

OPERATOR'S
AND
PARTS MANUAL

SH52 - SH62 - SH72
TWO STAGE SNOWBLOWER
WITH LOADER HITCH KIT #9449



TABLE OF CONTENTS

CONTENTS	PAGE
INTRODUCTION	2
SAFETY PRECAUTION	3
SAFETY DECALS	5
ASSEMBLY	
o REAR MOUNT	
Step 1: Loader hitch installation	6
Step 2: Chute installation	7
Step 3: Rear installation	8
Step 4: Valve installation	9
o OPTIONAL ACCESSORIES	
#9378 Electric chute rotation kit (optional)	10
#9369 Electric deflector kit (optional)	11
#9379 Hydraulic chute rotation with cylinder	13
#9380 Hydraulic chute rotation with motor	15
#9376 Hydraulic deflector	17
OPERATION	
Operating controls	18
Adjustments	19
Preparing for snow removal	20
Snow removal methods	21
MAINTENANCE	22
PARTS	
Introduction/Decal	23
Snowblower	24
Gear box	26
Chute with deflector	26
#9378 Electric chute rotation (optional)	27
#9369 Electric deflector (optional)	27
#9379 Hydraulic chute rotation with cylinder	28
Hydraulic rotation cylinder	30
#9380 Hydraulic chute rotation with motor	31
#9376 Hydraulic deflector	32
#9399 Rear carrier frame	33
#9395 Independent hydraulic package	34
#9448 Valve support	35
Loader hitch	36
#9452-#9453 Two and three spool valve	37
TORQUE SPECIFICATION TABLE	inside back cover

INTRODUCTION

TO THE PURCHASER

This new snowblower was carefully designed to give you years of dependable service.

This manual has been provided to assist in the safe operation and service of your new snowblower.

NOTE: All photographs and illustrations in the manual are intended for reference only and are based on the latest product information available at the time of publication.

Familiarize yourself fully with the safety recommendations and operating procedures before operating the machine. Carefully read, understand and follow these recommendations and make sure other operators of the machine understand safe operation.



This symbol, the industry's "Safety Alert Symbol" is used throughout this manual and on the snowblower's safety labels to warn of the possibility of personal injury. Your Dealer requests that you take special care in reading and understanding the safety precautions before operating the snowblower or the tractor.

Record your snowblower serial number and model number below. Your Dealer requires this information to give you prompt efficient service when ordering parts or attachments. Service with genuine **RAD** parts when replacement parts are required.

Right hand and left hand are determined by sitting on the tractor seat facing forward.

MODEL _____ SERIAL NUMBER _____ DATE PURCHASED _____

SAFETY PRECAUTIONS

Careful operation is your best insurance against an accident. Read this section carefully before operating the tractor and snowblower. All operators, no matter how experienced they may be, should read this and other related manuals before operating the snowblower. It is the owner's legal obligation to instruct all operators in safe operation.

BEFORE OPERATION



This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on the snowblower's safety labels to warn of the possibility of personal injury. Your Dealer requests that you take special care reading and understanding the safety precautions before operating the snowblower or the tractor.

1. Read and understand this Operator's Manual and the tractor Operator's Manual. Know how to operate all controls and how to stop the unit and disengage the controls quickly.
2. Never allow other persons to operate the equipment without proper instruction. Never allow children to operate the equipment.
3. Keep the area of operation clear of all bystanders, especially small children and pets.
4. Never wear loose, torn, or bulky clothing around the tractor and snowblower. It may catch on moving parts or controls, leading to the risk of accident. Use additional safety items - hard hat, safety boots, eye and hearing protection, gloves, etc... as appropriate or required.
5. Before the snow season, thoroughly inspect the area where the equipment is to be used and remove all door mats, boards, wires and other foreign objects.
6. Disengage PTO (POWER TAKE OFF), and shift into neutral before starting the engine.
7. Do not operate equipment without wearing adequate winter outer garments.
8. Adjust collector housing height to clear gravel or crushed rock surface.
9. Never attempt to make any adjustments while engine is running.
10. Do not work under a raised snowblower.
11. Escaping hydraulic/diesel fluid under pressure can penetrate the skin. Use a piece of cardboard or paper rather than the hands to search for leaks.

OPERATION

1. Make sure the drivelines are attached properly before operation.
2. Before dismounting, take all possible precautions. Disengage PTO, lower attachment, shift into neutral, set the parking brake, stop engine, and remove the key.
3. Before starting, remove any ice that has accumulated in the auger and fan.
4. Make sure that the PTO is in the **NEUTRAL** position before starting engine.
5. Watch carefully for foreign objects that could enter the blower while operating.
6. Do not put hands or feet near rotating parts. Keep clear of discharge opening at all times.
7. Exercise extreme caution when operating on or crossing a gravel drive, walks, or roads. Stay alert for hidden hazards of traffic. Do not carry passengers.
8. Use adequate safety warning lights. Check local regulations.

SAFETY PRECAUTIONS

9. Stop the engine, remove the key, set the parking brake, and allow the rotating parts to stop before unclogging the collector/impeller housing or discharge guide, and before making any repairs, adjustments or inspections.
10. Use a piece of wood or stick (36" minimum length) to unplug spout, do not use hands or feet.
11. If the snowblower starts to vibrate abnormally, stop the engine immediately, and check for the cause. Excessive vibration is generally a sign of trouble.
12. Do not run the engine indoors except when starting engine and transporting snowblower in or out of building. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless and deadly.
13. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
14. Never operate snowblower without guards, plates, and other safety protective devices in place.
15. Never operate snowblower near glass enclosures, automobiles, window wells, embankments, etc., without proper adjustment of snow discharge angle and direction.
16. Never operate machine at high transport speeds on a slippery surface.
17. Use extra caution when backing up.
18. Do not direct discharge at bystanders or animals. Ejected objects may cause injury.
19. Disengage power to auger/fan when transporting or when not in use.
20. Never operate the snowblower without good visibility and lighting.
21. Use only approved tire chains and front counterweights for better traction and stability.
22. 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.



WHENEVER YOU SEE THIS SYMBOL

IT MEANS:

ATTENTION!

BECOME ALERT!

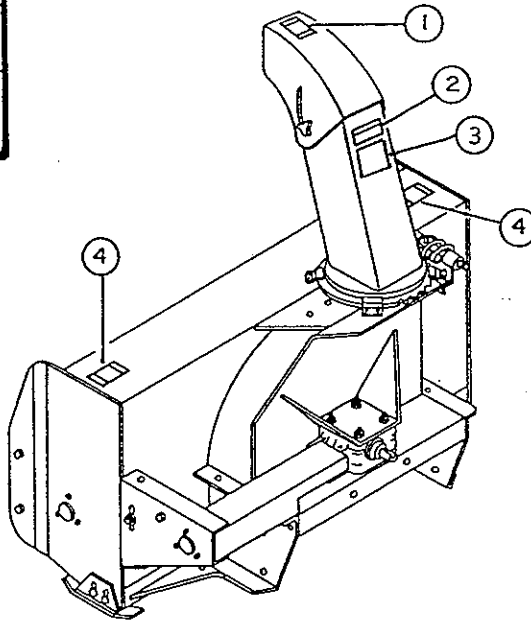
YOUR SAFETY IS INVOLVED!

SAFETY DECALS

REPLACE IMMEDIATELY IF DAMAGED



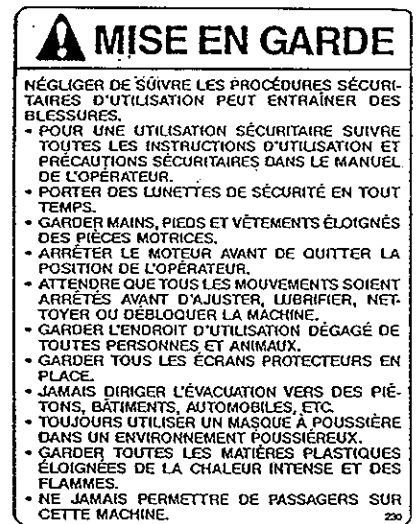
1.



2.



4.



3.

ASSEMBLY

STEP 1: LOADER HITCH INSTALLATION

- a) Install coupling adaptor (fig.1, item 1) on gear box and fix in place with a 5/16"x 2 3/4"hex. bolt and nylon nut(fig.1, items 2-3), keys 1/4"x 1/4" x 1 3/4"(fig.1, item 4) and 5/16"x 5/16" x 1 3/4" Fig.1, item 5)
- b) Remove two 3/8" x 5" hex. bolts on snowblower and replace by two 3/8" x 5 1/2"hex. bolts. Install hydraulic motor support (fig.1, item 11) on frame with these two 3/8" x 5 1/2"hex. bolts (fig.1, item 12) and two 1/2" x 1" hex. bolts, lockwashers and nuts (fig.1, items 13-9-10).
- c) Install hydraulic motor (fig.1, item 6) on motor support (fig.1, item 11) with two 1/2" x 1 1/2"hex. bolts, lockwashers and nuts (fig.1, items 8-9-10)
- d) Install loader hitch (fig.1, item 14) on snowblower by attaching top flatbar with a 5/8" x 1 1/2"hex., lockwasher and nut (fig.1, items 15-16-17) be sure to place washer on top of flatbar. On each side tubes with four 5/8" x 3 3/4" hex. bolts, lockwashers and nuts (fig.1, items 18-16-17) and two 5/8" x 3 3/4" hex. bolts, lockwashers and nuts (fig.1, items 19-16-17).
- e) Install left and right attach angles and attach fixations (fig.1, items 20-21-22-23) on tractor loader arms. Attach with the four 63/34" x 5 3/8" (25mm)(fig.1, item 25) pins, 1/4" x 1 3/4"roll pins, 1/4" x 2"hex. bolts, lockwashers and nuts (fig.1, items 26-27-28-29).
- i) Place tractor loader arms near loader hitch, center attach angles and fixations (fig.1, items 20-21-22-23)and once in right position fix tightly together with the U-bolts (fig.1, item 24).

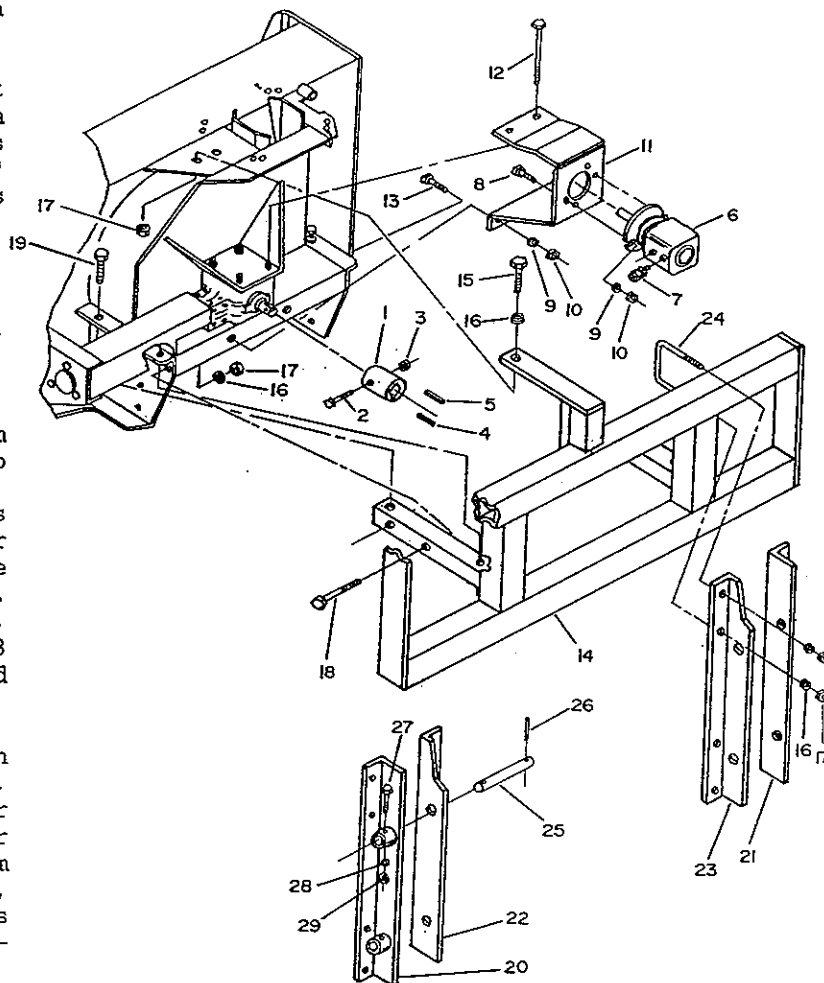


FIGURE 1

ASSEMBLY

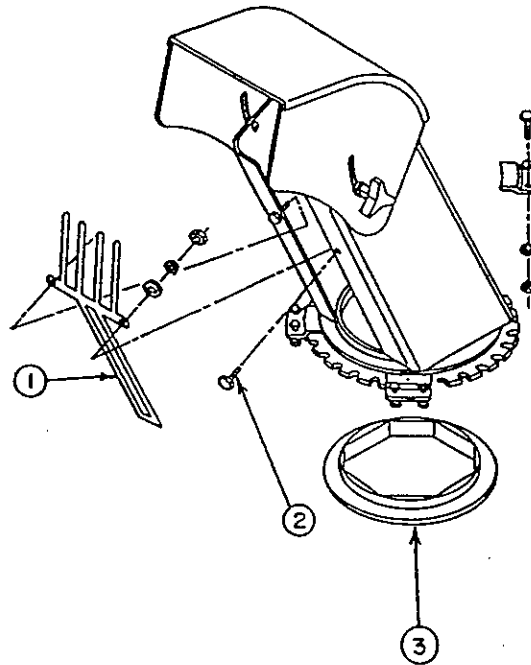


FIGURE 2

STEP 2: CHUTE INSTALLATION

- a) Install the hand guard (fig.2, item 1) on the chute with the top portion inside the chute and the bottom section outside the chute base ring. Place two 1/4" x 3/4" bolts (fig.2 item 2) with the head on the outside, through the chute then through the hand guard and secure bolts with flatwashers, lockwashers and nuts. Torque to 9-11 lbs.ft.
- b) Place the plastic anti-friction insert (fig.2, item 3) over the chute base. Apply grease on top of this insert where it will become in contact with the chute base.

ASSEMBLY

STEP 3: REAR INSTALLATION

WARNING:

Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury.

- o Do not use your hands to check for leaks. Use a piece of cardboard or paper to search for leaks.
- o Stop engine and relieve pressure before connecting or disconnecting lines.
- o Tighten all connections before starting engine or pressurizing lines.

If any fluid is injected into the skin, obtain medical attention immediately or gangrene may result.

- a) Attach hydraulic pump assembly (fig.3, item 1) to tractor PTO shaft, making sure to place tractor draw bar inside hinge portion (fig.3, item 2) of assembly. Make sure locking collar securely locks pump assembly in place.
- b) Install one chain support plate (fig.3, item 3) on each side of tractor upper hitch point. Secure to tractor pin with lynch pin.
- c) Attach tractor lower links to hitch pins of carrier frame (fig.4, item 1), using tractor lynch pins.
- d) Install tractor top link to attaching frame (fig.4, items 1) in front hole position. Adjust top link so that attaching frame is perpendicular to ground level.
- e) Attach depth control chains (fig.4, item 3) in chain support plates (fig.4, item 4), adjust chain so that bottom of attaching frame stops at 3" to 3 1/2" from ground.

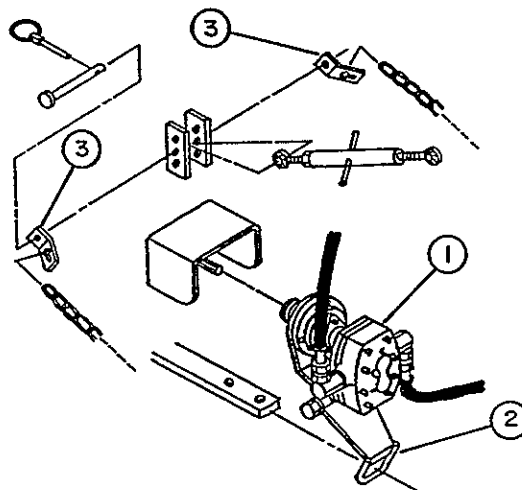


FIGURE 3

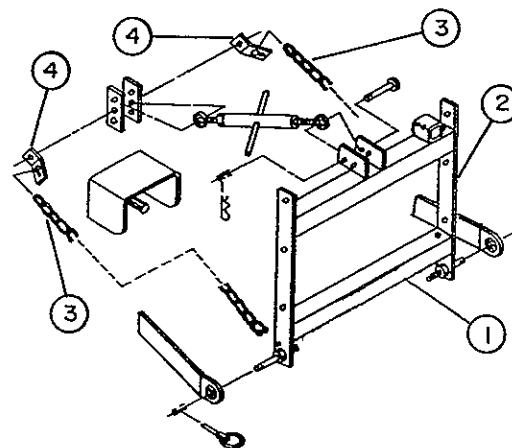


FIGURE 4

ASSEMBLY

STEP 4: TWO AND THREE SPOOL VALVE INSTALLATION

- a) Install valve (fig.5, item 2) on underside of valve support bracket (fig.5, item 1) using a $5/16"$ x $2\ 1/4"$ bolt (fig.5, item 3), lockwashers and nuts. Tighten securely.
- b) Install valve support bracket assembly in welded square tube either on rear carrier. Secure with two $5/16"$ x $3/8"$ allen set screw.
- c) Install $1/2"$ x 42" hose (not included)(fig.6, item 1) from hydraulic pump to input port on valve.
- d) Install a $3/4"$ ORB x $1/2"$ NPT swivel adapter (not included)(fig.5, item 4) in each of the ball detent spool ports.
- e) Connect snowblower hoses to ball detent swivel adapters.
- f) Install a $3/4"$ ORB x $3/8"$ NPT swivel adapter (not included)(fig.5, item 5) in each of the remaining spool ports on valve.
- g) Connect cylinder hoses to swivel adapters on valve.
- h) Connect reservoir $1/2"$ x 30" hose (not included)(fig.6, item 2) to output port on valve.

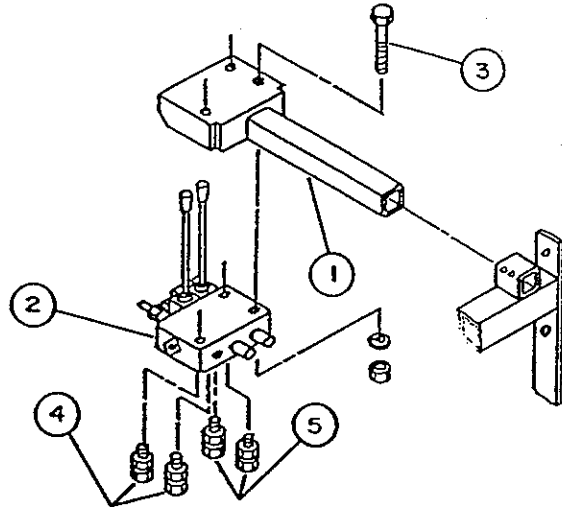


FIGURE 5

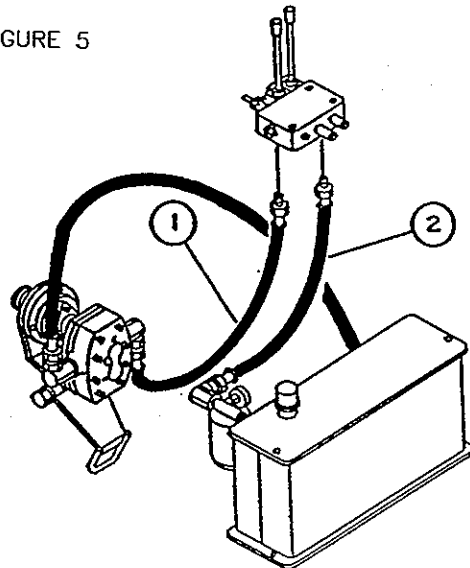


FIGURE 6

DIRECT HYDRAULIC INSTALLATION

- a) Install $1/2"$ hose (not included)(fig.7, item 1) from hydraulic pump to input port of motor.
- b) Connect reservoir $1/2"$ hose (not included)(fig.7, item 2) to output port of motor.

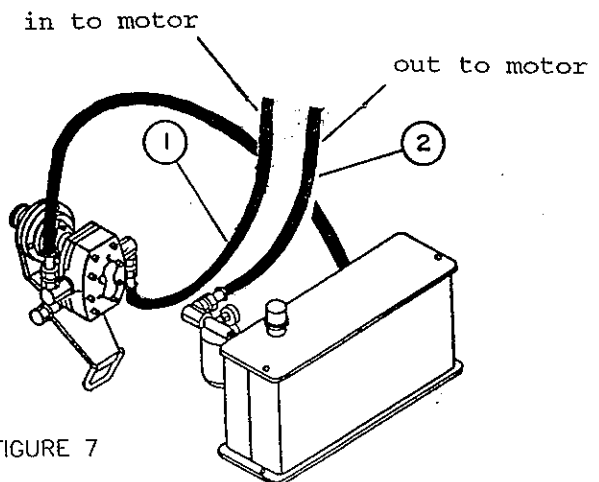


FIGURE 7

ASSEMBLY

OPTIONAL ACCESSORIES

#9378 ELECTRIC CHUTE ROTATION (Optional)

- a) Insert the 1 11/16" plastic bushing (fig.8, item 1) in the rotation bracket (fig.8, item 2).
- b) Install the adaptor (fig.8, item 3) on the motor shaft and attach motor (fig.8, item 4) to rotation bracket using three 1/4" x 3/4" bolts, lockwashers and flatwashers. Tighten.
- c) Insert longest tube end of rotation worm (fig.8, item 5) over adaptor and into plastic bushing in rotation bracket. Align holes and secure with a 10-24 x 1" capscrew and a nylon lock nut. Tighten securely.
- d) Install the chute over the plastic insert and place the four retaining plates (fig.8, item 6). Secure using eight 1/4" x 3/4" bolts, lockwashers and nuts, attaching rotation bracket assembly on the underside of chute base lip. Torque to 9-11 lbs.ft.
- e) Drill one 1/2" hole in tractor for control switch. Drill one .593" hole at least 2 1/2" from control switch hole for fuse holder. The two holes must be drilled in an appropriate location and must not interfere with existing controls or electrical systems.
- f) Solder one 18" wire to the side terminal of fuse holder and the other 18" wire to the bottom terminal (see figure 9).
- g) Install control switch and fuse holder in holes drilled in (e) above, and thread rubber toggle protector over switch.
- h) Connect one wire from fuse holder to middle terminal of control switch, the other 18" wire to the tractor ignition switch (see figure 9).

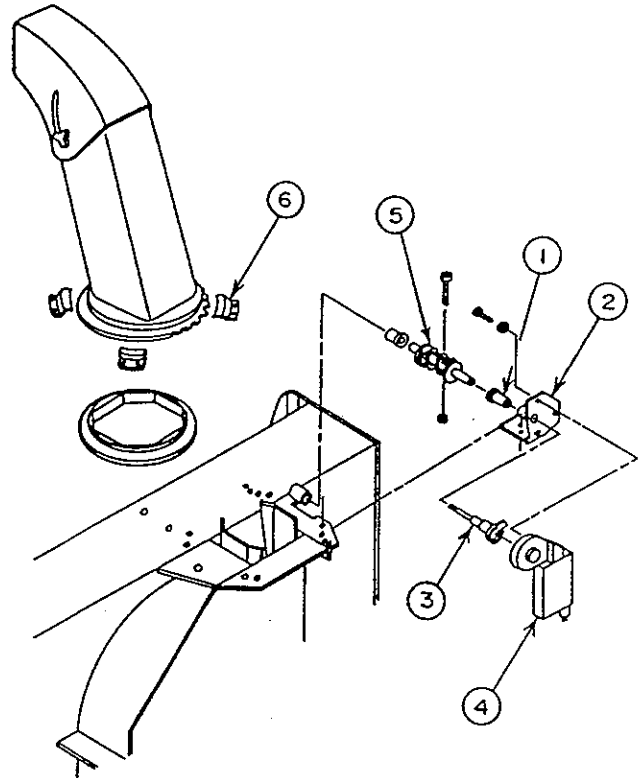


FIGURE 8

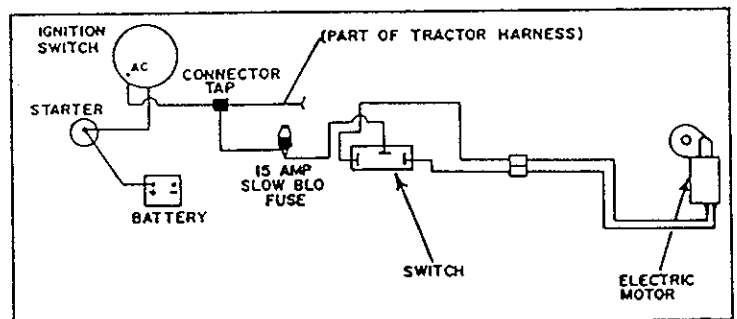


FIGURE 9

ASSEMBLY

- i) Connect one end of the long lead wire to the electric motor and the other end to the control switch. Cut this wire at a convenient location for snowblower removal. Install the wire connectors with one male and one female connector to the motor half of the wire. This will allow the snowblower to be easily dismantled.
- j) Secure wires away from moving parts using the provided tie wraps and adhesive clips.

NOTE:

If chute rotates opposite to direction of control switch, simply reverse motor lead wires.

#9369 ELECTRIC DEFLECTOR (Optional)

- a) Remove the two manual adjustment knobs (fig.10, item 1) and bolts from each side of deflector and replace with two 5/16" x 3/4" carriage bolts, using original nylon washers and two nylon lock nuts, leaving 1/16" play.
- b) Place actuator support bracket (fig.10, item 2) on center of chute deflector, flush with bottom edge of deflector. Using this bracket as a template, drill four 11/32" holes in deflector, and bolt in place with four 5/16" x 3/4" allen flat socket capscrew (fig.10, item 3), lockwashers and nuts, with the capscrew heads inside the chute. Tighten so that capscrew heads sink flush to inside surface of deflector.
- c) Retract actuator rod completely and secure to deflector bracket (fig.10, item 1) and chute bracket (fig.10, item 4) which will be installed in section d next, using two 1/4" x 1 1/4" bolts (fig.10, item 5) and nylon lock nuts. Secure loosely to permit movement.

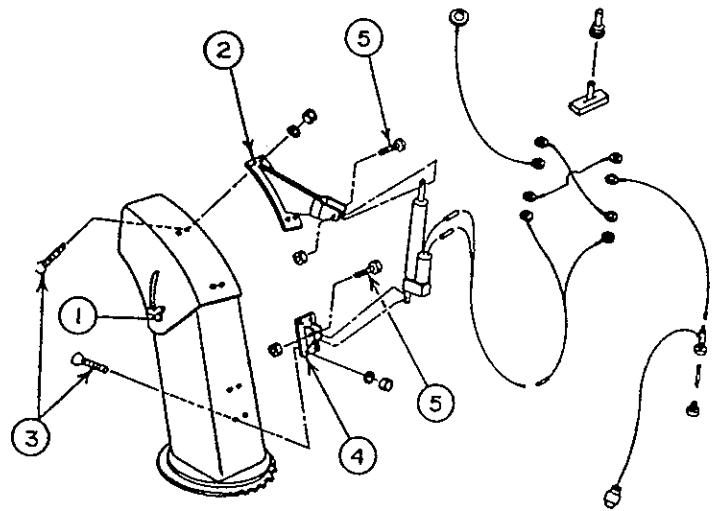


FIGURE 10

ASSEMBLY

- d) Open deflector to maximum so that actuator rod retracts completely. Place attachment bracket (fig.10, item 4) on the center rear of chute and using bracket as a template, drill four 11/32" holes in chute. Bolt bracket to chute using four 5/16" x 3/4" allen flat socket cap screw, lockwashers and nuts, with the capscrew heads inside the chute. Tighten so that capscrew heads sink flush with inside surface.
- e) Drill one 1/2" hole in tractor for control switch. Drill one .593" hole at least 2 1/2" from control switch hole for fuse holder. The two holes must be drilled in an appropriate location and must not interfere with existing controls or electrical systems.
- f) Solder one 18" wire to the side terminal of fuse holder and the other 18" wire with eyelet to the bottom terminal (see figure 11).
- g) Install control switch and fuse holder. Thread rubber toggle protector over switch.
- h) Connect eyelet end of 18" wire to "b" terminal on control switch (see fig.11).
- i) Connect one end of the 17" wire to the "a" terminal on the control switch (see fig. 11). Connect other end to a suitable ground on the tractor frame.
- j) Connect one end of one 5" wire to the "a" terminal on control switch (see fig. 11). Connect other end to the "d" terminal on control switch (see fig.11).
- k) Connect one end of the other 5" wire to the "c" terminal on control switch (see fig. 11). Connect other end to the "f" terminal on control switch (see fig.11).
- l) Connect eyelet end of the 102" double wire to the "a" & "f" terminals on control switch (see fig.11).

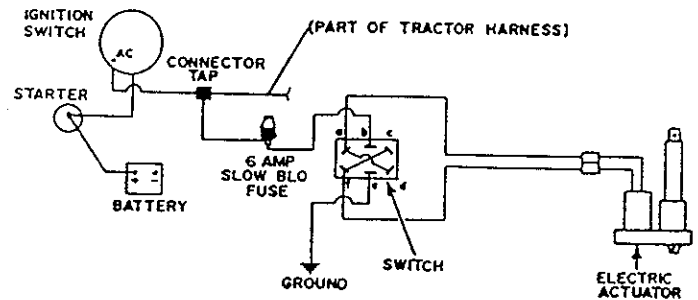


FIGURE 11

ASSEMBLY

- m) Connect fused wire to wire from terminal "A" of tractor ignition switch using connector tap.
- n) Connect other ends of the 102" double wire to the electric motor. Cut this wire at a convenient location for snowblower removal. Install the wire connectors with one male and one female connector to the motor half of the wire. This will allow the snowblower to be easily dismantled.
- o) Secure wires away from moving parts using the provided tie wraps and adhesive clips.

NOTE:

If deflector functions opposite to direction of control switch, simply reverse actuator lead wires.

#9379 HYDRAULIC CHUTE ROTATION WITH CYLINDER

- a) Attach longest flatbar end of rotation arm support (fig.12, item 1) on the underside of the chute base using a 5/8" x 1" bolt (fig.12, item 2) and lockwasher. Secure other end to collector housing using two 3/8" x 1" bolts (fig.12, item 3), lockwasher and nuts with bolt heads on the top side. Torque the 5/8" bolt to 150-180 lbs/ft., and the two 3/8" bolts to 35-42 lbs/ft.
- b) Assemble pulleys (fig.12, item 4) in rotation arm (fig.12, item 5) using two 5/8" x 1 1/8" pins (fig.12, item 6) with the pin heads on the underside. Secure with two 1/8" x 1 1/4" cotter pins (fig.12, item 13).
- c) Place rotation arm (fig.12, item 5) on arm support with the welded sleeve toward the front of blower and away from chute base. Insert a 5/8" x 2 1/4" bolt (fig.12, item 7) through rotation arm and thread through arm support. Tighten securely and loosen 1/8 of a turn. Lock bolt on underside of arm support using a 5/8" nut (fig.12, item 14).

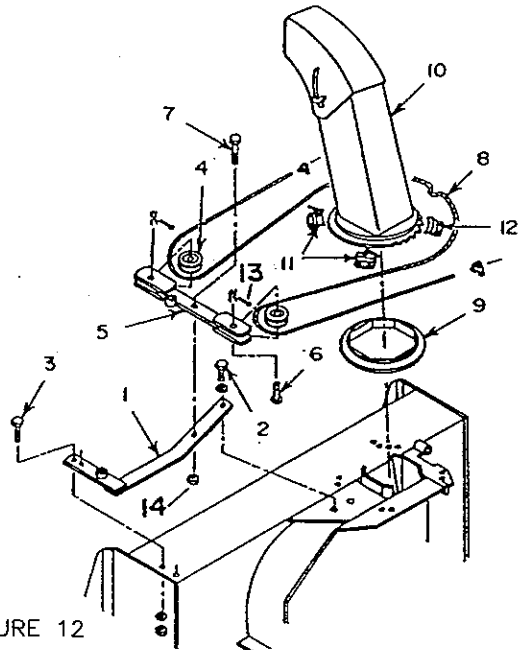


FIGURE 12

ASSEMBLY

- d) Insert steel cable (fig.12, item 8) through the two small holes in chute base from the inside with equal length on both side.
- e) Install plastic anti-friction insert (fig.12, item 9) on blower chute base. Only one position provides a perfect fit.
- f) Place chute (fig.12, item 10) over plastic insert. Adjust so that chute opening is straight forward and the two small holes in chute base are on the right hand side.
- g) Install the two retaining plates with cable guide (fig.12, item 11) on left hand side of chute base using four 1/4" x 3/4" bolts, lockwashers and nuts (fig.12, items 6-7-8-). Retaining plate guides must be pointing away from each other. Install the two standard retaining plates (fig.12, item 12) on other side of chute using four 1/4" x 3/4" bolts, lockwashers and nuts. Torque the eight 1/4" bolts to 9-11 lbs/ft.

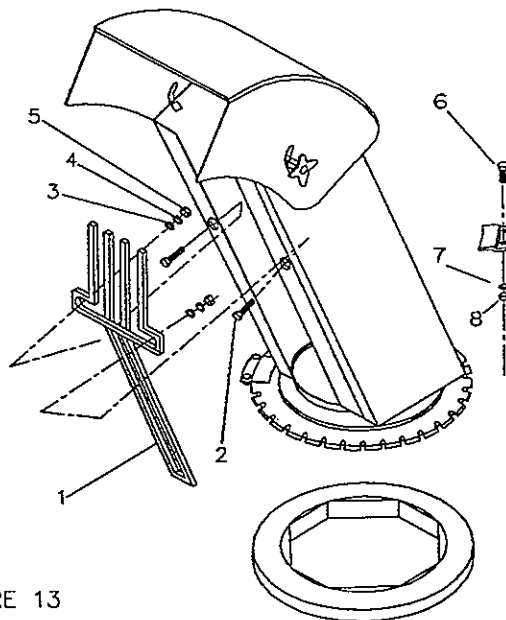


FIGURE 13

- h) Install hand guard (fig.13, item 1) on chute with the top portion inside the chute and the bottom section outside the chute base ring. Place two 1/4" x 3/4" bolts (fig.13, item 2) with the head on the outside of the chute, through the chute, then through the hand guard, and secure with flatwasher, lockwasher and nut (fig.13, items 3-4-5) on each bolt. Torque to 9-11 lbs/ft.
- i) With the chute opening facing forward and rotation arm parallel to blower sides, route the cable ends around the chute base (fig.14, item 1) away from each other, around the rotation pulleys (fig.14, item 2) from the inside to the outside. Secure cable ends to the front and rear side of the chute using the two cable clamps (fig.14, item 3). There should be at least 1" of cable protruding each clamp. Torque to 9-11 lbs/ft.

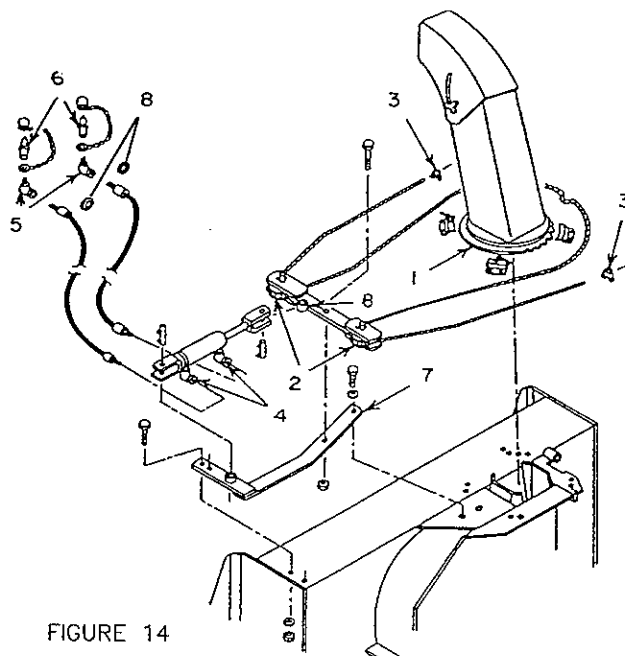


FIGURE 14

NOTE: If chute does not rotate equal distance on both sides, readjust cable.

ASSEMBLY

- j) Install a 90 degree elbow 3/8" male x 1/4" pivoting female (fig.14, item 4) in each cylinder port using thread sealant. With cylinder ports facing you and base end to your left, set both elbows at approximately 2 o'clock.
- k) Using thread sealant, install a 90 degrees elbow 3/8" male x 3/8" pivoting female (fig.14, item 5) at one end of each hose. Install a male quick coupler (fig.14, item 6, not included) with dust cap over each elbow (dust cap must be on threaded portion before installation).
- l) Attach the 51" hose to cylinder base end elbow and the 46" hose to rod end elbow.
- m) Install cylinder base end on rotation support (fig.14, item 7)(cylinder ports on underside), and rod end on rotation arm (fig.14, item 8) using provided pins and cotter pins.

#9380 HYDRAULIC CHUTE ROTATION WITH MOTOR

- a) Install the hand guard (fig.15, item 1) on the chute with the top portion inside the chute and the bottom section outside chute base ring. Place two 1/4" x 3/4" bolts (fig.15 item 2) with the head on the outside of the chute, through the chute then through hand guard and secure each bolt with a flatwasher, lockwasher and nut (fig.15, items 3-4-5). Torque to 9-11 lbs. ft.
- b) Place the plastic anti-friction insert (fig.16, item 1) over the chute base. Apply grease on top of this insert where it will contact the chute base.
- c) Place the chute on the plastic insert and secure with four retaining plates (fig.16, item 2) using eight 1/4" x 3/4" bolts, lockwashers and nuts (fig.15, items 6-7-8). Do not tighten.
- d) Insert the 1 5/16" long plastic bushing (fig.16, item 3) in the tube weldment (fig.15, item 9).

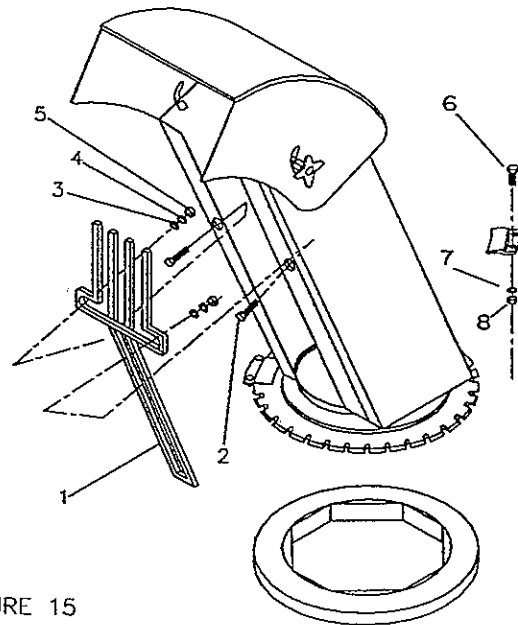


FIGURE 15

ASSEMBLY

- e) Insert the 1 11/16" long bushing (fig.16, item 4) in the rotation bracket (fig.16, item 5).
- f) Install longest tube end of rotation worm (fig.16, item 6) in the bushing installed in the rotation bracket.
- g) Insert locking collar (fig.16, item 7) over rotation worm.
- h) Install a 1/8" x 3/16" x 1" key in the hydraulic motor shaft keyway.
- i) Install hydraulic motor (fig.16, item 8) on rotation bracket and inside rotation worm. Secure the motor on the rotation bracket using two 3/8" x 1 1/4" bolts, flatwashers (on motor side), lockwashers and nuts (fig.16, items 10-11-12-13). Torque to 35-42 lbs/ft.
- j) Install rotation bracket assembly on under side of chute base lip and bushing (fig.16, item 3) in tube weldment (fig.16, item 9). Secure assembly with the retaining plate bolts.
- k) Securely tighten the two set screws in the locking collar (one over the key) (fig.16, item 15).
- l) Install a connector 7/8" O.R.B. male x 9/16"-18 J.I.C. male (fig.17, item 1) in each port of hydraulic motor.
- m) Install 90 degree elbow 1/4" male x 1/4" pivoting female (fig.17, item 2) at male end of hoses.
- n) Using thread sealant, attach a male quick coupler with rubber dust cap (fig.17, item 3) on each elbow (dust cap ring must be on hose before installation).
- o) Connect the two hydraulic hoses to the motor, placing a flow restrictor (fig.17, item 4) in connector (fig.17, item 1).

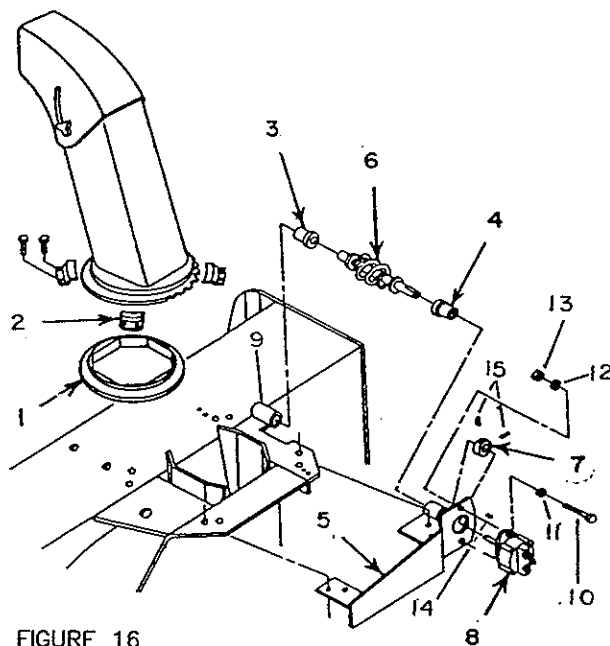


FIGURE 16

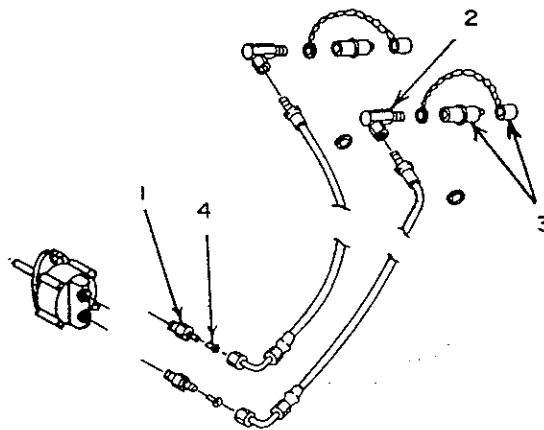


FIGURE 17

ASSEMBLY

#9376 HYDRAULIC DEFLECTOR

- a) Remove the two manual adjustment knobs (fig.18, item 1) and bolts from each side of deflector and replace with two 5/16" x 3/4" carriage bolts, using original nylon washers and two nylon lock nuts, leaving 1/16" play.
- b) Place hydraulic cylinder support bracket (fig.18, item 2) on center of chute deflector, flush with bottom edge of deflector. Using this bracket as a template, drill four 11/32" holes in deflector, and bolt in place with four 5/16" x 3/4" allen flat socket capscrew, lockwashers and nuts (fig.18, items 3-6-7), with the capscrew heads inside the chute. Tighten so that capscrew heads sink flush to inside surface of deflector.
- c) Retract hydraulic cylinder rod (fig.18, item 9) completely and secure to deflector bracket (fig.18, item 2) and chute bracket (fig.18, item 4) which will be installed in section "d" (next), using the two cylinder pins (fig.18, item 5). Block with the two cotter pins (fig.18, item 8). Secure loosely to permit movement.
- d) Open deflector to maximum so that the hydraulic cylinder rod retracts completely. Place chute bracket (fig.18, item 4) on the center (left to right) rear of chute and using bracket as a template, drill four 11/32" holes in chute. Bolt bracket to chute using four 5/16" x 3/4" allen flat socket cap screw, lockwashers and nuts (fig.18, items 3-6-7), with the capscrew heads inside the chute. Tighten so that capscrew heads sink flush with inside surface of the chute.
- e) Install a 90 degree elbow 3/8" male x 1/4" pivoting female (fig.18, item 4) in each cylinder port using thread sealant. With cylinder ports facing you and base end to your left, set both elbows at approximately 2 o'clock. Attach the 48" hose to cylinder base end elbow and the 54" hose to rod end elbow.

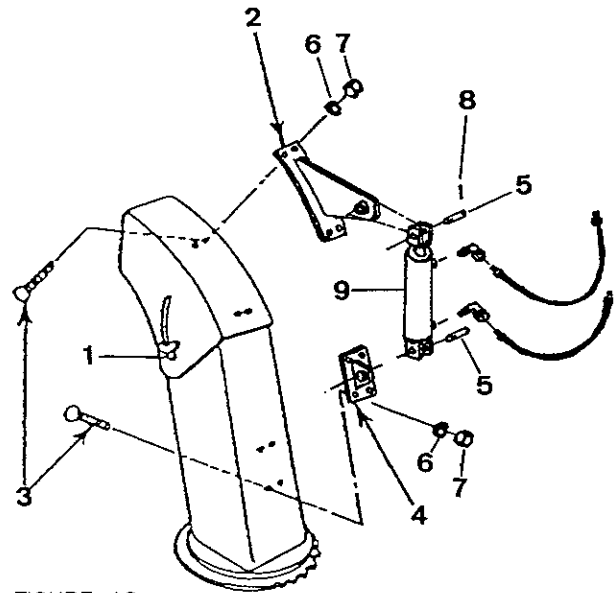


FIGURE 18

OPERATIONS

OPERATING CONTROLS

1. CHUTE ROTATION

● ELECTRIC:

Placing the control switch toggle to the right rotates the chute to the right in a clockwise direction, and placing the toggle to the left rotates the chute to the left.

2. RAISING AND LOWERING THE SNOWBLOWER

CAUTION: TO AVOID PERSONAL INJURY:



Check the full lifting range of the snowblower, to ensure that the chute rotation handle is clear of the operator's area when the snowblower is in raised position.

Using the tractor three point hitch control lever, raise the snowblower by pulling back on the lever and lower it by pushing the lever forward. For additional information refer to the tractor operator's manual.

3. STARTING AND STOPPING THE SNOWBLOWER

The snowblower is driven from the tractor engine through the PTO. Refer to the tractors operator's manual for proper use of the Power Take Off.

4. ELECTRIC DEFLECTOR

Placing the control switch toggle upward or backward (depending on location) raises the chute deflector, and placing the toggle forward or downward lower the deflector.

OPERATIONS

ADJUSTMENTS



WARNING: Before making any adjustments, stop the snowblower, turn off engine, set parking brake and remove ignition key.

1. AUGER DRIVE CHAIN ADJUSTMENT

To adjust the tension on the drive chain, loosen the bolt (fig.1, item 1), securing the idler sprocket to the snowblower housing. To tighten the chain, lower the bolt. Leave approximately 1/2" deflection in one span of the chain. Retighten securely the bolt holding the idler sprocket.

2. SKID SHOE ADJUSTMENT

To adjust the skid shoes (fig.1, item 2), Loosen skid shoe bolts, adjust height according to instructions below and securely tighten bolts:

- a) Level Paved Surface - adjust skid shoes to allow 1/16" to 1/8" clearance between cutting edge and surface.
- b) Uneven or Gravel Surface - adjust skid shoes to allow 1/2" to 5/8" clearance between cutting edge and surface.

3. DEFLECTOR ADJUSTMENT

Set the angle of the deflector according to the distance the snow must be thrown. To change the deflector angle, loosen the two deflector knobs, adjust the deflector to the appropriate angle, and tighten the knobs securely.

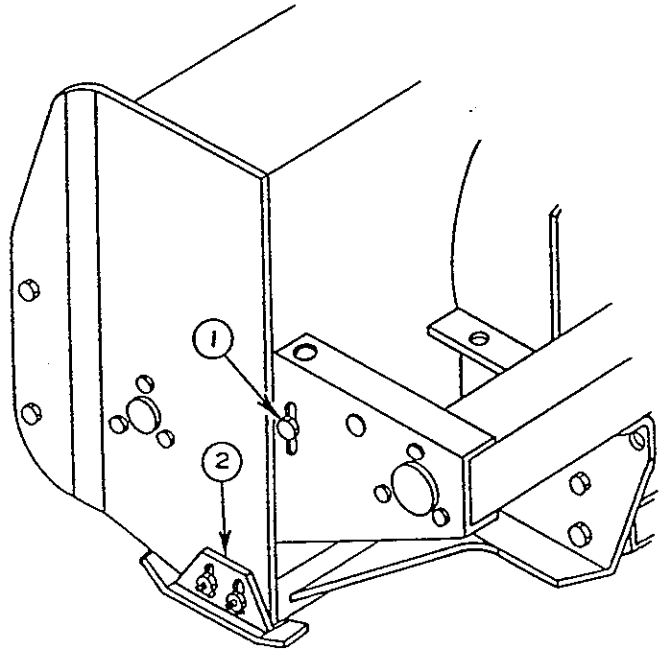


FIGURE 1

OPERATIONS

PREPARING FOR SNOW REMOVAL



WARNING:

1. Read the Operator's Manual carefully. Be thoroughly familiar with the controls and proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
2. Never allow children to operate equipment. Never allow adults to operate equipment without proper instruction.
3. Do not allow anyone other than the operator on the tractor.
4. Keep the area of operation clear of all persons.
5. Clothing worn by the operator should be fairly tight and belted. Loose clothing should not be permitted because of danger of getting into moving parts.

OPERATING THE SNOWBLOWER

1. Make sure that the snowblower is clear of snow before engaging the snowblower.
2. Make sure that the auger and fan operate freely.
3. Check the oil level in the gear box and if necessary, add AGMA 5EP or SAE 90 extreme pressure oil.
4. Check the two shear bolts, one on each auger drive shaft, and one on the fan for proper tightness.
5. Start the tractor engine.
6. Before engaging the snowblower drive, always have the engine running at idle.
7. Operate the snowblower at maximum RPM.

REMOVING SNOW

When removing snow, do not use the snowblower as a dozer blade to push snow. Let the snowblower work its way through deep drifts. If the speed of your tractor is too fast, the snowblower may become overloaded and plug. For best results, raise the snowblower and remove a top layer of snow. A second pass with the snowblower will remove the remaining snow.

IMPORTANT: Use full RPM power when removing wet, sticky snow. Low RPM power will tend to plug the chute.



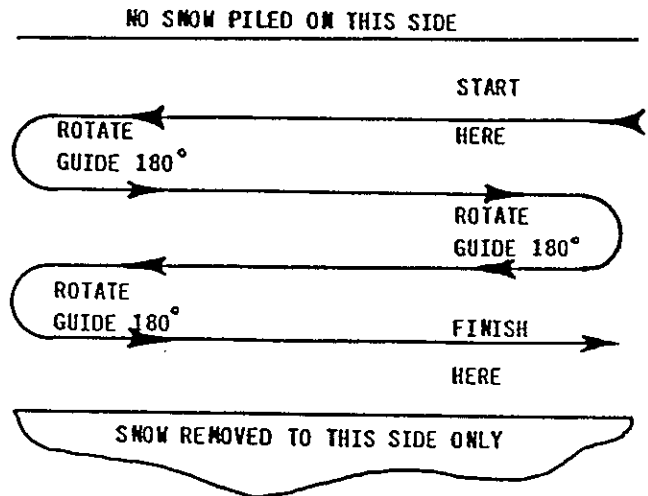
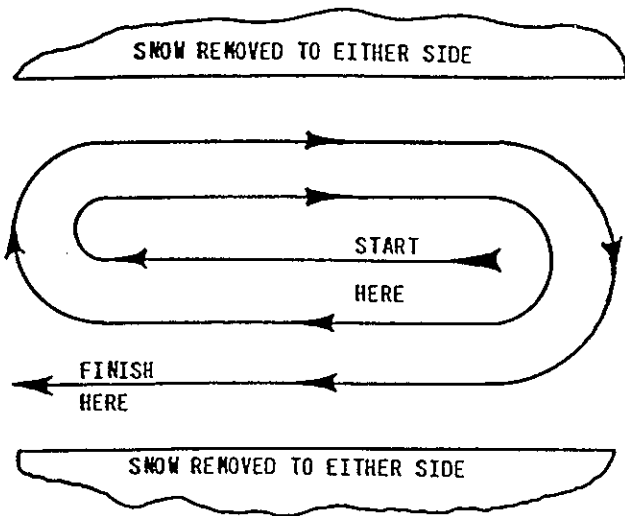
WARNING: Do not use hands to unplug the chute. Use a minimum 36" length of stick. Do not attempt to clear plugged chute of snow while tractor engine is running. If the chute plugs, disengage the PTO, shut off the tractor engine, remove the ignition key and then clear the snow from the chute.

TRACTION: The use of approved tire chains is recommended for extra traction at all times.

OPERATIONS

SNOW REMOVAL METHODS

A definite pattern of operation is required to thoroughly clean the snow area. These patterns will avoid throwing snow in unwanted places as well as eliminating a second removal of snow.



Where it is possible to throw the snow to the left and right (above), as on a long driveway, it is advantageous to start in the middle. Plow from one end to the other, throwing snow to both sides without changing the direction of the discharge guide.

If the snow can only be thrown to one side of the driveway or sidewalk (above), start on the opposite side. At the end of the first pass, rotate the discharge guide 180° for the return pass. At the end of each succeeding pass, rotate the discharge guide 180° to maintain direction of throw in the same area.

MAINTENANCE

MAINTENANCE SERVICE AND STORAGE

1. Check the shear bolts at frequent intervals for proper tightness to be sure the blower is in safe working condition.
2. Never store the tractor with fuel in the fuel tank inside a building where open flame or sparks are present. Allow the engine to cool before storing in any enclosure.
3. Run the snowblower a few minutes after blowing snow to prevent freeze up of the auger and the impeller.
4. Provide adequate blocking before working under the snowblower when in the raised position.

LUBRICATION

1. **GEARBOX(ES):** Check the oil level in the gear drive every month. If necessary, add AGMA 5EP, or SAE 90 gear oil. Make sure oil level is up to side plug.
2. **AUGER DRIVE CHAIN:** Lubricate with chain saw chain lubricant every 4 hours of operation and after each use.

END OF SEASON STORAGE

1. Clean the snowblower thoroughly.
2. Repaint all parts from which paint has worn.
3. When the snowblower is dry, oil all moving parts. Apply oil liberally to all surfaces to protect against rust.
4. Lubricate the snowblower as instructed in lubrication section.
5. List the replacement parts that will be needed before the next season.
6. Store the snowblower in a dry place.

PARTS SECTION INTRODUCTION SH52 - SH62 - SH72 FRONT LOADER

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.

NSS- "Not Serviced Separately" in the part number column is an indication this part is not available for repair separately, but must be purchased as a complete unit.

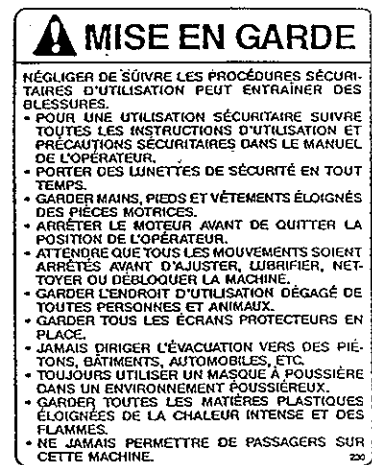
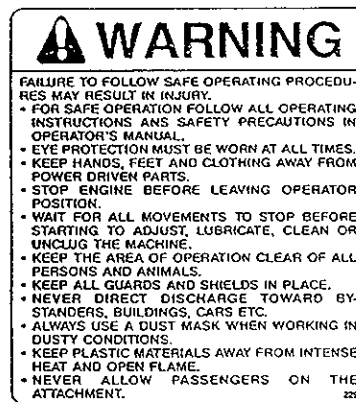
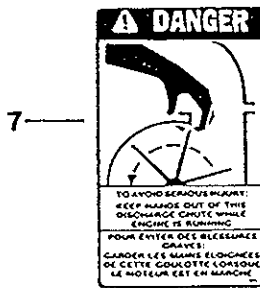
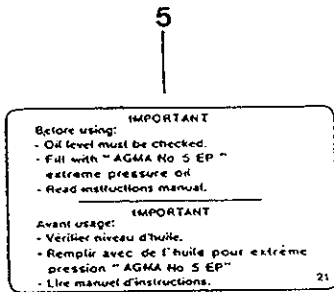
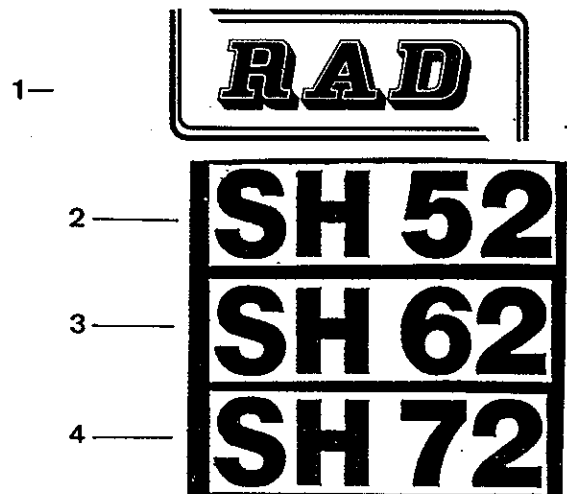
"Right Hand" and "Left Hand" sides of this machine are determined by standing at the rear of the unit and facing in the direction of forward travel.

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

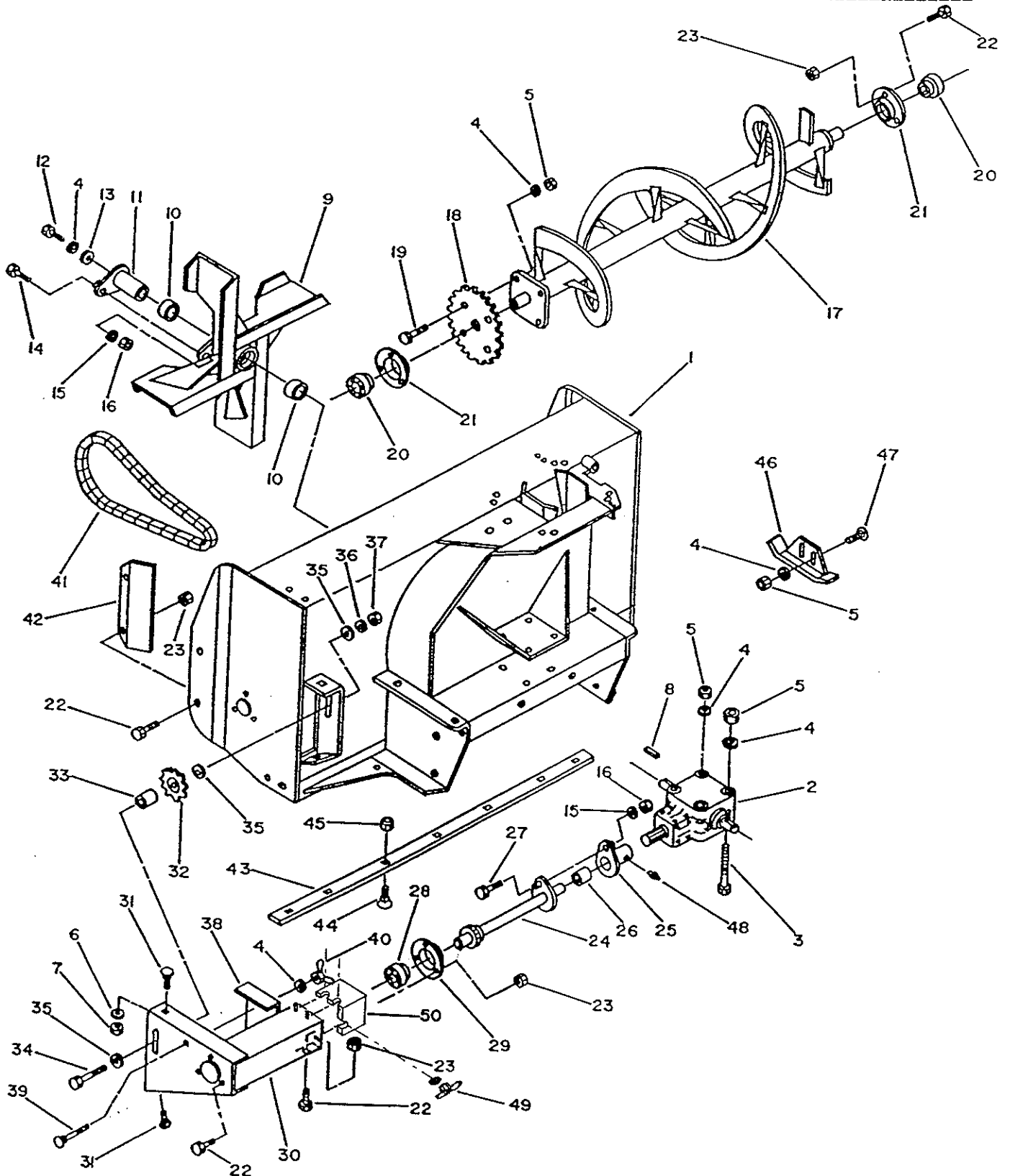
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DECALS

REF	DESCRIPTION	QTY	PART #
1	RAD Decal	1	661560
2	Model Decal (SH52)	1	661825
3	Model Decal (SH62)	1	661826
4	Model Decal (SH72)	1	661827
5	Important Decal	1	655834
6	Warning Decal	1	660988
7	Warning Decal	1	660989
8	Danger Decal (auger)	2	656779
8	Danger Decal (chute)	1	656780



SH52 - SH62 - SH72 SNOWBLOWER

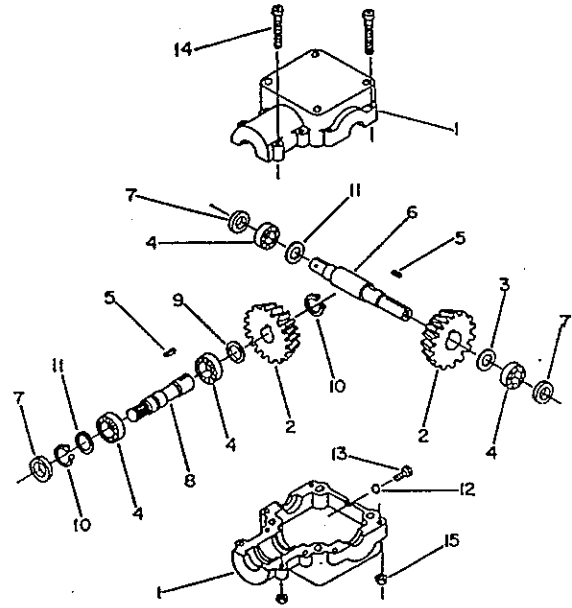


SH52 - SH62 - SH72 SNOWBLOWER

REF	DESCRIPTION	QTY	PART#
1	Housing - 52" model.....	1	659572
	- 62" model.....	1	660313
	- 72" model.....	1	660163
2	Gear box assembly.....	1	659804
3	Bolt (3/8"NC x 5", hex.).....	4	O/L
4	Washer (3/8", lock).....	14	O/L
5	Nut (3/8"NC, hex.).....	12	O/L
6	Washer (7/16", lock).....	1	O/L
7	Nut (7/16"NC, hex.).....	1	O/L
8	Key (3/8" x 3/8" x 2 3/4").....	1	654174
9	Fan assembly.....	1	659150
10	Bushing.....	2	659505
11	Fan adaptor shear plate.....	1	659509
12	Bolt (3/8"NC x 1 1/2", hex.).....	1	O/L
13	Washer (7/16"hole, flat).....	1	O/L
14	Bolt (5/16"NC x 1 3/4", hex.).....	1	O/L
15	Washer (5/16", lock).....	2	O/L
16	Nut (5/16"NC, hex.).....	2	O/L
17	Auger - 52" model.....	1	659810
	- 62" model.....	1	660314
	- 72" model.....	1	660164
18	Sprocket (60A32).....	1	654167
19	Bolt (3/8"NC x 1 1/4", hex.).....	4	O/L
20	Bearing w/locking collar.....	2	654170
21	Flange bearing.....	2	655282
22	Bolt (3/8"NC x 3/4", hex.).....	12	O/L
23	Nut (3/8"NC, flange).....	12	O/L
24	Auger drive shaft - 52" model.....	1	659521
	- 62" model.....	1	660315
	- 72" model.....	1	660165
25	Shear plate.....	1	659522
26	Bushing.....	1	659834
27	Bolt (5/16"NC x 1 1/4", hex.).....	1	O/L
28	Bearing w/locking collar.....	1	659811
29	Flange bearing.....	1	655282
30	Drive shaft support - 52" model.....	1	661823
	- 62" model.....	1	661824
	- 72" model.....	1	661833
31	Bolt (7/16"NC x 1", carriage).....	2	O/L
32	Idler.....	1	654010
33	Idler bushing.....	1	659833
34	Bolt (5/8"NC x 4", hex.).....	1	O/L
35	Washer (11/16"hole, flat).....	3	O/L
36	Washer (5/8", lock).....	1	O/L
37	Nut (5/8"NC, hex.).....	1	O/L
38	Chain cover.....	1	659812
39	Bolt (3/8"NC x 3 1/2", carriage).....	1	O/L
40	Nut (3/8"NC, wing).....	1	O/L
41	Chain (#60, 71 link).....	1	659143
	Connecting link #60.....	1	659839
	Half link #60.....	1	654025
42	Chain guard.....	1	654650
43	Cutting edge - 52" model.....	1	659813
	- 62" model.....	1	660317
	- 72" model.....	1	660167
44	Bolt (3/8"NC x 1", plow).....	7	O/L
45	Nut (3/8"NC, uni-torque).....	7	O/L
46	Skid shoe.....	2	659493
47	Bolt (3/8"NC x 1", carriage).....	4	O/L
48	Grease fitting (1/4"NF).....	1	654106
49	Wing nut (5/16") and flat.....	3	O/L
50	Rear guard.....	1	661723

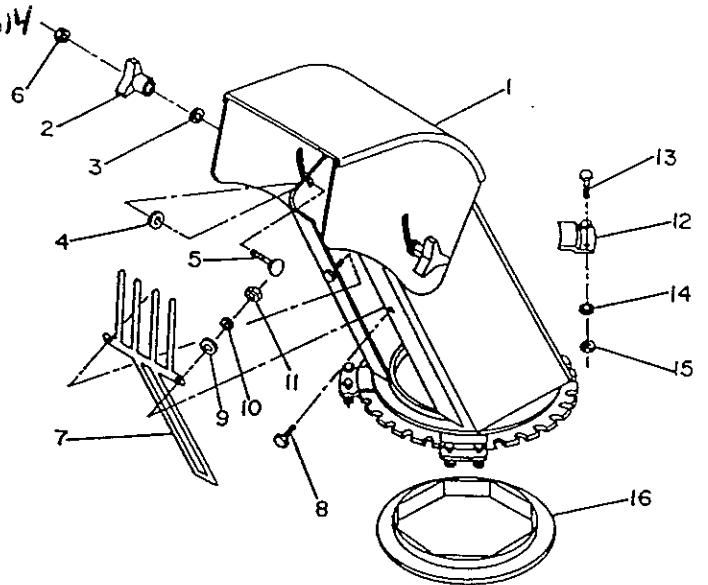
GEAR BOX

REF	DESCRIPTION	QTY	PART#
1	Casing.....	2	659848
2	Gear.....	2	659849
3	Shim.....	1	656649
4	Bearing.....	4	656653
5	Parallel key.....	2	659850
6	Shaft.....	1	659851
7	Oil seal.....	3	659852
8	Shaft.....	1	659853
9	Shim.....	1	659854
10	Snap ring.....	2	656652
11	Shim.....	2	659855
12	O-ring.....	1	659856
13	Plug.....	1	659847
14	Bolt (M8 x 55mm -8.8).....	8	O/L
15	Nut (M8, hex. -8).....	8	O/L



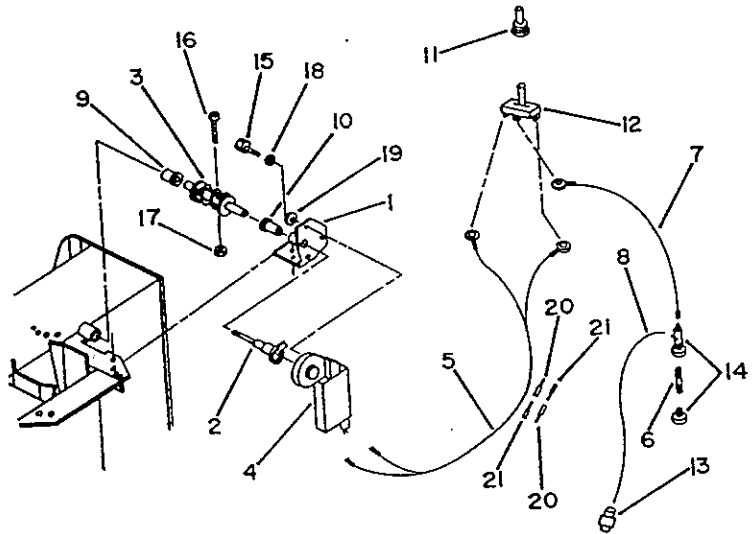
CHUTE WITH DEFLECTOR

REF	DESCRIPTION	QTY	PART#
1	Chute w/knob & decals.....	1	659859
2	Knob (5/16"NC).....	2	654309
3	Nylon washer (11/32", flat).....	2	658467
4	Nylon washer (7/16", flat).....	2	658468
5	Bolt (5/16" x 1/2", carriage).....	2	O/L
6	Nut (5/16"NC, nylon lock).....	2	O/L
7	Hand guard.....	1	657308
8	Bolt (1/4"NC x 3/4", hex.).....	2	O/L
9	Washer (5/16"hole, flat).....	2	O/L
10	Washer (1/4", lock).....	2	O/L
11	Nut (1/4"NC, hex.).....	2	O/L
12	Retaining plate.....	4	659146
13	Bolt (1/4"NC x 3/4", hex.).....	8	O/L
14	Washer (1/4", lock).....	8	O/L
15	Nut (1/4"NC, hex.).....	8	O/L
16	Nylon ring.....	1	659151



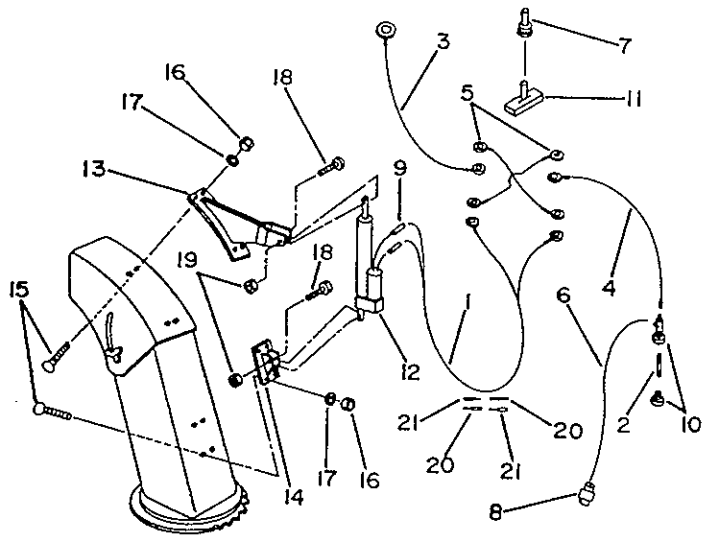
#9378 OPTIONAL ELECTRIC CHUTE ROTATION

REF	DESCRIPTION	QTY	PART#
1	Rotation support.....	1	660415
2	Adaptor.....	1	660245
3	Rotation worm.....	1	660336
4	Electric motor.....	1	660247
5	Double wire ass'y 102"lg....	1	660322
6	Fuse (15amp.).....	1	660687
7	Wire ass'y 18"lg.....	1	660692
8	Wire 16 GA x 18"lg.....	1	O/L
9	Plastic bushing 1 5/16"lg...	1	657335
10	Plastic bushing 1 11/16"lg..	1	657336
11	Rubber cap.....	1	658666
12	Control switch.....	1	654909
13	Connector tap.....	1	656665
14	Fuse holder.....	1	658665
15	Bolt (1/4"NC x 3/4", hex.)..	3	O/L
16	Allen socket head- capscrew 10-24 x 1"....	1	O/L
17	Nut (10-24, nylon lock).....	1	O/L
18	Washer (1/4", lock).....	3	O/L
19	(5/16"hole, flat).....	3	O/L
20	Connector (male).....	2	655217
21	Connector (female).....	2	657853



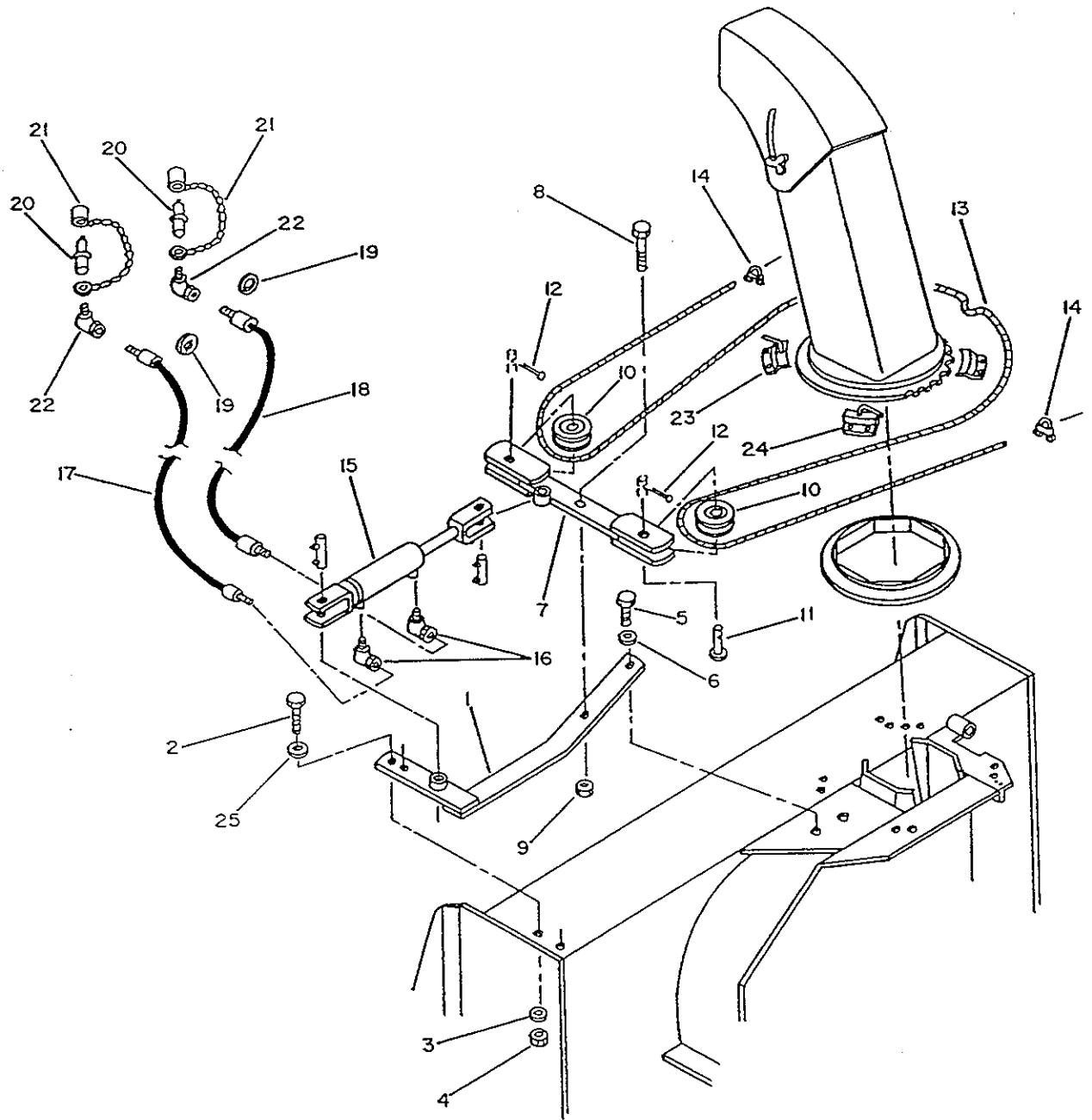
#9369 OPTIONAL ELECTRIC CHUTE DEFLECTOR

REF	DESCRIPTION	QTY	PART#
1	Double wire ass'y 102".....	1	660695
2	Fuse (6amp.).....	1	657285
3	Wire ass'y 17".....	1	655442
4	Wire ass'y 18".....	1	660692
5	Wire ass'y 5".....	2	655441
6	Wire 16 GA x 18".....	1	O/L
7	Rubber cap.....	1	658666
8	Connector.....	1	660121
9	Connector.....	2	656664
10	Fuse holder.....	1	658665
11	Switch.....	1	658778
12	Actuator.....	1	656848
13	Deflector bracket.....	1	660008
14	Chute bracket.....	1	660137
15	Allen capscrew 5/16"NC x 3/4"	8	O/L
16	Nut (5/16"NC, hex.).....	8	O/L
17	Washer (5/16", lock).....	8	O/L
18	Bolt (1/4"NC x 1 1/2", hex.)	2	O/L
19	Nut (1/4"NC, nylon).....	2	O/L
20	Connector (male).....	2	655217
21	Connector (female).....	2	657853



#9379 HYDRAULIC CHUTE ROTATION WITH CYLINDER

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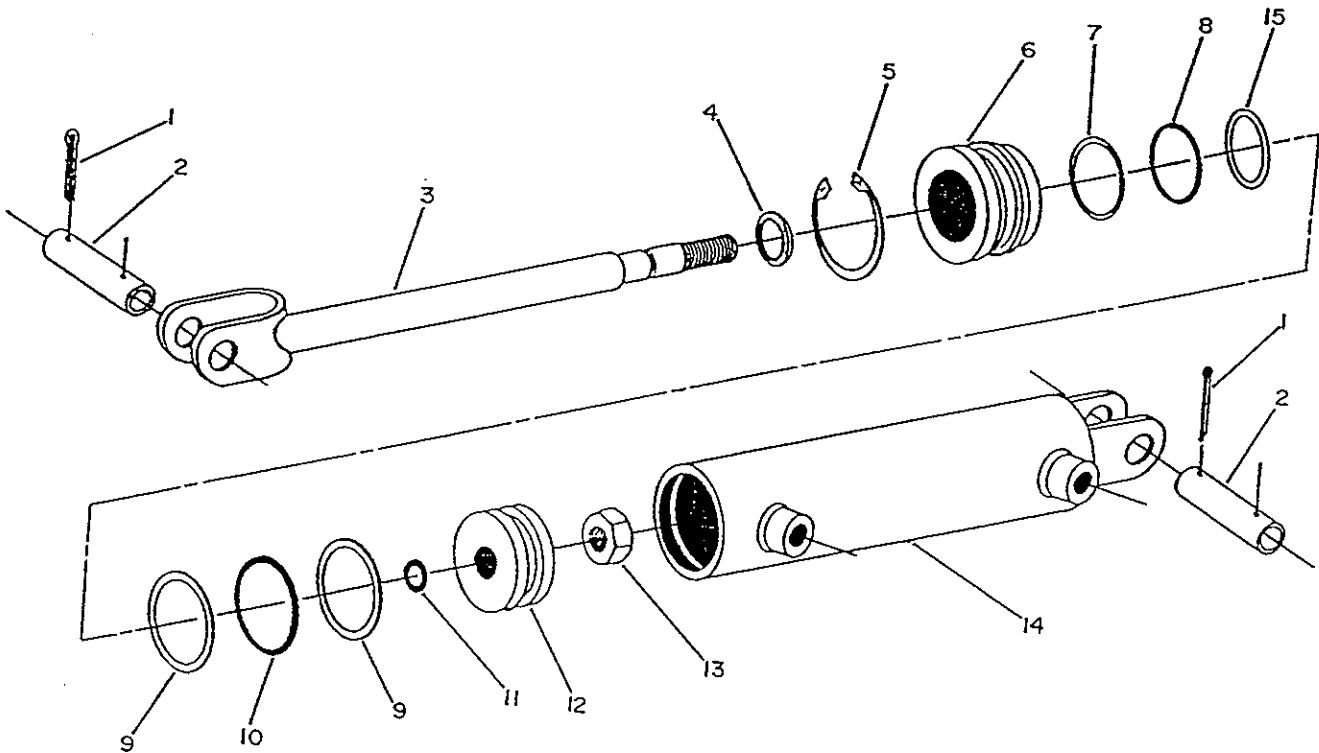


#9379 HYDRAULIC CHUTE ROTATION WITH CYLINDER

REF	DESCRIPTION	QTY	PART #
1	Support arm	1	659796
2	Bolt (3/8"NC x 1", hex)	2	O/L
3	Washer (3/8", lock)	2	O/L
4	Nut (3/8"NC, hex)	2	O/L
5	Bolt (5/8"NC x 1", hex)	1	O/L
6	Washer (5/8", lock)	1	O/L
7	Rotation arm	1	659870
8	Bolt (5/8"NC x 2 1/4", hex)	1	O/L
9	Nut (5/8"NC, hex)	1	O/L
10	Pulley	2	656037
11	Pin 5/8" x 1 1/8" lg.	2	659871
12	Pin (1/8"dia. x 1", cotter)	2	O/L
13	Cable (3/16"dia. x 94")	1	660078
14	Cable clamp	2	654202
15	Cylinder and pins assembly	1	656557
16	Elbow 90 degrees	2	654438
17	Hose 1/4" x 46"	1	659239
18	Hose 1/4" x 51"	1	659240
19	Green plastic ring (identification)	2	658209
	Yellow plastic ring (identification)	2	658206
20	Male quick coupler	2	657153
21	Dust cap	2	658395
22	Elbow 90 degrees	2	654438
23	Retaining plate with cable guide (front)	1	660076
24	Retaining plate with cable guide (rear)	1	660077
25	Washer (3/8"dia. hole, flat)	2	O/L

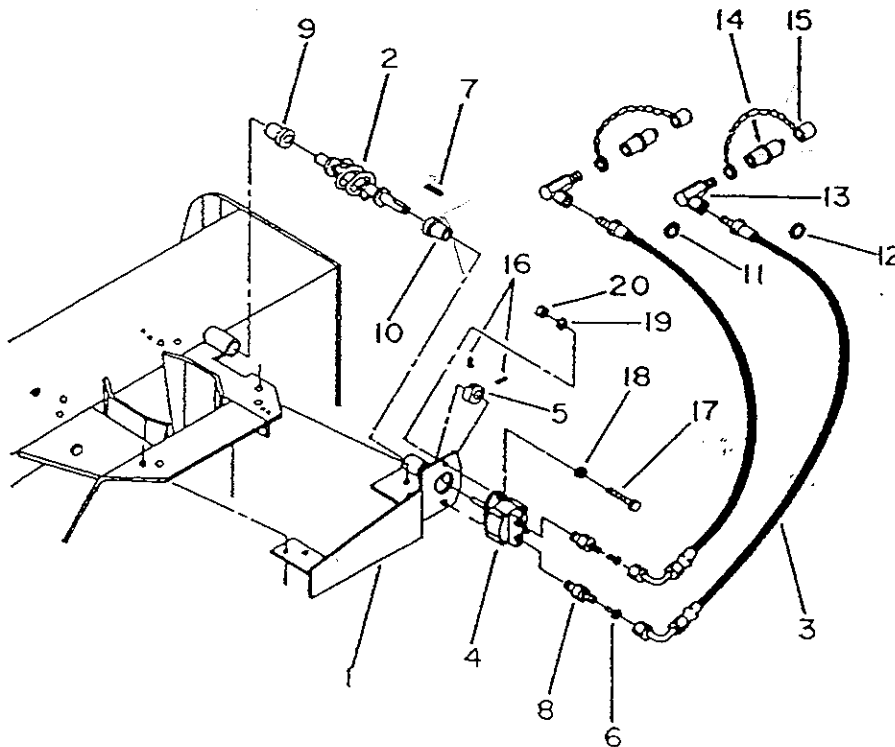
HYDRAULIC ROTATION CYLINDER

REF	DESCRIPTION	QTY	PART #
1	Pin (1/8"dia. x 1 1/4", cotter)	4	656682
2	Pin 3/4"dia. x 2 1/2"lg.	2	656683
3	Rod	1	656684
4	Rod wiper	1	656685
5	Snap ring	1	656686
6	Cap	1	656687
7	Backup ring	2	656688
8	O-ring	1	656689
9	Backup ring	2	656690
10	O-ring	1	656691
11	O-ring	1	656692
12	Piston	1	656693
13	Nut	1	656694
14	Cylinder tube	1	656695
15	O-ring for cap	1	656932
	Seal kit	1	657270



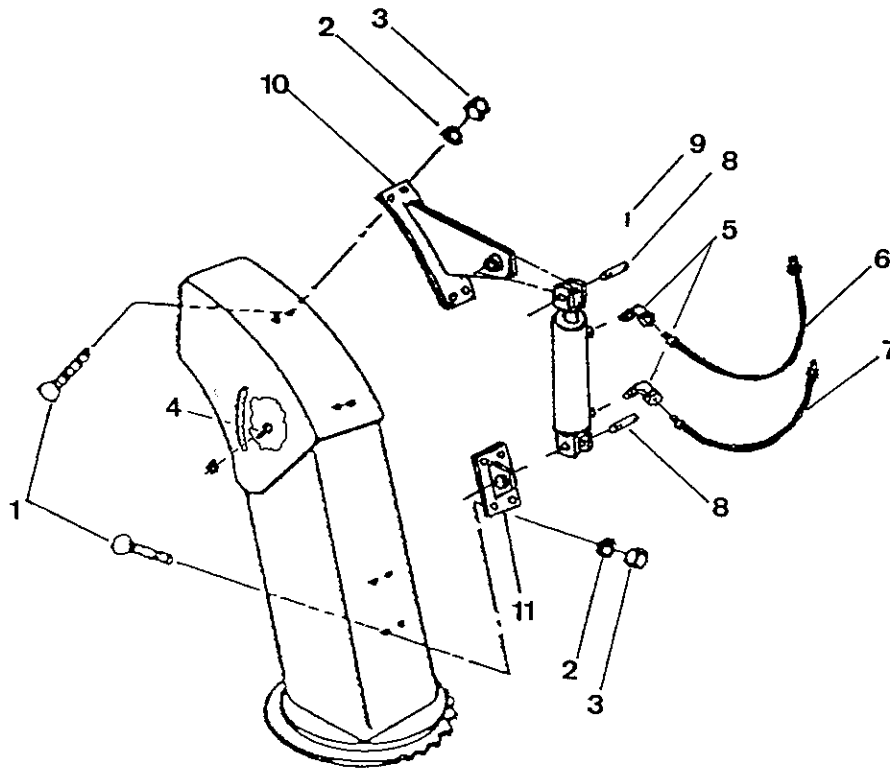
#9380 HYDRAULIC CHUTE ROTATION WITH MOTOR

REF	DESCRIPTION	QTY	PART #
1	Rotation bracket	1	660282
2	Rotation worm	1	660283
3	Hose 1/4" x 28"	2	660324
4	Hydraulic motor	1	660287
5	Locking collar	1	660284
6	Flow restrictor	2	657756
7	Key	1	660285
8	Connector	2	660286
9	Plastic bushing	1	657335
10	Plastic bushing	1	657336
11	Yellow plastic ring	1	658206
12	Green plastic ring	1	658209
13	Elbow 90 degree	2	655211
14	Male quick coupler	2	657094
15	Dust cap	2	658203
16	Set screw 1/4"x 5/16"	2	O/L
17	Bolt 3/8" x 1 1/4", hex	2	O/L
18	Washer 7/16", flat	2	O/L
19	Washer 3/8", lock	2	O/L
20	Nut 3/8"NC, hex.	2	O/L



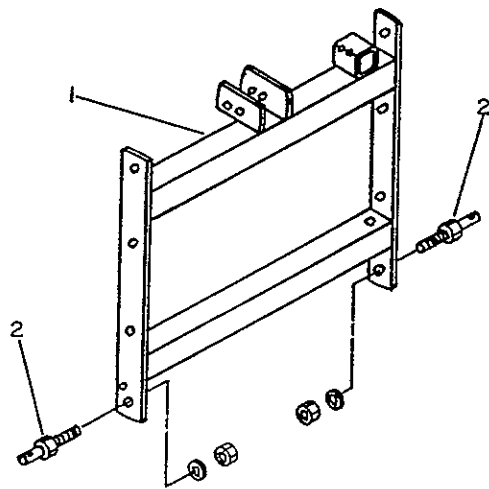
#9376 HYDRAULIC CHUTE DEFLECTOR

REF	DESCRIPTION	QTY	PART #
1	Allen flat socket cap screw (5/16"N.C. x 3/4").....	8	O/L
2	Lockwasher (dia. 5/16").....	8	O/L
3	Nut (5/16"N.C., hex.).....	8	O/L
4	Carriage bolt (5/16"N.C. x 3/4").....	2	O/L
5	Elbow, 90 degree (3/8"N.P.T.-S.T.W. x 1/4"N.P.T.-S.W.S).....	2	654438
6	Hose (1/4" x 54"lg., 1/4"N.P.T.-S.T.M. x 1/4"N.P.T.-S.T.M.).....	1	656929
7	Hose (1/4" x 48"lg., 1/4"N.P.T.-S.T.M. x 1/4"N.P.T.-S.T.M.).....	1	657796
8	Pin (included with cylinder).....	2	O/L
9	Pin (included with cylinder).....	4	O/L
10	Deflector fixation.....	1	660142
11	Base fixation.....	1	660143



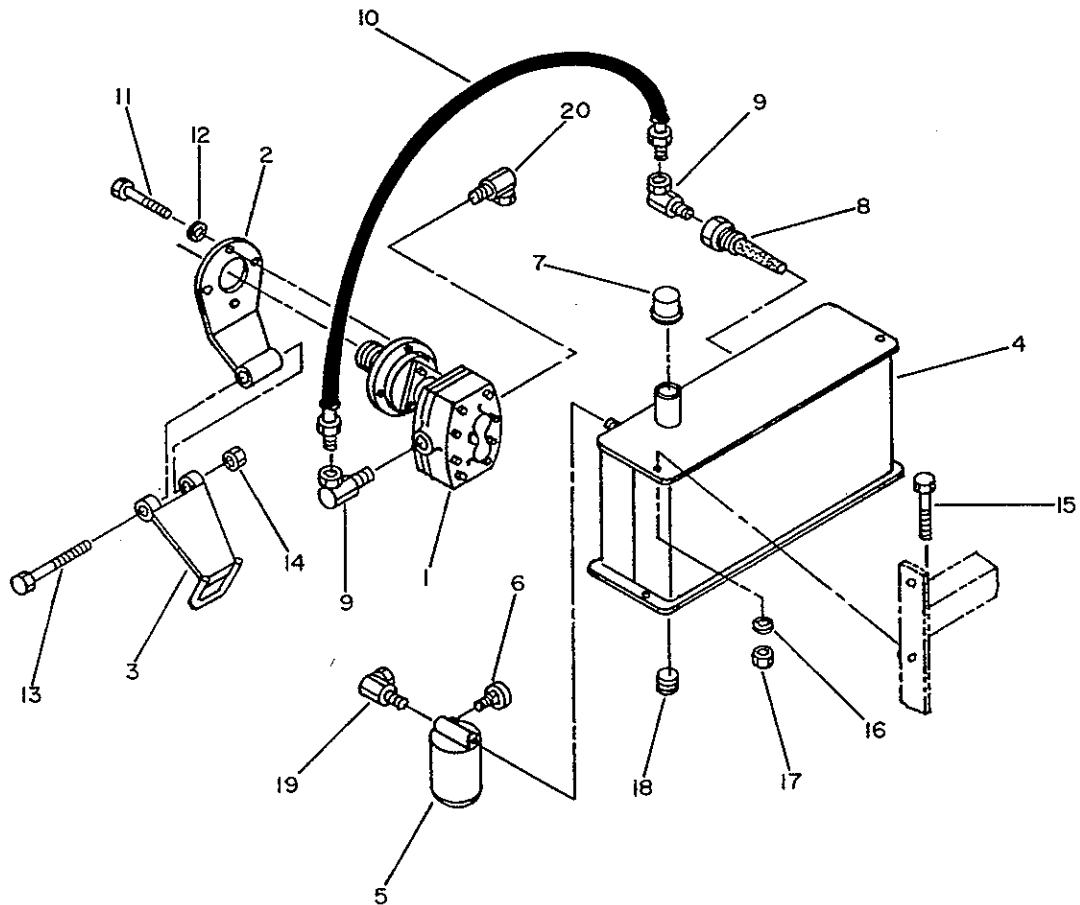
#9399 REAR CARRIER FRAME

REF	DESCRIPTION	QTY	PART #
1	Rear carrier frame.....	1	660555
2	Pin cat #1 assembly.....	2	654196



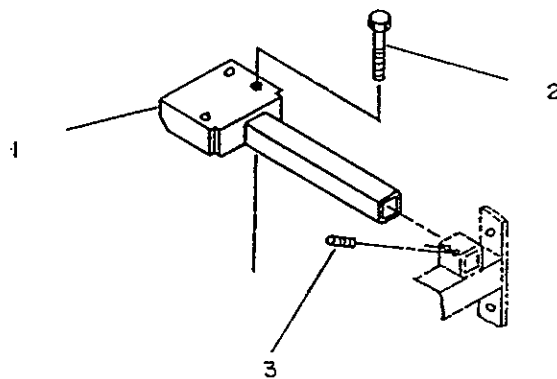
#9395 INDEPENDANT HYDRAULIC PACKAGE

REF	DESCRIPTION	QTY	PART #
1	Hydraulic pump.....	1	660477
2	Hydraulic pump support.....	1	660464
3	Hydraulic pump support attachment.....	1	660463
4	Hydraulic tank.....	1	660434
5	Filter.....	1	660499
6	Indicator.....	1	660498
7	Filter plug.....	1	660501
8	Strainer.....	1	660470
9	Elbow 90 degrees.....	2	660441
10	Hose 1" x 38".....	1	660450
11	Bolt (10mm x 30mm, hex.).....	4	O/L
12	Washer (7/16", lock).....	4	O/L
13	Bolt (1/2"NC x 5 1/2", hex.).....	1	O/L
14	Nut (1/2"NC, stover).....	1	O/L
15	Bolt (3/8"NC x 3 3/4", hex.).....	4	O/L
16	Washer (3/8", lock).....	4	O/L
17	Nut (3/8"NC, hex.).....	4	O/L
18	Plug 1/2"NPT.....	1	660443
19	Elbow 90 degrees.....	1	655271
20	Elbow 90 degrees.....	1	660442



#9448 VALVE SUPPORT

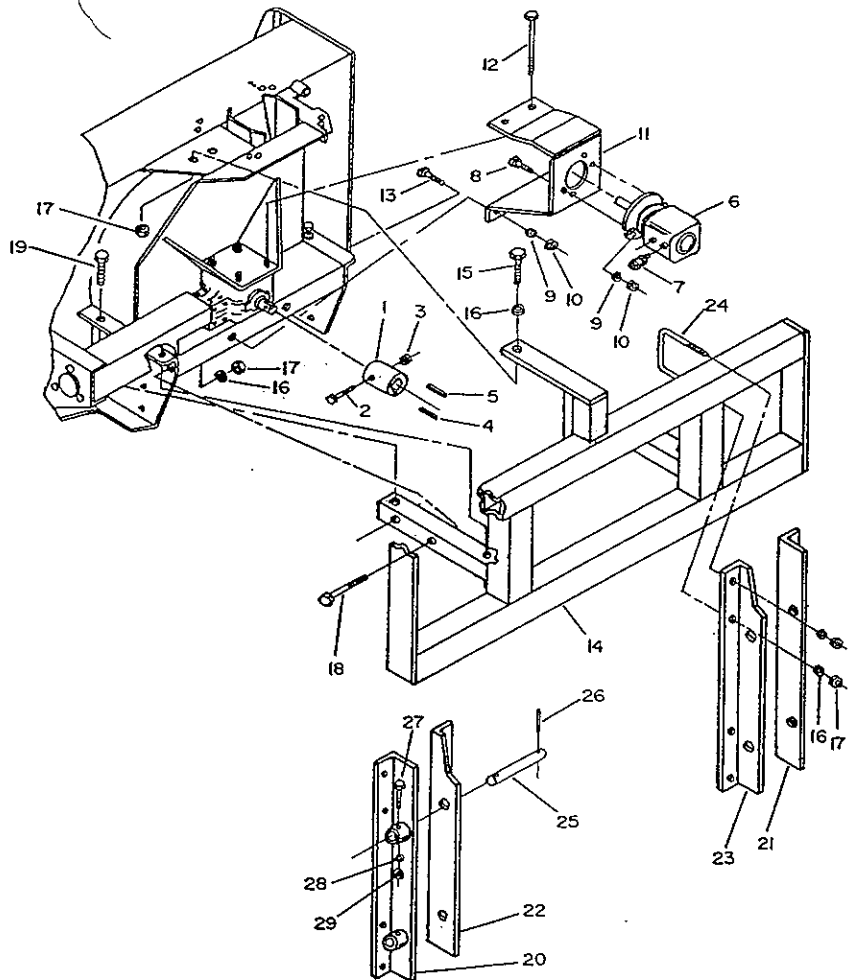
REF	DESCRIPTION	QTY	PART #
1	Valve support bracket.....	1	660459
2	Bolt (5/16"NC x 2 1/4", hex.).....	3	O/L
3	Set screw (1/16"NC x 3/8", allen).....	2	O/L



9449

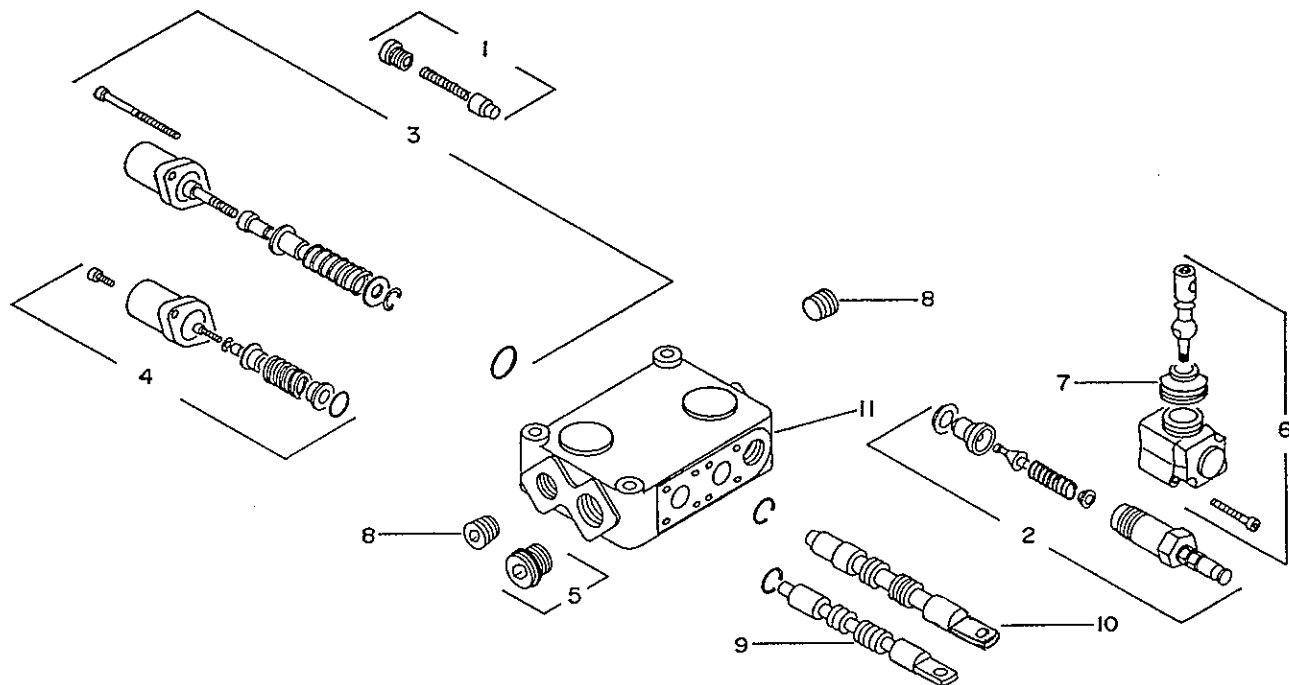
9448 LOADER HITCH

REF	DESCRIPTION	QTY	PART #
1	Coupling adaptor.....	1	661870
2	Bolt (5/16"NC x 2 3/4", hex.).....	1	O/L
3	Nut (5/16"NC, nylon lock).....	1	O/L
4	Key (1/4" x 1/4" x 1 3/4").....	1	659579
5	Key (5/16" x 5/16" x 13/4").....	1	661166
6	Hydraulic motor.....	1	661681
7	Hydraulic adaptor (1/2"NPT STM x 3/4" NPT SNF).....	2	660126
8	Bolt (1/2"NC x 1 1/2", hex.).....	2	O/L
9	Washer (1/2", lock).....	4	O/L
10	Nut (1/2"NC, hex.).....	4	O/L
11	Hydraulic motor support.....	1	661864
12	Bolt (3/8NC x 5 1/2", hex.).....	2	O/L
13	Bolt (1/2"NC x 1", hex.).....	2	O/L
14	Loader hitch.....	1	661863
15	Bolt (5/8"NC x 1 1/2", hex.).....	1	O/L
16	Washer (5/8"NC, lock).....	23	O/L
17	Nut (5/8"NC, hex.).....	23	O/L
18	Bolt (5/8"NC x 3 3/4", hex.).....	4	O/L
19	Bolt (5/8"NC x 3 3/4", hex.).....	2	O/L
20	Attach angle L.H.....	1	661866
21	Attach angle R.H.....	1	661865
22	Attach fixation L.H.....	1	661868
23	Attach fixation R.H.....	1	661867
24	U-bolt (5/8"NC x 3" x 4 1/2").....	8	30883
25	Pin (63/64"dia. x 5 3/8"Lg.).....	4	661869
26	Pin (1/4" x 1 3/4", roll).....	4	O/L
27	Bolt (1/4"NC x 2", hex.).....	4	O/L
28	Washer (1/4", lock).....	4	O/L
29	Nut (1/4"NC, hex.).....	4	O/L



#9452-#9453 TWO AND THREE SPOOL VALVE ASSEMBLY

REF	DESCRIPTION	QTY	PART #
	Two spool valve assembly.....	1	660500
	Three spool valve assembly.....	1	661876
1	Check valve repair kit.....	1	660724
2	Relief valve repair kit.....	1	660725
3	Ball detent spool repair kit.....	1	331877
4	Regular spool repair kit for 660500.....	1	660727
	Regular spool repair kit for 661876.....	2	660727
5	AET plug.....	1	660728
6	Lever pivot box assembly.....	2	660729
7	Boots.....	2	660735
8	Plug (1/2"NPTF).....	2	O/L
9	Regular spool.....	1	NSS
10	Float spool.....	1	NSS
11	Valve body.....	1	NSS










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 disulphide 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						  				  			
BOLT SIZES		Torque				Torque				Torque			
Inches	Millimeters	Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1/4	6.35	5	6	6.8	8.13	9	11	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	47.5	57.0	45	54	61.0	73.2
7/16	11.11	25	30	48.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	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.	Coarse thread			Fine thread		
		Pitch (mm)	Pounds Feet	Newton-Meters	Pitch (mm)	Pounds Feet	Newton-Meters
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	1.0	12-17	16.3-23
	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



RAD TECHNOLOGIES INC.

WARRANTY

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 to the replacement (F.O.B. factory) of any part or component which RAD TECHNOLOGIES INC. shall disclose to be defective within one year from date of original purchase (unless other wise specified).

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

This warranty replaces all other written or implied warranties and RAD TECHNOLOGIES INC. COMPANY neither assumes nor authorizes any other obligation nor responsibility in connection with the sale of the said product or components.

This warranty will not apply to the product (or components) which will have been the object of an accident, alteration, abuse or misuse. Any claim for parts or replacement of equipment must be taken up with the authorized dealer or with the office of the Company.

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

All claims must be taken up within 30 days from date of mechanical breakage. The Company reserves the right to require the said parts and this F.O.B. our factory or distributor.

RAD TECHNOLOGIES INC.

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