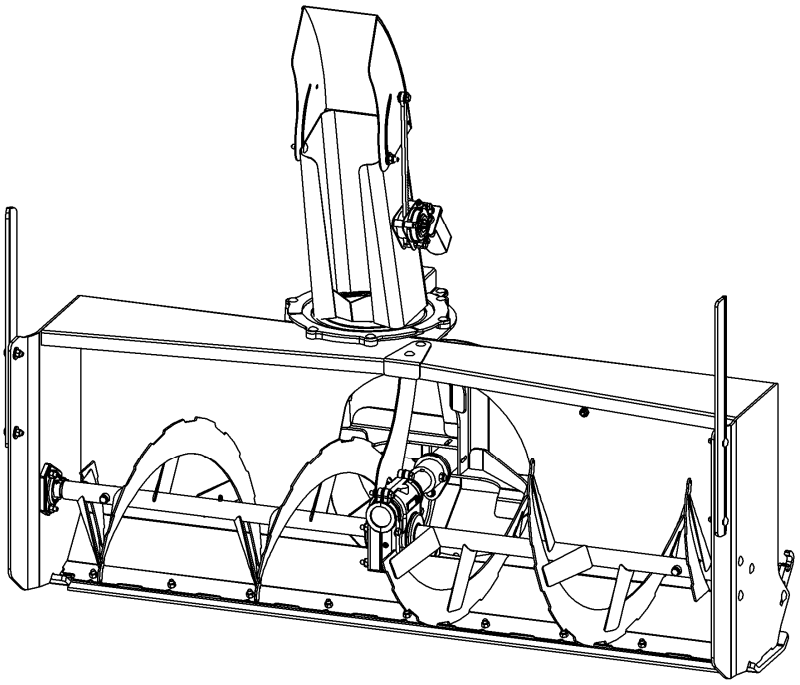
RADTECH INNOVATION



OPERATOR'S AND PARTS MANUAL

48" & 54" Snowblowers

S1SB-48 & S1SB-54

For John Deere 1 Series Tractor: 1023E, 1025R

SERIAL NO. 21700001 AND UP

INTERTEK ISO 9001:2000

OM 0459SB-A
Rev0 09-17

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, and keep it in your files for further reference.**

This manual has been prepared to assist the owner and operators in the safe operation and suitable maintenance of the equipment. The information is 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 equipment into service. Familiarize yourself with the operating instructions **AND ALL THE SAFETY RECOMMENDATIONS** contained in this manual and those labeled on the equipment and on the machine. Follow the safety recommendations and make sure that those with whom you work follow them.

TO THE DEALER

Give this manual to the owner upon delivery of the equipment.

TO THE PURCHASER AND THE DEALER

Illustrations

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

Direction Reference

All references to right and left, forward or rearward are from the operator seat.

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

MODEL:_____

SERIAL NUMBER:_____

DATE OF PURCHASE:_____

DEALER NAME:_____

DEALER TELEPHONE NUMBER:_____

INTRODUCTION

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.

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 imminently 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.

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SAFETY INFORMATION

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 the machine is 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.

Before Operation

1. Read and understand both the machine AND implement operator's manual before using the snowblower. Know how to operate all controls and how to stop the unit and disengage the controls quickly. Lack of knowledge can lead to accidents.
2. Park the machine/implement on level ground, set the parking brake, lower the implement to the ground, place all control levers in neutral, shut off the engine and remove the ignition key and allow the rotating parts to stop BEFORE making any implement adjustments, repairs or inspections.
3. Keep clear of all rotating parts. Do not put hands or feet under, or into snowblower and subframe with engine running.
4. For your safety, do not work under any hydraulically supported machine elements, they may creep down, suddenly drop or be accidentally lowered. Do not use loader, quick hitch, or an implement as a jack for servicing.
5. Do not operate the machine/implement that is defective or has missing parts. Make sure that all recommended maintenance procedures are completed before operating the unit.
6. Keep the machine/implement clean. Snow, dirt or ice build-up can lead to malfunction or personal injury from thawing and refreezing in garage. Inspect and clean every rotating parts.
7. Do not modify or alter this implement or any of its components, or any implement function without first consulting your dealer. The manufacturer will not claim responsibility for fitment of unapproved parts and/or accessories and any damages as a result of their use.
8. Verify that all machine/implement safety protective devices are in place. Shields, guards and covers must be correctly installed at all times. When necessary to remove these for servicing, cleaning, or repair work, they must be reinstalled immediately.
9. Always make sure all implement components are properly installed and securely fastened.
10. Check that all machine/implement drivelines are in good working order.
11. Check for moving parts excessive wear regularly. ALWAYS USE GENUINE PARTS WHEN REPLACEMENT PARTS ARE REQUIRED.
12. Prior to operation, clear work area and mark all curbs, pipes, etc. that cannot be moved.
13. Inspect the machine/implement after striking any foreign object to assure that all machine/implement parts are safe and secure and not damaged.
14. Handle fuel with care, as it is highly flammable. Use approved fuel container.
15. Never add fuel to a running engine or a hot engine.
16. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors. Replace fuel cap securely and wipe up spilled fuel. Always refuel using a properly grounded system.

17. Check all machine controls regularly and adjust where necessary. Make sure that the brakes are evenly adjusted. Periodically check all nuts and bolts for tightness, especially wheel hub and rim nuts.

18. Make sure the machine is counterweighted and has tire chains for better traction and stability as recommended by your dealer. Weights provide the necessary balance to improve stability, traction and steering. Use only those recommended by your dealer.

19. 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.

During Operation

1. Never allow anyone to operate the machine and implement until they have read the manuals completely and are thoroughly familiar with their basic operation. Lack of operating knowledge can lead to accidents.

2. Do not allow anyone to ride on the machine/implement at any time. The only one allowed is the operator that MUST sit in the driver seat.

3. Never allow anyone near the work area. The debris that can be thrown could cause serious personal injuries.

4. Never stand alongside of the implement while the engine is running.

5. Never operate the implement without safety protective devices in place. All machine/implement shields, guards and covers must be correctly installed at all times.

6. Keep clear of all rotating parts. Do not put hands or feet under, or into the implement with engine running.

7. If the implement starts to vibrate abnormally, disengage the PTO, stop the engine immediately and check for cause. Excessive vibration is generally a sign of trouble.

8. Park the machine/implement 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 MACHINE.

9. Always drive the machine at speeds compatible with safety, especially when operating over rough ground, crossing ditches, slippery surface or when turning.

10. Operate only with good visibility and during daylight hours, or when the area is well lit with bright artificial light.

11. 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.

12. Exercise extreme caution when operating on or crossing a gravel drive, walks, or roads. Stay alert for hidden hazards or traffic.

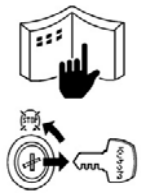
13. Use extra caution when backing up.

14. Operate up and down (not across) intermediate slopes. Avoid sudden starts and stops. Drive machine backwards up steeper slopes with the implement off. Then operate as you travel down the slope.

15. Never park the machine on a steep slope. Do not attempt to operate on steep slopes. If operating on slopes is necessary, exercise extreme caution when changing direction.

16. Disengage power to implement when transporting or when not in use

GENERAL SAFETY INFORMATION



BEFORE YOU START SERVICE

- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a stable and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, then remove the key.
- Disconnect the battery negative cable.
- Hang a **"DO NOT OPERATE"** tag in the operator station.

No Smoking or Open Flames while Fueling

- Fuel is extremely flammable and dangerous. Never smoke near fuel. If fuel is spilled on the machine, its engine, or electrical parts, it may cause a fire. If fuel is spilled, wipe it all up immediately.
- Never smoke while filling the machine with fuel. And always tighten the fuel cap securely and wipe up any spilled fuel.

- When performing maintenance on the equipment, hang the DO NOT OPERATE sign where it will be obvious from and around the driver's seat.
- When performing maintenance or repairs, always lower attachments to the ground, stop the engine and secure the tracks with blocks.
- When performing maintenance on the equipment, always disconnect the negative battery cable.
- Before using tools, make sure you understand how to use them correctly and use tools in good condition and of the right size for the job.

- Before getting on/off of the machine, clean off around the steps so there is no mud on them. Always give yourself 3-point support when getting on/off the machine.

CAUTION

- **3-point support means using both legs and one hand or both hands and one leg as you climb up/down.**

START SAFELY

- Do not do the procedures below when you start the engine.
  - short across starter terminals
  - bypass the safety start switch
- Do not alter or remove any part of machine safety system.
- Before you start the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Do not start the engine when you stay on the ground. Start the engine only from operator's seat.

- Do not remove the radiator cap when the engine operates, or immediately after it stops. If not, hot water can spout out from the radiator. Only remove the radiator cap when it is at a sufficiently low temperature to touch with bare hands. Slowly loosen the cap to release the pressure before you remove it fully.

Starting the Machine Safely

- Before starting the engine, always sit in the driver's seat and make sure the area is safe and clear.
- As it is dangerous, never start the engine from anywhere but the driver's seat.
- Always check and make sure control lever(s) are not engaged before starting the engine.
- Never start the engine by hot-wiring the starter circuit. This is not only dangerous, but may damage the machine.

- The engine, muffler, radiator, hydraulic line, etc., have parts that remain very hot even after the engine has been stopped. Be sure to avoid these parts, as touching them can result in burns. Radiator coolant, hydraulic fluid and oil also remain hot. Therefore, do not attempt to remove caps and plugs, etc., before these fluids have sufficiently cooled.
- Make sure the coolant temperature has dropped sufficiently before opening the radiator cap. Also, since the inside of the radiator is pressurized, when removing the cap, first loosen it to release the pressure before removing the cap completely.

- Wear clothes appropriate for working on equipment. Do not wear loose-fitting clothes as they may catch on the machine controls.
- When working on the equipment, use all safety gear, such as a helmet, safety glasses and shoes, that are required by law or regulation.
- Never perform maintenance while drowsy or under the influence of alcohol or drugs.

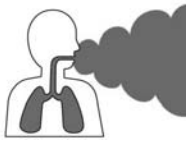
- Grease is under high pressure inside the hydraulic cylinder. It is very dangerous to loosen a grease nipple quickly as it may shoot off. Always loosen grease nipples slowly.
- And never face a grease nipple while loosening it.

Be Ready for an Emergency

- Keep a first-aid kit and fire extinguisher close at hand so you can use it when needed.
- Keep emergency contact information for doctors, hospitals and ERs handy.

PREVENT A FIRE

- Fuel is very flammable and explosive under some conditions. Do not smoke or let flames or sparks in your work area.
- To prevent sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- The battery gas can cause an explosion. Keep the sparks and open flame away from the top of battery, especially when you charge the battery.
- Make sure that you do not spill fuel on the engine.



KEEP A GOOD AIRFLOW IN THE WORK AREA

- If the engine is in operation, make sure that the area has good airflow. Do not operate the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.

Dispose of Waste Fluids Properly

- Never dispose of waste fluids on the ground, in the gutter, a river, pond or lake. Always dispose of hazardous substances like waste oil, coolant and electrolytic fluid in accordance with the relevant environmental protection regulations.
- Keep the safety plates clean so they can be read. If a safety plate is damaged and comes off or becomes illegible, put a plate with the same warnings back in its place.

<table>
<tr>
<td rowspan="2"> 
  </td>
<td>• The pressure in the hydraulic circuit stays at pressure even after the engine stops. Before removing parts, such as hydraulic devices from the machine, first release the pressure. Please note that when releasing residual pressure, the machine itself and/or implements may move without warning, so be very careful when releasing the pressure.
• Oil gushing out under pressure is extremely dangerous as it may pierce your skin or your eyes. Similarly, oil leaking out of pinholes is not visible. So when checking for oil leaks, always wear safety glasses and gloves and use a piece of cardboard or a wood block to shield yourself from oil.</td>
<td rowspan="2">  </td>
<td>• When you need to access the underside of the machine for maintenance purposes, but sure to support the machine with a safety stand. Getting under the machine while supporting the machine by machine's own hydraulic cylinder or using a hydraulic jack can be extremely dangerous in the event of a hydraulic fluid leakage or similar mishap.
(1) Safety stand
(2) Secure point for safety stand</td>
</tr>
<tr>
<td>• Do not open a fuel system under high pressure. The fluid under high pressure that stays in fuel lines can cause serious injury. Do not disconnect or repair the fuel lines, sensors, or any other components between the fuel pump and injectors on engines with a common rail fuel system under high pressure.
• Put on an applicable ear protective device (earmuffs or earplugs) to prevent injury against loud noises.
• Be careful about electric shock. The engine generates a high voltage of more than DC100 V in the ECU and is applied to the injector.</td>
<td>• Whenever it is necessary to open the engine covers or hood in order to service the machine, always prop them open.
• If it is absolutely necessary to run the engine while working on the machine, make sure you are clear of all rotating or moving parts. Also take care not to leave anything, such as tools or rags, near any moving parts.</td>
</tr>
<tr>
<td>  </td>
<td>• Engage the loader control valve lock to prevent accidental actuation when the implement is not in use or during transport. Do not utilize the valve lock for machine maintenance or repair.
• Do not perform machine maintenance with loader in the air. If possible, follow loader instructions to remove loader before performing maintenance.
• If the machine has a backhoe, engage swing and boom locks.</td>
<td></td>
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</table>

SPECIFICATIONS

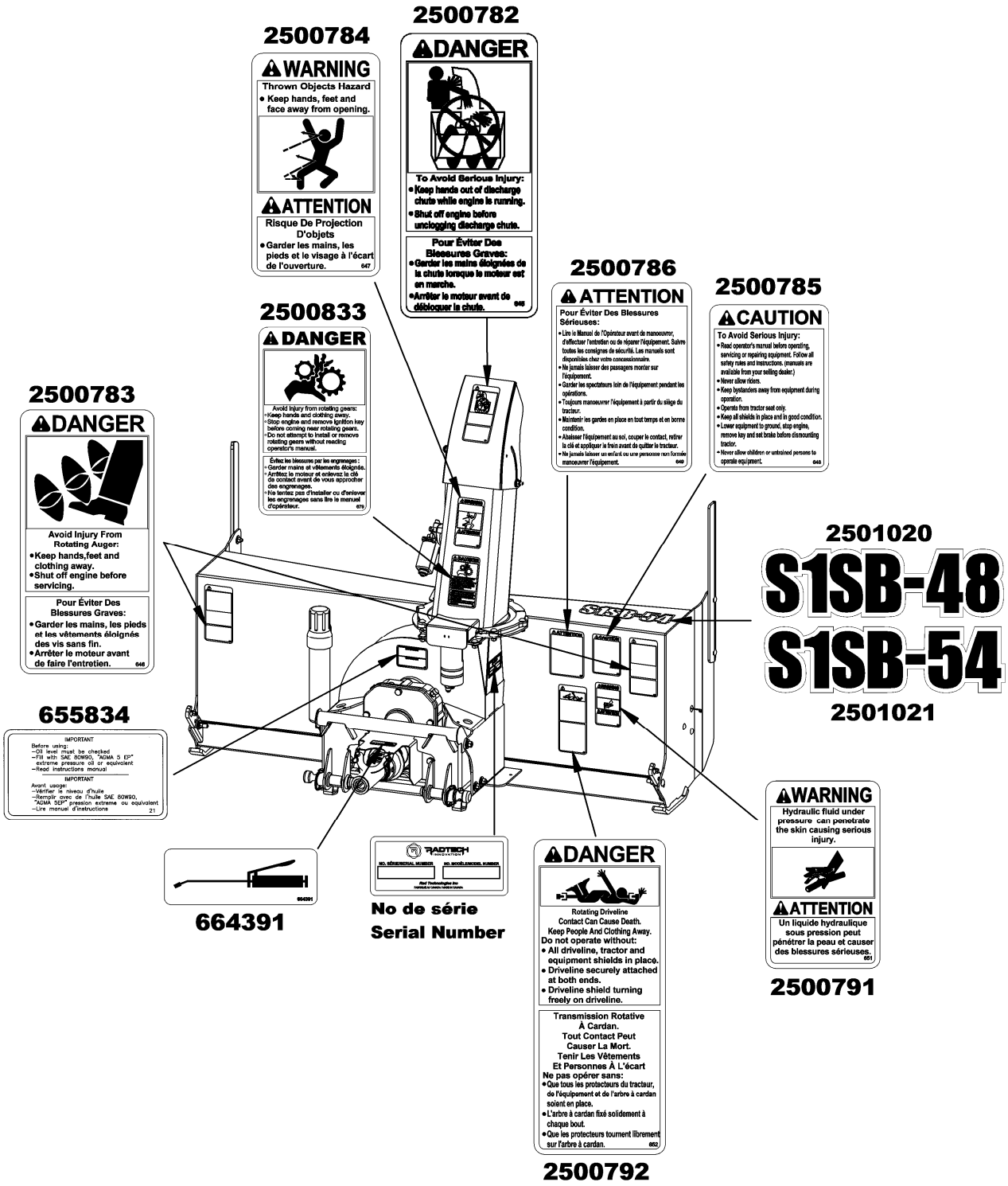
Specifications	S1SB-48	S1SB-54
Working width	48"	54"
Working width (Frame only)	21"	21"
Working width (Drift cutters)	31"	31"
Length	35"	35"
Auger - Single / dual	Single	Single
Main auger diameter	12 3/4"	12 3/4"
Auger spiral thickness	0.135"	0.135"
Impeller diameter	15 3/4"	15 3/4"
Impeller width	5 5/8"	5 5/8"
Auger driven diameter	1.38"	1.38"
Number of impeller blade	4	4
Tractor RPM	2 100	2 100
Impeller RPM	840	840
Auger RPM	168	168
Driving PTO	7^E	7^E
Skid shoes	Adjustable & replaceable 4 positions	Adjustable & replaceable 4 positions
Skid shoes material	Carb. steel	Carb. steel
Side panel thickness	3/16"	3/16"
Drum back thickness	12 Ga	12 Ga
Drum contour thickness	12 Ga	12 Ga
Impeller contour thickness	12 Ga	12 Ga
Impeller blades thickness	3/16"	3/16"
Cutting edge	Replaceable , CHT Steel	Replaceable , CHT Steel
Cutting edge dimensions	1/4" x 2"	1/4" x 2"
Parking stand	No	No
Hitch type	4 pt Hitch	4 pt Hitch
Operating weight, incl. hydr rotat. & electr. deflector	285 lb	290 lb
Shipping weight approx.	----- lb	----- lb
Deflector adjustment (standard)	Electric with motor	Electric with motor
Chute Rotation (standard)	Hydraulic with motor	Hydraulic with motor
Chute type	2 part	2 part

SAFETY LABELS

MPORTANT: Keep all decals clean and legible. Replace all missing, illegible, or damaged decals.

IMPORTANT: Decal placement locations shown are approximate; decals should not be placed in a location where the operator's field of view is impeded, and should not cover any portion of other decals installed in the same vicinity.

INSTALLING OR REPLACING DECALS: Thoroughly clean the area where decal is to be placed using mild soap and water. Allow the surface to fully dry. Remove the backing from the decal, exposing the adhesive surface. Apply the decal to the recommended position shown in the diagram below and smooth out any bubbles.



ESTIMATED ASSEMBLY TIME

Refer to the following table for the estimated assembly time to open the package and assemble the equipment and options.

	48" & 54 Snowblowers" S1SB-48 & S1SB-54
Estimated installation initial time	35 - 45 min
2nd installation time (on the tractor)	4 - 6 min

The assembly times of the table are only a reference under normal conditions according to the following assumptions:

1. The assembly is done by a competent person who is familiar with the equipment.
2. The following tools and materials are prepared:
   - Wrench set (flat wrenches)
   - Ratchet & socket set
   - Cutting pliers
   - Security gloves

ASSEMBLY

SNOWBLOWER ASSEMBLY

The snowblower is assembled at the factory, however, the chute must be installed and assembled. Before assembly, lay out & separate hardware into various sizes. After assembly, unless otherwise stated, torque all the bolts according to the ***Torque Specification Table*** at the end of the manual.

Preparation of the Tractor

If necessary, remove the lawn mower from the tractor and the front loader following the instructions in the tractor operator's manual.

IMPORTANT : The front loader and the subframe must not be installed simultaneously on the tractor.

GREASE: Use a high quality grease designated "extreme pressure" and containing molybdenum disulfide. This grease can specify "Moly EP" on its label.

WARNING: To avoid serious injury or death: Read and understand SAFETY INFORMATION on previous pages before installation and operation Perform all assembly with the assembly properly secured and supported.

WARNING: To avoid serious personal injury or death: Park the vehicle on level ground, place the transmission in neutral, set the parking brake, place all control levers in neutral, shut off the engine, remove the ignition key and allow the rotating parts to stop BEFORE working on the vehicle.

ASSEMBLY

Installation of the Electric Deflector
(Figure 1)

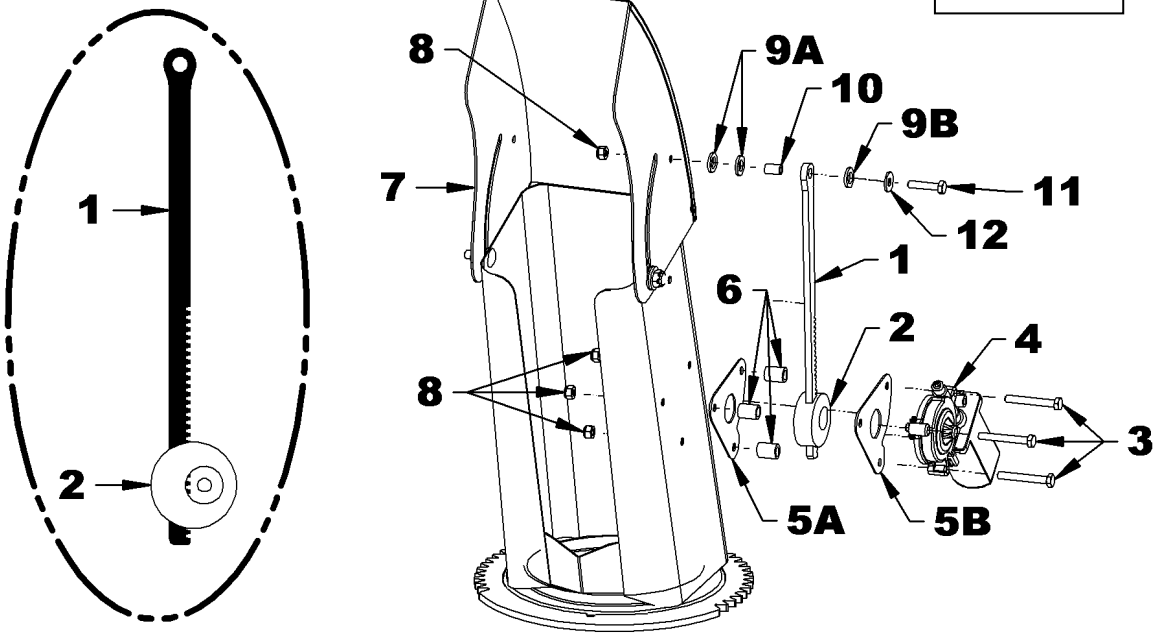
1. **Figure 1:** Apply a light coat of the recommended grease on the teeth of the rack (item 1) and insert it inside the guide rack (item 2) as shown on the left figure.
2. **Figure 1:** Then attach the guide plate (item 5A), the guide rack (item 2), the three spacer rings (item 6), the second guide plate (item 5B) and the electric motor (item 4) on the chute side using the three 1/4"NC x 2" lg hex bolts (item 3), and 1/4"NC nylon insert locknuts (item 8)
3. **Figure 1:** Apply a light coat of the recommended grease inside the hole of the rack (item 1), insert the 3/8" x 19/32" bushing (item 10) and place two 7/16" nylon flat washers (item 9A) between the deflector and the rack, to allow a small clearance. Install the remaining nylon washer (item 9B) on the other side of the rack.

   IMPORTANT : The rack should not be forced by the nylon washers (item 9).

4. **Figure 1:** Secure with the 1/4"NC x 1 1/4" lg. hex bolt (item 11), 1/4" (5/16" hole) flat washer (item 12), 3/8 "x 19/32" lg pivot bushing (item 10), nylon washers (item 9A) and 1/4"NC nylon insert locknut (item 8), in the order shown in figure.

N°	PARTS FIGURE 1	QTY
1	Rack	1
2	Guide rack	1
3	Bolt hex 1/4"NC x 2"	3
4	Electric Motor	1
5	Guide plate	1
6	Spacer 3/8" x .721"	3
7	Chute	1
8	Nylon insert locknut 1/4"NC	4
9	Nylon flat washer 716"	3
10	Pivot bushing 3/8" x 19/32"	1
11	Bolt hex 1/4"NC x 1 1/4"	1
12	Flat washer 1/4"	1

Figure 1

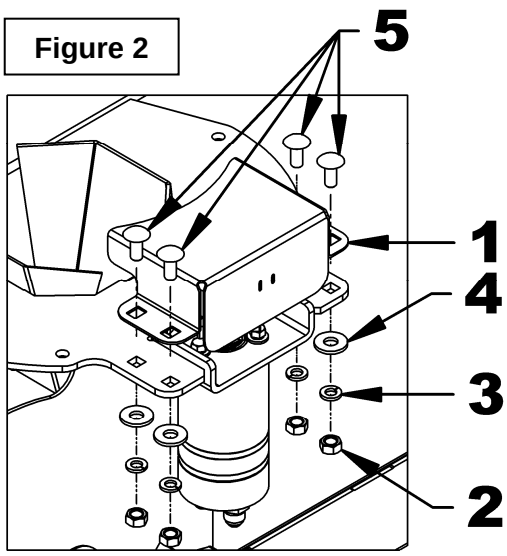


ASSEMBLY

Installation of the Chute
(Figures 2-3)

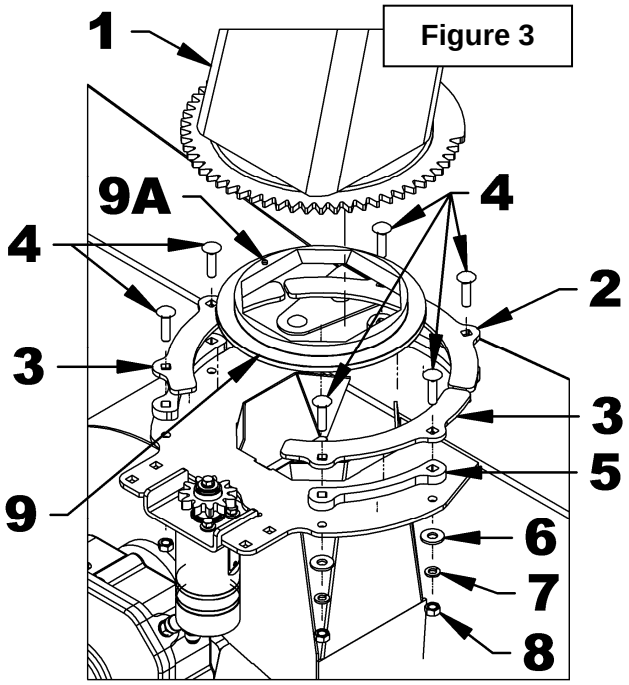
1. **Figure 2:** Remove the gear shield (item 1) by removing the four nuts,. locknuts, flat washers and bolts (items 2-3-4-5). Keep parts at hand for further reinstallation.
2. **Figure 3:** Grease the underside of the retaining plates (items 2-3) before installing them.
3. **Figure 3:** Place the rotation bushing (item 9) over the fan output by placing the mark (item 9A) up and to the left of the snowblower, and then place the chute (item 1). Align the three 3/8" spacers (item 5) with the six holes on the fan output and place the long retainer plate (item 2) to the front and the two short retainer plates (item 3) on the sides. Secure with two 5/16" x 1 1/4" lg carriage bolts (item 4), flat washers, lockwashers and nuts (items 6-7-8).

Figure 2



N°	PARTS FIGURE 2	QTY
1	Gear shield	1
2	Nut hex 5/16"NC	4
3	Lockwasher 5/16"	4
4	Flat washer 5/16"	4
5	Carriage bolt 5/16"NC x 3/4"	4

Figure 3



N°	PARTS FIGURE 3	QTY
1	Chute	1
2	Retaining plate – long	1
3	Retaining plate - short	2
4	Carriage bolt 5/16"NC x 1 1/4"	6
5	Spacer	3
6	Flat washer 5/16"	6
7	Lockwasher 5/16"	6
8	Nut hex 5/16"NC	6
9	Rotation bushing	1
9A	*Position indicator*	-

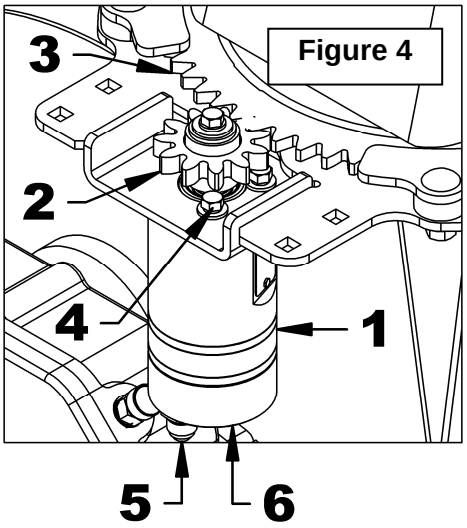
4. **Figure 4:** If the motor gear (item 2) is not fully engaged in the teeth of the chute (item 3), loosen the two right bolts (item 4). Turn the hydraulic motor (item 1) so that the teeth of the gear (item 2) connect as much as possible with the teeth of the chute gear (item 3). Tighten the bolts (item 4) to a torque of 10 lb-ft (13 N-M). **Do not use the torque table at the end of the manual for these bolts.**

5. **Figure 4:** Install a green identification ring to the hydraulic hose - item 5, and install a yellow identification ring to the hydraulic hose - item 6. Position the identification rings as close as possible to the quick couplings.

   NOTE: The other two identification rings will be installed during the connection of the snowblower to the subframe.

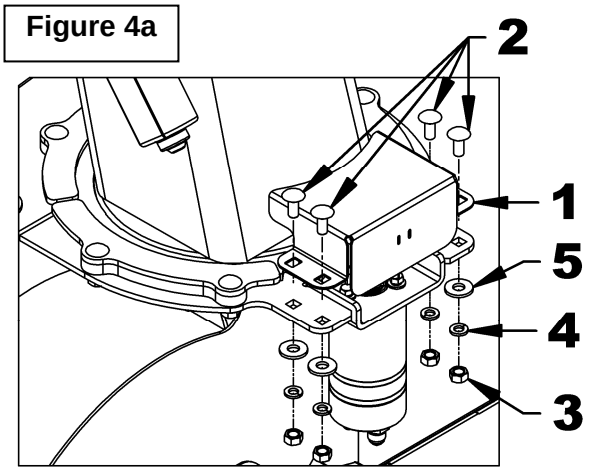
6. **Figure 4a:** Place the gear shield (item 1) on the frame and secure with the four 5/16"NC x 3/4" bolts, flat washers, locknuts and nuts (items 2-3-4-5) previously removed. Tighten Tighten all bolts according to the ***Torque Specification Table*** at the end of the manual.

Figure 4



N°	PARTS FIGURE 4	QTY
1	Hydraulic motor	1
2	Motor gear	1
3	Chute gear	1
4	Bolt hex. M6 x 1.00 x 16mm PTD	3
5	Identification ring - green	1
6	Identification ring – yellow	1

Figure 4a



N°	PARTS FIGURE 4a	QTY
1	Gear shield	1
2	Carriage bolt 5/16"NC x 3/4"	4
3	Nut hex 5/16"NC	4
4	Lockwasher 5/16"	4
5	Flat washer 5/16"	4

ASSEMBLY

Installation of the Drift Cutters
(Figure 5)

Attach the drift cutters (item 1) to the right and the left of the snowblower using two 5/16" x 1 1/4" carriage bolts (item 2), flat washers (item 3) and stover lock nuts (item 4) as shown in figure.

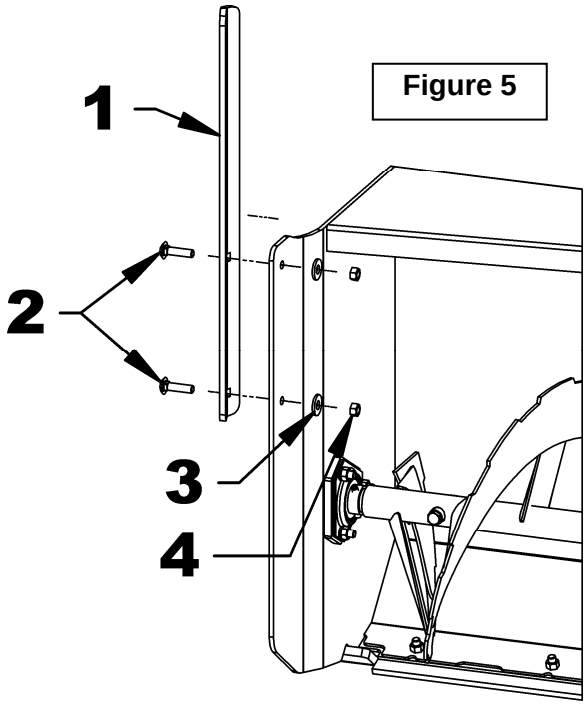


Figure 5

N°	PARTS FIGURE 5	QTY
1	Drift cutter	2
2	Carriage bolt 5/16"NC x 1 1/4"	4
3	Flat washer 5/16"	4
4	Stover lock nut 5/16"NC	4

Installation of the Hitch Pins
(Figure 6)

1. Insert each of the ø1" x 3 7/8" pins (item 1) in the hole (item 2) on each side of the snowblower frame.
2. Insert each 1/4" round wire lock pin (item 3) in the hole (item 4) on each side of the snowblower frame.

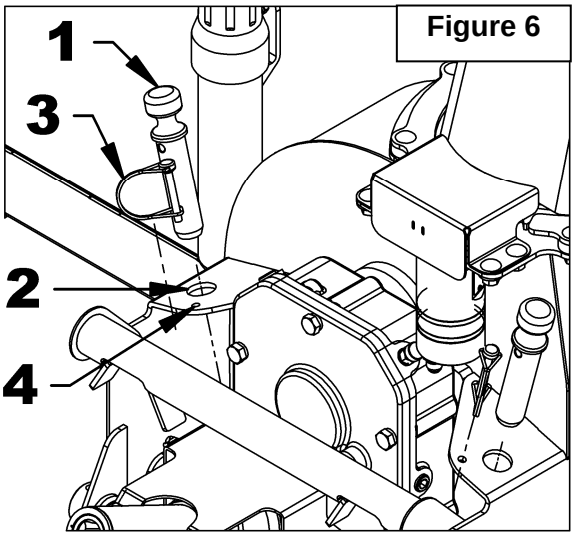


Figure 6

N°	PARTS FIGURE 6	QTY
1	Pin ø1" x 3 7/8"	2
2	*Storage hole*	-
3	Round wire lock pin 1/4"	2
4	*Storage hole*	-

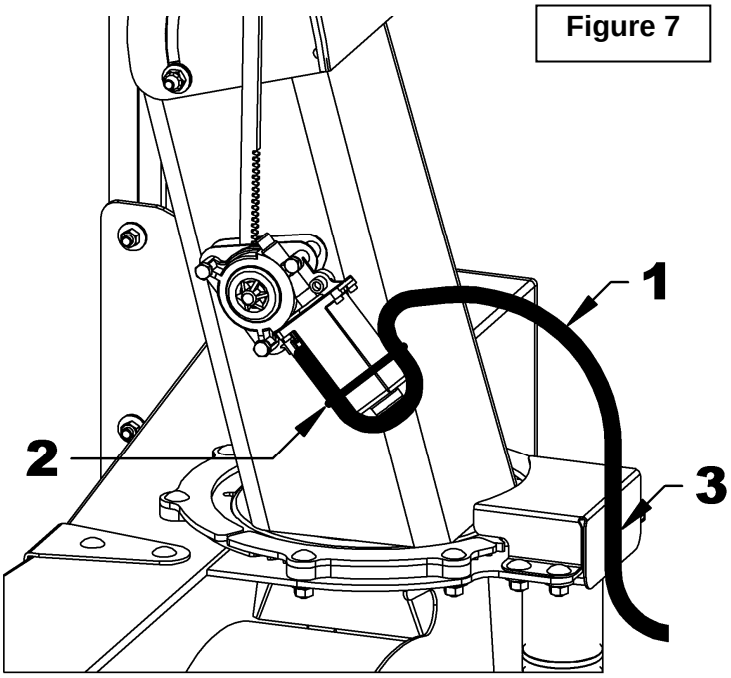
Installation of the Harness of the Electric Deflector #4000174 ***(Figure 7)***

1. **Figure 7:** Turn the chute completely to the right and secure the female connector of the deflector electric harness to the electric motor. Attach and fix the motor sheath (item 1) with a 1/4" x 15" tie wrap (item 2) as shown in the figure.

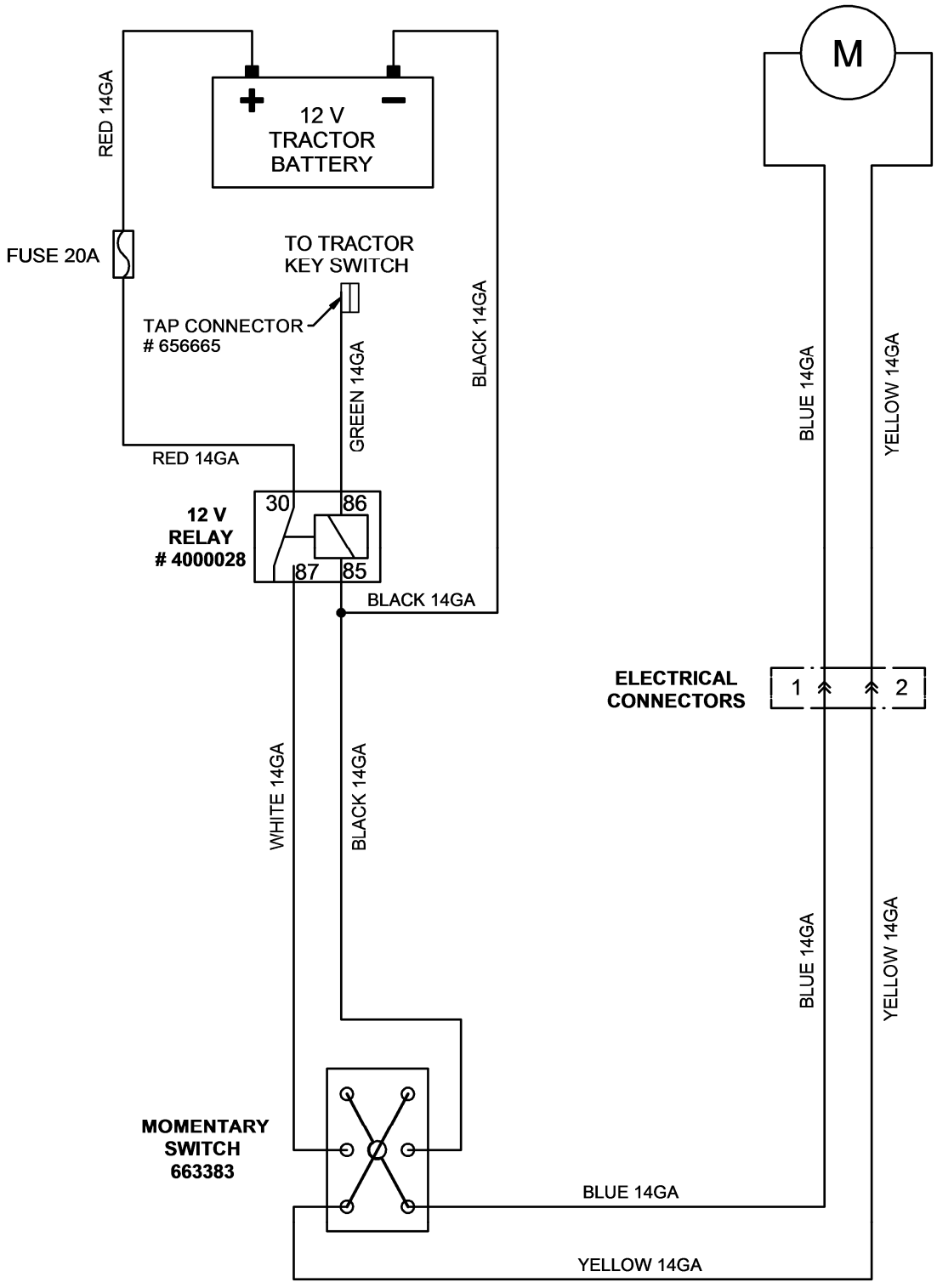
   IMPORTANT : Be sure not to over tighten the electrical harness with the nylon tie wrap.

2. Then cut the excess of the nylon fastener about 1/8" from the tie.
3. **Figure 7:** Attach the electrical harness (item 1) to the motor gear shield with the nylon tie wrap (item 3) already installed in the gear shield.

Figure 7



Electric Diagram of the Snowblower Deflector



Installation of the Harness with Fuse #4000173 ***(Figures 8-8a-8b)***

1. Group together all items listed in the figures 8 Table.
2. **Figure 8:** Remove temporarily the fuse (item 7) from the harness fuse holder (item 5).
3. **Figure 8:** Attach the fuse wire (item 5a) to the to the positive (+) terminal of the tractor battery.
4. **Figure 8:** Attach the connector of the **green wire to the 86 terminal of the relay** (item 1).
5. **Figure 8:** Attach the connector of the **red wire to the 30 terminal of the relay** (item 1).
6. **Figure 8:** Attach the relay (item 1) to the radiator plate of the tractor using the 8-32 x 3/4" machine screw round socket head, the #8 (Ø3/16" int.) flat washer and the #8-32 nylon insert locknut (items 2-3-4).
7. **Figures 8, 8a, 8b:**, Place the green wire (item 5b) at the place indicated in the figure and follow the alternator wire (item 9) which runs on the left side of the tractor.
8. **Figures 8a, 8b:** Attach the green wire (item 5b) to the accessory red wire of the tractor (item 10) using the tap connector (item 6).
9. **Figure 8b:** Secure the green wire (item 5b) to the alternator wire with a 4.8mm x 8" lg nylon tie wrap (item 8).

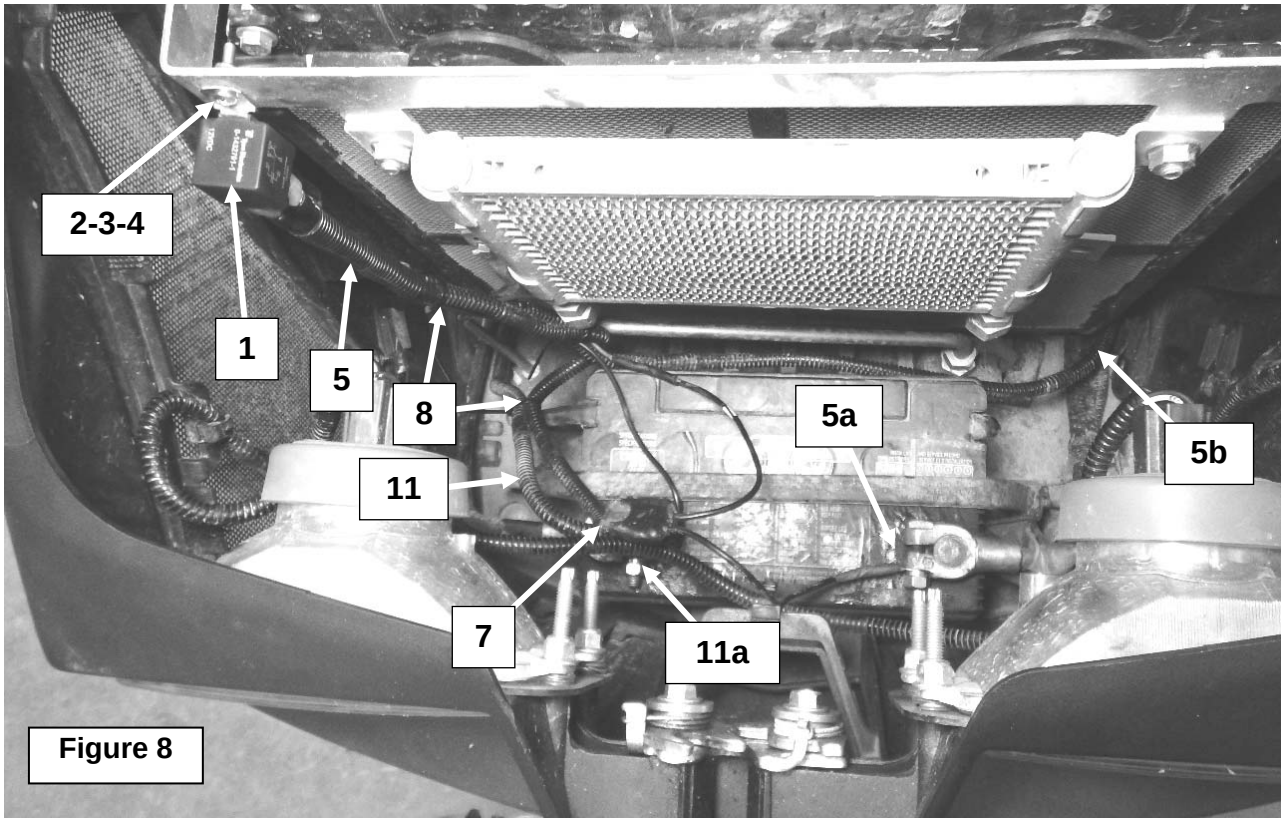


Figure 8

N°	PARTS FIGURES 8-8a-8b	QTY
1	RELAY 12 VOLT	1
2	MACHINE SCREW #8-32 X 3/4" LG, ROUND SOCKET HEAD PTD	1
3	FLAT WASHER #8 (Ø3/16" INT)	1
4	NYLON INSERT LOCKNUT #8-32	1
5	ELECTRIC HARNESS WITH FUSE #4000173 (42 1/2" LG)	1
6	TAP CONNECTOR	1
7	FUSE 20A (included with the harness)	1
8	NYLON TIE WRAP 4.8MM X 8" LG.	3
9	*TRACTOR ALTERNATOR WIRE*	---
10	*TRACTOR RED ACCESSORY WIRE*	---
11	MAIN ELECTRIC HARNESS #4000172 (93 1/2" LG.)	1

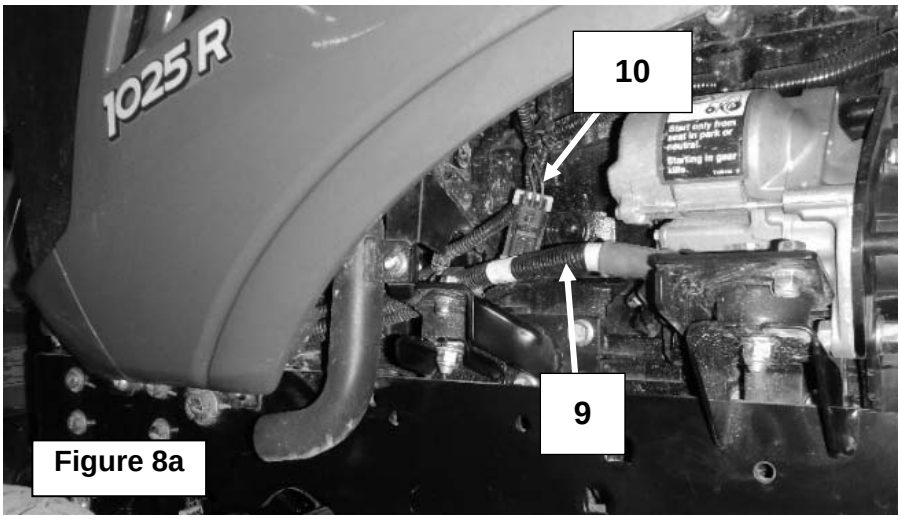


Figure 8a

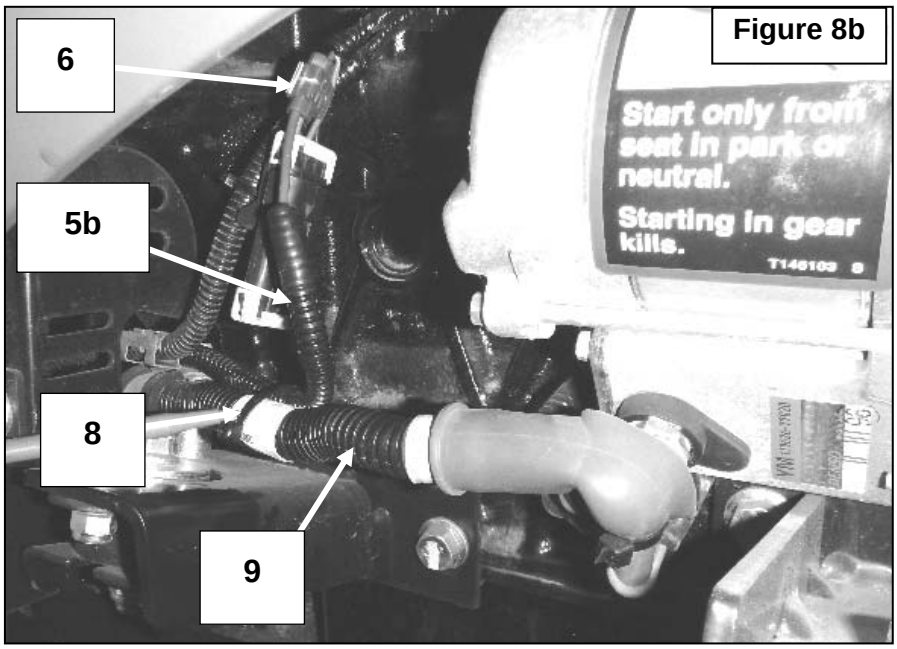


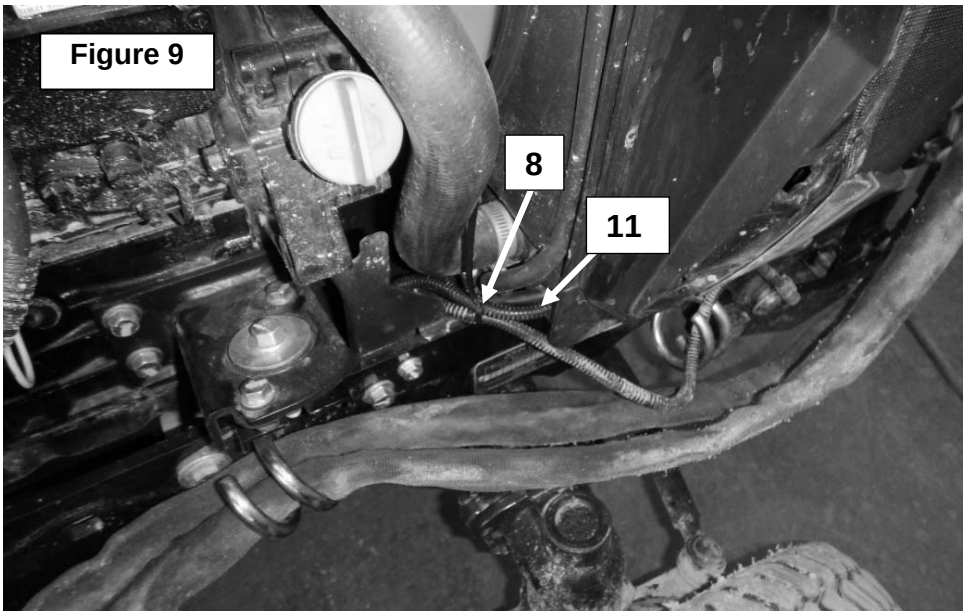
Figure 8b

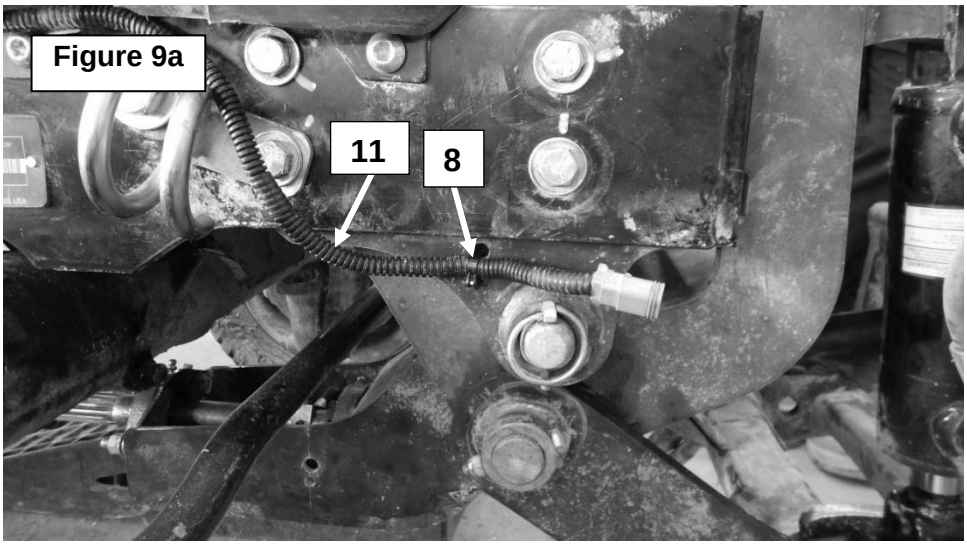
<u>Installation of the Main Harness #4000172</u> (Figures 8)

1. **Figure 8:** Passing through the right side of the tractor, cross the section of the main electrical harness (item 11) that contains the black and white wires to the tractor battery location.
2. **Figure 8:** Attach the **black** wire connector (item 11a) to the negative terminal (**-**) of the battery and the second **black wire to the 85 terminal of the relay** (item 1).
3. **Figure 8:** Attach the **white** wire connector **to the 87 terminal of the relay** (item 1).
4. **Figure 8-8b:** Fixer le harnais avec fusible (item 5) et le harnais principal (item 11) aux endroits indiqués sur la figure 8b avec deux attaches de nylon 4.8mm x 8" lg (item 8).

Installation of the Main Harness #4000172 ***(Figures 9) (continued)***

5. Group together all items listed in the figures 9 Table.
6. **Figures 9, 9a:** Place the main harness (item 11) to the places shown in the figures and secure with two 4.8mm x 8" lg nylon tie wraps (item 8).
7. **Figures 9b, 9c, 9d, 9e:** Place the main harness (item 11) inside the tractor frame to the places shown in the figures and secure with two 4.8mm x 8" lg nylon tie wraps (item 8).





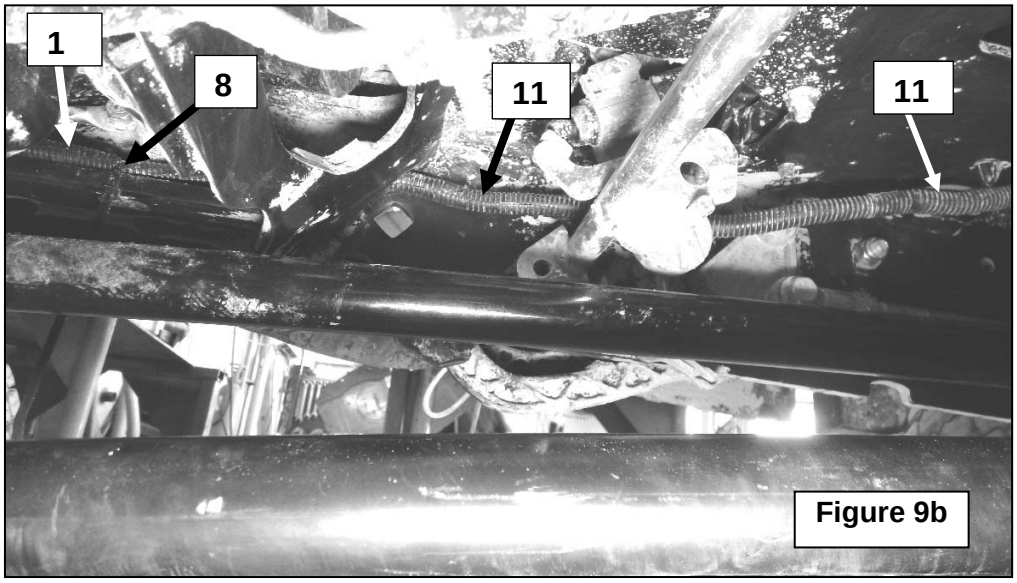


Figure 9b

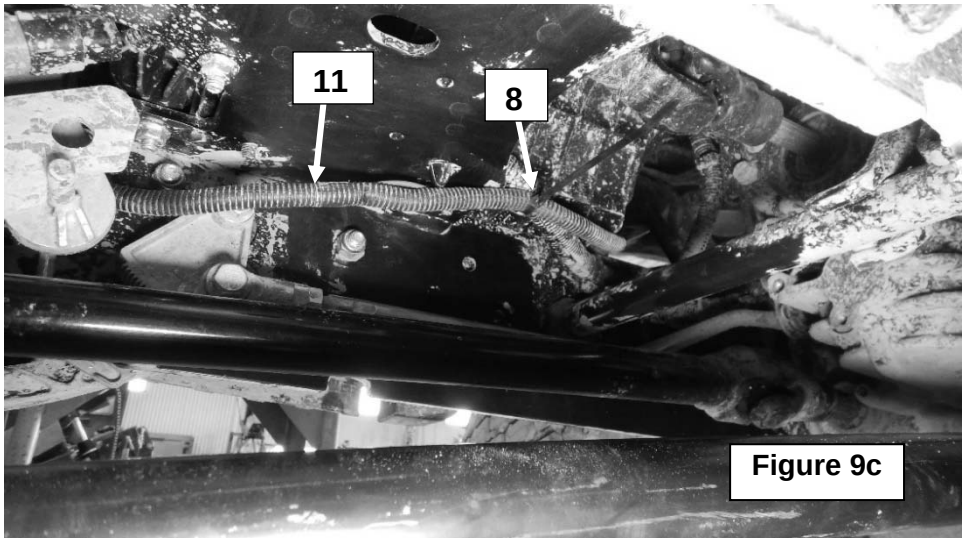


Figure 9c

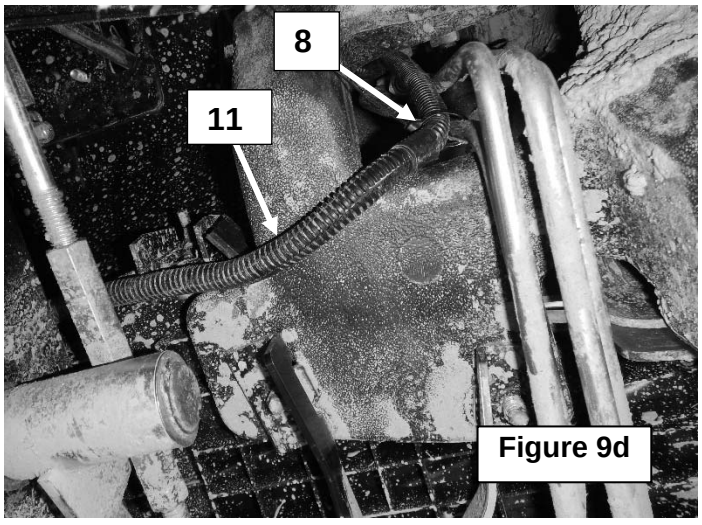


Figure 9d

8. **Figure 9e:** Run the harness (item 11) outside the rubber sheath (item 12) of the hydraulic command lever of the tractor.
9. **Figures 9f, 9g:** Attach the connectors of the main electrical harness (item 11) to the switch connector (item 20). Attach the **white wire** connector to the switch **20A connector**, the **black wire** to the **20B connector**, the **yellow wire** to the **20C connector** and the **blue wire** to the **20D connector**.

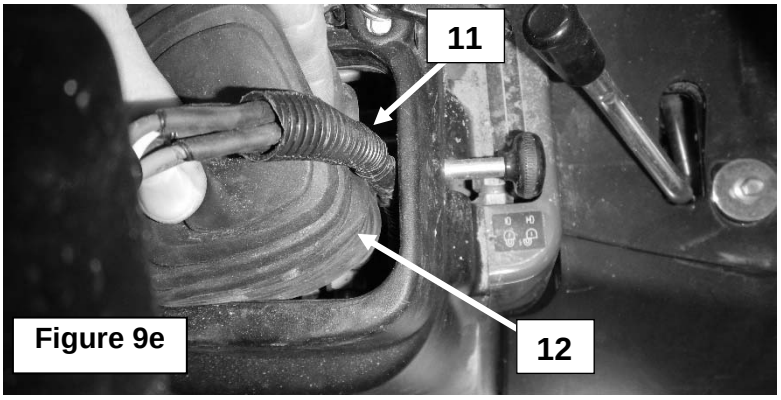


Figure 9e

10. **Figure 9g:** Remove the nut (item 20E) of the switch (item 12) and attach the switch (item 12) to the switchbox (item 13) using the switch nut (item 20E).
11. **Figure 9g:** Install the switch rubber cap (item 18) on the switch (item 12).
12. **Figure 9g:** Attach the switchbox (item 13) to the hydraulic valve lever (item 14) of the tractor using the switchbox clamp (item 15) and two 1/4" lockwashers (item 16) and two 1/4"NC X 1" lg hex bolts (item 17).
13. **Figure 9g:** Install the chute deflector decal (item 19) to the location shown in the figure.
14. **Figure 9f:** Attach the main electric harness (item 11) to the lever of the hydraulic command valve (item 14) with a 4.8mm x 8" lg nylon tie wrap (item 8).

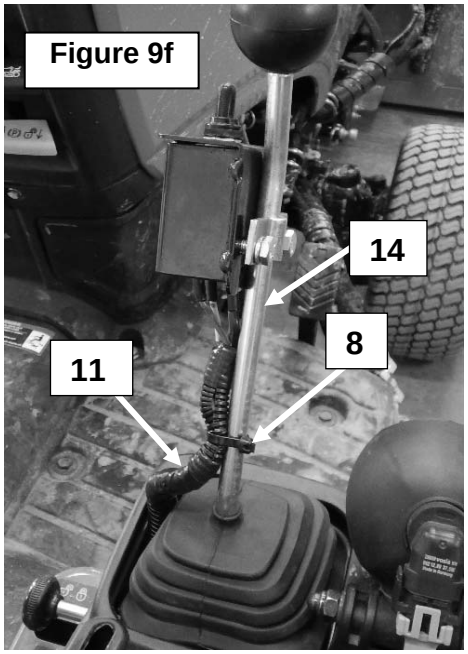


Figure 9f

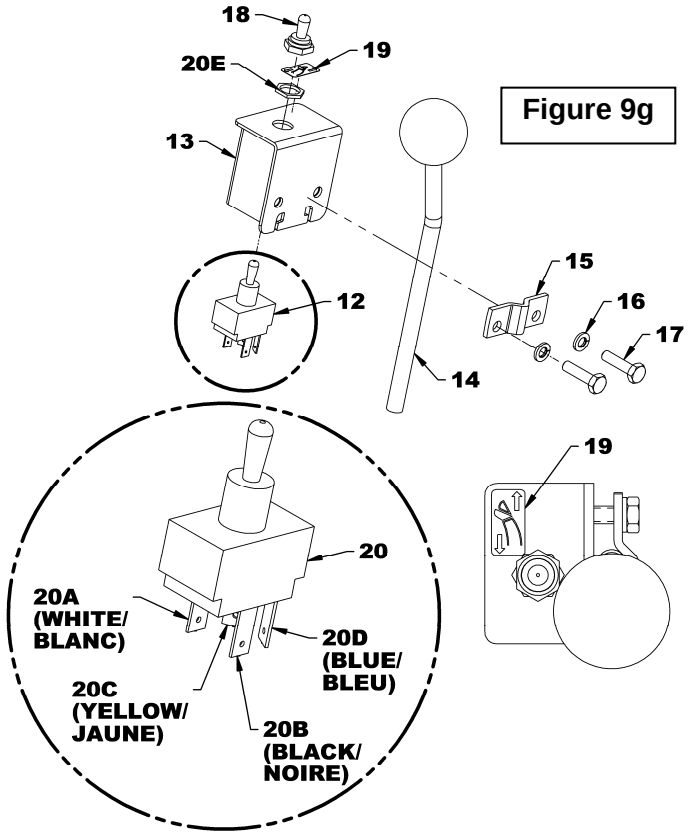


Figure 9g

N°	PARTS FOR THE FIGURES 9	QTY
8	NYLON TIE WRAP 4.8MM X 8" LG	6
11	MAIN ELECTRIC HARNESS #4000172 (93 1/2" LG.)	1
12	RUBBER SHEATH	---
13	SWITCHBOX	1
14	*HYDR. VALVE LEVER OF THE TRACTOR*	---
15	SWITCHBOX CLAMP	1
16	LOCKWASHER 1/4"	2
17	BOLT HEX. 1/4"NC X 1" LG. PTD	2
18	SWITCH RUBBER CAP	1
19	DECAL – CHUTE DEFLECTOR	1
20	SWITCH. 4 CONNECTOR	1

Installation of the Rotation Sensor Harness

NOTE : The rotation sensor and the extension harness are not included with this product.

1. Group together all items listed in the figure 10 Table.
2. **Figure 10:** Attach the rotation sensor harness (not included) (item 1) to the subframe location shown in the figure with a 4.8mm x 8" lg nylon tie wrap (item 2).
3. **Figure 10a:** Assemble the components of the protective cap provided with the snowblower as shown in the figure.
4. **Figure 10b:** Attach the protective cap assembly (item 3) to the reinforcement of the support (item 4) with a 4.8mm x 8" lg nylon tie wrap (item 2).
5. **Figure 10b:** Attach **without tightening** the electric extension harness (not included) (item 5) to the reinforcement of the support (item 4) with a 4.8mm x 8" lg nylon tie wrap (item 2a).

   IMPORTANT : The extension harness (item 5) must be able to move in the nylon tie wrap (item 2a).

Figures 10c: The connector of the extension harness (item 5a) must be secured to the protective cap (item 3) only when the subframe is removed from the tractor.

Figure 10d: The connector of the extension (item 5a) must be attached to the connector of the rotation sensor harness (item 1a) only when the subframe is installed on the tractor.

6. **Figure 10b:** Attach the electric extension harness (item 5) to the metal tube with a 4.8mm x 8" lg nylon tie wrap lg (item 2).
7. **Figure 10e:** Attach the electric extension harness (item 5) to the location shown in the figure with a 4.8mm x 8" lg nylon tie wrap (item 2).
8. **Figure 10e:** Attach the connector of the electric extension harness (item 5b) to the connector of the tractor (item 6).

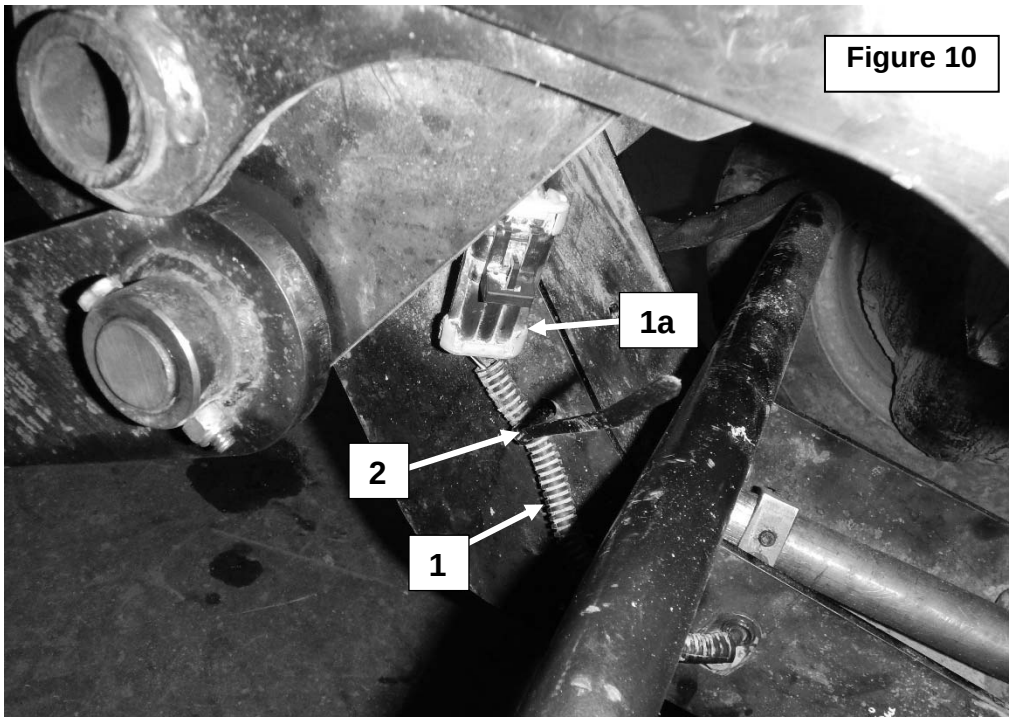
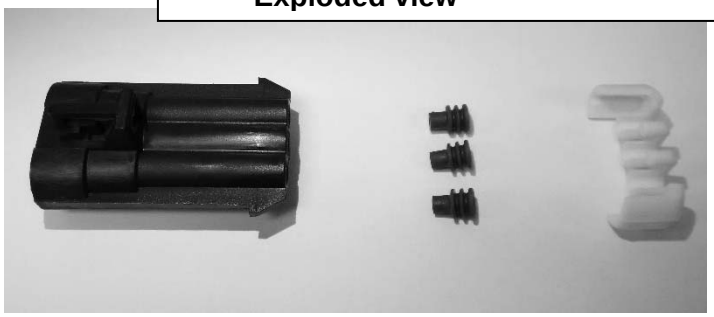


Figure 10

Figure 10a

Exploded view



Assembled View

Figure 10b

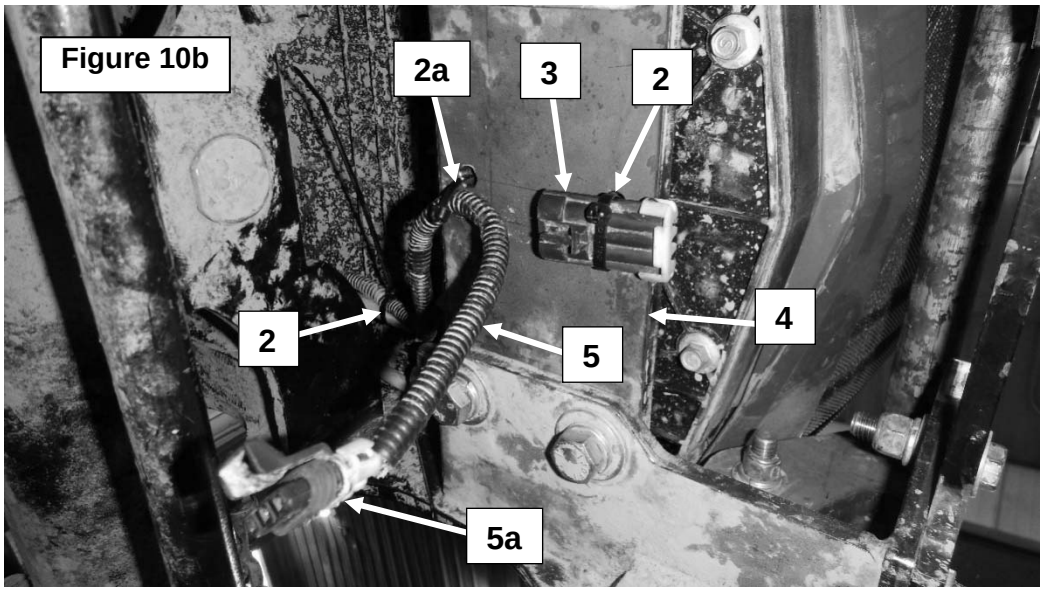
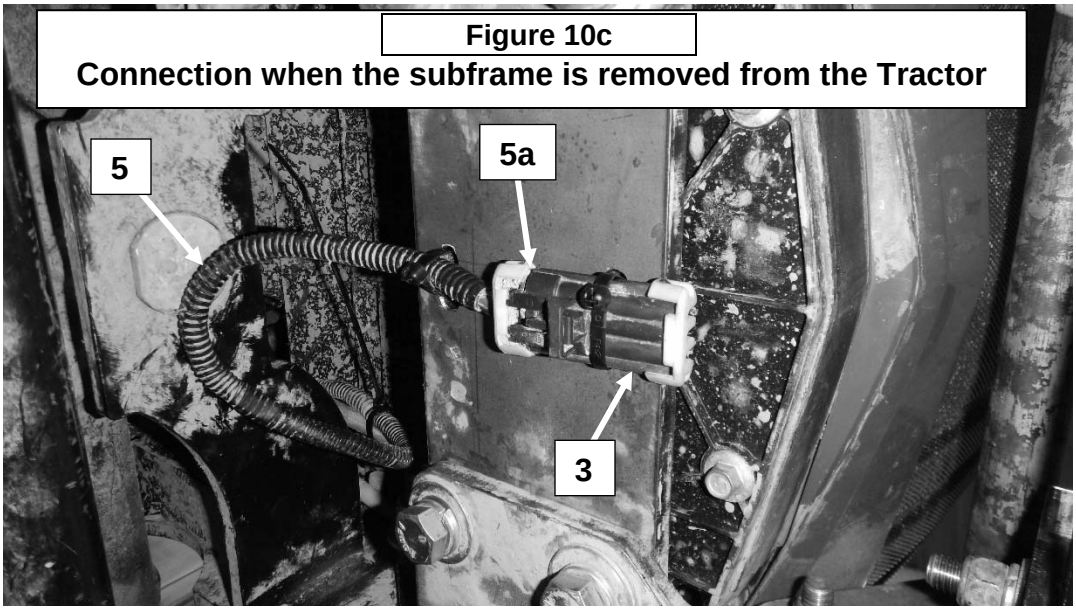


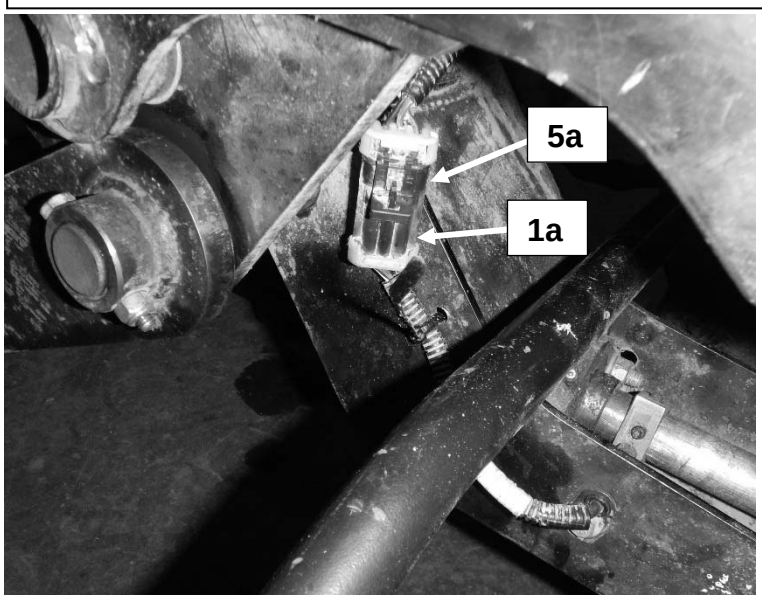
Figure 10c

Connection when the subframe is removed from the Tractor



Figures 10d

Connection when the subframe is installed on the Tractor



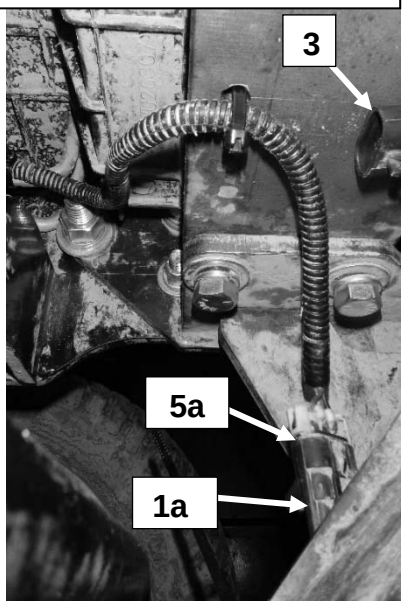
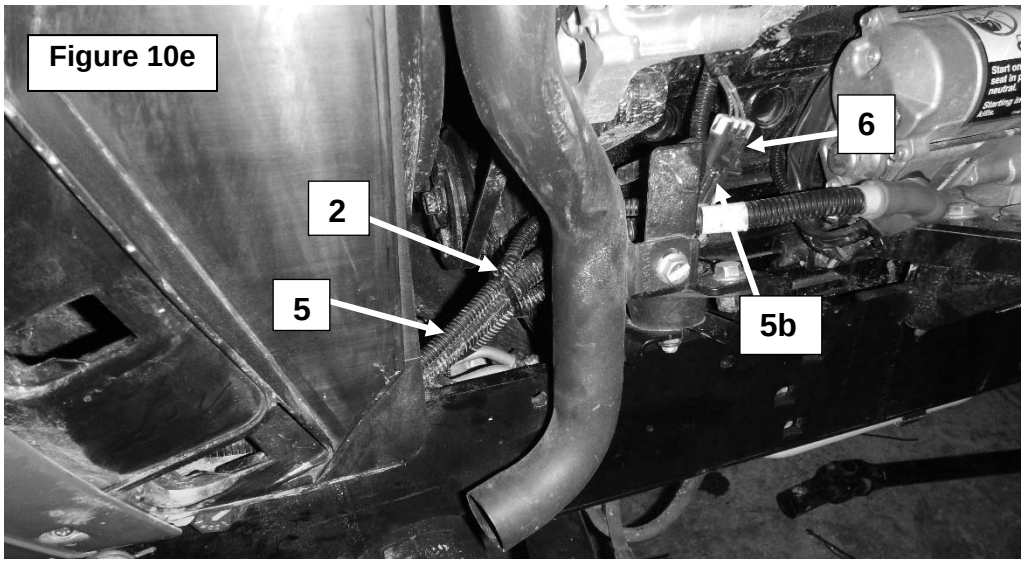


Figure 10e



N°	PARTS FOR THE FIGURES 10	QTY
1	ROTATION SENSOR (NOT-INCLUDED)	1
2	NYLON TIE WRAP 4.8MM X 8" LG.	5
3	PROTECTIVE CAP ASSEMBLY	1
4	*SUPPORT REINFORCEMENT (INSTALLED IN FRONT OF THE TRACTOR)*	-
5	EXTENSION HARNESS (NOT-INCLUDED)	1
6	*ELECTRIC CONNECTOR OF THE TRACTOR*	-

OPERATION

SNOWBLOWER CONNECTION AND DISCONNECTION PROCEDURE

Note: It is necessary to connect the rotation sensor so that the tractor can back up when it is in operation with the snowblower.

WARNING: To avoid serious injuries or death: never activate the PTO when the clutch lever of the male hitch is in the disengaged position and when there is no mechanical drive equipment installed.

Controls

The front loader hydraulic valve lever controls the movements of the hitch and snowblower installed.

- To RAISE the hitch and equipment, pull on the valve lever.
- To LOWER the hitch, push slowly on the valve lever.
- To place the equipment in FLOAT mode, push on the valve lever completely until it engages the detent and remains in that position. The float mode allows the equipment to follow ground contours when the tractor is moving.

IMPORTANT: Always use float mode when operating the snowblower

It is however possible to momentarily lock the position of the snowblower when working in an area where the snow has hardened such as roadsides or in compacted snow.

PRECAUTIONS BEFORE each connection *(figure 11)*

1. Make sure that the environment is free and clear of any objects that may interfere with the connection.
2. Make sure maintenance of the 4-point hitch and equipment is up to date.
3. Make sure that the mechanical revolution of the snowblower is functional and that there is no residue, snow or ice that would obstruct the operation.
4. Make sure that the PTOs and connection points of the two hitches (items 1A, 1B, 2A and 2B) are clean and that they are not covered with snow or ice.
5. Make sure that the two pins of the snowblower hitch (item 3) and the two round wire lock pins (item 4) are located on the snowblower frame.
6. Make sure that the half driveline of the snowblower (item 5) is well installed on the "U" PTO support (item 6) of the snowblower guard.
7. Make sure that the half-driveline (item 7) is well placed on top of the snowblower female hitch.
8. Observe and follow safety precautions for tractor operation.
9. Make sure that the PTO is not activated.

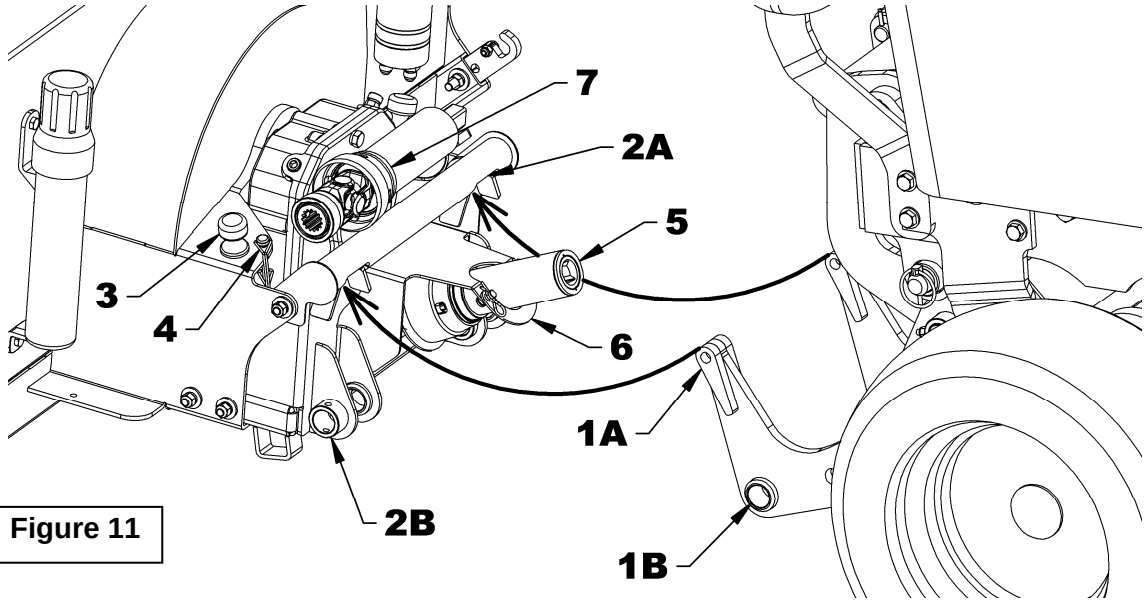


Figure 11

Steps to Connect the Snowblower (figures 11 to 17)

It is important to follow these steps in the order shown. IMPORTANT: Read "Precautions BEFORE Connection" on the previous page.

- **STEP 1 : Figure 11:** Start the tractor, remove the parking brake, slowly move forward, making sure that the snowblower female hitch is properly aligned with the tractor male hitch. Lower the tractor male hitch sufficiently so that the two upper ends of the hitch (item 1A) can fit into the tube openings (item 2A) of the snowblower female hitch.
- **STEP 2 : Figure 11:** Using the tractor hydraulic control lever, lift the snowblower completely upward to position the snowblower hitch with the tractor male hitch. This step will allow the male hitch bushings (item 1B) to align well with the bushings of the female hitch of the snowblower (item 2B).

⚠ **WARNING: To avoid serious injuries or death: always activate the lock on the tractor hydraulic control lever, apply the parking brake and turn off the engine before getting off the tractor to connect and disconnect equipment.**

- **STEP 3 : Figure 12:** Insert the two snowblower hitch pins (item 8) into the snowblower hitch bushings (item 9) and secure with the round wire lock pins 1/4" x 1 3/4" (item 10).
- **STEP 4 : Figure 13:** Remove the "U" PTO support (item 11) that retains the snowblower female half driveline and secure it in the opposite direction (up) using the two 2.5mm x 40mm hairpins (item 13).
- **STEP 5 : Figures 14-15:** Place the male half driveline (item 14) under the subframe (item 16) in order to insert it into the snowblower female half driveline (item 15). Then attach the male half driveline (item 14) to the subframe output shaft (item 17). To do this, remove the locking collar (item 14a) by moving it backwards and pushing the fork (item 14b) to connect the driveline to the output shaft of the subframe (item 17). Release the fork and make sure that the locking collar has returned to its place. Pull and push on the male half driveline (item 17) to make sure it is properly connected.

⚠ **CAUTION : To avoid serious injuries or death : Make sure the quick release system is securely locked A "click" must be heard during the connection.**

- **STEP 6 : Figures 16-17:** Run the hoses (items 1a and 1b) into the two hose supports (item 2) of the subframe and install the two identification rings according to the color of their other end. Then attach the hydraulic couplings and the electrical connector of the snowblower to the hydraulic couplings and the electrical connector of the tractor as shown in the figure. Finally, attach the two hoses with three nylon tie wraps (item 3) and the two hose guards (item 4) at the locations shown in the figure.

  IMPORTANT : Make sure that the hydraulic couplings and electrical connectors are clean before plugging in.
- **STEP 7 :** Using the hydraulic control lever, lower the snowblower to the ground.
- **STEP 8 :** Adjust the revolution of the engine at **low speed** and activate the mechanical revolution. Increase the revolution gradually until the revolution is at full speed and begin the use of the snowblower.

  IMPORTANT : The clutch of the mechanical revolution must always be done at low speed so as not to damage the mechanical components.

Figure 12

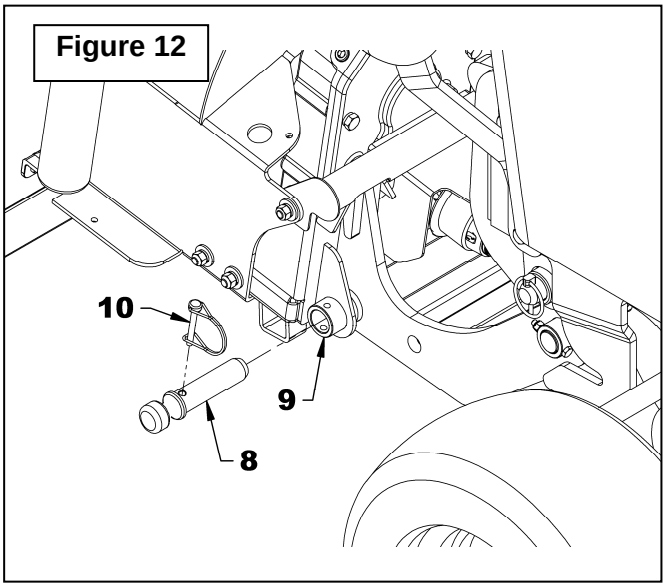


Figure 13

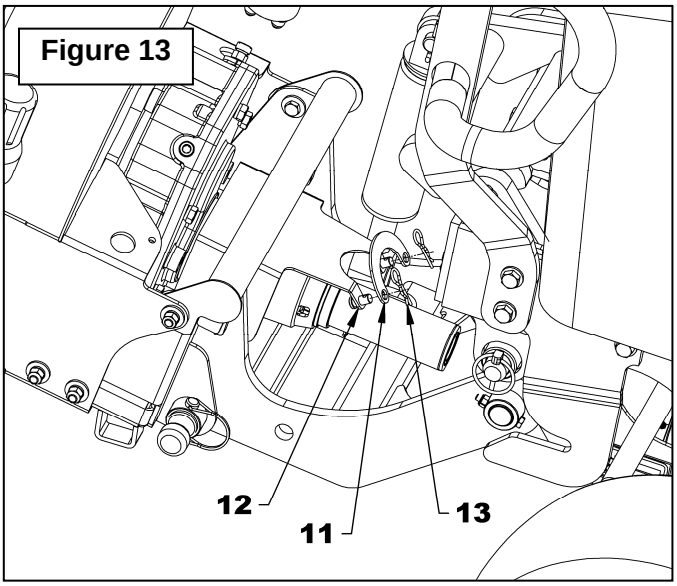


Figure 14

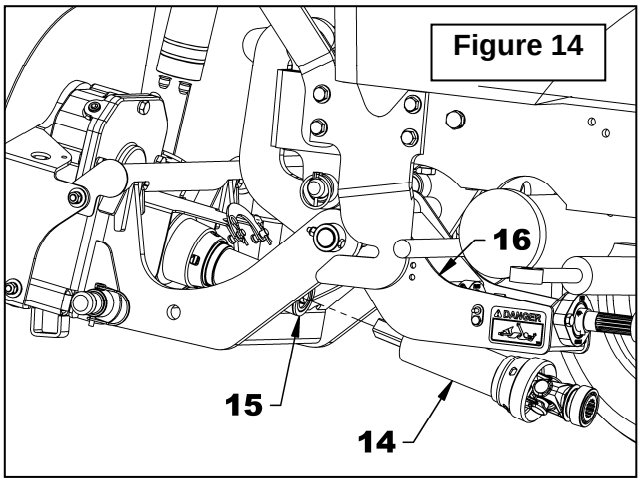
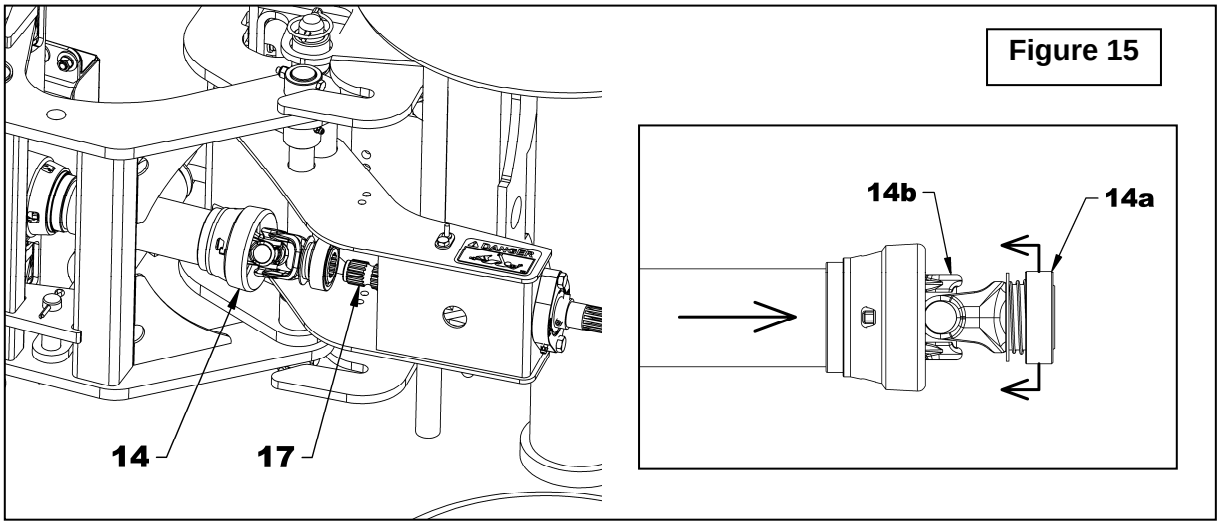


Figure 15



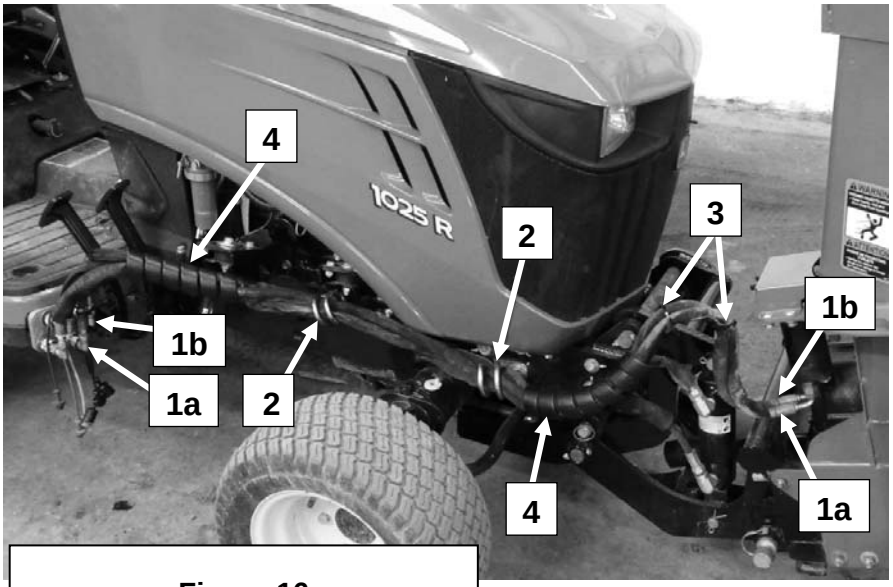
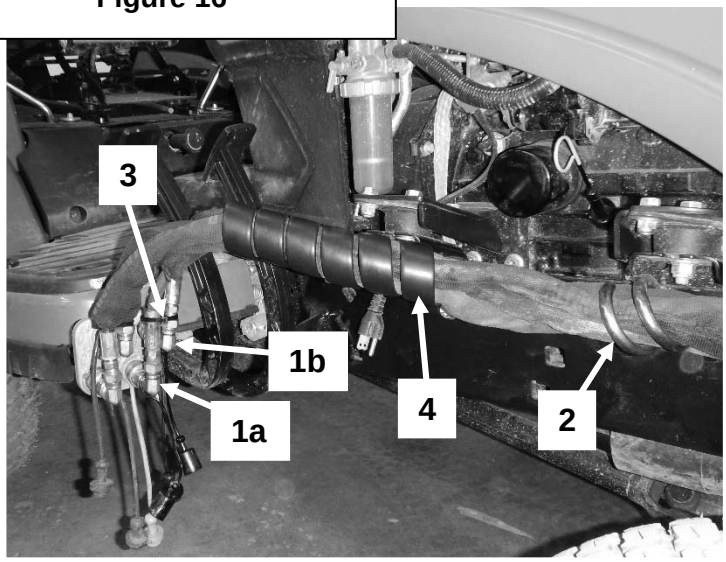
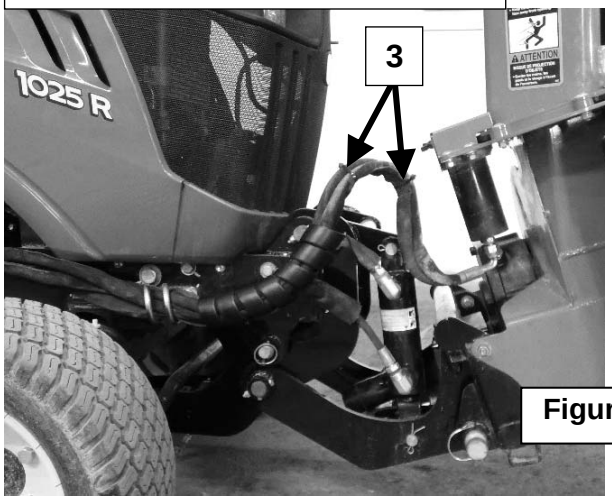


Figure 16



Snowblower at RAISED position



Snowblower at LOWERED position

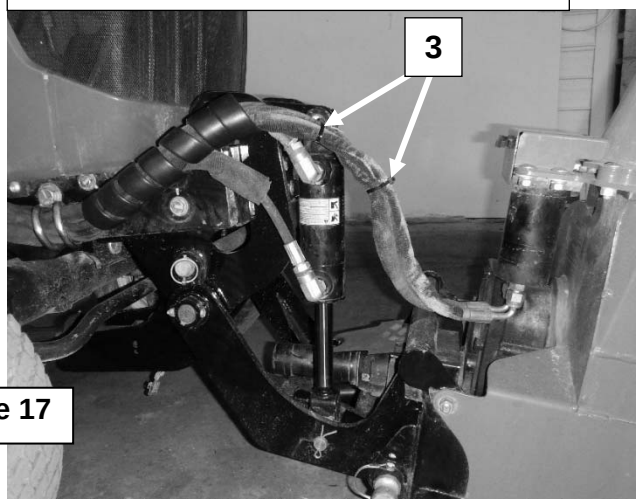


Figure 17

PRECAUTIONS BEFORE each Disconnection

1. Make sure that the environment is free and clear of any objects that may interfere with the connection.
2. Follow safety precautions for tractor operation.
3. Make sure that the PTO is not activated.

Steps to Disconnect the Snowblower

(figures 18 to 20)

It is important to follow these steps in the order shown.

- **ÉTAPE 1:** Start the tractor and lift the snowblower completely upwards using the hydraulic control lever.

⚠ **WARNING: WARNING: To avoid serious injuries or death: always activate the lock on the tractor hydraulic control lever, apply the parking brake and turn off the engine before getting off the tractor to connect and disconnect equipment: always activate the lock on the tractor hydraulic control lever, apply the parking brake and turn off the engine before getting off the tractor to connect and disconnect equipment**.

- **ÉTAPE 2:** **Figure 18:** Disconnect the hydraulic couplings and electrical connectors, roll together the hoses (item 1) and wires and place around the snowblower (item 2) as shown in the figure.
- **ÉTAPE 3:** **Figures 19-20:** Disconnect and remove the male driveline (item 1) from the subframe and place it between the female hitch tube and the snowblower gear box as shown in the figure 20.
- **ÉTAPE 4:** **Figure 20:** Remove the "U" support (item 3) from the snowblower guard and secure it in the opposite (down) direction using the two 2.5mm x 40mm hairpins (item 13) to retain the female half driveline of the snowblower.
- **ÉTAPE 5:** **Figure 20:** Remove the 1/4" x 1 3/4" round wire lock pins (item 5) and the two pins from the snowblower hitch (item 6) and place them in the appropriate holes in the snowblower frame.
- **ÉTAPE 7** **Figure 20:** Slowly lower the snowblower to the ground using the tractor hydraulic control lever and unhook the tractor male hitch (item 7) from the snowblower hitch (item 8) while slowly moving backwards.

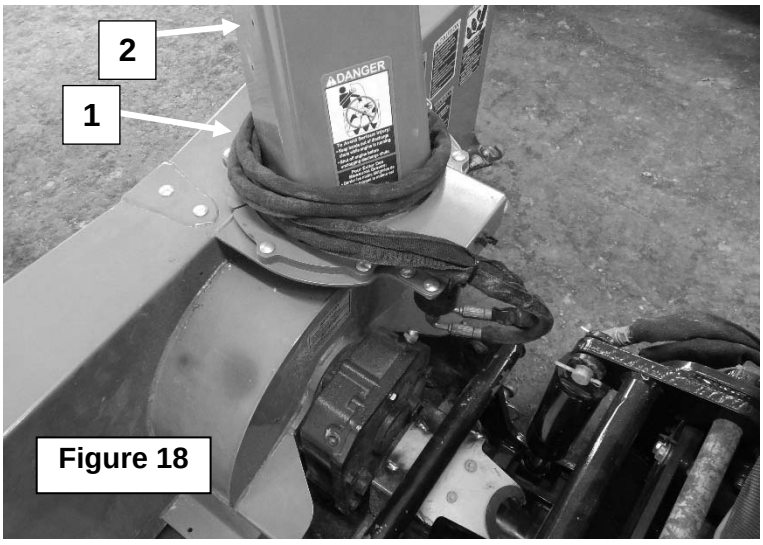


Figure 18

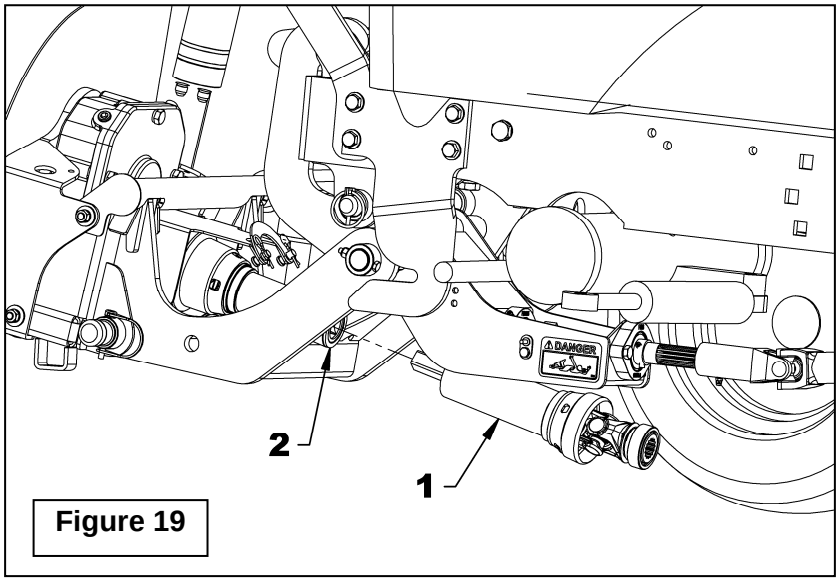


Figure 19

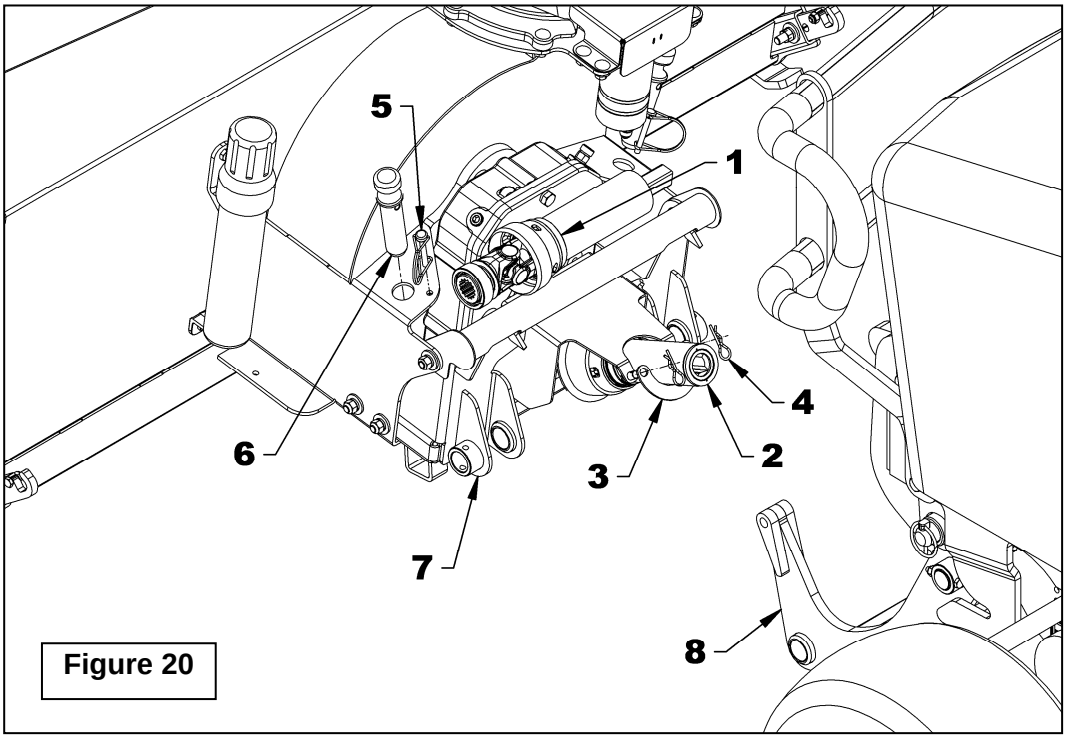


Figure 20

OPERATION

GENERAL PREPARATION

1. Read the operator's manual carefully before using the tractor and snowblower. Be thoroughly familiar with the controls and proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
2. Wear adequate winter outer garments while operating the equipment.
3. Make sure the snowblower is clear of snow and other material before engaging the snowblower.
4. Make sure the auger and fan operate freely.
5. Check the oil level in the reduction box and if necessary, add AGMA 5EP, SAE 80W90 gear oil or equivalent.
6. Check the three shear bolts, one on each auger section and one between the fan and gearbox for proper tightness.
7. Adjust the skid shoes so the snowblower runs leveled.
8. Before engaging the snowblower drive, always have the engine running at idle.
9. Operate the snowblower at maximum engine RPM.

WARNING: To avoid serious personal injury: Do not use your hands to unclog the chute. Use a 36" (925mm) stick or board. Do not attempt to unclog the chute while engine is running. If the chute is clogged, shut off the tractor engine, remove the key from the ignition and clear the snow from the chute.

WARNING: To avoid serious injurious or death:

- **Never allow anyone near the work area.**
- **Never allow anyone to climb on the equipment or the subframe.**
- **Before cleaning, adjusting or repairing the equipment or subframe, immobilize the tractor, wait for the complete stop of the moving parts, set the parking brake, lower the equipment to the ground, shut off the engine and remove the ignition key.**
- **Never place any part of your body under the equipment when making adjustments.**

WARNING

Always operate the equipment from the tractor seat.

WARNING

Operate the equipment at a speed that corresponds to the work area conditions. Be careful when working near a slope or on uneven ground.

WARNING

Always wear safety glasses when operating the equipment.

OPERATION

Engine Speed

1. Start the tractor engine. Let the engine warm up at least one minute before engaging the drive mechanism then increase speed gradually.
2. Make sure the snowblower head is properly positioned and engage the drive mechanism.
3. Adjust the ground speed according to conditions. For maximum power, run engine at or near full throttle.

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

Increasing Traction and Stability

WARNING: To avoid serious injurious or death:
Always make sure the tractor is equipped with a rear counterweight of 350 lbs. that offers the necessary balance to avoid overturning, loss of traction or steering.

Engaging the Drive Mechanism

Refer to the tractor's operating manual for instructions.

Controls

The front loader hydraulic valve lever controls the movements of the hitch and equipment installed.

- To RAISE the hitch and equipment, pull on the valve lever.
- To LOWER the hitch, push slowly on the valve lever.
- To place the equipment in FLOAT mode, push on the valve lever completely until it engages the detent and remains in that position. The float mode allows the equipment to follow ground contours when the tractor is moving.
- To turn the chute LEFT, push the valve lever slowly to the left.
- To turn the chute RIGHT, push the valve lever slowly to the right

IMPORTANT: Always use float mode when operating the snowblower.

It is however possible to momentarily lock the position of the snowblower when working in an area where the snow has hardened such as roadsides or in compacted snow.

ADJUSTMENTS

WARNING

To avoid serious personal injury:

Make sure tractor engine and snowblower come to a complete stop and tractor drive mechanism is disengaged BEFORE making any adjustments.

Deflector Adjustment

The deflector angle must be set according to the distance the snow must be thrown.

- To adjust the deflector angle UP, pull the switch backward.
- To adjust the deflector angle DOWN, push the switch forward.

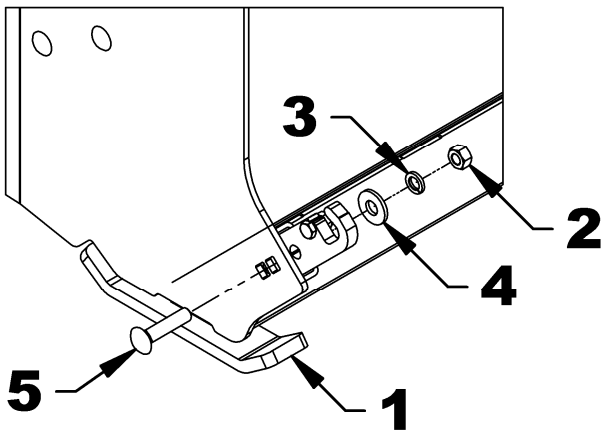
Ajustement des Patins

Adjust the snowblower so that the skid shoes run level and according to the surface conditions so that stones are not thrown with the snow. Make sure the skid shoes are at the same height to keep cutting edge leveled.

To adjust the skid shoes (item 1), remove the 3/8"NC hex nut (item 2), lockwasher (item 3), flat washer (item 4) and the 3/8"NC x 1 3/4" carriage bolt (item 5). Secure with the hardware (items 2-3-4-5) into the appropriate hole according to the following settings :

Distance between the cutting edge and the ground*:*

- ***Level paved surface:***
  1st adjustment – the lower hole of the skid shoe in the lower hole of the housing
  2nd adjustment –the shid shoe center in the upper hole of the housing.
- ***Uneven or gravel surface:***
  1st adjustment - the shid shoe center in the lower hole of the housing.
  2nd adjustment –the top of the skid shoe into the top hole of the housing.



N°	PARTS SKID SHOE FIGURE	QTY
1	Shid shoe	1
2	Nut hex 3/8"NC	1
3	Lockwasher 3/8"	1
4	Flat washer 3/8"	1
5	Carriage bolt 3/8"NC x 1 3/4"	1

OPERATION

SNOW REMOVAL METHODS

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 clog. For best results, raise the snowblower and remove a top layer of snow. A second pass with the snowblower will remove the remaining snow.

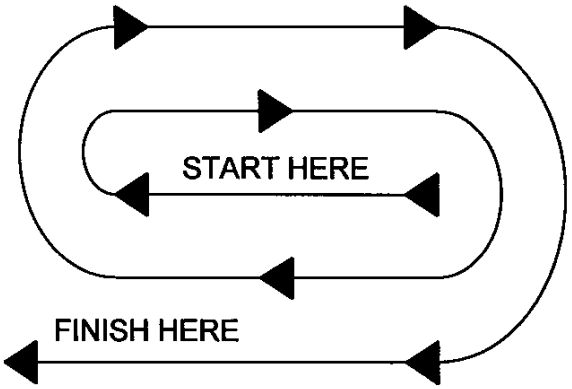
IMPORTANT: Use full RPM power when removing wet, sticky snow. Low RPM power will tend to clog the chute.

WARNING: Do not use hands or feet to unclog chute. Do not attempt to clear clogged chute of snow while tractor engine is running. If the chute clogs, disengage the PTO according to owner's manual, shut off the tractor engine, remove the ignition key, wait for all movement to stop, and then clear the snow from the chute.

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 need to perform a second pass with the snowblower.

PATTERN 1

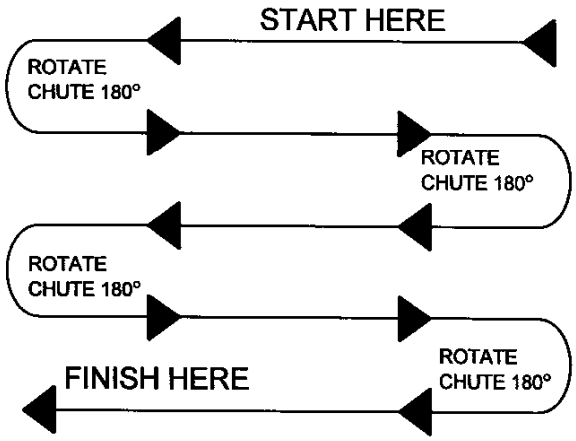
DISCHARGE SNOW BOTH SIDES



DISCHARGE SNOW BOTH SIDES

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 chute.

PATTERN 2



DISCHARGE SNOW THIS SIDE ONLY

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 degrees for the return pass. At the end of each succeeding pass, rotate the chute 180 degrees to maintain direction of throw in the same area.

MAINTENANCE

ALWAYS USE GENUINE PARTS WHEN REPLACEMENT PARTS ARE REQUIRED

1. Keep the tractor and snowblower properly maintained.
2. Park the tractor/snowblower on level ground, place the transmission in neutral, set the parking brake, disengage the PTO, lower the snowblower to the ground, place all control levers in neutral, shut off the engine and remove the ignition key and allow the rotating parts to stop BEFORE making any snowblower adjustments.
3. To avoid injury, do not adjust, unblock the driving system, or service the snowblower with the tractor engine running.
4. Keep the tractor/snowblower clean. Snow, dirt or ice build-up can lead to malfunction or personal injury from thawing and refreezing in garage.
5. Always wear eye protection when cleaning or servicing the snowblower or subframe.
6. DO NOT service the tractor while the engine is running or hot, or if the unit is in motion. Always lower snowblower to the ground. If necessary to service snowblower in raised position, securely support with stands or suitable blocking before working underneath. Do not rely on hydraulically supported devices for your safety. They can settle suddenly, leak down, or be accidentally lowered
7. Do not attempt to service machine, clear obstructions or unclog the snowblower with the engine running. Always shut off engine and allow all motion to cease.
8. The manufacturer will not claim responsibility for fitment of unapproved parts and/or accessories and any damages because of their use.
9. Make sure all shields and guards are securely in place following all service, cleaning, or repair work.
10. Do not modify or alter this snowblower or any of its components or operating functions. If you have questions concerning modifications, consult with your dealer.
11. Do not operate a snowblower that is defective or has missing parts. Make sure that all recommended maintenance procedures are completed before operating the snowblower.
12. Check all controls regularly and adjust where necessary. Make sure that the brakes are evenly adjusted.
13. Periodically check all nuts and bolts for tightness, especially wheel hub and rim nuts.

WARNING

To avoid serious personal injury or death:

- **Before cleaning, adjusting or repairing the snowblower: bring the tractor to a complete stop, lower the implement shut off the engine and remove the ignition key.**
- **Never park the tractor inside a building where an open flame or sparks are present. Allow the engine to cool down before storing in any enclosure.**
- **Run the snowblower a few minutes after blowing snow to prevent freeze up of auger and fan.**
- **Always remove the snowblower from the subframe if you need to work on the snowblower.**

Gearbox and Reduction Box

When servicing either the gearbox or the reduction box, the sealing of the casing must be restored. To do so, apply a layer of silicone to the casing before closing it. Allow the silicone to cure for at least 24 hours before filling it with oil.

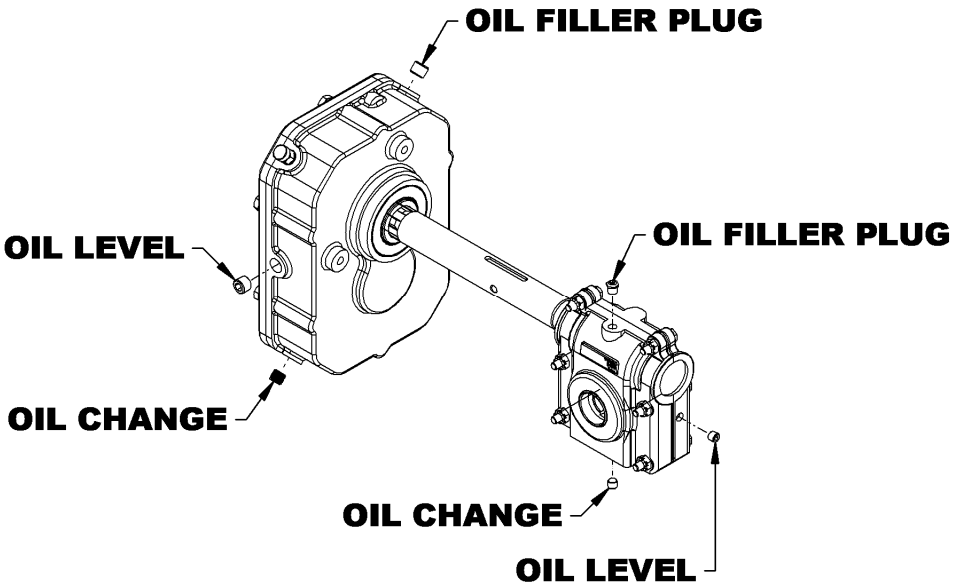
Oil Level – Oil Fill Up

To check oil level: Remove oil level plug, check if the oil is flush with the plug. If not, remove the oil filler plug and fill until the oil flows through the oil level plug hole. Reinstall both plugs.

Oil Change

Change the oil in the gearbox and in the reduction box every 150 hours or every 3 years if the number of hours has not been reached.

1. Remove oil filler plug.
2. Remove oil change plug and let oil flow through until only small drops are coming out.
3. Reinstall oil change plug and remove oil level plug. Fill gearbox/ reduction box with SAE 80W90 oil, AGMA 5EP extreme pressure oil or equivalent, until oil reaches oil level plug. Reinstall oil level plug, then oil filler plug.



MAINTENANCE

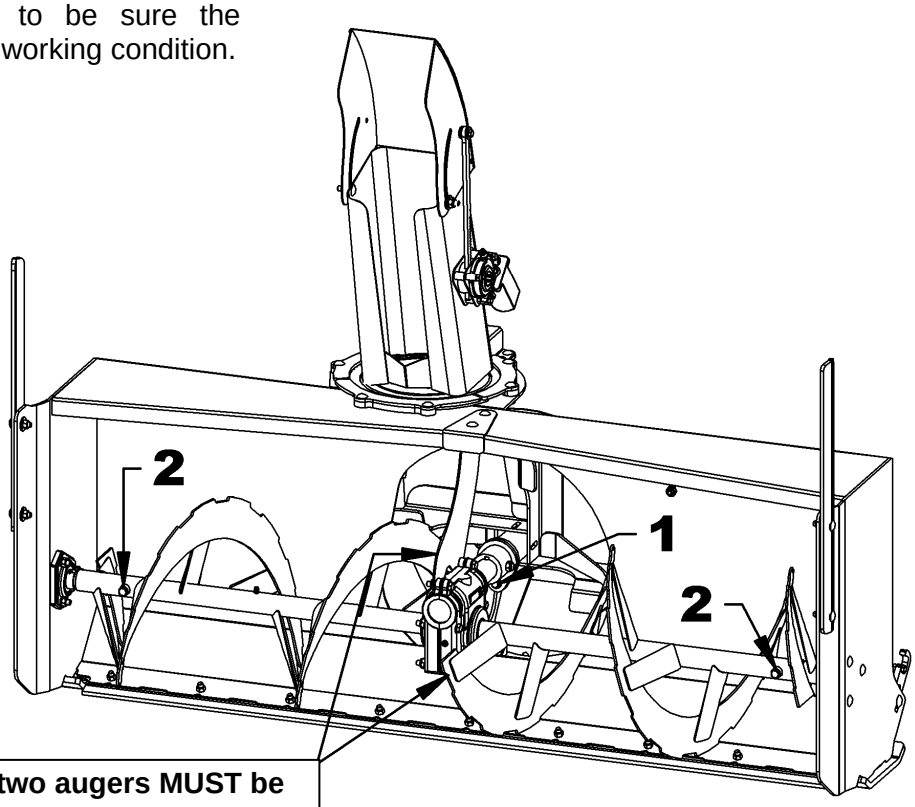
Shearbolts

1. Always use a grade 2 shearbolt (669596) on fan (item 1) and special grade 5 grooved shear bolts (657295) on the auger sections (item 2).

2. Check shear bolts at frequent intervals for proper tightness to be sure the snowblower is in safe working condition.

Auger Repositioning

After shear bolt breakage on one of the augers, make sure to reposition the augers as shown on the figure below; opposite 180º from each other.



IMPORTANT: The two augers MUST be opposite.

MAINTENANCE SCHEDULE		
DESCRIPTION	**INTERVAL**	**REQUIRED MAINTENANCE**
Hardware	After the first 8 hours of operation	Tighten all nuts and bolts according to the Torque Specification Table
	40 hours of operation	
Connection points	Before each equipment connection	Visual inspection for the clutch shaft, hydraulic/electric connectors and the hitch connection points. Clean if necessary.
Connection system	After the first 8 hours of operation	Visual inspection. Tighten, repair or replace if necessary.
	40 hours of operation	

PROBLEM: HYDRAULIC CHUTE ROTATION IS SLOW OR DOESN'T TURN

When activating the chute rotation, it turns very slowly or not at all.

To avoid serious personal injury, always wear safety glasses when performing the instructions below.

SOLUTION:

1. Check if the tractor valve works well. Test it by plugging another equipment to the valve. If it does not work well, refer to the appropriate operator's manual.

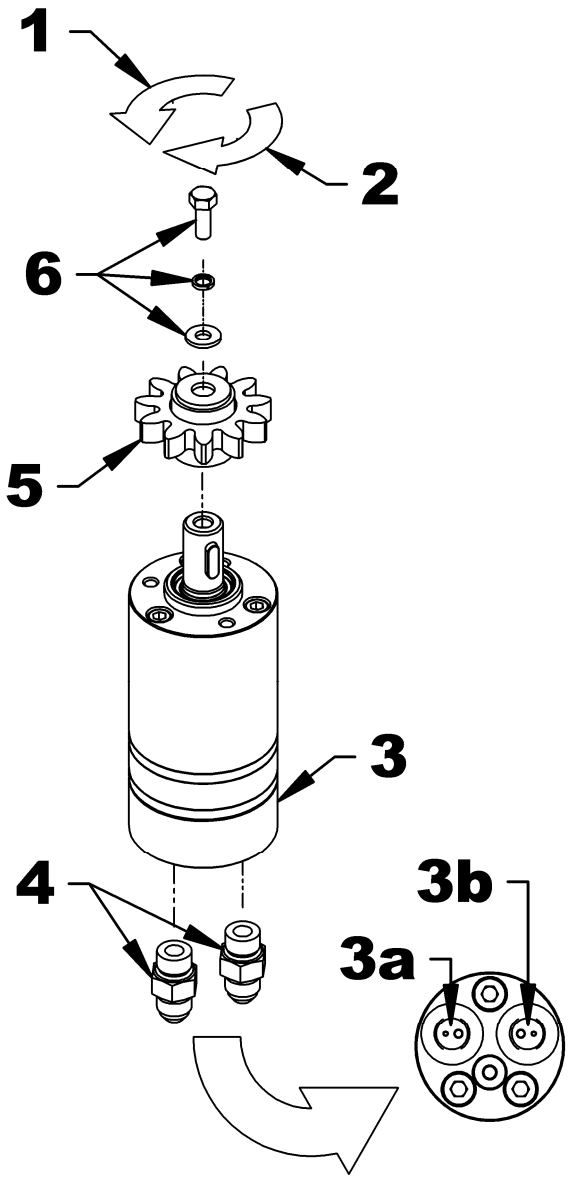
2. Check if the chute itself rotates smoothly by removing the serrated flange bolt (item 6) and the motor gear (item 5) and turn the chute manually in both directions. If it does not rotate well, correct the problem by checking if there is some excess wear or debris locked between components.

3. If the chute turns well manually but only turns one way with the hydraulic motor check if there are any residues in the hydraulic system by removing the bolt, lockwasher, flat washer (item 6) and the gear (item 5) and activate the rotation in the direction the motor turns well for approximately 1 minute to evacuate the residues.

4. Turn the chute in the direction it wasn't turning correctly to check if the problem is corrected. If the problem persists or if the chute doesn't turn smoothly in both directions, release the pressure from the system, place the ignition key in the ON position without starting the engine, activate the float mode and place the key in the OFF position.

5. Disconnect the hoses from the motor, remove the two adapters (item 4) and inspect the holes of the two flow restrictors (items 3a-3b) and remove residues if necessary with compressed air. If no residues are found, disconnect the hoses and clean with compressed air.

IMPORTANT: When removing connectors, always make sure to install the plugs and caps on the hoses and tractor valve connectors. This will prevent contamination of the hydraulic circuit and obstruction of the flow restrictor hole.



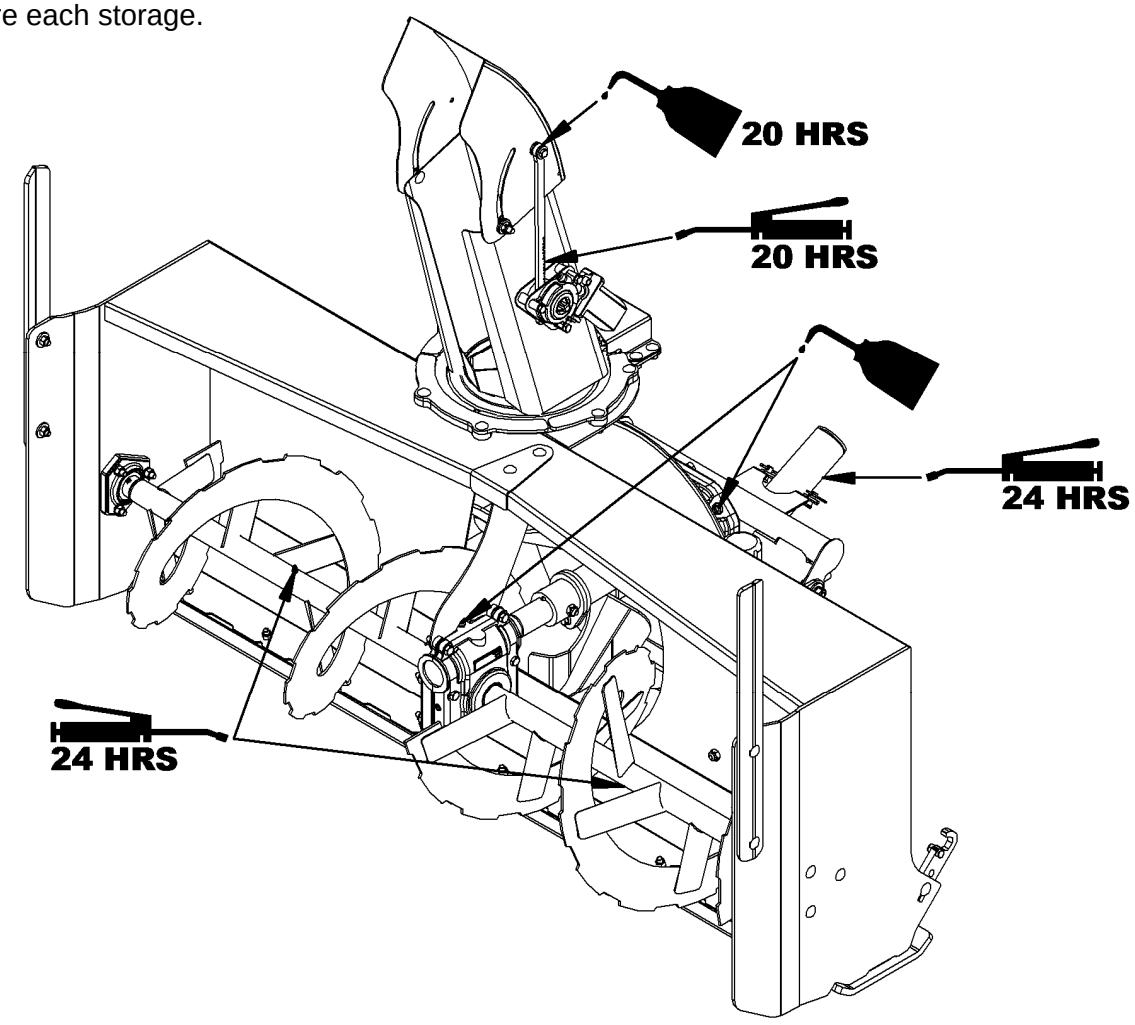
MAINTENANCE

LUBRICATION

Use a grease gun and lubricate as follows:

DESCRIPTION	INTERVAL	REQUIRED LUBRICATION
Gearbox & Reduction box	Monthly	Check oil level. If needed, add extreme pressure oil, SAE 80W90 gear oil or equivalent.
Auger & Driveline	24 hours of operation or at least once a year	Inject grease in the grease fitting of each auger section. Use Shell Gadus S5 V100 grease or equivalent.
Rack	20 hours of operation and at the end of the season	Apply a slight layer of grease on the teeth of the rack and then do some cycles of deflection. Use Shell Gadus S5 V100 grease or equivalent.
Pivot Bushing	20 hours of operation and at the end of the season	Lubricate with heavy chain saw oil.

IMPORTANT: Perform all the maintenance section without taking into account the hours given in the following cases:
- At least once a year if the snowblower is used less than 20 hours annually.
- After each wash.
- Before each storage.



TROUBLESHOOTING

PROBLEM	CORRECTIVE MEASURES
1. Auger and fan not turning	• Check if an object is blocking the auger or fan • Check that PTO is engaged • Check that the drive system is in the engaged position • Check if chain is broken • Check if shearbolts are broken and replace if necessary • Gearbox lacking oil and is seized. Replace gearbox.
2. Snow is not being ejected from the chute	• Check if the fan is turning, refer to problem # 1 • Check if the snow output is obstructed, unclog with a 36" stick
3. Snowblower clogs up easily	• Engine is not at full RPM • Check that the chute is not obstructed • Reduce travel speed
4. Snow doesn't enter the snowblower properly	• Engine is not at full RPM • Check if shearbolts are broken and replace if necessary • Check auger positions. (refer to section Operation)
5. Snow is not thrown very far	• Engine is not at full RPM • Reduce travel speed • Check that the chute is not obstructed
6. Snowblower will not connect to the hitch	• Check that the connection system is not obstructed • Make sure that the pins of the snowblower hitch are removed. • Make sure that the snowblower driveline is on its support.

STORAGE

(Figures A-B)

Before storing the snowblower, certain precautions should be taken to protect it from deterioration.

1. Clean the subframe and snowblower thoroughly.

2. Make all the necessary repairs.

3. Replace all safety signs that are damaged, lost, or otherwise become illegible. If a part to be replaced has a label on it, obtain a new safety label from your dealer and install it in the same place as on the removed part.

4. Repaint all parts from which paint has worn or peeled.

5. Lubricate the snowblower as instructed under **"Lubrication"** section.

6. When the snowblower is dry, oil all moving parts. Apply oil liberally to all surfaces to protect against rust.

7. **Figure A:** Insert each pins ø1" x 3 7/8" (item 1) into the hole (item 2) on each side of the snowblower housing.

8. **Figure A:** Insert each round wire lock pins 1/4" (item 3) into the hole (item 4) on each side of the snowblower housing.

9. **Figure A:** Place the male driveline (item 5) of the drive system on top of the 4-pt hitch.

10. **Figure B:** Wrap the hydraulic hoses and the electrical harness around the chute.

11. Store in a dry place.

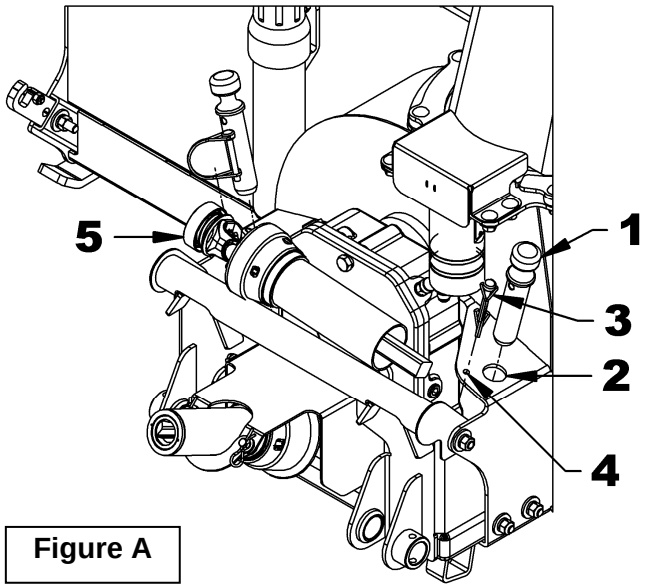


Figure A

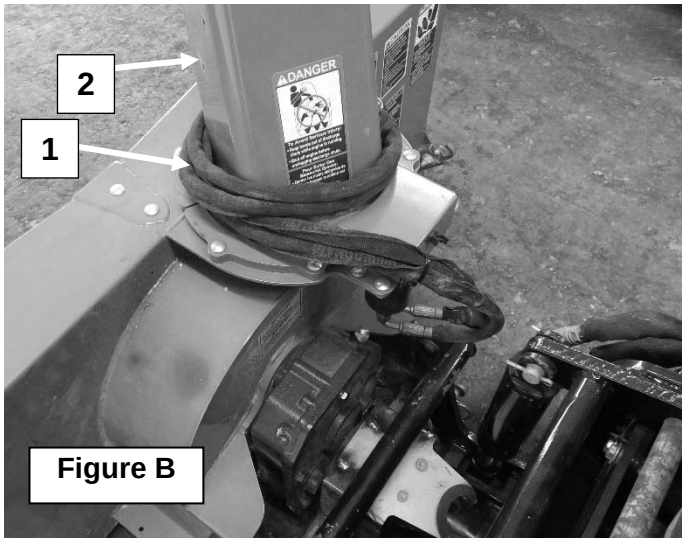
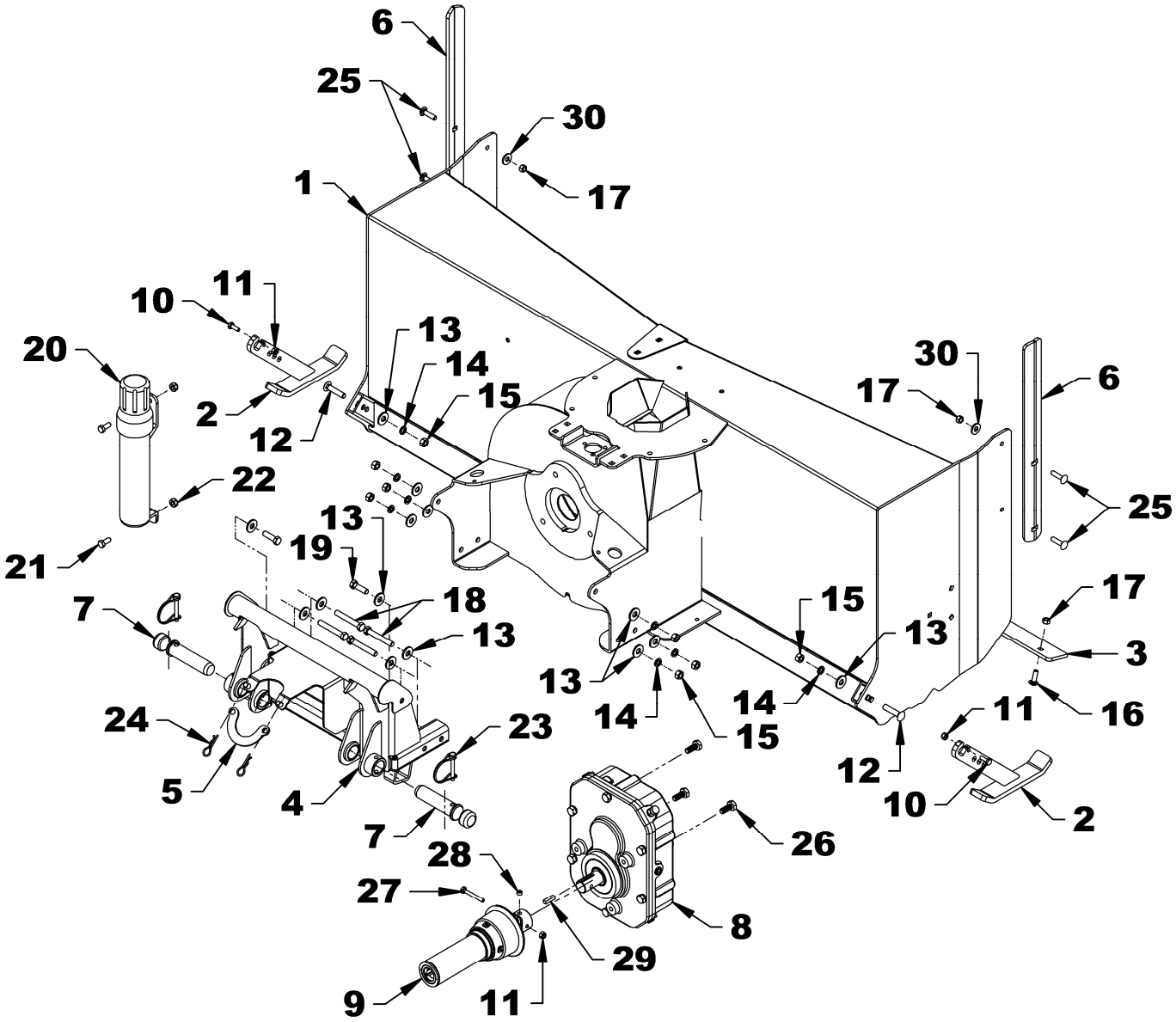


Figure B

PARTS

SNOWBLOWER 48" & 54" - REAR			
REF.	DESCRIPTION	QTY	PART #
1	Housing - snowblower 48"	1	671833
-	Housing - snowblower 54"	1	671827
2	Skid Shoe	2	671839
3	Cutting edge - snowblower 48"	1	671836
-	Cutting edge - snowblower 54"	1	671830
4	4-point Hitch - snowblower	1	671849
5	Driveline support	1	671850
6	Drift cutter	2	671848
7	Pin ø1" x 3 7/8", PTD	2	671814
8	Reduction box - ratio 2.5 @ 1	1	4500184
9	Driveline – female	1	4700044
10	Bolt hex 1/4"NC x 3/4" Gr.5 PTD	2	0100003
11	Nylon insert locknut 1/4"NC PTD	3	1000003
12	Carriage Bolt 3/8"NC x 1 3/4" PTD	2	0300011
13	Flat washer 3/8" PTD	14	1400004
14	Lockwasher 3/8" PTD	8	1200004
15	Nut hex 3/8"NC PTD	8	0900003
16	Carriage bolt 5/16"NC x 1" PTD	9	0300003
17	Stover locknut 5/16"NC PTD	13	1100002
18	Bolt hex 3/8"NC x 2 1/2" Gr.5 PTD	4	0100044
19	Bolt hex 3/8"NC x 1 1/4" Gr.5 PTD	2	0100039
20	Manual holder	1	4200030
21	Bolt hex 5/16"NC x 3/4" Gr.5 PTD	2	0100018
22	Nylon insert locknut 5/16"NC PTD	2	1000005
23	Round wire lockpin 1/4" x 1 3/4"	2	1900006
24	Hairpin 2.5mm x 40mm	2	1800001
25	Carriage bolt 5/16"NC x 1 1/4" PTD	4	0300004
26	Bolt hex M10 x 1.50 x 25mm Gr. 8.8 PTD	3	0200014
27	Bolt hex 1/4"NC x 2" Gr.5 PTD	1	0100010
28	Allen set screw 3/8"NC x 1/4" Gr.5	1	0500030
29	Key 1/4" x 1/4" x 1" LG	1	655379
30	Flat washer 5/16" (3/8" int)	4	1400003

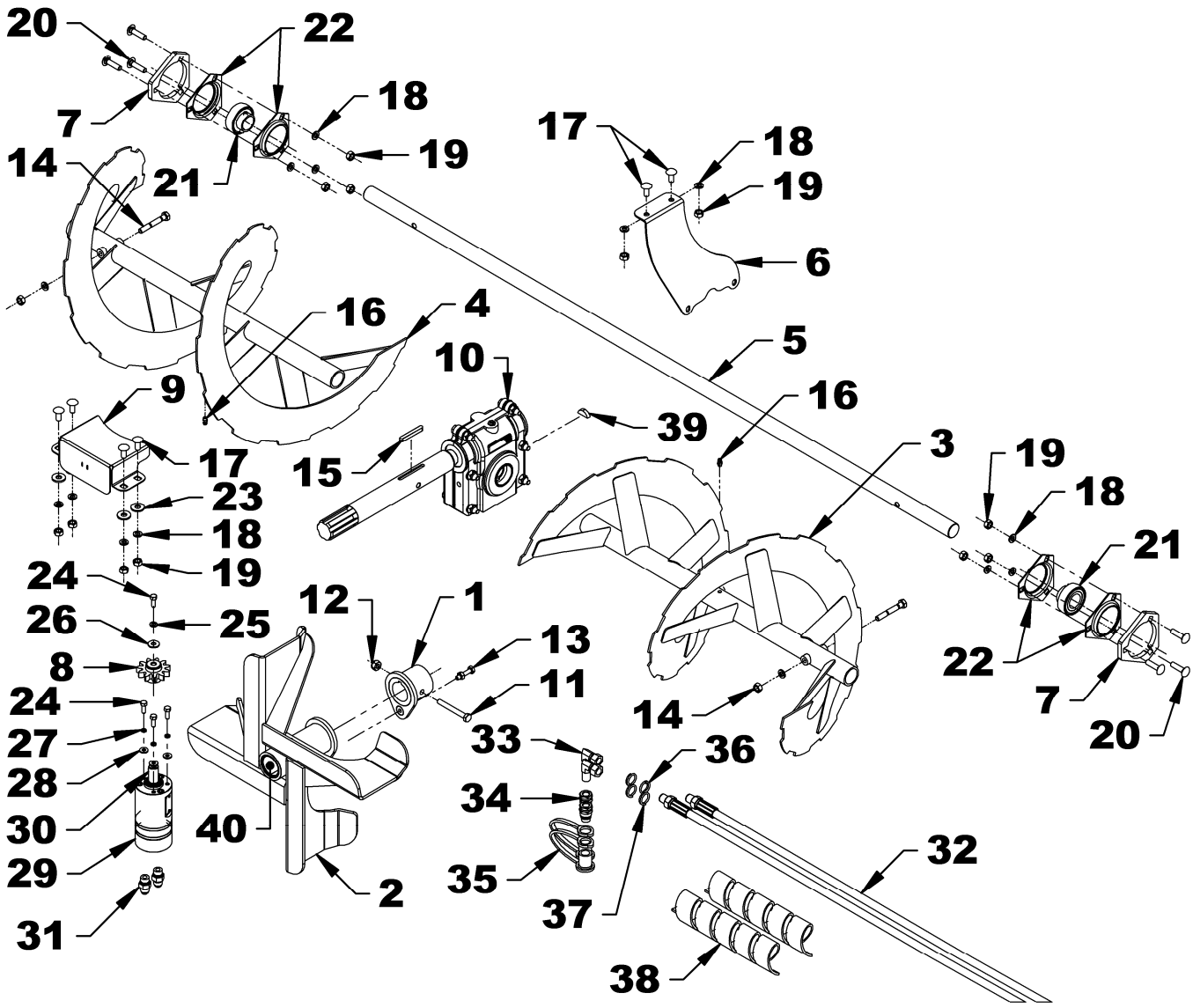
SNOWBLOWER 48" & 54" - REAR



PARTS

SNOWBLOWER 48" & 54" - FRONT			
REF.	DESCRIPTION	QTY	PART #
1	Shear plate	1	669241
2	Fan 16" CCW - 4 blades	1	671838
3	Right auger - snowblower 48"	1	671834
-	Right auger - snowblower 54"	1	671828
4	Left auger - snowblower 48"	1	671835
-	Left auger - snowblower 54"	1	671829
5	Output shaft 1" x 47" – snowblower 48"	1	671837
-	Output shaft 1" x 53" – snowblower 54"	1	669243
6	Worm gearbox support	1	671840
7	Spacer – auger bearing	2	671841
8	Motor gear	1	665688
9	Gear shield	1	671847
10	Worm gearbox CCW	1	4500183
11	Bolt hex 5/16" NC x 2 1/2" LG. GR. 5, PTD	1	0100026
12	Nylon insert locknut 5/16"NC PTD	1	1000005
13	Shearbolt 1/4"NC x 1 1/4" Gr.2 + Nut & lock	1	669596
14	Shearbolt 5/16"NC x 2 1/4" Gr.5 + Nut & lock	2	657295
15	Key – round end 1/4" x 1/4" x 2" Lg	1	658188
16	Grease fitting 1/4"NF	2	654106
17	Carriage bolt 5/16"NC x 3/4" PTD	6	0300002
18	Lockwasher 5/16" PTD	12	1200003
19	Nut hex 5/16"NC PTD	12	0900002
20	Carriage bolt 5/16"NC x 1 1/4" PTD	6	0300004
21	Bearing 1" w/ setscrew	2	665494
22	Triangular flange 3 holes PTD	4	656589
23	Flat washer 5/16" PTD	4	1400003
24	Bolt hex M6 x 1.00 x 16 mm Gr.8.8 PTD	4	0200096
25	Lockwasher 1/4" PTD	1	1200002
26	Flat washer 1/4" (5/16" int.) PTD	1	1400002
27	Lockwasher 6mm PTD	3	1200013
28	Flat washer #12 (1/4" int) PTD	3	1400016
29	Hydraulic motor 32cc w/ restrictor	1	3910107
-	- Seal kit	1	3910109
30	Key – round end 5mm x 5mm x 16mm	1	3900124
31	Adaptor 9/16" JIC M x 9/16" ORB M	2	661544
32	Hose 1/4" x 66", 9/16"JIC SWF 90° x 1/4"NPT M	2	3700306
33	Elbow 90° 1/4"NPT M x 1/4"NPT SWF	2	655211
34	Male quick coupler 1/4"NPT	2	657094
35	Dust cap 1/4"NPT	2	2600052
36	Identification ring - YELLOW	2	658206
37	Identification ring – GREEN	2	658209
38	Plastic guard for hose 10" LG	2	669154
39	Key 1/4" x 7/8" Woodruff #807	1	655967
40	Rotation bushing 1.378" x 1.627 x 2" lg	2	4300067

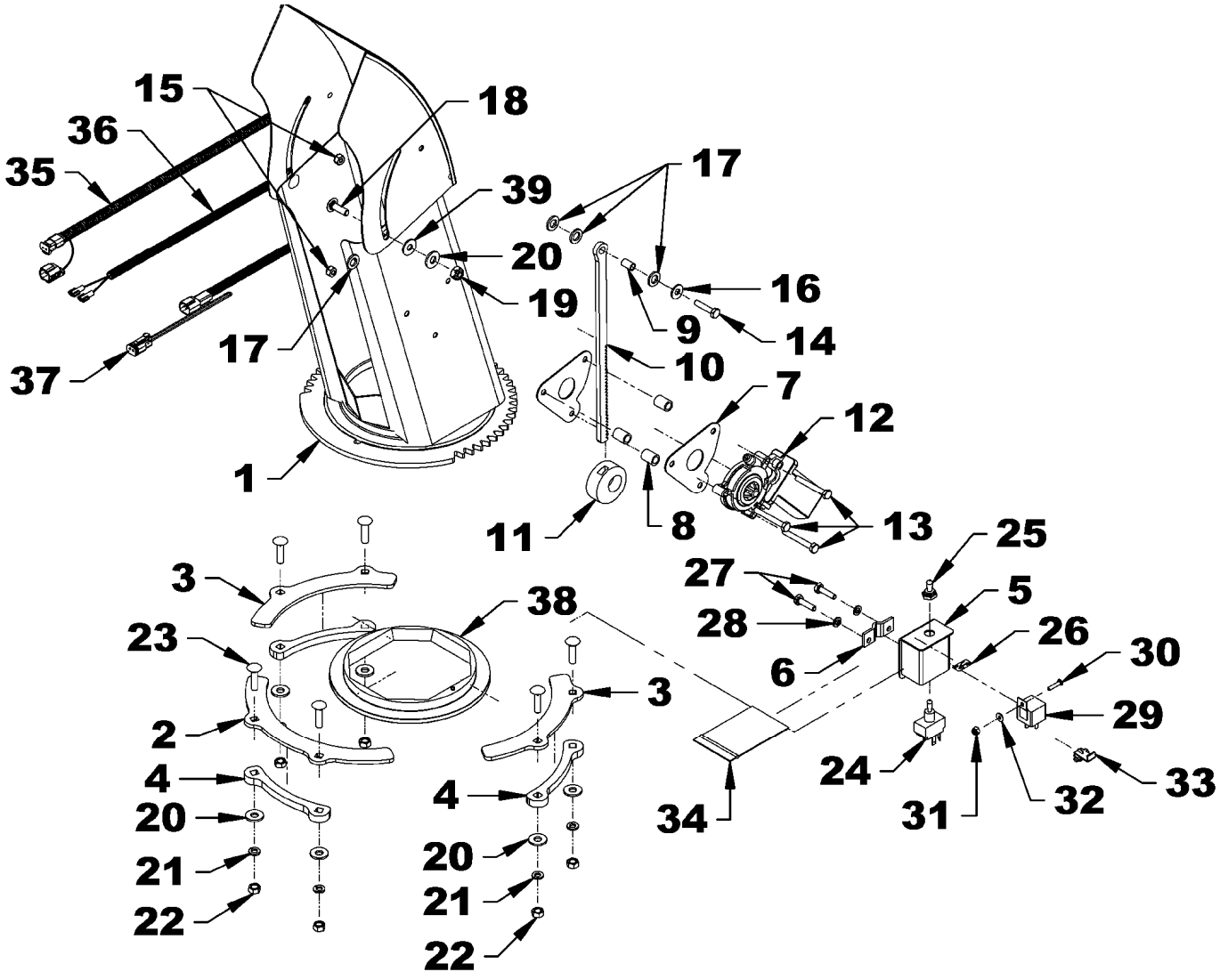
SNOWBLOWER 48" & 54" - FRONT



PARTS

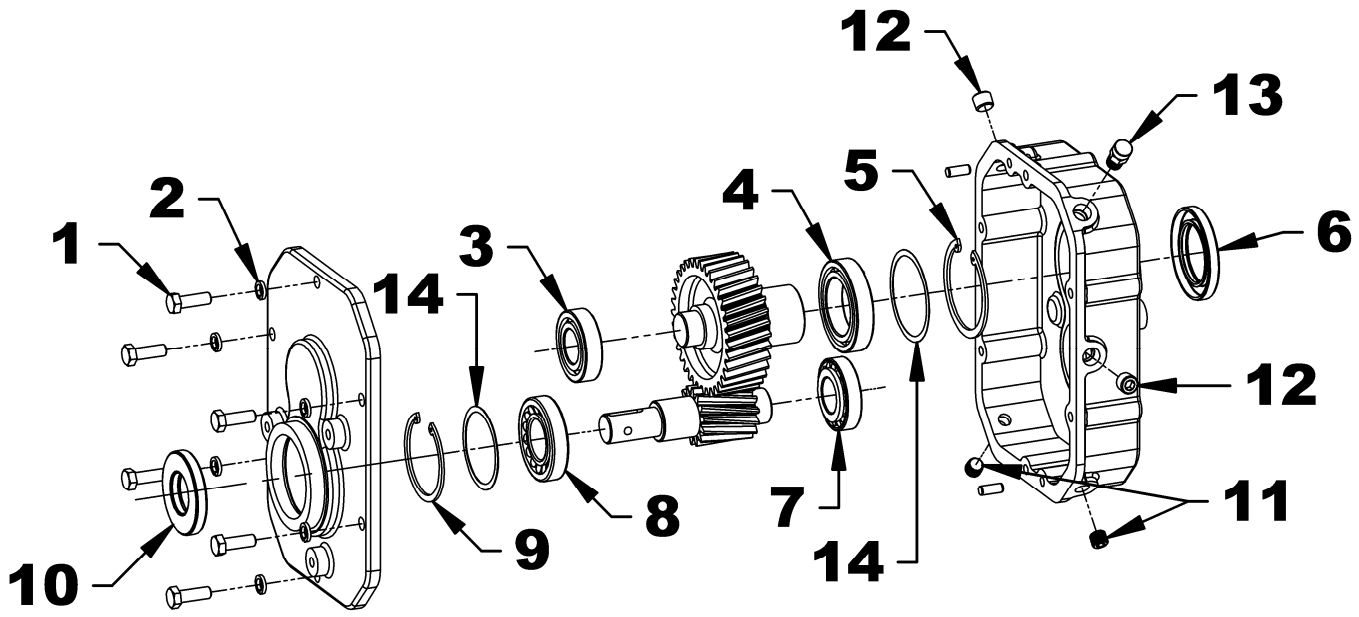
CHUTE AND ELECTRIC DEFLECTOR			
REF.	**DESCRIPTION**	**QTY**	**PART #**
1	Chute assembly	1	671842
2	Retaining plate - long	1	671845
3	Retaining plate – short	2	671844
4	Spacer	3	671846
5	Switchbox	1	667557
6	Switchbox clamp	1	667558
7	Guiding plate	2	670154
8	Spacer 3/8" x .721 PTD	3	670156
9	Pivot bushing 3/8" x 19/32" PTD	1	670157
10	Rack PTD	1	670153
11	Nylon rack guide	1	670155
12	Electric motor	1	662455
13	Bolt hex 1/4"NC x 2" Gr.5 PTD	3	0100010
14	Bolt hex 1/4"NC x 1 1/4" Gr.5 PTD	1	0100005
15	Nylon insert locknut 1/4"NC PTD	4	1000003
16	Flat washer 1/4" PTD	1	1400002
17	Nylon flat washer 7/16"	5	658468
18	Carriage bolt 5/16"NC x 1" PTD	2	0300003
19	Nylon insert locknut 5/16"NC PTD	2	1000005
20	Flat washer 5/16" PTD	8	1400003
21	Lockwasher 5/16" PTD	6	1200003
22	Nut hex 5/16"NC PTD	6	0900002
23	Carriage bolt 5/16"NC x 1 1/4" PTD	6	0300004
24	Switch 4 blades	1	663383
25	Rubber cap for switch	1	658666
26	Decal – chute deflector	1	2500788
27	Bolt hex 1/4"NC x 1" Gr.5 PTD	2	0100004
28	Lockwasher 1/4" PTD	2	1200002
29	Relay 12V	1	4000028
30	Machine screw 8-32 x 3/4" round socket head PTD	1	2700011
31	Nylon insert locknut 8-32 PTD	1	1000026
32	Flat washer #8 (3/16" int) PTD	1	1400001
33	Tap connector	1	656665
34	Protective cap -3 elect.components	1	4000178
35	Electric harness tractor side - deflector	1	4000172
36	Electric harness w/ fuse - deflector	1	4000173
37	Electric harness snowblower side - deflector	1	4000174
38	Nylon ring for chute	1	657338
39	Nylon flat washer 11/32"	2	658467

CHUTE AND ELECTRIC DEFLECTOR



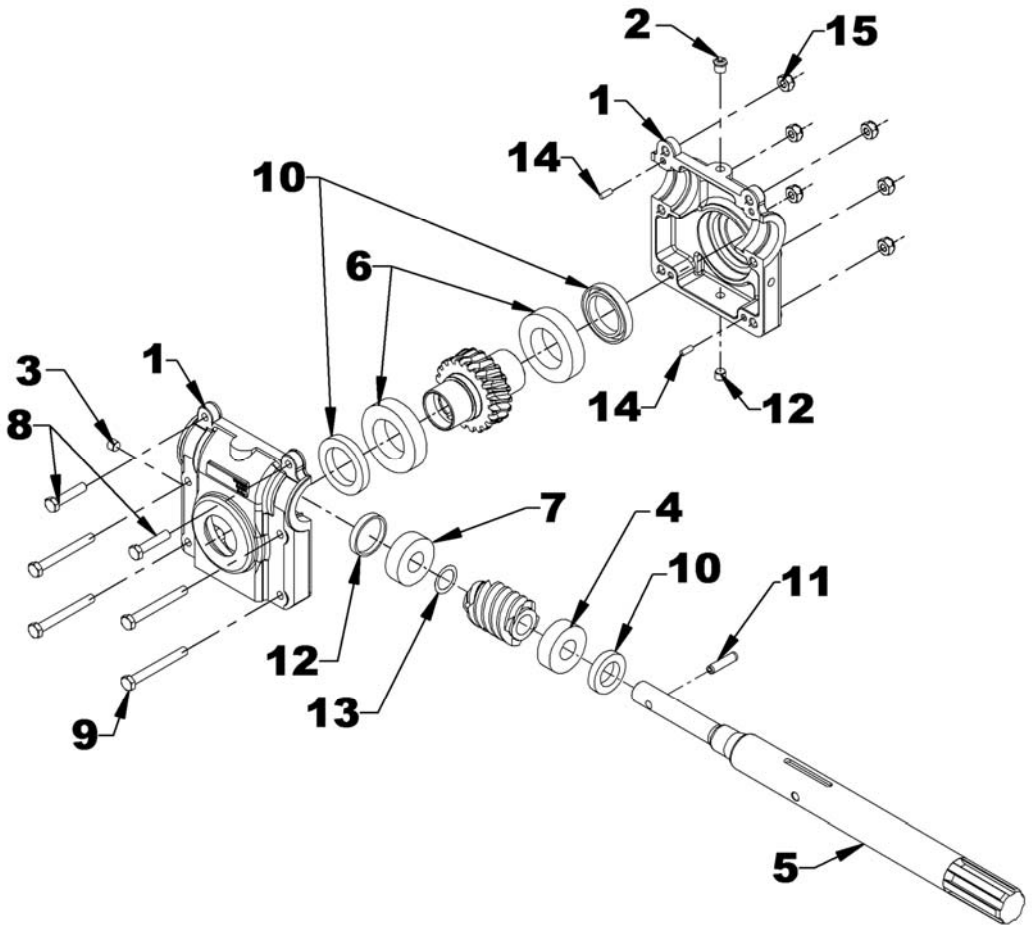
PARTS

REDUCTION BOX - 4500184			
REF.	DESCRIPTION	QTY	PART #
1	Bolt hex M10 x 1.50 x 30mm Gr. 8.8	6	0200016
2	Lockwasher 10mm	6	1200018
3	Ball bearing	1	659843
4	Ball bearing	1	659838
5	Snap ring	1	656642
6	Seal kit	1	659839
7	Cone bearing	1	4300069
8	Cone bearing	1	656647
9	Snap ring	1	656654
10	Seal kit	1	659845
11	Plug allen 1/4"NPT	2	663570
12	Plug 3/8"NPT	2	655259
13	Vent	1	656662
14	Spacers kit	1	4500190



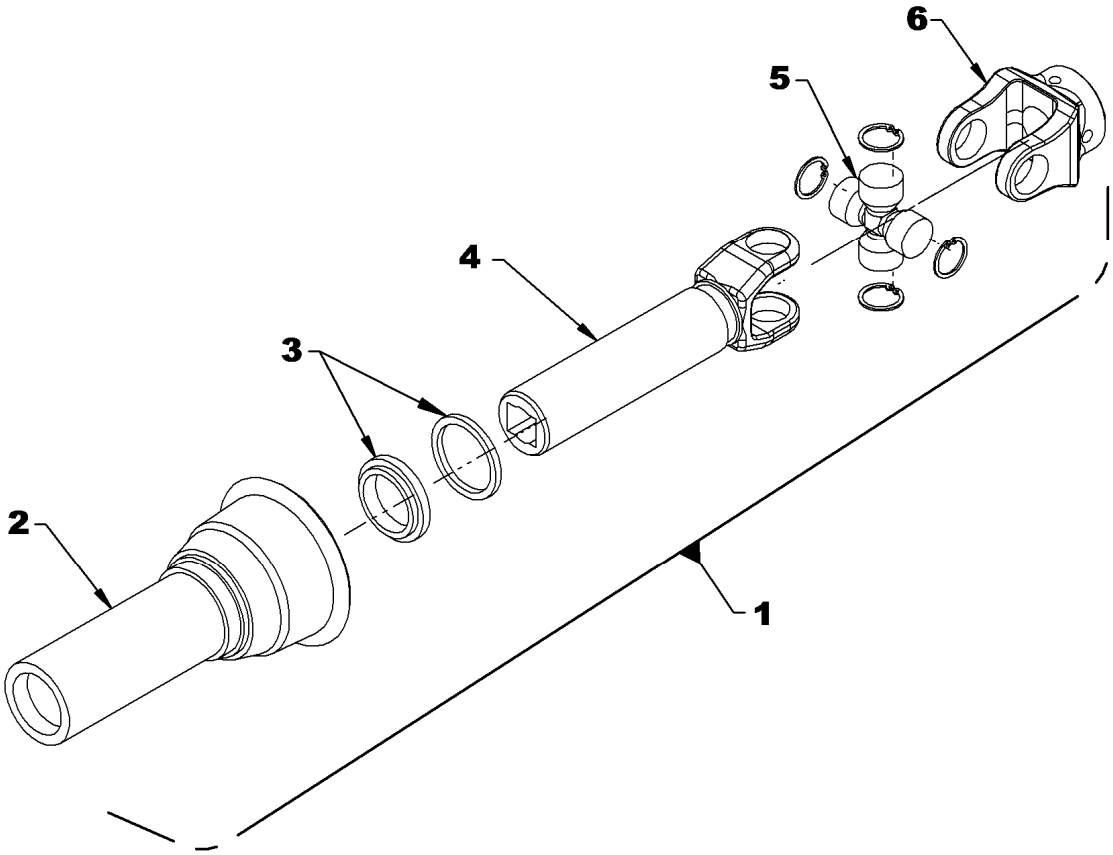
PARTS

WORM GEARBOX - 4500183			
REF.	DESCRIPTION	QTY	PART #
1	Casing 2 parties	1	4500021
2	Vent 1/8" NPT, 5 PSI, PTD	1	654927
3	Plug 1/8" NPT, PTD	2	656090
4	Tapered roller bearing	1	4300125
5	Driving shaft 16 3/8" lg	1	4500191
6	Bearing	2	661147
7	Tapered roller bearing	2	663234
8	Bolt hex. 5/16" NC x 1 1/2" lg. gr.5 PTD	2	0100021
9	Bolt hex. 5/16" NC x 2 3/4" lg. gr.5 PTD	4	0100027
10	Seal kit	1	665775
11	Spring pin5/16" x 1 1/4" lg.	1	663243
12	Cap	1	661150
13	Spacer	1	4500124
14	Pin ø3/16" x 1/2" lg.	2	663245
15	Nylon insert locknut 5/16" NC, PTD	6	1000005



PARTS

DRIVELINE FEMALE HALF 4700044			
REF.	DESCRIPTION	QTY	PART#
1	Driveline female half ass'y	1	4700044
2	Inner shield	1	658511
3	Nylon repair kit	1	661555
4	Yoke & female shaft ass'y	1	4700071
5	Journal cross	1	4700066
6	Yoke 1" dia.hole.	1	4700072



WARRANTY

RADTECH warrants to the original buyer that the equipment is free from defects in material and workmanship. RADTECH's obligation, under this warranty, will be limited to the repair or replacement of any non-wear part or component, which RADTECH 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 RADTECH be liable for consequential, special, direct or indirect damages incurred by the buyer/user.

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

RADTECH's obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that, in RADTECH'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 RADTECH 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, RADTECH 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. RADTECH makes no other warranty, expressed or implied, and specifically, RADTECH 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. RADTECH 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.

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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 sidulphide greases or other extreme pressure lubricants are used. These values apply to dry conditions; under lubricated conditions reduce by 25% the torques in this table.

BOLT HEAD IDENTIFICATION

INCHES Bolt Size	 Grade 2		 Grade 5		 Grade 8	
in-tpi [1]	N-m [2]	lbs-ft [3]	N-m	lbs-ft	N-m	lbs-ft
1/4" – 20NC	7.4	5.6	11	8	16	12
1/4" – 28NF	8.5	6	13	10	18	14
5/16" – 18NC	15	11	24	17	33	25
5/16" – 24NF	17	13	26	19	37	27
3/8" – 16NC	27	20	42	31	59	44
3/8" – 24NF	31	22	47	35	67	49
7/16" – 14NC	43	32	67	49	95	70
7/16" – 20NF	49	36	75	55	105	78
1/2" – 13NC	66	49	105	76	145	105
1/2" – 20NF	75	55	115	85	165	120
9/16" – 12NC	95	70	150	110	210	155
9/16" – 18NF	105	79	165	120	235	170
5/8" – 11NC	130	97	205	150	285	210
5/8" – 18NF	150	110	230	170	325	240
3/4" – 10NC	235	170	360	265	510	375
3/4" – 16NF	260	190	405	295	570	420
7/8" – 9NC	225	165	585	430	820	605
7/8" – 14NF	250	185	640	475	905	670
1" – 8NC	340	250	875	645	1230	910
1" – 12NF	370	275	955	705	1350	995
1 1/8" – 7NC	480	355	1080	795	1750	1290
1 1/8" – 12NF	540	395	1210	890	1960	1440
1 1/4" – 7NC	680	500	1520	1120	2460	1820
1 1/4" – 12NF	750	555	1680	1240	2730	2010
1 3/8" – 6NC	890	655	1990	1470	3230	2380
1 3/8" – 12NF	1010	745	2270	1670	3680	2710
1 1/2" – 6NC	1180	870	2640	1950	4290	3160
1 1/2" – 12NF	1330	980	2970	2190	4820	3560

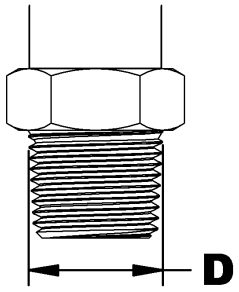
METRIC Bolt Size	5.8 Class 5.8		8.8 Class 8.8		10.9 Class 10.9	
mm x pitch [4]	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

[1] in-tpi = nominal thread diameter in inches-threads per inch
[2] N-m = newton-meters
[3] lbs-ft= pounds-foot
[4] mm x pitch = nominal thread diameter in millimeters x thread Pitch

*Torque tolerance +0%, -15% of torquing values. Unless otherwise specified use torque values listed above

ADAPTER INSTALLATION PROCESS

NPT THREAD IDENTIFICATION & TORQUE



D		Identification of adapter	Number of turns to do after manual tightening
in	mm		
0.375	9.5	1/8 NPT	2.0 - 3.0
0.500	12.5	1/4 NPT	2.0 - 3.0
0.625	15.9	3/8 NPT	2.0 - 3.0
0.780	19.8	1/2 NPT	2.0 - 3.0
0.988	25.1	3/4 NPT	2.0 - 3.0
1.236	31.4	1 NPT	1.5 - 2.5
1.583	40.2	1 1/4 NPT	1.5 - 2.5
1.823	46.3	1 1/2 NPT	1.5 - 2.5

RECOMMENDED ASSEMBLY

The method used to assemble fittings with NPT threads is done in two stages. First firmly tighten by hand then tighten once again according to the number of turns listed in the above table. The following steps are recommended to minimize the risks of leaks and/or damages to the parts.

STEP 1: Inspect threads and tapping to make sure they are clean.

STEP 2: Measure the diameter (D) of the adapter and take note of the size taken.

STEP 3: Apply a sealant/lubricant product to the NPT threads (teflon covered threads are preferable to other lubricating products). If PTFE tape (teflon) is used, make between 1.5 or 2 turns clockwise, when viewed by the fitting end, keeping free the two first threads.

CAUTION: More than 2 turns can cause distortion or cracks in the orifice.

STEP 4: Tighten the fitting manually.

STEP 5: Screw the fitting the number of turns listed on the above table making sure that in the case of an elbow fitting the end is aligned to the desired position to connect the tube or hose. **Never unscrew a fitting to obtain the proper alignment.**

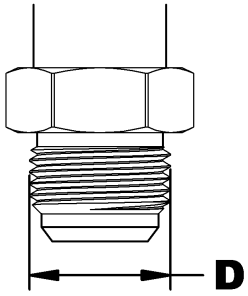
STEP 6: If a leak is detected after having followed the preceding instructions, check that the threads are not damaged and the number of seated threads is fulfilled (see details in next paragraph).

If the threads are damaged, replace the fitting. If the tapping is damaged, retap if possible or replace the part.

Usually, the number of threads seated is between 3.5 and 6. If the range is different it would indicate that the fitting was tightened too much or not enough or that the tightening was not within thread tolerances. If the fitting is not tight enough, tighten but never more than one turn. If it's too tight, control the threading and tapping and replace the section that has threads that are not within tolerances.

ADAPTER INSTALLATION PROCESS

JIC THREAD IDENTIFICATION & TORQUE



D		Identification of adapter	TORQUE	
in	mm		lbs-ft	N-m
-	-	5/16 JIC	6-7	8-10
-	-	3/8 JIC	6-9	8-12
0.433	11	7/16 JIC	9-12	12-16
0.496	12.6	1/2 JIC	14-15	19-21
0.559	14.2	9/16 JIC	18-20	24-27
0.740	18.8	3/4 JIC	27-39	37-53
0.870	22.1	7/8 JIC	36-63	49-85
1.055	26.8	1 1/16 JIC	65-88	88-119
1.185	30.1	1 3/16 JIC	75-103	102-140
1.307	33.2	1 5/16 JIC	85-113	115-153
1.618	41.1	1 5/8 JIC	115-133	156-180
1.870	47.5	1 7/8 JIC	125-167	169-226
2.492	63.3	2 1/2 JIC	190-258	258-350

JIC flare fittings seal with metal to metal contact between the flared nose of the fitting and the flared tube face in the female connection.

The minimum torque values listed are to provide a benchmark that give optimum results for leak free connections. Actual torque values should be based on individual application.

NOTE: Do not apply thread sealant (teflon tape) on the JIC threads.

Leaks can result from vibration, thermal cycling and from loads being supported by the connection (i.e. using the fitting in the connection to support mechanical loads).

IMPORTANT: Use the lowest torque value from the chart when wet torquing.

RECOMMENDED ASSEMBLY

STEP 1: Inspect for possible contamination or damage from shipping or handling. Sealing surface should be smooth.

STEP 2: Lubricate the threads and the entire surface of the cone with hydraulic fluid or a light lubricant.

STEP 3: Align mating components for hand connection and turn flare nut until sealing surfaces make full contact.

STEP 4: Torque nut to the values shown in the above table.

STEP 5: When torquing nut onto a straight flared fitting, it may be necessary to also place a wrench on the flared fitting wrench pad to prevent it from turning during assembly.

ALTERNATE ASSEMBLY METHOD

STEP 1: Inspect for possible contamination or damage from shipping or handling. Sealing surface should be smooth.

STEP 2: Lubricate the threads and the entire surface of the cone with hydraulic fluid or a light lubricant.

STEP 3: Align mating components for hand connection and turn flare nut until sealing surfaces make full contact.

STEP 4: Lightly wrench tighten the nut until there is resistance.

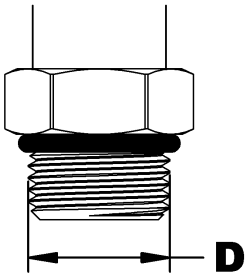
STEP 5: Place a wrench on wrench pad next to nut as near the 6 o'clock position as possible.

STEP 6: Place second wrench on nut as near the 3 o'clock position as possible.

STEP 7: Turn nut clockwise to no less than the 4 o'clock position, but no more than the 6 o'clock position. Required rotation generally decreases as size increases.

ADAPTER INSTALLATION PROCESS

ORB (O-RING BOSS) THREAD IDENTIFICATION & TORQUE



D		Identification of adapter	TORQUE	
in	mm		lbs-ft	N-m
-		3/8 ORB	8-9	12-13
0.433	11	7/16 ORB	13-15	18-20
0.496	12.6	1/2 ORB	14-15	19-21
0.559	14.2	9/16 ORB	23-24	32-33
0.740	18.8	3/4 ORB	40-43	55-57
0.870	22.1	7/8 ORB	43-48	59-64
1.055	26.8	1 1/16 ORB	68-75	93-101
1.185	30.1	1 3/16 ORB	83-90	113-122
1.307	33.2	1 5/16 ORB	112-123	152-166
1.618	41.1	1 5/8 ORB	146-161	198-218
1.870	47.5	1 7/8 ORB	154-170	209-230
2.492	63.3	2 1/2 ORB	218-240	296-325

SAE O-rings (O-Ring Boss) are straight thread fittings that seal using an O-ring between the thread and the wrench flats of the fitting. The O-ring seals against the machined seat on the female port.

O-ring fittings can be either adjustable or non-adjustable. Non adjustable fittings are screwed into a port where no alignment is needed. Adjustable fittings can be oriented in a specific direction.

Fittings with O-rings offer advantages over metal-to-metal fittings. Under or over-tightening any fitting can allow leakage, but all-metal fittings are more susceptible to leakage because they must be tightened to a higher and narrower torque range. This makes it easier to strip threads or crack or distort fitting components, which prevents proper sealing.

NOTE: Do not apply thread sealant (teflon tape) on the ORB threads.

Leaks can also result from vibration, thermal cycling and from loads being supported by the connection (i.e. using the fitting in the connection to support mechanical loads).

IMPORTANT: Use the lowest torque value from the chart when wet torquing.

RECOMMENDED ASSEMBLY ORB (O-RING) NON-ADJUSTABLE

STEP 1: Inspect all components for damage or contamination.

STEP 2: Lubricate O-ring and threads on fitting with your hydraulic system fluid.

STEP 3: Turn fitting into port until finger tight, then torque to the value shown in the following table.

NOTE: Use the lowest torque value from the chart when wet torquing.

RECOMMENDED ASSEMBLY ORB (O-RING) ADJUSTABLE

STEP 1: Inspect all components for damage or contamination.

STEP 2: Lubricate O-ring and threads on fitting with your hydraulic system fluid.

STEP 3: Looking at fitting from the male ORB end, turn manually the nut as far as possible from the O-ring.

STEP 4: Using wrench, turn fitting into port until the washer touches thread nearest wrench pad.

STEP 5: Back off fitting counterclockwise not exceeding one revolution until it is oriented in the correct position.

STEP 6 : Place wrench on the wrench pad of fitting to prevent fitting from turning, and torque nut to the value shown in the above table.

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