Sno-Thro®

THE KING OF SNOW®

Service Guide

Deluxe Series

Models

921024 – Deluxe 24
(SN 150000 +)

921030 – Deluxe 28
(SN 150000 +)

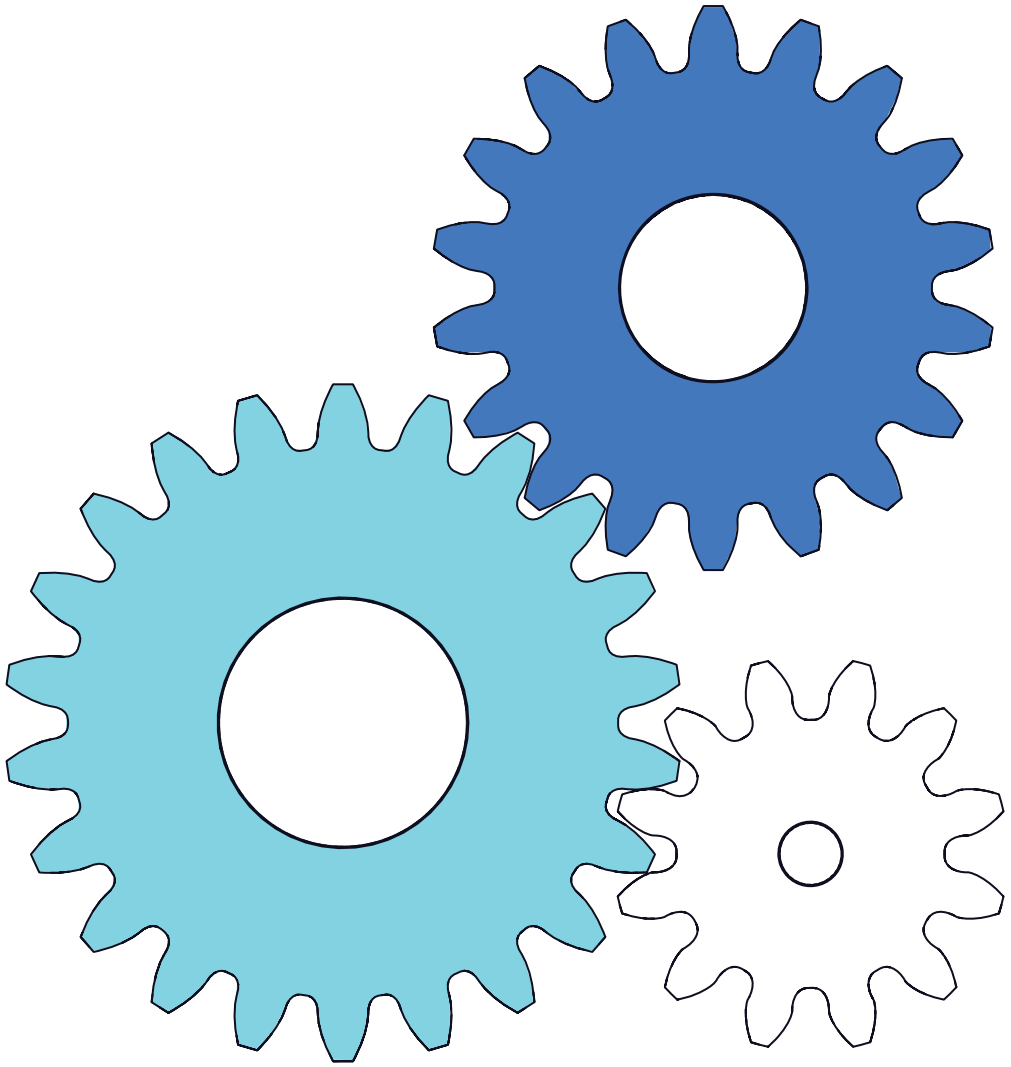
921032 – Deluxe 30
(SN 150000 +)

921044 – Deluxe 28
(SN 000101 +)

921319 – Deluxe 24 CE
(SN 120,000 +)

921320 – Deluxe 30 CE
(SN 120,000 +)

921321 – Deluxe 28 CE
(SN 120,000 +)



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EN ENGLISH

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TABLE OF CONTENTS

WELCOME

Before operating or servicing the unit, carefully and completely read the Operator's Manual and engine manual provided with the unit at time of purchase. They contain important safety instructions and information about unit controls.

Have Questions or Need Assistance?

ariensstore.com (Dealer Locator)
ariens.custhelp.com (Self-Support)

A parts manual and an operator's manual for your unit are available for free download or purchase at ariens.com.

Ariens recommends using only genuine Ariens replacement parts on this unit. Using unauthorized parts may adversely affect the performance, durability or safety of this unit and may void the warranty. Installing unauthorized parts will not automatically void the warranty; however, the warranty will not apply if the installation and use of unauthorized parts damages the unit. The Ariens warranty applies solely to defects in Ariens materials and / or factory workmanship. Ariens disclaims liability for any claims or damages – whether warranty, property damage, personal injury or death – arising from using unauthorized replacement parts.

Be aware of your mechanical aptitude when applying information in this manual for service and / or repairs. If you are not comfortable or capable of completing service and / or repairs to the machine, take the machine to an authorized Ariens service dealer.

SAFETY

Read these safety rules and follow them closely. Failure to follow these rules could lead to loss of control of unit, severe personal injury or death to you or bystanders, or result in damage to property or the machine.

PRACTICES & LAWS

Practice usual and customary safe working precautions. Learn applicable rules and laws in your area. Always follow the practices set forth in this manual.

REQUIRED OPERATOR TRAINING

The original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than the original purchaser, loaned, rented, or sold, ALWAYS provide this manual and any needed safety training before operation.

WARNING: AVOID INJURY. This snow thrower is capable of crushing or amputating body parts. Failure to observe the safety instructions in the manuals and on decals could result in serious injury or death.

ALWAYS disengage auger, stop unit and engine, remove key and allow moving parts to stop before leaving operator's position.

SAFETY ALERT SYMBOL

This is the safety alert symbol. It means:

- **ATTENTION!**
- **YOUR SAFETY IS INVOLVED!**

When you see this symbol:

- **BECOME ALERT!**
- **OBEY THE MESSAGE!**

SIGNAL WORDS

The safety alert symbol above and signal words below are used on decals and in this manual. Read and understand all safety messages.

1. Danger

DANGER: Indicates an IMMINENTLY HAZARDOUS SITUATION! If not avoided, WILL RESULT in death or serious injury.

2. Warning

WARNING: Indicates a POTENTIALLY HAZARDOUS SITUATION! If not avoided, COULD RESULT in death or serious injury.

3. Caution

CAUTION: Indicates a POTENTIALLY HAZARDOUS SITUATION! If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.

4. Notice

NOTICE: Indicates information or procedures that are considered important but not hazard related. If not followed, property damage could result.

5. Important

IMPORTANT: Indicates general reference information worthy of special attention.

SAFETY DECALS

The safety decals on your machine are visual reminders of the important safety information in this manual. All messages on your unit must be fully understood and carefully followed. Safety decals on the machine are explained below.

Always replace missing or damaged safety decals. Replacement decal information is in the parts manual for your machine. Decals can be ordered from your dealer.

See Figure 1 for safety decal locations.

Safety Decal Locations

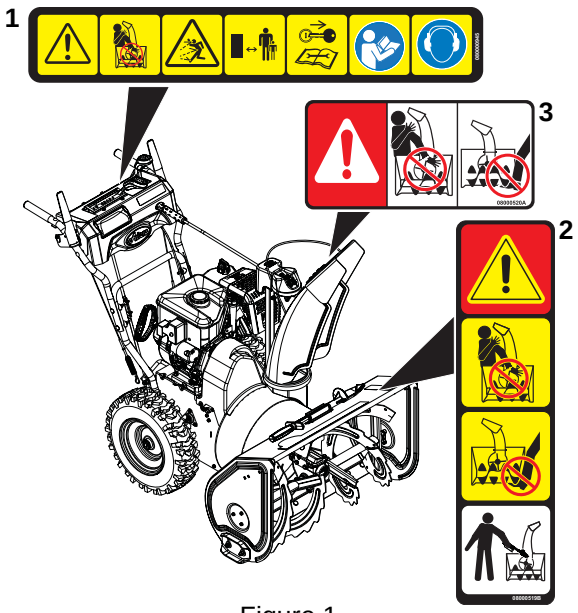


Figure 1

Safety Decal Descriptions

1. CAUTION!

Danger!

Only use clean-out tool to clear blockages. NEVER use your hands.

NEVER direct discharge towards persons or property that may be injured or damaged by thrown objects.

Keep people away from unit while operating. Keep children out of work area and under watchful care of a responsible adult.

Stop engine, remove key, and read manual before making any repairs or adjustments.

Read Operator's Manual.

Wear appropriate hearing protection.

2. DANGER!

Danger!

ROTATING PARTS! Only use clean-out tool to clear blockages. NEVER use your hands.

High-speed auger/impeller rotates below discharge opening. Wait for all moving parts to stop before removing clogs or servicing.

3. DANGER!

Danger!

ROTATING PARTS! Keep clear of auger while engine is running.

- Read Operator's Manual.
- Allow operation only by properly-trained adult, never children.
- Stop engine and remove ignition key prior to leaving the operator's position for any reason.
- Keep all controls, guards and safety devices properly serviced and functional.
- NEVER direct discharge towards persons or property that may be injured or damaged by thrown objects.

SAFETY RULES

The following safety instructions are based on the B71.3 specifications of the American National Standards Institute in effect at the time of production.

Training

Read, understand and follow all instructions on the machine and in the manual(s) before operating this unit. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.

Never allow children to operate or play on or near the equipment. Never allow adults to operate the equipment without proper instruction.

Keep the area of operation clear of all persons, particularly small children. Be alert and shut off unit if children enter area.

Exercise caution to avoid slipping or falling, especially when operating the snow thrower in reverse.

Always remove key and/or wire from spark plug before assembly, maintenance or service. Unintentional engine start up can cause death or serious injury.

Complete a walk-around inspection of the unit to understand the unit, your work area and all safety decals.

Understand how to operate all controls, the functions of all controls and how to STOP in an emergency.

Preparation

Always check overhead and side clearances carefully before operation.

Always be aware of traffic when operating near streets or along curbs.

Thoroughly inspect the area where the equipment is to be used and remove all doormats, sleds, boards, toys, wires and other foreign objects.

Disengage all clutches and shift into neutral before starting the engine.

Use extension cords and receptacles as specified by the manufacturer for all units with electric drive motors or electric starting motors.

Handle fuel with care; it is highly flammable.

- Use an approved fuel container.
- Never add fuel to a running engine or hot engine.
- Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground, away from your vehicle, before filling.
- When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times, until refueling is complete. Do not use a nozzle lock-open device.
- Replace gasoline cap securely and wipe up spilled fuel.
- If fuel is spilled on clothing, change clothing immediately.

Adjust the auger / impeller housing height to clear gravel or crushed rock surface.

Never attempt to make any adjustments while the engine is running (except when specifically recommended by manufacturer).

Always allow unit and engine to adjust to outdoor temperature before clearing snow.

Operation

Disengage all controls before starting engine.

Never leave a running unit unattended. Always stop engine and remove key before leaving unit to prevent unauthorized use.

Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.

Moving and/or rotating parts can cut off body parts such as fingers or a hand. NEVER place your hands, other body part or clothing near any moving parts while unit is running.

Always keep hands away from all pinch points.

Do not touch parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust or service.

Thrown objects can cause injury. Check for weak spots on docks, ramps or floors. Avoid uneven work areas and rough terrain and stay alert for hidden hazards.

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

After striking a foreign object, stop the engine, remove the wire from the spark plug, disconnect the cord on electric motors, thoroughly inspect the snow thrower for any damage, and repair the damage before restarting and operating the snow thrower.

If the unit should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.

Stop the engine whenever you leave the operating position, before unclogging the auger / impeller housing or discharge chute, and when making any repairs, adjustments or inspections.

When cleaning, repairing or inspecting the snow thrower, stop the engine and make certain the auger / impeller and all moving parts have stopped. Disconnect the spark plug wire and keep the wire away from the plug to prevent someone from accidentally starting the engine.

Do not run the engine indoors, except when starting the engine and for transporting the snow thrower in or out of the building. Open the outside doors; exhaust fumes are dangerous.

Never operate the snow thrower without proper guards, and other safety protective devices in place and working.

Always stand clear of the discharge area when operating this unit.

Never direct the discharge toward people or areas where injury or property damage can occur from thrown objects. Keep children and others away.

Do not overload the machine capacity by attempting to clear snow at too fast a rate.

Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when operating in reverse.

Do not operate in reverse unless absolutely necessary. Always back up slowly and look down and behind before and while backing.

Do not carry passengers.

Disengage attachment when not in use and when traveling from one work area to another.

Disengage power to the auger / impeller when snow thrower is transported or not in use.

Use only attachments and accessories approved by the manufacturer of the snow thrower (such as wheel weights, counterweights or cabs).

This product is equipped with an internal combustion engine. Do not use unit on or near any unimproved, forest-covered or brush-covered land unless exhaust system is equipped with a spark arrester meeting applicable local, state or federal laws. A spark arrester, if used, must be maintained in effective working order by operator.

Never operate the snow thrower without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.

Never operate unit after or during the use of medication, drugs or alcohol. Safe operation requires complete and unimpaired attention at all times.

Never allow anyone to operate this unit when their alertness or coordination is impaired.

Never touch a hot engine or muffler.

Avoid contact with sharp edges; sharp edges can cut.

Do not throw snow higher than necessary.

Clearing a Clogged Discharge Chute

Hand contact with the rotating auger / impeller inside the discharge chute is the most common cause of injury associated with snow throwers. Never use your hand to clean out the discharge chute.

To clear the chute:

1. SHUT THE ENGINE OFF!
2. Wait 10 seconds to be sure the auger / impeller blades have stopped rotating.
3. Always use a clean-out tool, not your hands.

Maintenance and Storage

Secure unit so it will not tip over during maintenance.

Before cleaning, removing clogs or making any inspections, repairs, etc., disengage clutch(es), stop engine, remove key, allow moving parts to stop and hot parts to cool.

Check shear bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.

Check clutch and brake operation frequently.

Do not change engine governor settings and do not over-speed engine.

Adjust and service as required. Motion of drive wheels and auger / impeller must stop quickly when clutch levers are released.

Always maintain unit in safe operating condition. Damaged or worn out muffler can cause fire or explosion.

Keep unit free of ice or other debris. Clean up oil or fuel spills.

Always keep protective structures, guards, and panels in good repair and secured in place. Never modify or remove safety devices.

Never store the machine with fuel in the fuel tank inside a building where ignition sources are present such as hot water heaters, space heaters or clothes dryers. Close fuel valve and allow the engine to cool completely before storing in any enclosure or covering the unit.

Always refer to operator's manual for important details if the snow thrower is to be stored for an extended period.

Maintain or replace safety and instruction labels as necessary.

Run the machine a few minutes after throwing snow to prevent freeze-up of the auger / impeller.

Personal Protection

Do not operate the equipment without wearing adequate winter garments. Avoid loose fitting clothing that can get caught in moving parts. Wear footwear that will improve footing on slippery surfaces.

Wear adequate safety gear, including safety glasses with side shields and protective gloves.

Do not wear loose clothing or jewelry, and tie back hair that may get caught in rotating parts.

NEVER attempt to unclog or clean unit while engine is running. Rotating auger / impeller can cause serious injury.

Protect eyes, face and head from objects that may be thrown from unit. Wear appropriate hearing protection.

Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the machine.

Slope Operation

Exercise extreme caution when operating on slopes. DO NOT operate on steep slopes. DO NOT clear snow across the face of slopes; go up and down. Keep all movement on slopes slow and gradual.

Use a slow speed to avoid stops or shifts on slopes. Avoid starting or stopping on a slope. Do not park unit on a slope unless absolutely necessary. When parking on a slope always block the wheels.

Do not operate near drop-offs, ditches, or embankments. Unit can suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Fuel

DO NOT run engine in an enclosed area. Always provide good ventilation. Fumes from engine exhaust can cause injury or death.

Fuel is highly flammable and its vapors are explosive. Handle with care. Use only an approved gasoline container with an appropriately-sized dispensing spout.

No smoking, no sparks, no flames. Always allow engine to cool before servicing.

Never fill fuel tank when engine is running or hot from operation.

Never fill or drain fuel tank indoors.

Replace fuel cap securely and clean up spilled fuel.

Never fill fuel containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.

When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel on a trailer with a portable container, rather than from a gasoline dispenser nozzle.

Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.

If fuel is spilled on clothing, change clothing immediately.

Properly remove fuel before tipping unit up onto housing to avoid spills.

Towing/Transporting

Always stop engine, remove key and close fuel valve or drain fuel when transporting unit on a truck or trailer.

Use extra care when loading or unloading unit onto trailer or truck. Secure unit chassis to transport vehicle. Never secure from rods or linkages that could be damaged. Do not transport machine while engine is running.

Accessories

Use only Ariens Company-recommended attachments or accessories that are designed for your unit and that are appropriate to your use and can be used safely in your application.

DRAINING FUEL SYSTEM

1. Move unit to an open, well-ventilated area with no flames or sparks.
2. Remove cap from fuel tank and siphon fuel into a clean gasoline container.
3. Reinstall cap onto fuel tank and tighten.
4. Start engine to burn remaining fuel in fuel system and leave engine running until it “runs dry” and stops. Refer to Operator’s Manual for engine start procedure.
5. Stop engine, remove key and close fuel valve.

SERVICE POSITION

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

See Figure 2.

IMPORTANT: NEVER store unit in service position.

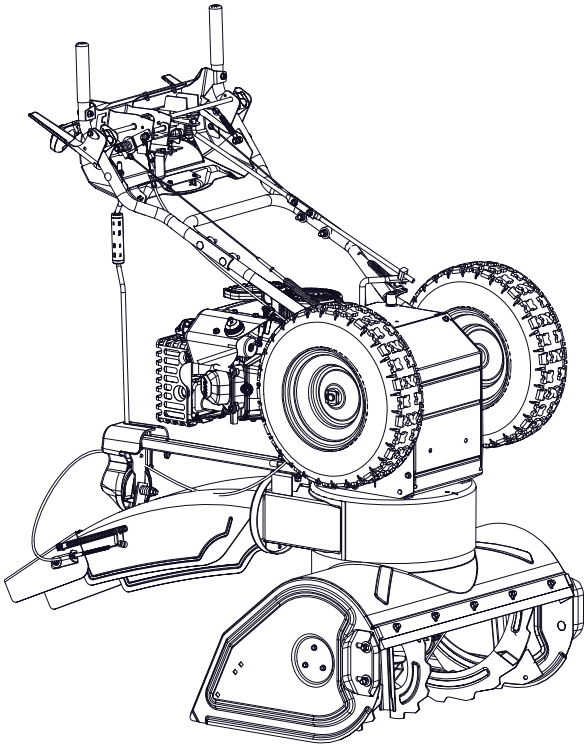


Figure 2

BOTTOM COVER REMOVAL

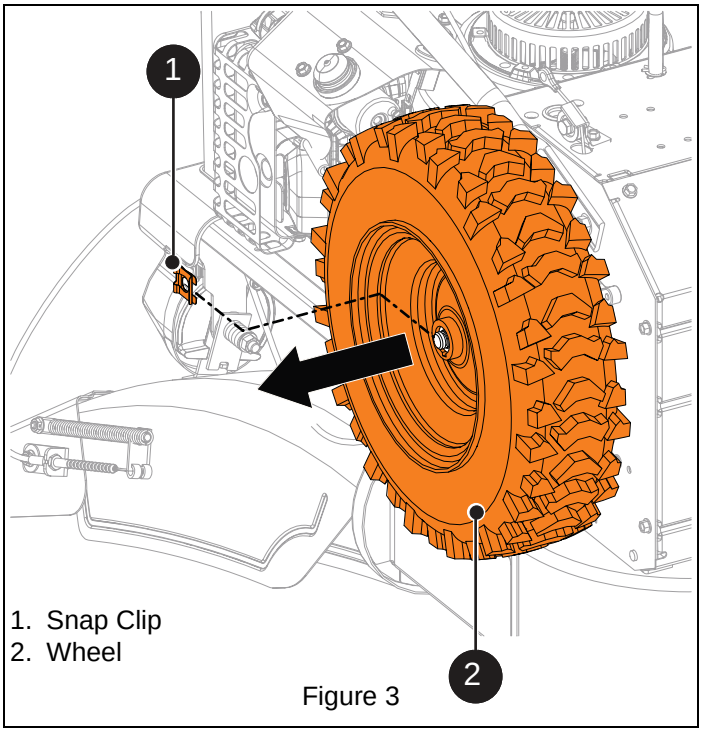
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.

See Figure 3.

4. Remove snap clips from axle ends and remove wheels.

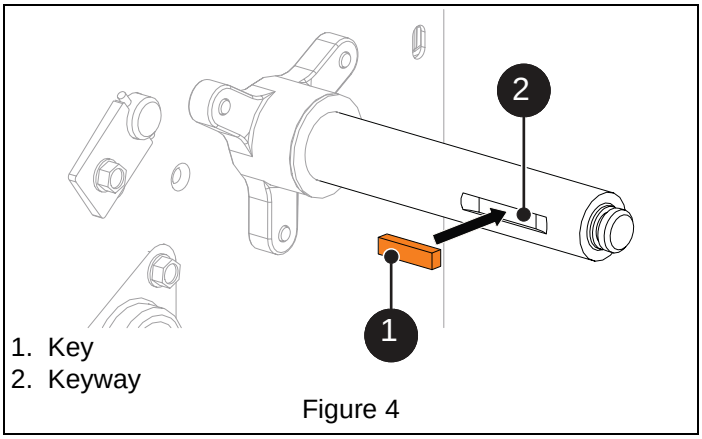


1. Snap Clip
2. Wheel

Figure 3

See Figure 4.

IMPORTANT: Be aware of key on axles. If key is removed, reinstall before reinstalling wheel.

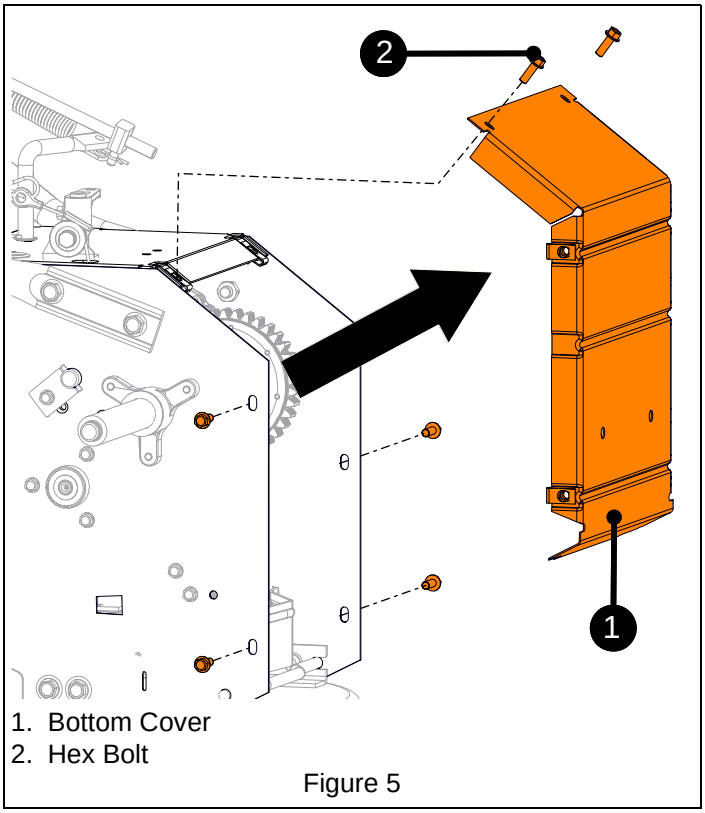


1. Key
2. Keyway

Figure 4

See Figure 5.

5. Remove hardware retaining bottom cover to frame and remove cover.



1. Bottom Cover
2. Hex Bolt

Figure 5

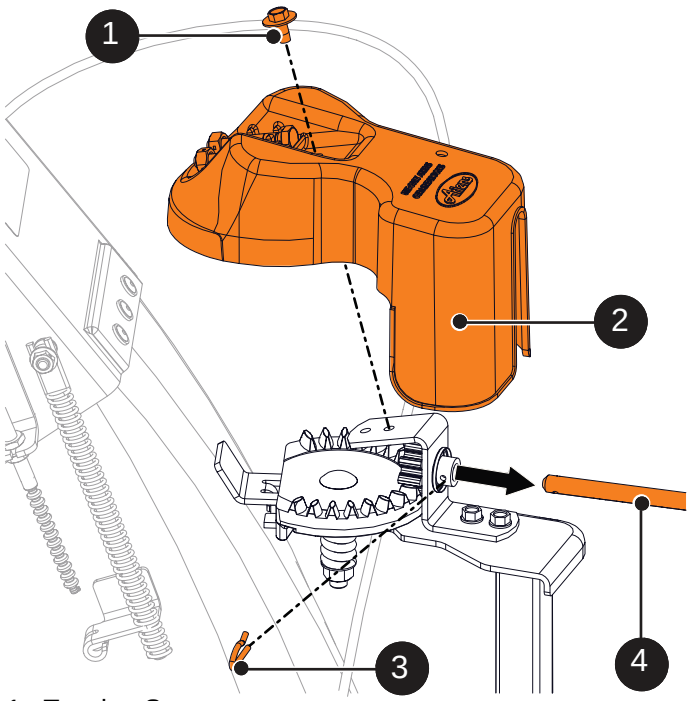
SEPARATE AUGER HOUSING FROM FRAME

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.

See Figure 6.

3. Remove hardware retaining chute gear cover to chute pedestal and remove cover.
4. Remove spring clip from chute rotation rod and remove rod.
5. Remove chute rotation rod from dash panel and remove from unit.

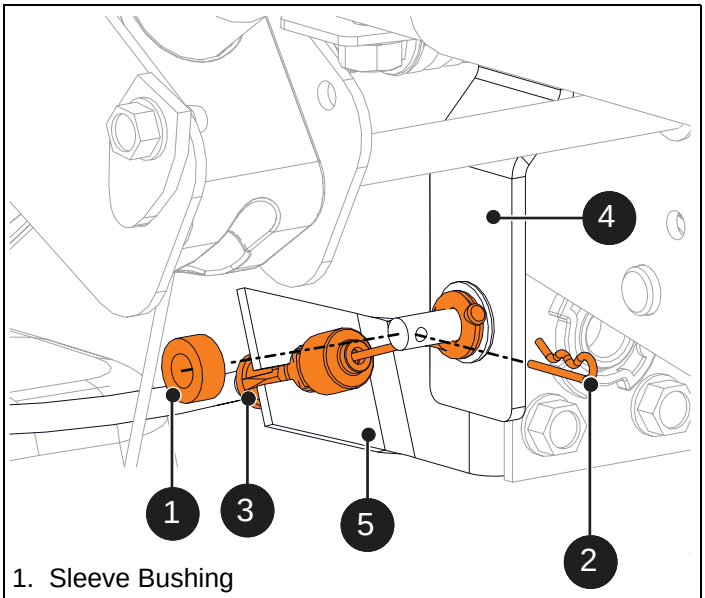


1. Tapping Screw
2. Chute Gear Cover
3. Spring Clip
4. Chute Rotation Rod

Figure 6

See Figure 7.

6. Remove hairpin and sleeve bushing from deflector arm under dash panel.
7. Remove cable from deflector arm and remove cable snap from deflector anchor.

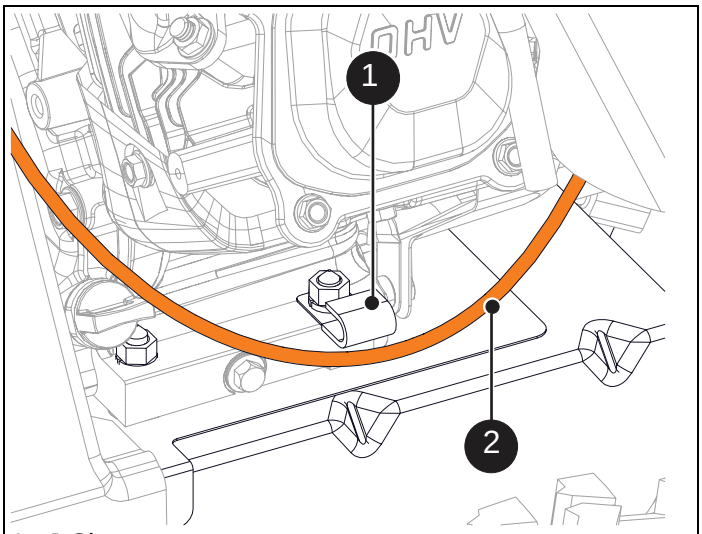


1. Sleeve Bushing
2. Hairpin
3. Cable Snap
4. Deflector Arm
5. Deflector Anchor

Figure 7

See Figure 8.

Remove chute deflector cable from J-clamp on engine mount.

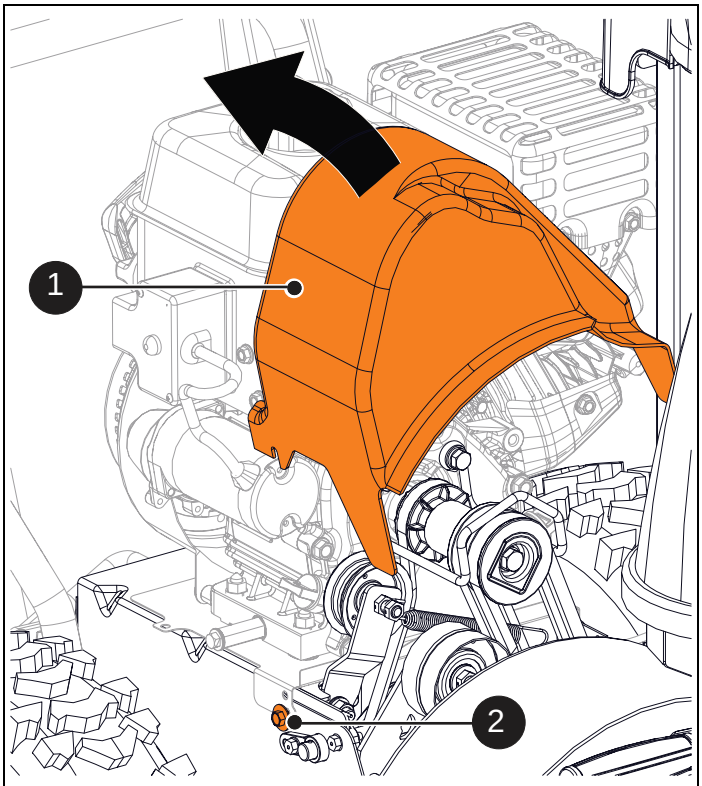


1. J-Clamp
2. Chute Deflector Cable

Figure 8

See Figure 9.

8. Loosen, but DO NOT remove hardware securing belt cover to unit, and remove belt cover.

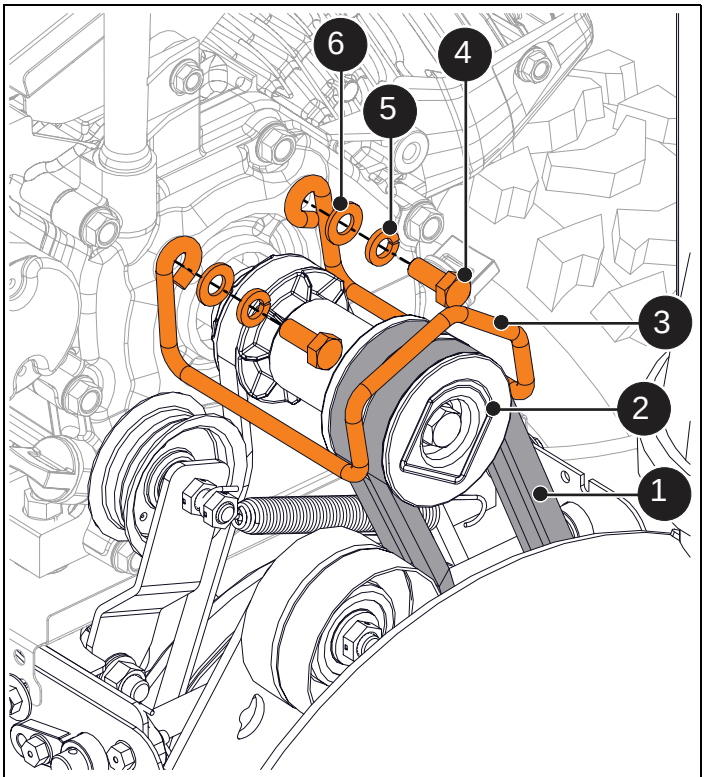


1. Belt Cover
2. Tapping Screw

Figure 9

See Figure 10.

9. Remove hardware securing belt finger to engine and remove belt finger.
10. Remove attachment drive belts from attachment sheave.



1. Attachment Drive Belt
2. Attachment Sheave
3. Belt Finger
4. Hex Bolt
5. Locking Washer
6. Flat Steel Washer

Figure 10

See Figure 11.

11. Position support, such as a trash can, under handlebars so tractor / frame remains upright when separated from auger housing.
12. Chock or block wheels to prevent tractor / frame movement when separated from auger housing.

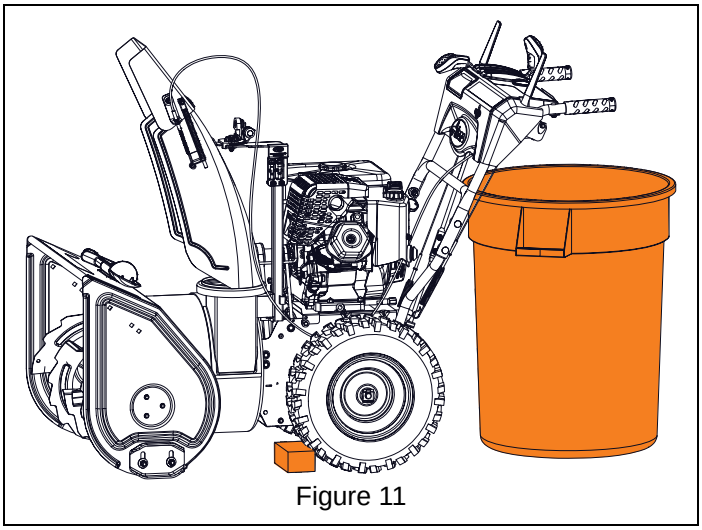
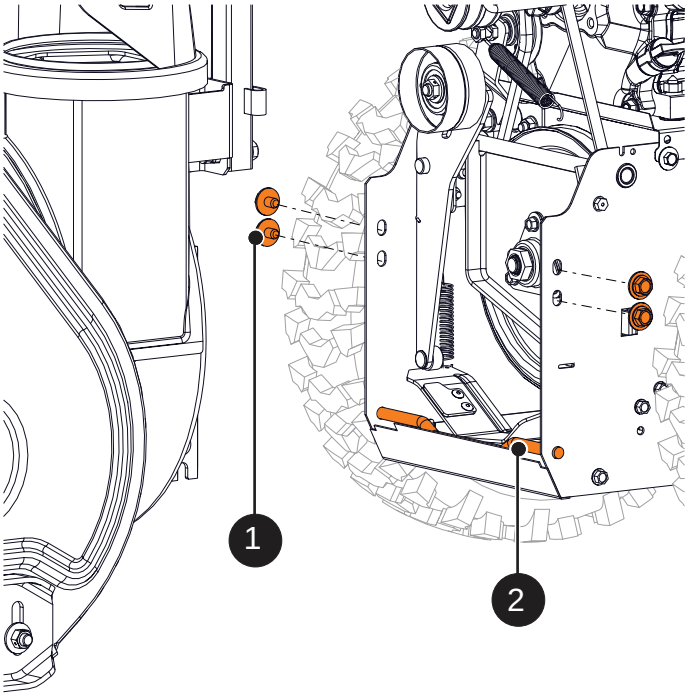


Figure 11

See Figure 12.

13. Remove hardware securing auger housing to frame.
14. Tip auger housing apart from frame on mount rod and separate housing from unit.



1. Tapping Screw
2. Mount Rod

Figure 12

ATTACHMENT DRIVE BELT REPLACEMENT

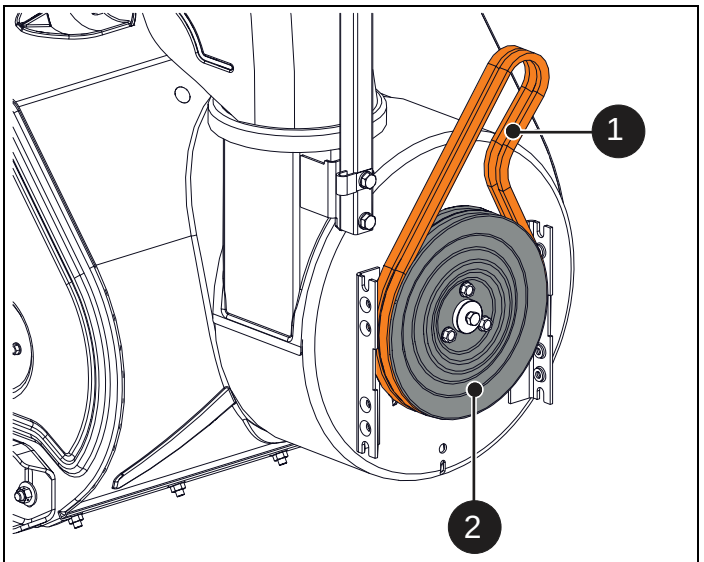
Remove Attachment Drive Belts

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Separate auger housing from frame. See *Separate Auger Housing From Frame* on page 10.

See Figure 13.

4. Remove attachment drive belts from attachment drive pulley.



1. Attachment Drive Belt
2. Attachment Drive Pulley

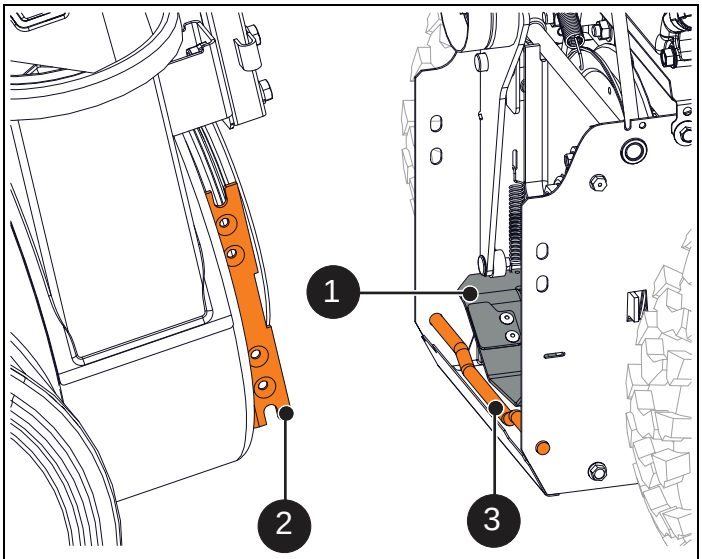
Figure 13

Install Attachment Drive Belts

1. Install belts onto attachment drive pulley

See Figure 14.

2. With a helper, engage attachment clutch lever so attachment brake will not obstruct attachment drive pulley in step 3.
3. Tilt auger housing rear up and lower into frame so housing mount brackets sit on mount rod.



1. Attachment Brake
2. Mount Bracket
3. Mount Rod

Figure 14

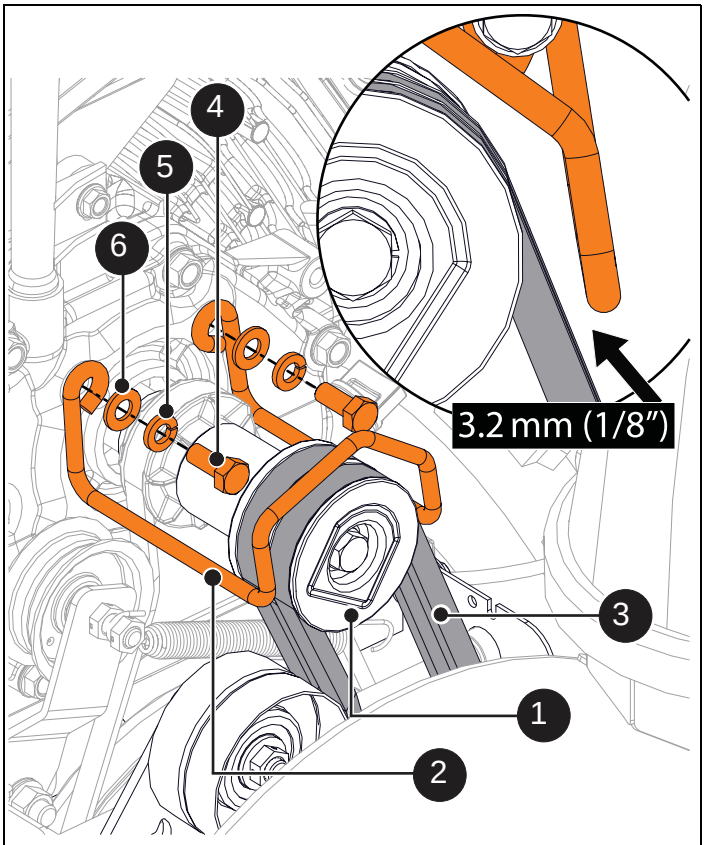
4. Release attachment clutch lever.
5. Align top holes in housing mount brackets with holes in frame and reinstall, but DO NOT tighten, four tapping screws.

IMPORTANT: Unit must be on a flat, level surface during steps 6 – 8.

6. Check tire pressure and adjust if necessary. Refer to Operator's Manual for specification.
7. Loosen skid shoe hardware and adjust skid shoes. Refer to Operator's Manual for adjustment procedure.
8. Torque tapping screws installed in step 5 to 22.8 – 34.1 N•m (16.8 – 25.2 lb-ft).

See Figure 15.

9. Install belts onto attachment sheave.
10. Reinstall belt finger and secure with two flat steel washers, two locking washers and two hex bolts.
11. Check belt finger clearance:
    - Engage attachment clutch lever and make sure belt finger located opposite belt idler is less than 3.2 mm (1/8") from belt, but not touching the belt.
    - If needed, adjust clearance by loosening hex bolts, repositioning belt finger, and tighten bolts.



1. Attachment Sheave
2. Belt Finger
3. Attachment Drive Belts
4. Hex Bolt
5. Locking Washer
6. Flat Steel Washer

Figure 15

12. Reinstall belt cover and tighten hardware.
13. Insert short end of chute rotation rod in dash panel until opposite end clears chute gear.
14. Insert chute rotation rod into chute gear and secure with spring clip.
15. Reinstall chute gear cover and secure with tapping screw.
16. Reinstall chute deflector cable into J-clamp on engine mount.
17. Reinstall chute deflector cable snap into deflector anchor and secure cable eyelet to deflector arm with sleeve bushing and hairpin. See Figure 7.
18. Adjust attachment clutch / brake. Refer to Operator's Manual for adjustment procedure.
19. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

WARNING: AVOID INJURY. Auger / impeller must stop within 5 seconds when attachment clutch lever is released.

TRACTION DRIVE BELT REPLACEMENT

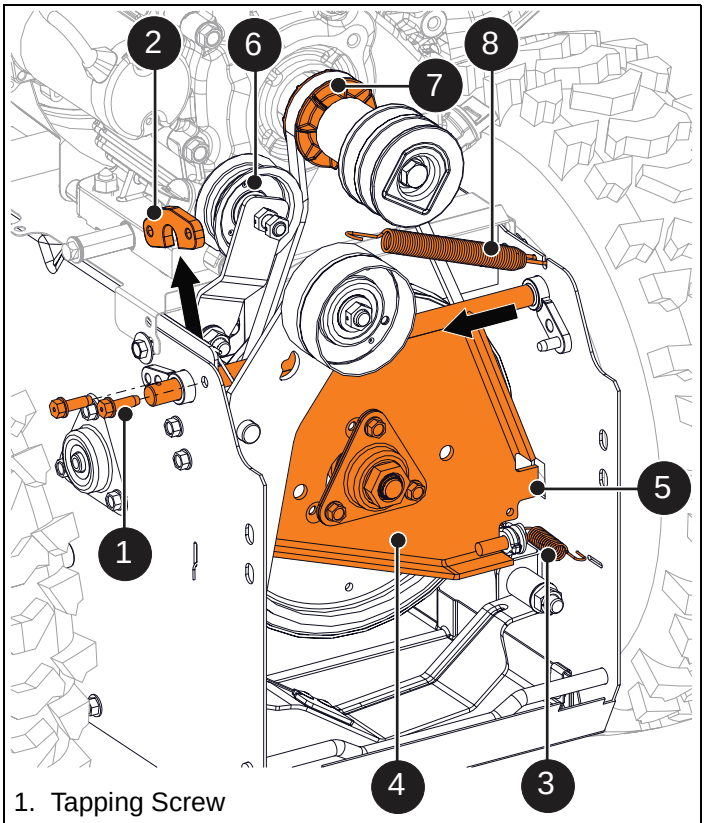
Remove Traction Drive Belt

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Separate auger housing from frame. See *Separate Auger Housing From Frame* on page 10.

See Figure 16.

4. Disconnect idler spring from traction drive idler.
5. Disconnect swing gate return spring from frame.
6. Remove hardware securing swing gate spacer to frame and remove swing gate spacer.
7. Move swing gate left so swing gate tab is out of stop hole in frame.
8. Move swing gate forward to access traction drive belt and remove belt.



1. Tapping Screw
2. Swing Gate Spacer
3. Swing Gate Return Spring
4. Swing Gate
5. Swing Gate Finger & Stop Hole
6. Traction Drive Idler
7. Traction Sheave
8. Idler Spring

Figure 16

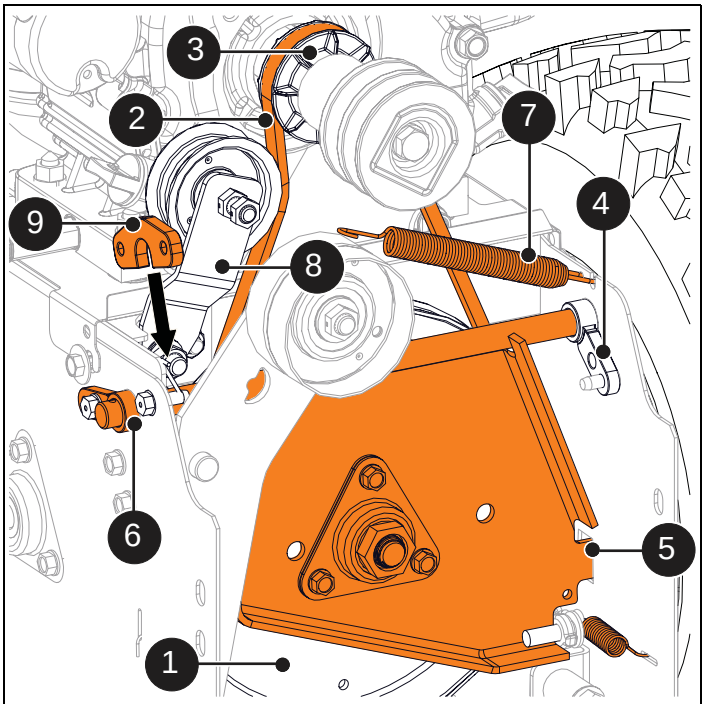
Install Traction Drive Belt

See Figure 17.

1. Install belt onto traction drive pulley.
2. Install belt onto traction sheave.
3. Move swing gate so swing gate tab aligns with stop hole in frame.
4. Move swing gate right so top of swing gate inserts through support bushing and swing gate tab inserts through stop hole.
5. Reinstall swing gate spacer, but DO NOT secure with hardware.

IMPORTANT: Make sure pivot bushing is correctly seated in frame and is flush with frame.

6. Align pivot bushing holes with holes in frame and swing gate spacer. Secure with two tapping screws.
7. Reconnect idler spring to traction drive idler.
8. Reconnect swing gate return spring to frame.



1. Traction Drive Pulley
2. Traction Drive Belt
3. Traction Sheave
4. Support Bushing
5. Swing Gate Tab & Stop Hole
6. Pivot Bushing
7. Idler Spring
8. Traction Drive Idler
9. Swing Gate Spacer

Figure 17

9. Reinstall attachment drive belts. See *Install Attachment Drive Belts* on page 13.
10. Adjust attachment clutch / brake. Refer to Operator's Manual for adjustment procedure.

11. Adjust traction drive clutch. Refer to Operator's Manual for adjustment procedure.
12. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

ATTACHMENT BRAKE REPLACEMENT

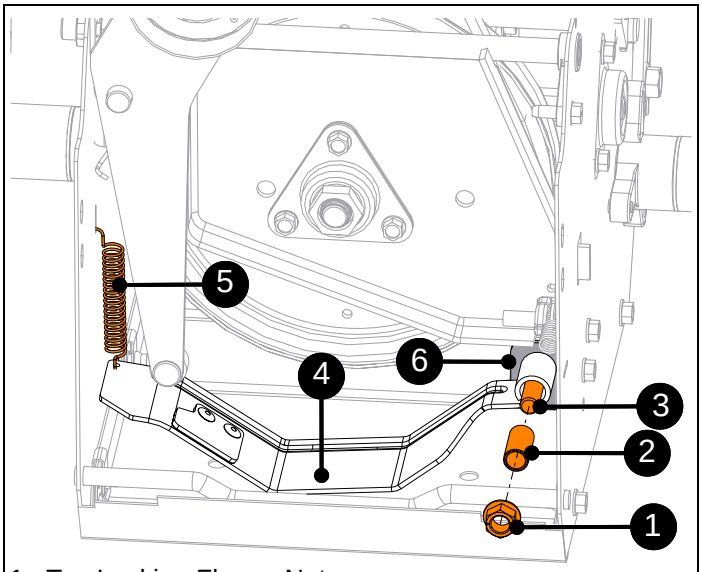
Remove Attachment Brake

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Separate auger housing from frame. See *Separate Auger Housing From Frame* on page 10.

See Figure 18.

4. Remove hardware securing attachment brake to brake mount bracket.
5. Disconnect extension spring from attachment brake arm and remove attachment brake arm.



1. Top Locking Flange Nut
2. Sleeve Bushing
3. Hex Bolt
4. Attachment Brake Arm
5. Extension Spring
6. Brake Mount Bracket

Figure 18

Install Attachment Brake

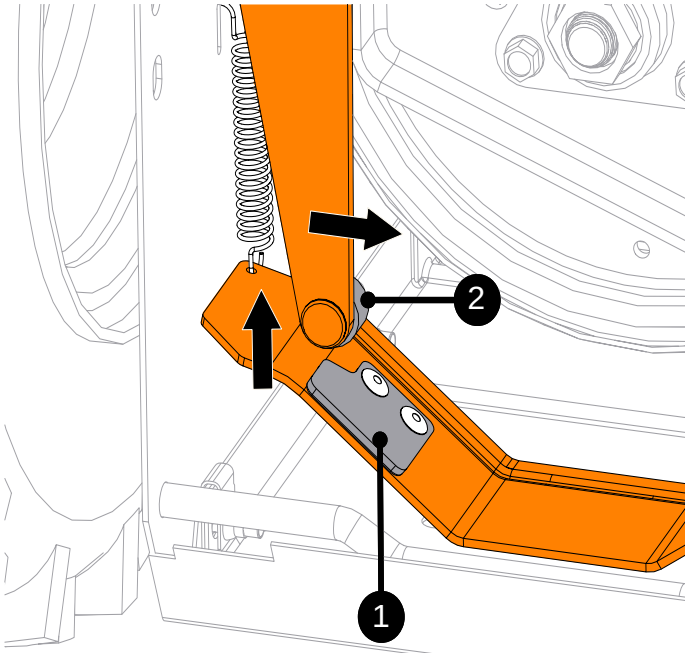
1. Install hex bolt through brake mount bracket.
2. Install attachment brake arm onto hex bolt.
3. Reinstall sleeve bushing into attachment brake arm.
4. Secure attachment brake arm to brake mount bracket with top locking flange nut, but DO NOT overtighten.
5. With flathead screwdriver or similar pry bar, reconnect extension spring to attachment brake arm.

See Figures 19 and 20.

6. Engage and disengage attachment clutch to verify brake roller on attachment idler does not interfere with brake pad.

IMPORTANT: Make sure brake roller does not bind.

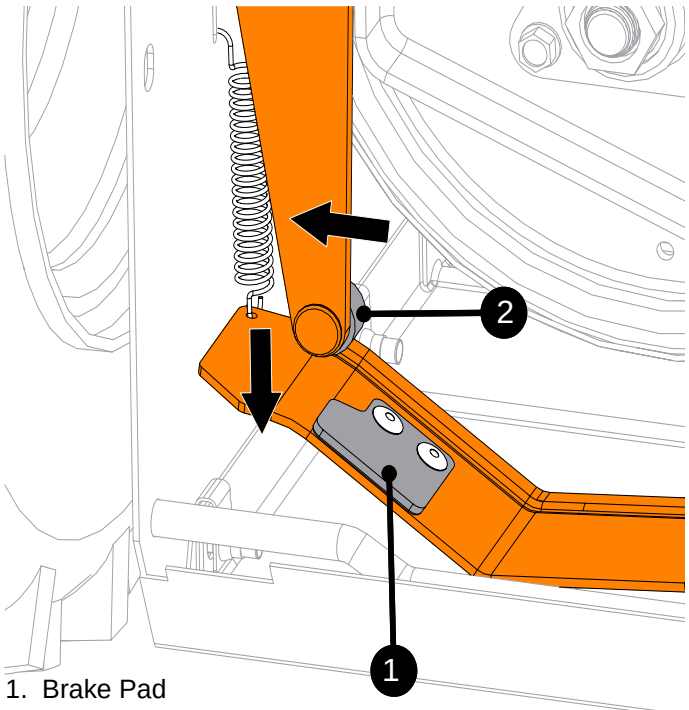
Attachment Clutch Disengaged / Brake Engaged



1. Brake Pad
2. Brake Roller

Figure 19

Attachment Clutch Engaged / Brake Disengaged



1. Brake Pad
2. Brake Roller

Figure 20

7. Reinstall attachment drive belts. See *Install Attachment Drive Belts* on page 13.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

8. Place unit in service position. See *Service Position* on page 8.
9. Remove bottom cover. See *Bottom Cover Removal* on page 9.

See Figure 21.

10. Check attachment brake:
    - Brake must contact attachment belt when attachment clutch is disengaged.
    - Brake must be more than 1.6 mm (1/16”) away from attachment belt when attachment clutch is engaged.

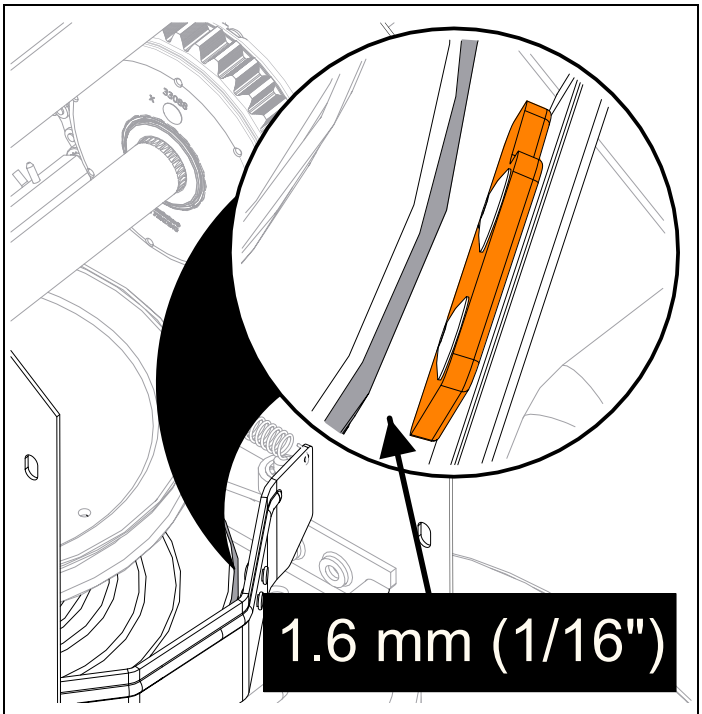


Figure 21

11. Reinstall bottom cover and secure with six hex bolts.
12. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
13. Return unit to operating position.
14. Adjust attachment clutch / brake. Refer to Operator’s Manual for adjustment procedure.
15. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

WARNING: AVOID INJURY. Auger / impeller must stop within 5 seconds when attachment clutch lever is released.

FRICTION DISC REPLACEMENT

Remove Friction Disc

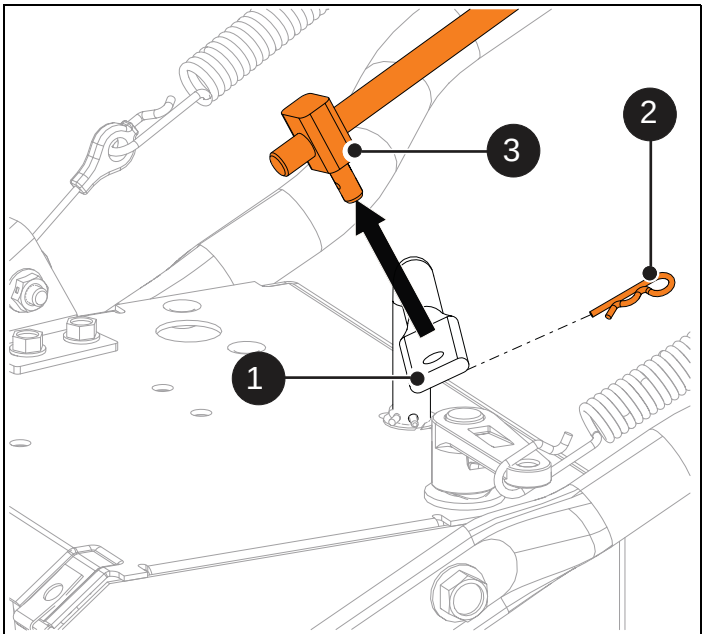
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.

See Figure 22.

5. Remove hairpin securing adjustment pivot pin to speed selector arm and remove adjustment pivot pin.

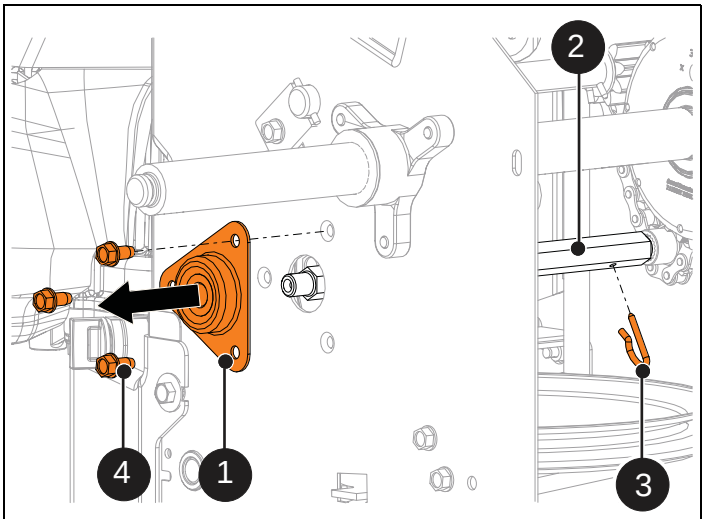


1. Speed Selector Arm
2. Hairpin
3. Adjustment Pivot Pin

Figure 22

See Figure 23.

6. Remove spring clip from right side of hex shaft.
7. Remove hardware securing flange bearing to left side of frame and remove flange bearing.

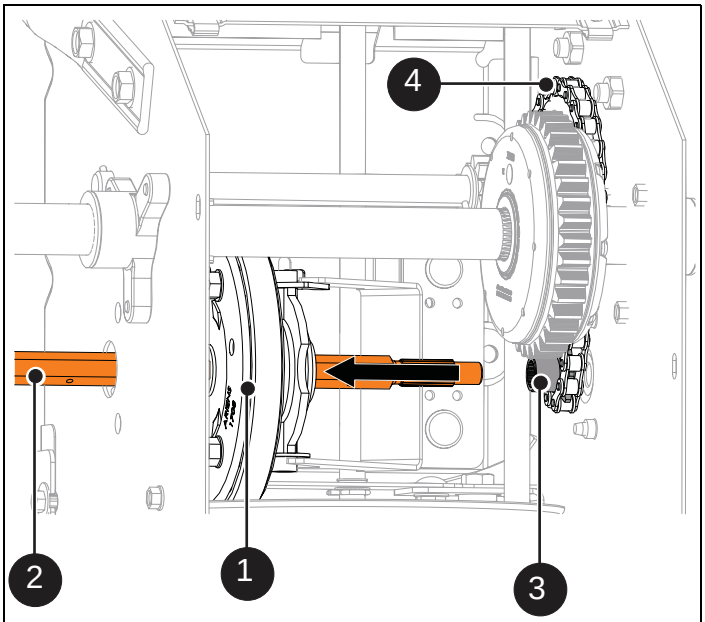


1. Flange Bearing
2. Hex Shaft
3. Spring Clip
4. Tapping Screw

Figure 23

See Figure 24.

8. Disconnect hex shaft from sprocket and remove sprocket from chain.
9. Move hex shaft left until removed from friction disc assembly.
10. Remove friction disc assembly from unit.

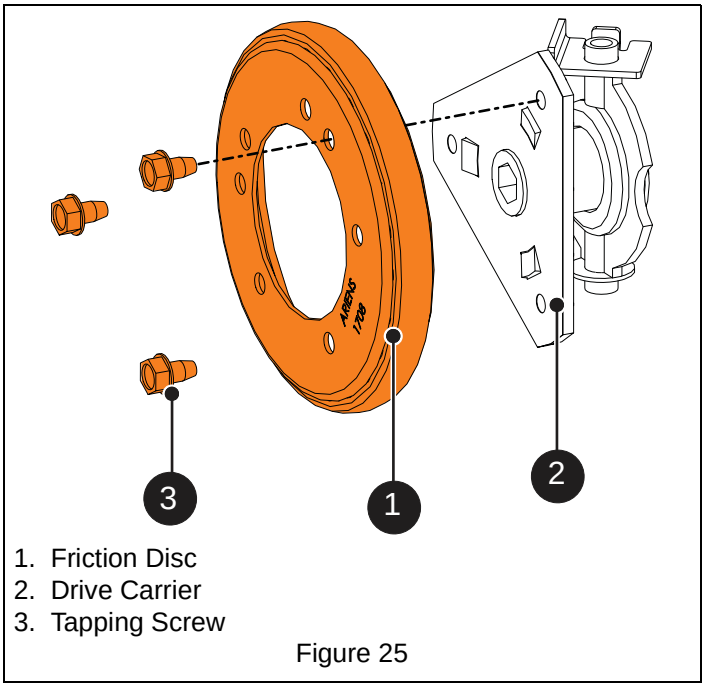


1. Friction Disc Assembly
2. Hex Shaft
3. Sprocket
4. Chain

Figure 24

See Figure 25.

11. Remove hardware securing friction disc to drive carrier and remove friction disc.



1. Friction Disc
2. Drive Carrier
3. Tapping Screw

Figure 25

Install Friction Disc

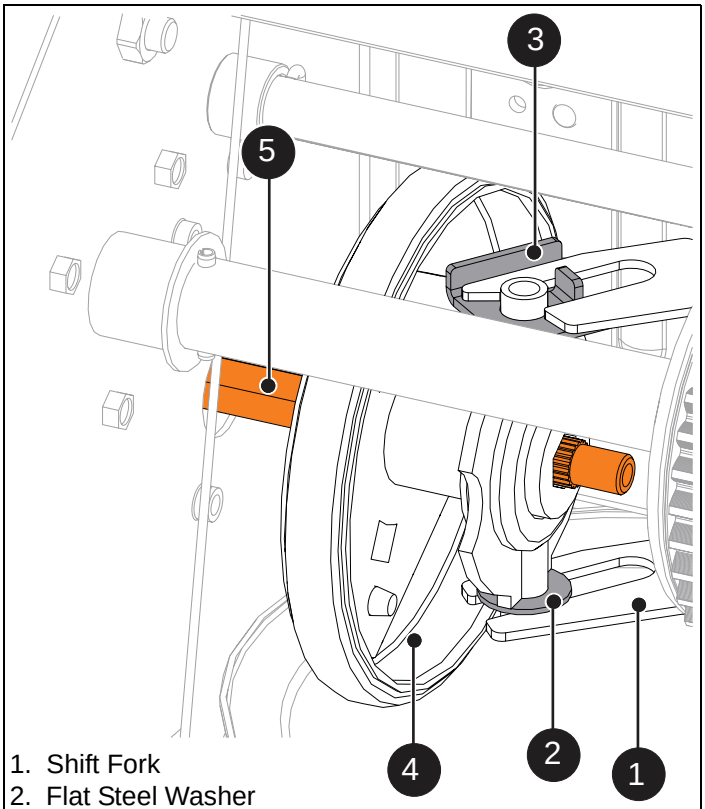
1. Install friction disc to drive carrier with cup side positioned toward drive carrier.
2. Secure friction disc to drive carrier with three tapping screws. Torque to 7 – 8 N•m (5 – 6 lb-ft).

See Figure 26.

3. Reinstall friction disc assembly into shift fork so shift fork bracket and flat steel washer are positioned against shift fork as shown.

NOTICE: Move shift fork left for easy access.

4. Reinstall hex shaft through frame and friction disc assembly.

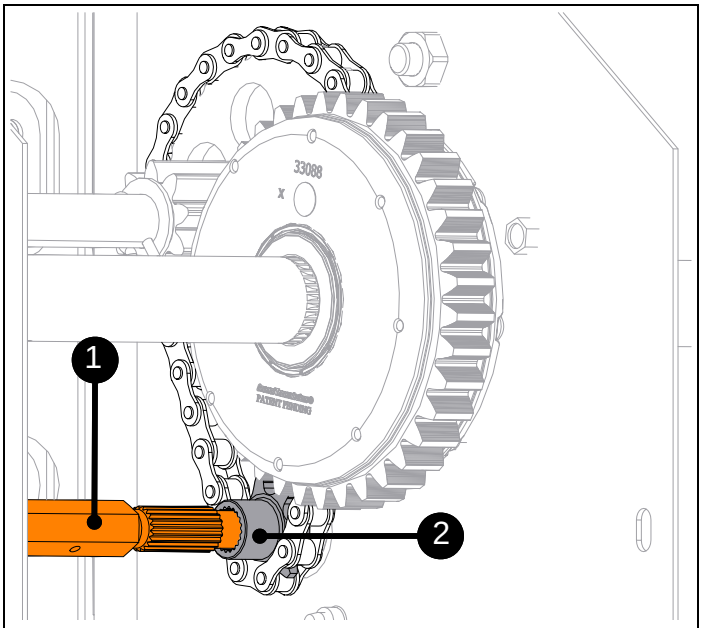


1. Shift Fork
2. Flat Steel Washer
3. Shift Fork Bracket
4. Friction Disc Assembly
5. Hex Shaft

Figure 26

See Figure 27.

5. Reinstall sprocket into chain.
6. Insert hex shaft through sprocket and into bearing on right side of frame.



1. Hex Shaft
2. Sprocket

Figure 27

7. Reinstall flange bearing and secure with three tapping screws.
8. Reinstall spring clip into hex shaft.
9. Reinstall adjustment pivot pin onto speed selector arm and secure with hairpin.
10. Reinstall bottom cover and secure with six hex bolts.
11. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
12. Return unit to operating position.
13. Reconnect spark plug wire.
14. Adjust speed selector lever. Refer to Operator's Manual for adjustment procedure.

IMPORTANT: Check all adjustments after first use.

AUGER REPLACEMENT

Remove Auger

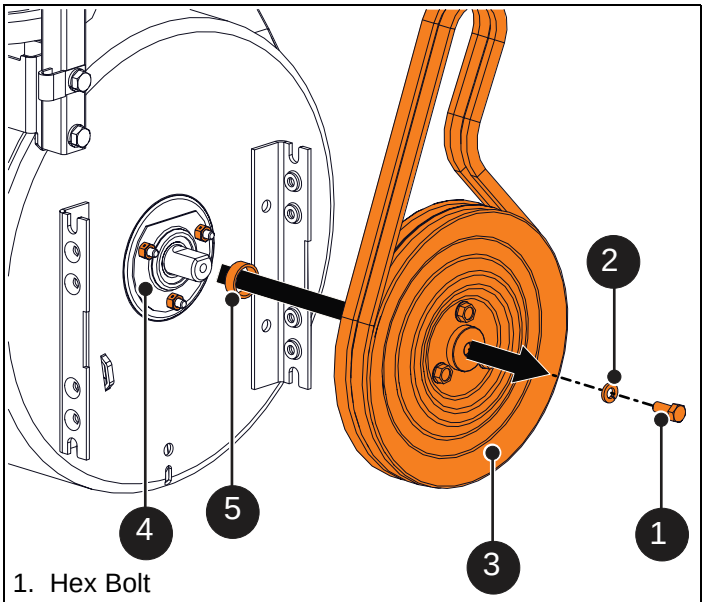
NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Separate auger housing from frame. See *Separate Auger Housing From Frame* on page 10.

See Figure 28.

CAUTION: AVOID INJURY. Attachment drive pulley edges are sharp. Wear gloves when handling pulley.

4. Hold attachment drive pulley in place and remove hardware securing pulley assembly to impeller shaft.
5. Remove spacer bushing from impeller shaft.
6. Loosen, but DO NOT remove hardware securing bearing plate to auger housing.

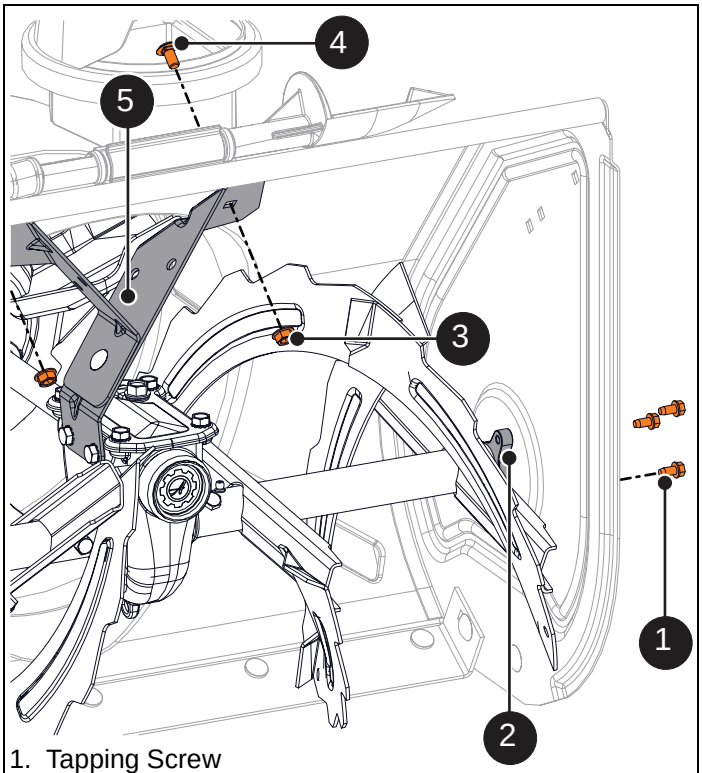


1. Hex Bolt
2. Locking Washer
3. Attachment Drive Pulley Assembly
4. Bearing Plate
5. Spacer Bushing

Figure 28

See Figure 29.

7. Remove hardware securing support bushings to auger housing.
8. Remove hardware securing support brackets to auger housing.



1. Tapping Screw
2. Support Bushing
3. Top Locking Flange Nut
4. Round Head Square Neck Bolt
5. Support Bracket

Figure 29

See Figure 30.

9. Remove auger assembly from housing.

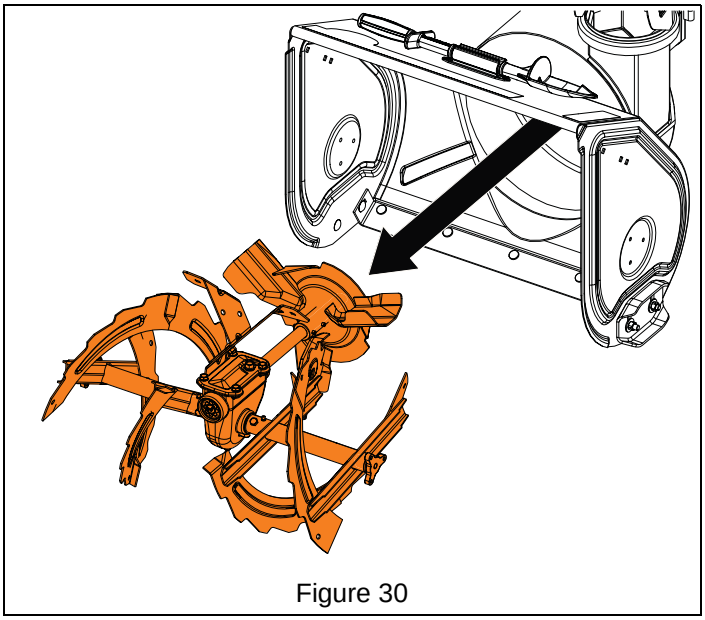
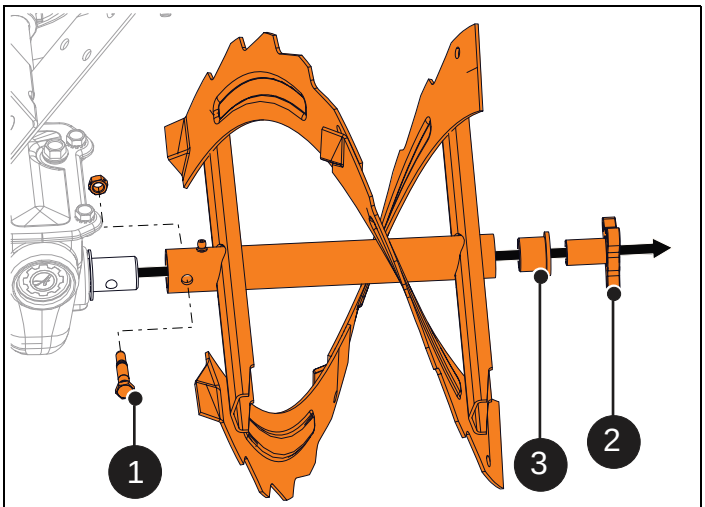


Figure 30

See Figure 31.

10. Remove support bushing and flange bushing from auger shaft end.
11. Remove shear bolt from auger shaft.
12. Remove auger from auger shaft. Use of penetrating oil or heat may be necessary to remove auger.

NOTICE: If rust is present on auger shaft, remove with sand paper and wipe clean with oil.



1. Shear Bolt
2. Support Bushing
3. Flange Bushing

Figure 31

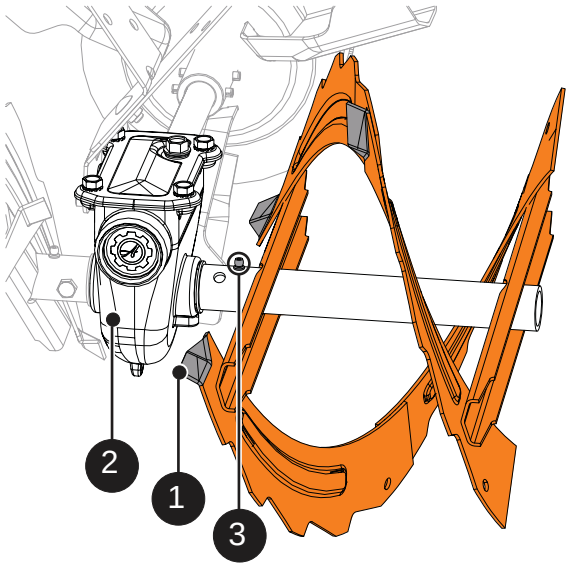
Install Auger

See Figure 30.

1. Install auger onto auger shaft with auger kickers facing gearcase.

IMPORTANT: Make sure auger helix direction matches the original auger orientation.

2. Apply grease to grease zerk and spin auger by hand to spread grease around auger shaft.



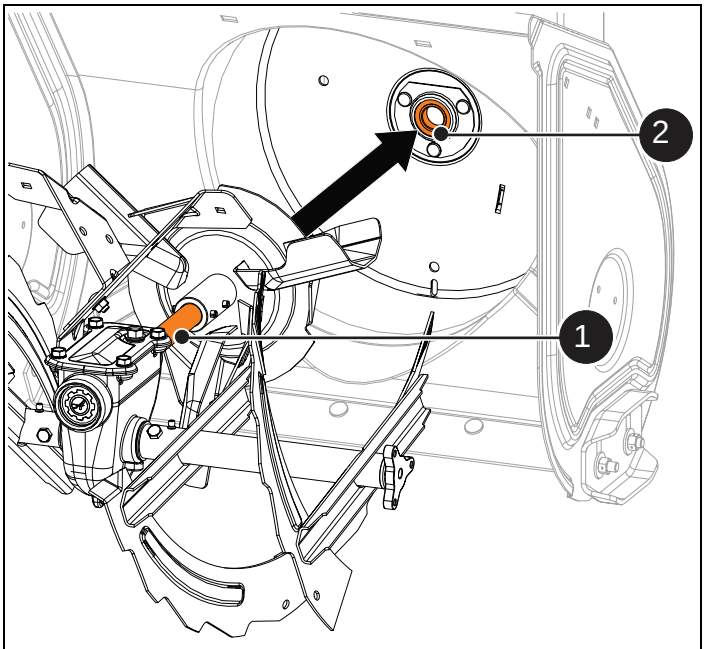
1. Auger Kicker
2. Gearcase
3. Grease Zerk

Figure 32

3. Align holes in auger with holes in auger shaft and reinstall shear bolt. Torque bolt to 7.9 – 16.5 N•m (5.8 – 12.2 lb-ft). If torque wrench is unavailable, tighten until bolts no longer spin freely. DO NOT overtighten.
4. Reinstall flange bushing and support bushing onto auger shaft end.

See Figure 33.

5. Reinstall auger assembly into housing so impeller shaft is seated in ball bearing at housing rear.



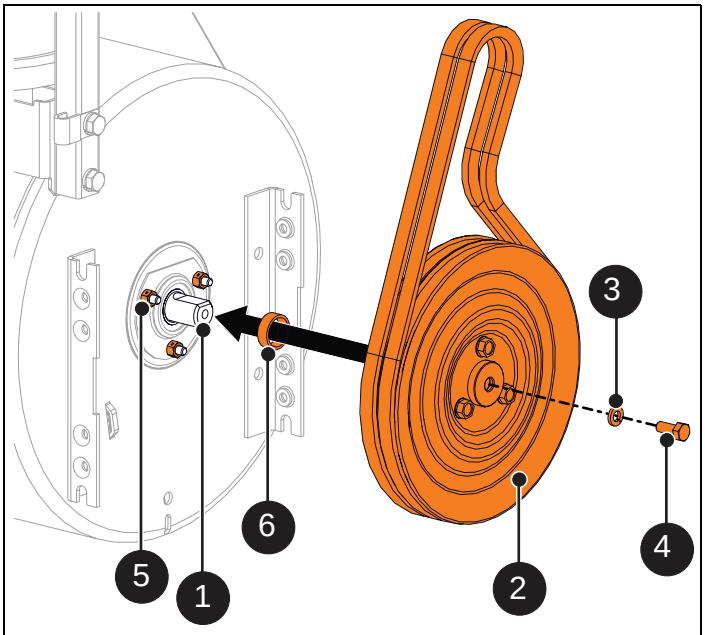
1. Impeller Shaft
2. Ball Bearing

Figure 33

6. Align holes in bushings on auger ends with holes in housing and partially thread all six tapping screws.
7. Tighten tapping screws.
8. Secure support brackets to auger housing with two round head square neck bolts and two top locking flange nuts.

See Figure 34.

9. Tighten three hex nuts securing bearing plate to housing.
10. Apply anti-seize compound to impeller shaft end.
11. Reinstall spacer bushing onto impeller shaft.
12. Reinstall attachment pulley assembly onto impeller shaft and secure with locking washer and hex bolt. Torque to 8 – 16.5 N•m (5.8 – 12.2 lb-ft).



1. Impeller Shaft
2. Attachment Drive Pulley
3. Locking Washer
4. Hex Bolt
5. Hex Nut
6. Spacer Bushing

Figure 34

13. Reinstall attachment drive belts. See *Install Attachment Drive Belts* on page 13.
14. Adjust attachment clutch / brake. Refer to Operator's Manual for adjustment procedure.
15. Reconnect spark plug wire to engine.

IMPORTANT: Check all adjustments after first use.

AUGER GEARCASE REPLACEMENT

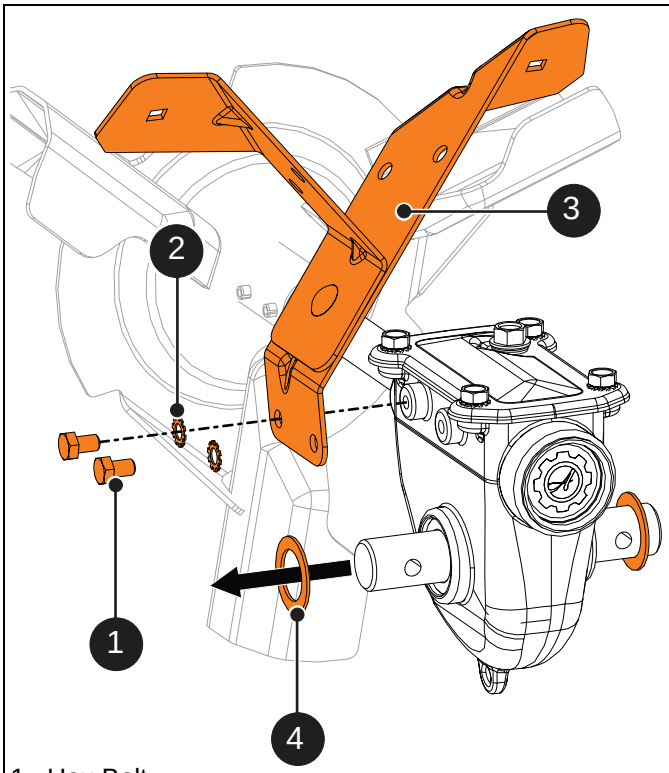
Remove Gearcase Assembly

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Remove augers. See *Remove Auger* on page 19.

See Figure 35.

4. Remove hardware securing support bracket to auger gearcase and remove support brackets.
5. Remove flat steel washers from auger shaft.

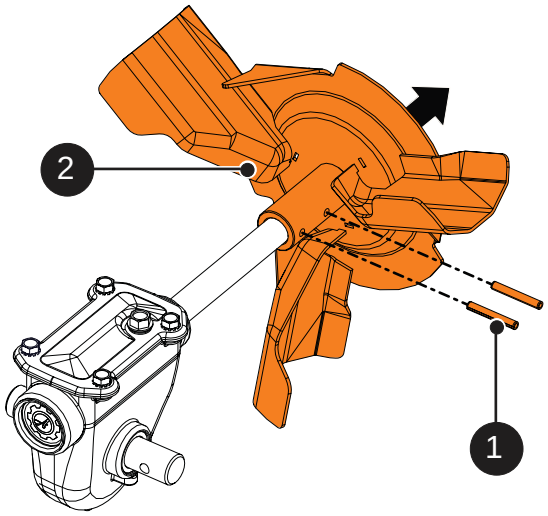


1. Hex Bolt
2. Extension Locking Washer
3. Support Bracket
4. Flat Steel Washer

Figure 35

See Figure 36.

6. Remove two roll pins securing impeller to impeller shaft and remove impeller. Use of penetrating oil or heat may be necessary to remove impeller.



1. Roll Pin
2. Impeller

Figure 36

Install Gearcase Assembly

1. Install impeller onto impeller shaft.
2. Align holes in impeller with holes in impeller shaft and reinstall roll pins.
3. Reinstall support bracket to gearcase with two extension locking washers and two hex bolts.
4. Reinstall one flat steel washer onto each auger shaft end.
5. Install augers. See *Install Auger* on page 20.
6. Reconnect spark plug wire to engine.

IMPELLER REPLACEMENT

Remove Impeller

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Separate auger housing from frame. See *Separate Auger Housing From Frame* on page 10.

See Figure 28.

4. Remove hardware securing attachment drive pulley assembly to auger housing and remove assembly.
5. Remove spacer bushing from impeller shaft.
6. Loosen, but DO NOT remove hardware securing bearing plate to housing.
7. Remove hardware securing auger bushings to auger housing.

See Figure 29.

8. Remove hardware securing support bracket to auger housing.

See Figure 30.

9. Remove auger assembly from housing.

See Figure 36.

10. Remove two roll pins securing impeller to impeller shaft and remove impeller. Use of penetrating oil or heat may be necessary to remove impeller.

Install Impeller

1. Install impeller onto impeller shaft.
2. Align holes in impeller with holes in impeller shaft and reinstall roll pins.

See Figure 33.

3. Reinstall auger assembly into housing so impeller shaft is seated in ball bearing at housing rear.

See Figure 29.

4. Align holes in bushings on auger ends with holes in auger housing and secure with six tapping screws. Tighten hardware.
5. Align holes in support brackets with holes in auger housing. Secure brackets to housing with two round head square neck bolts and two top locking flange nuts.

See Figure 34.

6. Tighten three hex nuts securing bearing plate to housing.
7. Apply anti-seize compound to impeller shaft end.
8. Reinstall spacer bushing onto impeller shaft.
9. Reinstall attachment pulley assembly onto impeller shaft and secure with locking washer and hex bolt. Torque to 8 – 16.5 N•m (5.8 – 12.2 lb-ft).
10. Reinstall attachment drive belts. See *Install Attachment Drive Belts* on page 13.
11. Adjust attachment clutch / brake. Refer to Operator's Manual for adjustment procedure.
12. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

ENGINE REPLACEMENT

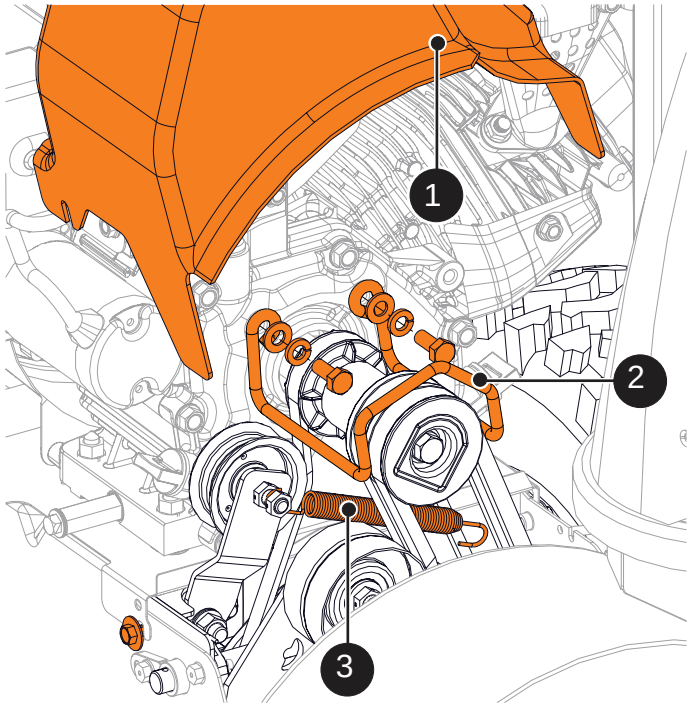
Remove Engine

NOTICE: Save all hardware for reinstallation.

1. Drain gasoline from fuel system and tank. See *Draining Fuel System* on page 8.
2. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
3. Disconnect spark plug wire from engine.

See Figure 37.

4. Loosen, but DO NOT remove hardware retaining belt cover to unit and remove belt cover.
5. Disconnect idler spring from traction drive idler and frame and remove spring.
6. Remove hardware retaining belt finger to engine and remove belt finger.

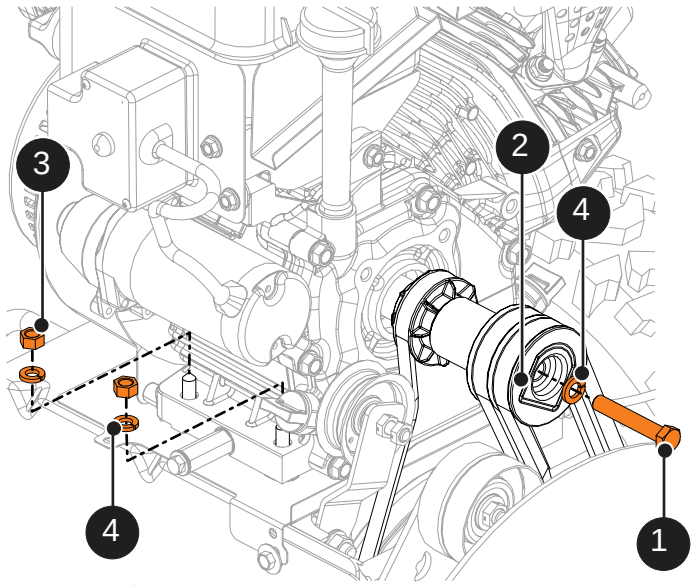


1. Belt Cover
2. Belt Finger
3. Idler Spring

Figure 37

See Figure 38.

7. Remove attachment drive belt from attachment sheave.
8. Remove hardware securing attachment sheave to crankshaft.
9. Remove hardware securing engine to frame.

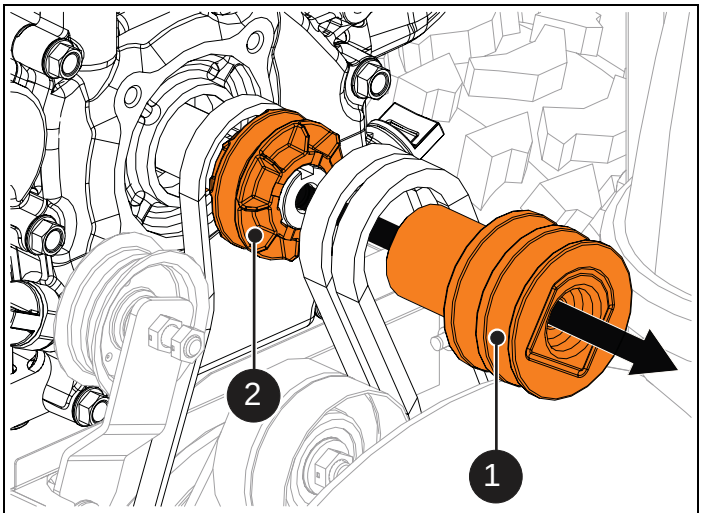


1. Hex Bolt
2. Attachment Sheave
3. Hex Nut
4. Locking Washer

Figure 38

See Figure 39.

10. Remove attachment sheave and traction sheave from crankshaft.
11. Move attachment drive belt and traction drive belt off crankshaft.
12. Lift engine off frame and lower onto a flat, level surface.



1. Attachment Sheave
2. Traction Sheave

Figure 39

Install Engine

1. Lower engine onto frame so weld screws in frame insert through mounting holes in engine base.
2. Reinstall four locking washers over weld screws and secure with hex nuts. Torque to 11.9 – 17.9 N•m (8.8 – 13.2 lb-ft).
3. Align traction sheave key with crankshaft keyway and reinstall traction sheave onto crankshaft.

IMPORTANT: Traction sheave must be reinstalled in the orientation shown in Figure 40.

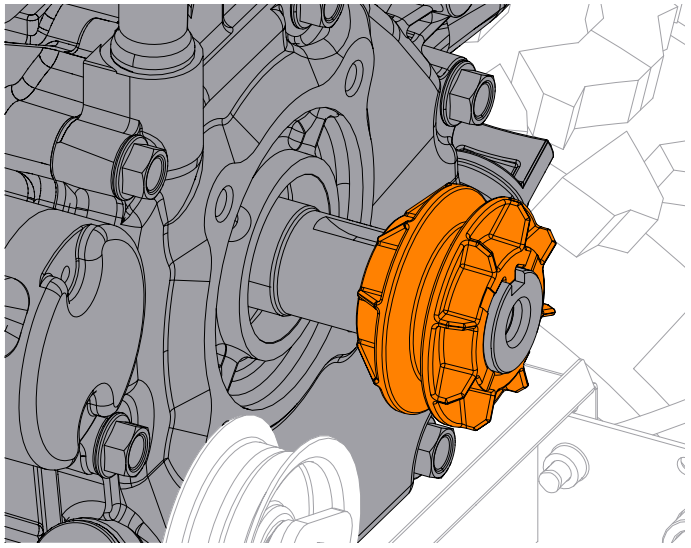


Figure 40

4. Reinstall traction drive belt onto traction sheave.
5. Reinstall idler spring to traction drive idler and frame.
6. Align attachment sheave key with crankshaft keyway and reinstall attachment sheave onto crankshaft. Secure with locking washer and hex bolt and tighten hardware.
7. Reinstall attachment drive belts onto attachment sheave.
8. Reinstall belt finger and secure with two flat steel washers, two locking washers and two hex bolts as shown in Figure 15.
9. Check belt finger clearance:
   - Engage attachment clutch lever and make sure belt finger located opposite belt idler is less than 3.2 mm (1/8") from belt, but not touching the belt.
   - If needed, adjust clearance by loosening hex bolts, repositioning belt finger, and tightening bolts.
10. Reinstall belt cover and tighten hardware.
11. Adjust attachment clutch / brake. Refer to Operator's Manual for adjustment procedure.
12. Adjust traction drive clutch. Refer to Operator's Manual for adjustment procedure.
13. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

WARNING: AVOID INJURY. Auger / impeller must stop within 5 seconds when attachment clutch lever is released.

TRACTION DRIVE CABLE REPLACEMENT

Remove Traction Drive Cable

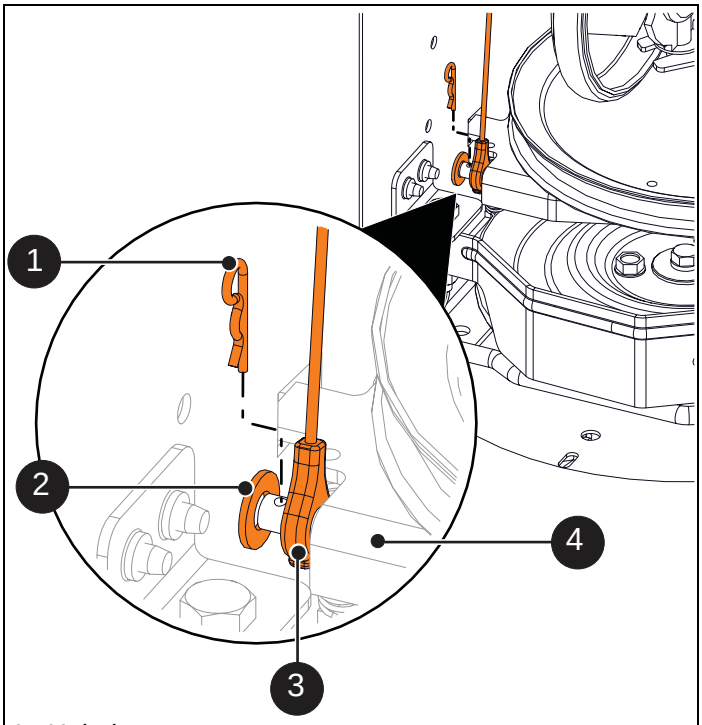
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.

See Figure 41.

5. Remove hairpin and flat steel washer securing cable eyelet to swing gate and remove cable.

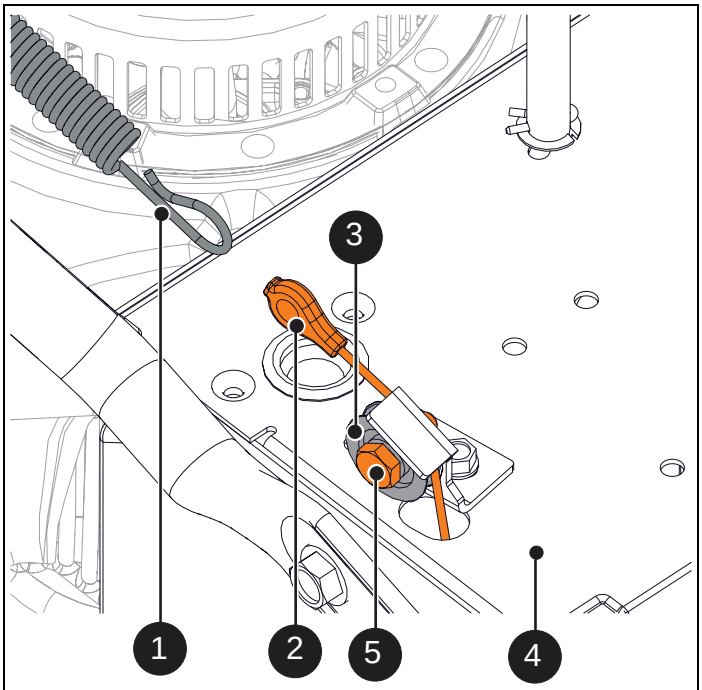


1. Hairpin
2. Flat Steel Washer
3. Cable Eyelet
4. Swing Gate

Figure 41

See Figure 42.

6. Disconnect lower traction drive cable from upper traction drive cable.
7. Loosen, but DO NOT remove shoulder bolt retaining cable pulley to cable pulley bracket.
8. Remove cable from cable pulley and remove cable from unit.



1. Upper Traction Drive Cable
2. Lower Traction Drive Cable
3. Cable Pulley
4. Back Cover
5. Shoulder Bolt

Figure 42

Install Traction Drive Cable

1. Connect lower traction drive cable to upper traction drive cable.
2. Feed cable end through hole in back cover.
3. Align cable with cable pulley and tighten shoulder bolt.
4. Install cable eyelet onto swing gate and secure with flat steel washer and hairpin.

IMPORTANT: Hairpin must be reinstalled in the orientation shown in Figure 41 so it does not interfere with swing gate return spring.

5. Reinstall bottom cover and secure with six hex bolts.
6. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
7. Return unit to operating position.
8. Adjust traction drive clutch. Refer to Operator's Manual for adjustment procedure.
9. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

AXLE BUSHING REPLACEMENT (LEFT SIDE)

Remove Left Axle Bushing

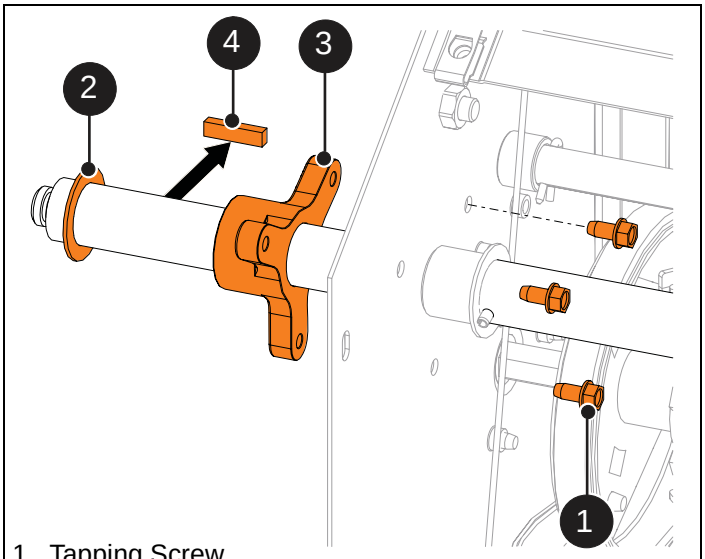
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.
5. Place speed selector lever in the fastest forward position.

See Figure 43.

6. Remove key and flat steel washer from axle.
7. Remove hardware securing bushing to frame and remove bushing.



1. Tapping Screw
2. Flat Steel Washer
3. Bushing
4. Key

Figure 43

Install Axle Bushing

1. Pre-tap new bushing with original tapping screws.
2. Install bushing onto axle.
3. Secure bushing to frame with three tapping screws from inside frame and tighten hardware.
4. Reinstall flat steel washer and key onto axle.
5. Reinstall bottom cover and secure with six hex bolts.
6. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
7. Return unit to operating position.
8. Reconnect spark plug wire.

AXLE BUSHING REPLACEMENT (RIGHT SIDE)

Remove Axle Bushing

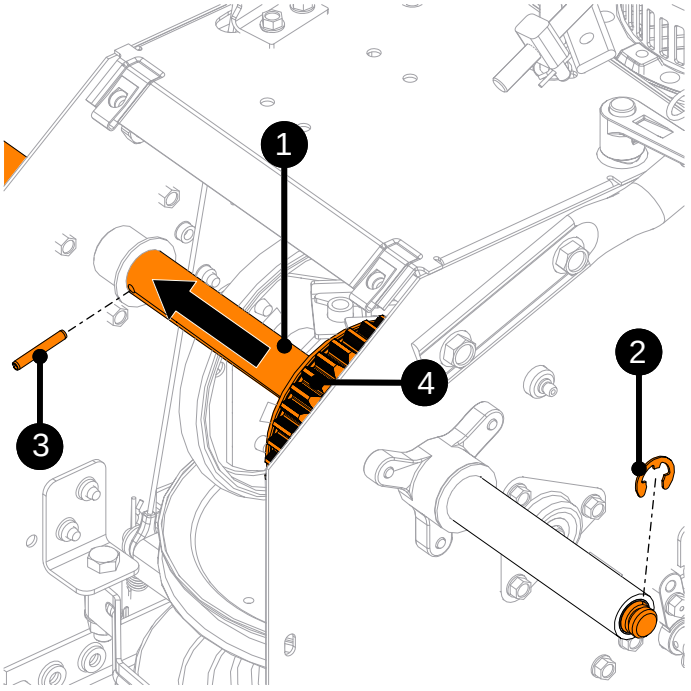
NOTICE: Save all hardware for reinstallation.

> **WARNING:** AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.
5. Place speed selector lever in the fastest forward position.

See Figure 44.

6. Remove E-ring from axle end.
7. Remove roll pin from long axle and move long axle left. Move differential gear with long axle to access bushing hardware.

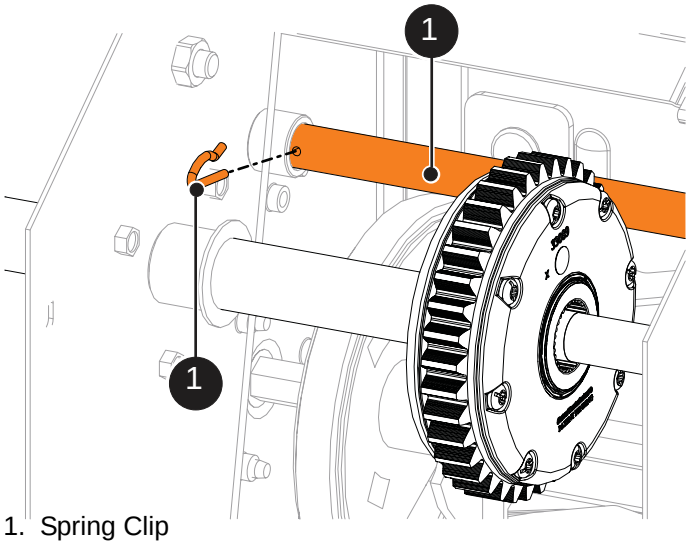


1. Long Axle
2. E-Ring
3. Roll Pin
4. Differential Gear

Figure 44

See Figure 45.

8. Remove spring clip from left side of pinion shaft.



1. Spring Clip
2. Pinion Shaft

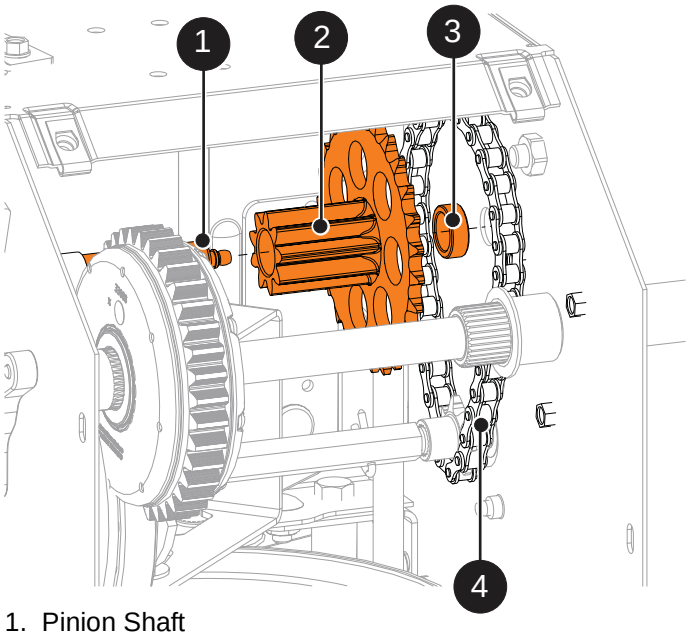
Figure 45

See Figure 46.

NOTICE: Sleeve bushing between pinion sprocket and frame will fall from pinion shaft in next step.

9. Move pinion shaft left and separate from pinion sprocket.
10. Remove pinion sprocket from chain.

IMPORTANT: Flange bushings in pinion sprocket are not to be removed.

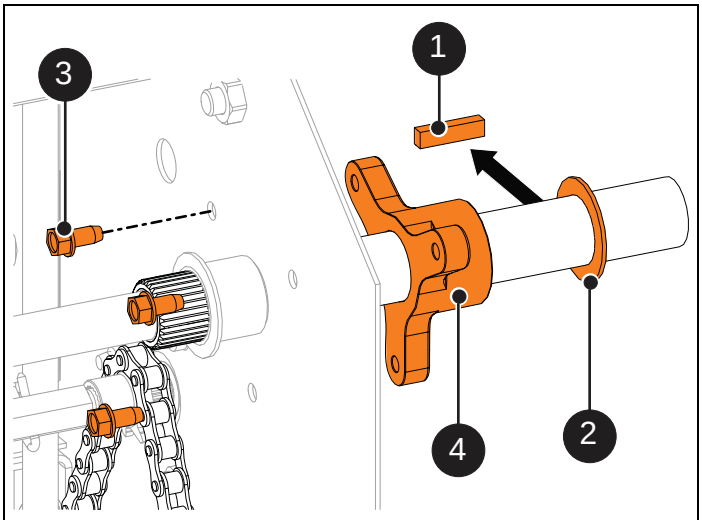


1. Pinion Shaft
2. Pinion Sprocket
3. Sleeve Bushing
4. Chain

Figure 46

See Figure 47.

11. Remove key and flat steel washer from axle.
12. Remove hardware securing bushing to frame and remove bushing.



1. Key
2. Flat Steel Washer
3. Tapping Screw
4. Bushing

Figure 47

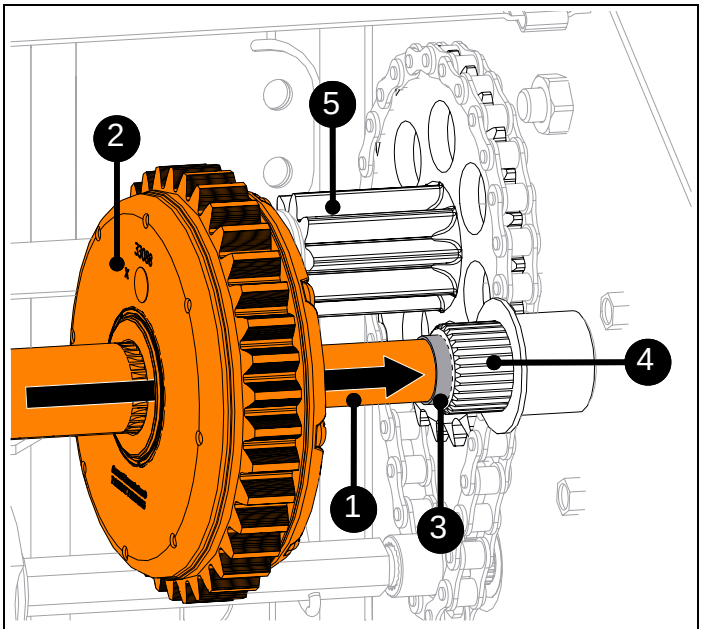
Install Axle Bushing

1. Pre-tap new bushing with original tapping screws.
2. Install bushing onto axle.
3. Secure bushing to frame with three tapping screws from inside frame and tighten hardware.
4. Reinstall flat steel washer and key onto axle.
5. Reinstall pinion sprocket into chain.
6. Position sleeve bushing between pinion sprocket and frame.
7. Insert pinion shaft through pinion sprocket, sleeve bushing and frame.
8. Reinstall spring clip into left side of pinion shaft.

See Figure 48.

9. Move long axle right until differential gear meets short axle. Align differential with pinion sprocket and reinstall onto short axle.

IMPORTANT: Make sure sleeve bushing is positioned outside long axle and inside short axle.

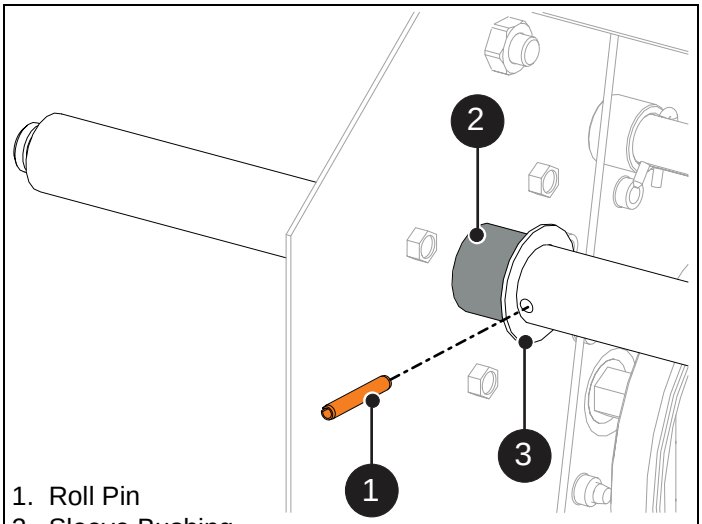


1. Long Axle
2. Differential Gear
3. Sleeve Bushing
4. Short Axle
5. Pinion Sprocket

Figure 48

See Figure 49.

10. Move sleeve bushing and flat steel washer against frame and reinstall roll pin into axle.



1. Roll Pin
2. Sleeve Bushing
3. Flat Steel Washer

Figure 49

11. Reinstall E-ring onto right axle end.
12. Reinstall flat steel washer and key onto axle.
13. Reinstall bottom cover and secure with six hex bolts.
14. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
15. Return unit to operating position.
16. Reconnect spark plug wire.

FLANGE BUSHING REPLACEMENT

Remove Flange Bushing

NOTICE: Save all hardware for reinstallation.

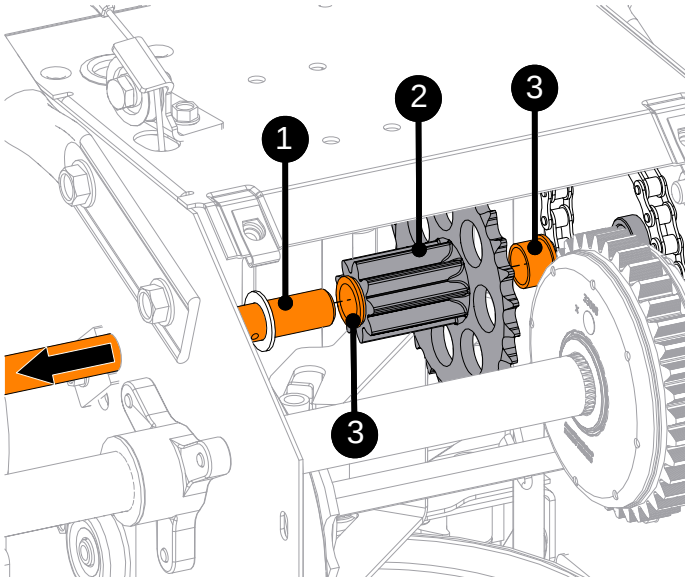
WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.
5. Remove spring clip from left side of pinion shaft as shown in Figure 45.

See Figure 50.

NOTICE: Sleeve bushing between pinion sprocket and frame will fall when pinion shaft is removed.

6. Move pinion shaft left until removed from pinion sprocket.
7. Remove pinion sprocket from chain.
8. Remove flange bushings from pinion sprocket.



1. Pinion Shaft
2. Pinion Sprocket
3. Flange Bushings

Figure 50

Install Flange Bushings

1. Insert flange bushings into pinion sprocket
2. Reinstall pinion sprocket into chain.
3. Position sleeve bushing between pinion sprocket and frame.
4. Insert pinion shaft through pinion sprocket, sleeve bushing and frame.
5. Make sure pinion shaft is centered and spacer bushing on pinion shaft is against frame.
6. Reinstall spring clip into left side of pinion shaft.
7. Reinstall bottom cover and secure with six hex bolts.
8. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
9. Return unit to operating position.
10. Reconnect spark plug wire.

FLANGE BEARING REPLACEMENT

Remove Flange Bearing

NOTICE: Save all hardware for reinstallation.

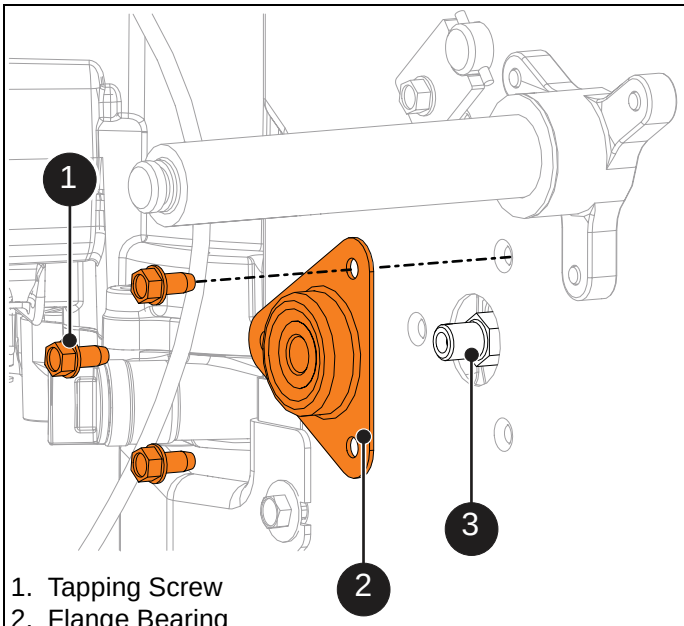
WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove snap clips securing wheels to axle and remove wheels. See Figure 3.

IMPORTANT: Be aware of key on axle ends. If key is removed, reinstall before reinstalling wheel.

See Figure 51.

5. Remove hardware securing flange bearing to frame and remove flange bearing.



1. Tapping Screw
2. Flange Bearing
3. Hex Shaft

Figure 51

Install Bearing

1. Install flange bearing onto hex shaft end and secure to frame with three tapping screws.
2. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
3. Return unit to operating position.
4. Reconnect spark plug wire.

DIFFERENTIAL GEAR REPLACEMENT

Remove Differential Gear

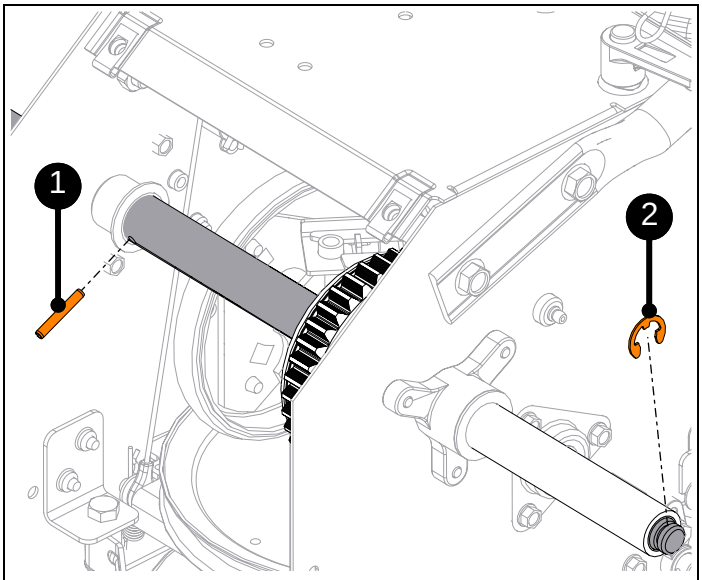
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before placing unit in service position, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not tip.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Place unit in service position. See *Service Position* on page 8.
4. Remove bottom cover. See *Bottom Cover Removal* on page 9.

See Figure 52.

5. Remove roll pin from axle.
6. Remove E-ring from axle end.



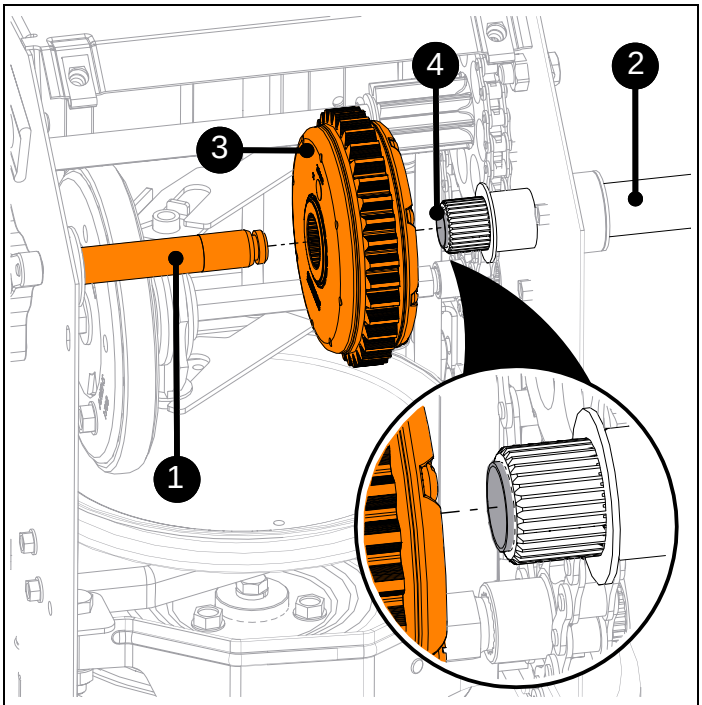
1. Roll Pin
2. E-Ring

Figure 52

See Figure 52.

3. Move long axle left and remove from differential gear.
7. Remove differential gear from short axle.

IMPORTANT: Make sure sleeve bushing remains inside short axle end.



1. Long Axle
2. Short Axle
3. Differential Gear
4. Sleeve Bushing

Figure 52

Install Differential Gear

1. Align differential gear with pinion sprocket and install onto short axle.
2. Reinstall long axle into differential gear.
3. Reinstall E-ring onto right axle end.
4. Reinstall roll pin into axle.
5. Reinstall bottom cover and secure with six hex bolts.
6. Align wheel keyways with axle keys and reinstall wheels. Secure with snap clips.
7. Return unit to operating position.
8. Reconnect spark plug wire.

CHUTE GEAR REPLACEMENT

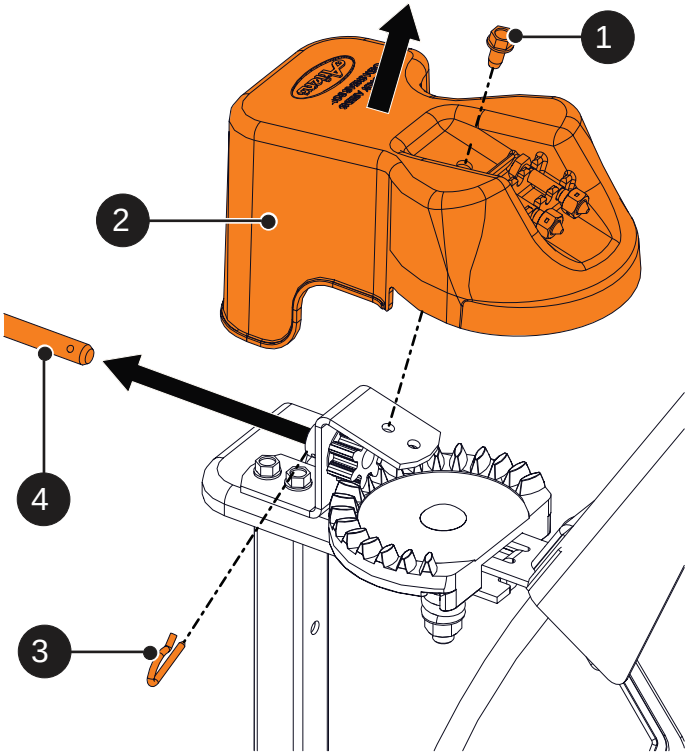
Remove Pinion Gear

NOTICE: Save all hardware for reinstallation unless specified otherwise.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.

See Figure 53.

3. Remove hardware retaining chute gear cover to chute pedestal and remove cover.
4. Remove spring clip from chute rotation rod and remove rod from chute gears.

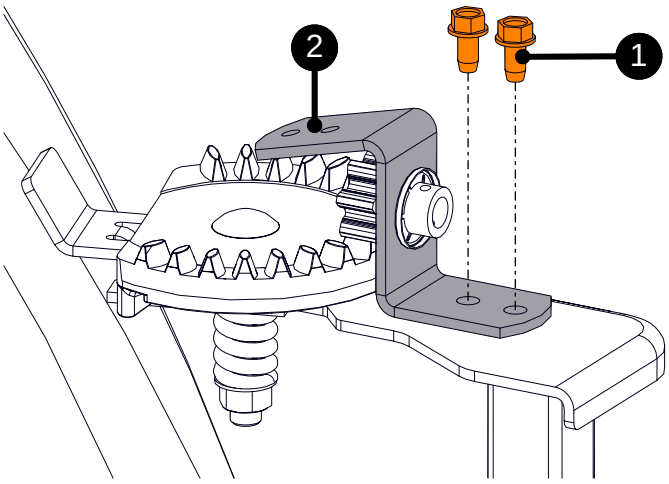


1. Tapping Screw
2. Chute Gear Cover
3. Spring Clip
4. Chute Rotation Rod

Figure 53

See Figure 54.

5. Remove hardware securing chute mount bracket to chute pedestal.
6. Remove pinion gear bracket from chute pedestal.

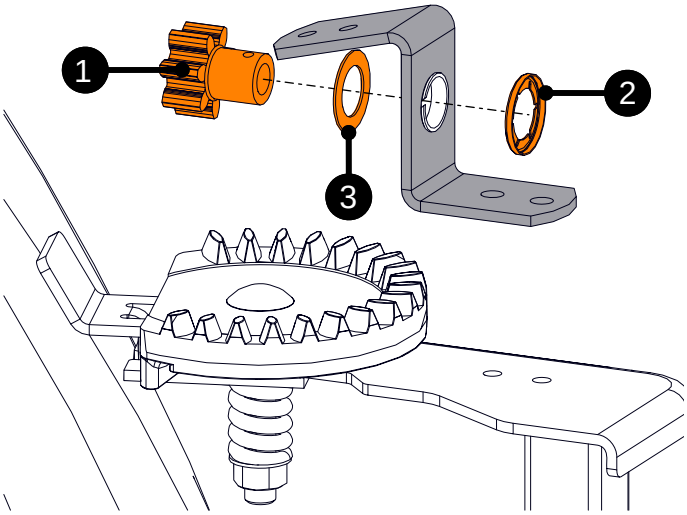


1. Tapping Screw
2. Pinion Gear Bracket

Figure 54

See Figure 55.

7. Remove push nut from pinion gear and discard.
8. Remove pinion gear from pinion gear bracket and remove flat steel washer from pinion gear.



1. Pinion Gear
2. Push Nut
3. Flat Steel Washer

Figure 55

Install Pinion Gear

1. Install flat steel washer onto pinion gear.
2. Insert pinion gear through pinion gear bracket and secure with new push nut.
3. Reinstall pinion gear bracket to chute pedestal and secure with two tapping screws. Tighten hardware.
4. Reinstall chute rotation rod and secure with spring clip.
5. Reinstall chute gear cover and secure with tapping screw.
6. Reconnect spark plug wire.

Remove Chute Rotation Gear

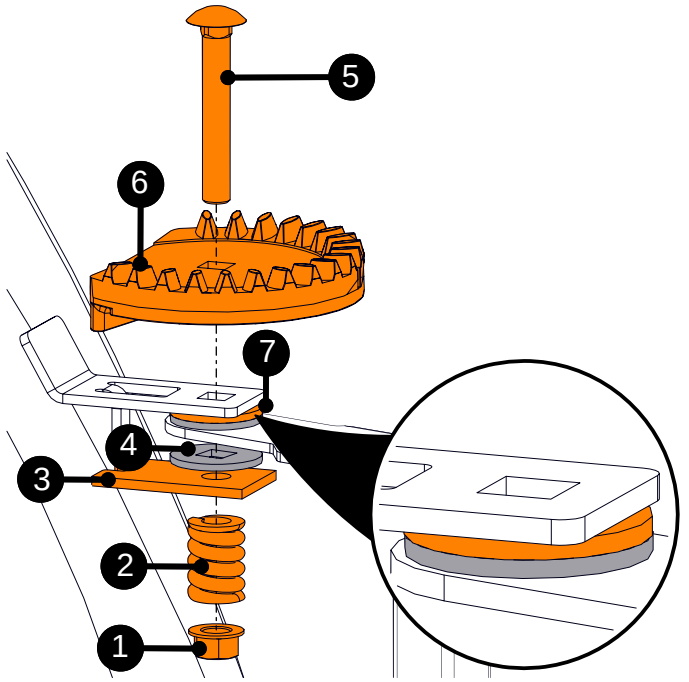
NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Remove hardware retaining chute gear cover to chute pedestal and remove cover.
4. Remove spring clip from chute rotation rod and remove rod from chute gears.
5. Remove hardware securing pinion gear bracket to chute pedestal and remove pinion gear bracket. See Figure 54.

See Figure 56.

6. Remove top locking flange nut, compression spring, friction plate and friction washer from round head square neck bolt.
7. Remove round head square neck bolt from chute rotation gear and remove chute rotation gear.

NOTICE: Flat steel washer and friction washer may remain in original positions. See detailed view in Figure 56.



1. Top Locking Flange Nut
2. Compression Spring
3. Friction Plate
4. Friction Washer
5. Round Head Square Neck Bolt
6. Chute Rotation Gear
7. Flat Steel Washer & Friction Washer

Figure 56

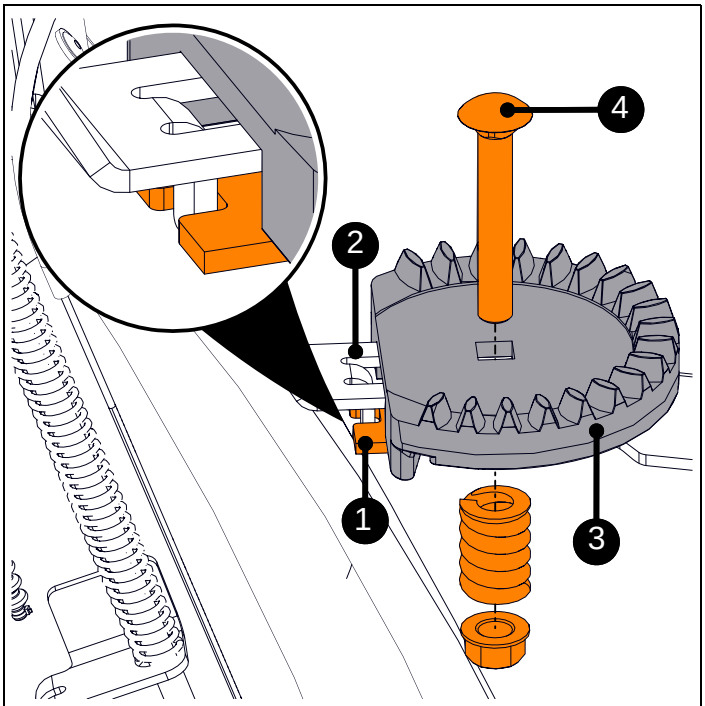
Install Chute Rotation Gear

1. Position discharge chute facing forward.

See Figure 57.

2. Position chute rotation gear on chute mount so edge is square with chute mount bracket.
3. Align hole in chute gear with holes in chute mount, flat steel washer, friction washer, and pedestal plate.
4. Insert round head square neck bolt through chute gear.
5. Reinstall friction washer, friction plate, compression spring and top locking flange nut onto bolt.

IMPORTANT: Make sure notch in friction plate fits around tab in chute mount.



1. Chute Mount
2. Friction Plate
3. Chute Rotation Gear
4. Round Head Square Neck Bolt

Figure 57

6. Reinstall pinion gear bracket to pedestal plate and secure with two tapping screws. Tighten hardware.
7. Reinstall chute rotation rod into chute gear and secure with spring clip.
8. Reinstall chute gear cover and secure with tapping screw.
9. Adjust discharge chute rotation. Refer to Operator's Manual for adjustment procedure.
10. Reconnect spark plug wire.

IMPORTANT: Check all adjustments after first use.

SCRAPER BLADE REPLACEMENT

Remove Scraper Blade

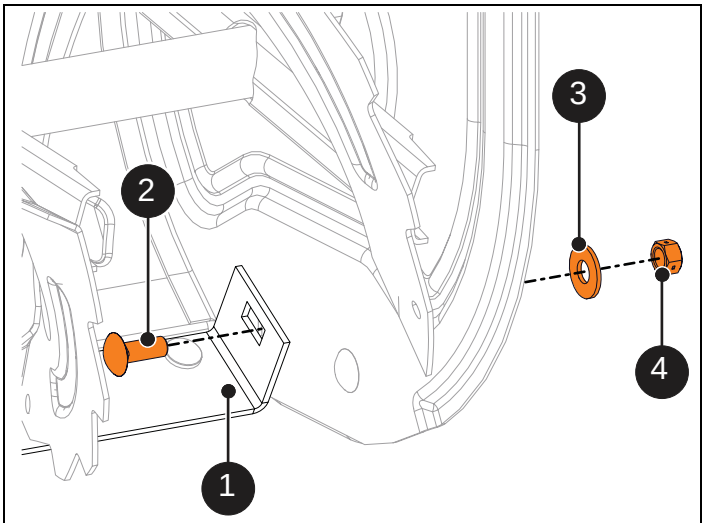
NOTICE: Save all hardware for reinstallation.

WARNING: AVOID INJURY. Before tipping unit onto handlebars, close fuel valve and drain fuel from tank and fuel system. See *Draining Fuel System* on page 8. Make sure unit is secure and will not fall.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.

See Figure 58.

3. Remove hardware securing scraper blade ends to auger housing.

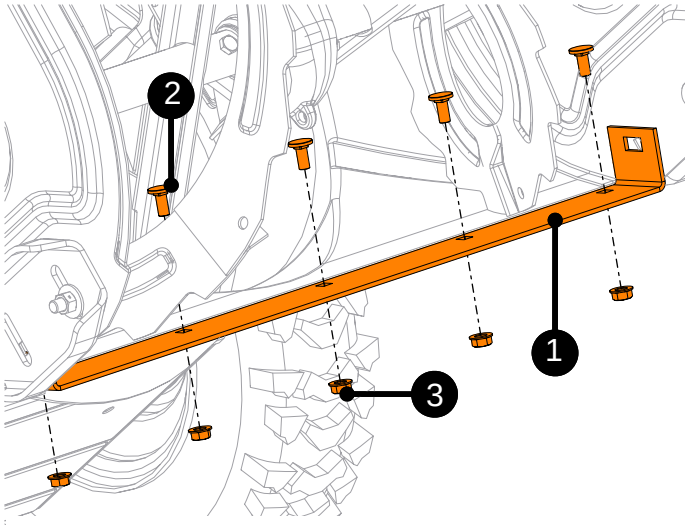


1. Scraper Blade
2. Round Head Square Neck Bolt
3. Flat Steel Washer
4. Hex Nut

Figure 58

See Figure 59.

4. Slowly tip unit back so it rests on handlebars.
5. Remove remaining hardware securing scraper blade to auger housing and remove scraper blade.



1. Scraper Blade
2. Flat Head Square Neck Bolt
3. Top Locking Flange Nut

Figure 59

Install Scraper Blade

1. Position scraper blade inside auger housing and align with holes in housing.
2. Insert five flat head square neck bolts through scraper blade and auger housing from inside housing. Secure with top locking flange nuts.
3. Insert two round head square neck bolts through scraper blade ends, auger housing and skid shoes from inside housing. Secure with two flat steel washers and two hex nuts.
4. Return unit to operating position.
5. Adjust scraper blade and skid shoes. Refer to Operator's Manual for adjustment procedures.
6. Reconnect spark plug wire.

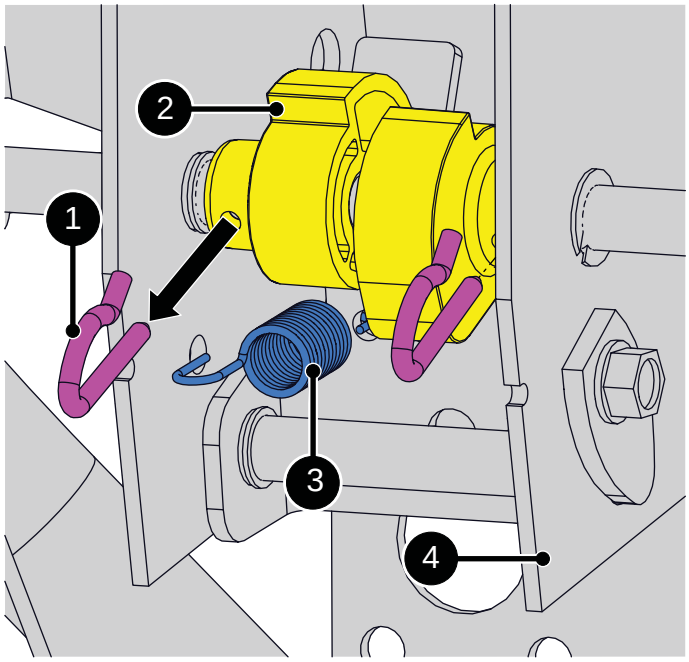
IMPORTANT: Check all adjustments after first use.

DUAL-HANDLE INTERLOCK CAM REPLACEMENT

Remove Interlock Cams

NOTICE: Save all hardware for reinstallation. See Figure 60.

1. Disconnect spring from interlock bracket.
2. Remove two spring clips securing interlock cams to camshafts.



1. Spring Clip
2. Interlock Cam
3. Spring
4. Interlock Bracket

Figure 60

NOTICE: Interlock cams will fall from camshafts in next step.

3. Remove hardware retaining camshafts to clutch levers and remove camshafts from interlock bracket. See Figure 61.

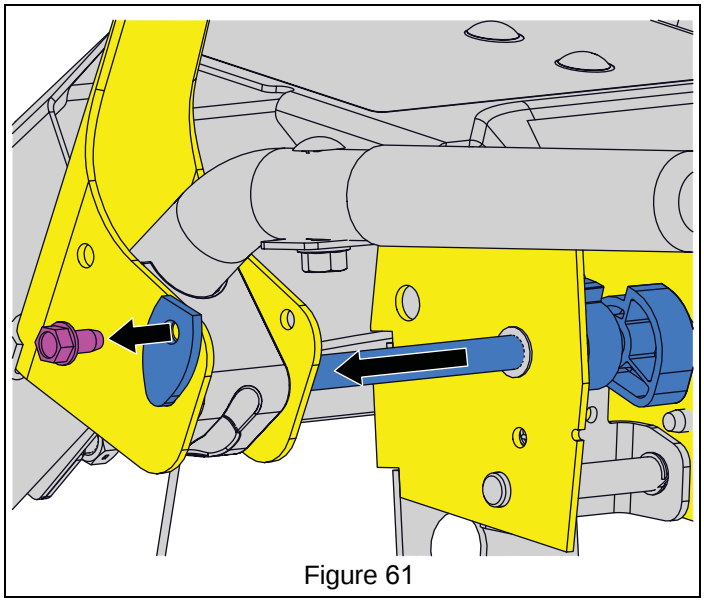


Figure 61

Install Interlock Cams

IMPORTANT: Make sure nylon bushings are seated in interlock bracket. See Figure 62.

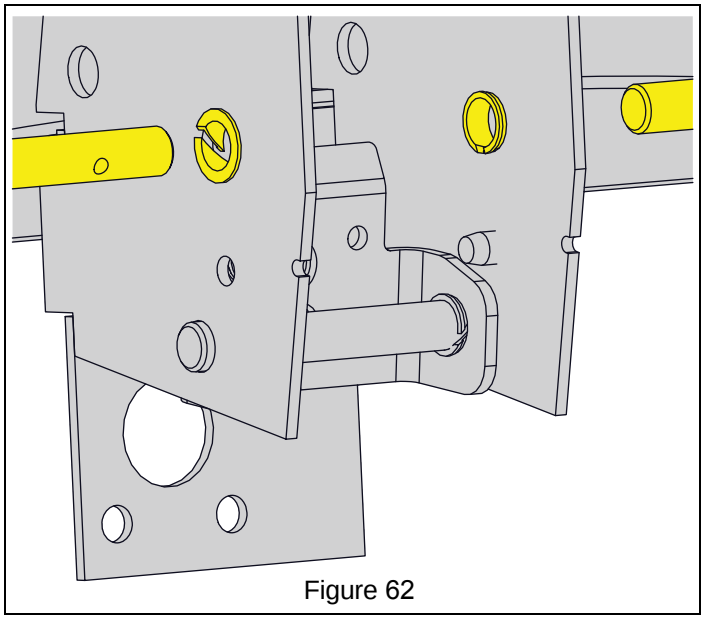


Figure 62

1. Reinstall right camshaft through interlock bracket and secure to clutch lever with one tapping screw.
2. Install interlock cam onto camshaft so flat edge is positioned downward. Secure with spring clip. See Figure 63.

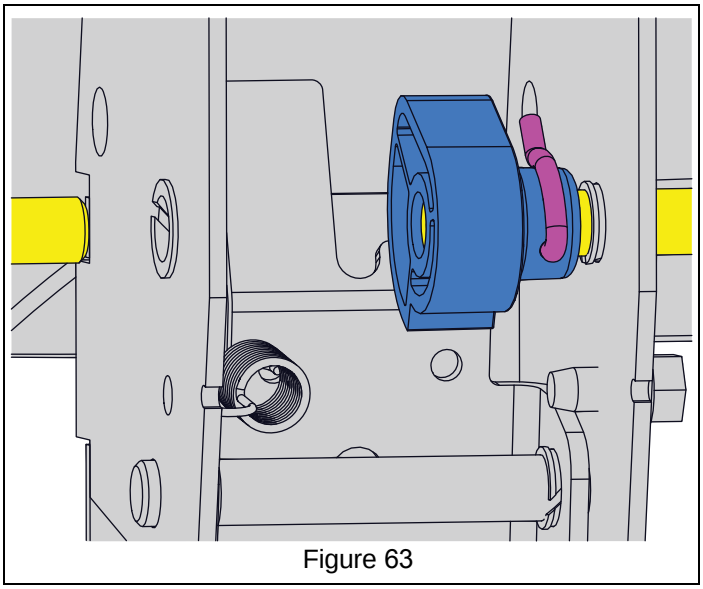


Figure 63

See Figure 64.

3. Position left interlock cam inside interlock bracket and align with left camshaft.
4. Insert camshaft into cam.
5. Secure camshaft to clutch lever with one tapping screw.
6. Rotate cam so flat edge is positioned upward and secure with spring clip.
7. Reconnect spring to interlock bracket.

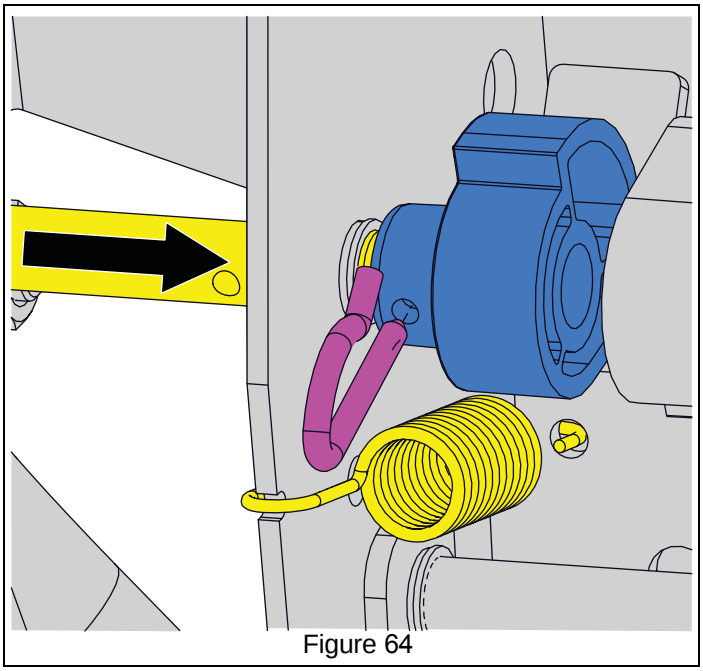


Figure 64

8. Check dual-handle interlock function. Refer to Operator's Manual for verification procedure.

IMPORTANT: If dual-handle interlock continues to malfunction, see your Ariens dealer.

HEADLIGHT BULB REPLACEMENT

Remove Headlight Bulb

NOTICE: Save all hardware for reinstallation.

1. Stop engine, remove key and wait for all moving parts to stop and for hot parts to cool.
2. Disconnect spark plug wire from engine.
3. Remove hardware securing headlight to dash panel. See Figure 65.

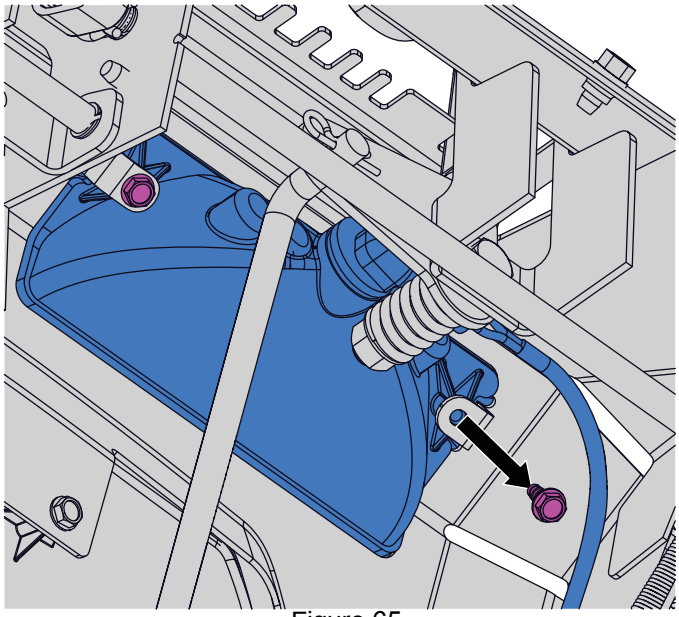


Figure 65

See Figure 66.

4. Remove headlight from dash panel.
5. Disconnect wire harness from bulb.

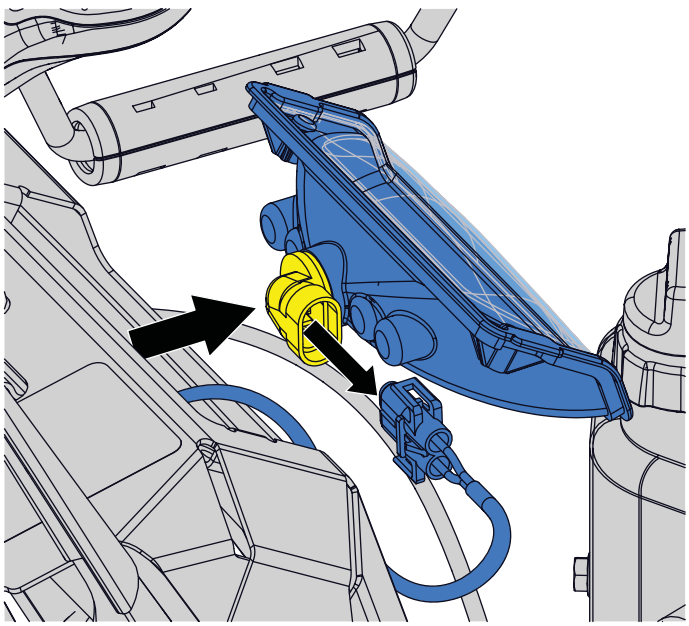


Figure 66

6. Turn bulb one-eighth turn counterclockwise and remove from headlight housing. See Figure 67.

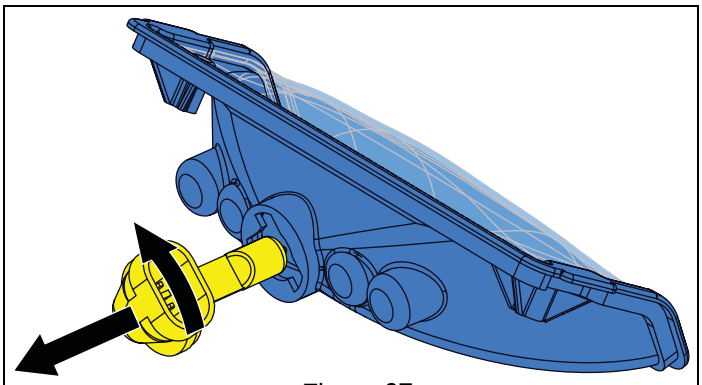


Figure 67

Install Headlight Bulb

IMPORTANT: DO NOT touch new bulb with bare hands; wear gloves. Body oil on a headlight bulb can increase bulb temperature and reduce life of the bulb.

1. Reinstall bulb into headlight housing and turn one-eighth turn clockwise.
2. Connect bulb to wire harness.
3. Reinstall headlight housing into dash panel and secure with two tapping screws.

IMPORTANT: Reconnect spark plug wire.

SERVICE PARTS

Description	Part No.
Spark Plug	21547400
Attachment Drive Belt (921024, 030, 319)	07200514
Attachment Drive Belt (921032, 320, 321)	07200536
Attachment Drive Belt (921044)	07200703
Traction Drive Belt (921024, 030, 319)	07200111
Traction Drive Belt (921032, 044, 320, 321)	07200717
Friction Disc	00170800

SERVICE RECORD

DATE	SERVICE PERFORMED	NOTES

ADDENDUM

GEARCASE REBUILD

Disassemble Gearcase

IMPORTANT: Save all parts for reassembly, unless otherwise specified.

1. Remove gearcase. See *Remove Gearcase Assembly* on page 22.
2. Remove any rust, if present, from auger and impeller shafts with sandpaper. Wipe clean with oil.
3. Remove drain plug and seal washer from gearcase. See Figure 1.

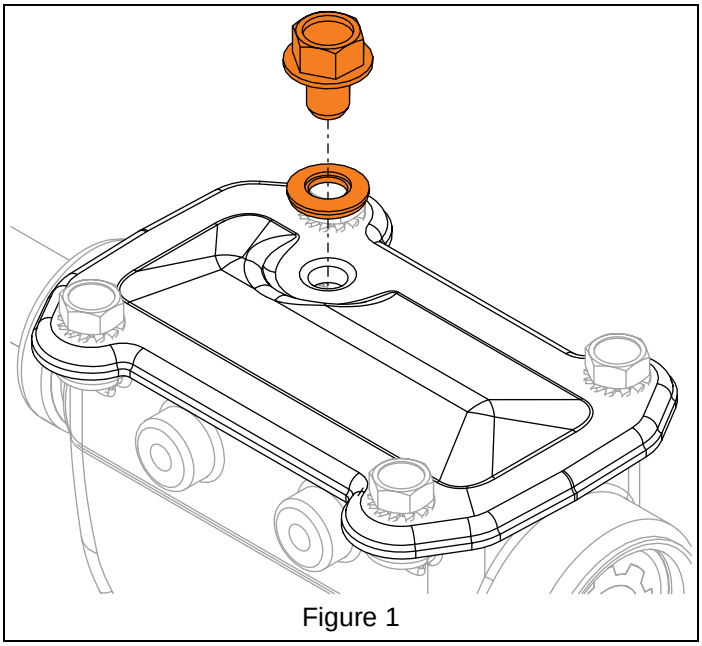


Figure 1

See Figure 2.

4. Remove hardware retaining gearcase cover and remove cover.
5. Remove gasket and drain gearcase.

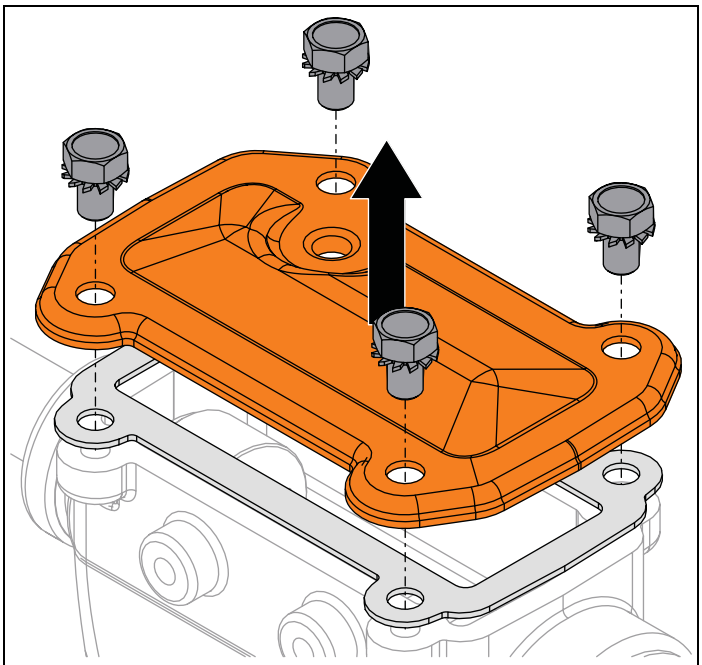


Figure 2

6. Remove bushing retainer from gearcase. See Figure 3.

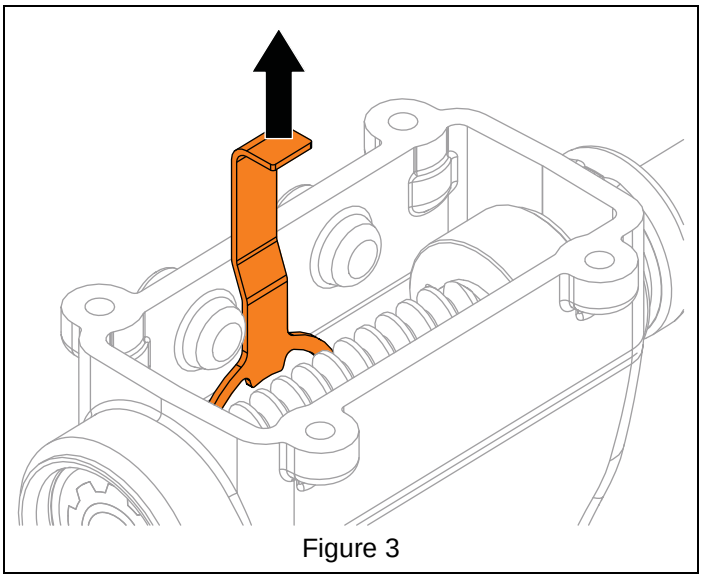


Figure 3

See Figure 4.

7. Press auger shaft through the right side of gearcase.

NOTICE: DO NOT strike auger shaft end; use a press.

8. Remove seal, bushing and washer from auger shaft.

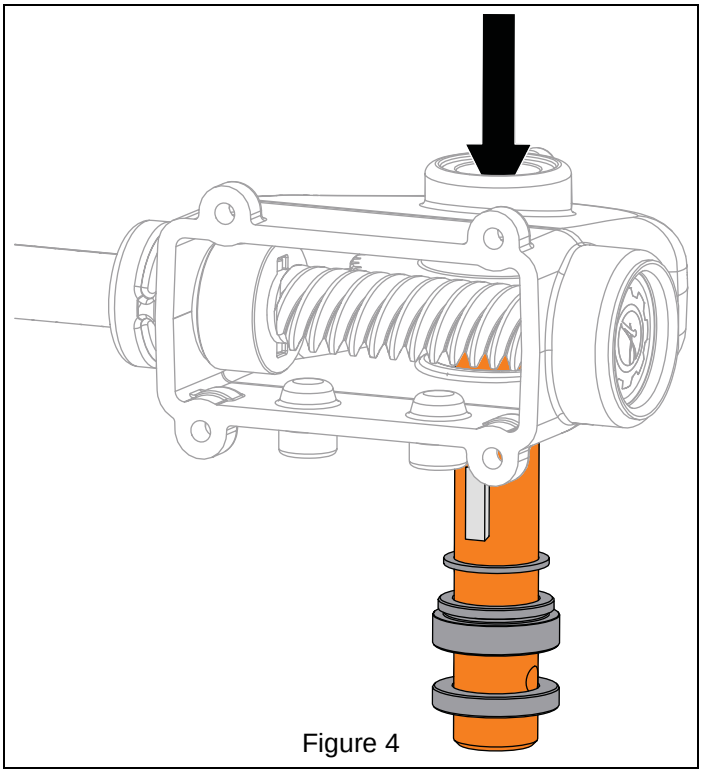


Figure 4

9. With a flathead screwdriver or similar pry bar, remove front seal cover and discard. See Figure 5.

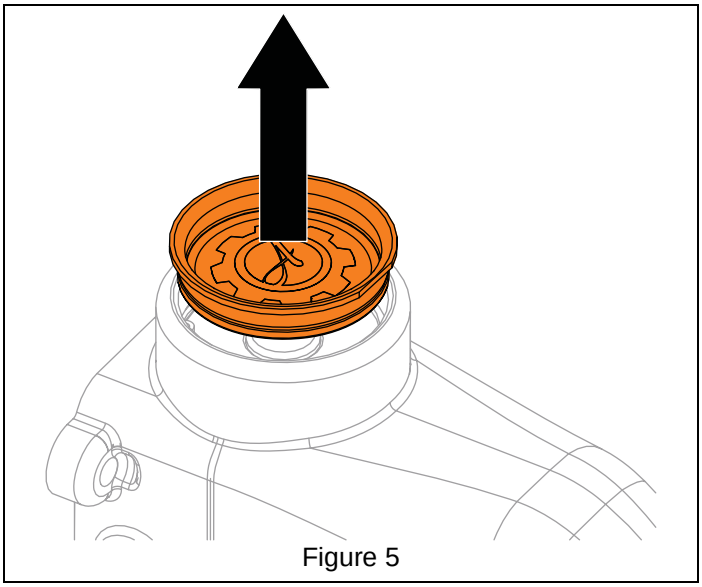


Figure 5

10. With a snap ring pliers, remove retaining ring. See Figure 6.

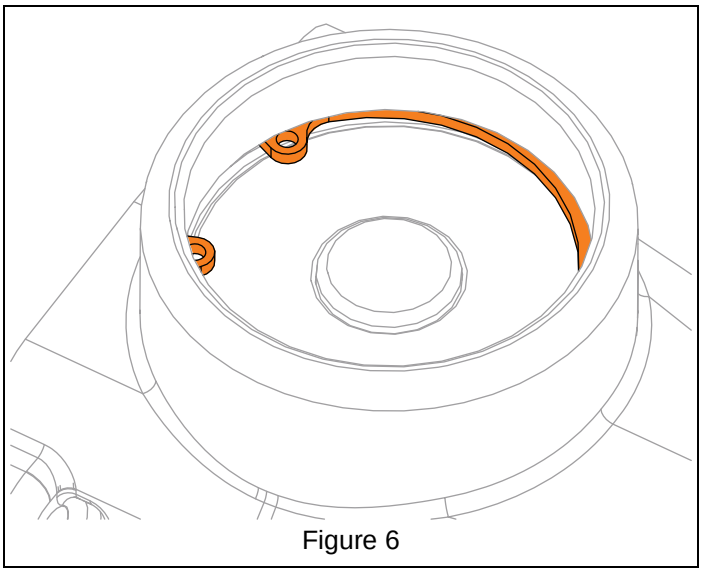


Figure 6

See Figure 7.

11. With a driver, strike impeller shaft end until shaft is through front of gearcase.

NOTICE: DO NOT strike impeller shaft end without using a driver.

12. Remove pin and bushing from impeller shaft.

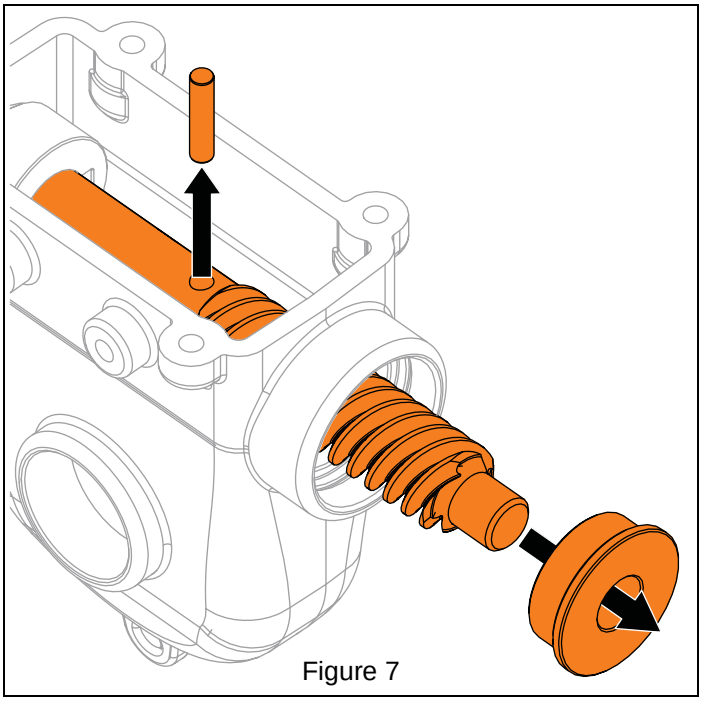


Figure 7

13. Remove impeller shaft from gearcase and remove all loose parts from inside gearcase.

14. Remove seals and flange bushings from gearcase. See Figure 8.

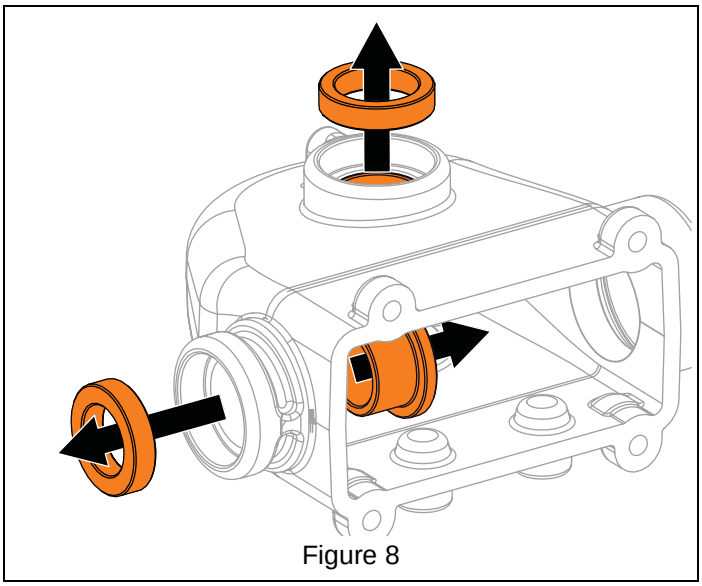


Figure 8

Assemble Gearcase

See Figure 9.

1. Press rear seal into gearcase until flush with gearcase exterior.
2. Reinstall right and rear flange bushings.

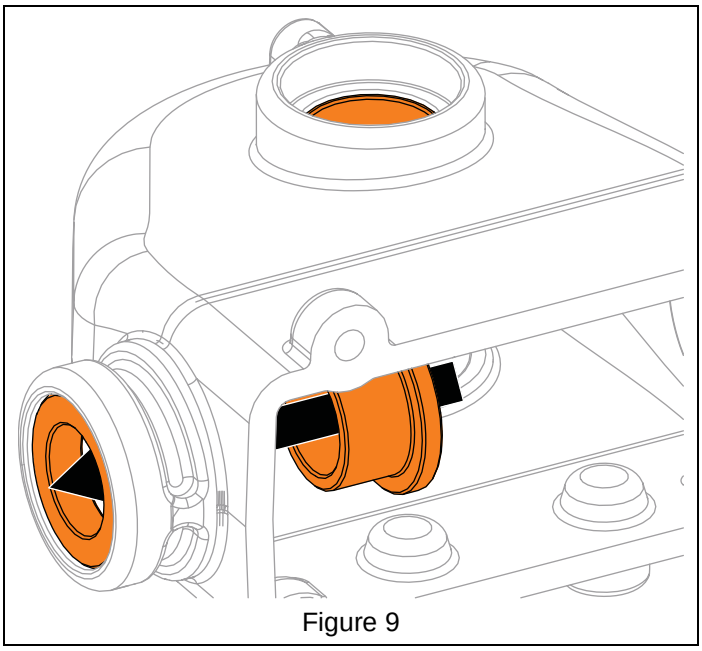


Figure 9

IMPORTANT: Gear is symmetrical and may be installed in either orientation.

3. Install gear into gearcase.

See Figure 10.

4. Reinstall impeller shaft through gearcase front and reinstall thrust collar onto impeller shaft end.
5. Wrap a seal protector over impeller shaft end and reinstall shaft through gearcase seal. Remove seal.

NOTICE: Unprotected seals can be damaged when installed over rough edges in shaft, such as holes.

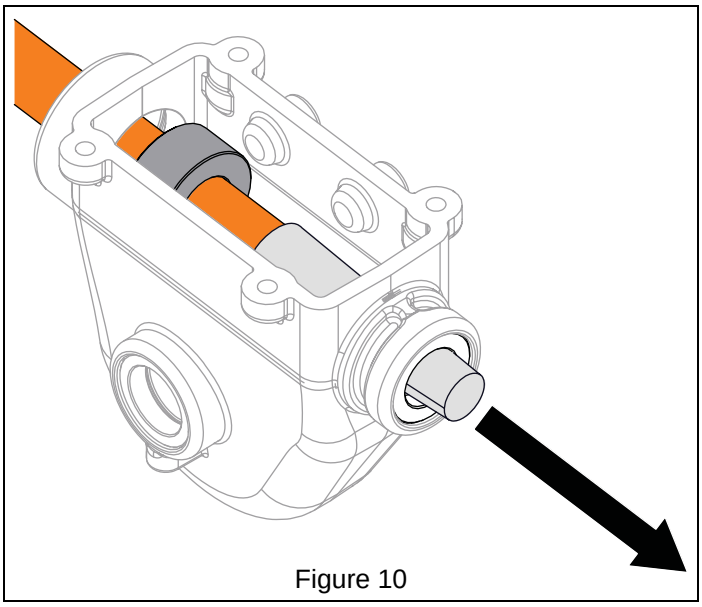


Figure 10

See Figure 11.

6. Reinstall pin into impeller shaft. Turn shaft so pin is horizontal.
7. Reinstall thrust collar over pin and position impeller shaft as far to gearcase rear as possible.

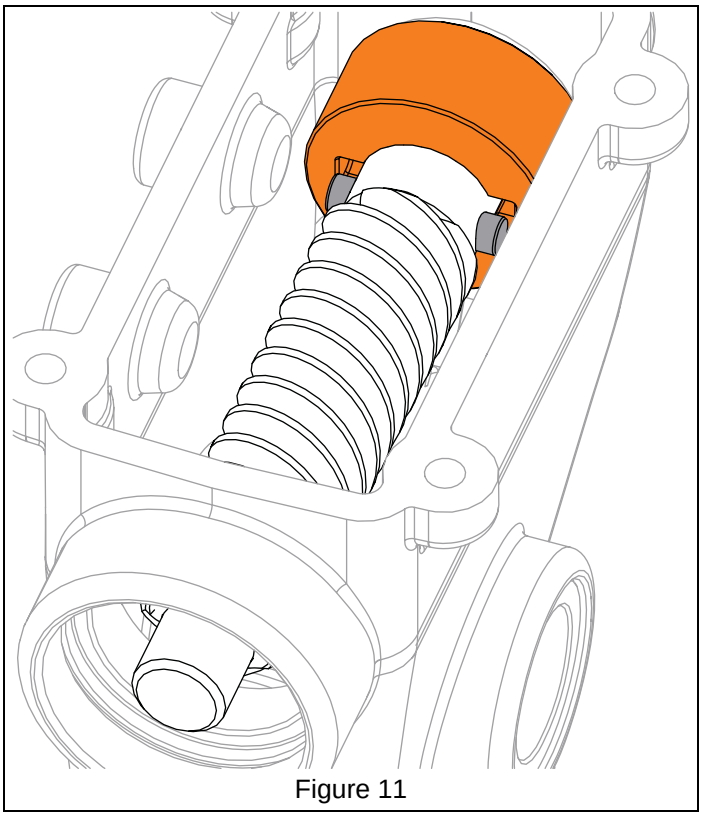


Figure 11

8. Reinstall flange bushing onto impeller shaft end. With a driver, strike bushing until positioned just below retaining ring groove. See Figure 12.

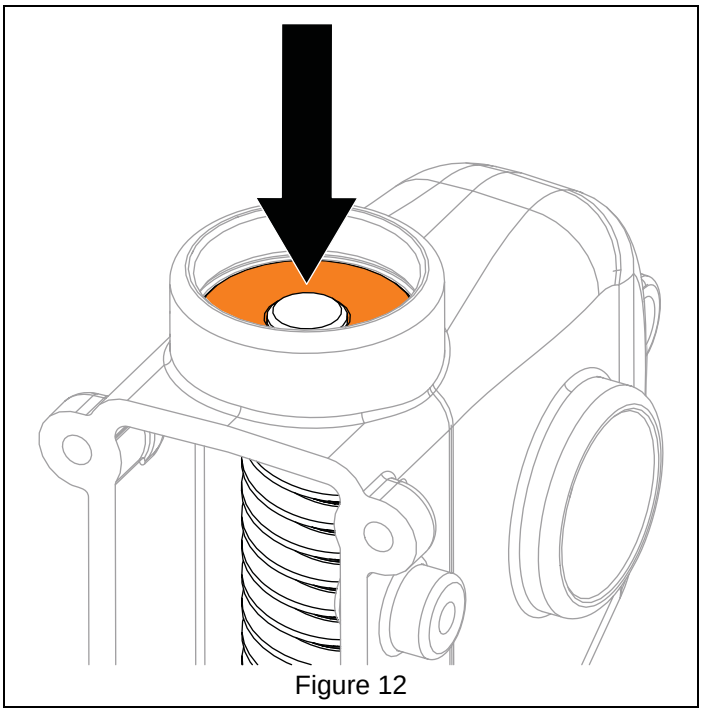


Figure 12

9. Reinstall retaining ring. See Figure 13.

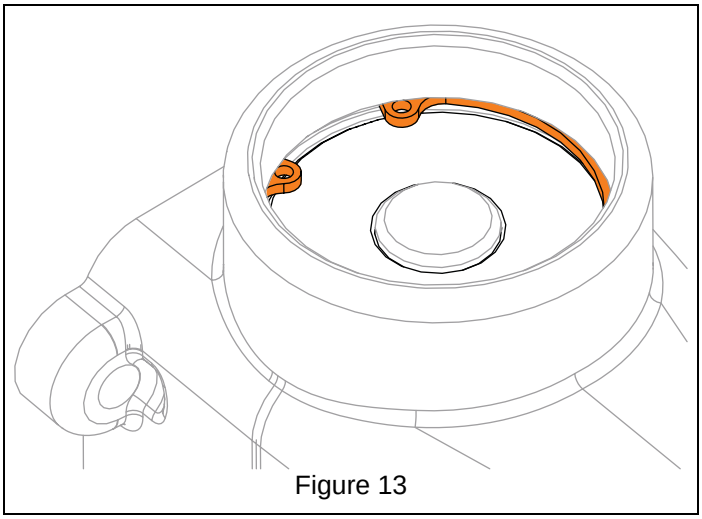


Figure 13

10. Turn impeller shaft by hand to make sure shaft rotates easily.

See Figure 14.

11. Reinstall one flat steel washer into left side of gearcase.
12. Align washer with gearcase hole and reinstall auger shaft through gear.

IMPORTANT: Make sure auger shaft key aligns with gear keyway.

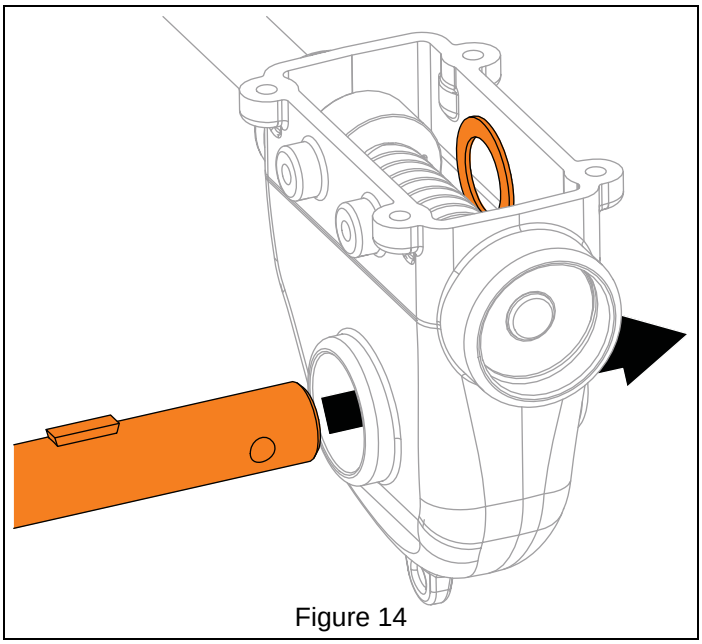


Figure 14

See Figure 15.

13. Reinstall one flat steel washer and bushing onto right auger shaft end.

IMPORTANT: Stepped-down side of bushing MUST be positioned toward gearcase.

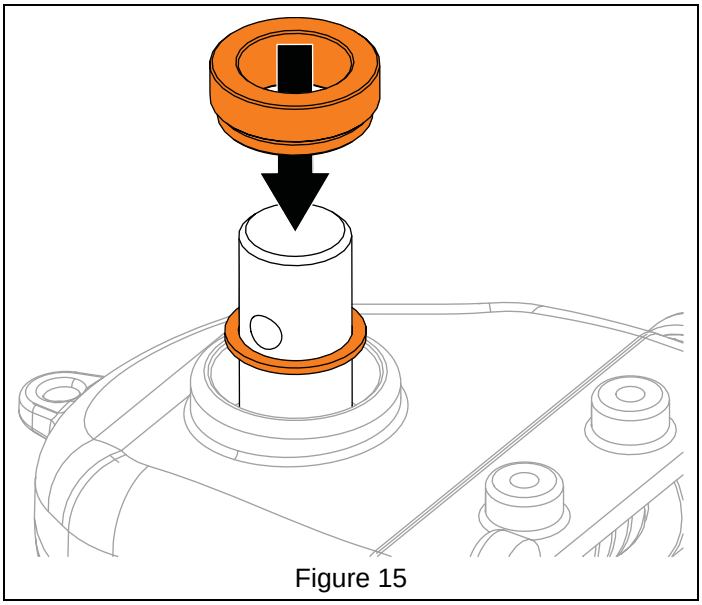


Figure 15

14. With a driver, such as a 1 1/4” deep-well socket, drive bushing into gearcase until groove is just beyond interior gearcase wall. See Figure 16.

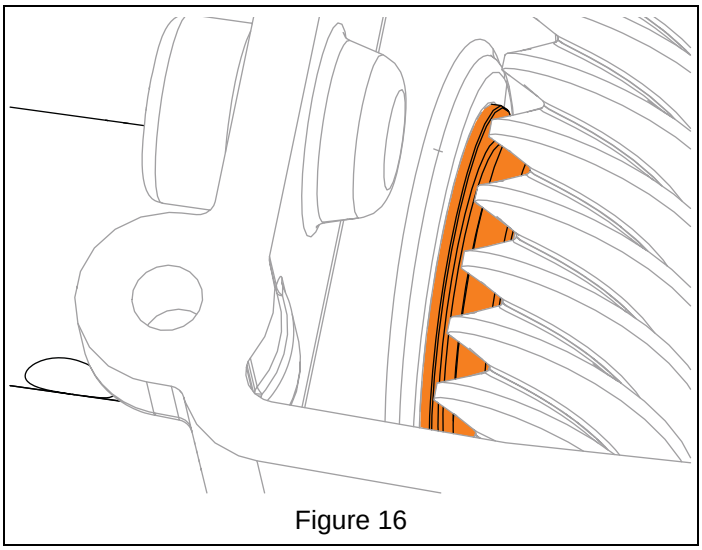


Figure 16

See Figure 17.

15. Wrap seal protector around each auger shaft end so they cover the shear bolt holes.

NOTICE: Unprotected seals can be damaged when installed over rough edges in shaft, such as holes.

16. Install gearcase seals over seal protectors and press into gearcase until each seal is flush with gearcase exterior.
17. Remove seal protectors.

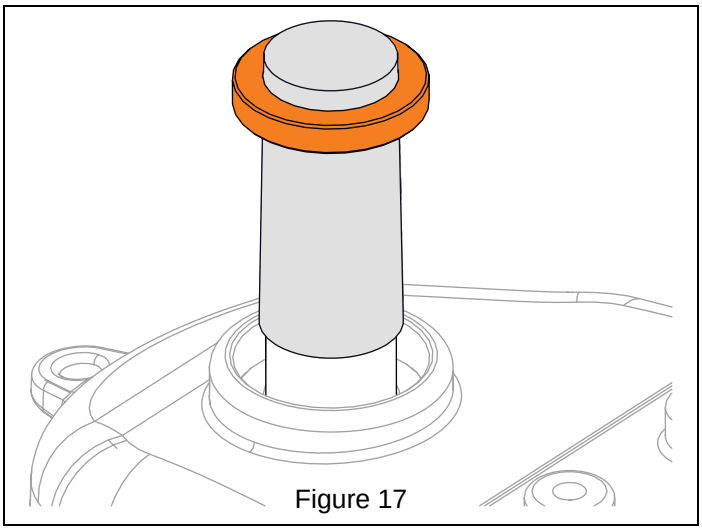


Figure 17

18. Turn auger shaft by hand to make sure shaft rotates easily.
19. Reinstall bushing retainer into flange bushing groove. See Figure 18.

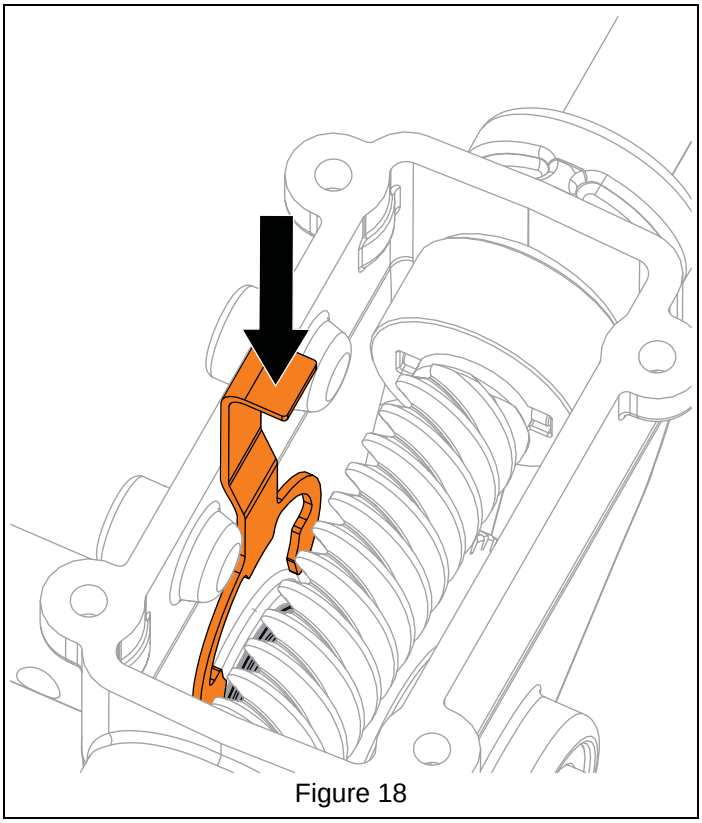


Figure 18

See Figure 19.

20. Reinstall gearcase gasket.
21. Secure cover to gearcase with four external tooth locking washer bolts.

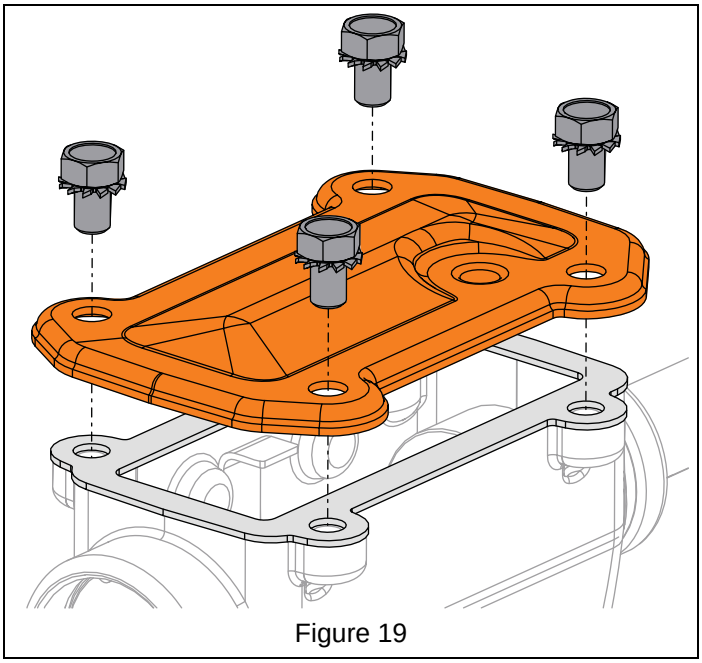


Figure 19

See Figure 20.

22. Press a new front cover into gearcase.
23. Add gearcase oil. Oil level MUST be 6.1 cm – 6.7 cm (2.4" – 2.6") from the flat surface of the gearcase cover.

IMPORTANT: Ariens recommends using only Ariens L3 synthetic severe duty gear lube. Using other lubricants will not automatically void unit warranty, but the warranty will not cover damage caused by using unauthorized lubricants. Refer to the Operator's Manual for your unit for the service part numbers.

24. Reinstall seal washer (rubber side down) and oil fill plug. Torque to 9 N•m (80 lb-in). DO NOT over-torque.

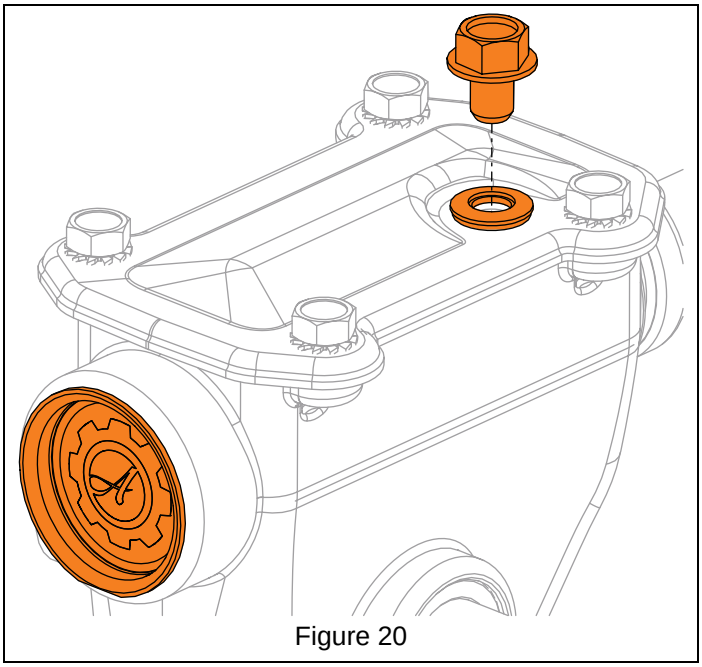


Figure 20

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