls in the OFF or neutral position.
2. Turn power OFF at the master panel and lock-out before starting the inspection.
3. Inspect all hydraulic components looking for:
    a. Leaks.
    b. Damaged hoses or lines.
    c. Damaged or leaking cylinders.
    d. Leaking motors or fittings.
    e. Damaged or leaking solenoid and directional valves.
    f. Leaking pump or fittings.
4. Tighten any leaking fittings and replace any damaged components.
5. Change the hydraulic oil and filter every 500 hours or annually per the Service schedule. Change more frequently if operating in harsh conditions such as extreme heat or cold, extreme dust or dirt, and/or extreme humidity.

5.2.2 ELECTRICAL SYSTEM INSPECTION

Electricity provides power to all systems on the Telescoping Loader. 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 or neutral position.
2. Turn power OFF at the master panel and lock-out before starting the inspection.

IMPORTANT

Do not operate the machine unless the master panel is equipped with a lock-out device. Always engage lock-out device before performing any maintenance work. Lock-out devices are available from your dealer or the factory.

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.

5.2.3 ELECTRIC MOTOR RESTART

A magnetic starting system is used on the Telescoping Loader and the restart procedure is covered in this section. It is recommended that only a licensed electrician perform maintenance work on the electrical system.

1. **Magnetic Starter:**
   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 indicate the cause of the overload. It must be reset before the motor can be restarted.

   When a motor will not start:

   a. Depress the OFF button.

   b. Depress the ON button.

   c. If the motor will not start, turn machine OFF and lock out power at the master control panel before opening the control panel.

   d. Fully rotate the contactor dial counterclockwise to reset and then, turn dial clockwise to the ON contactor open position.

   e. Close and secure the panel door and turn the power to the machine ON.

   f. If the motor still will not start you have one of the following conditions:

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

      NOTE

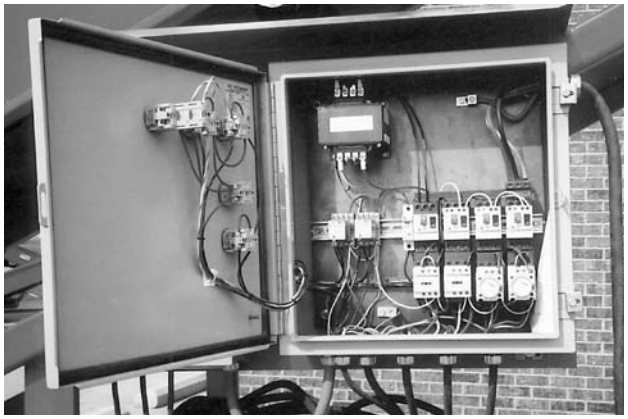
      If your conveyor utilizes single phase motors, chances are good that the motor has a thermal overload located on the electrical junction box of the motor itself. If this is the case then, fully depress the reset button to make certain that the overload circuit is closed.

      ii. The overload is adjusted incorrectly for the amperage of the motor and must be properly adjusted.

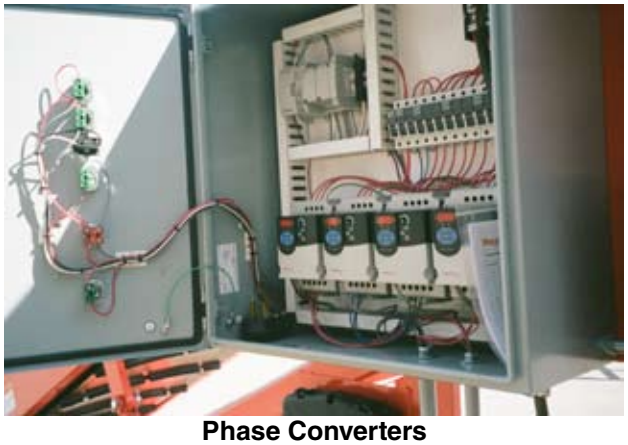
      iii. The overload and/or contactor has fulfilled its service life and is in need of replacement.

      iv. The motor is bad and needs replacing.

      v. An electrical short exists somewhere in the circuit.



Manual Restart



Phase Converters

FIG. 45 MOTOR RESTART

5.2.4 CHANGING HYDRAULIC OIL

Every 500 operating hours or annually, whichever comes first, the oil in the hydraulic system and filter should be changed. To change the oil and filter, follow this procedure:

1. Run the hydraulic pump until the oil is warm. Warm freshly agitated oil removes more contaminants when drained than cold stagnate oil.

2. Stop the pump and place all controls in their OFF or neutral position.

3. Turn the power OFF at the master panel and lockout.

4. Place a container under the drain plug.

5. Remove the drain plug and allow the system to drain for 10 minutes.

IMPORTANT

The reservoirs contain 25 gallons of oil. Be sure to have several containers to hold the oil from each tank when draining.

6. Install and tighten the drain plug. Use teflon tape or pipe sealant compound on the plug to prevent leaking.

7. Dispose of the used oil in an environmentally safe manner.

8. Fill with Amoco All-Purpose Hydraulic Oil or equivalent.

9. Add to the oil level until it measures 1 1/2 inches (37 mm) from the fill neck to fill the tank.

10. Install the fill cap.

11. Start and run the system and check for leaks.

12. Tighten any fitting that leaks.

FIG. 46 HYDRAULIC SYSTEM (TYPICAL)

5.2.5 SPEED REDUCER GEARBOX OIL

Each conveyor is driven by an electric motor that is attached to a high ratio speed reducing gearbox to give the required operating speed. Each 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 hydraulic system and conveyors until each gearbox is warm. Warm oil will remove more contaminants than cold stagnate oil.

2. Stop the conveyors and pump.

3. Place all controls in their OFF or neutral 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.

Elevator

Upper Boom

Lower Boom

FIG. 47 GEARBOXES (TYPICAL)

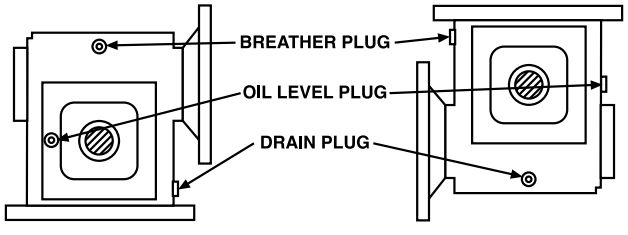


FIG. 48 GEARBOX SCHEMATIC (TYPICAL)

5.2.6 CONVEYOR BELT TENSION / ALIGNMENT OR REPLACEMENT

Rubber belts are used to convey material with the Telescoping Loader. The tension and alignment of the conveyors should be checked daily to insure proper function. Replace the conveyor belt 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:**
   They are tensioned correctly when there is a 1/2 to 1 inch (12 to 25 mm) sag between the guide rollers on the bottom or slack side of the conveyor during operation.

   a. Elevator

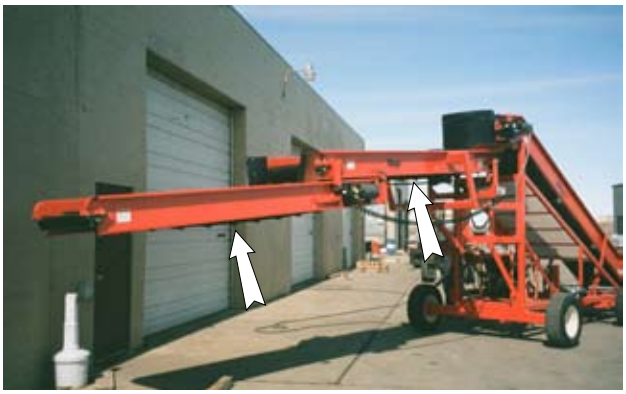
   b. Upper Boom

   c. Lower Boom

Elevator - Driven

Inner Boom (Typical)

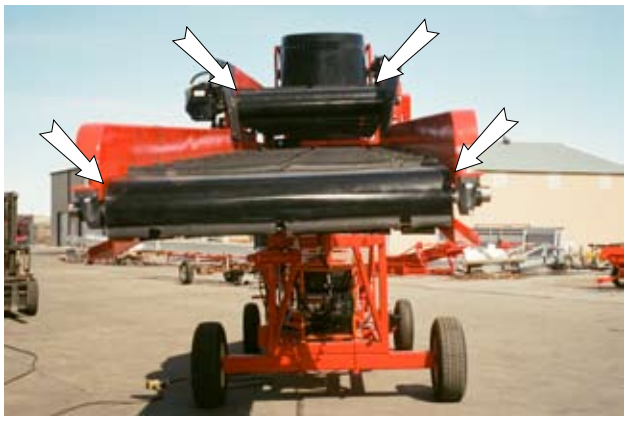
Outer Boom (Typical)



Boom Conveyor Sag (Typical)

FIG. 48 TENSION ADJUSTMENT (TYPICAL)

4. **Alignment:**
   It is 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 either the drive or driven shafts to align the conveyor but always maintain the proper tension.



Boom Conveyors

Elevator

FIG. 49 CONVEYOR ALIGNMENT (TYPICAL)

5. **Replacement:**

   a. Move one or both of the shafts into their loosest position.

   b. Open the conveyor by removing the connecting rod on the belt lacing.

   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.

Boom Conveyor (Typical)

Elevator

FIG. 50 BELT CONNECTOR (TYPICAL)

5.2.7 EXTENDING / RETRACTING ROLLER CHAIN

An anchored roller chain is used to extend and retract the boom. 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. Place the boom in its fully down position.

   b. Use a brush to apply oil to the chain.

WARNING

Use special care when working around exposed moving parts.

Driven

Drive

FIG. 51 TELESCOPING ROLLER 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. Install and secure all the guards.

2. **Weekly sprocket alignment:**

   a. Check alignment by visually sighting 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 to its specified torque.

   e. Install and secure all the guards

WARNING

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

3. **Weekly roller chain tension:**
Check the tension when the machine is OFF and not moving. The chain should be snug when it is at rest. When checking spring tension, follow this procedure:

   a. Turn power OFF at the master panel and lock-out before performing any maintenance work.

   b. Stop engine on Power Pak and remove ignition key and unplug power cord.

   c. Check the chain tension.

   d. Loosen jam nuts on roller chain.

   e. Use the position nut to set the chain tension.

   f. Tighten jam nut to its specified torque.

   g. If the anchor bolt is at the end of its adjustment, remove a half link, full link or more until the chain can be properly tensioned.

   h. Install and secure guards.

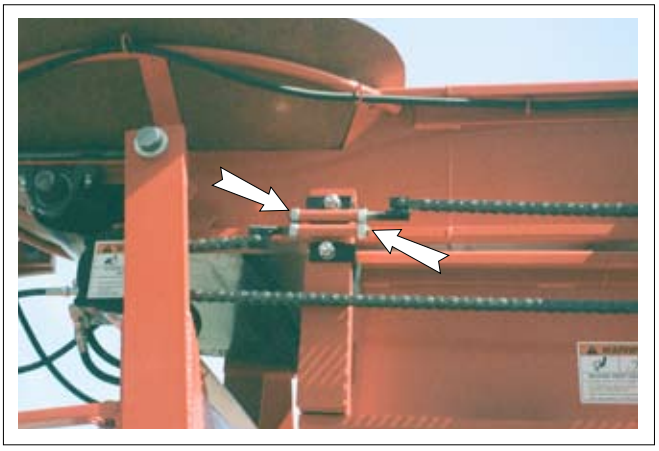


FIG. 52 ANCHOR BOLT ADJUSTMENT

WARNING

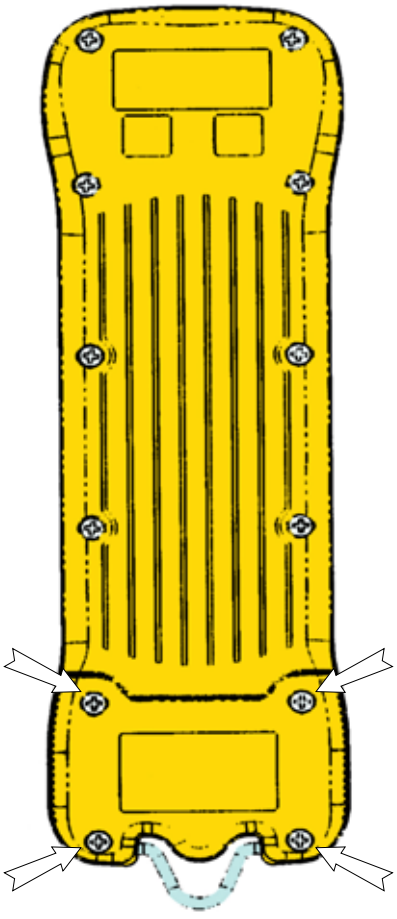
Turn power OFF at the master panel and lock-out before performing any maintenance work.

5.2.8 WIRELESS REMOTE BATTERIES

The hand-held radio-transmitter remote control is a simple, reliable and self-contained system. It comes in a fabric case for cushioning and a clear plastic cover so the unit can be operated while enclosed in the case. Removal from the case is not required unless the batteries need replacing. Always test the battery condition at the start of each day and turn the transmitter off when not being used to prevent battery drain. When the useful range of the transmitter decreases, the useful life of the internal batteries is ending and they should be replaced. To replace the batteries, follow this procedure:

1. Place the mode switch on the Loader's control panel in the MAN position.
2. Turn the remote OFF.
3. Remove the remote from its case.
4. Remove the 4 mounting bolts from the back of the case and open.
5. Replace the power pak with new batteries. Be sure to mount with the correct polarity.
6. Close and secure the back cover.
7. Test the condition of the batteries. The green light should come on when any of the function buttons is depressed.
8. Install in the case and close.
9. Place the mode switch into AUTO.

Front



Back - Battery Cover

FIG. 53 WIRELESS REMOTE CONTROL (TYPICAL)

5.2.9 CLEANING ENGINE AIR CLEANER

1. Review the Operator's Manual for the engine.
2. Place all controls in neutral, stop engine and remove ignition key before maintaining.
3. Remove cover over air cleaner.
4. Remove the filter from the housing.
5. Use an air hose to blow the dust and debris out of the filter.
6. Re-install filter.
7. Re-install and secure cover.

IMPORTANT

Do not allow any dirt or debris to fall into the air cleaner housing.

FIG. 54 AIR CLEANER FILTER

5.2.10 CHANGING ENGINE OIL & FILTER

1. Review the Operator's Manual for the engine.

2. Place all controls in neutral, stop engine and remove ignition key before maintaining.

3. Allow the engine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin. It is best to change oil while the engine is warm to keep the contaminants in suspension.

4. Unhook the drain line from its stowed position and direct the line down below the frame.

5. Place a pan under the drain plug.

6. Remove the drain plug and allow the oil to drain for 10 minutes.

7. Use an oil filter wrench to remove the engine oil filter.

8. Apply a light film of oil to the O-ring on the new filter and install. Hand tighten and then another quarter turn.

9. Install and tighten the drain plug.

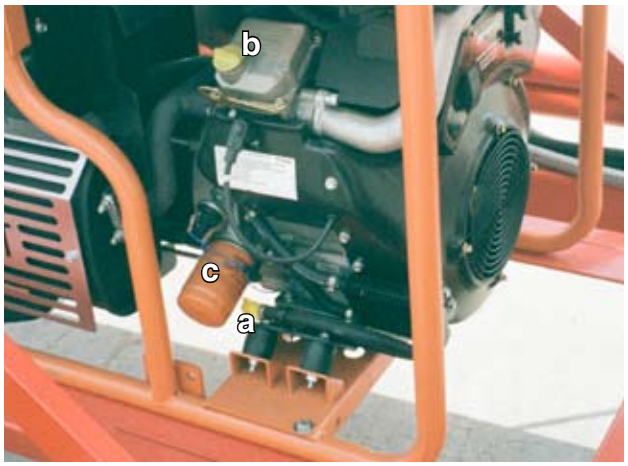
10. Dispose of the used oil in an approved container.

11. Fill the crankcase with the specified oil.

12. Run the engine for 1-2 minutes and check for oil leaks.

13. If leaks are found around the drain plug or filter, tighten slightly. Repeat step 9.

14. Check engine oil level. Top up as required.



a. Drain Plug b. Fill Plug c. Filter

FIG. 55 ENGINE

6 TROUBLE SHOOTING

The Mayo Telescoping Loader uses an elevator and extendable boom to convey material into a storage facility, truck or planter. 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
Loader won't run.	No power.	Turn power ON at master panel. Start engine on optional generator set.
	Tripped overload on starter.	Reset starter.
Conveyor won't run.	No power.	Turn loader ON. Start engine on optional generator set.
	Binding.	Align conveyor.
Loader won't move.	Drives loose.	Engage drive system.
	Drive gear disengaged.	Engage drive gear.
	Low oil.	Add oil to hydraulic reservoir.
	Oil filter plugged.	Replace oil filter.

7 SPECIFICATIONS

7.1 MECHANICAL

DIMENSIONS			
	Length:	Extended	44' 7"
		Retracted	36' 8"
	Width:		8'
	Height:	Boom Up	
		Boom Down	11' 10"
	Boom Swing Angle		+90°
POWER			
	Type		1 ph, 230 V, 36.2 A
	Elevator		2 HP
	Upper Boom		1 - 1/2 HP
	Lower Boom		1 - 1/2 HP
	Hydraulic		1 HP
HYDRAULIC SYSTEM			
	Power		1 HP
	Speed		1750 RPM
	Flow		1 - 1/2 GPM
	Pressure	Spec	1000 psi
		Operating	1000 psi
TIRES			
	Steering	15 Ribbed Implement, 4-ply Rating	
	Traction	11L - 15SL Ribbed Implement, 8-ply rating	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

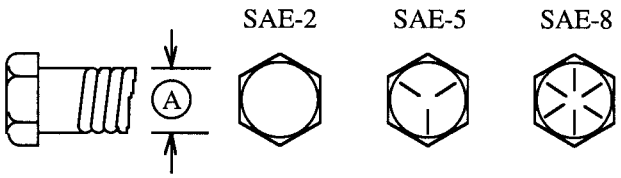
7.2 BOLT TORQUE

CHECKING BOLT TORQUE

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

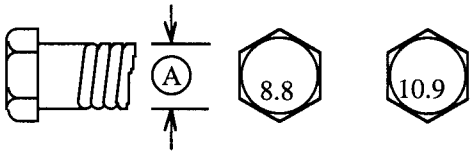
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque* SAE 2 (N.m.)	(lb-ft)	SAE 5 (N.m.)	(lb-ft)	SAE 8 (N.m.)	(lb-ft)
1/4"	8	6	12	9	17	12
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	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.)	(lb-ft)	10.9 (N.m.)	(lb-ft)
M3	.5	.4	1.8	1.3
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710



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

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

7.3 HYDRAULIC FITTING TORQUE

TIGHTENING O-RING FITTINGS *

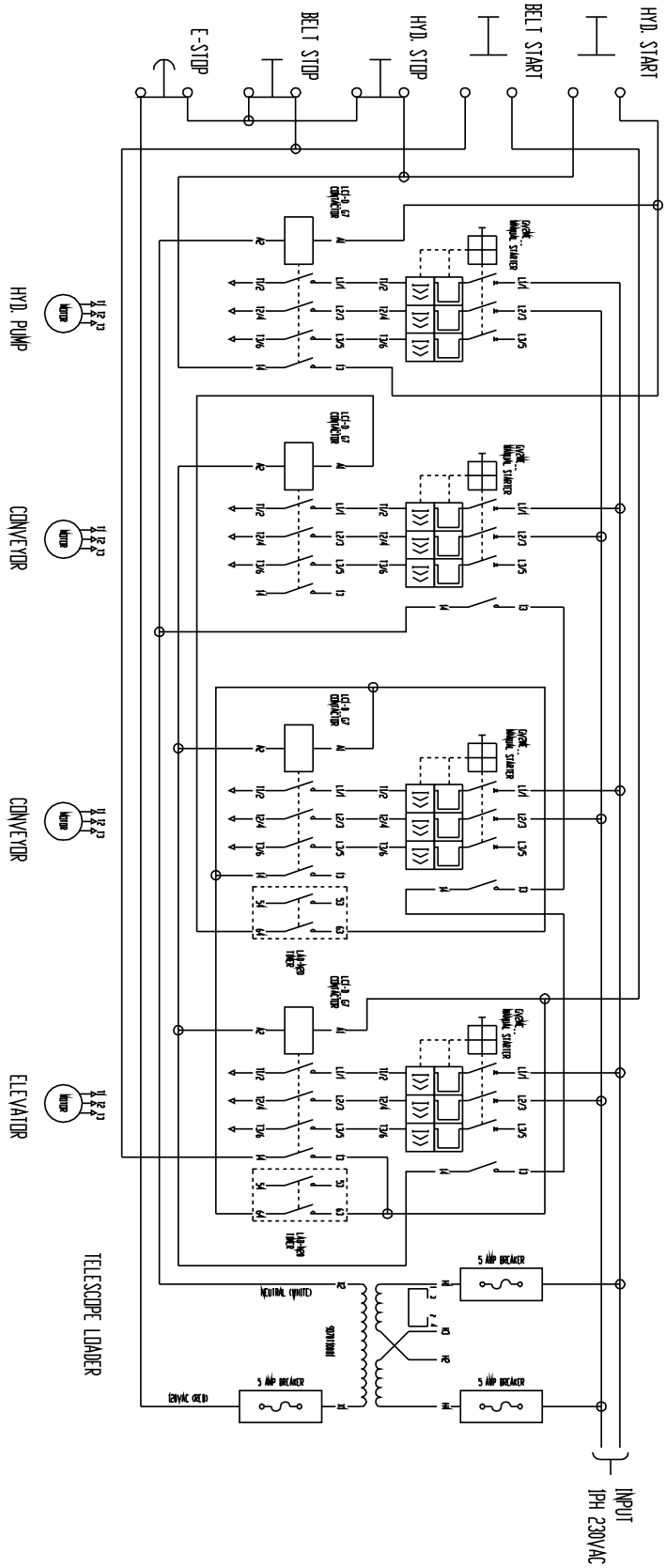
1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the lock nut off until washer bottoms out at top of groove.
3. Hand tighten fitting until back-up washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.
6. Tighten while holding body of fitting with a wrench.

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

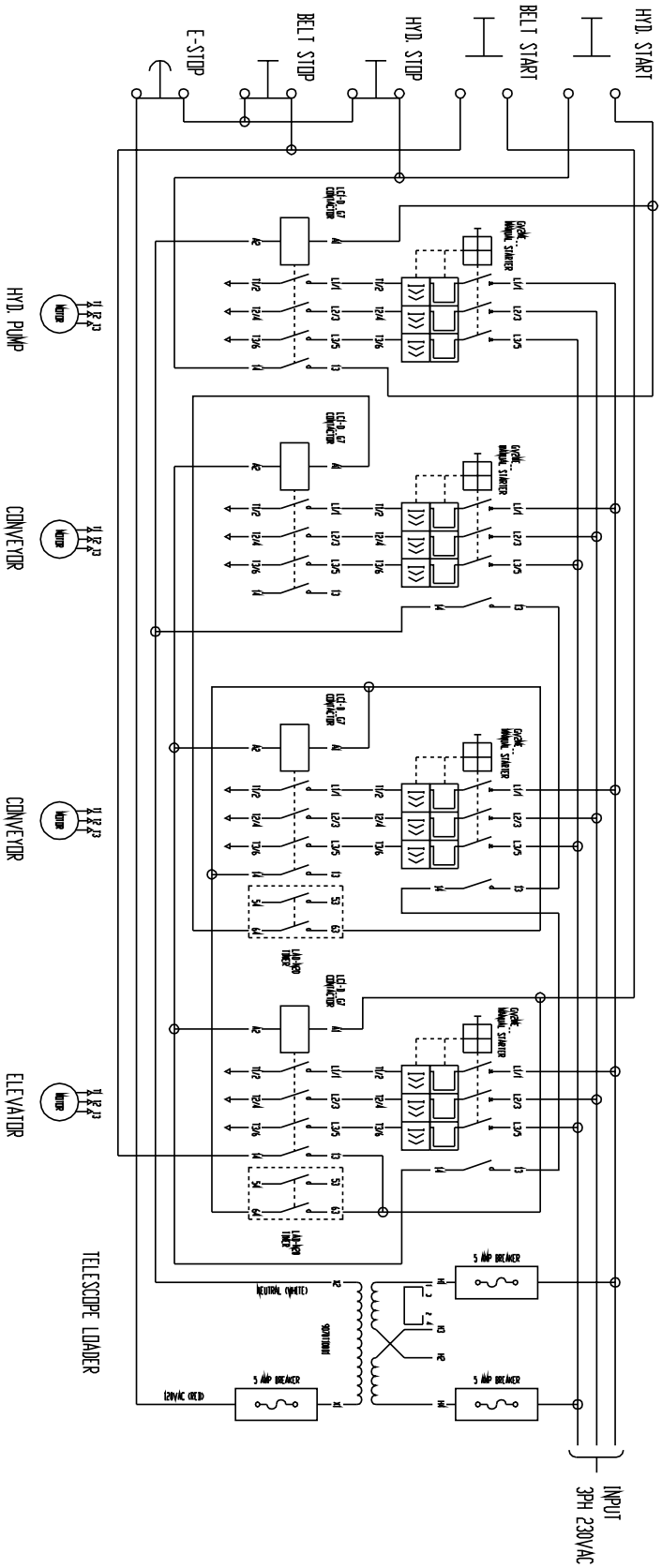
Tube Size OD (in.)	Nut Size Across Flats (in.)	Torque Value* (N.m)	Torque Value* (lb-ft)	Recommended Turns To Tighten (After Finger Tightening) (Flats)	Recommended Turns To Tighten (After Finger Tightening) (Turn)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

7.4 ELECTRICAL SCHEMATIC

7.4.1 SINGLE PHASE



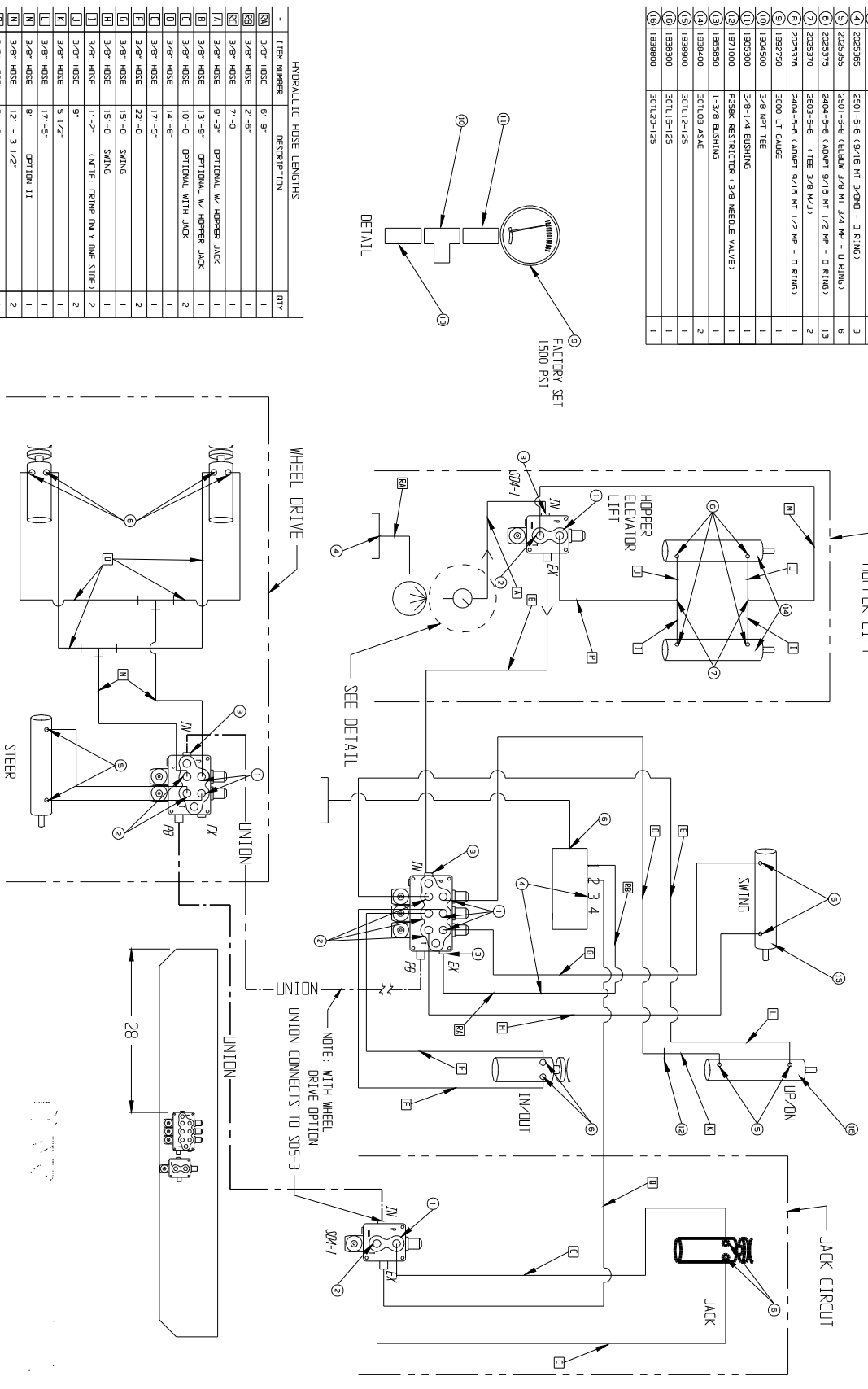
7.4.2 THREE PHASE



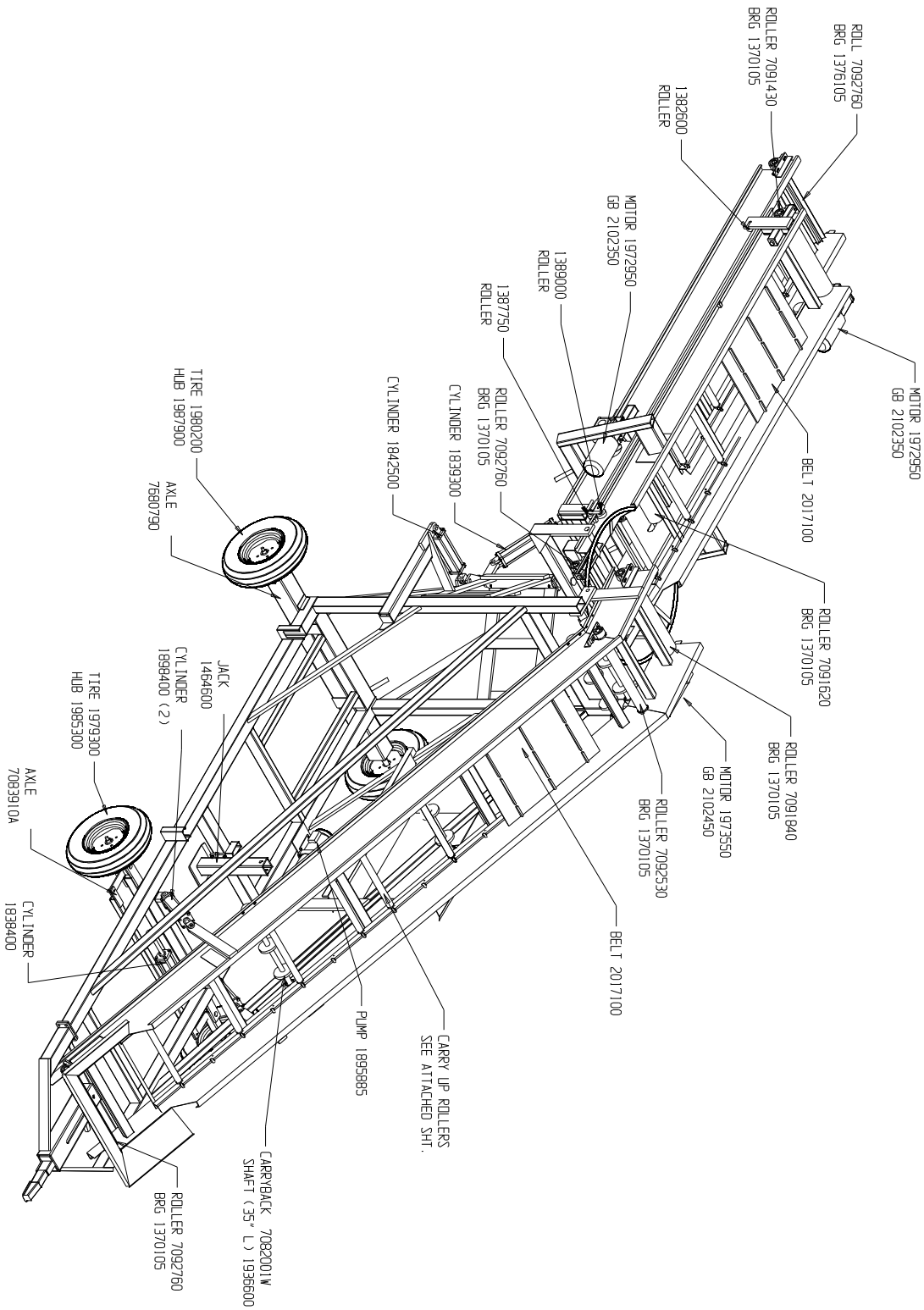
7.5 HYDRAULIC SCHEMATIC

HYDRAULIC PARTS LIST		
ITEM NUMBER	DESCRIPTION	QTY.
① 2025395	6801-6-6 (ELBO 9/16 MT 9/16MO - O RING)	6
② 2025326	6801-LL-6-6 (ELBOW 9/16 MT 9/16 MO - O RING)	6
③ 2025390	6801-6-8 (ELBOW 9/16 MT 3/4 MO - O RING)	1
④ 2025365	2501-6-8 (9/16 MT 3/8MO - O RING)	3
⑤ 2025355	2501-6-8 (ELBOW 3/8 MT 3/4 MP - O RING)	6
⑥ 2025375	2404-6-8 (ADAPT 9/16 MT 1/2 MP - O RING)	13
⑦ 2025370	2603-6-6 (TEE 3/8 M/J)	2
⑧ 2025376	2404-6-8 (ADAPT 9/16 MT 1/2 MP - O RING)	1
⑨ 1892750	3000 LT GAUGE	1
⑩ 1904500	3/8 NPT TEE	1
⑪ 1905300	3/8-1/4 BUSHING	1
⑫ 1871000	F2SBK RESTRICTOR (3/8 NEEDLE VALVE)	1
⑬ 1865890	1-3/8 BUSHING	1
⑭ 1838400	3011C8 ASAE	2
⑮ 1838900	3011J12-12S	1
⑯ 1838300	3011J16-12S	1
⑰ 1838800	3011J20-12S	1

HYDRAULIC HOSE LENGTHS		
- ITEM NUMBER	DESCRIPTION	QTY
RA 3/8" HOSE	6'-9"	1
RB 3/8" HOSE	2'-6"	1
R 3/8" HOSE	7'-0	1
A 3/8" HOSE	9'-3" OPTIONAL W/ HOPPER JACK	1
B 3/8" HOSE	13'-9" OPTIONAL W/ HOPPER JACK	1
C 3/8" HOSE	10'-0 OPTIONAL WITH JACK	2
D 3/8" HOSE	14'-8"	1
E 3/8" HOSE	17'-5"	1
F 3/8" HOSE	22'-0	2
G 3/8" HOSE	15'-0 SWING	1
H 3/8" HOSE	15'-0 SWING	1
I 3/8" HOSE	1'-2" (NOTE: CRIMP ONLY ONE SIDE)	2
J 3/8" HOSE	9''	2
K 3/8" HOSE	5 1/2"	1
L 3/8" HOSE	17'-5"	1
M 3/8" HOSE	8' OPTION II	1
N 3/8" HOSE	12' - 3 1/2"	2
O 3/8" HOSE	5'-0	4
P 3/8" HOSE	8'-8" OPTION II	1
Q 3/8" HOSE	2'-5"	1



7.6 PARTS DEFINITION



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PRINTED IN USA
ISSUE DATE: APRIL 2014

PART NUMBER: 600-001