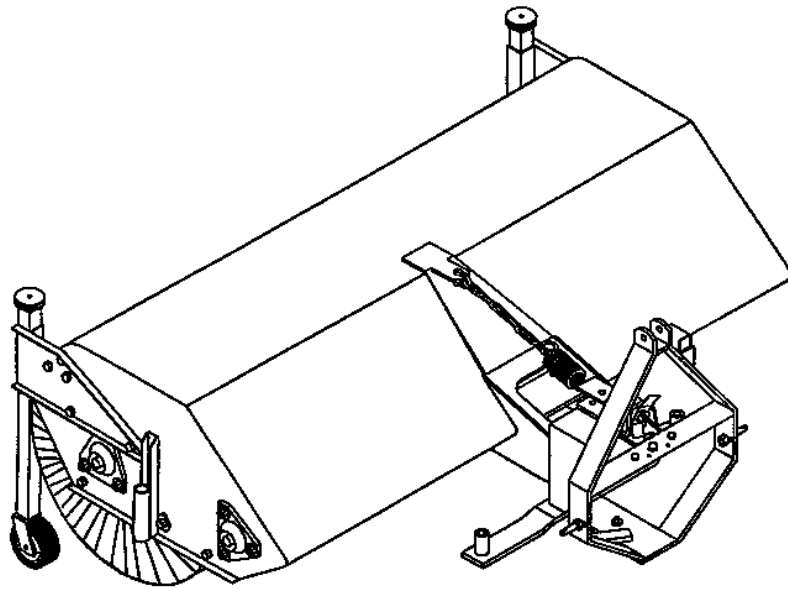


OPERATOR'S AND PARTS MANUAL



MECHANICAL ROTARY BROOM

60" – 9387A Model

72" – 9388A Model

SERIAL NO. : 9900101

OM 0216-A
05/01



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INTRODUCTION

TO THE PURCHASER

All products are designed to give safe, dependable service if they are operated and maintained according to instructions. **Read and understand this manual before operation.**

This manual has been prepared to assist the owner and operators in the safe operation and suitable maintenance of the implements. The information was applicable to products at the time of manufacture and does not include modifications made afterwards.

Read and understand this operator's manual before attempting to put an implement into service. Familiarize yourself with the operating instructions and all the safety recommendations contained in this manual and those labeled on the implements and on the tractor. Follow the safety recommendations and make sure that those with whom you work follow them.

To assist your dealer in handling your needs, please record hereafter the model number and serial number of your implement and tractor. It is also advisable to supply them to your insurance company. It will be helpful in the event that an implement or tractor is lost or stolen.

Illustrations

The illustrations may not necessarily reproduce the full detail and the exact shape of the parts or depict the actual models, but are intended for reference only.

Direction Reference

All references to right and left, forward or rearward, are from the operator's seat, facing the steering wheel.

TRACTOR

IMPLEMENT

MODEL:

SERIAL NUMBER:

DATE OF PURCHASE:

DEALER NAME:

SAFETY PRECAUTIONS



SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.



DANGER : Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.



WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Gives helpful information.

All products are designed to give safe, dependable service if they are operated and maintained according to instructions. **Read and understand this manual before operation.** It is the owner's responsibility to be certain anyone operating this product reads this manual, and all other applicable manuals, to become familiar with this equipment and all safety precautions. Failure to do so could result in serious personal injury or equipment damage. If you have any questions, consult your dealer.

BEFORE OPERATION

Children

Tragic accidents can occur if the operator is not alert to the presence of children. Children are generally attracted to machines and the work being done. Never assume children will remain where you last saw them.

1. Keep children out of the operating area and under the watchful eye of another responsible adult.
2. Be alert and turn machine off if children enter the work area.
3. Before and when backing, look behind for small children.
4. Never carry children while operating the machine. They may fall off and be seriously injured or interfere with the safe operation of the machine.
5. Never allow children to play on the machine or attachment even when they are turned off.
6. Never allow children to operate the machine even under adult supervision.
7. Use extra care when approaching blind corners, shrubs, trees, or other obstructions that might hide children from sight.

SAFETY PRECAUTIONS - continued

NOTICE

A safe operator is the best assurance against accidents. All operators, no matter how experienced they may be, should read this operator's manual and all other related manuals before attempting to operate an implement. Please read the following section and pay particular attention to all safety recommendations contained in this manual and those labeled on the implements and on the tractor.

THE ROTARY BROOM

Before Operation

1. Read and understand this operator's manual and tractor operator's manual. Know how to operate all controls and how to stop the unit and disengage the controls quickly.
2. Never wear loose, torn, or bulky clothing around the tractor and rotary broom. It may catch on moving parts or controls, leading to the risk of accident.
3. Thoroughly inspect the area where the equipment is to be used and remove all objects that may damage the equipment. Keep area of operation clear of people, animals and debris.
4. Disengage clutch and shift into neutral before starting the engine.
5. Do not operate equipment in wintertime without wearing adequate winter garments.
6. Never attempt to make any adjustments while engine is running. Read this manual carefully to acquaint yourself with the equipment as well as the tractor operator's manual. Working with unfamiliar equipment can lead to accidents. Be thoroughly familiar with the controls and proper use of the equipment.
7. Replace all missing, illegible, or damaged safety and warning decals. See list of decals in the operator's manual.
8. Do not modify or alter this equipment or any of its components, or any equipment function without first consulting your dealer.
9. Keep safety decals clean of dirt and grime.

SAFETY PRECAUTIONS - continued

Rotary Broom Operation

1. Never operate the rotary broom without good visibility and lighting.
2. Do not make mechanical adjustments while the unit is in motion, the rotary broom is raised, or the engine is running.
3. Never allow anyone to sit or stand on the rotary broom at any time.
4. If the tractor is so equipped, make sure the belt drive is removed from the tractor's output pulley.
5. Before leaving the tractor unattended, take all possible precautions. Park the tractor/broom on level ground, place the transmission in neutral, set the parking brake, disengage the driving system, lower the equipment to the ground, place all levers including auxiliary control levers in neutral, shut off the engine and remove the ignition key.
6. Exercise extreme caution when operating on or crossing a gravel drive, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
7. Do not run the engine indoors except when starting engine and transporting attachment in or out of building. Carbon monoxide gas is colorless, odorless and deadly.
8. Do not attempt to operate on steep slopes or near embankments.
9. Never operate machine at high transport speeds on a slippery surface.
10. Use extra caution when backing up.
11. Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable noises.
12. Always wear eye protection during operation (face shield, etc.).
13. Never allow anyone to operate the equipment until they have read the manual completely and are thoroughly familiar with basic tractor and rotary broom operation.
14. Make sure the tractor is counterweighted as recommended by your dealer. Weights provide the necessary balance to improve stability, traction and steering.
15. Always make sure all rotary broom components are properly installed and securely fastened BEFORE operating.

SAFETY PRECAUTIONS - continued

THE TRACTOR

General Information

1. Read the operator's manual carefully before using tractor. Lack of operating knowledge can lead to accidents.
2. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.

Operating the Tractor

1. Never run the tractor engine in a closed building without adequate ventilation, as the exhaust fumes are very dangerous.
2. Never allow an open flame near the fuel tank or battery.
3. Park the tractor/broom on level ground, place the transmission in neutral, set the parking brake, disengage the driving system, lower the equipment to the ground, place all levers including auxiliary control levers in neutral, shut off the engine and remove the ignition key before leaving the tractor.
4. Never park the tractor on a steep slope.
5. Do not attempt to operate on steep slopes.
6. Use of rear counterweights for better traction and stability is recommended.
7. Always drive the tractor at speeds compatible with safety, especially when operating over rough ground, crossing ditches, or when turning.
8. Handle fuel with care, as it is highly flammable.
9. Use approved fuel container.
10. Never add fuel to a running engine or a hot engine.

11. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors. Replace fuel cap securely and wipe up spilled fuel.
12. Never allow anyone to operate the rotary broom until they are thoroughly familiar with basic tractor and rotary broom operation.
13. Make sure the tractor is counterweighted as recommended by your dealer. Weights provide the necessary balance to improve stability, traction and steering.
14. Always make sure all components are properly installed and securely fastened BEFORE operation.

During Operation

1. Do not allow anyone to ride on the tractor/equipment at any time. There is no safe place for passengers on this equipment. The operator MUST sit in the tractor seat.
2. Eye and hearing protection is recommended when operating the equipment.
3. Operate only during daylight hours, or when the area is well lit with bright artificial light.
4. Park the tractor/broom on level ground, place the transmission in neutral, set the parking brake, disengage the driving system, lower the equipment to the ground, place all levers including auxiliary control levers in neutral, shut off the engine and remove the ignition key BEFORE leaving the operator's seat.
5. Inspect the equipment after striking any foreign object to assure that all equipment parts are safe and secure and not damaged.

SAFETY PRECAUTIONS - continued

MAINTENANCE

ALWAYS USE GENUINE PARTS WHEN REPLACEMENT PARTS ARE REQUIRED

1. Park the tractor/broom on level ground, place the transmission in neutral, set the parking brake, disengage the driving system, lower the equipment to the ground, place all levers including auxiliary control levers in neutral, shut off the engine and remove the ignition key **BEFORE** making any equipment adjustments.
2. Provide adequate supports using blocks or jack stands on the rotary broom.
3. Never park the tractor with fuel in the fuel tank inside a building where an open flame or sparks are present. Allow the engine to cool down before leaving it in any enclosure.
4. Keep the tractor/equipment clean. Environmental build-up can lead to malfunction or serious personal injury.
5. Always wear eye protection when cleaning or servicing the equipment.
6. Do not modify or alter this equipment or any of its components or operating functions. If you have questions concerning modifications, consult your dealer.

TRANSPORTING

1. If the tractor/equipment is to be driven on public roads, it must be equipped with an SMV (Slow Moving Vehicle) sign. Check local traffic codes that may apply to unit usage on public roads and highways in your area.
2. Be alert for all other traffic when driving the tractor/equipment on public roads or highways.

STORAGE

Before storing the rotary broom, certain precautions should be taken to protect it from deterioration:

1. Install a rubber cap on each quick coupler's hose.
2. Clean the rotary broom thoroughly.
3. Make all the necessary repairs.
4. Replace all Safety Decals that are damaged, lost, or otherwise become illegible. If a part to be replaced has a sign on it, obtain a new safety sign from your dealer and install it in the same place as on the removed part.
5. Repaint all parts from which paint has worn or peeled.
6. Lubricate the rotary broom as indicated in the "**Lubrication**" section.
7. When the rotary broom is dry, oil all moving parts. Apply oil liberally to all surfaces to protect against rust.
8. Place the rotary broom on the parking stands, to avoid ground contact.
9. Store in a dry place.

IMPORTANT: If broom bristles are exposed to direct sunlight, protect bristles with a tarp.

DECALS

Replace Immediately if Damaged

⚠ MISE EN GARDE

NÉGLIGER DE SUIVRE LES PROCÉDURES SÉCURITAIRES D'UTILISATION PEUT ENTRAÎNER DES BLESSURES.

- POUR UNE UTILISATION SÉCURITAIRE, SUIVRE TOUTES LES INSTRUCTIONS D'UTILISATION ET PRÉCAUTIONS SÉCURITAIRES DANS LE MANUEL DE L'OPÉRATEUR.
- PORTER DES LUNETTES DE SÉCURITÉ EN TOUT TEMPS.
- GARDER MAINS, PIEDS ET VÊTEMENTS ÉLOIGNÉS DES PIÈCES MOTRICES.
- ARRÊTER LE MOTEUR AVANT DE QUITTER LA POSITION DE L'OPÉRATEUR.
- ATTENDRE QUE TOUTS LES MOUVEMENTS SOIENT ARRÊTÉS AVANT D'AJUSTER, LUBRIFIER, NETTOYER OU DÉBLOQUER LA MACHINE.
- GARDER L'ENDROIT D'UTILISATION DÉGAGÉ DE TOUTES PERSONNES ET ANIMAUX.
- GARDER TOUS LES ÉCRANS PROTECTEURS EN PLACE.
- JAMAIS DIRIGER L'ÉVACUATION VERS DES PIÉTONS, BÂTIMENTS, AUTOMOBILES, ETC.
- TOUJOURS UTILISER UN MASQUE À POUSSIÈRE DANS UN ENVIRONNEMENT POUSSIÉREUX.
- GARDER TOUTES LES MATIÈRES PLASTIQUES ÉLOIGNÉES DE LA CHALEUR INTENSE ET DES FLAMMES.
- NE JAMAIS PERMETTRE DE PASSAGERS SUR CETTE MACHINE.

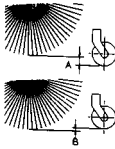
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IMPORTANT

AJUSTEMENT DES BROSSES

Régler à la hauteur A 1" à 1/4" (25-32mm) au dessus de la roue pour l'utilisation sur gazon, et B 1/32" à 3/16" (1-5mm) en bas de la roue pour les surfaces dures.



BRUSH HEIGHT ADJUSTMENT

Set brush height A 1" to 1/4" (25-32mm) above wheel for lawn work and B 1/32" to 3/16" (1-5mm) below wheel for hard surfaces.

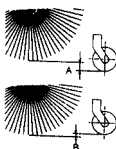
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IMPORTANT

AJUSTEMENT DES BROSSES

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⚠ WARNING

FAILURE TO FOLLOW SAFE OPERATING PROCEDURES MAY RESULT IN INJURY.

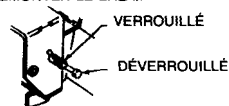
- FOR SAFE OPERATION FOLLOW ALL OPERATING INSTRUCTIONS AND SAFETY PRECAUTIONS IN OPERATOR'S MANUAL.
- EYE PROTECTION MUST BE WORN AT ALL TIMES.
- KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER DRIVEN PARTS.
- STOP ENGINE BEFORE LEAVING OPERATOR POSITION.
- WAIT FOR ALL MOVEMENTS TO STOP BEFORE STARTING TO ADJUST, LUBRICATE, CLEAN OR UNLOCK THE MACHINE.
- KEEP THE AREA OF OPERATION CLEAR OF ALL PERSONS AND ANIMALS.
- KEEP ALL GUARDS AND SHIELDS IN PLACE.
- NEVER DIRECT DISCHARGE TOWARD BYSTANDERS, BUILDINGS, CARS ETC.
- ALWAYS USE A DUST MASK WHEN WORKING IN DUSTY CONDITIONS.
- KEEP PLASTIC MATERIALS AWAY FROM INTENSE HEAT AND OPEN FLAME.
- NEVER ALLOW PASSENGERS ON THE ATTACHMENT.

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IMPORTANT

- POUR ÉVITER DES DOMMAGES AU BALAI, TOUJOURS OPÉRER LE BALAI AVEC LA GOUPILLE EN POSITION DÉVERROUILLÉE.
- UTILISER LA POSITION VERROUILLÉE SEULEMENT POUR MONTER OU DÉMONTER LE BALAI.



VOIR LE MANUEL DE L'OPÉRATEUR

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⚠ MISE EN GARDE

POINT DE PINCEMENT

CHÂSSIS PIVOTANT. PEUT PROVOQUER DES BLESSURES:

- Garder mains et pieds éloignés.

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⚠ WARNING

PINCH POINT

AVOID INJURY FROM FRAME PIVOT AND STOPS:

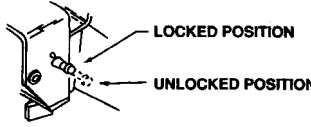
- Keep hands and feet away.

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IMPORTANT

- TO AVOID DAMAGE TO THE SWEEPER, ALWAYS OPERATE SWEEPER WITH PIN IN UNLOCKED POSITION.
- USE LUCKED POSITION ONLY FOR ATTACHING OR DETACHING SWEEPER.

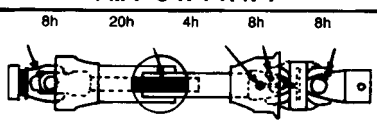


SEE OPERATOR'S MANUAL

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IMPORTANT



- GREASE ALL POINTS AS SHOWN (h = hours) IN DIAGRAM AND USE A "MOLY" LUBE
- THE CENTERING UNIT MUST BE GREASED EVERY 4 HOURS

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Located on Driveline

⚠ DANGER



ROTATING DRIVELINE

CONTACT CAN CAUSE DEATH KEEP PEOPLE AND CLOTHING WELL CLEAR

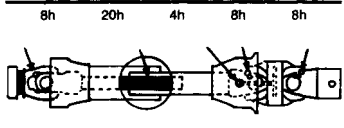
DO NOT OPERATE WITHOUT

- ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE

135

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IMPORTANT



- GRAISSER TOUS LES POINTS TEL QU'ILLUSTRE (h = heures) DANS LE DIAGRAMME ET UTILISER UN LUBRIFIANT "MOLYBDÈNE"
- L'UNITÉ DE CENTRAGE DOIT ÊTRE GRAISSÉ À TOUTES LES 4 HEURES.

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ASSEMBLY

6. Install threaded end of hitch pins (item 17) in the 29/32" holes in each side of the hitch frame.
7. Attach stopper chains to hitch frame using two clevis in 17/32" holes (item 18) on each side of hitch frame.
8. Install support chain in both holes (item 19) in the horizontal plate on the hitch frame. Close one s-hook with pliers to secure it to the frame. Unhook the other one and hook it on the other.

NOTE: This chain is only for storage of the driveline. Always use broom with both s-hooks attached to each other.

NOTE: If using manual angle, go on to step 2 of *Broom Installation*.

BROOM INSTALLATION

1. Attach tractor lower links to hitch pins of broom frame using tractor linch pins.
2. Install one chain support plate on each side of tractor upper hitch point. Secure to tractor with linch pin.
3. Install tractor top link to broom frame. Adjust top link so that attaching frame is perpendicular to ground level.
4. Attach stopper chains in chain support plates, adjust chain so that the bottom of attaching frame stops at 3" to 3 1/2" from ground.
5. Attach driveline to tractor rear PTO and to broom gearbox by sliding back the locking collar on the yoke and pushing the driveline yoke over the shaft until the locking collar snaps back.

6. Unlock broom pivot by placing pin in its most extended position; a light pressure either up or down on broom head will help pin adjustment (this allows broom to follow ground variations). This bracket should remain locked during transport.

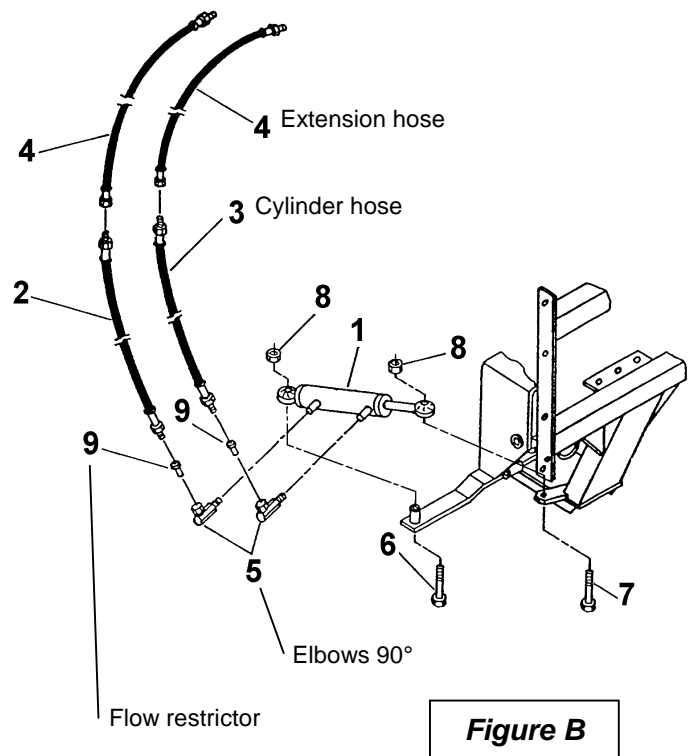
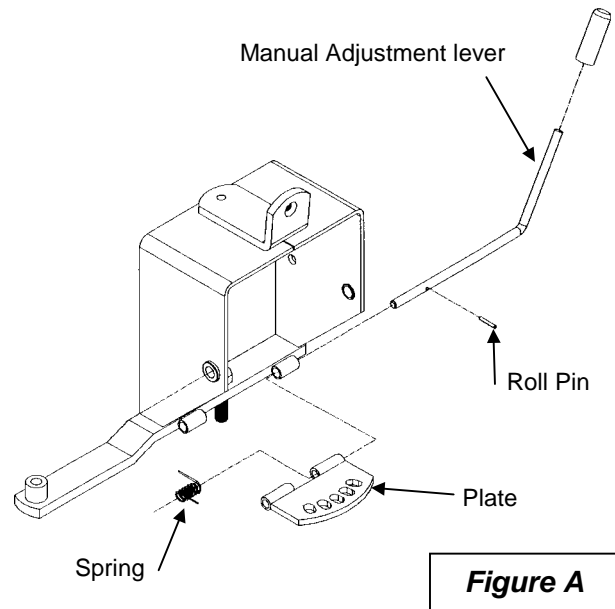
NOTE: If using manual angle, this completes the installation.

7. Verify operation of broom angling described in Operation section, (if not as described, stop tractor engine, remove ignition key and release hydraulic pressure. Switch hoses on the tractor then identify hydraulic them in relation to female coupler using the colored plastic rings.

ASSEMBLY

Hydraulic Power Angle Installation (9397 Option)

1. Remove manual angle adjustment lever and broom plate by removing the 3/16" x 1" roll pin and the spring.
2. With the cylinder ports facing you, install the cylinder base end on the pivot arm. Secure from under the pivot arm with a 5/8"NC x 3 1/2" carriage bolt and 5/8"NC stover nut (fig.B, items 6-8).
3. Install the cylinder rod end to 3 point hitch using a 5/8"NC x 2 1/2" hex. bolt and 5/8"NC stover nut (fig.B, items 7-8).
4. Using thread sealant, install a 90° elbow (fig.B, item 5) in each cylinder port. Set both elbow at an appropriate angle to facilitate the routing of the hoses under the tension adjustment spring (approximately 2 o'clock).
5. Using thread sealant, install a flow restrictor (fig.B, item 9) in the two 90° elbows and connect the 3/8" x 47" hose (fig.B, item 3) to the cylinder base end elbow and the other 3/8" x 42" hose (fig.B, item 2) to the other cylinder end.
6. Connect the cylinder hoses assembly to two quick couplers (that you must provide) then to the tractor hydraulic outlet.



ASSEMBLY

DISMOUNTING

1. Extend broom parking stands placing hairpins on underside of stands supports.
2. Set hydraulic valve in float position, turn engine off, set parking brake and relieve pressure hydraulic pressure.
3. Unhook stopper chains from tractor upper hitch.
4. Detach PTO from tractor and suspend it with the support chain by hooking the s-hook in the other hole on the mid plate of the frame.
5. Lower tractor three points hitch and carefully remove the hitch frame from the tractor.

NOTE: If using manual angle, this completes removal.

6. Detach the hydraulic hoses from the tractor valve and cover each quick coupler with dust caps.

OPERATION

ADJUSTMENTS:



To avoid personal injury, be sure tractor engine is off, the PTO disengaged, parking brake is set and all movement has stopped before making any adjustments.

Raising and Lowering the Broom

Move the valve lever (right hand side of seat) backward to raise the broom and forward to lower the broom. Move valve handle fully forward for float position.

Hydraulic Angling

Move valve handle forward to angle broom to the left and move handle rearward to angle broom to the right. Never push valve handle to the extend, because at this position, the handle gets locked, causing free positioning (float).

PTO Operation

The PTO is activated by pulling the PTO lever up & to the rear, and is located on the right hand side of tractor seat. Push PTO lever forward to disengage.

Brush-Ground Contact

Turning the ground contact handle in a clockwise direction decreases brush ground contact. Turning ground contact handle counterclockwise increases brush ground contact and must be used only to compensate brush wear.

IMPORTANT: Adjust so that broom head when lifted by the front, weighs approximately 50 pounds, more than this could cause premature brush wear and overheating of the gearbox.

Manual Angle Adjustment

Keep broom slightly off the ground, lift lever, select angle and release lever. Make sure lever locks angle completely.

Side to Side Level Adjustment

With the broom raised to transport position, loosen the three bolts on the hitch frame, set broom head level, block in that position and tighten the three bolts. This prevents uneven brush wear.

OPERATING THE BROOM



Before operating, make sure broom pivot lock pin is in its most extended position to allow broom to follow ground variations.

Preparing for Sweeping

1. Read the operator's manual carefully. Be thoroughly familiar with controls and proper use of the equipment.
2. Do not allow anyone other than the operator on the tractor. Do not allow any rider on the attachment.
3. If tractor is not equipped with optional cab, operator must wear eye protection (face shield, etc.) during operation.
4. Be sure bystanders are completely clear of tractor, broom & broom discharge area before operating the broom. Contact with tractor, broom or debris discharged by broom can cause serious injury.



CAUTION: Remove any accumulation of snow, ice, dirt or mud from inside and outside broom hood and from in between bristles regularly; excess weight will unbalance broom causing premature and/or uneven wear of bristles.



CAUTION: NEVER OPERATE BROOM ON ANY KIND OF CARPET.

OPERATION

APPLICATIONS

Snow Removal



WARNING: Foreign objects in snow may be thrown farther than the snow itself. Use the slowest brush speed that will perform the job. Stay aware of broom discharge direction.

1. This broom works best in snow depth of 6" or less. Larger amount of snow can be moved if ground speed is reduced.
2. To avoid snow being blown back on the tractor or operator, sweep with the wind blowing in the discharge direction.
3. The use of tire chains is recommended for extra traction.

Lawn Dethatching and Leaf Raking

1. Set caster wheels at 1/16" to 1/4" above brush tips for dethatching, and 1" to 1 1/4" below brush tips for leaf raking operations.
2. Slower brush at ground speed are more adequate for lawn dethatching. This will avoid bouncing which could damage the lawn due to excessive ground contact. If the broom starts bouncing lock the broom pivot by placing the lock pin in it's most inserted position.
3. Minimize dust by sweeping when moisture is high (but not wet) whenever possible.

General Sweeping

1. Minimize dust by reducing brush speed and by sweeping on days with high moisture.
2. For light material, angle the broom 12° to 15° right or left rather than fully angled to obtain wider sweeping path.
3. Prevent damage to broom by removing foreign objects.

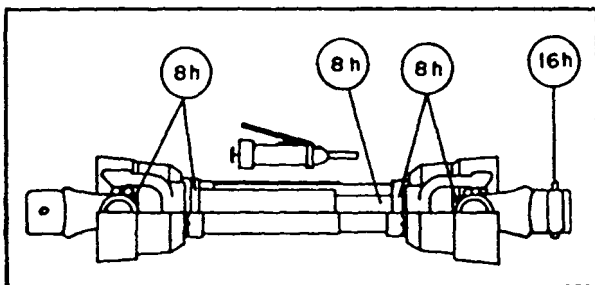
MAINTENANCE

GENERAL

1. Never store the tractor with fuel in the fuel tank inside a building where open flames or sparks are present. Allow the engine to cool before storing in any enclosure.
2. Avoid exposing broom bristles to direct sunlight for long periods. Long exposure to direct sunlight will damage bristles.
3. Provide adequate blocking before working under broom.
4. Because of dust raised when sweeping (other than snow), The tractor air filter should be checked daily and replaced when needed.
5. Check and tighten all hardware including factory installed hardware, every 8 hour of operation and before operation.
6. Do not alter or modify the broom. If you have any questions, contact your dealer.

LUBRICATION

1. **BROOM:** Using a good quality multi-purpose lubricant, lubricate all pivot points and brush ground contact adjustment threads every 24 hours of operation.
2. **DRIVELINE:** Grease as indicated on the figure below.
3. **GEARBOX:** Check gearbox oil level before initial operation and every 40 hours of operation. Use SAE 90 oil.



STORAGE

1. Install a rubber dust cap on each hose quick coupler.
2. Clean broom thoroughly.
3. Oil all moving parts.
4. Store the broom on storage stands so that the bristles do not touch the ground.
5. If broom bristles are exposed to direct sunlight, protect bristles with a tarp.
6. Store the broom in a dry place.

BRUSH REPLACEMENT

1. Stop tractor engine and remove ignition key.
2. Lift broom approximately 7 to 8 inches from the ground and stabilize with two blocs.
3. Remove the two bolts and withdraw the chain guard. Loosen the chain idler bolt so you can remove the chain from the sprocket. Loosen the two sprocket setscrews and push them against the brush. Remove the three bolts on each side of the broom and loosen the bearing set screws. Push the bearing against the brush. You can remove the brush by sliding the shaft downwards. Remove the bearing and plug on the opposite side of the sprocket and remove the old brush.
4. Install the new brush by inverting the preceding instructions.

IMPORTANT: While installing the new brush, take care to push the cap tightly against the bearing. Line up the sprocket with the idler sprocket when reinstalling the chain.

PARTS

INTRODUCTION

All parts are illustrated in "exploded views" which show the individual parts in their normal relationship to each other. Reference numbers are used in the illustrations. These numbers correspond to those in the "Reference Number" (REF) column, and are followed by the description and quantity required.

O/L - "Obtain Locally" in the part number column indicates common hardware that is available at your local hardware supply.

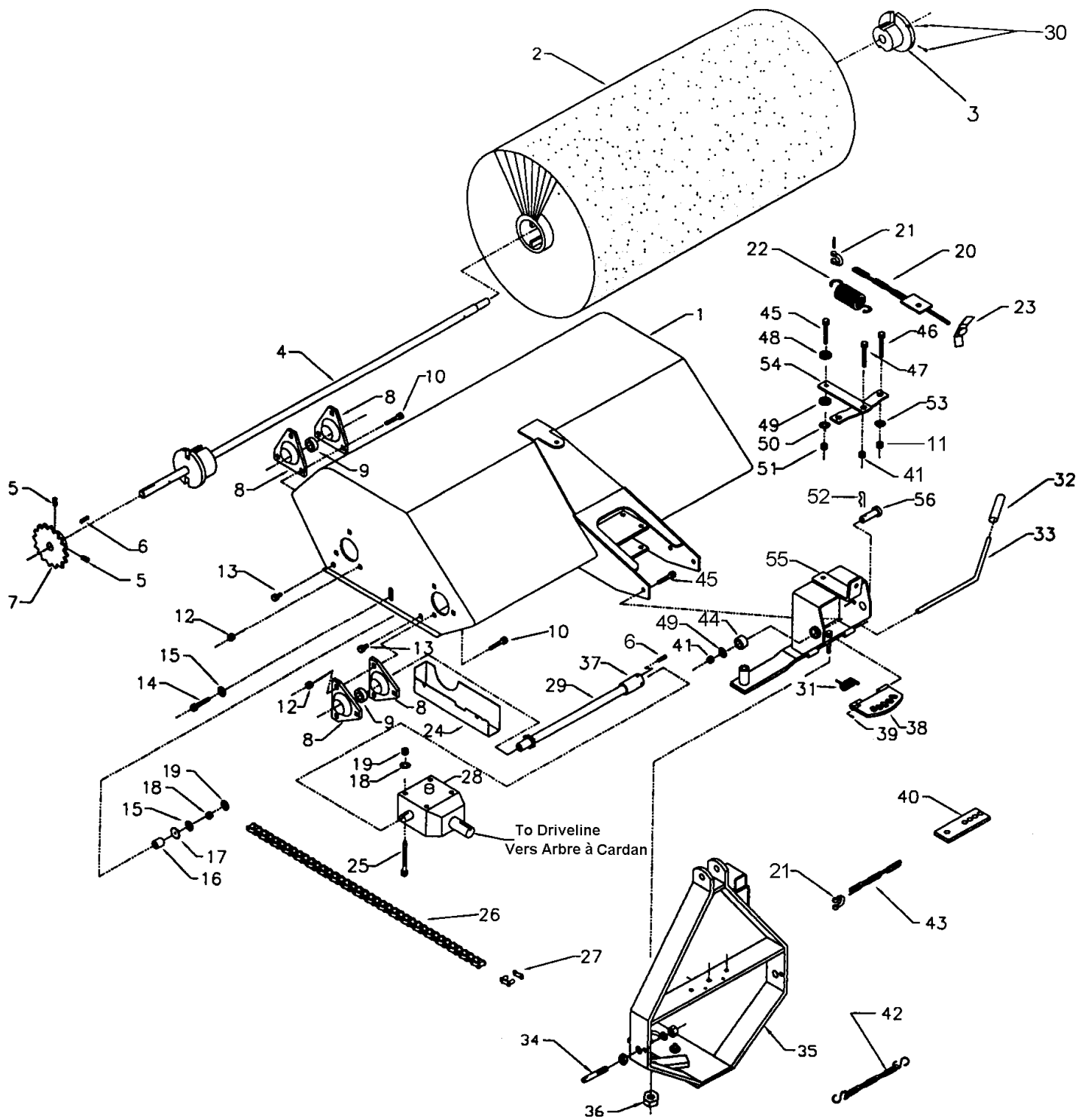
All reference to right and left, forward or rearward, are from the operator's seat, facing the steering wheel.

Orders must give the complete description, correct part number, the total amount required, the serial number, the method of shipment and the shipping address.

The manufacturer reserves the rights to change, modify, or eliminate from time to time, for technical or other reasons, certain or all data, specifications, or the product or products themselves, without any liability or obligation.

PARTS

ROTARY BROOM – 9387A & 9388A



PARTS

ROTARY BROOM - 9387A & 9388A

REF.	DESCRIPTION	QTY.	PART #
1	Housing Model 60" – 9387A	1	662085
	Model 72" – 9388A	1	662110
2	Brush Model 60" – 9387A	1	9415
	Brush Model 72" – 9388A	1	9416
3	Plug	1	663674
4	Brush driving shaft Model 60" – 9387A	1	661588
	Model 72" – 9388A	1	662114
5	Allen setscrew 5/16" NC x 3/4"	2	O/L
6	Key 1/4" x 1/4" x 1 1/4"	2	654643
7	Sprocket	1	656903
8	Triangular flange	6	657893
9	Bearing 1 1/4" & locking collar	3	654170
10	Carriage bolt 3/8" NC x 3/4"	9	O/L
11	Nylon nut 3/8"	2	O/L
12	Flange nut 3/8" NC	9	O/L
13	Flange bolt hex. 5/16" NC x 1/ 2"	2	O/L
14	Bolt hex. 3/8" x 2 1/2"	1	O/L
15	Flatwasher 3/8" dia, hole	2	O/L
16	Idler bushing	1	663719
17	Idler sprocket	1	663709
18	Lockwasher 3/8"	5	O/L
19	Nut hex. 3/8"	5	O/L
20	Fixation chain for spring	1	661688
21	Clevis 5/16" ass'y	2	663963
22	Tension spring	1	660220
23	Adjustment handle	1	659828
24	Chain guard	1	661587
25	Bolt hex. 3/8" x 5 1/2"	1	O/L
26	Chain #50 incl. connecting link	1	662095
27	Connecting link	1	655837
28	Gear box	1	662084
29	Driving shaft Model 60" – 9387A	6	661586
	Model 72" – 9388A		662113
30	Allen setscrew 5/16" NC x 1/2"	2	O/L
31	Torsion spring	1	657989
32	Plastic handle	1	656797
33	Manual angle adjustment lever	1	659651
34	Pin cat.1, with nut & lockwasher	2	654196
35	Three point hitch	1	662036
36	Stover nut 3/4"	1	O/L
37	Allen setscrew 5/16" NC x 5/16"	2	O/L
38	Angular adjustment plate	1	659641
39	Roll pin 3/16" x 1"	1	O/L
40	Chain support plate	2	660488

PARTS

ROTARY BROOM - 9387A & 9388A

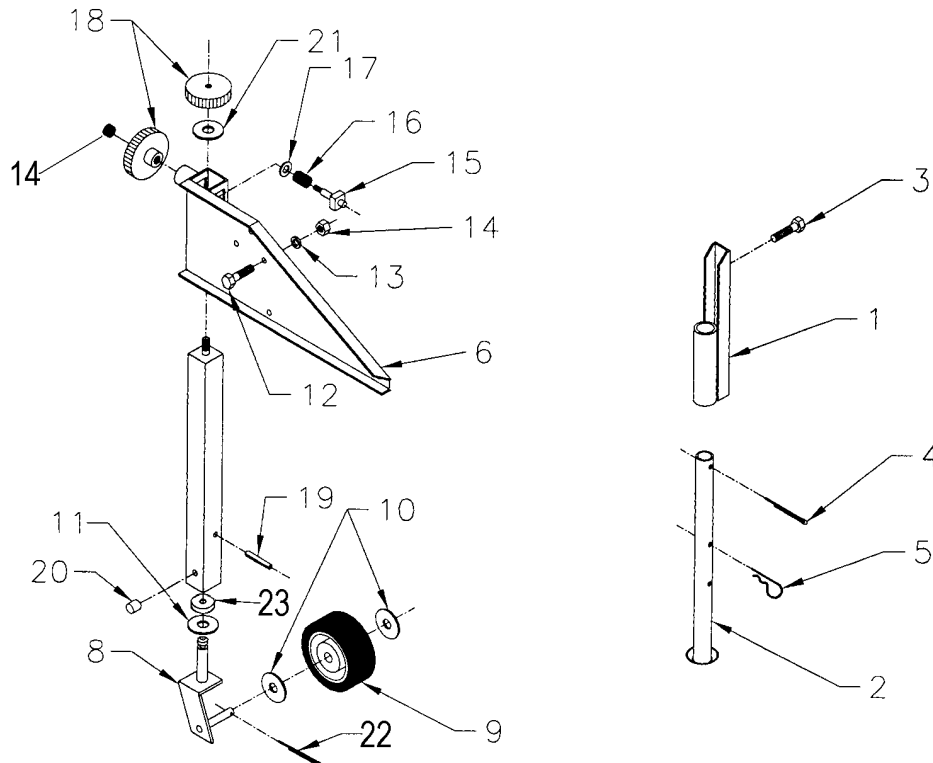
REF.	DESCRIPTION	QTY.	PART #
41	Nylon nut 1/2" NC	3	O/L
42	Support chain & hooks ass'y	1	662299
43	Stopper chain	2	662087
44	Pivot bushing	2	658532
45	Bolt hex. 1/2" NC x 1 3/4"	3	O/L
46	Bolt hex. 3/8" x 1 1/4"	2	O/L
47	Bolt hex. 1/2" x 2"	1	O/L
48	Upper bushing	1	659824
49	Flatwasher 9/16" hole	3	O/L
50	Lockwasher 1/2"	1	O/L
51	Nut hex. 1/2" NC	1	O/L
52	Hairpin 3mm x 65mm	1	O/L
53	Flatwasher 7/16" dia. hole	2	O/L
54	Upper coupling	1	660986
55	Pivot	1	659821
56	Pin 7/8" x 3 1/16"	1	659825

O/L = Obtain Locally

PARTS

SIDE CASTER WHEELS & PARKING STANDS

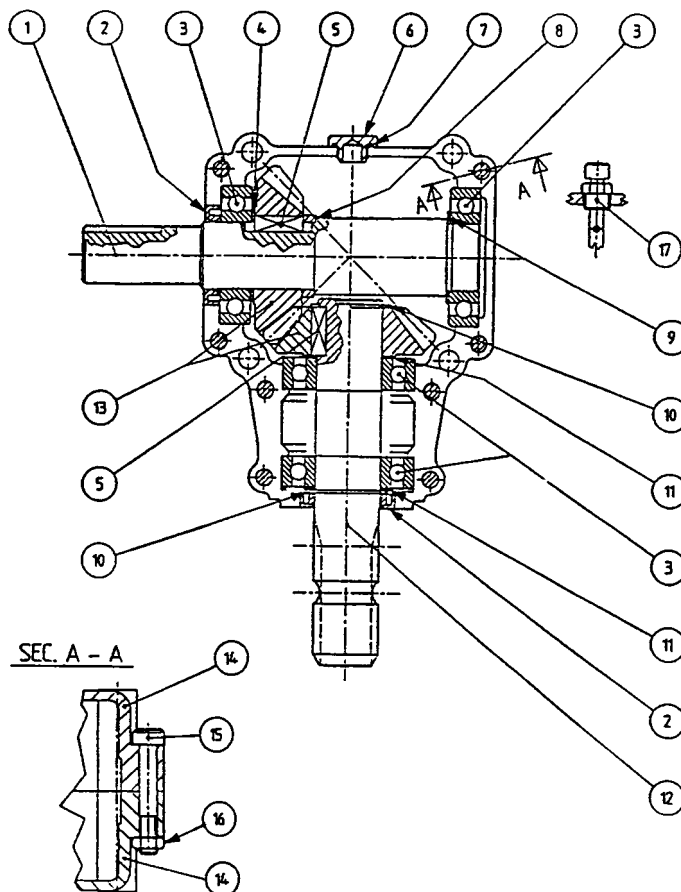
REF.	DESCRIPTION	QTY	PART #
1	Parking stand support	2	659819
2	Parking stand	2	659820
3	Flange bolt hex. 5/16" NC x 1/2"	6	O/L
4	Cotter pin 5/32" NC x 1 1/4"	2	O/L
5	Hairpin 4mm x 80mm	2	O/L
6	Fixation plate -left	1	662038
	Fixation plate -right	1	662039
7	Adjustment tube	2	661292
8	Wheel pivot -left	1	661297
	Wheel pivot -right	1	661298
9	Wheel	2	661306
10	Flatwasher 11/16" dia.	4	O/L
11	Flatwasher 13/16" dia.	2	O/L
12	Bolt hex. 5/16" NC x 3/4"	10	O/L
13	Lockwasher 5/16"	10	O/L
14	Nut hex. 5/16" NC	10	O/L
15	Adjustment pin	2	661022
16	Spring	2	657658
17	Flatwasher 7/16" dia. hole SAE	2	661811
18	Handle 5/16" NC	4	657309
19	Roll pin 1/4" NC x 1 1/2"	2	O/L
20	Grease fitting 1/4"NF	2	654106
21	Flatwasher 1/2" dia.	2	O/L
22	Cotter pin 1/4" x 1 1/2"	2	O/L
23	Wheel bushing	2	660948



PARTS

GEAR BOX

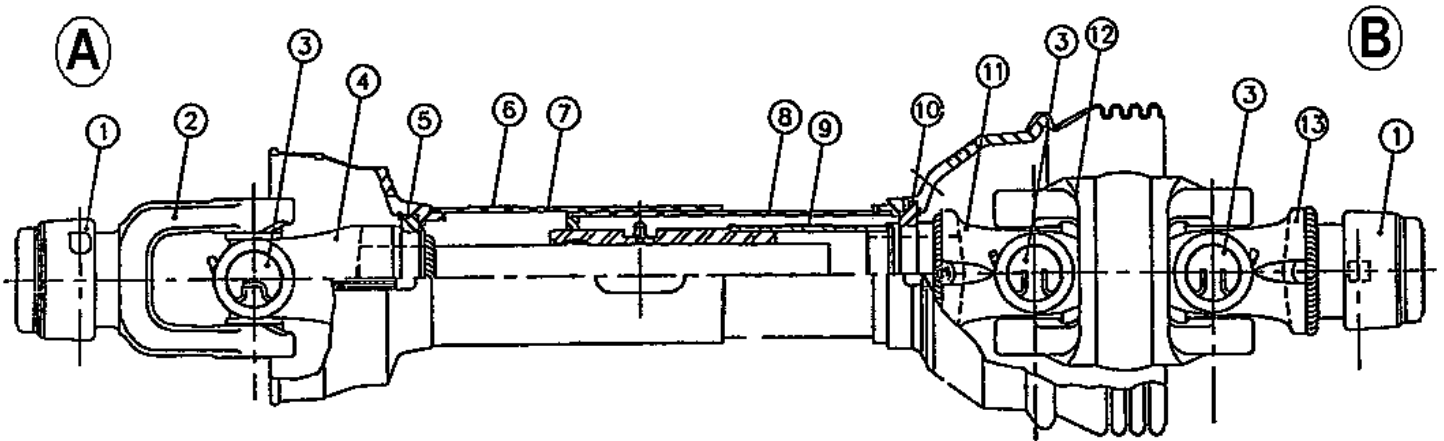
REF.	DESCRIPTION	QTY	PART #
1	Shaft	1	661761
2	Oil seal	1	659852
3	Bearing	2	656653
4	Shim	1	656649
5	Parallel key	2	659850
6	Plug	2	659847
7	O-ring	2	661144
8	Spacer	6	662234
9	Shim	2	659855
10	Snap ring	2	656652
11	Shim	1	659854
12	Shaft 1 3/8"	1	662235
13	Gear	4	662236
14	Casing (2 parts)	1	661765
15	Bolt hex. M8 x 55	2	O/L
16	Nut hex. M8	1	O/L
17	Oil filler plug	1	661741



PARTS

DRIVELINE

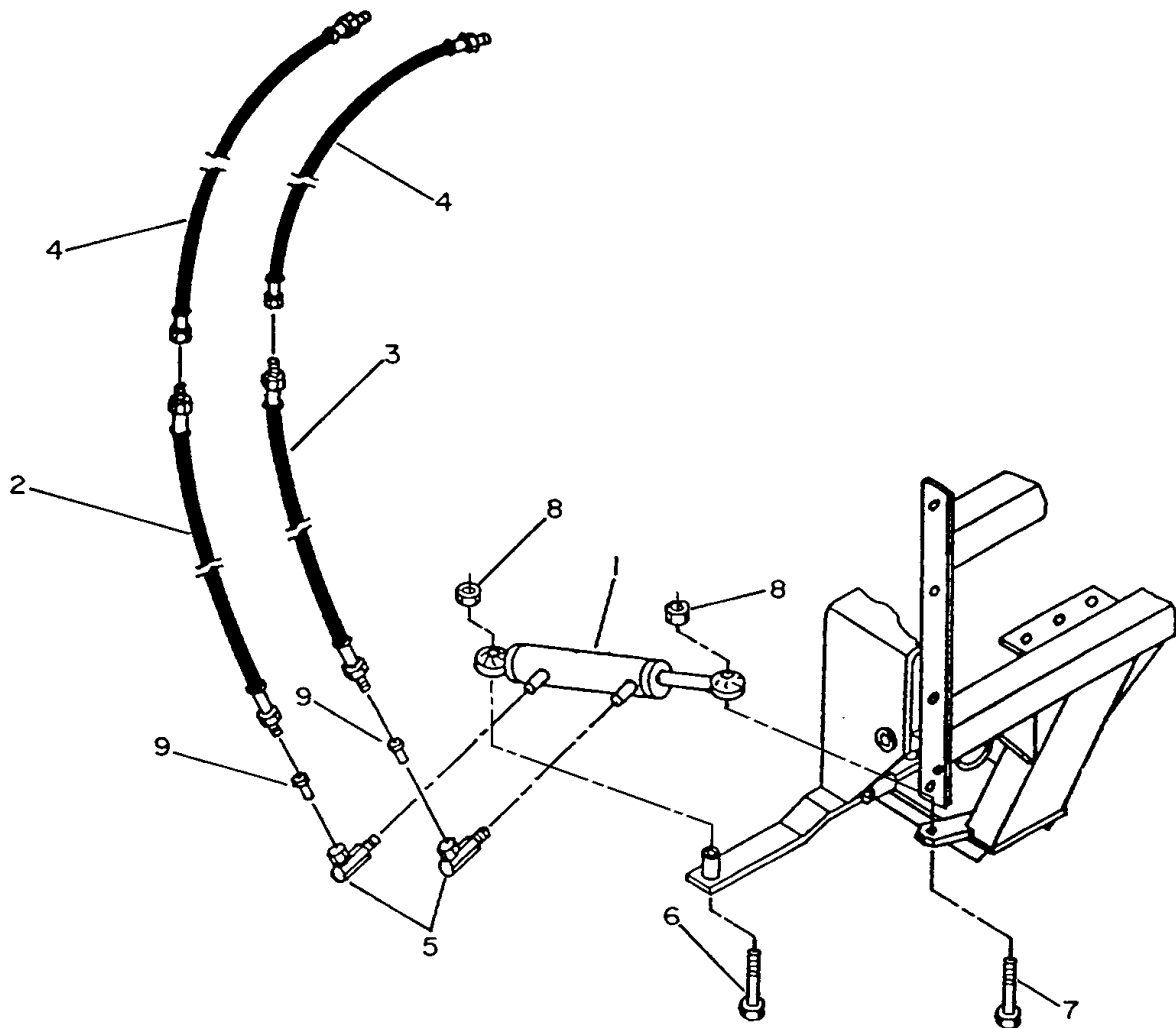
REF.	DESCRIPTION	QTY	PART #
A	Joint, shaft & guard ass'y	1	662096
B	Joint, shaft & guard ass'y	1	662097
1	Yoke repair kit	2	662098
2	Yoke	1	662099
3	Universal joint kit	3	662100
4	Yoke & splined shaft	1	662101
5	Nylon repair kit	1	662102
6	Decal	1	657763
7	Outer shield	1	662103
8	Inner shield	1	662104
9	Decal	1	658496
10	Nylon repair kit	1	664295
11	Yoke & female tube	1	662106
12	C.V. joint	1	662107
13	Yoke	1	662109



PARTS

HYDRAULIC ANGLING (9397)

REF.	DESCRIPTION	QTY	PART NUMBER
1	Cylinder	1	658676
2	Hose 3/8" x 42"	1	660445
3	Hose 3/8" x 47"	1	660446
4	Extension hose 3/8" x 20" (for 9393A & 9394A only)	2	660447
5	Elbow 90 degrees	2	654557
6	Carriage bolt 5/8"NC x 3 1/2" lg.	1	O/L
7	Hex. bolt 5/8"NC x 2 1/2" lg.	1	O/L
8	Stover nut 5/8"NC	2	O/L
9	Flow restrictor	2	657756

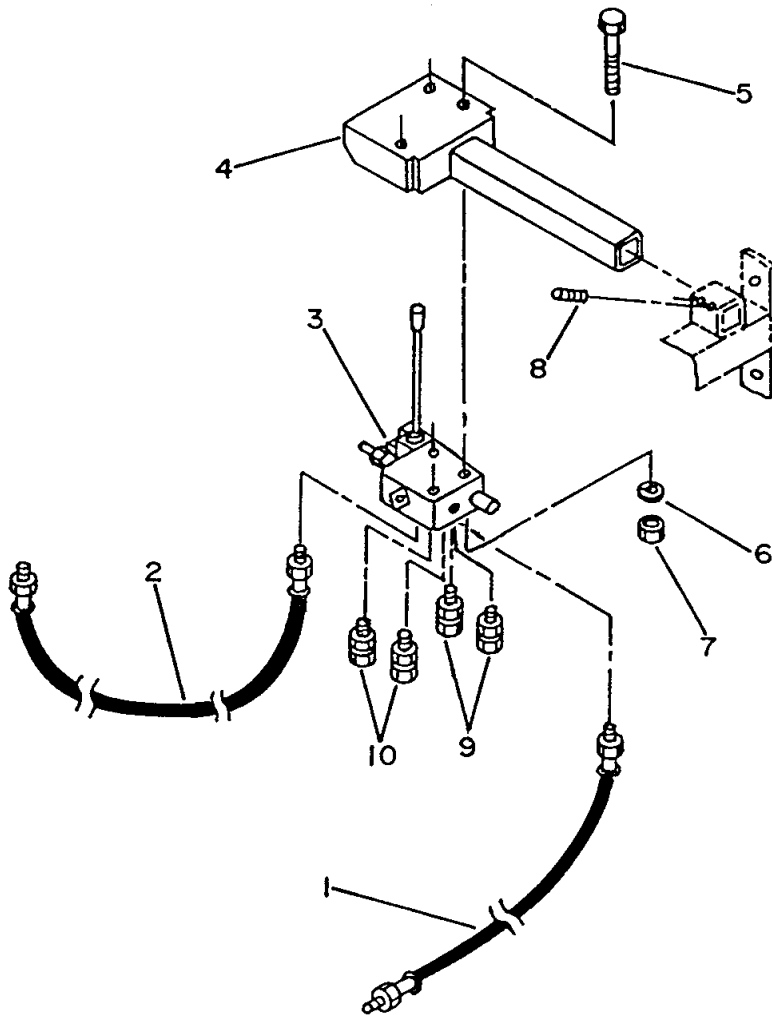


PARTS

SINGLE SPOOL VALVE - 9490

REF.	DESCRIPTION	QTY	PART #
1	Hose 1/2" x 30"	1	661624
2	Hose 1/2" x 42"	1	661625
3	Hydraulic valve	1	656027
4	Valve support	1	660459
5	Bolt hex. 5/16" NC x 2 1/4" lg	2	O/L
6	Lockwasher 5/16"	2	O/L
7	Nut hex. 5/16" NC	2	O/L
8	Allen setscrew 5/16" x 3/8"	2	O/L
9	Pivoting adapter	1	656103
10	Pivoting adapter	1	654592

O/L= Obtain Locally



WARRANTY



RAD TECHNOLOGIES INC.

RAD TECHNOLOGIES INC. warrants to the original buyer that the equipment is free from defects in material and workmanship. RAD TECHNOLOGIES INC.'s obligation, under this warranty, will be limited to the repair or replacement of any non-wear part or component, which RAD TECHNOLOGIES INC. finds to be defective within **one year** from the date of original purchase (unless otherwise-specified). The applicable warranty period for commercial or rental use shall be ninety (90) days from the date of purchase

In no event shall RAD TECHNOLOGIES INC. be liable for consequential, special, direct or indirect damages incurred by the buyer/user.

All components not manufactured by RAD TECHNOLOGIES INC. (such as motors, actuators, hydraulic components, tires, ...etc.) are covered by the original manufacturer's warranty in conjunction with RAD TECHNOLOGIES INC.

RAD's obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that, in RAD's judgment, shall show evidence of such defect, provided the **distributor** returns the part prepaid within thirty (30) days from date of failure.

This warranty shall not be interpreted to render RAD TECHNOLOGIES INC. liable for injuries or damages of any kind or nature to person or property. This warranty does not extend to losses because of delays, or to any expenses or losses incurred for labor, substitute machinery, rental or for any other reason.

Except as set forth above, RAD TECHNOLOGIES INC. shall have no obligation or liability of any kind on account of any of its equipment and shall not be liable for special or consequential damages. RAD TECHNOLOGIES INC. makes no other warranty, expressed or implied, and specifically, RAD TECHNOLOGIES INC. disclaims any implied warranty or merchantability or fitness for a particular purpose. **Some states or provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.**

This warranty is subject to any existing conditions of supply, which may directly affect our ability to obtain materials or manufacture replacement parts. RAD TECHNOLOGIES INC. reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold.

No one is authorized to alter, modify or enlarge this warranty nor the exclusions, limitations and reservations.

2835 Chemin de l'Aéroport, Thetford Mines (Québec) G6G 5R7

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TORQUE SPECIFICATION TABLE

























GENERAL SPECIFICATION TABLE

Use the following torques when special torques are not given

NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly sulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SEE Grade No.		2				5				8			
BOLT HEAD IDENTIFICATION MARKS AS PER GRADE NOTE: MANUFACTURING MARKS WILL VARY.						  				  			
		Torque		Torque		Torque							
BOLT SIZES		Pounds-Foot		Newtons-Meter		Pounds-Foot		Newtons-Meter		Pounds-Foot		Newtons-Meter	
Inches	Millimeters	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1/4	6.35	5	6	6.8	8.13	9	11.0	12.2	14.9	12	15	16.3	30.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42.0	47.5	57.0	45	54	61.0	73.2
7/16	11.11	25	30	40.7	47.4	54	64.0	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96.0	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132.0	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1 1/8	25.58	-	-	-	-	800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1 1/4	31.75	-	-	-	-	1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1 3/8	34.93	-	-	-	-	1460	1680	1979.8	2278.1	2380	2720	3227.3	3688.3
1 1/2	38.10	-	-	-	-	1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4

METRIC BOLT TORQUE SPECIFICATIONS

Size of screw	Grade No.	Pitch (mm)	Coarse thread				Fine Thread				
			Pounds-Foot		Newtons-Meter		Pitch (mm)	Pounds-Foot		Newtons-Meter	
			MIN.	MAX.	MIN.	MAX.		MIN.	MAX.	MIN.	MAX.
M6	4T 	1.0	3.6	5.8	4.9	7.9	-	-	-	-	-
	7T 		5.8	9.4	7.9	12.7		-	-	-	-
	8T 		7.2	10	9.8	13.6		-	-	-	-
M8	4T 	1.25	7.2	14	9.8	19.0	1.0	12	17	16.3	23.0
	7T 		17	22	23	29.8		19	27	25.7	36.6
	8T 		20	26	27.1	35.2		22	31	29.8	42
M10	4T 	1.5	20	25	27.1	33.9	1.25	20	29	27.1	39.3
	7T 		34	40	46.1	54.2		35	47	47.4	63.7
	8T 		38	46	51.5	62.3		40	52	54.2	70.5
M12	4T 	1.75	28	34	37.9	46.1	1.25	31	41	42	55.6
	7T 		51	59	69.1	79.9		56	68	75.9	92.1
	8T 		57	66	77.2	89.4		62	75	84	101.6
M14	4T 	2.0	49	56	66.4	75.9	1.5	52	64	70.5	86.7
	7T 		81	93	109.8	126		90	106	122	143.6
	8T 		96	109	130.1	147.7		107	124	145	168
M16	4T 	2.0	67	77	90.8	104.3	1.5	69	83	93.5	112.5
	7T 		116	130	157.2	176.2		120	138	162.6	187
	8T 		129	145	174.8	196.5		140	158	189.7	214.1
M18	4T 	2.0	88	100	119.2	136	1.5	100	117	136	158.5
	7T 		150	168	203.3	227.6		177	199	239.8	269.6
	8T 		175	194	237.1	262.9		202	231	273.7	313
M20	4T 	2.5	108	130	146.3	176.2	1.5	132	150	178.9	203.3
	7T 		186	205	252	277.8		206	242	279.1	327.9
	8T 		213	249	288.6	337.4		246	289	333.3	391.6

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