



# Operation & Maintenance Manual

## Three-Point Tiller



**3PT Tiller 48 S/N: B64200101 & Above**

**3PT Tiller 60 S/N: B64300101 & Above**

**3PT Tiller 72 S/N: B64400101 & Above**





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## MANUFACTURER

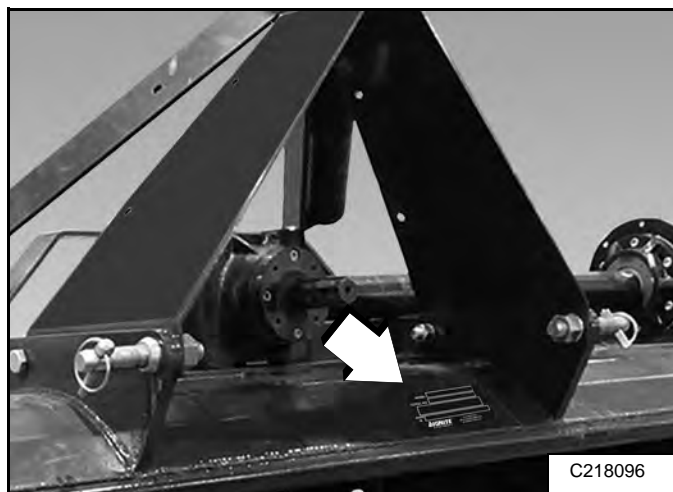
### North America

Ignite Attachments  
2741 20th Avenue South  
Moorhead, MN 56560

## SERIAL NUMBER LOCATION

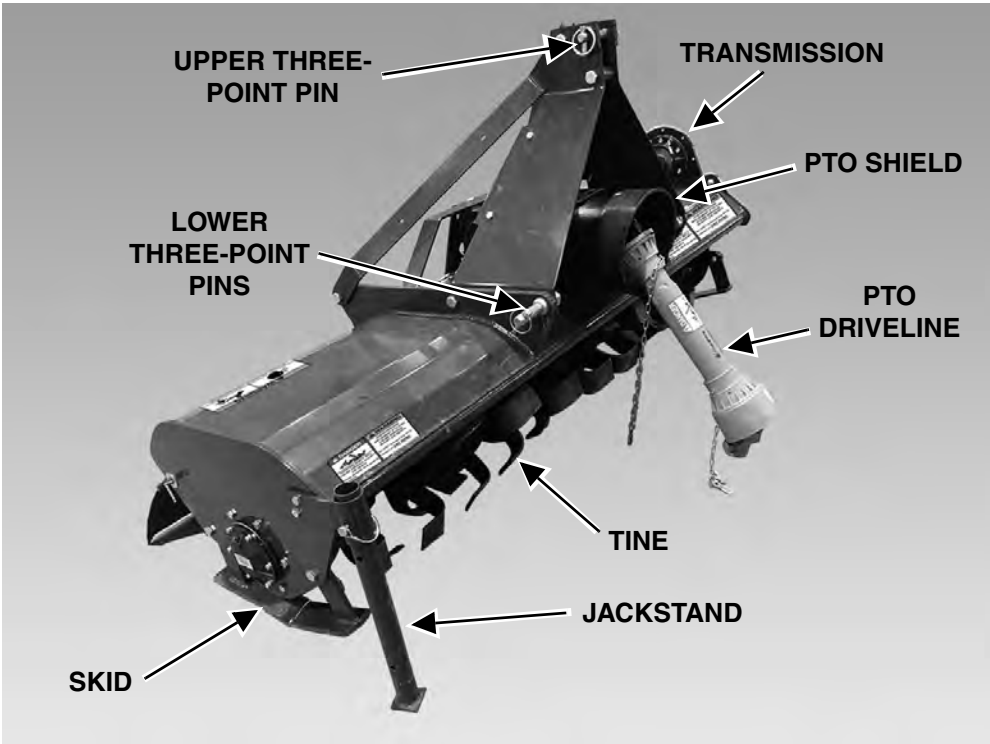
### Implement Serial Number

**Figure 1**

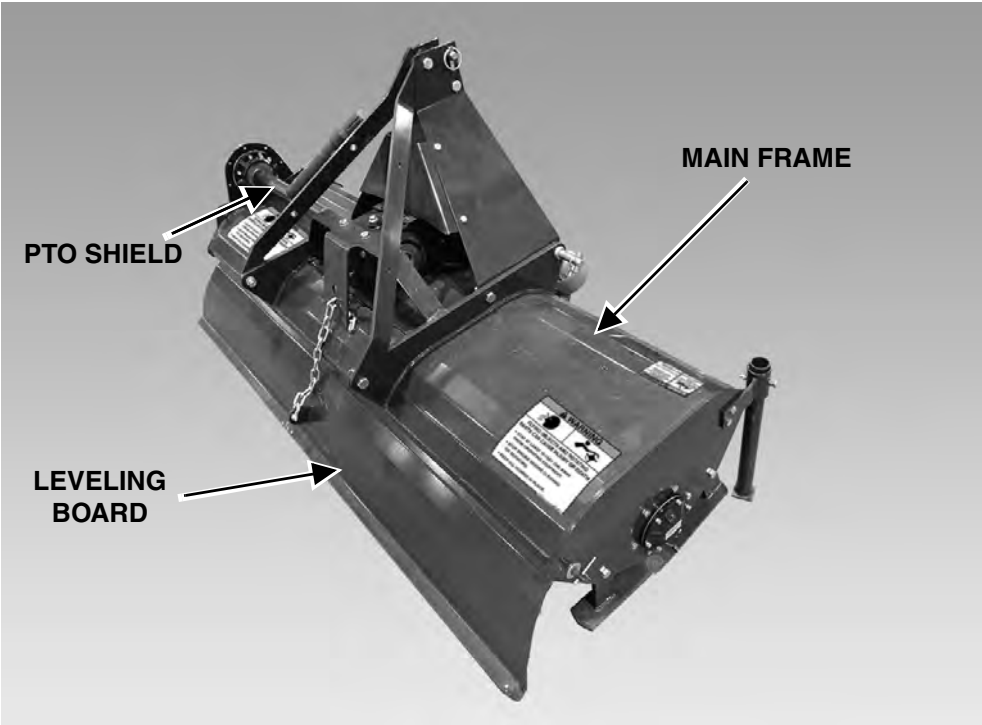


Always use the serial number of the three-point tiller when requesting service information or when ordering parts. Earlier or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 1]**.

IMPLEMENT IDENTIFICATION



P142012



P142013



## **FEATURES AND ACCESSORIES**

### **Standard Items**

The three-point tiller is equipped with the following standard items.

- Category 1 Three-Point Mounting Frame.
- PTO - Driveline And Plastic Guards.
- PTO Driveline Equipped With A Slip Clutch.
- Adjustable And Replaceable Depth Skids.
- Gear Drive.
- Equipped With Jack Stand.
- Adjustable Leveling Board.



## **SAFETY & TRAINING RESOURCES**

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## SAFETY INSTRUCTIONS

### Safe Operation Is The Operator's Responsibility



The signal word **DANGER** on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

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The signal word **WARNING** on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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This notice identifies procedures which must be followed to avoid damage to the machine.

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The machine and implement must be in good operating condition before use.

Check all of the items on the Service Schedule decal (if equipped) in the Every 10 Hours section or as shown in the Operation & Maintenance Manual.

### Safe Operation Needs A Qualified Operator

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.

## Use Safety Rules

- Read and follow instructions in the machine and the implement's Operation & Maintenance Manual before operating.
- Check for underground lines before operating implement (if applicable).
- In addition to the design and configuration of equipment, hazard control, and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.
- Check that the implement is securely fastened to the machine.
- Make sure all the machine controls are in the neutral position before starting the machine.
- Operate the implement only from the operator's position.
- Operate the implement according to the Operation & Maintenance Manual.
- When learning to operate the implement, do it at a slow rate in an area clear of bystanders.
- DO NOT permit personnel to be in the work area when operating the machine and implement.
- The implement must be used ONLY on approved machines. Visit [igniteattachments.com](http://igniteattachments.com) for an updated list of approved implements for each machine model.
- DO NOT modify equipment or add implements that are not approved by the manufacturer.
- DO NOT make any adjustments or repairs on the machine or implement while the engine is running.
- Keep shields and guards in place. Replace if damaged.

## Call Before You Dig



Dial 811 (USA Only)

1-888-258-0808 (USA & Canada)

When you call, you will be directed to a location in your state / province / city for information about buried lines (telephone, cable TV, water, sewer, gas, etc.).

## Avoid Silica Dust



Silica dust can cause lung disease and is known to the state of California to cause cancer.

Cutting or drilling concrete containing sand or rock containing quartz may result in exposure to silica dust.

Do not exceed Permissible Exposure Limits (PEL) to silica dust as determined by OSHA or other job site Rules and Regulations. Use a respirator, water spray, or other means to control dust.

## Safety Rules For Power Take-Off (PTO) Driven Implements

- Keep power take-off (PTO) shields and all guards in place. Replace damaged or missing shields and guards before operating.
- Follow warnings and instructions on machine signs (decals). Replace damaged or missing decals.
- Do not wear loose or bulky clothing around the PTO or other moving parts.

- Keep bystanders away from PTO driven equipment, and never allow children near machines.
- Read and understand manuals for the PTO driven equipment and be aware of safe operating procedures and hazards that may not be readily apparent.
- Always walk around equipment to avoid coming near a turning PTO driveline. Stepping over, leaning across or crawling under a turning PTO driveline can cause entanglement.
- Position the machine and attachment hitch correctly to prevent driveline stress and separation.
- Use caution when turning. Turning too sharp can cause driveline damage.
- Use caution when raising PTO driven attachment. Excessive driveline angle can cause driveline damage. Use stops if needed.

## Machine Requirements And Capabilities

- Fasten seat belt securely when ROPS is up and locked. DO NOT wear seat belt if ROPS is down.
- The machine must be equipped with sway bars or chains.
- Stop the machine and engage the parking brakes. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the implement securely before working under raised implements.
- Keep bystanders clear of moving parts and the work site. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the machine flashing warning lights and follow all local regulations.
- Operate this equipment with approved ROPS. Always wear seat belt when the ROPS is up. Serious injury or death could result from falling off the machine.

- Before leaving the machine operator's seat:
  1. Park on flat level ground.
  2. Fully lower the loader arms and put the attachment flat on the ground (if equipped).
  3. Fully lower the three-point hitch or mid-mount implements (if equipped).
  4. Lock brake pedals together (if equipped) and engage the parking brake.
  5. Place all controls in neutral.
  6. Stop the engine, unfasten seat belt and remove the key.
- Never allow riders on the machine or implement. Falling off can result in serious injury or death.
- Start the machine only when properly seated in the operator's seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and attachments / implements from the operator's position only.
- Add the correct front ballast for rear three-point hitch implements and pull type implements. Add the correct rear ballast when using the loader and attachments. Contact your Ignite Attachments representative for available ballast options.
- Do not handle large objects (such as round bales or posts) unless the loader is equipped with the proper attachments and the load is secured.
- The parking brake must be engaged before leaving the machine operator's seat. Rollaway can occur because the transmission may not prevent machine movement. Lock the brake pedals together (if equipped) before activating the parking brake.

## FIRE PREVENTION



## Maintenance

The machine and some attachments have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

The operator's area, engine compartment, and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.

All fuels, most lubricants, and some coolants mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

## Operation

Do not use the machine where exhaust, arcs, sparks, or hot components can contact flammable material, explosive dust, or gases.

## Electrical



Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

Battery gas can explode and cause serious injury. Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

## Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

## Fueling



Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Ultra Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations with higher sulfur content. Avoid death or serious injury from fire or explosion. Consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

## Starting

Do not use ether or starting fluids on any engine that has glow plugs or an air intake heater. These starting aids can cause explosion and injure you or bystanders.

Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting.

## Spark Arrester Exhaust System

The spark arrester exhaust system is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

Check the spark arrester exhaust system regularly to make sure it is maintained and working properly. Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrester muffler (if equipped).

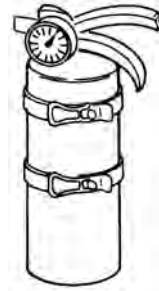
## Welding And Grinding

Always clean the machine and implement, disconnect the battery, and disconnect the wiring from the Ignite Attachments controllers before welding. Cover rubber hoses, battery, and all other flammable parts. Keep a fire extinguisher near the machine when welding.

Have good ventilation when grinding or welding painted parts. Wear a dust mask when grinding painted parts. Toxic dust or gas can be produced.

Dust generated from repairing nonmetallic parts such as hoods, fenders, or covers can be flammable or explosive. Repair such components in a well-ventilated area away from open flames or sparks.

## Fire Extinguishers



Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.



## PUBLICATIONS AND TRAINING RESOURCES

The following publications are also available for your Ignite Attachments machine. Access them online at [igniteattachments.com](http://igniteattachments.com).



### OPERATION & MAINTENANCE MANUAL

7495899enUS

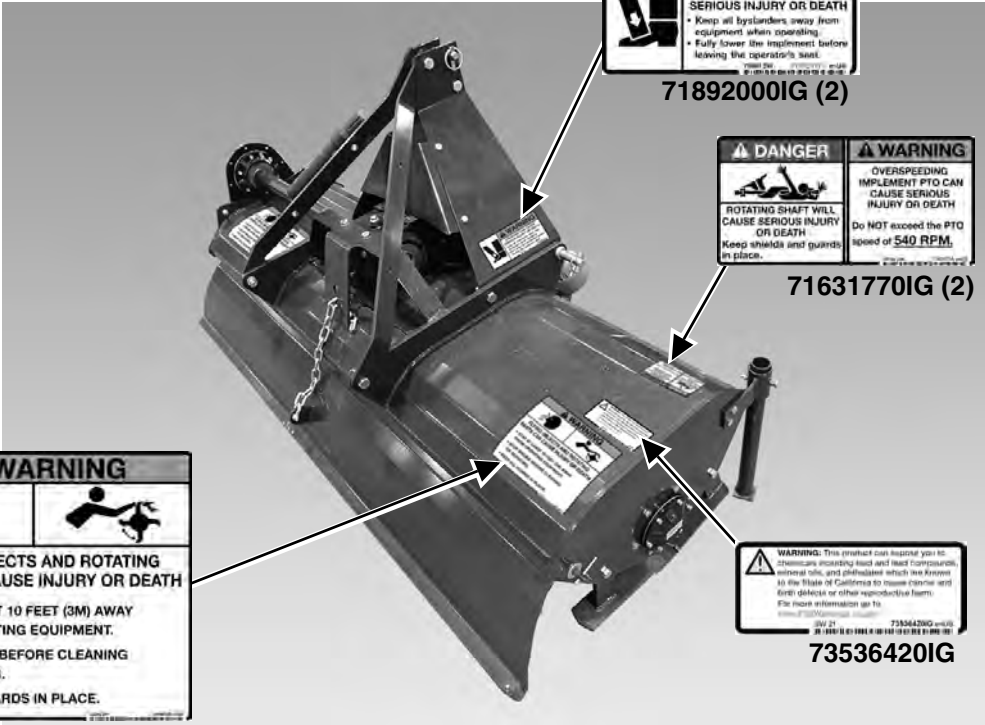


### ADMA SAFETY MANUAL

69047590IG

For the latest information on Ignite Attachments products and the Ignite Attachments Company, visit our website at [igniteattachments.com](http://igniteattachments.com).

IMPLEMENT SIGN (DECALS)



**WARNING**  
CRUSHING CAN CAUSE  
SERIOUS INJURY OR DEATH  
• Keep all bystanders away from  
equipment when operating.  
• Fully lower the implement before  
leaving the operator's seat.

71892000IG (2)

**DANGER**  
ROTATING SHAFT WILL  
CAUSE SERIOUS INJURY  
OR DEATH  
Keep shields and guards  
in place.

**WARNING**  
OVERSPEEDING  
IMPLEMENT PTO CAN  
CAUSE SERIOUS  
INJURY OR DEATH  
Do NOT exceed the PTO  
Speed of 540 RPM.

71631770IG (2)

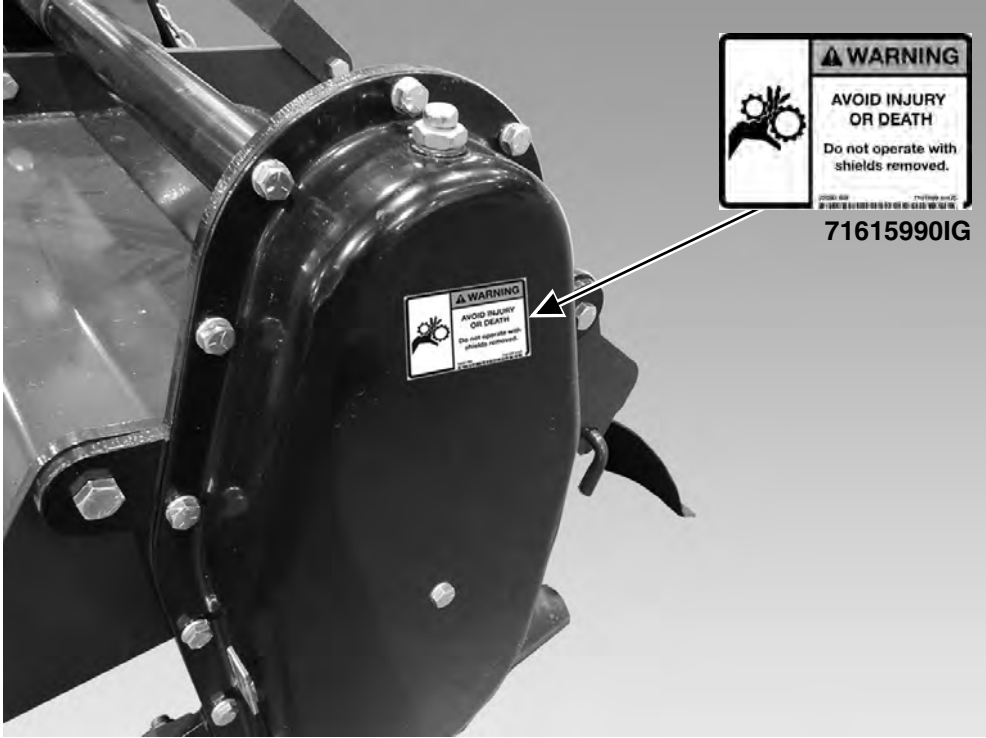
**WARNING**  
FLYING OBJECTS AND ROTATING  
PARTS CAN CAUSE INJURY OR DEATH  
• STAY AT LEAST 10 FEET (3M) AWAY  
FROM OPERATING EQUIPMENT.  
• STOP ENGINE BEFORE CLEANING  
OR SERVICING.  
• KEEP ALL GUARDS IN PLACE.

67088220IG (2)

**WARNING** This product can injure you or  
others. Read and understand the operator's manual,  
safety rules, and precautions which are located  
in the State of California to insure proper and  
safe operation of this equipment.  
For more information go to:  
www.73536420IG.com  
73536420IG (2)

73536420IG

C218097



**WARNING**  
AVOID INJURY  
OR DEATH  
Do not operate with  
shields removed.

71615990IG

**WARNING**  
AVOID INJURY  
OR DEATH  
Do not operate with  
shields removed.

P142057

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## ASSEMBLING THE TILLER

### Tools Required:

- Tin Snips
- Socket and Wrenches: 9/16", 3/4", 15/16", and 1-1/4". (Impact wrench is preferred)

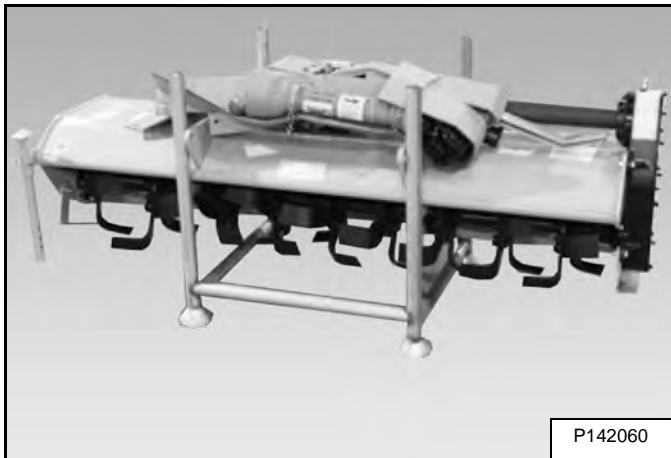
## WARNING

Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

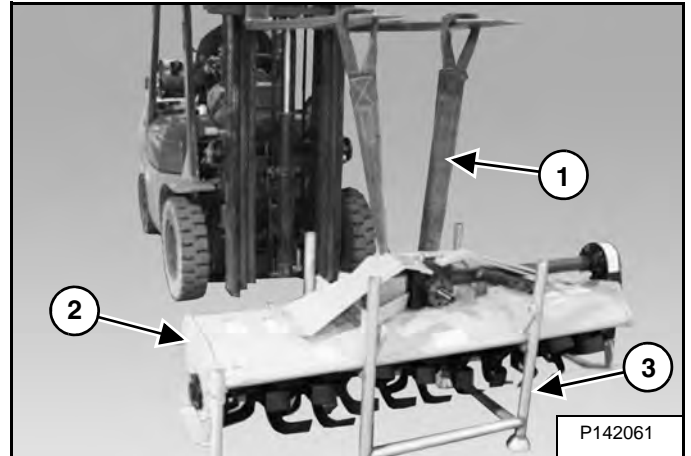
Figure 2



Place tiller shipping rack on flat, level surface [Figure 2].

Remove shipping straps and remove parts fastened to tiller [Figure 2].

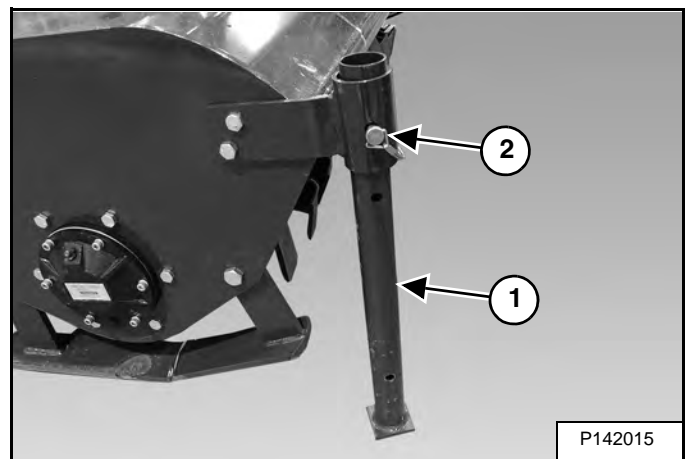
Figure 3



Attach properly rated lifting device to tiller gearbox mounting frame (Item 1) [Figure 3].

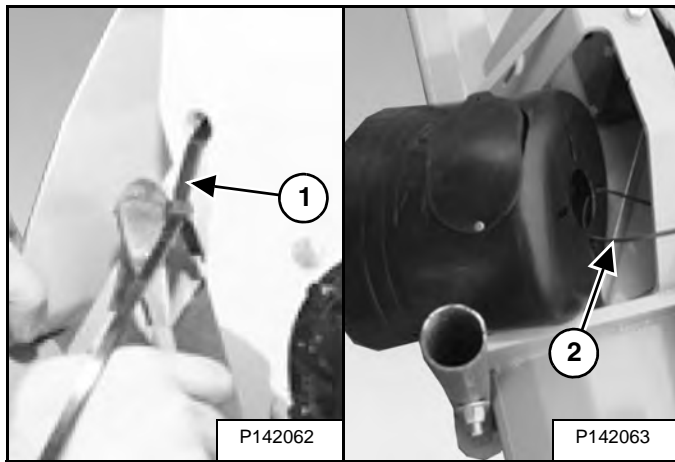
Carefully lift tiller (Item 2) from shipping rack (Item 3) [Figure 3].

Figure 4



Before setting tiller on the ground, adjust storage stand (Item 1). Remove storage stand pin (Item 2) [Figure 4] and adjust storage stand height so tiller will sit level for assembly. Reinstall storage stand pin.

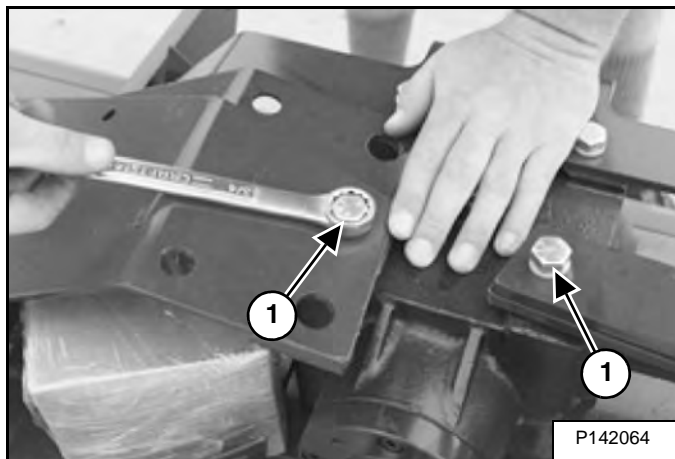
**Figure 5**



Remove tie straps (Item 1) from skids (both sides) and PTO guard (Item 2) **[Figure 5]**.

Place tiller on flat, level surface for assembly and remove the lifting device.

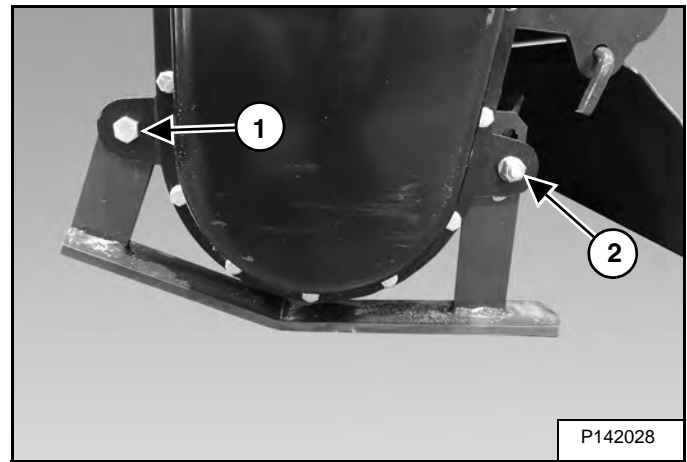
**Figure 6**



Remove “A”-arm plates and rear braces retaining bolts (Item 1) **[Figure 6]** and discard.

Remove “A”-arm plates and rear braces, boxed hardware, PTO shield, and two bushings **[Figure 6]**.

**Figure 7**

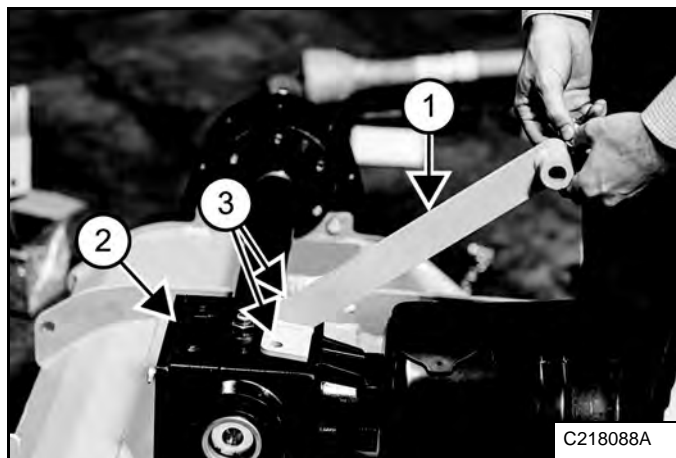


Loosen front skid plate bolt (both sides) (Item 1) **[Figure 7]**.

Insert 0.5 (in) x 1.5 (in) bolt (Item 2) **[Figure 7]** into back adjustment holes. Install lock nut onto bolt.

Tighten skid plate retaining hardware (both sides).

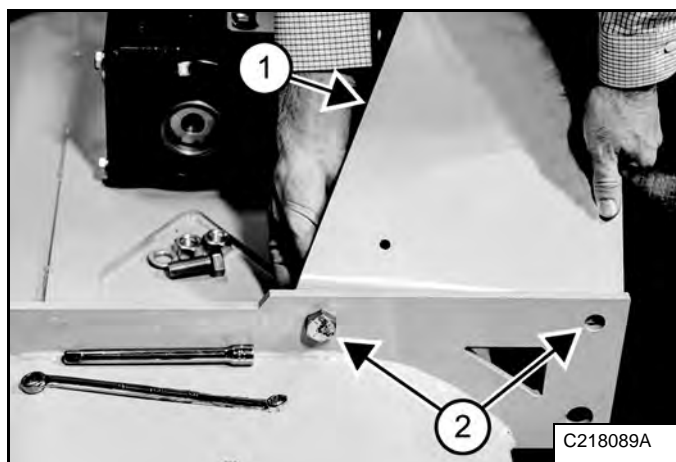
**Figure 8**



**NOTE:** Do not fully tighten retaining hardware at this time.

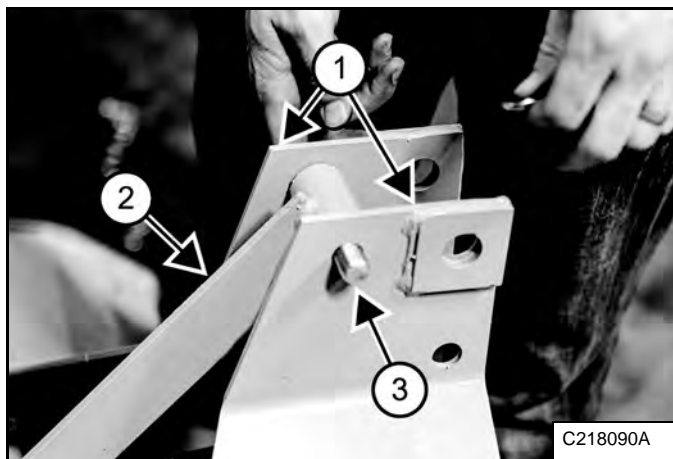
Attach the top link support (Item 1) to the top of the gearbox (Item 2) using the provided 0.50 (in) x 0.75 (in) bolt and split washers (Item 3) [Figure 8] (both sides).

**Figure 9**



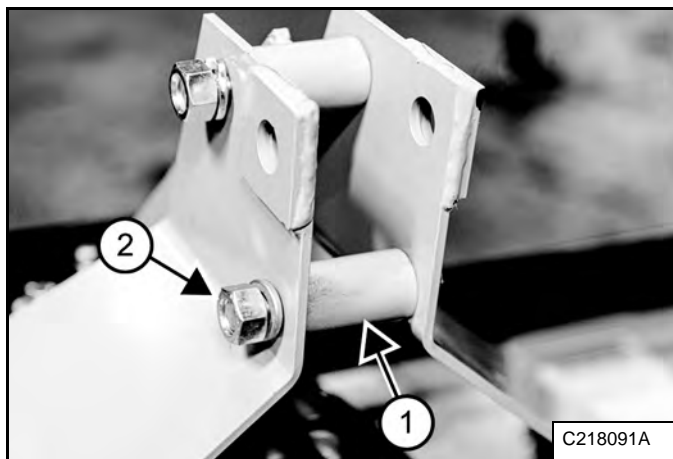
Attach "A"-arm plate (Item 1) on the inside of the deck brace using the provided 0.63 (in) x 1.75 (in) bolt and split washers (Item 2) [Figure 9] (both sides).

**Figure 10**



Attach the right and left "A"-arms (Item 1) to the top link support (Item 2) using the 0.63 (in) x 3.5 (in) hex bolt, lock washer, and nut (Item 3) [Figure 10].

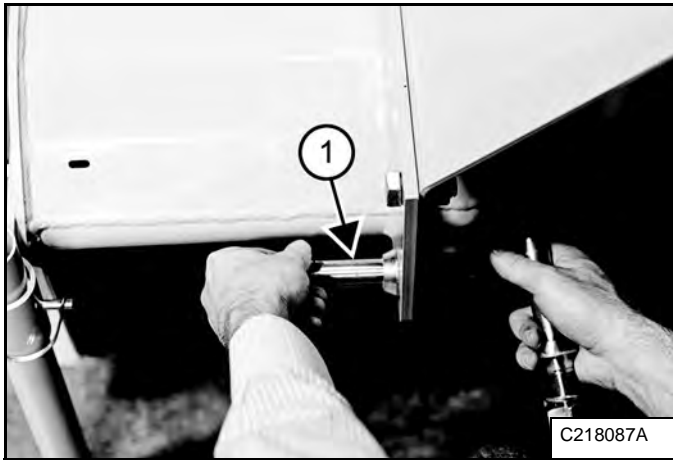
**Figure 11**



Position the quick attach spacer (Item 1) between front lower "A"-arm plate holes and install 0.63 (in) x 3.5 (in) hex bolt, lock washer, and nut (Item 2) [Figure 11].

Tighten the mounting hardware.

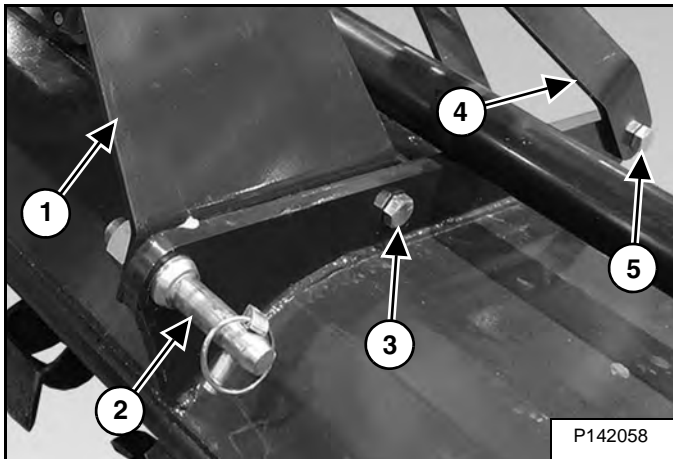
**Figure 12**



Position the lift pin (Item 1) [Figure 12] in the lower deck brace hole and tighten (both sides).

*The Following steps are for the 3PT TILLER 60 and 3PT Tiller 72*

**Figure 13**

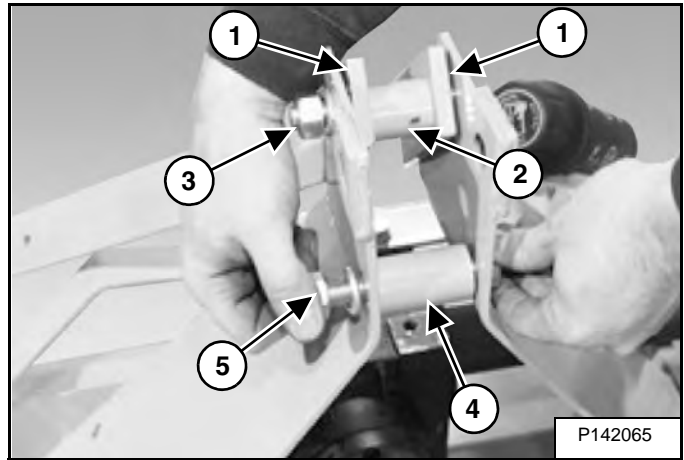


**NOTE: Do not fully tighten retaining hardware at this time.**

Attach "A"-arm plate (Item 1) to tiller deck bracing using Category 1 pin (Item 2) and provided 0.63 (in) x 2.0 (in) bolt and nut (Item 3) [Figure 13] (both sides).

Attach rounded end of brace (Item 4) to outside of rear tiller deck bracing using provided 0.63 (in) x 2.0 (in) bolt and nut (Item 5) [Figure 13] (both sides).

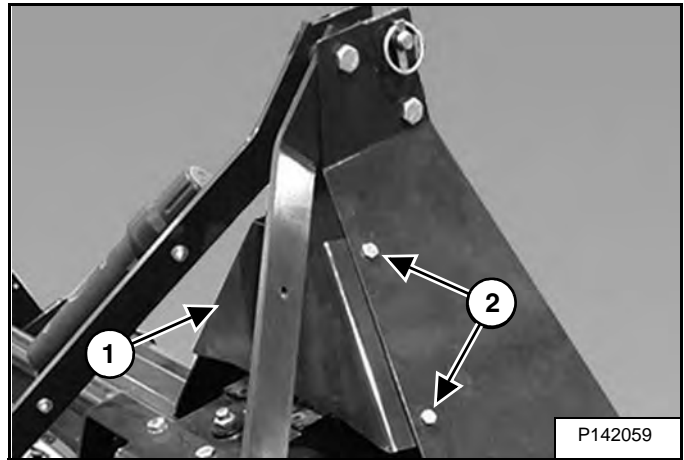
**Figure 14**



Position the square end of rear braces (Item 1) to the inside of "A"-arm plates. Place 1.5 (in) spacer (Item 2) between rear braces and install 0.63 (in) x 4.0 (in) hex bolt and nut (Item 3) [Figure 14].

Position 2.25 (in) spacer (Item 4) between front lower "A"-arm plate holes and install 0.63 (in) x 4.0 (in) hex bolt and nut (Item 5) [Figure 14].

**Figure 15**



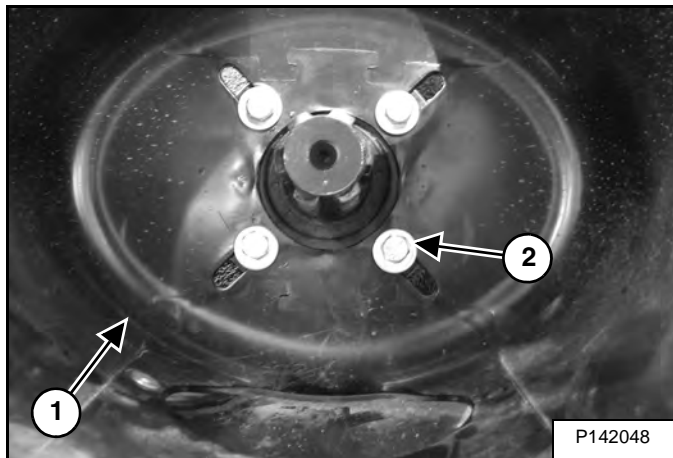
Attach PTO shield (Item 1) to "A"-arm plates using 0.25 (in) x 0.75 (in) bolts and nuts (Item 2) [Figure 15] (both sides).

**NOTE: PTO shield is not present on 48" tiller.**

Tighten all mounting hardware to correct torque.

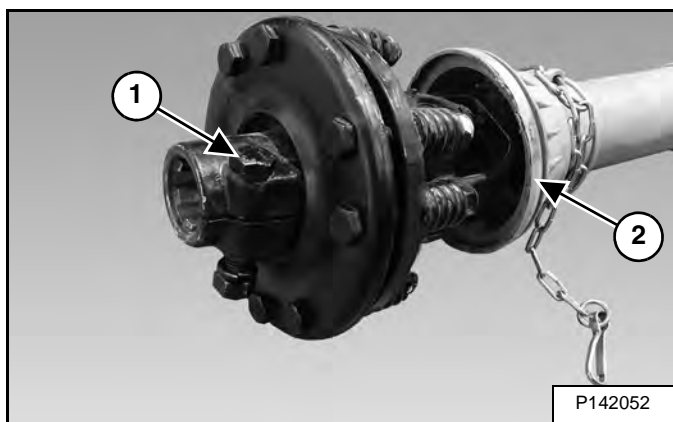


Figure 16



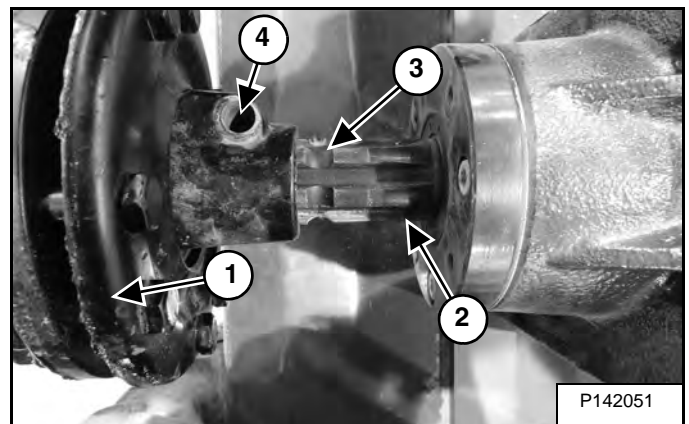
Install the PTO guard (Item 1) onto gearbox. Fasten with four bolts (Item 2) [Figure 16] loosely. Center the PTO guard on the shaft, tighten the four bolts.

Figure 17



Remove the bolt, washer and nut (Item 1) from the PTO driveline (Item 2) [Figure 17].

Figure 18

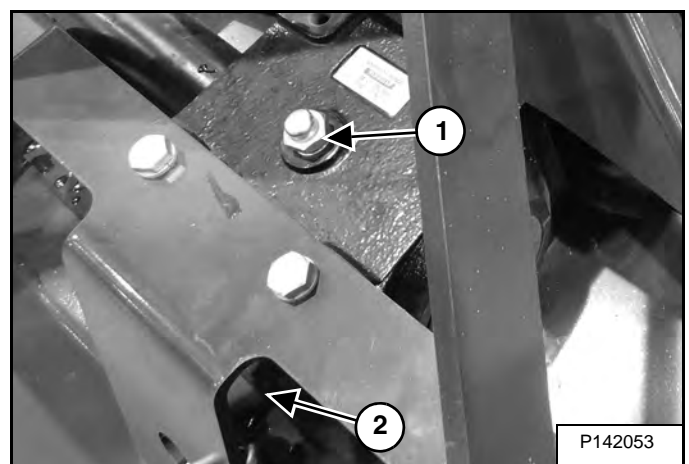


Install the PTO driveline (Item 1) onto the gearbox shaft (Item 2). Align the groove on the shaft (Item 3) with the mounting hole (Item 4) [Figure 18] for the PTO driveline. Install bolt, washer and nut (Item 1) [Figure 17] and tighten.

**NOTE:** Place tiller on the ground so the gear box and the transmission is level with the ground.

*Gearbox Oil Plug / Breather Valve*

Figure 19



Loosen and remove the plug / breather valve (Item 1) [Figure 19] from the gearbox.

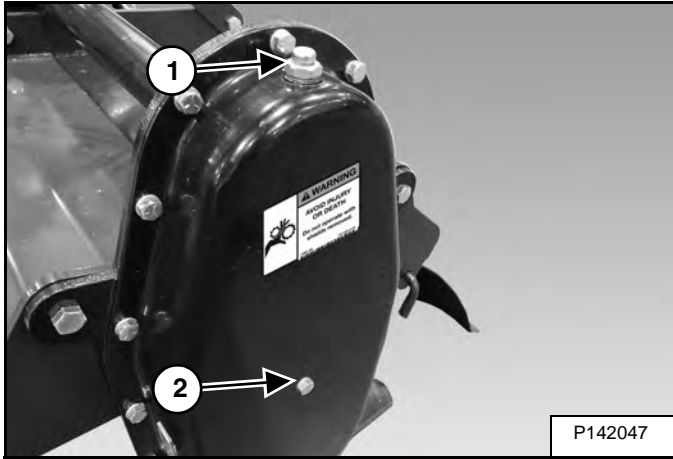
Loosen and remove the check plug (Item 2) [Figure 19] from the gearbox.

Fill the gearbox using 80W90 oil until oil begins to flow out from the check plug (Item 2) [Figure 19].

Replace and tighten the check plug (Item 2) [Figure 19].

Replace and tighten the plug / breather valve (Item 1) [Figure 19].

**Figure 20**



Loosen and remove the plug / breather valve (Item 1) **[Figure 20]** from the transmission.

Loosen and remove the check plug (Item 2) **[Figure 20]** from the transmission.

Fill the transmission using 80W90 oil until oil begins to flow out from the check plug (Item 2) **[Figure 20]**.

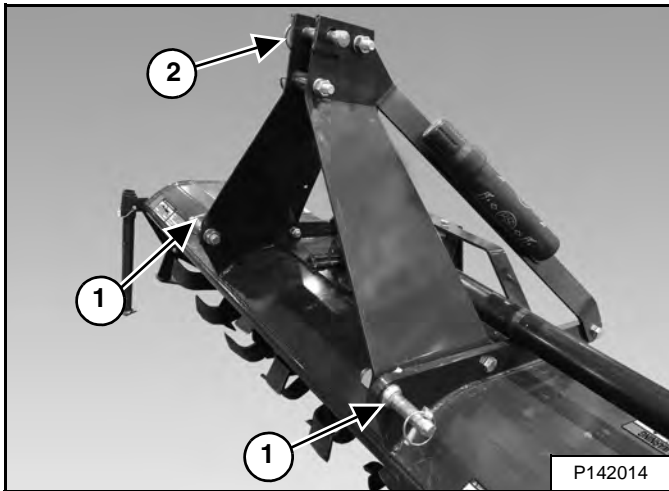
Replace and tighten the check plug (Item 2) **[Figure 20]**.

Replace and tighten the plug / breather valve (Item 1) **[Figure 20]**.

## DAILY INSPECTION

### Implement Mounting Frame

Figure 21



Inspect the lower implement mounts (Item 1) and upper mount (Item 2) [Figure 21], and all welds on the implement for wear and damage each time the implement is removed from the machine.

Check the following items at the start of a work day:

- Check for damaged or missing decals. Replace if necessary.
- Replace any worn or damaged parts and hardware immediately.

### Three-Point Hitch

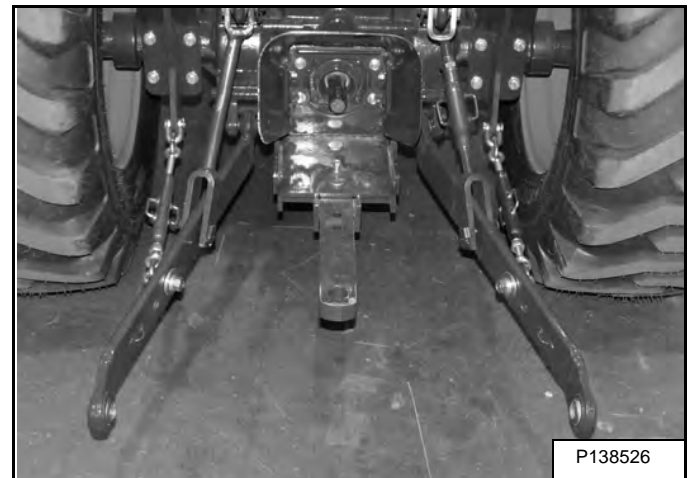
See your machine Operation & Maintenance Manual for detailed information on inspecting three-point hitch.

## **WARNING**

Failure to follow instructions can cause serious injury or death.

The parking brake must be engaged before leaving the operator's seat. Rollaway can occur because the transmission may not prevent machine movement. Lock the brake pedals together (if equipped) before activating the parking brake.

Figure 22



Inspect the three-point hitch linkage, PTO shaft splines, guards, and shields. Replace if damaged or missing [Figure 22]. Repair broken or loose parts.

## OPERATING PROCEDURE WITH COMPACT TRACTORS

### Approved Compact Tractor Models And Requirements

Figure 23

	3PT TILLER 48	3PT TILLER 60	3PT TILLER 72
Tractor HP	15 - 35	25 - 50	30 - 55

The chart [Figure 23] shows the approved tiller models for compact tractors based on horsepower.

Warranty on this implement is void if used on a non-approved carrier. Contact your Ignite Attachments representative for a current list of compatible carriers.

## WARNING

Use of unapproved attachments, implements or improperly sized attachments can cause serious injury or death.

Attachments, implements and buckets for safe loads of specified densities are approved for each model. Never use attachments, implements or buckets which are not approved by Ignite Attachments.

### Compact Tractor / Implement Setup

#### Setting Up The Ballast

Install the correct ballast on the compact tractor before installing the implement. See the compact tractor Operation & Maintenance Manual for ballast information.

### Entering And Exiting The Compact Tractor

## WARNING

Failure to follow instructions can cause serious injury or death.

Use ROPS and fasten the seat belt.

Install the correct ballast (if required).

Never modify equipment. Never use unapproved implements or attachments.

Operate the compact tractor from the operator's seat only.

Keep bystanders away. Never carry riders.

See the compact tractor Operation & Maintenance Manual for detailed instructions on entering and exiting the machine.

### Installing The Three-Point Implement

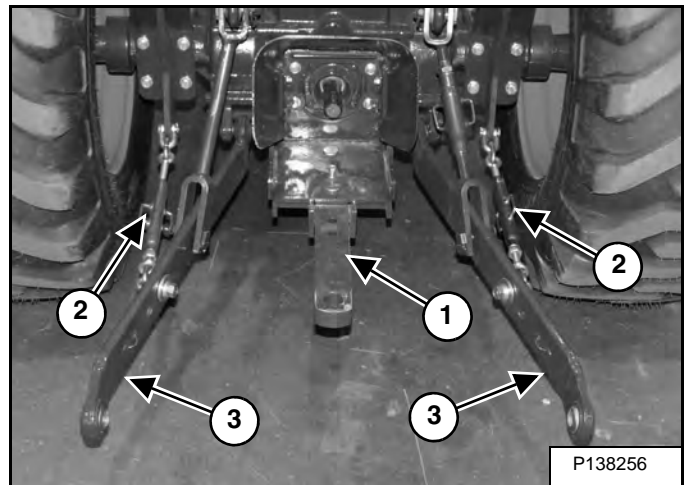
**NOTE:** Your machine and attachment and / or implement models may vary, but the procedure is the same. Always inspect the compact tractor three-point hitch and implement three-point mounting before installation. (See "Daily Inspection" on page 25.)

## WARNING

Failure to obey warnings can cause serious injury or death.

Obey all warnings on the machine and in the manuals.

Figure 24



Move the drawbar (Item 1) [Figure 24] to the storage position or remove (if necessary). See the compact tractor Operation & Maintenance Manual for detailed information.

The three-point hitch lower links must be set wide enough to clear the implement mounting pins.

Adjust the sway bars (Item 2) (both sides) to move the lower links (Item 3) [Figure 24] as needed.

See the compact tractor Operation & Maintenance Manual for detailed information on adjusting sway bars.

## **WARNING**

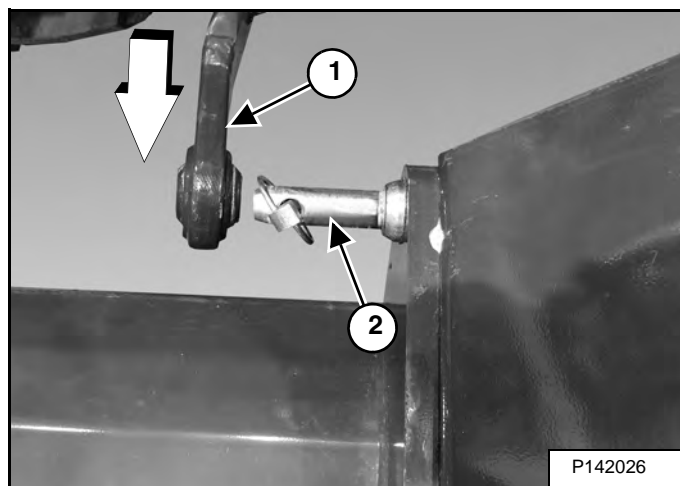
Contact with the machine can cause serious injury or death.

Before backing the machine, look in all directions and make sure no bystanders are in the work area. Do not allow anyone between the machine and the implement when backing up to the implement for installation.

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Start the engine and release the parking brake.

**Figure 25**



Drive the compact tractor to the implement and align the lower links (Item 1) with the implement lower mounting pins (Item 2) [Figure 25] (both sides).

Lower or raise the compact tractor's three-point hitch lower links (Item 1) until they are even with the lower mounting pins (Item 2) [Figure 25] (both sides) of the three-point implement.

See the compact tractor's Operation & Maintenance Manual for detailed information on operating the compact tractor.

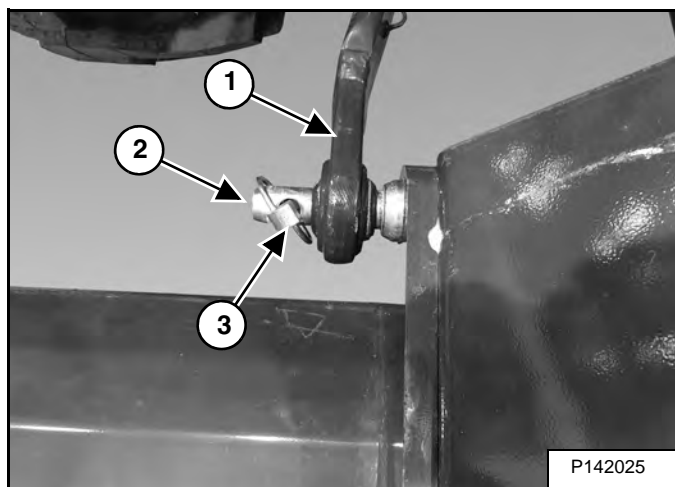
Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

## **WARNING**

Failure to follow instructions can cause serious injury.

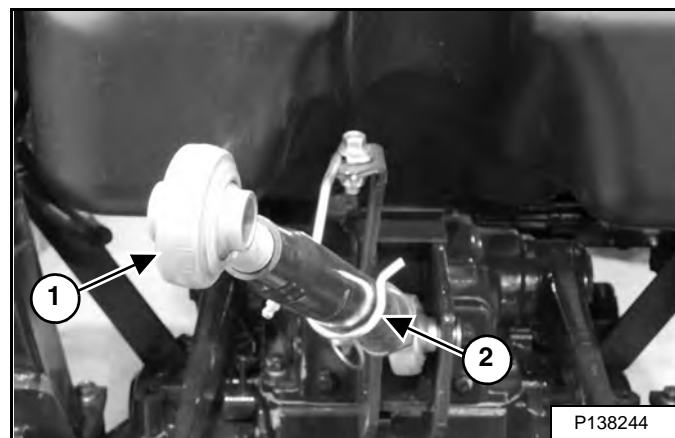
Keep fingers and hands out of pinch points when installing and removing implement or attachments.

**Figure 26**



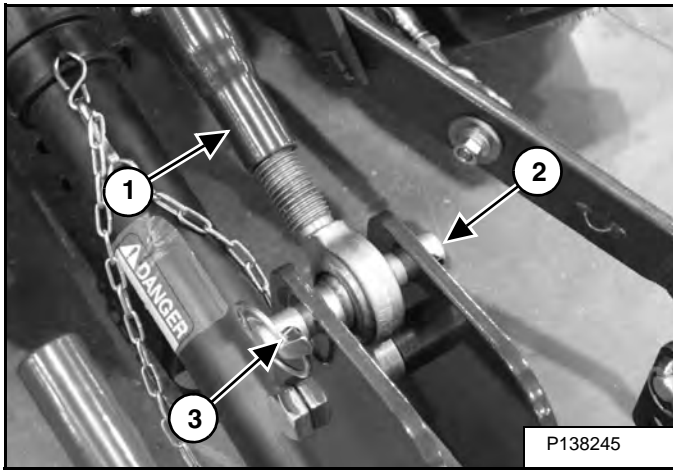
Install the lower link (Item 1) on the implement pin (Item 2) (both sides). Install the retainer pin (Item 3) [Figure 26] (both sides).

**Figure 27**



Remove the top link (Item 1) from the storage position bracket (Item 2) [Figure 27].

**Figure 28**



Lower the top link (Item 1) [Figure 28] until it aligns with the implement upper mounting hole.

Install the pin (Item 2) and retainer pin (Item 3) [Figure 28].

**NOTE:** It may be necessary to lengthen or shorten the top link to align it with the implement mounting hole [Figure 28]. (See Top Link Adjustment on Page 29.)

The implement can be leveled front to back by adjusting the top link. (See Top Link Adjustment on Page 29.)

The implement side to side sway will need to be adjusted. (See Sway Bar Adjustment on Page 29.)

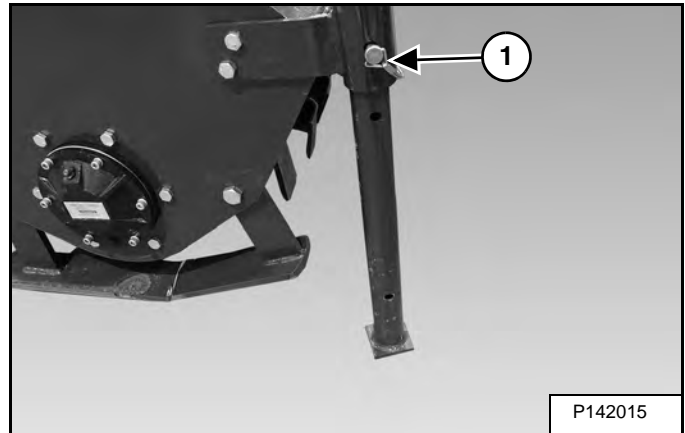
### *Raising The Storage Stand*

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.) Start the engine and release the parking brake.

Always park on flat level ground. Raise the three-point tiller slightly above the ground. (See the compact tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

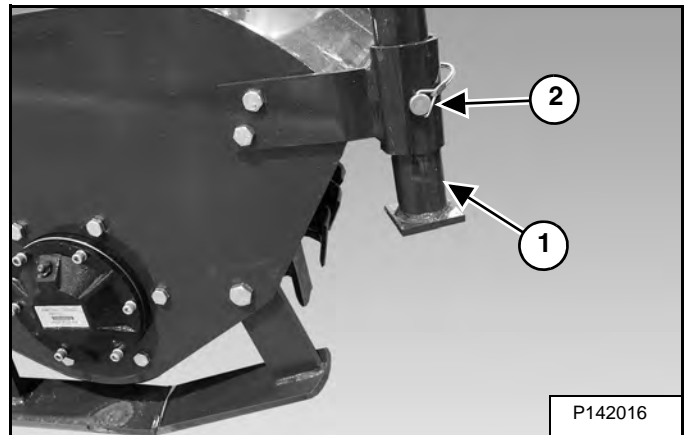
Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

**Figure 29**



Remove the retaining pin (Item 1) [Figure 29].

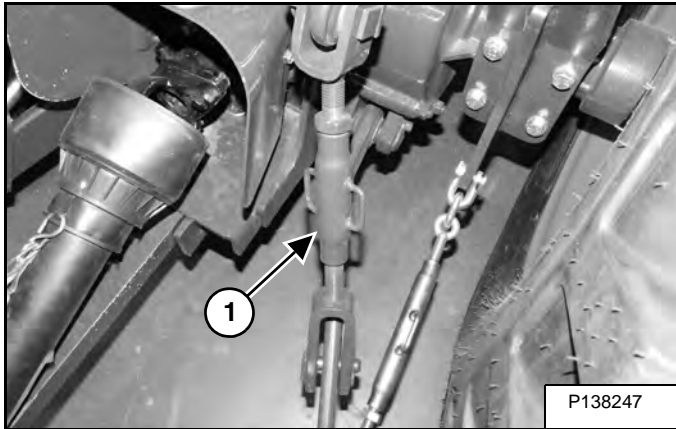
**Figure 30**



Raise the storage stand (Item 1). Align the holes and install the retaining pin (Item 2) [Figure 30].

### Lift Link Adjustment

**Figure 31**

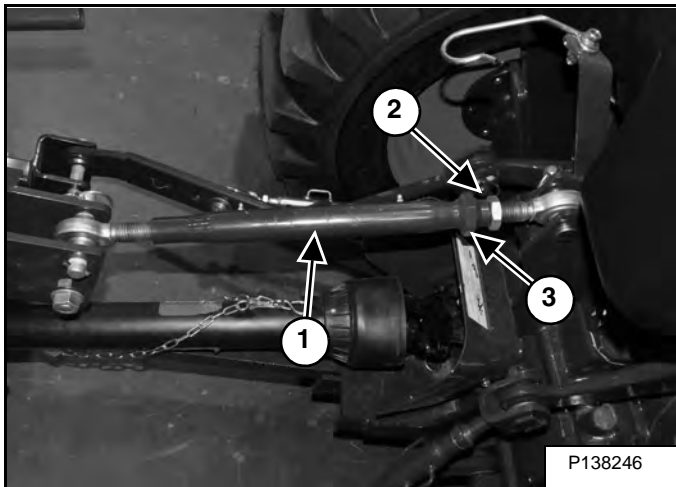


The lift link (Item 1) **[Figure 31]** is used to adjust the side to side level of the implement.

See the compact tractor Operation & Maintenance Manual for detailed information on adjusting the lift link.

### Top Link Adjustment

**Figure 32**



The top link (Item 1) **[Figure 32]** is used to adjust the front to back level of the implement.

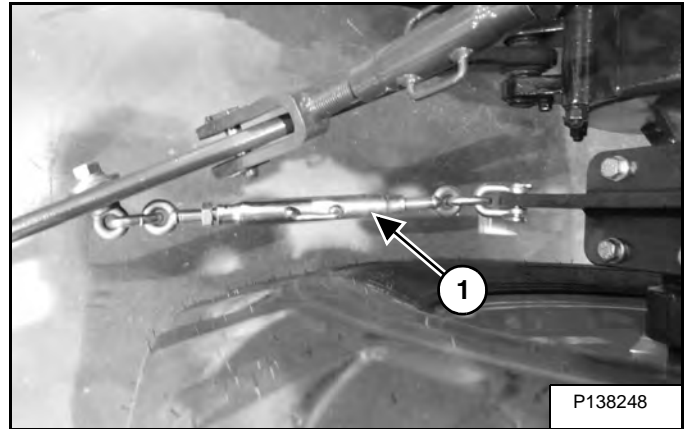
Loosen the lock nut (Item 2) and use the adjuster (Item 3) **[Figure 32]** to lengthen or shorten the top link.

Turn clockwise to lengthen the top link, turn counter-clockwise to shorten top link.

After the implement has been leveled, tighten the lock nut (Item 2) **[Figure 32]**.

### Sway Bar Adjustment

**Figure 33**



The sway bars (Item 1) **[Figure 33]** (both sides) are used to center the implement between the tires and limits the implements side to side movement.

Adjust the sway bars to center the implement between the tires. See the compact tractor Operation & Maintenance Manual for detailed information on adjusting the sway bars.

**NOTE: When adjusting the sway bars with the implement installed, the implement will need to be raised slightly off of the ground.**

## Rear Power Take-Off (PTO)

### *Installing The Rear Power Take-Off (PTO)*

The compact tractor must be equipped with a rear - PTO that has a 540 revolutions per minute (rpm) PTO shaft.

Install the implement to the compact tractor. (See Installing The Three-Point Implement on Page 26.)

## **WARNING**

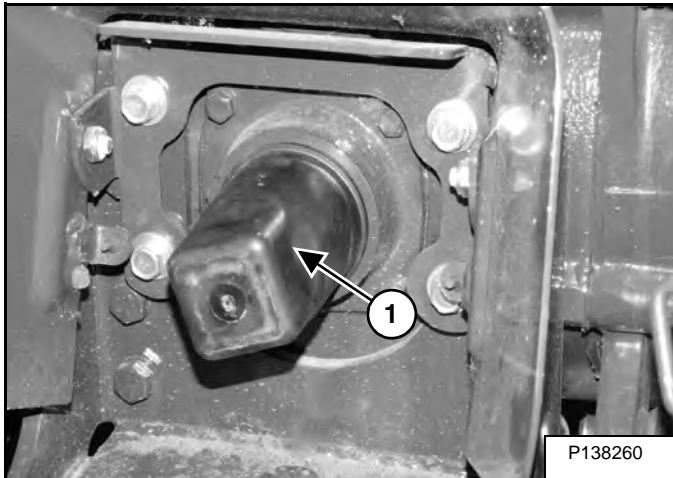
**Failure to obey warnings can cause serious injury or death.**

**Obey all warnings on the machine and in the manuals.**

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor (if applicable).

**Figure 34**



Remove the PTO shaft cover (Item 1) [Figure 34]. (See the compact tractor Operation & Maintenance Manual for detailed information.)

**NOTE: Reinstall the PTO shaft cover whenever the PTO is not being used.**

Remove the PTO driveline from the implement storage position.

## **IMPORTANT**

**Improper hitch installation can cause PTO driveline damage.**

- Do not modify the hitch or use an unapproved hitch.
- Make sure PTO driveline is of adequate length and that u-joints are in the correct phase.
- Use only approved PTO drivelines designated for the attachment and never use unapproved attachments.

## **WARNING**

**Failure to follow instructions can cause serious injury or death.**

**Do NOT exceed the rated implement / attachment PTO speed.**

**Stay clear of rotating driveline.**

**Keep bystanders away.**

**Keep hands, feet, clothing, and long hair away.**

**Keep PTO shields and all guards in place.**

**Disengage PTO (rear and mid), engage the parking brake, stop the engine, and make sure all rotating components are stopped before exiting compact tractor.**

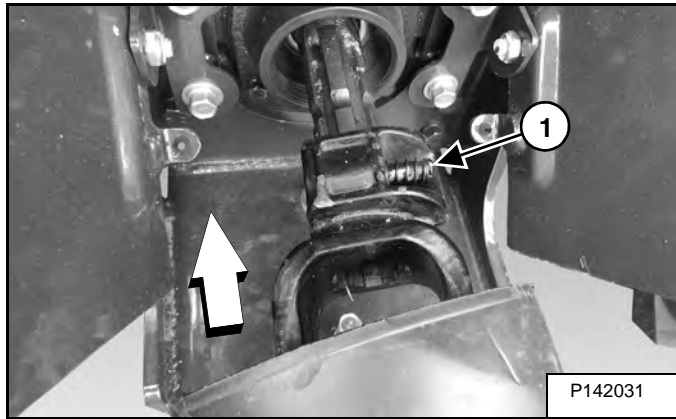
**Do not service the compact tractor or implement / attachment with the PTO (rear or mid) engaged.**

**Do not service the implement / attachment in a raised position unless properly blocked and with all rotating components stopped.**

**Disengage PTO (rear and mid) for road travel.**



**Figure 35**



Use the correct PTO driveline for use with the compact tractor rear-PTO shaft and the implement PTO shaft.

Push in the pin (Item 1) **[Figure 35]** and slide the PTO driveline onto the compact tractor rear-PTO shaft. Release the pin and the driveline will lock onto the shaft. Push and pull the PTO driveline back and forth several times and make sure it is securely attached to the PTO shaft.

## **WARNING**

**Failure to follow instructions can cause serious injury or death.**

- Keep PTO shields and all guards in place.
- Keep away from moving parts.
- Keep bystanders away.
- Do not exceed 540 rear - PTO rpm or 2000 mid - PTO rpm.



## *Removing The Rear Power Take-Off (PTO)*

Always park on flat level ground.

Fully lower the loader arms, put the attachment flat on the ground (if equipped).

Fully lower the implement(s) to the ground.

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor (if applicable).

## **WARNING**

**Failure to follow instructions can cause serious injury or death.**

**Before you leave the operator's seat:**

**Fully lower the loader arms, put the attachment flat on the ground (if equipped).**

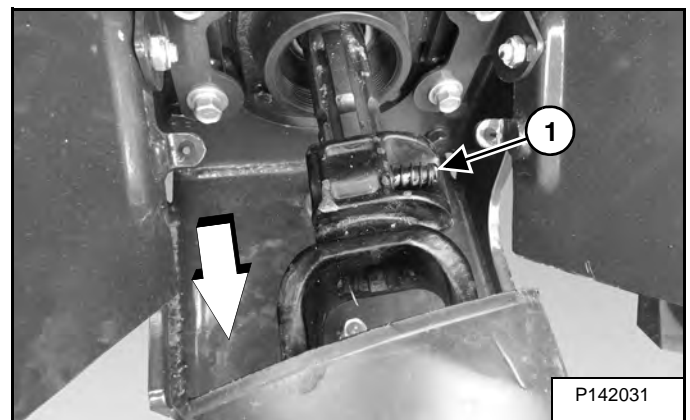
**Fully lower the implement(s) to the ground (if equipped).**

**Lock brake pedals together (if equipped) and engage the parking brake.**

**Place all controls in neutral.**

**Stop the engine, unfasten the seat belt, and remove the key.**

**Figure 36**

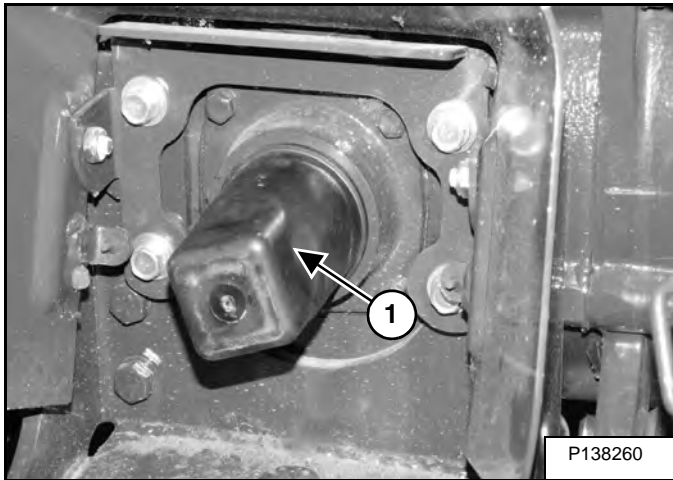


Push in the pin (Item 1) **[Figure 36]** and pull the PTO driveline off the compact tractor rear-PTO shaft.

Place the PTO driveline into the implement storage position (if applicable).

Remove the implement from the compact tractor. (See Removing The Three-Point Implement on Page 40.)

Figure 37



Install the PTO shaft cover (Item 1) [Figure 37]. (See the compact tractor Operation & Maintenance Manual for detailed information.)



## WARNING

Failure to follow instructions can cause serious injury or death.

**Do NOT** exceed the rated implement / attachment PTO speed.

Stay clear of rotating driveline.

Keep bystanders away.

Keep hands, feet, clothing, and long hair away.

Keep PTO shields and all guards in place.

Disengage PTO (rear and mid), engage the parking brake, stop the engine, and make sure all rotating components are stopped before exiting compact tractor.

Do not service the compact tractor or implement / attachment with the PTO (rear or mid) engaged.

Do not service the implement / attachment in a raised position unless properly blocked and with all rotating components stopped.

Disengage PTO (rear and mid) for road travel.

### PTO Driveline Length Check

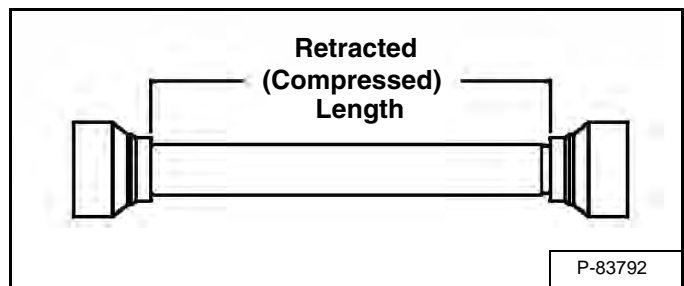
**NOTE:** Due to variations in distances between tractor PTO shafts and implement input shafts, drivelines may need to be shortened or a longer shaft may be required. When fitting the implement to the compact tractor, the PTO driveline, with telescoping sections, must be inspected. When the sections are at the most compressed operating position, the sections must not “bottom out”. At its shortest length, there must be at least 50,8 mm (2 in) of clearance between each section end and opposite section end at the most compressed operating position. When the sections are at the most extended position, there must be sufficient engagement between the sections. At its farthest operating extension, a minimum section engagement of 33% of shaft length must be maintained. (See Checking The PTO Driveline Engagement on Page 34.)

### PTO Driveline Bottoming Out Check

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

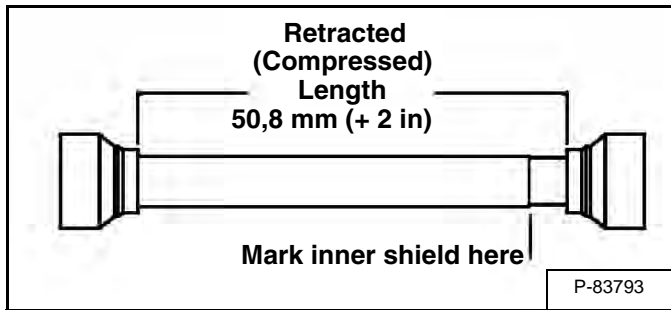
Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor (if applicable).

Figure 38



1. Disconnect the PTO driveline from the compact tractor and slide the PTO driveline together until fully retracted.
2. Measure the retracted length of PTO driveline [Figure 38].

**Figure 39**



3. Extend the PTO driveline 50,8 mm (2 in) from the retracted length and make a mark at the end of the outer shield on the inner shield [Figure 39].
4. Reattach the PTO driveline to the compact tractor PTO shaft.
5. Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)
6. Start the engine.
7. With the rear PTO DISENGAGED, raise and lower the implement and watch the PTO driveline expand and retract.
8. If the outer PTO driveline plastic guard slides in (retracts) over the mark at any point of travel, the PTO driveline needs to be shortened.

*Reducing The PTO Driveline Length*

## **WARNING**

Failure to follow instructions can cause serious injury or death.  
Do NOT exceed the rated implement / attachment PTO speed.  
Stay clear of rotating driveline.  
Keep bystanders away.  
Keep hands, feet, clothing, and long hair away.  
Keep PTO shields and all guards in place.  
Disengage PTO (rear and mid), engage the parking brake, stop the engine, and make sure all rotating components are stopped before exiting compact tractor.  
Do not service the compact tractor or implement / attachment with the PTO (rear or mid) engaged.  
Do not service the implement / attachment in a raised position unless properly blocked and with all rotating components stopped.  
Disengage PTO (rear and mid) for road travel.

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor.

Remove the PTO driveline from the compact tractor and place in storage position (if equipped). (See Removing The Three-Point Implement on Page 40.)

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

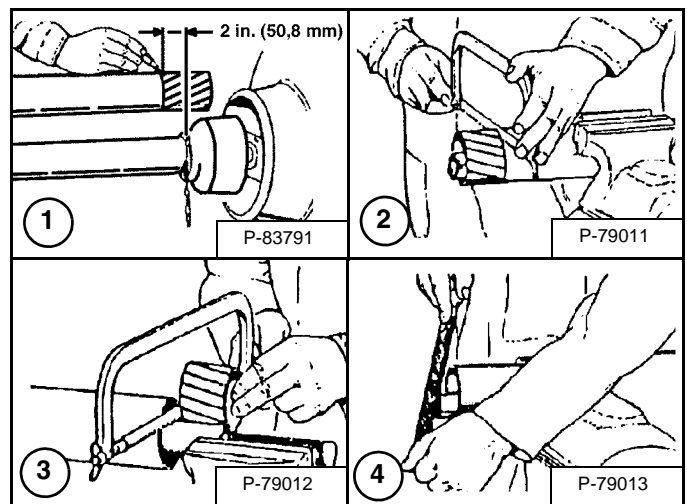
Start the engine and release the parking brake.

Raise or lower the three-point implement to get the shortest distance between the compact tractor PTO shaft and three-point implement gearbox PTO shaft.

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Pull the PTO driveline apart and reinstall each individual section; one half to the compact tractor PTO shaft and one half to the implement gearbox PTO shaft.

**Figure 40**



1. Hold PTO driveline sections parallel to one another and measure back 50,8 mm (2 in) (Item 1) from the yoke of each section and place mark on opposite section.
2. Cut the plastic shield at this length (Item 2) [Figure 40].
3. Use the plastic shield length that was just cut and align it with the end of the inner shaft (Item 3) [Figure 40]. Cutting the same amount off the end of the inner shaft.
4. Round off all sharp edges and debur (Item 4) [Figure 40].

5. Repeat steps 1 - 4 for the other shaft section. Equal amounts must be cut from each shaft.
6. Thoroughly grease and install the PTO driveline halves together.
7. Recheck for proper operation.

## ! WARNING

Failure to follow instructions can cause serious injury or death.

- Keep PTO shields and all guards in place.
- Keep away from moving parts.
- Keep bystanders away.
- Do not exceed 540 rear - PTO rpm or 2000 mid - PTO rpm.



## Checking The PTO Driveline Engagement

## ! WARNING

Failure to follow instructions can cause serious injury or death.

Do NOT exceed the rated implement / attachment PTO speed.

Stay clear of rotating driveline.

Keep bystanders away.

Keep hands, feet, clothing, and long hair away.

Keep PTO shields and all guards in place.

Disengage PTO (rear and mid), engage the parking brake, stop the engine, and make sure all rotating components are stopped before exiting compact tractor.

Do not service the compact tractor or implement / attachment with the PTO (rear or mid) engaged.

Do not service the implement / attachment in a raised position unless properly blocked and with all rotating components stopped.

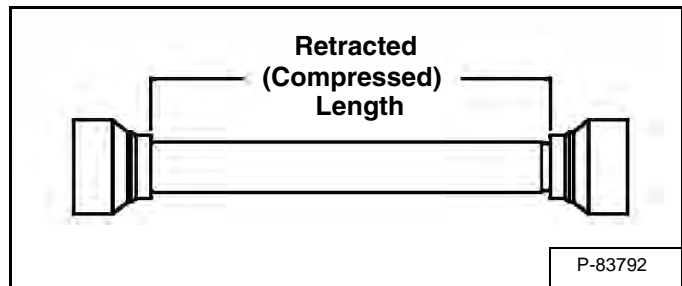
Disengage PTO (rear and mid) for road travel.

1. Exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor.

2. Disconnect the PTO driveline from the compact tractor and slide the driveline sections together until fully retracted..

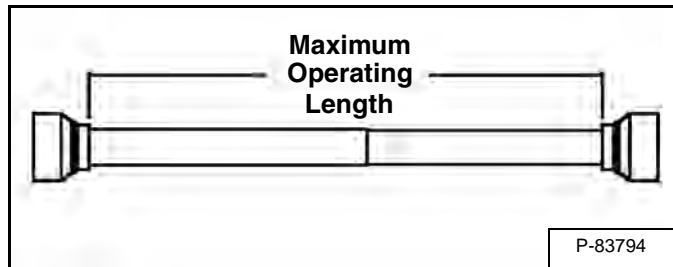
Figure 41



3. Measure the retracted (compressed) length of the PTO driveline between the bases of the plastic shields [Figure 41].
4. Multiply the retracted driveline length by 1.667 to determine the PTO driveline Maximum Operating Length. (i.e.: 647,7 mm (25.5 in) x 1.667= 1079,7 mm (42.5 in) Maximum Operating Length).

5. Attach the PTO driveline to the compact tractor PTO output shaft.
6. Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

**Figure 42**



7. With the PTO driveline attached, position the three-point implement to where the telescoping PTO driveline is at its maximum operating extension.
8. Exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor.

9. Measure the length of the PTO driveline between the bases of the plastic shields **[Figure 42]** to determine the maximum operating length.

If the measured maximum operating length is less than the Maximum Operating Length calculation (from Step 3), the PTO driveline has adequate engagement

If the measured maximum operating length is equal to or more than the Maximum Operating Length calculation (from Step 3), the PTO driveline does not have adequate engagement and should be replaced with a longer driveline. Contact your Ignite Attachments representative for available PTO drivelines.

### Control Functions Three-Point Hitch (Implement)

The three-point hitch will be used to raise or lower the implement. (See the compact tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch).

### Control Functions Rear PTO

#### *Safety Rules For PTO Operation*

## WARNING

**Failure to follow instructions can cause serious injury or death.**

**Do NOT exceed the rated implement / attachment PTO speed.**

**Stay clear of rotating driveline.**

**Keep bystanders away.**

**Keep hands, feet, clothing, and long hair away.**

**Keep PTO shields and all guards in place.**

**Disengage PTO (rear and mid), engage the parking brake, stop the engine, and make sure all rotating components are stopped before exiting compact tractor.**

**Do not service the compact tractor or implement / attachment with the PTO (rear or mid) engaged.**

**Do not service the implement / attachment in a raised position unless properly blocked and with all rotating components stopped.**

**Disengage PTO (rear and mid) for road travel.**

## WARNING

**Failure to obey warnings can cause serious injury or death.**

**Obey all warnings on the machine and in the manuals.**



## WARNING

**Failure to follow instructions can cause serious injury or death.**

**Before you leave the operator's seat:**

**Fully lower the loader arms, put the attachment flat on the ground (if equipped).**

**Fully lower the implement(s) to the ground (if equipped).**

**Lock brake pedals together (if equipped) and engage the parking brake.**

**Place all controls in neutral.**

**Stop the engine, unfasten the seat belt, and remove the key.**

- Keep all shields in place. Replace damaged or missing shields before operating.
- Follow warnings and instructions on machine signs (decals). Replace damaged or missing decals.
- Do not wear loose or bulky clothing around the PTO or other moving parts.
- Keep bystanders away from PTO driven equipment, and never allow children near machines.
- Read and understand the manuals for the PTO driven equipment and be aware of safe operating procedures and hazards that may not be readily apparent.
- Always walk around equipment to avoid coming near a turning PTO driveline. Stepping over, leaning across or crawling under a turning PTO driveline can lead to entanglement.
- Never overspeed the PTO. See implement Operation & Maintenance Manual for correct PTO speed.
- Position the machine and implement hitch correctly to prevent driveline stress and separation.
- Use caution when turning. Turning too sharp can cause driveline damage.

### *Engaging The Rear-PTO*

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Start the engine and release the parking brake.

Lower the implement to the ground. (See the machine's Operation & Maintenance Manual for detailed information on operating the machine.)

Move the engine speed control lever to low engine speed.

## IMPORTANT

**Failure to follow directions can result in start-up overload on PTO driveline.**

**Reduce engine speed to low idle when engaging the PTO. After PTO driveline is rotating, increase engine speed.**

Engage the rear-PTO system. (See the machine's Operation & Maintenance Manual for detailed information on operating the machine.)

The rear-PTO driveline will start to rotate.

Move the engine speed lever to increase engine speed to the correct RPM as indicated on the tachometer. This will cause the rear-PTO shaft to rotate at 540 RPM. Do Not exceed a rear-PTO speed of 540 RPM.

## WARNING

**Failure to follow instructions can cause serious injury or death.**

- **Keep PTO shields and all guards in place.**
- **Keep away from moving parts.**
- **Keep bystanders away.**
- **Do not exceed 540 rear - PTO rpm or 2000 mid - PTO rpm.**



## WARNING

**Failure to follow instructions can cause serious injury or death.**

**Before you leave the operator's seat:**

**Fully lower the loader arms, put the attachment flat on the ground (if equipped).**

**Fully lower the implement(s) to the ground (if equipped).**

**Lock brake pedals together (if equipped) and engage the parking brake.**

**Place all controls in neutral.**

**Stop the engine, unfasten the seat belt, and remove the key.**



### *Disengaging The Rear-PTO*

Move the engine speed lever back to the low idle position.

Disengage the rear-PTO system. (See the machine's Operation & Maintenance Manual.)

### Control Functions Three-Point Hitch (Implement)

The three-point hitch will be used to raise or lower the implement. (See the machine's Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

### Driving The Implement And Tractor To The Work Site

Read and understand the compact tractor Operation & Maintenance Manual prior to installing or using any implement.

## WARNING

Steering and braking can be affected by the loader attachment, implements, front wheel assist and the rear differential lock.

**Always install the correct ballast. Do not exceed the Loader or Three-Point Hitch lift capacities.**

**Always carry loads low. Slow down when turning. Always lock the brake pedals together (if equipped) for road travel.**

**Unlock the brake pedals (if equipped) only when using brake pedals to assist in slow speed turns in work applications.**

**Make sure that the brakes are adjusted correctly so the compact tractor does not pull to one side when braking.**

## WARNING

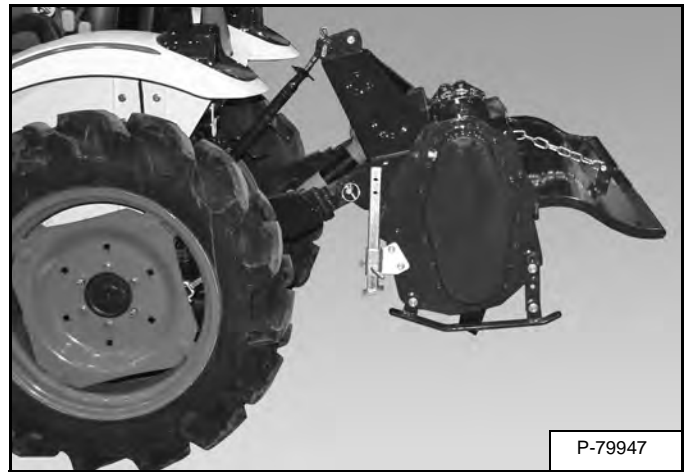
Failure to obey warnings can cause the machine to rollover.

- Use ROPS and fasten the seat belt.
- Install the correct rear ballast.
- Do NOT exceed the Loader lift capacity.
- Check tire condition and proper air pressure.
- Use tires with the correct load rating.

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Start the engine.

Figure 43



Raise the implement to the travel position [Figure 43]. (See the Compact Tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

Drive the compact tractor and implement to the work area.

When operating on a public road or highway, always follow local regulation. For example: Slow Moving Vehicle (SMV) emblem or directional signals and hazard / flasher lights may be required.



## Operating The Three-Point Tiller

Park on flat level ground.

Lower the implement slightly above the ground. (See the compact tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

The tiller rotation can be reversed. (See Reversing Tiller Rotation on Page 42.)



Failure to follow instructions can cause serious injury or death.

**Before you leave the operator's seat:**

**Fully lower the loader arms, put the attachment flat on the ground (if equipped).**

**Fully lower the implement(s) to the ground (if equipped).**

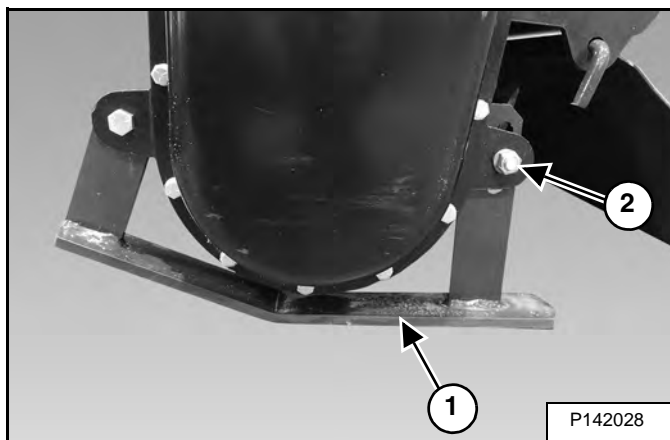
**Lock brake pedals together (if equipped) and engage the parking brake.**

**Place all controls in neutral.**

**Stop the engine, unfasten the seat belt, and remove the key.**

### Adjusting Depth Control Skids

Figure 44



The skids (Item 1) [Figure 44] can be adjusted to control the working depth of the tiller.

To adjust the working depth of the tiller, loosen and remove bolt and nut (Item 2) [Figure 44]. Move skid to the desired position, reinstall and tighten the bolt and nut to 81 N•m (60 ft-lb) torque.

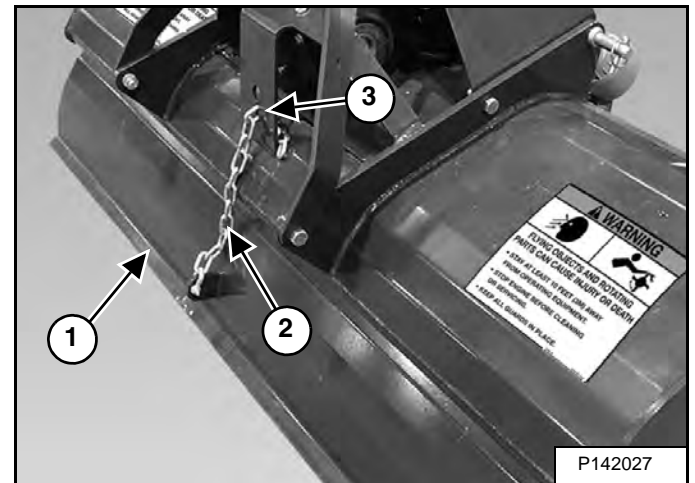
Make sure that both skids are set to the same position.

To increase working depth of the tiller, raise the skid.

To decrease working depth of the tiller, lower the skid.

### Leveling Board Adjustment

Figure 45



The leveling board (Item 1) [Figure 45] can be adjusted, making the ground more compact and smooth.

To adjust, lift the leveling board to remove tension from the chain (Item 2), slide the chain from the groove in the holder (Item 3) [Figure 45], adjust the chain length and slide the chain into the groove on the holder, lower the leveling board until supported by the chain.

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.) Press the brake pedal(s) and fully press the clutch pedal. Put all controls in neutral. Start the engine.

Lower the three-point tiller, keeping the tines three to four inches from ground. (See the compact tractor's Operation & Maintenance Manual for detailed information on operating the compact tractor.)

**NOTE: Damage to implement and tractor may be caused if PTO is engaged while the tiller is resting on the ground.**

### Leveling The Tiller

With the tiller resting on the ground, adjust the top link so the tiller gearbox shaft axis is parallel to the ground. (See Top Link Adjustment on Page 29.)

## Removing The Three-Point Implement

**NOTE:** In muddy conditions or to prevent the implement from freezing to the ground, put the implement on planks or blocks before removing the implement from the machine.

### *Lowering The Storage Stand*

## **WARNING**

Failure to follow instructions can cause serious injury or death.

**Before you leave the operator's seat:**

**Fully lower the loader arms, put the attachment flat on the ground (if equipped).**

**Fully lower the implement(s) to the ground (if equipped).**

**Lock brake pedals together (if equipped) and engage the parking brake.**

**Place all controls in neutral.**

**Stop the engine, unfasten the seat belt, and remove the key.**

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.) Start the engine and release the parking brake.

Park on flat level ground.

Lower the three-point setting the tiller on the ground. (See the compact tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor (if applicable).

Block the wheels of the implement to keep it from moving (if applicable).

Disconnect the PTO driveline. (See Removing The Rear Power Take-Off (PTO) on Page 31.)

## **WARNING**

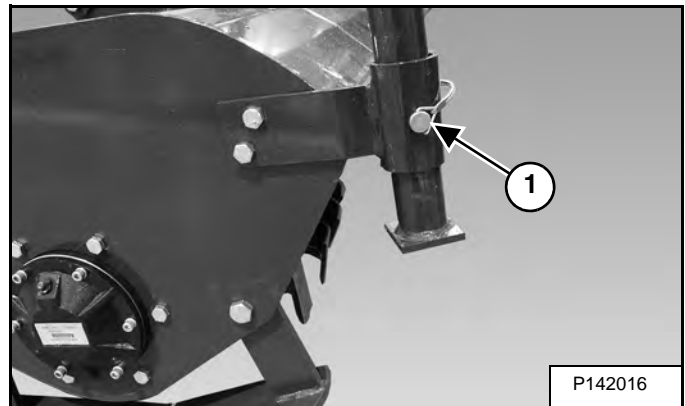
Failure to follow instructions can cause serious injury or death.

**Do not stand between the machine and attachment / implement.**

**Keep bystanders away.**

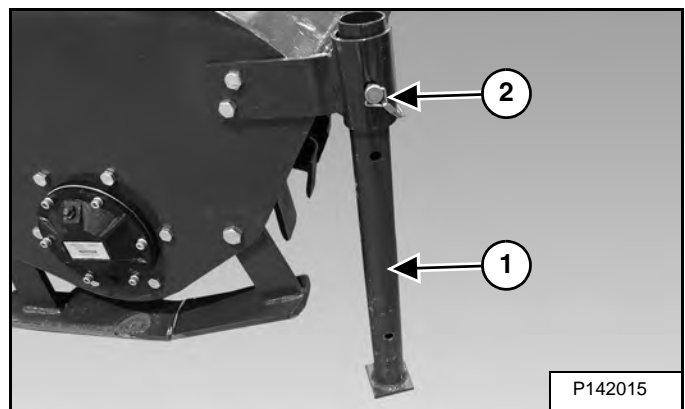
**Install support stands before disconnecting attachment / implement from the machine.**

Figure 46



Remove the retaining pin (Item 1) [Figure 46].

Figure 47



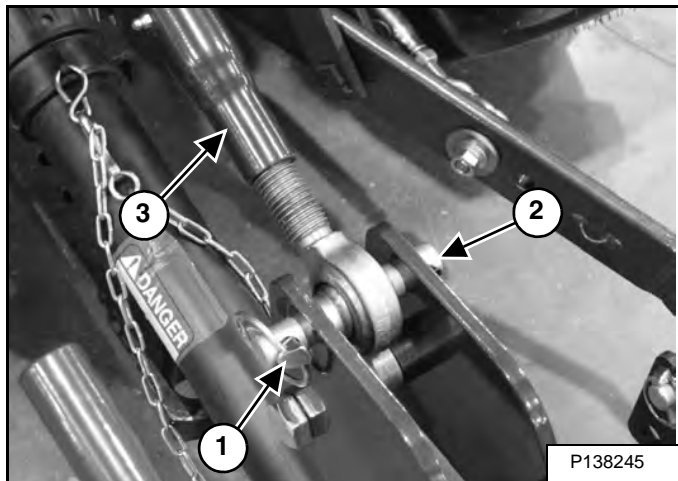
Lower the storage stand (Item 1). Align the holes and install the retaining pin (Item 2) [Figure 47].

Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.) Start the engine and release the parking brake.

Lower the three-point setting the tiller on the ground. (See the compact tractor Operation & Maintenance Manual for detailed information on operating the three-point hitch.)

Stop the engine and exit the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Figure 48

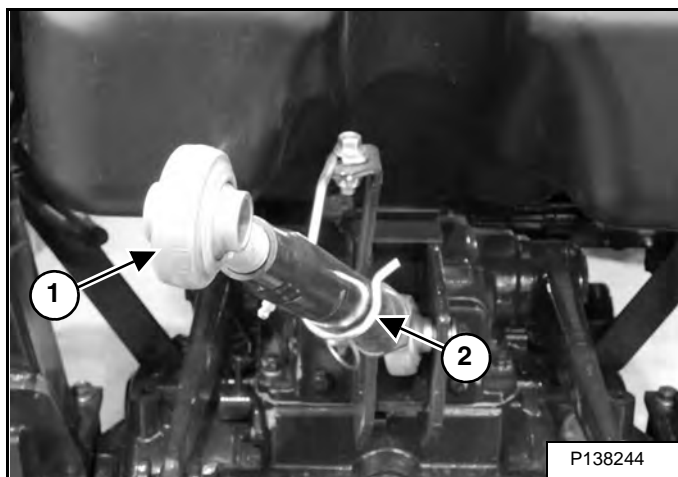


Remove the retainer pin (Item 1) and pin (Item 2) [Figure 48].

**NOTE:** It may be necessary to lengthen or shorten the top link when removing the implement from the compact tractor. (See Top Link Adjustment on Page 29.)

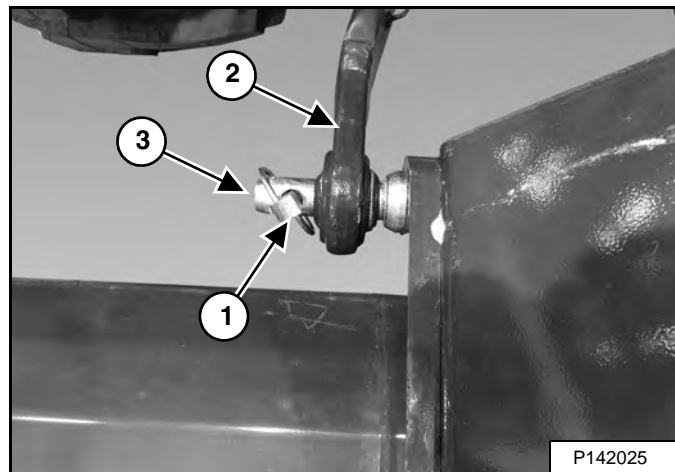
Remove the top link (Item 3) [Figure 48] from the implement.

Figure 49



Place the top link (Item 1) into the storage position bracket (Item 2) [Figure 49].

Figure 50

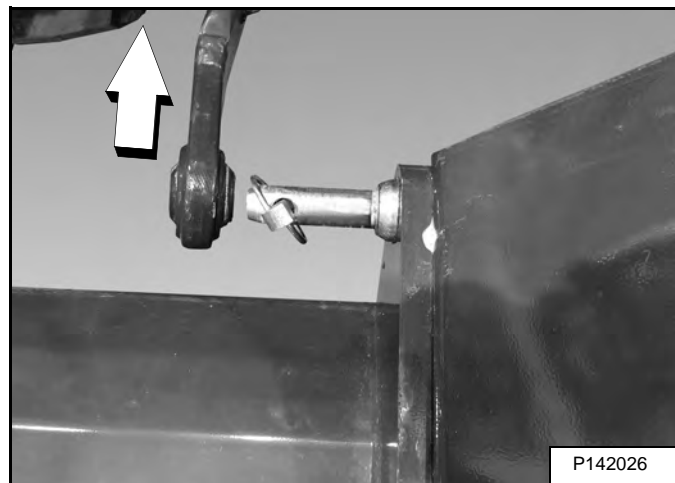


Remove the retainer pins (Item 1) [Figure 50] from the three-point hitch lower links (both sides).

Move the lower links (Item 2) out from the implement pins (Item 3) [Figure 50] (both sides).

The sway bar can be adjusted to help with the removal of the lower links from the implement pins. (See Sway Bar Adjustment on Page 29.)

Figure 51



Enter the compact tractor. (See Entering And Exiting The Compact Tractor on Page 26.)

Start the engine and release the parking brake.

Slowly drive the compact tractor away from the implement [Figure 51].

Remove the front ballast from the compact tractor (if equipped).

## REVERSING TILLER ROTATION

### Gearbox Rotation Change

**NOTE:** If the rotation direction of the gearbox is changed, the rotor direction must also be changed. (See “Rotor Direction Change” on page 46.)

## WARNING

Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

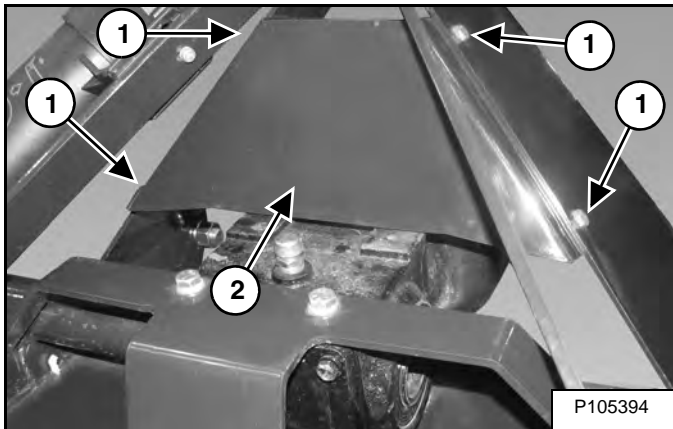
- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

Disconnect the PTO driveline from the machine.

Remove the PTO driveline from the gearbox.

Drain the gearbox oil.

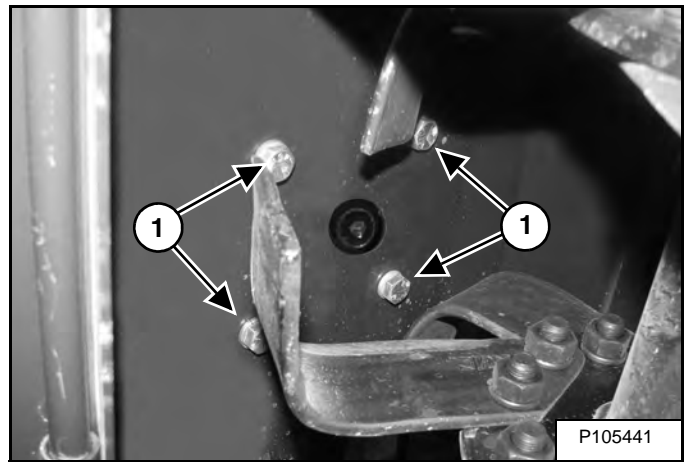
**Figure 52**



Remove the nuts and bolts (Item 1). Remove the shield (Item 2) [Figure 52].

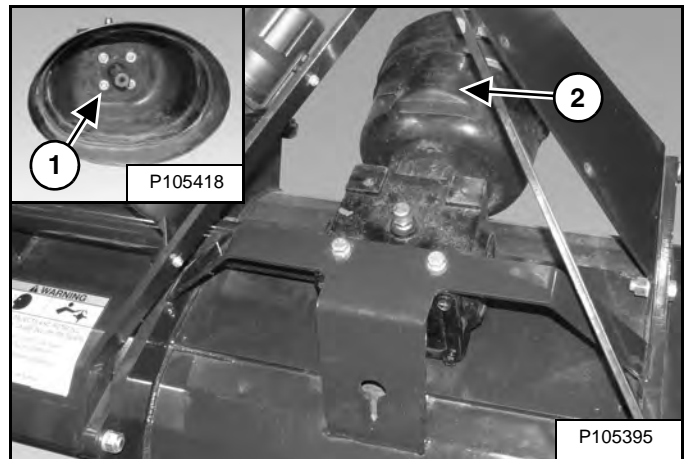
**NOTE:** PTO shield is not present on 48” tiller.

**Figure 53**



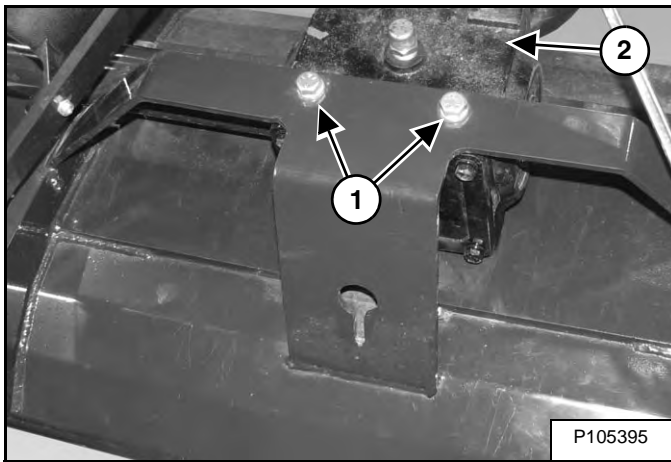
Remove the four bolts (Item 1) [Figure 53] from the gearbox located under the tiller.

**Figure 54**



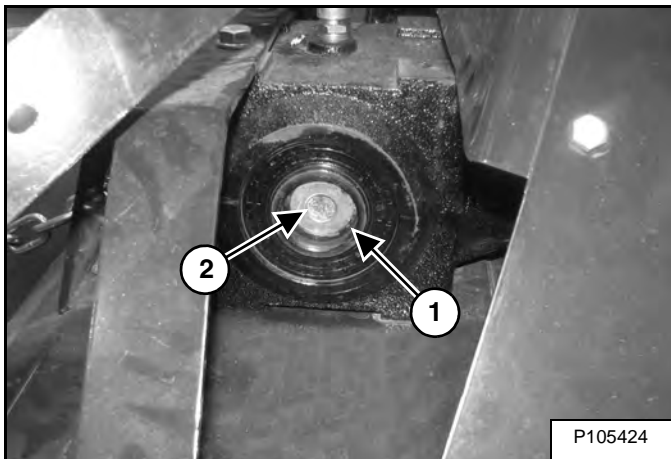
Remove the four bolts and washers (Item 1) from the PTO shield (Item 2) [Figure 54]. Remove the PTO shield.

**Figure 55**



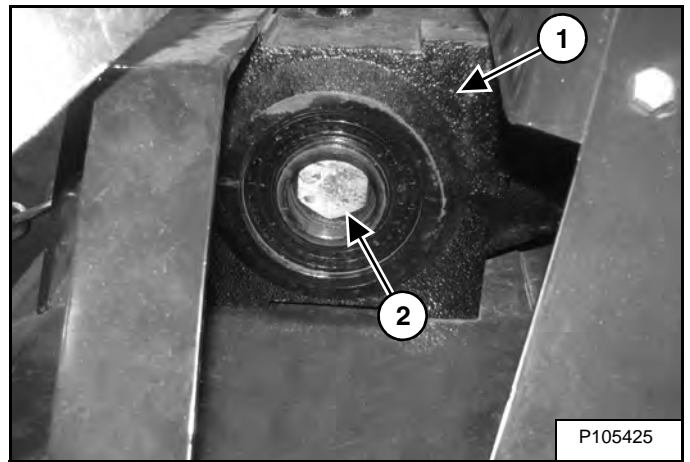
Remove the two bolts (Item 1) from the gearbox (Item 2) **[Figure 55]**.

**Figure 56**



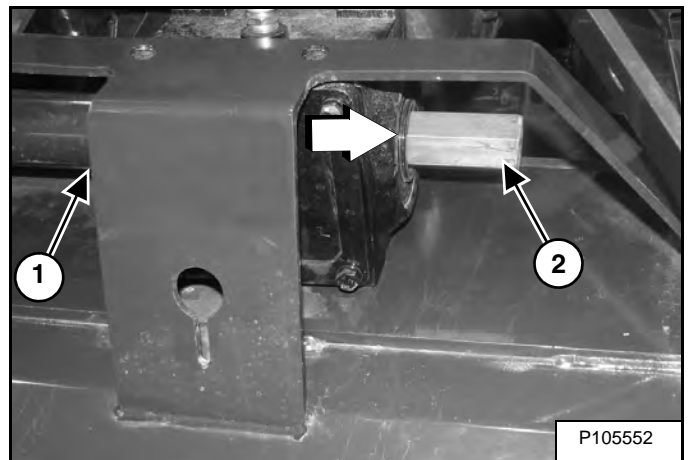
Remove the retaining ring (Item 1) and washer (Item 2) **[Figure 56]**.

**Figure 57**



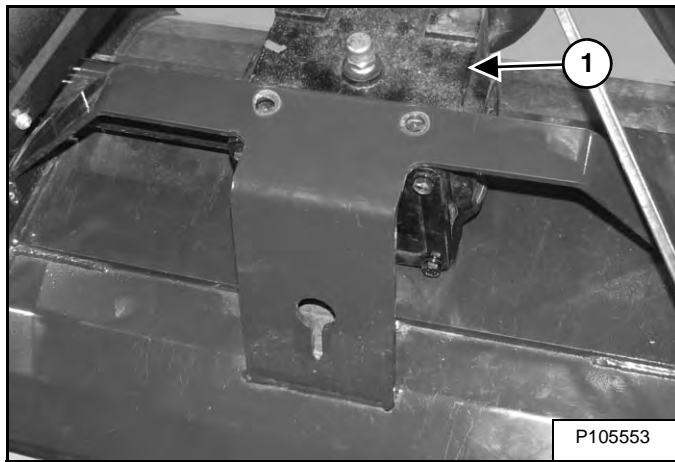
Slide the gearbox (Item 1) partially off the hex shaft (Item 2) **[Figure 57]** until the hex shaft is exposed on the opposite side of the gearbox. This allows access to the hex shaft in order to slide it through the gearbox.

**Figure 58**



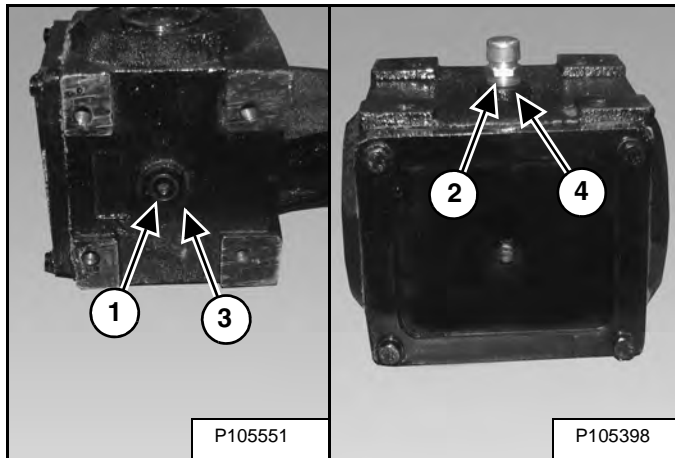
Push the hex shaft (Item 1) through the gearbox until the hex shaft (Item 2) **[Figure 58]** is through the gearbox. Remove the hex shaft from the tiller.

**Figure 59**



Remove the gearbox (Item 1) [Figure 59].

**Figure 60**

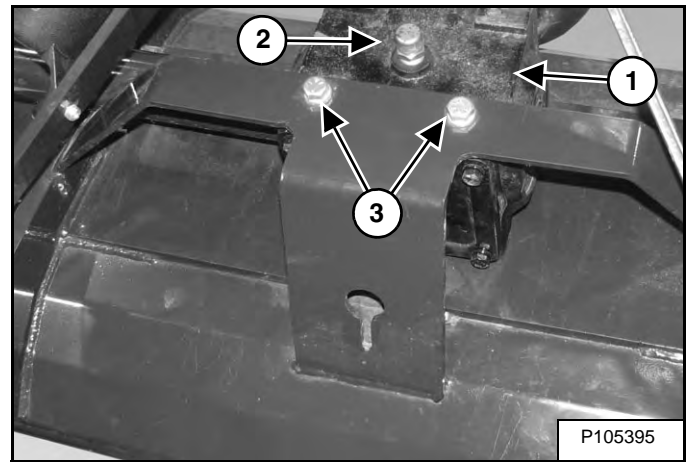


Remove the drain plug (Item 1) and remove fill plug / breather (Item 2) [Figure 60] from the gearbox.

Install the fill plug / breather (Item 2) into port (Item 3) [Figure 60].

Install the drain plug (Item 1) into port (Item 4) [Figure 60].

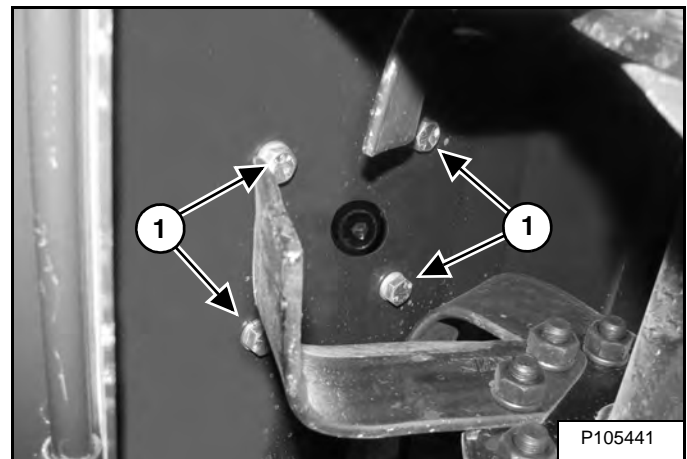
**Figure 61**



Install the gearbox (Item 1) onto the tiller with the fill plug / breather (Item 2) [Figure 61] facing up.

Install the two bolts (Item 3) [Figure 61]. Do not tighten bolts at this time.

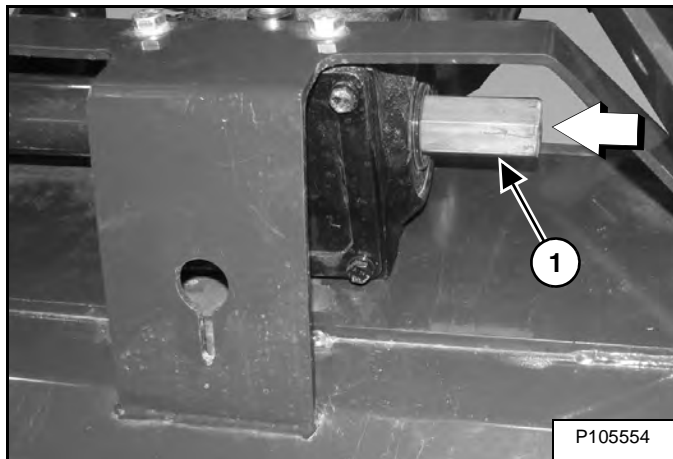
**Figure 62**



Install the four bolts (Item 1) [Figure 62] located under the tiller and tighten bolts.

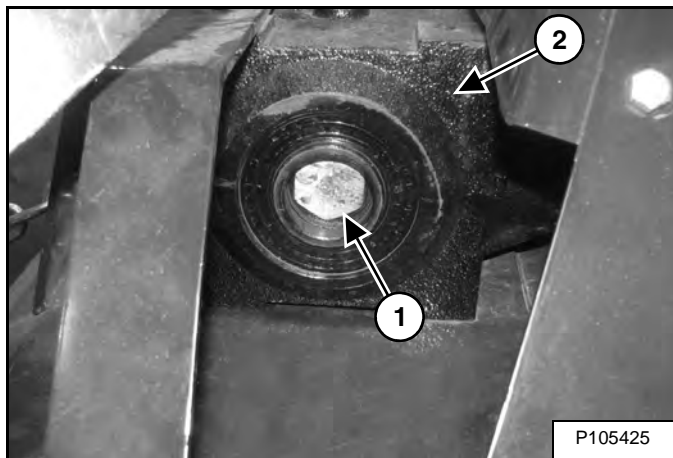
Tighten the two bolts (Item 3) [Figure 61].

**Figure 63**



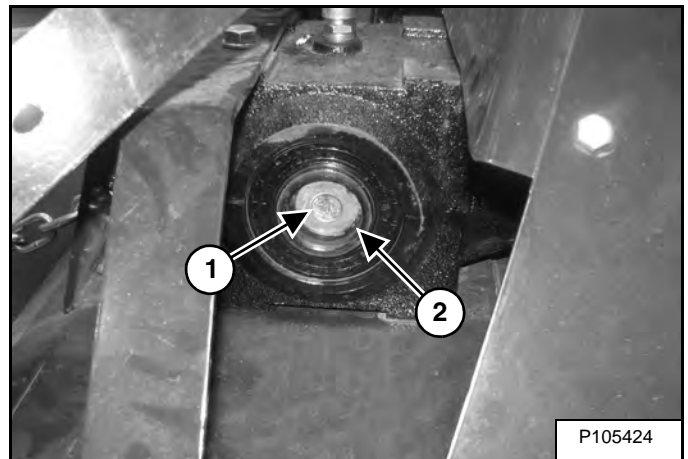
Install the hex shaft (Item 1) [Figure 63] into the gearbox.

**Figure 64**



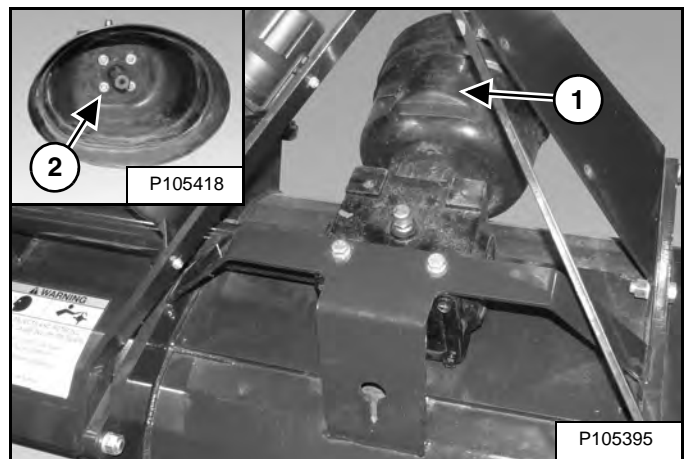
Push the hex shaft (Item 1) in until the hex shaft is fully installed into the side gearbox (Item 2) [Figure 64].

**Figure 65**



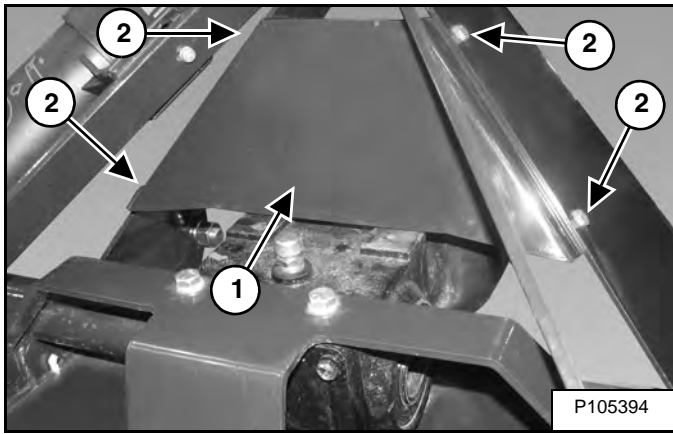
Install the washer (Item 1) and retaining ring (Item 2) [Figure 65].

**Figure 66**



Install the PTO shield (Item 1), four washers and bolts (Item 2) [Figure 66]. Tighten bolts.

Figure 67



Install the shield (Item 1). Install the bolts and nuts (Item 2) [Figure 67]. Tighten bolts.

**NOTE: PTO shield is not present on 48" tiller.**

Install the PTO driveline onto the gearbox.

Fill the gearbox with gear oil. (See Gearbox Fluid on Page 10-50-2.)

Connect the PTO driveline to the machine.

## Rotor Direction Change

Stop the machine and implement on a flat level surface, lower the implement to the ground.



## WARNING

Failure to follow instructions can cause serious injury or death.

Before you leave the operator's seat:

Fully lower the loader arms, put the attachment flat on the ground (if equipped).

Fully lower the implement(s) to the ground (if equipped).

Lock brake pedals together (if equipped) and engage the parking brake.

Place all controls in neutral.

Stop the engine, unfasten the seat belt, and remove the key.

Stop the engine, engage the parking brake and exit the machine.

Disconnect the PTO driveline from the machine.



## WARNING

Falling implement can cause serious injury or death. Securely block up the implement before working underneath.



## WARNING

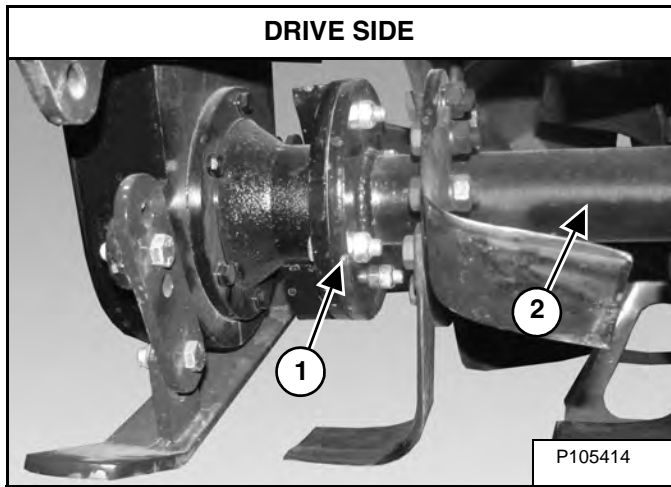
Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

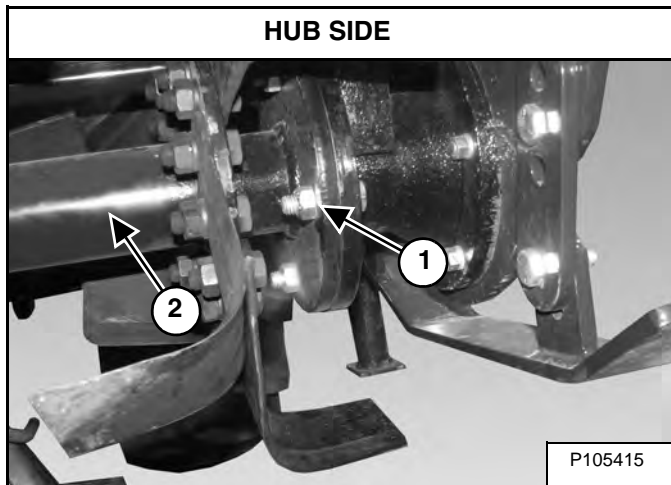


**Figure 68**



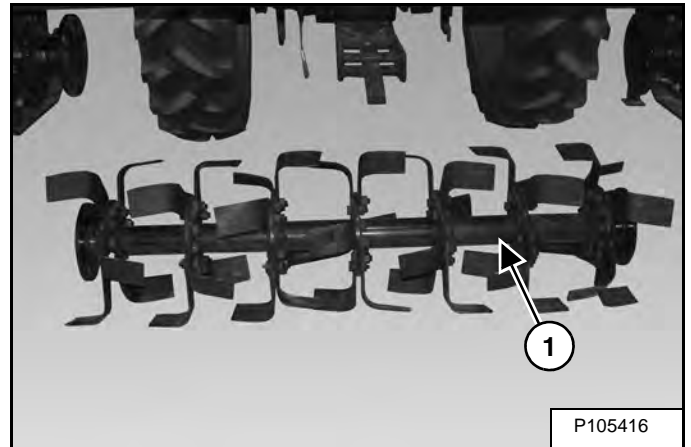
Remove the four nuts and bolts (Item 1) from the drive side of the rotor assembly (Item 2) [Figure 68].

**Figure 69**



Remove the four nuts and bolts (Item 1) from the hub side of the rotor assembly (Item 2) [Figure 69].

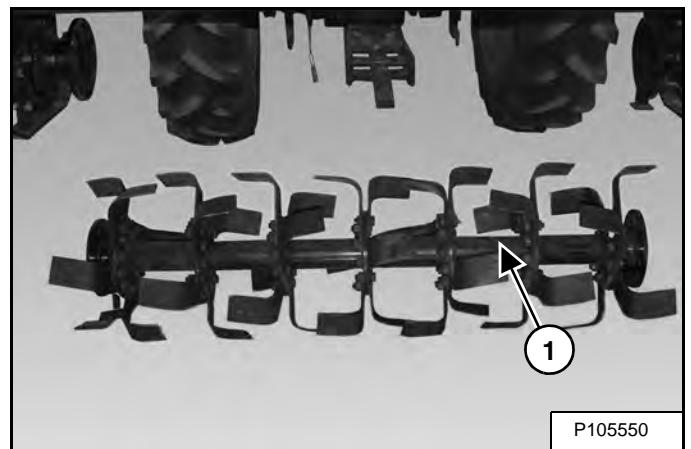
**Figure 70**



Raise the tiller until the rotor assembly (Item 1) [Figure 70] is free from the tiller.

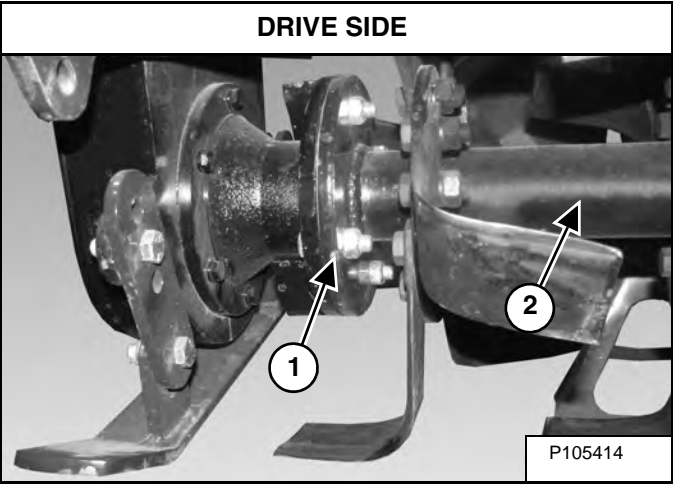
Rotate the rotor assembly (Item 1) [Figure 70] end for end.

**Figure 71**



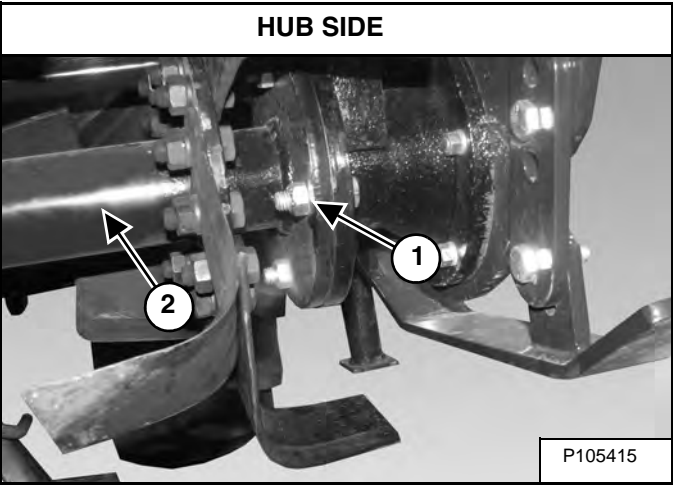
Lower the tiller onto the rotor assembly (Item 1) [Figure 71] and align both ends of the rotor assembly to the tiller.

Figure 72



Install the four nuts and bolts (Item 1) on the drive side of the rotor assembly (Item 2) [Figure 72]. Tighten nuts and bolts.

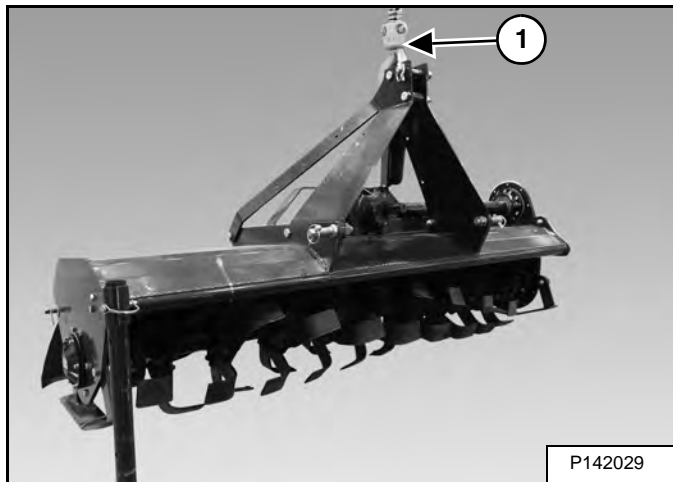
Figure 73



Install the four nuts and bolts (Item 1) on the hub side of the rotor assembly (Item 2) [Figure 73]. Tighten nuts and bolts.

## LIFTING THE IMPLEMENT

Figure 74



Fasten the chain to the three-point tiller (Item 1) [Figure 74].

**NOTE:** Use chains that are in good condition and of adequate size to lift the implement.

## TRANSPORTING THE IMPLEMENT ON A TRAILER

### Fastening The Implement On A Trailer

Figure 75

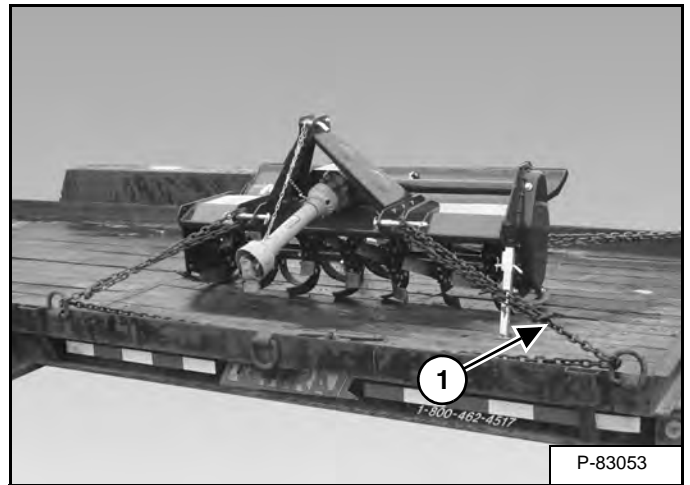
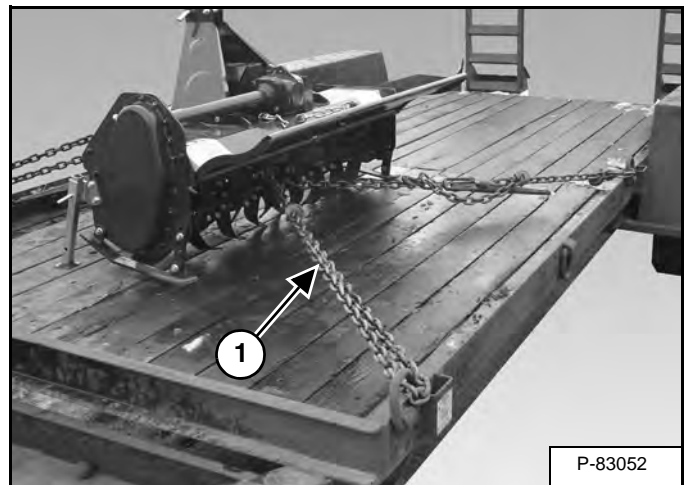


Figure 76



Fasten the chains (Item 1) [Figure 75] and [Figure 76] to the tiller and fasten each end of the chain to the transport vehicle.

Use chain binders to prevent the tiller from moving during transport.

## TRANSPORTING THE IMPLEMENT AND MACHINE ON A TRAILER



### WARNING

**Wood ramps can break and cause personal injury. Use adequately designed ramps of sufficient strength to support the weight of the machine loading onto a transport vehicle.**

---

Be sure the transport and towing vehicles are of adequate size and capacity for weight of machine and attachment / implement combination. (See machine and attachment Operation & Maintenance Manuals for specifications.)

#### *Loading*

The rear of the trailer must be blocked or supported when loading and unloading to prevent the front of the trailer from raising.

- Load the heaviest end of the machine and attachment / implement combination first.
- Lower the attachment / implement to the floor.
- Turn the machine off.
- Engage the parking brake (if equipped).
- Exit the machine. (See the machine's Operation & Maintenance Manual for the correct procedure.)

#### *Fastening*

- Install chains at the front and rear tie down positions on the machine. (See the machine's Operation & Maintenance Manual to properly chain the machine to the transport vehicle.)
- Install chains on the attachment / implement (if needed).
- Fasten each end of the chain to the transport vehicle.

**NOTE: Use chain binders to prevent the attachment / implement and machine from moving during transport.**

## PREVENTIVE MAINTENANCE

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# MAINTENANCE SAFETY



- Never service the Ignite Attachments attachment / implement without instructions. Read and understand the Operation & Maintenance Manual and safety signs (decals) on machine.
- Follow warnings and instructions in manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.



**This Safety Alert Symbol means: “Attention! Be Alert! Your Safety is Involved!”  
Carefully read the message that follows.**



- Never service attachments / implements without instructions. See Operation & Maintenance Manual and Attachment / Implement Service Manual.
- Cleaning and maintenance are required daily.
- Never service or adjust attachment / implement with the engine running unless instructed to do so in manual.
- Always lower the attachment / implement to the ground before lubricating or servicing.
- Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.
- Stop, cool, and clean engine of flammable materials before checking fluids.
- Keep body, loose objects, and clothing away from moving parts, electrical contacts, hot parts, and exhaust.
- Safety glasses are needed for eye protection from electrical arcs, battery acid, compressed springs, fluids under pressure, and flying debris or when tools are used. Use eye protection approved for type of welding.

Maintenance procedures which are given in the Operation & Maintenance Manual can be performed by the owner/operator without any specific technical training. Maintenance procedures which are not in the Operation & Maintenance Manual must be performed **ONLY BY QUALIFIED SERVICE PERSONNEL**. Always use genuine Ignite Attachments replacement parts.





## TROUBLESHOOTING

### Troubleshooting The Implement



Untrained operators or failure to follow instructions can cause serious injury or death.

- Read and understand the Operation & Maintenance Manual and decals on machine.
- Follow warnings and instructions in the manuals when making repairs, adjustments or servicing.
- Check for correct function after adjustments, repairs or service..

PROBLEM	CAUSE	CORRECTION
Will not till deep enough.	Skid shoes set too low.	Adjust skid shoes.
	Top three-point link adjusted incorrectly.	Adjust top link.
	Tines are worn too much.	Replace worn tines.
Rotor will not turn.	PTO not engaged.	Engage rear-PTO.
	PTO slip clutch worn excessively.	Replace slip clutch.
	Rotor is obstructed.	Remove obstruction from rotor.
Poor tilling quality.	Tines are worn too much.	Replace tine(s).
	Missing or damaged tine(s).	Replace tine(s).
	Ground speed too fast.	Drive at slower ground speed.
Tillage is not smooth.	Ground speed too fast.	Drive at slower ground speed.
	Leveling board adjusted incorrectly.	Adjust leveling board correctly.

## SERVICE SCHEDULE

### Maintenance Intervals

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures.



## WARNING

Untrained operators or failure to follow instructions can cause serious injury or death.

- Read and understand the Operation & Maintenance Manual and decals on machine.
- Follow warnings and instructions in the manuals when making repairs, adjustments or servicing.
- Check for correct function after adjustments, repairs or service

SERVICE SCHEDULE		FREQUENCY		
ITEM	SERVICE REQUIRED	8 HOURS	50 HOURS	500 HOURS/ YEARLY
Rotor Support Bearing	Grease rotor support.			
PTO Driveline	Grease the PTO knuckles and driveline.			
Mounting Hardware	Check tightness of all mounting hardware.			
Gearbox	Check the oil level.			
Side Transmission	Check the oil level.			
Gearbox	Change the oil.		[1]	
Side Transmission	Change the oil.		[1]	

[1] Service at first 50 hours and thereafter as scheduled.

## LUBRICATING THE IMPLEMENT

### Gear Box Fluid

**NOTE:** Place tiller on the ground so the gear box and the transmission is level with the ground.

## IMPORTANT

Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local regulations for correct disposal methods.

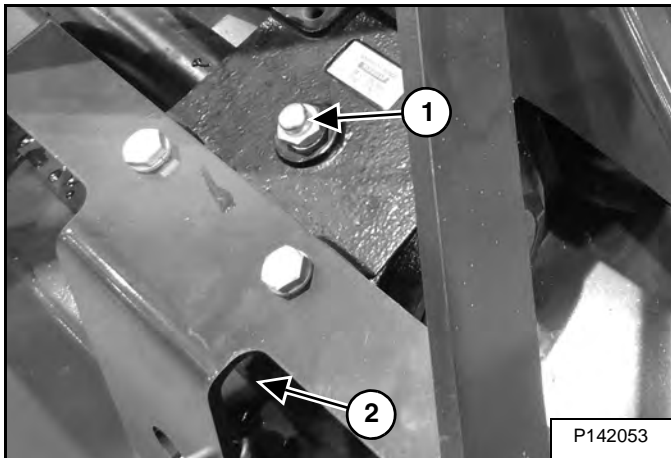
## ! WARNING

Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

Figure 77



Remove the drain plug (not shown) located on the front bottom of the gearbox, draining fluid into an approved container and cleaning up any spills.

Install and tighten drain plug.

Loosen and remove the plug / breather valve (Item 1) [Figure 77] from the gearbox.

Loosen and remove the check plug (Item 2) [Figure 77] from the gearbox.

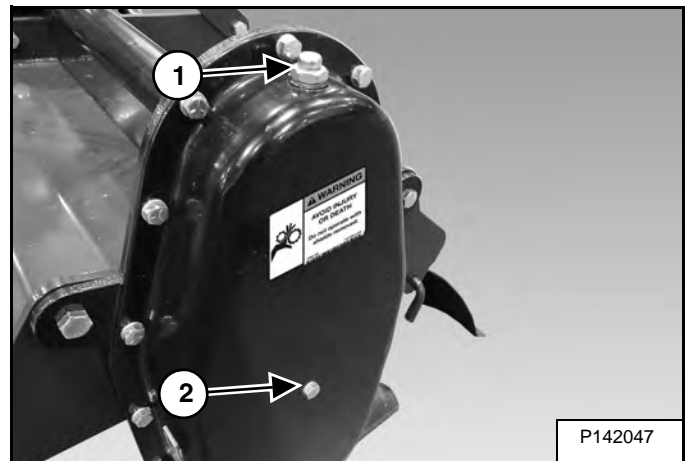
Fill the gearbox using 80W90 oil until oil begins to flow out from the check plug (Item 2) [Figure 77].

Replace and tighten the check plug (Item 2) [Figure 77].

Replace and tighten the plug / breather valve (Item 1) [Figure 77].

### Transmission Fluid

Figure 78



Loosen and remove the plug / breather valve (Item 1) [Figure 78] from the transmission.

Loosen and remove the check plug (Item 2) [Figure 78] from the transmission.

Fill the transmission using 80W90 oil until oil begins to flow out from the check plug (Item 2) [Figure 78].

Replace and tighten the check plug (Item 2) [Figure 78].

Replace and tighten the plug / breather valve (Item 1) [Figure 78].

## ⚠ WARNING

### AVOID INJURY OR DEATH

The parking brake must be engaged before leaving the operator's seat. Rollaway can occur because the transmission may not prevent machine movement. Lock the brake pedals together (if equipped) before activating the parking brake.

W-2656-0719

## ⚠ WARNING

### AVOID INJURY OR DEATH

- Disengage the PTO (rear and mid), engage the parking brake, stop the engine and make sure all rotating components are completely stopped before connecting, disconnecting, adjusting or cleaning any PTO driven equipment.
- Always keep PTO shields and all guards in place when using PTO driven equipment.
- Disengage PTO (rear and mid) for road travel.
- Keep hands, feet and clothing away.

W-2568-0907

## ⚠ WARNING

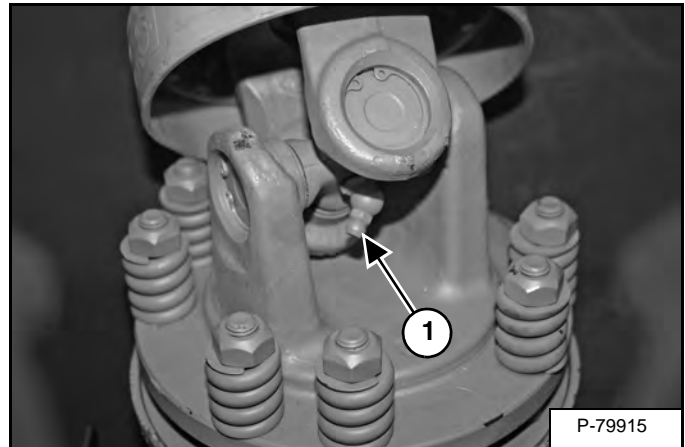
Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

Always use a good quality lithium base multi-purpose grease when lubricating the three-point tiller.

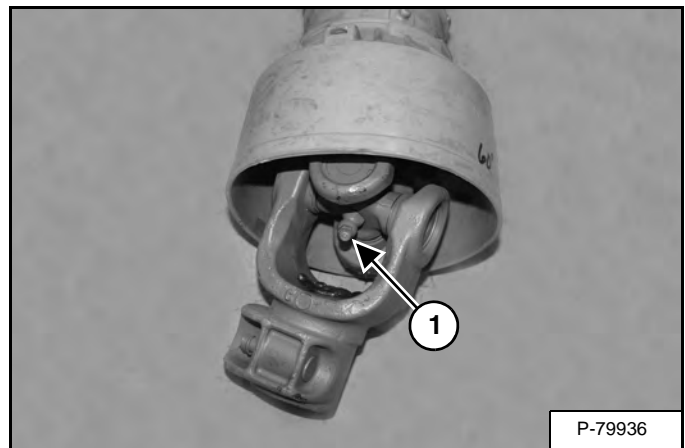
Figure 79



The grease fitting (Item 1) [Figure 79] is located on the gearbox side of the PTO shaft on the knuckle, wipe any excess grease or dirt off before greasing.

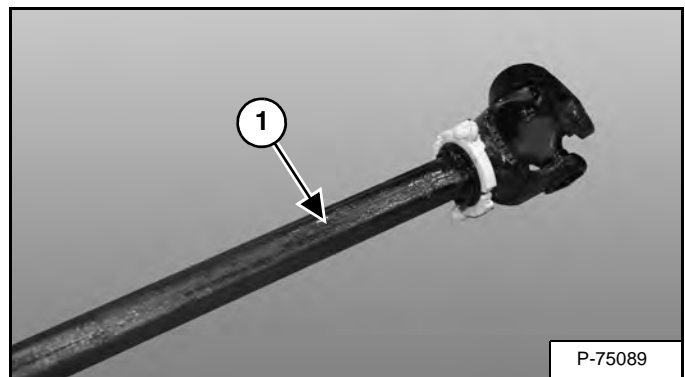
**NOTE:** The PTO Shield was removed for clarity.

Figure 80



The grease fitting (Item 1) [Figure 80] is located on the compact tractor side of the PTO shaft on the knuckle, wipe any excess grease or dirt off before greasing.

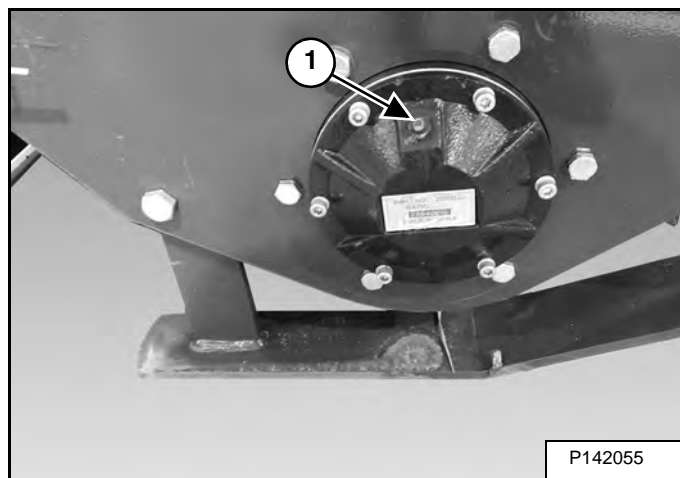
Figure 81



Apply grease to the PTO driveline shaft (Item 1) [Figure 81].

## Rotary Bearing

Figure 82



The grease fitting (Item 1) [Figure 82] is located on the opposite end of the rotary shaft from the transmission, wipe any excess grease or dirt off before greasing.

## SKIDS

### Removal And Installation

# ! WARNING

Falling implement can cause serious injury or death. Securely block up the implement before working underneath.

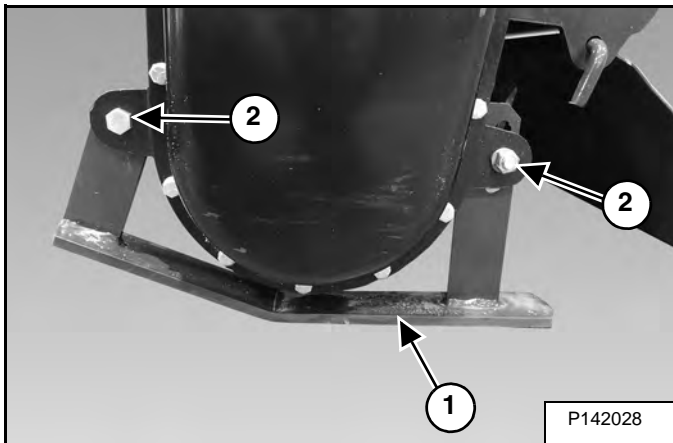
# ! WARNING

Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

Figure 83



Inspect the skids (Item 1) [Figure 83] for wear or damage. Replace if damaged or worn.

Remove the bolts (Item 2) and remove the skid (Item 1) [Figure 83].

**Installation:** Install the skid and tighten the bolts to 81 N•m (60 ft-lb) torque.

## TINES

### Removal And Installation

# ! WARNING

Falling implement can cause serious injury or death. Securely block up the implement before working underneath.

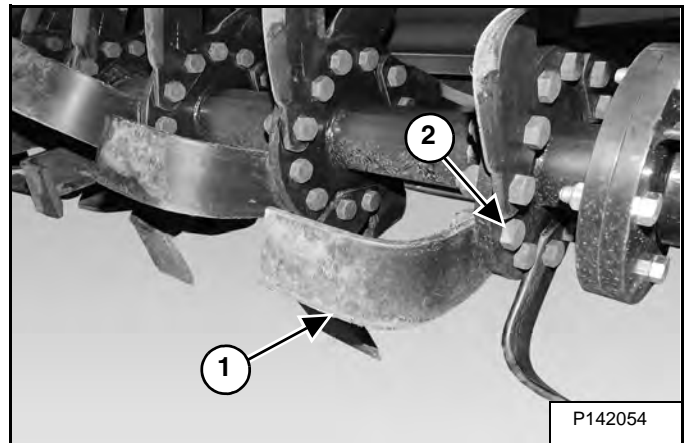
# ! WARNING

Flying debris or pressurized fluids can cause serious injury or death.

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material.
- Engine is running.
- Tools are being used.

Figure 84



Check tiller for any bent or worn tines (Item 1). Replace the tines as needed. Check tines for any loose or missing bolts and nuts (Item 2) [Figure 84].

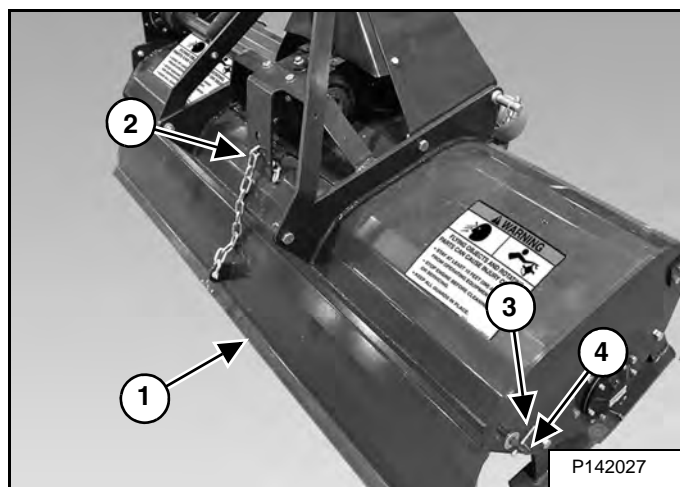
To remove tine (Item 1), loosen and remove the bolts and nuts (Item 2) [Figure 84].

**Installation:** Install tine in proper orientation of the tine removed, tighten bolts to 81 N•m (60 ft-lb) of torque.

## LEVELING BOARD

### Removal And Installation

Figure 85



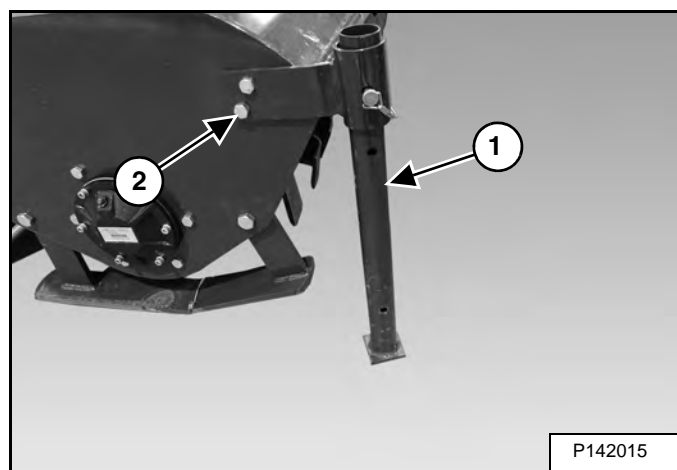
To replace the leveling board (Item 1), support the leveling board to keep from falling, remove the chain from adjustment bracket (Item 2). Remove the retaining pin (Item 3) and pull out the rod (Item 4) **[Figure 85]**. Remove mounting hardware and chain from leveling board.

**Installation:** Align holes, slide the rod through, install the retaining pin. Install the chain and tighten.

## STORAGE STAND

### Removal And Installation

Figure 86



To remove jack stand (Item 1), loosen and remove the bolts and nuts (Item 2) **[Figure 86]**.

**Installation:** Realign holes, tighten bolts to 47 N•m (35 ft-lb) of torque.

## **STORAGE AND RETURN TO SERVICE**

### **Implement Storage**

Sometimes it may be necessary to store your Ignite Attachments implement for an extended period of time. Below is a list of items to perform before storage.

- Thoroughly clean and wash the implement.
- Lubricate the implement (if applicable).
- Inspect the three-point mounts, mounting pins and all welds on the implement for wear and damage.
- Check for loose hardware, missing guards, or damaged parts.
- Check for damaged or missing decals. Replace if necessary.
- Replace worn or damaged parts.
- Place the implement in a dry protected shelter.
- Place the implement flat on the ground.
- In muddy conditions or to prevent the implement from freezing to the ground, put the implement on planks or blocks before removing the implement from the machine.

### **Return To Service**

After the Ignite Attachments implement has been in storage, it is necessary to follow a list of items to return the implement to service.

- Be sure all shields and guards are in place.
- Lubricate the implement (if applicable).
- Install and operate implement, check for correct function.



## SPECIFICATIONS

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Performance .....	.65
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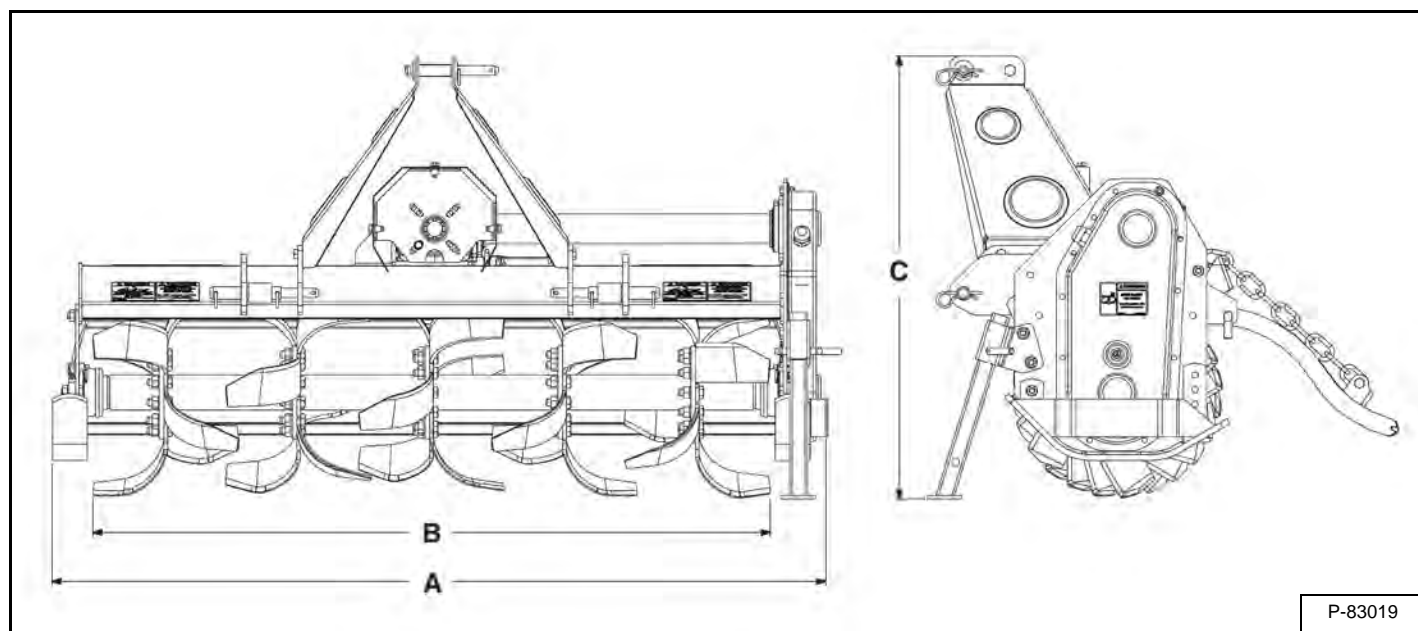


## IMPLEMENT DIMENSIONS

Certain specification(s) are based on engineering calculations and are not actual measurements. Specification(s) are provided for comparison purposes only and are subject to change without notice. Specification(s) for your individual Ignite Attachments equipment will vary based on normal variations in design, manufacturing, operating conditions, and other factors.

- All dimensions are shown in millimeters. Respective standard dimensions are given in inches enclosed by parentheses.
- Where applicable, specifications conform to **SAE and ISO** standards and are subject to change without notice.

### Dimensions



P-83019

DESCRIPTION	3PT TILLER 48	3PT TILLER 60	3PT TILLER 72
Overall Width (A)	1308 mm (51.5 in)	1626 mm (64 in)	1930 mm (76 in)
Overall Cutting Width (B)	1181 mm (46.5 in)	1492 mm (58.75 in)	1793 mm (70.59 in)
Overall Height (C)	864 mm (34 in)	994 mm (39.15 in)	994 mm (39.15 in)

### Performance

DESCRIPTION	3PT TILLER 48	3PT TILLER 60	3PT TILLER 72
Operating Weight	211 kg (465 lb)	289 kg (638 lb)	326 kg (718 lb)
Working Depth (Max.)	178 mm (7.0 in)	178 mm (7.0 in)	178 mm (7.0 in)
Drive Type	540 RPM Slip Clutch Protection	540 RPM Slip Clutch Protection	540 RPM Slip Clutch Protection
Hitch Category	Limited Cat 1	Cat 1	Cat 1
Flanges per Rotor	6	7	9
Tines per Flange	4	6	6
Tractor PTO Speed	540 rpm	540 rpm	540 rpm
Rotor RPM	211	211	211
Tractor PTO HP	15 - 35	25 - 50	30 - 55
Skid Shoes	Adjustable 10, 36, 61 mm (0.4, 1.4, 2.4 in)	Adjustable 10, 36, 61 mm (0.4, 1.4, 2.4 in)	Adjustable 10, 36, 61 mm (0.4, 1.4, 2.4 in)

**Capacities**

DESCRIPTION	3PT TILLER 48	3PT TILLER 60	3PT TILLER 72
Gearbox	1,4 L (0.38 U.S. gal)	0,75 L (0.20 U.S. gal)	1,0 L (0.26 U.S. gal)
Side Transmission	2,4 L (0.63 U.S. gal)	1,5 L (0.40 U.S. gal)	1,5 L (0.40 U.S. gal)

**WARRANTY**

IMPLEMENT WARRANTY .....69



## **IMPLEMENT WARRANTY**

A statement explaining the terms and conditions of the warranty coverage that applies to your implement is available by visiting [Igniteattachments.com](http://Igniteattachments.com).





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## Reference Information

Product Serial Number:

Engine Serial Number:

Dealer Information:



**WARNING:** Cancer and Reproductive Harm. This product can expose you to chemicals including lead and lead compounds, mineral oils, and phthalates which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).