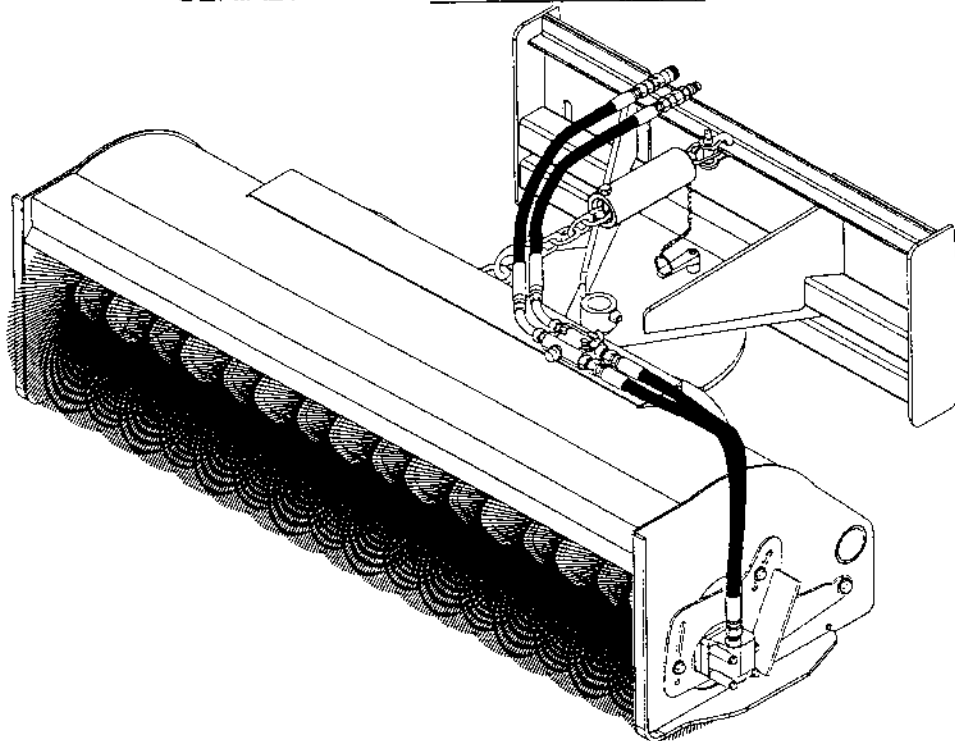


# POW **R** SWEEP™ McMILLEN®

## OPEN FACE ANGLE BROOM

SERIAL NUMBER \_\_\_\_\_



## OPERATOR'S & PARTS MANUAL

Model 267224 (6' Wide X 24" Diameter)

Model 268424 (7' Wide X 24" Diameter)

### **WARNING!**

**AVOID INJURY OR DEATH**  
**READ AND UNDERSTAND THIS ENTIRE MANUAL BEFORE**  
**INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT**

PART NO.: 234119  
Rev. 10/00



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A Division of Attachment Technologies, Inc.

M-238  
11-30-00



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## TO THE OWNER

We would like to take this opportunity to thank you for purchasing your McMillen Pow-R-Sweep Open Face Angle Broom. You have invested in a quality piece of equipment that is backed by the best warranties in the industry. Only by proper installation, operation and maintenance can you expect to receive the dependable performance and long life for which the angle broom was designed.

This manual contains information regarding the installation, operation, safe use, care and maintenance of your McMillen Attachment. Please be sure all operators study this manual carefully and keep it on file for future reference.

Read all safety warnings and decals before operating and replace any worn or illegible decals.

If after reading this manual you have any questions about your McMillen Pow-R-Sweep attachment please contact us immediately as follows:

NORTH AMERICAN TOLL FREE:	(800) 922-2981
Outside North America:	(319) 922-2981
Fax:	(319) 922-2700

Once again, we would like to thank you for putting your trust in our product. If we may be of further assistance to you in the future, please feel free to contact us or your nearest dealer at your convenience.

Sincerely,

Attachment Technologies Incorporated

## INTRODUCTION

Thank you for purchasing this quality product from the McMillen division of Attachment Technologies Incorporated. McMillen provides quality sweepers and attachment products through innovative design, quality manufacturing, and timely service.

The McMillen Pow-R-Sweep open face angle brooms provide outstanding sweeping in the harshest environments. Adjustable down force provides for maximum sweeping aggression. The Pow-R-Sweep broom is capable of mounting on most skid loaders, backhoes, wheel loaders or similar types of prime mover. Only a single double-remote hydraulic connection is required, eliminating the need for expensive, optional hydraulics.

# SAFETY PRECAUTIONS

## GENERAL INFORMATION

The purpose of this manual is to provide safe operating and maintenance procedures for the intended use of the broom. It is important that all information in this manual is READ and UNDERSTOOD before operating the broom.

Since the manufacturer has no direct control over machine application and operation, it is the responsibility of the operator to conform to good safety practices in the implementation of this machine.

This section is composed of various warnings and safety tips which must be followed. Also read the owner's manual which came with the skid-steer loader which the broom is attached to.

The safety alert symbol is used throughout this manual to bring attention to items which must be followed for your safety and the safety of those around you. Failure to follow these instructions can result in injury or death.



**THIS SYMBOL MEANS:  
ATTENTION!  
BECOME ALERT!  
YOUR SAFETY IS INVOLVED!**

**SIGNAL WORDS:** Note the use of the signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

**DANGER:** Indicates a potentially hazardous situation which, 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 which, 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 which, if not avoided, could result in minor or moderate injury. It may also indicate unsafe practices which could result in serious damage to the machinery.

Notes are also found in this manual.

**NOTE:** Provides information which may be of special interest.



# SAFETY PRECAUTIONS

## TO THE OPERATOR

The primary responsibility for safety with the equipment falls to the operator. It is the skill, care, common sense and good judgement of the operator that will determine how efficiently and safely the job is performed. Know the equipment before you start. Know the capabilities, dimensions, and how to operate all the controls. Visually inspect the equipment before you start and never operate equipment that is not in proper working order with all safety devices in place and operating.

## BEFORE YOU START

**Wear the right clothing and gear for the job.** Protective equipment such as hard hat, steel-toed shoes, leather gloves, respirator or safety glasses may be in order. They can protect you from needless injury. Be sure to meet the requirements for the specific job site. Do not wear loose clothing or things such as rings and watches around the equipment. They could get caught in moving parts and lead to serious injury or death.

**Know your equipment.** Know how to operate all controls and know emergency shut down procedures. Make sure all safety devices are in place.

**Inspect the equipment. Check for missing shields, loose bolts, twisted or damaged hydraulic hoses.** Be sure all operational decals are in place and legible. Never operate a damaged or unsafe machine. Remember, you are responsible for the your safety and the safety of those around you.

**Keep all step plates, grab bars, pedals and controls free of dirt, grease, oil and water.** Keep clear of tools, rags and extra parts. Keep equipment clean to help avoid injury from a fall when getting on or off equipment.

## OPERATING PRECAUTIONS

**Know your work area before you begin.** Observe any potential hazard areas such as soft ground, drop-offs, rocks and other obstacles.

**Know where all utility lines are.** Observe overhead electrical and phone lines. Be sure equipment will safely clear them.

**Be alert to others in the work area.** Be sure others know when and where you will be working. Make sure no one is underneath or behind equipment.

**Never try to board equipment while its moving.**

**Do not stand in front of the equipment when it is operating.**



## SAFETY PRECAUTIONS

**Always use the seat belt and safety ROPS that are on the equipment.**

**Never allow riders or passengers on the equipment** unless the equipment is designed for passengers.

**Test all controls before starting operation.** This includes safety equipment and devices.

**Be aware of what is going on around you.** Watch for others who may not be watching out for themselves.

### MAINTENANCE PRECAUTIONS

**Replace all safety shields and guards when finished performing maintenance.** Do not operate the broom with protective equipment removed.

**Never perform maintenance or adjustments while the broom is operating.** Turn off the engine when performing maintenance to prevent accidental movement.

**Make sure all operating and residual pressures are relieved before working on a hydraulic system.** Shut engine off and operate all the controls to relieve any pressure.

**Use only manufacturer recommended replacement parts.** Other parts may be sub-standard in fit and quality.

**Do not set relief valve pressures higher than recommended by the manufacturer.** Relief valves should be checked and adjusted only by a trained service technician. Do not remove or block a relief valve.

**Observe proper maintenance schedules.** Proper maintenance can help prevent a hazardous condition.

**Always wear safety goggles or glasses when working on equipment.**

**Never use your hands to search for hydraulic fluid leaks.** Use cardboard or paper to indicate the presence of a leak. High pressure hydraulic fluid leaks can be invisible and may cause an infection or toxic reaction if skin is penetrated. Seek medical attention immediately if hydraulic fluid is injected into skin.

**Always clean the ends of the hydraulic lines before attaching them to the loader.** This reduces the amount of contamination in hydraulic components. Cover and protect the ends when the broom is disconnected and not being used.

## SETUP AND INSTALLATION

### ATTACHING THE UNIT

**DANGER:** Never mount a broom to a skid steer or prime mover which is not capable of handling the weight of the broom.



The broom comes with a universal adapter plate capable of attaching the angle broom to most common prime movers. When attaching the broom, be sure the broom is securely locked to the loader arms.

**DANGER:** Never walk under a raised broom.



If the broom does not fit the loader arms, contact the prime mover dealer for optional adapter plates to convert the machine to a more common adapter plate configuration. Refer to the prime mover's operation manual for proper mounting and safe operation of attachments.

**DANGER:** Never operate an implement which is not securely attached to the prime mover.



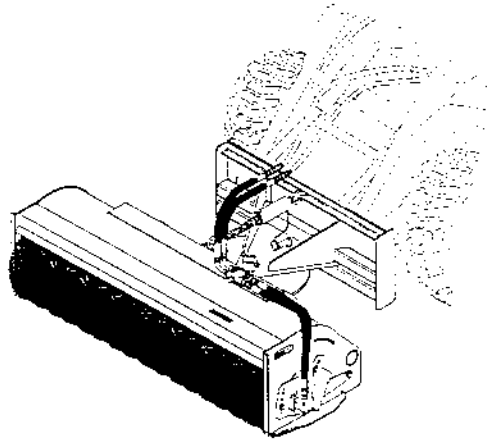
The prime mover is required to have a set of auxiliary hydraulic couplers capable of 8-20 gpm (30-83 L/min). The hydraulic pressure must be capable of 2000-3250 psi (140-225 bar). Verify that the prime mover is capable of hydraulic motor operation at these levels.

**NOTE:** Some prime movers may meet the listed hydraulic requirements when actuating a cylinder but are not capable of the sustained levels required for motor operation. Overheating of the hydraulic oil may occur in these situations.

Attach the hydraulic quick couplers to the auxiliary hydraulics of the prime mover. Connect the male quick coupler to the pressure side of the prime mover.

## SETUP AND INSTALLATION

Due to the many different types and sizes of quick couplers are used on the various brands of skid-steer loaders they are not included in the kit and must be ordered separately. The hydraulic hose ends on the Pow-R-Sweep Angle Broom are #8JFX. Refer to the skid-steer operators manual for hydraulic quick coupler requirements.

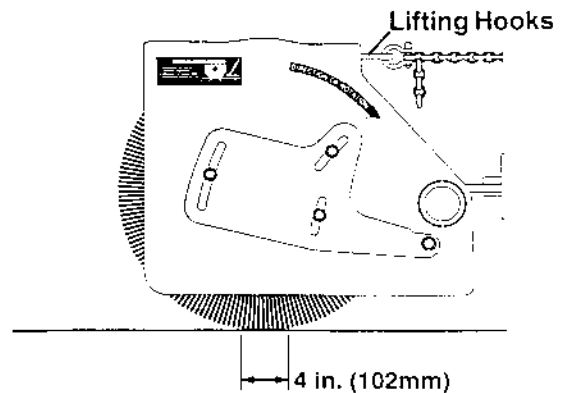


### ADJUSTING THE BRUSHES

A properly adjusted brush offers the best sweeper performance.

#### To Adjust the Brush

1. Position the rear of the broom so it is level or slightly below level.
2. Loosen the (3) bolts on each side support plate. Lower the broom bristles so there is the equivalent of 3-4 in. (76-102 mm) of contact with the ground.
3. Tighten the bolts on the side support plates to secure the broom into position. Be sure the broom is even on both sides.



### REMOVAL AND STORAGE

When removing the broom from the prime mover:

1. Position the broom on a firm, level surface.

**NOTE:** If the broom will be parked for an extended length of time, place blocking under the frame and adapter plate to remove the weight from the rotating brush.

2. Disconnect the hydraulic lines at the quick couplers. (Connect couplers together on the broom to protect the system from contamination.)
3. Release the adapter plate attach mechanism and back away from the broom.

**NOTE:** Use lifting hook (located where the chain attaches to the sweeper) to move the unit if not attached to a skid-steer.



## OPERATION

### BEFORE OPERATING

**CAUTION:** Only fully trained operators or trainee operators under the close supervision of a fully trained person should use this machine.



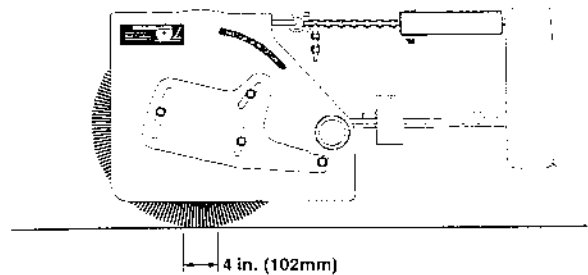
Learn controls in an off-road location until smooth operation of sweeper is obtained.

Check all hydraulic fittings for leaks and that they are properly connected and routed. Check hardware for tightness.

Be sure all persons not operating the sweeper are clear of the sweeper discharge area.

### OPERATING PROCEDURES

1. Lower the broom so the rotating broom bristles are in contact with the ground for approximately 4 in. (102 mm).



**NOTE:** Additional pressure may be applied to the broom but excess wear may occur to the hydraulic motor and bristles.

2. Once the broom position is set, actuate the auxiliary hydraulics. The broom will start to rotate. **NOTE:** Broom rotation should always be such that the material is swept **AWAY** from the operator.
3. Forward travel can begin, keeping alert for bystanders or obstacles..

**NOTE:** If the broom does not operate, the hydraulics are connected incorrectly.

Engine speed may be increased to increase broom rotation speed. Travel speed will vary depending upon the material being swept and the terrain.

**NOTE:** Do not engage or disengage the brush at a high engine speed. This could damage the sweeper and motor.

When sweeping close to a wall or curb, do not use the side guards as wear plates. Do not allow the hydraulic motor (located on the left side of the machine) to contact walls or curbs.

## OPERATION

### ADJUSTING DOWN FORCE

The rotating broom is mounted to the hitch frame so the broom is allowed to float over obstacles. The amount of flotation (down force) can be changed by raising or lowering the prime mover loader arms. This will decrease or increase the percentage of the sweeper weight that is applied to the bristles.

**NOTE: Applying a small amount of down force with the prime mover loader arms will assist in disconnecting the chain to readjust. Do not allow the broom to stay in this position for long periods of time or the bristles may become deformed.**

### ANGLE ADJUSTMENT

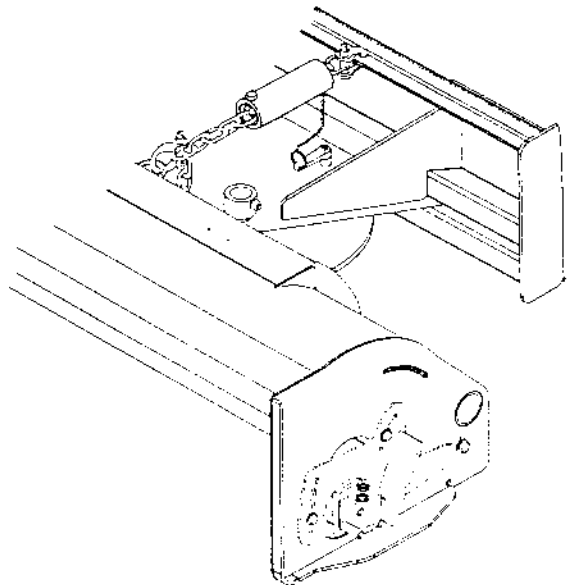
The broom has three positions which can be set by the operator: Straight and 30° to the left or right.

#### To adjust the angle of the broom:

1. Stop the prime mover and turn off the hydraulics.
2. Disconnect the chain from the spring.

**NOTE: Applying a small amount of down force with the prime mover loader arms will assist in disconnecting the chain. When changing the angle of the broom, remove any down force to assist in rotation.**

3. Remove center locking pin from frame.
4. Rotate the broom assembly in the desired direction. Insert the center locking pin.
5. Connect the chain to the spring, removing any slack and tension as desired.

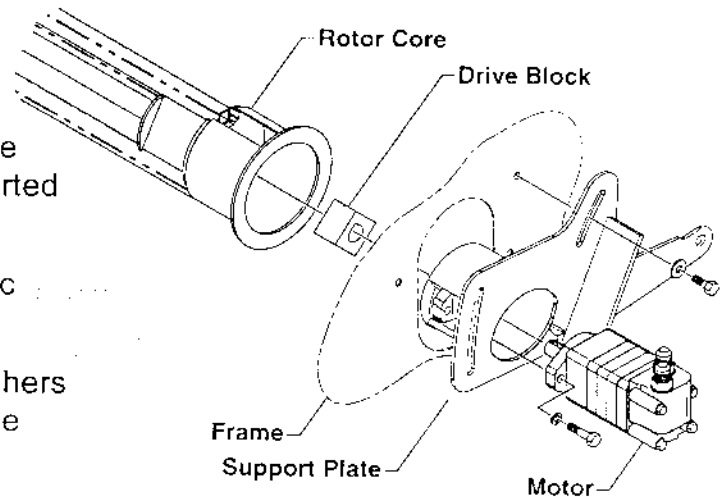


## MAINTENANCE

### HYDRAULIC MOTOR

#### Removal

1. Lower the broom to rest on the ground. Place supports under the frame of the broom if not supported by the prime mover.
2. Tag and disconnect the hydraulic hoses from the hydraulic motor.
3. Remove the three bolts and washers attaching the support plate to the frame.
4. Remove the two bolts and washers securing the motor to the support plate. Remove the motor. The drive block will pull out of the rotor core.
5. Remove the setscrew securing the drive block to the motor shaft and remove the block.



#### Installation

1. Attach the motor to the support plate using the two bolts and washers previously removed.

**NOTE: Always clean the tips of any hydraulic lines before attaching to prevent contamination of the hydraulic system.**

2. Connect the hydraulic lines to the hydraulic motor as tagged during removal.
3. Slide the support and motor assembly into the end of the frame. Be sure the guide pins of the broom bristles are clear of the motor. Loosely attach the assembly to the frame using the three bolts and washers previously removed.
4. The height of the broom can be adjusted using the loader arms of the prime mover. Typically the broom bristles will have a 4 in. (102 mm) area of contact with the ground.
5. Attach the angle broom to the prime mover as outlined in the assembly and setup procedures.

## MAINTENANCE

### ROTATING BROOM

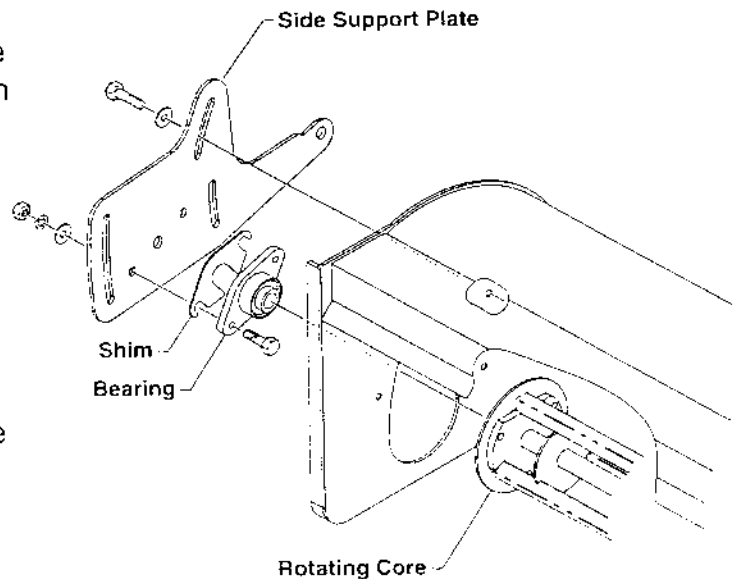
The rotating broom will require adjustment as the bristles wear and become shorter. Once the bristles become worn to the point that they will no longer extend beyond the frame, they should be replaced.

#### Adjustment

1. Position the rear of the broom so it is level or slightly below level.
2. Loosen the three bolts on each side support plate. Lower the broom bristles so there is the equivalent of 3-4 in. (76-102 mm) of contact with the ground.
3. Tighten the bolts on the side support plates to secure the broom into position. Be sure the broom is even on both sides.

#### Replacement

1. Lower the broom to rest on the ground. Support the frame with the prime mover in the back.
2. Remove the three bolts, lock washers and nuts securing the left side support plate and motor assembly to the frame. Remove the plate and motor assembly and wire tie it to the frame to prevent pulling on the motor hoses.
3. Remove the three bolts, lock washers and nuts securing the right side support plate to the frame. Remove the plate. The shim and bearing will be removed with the plate.





## MAINTENANCE

4. Using the prime mover hydraulics, carefully lift the frame assembly. Allow the broom to stay on the ground.
5. Remove the brushes by sliding them off the end of the core.
6. Install new brushes onto the core, alternating the direction of each brush. Two types of brushes can be installed: a poly bristle or wire bristle. The brushes can also be alternated.
7. Using the prime mover hydraulics, lower the frame assembly over the rotating assembly. Take care not to damage the new bristles.
8. If necessary, replace the right side support bearing by removing the two bolts, washers, lock washers and nuts securing the bearing and shim to the right side support plate. Attach the new bearing and shim(s) to the plate.
9. Loosely attach the right side support plate to the frame.
10. Place the motor and left side support plate in position on the frame. Loosely install the bolts, lock washers and nuts previously removed.
11. With the rotating bristles adjusted so they have a 4 in. area of contact with the ground, tighten the bolts in the right and left side support plates. Be sure the bristles are even side-to-side.

## SPECIFICATIONS

	<b>Model 267224</b>	<b>Model 268424</b>
<b>Overall Width</b>	81" (2057 mm)	92.5" (2350 mm)
<b>Maximum Sweeping Width</b>	72" (1829 mm)	84" (2134 mm)
<b>Maximum Sweeping Width (Angled)</b>	63" (1600 mm)	73" (1854 mm)
<b>Angle</b>	30° Left & Right	
<b>Height</b>	27" (686 mm)	
<b>Length</b>	48" (1219 mm)	
<b>Weight</b>	920 lbs. (417 kg)	
<b>Drive Method</b>	Direct Drive Hydraulic	
<b>Number of Motors</b>	1	
<b>Effective Motor Displacement</b>	14.9 in <sup>3</sup> (244 cc)	
<b>Hydraulic Flow Range</b>	8-20 GPM (30-75 L/min)	
<b>Hydraulic Pressure Range</b>	2000-3250 PSI (138-225 bar)	
<b>Rated Brush Speed</b>	130 RPM @ 10 GPM (130 RPM @ 38 L/min)	
<b>Hydraulic Hose Type</b>	1/2" SAE 100R2AT	
<b>Brush Diameter</b>	24" (610 mm)	
<b>Brush Material</b>	Replaceable Polypropylene & Steel Wire Sections	

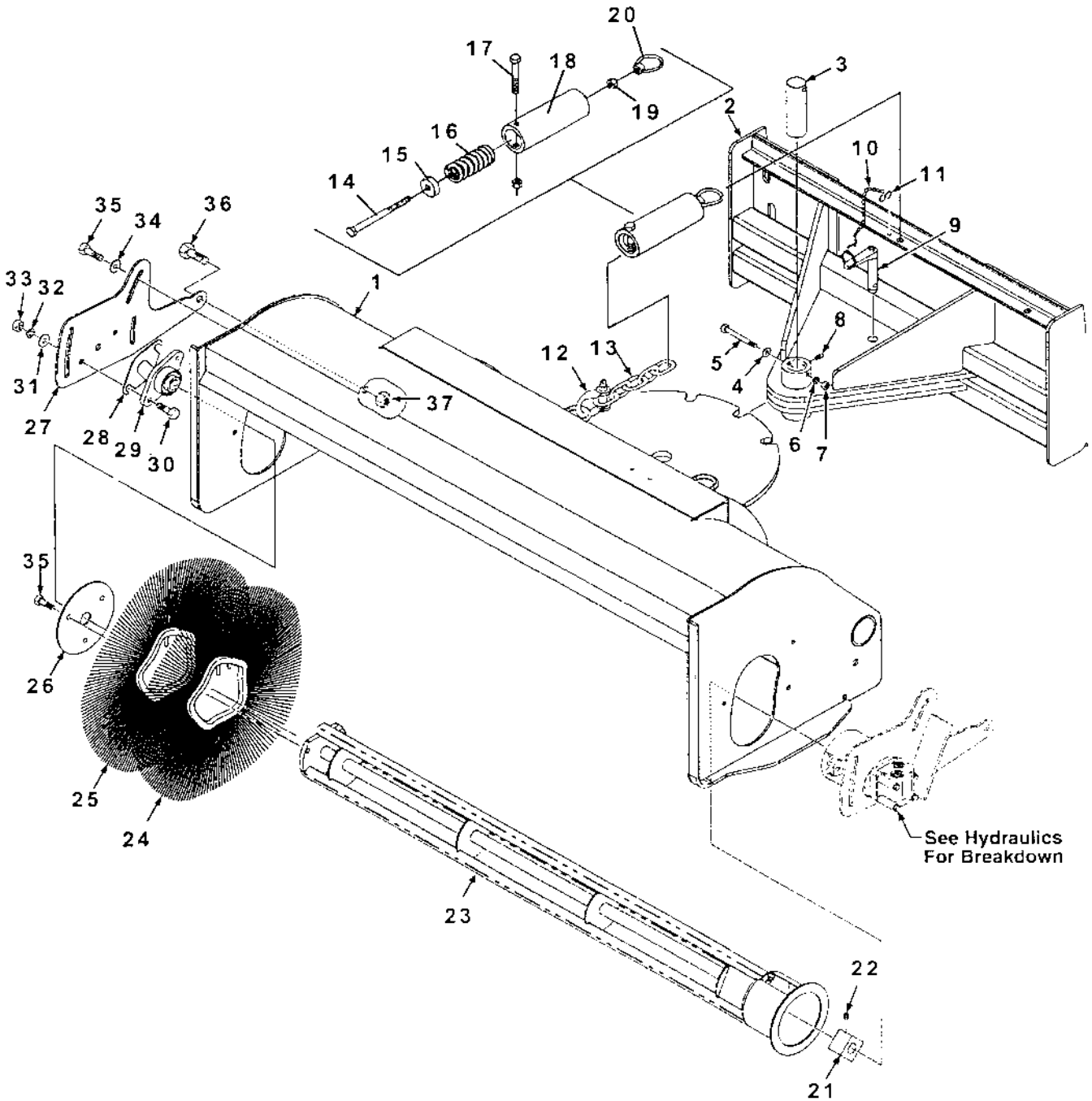
**PARTS**



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## SWEEPER & BRUSH ASSEMBLY



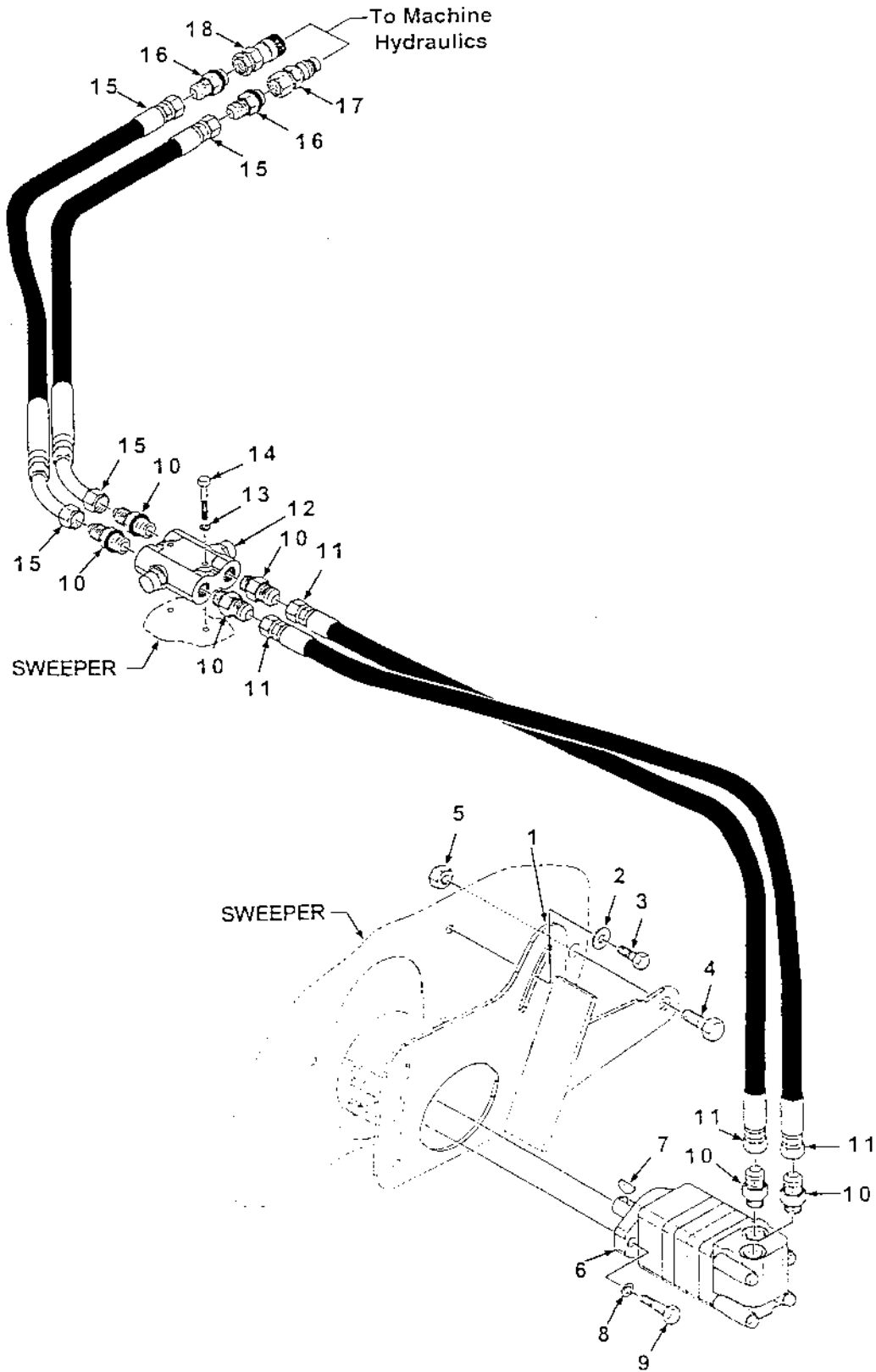




## SWEEPER & BRUSH ASSEMBLY

<u>NO.</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	89346	6' Sweeper
	1	89347	7' Sweeper
2	1	89348	Pivot Frame
3	1	89356	Pivot Pin
4	1	1514	.38" Flat Washer
5	1	1303	.38" UNF X 3.50" Hex Head Bolt
6	1	1503	.38" Lock Washer
7	1	1476	.38" UNF Hex Nut
8	5	9371	Grease Fitting
9	1	78407	Locking Pin,
10	1	52712	Chain
11	1	89475	"S" Hook
12	2	89476	.38 Shackle
13	10"	89477	Chain
14	1	10002	.50" UNC X 7.00" Hex Capscrew Grade 8
15	1	89409	Washer
16	1	89408	Spring
17	1	1098	.50" UNC X 3.50" Hex Capscrew
	1	1841	.50" UNC Deformed Oval Lock Nut
18	1	89407	Spring Housing
19	1	1812	.50" UNC Nylock Nut Grade 8
20	1	89410	Forged Eye Nut
21	1	89255	2" Square Drive Block
22	1	10005	Screw, Set, .25-28" UNF x .38" Long
23	1	89242	6' Core
	1	89243	7' Core
24	--	89236	Poly Brush, 6.38" x 24" Dia., (See Below for No. Req'd) (6' Broom = 20) (7' Broom = 23)
25	--	89237	Wire Brush, 6.38" x 24" Dia., (See Below for No. Req'd) (6' Broom = 19) 7' Broom = 22)
26	1	89254	Retainer Plate
27	1	89357	Bearing Mount
28	As Req'd	89245	Shim .125" Thick
29	1	89246	Bearing
30	2	1091	.50" UNF X 1.75" Hex Head Bolt
31	2	1516	.50" Flat Washer
32	2	1505	.50" Lock Washer
33	2	1478	.50" UNF Hex Nut
34	3	1646	.50" Hard Flat Washer
35	6	1338	.50" UNF X 1.00" Hex Head Bolt
36	1	1387	.75" UNF X 1.50" Hex Head Bolt
37	1	10001	.75" UNF Deformed Lock Nut

## HYDRAULICS



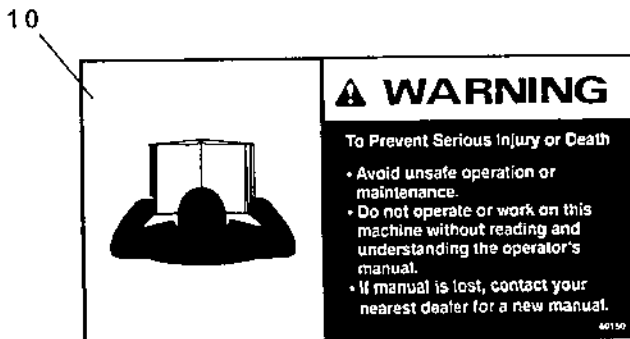
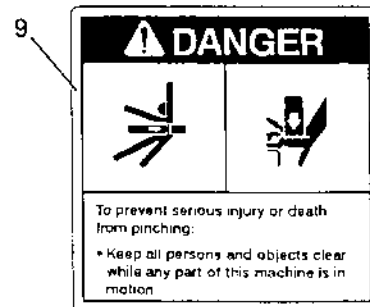
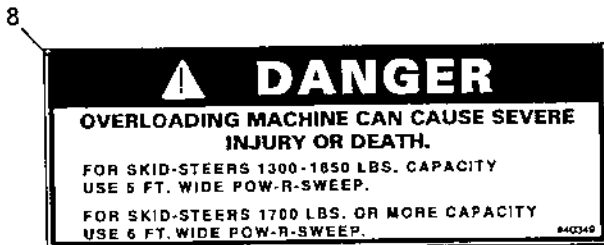
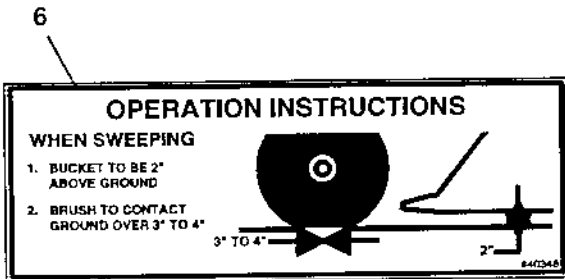
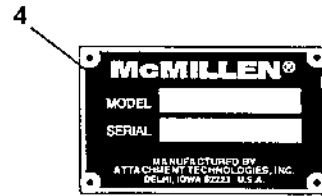
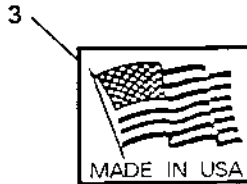
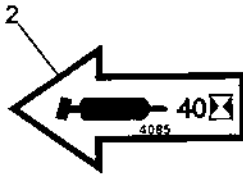


## HYDRAULICS

<u>NO.</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	89358	Mount, Motor
2	3	1646	.50" Hard Flat Washer
3	3	1338	.50" UNF X 1.00 Hex Head Bolt
4	1	1387	.75" UNF X 1.50" Hex Head Bolt
5	1	10001	.75" UNF Deformed Lock Nut
6	1	89258	Hydraulic Motor Includes Key Item #7
7	1	1791	Woodruff Key, 1.00" Dia. x .25" Thick
8	2	1505	.50" Lock Washer
9	2	1341	.50" UNF X 1.75" Hex Head Bolt
10	6	3103	Straight Adapter Fitting, 8MJ - 8MBo
11	2	37218	Hose Assembly, .50" x 36" 8FJX - 8FJX
12	1	89359	Valve Block
13	2	1501	.25" Lock Washer
14	2	1259	.25" UNF X 2.50" Hex Head Bolt
15	2	37766	Hose Assembly, .50" x 84" 8FJX - 8FJX 45° Short
16	2	3070	Straight Adapter Fitting, 8MJ - 8MP
17	1	84924	Male Coupler (Bobcat/NH/Trak/Mustang/Gehl)
	1	86863	Male Coupler (Case)
18	1	84925	Female Coupler (Bobcat/NH/Trak/Mustang/Gehl)
	1	86862	Female Coupler (Case)

# POW **R** SWEEP™ McMILLEN®

## DECALS





## DECALS

<u>NO.</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	40459	Pow-R-Sweep Decal- Large
	2	40466	Pow-R-Sweep Decal - Small
2	1	4084	Grease 40 Hours
3	1	4338	Made In U.S.A.
4	1	22677	Serial Number Tag
5	1	40347	Direction of Rotation Decal
6	1	40348	Operation Decal
7	1	40151	Warning! High Pressure Fluid
8	1	40349	Danger! Overloading Machine
9	2	40149	Danger! Pinch Points
10	1	40150	Warning! Read Operator's Manual