WALINGA®
INC.

AGRI-VAC
MODELS 4510,5614,6614,7614

OPERATOR'S MANUAL

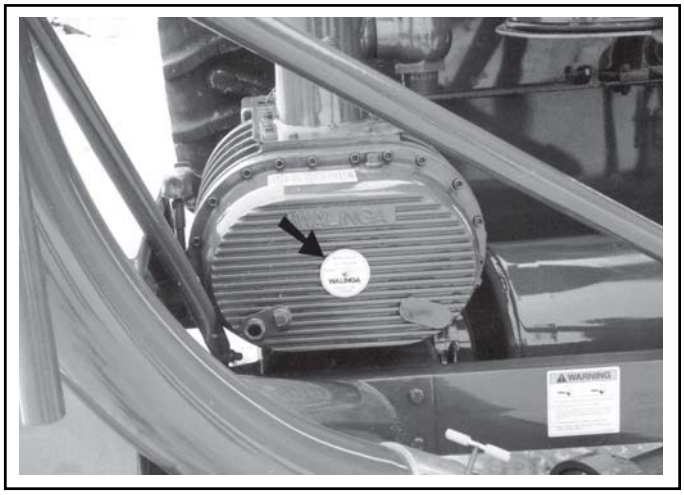
SERIAL NUMBER LOCATION

Always give your dealer the Serial Number of your Walinga Agri-Vac when ordering parts or requesting service or other information.

The Serial Number plates are located where indicated. Please mark the number in the space provided for easy reference.

Machine Serial Number

_____



Blower Serial Number

_____

Airlock Serial Number

_____

Dear Customer,

Thank you for choosing WALINGA TRANSPORTATION EQUIPMENT. For you convenience, should you require any information related to Parts, Service or Technical Engineering, please contact one of the following Walinga Personnel:

TECHNICAL - ENGINEERING:
Anthony Vis (ext: 239) ajv@walinga.com
Ken Swaving (ext 248) cms@walinga.com

WARRANTY CLAIMS:
Amy Vanderzwaag (ext:254) anv@walinga.com

SERVICE MANAGER:
Chris Ecclestone (ext: 261)

PARTS MANAGER:
Jack Lodder (ext: 224) jel@walinga.com

MACHINE SERIAL NUMBER LOCATION

The machine serial number plate is located on the frame of the body. Please mark the serial number and the date of manufacture of the body in the space provided for easy reference.
DATE OF MANUFACTURE: _____

SERIAL NUMBER:_____

HEAD OFFICE: RR#5 Guelph, Ontario,N1H 6J2
PHONE (519) 824-8520 FAX (519) 824-5651
www.walinga.com

FACTORY DISTRIBUTION AND SERVICE CENTRES:

- 1190 Electric Ave.Wayland, MI.USA 49348
  Tel (800) 466-1197 Fax (616) 877-3474
- 70 3rd Ave. N.E. Box 1790 Carman, Manitoba Canada R0G 0J0
  Tel (204) 745-2951 Fax (204) 745-6309
- 220 Frontage Rd. Davidson, Saskatchewan Canada S0G 1AO
  Tel: (306) 567-3031 Fax: (306) 567-3039

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4510-7614 OM
PART #34-18148-6 PS/4C

4510-7614 AGRI-VAC

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 _____ Dealer Name_____

Address_____ Address_____

City _____ City_____ _____

Prov,/State, Code _____ _____ Prov,/State, Code___ _____ _____

Phone Number (_ _ _)_____ Blower Serial Number_____

Agri-Vac Model _____ Airlock Serial Number_____

Serial Number _____

DEALER INSPECTION REPORT

____Blower and Airlock Turn Freely
____Airline Connections Tight
____Boom Anchored in Place
____Check Tire Pressure
____Hydraulic Hoses Free and Fitting Tight
____Wheel Bolts Tight
____Lubricate Machine
____Check Oil Level in Reservoirs
____Belts are Tight
____0-Rings in Place

SAFETY

_____PTO Shaft Guard Turns Freely
____Guards Installed and Secure
____All Safety Signs Installed
____ 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_____

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	WALINGA
YELLOW	DEALER
PINK	CUSTOMER

4510-7614 AGRI-VAC®
WARRANTY

- For Farm Use Only , The Seller warrants to the Buyer that the Equipment manufactured by the Seller will be free from defect in material, workmanship and title for a period of one (1) year from the date of delivery to the Buyer. This warranty is subject to the following:

- For Commercial Use, The Seller warrants to the Buyer that the Equipment manufactured by the Seller will be free from defect in material, workmanship and title for a period of 90 days from the date of delivery to the Buyer. This warranty is subject to the following:

a) The Seller's obligation under said warranty shall be limited to repairing or replacing (at the Seller's option) EXW (ExWorks) Guelph, Ontario, Canada, any part of the Equipment which, if properly installed, used and maintained, proves defective in material or workmanship, provided that notice of any such defect and satisfactory proof thereof is promptly given by the Buyer to the Seller;

b) All costs of the installation or transportation pursuant to this warranty are for the account of the Buyer;

c) The obligations set forth in this clause are conditional upon:

   i. Proper storage, installation (except where installation is supervised by or performed by the Seller), use, maintenance and compliance with any applicable recommendations of the Seller; and,

   ii. The Buyer promptly notifying the Seller of any defect and obtaining authorization prior to proceeding with repairs, and if required, promptly making the goods available for correction;

d) In respect of any Equipment or part thereof supplied hereunder which are manufactured by others, the Seller gives no warranty whatsoever, and the warranty given by the manufacturer, if any, shall apply;

e) The Seller shall not be liable for any cargo loss, loss of equipment, use or any other incidental or consequential damages resulting from any defective part or parts, the Seller's liability and the Buyer's exclusive remedy being expressly limited to the replacement of defective parts as provided herein;

f) The warranty set out within this paragraph does not apply to:

   i. tires, accessories, and other items including the items, if any listed on the face hereof as "Buyers Specified Items", manufactured by others and the Buyer shall rely solely on the warranty, if any, of the manufacturer of such tires, accessories and other items; nor

   ii. to any equipment, otherwise subject to this warranty, which shall have been repaired, modified or altered in any way by anyone other than the Seller or one of its duly authorized service representatives.

g) With respect to used equipment sold hereunder, regardless of manufacture, the Seller makes no warranty whatever, and all warranties, express or implied are hereby excluded. With respect to such used equipment, the Buyer agrees to accept such used equipment on an "as is" basis.

WARRANTY VOID IF NOT REGISTERED

TABLE OF CONTENTS

1 INTRODUCTION

Congratulations on your choice of a Walinga Agri-Vac® to complement your farming operation. This equipment has been designed and manufactured to meet the needs of the discriminating buyer for the efficient moving of grain.

Safe, efficient and trouble free operation of your Agri-Vac® requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

This manual covers Models 5614, 6614 and 7614 made by Walinga Inc. Differences are explained where appropriate.

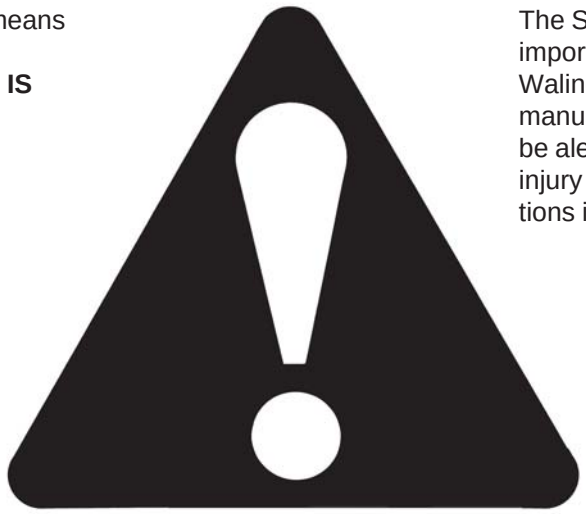
Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Walinga dealer if you need assistance, information or additional copies of the manual. Contact your dealer for a complete listing of parts.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the tractor driver's seat and facing in the direction of travel.

2 SAFETY

SAFETY ALERT SYMBOL

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



The Safety Alert symbol identifies important safety messages on the Walinga Agri-Vac® 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
Accidents Can Be Avoided

SIGNAL WORDS:

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

DANGER - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING - Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION - Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your Walinga Agri-Vac®. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Agri-Vac® 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 that should be adhered to while operating the Agri-Vac®.

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 equipment is familiar with the recommended procedures and follows all the safety precautions. Remember, most accidents can be prevented. Do not risk injury or death.

- Remember the difference between being just a driver and an efficient operator. Drivers may only drive but an operator is a very safe, cost efficient and professional person.

- Agri-Vac® owners must give operating instructions to operators or employees before allowing them to operate the equipment, and at least annually thereafter.

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

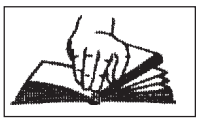
- Walinga feels that a person who has not read, understood and been trained to follow all operating and safety instructions is not qualified to operate the equipment. An untrained operator exposes himself and bystanders to possible serious injury or death.

- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety of the equipment and affect the life of the machine.

- Think SAFETY! Work SAFELY!

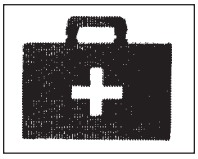
2.1 GENERAL SAFETY

1. Read and understand the Operators Manual and all safety signs before operating, maintaining, adjusting or unplugging the Agri-Vac®.



2. Only trained competent persons shall operate the Agri-Vac®. An untrained operator is not qualified to operate the machine.

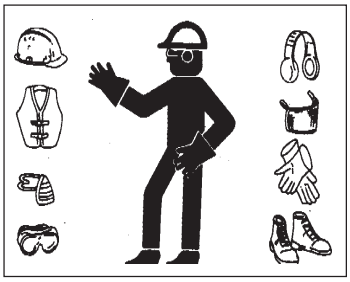
3. Have a first-aid kit available for use should the need arise and know how to use it.



4. Have a fire extinguisher available for use should the need arise and know how to use it.

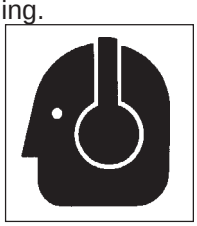
5. Do not allow riders.

6. Wear appropriate protective gear. This list includes but is not limited to:
   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective goggles
   - Heavy gloves
   - Wet weather gear
   - Hearing protection



7. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

8. Wear appropriate hearing protection when operating for long periods of time.



9. Know where overhead electrical lines are located and stay away from them. Electrocution can occur without direct contact.

10. Review safety related items annually with all personnel who will be operating or maintaining

2.2 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.

2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

3. Do not operate when any guards are damaged or removed. Install and secure guards before starting.

4. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.

5. Do not allow riders on the Agri-Vac® or tractor during operation or transporting.

6. Clear the area of all bystanders, especially small children, before starting.

7. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.

8. Be sure the PTO driveline guard telescopes and rotates freely on the shaft before installing.

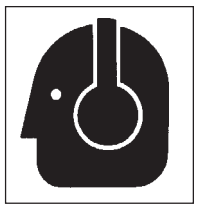
9. Stay away from overhead obstructions and power lines when extending boom and during operation and transporting. Electrocution can occur without direct contact.

10. Keep away from unloading boom when moving, adjusting or setting. Keep others away.

11. Clean reflectors, SMV signs and lights before transporting.

12. Do not operate with leaks in the hydraulic system.

13. Wear appropriate ear protection when operating for long periods of time.



14. Do not place intake nozzle near feet when standing on the top of grain.

15. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are in good condition.

16. Review safety items with all personnel annually.

2.3 MAINTENANCE SAFETY

1. Follow ALL the operating, maintenance and safety information in the manual.

2. Support the machine with blocks or safety stands when changing tires or working beneath.

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

4. Use only tools, jacks and hoists of sufficient capacity for the job.

5. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

6. Make sure all guards are in place and properly secured when maintenance work is completed.

7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.

8. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.

9. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.

10. Place hydraulic controls in neutral and stop engine before working on Agri-Vac®.

11. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

2.4 HYDRAULIC SAFETY

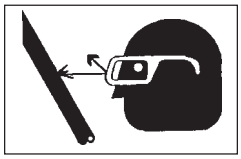
1. Make sure that all components in the hydraulic system are kept in good condition and are clean.

2. Replace any worn, cut, abraded, flattened or kinked hoses or metal lines immediately.

3. Relieve pressure before working on hydraulic system.

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

5. 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.



6. 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.

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

2.5 STORAGE SAFETY

1. Store unit in an area away from human activity.

2. Do not permit children to play on or around the stored machine.

3. Store the unit in a dry, level area. Support the base with planks if required.

2.6 TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.

2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.

3. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.

4. Do not allow anyone to ride on the Agri-Vac® or tractor during transport.

5. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.

6. Stay away from overhead obstructions and power lines. Electrocution can occur without direct contact.

7. Always use hazard warning flashers on tractor when transporting unless prohibited by law.

8. Add extra lights or use pilot vehicles when transporting during times of limited visibility.

2.7 TIRE SAFETY

1. 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.

2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.8 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.

2. Replace safety signs that are missing or have become illegible.

3. Replaced parts that displayed a safety sign should also display the current sign.

4. Safety signs are available from your Distributor or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

How to Reorder Your Safety Signs:

1. Call you local dealer, or the factory branch nearest you.
   - **HEAD OFFICE; GUELPH, ONTARIO, CANADA.**
     PHONE (519) 824-8520
     FAX (519) 824-5651
   - CARMAN, MANITOBA, CANADA
     PHONE (204) 745-2951
     FAX (204) 745-6309
   - WAYLAND, MICHIGAN, U.S.A.
     PHONE (800) 466-1197
     FAX (616) 877-3474
   - DAVIDSON, SASKATCHEWAN CANADA.
     PHONE (306) 567-3031
     FAX (306) 567-3039

2.9 SIGN-OFF FORM

Walinga Inc. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Agri-Vac® 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 with all personnel.

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.

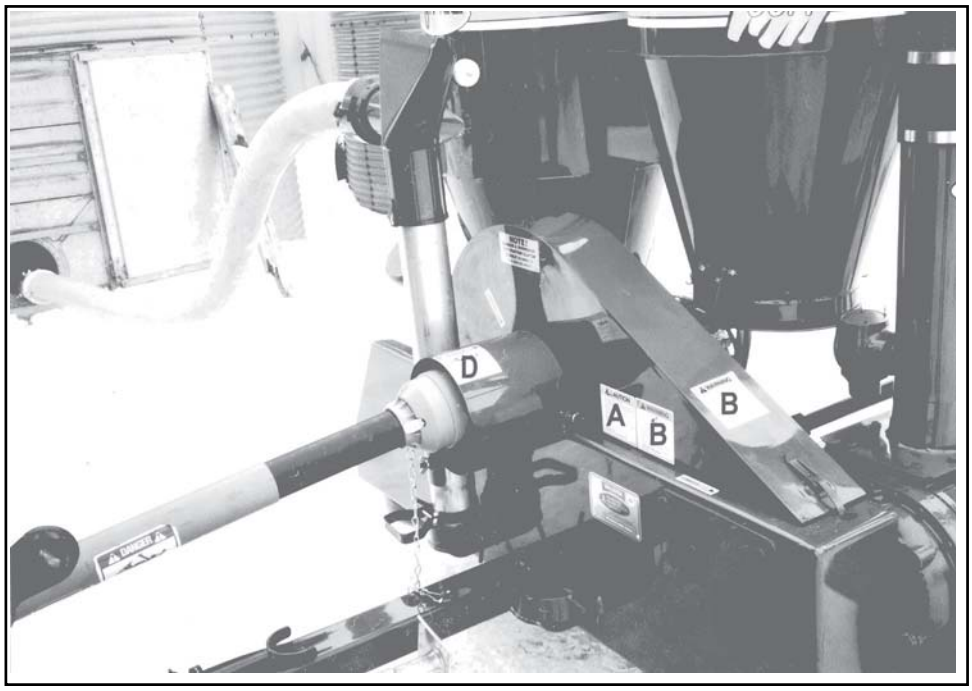
SIGN-OFF FORM

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 illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



A

CAUTION

1. Read Operator's Manual before starting.
2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or maintaining.
3. Install and secure all shields before operating.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Clear the area of bystanders, especially small children, before starting.
6. Chock tractor and machine wheels when operating.
7. Stay away from overhead electrical wires when adjusting boom and moving machine. Electrocution can occur without direct contact.
8. Attach securely to towing and power unit using a pin with a retainer and attach safety chain.
9. Install extra lights or use pilot vehicles when transporting during times of limited visibility.
10. Use hazard flashers when transporting.
11. Wear hearing protection for prolonged exposure to excessive noise.
12. Do not operate with hydraulic leaks.
13. Review safety instructions annually.

53-15633-6

B

WARNING

ROTATING PART HAZARD

To prevent serious injury or death from rotating parts:

1. Close and secure guard before operating.
2. Shut-off engine and wait for moving parts to stop before opening to adjust, service, lubricate or unplug.
3. Keep hands, feet, hair and clothing away from moving parts.

53-15634-6

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

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

- Think SAFETY! Work SAFELY!

C

D*

*on 540 rpm models (4510 or optional on 5614)
for 1000 rpm use decal #53-15652

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

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

- Think SAFETY! Work SAFELY!

E

WARNING

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death from high-pressure fluid:

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

53-15638-6

G

DANGER

ELECTROCUTION HAZARD

To prevent serious injury or death:

Stay away from overhead electrical wires when adjusting boom or moving machine. Electrocution can occur without direct contact.

53-15637-6

F

WARNING

ROTATING AIRLOCK BLADES HAZARD

KEEP AWAY

To prevent serious injury or death:

1. Place all controls in neutral, stop engine, remove ignition key and wait for all moving parts to stop before opening access door.
2. Close access door before operating.
3. Keep hands, feet, hair and clothing away from moving parts.

53-04730-6

H

DANGER

Do not place intake tube near feet when standing on top of material. Sufficient material can be removed to draw operator and intake tube into material. Submersion in material can cause suffocation.

53-15639-6

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

4 OPERATION

OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before using.
2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Do not operate when any guards are damaged or removed. Install and secure guards before starting.
4. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
5. Do not allow riders on the Agri-Vac® or tractor during operation or transporting.
6. Clear the area of all bystanders, especially small children, before starting.
7. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
8. Be sure the PTO driveline guard telescopes and rotates freely on the shaft before installing.
9. Stay away from overhead obstructions and power lines when extending boom and during operation and transporting. Electrocution can occur without direct contact.
10. Keep away from unloading boom when moving, adjusting or setting. Keep others away.
11. Clean reflectors, SMV signs and lights before transporting.
12. Do not operate with leaks in the hydraulic system.
13. Wear appropriate ear protection when operating for long periods of time.
14. Do not place intake nozzle near feet when standing on the top of grain.
15. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are in good condition.
16. Review safety items with all personnel annually.

4.1 TO THE NEW OPERATOR OR OWNER

The Walinga Agri-Vac® is specifically designed to vacuum up grain and move it in a stream of pressurized air. A high capacity air pump moves the air through the machine creating a vacuum on the intake side and pressure on the outlet side. Be familiar with all operating and safety procedures before starting.

It is the responsibility of the owner and 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 Agri-Vac® will provide many years of trouble-free service.

4.2 MACHINE COMPONENTS

The air pump or blower is the key component in the Agri-Vac® and is driven by the tractor PTO through a belt drive system. The blower moves air through the machine. On the intake side, the blower creates a vacuum in the receiver tank and intake lines for picking up grain. Grain is separated from the stream of air in the receiver tank.

On the discharge side of the blower, the pressurized air flows through the airlock where it picks up a metered quantity of grain and moves it out the lines to the discharge cyclone.

The airlock is turned by the tractor hydraulic system through a hydraulic motor. A hydraulic cylinder or boom jack lifts the discharge boom for positioning.

A PTO Drive Line
B Belt Drive
C Blower
D Airlock
E Hydraulic Controls
F Receiver Tank
G Nozzles
H Intake Lines
I Discharge Lines
J Discharge Cyclone

Some items shown may be optional.

Fig. 1 MACHINE COMPONENTS

4.3 BREAK-IN

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

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

1. Retorque all the wheel bolts.
2. Retorque all other fasteners and hardware.
3. Disconnect PTO driveline and turn blower by hand. Be sure that it turns freely.
4. Open and clean the pre-cleaner door and tank.
5. Check that no hoses are pinched, rubbing or being crimped. Re-align as required.
6. Check for oil leaks. Stop leaks before continuing.
7. Check oil level in reservoirs. Add as required.
8. Lubricate all grease fittings.

B. **After operating for 5 hours and 10 hours:**

1. Retorque all wheel bolts, fasteners and hardware.
2. Check hose routing.
3. Check that blower turns freely.
4. Open and clean the pre-cleaner door and tank.
5. Check oil level in reservoirs.
6. Then go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Walinga Agri-Vac® requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both the personal safety and maintaining the good mechanical condition of the Agri-Vac® that this checklist is followed.

Before operating the Agri-Vac® and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outlined in Section 5 Service and Maintenance.
2. Use only a tractor of adequate power to operate the Agri-Vac®.
3. Ensure that the machine is properly attached to the tractor. Be sure that the retainer is installed in the drawbar pin and the safety chain is attached.
4. Check the hydraulic system. Ensure that the hydraulic reservoir in the tractor is filled to the required specifications.
5. Check the oil level in the blower reservoirs.
6. Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the hydraulic system of the tractor.
7. Check the tires and ensure that they are inflated to the specified pressure.
8. Check that the blower turns freely.
9. Open and clean the pre-cleaner door and tank.
10. Check for and remove entangled material.
11. Check that the PTO driveline is pinned to the tractor shaft and the guard is chained to the frame.
12. Close and secure all guards.

4.5 EQUIPMENT MATCHING

The Walinga Agri-Vac® is designed to be used with Agricultural tractors. To insure a good performance, the following list of specifications must be met:

1. **Horsepower:**
   Use Table 1 as a guide in determining the minimum recommended tractor horsepower for different models.

Table 1 Tractor Horsepower vs Model

Model	Horsepower	Kilowatts
4510	40-50	29.8-37.3
5614	70-85	52.2-63.4
6614	110-130	82-97
7614	130-150	97-112

2. **Drawbar Dimensions:**
   The tractor drawbar dimension must be 16 inches between the end of the shaft and drawbar pin hole center for the 1000 RPM model and 14 inches for the 540 RPM model. This will provide sufficient clearance for turning and allow telescoping of the shaft. Consult your tractor manual for the drawbar adjustment procedure.

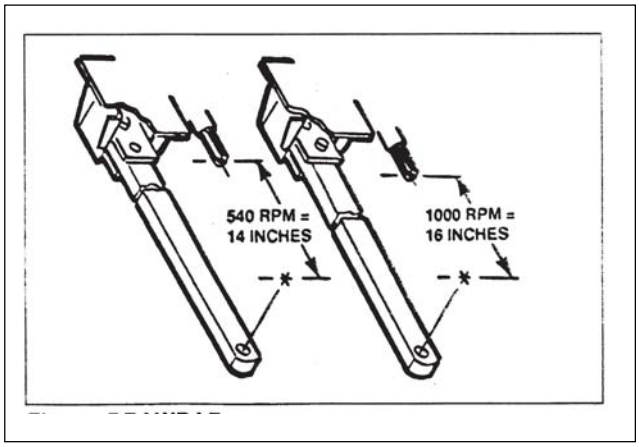


Fig. 2 DRAWBAR

3. **PTO Shaft:**
   The tractor PTO shaft must meet these specifications:

   540 RPM - 6 spline, 1 3/8 inch dia.
   1000 RPM - 21 spline, 1 3/8 inch dia.

IMPORTANT

It is not recommended that shaft adaptors be used on the tractor shaft to prevent operating at the wrong RPM. Use extra care when using a tractor with a shiftable PTO speed. Operating a 540 PTO machine with 1000 PTO can cause serious damage to blower and possible personal injury. It also voids the warranty.

4. **Hydraulic System:**
   The power unit must have one remote hydraulic valve to operate the airlock hydraulic motor and one to operate the boom lift circuit. The system must be capable of 15 gpm (56 lpm) @ 1500 psi (10,300 kPa). Either closed-center or open-centered system can be used.

4.6 CONTROLS

All controls on the Agri-Vac® are located on the rear of the machine. Review this section carefully to familiarize yourself with the function and movement of each control before starting.

1. **Airlock:**
   The right valve controls the operation of the airlock. Pull on the control to operate the airlock in the forward direction and push to operate in the reverse direction. Stop the airlock by placing the lever in the center neutral position.

   Do not operate for long periods of time in the reverse direction. The rotor is not designed to operate in the reverse direction. Reverse rotation may be used to free jammed object in rotor only.

   Watch and count the arrow revolutions on the airlock indicator wheel to determine airlock speed and direction.

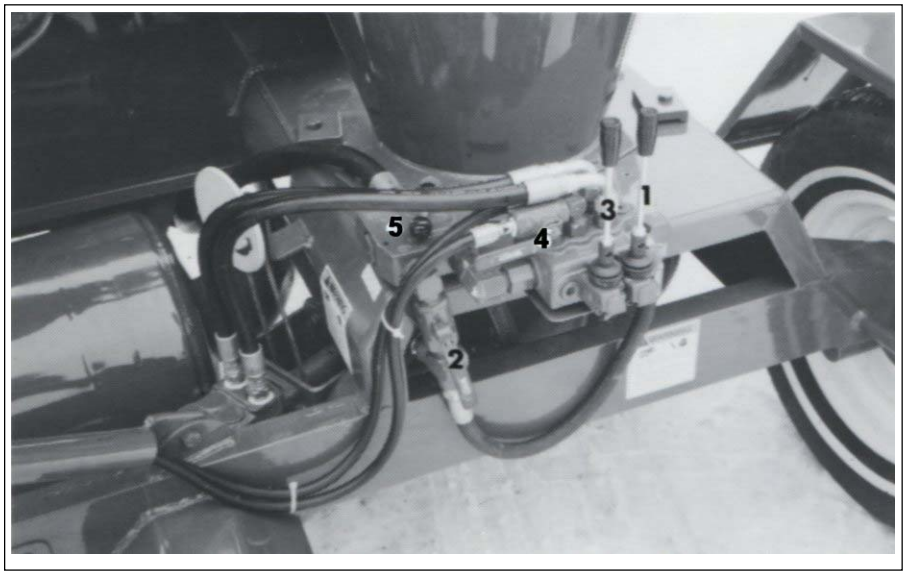


Fig. 3 CONTROLS

2. **Hydraulic System Matching:**
   The machine can be used with either an open-center or closed-center hydraulic system. Open the matching valve when using with an open-centered system. Close for the closed-center system.

3. **Boom Lift:**
   The valve controls the boom position. Push on the lever to raise the boom and pull to lower. Place in the center position for no boom movement.

IMPORTANT

Do not attempt to raise boom while airlock is in operation.

4. **Flow Divider:**
   A flow divider in the airlock circuit is used to control the airlock speed. Normal operation should start at a setting of 5. Move in small increments toward 0 to decrease the speed. Move toward 10 to increase the speed. Watch and count the arrow revolutions on the airlock wheel to determine the speed.

Table 2 Airlock Speed vs Grain

Grain	4510	5614	6614	7614
Barley	50-70	55-70	55-70	65-70
Wheat	50-70	55-70	55-70	65-70
Corn	50-70	55-70	55-70	65-70

Use Table 2 as a guide to setting the airlock speed.

Experiment a little to determine the best setting.

5. **Boom Lock Valve:**
   This valve is located in the boom lift circuit to control the oil flowing through the lines. Move the lever parallel to the line to open the valve when positioning the boom. Move at right angles to the line to stop oil flow and maintain boom position.

4.7 ATTACHING/UNHOOKING

The Agri-Vac® should always be parked on a level, dry area that is free of debris and foreign objects.

Follow this procedure when attaching.

1. Clear the area of bystanders and remove foreign objects from the machine and working area.

2. Make sure there is enough room to back the tractor up to the hitch point.

3. Start the tractor and slowly back it up to the hitch point.

4. Stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before dismounting.

Fig. 4 AGRI-VAC®

5. Adjust the length of the drawbar to give the appropriate dimension between the PTO shaft and drawbar pin hole. (Refer to Tractor Operator's Manual).

6. Use the jack to raise or lower the hitch pole to align with the drawbar.

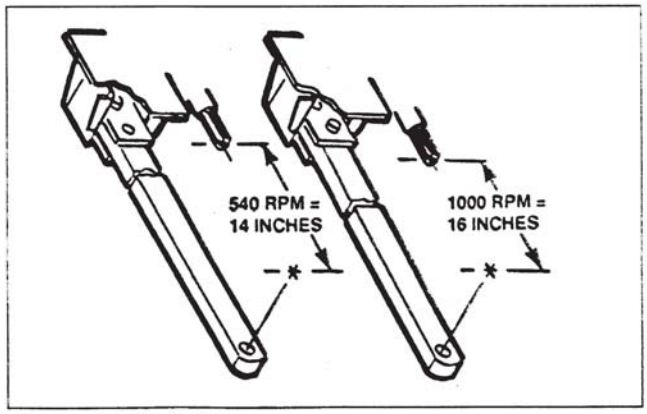


Fig. 5 DRAWBAR

7. Install a drawbar pin with provisions for a mechanical retainer such as a Klik pin. Install the retainer.

Fig. 6 PIN RETAINER

9. **Connect the PTO shaft:**
   a. Check that the PTO driveline telescopes easily and that the shield rotates freely.
   b. Attach the driveline to the tractor by retracting the locking pin, slide the yoke over the shaft an dpush on theyoke until the lock pin clicks into position. Be sure the unit is locked in position.
   c. Connect the anchor chain between the shield on the PTO shaft and the frame.
   d. Lower the shaft storage stand.

10. Connect the hydraulics. To connect, proceed as follows:
   a. Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor.
   b. Remove the plastic plugs from the couplers and insert the male ends. Be sure to match the high and return pressure lines to one valve bank.
   c. Connect the remaining coupler. Be sure to match the system with the desired control lever in the tractor.

IMPORTANT

If the direction of motion is wrong, reverse the couplers.

WARNING

Use extra care when working around a high pressure system. Make sure all connections are tight and all components are in good repair. Wear hand and eye protection when searching for suspected leaks.

11. Route the hoses along the hitch and secure in position to preven entanglement with any moving parts.

12. Install a safety chain between the tractor drawbar and the machine tongue.

13. Raise the hitch jack and rotate it 90° to place in its stowed position.

14. When unhooking from the tractor, reverse the above procedure.

Fig. 7 PTO SHAFT

Fig. 8 HYDRAULICS

Fig. 9 ATTACHED

4.8 MACHINE PREPARATION

Before the Agri-Vac® can be used it must be set up and prepared for operation.

When setting-up, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Be sure you select a spot that has sufficient space to locate the machine and enough clearance to allow trucks to drive under the discharge cyclone.

3. Position the machine approximately 12 feet (4 meters) from the storage facility. The PTO shaft should be straight.

4. Engage hydraulic lever to the hydraulic circuit.

5. Place all other controls in neutral and set park brake before dismounting.

6. Remove the plug from the receiver tank inlet.

Fig. 10 12 FT. (4 M) BIN CLEARANCE

Fig. 11 INTAKE INSTALLATION

7. Remove the intake nozzle from its storage position on the frame and install on the end of the steel flex tube. Secure in position using the bolts on the coupler.

8. Connect the 12 foot steel flex tube to the inlet. Tighten the bolts on the coupler to lock the tube securely in place.

Fig. 12 FLEX TUBE INSTALLATION

9. Release split boom security catch and lift boom extension out of the catch.

Fig. 13 SECURITY CATCH FOR TRANSPORT MODE

10. Swing boom extension around 180 deg until air line is straight.

11. Secure boom extension by clamping latch eye over hook. Adjust clamp if necessary to prevent air leakage at joint.For added security insert pin through latch handle (see fig 14a)

Fig. 14a BOOM FULLY EXTENDED

Fig. 14b BOOM FULLY COLLAPSED

12. Pull on the left valve to raise the boom.

13. Stay away from overhead electrical wires to prevent electrocution.

DANGER

Stay away from overhead electrical wires. Electrocution can occur without direct contact.

Fig. 15 RAISING BOOM

4.8 MACHINE PREPARATION (cont'd)

14. Use the arm next to the boom pivot to swing the discharge boom around.

Swinging

15. Swing into a working position that will allow a truck to drive under the discharge cyclone.

Positioned

Fig. 16 SWINGING BOOM

DANGER

Stay away from overhead electrical wires. Electrocution can occur without direct contact.

16. Reverse the above procedure when finished working and placing into the storage or transport configuration.

Check security catch is engaged once the boom is in transport mode.

Fig. 17 WORKING POSITION

4.9 OPERATING

When operating the Agri-Vac®, follow this procedure:

1. Clear the area of bystanders, especially small children, before starting.

2. Be sure the machine is attached to the tractor per Section 4.6.

3. Review and follow the Pre-Operation Checklist (See Section 4.4).

4. Be sure the machine is correctly positioned and set-up per Section 4.8. The trucks should have ample space and clearance to drive under the discharge cyclone.

5. Keep the PTO driveline as straight as possible to have the universal joint angles as small as possible.

6. Place chocks in front and behind tractor tires to prevent moving.

7. **Starting Machine:**

    a. Start the tractor and run at low idle.

    b. Preliminary airlock setting:

        i. Engage tractor hydraulics to start airlock.

        ii. Check arrow on indicator to be sure airlock is turning i the correct direction.

        iii. Increase engine speed to 1500 RPM and use the flow divider to set the airlock speed to approximately 60 RPM.

        iv. Return engine speed to low idle and stop airlock.

Fig. 18 PLACEMENT

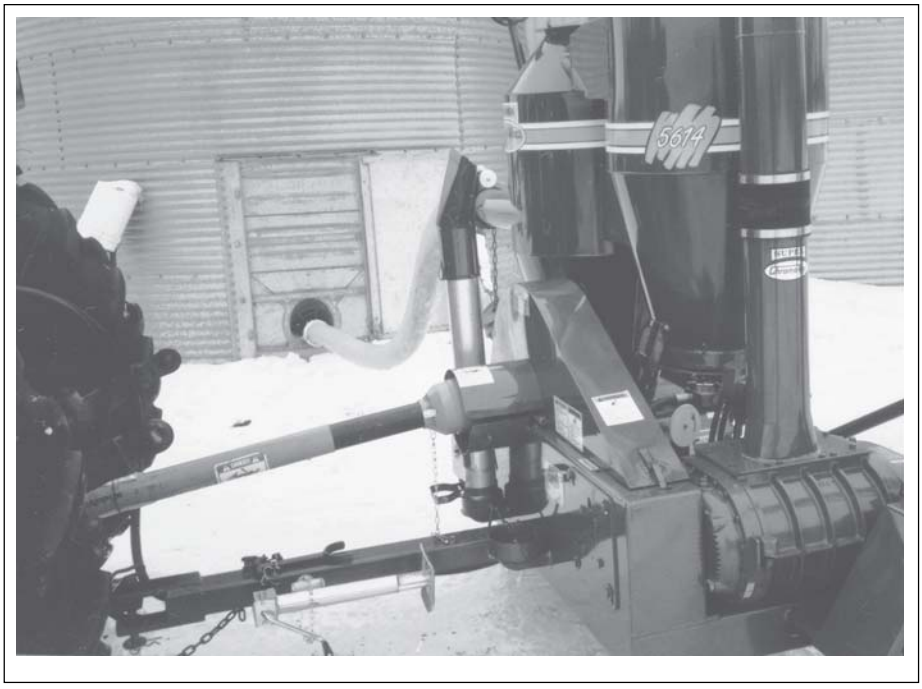


Fig. 19 STARTING

4.9 OPERATING (cont'd)

7. **Starting Machine (cont'd):**

   c. Check that machine hydraulics are matched to the tractor hydraulics.

      i. Switch machine to closed center hydraulics if the tractor is so equipped.
      ii. Machines without dual system are plumbed for open center hydraulics. When using with a closed center system, use the flow divider on the tractor to slow the oil flow from the tractor.

   d. With the tractor at low idle, slowly engage the PTO.

   e. Increase engine speed until it is at 3/4 throttle.

   f. Engage airlock hydraulics. Be sure airlock is turning in the forward direction.

   g. Operate machine at 3/4 speed for 10 minutes to warm system before putting under full load.

IMPORTANT

It is important to warm the hydraulic system and blower reservoirs before going to rated speed. The blower will not "warm up" unless product is being conveyed.

   h. Open airslide approximately 2 inches and insert into the grain. Operate at this setting until the machine is warm (10 minutes).

   i. After warm up period, bring machine to capacity.

      i. Increase engine speed to rated PTO RPM.
      ii. Close airslide until the intake line starts to pulsate. Open slightly to stop pulsing.
      iii. Watch glass door in receiver tank to determine how the product is moving through the machine. The glass can be covered but it should not be stationary. If more product is being drawn in than discharged, the product will lay stationary against the window.

Outside

Inside

Fig. 20 NOZZLE

Fig. 21 GLASS

8. **Airlock Speed:**
Refer to the following table as a guide for setting the airlock speed. Use the flow control to adjust the speed and count the revolutions using the arrow on the wheel. It may be necessary to experiment to determine the best speed.

Table 3 Airlock Speed vs Grain

Grain	4510	5614	6614	7614
Barley	50-70	55-70	55-70	65-70
Wheat	50-70	55-70	55-70	65-70
Corn	50-70	55-70	55-70	65-70

a. Arrow

b. Flow divider

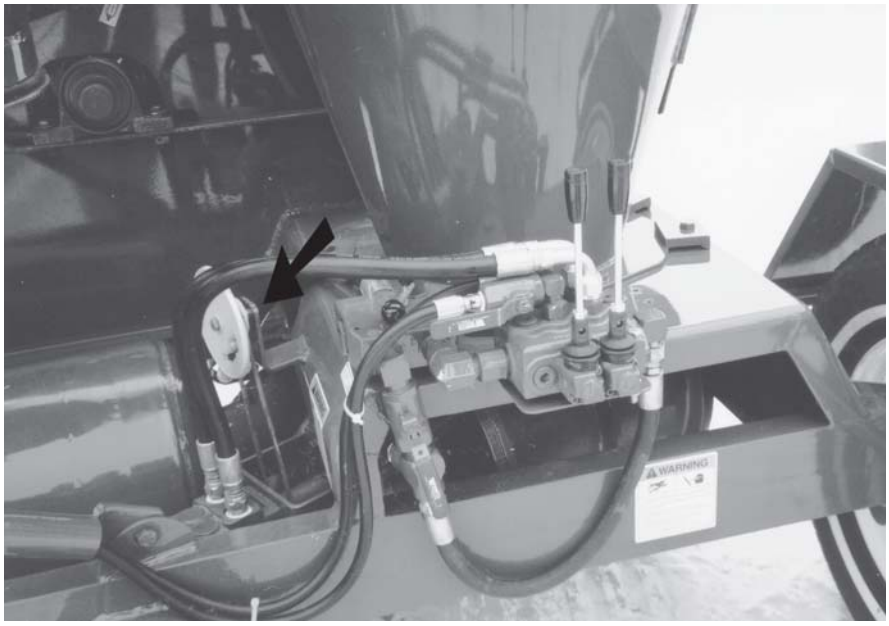


Fig. 22 AIRLOCK SPEED - ARROW

9. **Maximum Capacity:**

a. The nozzle should be placed into the grain with the inlet below the surface of the grain but not below the airslide. It is recommended that some air be allowed to enter with the grain to obtain the best capacity.

b. Open the airslide about 2 inches to start. Close the airslide until the machine starts to pulsate. Then open it until the pulsing stops. This will give a balanced grain and airflow condition.

Fig. 23 NOZZLE

4.9 OPERATING (cont'd)

9. **Maximum Capacity (cont'd):**

   c. Watch the amount of grain on the window in the receiver tank. Keep the window full yet keep the product moving.

   There are several ways to control the amount of grain on the window:

   i. Decrease the amount of grain entering nozzle.

   ii. Increase airflow by opening airslide.

   iii. Increase airlock speed.

   iv. Decrease airlock speed.

   The airlock acts as a seal between the vacuum and pressure sides of the circuit. Increasing the airlock speed normally will remove product from the receiver faster. Refer to Airlock Speed Chart as a guide.

   When moving certain speciality crops, ie, sunflower seeds, lentils and others, it is necessary to slow the airlock speed to allow more time for the product to enter the pocket. Experiment with slowing the speed to increase the capacity.

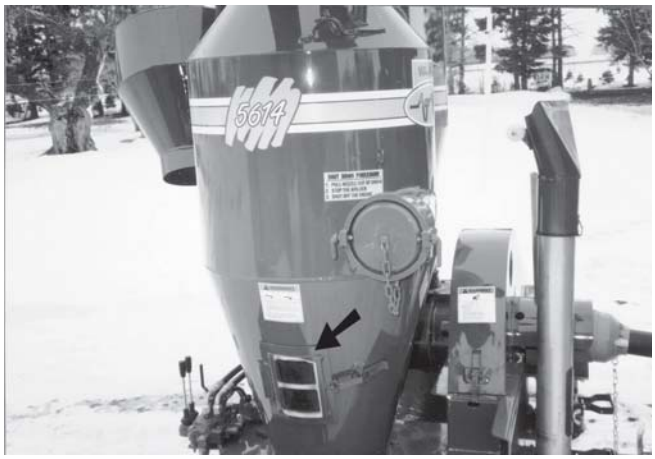


Fig. 24 WINDOW

Fig. 25 OPERATION

10. **Speciality Crops:**

   a. **Operating:**
   When handling speciality products such as sunflower seeds, lentils etc, it is recommended that the PTO speed be reduced by 1/4 to 1/2 rated RPM. This gives a gentler action through the machine.

   Run the airlock at a slower speed to allow more time for the product to fill the pockets.

   b. **Storage:**
   To prepare the machine for storage, remove the inlet pipe and spray the blower clean with water, then run at idle for 5 minutes to dry the inside of the tank, piping, blower and airlock. This will prevent any residue from caking on the internal components.

11. Used the regular nozzle until there is approximately 12 inches of grain left in the bin. Then switch to the clean-up nozzle to pick up the last of the grain.

12. When using the clean-up nozzle, it is recommended that the rubber intake hose be installed to allow you to move around to pick up the grain from the corners more easily.

13. **Stopping Machine:**
    a. Remove the intake nozzle from the grain.

    b. Allow the unit to run until the grain has stopped coming out the cyclone.

    c. Stop the airlock.

    d. Slow the engine speed down to low idle.

    e. Disengage hydraulic circuit and slowly disengage PTO clutch.

    f. Stop engine.

Nozzle Storage

Clean-Up

Fig. 26 CLEAN-UP NOZZLE

4.9 OPERATION (cont'd)

14. **Pre-Cleaner:**
The machine is designed with a cleaner between the blower and the receiver tank to remove dust and dirt from the air stream. Clean every 1000 bushels during normal operating conditions. Clean or empty pre-cleaner canister more frequently in dirty or dusty conditions.

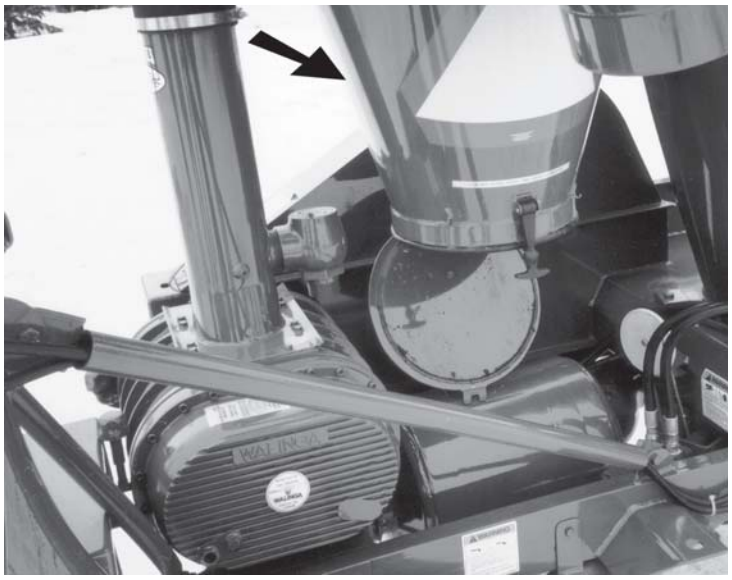


Fig. 27 PRE-CLEANER CANISTER

15. **Operating Hints:**

a. Try to keep the hoses full as possible to have maximum capacity.

b. Keep the PTO driveline as straight as possible to minimize universal joint angles.

c. Pull the intake nozzle out of the grain and empty the machine before changing trucks.

d. Maximum efficiency is obtained with large airflow lines. Use the smaller rubber lines only for final clean-up.

Fig. 28 LOADING

e. Route the lines to minimize bends and corners. If a corner is necessary, use a large radius elbow.

f. Operate only at rated speed and never use PTO adaptor shafts.

g. Keep lines as short as possible to minimize friction loses.

h. If long distance moving is required, push the grain rather than pull.

i. If long distance moving is required, use solid metal tubing whenever and wherever possible.

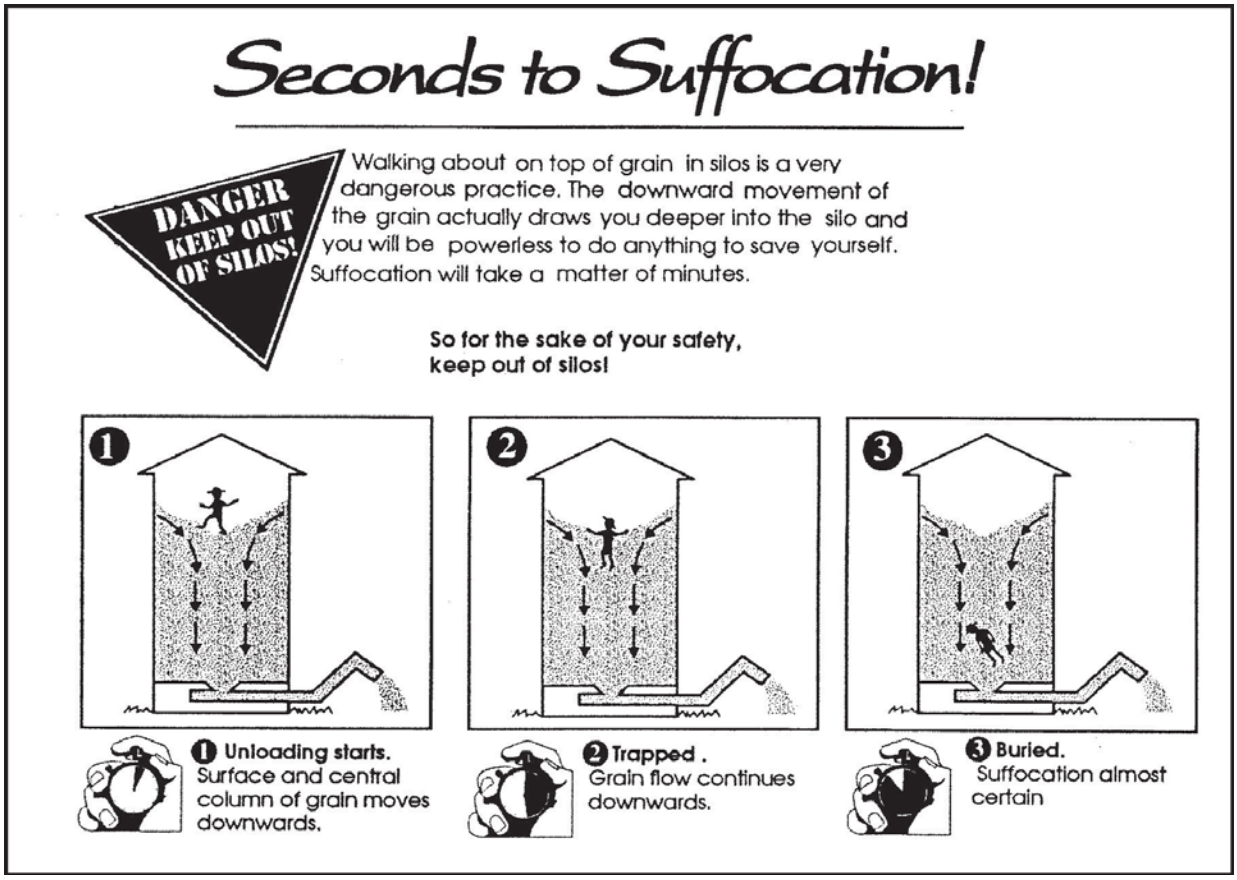
Fig. 29 UNLOADING INTO TRUCK

j. If the airlock becomes jammed, use the hydraulics to reverse the direction of airlock rotation and clear the obstruction.

k. When on top of grain, do not push the nozzle into the pile next to the feet. The suction will pull the nozzle and the operator into the pile. If the pile is deep enough, the operator can be submerged under the grain and suffocated.

⚠ DANGER

Do not place intake tube near feet when standing on top of grain. Sufficient material can be removed to draw operator and intake tube into grain. Submersion in grain can cause suffocation.



4.10 TRANSPORTING

TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
4. Do not allow anyone to ride on the Agri-Vac® or tractor during transport.
5. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
6. Stay away from overhead obstructions and power lines. Electrocution can occur without direct contact.
7. Always use hazard warning flashers on tractor when transporting unless prohibited by law.
8. Add extra lights or use pilot vehicles when transporting during times of limited visibility.

Walinga Agri-Vacs® are designed to be easily and conveniently moved from location to location.

When transporting, follow this procedure:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the Agri-Vac® is hitched positively to the towing vehicle. Always use a retainer in the drawbar pin and a safety chain between the machine and the tractor.
3. 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.
4. 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.
5. It is not recommended that the machine be transported faster than 20 mph (32 kph). Table 4 gives the acceptable transport speed as the ratio of tractor weight to machine weight.

Table 4 Speed vs Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of towing machine
Up to 32 kph (20 mph)	1 to 1, or less
Up to 16 kph (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

6. Lower cyclone, and swing around until the boom extension engages with the security catch.

Check security catch is engaged once the boom is in transport mode.

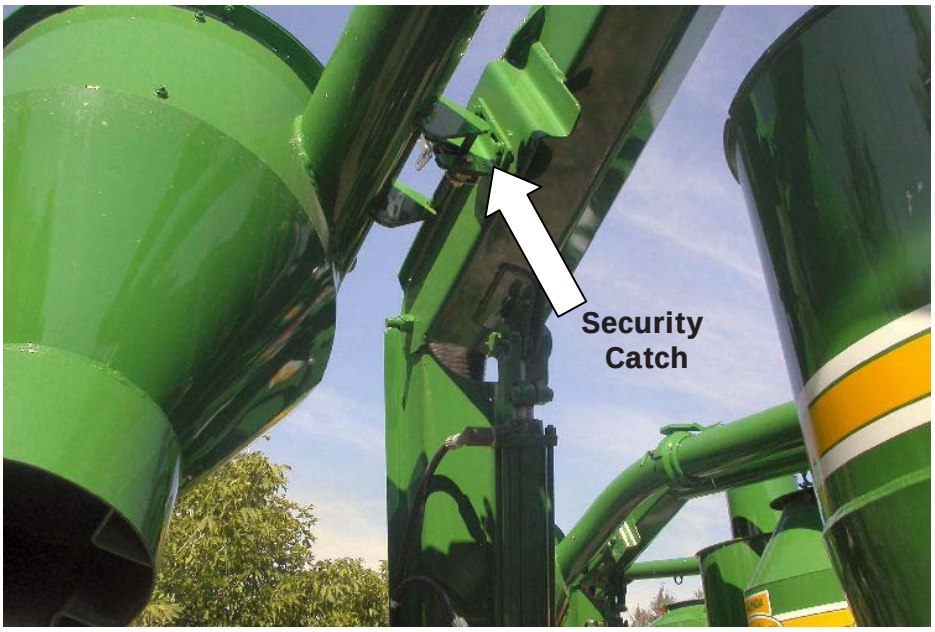


Fig. 30 BOOM IN TRANSPORT MODE

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

8. During periods of limited visibility, use pilot vehicles or add extra lights to the Agri-Vac®.

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

10. Secure all components and accessories before transporting.

11. Stay away from overhead power lines. Electrocution can occur without direct contact.

4.11 STORAGE

STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area. Support the base with planks if required.

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 start of next season.

Follow this procedure:

When transporting, follow this procedure:

1. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris or residue.
2. Retract and secure all accessories and components.
3. Lubricate all grease points. Make sure all grease cavities have been filled with grease to remove any water residue from the washing.
4. Inspect all hydraulic hoses, fittings, lines, couplers and valves. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
5. Check the oil level in the blower reservoirs. Bring to the recommended level.
6. Install the plugs into the receiver tank inlet.
7. Empty pre-cleaner tank.
8. Apply "never seize" or grease to PTO input shaft and boom cylinder ram.
9. Remove PTO shaft and store inside.
10. Touch up all paint nicks and scratches to prevent rusting.
11. All hoses should be stored inside or under a shelter.
12. Move the machine to its storage position.
13. Select an area that is dry, level and free of debris.
14. Place planks under the jack for added support.
15. Unhook the machine from the tractor (Refer to Section 4.7).

5 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

1. Follow ALL the operating, maintenance and safety information in the manual.

2. Support the machine with blocks or safety stands when changing tires or working beneath.

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

4. Use only tools, jacks and hoists of sufficient capacity for the job.

5. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

6. Make sure all guards are in place and properly secured when maintenance work is completed.

7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.

8. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.

9. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.

10. Place hydraulic controls in neutral and stop engine before working on Agri-Vac®.

11. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
   Use an SAE multi-purpose high temperature grease with extreme pressure (EP) characteristics. Also acceptable is an SAE multi-purpose lithium based grease.

2. **Blower Oil:**
   Use Walinga Blower oil (part# 98-13813-6)
   Imperial 80W 140 GX Extra gear oil
   or equivalent.

   Reservoir Capacity: +1 1/4 quarts

MODEL	4510	6614, 6614, 7614
Front	510 1 liter	614 1 liter
Rear	1.35 Liters (1.4 qts)	2 liters (2.1 qts.)

3. **Storing Lubricants:**
   Your unit 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 Service Record checklist provided to keep a record of all scheduled servicing.

1. Use a hand-held grease gun for all greasing.

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 fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5.1.3 SERVICING INTERVALS

8 Hours or Daily

1. Lubricate the PTO shaft (4 locations).

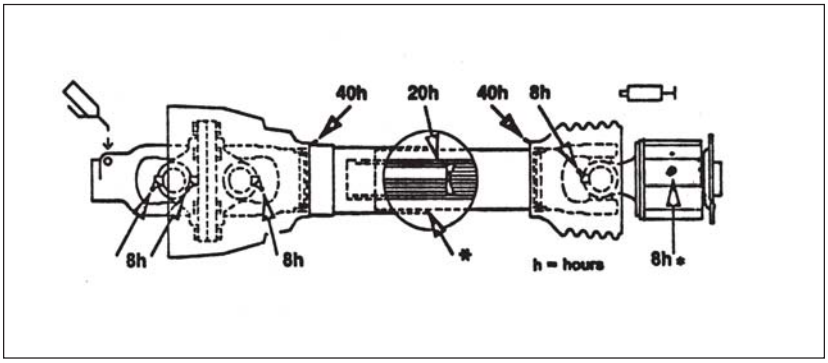


Fig. 31 PTO SHAFT

2. Check the tension and alignment of the input drive belts. See Maintenance Section.

WARNING

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

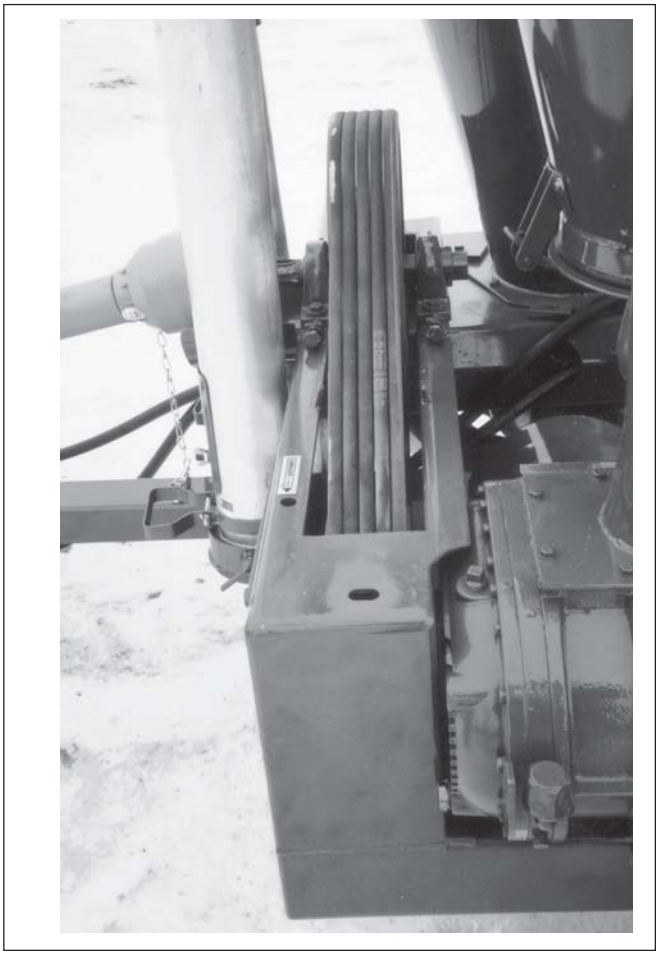
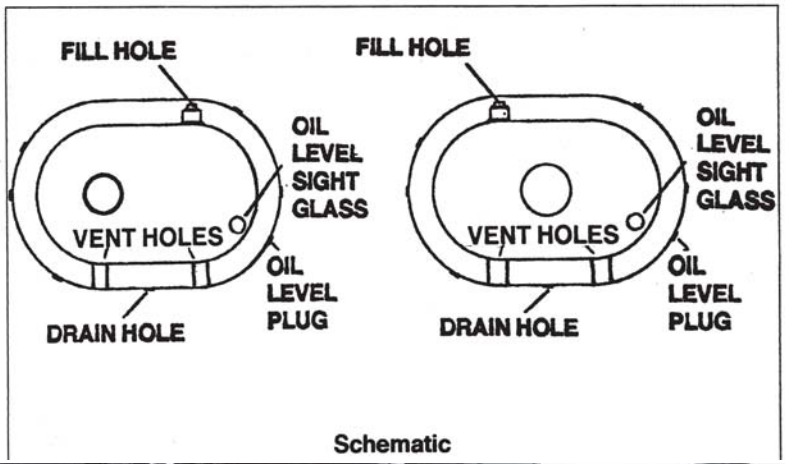
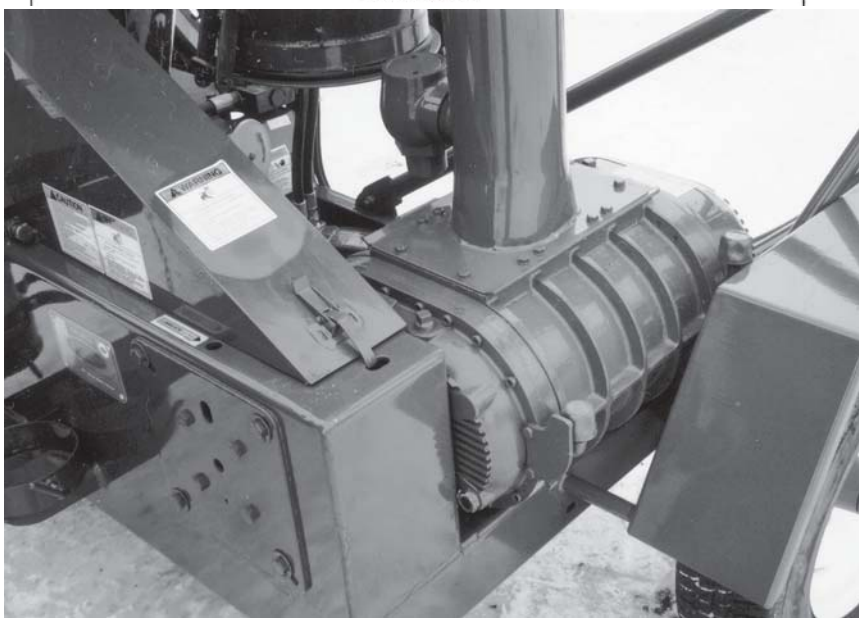


Fig. 32 DRIVE BELTS

3. Check the oil level in the blower reservoirs (2 locations).



Schematic



Front

Rear

Fig. 33 RESERVOIRS

20 Hours

1. Lubricate the PTO shaft (1 location).

2. Check the condition of the wear liner in the discharge cyclone. Replace as required.

Fig. 34 DISCHARGE CYCLONE

40 Hours

1. Lubricate the PTO shaft (2 locations).

2. Lubricate the exposed rod end of the boom lift cylinder with "never seize" (1 location).

Fig. 35 BOOM CYLINDER

3. Lubricate the splined input shaft and bearings (2 locations).

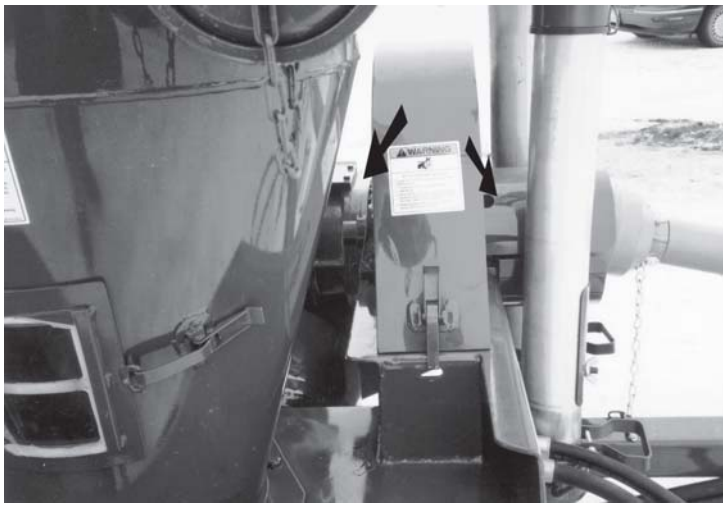


Fig. 36 SPLINED SHAFT

40 Hours (cont'd)

4. Lubricate the boom swivel (1 location).

Fig. 37 BOOM SWIVEL

5. Lubricate the blower outboard bearing (1 location).

Fig. 38 OUTBOARD BEARING

100 Hours or Annually

1. Change the oil in the blower reservoirs (2 reservoirs).

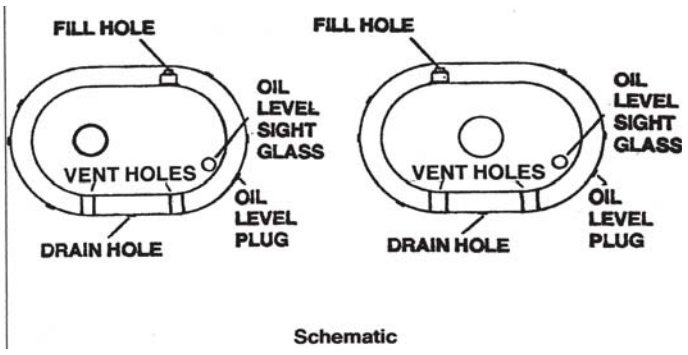
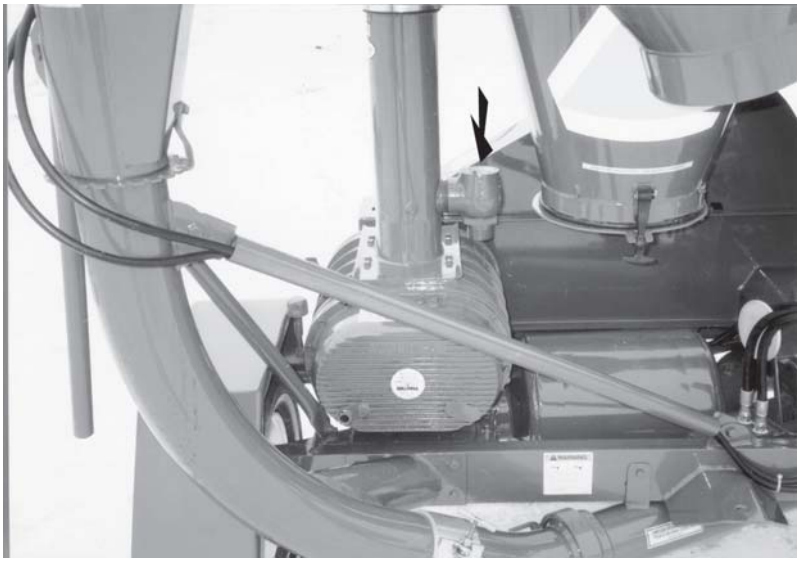


Fig. 39 BLOWER RESERVOIRS

2. Check the function of the vacuum and pressure relief valves.

Pressure



Vacuum

Fig. 40 RELIEF VALVES

3. Check condition of air line seals.

Cyclone Line

Flex Hose

Fig. 41 AIR LINE SEALS

5.1.5 SERVICE RECORD

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

ACTION CODE: L LUBRICATE C CHANGE
š CHECK

HOURS / SERVICED BY / MAINTENANCE																		
8 Hours or Daily																		
L PTO Shaft (4)																		
š Tens & Align Input Drive Belts																		
š Oil Level in Blower Reservoirs																		
20 Hours																		
L PTO Shaft (1)																		
š Wear Liner in Dischrg Cyclone																		
40 Hours																		
L PTO Shaft (2)																		
L Rod End of Boom Lift Cylinder																		
L Splined Input Shaft & Bearings																		
L Boom Swivel (1)																		
L Blower Outboard Bearing (1)																		
100 Hours or Annually																		
C Oil in Blower Reservoirs (2)																		
š Vacuum & Press Relief Valves																		
š Air Line Seals																		

5.2 MAINTENANCE

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

5.2.1 BELT TENSION AND ALIGNMENT

Rotational power from the tractor is transmitted tothe blower through the belt drive. To obtain efficient transmission of power and good belt life, the belts must be properly tensioned and the pulleys aligned.

Belts that are too tight will stretch and wear quickly or overload the bearings on the input shaft or blower. Belts that are too loose will not transmit the required power and will slip, overheat and wear quickly. Pulleys that are not aligned will result in rapid belt wear.

Follow this procedure when checking and adjusting belt tension and pulley alignment.

1. Clear the area of bystanders, especially small children.

2. Place all controls in neutral, stop the engine, remove ignition key and wait for all moving parts to stop before dismounting.

3. Unhook PTO driveline from the tractor shaft. This will allow you to turn the pulleys if required.

4. Unlatch and remove the belt cover. Lay to the side.

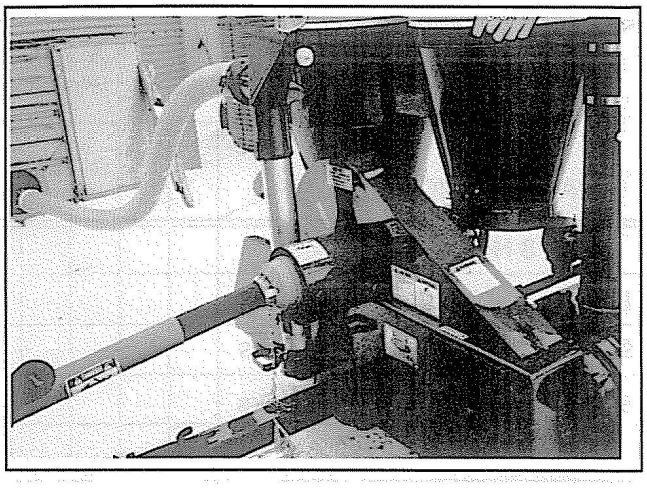


Fig. 42 COVER

MODEL	PTO	BELT TENSION		DEFLECTION
		NEW BELT	OLD BELT	
4510	540	15 lbs (6.8 kg)	14 lbs (6.3 kg)	1/2inch (12.7mm)
5510	1000	15 lbs (6.8 kg)	14 lbs (6.3 kg)	1/2 inch (12.7 mm)
5614	540	14 lbs (6.3 kg)	12 lbs (5.4 kg)	3/8 inch (9.5 mm)
5614	1000	15 lbs (6.8 kg)	14 lbs (6.3 kg)	1/2 inch (12.7 mm)
6614	540	14 lbs (6.3 kg)	12 lbs (5.4 kg)	3/8 inch (9.5 mm)
6614	1000	14 lbs (6.3 kg)	12 lbs (5.4 kg)	3/8 inch (9.5 mm)
7614	1000	14 lbs (6.3 kg)	12 lbs (5.4 kg)	3/8 inch (9.5 mm)

Table 6 BELT DEFLECTION

5.2.1 BELT TENSION AND ALIGNMENT (cont'd)

5. Use a 10 pound weight to determine the belt deflection in a static condition.

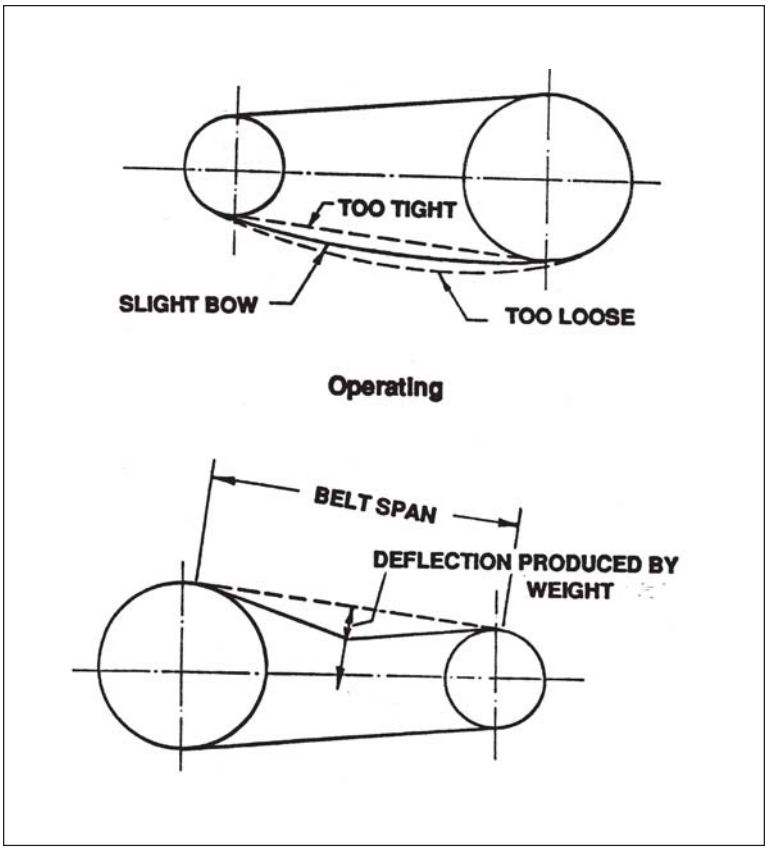


Fig. 43 BELT DEFLECTION

6. **Adjusting Tension:**

   a. Loosen the jam nuts on the adjusting bolts. Loosen bearing bolts slightly.

   b. Turn the adjusting bolt to set the tension. Turn both bolts the same amount to maintain pulley alignment.

   c. Check the tension again. Overtightening will cause belt stretching and overload the bearing. Belts that are too loose will slip, tear and wear rapidly. Check alignment, see next section.

   d. Tighten jam nuts. Tighten bearing bolts.

   e. Install and secure belt covers.

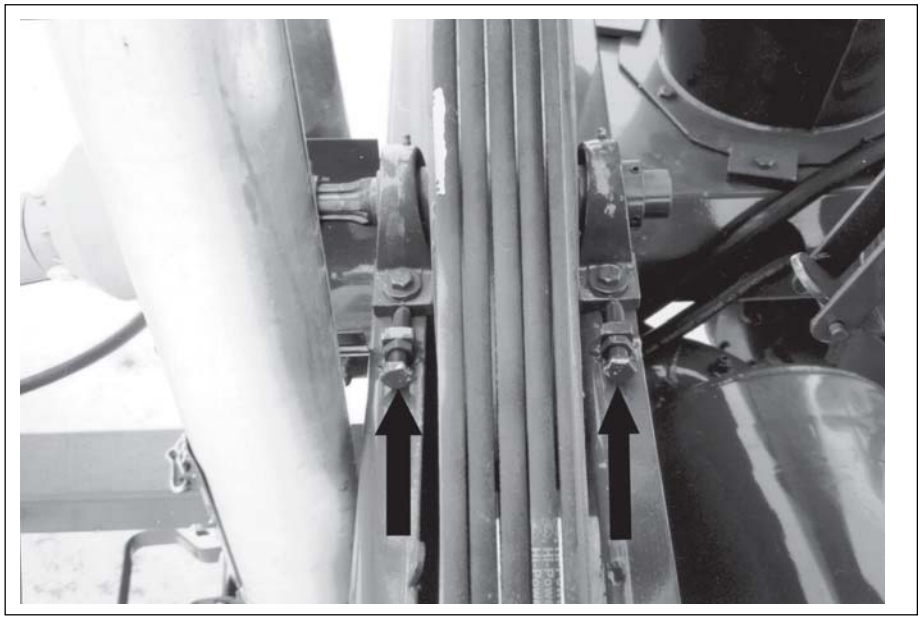


Fig. 44 ADJUSTING BOLTS

WARNING

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

7. **Pulley Alignment:**

   a. Lay a straight-edge across the faces of the two pulleys.

WARNING

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

   b. If the gap between the pulley and the straight-edge exceeds 1/16 inch (1.5 mm), the pulleys must be realigned.

   c. Review the types of alignment before starting.

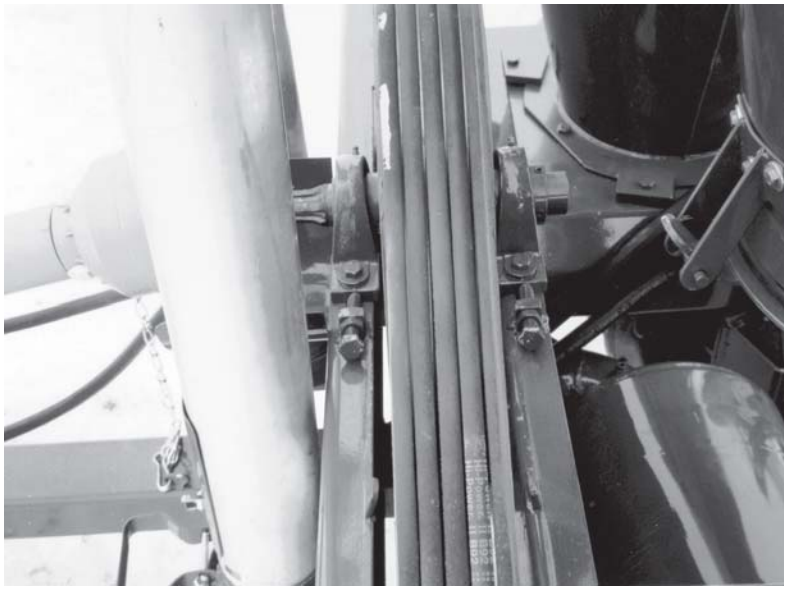


Fig. 45 PULLEYS

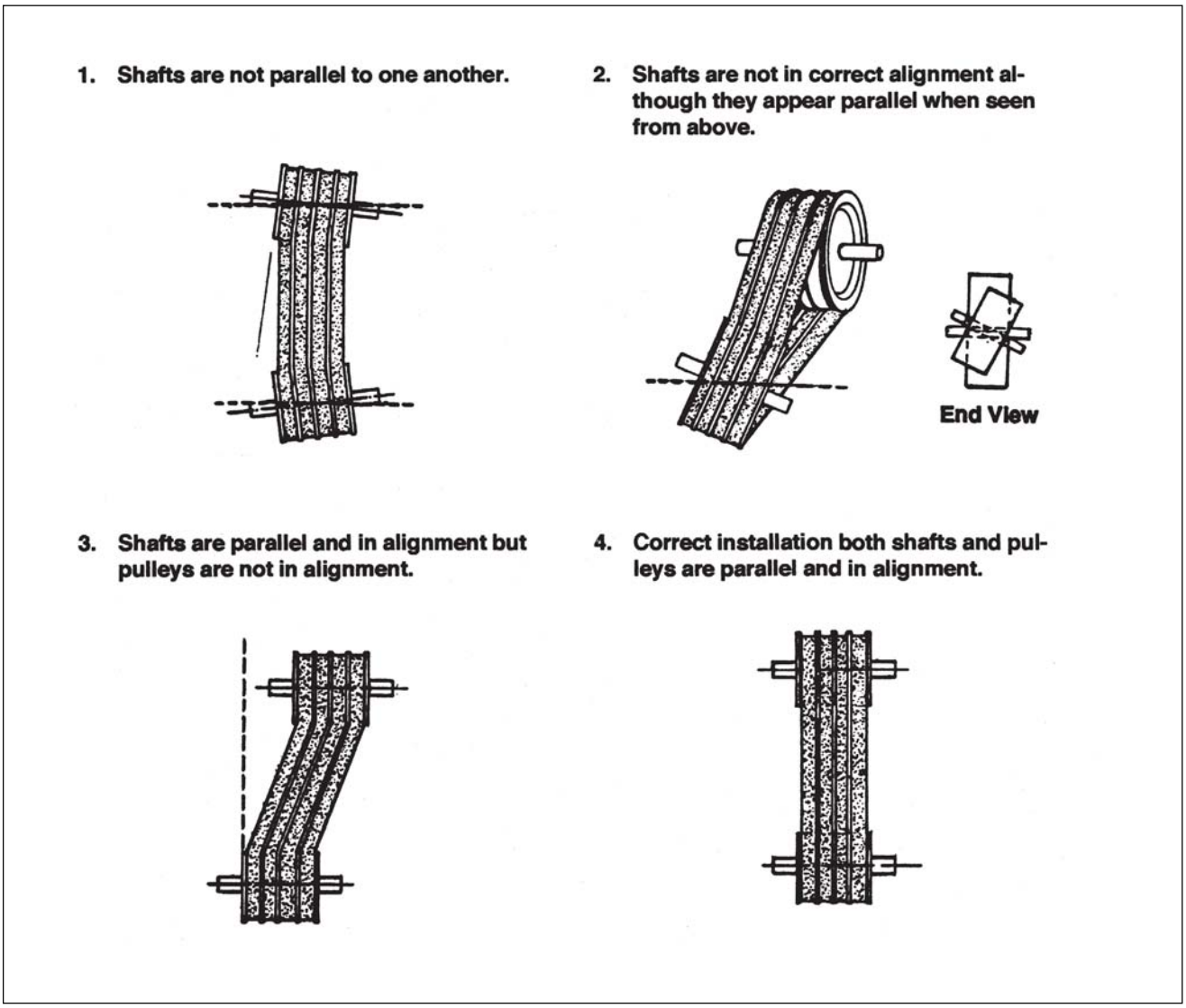


Fig. 46 MISALIGNMENT

5.2.1 BELT TENSION AND ALIGNMENT (cont'd)

7. **Pulley Alignment (cont'd):**

   d. Use the adjusting bolts on the input shaft to align the input pulley. Tighten jam nuts when alignment has been completed.

WARNING

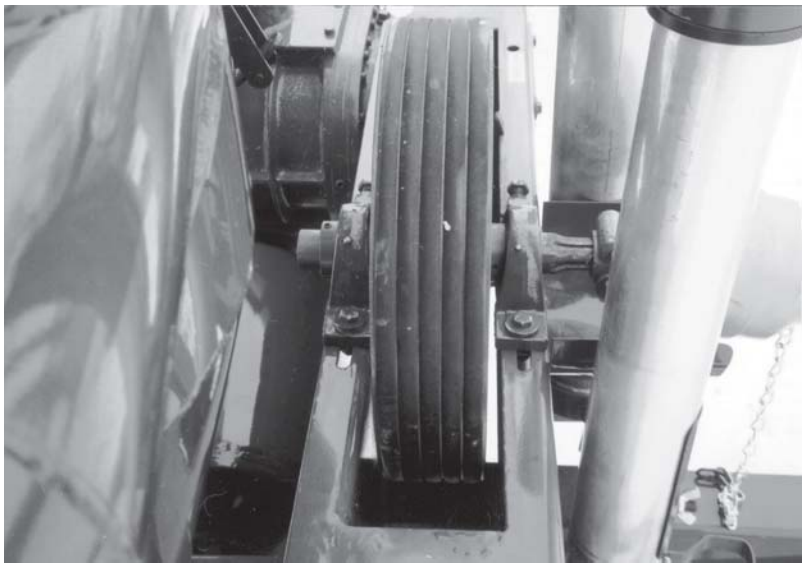
Machine is shown with guard removed for illustrative purposes only. Do not operate machine with guard removed.

   e. Use the bearing housing assembly anchor bolts to align the blower pulley. Tighten anchor bolts to their specified torque.

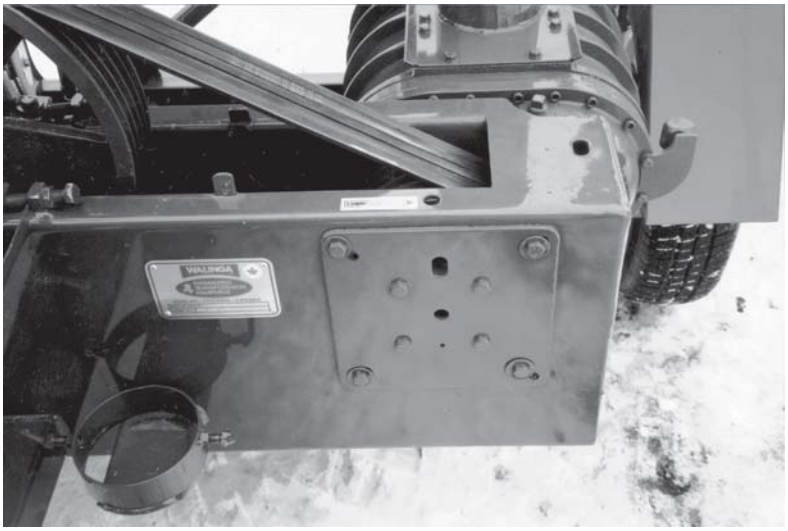
   f. Set the belt tension.

   g. Install and latch belt cover.

8. Be sure all guards are installed and secure before resuming work.



Input Shaft



Blower

Fig. 47 ADJUSTING BOLTS

5.2.2 BLOWER OIL CHANGING AND BREATHER CLEANING

The gears that drive and time the blower lobes run in an oil bath for lubrication. Maintaining the correct level in the reservoirs and changing every 100 hours will insure proper lubrication.

When maintaining the blower, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Place all controls in neutral, stop engine and remove ignition key or disconnect PTO driveline before starting.

3. Unlatch and remove the belt drive covers.

4. **Checking Oil Level:**

   a. Remove the level plug in each reservoir or check the sight glass.

IMPORTANT

Check the level only when the oil is cold and the machine is level.

   b. Oil in the reservoir should just fill the threads of the level plug hole.

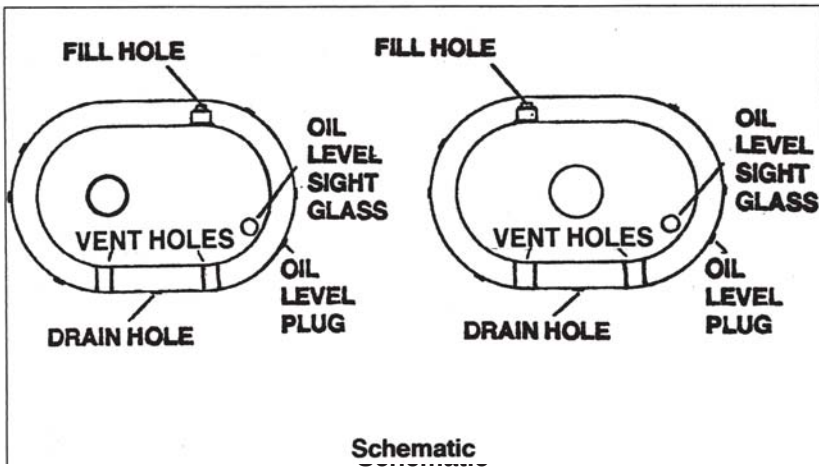
   c. Add oil if low or allow the reservoir to drain if overfilled.

IMPORTANT

It is necessary to maintain the recommended oil level in the reservoir. A low level causes heating from lack of lubrication and rapid gear and bearing wear. Too much oil causes heating from oil churning and can cause seal and breather leaks.

   d. Install and tighten the level plug.

   e. Install and secure the belt covers.



Schematic

Rear

Fig. 48 BLOWER

5.2.2 BLOWER OIL CHANGING AND BREATHER CLEANING (cont'd)

5. **Changing Oil:**
   a. Place a collection pan or pail under each drain plug.

   b. Remove each drain plug.

   c. Flush each case and allow several minutes to drain.

   d. Dispose of the oil in an approved manner. Do not contaminate the worksite with used oil.

   e. Install and tighten the drain plugs.

   f. Remove fill and level plugs.

   g. Add Walinga Blower oil or equivalent to each reservoir until the oil is just starting to come out of the level plug hole.

IMPORTANT

Condensation forms and collects inside the reservoirs during machine operation. Changing oil removes this water and prevents it from damaging the gears and bearings.

   h. Install and tighten the level and fill plugs.

   i. Install and secure the belt drive covers.

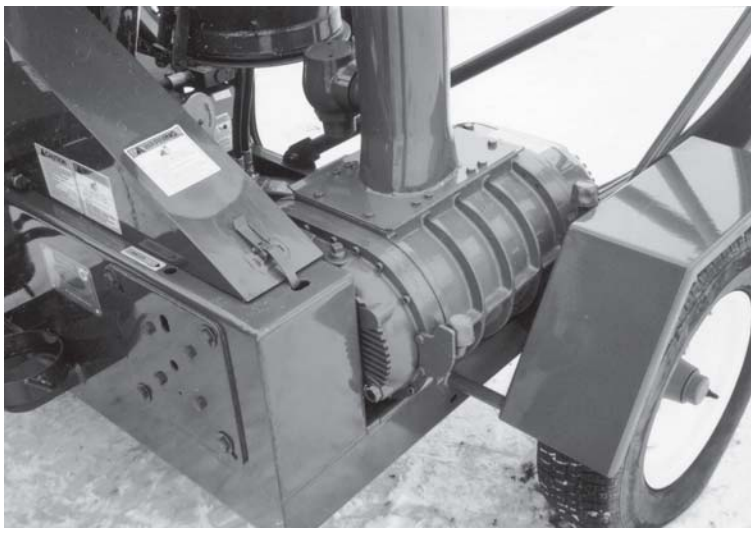
6. **Cleaning Breathers:**
   a. Remove breathers and blow out with an air hose.

   b. If dirt has caked up in the breather, soak in good solvent and then blow out. It may be necessary to use a probe to loosen the dirt.

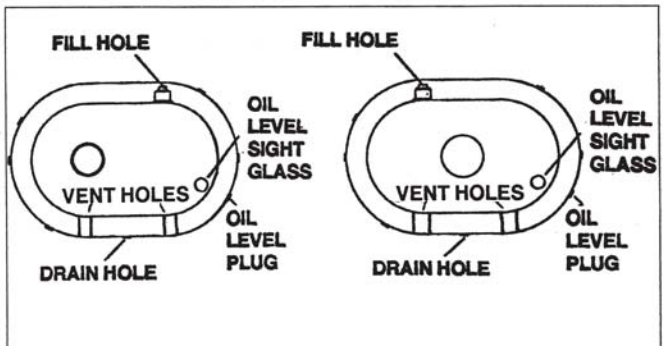
   c. Install and tighten the breather.

   d. Install and secure the belt drive covers.

   e. Clean vents in end plates located under the blower on either side of the drain plug.



Breathers



Vents

Fig. 49 BLOWER

5.2.3 AIRLOCK

The airlock acts as a seal between the vacuum and pressure sides of the machine and is located at the bottom of the receiver tank. As the rotor turns, a pocket is filled with material when it points upward. As the pocket rotates, it is moved to the bottom and is moved into the pressure side of the system. The grain is picked up by the stream of pressurized air and moved out the discharge piping.

Efficient operation of the airlock requires a close fit between the tips of the rotor and the case to maintain a seal between vacuum and pressure sides.

When checking or maintaining the airlock, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Disconnect the hydraulic lines from the tractor to prevent airlock operation.

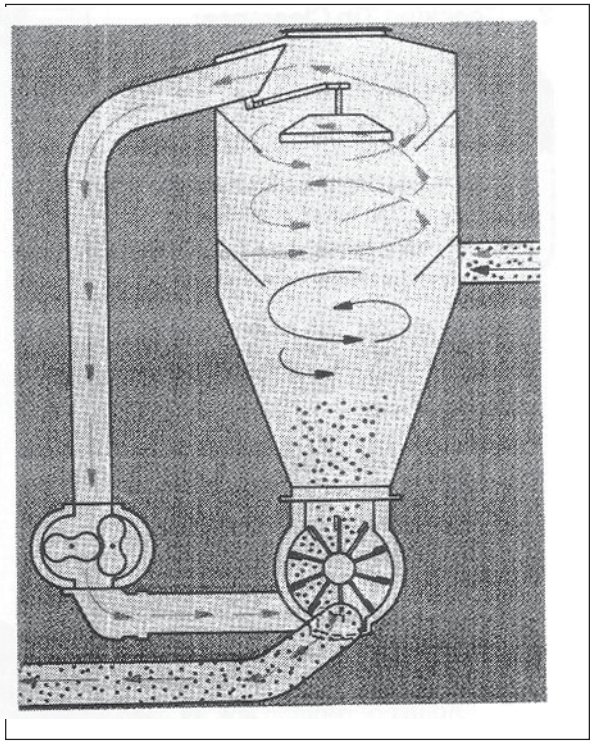


Fig. 50 AIRLOCK

5.2.3 AIRLOCK (cont'd)

3. **Checking Tip Clearance:**

WARNING

Disconnect hydraulic hoses from tractor before inspecting or maintaining airlock.

a. Checking the airlock can be done through the inspection door.

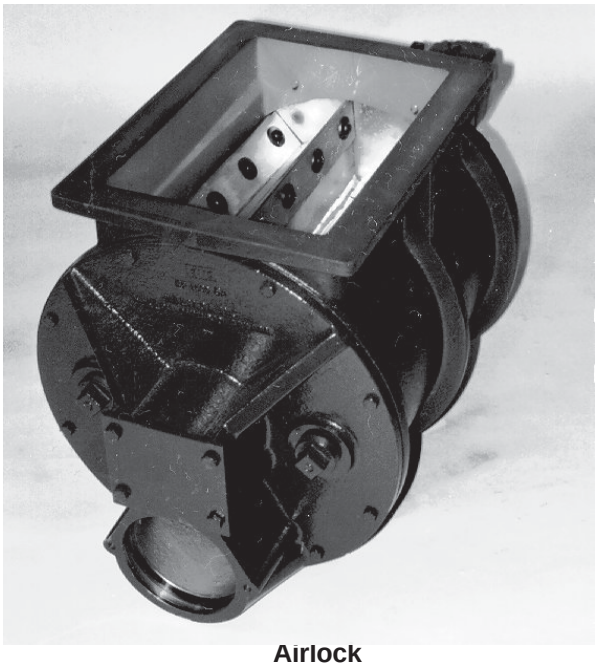
b. Use a feeler gauge to check the clearance between the tip and the case. Inspect each tip over its entire width.

c. The clearance of the tips must be maintained at 0.004 to 0.006* inches at all times. Adjust or replace tips as required to insure system sealing. (*614 units .007 to .009).

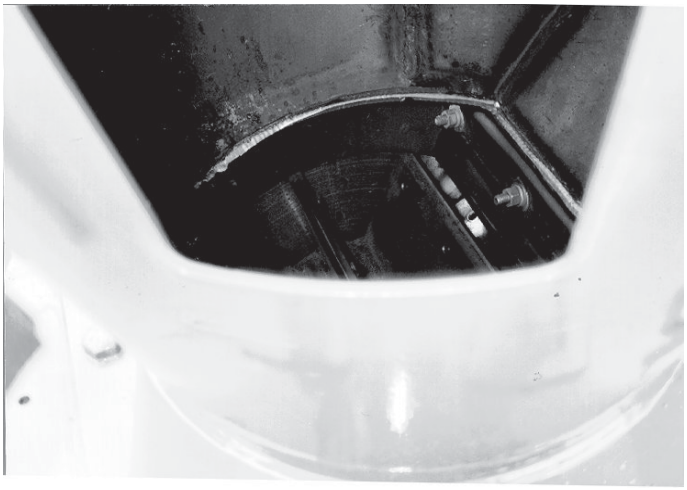
d. Replace any tips that are bent, chipped or broken.

NOTE

Blades are reversible if not excessively damaged.



Airlock



Machine

Fig. 51 TIP CLEARANCE

4. **Wiper Blade:**

WARNING

Disconnect hydraulic hoses from tractor before inspecting or maintaining airlock.

A wiper blade is located at the top of the airlock to clean the tips as the airlock turns.

To check the wiper blade, follow this procedure:

a. Open the access door on receiver tank.

b. Reach into the top of the airlock and feel the condition of the wiper blade.

c. Replace it if it is damaged in any way.

5. **Blade Replacement:**

a. Disconnect hydraulic hoses from the tractor.

b. Remove the quick connect plugs from hydraulic lines.

c. Lift the receiver tank off the airlock.

d. Remove the tips from the rotor and the wiper blade from the housing.

e. File the ends of each replacement blade so there is approximately 0.006 inches of clearance between the ends and the housing.

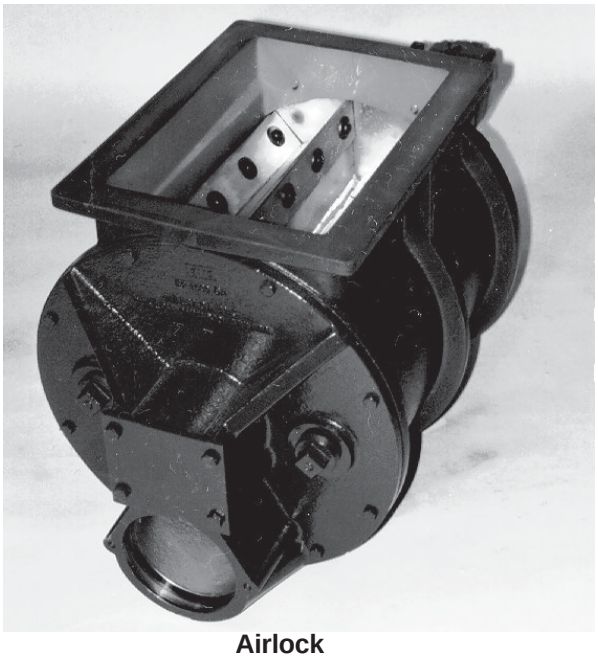
f. Mount the blades to their respective vane and tighten bolts finger tight.

g. Rotate airlock rotor slightly to set the clearance between the blade and the case. Be sure to set it at 0.004 inches of clearance. Use a feeler gauge.

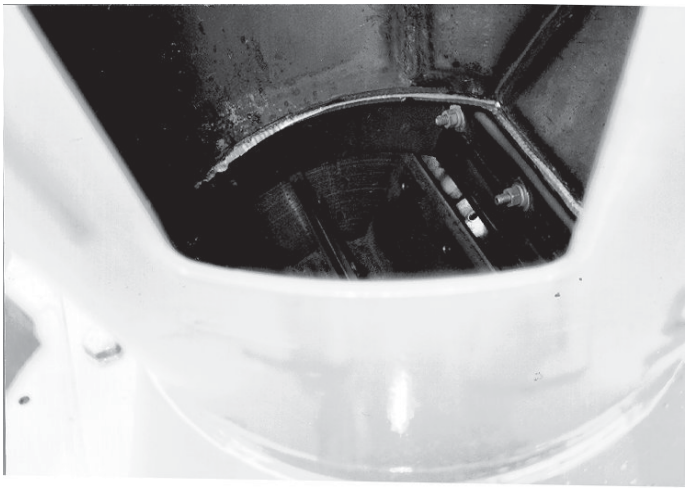
h. Tighten the center bolt first. Then the others.

i. Rotate the airlock and listen if it touches the housing anywhere. A slight touch is alright.

j. Repeat mounting procedure with the other blades.



Airlock



Machine

Fig. 52 BLADE REPLACEMENT

k. Turn the rotor after each blade is installed to be sure it does not contact the case.

l. Mount the new wiper blade. Be sure the wiper contacts each tip slightly as the airlock turns.

m. Install and secure the airlock.

n. Connect hydraulic lines and close access door.

o. Pour 1/2 gallon Varsol in to the airlock. Run the airlock at operating speed.

p. Clean thoroughly.

5.2.4 SHEAR PIN

Each PTO driveline is equipped with a shear bolt on the machine end of the driveline. It is used to protect the Agri-Vac® from overloading.

When replacing the shear bolt, follow this procedure:

1. Clear the area of bystanders, especially small children.

2. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

3. Remove any remaining bolt parts from the yoke assembly. It may be necessary to use a hammer and punch to remove the old parts. Be careful not to enlarge the holes.

4. Install genuine Walinga replacement parts.

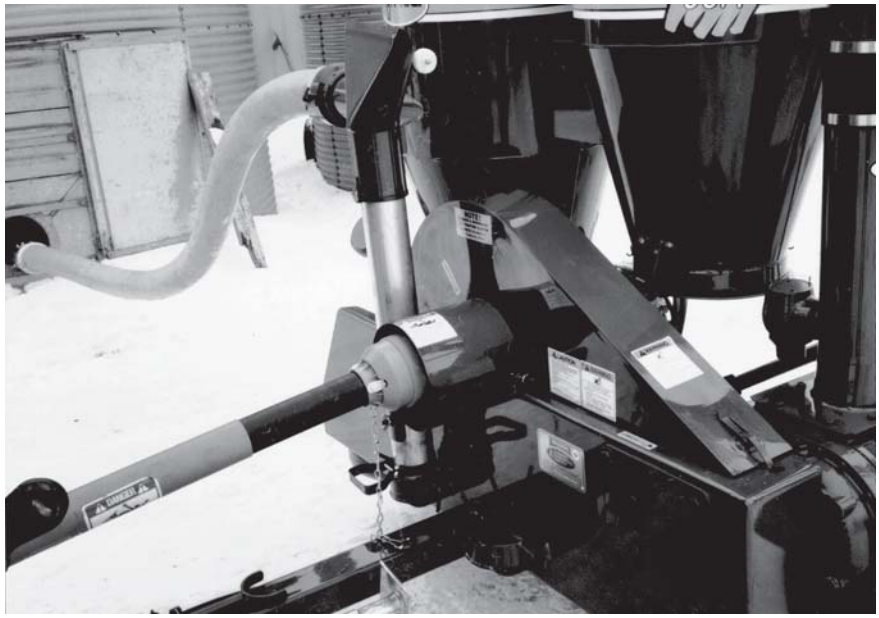


Fig. 53 SHEAR PIN

5. For shear pin size for the single pin and double pin assembly contact the Walinga Engineering Department.

5.2.5 AIR SYSTEM RELIEF VALVES

The air in this system is moved by the blower. It draws air into the intake side and creates a vacuum that can pick up and draw material into the system. As the air moves through the blower, it becomes pressurized and flows through the airlock to move material out of the system and to its destination. As the flow into the intake is restricted, the vacuum will build until it exceeds the setting of the intake relief valve. The valve opens to supply a flow of air to the blower to prevent overheating. A relief valve on the pressure side will also open to allow air flow if the airlock (outlet pressure side of the circuit) is restricted or plugged.

The vacuum side relief valve is set to open at 15 in. Hg vacuum and the pressure side at 15 psi. Both must function at very close to these specified levels to insure optimum capacity and performance. After prolonged use, the springs in these valves can weaken causing the valve to open prematurely and affect machine performance. Dirt and debris can get caught in the valve seat allowing air leakage that affects system performance.

To maintain air system relief valves, follow this procedure:

1. Listen for the valves opening during operation. They will sound like a popping or a whistle if they are opening.

2. Install gauges on the vacuum and pressure sides of the air system.

3. Watch the gauges to monitor the pressure in the vacuum and pressure sides of the air circuit.

4. Restrict the flow into the intake side of the air system until you hear the valve open. The vacuum gauge should read 15 in. Hg. If it does not, replace valve.

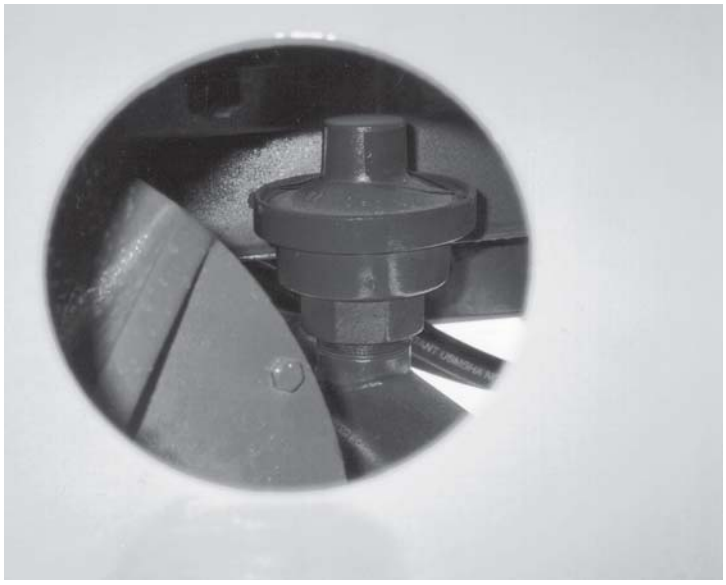
5. Restrict the output side until you hear the valve open. The pressure gauge should read 15 psi. If it does not, replace the valve.

6. Place all controls in neutral or OFF, stop engine, remove ignition key and wait for all moving parts to stop.

7. Remove old valve and replace it with a new one.

8. Tighten valve into fitting to secure.

Vacuum



Pressure

Fig. 54 RELIEF VALVES (TYPICAL)

6 TROUBLE SHOOTING

The Walinga Agri-Vac® is a high capacity air pump that creates a vacuum for picking up grain and supplies pressurized air for moving the grain. 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 call your Walinga dealer. Before you call, please have this Operator's Manual and the serial number from your Agri-Vac® ready.

6.1 MOBILE TRANSFER UNIT

PROBLEM	CAUSE	SOLUTION
Slow pick up of grain.	Air leaks.	Tighten all vacuum connections. Be sure seals are in good condition.
		Tighten receiver cyclone to base.
		Check seal on pre-cleaner bottom door. Close and secure.
		Inspection door must be closed and sealed.
		Check vacuum relief valve. Replace if defective. Clear obstruction.
		Check pressure relief valve. Clean or replace as required.
	Defective blower.	Check clearance between lobes and case. Excessive clearance will decrease air flow. Consult your dealer.
	Defective airlock.	Check that tip clearance is 0.004 inches. Adjust or replace tips as required.
	Improper setting of air slide.	Reset airslide.
Slow discharge of grain.	Air leaks.	Tighten all pressure connections. Be sure seals are in good condition.
		Check pressure relief valve. Clean or replace as required.

PROBLEM	CAUSE	SOLUTION
Slow discharge of grain (cont'd).	Defective blower.	Check clearance between lobes and case. Excessive clearance will decrease air flow. Consult your dealer.
	Defective airlock.	Check that tip clearance is 0.004 inches. Adjust or replace tips as required.
	Improper setting of flow control valve.	Reset flow control.
Pulsation.	Not enough air flow.	Open air slide on nozzle to provide more air.
		Increase blower speed or decrease size of intake piping.
	Too many bends.	Straighten out intake line.
Blower overheating.	Not enough air flow.	Open air slide on nozzle to provide more air.
	Low oil level.	Add oil as required.
Product damage.	Liners worn out.	Replace wear liners in discharge cyclone.
	Poor connections.	Tighten and seal all connections.
	Lines wearing.	Eliminate elbows. Keep lines straight as possible and provide a large radius for bends.
	Excessive RPM speed.	Decrease air flow by slowing blower or increasing size of the lines.
		Increase grain quantity by closing air slide.
Blower bogging down.	Dirt from pre-cleaner going through blower.	Clean pre-cleaner tank. Clean more frequently in dirty conditions.

PROBLEM	CAUSE	SOLUTION
Hydraulics overheating.	Low oil level.	Check oil level in tractor. Add as required.
	Poor oil quality.	Replace with oil of required specifications.
	Defective hose or tube.	Check hoses, lines and couplers. Repair or replace as required.
	Improper circuit.	Check for proper system setting. i.e. open or close.
	Wrong airlock speed.	Check for speed control valve. If oil flow continues at 0 setting, repair or replace valve.
	Too much flow from tractor.	If flow from tractor is set at 30 gpm, reduce to 15 gpm.
	Airlock too tight.	Adjust airlock tips.

6.2 PTO DRIVE SHAFT

PROBLEM	CAUSE	SOLUTION
Shear pin failure.	Blower doesn't turn freely.	Determine and correct cause of hard turning. Blower must turn freely. **NOTE:** Some oil seeds create buildup inside the blower. Wash with diesel fuel and rinse with water. Replace shear pin with genuine Walinga parts.For pin size contact Walinga Engineering Dept. a. 2 shear pins b. 1 shear pin
	PTO engaged too quickly.	Engage PTO slowly. See tractor Operator's Manual.

6.3 AIRLOCK

PROBLEM	CAUSE	SOLUTION
Noisy airlock.	Tips hitting case.	Readjust tips where applicable.
Airlock stalls.	Airlock jammed.	Reverse airlock direction to clear.
		Remove obstruction from airlock by opening inspection door or discharge elbow. Disconnect hydraulic hoses.
		WARNING **Do not work on airlock unless hydraulic hoses are disconnected.**
	Insufficient oil flow.	Check couplings or lines.
		Defective tractor hydraulics. Repair tractor.
	Airlock operated in reverse too long.	Rotor damaged. Repair or replace rotor.
	Blades too tight.	Loosen bolts. Refer to airlock maintenance.
	Faulty airlock motor.	Replace motor.
	Faulty flow divider.	Replace flow divider.
	Faulty pressure relief valve.	Replace pressure relief valve.
Air loss through airlock.	Tip clearance too large.	Adjust tips to decrease clearance to 0.006 inches.
Breaking rotor blades.	Airlock running in reverse.	Set for forward rotation. Repair or replace blades.

6.4 BLOWER

PROBLEM	CAUSE	SOLUTION
Low air volume.	Slow speed.	Check blower speed with tach. Increase speed.
		Check for slipping belts. Adjust belt tension as required.
	Piping blocked.	Check inlet and outlet piping. Remove obstruction.
		Check relief valves. Clean, repair or replace as required.
	Excessive pressure rise.	Check inlet vacuum and discharge pressure and compare with recommended conditions. Determine cause before continuing.
	Worn components.	Check clearance and replace defective components. Refer to Blower Manual.
Overheating.	Inadequate lubrication.	Check oil level in reservoirs. Add as required.
	Excessive lubrication.	Check oil level. Correct as required.
	Excessive pressure rise.	Adjust operating conditions to reduce pressure rise to below 10 psi.
	Coupling misalignment.	Check and realign.
Engine overloading.	Speed too high.	Check and decrease speed to recommended RPM.
	Pressure too high.	Adjust operating conditions to set rise to below 10 psi. Add more air.
	Impellers rubbing.	Consult your nearest dealer.

6.5 V-BELT DRIVE

PROBLEM	CAUSE	SOLUTION
Loss in drive speed.	Belts slipping.	Tighten belts as required.
	Localized belt wear.	Check cross-section dimension. a. If narrow, pulley spinning. b. If swollen, belt failing internally.
	Unequal stretch on belts.	Defective belts. Replace with matched set.
	Belts overloaded.	Belts failed or worn out. Replace belts with matched set.
	Belt separation.	Belts too tight. Replace belts and set correctly.
	Envelope seams opening.	Check for oil or rubber solvent. Eliminate contamination and replace belts.
	Abnormal envelope wear.	Check for worn sheave, misalignment or slip. Replace defective parts, adjust properly and replace belt.
	Belt softening or swelling.	Eliminate oil or rubber solvent. Replace belt.
	Belt hardening or cracking.	Eliminate heat or chemical contamination. Replace belt.

7 SPECIFICATIONS

7.1 MECHANICAL

MODEL CAPACITY* bu/Hr (tonnes/hr)	CORN& BARLEY	WHEAT	BEANS	HP	PTO SPEED RPM	LINE SIZE	DISCHARGE HEIGHT
4510	1200(30)	1000 (27)	900 (24)	40-50	540	4 in	13ft. min.
5510	2400(61)	2100 (55)	1800(48)	65-80	1000	5 in	13ft. 6 in min.
5614	2500 (64)	2200 (58)	1900(51)	70-85	1000	5 in	13ft. 8 in min.
6614	3600 (92)	3200(84)	2800 (75)	110-130	1000	5 &6in	13ft. 8 in min.
7614	5000 (127)	4500(119)	4000 (107)	130-150	1000	6&7in	13ft. 8 in min.

*Capacities based on using 12ft. (3.65m) suction line and truck loading kit. Capacity will vary with condition of product.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

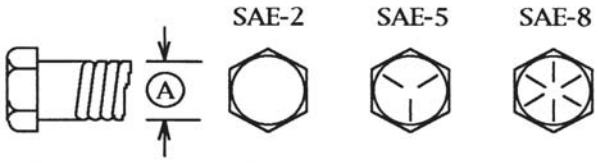
7.2 BOLT TORQUE

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.

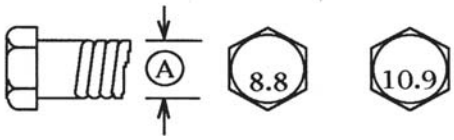
ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	Bolt Torque*					
	SAE 2		SAE 5		SAE 8	
	(N.m)	(lb-ft)	(N.m)	(lb-ft)	(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		10.9	
	(N.m)	(lb-ft)	(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.

8 INDEX

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