1 INTRODUCTION

Congratulations on your choice of an AgriMetal Multi-Vac Debris Vacuum to complement your operation. This equipment has been designed and manufactured to meet the needs of a discerning turf care industry.

Safe, efficient and trouble free operation of your AgriMetal Multi-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 the PTO powered 772, 1096 and 10120 model. Use the Table of Contents or Index as a guide to locate required information.

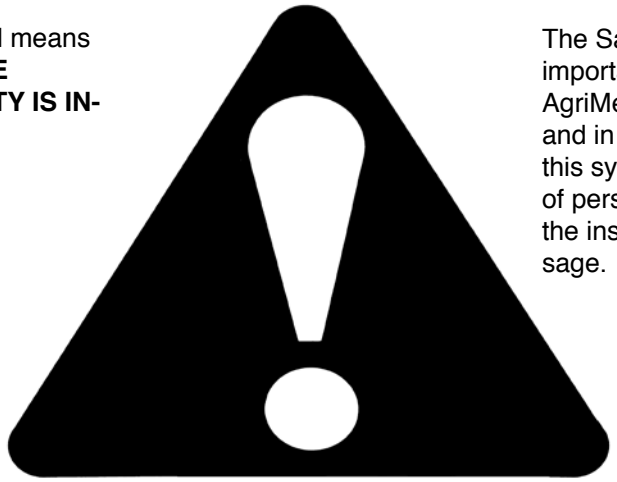
Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your AgriMetal Dealer or Distributor if you need assistance, information or additional copies of the manuals.

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 AgriMetal Multi-Vac Debris Vacuum 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 which, 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.

SI NO LEE INGLES, PIDA AYUDA A AIGUIEN QUE SI LO LEA PARA QUE LE TRADUZCA LAS MIDIDAS DE SEGURIDAD.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer at AgriMetal Inc., 1006 Rue Principale, Wickham, Quebec, Canada, J0C 1S0. Phone (819) 398-6883 or fax (819) 398-5311.

SAFETY

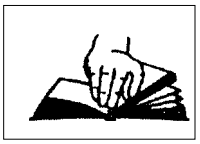
YOU are responsible for the SAFE operation and maintenance of your AgriMetal Multi-Vac Debris Vacuum. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Multi-Vac be familiar with the operating and maintenance procedures and related **SAFETY** information 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 Multi-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 operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

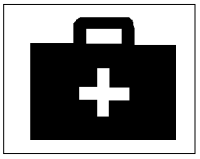
- Multi-Vac owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety 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 the 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

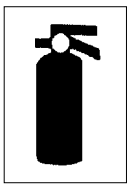
1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the Multi-Vac.



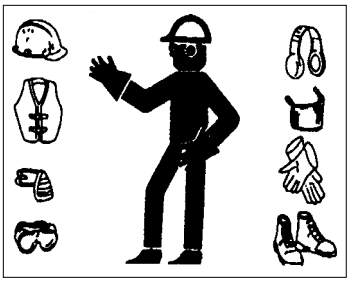
2. Have a first-aid kit available for use should the need arise and know how to use it.



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

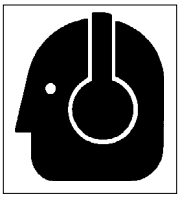


4. Wear appropriate protective gear. This list includes but is not limited to:



   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective glasses or goggles
   - Heavy gloves
   - Wet weather gear
   - Hearing protection
   - Respirator or filter mask
   - Hearing Protection

5. Install and secure all guards before starting.
6. Do not allow riders.
7. Wear suitable ear protection for prolonged exposure to excessive noise.



8. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
9. Clear the area of people, especially small children, before starting the unit.
10. Review safety related items annually with all personnel who will operating or maintaining the Multi-Vac.

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 machinery and trained in this equipment's operations. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.

7. Use a tractor equipped with a Roll Over Protective Structure (ROPS).

8. 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.**

9. 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.

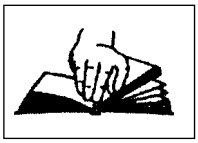
10. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of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

2.3 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 tractor, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, 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 tractor, engine, and machine quickly in an emergency. Read this manual and the one provided with your tractor.

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 work, their physical limitations need to be recognized and accommodated.

2.4 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.

- 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.

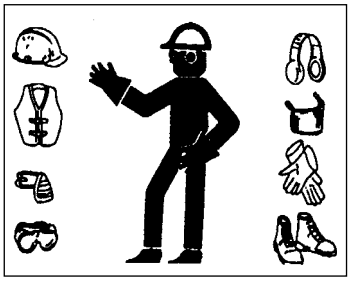
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.

- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

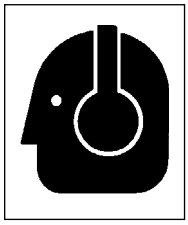
2.5 PREPARATION

1. Never operate the tractor and machine until you have read and completely understand this manual, the Tractor Operator's Manual, and each of the Safety Messages found on the safety signs on the tractor and machine.

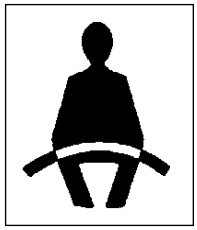
2. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewellery to be around equipment.



3. **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**
Tractors with or without 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. Operate the machine only with a tractor equipped with an approved Roll-Over-Protective Structure (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor ---particularly during a turnover when the operator could be pinned under the ROPS or the tractor.



5. Clear working area of stones or hidden obstacles that might be hooked or snagged, causing injury or damage.

6. Operate only in daylight or good artificial light.

7. Be sure machine is properly mounted, adjusted and in good operating condition.

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

2.6 OPERATING SAFETY

1. Please remember it is important that you read and heed the safety signs on the Multi-Vac. Clean or replace all safety signs if they cannot be clearly read and understood. They are there for your safety, as well as the safety of others. The safe use of this machine is strictly up to you, the operator.

2. All things with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes potential hazards and follows reasonable safety practices. The manufacturer has designed this Multi-Vac to be used with all its safety equipment properly attached, to minimize the chance of accidents. Study this manual to make sure you have all safety equipment attached.

3. If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.

4. When the use of hand tools is required to perform any part of assembly, installation, adjustment, maintaining, repairing, removal, or moving, be sure the tools used are designed and recommended by the tool manufacturer for that specific task.

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

6. Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.

7. Never place any part of your body where it would be in danger if movement should occur during assembly, installation, operation, maintaining, repairing, removal or moving.

8. Never place yourself between the tractor and machine while implement is in operation.

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

10. Do not walk or work under a raised machine, discharge door or attachment unless it is securely blocked or held in position. Do not depend on the tractor hydraulic system to hold the machine or attachment in place.

11. A heavy load can cause instability of the tractor. Use extreme care during travel. Slow down on turns and watch out for bumps. The tractor may need front counterweights to counterbalance the weight of the machine.

12. 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.

13. Do not allow riders on the machine or tractor at any time. There is no safe place for any riders.

14. Before you operate the machine, check over all pins, bolts, and connections to be sure all are securely in place. Replace any damaged or worn parts immediately.

15. Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.

16. Never allow children to operate or be around this machine.

17. Do not reach into blower openings when the engine is running. Install and secure access covers before starting engine.

18. Clear the work area of objects which might be picked up and snagged or entangled in the machine.

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

20. Stay at least 15 m (50 feet) away from power lines when unloading. Electrocution can occur without direct contact.

21. Do not go under lifted compartment unless support brackets are installed.

22. Keep hands and feet away from pick-up head when engine is running. Keep others away.

2.7 TRANSPORT SAFETY

1. Comply with state and local laws governing highway safety and movement of machinery on public roads.

2. The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.

3. At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.

4. Plan your route to avoid heavy traffic.

5. Always use a tractor of more than 40 HP for Model 772 and 50 HP for Models 1096 and 10120 and more than 2500 lbs. to transport machine.

6. Always install transport locks, pins or brackets before transporting.

7. Use a drawbar pin with provisions for a retainer. Install the retainer.

8. Do not drink and drive.

9. Attach safety chain between tractor and machine before transporting.

10. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.

11. Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.

12. Never allow riders on either tractor or machine.

13. Install lighting bar before transporting.

2.8 STORAGE SAFETY

1. Store the 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 frame with planks if required.

2.9 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.

2. 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.

3. Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.

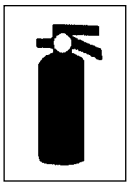
4. Before working on this machine, shut off the engine, set the brakes, and remove the ignition keys.

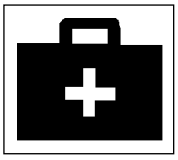
6. Never work under equipment unless it is blocked securely.

7. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work. Use heavy gloves when handling pick up blades.

8. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

9. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.





10. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.

11. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

2.10 HYDRAULIC SAFETY

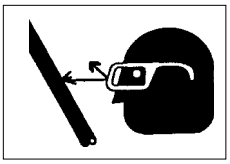
1. Always place all tractor hydraulic controls in neutral before disconnecting from tractor or working on hydraulic system.

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

3. Replace any worn, cut, abraded, flattened or crimped hoses.

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.

2.11 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.

4. When replacing worn tires, make sure they meet the original tire specifications. Never undersize.

2.12 SIGN-OFF FORM

AgriMetal 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 Multi-Vac Debris Vacuum 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	EMPLOYEES SIGNATURE	EMPLOYERS 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

CAUTION

1. Read Operator's Manual before starting.
2. Keep guards and shields in place and access doors closed.
3. Keep hands, feet, hair and clothing away from moving parts.
4. Stop engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging the machine.
5. Do not climb on the machine or place hands in any opening when the engine is running.
6. Keep people and pets a safe distance from the machine.
7. Keep hydraulic lines and fittings tight, in good condition and free of leaks.
8. Do not smoke when refuelling.
9. Block up machine securely before working under it.
10. Keep all electrical wires and connections dry and in good repair.
11. Keep hands and feet away from pick-up head when engine running. Keep others away.
12. Install lock pin through frame before entering compartment.
13. Review safety instructions annually.

ATTENTION

1. Lire attentivent le manuel d'opération avant la mise en marche.
2. Garder tous les écrans protecteurs in place.
3. Garder les mains, pieds, cheveux et vétements éloignés des éléments mobiles.
4. Arréter le moteur, placer tous les contrôles à la position "neutre", enlever la clé du contact et attendre que toutes les places soient au point mort avant de faire tout ajustement, réparation ou de débloquer la machine.
5. Ne pas grimper sur la machine et ne jamais se placer les mains dans toute ouverture lorsque celle-ci est en marche.
6. Garder les gens et les animaux à une distance sécuritaire de la machine.
7. Garder tout boyau et fixation hydraulique en bonne condition et sans fissure.
8. Ne jamais fümer lors du plein d'essence.
9. Immobiliser la machine de façon sécuritaire avant de travailler sous celle-ci.
10. Garder toute connection et fil électrique au sec et en bonne condition.
11. Garder les mains et les pieds éloignés du bec d'aspiration lorsque le moteur est en marche. Garder les gens éloignés.
12. Toujours installer la barrure de sécurité sur la porte de déchargement avant de se placer entre la porte et la machine.
13. Reviser annuellement le manual d'opération.

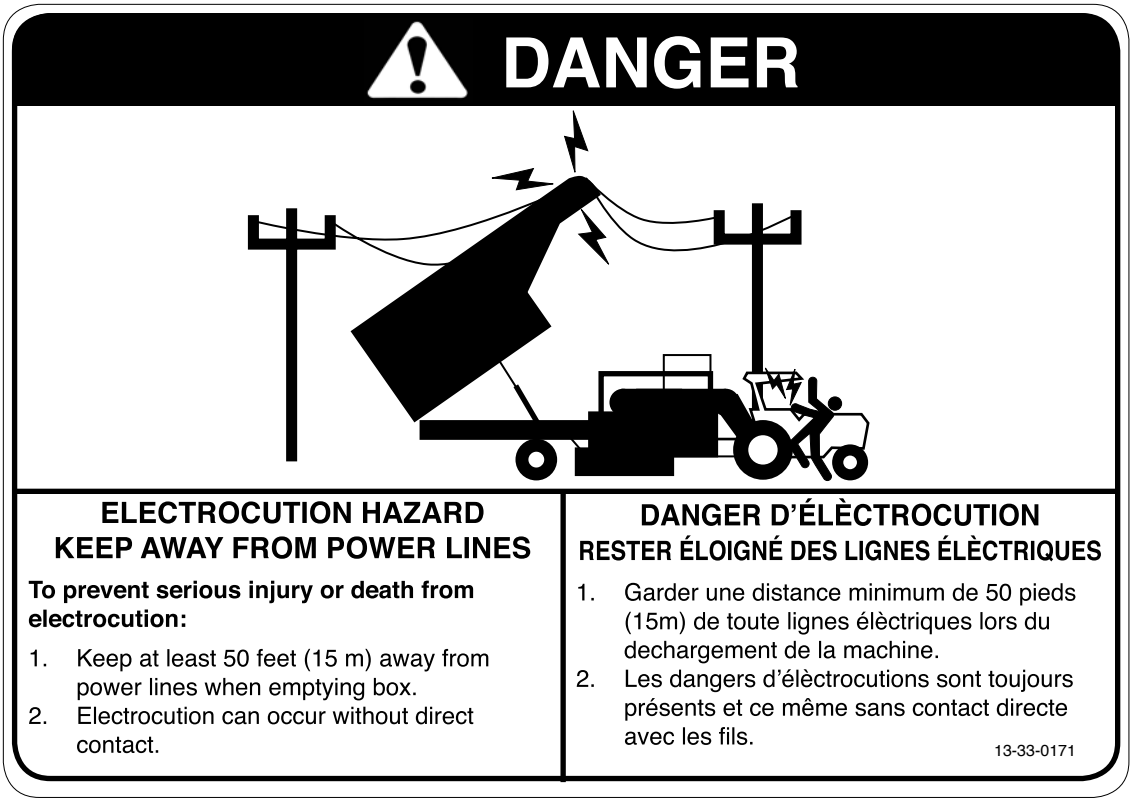
NC13-33-0105

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!

B



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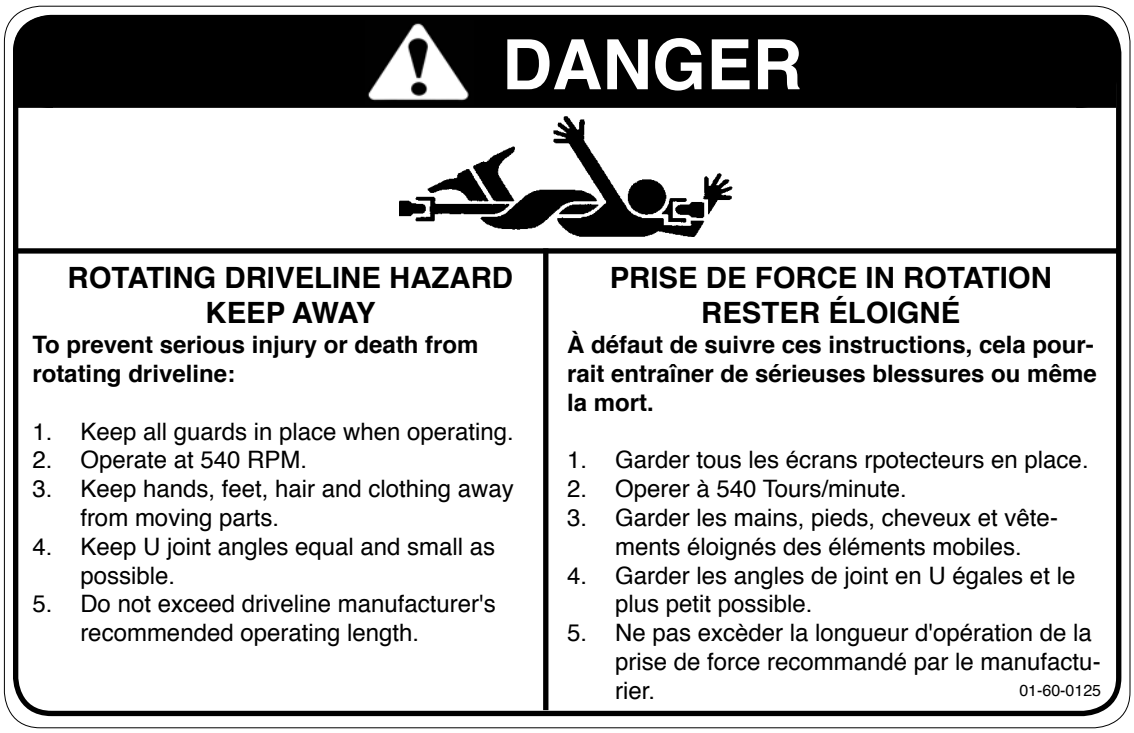

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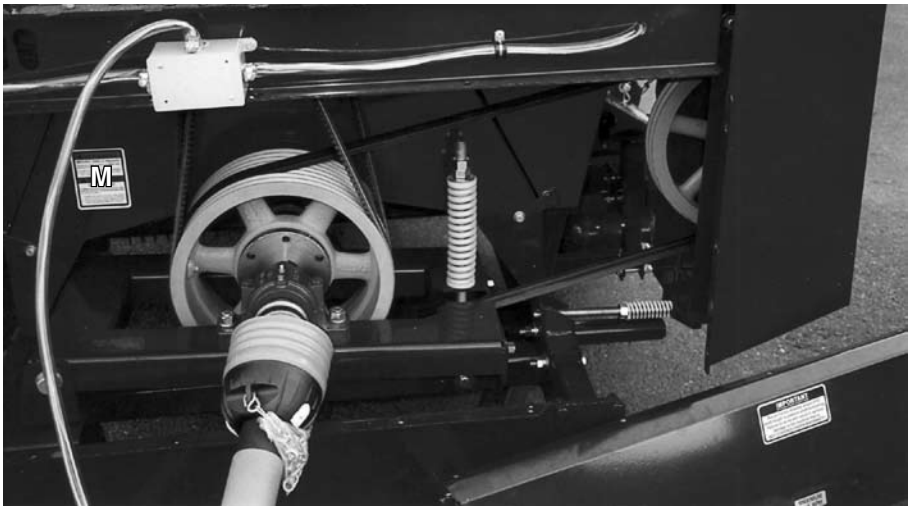

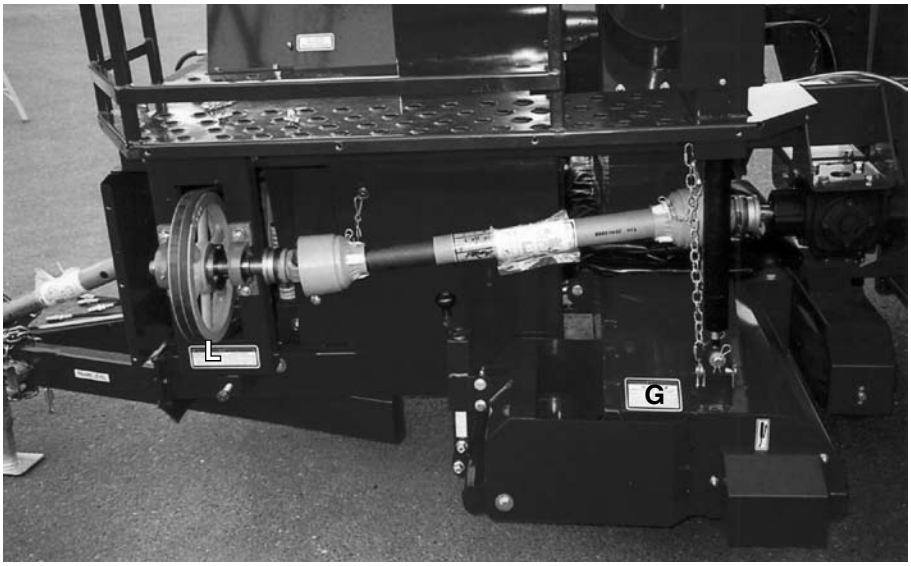

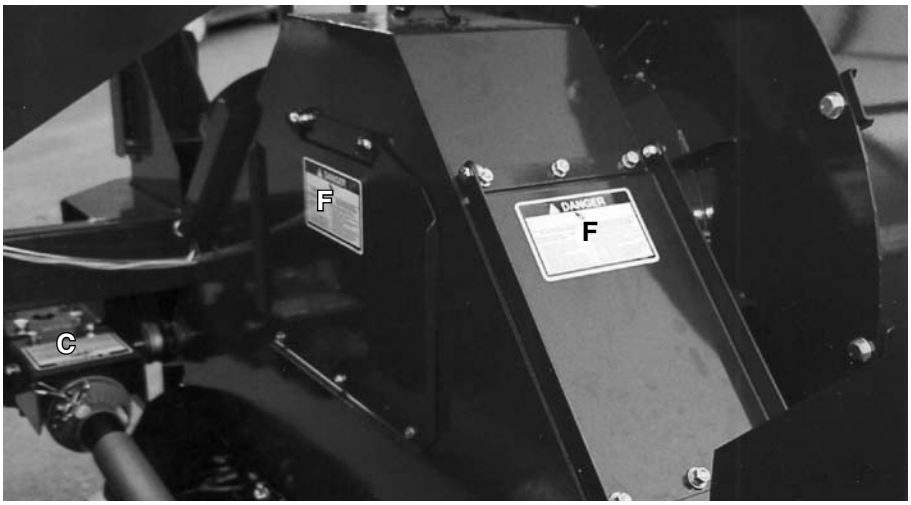

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- Think SAFETY! Work SAFELY!

D

WARNING **AVERTISSEMENT**

ROTATING PART HAZARD
KEEP AWAY

To prevent serious injury or death from rotating parts:

1. Place all controls in neutral or off, stop engine or motor, set park brake, remove ignition key or disable power source and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
2. Install and secure all guards before operating.
3. Do not operate with rotating parts exposed.

PIÉCES EN MOUVEMENT
RESTER ÉLOIGNÉS

À défaut de suivre ces instructions, cela pourrait entraîner de sérieuses blessures ou même la mort.

1. Arrêter le moteur, placer tous les contrôles à la position "neutre" enlever la clé du contact et attendre que toutes les pièces soient au point mort avant de faire tout ajustement, réparation ou de débloquer la machine.
2. Installer tous les écrans protecteurs avant de mettre la machine en fonction.
3. Ne jamais opérer la machine sans écran protecteur.

01-60-0115

E

WARNING **AVERTISSEMENT**

ROTATING PART HAZARD
KEEP AWAY

To prevent serious injury or death from rotating parts:

1. Place all controls in neutral or off, stop engine or motor, set park brake, remove ignition key or disable power source and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
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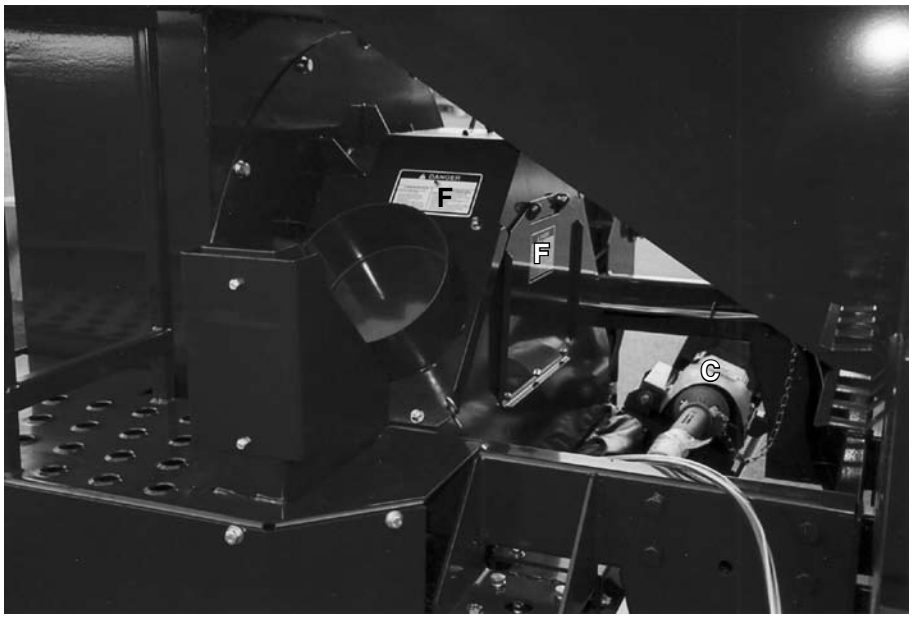
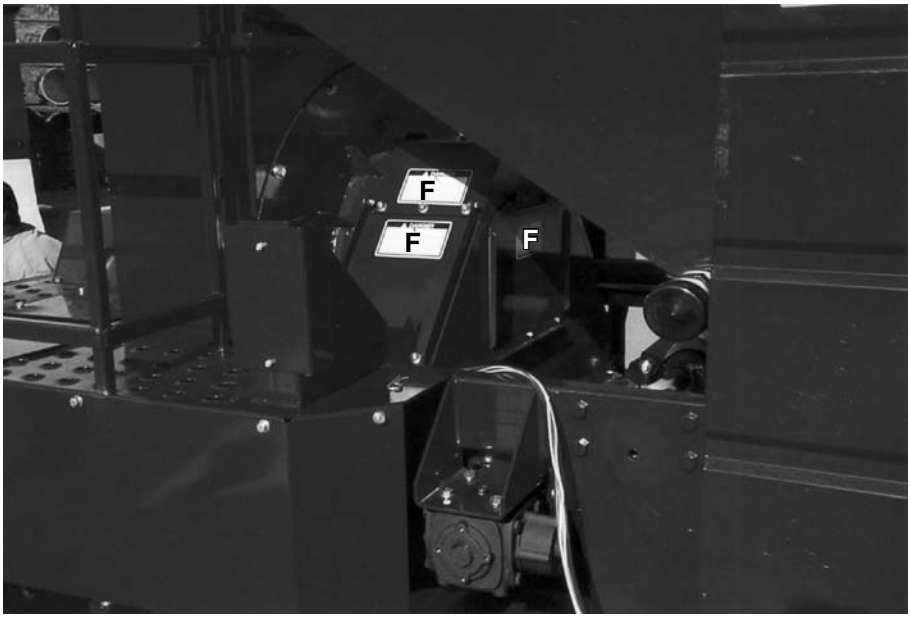
- Think SAFETY! Work SAFELY!





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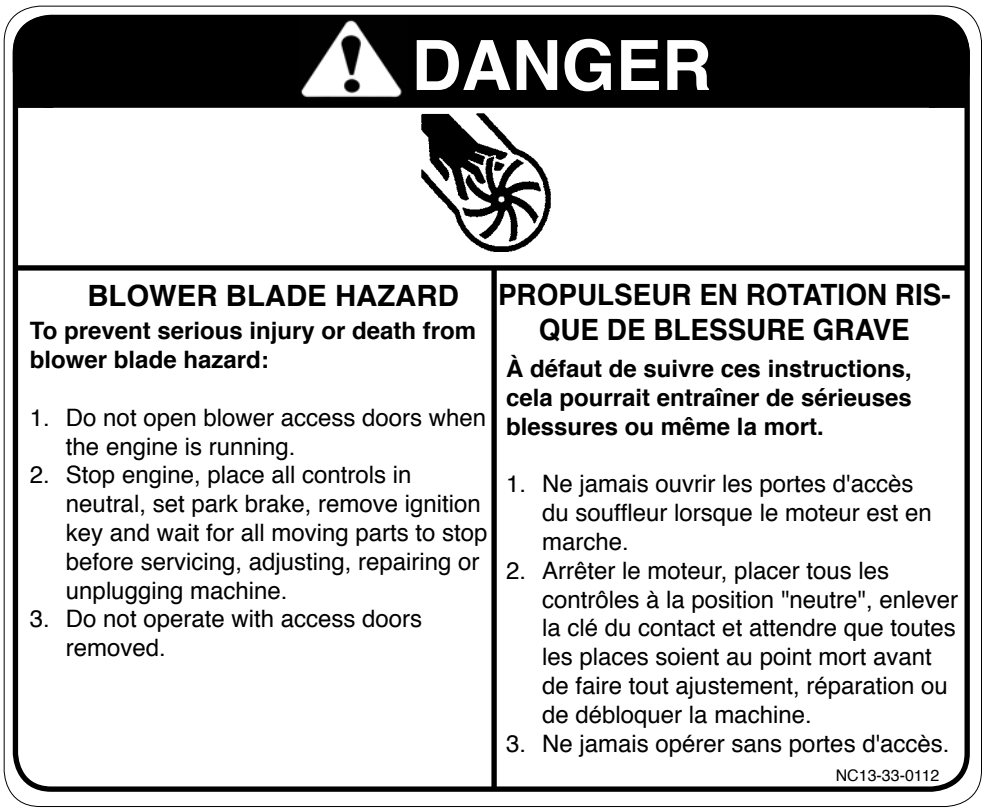

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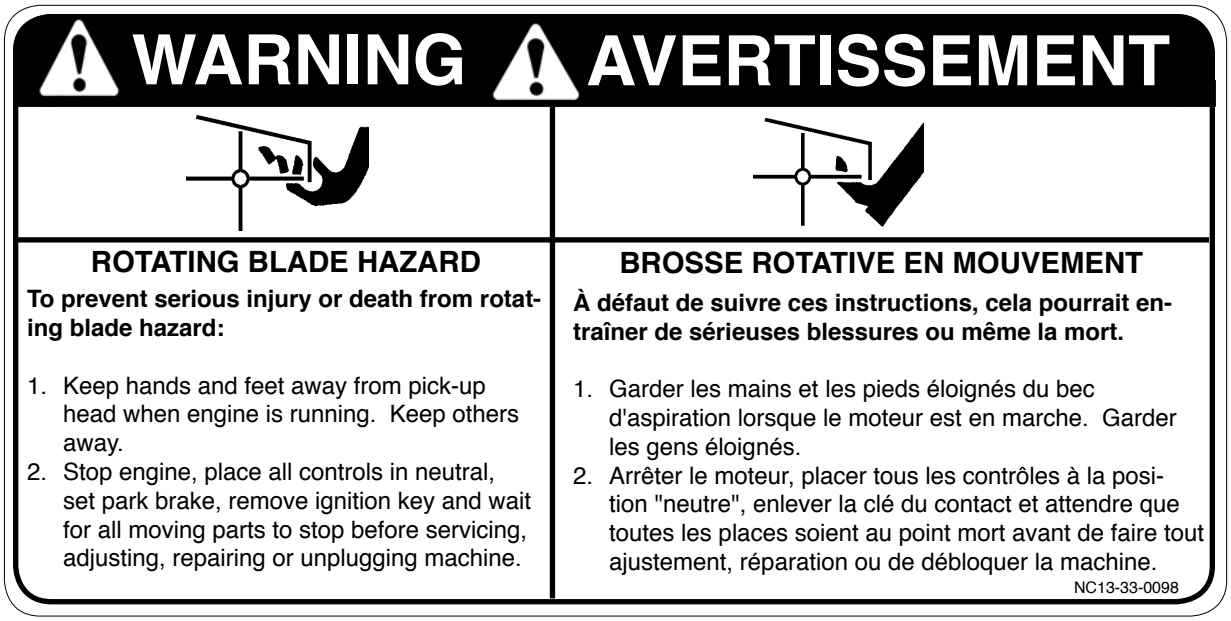

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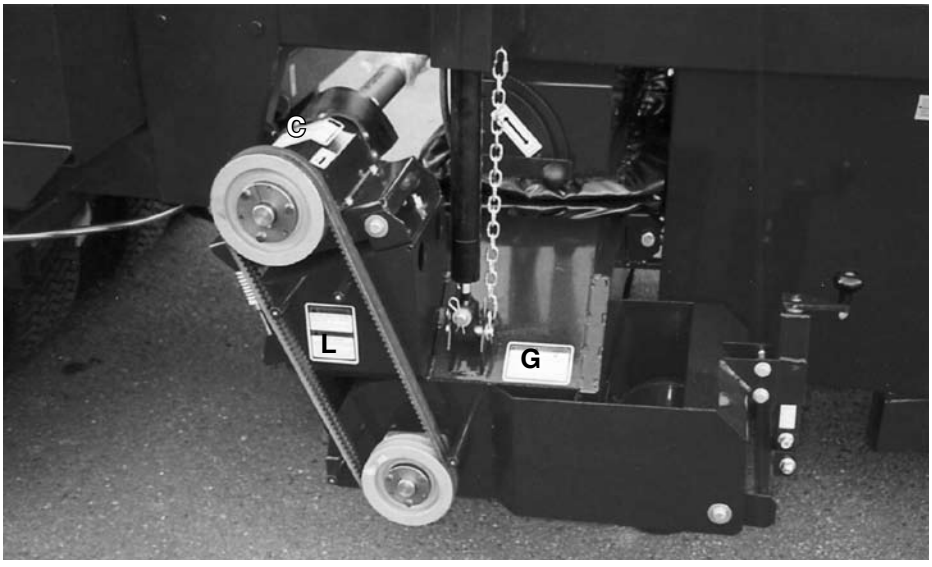

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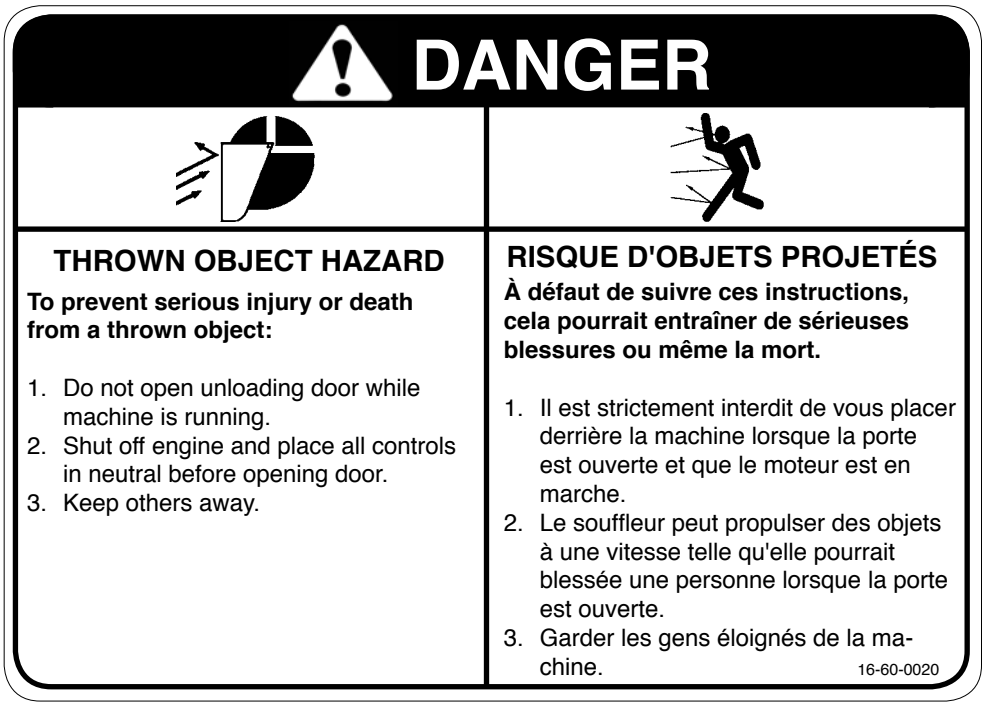
H



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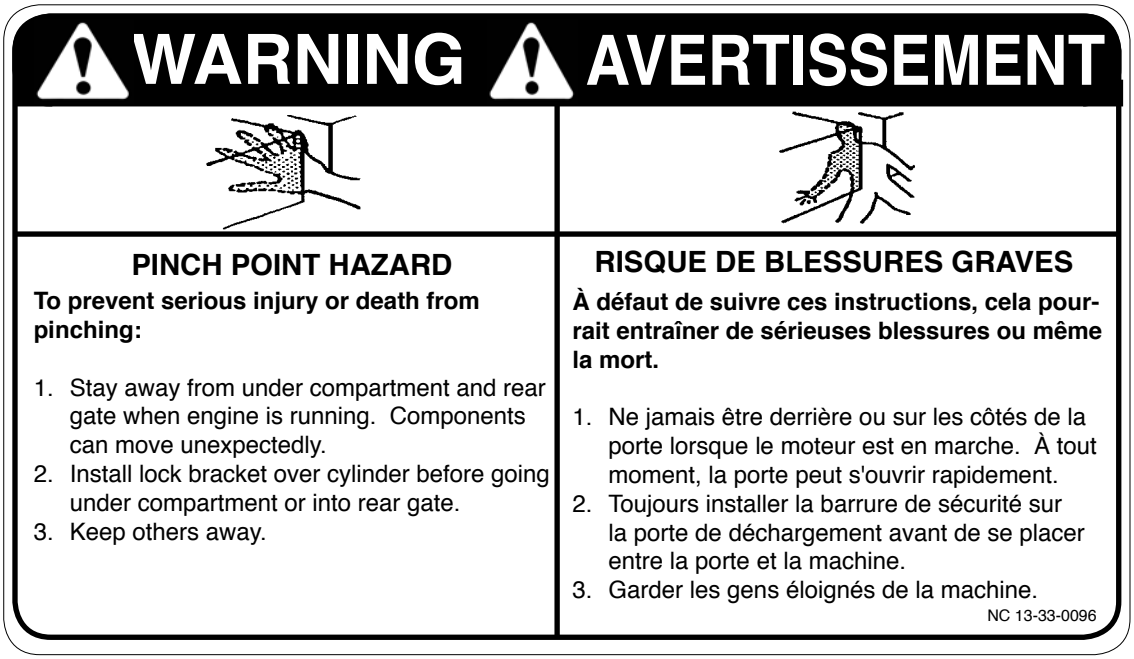

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- Think SAFETY! Work SAFELY!

K

WARNING

Install lock bracket over cylinder ram before going under or into compartment

AVERTISSEMENT

Verrouillage de l'installation support sur cylindre de RAM avant de passer en dessous ou dans le compartiment.

M

WARNING

MISSING SHIELD HAZARD

To prevent serious injury or death from exposed hazard:

1. Install and secure shields before operating.
2. Keep hands, feet, hair and clothing away from moving parts.

AVERTISSEMENT

GARDE ABSENT

À défaut de suivre ces instructions, cela pourrait entraîner de sérieuses blessures ou même la mort.

1. Installer les gardes de façon sécuritaire avant la mise en marche de la machine.
2. Garder les mains, pieds, cheveux et vêtements éloignés des éléments mobiles.

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L

WARNING **AVERTISSEMENT**

MISSING SHIELD HAZARD

To prevent serious injury or death from exposed hazard:

1. Install and secure shields before operating.
2. Keep hands, feet, hair and clothing away from moving parts.

GARDE ABSENT

À défaut de suivre ces instructions, cela pourrait entraîner de sérieuses blessures ou même la mort.

1. Installer les gardes de façon sécuritaire avant la mise en marche de la machine.
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4 ASSEMBLING

4.1 MACHINE ASSEMBLY

Fig. 1 SHIPPING

The machine is shipped from the factory in a partially disassembled configuration. All accessories are attached to a pallet that provides for easy moving and handling. Always use tools, equipment and forklifts of appropriate size and capacity for the job. Always use 2 men when lifting, moving and assembling the machine.

When the machine is shipped, follow this procedure when preparing for the customer:

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

2. Use a forklift to lift the accessory pallet from the truck. Carry the load close to the ground as it is moved to the assembly area and positioned.

3. Roll the machine off the truck.

5. Move the pallet with the intake hose to the assembly area.

6. Cut the tie-downs, remove screws and lay out.

Fig. 2 INTAKE HOSE PALLET (722 Model only)

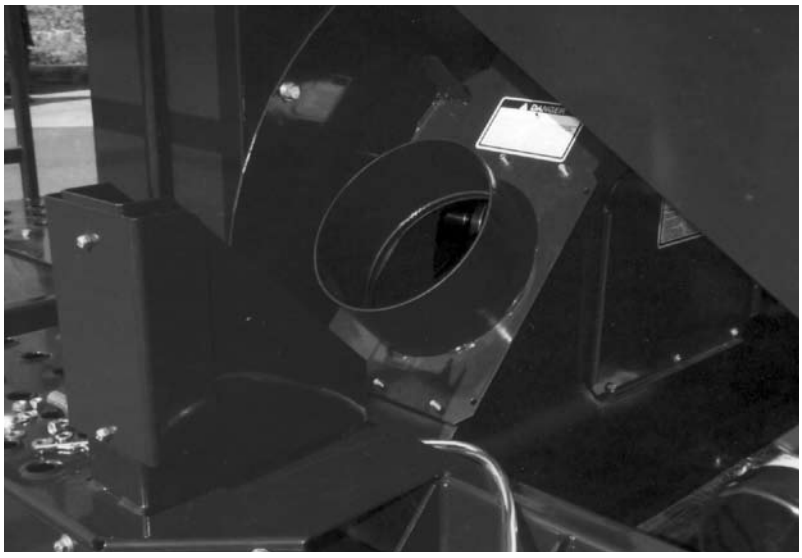
7. Mount hose intake housing.

   a. Remove blank from left side of intake housing.

   b. Install hose intake housing.

   c. Tighten fasteners to their specified torque.

Blank



Installed

Fig. 3 HOSE INTAKE HOUSING

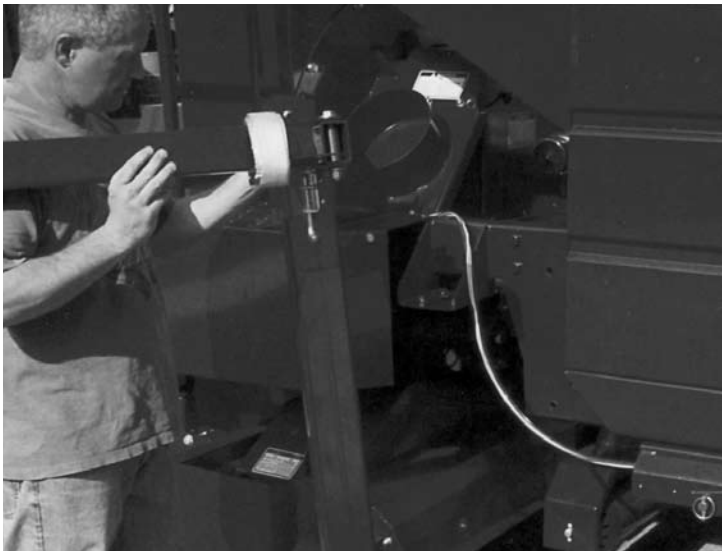
8. Move the hose support arm into position next to the front left corner of the frame.

NOTE

Be sure to use the lock pins at each pivot point to keep the arm in its rigid configuration to prevent pinching.

9. Raise the arm into position and install the anchor bolts.

10. Tighten anchor bolts to their specified torque.



Positional

Mounting Bolts

Installed

Fig. 4 HOSE SUPPORT ARM

11. Attach the hose support arm extension:

    a. Move extension into position.

    b. Install pivot point.

    c. Tighten to its specified torque.

    d. Lock support arm.

Positioned

Pivot

Tightened

Installed

Fig. 5 ARM EXTENSION

12. Remove the ties from hose support straps.

13. Move lock clamp to the top of the strap.

Releasing

Released

Fig. 6 HOSE SUPPORT STRAPS

14. Mount the hose:

    a. Thread the hose through the support straps.

    b. Move lock clamp to the top of the strap to allow the hose to move through the strap.

    c. Turn end toward the blower intake fitting.

First Strap

Straps

Threaded

Fig. 7 HOSE INSTALLATION

15. Attach hose to intake housing:

    a. Loosen hose clamps.

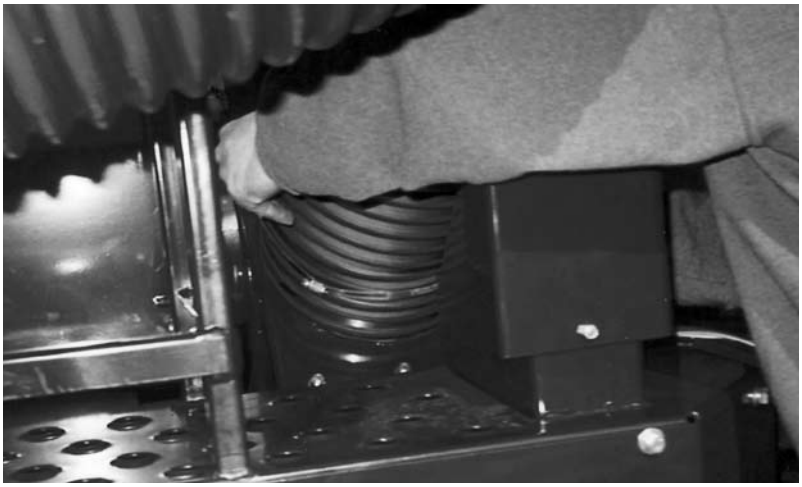
    b. Slide both clamps over hose.

    c. Slide hose over flange all the way to the bottom.

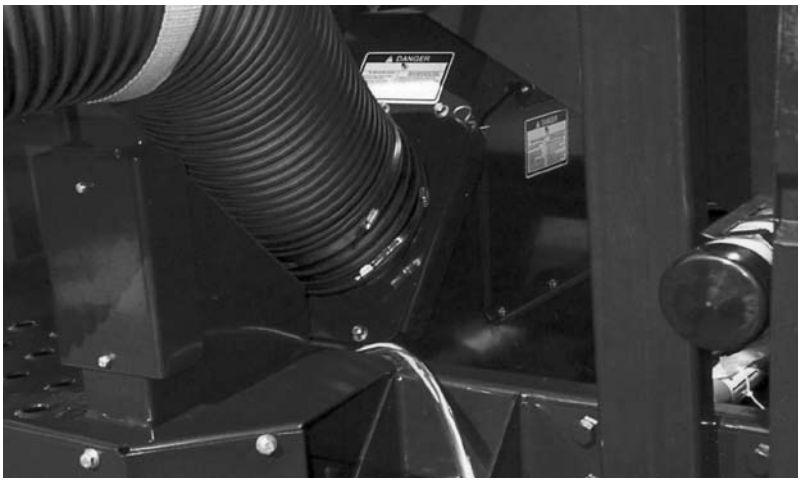
NOTE

It may be necessary to add lubricant to housing when installing hose. WD40 or equivalent works well.

    d. Tighten both hose clamps securely.



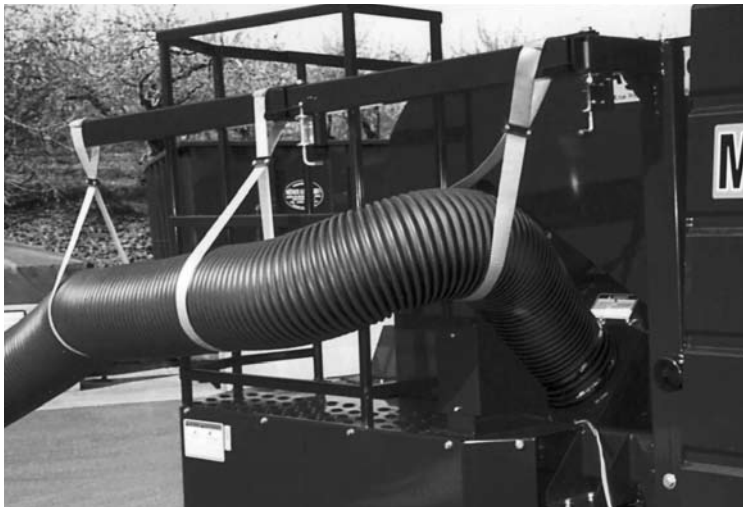
Installing



Mounted

Fig. 8 ATTACH HOSE

16. Tighten the hose strap clamps:



Hose Installed

a. Slide the clamp down the strap until it is snug against the hose.

Tighten Clamps

b. Tighten the clamp fastener to its specified torque.

c. Repeat with other clamps.

Tightened

Fig. 9 HOSE STRAP CLAMPS

17. Attach the hose handle:

    a. Loosen the hose clamps on each end of the handle assembly.

    b. Slide the handle over the hose and into position.

    c. Tighten clamps.

Fig. 10 HOSE HANDLE

18. Attach the hose storage basket to the front of the railing and tighten to its specified torque.

Fig. 11 HOSE STORAGE BASKET

19. Attach the hose handle to storage bracket.

Fig. 12 HOSE STORED

20. Remove the axle anchor brackets from each side. Store in a secure location.

Left Side - Top

Left Side - Bottom

Right Side

Fig. 13 AXLE ANCHOR BRACKETS

5 OPERATION

OPERATING SAFETY

- Please remember it is important that you read and heed the safety signs on the Multi-Vac. Clean or replace all safety signs if they cannot be clearly read and understood.
- If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.
- Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
- Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Do not allow riders on the machine or tractor at any time. There is no safe place for any riders.
- Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
- Never allow children to operate or be around this machine.
- Do not reach into blower openings when the engine is running. Install and secure access covers before starting engine.
- Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Keep hands, feet, hair, jewellery, and clothing away from all moving and/or rotating parts.
- Stay at least 15 m (50 feet) away from power lines when unloading. Electrocution can occur without direct contact.
- Do not go under lifted compartment unless support brackets are installed.
- Keep hands and feet away from pick-up head when engine is running. Keep others away.

5.1 TO THE NEW OPERATOR OR OWNER

AgriMetal Multi-Vac Debris Vacuums are designed to efficiently pick up material from the ground and collect it in the machine compartment. A variety of material can be gathered and transported to the unloading area. Grass clippings, leaves and others debris can easily be picked up.

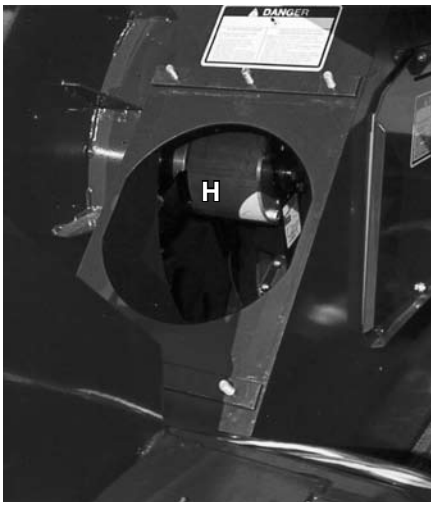
In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine.

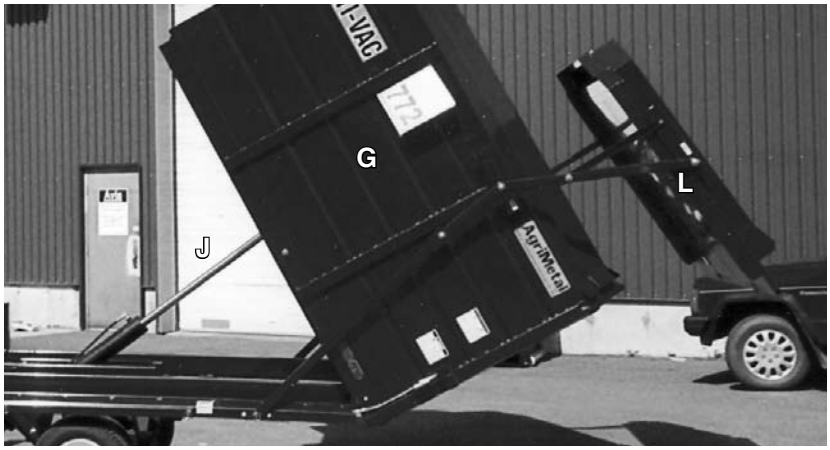
Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

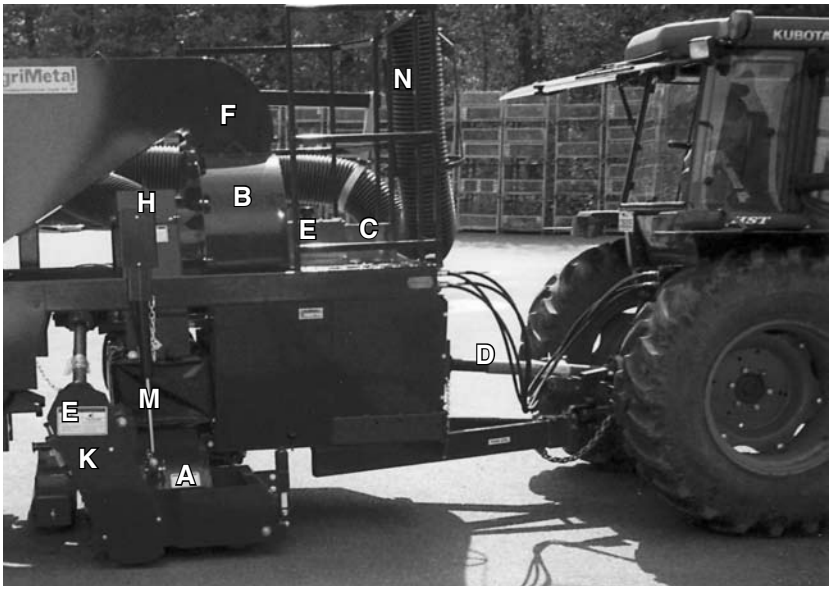
Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and how to set it to provide maximum field efficiency. By following the operating instructions in conjunction with a good maintenance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

5.2 MACHINE COMPONENTS

The AgriMetal Multi-Vac Debris Vacuum is a large trailer with a blower on the front. The blower creates a vacuum to pick up debris through the pick-up head or a flexible hose. The material is blown into the containment chamber at the rear. The unit is unloaded by raising the box with a hydraulic cylinder and allowing the debris to slide out the back. Power is provided through a PTO from the tractor. The tractor provides hydraulic power to raise or lower the pick-up head and unload.







A Pick-Up Head
B Blower
C Blower Drive
D PTO Driveline
E Drive Box
F Blower Discharge
G Debris Compartment
H Shredder
J Unloading Cylinder
K Pick-Up Head Drive
L Rear Door
M Pick-up Head Lift Cylinder
N Hose Intake

Fig. 14 PRINCIPLE COMPONENTS

5.3 BREAK-IN

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

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

1. Check alignment of pulleys. Align as required.
2. Check belt tension. Adjust as required.
3. Torque all fasteners and hardware.
4. Check that the PTO and driveline shields turn freely.
5. Check condition of blower and shredder bearings.
6. Check the pick-up head rotor for entangled material. Remove any entangled material.
7. Check tire pressure. Inflate as required.
8. Check oil level in drive box. Top up as required.

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

1. Repeat steps 1 through 8 listed above. (Section A).
2. Go to the normal servicing and maintenance schedule as defined in the Maintenance Section.

5.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the AgriMetal Multi-Vac Debris Vacuum 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 personal safety and for maintaining the machine in good mechanical condition that this checklist be followed.

Before operating the Vacuum and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outline in the Maintenance Section.
2. Check the tension and alignment of all belts and pulleys. Adjust tension and align as required.
3. Check the pick-up head rotor. Remove any twine, wire or other material that has become entangled.
4. Check that all bearings turn freely. Replace any that are rough or seized.
5. Make sure that all guards and shields are in place, secured and functioning as designed.
6. Check for hydraulic leaks. Tighten any leaking fittings.
7. Check that the PTO and driveline shields turn freely and that the driveline can telescope easily.
8. Check the oil level in the drive box. Add as required.

5.5 EQUIPMENT MATCHING

The Multi-Vac PTO models are designed to be used with a turf tractor and operated at a speed of 540 PTO RPM. The gas engine powered model requires a utility vehicle of more than 1200 lbs to operate. The following tractor specifications must be maintained when selecting a power unit.

1. **Horsepower:**
   It is recommended that the turf tractor have the recommended PTO horsepower for all conditions. This will provide sufficient power for the blower with enough power remaining for tractive needs. When operating in soft or hilly conditions, it is recommended that the power level be increased by 25%.

2. **Drawbar:**
   The drawbar must be set to provide a dimension of 14 inches between the end of the tractor shaft and the center of the drawpin. Consult the tractor manual on adjustment procedures.

3. **Tires:**
   Use only turf tires on the power unit to prevent marking the surface.

4. **PTO Shaft:**
   The turf tractor must be equipped with a 6 spline 1 3/8 inch PTO shaft when used with a PTO powered machine. It should never be operated faster than 540 RPM. Use an accurate hand-held tachometer to check the speed if there is doubt about RPM. Never operate the tractor at maximum RPM but only at rated PTO speed.

   Do not use shaft adapters when operating. It changes the drawbar dimensions and can lead to over speeding. It is not recommended that the machine be used with imported tractors that have a variable speed PTO. This can also lead to over speeding.

Table 1: **Model vs. Tractor HP**

Model	Recommended Tractor Horsepower
772	40
1096	50
10120	50

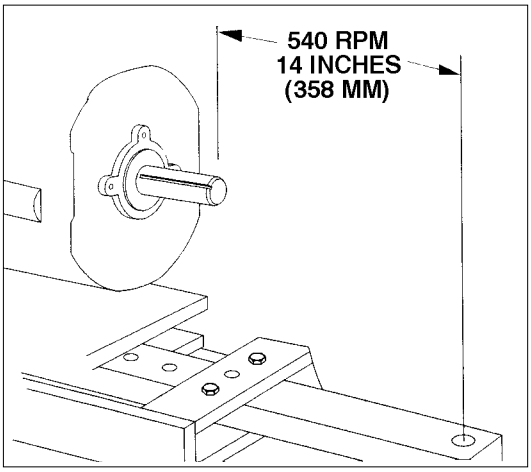


Fig. 15 DRAWBAR DIMENSION

5.6 MACHINE SETTINGS

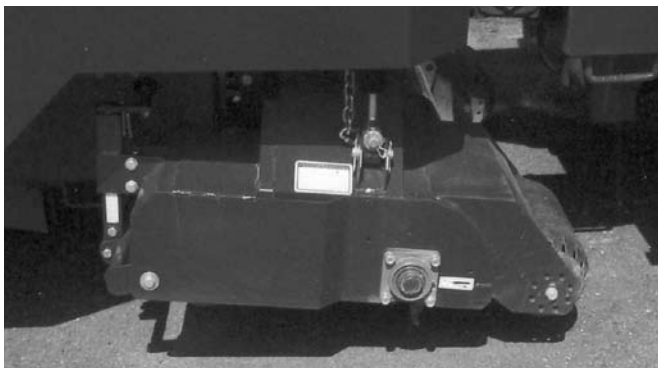
The Multi-Vac pick-up head assembly must be set prior to using in order to obtain the best performance in the field.

5.6.1 PICK-UP HEAD HEIGHT

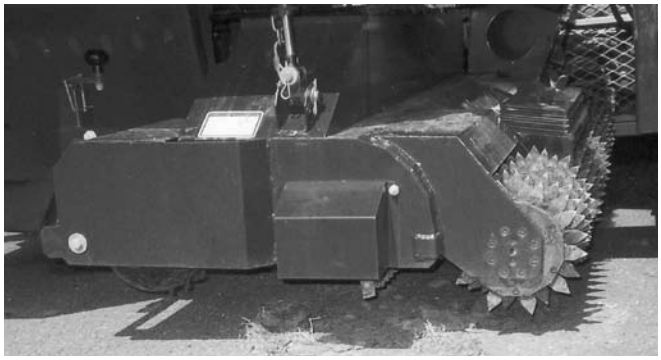
To set pick-up head assembly height, follow this procedure:

1. Move the machine to a hard level surface such as concrete, pavement or packed gravel.

2. Run the tractor and lower the pick-up head down to the ground.



Flail



Thatcher

Fig. 16 ROTOR TIPS

3. Use the gage wheel to set the height of the pick-up head.

4. Select the operating height appropriate for the leaf and head height.

NOTE

Set the gage wheel height so the rotor tips just disturb the surface and break the debris loose so it will be picked up by the flow of air.

a. On a surface with long, course grass, set up 1 inch (25 mm) above the surface.

b. On a short, firm surface, set to just contact the surface.

c. Set appropriate for the operating conditions.

5. For the thatcher head:.

a. On a hard surface, set the thatcher knives to go 1/2 - 3/4 inch (12 - 18 mm) below the surface.

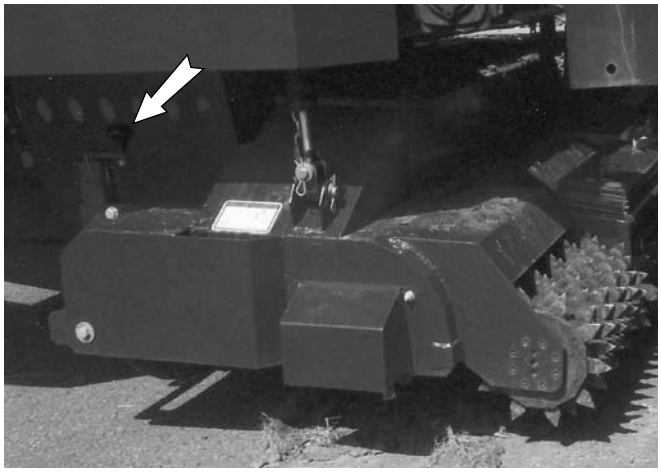


Fig. 17 GAGE WHEEL

NOTE

Knife must penetrate the surface to loosen and remove thatch.

b. Be sure the knife is pointing straight down when setting the height.

NOTE

Do not set to go too deep as the flail will fold back and not remove as much thatch as desired.

5.6.2 ROTORS

Two types of rotors are available for use in the pick-up head; a Verti-Thatch and a Flail Brush.

To set the flue, follow this procedure:

1. **Verti-Thatch or Rubber Finger Brush:**
   This rotor is equipped with swinging knives and is used to remove the old growth thatch from a grass surface. The best results are obtained when the knife tips are set to go into the ground 3/4 to 1 inch (18 - 25 mm). A travel speed of 2.5 to 3.0 mph (4-5 kph) provides the best reults.

2. **Rubber Finger Brush:**
   This rotor is equipped with rubber fingers and is used to disturb the top of the grass surface. It is used to break loose the material on the surface so it can be picked up on the air stream.

   a. On a surface with long, course grass, set up 1 inch (25 mm) above the surface.

   b. On a short, firm surface, set to just contact the surface.

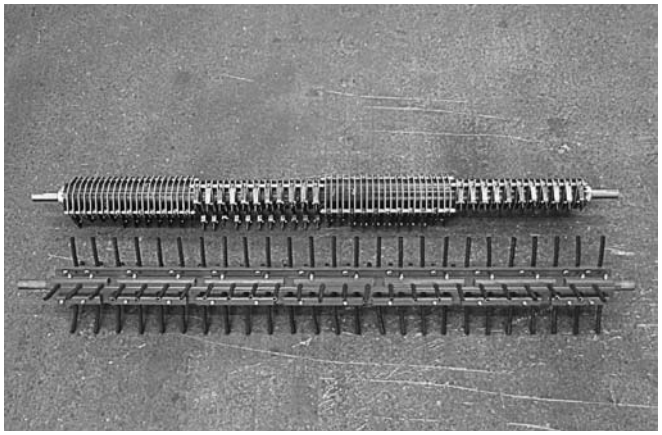


Fig. 18 ROTORS

5.6.3 ROLLERS

Two types of rollers are available to mount on the back of the pick-up; a smooth roller and a Slicer that is designed with knives around the circumference.

1. **Smooth:**
   The smooth roller is used to float over the grass and set the height of the head above the surface.

2. **Slicer:**
   The Slicer is designed to penetrate 1 3/4 in (44 mm) deep for the best results.

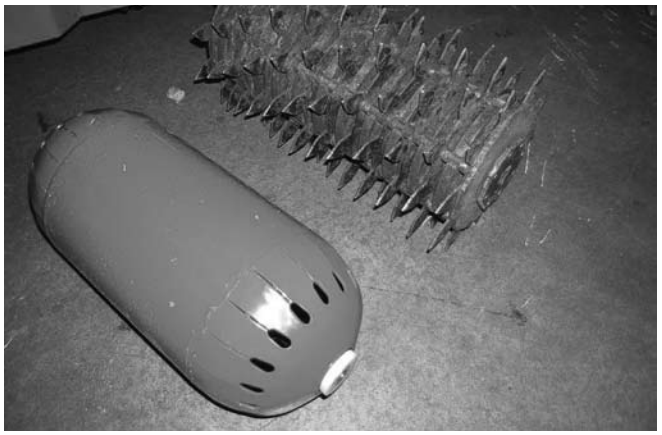


Fig. 19 ROLLERS

5.6.4 DUCT CONTROL

The machine is designed with a baffle in the duct to the chipper housing that controls/sets the direction of the flow of air into the blower. It must be set/moved when using the pick-up head or the hose to gather material.

To set the flue, follow this procedure:

1. Loosen the baffle anchor ball.

2. Move ball to desired position.

NOTE

In the upper position, material comes through the pick-up and down through the hose.

3. Tighten the baffle anchor ball.

Fig. 20 DUCT CONTROL

5.7 CONTROLS

Before starting to work, all operators should familiarize themselves with the location and function of the controls.

1. **Hydraulic Flow Control:**
   The pick-up head position is set by two hydraulic cylinders and controlled from the tractor. Its speed of movement can be set with the needle valves in each hydraulic line on the front of the frame. Turn the valves in to slow the rate and out to increase the speed of movement.

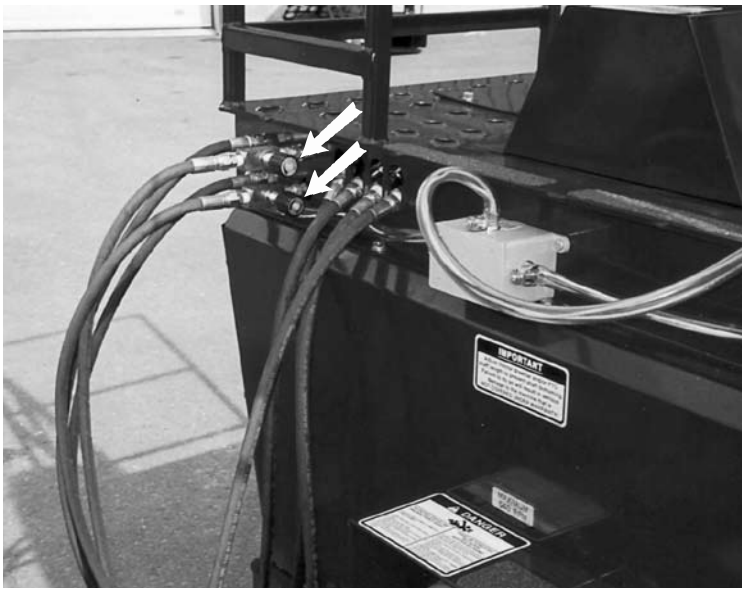


Fig. 21 FLOW CONTROL VALVES

2. **Shredder Duct Flue:**
   This baffle directs the flow of air in the intake duct to draw through the pick-up or hose. Move the knob up to draw the air through pick-up head and down to draw the air through the hose.

3. **Pick-up Height Roller:**
   Rollers in the front of the pick-up head set/control the height of the assembly during operation. Use the handle on top of the wheel frame to set its height. Set both sides to the same dimension.

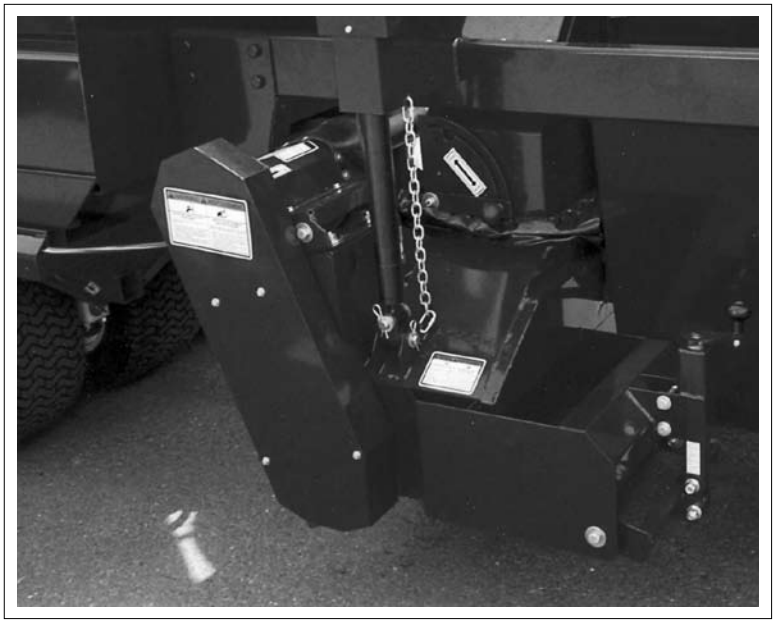


Fig. 22 RIGHT SIDE

5.8 ATTACHING/UNHOOKING

The Multi-Vac should always be located on a level, dry area that is free of debris and other foreign objects. When attaching the machine to a tractor, follow this procedure:

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

2. Make sure there is enough room and clearance to safely back up to the machine.

3. Attach the PTO driveline to the machine if it was removed for storage.

4. While backing up, align the hitch with the drawbar.

NOTE

The CV joint is always next to the tractor.

5. Be sure the drawbar dimension is set at 14 inches (358 mm) between the end of the tractor PTO shaft and the center of the drawbar pin.

   Refer to the tractor manual for adjustment procedures.

6. Stop tractor, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.

7. Use a drawbar pin with provisions for a mechanical retainer. Install the retainer.

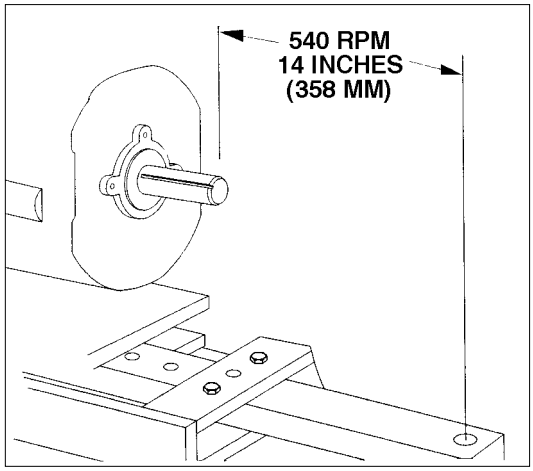


Fig. 23 DRAWBAR DIMENSION

Fig. 24 DRAWBAR PIN

8. **Attach the PTO Driveline:**

   a. Check that the driveline telescopes easily and that the shield rotates freely.

   b. Attach the driveline to the tractor by twisting the lock ring retracting the lock pin, slide the yoke over the shaft and push on the yoke until the lock pin clicks into position. Pull on the yoke to be sure it is locked in position.

   c. Attach PTO shaft guard anchor chain to the tractor frame to prevent the shield from turning.

IMPORTANT

Always attach both the CV joint and shaft tube anchor chains to the frame to secure the guards.

9. Check that there is sufficient clearance between the PTO driveline and the top of the drawbar pin to allow the shaft to move up and down when the unit goes over the crest of a hill.

Yoke

Anchor Chain - Front

Anchor Chain - Rear

Fig. 25 DRIVELINE

10. **Connect the hydraulic system:**

    a. Use a clean cloth or paper towel to clean the dirt and build-up from around the couplers and the male tips.

    b. Insert the male tips into the couplers. Make sure they are locked in place.

    c. Route the hoses along the pole and secure in place with clips, tape or plastic ties. Be sure they do not drop to the ground or get pinched when turning. Provide sufficient slack for turning.

Circuit 1

Circuit 2

Fig. 26 HYDRAULIC HOSES

11. Connect the wiring harness to the tractor. Be sure to secure to the hitch and provide sufficient slack when turning.

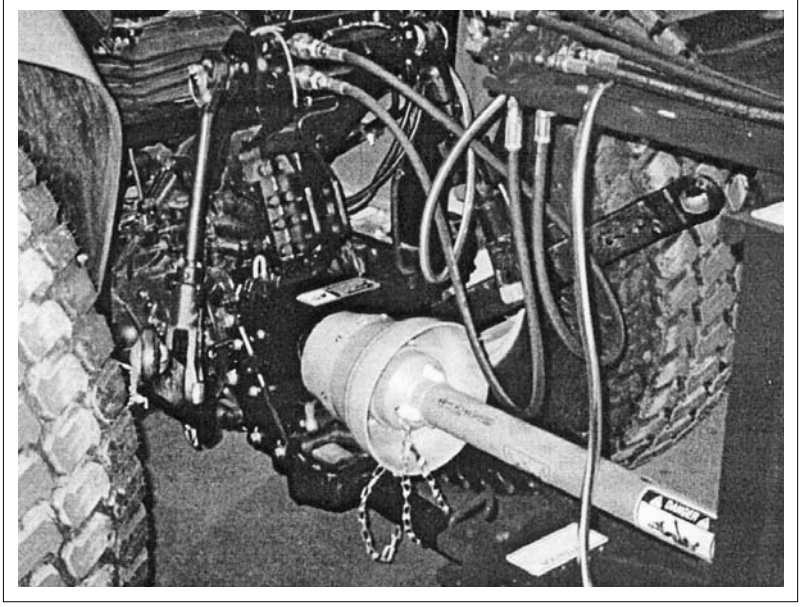
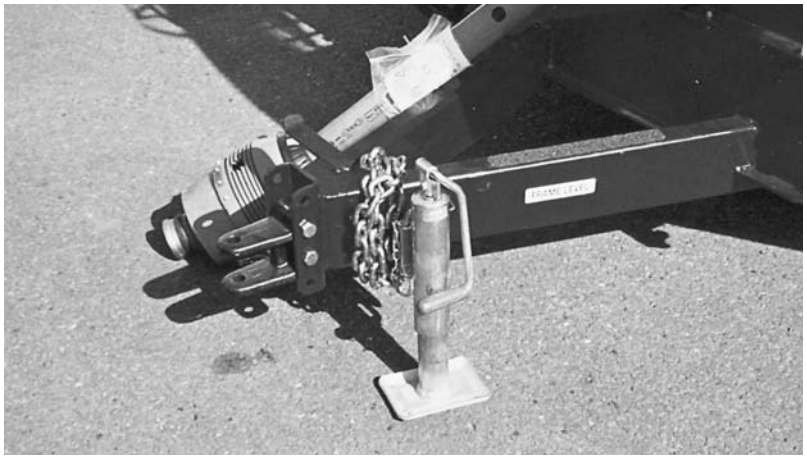
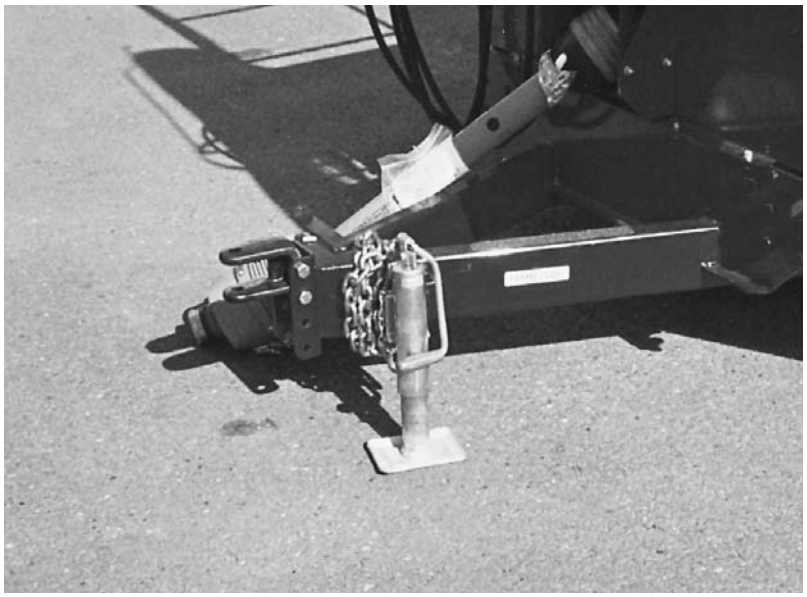


Fig. 27 WIRING HARNESS

12. Use a level on the side to level the frame. Move the hitch clevis to change frame angle. Tighten the mounting bolts to their specified torque if the clevis position is changed.



Mid



High

Fig. 28 CLEVIS POSITIONS

13. Attach the chain around the drawbar cage to prevent unexpected separation.

14. Pull anchor pin on jack and move to its storage position.

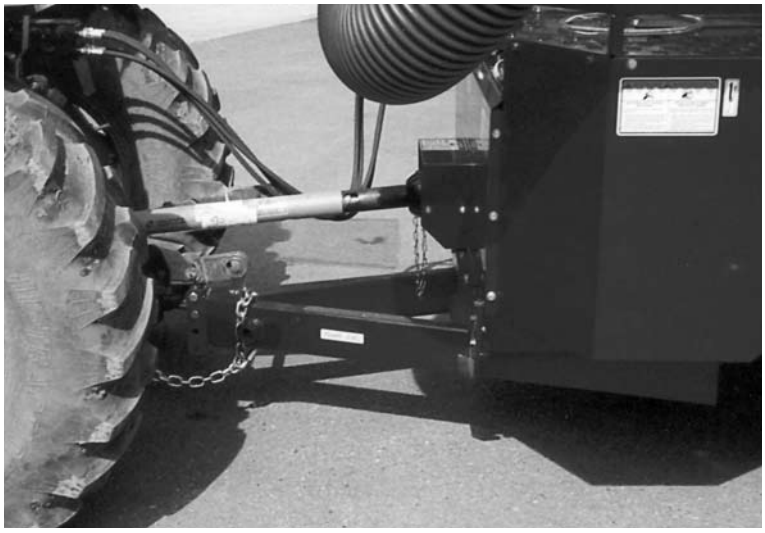


Fig. 29 SAFETY CHAIN/JACK

Fig. 30 LEVELED FRAME

15. Check that the frame is level. Move the clevis on the hitch if required.

16. Raise the 3 point hitch arms to their fully upright position to prevent interference when turning.

17. Reverse the above procedure when unhooking from tractor.

5.9 FIELD OPERATION

OPERATING SAFETY

- Please remember it is important that you read and heed the safety signs on the Multi-Vac. Clean or replace all safety signs if they cannot be clearly read and understood.
- If a safety shield or guard is removed for any reason, it must be replaced before the machine is again operated.
- Always use two people to handle heavy, unwieldy components during assembly, installation, removal or moving.
- Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Do not allow riders on the machine or tractor at any time. There is no safe place for any riders.
- Do not allow anyone who is not familiar with the safety rules and operation instructions to use this machine.
- Never allow children to operate or be around this machine.
- Do not reach into blower openings when the engine is running. Install and secure access covers before starting engine.
- Clear the work area of objects which might be picked up and snagged or entangled in the machine.
- Keep hands, feet, hair, jewellery, and clothing away from all moving and/or rotating parts.
- Do not stand behind machine when the discharge door is open and blower is running.
- Stay at least 15 m (50 feet) away from power lines when unloading. Electrocution can occur without direct contact.
- Do not go under lifted compartment unless support brackets are installed.
- Keep hands and feet away from pick-up head when engine is running. Keep others away.

Although the Multi-Vac is easy to use, each operator should review this section to familiarize himself with the detailed safety and operating procedures. When using the machine, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Review and follow the Pre-Operation Checklist (see Section 5.4).
3. Attach the machine to the tractor (see Section 5.8). Be sure the frame is level.
4. Raise the pick-up head to its fully up position.
5. Be sure the hose is attached to its anchor bracket if so equipped.
6. Transport to the working area (refer to Section 5:13).

Fig. 31 ANCHOR BRACKET

7. Be sure the pick-up head is set to a height appropriate for the application.

9. Use the duct baffle to select the operating mode: hose or pick-up head.

10. Start tractor engine.

11. Engage header lift cylinder to ensure header is fully down, cylinder is fully extended and assembly can float during operation.

12. Slowly engage PTO.

13. Increase engine speed to the rated PTO speed of 540 RPM.

14. Move forward to pick up debris or set park brake and use the hose.

16. **Travel Speed:**
Set the travel speed appropriate for the job being done. Travel faster if all the debris is being picked up. Slow down if some debris is not being picked up.

Fig. 32 DUCT BAFFLE

17. **Pick-Up Head Height:**

a. Use the adjustable front roller on the pick-up head to set the operating height.

NOTE

The pick-up assembly rides on the front and rear rollers.

b. Watch the scale on the mount to set the height.

IMPORTANT

When the pick-up head is lowered to the ground, continue to hold the hydraulic lever down to allow the cylinders to retract a little more so the head can "float" along the ground contours.

c. Always set the height of the rollers the same.

d. Set the height so the fingers just touch the debris and break it loose so it can be picked up.

Roller

Slicer

Fig. 33 PICK-UP HEAD

18. **Rear Rollers:**
Two types of rollers are available to mount on the back of the pick-up; a smooth roller and a Slicer that is designed with knives around the circumference.

a. **Smooth:**
The smooth roller is used to cut and penetrate the grass surface and act as an aerator.

b. **Slicer:**
The Slicer is designed to penetrate 1 3/4 in (44 mm) deep for the best results.

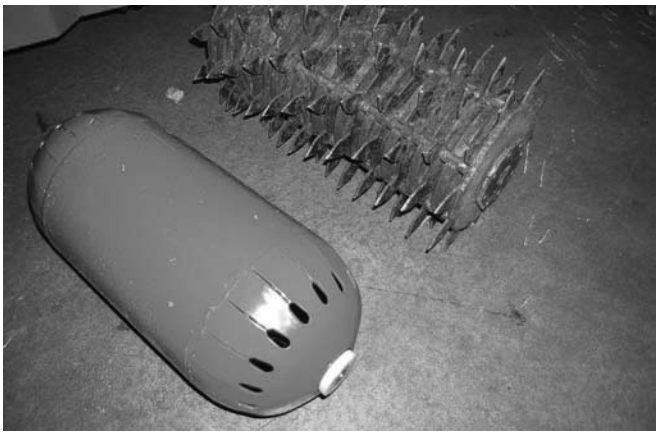


Fig. 34 ROLLERS

19. **Rotor:**
The rotor is designed with plastic or metal swinging flails that dislodge and loosen the debris and allow it to be picked up on the air stream. Two types are available:

a. **Verti-Thatch:**
This rotor is equipped with swinging knives and is used to remove the old growth thatch from a grass surface. The best results are obtained when the knife tips are set to go into the ground 3/4 to 1 inch (18 - 25 mm). A travel speed of 2.5 to 3.0 mph (4-5 kph) provides the best reults.

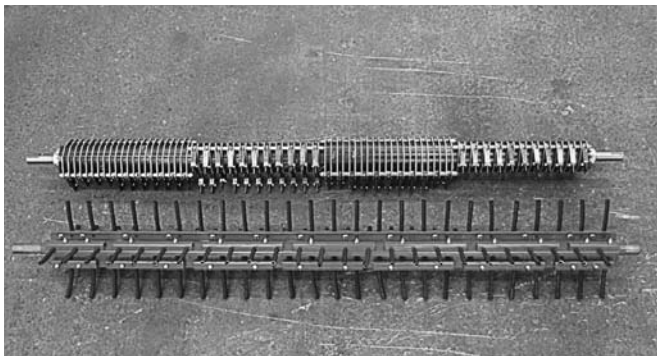
b. **Flail Brush:**
Rubber Finger Brush:
This rotor is equipped with rubber fingers and is used to disturb the top of the grass surface. It is used to break loose the material on the surface so it can be picked up on the air stream.

20. **Rotor Tip Height:**

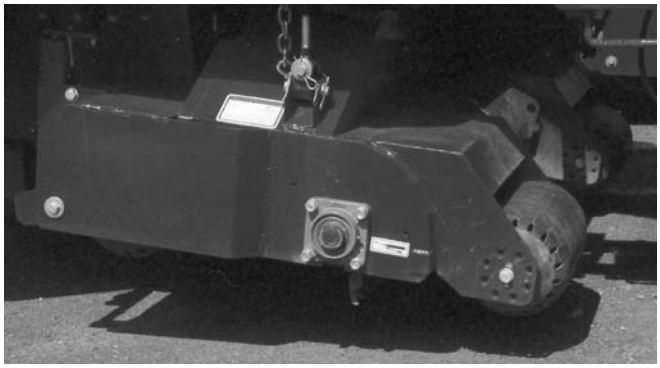
a. **Flail Brush:**
The tip of the rotor should be set to just touch and loosen any debris to pick it up. Look from the side to see the tip height.

- On short, firm surface, set to just contact the surface.
- On a surface with long, course grass, set 1 inch (25 mm) above the surface.

b. **Verti-Thatch:**
- Set the tip to penetrate the surface 3/4 inch (18mm) to remove all the surface thatch.



Leaf and Debris



Height

Fig. 35 ROTOR

NOTE

Do not set flails too deep. If they are set too deep, the flails will swing back and become ineffective.

21. **Shredder:**
The intake housing is designed with a shredder to cut up any material being picked up. It provides a method to reduce the size of the material coming into the compartment so more can be loaded before unloading. Keep rotating blade in good condition for the best results.

WARNING

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

Fig. 35 SHREDDER

22. **Hose:**
Set the engine to run at rated PTO RPM.

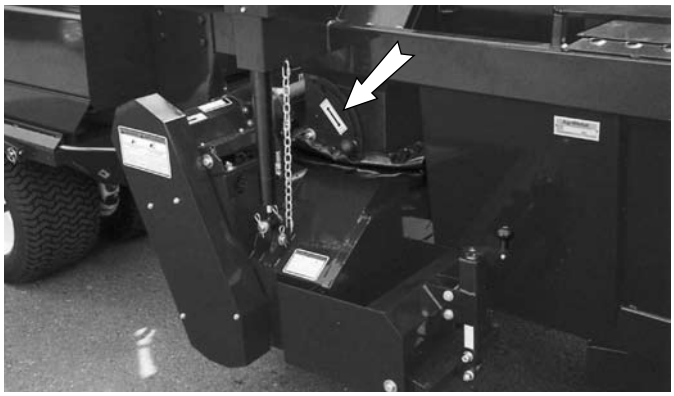
a. Always set the park brake before using the hose.

b. Select the hose setting for the duct baffle.

c. Remove the hose from its storage position.

d. Use the handles to direct the hose as required.

e. Stow the hose when work is done.



Baffle

Stowed

Using

Fig. 36 HOSE

23. **Slopes:**
The machine can have a high center of gravity that can lead to tipping on slopes or hills. It is recommended that the machine always be operated up or down slopes rather than across. On steep slopes with a machine that is almost full, it is recommended that additional loading be done when driving down the hill. Do not risk getting stuck or tipping over.

24. **Turning:**
The machine is designed with a constant velocity (CV) universal joint in the driveline. The CV joint allows turns of up to 45° during operation. Sharper turns will overload the joint and destroy the driveline. Do not turn sharper than 45°.

IMPORTANT

This machine is equipped with a constant velocity PTO shaft which allows turns of up to 45° with the PTO engaged. Sharper turns will destroy the PTO shaft.

Cette machine est équipée d'une prise de force munie d'un joint double qui permet des virages jusqu'å un angle de 45°. Un braquage plus prononcé que 45° lorsque celle ci est engagée endonmmagera la prise de force.

25. **Unplugging:**
Follow this procedure when unplugging.

a. Stop engine, set park brake, remove ignition key and wait for all moving parts to stop moving.

b. Remove access doors and clean out ducts.

c. Install and secure access doors.

d. Raise the compartment and clean out blower.

e. Lower compartment to its fully down position.

DANGER

BLOWER BLADE HAZARD

To prevent serious injury or death from blower blade hazard:

1. **Do not open blower access doors when the engine is running.**
2. **Stop engine, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging machine.**
3. **Do not operate with access doors removed.**

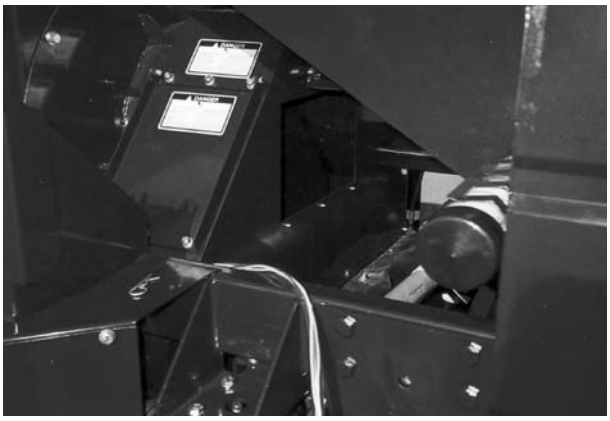
DANGER

PROPULSEUR EN ROTATION RISQUE DE BLESSURE GRAVE

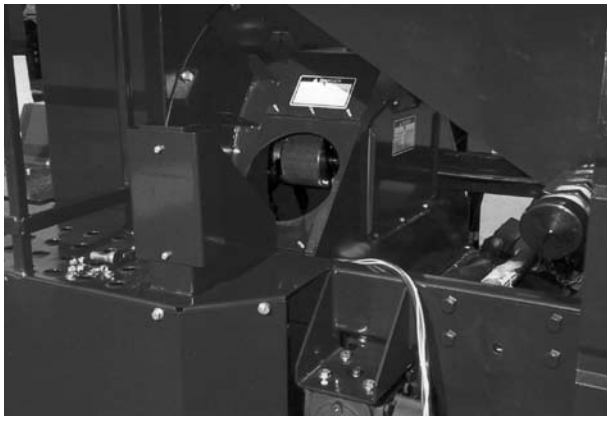
À défaut de suivre ces instructions, cela pourrait entraîner de sérieuses blessures ou même la mort.

1. **Ne jamais ouvrir les portes d'accès du souffleur lorsque le moteur est en marche.**
2. **Arrêter le moteur, placer tous les contrôles à la position "neutre", enlever la clé du contact et attendre que toutes les places soient au point mort avant de faire tout ajustement, réparation ou de débloquer la machine.**
3. **Ne jamais opérer sans portes d'accès.**

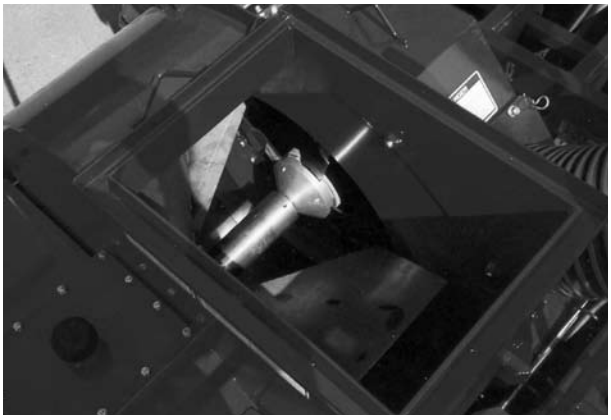
Right Side



Pick-Up Housing



Shredder



Blower

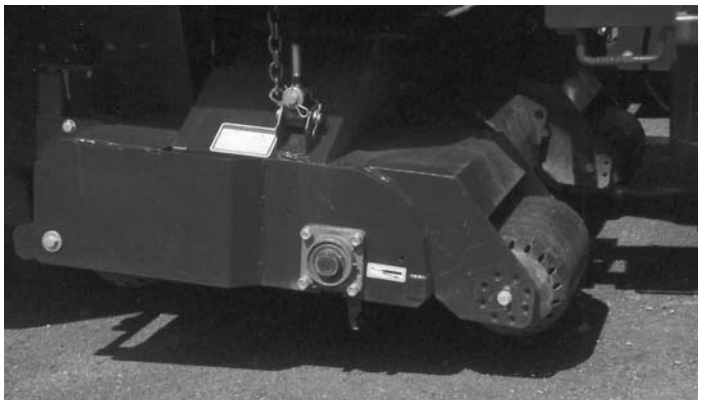
Fig. 37 UNPLUGGING

26. **Filled:**
The operator will know when the compartment is full. The sound of the machine will change and it will not pick up more debris. Take to the unloading area. Watch the window on the right front corner of the material compartment. As the compartment fills, the window will be covered.

Fig. 38 WINDOW

27. **Operating Hints:**
a. Use the front roller position to set the height of the rotor fingers above the ground. Adjustment will be required as the fingers wear during use. Be sure to set both rollers to the same height.

Front Roller



Height

Fig. 39 FINGER HEIGHT

b. Keep the shredder rotor and stationary blades in good condition to obtain the best results.

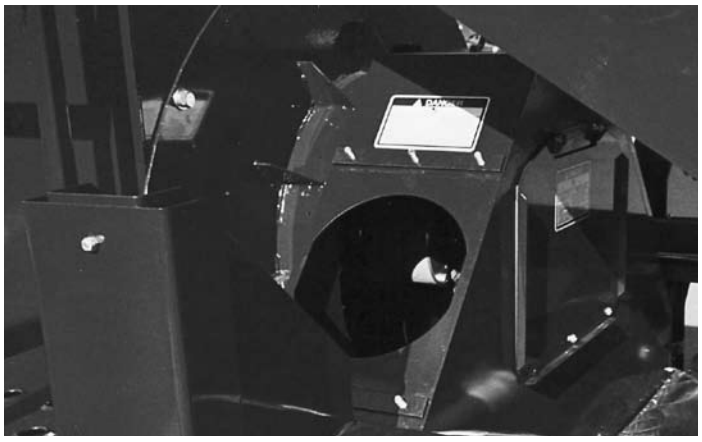


Fig. 40 SHREDDER

c. **Hose:**
Set the baffle to direct the air flow through the hose when picking up material from corners.

Baffle

Operation

Fig. 41 HOSE

d. Use the window on the right front corner of the debris compartment container to monitor how the box is filling. Empty when it is full.

Fig. 42 WINDOW

e. Always install the cylinder lock support bracket before going under the compartment. Keep others away.

Fig. 43 CYLINDER LOCK BRACKET

f. When using the Verti-Thatch rotor, set the rotor knife tip ends 3/4 inch (18 mm) below grass surface to remove all the thatch from the surface.

g. When using the Flail Brush, set the tip height to dislodge the material from the surface so it can be picked up by the air flow.

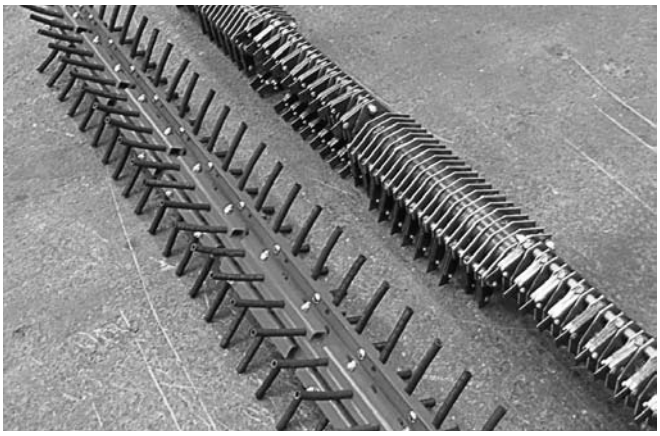


Fig. 44 ROTORS

h. Use the optional Slicer roller on the back of the pick-up to cut the surface of the grass and combine a debris collector operation with an aeration operation. The Slicer knife tips should penetrate the surface 1 3/4 inch (44 mm) for the best results.

NOTE

Do not turn with pick-up on the ground when using the slicer.

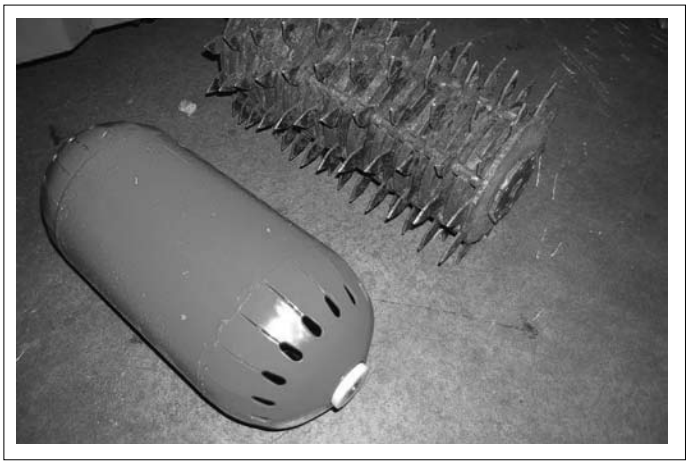


Fig. 45 ROLLERS

28. The back rollers can be equipped with slicers to cut the surface while moving over the surface.
    Always raise the head off the ground when turning at the end of the pass to prevent the slicer blades from staying in the ground. If they stay in the ground, the resulting high side-load can overload the frame and damage it.

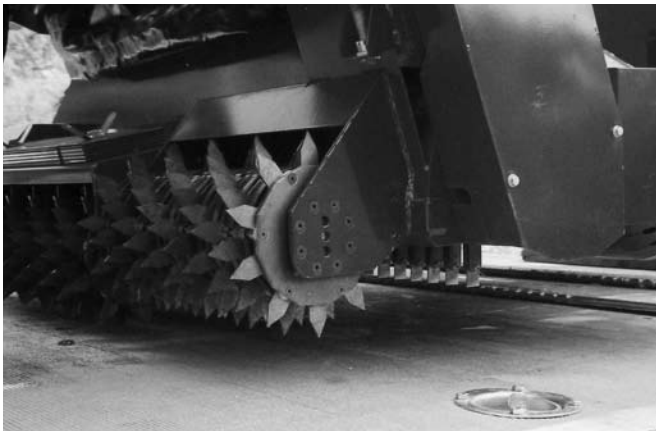


Fig. 46 SLICER

5.10 UNLOADING

The operator will know when the compartment is full from the change in the sound of the blower. the fact that the machine will stop picking up material and the compartment window will be covered.

Follow this procedure when unloading the compartment:

a. Slow the engine speed to 1/4 throttle.

b. Disengage the PTO.

c. Raise the pick-up head to its fully up position.

d. Transport to the unloading area.

e. Stop the tractor forward motion and set the park brake.

f. Set engine speed at mid-range.

g. Raise the compartment fully up.

NOTE

The rear door will open as the compartment goes up.

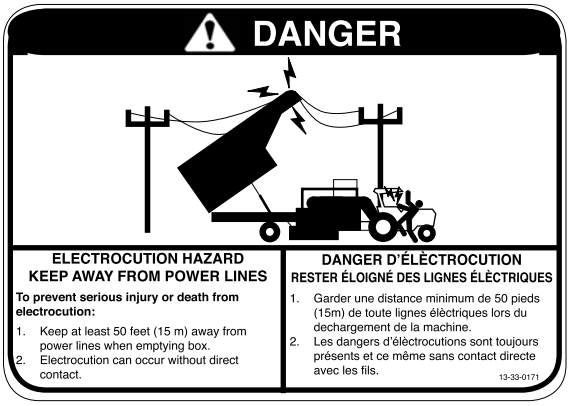
h. Monitor debris discharge and always move forward at least 15 feet (5 m) to provide space for the debris to slide out of the compartment and for the rear gate to close.

NOTE

The gate control arms will be damaged if the unloaded debris contacts the rear door when closing.

i. Lower compartment to its fully down position when empty.

j. Return to work area and resume work.



Filled

Raising

Lifting

Raised

Fig. 47 UNLOADING

5.11 TRANSPORTING

TRANSPORT SAFETY

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Plan your route to avoid heavy traffic.
- Always use a tractor of more than 40 horsepower to transport machine.
- Always install transport locks, pins or brackets before transporting.
- Use a drawbar pin with provisions for a retainer. Install the retainer.
- Do not drink and drive.
- Attach safety chain between tractor and machine before transporting.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
- Turn into curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces.
- Never allow riders on either tractor or machine.
- Install lighting bar before transporting.

When transporting the machine, review and follow these instructions:

1. Clear the area of bystanders, especially small children.
2. Be sure that the towing unit has sufficient size and mass to control the Multi-Vac during transport. Always use a turf tractor of more than 40 horsepower when transporting.
3. Insure that the machine is securely attached to the tractor with a mechanical retainer through the drawbar pin. Always use a safety chain between the tractor and machine.
4. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic. Install the optional lighting bar before transporting on a public road.
5. Install dual wheel locks if moving on a trailer to secure pivot.

Left

Right

Fig. 48 DUAL WHEEL LOCKS

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

7. Raise the pick-up head.

Fig. 49 HEAD RAISED

8. Secure the hose support arm under its frame latch before transporting if equipped with the optional pick-up hose.

9. Secure the flexible hose handle on the flexible hose storage bracket.

10. Do not allow riders.

11. Never exceed a safe travel speed. Never travel faster than 20 mph (32 km/h). The ratio of the tractor weight to the loaded machine weight plays an important role in defining acceptable travel speed. The following table summarized the weight ratio to travel speed.

12. Always shift to a lower gear when going down hill to use the engine as a restraining force.

13. Apply the brakes carefully to prevent jackknifing.

14. Never disengage tractor drive train and coast down hills. Always keep tractor in gear.

Fig. 50 PICK-UP HOSE BRACKET

Table 1 Travel Speed vs. Weight Ratio

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

5.12 STORAGE

STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame 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 beginning of the next season.

Fig. 51 STORED

Follow this procedure:

1. Open drain trap on the bottom of blower to allow water and clippings to drain out during the washing.
2. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud, debris or residue.
3. Make sure all the water drains out of the compartment. Open the trap door on the bottom of the blower and shredder compartments to drain the water from washing.
4. Close and secure drain trap on the bottom of the blower.
5. Lubricate all grease points to remove any water residue from washing.
6. Remove any material that has become entangled around any moving part.
7. Run the machine for a couple of minutes at low RPM to dry the inside of the blower. Direct the intake air to flow through the pick-up head and hose (if so equipped) to dry them also.
8. Touch up all paint nicks and scratches to prevent rusting.
9. Move the machine to its storage area.
10. Store in a dry, level spot.
11. Store in an enclosed building if possible. If space is not available, cover with a waterproof tarpaulin and tie down securely.
12. Unhook from the tractor (see Section 5.8).
13. Place planks under the jack for added support if required.
14. Store in an area away from human activity.
15. Do not allow children to play around the stored unit.

6 SERVICE AND MAINTENANCE

MAINTENANCE SAFETY

- Review the Operator's Manual and all safety items before working with, maintaining or operating the machine.
- Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- 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.
- Before applying pressure to a hydraulic system, make sure all components are tight and that hoses and couplings are in good condition.
- Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
- Keep hands, feet, hair and clothing away from moving and/or rotating parts.
- Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.
- Place stands or blocks under the frame before working beneath the machine.
- Before resuming work, install and secure all guards when maintenance work is completed.
- Do not enter compartment unless lock pin is installed through frame.
- Keep safety signs clean. Replace any sign that is damaged or not clearly visible.

6.1 SERVICE

6.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
   Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.

2. **Drive Box Oil:**
   Use an SAE 85W90 multi-viscosity oil meeting the American Petroleum Institute (API) classification of SF, SG, SH or SJ for normal operating temperatures.

   Gear Box Capacity: As specified on gear box.

3. **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.

6.1.2 GREASING

Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

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.

6.1.3 SERVICING INTERVALS

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

8 Hours or Daily

1. Grease PTO driveline (4 locations).

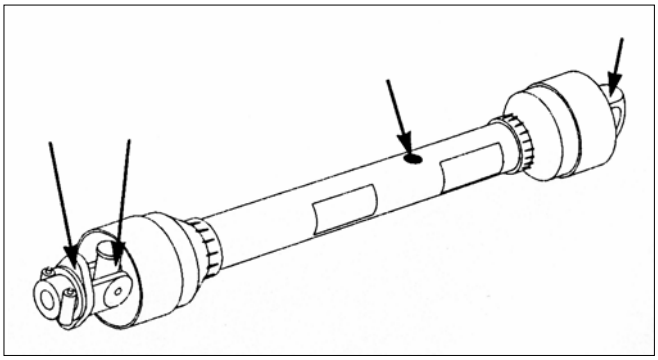
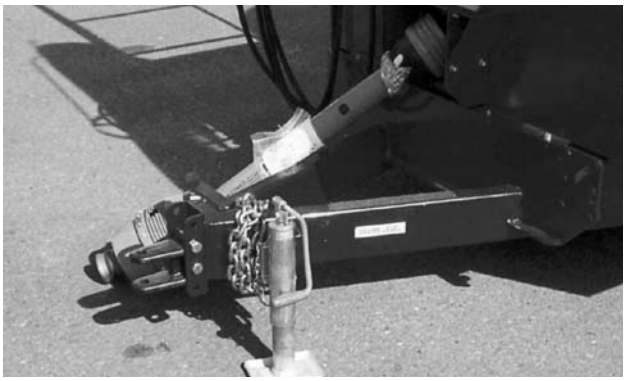
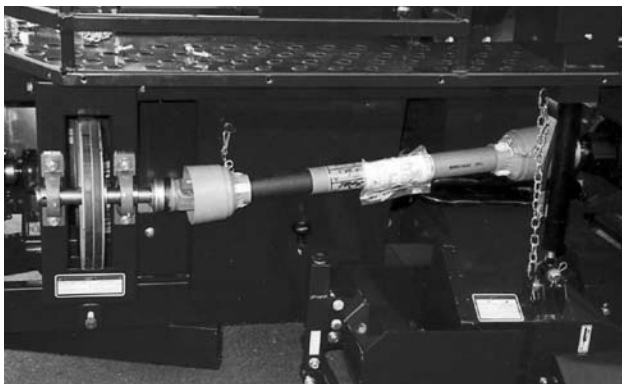


Fig. 52 PTO DRIVELINE

2. Grease each PTO driveline (3 drivelines)



Input



Longitudinal

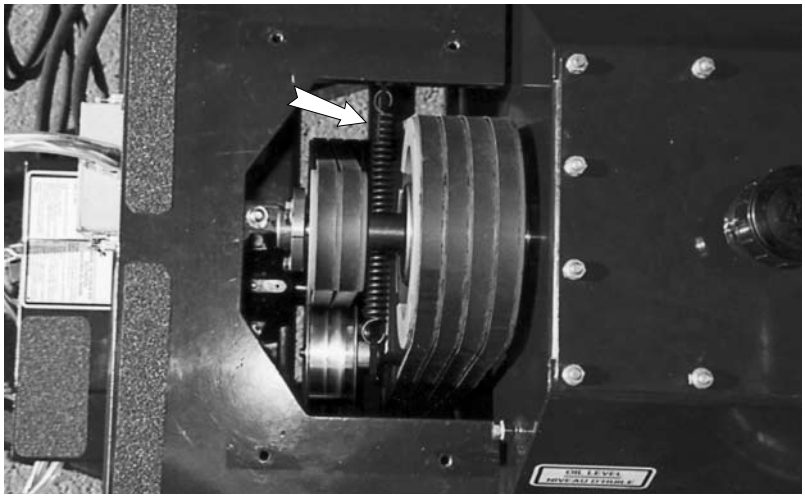
Transverse

Fig. 53 PTO DRIVELINES

40 Hours or Monthly

1. Check shredder drive belt tension.

Drives



Tension Spring

Fig. 54 SHREDDER DRIVE BELT

WARNING

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

2. Check blower belt tension. Be sure compression spring length is 7 1/2 inches (188 mm).

3. Check pick-up head drive belt tension. It should be 4 1/2 inch (112 mm).

Fig. 55 BLOWER DRIVE BELT SPRING

4. Check pick-up head final drive belt tension. The compression spring should be 4 1/2 inches (112 mm).

WARNING

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

Belt

Spring

Fig. 56 PICK-UP HEAD BELT TENSION

5. Grease input shaft bearings.

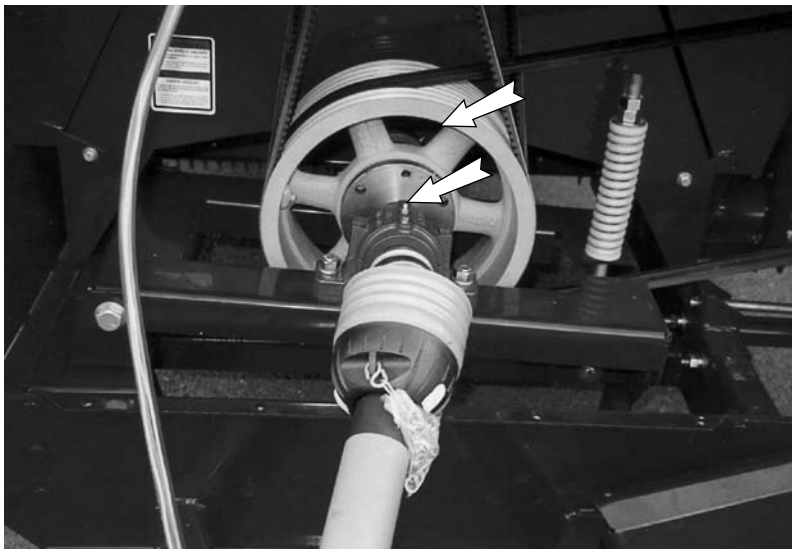


Fig. 57 PICK-UP HEAD BELT TENSION

40 Hours or Monthly

6. Grease side shaft bearings.

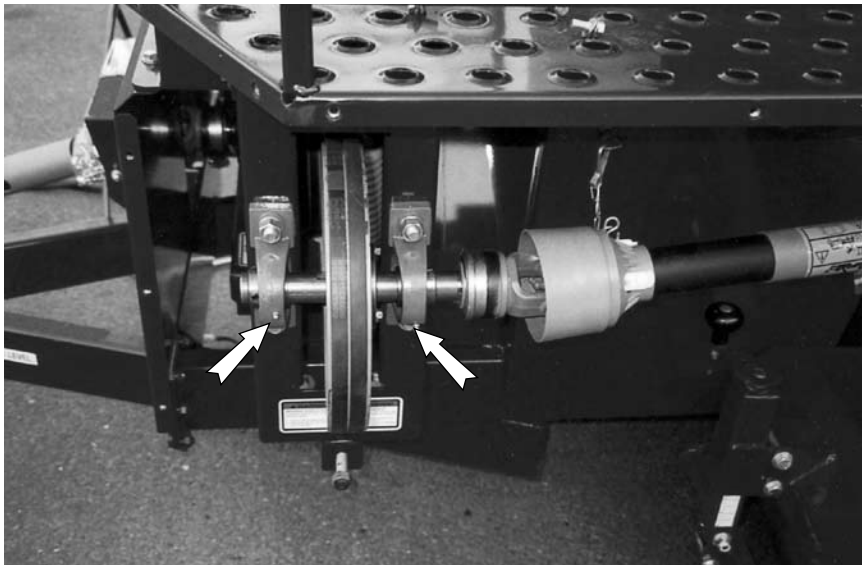


Fig. 58 SIDE SHAFT BEARINGS

7. Grease pick-up drive bearings.

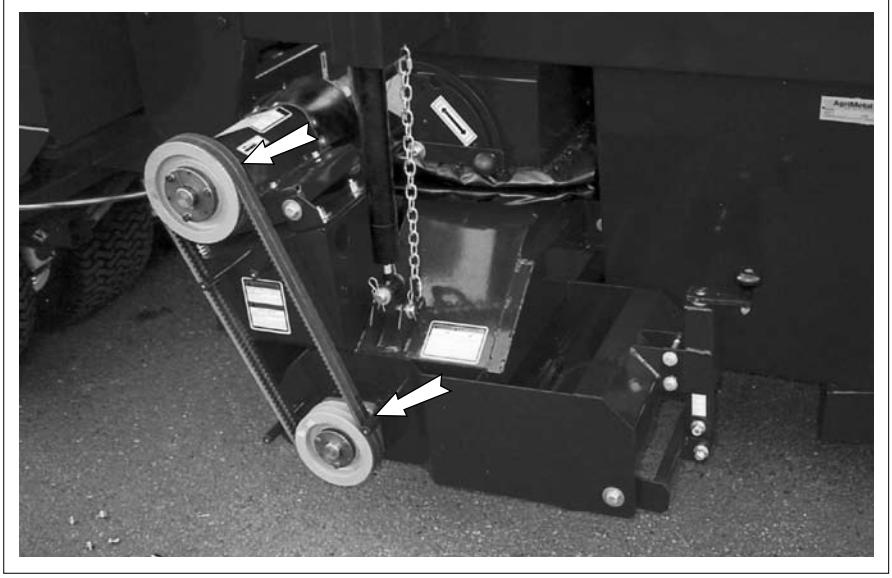


Fig. 59 PICK-UP DRIVE BEARINGS

8. Grease debris compartment unload pivots:

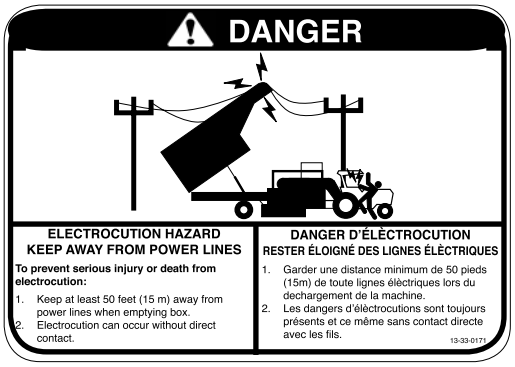
WARNING

Engage compartment support bracket before going under box to grease pivots.

AVERTISSEMENT

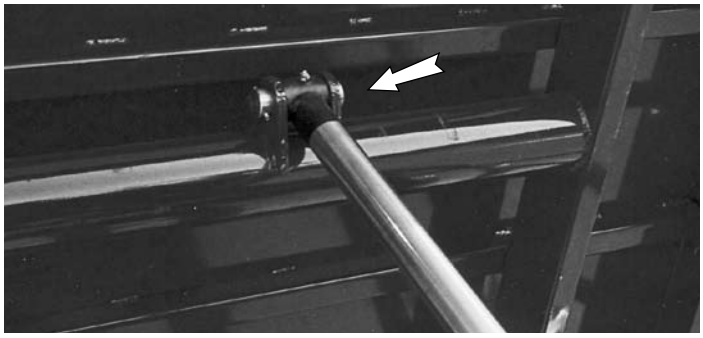
Façon que le soutien du compartiment tranche avant d'aller sous la case à pivots de la graisse.

a. Cylinder pivots.

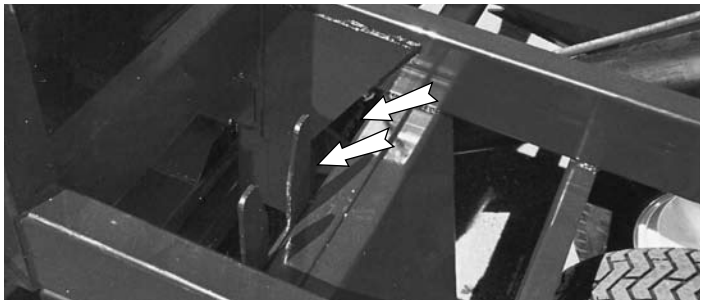


b. Bottom shaft.

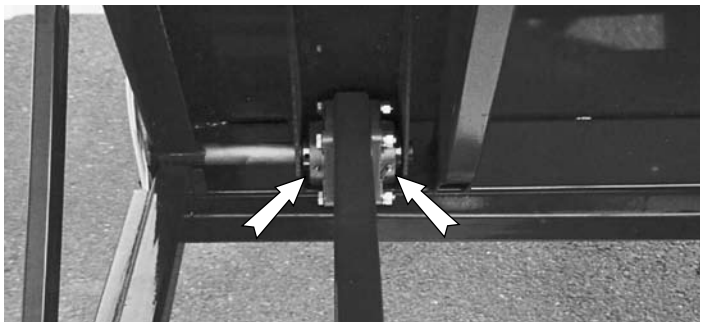
Frame Lock Bracket



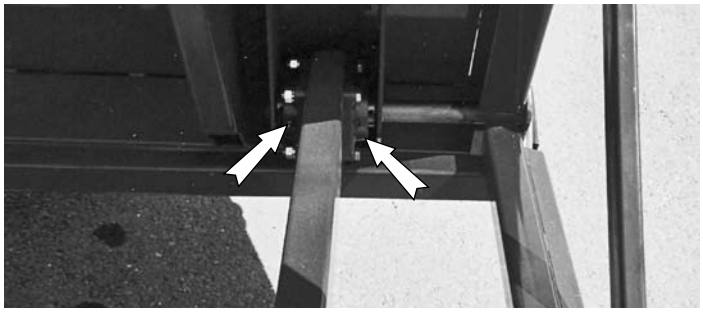
Cylinder - Top



Cylinder - Bottom



Bottom Shaft - Right



Bottom Shaft - Left

Fig. 60 COMPARTMENT UNLOAD PIVOTS

40 Hours or Monthly

9. Grease pillow block bearing on shaft.

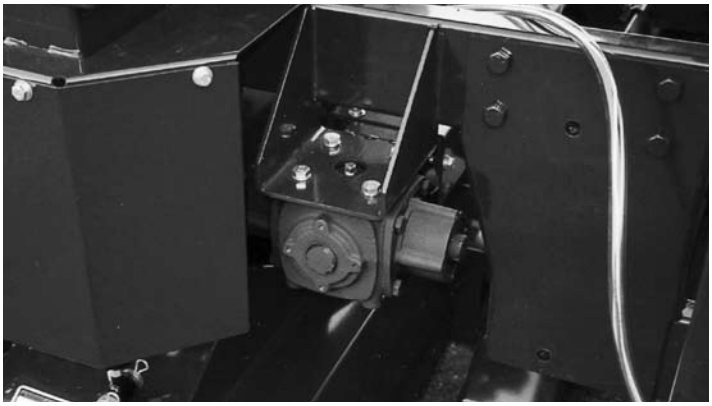


Fig. 61 GEARBOX

200 Hours or Annually

1. Grease dual wheel pivot (both sides).

Left

Right

Fig. 62 DUAL WHEEL PIVOT

200 Hours or Annually

2. Change drive box oil.

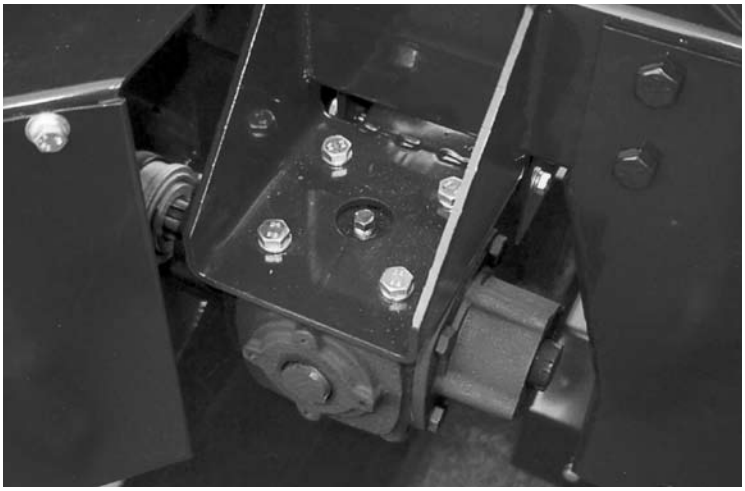


Fig. 63 DRIVE BOX

3. Clean machine.

Fig. 64 MACHINE

6.1.4 SERVICE RECORD

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

ACTION CODE: CK CHECK CL CLEAN
G GREASE CH CHANGE

MAINTENANCE / HOURS / SERVICED BY																						
8 Hours or Daily																						
G PTO Driveline (4)																						
G PTO Driveline (1)																						
40 Hours or Monthly																						
CK Blower Belt Drive Tension																						
CK Input Drive Belt Tension																						
CK Pick-Up Head Drive Belt Tension																						
G Input Shaft Bearings																						
G Side Shaft Bearings																						
G Pick-Up Drive Bearings																						
G Debris Compartment Pivots																						
CK Oil Level in Drive Box																						
200 Hours or Annually																						
CH Drive Box Oil																						
G Dual Wheel Pivot																						
CL Machine																						

6.2 MAINTENANCE

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

6.2.1 BLOWER AND SHREDDER DRIVE BELT TENSION AND ALIGNMENT

A set of V belts transmits rotational power to the blower and shredder. They must be kept properly tensioned and the pulleys aligned to obtain the expected performance and life.

To check the tension and alignment, 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 the compression spring on the input shaft mounting plate.

3. Remove guard on the front of the frame.

4. Measure the length of the blower belt compression spring. It should be 7 1/2 inches (188 mm) for the belt to be properly tensioned.

5. Replace spring or belt as required on the shredder drive system if belt slips.

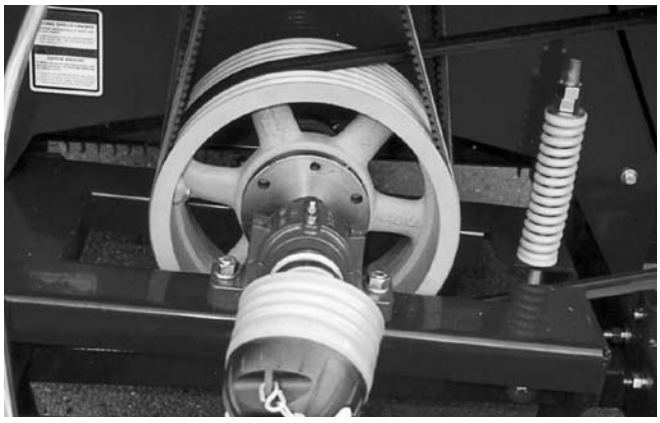
6. Release tensioner and replace belt when required.

7. Lay a straight edge across the pulley faces to check the alignment. Adjust alignment if pulley faces vary more than 1/32 inch (.7 mm).

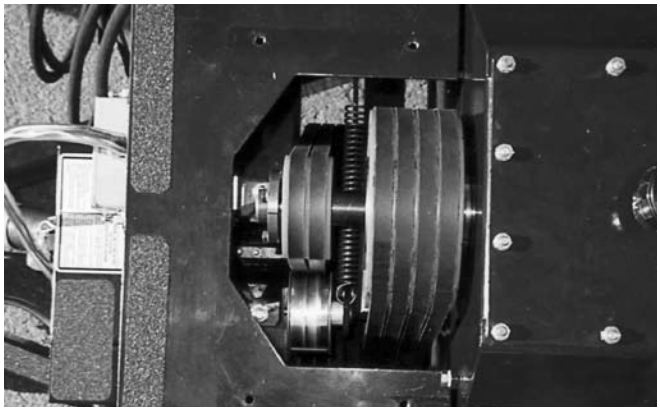
8. Install and secure guards before resuming work.

WARNING

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



Blower Belt Compression Spring



Shredder Belt Tension Spring

Fig. 65 TENSION SPRING

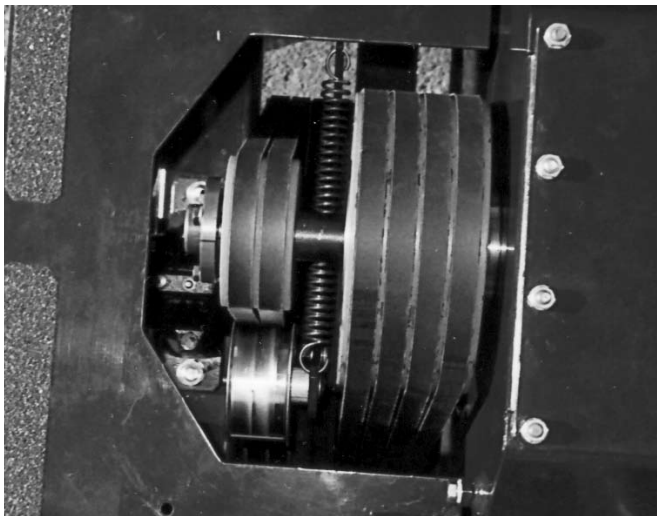


Fig. 66 PULLEY ALIGNMENT

6.2.2 INPUT DRIVE BELT TENSION AND PULLEY ALIGNMENT

A set of V belts transmits rotational power from the input shaft to the side longitudinal shaft. They must be kept properly tensioned and the pulleys aligned to obtain the expected performance and life.

To check the tension and alignment, 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 the guard from the front and side of the frame.

4. Check the length of the compression spring on the pulley mounting plate. It should be 7 1/2 inches (188 mm) for the belt to be properly tensioned.

5. Loosen the compression spring bolt, remove old belt and replace with new belt. Re-tighten compression spring bolt.

6. Lay a straight edge across the pulley faces to check the alignment. Adjust alignment if pulley faces vary more than 1/32 inch (.7 mm).

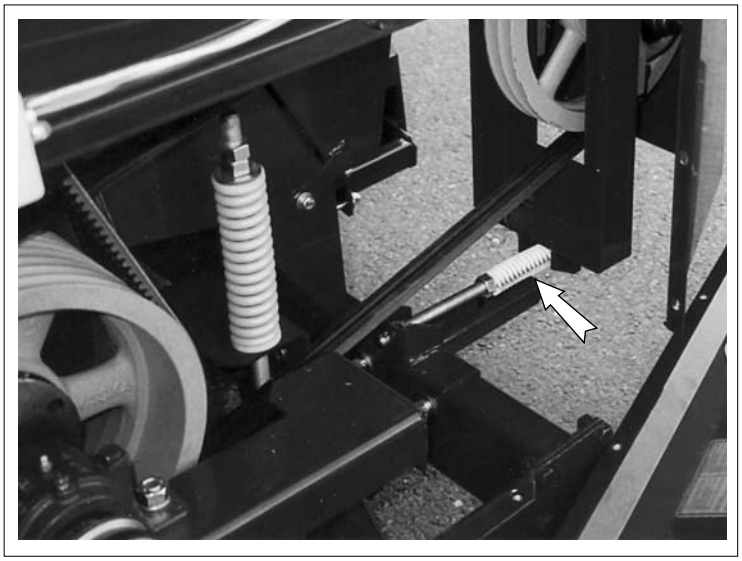


Fig. 67 COMPRESSION SPRING

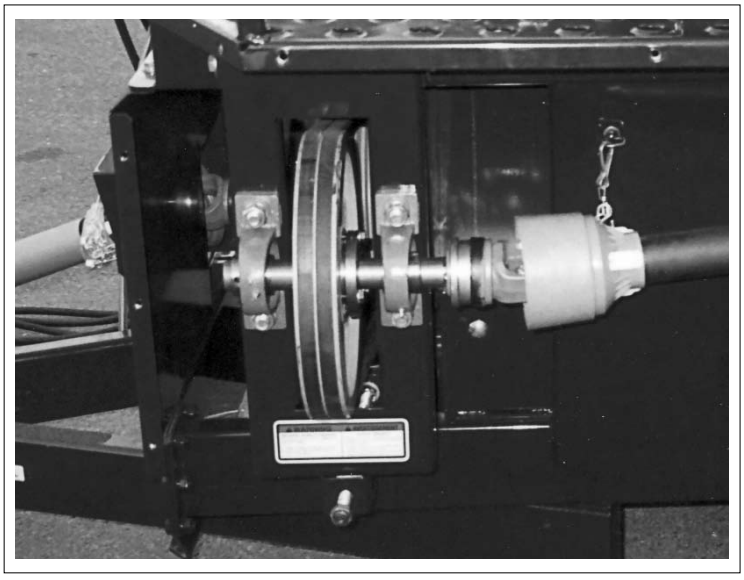


Fig. 68 ALIGNMENT

WARNING

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

6.2.3 PICK-UP DRIVE BELT TENSION AND ALIGNMENT

A set of V belts transmits rotational power from the transverse driveline to the pick-up drive belt. They must be kept properly tensioned and the pulleys aligned to obtain the expected performance and life.

To check the tension and alignment, follow this procedure:

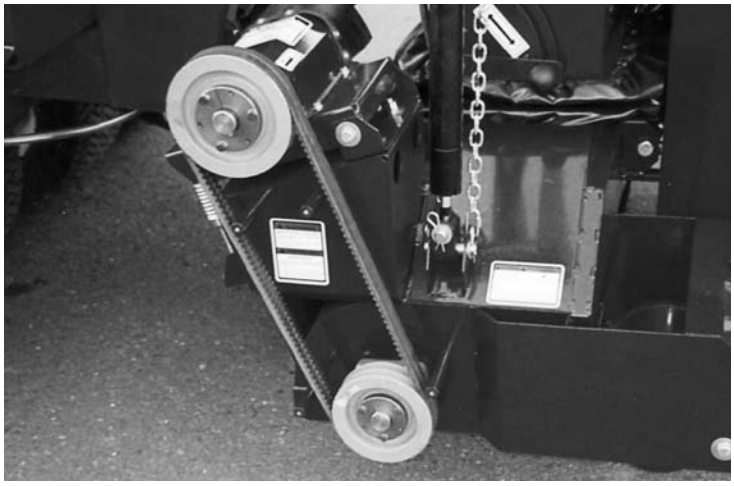
1. Clear the area of bystanders, especially small children.

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 the guard from the belt drive system.

4. Measure the length of the compression spring on the top shaft mounting plate. It should be 4 1/2 inches (112 mm) for the belt to be properly tensioned..

4. Open guard, release compression spring and replace belt.



Belt

Compression Spring

Fig. 69 PICK-UP DRIVE ASSEMBLY

5. Lay a straight edge across the pulley faces to check the alignment. Adjust alignment if pulley faces vary more than 1/32 inch (.7 mm).

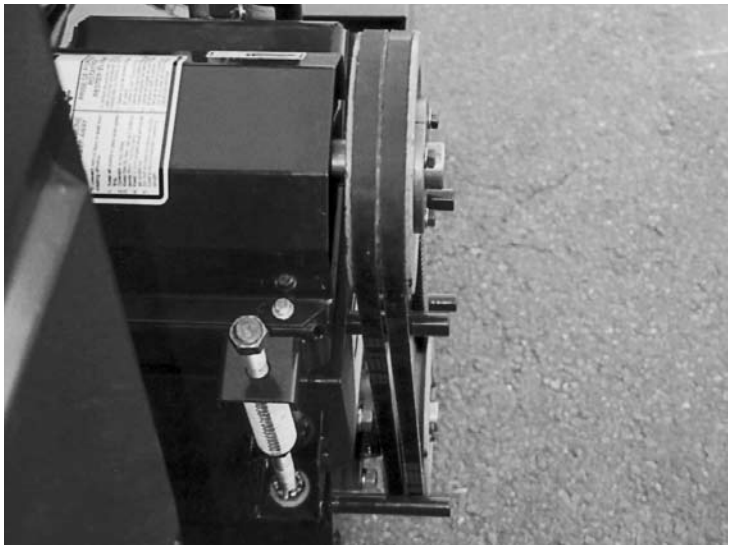


Fig. 70 ALIGNMENT

WARNING

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

6.2.4 ROTORS/FLAILS

The pick-up is designed with a rotor that is equipped with swinging plastic flails to loosen and dislodge material on the ground. The flails must be kept in good condition to obtain the best performance. Sand, soil and other abrasive materials can wear away the ends of the flails and compromise their performance. Move the assembly lower to compensate for wear or replace the flails/rotor.

To set the height of the flails above the ground, 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. Use the cranks on the front roller of the pick-up to set the height of the flails above the ground. Set each side the same.

4. Lower the pick-up as the flails wear to maintain optimum performance.

5. To replace flails:

    a. Disassemble drive end.

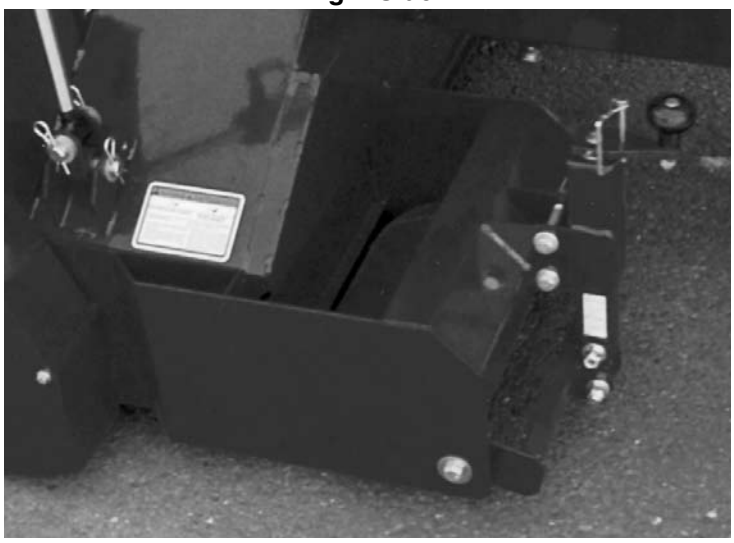
    b. Remove rotor.

    c. Have your dealer replace flails.

    d. Install rotor in pick-up.

    e. Install drives and guard.

Right Side



Left Side

Fig. 71 FINGERS

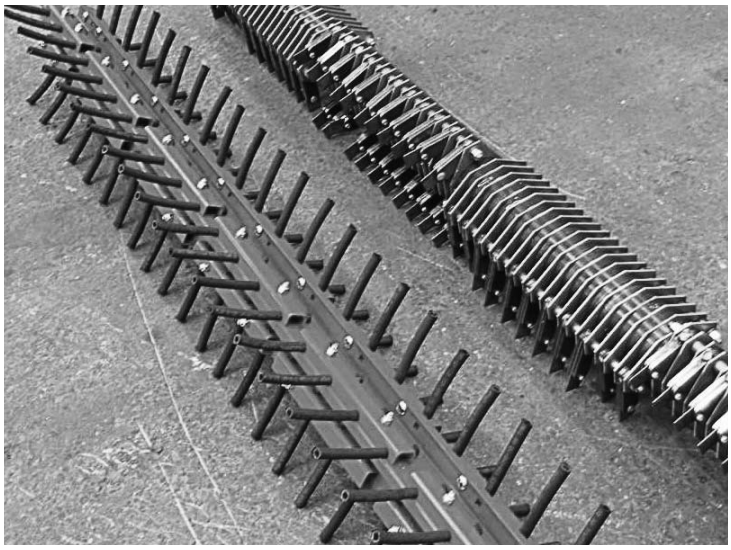


Fig. 72 ROTORS

7 TROUBLE SHOOTING

The AgriMetal Multi-Vac Debris Vacuum is a large portable compartment with a rotor for picking up trash and debris. It is a simple system that requires minimal maintenance.

In the following Trouble Shooting section, we have listed many of the problems, causes and solutions that can help you to solve the problems that you might encounter.

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

PROBLEM	CAUSE	SOLUTION
No trash is being picked up.	No suction.	Use baffle to direct air flow to pick-up or hose as directed.
	Compartment full.	Empty machine.
	No suction to hose.	Move baffle to hose intake duct.
	Pick-Up head to high.	Lower pick-up head.
Machine vibrates.	Blower out of balance.	Stop machine. Inspect impeller. Repair or replace as required.
	Blower worn out.	Replace the impeller.
Shredder doesn't turn.	Tensioning spring broken.	Replace tensioning spring.
	Drive belt slipping.	Slow down forward speed to reduce intake volume and load on shredder.
Pick-up head vibrates.	Material wrapping around rotor.	Remove material from rotor.
	Rotor set too low.	Raise rotor and try again. Raise more if required.

8 SPECIFICATIONS

8.1 MECHANICAL

Specifications			
	MULTI-VAC 772	**MULTI-VAC 1096**	**MULTI-VAC 10120**
Pick-up head width	72 INCHES (180 em)	96 INCHES (240 em)	120 INCHES (300 em)
Hydraulic lift pick-up head	STANDARD	STANDARD	STANDARD
Pick-up head double adjustable roller	STANDARD	STANDARD	STANDARD
Rear floating roller	STANDARD	STANDARD	STANDARD
Flail rubber finger brush	AVAILABLE 72 INCHES WIDE	AVAILABLE 96 INCHES WIDE	AVAILABLE 120 INCHES WIDE
Verti-thatch brush	AVAILABLE 72 INCHES WIDE	AVAILABLE 96 INCHES WIDE	N/A
Optional slicer kit	72 INCHES WIDE	96 INCHES WIDE	N/A
Mechanical brush drive	STANDARD	STANDARD	STANDARD
Impeller size	323/4" X 123/8" (82 X 31 CM)	383/4" X 123/8" (96 X 31 CM)	383/4" X 12 3/8" (96 X 31 CM)
No. of impeller blades	4 (1/4" THICK - 6.35MM)	4 (1/4" THICK - 6.35MM)	4 (1/4" THICK - 6.35MM)
Impeller rotation speed	1190 RPM	1050 RPM	1050 RPM
Bottom drain trap on blower housing	STANDARD	STANDARD	STANDARD
Rotary shredder	STANDARD	STANDARD	STANDARD
Anti-blockage rotary blade for branches	STANDARD	STANDARD	STANDARD
Maintenance-free oil bath drive system	STANDARD	STANDARD	STANDARD
Hydraulic tilt dump	STANDARD	STANDARD	STANDARD
4 wheels on walking beam axles	STANDARD	STANDARD	STANDARD
Tire dimension	24 X 13 - 12 TURF SAVER	24 X 13 - 12 TURF SAVER	24 X 13 - 12 TURF SAVER
Recommended tractor HP at PTO	40 HP	50 HP	50 HP
Hitch type	Adjustable draw bar	Adjustable draw bar	Adjustable draw bar
Low discharge air exhaust	STANDARD	STANDARD	STANDARD
Hopper capacity	7 Cu. yard of shredded debris	10 Cu. yard of shredded debris	10 Cu. yard of shredded debris
Optional hand pickup hose	10" X 16 FT (25.5 CM X 4.8 M)	N/A	N/A
Turn and stop road light kit	OPTIONAL	OPTIONAL	OPTIONAL
Noise level	89 DECIBEL	89 DECIBEL	89 DECIBEL
Machine overall length	214" (535 CM)	226" (565 CM)	226" (565 CM)
Machine overall width	78" (195 CM)	102" (255 CM)	126" (315 CM)
Machine height	91" (227.5 CM)	101" (252.5 CM)	101" (252.5 CM)
Machine weight	4990 LBS (2263 KG)	5700 LBS (2586 KG)	5800 LBS (2630 KG)
Shipping dimension	186" X 79" X 91" HIGH (463 X 197.5 X 227.5 CM)	199" X 84.5" X 101" HIGH (506 X 211 X 252.5 CM)	199" X 84.5" X 101" HIGH (506 X 211 X 252.5 CM)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

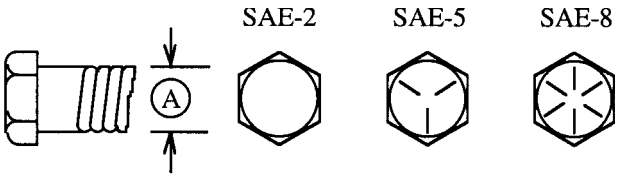
8.2 BOLT TORQUE

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.

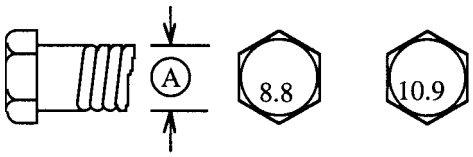
ENGLISH TORQUE SPECIFICATIONS

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	(70)	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.

8.3 HYDRAULIC FITTING TORQUE

TIGHTENING FLARE TYPE TUBE FITTINGS *

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the toque shown.

* 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)	(lb-ft)	Recommended Turns To Tighten (After Finger Tightening) (Flats)	(Turn)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	**11/16**	**24**	**18**	**1**	**1/6**
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

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