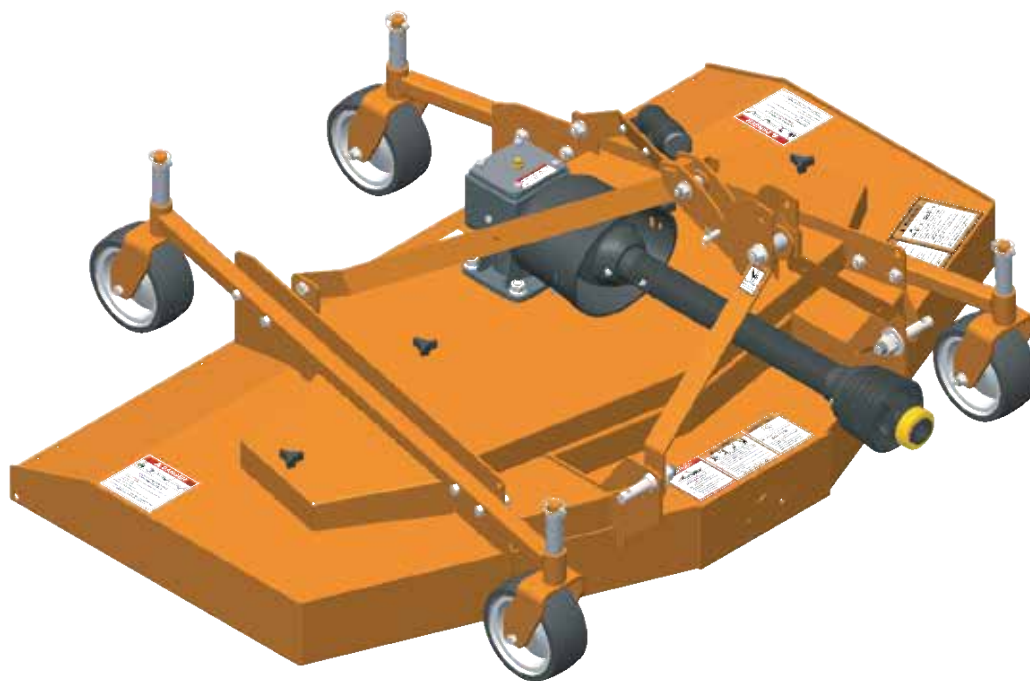


TURFKEEPER™ FINISH MOWER

TK60.20

TK72.20



MAN1299
(Rev 09/10/2024)

WOODS®

OPERATOR'S MANUAL

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Woods® dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the online Product Registration form at the Woods Dealer Website which certifies that all Dealer Check List items have been completed. Dealers can register all Woods product at dealer.WoodsEquipment.com under Product Registration.

Failure to register the product does not diminish customer's warranty rights.

TO THE OWNER:

Read this manual before operating your Woods equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer. To obtain complete warranty details, visit WoodsEquipment.com/warranty. You may also request a hard copy by calling 1-800-319-6637 or mail your request to: Woods Equipment Company, Attn: Warranty Dept. 2606 South Illinois Route 2, Oregon, IL 61061. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Woods dealer has trained mechanics, genuine Woods service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Woods service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ **Date of Purchase:** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **NOTICE** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING**, and **DANGER** are used in conjunction with the Safety-Alert Symbol (a triangle with an exclamation mark) to indicate the degree of hazard for items of personal safety.



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



Is used to address practices not related to physical injury.


NOTE Indicates helpful information.

2 Introduction

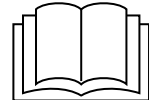
MAN1299
(09/10/2024)

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¡LEA EL INSTRUCTIVO!
Si no lee Ingles, pida ayuda a alguien que si lo lee para que le traduzca las medidas de seguridad.



This Operator's Manual should be regarded as part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine.

SPECIFICATIONS

	<u>TK60.20</u>	<u>TK72.20</u>
3-Point Hitch	Cat.1	Cat. 1
Quick Hitch Compatible	Factory Ready	Factory Ready
Cutting Width	60"	72"
Cutting Height Range	1-1/2" - 5"	1-1/2" - 5"
Operating Weight with Chain Shielding	481 lbs	538 lbs
Deck Plate Thickness	10 GA	10 GA
Blade Speed (feet per minute)	17,900	18,100
Blade Spindles	Cast Iron	Cast Iron
Number of Blades	3	3
Blade Overlap	1-1/4"	1-1/4"
Blade Options	Standard: High Lift Option: Low Lift	Standard: High Lift Option: Low Lift
Universal Drive Series	ASAE Cat. 3	ASAE Cat. 3
Operating Temperature Range	-20°F to 110°F (-28.9° to 43.3° C)	-20°F to 110°F (-28.9° to 43.3° C)
Caster Wheels	3.5 x 8.0 Solid Rubber	3.5 x 8.0 Solid Rubber
Tractor PTO Speed RPM	540	540
Recommended Maximum Tractor PTO Horsepower	15 - 35	25 - 35
Chain Shielding	Optional	Optional
Front Roller	Optional	Optional
Rear Roller	Optional	Optional

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your mower. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature, due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing. However, due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

Throughout this manual, references are made to right and left directions. These are determined by standing behind the tractor facing the direction of forward travel.

WARNING

- Some illustrations in this manual show the mower with safety shields removed to provide a better view. The mower should never be operated with any safety shielding removed.

4 Introduction

MAN1299
(09/10/2024)

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

TRAINING

- This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.
- Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.) Failure to follow instructions or safety rules can result in serious injury or death.
- If you do not understand any part of this manual and need assistance, see your dealer.
- Know your controls and how to stop engine and attachment quickly in an emergency.
- Operators must be responsible, trained, familiar with the instructions and be physically capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.
- Never allow children or untrained persons to operate equipment.

PREPARATION

- Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.

- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.
- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- Connect PTO driveline directly to power unit PTO shaft. Never use adapter sleeves or adapter shafts. Adapters can cause driveline failures due to incorrect spline or incorrect operating length and can result in personal injury or death.
- Before starting power unit, check all equipment driveline guards for damage. Replace any damaged guards. Make sure all guards rotate freely on all drivelines. If guards do not rotate freely on drivelines, repair and replace bearings before putting equipment into service.
- Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS systems in "locked up" position at all times.
- Remove accumulated debris from this equipment, power unit, and engine to avoid fire hazard.
- Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)
- Make sure shields and guards are properly installed and in good condition. Replace if damaged.
- A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.
- Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.
- Keep the area of operation clear of all bystanders, particularly small children [within 300 ft (92 m)]. Stop the machine and attachment(s) if anyone enters the area.

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



OPERATION

- Full chain shielding is recommended when operating in populated areas or other areas where thrown objects could injure people or damage property.
 - If this machine is not equipped with full chain shielding, operation is recommended to be stopped when anyone comes within 300 feet (92 m).
 - This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
 - Check that chain shielding is in good condition and replace any damaged chain links.
- Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
- To avoid damage to mower or driveline, make sure driveline holder is properly stored before operation.
- Never direct discharge toward people, animals, or property.
- Avoid discharging material against a wall or obstruction. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
- Keep bystanders and animals away from equipment.
- Stop the blade(s) when crossing gravel surfaces.
- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.
- Do not operate machine when shields or guards are removed.
- Do not operate or transport equipment while under the influence of alcohol or drugs.
- Operate only in daylight or good artificial light.
- Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.
- Always comply with all state and local lighting and marking requirements.
- Never allow riders on power unit or attachment.
- Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.
- Operate tractor PTO at 540 RPM. Do not exceed.
- Look down and to the rear and make sure area is clear before operating in reverse.
- Do not operate or transport on steep slopes. Refer to tractor manual for proper ballasting and slope recommendations.
- Use caution while operating near dropoffs.
- Power unit must be equipped with Roll Over Protection System (ROPS) or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.
- Do not stop, start, or change directions suddenly on slopes. Make turns slowly and gradually.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Watch for hidden hazards on the terrain during operation.
- Do not operate machine under any condition where traction, steering, or stability is in question. Tires could slide even if the wheels are stopped.
- Stop power unit and implement immediately upon striking an obstruction. Dismount power unit, using proper procedure. Inspect and repair any damage before resuming operation.
- Do not leave a running machine unattended. Always park on level ground, disengage tractor PTO, set parking brake, and stop engine.
- Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.
- Keep children out of the operating area and under the watchful care of a responsible adult other than the operator.

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



- Do not carry children, even with the blade(s) shut off. Children could fall off and be seriously injured or interfere with safe machine operation. Children who have been given rides in the past could suddenly appear in the mowing area for another ride and be run over or backed over by the machine.

TRANSPORTATION

- Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.
- Do not operate PTO during transport.
- A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.
- Do not operate or transport on steep slopes. Refer to tractor manual for proper ballasting and slope recommendations.
- Do not operate or transport equipment while under the influence of alcohol or drugs.
- Always comply with all state and local lighting and marking requirements. Turn on flashing warning lights whenever traveling on a public roadway.
- Never allow riders on power unit or attachment.
- Never exceed 25 mph (40 kph) during transport.

MAINTENANCE

- Before working underneath, carefully read Operator's Manual instructions, disconnect driveline, raise mower, securely block up all corners with jackstands, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.
- Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.
- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.
- Make sure attachment is properly secured, adjusted, and in good operating condition.

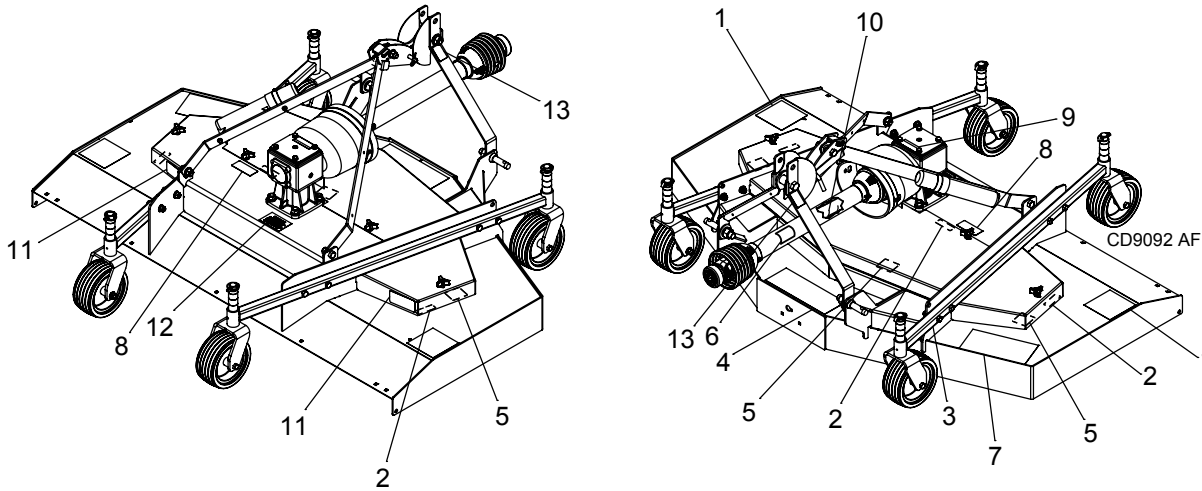
- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.
- Make certain all movement of equipment components has stopped before approaching for service.
- Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.
- Frequently check blades. They should be sharp, free of nicks and cracks, and securely fastened.
- Do not handle blades with bare hands. Careless or improper handling may result in serious injury.
- Your dealer can supply genuine replacement blades. Substitute blades may not meet original equipment specifications and may be dangerous.
- Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.
- Keep machine in good working order. Replace worn or damaged parts.
- Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)
- Make sure shields and guards are properly installed and in good condition. Replace if damaged.
- Wear gloves when installing belt. Be careful to prevent fingers from being caught between belt and pulley.
- Use care when installing or removing belt from spring-loaded idler. Springs store energy when extended and, if released suddenly, can cause personal injury.

STORAGE

- Follow manual instructions for storage.
- Keep children, bystanders, and animals away from the equipment and the storage area.

SAFETY & INSTRUCTIONAL DECALS

! ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! !
Replace Immediately If Damaged!

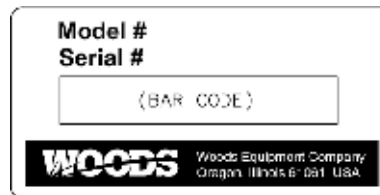


11 - 20106 - Rear Reflector

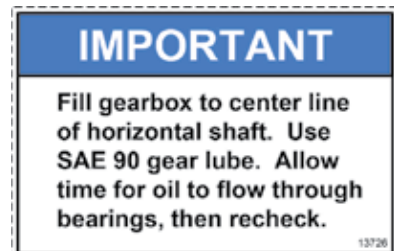
2 - 18869



3 - Serial Number Plate



12 - 13726



1 - 15503



5 - 626798



10 - 33347



9 - 1004114



8 - 1032450



SAFETY & INSTRUCTIONAL DECALS

⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠
Replace Immediately If Damaged!

4 - 626776

<p>⚠ DANGER</p>  <p>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!</p> <p>DO NOT OPERATE WITHOUT -</p> <ul style="list-style-type: none"> ■ All driveline guards, tractor and equipment shields in place. ■ Drivelines securely attached at both ends. ■ Driveline guards that turn freely on drivelines. ■ Read the operator's manual. ■ Do not use PTO adapters. 	<p>⚠ WARNING</p>  <p>CRUSHING AND PINCHING HAZARD</p> <ul style="list-style-type: none"> ■ Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement. ■ Operate tractor controls from tractor seat only. ■ Do not stand between tractor and implement when tractor is in gear. ■ Make sure parking brake is engaged before going between tractor and implement. ■ Stand clear of machine while in operation or when it is being raised or lowered. <p>FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.</p>	<p>⚠ WARNING</p>  <p>DO NOT EXCEED PTO SPEED OF 540 RPM</p> <ul style="list-style-type: none"> ■ PTO speeds higher than 540 RPM can cause equipment failure and personal injury. ■ Tractor PTO master shield, PTO drive shaft guarding and PIC guards are to be kept in place.
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7 - 626774

⚠ WARNING

TO AVOID SERIOUS INJURY OR DEATH:

- Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.)
- Never allow riders.
- Keep bystanders and children away from equipment during operation.
- Operate from tractor seat only.
- Keep all shields in place and in good condition.
- Do not operate without guards/shields in place.
- Lower equipment to ground, stop engine, remove key and set brake before dismounting tractor.
- Never allow children or untrained persons to operate equipment.
- Do not transport towed or semi-mounted units over 20 MPH.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

⚠ WARNING



FALLING OFF CAN RESULT IN BEING RUN OVER.

- Tractor must be equipped with ROPS (or ROPS CAB) and seat belt. Keep foldable ROPS systems in "locked up" position at all times.
- Buckle Up! Keep seat belt securely fastened.
- Never allow riders on mower or tractor.

RAISED EQUIPMENT CAN DROP AND CRUSH.

- Before working underneath, follow all instructions and safety rules in operator's manual and securely block up all corners of equipment with jack stands.
- Securely blocking prevents equipment dropping from hydraulic leak-down, hydraulic system failures or mechanical component failures.

FALLING OFF OR FAILING TO BLOCK SECURELY CAN RESULT IN SERIOUS INJURY OR DEATH.

13 - 603626

⚠ WARNING



**PINCH POINT
Do not push here**



6 - 18864

⚠ DANGER



**ROTATING DRIVELINE CONTACT CAN CAUSE DEATH
KEEP AWAY!**

DO NOT OPERATE WITHOUT -

- All driveline guards, tractor and equipment shields in place.
- Drivelines securely attached at both ends.
- Driveline guards that turn freely on driveline.
- Read the operator's manual.
- Do not use PTO adapters.

BE CAREFUL!

Keep safety decals clean and visible.

Use a clean, damp cloth to clean safety decals.

Avoid spraying too close to decals when using a pressure washer; high-pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.

Replace safety decals if they are missing or illegible.

Replacement safety decals can be ordered free from your Woods dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.

OPERATION

The operator is responsible for the safe operation of the mower. The operator must be properly trained. Operators should be familiar with the mower, the tractor, and all safety practices before starting operation. Read the **Safety Rules** and **Safety Decals** on **page 5** through **page 9**.

This mower is intended for lawn and grass mowing. It is not designed for rough conditions or heavy weed mowing. It is equipped with suction type blades for best results in lawn mowing.

Recommended mowing speed for most conditions is from 2 to 5 mph.

! DANGER

- Full chain shielding is recommended when operating in populated areas or other areas where thrown objects could injure people or damage property.
 - If this machine is not equipped with full chain shielding, operation is recommended to be stopped when anyone comes within 300 feet (92 m).
 - This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
 - Check that chain shielding is in good condition and replace any damaged chain links.

! WARNING

- Do not operate machine when shields or guards are removed.
- Never allow children or untrained persons to operate equipment.
- Keep bystanders and animals away from equipment.
- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- Operate tractor PTO at 540 RPM. Do not exceed.
- Before working underneath, carefully read Operator's Manual instructions, disconnect driveline, raise mower, securely block up all corners with jackstands, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.
- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.

! CAUTION

- Stop power unit and implement immediately upon striking an obstruction. Dismount power unit, using proper procedure. Inspect and repair any damage before resuming operation.
- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

TRACTOR STABILITY

! WARNING

- A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.

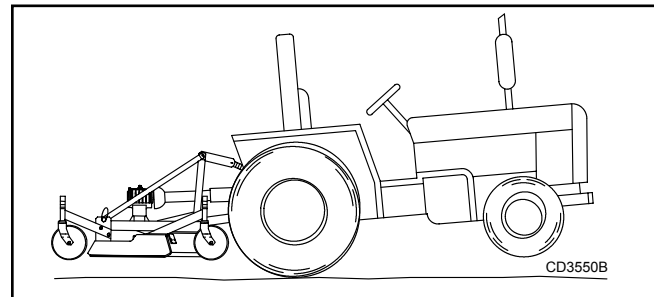


Figure 1. Tractor Stability

ATTACHING MOWER TO TRACTOR

! WARNING

- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.

! CAUTION

- Make sure driveline will not bottom out at the shortest length and that it has at least 4" overlap at the longest length.
- If driveline is too short, please call your Woods dealer for a longer driveline.
- If driveline is too long, follow the instructions for shortening the driveline.

Category 1 Hitch (Figure 2 & 3)

1. Align tractor lower lift arms with mower cantilever hitch pins.
2. Install tractor lower lift arms over cantilever pins and retain with klik pin.
3. Attach tractor top link to mower top link attachment point with top link pin. Retain with cotter or klik pin.
4. Remove the mower driveline from the holder and connect to the tractor PTO shaft. Be sure the driveline QD is seated firmly in the tractor PTO spline groove.
5. If your driveline was equipped with tether chains, be sure to connect the tractor end chain to the tractor PTO master shield.
6. Remove the bent pin (item 32) and cotter from the break link (item 28). Swing driveline holder up into storage position. Install bent pin through holder and break link. Retain with hairpin cotter. See Figure 4.

WARNING

- **Shear Hazard. Hands or fingers could be pinched or sheared between mower hitch break link and hitch a-frame bars. Always install bent pin through break link and a-frame bar pivot when mower is disconnected from tractor. Do not push on a-frame bars.**
7. Lengthen the tractor top link until mower break link cross piece is $3/4$ " above the rear offset links. See Figure 6. The front tires of the mower will lift off the ground before the rear tires when the unit is raised. This will allow the mower to follow the ground contour when mowing).

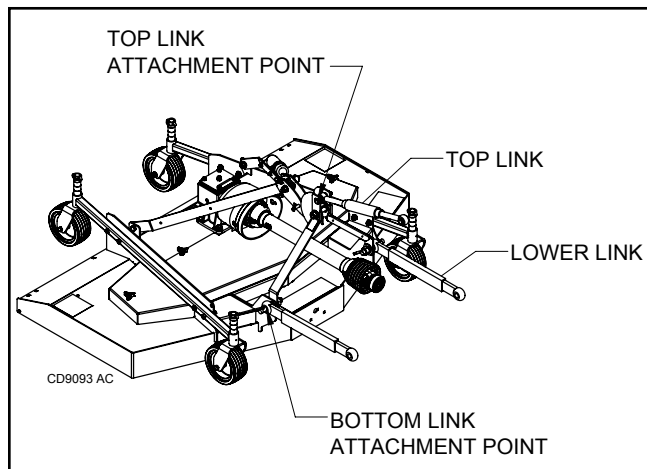


Figure 2. Attachment Points



Figure 3. Attach Mower to Tractor

Category 1 Quick Hitch (Figure 4 & 5)

1. Install Category 1 quick hitch on tractor 3-point hitch arms.
2. The quick hitch must be oriented vertically relative to the ground. Shorten or lengthen the tractor top link until the quick hitch is vertical.
3. Install quick hitch sleeves (item 53) over mower cantilever hitch pins and retain with klik pins.
4. If the mower driveline is already installed on the mower, it should be placed on the driveline holder. The bent pin (item 32) should be removed from the holder, releasing it to swing down and support the drive.
5. The mower a-frame links (item 48) should be locked in a vertical orientation. Push the a-frame links rearward until the small holes in the top of the rear offset links (item 24) align to the cross-hole in the break link (item 28). Install the driveline holder bent pin (item 32) through these holes to hold this position and retain with hairpin cotter.
6. Ascend the tractor, sit in the seat, start the engine, and release the parking break.
7. Center the tractor relative to the mower, aligning the 3-point quick hitch hooks with the mower hitch points. Back the tractor up until the quick hitch contacts the mower hitch, raise the tractor 3-point until the mower rests firmly in the bottom of all the quick hitch hooks.
8. Swing the quick hitch lock levers inward to lock the lower hooks onto the mower cantilever hitch pins. Lower the tractor 3-point control to set the mower on the ground.
9. Put the tractor transmission in neutral, set the parking brake, and turn off the engine. Descend the tractor and move to the mower.

10. Remove the mower driveline from the holder and connect to the tractor PTO shaft. Be sure the driveline QD is seated firmly in the tractor PTO spline groove.
11. Remove the bent pin (item 32) and cotter from the break link (item 28). Swing driveline holder up into storage position. Install bent pin through holder and break link. Retain with hairpin cotter.
12. Adjust tractor top link until mower break link cross piece is 3/4" above the rear offset links. See Figure 6. The front tires of the mower will lift off the ground before the rear tires when the unit is raised. This will allow the mower to follow the ground contour when mowing.

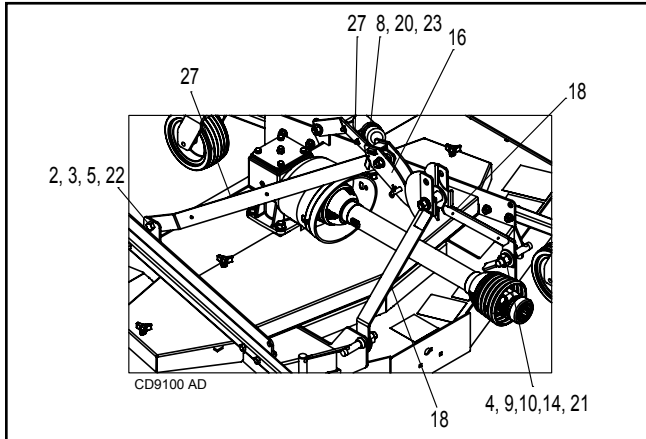


Figure 4. Hitch Assembly



Figure 5. Quick Hitch Attachment

INSTALLATION AND REMOVAL OF DRIVELINE (TRACTOR PTO)

⚠ WARNING

- Connect PTO driveline directly to power unit PTO shaft. Never use adapter sleeves or adapter shafts. Adapters can cause driveline failures due to incorrect spline or incorrect operating length and can result in personal injury or death.

⚠ CAUTION

- To avoid damage to cutter or driveline, make sure driveline holder is properly stored before operation.

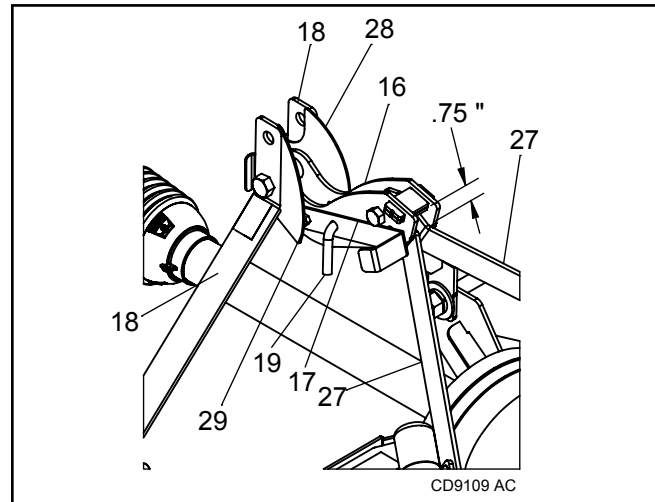


Figure 6. Driveline Holder Storage Position

To Install

Pull locking collar back, and at the same time, push driveline onto tractor PTO shaft until locking device engages.

To Remove

Hold driveline into position, pull locking collar back, and slide driveline off tractor PTO shaft.

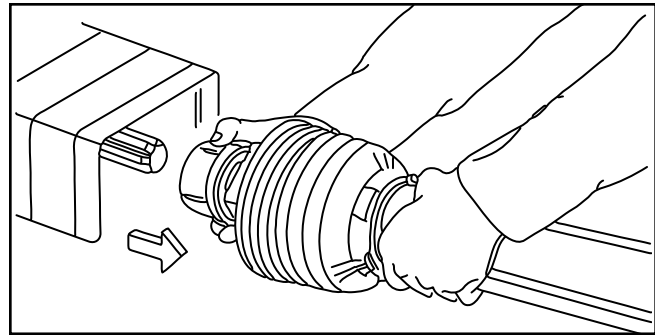


Figure 7. Lock Collar

Front Caster Wheel Interference Check

NOTICE

- Do not operate tractor and mower until this interference check has been performed. If you change tractors, you must perform the check for that mounting.

Perform this check with all the spacers above the tubular wheel arm. This will place the caster wheels in their highest position and provide the lowest cutting height for the mower.

12 Operation

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1. Raise the mower slowly with the tractor hydraulics to 16" at dimension C, Figure 8, or maximum height of tractor lift, whichever is less.
2. Pivot both front caster wheels forward and check that there is clearance between caster wheels and tractor tires.
3. If there is interference, see tractor operator's manual and adjust tractor wheels accordingly.

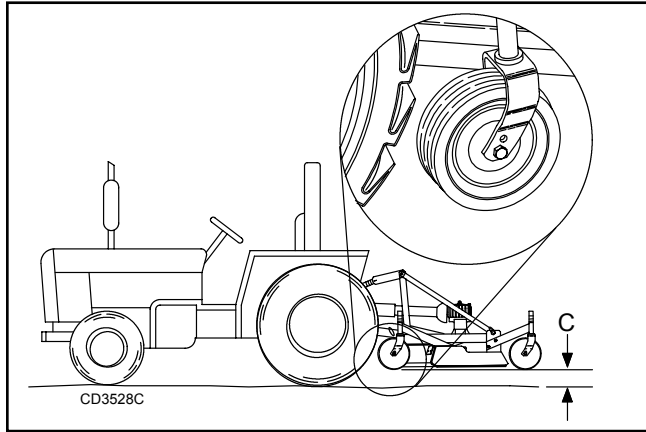


Figure 8. Front Caster Wheel Interference Check

SHORTENING DRIVELINE

1. Move mower up and down to measure the shortest possible distance between tractor PTO shaft and gearbox input shaft.
2. Separate driveline into two halves. The driveline female profile tube is covered by the smaller profile shield. Connect this half to the mower gearbox.
3. Connect the other half of the driveline to the tractor PTO shaft. This half contains the male profile tube which is covered by the larger profile shield.
4. Place driveline halves parallel to one another to determine how much to shorten the driveline.



Figure 9. Drive Halves Placed Parallel

5. Measure from end of the upper shield to the base of the bell on the lower shield (A). Add 1-9/16" to dimension (A). See Figure 10.

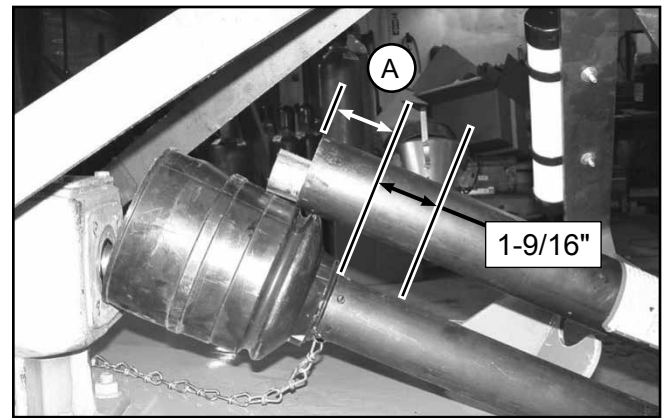


Figure 10. Determine Shield Length

6. Cut the shield to the overall dimension.

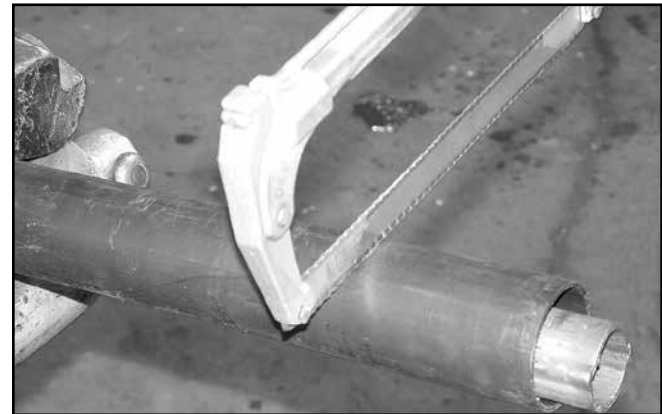


Figure 11. Cut Shield

7. Place the cut-off portion of the shield against the end of the shaft and use as a guide. Mark and cut the shaft.



Figure 12. Cut Shaft to Length

8. Repeat step 6 for the other half of the drive.
9. File and clean cut ends of both drive halves. Do not use tractor if proper driveline engagement cannot be attained through these methods. Connect driveline to tractor PTO shaft, making sure the spring-activated locking collar slides freely and locks driveline to PTO shaft.

IMPORTANT: If attaching with quick hitch, the distance between the tractor PTO and gearbox input shaft will increase. Follow the steps as you would for a 3-point hitch to ensure proper engagement.

DRIVELINE INTERFERENCE CHECK

1. Check for proper clearance between driveline and mower deck.
2. Slowly lift mower and observe driveline. If clearance between driveline and mower deck is less than 1 inch, shorten top link or limit upper travel of lower hitch arms. Refer to tractor operator's manual for instructions.

ADJUSTING CUTTING HEIGHT

WARNING

- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.

NOTICE

- Avoid low cutting heights. Striking the ground with blades produces one of the most damaging shock loads a mower can encounter. Allowing blades to contact ground repeatedly will cause damage to mower and drive.

IMPORTANT: The front of the deck is designed to be 1/4" lower than the rear of the deck when all caster wheels have the same number of wheel spacers. This helps the mower cut grass more efficiently.

1. Level mower from side to side. Check by measuring distance from mower side frame to the ground at each deck rail.
2. Verify that the same amount of spacers are under all caster arms.
3. Control cutting height by adjusting front and rear caster wheels spacer count. See Table 1.
4. To raise front or rear of mower, move caster adjustment spacers from above caster arms to under caster arms.
5. To lower front or rear of mower, move caster adjustment spacers from under caster arms to above caster arms.

Table 1: Cutting Height Chart

Spacers Required Under Caster Arm Pivot Tube		
Cut Height	1/2" Spacer	1" Spacer
1-1/2"	0	0
2"	1	0
2-1/2"	0	1
3"	1	1
3-1/2"	0	2
4"	1	2
4-1/2"	0	3
5"	1	3

TRACTOR TOP LINK ADJUSTMENT

When the cutting height is set, adjust tractor top link until mower top hitch links (C) point downward between 30 and 45 degrees below horizontal. Secure tractor top link jam nut. The front tires of the mower will lift off the ground before the rear tires when raised. This will allow the mower to follow the ground contours when mowing. (See Figure 13.)

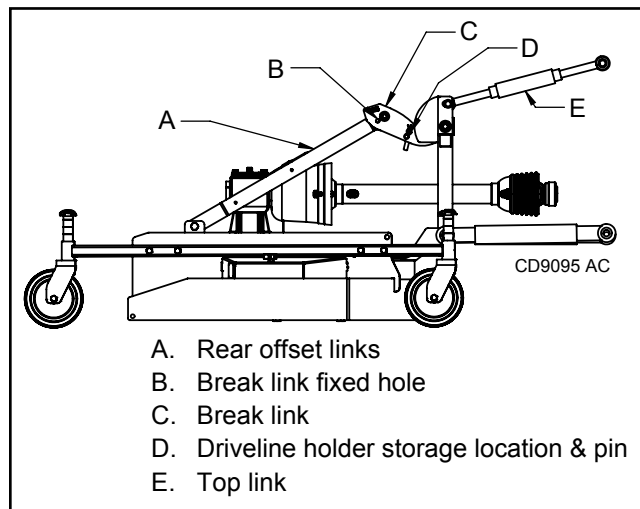


Figure 13. Top Link Adjustment

FRONT ROLLER (OPTIONAL)

The caster wheels effectively reduce scalping in most cases. However, you may encounter areas where the caster wheels and/or frame sides drop into depressions and allow center of the mower to contact ground and scalp. An optional front roller may be installed to minimize scalping. See page 42.

REAR ANTI-SCALP ROLLER (OPTIONAL)

If the front roller does not resolve your scalping issues, optional rear anti-scalp rollers can be added at the rear corners of the mower. These will prevent the rear corners of the mower from contacting the ground. See page 42.

PRE-OPERATION CHECKLIST

(OWNER'S RESPONSIBILITY)

- _____ Review and follow all safety rules and safety decal instructions on page 5 through page 9.
- _____ Check that all safety decals are installed and in good condition. Replace if damaged.
- _____ Check that all shields and guards are properly installed and in good condition. Replace if damaged.
- _____ Check that chain shielding is in good condition and replace any damaged chain links.
- _____ Check that all hardware and cotter pins are properly installed and secured.
- _____ Check to ensure blades are sharp, in good condition, and installed correctly. Replace if damaged.
- _____ Check that equipment is properly and securely attached to tractor.
- _____ Make sure driveline spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- _____ Make sure the driveline and guards are in good condition. Driveline guards must rotate freely. If equipped, driveline tether chains should also be in good condition. Fasten the tether chains to the tractor and implement as instructed.
- _____ Inspect area and remove stones, branches or other hard objects that might be thrown, causing injury or damage.
- _____ Do not allow riders.
- _____ Check all lubrication points and grease as instructed in "Lubrication Information" on page 17 & page 18. Make sure the PTO slip joint is lubricated and that the gearbox fluid levels are correct.
- _____ Set tractor PTO at correct RPM for your equipment.
- _____ Make sure tractor ROPS or ROPS cab and seat belt are in good condition. ROPS must be in the upright position and seat belt securely fastened during operation.
- _____ Before starting engine, operator must be in tractor seat with seat belt fastened. Place transmission in neutral or park, engage brake, and disengage tractor PTO.

OPERATING TECHNIQUE

CAUTION

Starting and Stopping

1. Power for operating the mower is supplied by the tractor PTO. Operate PTO at 540 RPM. Know how to stop the tractor and mower quickly in an emergency.
2. Engage PTO at a low engine RPM to minimize stress on the drive system and gearbox. With PTO engaged, raise PTO speed to 540 RPM and maintain throughout cutting operation.

Gearbox protection is provided by the belt drive. The belt is designed to slip when excessive loads occur.

Operation

1. Move slowly into material. Adjust tractor ground speed to provide a clean cut without lugging the tractor engine.

Proper ground speed will depend upon the terrain, the height, and type and density of material to be cut.

Normally, ground speed will range from 2 to 5 mph. Tall dense material should be cut at a low speed; thin medium-height material can be cut at a faster ground speed.

2. Always operate tractor PTO at 540 RPM to maintain proper blade speed and to produce a clean cut.
3. Under certain conditions, tractor tires may roll some grass down and prevent it from being cut at the same height as the surrounding area. When this occurs, reduce your ground speed, but maintain PTO at 540 RPM. The lower ground speed will permit grass to partially rebound.
4. In general, lower cutting heights give a more even cut and leave less tire tracks. However, it is better to cut grass frequently rather than too short. Short grass deteriorates rapidly in hot weather and invites weed growth during growing seasons. Follow local recommendations for the suitable cutting height in your area.

Clearing Blockages

If mower becomes plugged, causing belt to slip for over two seconds, follow these steps:

1. Maneuver equipment into a previously cut area and allow mower to clear accumulated material.
2. Continue running at least two minutes, allowing pulleys to cool. Stopping the mower when in contact with a very hot pulley will bake and ruin belt.

OPERATING TIPS

⚠ WARNING

- **Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.**

Extremely tall material should be cut twice. Set mower at a higher cutting height for the first pass. Then cut at desired height, 90 degrees to the first pass. Remember, sharp blades produce cleaner cuts and require less power.

Analyze area to be cut to determine the best procedure. Consider height and type of grass and terrain type: hilly, level, or rough. Plan your mowing pattern to travel straight forward whenever possible. Mow with uncut grass to the right. This will distribute the clippings over the cut area.

Uneven Terrain

⚠ WARNING

- **Do not operate or transport on steep slopes.**
- **Do not stop, start, or change directions suddenly on slopes. Make turns slowly and gradually.**
- **Use extreme care and reduce ground speed on slopes and rough terrain.**
- **Watch for hidden hazards on the terrain during operation.**

Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up tractor and mower. Practice will improve your skills in maneuvering rough terrain.

TRANSPORTATION

⚠ WARNING

- **Rotating blades. Contact with rotating blades could cause serious injury or death.**
1. Disengage the PTO and wait for all moving parts to come to a complete stop. Raise the tractor 3-point arms to bring the mower into transport position
 2. With mower adjusted to transport position, set upper stop on tractor lift quadrant to prevent mower from contacting the driveline while being raised.

REMOVING MOWER FROM TRACTOR (STORAGE)

Follow cleaning procedure on page 21.

1. Disengage tractor PTO and raise mower with the 3-point hitch.
2. Disconnect mower driveshaft from tractor PTO.
3. Collapse driveshaft as far as possible and store it in drive holder to prevent ground contact.
4. Place blocks under mower side skids. Lower mower onto blocks, disconnect mower from tractor 3-point hitch, and carefully drive tractor away from mower. See Figure 14.

⚠ WARNING

- **Keep children, bystanders, and animals away from the equipment and the storage area.**

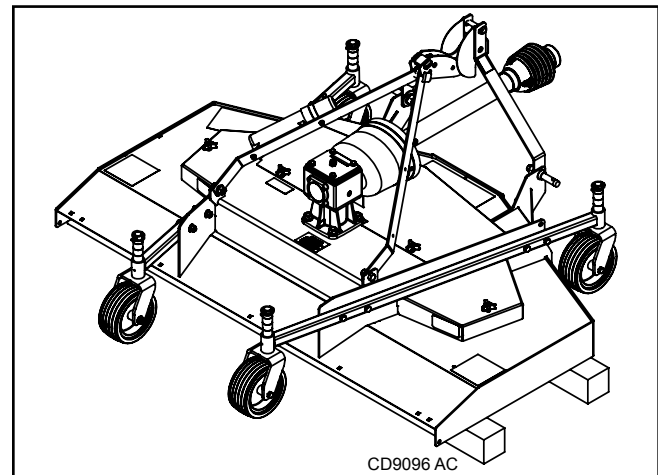


Figure 14. Mower Storage Position

OWNER SERVICE

The information in this section is written for operators who possess basic mechanical skills. If you need help, your dealer has trained service technicians available. For your protection, read and follow the safety information in this manual.

- Keep machine in good working order. Replace worn or damaged parts.

CAUTION

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

WARNING

- Never allow children or untrained persons to operate equipment.
- Keep bystanders and animals away from equipment.
- Before working underneath, carefully read Operator's Manual instructions, disconnect driveline, raise mower, securely block up all corners with jackstands, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.
- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.
- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- Operate tractor PTO at 540 RPM. Do not exceed.

BLOCKING METHOD

Do not work underneath mower unless it is properly attached to the tractor and blocked securely. When properly attached, the unit will be anchored to minimize front to rear movement.

Raise mower completely, set tractor brakes, turn engine off, remove key, block tractor wheels front and rear, and disconnect mower driveline from tractor.

The only approved blocking devices for this mower are jackstands with a load rating of 1000 pounds or more. One jackstand under each corner of the mower (four total) must be installed before working underneath this unit. See Figure 15.

When blocking, you must consider overall stability of the unit. Just blocking under the unit will not ensure your safety. The working surface must be level and solid to support the loaded weight of the jackstands. Test jackstand stability before working under any portion of the mower.

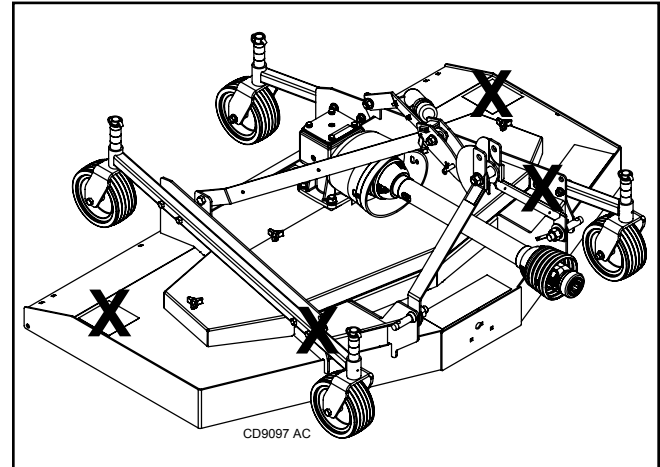


Figure 15. Jackstand Placement

LUBRICATION INFORMATION

Do not let excess grease collect on or around parts, particularly when operating in sandy areas.

Figure 16 shows the lubrication points. The accompanying chart gives the frequency of lubrication in operating hours, based on normal operating conditions.

Severe or unusual conditions may require more frequent lubrication. Some reference numbers have more than one location; be sure you lubricate all locations.

Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations. Be sure to clean fittings thoroughly before attaching grease gun. When applied according to the lubrication chart, one good pump of most guns is sufficient.

Use SAE 80W or 90W gear lube in the gearbox. Fill to plug on side of gearbox. See **Fill Gearbox** on **page 28**.

Check gearbox daily for evidence of leakage at both seals and the gasket between the housing and cover. If leakage is noted, repair immediately. There may be a small amount of lube emitted from the vent plug; this is not considered leakage.

IMPORTANT: Overfilling the gearbox will cause the excess gear lube to blow out vent plug and possibly ruin the belt.

IMPORTANT: Over-greasing the caster wheels can push powdered metal bushing out of wheel. This will lead to premature failure of the bushing or wheel hub.

Driveshaft Lubrication

Lubricate the driveshaft slip joint every 40 operating hours. Failure to maintain proper lubrication could result in damage to U-joints, gearbox, and driveshaft.

1. Lower mower to the ground, set parking brake, stop engine, and remove key.
2. Disconnect driveline from tractor PTO shaft. Collapse telescoping section completely and hang on driveline holder.
3. Locate outer profile shield grease access hole. Rotate outer shield until it aligns with lubrication hole in inner profile shield. Rotate both profile shields until the openings are over the grease fitting in the telescoping section of the driveline.
4. Insert grease gun and give 2 to 3 full pumps of grease.
5. Locate grease access holes in the tractor end joint bellows. Rotate driveline to align access hole with grease fitting in the tractor cross end cap. Apply 2 full pumps of grease.
6. Locate white plastic grease fitting at the base of the tractor end joint bellows. Apply 2 full pumps of grease to lubricate the safety shield bearings.
7. Repeat steps 5 and 6 for implement end of driveline.
8. Reconnect driveline to tractor PTO shaft.
9. Raise and lower mower several times before mowing to distribute grease along telescoping section of driveline.

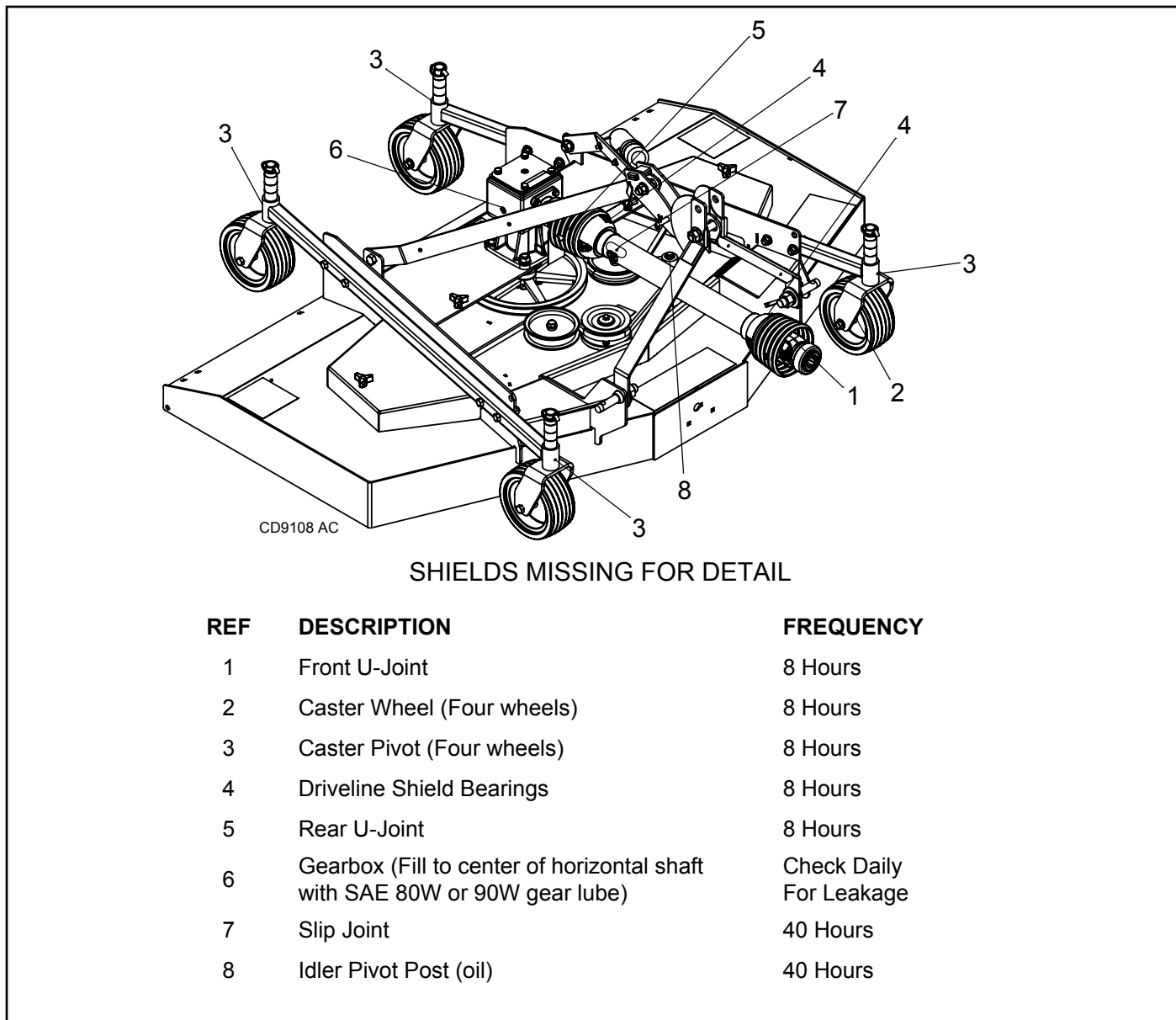


Figure 16. Lubrication Points

BELT SERVICING

Inspect Belt

One of the major causes of belt failure is improper installation. Before installing a new belt, check the following:

1. Remove thumb screws and remove belt shields. Set shields aside. Replace thumb screws on studs to prevent loss.
2. Check spindle shafts and bearings for wear. Spindles should not have endplay.
3. Check pulley grooves for cleanliness. If grooves require cleaning, moisten a cloth with a nonflammable, non toxic degreasing agent or commercial detergent and water.
4. Make sure spindles turn freely and without pulley or blade wobble.

If grooves require cleaning, moisten a cloth with a non flammable, nontoxic degreasing agent or commercial detergent and water.

Avoid excessive force during installation. Do not use tools to pry belt into pulley groove. Do not roll belt over pulleys to install. This can cause hidden damage and premature belt failure.

Remove Belt

⚠ CAUTION

- Use care when installing or removing belt from spring-loaded idler. Springs store energy when extended and, if released suddenly, can cause personal injury.

IMPORTANT: Avoid excessive force during installation. Do not use tools to pry belt into pulley groove. Do not roll belt over pulleys to install. This can cause hidden damage and premature belt failure

1. Loosen hardware for belt guide G and swing belt guide away from sheave B and belt.
2. Grasp belt between spindle sheave E, spring-loaded idler F, and spindle sheave D. Pull spring-loaded idler with belt to obtain enough belt length to route it over sheave E.
3. Check that spring-loaded idler pivots freely. Clean and lubricate if necessary.
4. Loosen gearbox mounting bolts, but do not remove. This will ensure the belt can be slid under gearbox shaft without pinching or cutting.”
5. Remove belt from remaining sheave grooves and then from mower. Inspect belt for damage. A belt that will not lay flat on the ground indicates broken cords.

Install Belt

⚠ CAUTION

- Use care when installing or removing belt from spring-loaded idler. Springs store energy when extended and, if released suddenly, can cause personal injury.
1. Route belt around spindle sheave B, backside idler C, and spindle sheave D as shown in Figure 17.
 2. Slide belt under drive sheave A and over spring-loaded backside idler F. Position belt in drive sheave grooves, except for spindle sheave E.
 3. Grasp belt between spindle sheave E, spring-loaded idler F, and spindle sheave D. Pull spring-loaded idler with belt to obtain enough belt length to route it over sheave E.
 4. Tighten gearbox mounting bolts and torque to 170 ft-lbs.
 5. Place belt guide G within 1/16" of belt sheave B. Tighten spindle bolt to 85 ft-lbs.
 6. Remove thumb screws from studs. Replace belt shields. Ensure tabs on end shields are fitted into slots in deck rails. Thumb screws to be secured tightly to prevent loss.

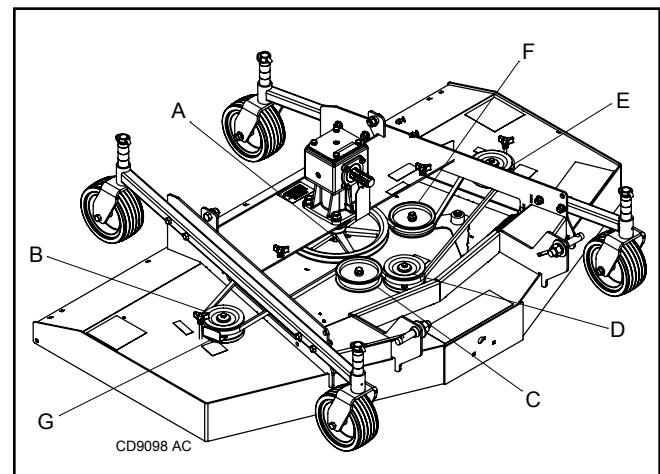


Figure 17. Belt Routing

BLADE SERVICING

⚠ WARNING

- Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, operate valve levers to release any hydraulic pressure, set parking brake, stop engine, remove key, and unfasten seat belt.
- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.

⚠ CAUTION

- Frequently check blades. They should be sharp, free of nicks and cracks, and securely fastened.
1. Inspect blades before each use to determine that they are mounted securely and are in good condition.
 2. Replace any blade that is bent, excessively nicked, worn, or has any other damage. Do not repair.
 3. Small nicks can be ground out when sharpening.

Remove Blades

⚠ CAUTION

- Do not handle blades with bare hands. Wear gloves. Careless or improper handling may result in injury.
1. Remove bolt (79), Figure 19, which has right hand threads.
 2. Remove belville washers (78) and blade (77).

Sharpen Blades

NOTICE

- When sharpening blades, be sure to balance them. Unbalanced blades will cause excessive vibration that can damage blade spindle bearings. Vibration may also cause structural cracks in mower housings.

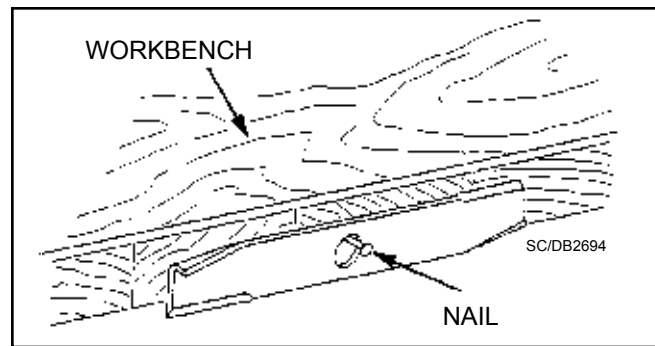


Figure 18. Blade Balancing

1. Follow original sharpening pattern.
2. Do not sharpen blade to a razor edge, but leave approximately 1/64" blunt edge.
3. Do not sharpen back side of blade.
4. Sharpen both cutting edges equally to keep blade balanced. Balance blade using the method shown in Figure 18.

Install Blades

⚠ CAUTION

- Your dealer can supply genuine replacement blades. Substitute blades, blade pins, blade bolts may not meet original equipment specifications and may be dangerous.

NOTICE

- When installing blade, the lift of the blade must be toward the spindle blade housing as shown in Figure 19. Torque bolt (79) into shaft assembly to 100 lbs-ft.
1. Place blade over the bottom of the shaft assembly.
 2. Place Belleville washer (78) over blade and insert blade bolt (79). Torque blade bolt to 100 lbs-ft.

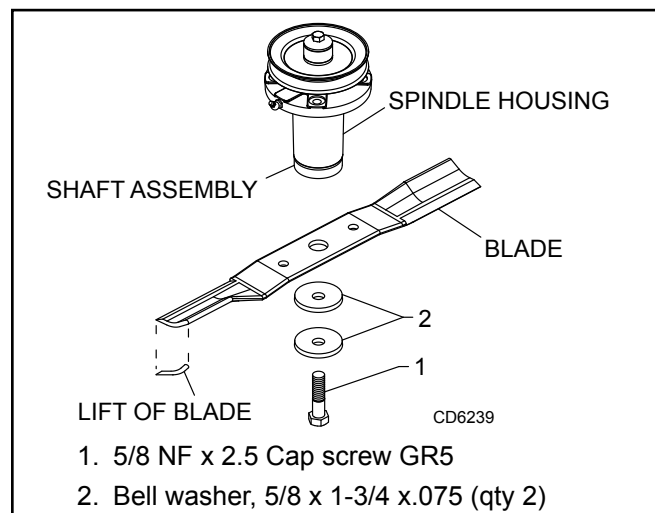


Figure 19. Blade and Spindle Assembly

Chain Shielding

DANGER

- Full chain shielding is recommended when operating in populated areas or other areas where thrown objects could injure people or damage property.
 - If this machine is not equipped with full chain shielding, operation is recommended to be stopped when anyone comes within 300 feet (92 m).
 - This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
 - Check that chain shielding is in good condition and replace any damaged chain links.

CLEANING

After Each Use

- Remove large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Inspect machine and replace worn or damaged parts.
- Replace any safety decals that are missing or not readable (supplied free by your Woods dealer).

Periodically or Before Extended Storage

- Clean large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Remove the remainder using a low-pressure water spray.
 1. Be careful when spraying near scratched or torn safety decals or near edges of decals as water spray can peel decal off surface.
 2. Be careful when spraying near chipped or scratched paint as water spray can lift paint.
 3. If a pressure washer is used, follow the advice of the pressure washer manufacturer.
- Inspect machine and replace worn or damaged parts.
- Sand down scratches and the edges of areas of missing paint and coat with Woods spray paint of matching color (purchase from your Woods dealer).
- Replace any safety decals that are missing or not readable (supplied free by your Woods dealer). See Safety & Instructional Decals section for location drawing.

TROUBLESHOOTING

MOWING CONDITIONS

PROBLEM	POSSIBLE CAUSE	SOLUTION
Grass cut higher in center of swath than at edge	Height of mower higher at front than at rear	Adjust mower height and attitude so that mower rear and front are within 1/2 inch of same height. See instructions on page 14.
	Loose blade	Check blade hardware.
Grass cut lower in center of swath than at edge	Height of mower lower at front than at rear	Adjust mower height and attitude so that mower rear and front are within 1/2 inch of same height. See instructions on page 14.
	Loose blade	Check blade hardware.
Streaking conditions in swath	Conditions too wet for mowing	Allow grass to dry before mowing.
	Blades unable to cut that part of grass pressed down by path of tractor tires	Slow ground speed of tractor but keep engine running at full PTO RPM. Cutting lower will help. Adjust tractor tire spacing if possible.
	Dull blades	Sharpen or replace blades.
	Loose blade	Check blade hardware.
Material discharges from mower unevenly; bunches of material along swath	Material too high and too much material	Reduce ground speed but maintain 540 RPM at tractor PTO, or make two passes over material. Raise mower for the first pass and lower for the second and cut 90degrees to first pass. Raise rear of mower high enough to permit material discharge, but not so high that conditions listed above occur.
	Grass is wet	Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO RPM.

TROUBLESHOOTING

BELT CONDITIONS

PROBLEM	POSSIBLE CAUSE	SOLUTION
Belt squealing/slipping	Mower overloading; material too tall or heavy	Reduce tractor ground speed but maintain full PTO RPM. Cut material twice, one high pass and then mow at desired height. Cut 90-degrees to first pass.
	Oil on belt from over lubricating	Be careful not to over lubricate. Clean lubricant from belt and pulleys with clean rag. Replace oil-soaked belt.
	Belt hung up or rubbing	Check belt position in pulleys and idlers. Check belt for free travel in pulleys. Check under mower and around blade spindle shaft for wire, rags, or other foreign material. Clean all material from under mower.
	Bearing failure	Check that spindles turn freely and do not have endplay. Replace any spindle that turns roughly or drags.
Belt Edge Cut	Belt pinched by guide	Adjust belt guide to within 1/8" from sheave.
Frayed edges on belt cover	Belt is misaligned	Re-align belt. Be sure belt does not rub any other part while running.
	Pulley is misaligned	Inspect to ensure belt is running in center of backside idler. Shim idler as necessary to align.
Belt rollover	Pulley is misaligned	Re-align.
	Damaged belt	Replace belt. *
	Foreign object in pulley groove	Inspect all pulley grooves for rust, paint, or weld spots and remove.
	Worn pulley groove	Replace pulley.
Damaged belt	Rollover, high shock loads or installation damaged	Replace belt. *
Belt breakage	High shock loads	Avoid abusive mowing. Avoid hitting the ground or large obstructions.
	Belt came off drive	Check pulleys for foreign material in grooves. Avoid hitting solid objects or ground.

* Check belt for damage by laying it flat on the floor. A belt that does not lie flat (has humps or twists, indicating broken or stretched cords) must be replaced.

DEALER SERVICE

The information in this section is written for dealer service personnel. The repair described here requires special skills and tools. If your shop is not properly equipped or your mechanics are not properly trained in this type of repair, you may be time and money ahead to replace complete assemblies.

⚠ WARNING

- Before working underneath, read manual instructions, securely block up, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failure, or mechanical component failure.
- Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.

⚠ CAUTION

- Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

BLOCKING METHOD

Do not work underneath mower unless it is properly attached to the tractor and blocked securely. When properly attached, the unit will be anchored to minimize front to rear movement.

Raise mower completely, set tractor brakes, turn engine off, remove key, block tractor wheels front and rear, and disconnect mower driveline from tractor.

The only approved blocking devices for this mower are jackstands with a load rating of 1000 pounds or more. One jackstand under each corner of the mower (four total) must be installed before working underneath this unit.

When blocking, you must consider overall stability of the unit. Just blocking under the unit will not ensure your safety. The working surface must be level and solid to support the loaded weight of the jackstands. Test jackstand stability before working under any portion of the mower.

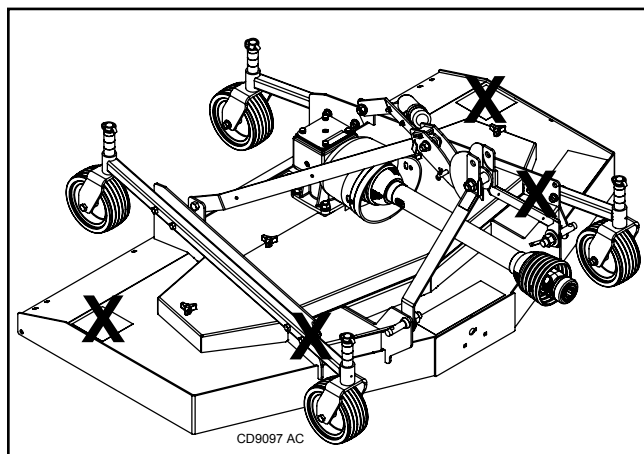


Figure 20. Jackstand Placement

BLADE SPINDLE REPAIR

Spindle repair requires special skills and tools. If your shop is not properly equipped or your mechanics are not trained in this type of repair, you may be time and money ahead to use a new spindle assembly

For reference, the grease fitting is in the top of the spindle shaft.

Remove Spindle

1. Remove belt shields from deck.
2. Remove belt. See page 19 for procedure.
3. Remove blade from spindle assembly.
4. Remove nut (74.8) and washer (74.9) from the top of the spindle.
5. Remove nuts (6) and cap screws (7) that secure spindle assembly to mower. See Figure 21.

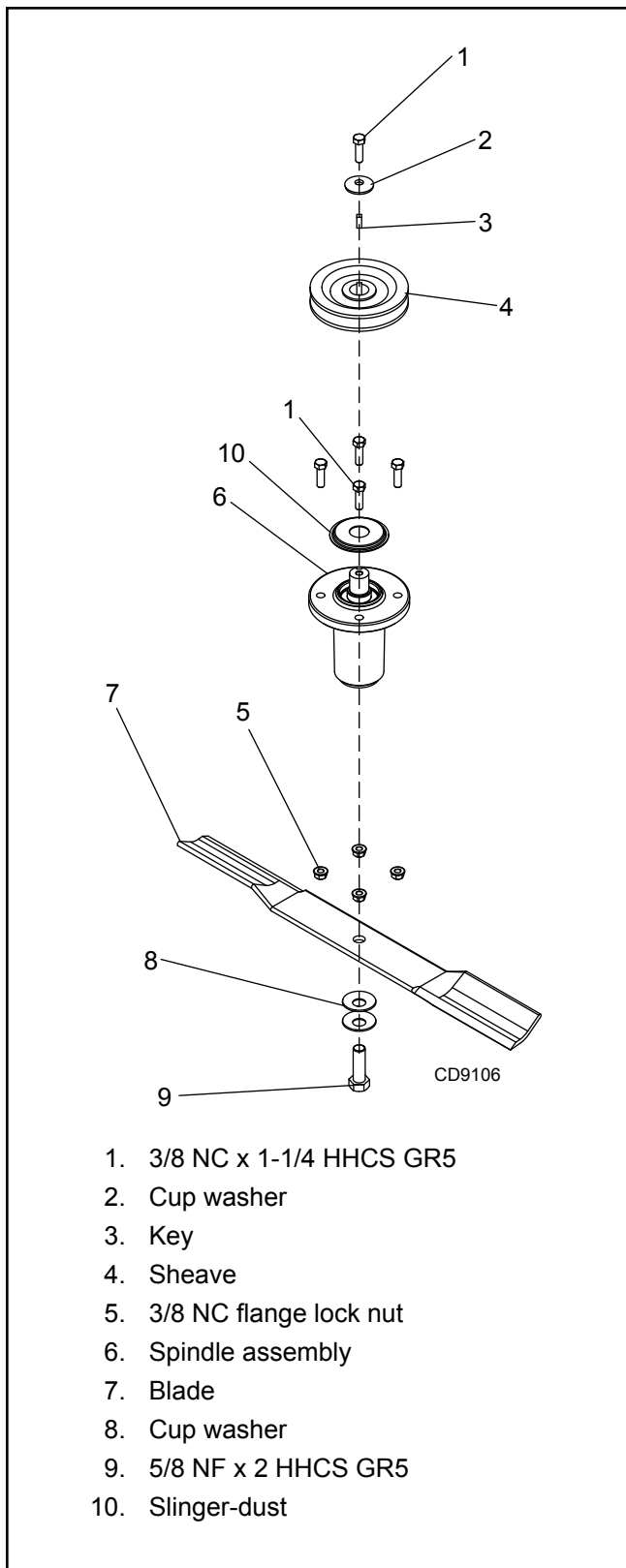


Figure 21. Blade Spindle Assembly

GEARBOX REPAIR

Read this entire section before starting any repair. Many steps are dependent on each other.

Fill gearbox with SAE 80W or 90W gear lube until it runs out the side level plug. Gearbox capacity is almost 4 pints.

Repair to this gearbox is limited to replacing bearings, seals, and gaskets. Replacing gears, shafts, and a housing is not cost effective. It is more economical to purchase a complete gearbox if repair to anything other than replacement of bearings, seals or gaskets is required.

Inspect gearbox for leakage and bad bearings.

Leakage is a very serious problem and must be corrected immediately.

Bearing failure is indicated by excessive noise and side to side or end play in gear shafts.

Seal Replacement

Recommended sealant for gearbox repair is Permatex® Aviation 3D Form-A-Gasket or equivalent.

Leakage can occur at the vertical or horizontal gaskets and shaft seals.

Leakage at the horizontal shaft gasket or seal can be repaired without removing the gearbox from the mower.

Seal Installation

NOTE: Proper seal installation is important. An improperly installed seal will leak.

1. Clean area in housing where seal outer diameter (OD) seats. Apply a thin coat of Permatex.
2. Inspect area of shaft where seal seats. Remove any burrs or nicks with an emery cloth.
3. Lubricate gear shaft and seal lips.
4. Place seal squarely on housing, spring-loaded lip toward housing. Select a piece of pipe or tubing with an OD that will sit on the outside edge of the seal but will clear the housing. Tubing with an OD that is too small will bow seal cage and ruin seal. See Figure 22.
5. Carefully press seal into housing, avoiding distortion to the metal seal cage.

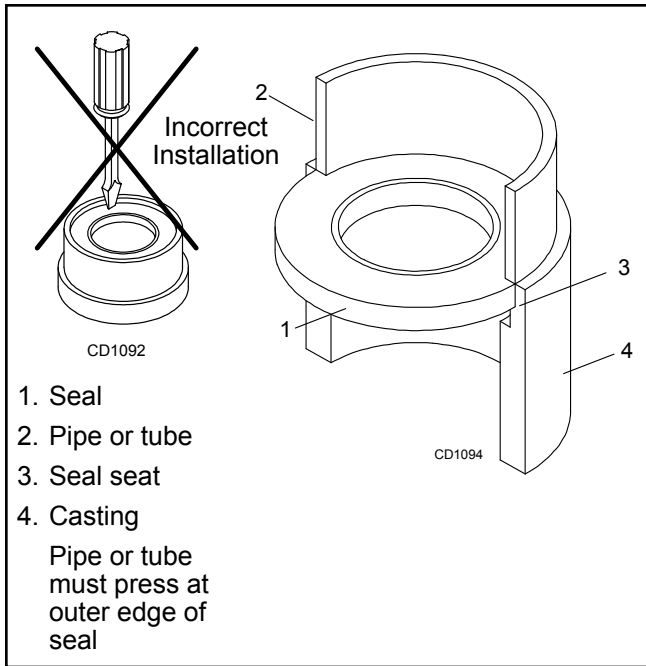


Figure 22. Seal Installation

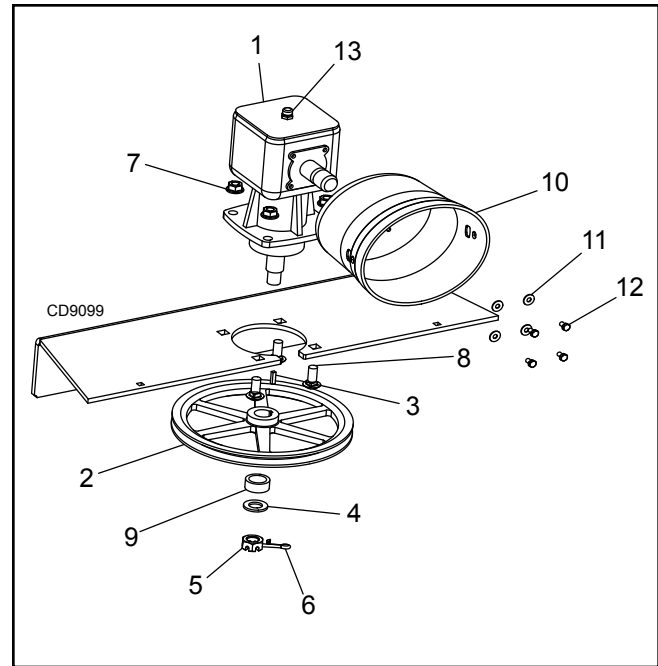


Figure 23. Gearbox Stand Assembly

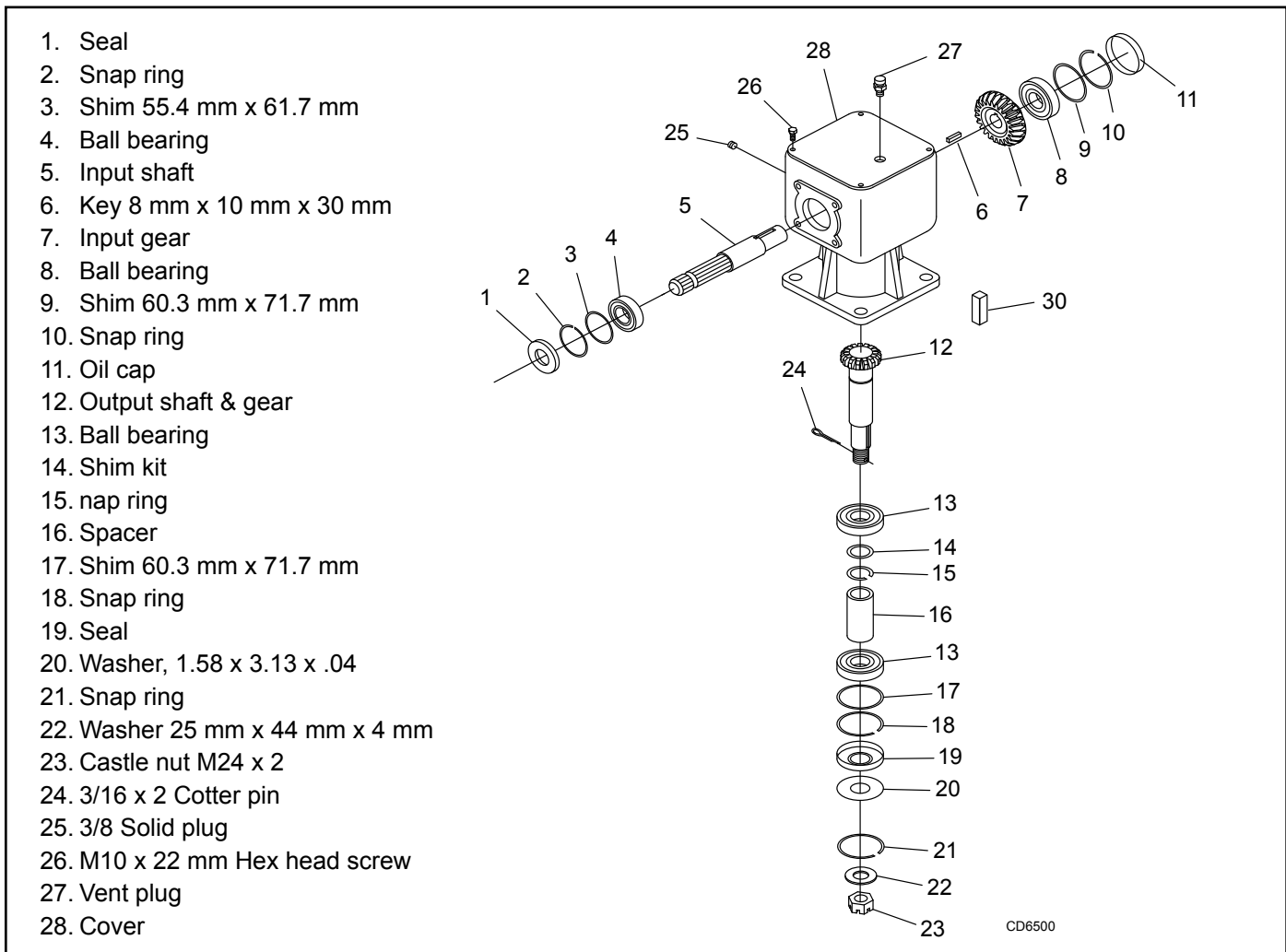


Figure 24. Gearbox Assembly

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Horizontal Shaft Seal Replacement (Figure 24)

1. Disconnect and remove the driveline from the gearbox.
2. Remove vent plug (27), Figure 24, and siphon gear lube from housing through this opening.
3. If the leak occurred at either end of horizontal shaft, remove oil cap (11) and/or oil seal (1). Replace with new one (see Seal Replacement, page 25).
4. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.

Remove Gearbox from Mower (Figure 23)

IMPORTANT: Gearbox is heavy; do not attempt to move without mechanical assistance.

1. Disconnect and remove driveline from gearbox.
2. Remove vent plug (13) and siphon gear lube from housing through this opening. See Figure 23.
3. Remove cap screws (12) and washers (11) to remove drive shield (10) from gearbox.
4. Remove thumb screws from left and center belt shields. Remove shields.
5. Grasp belt on both sides of left spindle sheave and pull against spring loaded idler until belt slips over spindle sheave. Carefully release tension on the belt.
6. Remove belt from drive sheave groove and from backside idler on idler arm.
7. Remove flange lock nuts (7) and carriage bolts (8) from gearbox mounting. Remove gearbox from mower by lifting gearbox up and sliding toward the front of the mower.
8. Remove cotter pin (6), castle nut (5), washer (4), and sleeve (9) from gearbox output shaft.
9. Remove drive sheave (2) and key (3) from gearbox output shaft.

Disassemble Gearbox (Figure 24)

1. Remove top cover (28), Figure 24, from housing. Turn gearbox upside down and pour out remaining gear oil from gearbox.
2. Remove oil cap (11) (to be replaced).
3. Remove snap ring (10) and shim (9) from input shaft (5).
4. Support gearbox in hand press and push on input shaft (5) to remove bearing (8).
5. Remove gear (7) from inside housing.
6. Remove oil seal (1) from front of housing (to be replaced).
7. Remove snap ring (2) and shim (3) from front of housing.
8. Remove input bearing (4) by using a punch and hammer from outside of housing.

9. Support housing in vise in a horizontal position.
10. The castle nut (23) and cotter pin (24) are already removed with the drive sheave. Remove the snap ring (18), washer (20), and seal (19).
11. Remove output shaft (12) and bearings by using a punch and hammer and tap on top to drive down.
12. Inspect gears for broken teeth and wear. Some wear is normal and will show on loaded side. Forged gear surfaces are rough when new. Check that wear pattern is smooth.
13. Inspect vertical and horizontal shafts for grooves, nicks, or bumps in the areas where the seals seat. Resurface any damage with emery cloth.
14. Inspect housing and caps for cracks or other damage.

Vertical Shaft Seal Replacement (Figure 24)

1. Disconnect and remove the driveline from the gearbox.
2. Remove vent plug (27) and siphon gear lube from housing through this opening.
3. Remove gearbox and pulley from stand (2).
4. Remove vertical shaft seal. Replace with new seal (see Seal Replacement, page 25).

Vertical seal should be recessed in housing. Horizontal seal should be pressed flush with outside of housing.

NOTE: Distortion to seal cage or damage to seal lip will cause seal to leak.

5. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.
6. Assemble gearbox and pulley to gearbox stand. Attach gearbox stand to mower deck.

Reassemble Gearbox (Figure 24)

NOTE: Repair to this gearbox is limited to replacing bearings, seals, and gaskets. Replacing gears, shafts, and a housing is not cost effective. Purchasing a complete gearbox is more economical.

1. Clean housing, paying special attention to areas where seals will be installed.
2. Wash housing and component thoroughly. Select a clean area for gearbox assembly. Replace all seals and bearings. All parts must be clean and lightly oiled before reassembling.
3. Install upper output bearing (13), shims (14), and snap ring (15) on output shaft (12). Use new shims equal to the thickness of the original shims.
4. Press output shaft assembly into housing from the bottom opening.
5. Install spacer (16), lower output bearing (13), shims (17), and snap ring (18) in bottom of housing.

6. Apply grease to lower seal lips (19), and press seal over output shaft (5), using a round tube of the correct diameter. Be sure not to damage the seal lip. Press in housing so that the seal is recessed.
7. Insert protective washer (20) by hand.
8. Install snap ring (21) and position it together with seal (19) by pressing it into position. Verify that the snap ring is seated properly.
9. Press bearing (8) into the housing, using a round tube of the correct diameter and a hand press. Secure with shims (9) and snap ring (10).
10. Install key (6) on input shaft (5).
11. Place gear (7) through top of housing and align the two gears so they match.
12. While holding gear (7) in place, slide input shaft (5) through the gear and bearing (8).
13. Slide bearing (4) over input shaft (5) and press into housing, using a round tube of the correct diameter and a hand press.
14. Slide shim (3) over input shaft and secure with snap ring (2).
15. Check input shaft end float by moving the input shaft by hand. If the end float is more than .012", insert shim (9) between the rear bearing (8) and snap ring (10).
16. Check that gear backlash is between .006" and .016". You should not have to adjust the backlash.
17. Press in input seal (1), using a round tube of the correct diameter. Be careful not to damage the seal lip.
18. Press oil cap (11) on to the rear cover of housing, using a round tube of the correct diameter.
19. Check the gearbox housing for leaks by plugging all holes except one. Apply 4 psi compressed air and immerse the gearbox in water to verify that there are no leaks.
20. Remove the gearbox from water and dry off with compressed air. Add SAE 80W or 90W EP oil until it runs out of the side level hole. Tighten all plugs.

Install Gearbox (Figure 23)

IMPORTANT: Gearbox is heavy; do not attempt to move without mechanical assistance.

1. Install drive sheave (2) and key (3) on gearbox output shaft.
2. Install sleeve (9), washer (4), and castle nut (5) on gearbox output shaft. Torque castle nut to 170 lb-ft. Install cotter pin (6) through castle nut and gearbox output shaft.

3. Slide gearbox onto gearbox stand. When gearbox is installed on mower, dimension A (from the top of mower deck to the center line of the drive pulley) must be 1-9/16" ($\pm 1-32$ "). This is a critical dimension and must be carefully adjusted for proper belt life. Add or subtract shim washers under idler sheave to align with drive sheave. See Figure 25.
4. Install carriage bolts (8) and new flange lock nuts (7) through gearbox base. Torque nuts to 175 lb-ft.
5. Install belt into drive sheave groove and route around backside idler on idler arm. See Figure 17.
6. Grasp belt with both hands between the left spindle sheave and the idler arm. Pull on belt to rotate idler arm and slip belt over left spindle sheave. Carefully release belt, ensuring proper seat in left spindle sheave groove. Ensure belt is properly seated in all sheave grooves.
7. Reinstall belt shields and retain with thumb screws.
8. Install drive shield (10) over gearbox input shaft.
9. Install washers (11) and cap screws (12) through drive shield and into gearbox housing. Carefully snug hardware.
10. Use SAW 80W or 90W gear lube to fill gearbox.
11. Reinstall vent plug (13) and reconnect driveline to gearbox input shaft.

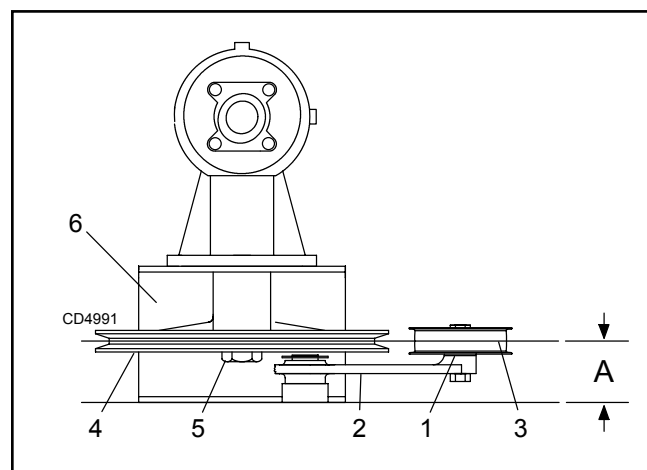


Figure 25. Drive Sheave Installation

FILL GEARBOX

1. Make sure vent/dipstick hole is clear. Fill gearbox half-full with high quality gear oil that has a viscosity index of 80W or 90W and an API service rating of GL-4 or GL-5.
2. Pour in one pint of gear oil. Wait five minutes, then add additional gear oil until it just comes out of gearbox side hole. Gearbox holds approximately 4 pints.
3. Allow an additional five minutes for the oil to flow through bearings, then make sure oil level is at bottom side hole. Replace side plug. Install vent plug.

UNIVERSAL JOINT REPAIR

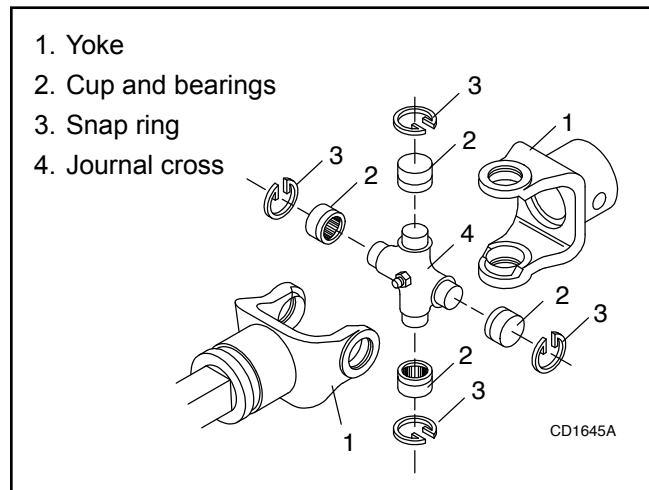


Figure 26. U-Joint Exploded View

U-Joint Disassembly

1. Remove external snap rings from yokes in four locations as shown in Figure 27.

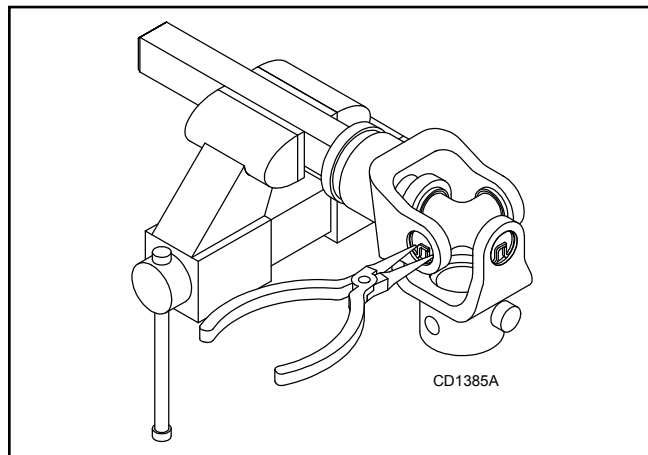


Figure 27

2. With snap rings removed, support drive in vise, hold yoke in hand and tap on yoke to drive cup up out of yoke. See Figure 28.
3. Clamp cup in vise as shown in Figure 29 and tap on yoke to completely remove cup from yoke. Repeat Step 2 & Step 3 for opposite cup.
4. Place universal cross in vise as shown in Figure 30 and tap on yoke to remove cup. Repeat Step 3 for final removal. Drive remaining cup out with a drift and hammer.

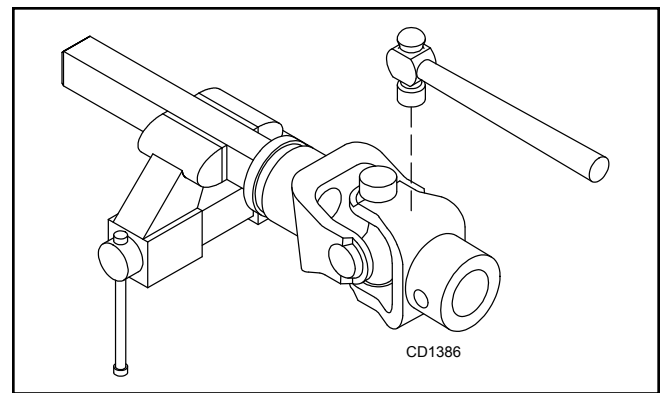


Figure 28

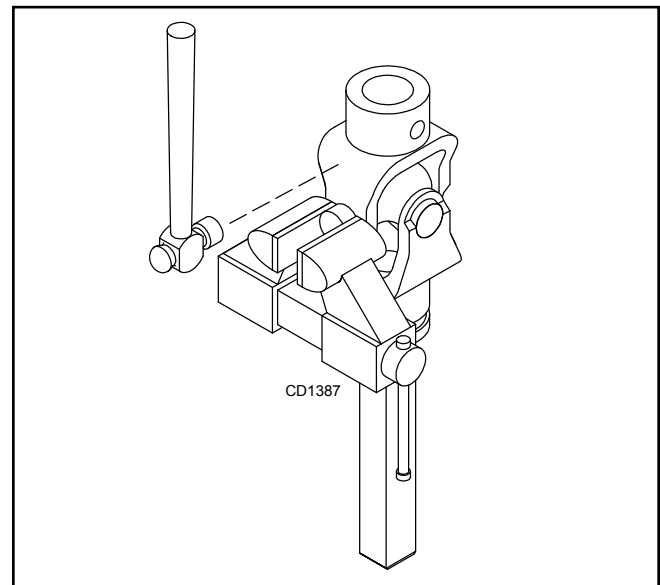


Figure 29

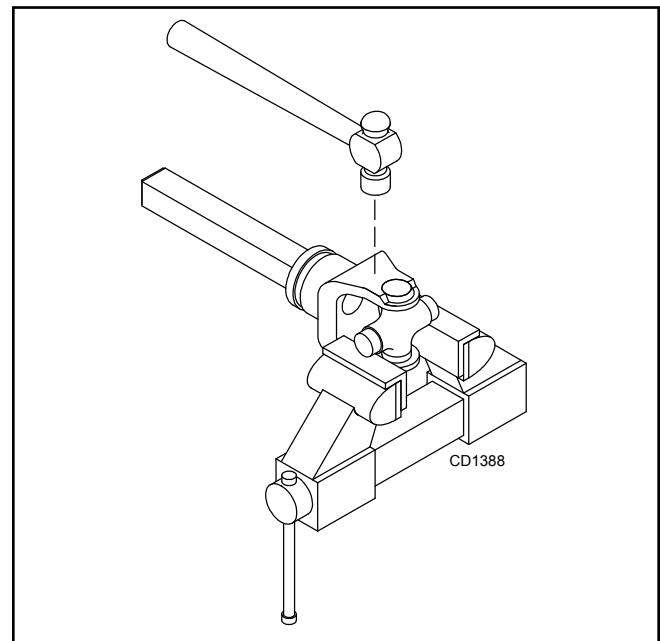


Figure 30

U-Joint Assembly

1. Place seals securely on bearing cups. Insert cup into yoke from outside and press in with hand pressure as far as possible. Insert journal cross into bearing cup with grease fitting away from shaft. Be careful not to disturb needle bearings. Insert another bearing cup directly across from first cup and press in as far as possible with hand pressure.
2. Trap cups in vise and apply pressure. Be sure journal cross is started into bearings and continue pressure with vise, squeezing in as far as possible. Tapping the yoke will help.
3. Seat cups by placing a drift or socket (slightly smaller than the cup) on cup and rap with a hammer. See Figure 31. Install snap ring and repeat on opposite cup.
4. Repeat Step 1 & Step 2 to install remaining cups in remaining yoke.
5. Move both yokes in all directions to check for free movement. If movement is restricted, rap on yokes sharply with a hammer to relieve any tension. Repeat until both yokes move in all directions without restriction.

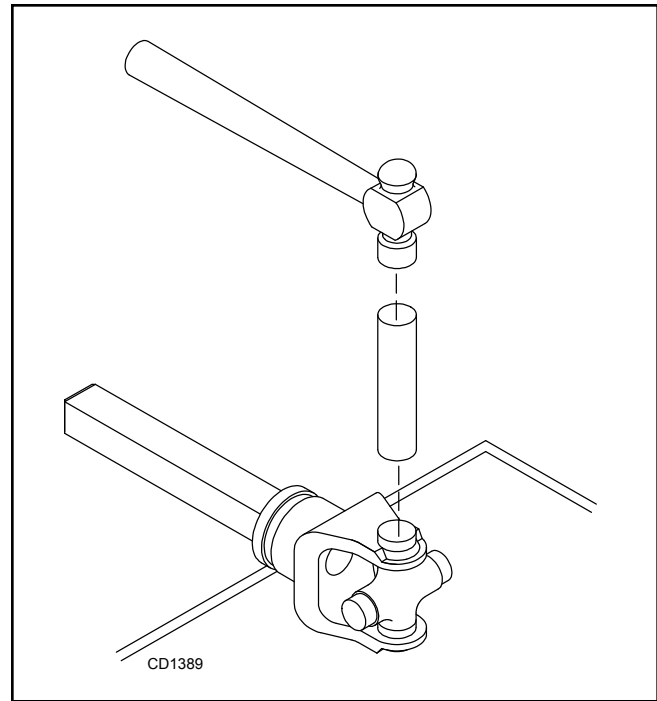


Figure 31

ASSEMBLY

DEALER SET-UP INSTRUCTIONS

Assembly of this mower is the responsibility of the Woods dealer. It should be delivered to the owner completely assembled, lubricated, and adjusted for normal cutting conditions.

Complete Dealer Check Lists on page 35 when you have completed the assembly.

The mower is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located on page 50.

Select a suitable working area. Open parts boxes and lay out parts and hardware to make location easy. Refer to illustrations, accompanying text, parts lists and exploded view drawings.

WARNING

- **Before working underneath, carefully read Operator's Manual instructions, disconnect driveline, raise mower, securely block up all corners with jackstands, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.**

CAUTION

- **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

Uncrate Mower

CAUTION

- **Be cautious of nails, staples, or splinters protruding from boards.**
1. Remove sides and top of mower shipping crate.
 2. Remove lag screws and brackets that secure mower to crate base.
 3. Remove driveshaft wired to mower deck.
 4. Cut tie holding gearbox shield to mower.
 5. Open center belt shield and remove a-frame arms (48), rear offset links (24), break link (28), and hardware bag. Cut ties and discard cardboard.

NOTICE

- **Gearbox is filled at the factory. Prior to delivery, make sure each gearbox is half-filled with 80W or 90W API GL-4 or GL-5 gear lube. Check by removing sight plug in the side of box and confirm oil level even with bottom of sight plug.**

Hitch Assembly (Figure 32 & 33)

1. Open the hardware bag and arrange your components by size.
2. Loosely assemble the a-frame arms (18) to the hitch plates using hitch pins (21), bushings (14), flat washers (4), lock washers (10), and 7/8 NF hex nuts (9). Torque hex nuts down onto bushings (14). See Figure 32.
3. Loosely assemble squared end of the rear offset links (27) to the lugs on the gearbox stand. Use the 5/8 cap screws (22), bushings (2), flat washers (3), and 5/8 lock nuts (5). Torque hex nuts down onto bushings. See Figure 32.
4. Install sleeve (13) through hole in pointed ends of offset links. Place offset links inside break link with sleeve. Connect rear of break link (16) to offset links (27) with 5/8 cap screw (12), flat washer 3, and 5/8 lock nut (5). Tighten hardware then back cap screw off one quarter turn. Break link should pivot freely on rear offset links. See Figure 33.
5. Install PTO driveline holder (17) to left side of break link (16), facing out, using 3/8 cap screw (6) and 3/8 flanged lock nut (7). Tighten nut until it contacts inside of break link, then back off 1/2 turn so drive holder swings freely. Let drive holder (17) hang to receive driveline. Install 1/2" bent pin (19) through holes in break link (16) and rear offset links (27) and retain with hairpin. This will prevent hitch from accidentally collapsing if pressure is applied to a-frame arms upon final assembly. See Figure 33.
6. Install break link (16) to a-frame arms (18) in the following order, 3/4 cap screw (11), left hand a-frame arm (18), left hand - 2 bend finger guard (29), break link (16), bushing (15) inside break link, right hand - 1 bend, finger guard (28), right hand a-frame arm (18), and 3/4 flanged lock nut (24). Tighten hardware then back off until break link relaxes to allow quick hitch hook to fit inside. Break link should pivot freely. See Figure 33.
7. Install manual tube (20) on left side lift link using 5/16 carriage bolts (8) and 5/16 whiz nuts (23).
8. Slip gearbox input shield over gearbox input shaft and rotate access hole to the top. Align 4-hole pattern of shield with matching pattern on face of gearbox. Install M8 x 1.25 x 16 mm cap screws and 5/16 flat washers to retain shield.

9. Quick Hitch sleeves are provided in hardware bag. Install quick hitch sleeves on category 1 hitch pins if using a quick hitch. Otherwise store sleeves in secure place until needed.

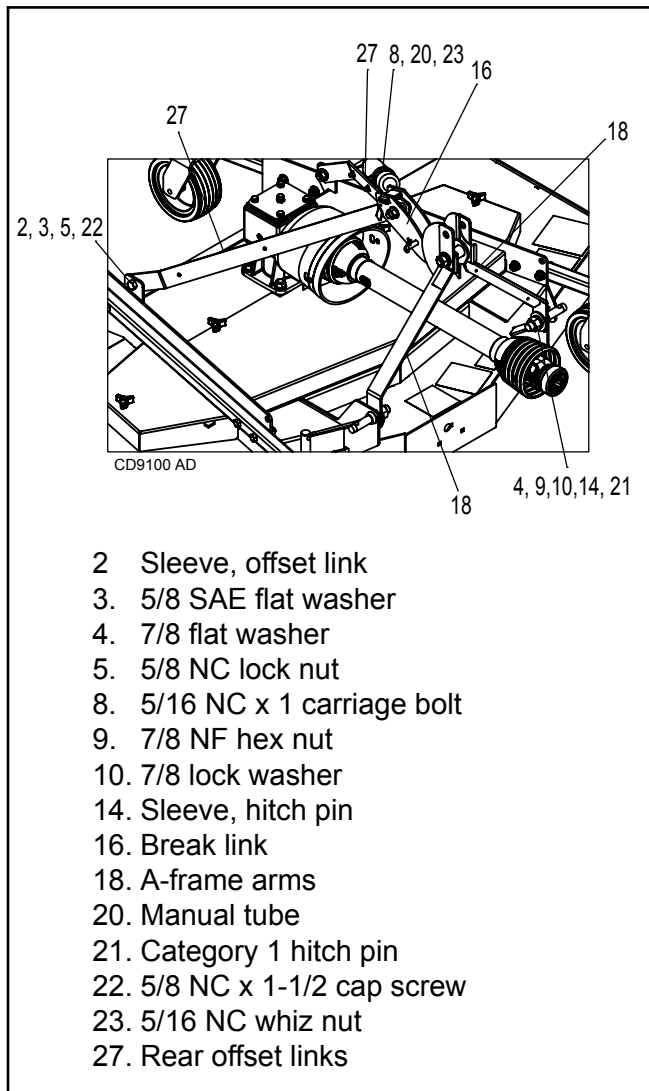


Figure 32. Hitch Assembly

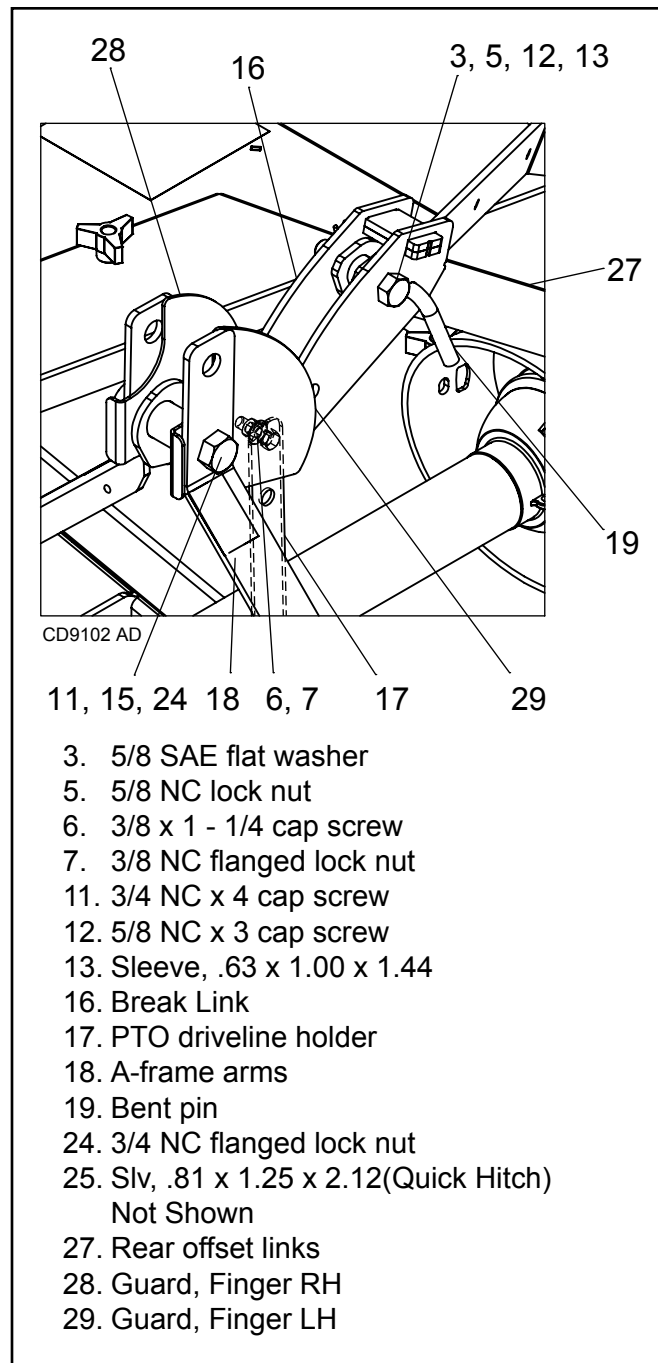


Figure 33. Break Link Installed

⚠ WARNING

- Connect PTO driveline directly to power unit PTO shaft. Never use adapter sleeves or adapter shafts. Adapters can cause driveline failures due to incorrect spline or incorrect operating length and can result in personal injury or death.

Driveshaft Installation

1. Orient the driveline with the implement end toward the mower gearbox. The implement end uses the female profile tube (large), which is covered by the smaller profile shield (plastic tube). Slide the QD collar back and push the drive yoke onto the gearbox input shaft. Make sure the QD is seated securely in the groove of the gearbox shaft.
2. The tractor end of the driveline uses the male profile tube (small). The male profile is covered by the larger profile shield (plastic tube). Slide the QD collar back to ensure it operates smoothly. Lubricate if necessary.
3. Hang the driveline on the driveline holder.
4. If your driveline came with tether chains, attach the implement end chain to the gearbox input shield.

Fill Gearbox

1. Make sure vent/dipstick hole plug is clear. Fill gearbox half-full with high quality gear oil that has a viscosity index of 80W or 90W and an API service rating of GL-4 and GL-5.
2. Fill gearbox until oil runs out of the side plug on gearbox.
3. Pour in one pint of gear oil, wait five minutes and add additional gear oil until it just comes out of side hole.
4. Allow an additional five minutes for the oil to flow through bearings, then check to make sure oil level is at bottom of side hole. Replace side plug. Install vent plug.

Install Chain Shielding (Optional)

1. Install chain shielding plate (1) on top rear edge of mower frame as shown in Figure 34.
2. Secure with carriage bolts (4) and flanged lock nuts (5).
3. Insert carriage bolts from bottom upward as shown. Torque bolts to 35 lb-ft.

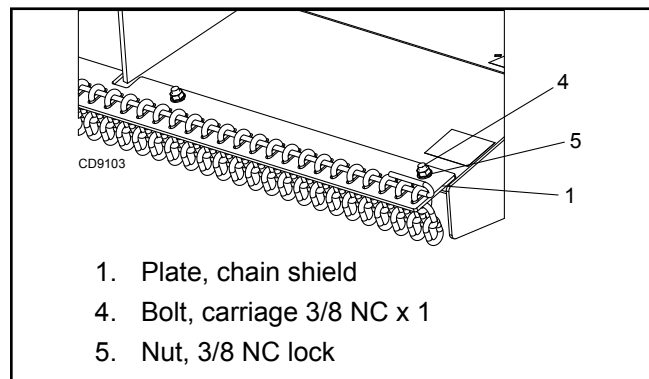


Figure 34. Chain Shielding Installed

⚠ DANGER

- Full chain shielding is recommended when operating in populated areas or other areas where thrown objects could injure people or damage property.
 - If this machine is not equipped with full chain shielding, operation is recommended to be stopped when anyone comes within 300 feet (92 m).
 - This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
 - Check that chain shielding is in good condition and replace any damaged chain links.

Install Front Roller (Optional)

1. Insert three carriage bolts (8) through the front mower frame from inside out.
2. Place roller bracket (2) over bolts; then install flange lock nuts (9) on bolts and tighten.
3. Place front roller (1), spacer (3), bearings (4), and washers (5) in roller bracket as shown in Figure 35.
4. Insert cap screw (6) through bracket and roller.
5. Secure with flanged lock nut (9). Do not over-tighten; roller must spin freely.

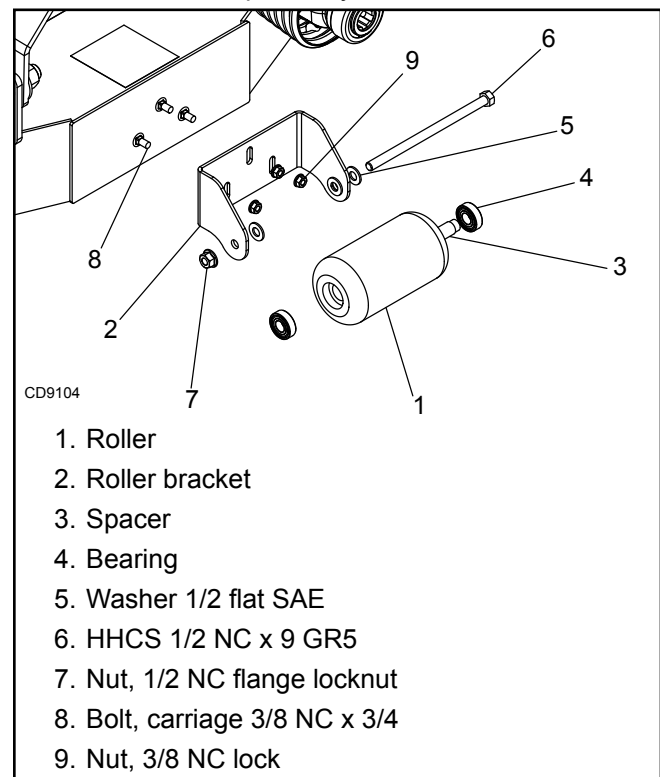


Figure 35. Front Roller Installation

Install Rear Anti-Scalp Roller (Optional)

1. Kit supplied with roller angle brackets for both TurfKeeper and TurfKeeper Pro mowers. TurfKeeper brackets are 1.50" wide. TurfKeeper Pro brackets are 1.75" wide.
2. Use opposite roller angle bracket for drill template. Position RH roller angle bracket (7) at LH rear corner of deck. Position LH roller angle bracket (8) at RH rear corner of deck. Insert carriage bolts (5) through center bracket hole and chain shield hole in deck. Retain with flanged lock nuts (6).
3. On each bracket, mark the roller hole on side frame. Use drill and 9/16" drill bit to drill LH and RH side frames.
4. Unbolt roller angle brackets and swap to their proper side. Reinstall each bracket using chain shield hole and bracket hole for the widest spacing. Use carriage bolts (5) and flanged lock nuts (6) to retain. Mark inboard-most mounting hole for each roller bracket. Use drill and 7/16" drill bit to drill through deck plate. Install second carriage bolt (5) thru bracket and retain with flanged lock nut (6).
5. Install plastic roller (2) and two flat washers between roller angle bracket and side frame as shown in Figure 35. Install 1/2 x 6 cap screw (1) through side frame, roller, and then angle bracket. Retain with flanged lock nut (3). Do not over tighten. Rollers must turn freely.

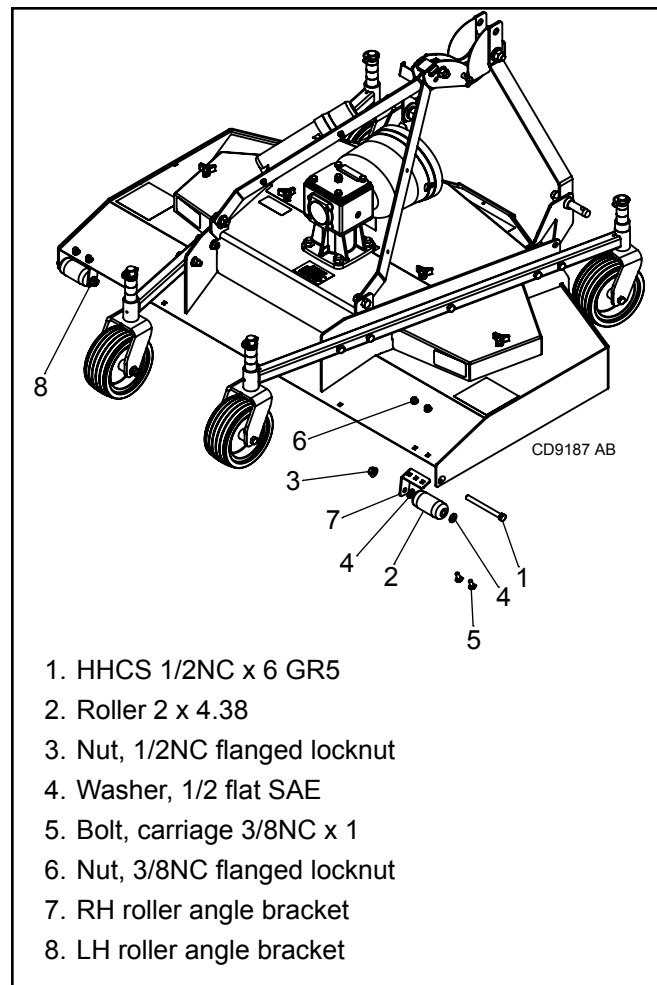


Figure 36. Rear Anti-Scalp Roller Installation

DEALER CHECKLISTS

DEALER PRE-DELIVERY CHECKLIST (DEALER'S RESPONSIBILITY)

Inspect the equipment thoroughly after assembly to ensure it is set up properly before delivering it to the customer.

The following check lists are a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment is made.

- _____ Check that all safety decals are installed and in good condition. Replace if damaged.
- _____ Check that shields and guards are properly installed and in good condition. Replace if damaged.
- _____ Check all bolts to be sure they are properly torqued.
- _____ Check that all cotter pins and safety pins are properly installed. Replace if damaged.
- _____ Check and grease all lubrication points as identified in "lubrication information" on page 17.
- _____ Gearboxes are filled at the factory. Prior to delivery, fill as specified in the "Service, lubrication information" on page 17 and check to see that there are no leaking seals.
- _____ Check that blades have been properly installed.

DEALER DELIVERY CHECKLIST (DEALER'S RESPONSIBILITY)

- _____ Show customer how to make adjustments and select proper PTO speed.
- _____ Instruct customer how to lubricate and explain importance of lubrication.
- _____ Point out the safety decals. Explain their meaning and the need to keep them in place and in good condition. Emphasize the increased safety hazards when instructions are not followed.
- _____ Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.
- _____ Show customer how to make sure driveline is properly installed and that spring-activated locking pin or collar slides freely and is seated in groove on tractor PTO shaft.
- _____ Show customer the safe, proper procedures to be used when mounting, dismounting, and storing equipment.
- _____ Explain to customer the potential crushing hazards of going underneath raised equipment. Instruct that before going underneath to disconnect the driveline, securely block up all corners with jackstands and to follow all instructions in the "Service, blocking methods" section of the Operator's Manual. Explain that blocking up prevents equipment dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.
- _____ For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!
- _____ Make customer aware of optional equipment available so that customer can make proper choices as required.
- _____ Point out all guards and shields. Explain their importance and the safety hazards that exist when not kept in place and in good condition.

NOTES

36 *Assembly*

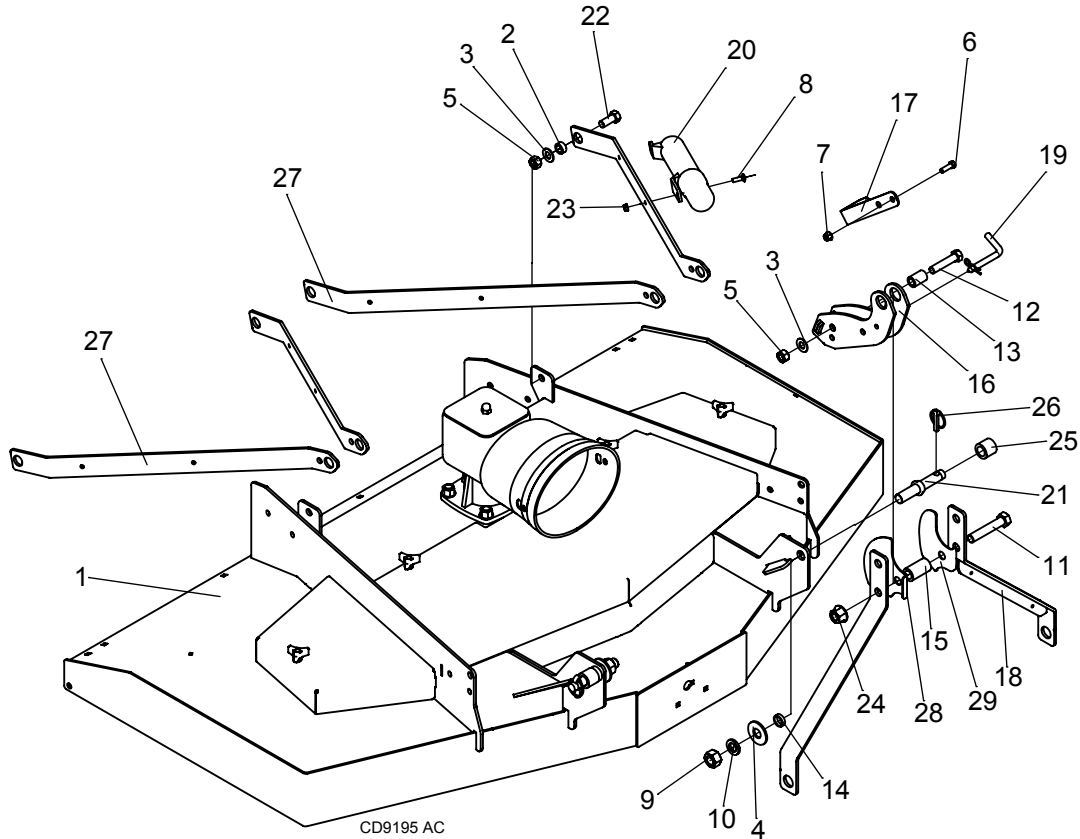
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Turfkeeper™ Finish Mowers: TK60.20 TK72.20

TK60.20 & TK72.20 MAIN FRAME ASSEMBLY	38 - 39
TK60.20 & TK72.20 BELT DRIVE - PLASTIC BACKSIDE IDLERS	40
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REAR ANTI-SCALP ROLLER ASSEMBLY (OPTIONAL)	48
QUICK HITCH BUSHING KIT	48

TK60.20 & TK72.20 MAIN FRAME ASSEMBLY



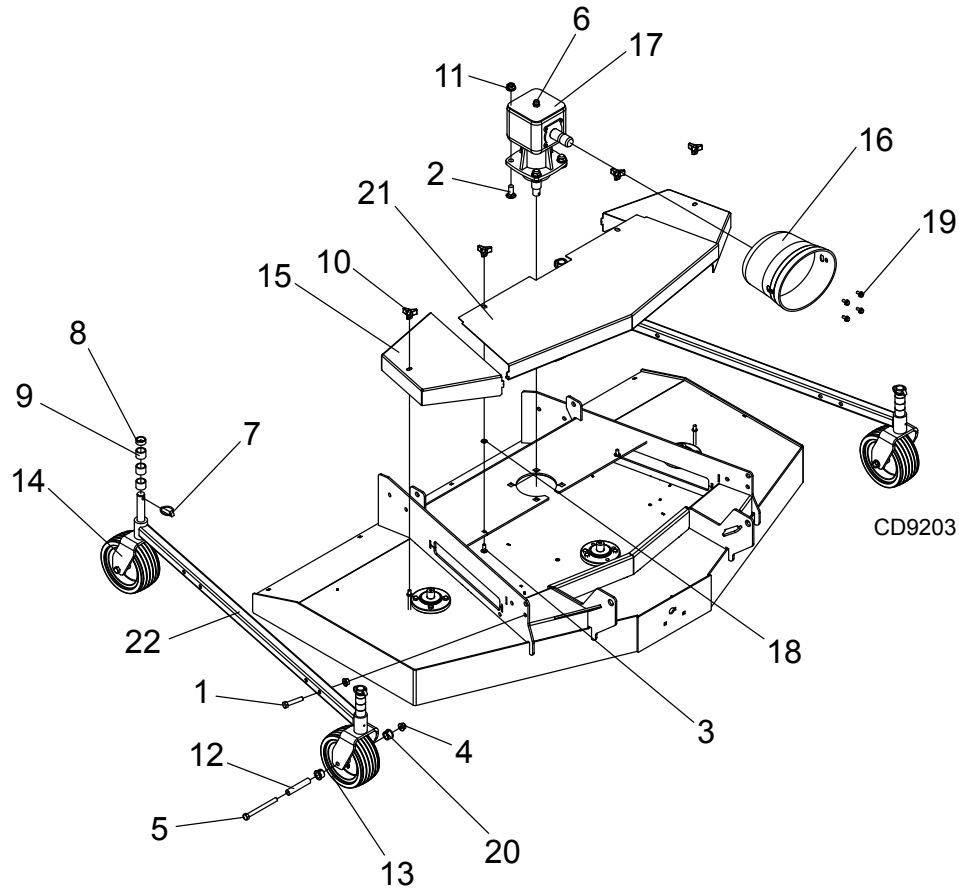
REF	TK60.20	TK72.20	QTY	DESCRIPTION
1	NSS	NSS	1	MAIN FRAME
2	484	484	2	SLEEVE, .625 X 1 X .438 HT
3	3632	3632	*3	WASHER, 5/8 STANDARD SAE FLAT
4	4258	4258	*2	WASHER, 7/8 FLAT
5	6239	6239	*3	LOCK NUT, 5/8 NC
6	12169	12169	*1	HHCS 3/8 NC X 1-1/4 GR5 ZP
7	14350	14350	*1	LOCK NUT, 3/8 NC HEX FLANGED
8	24409	24409	*2	CARRIAGE BOLT, 5/16 NC X 1 ZP
9	30007	30007	*2	NUT, HEX 7/8 NF
10	30008	30008	*2	LOCK WASHER, 7/8
11	31207	31207	*1	HHCS 3/4 NC X 4 GR5
12	34473	34473	*1	HHCS 5/8 NC X 3 GR5
13	604343	604343	1	SLEEVE, .63 X 1 X 1.48
14	610701	610701	2	SLEEVE, .890 X 1.125 X .312 HT
15	613778	613778	1	SLEEVE, .81 X 1.25 X 2.25
16	616146	616146	1	BREAK LINK
17	616149	616149	1	PLATE, DRIVELINE HOLDER
18	617523	617523	2	A-FRAME
19	S07111100	S07111100	1	PIN, BENT .50 X 3.00 (INCLUDES HAIRPIN)
20	1026530	1026530	1	MANUAL TUBE
21	1044757	1044757	2	PIN, CTGY 1 MTG HARDENED
22	W7832	W7832	*2	HHCS 5/8 NC X 1-1/2 GR5
23	W73163	W73163	*2	NUT, WHIZ 5/16 NC FLANGED YD
24	W302207	W302207	*1	LOCK NUT, 3/4 NC FLANGE HEAD
25	38214	38214	2	SLEEVE, .91 X 1.44 X 1.25
26	43627	43627	2	LINCH PIN, PLATED
27	616199	616145	2	PLATE, LIFT LINK
28	645778	645778	1	Guard, Finger RH
29	645779	645779	1	Guard, Finger LH

* STANDARD HARDWARE, OBTAIN LOCALLY
 NSS NOT SERVICED SEPARATELY

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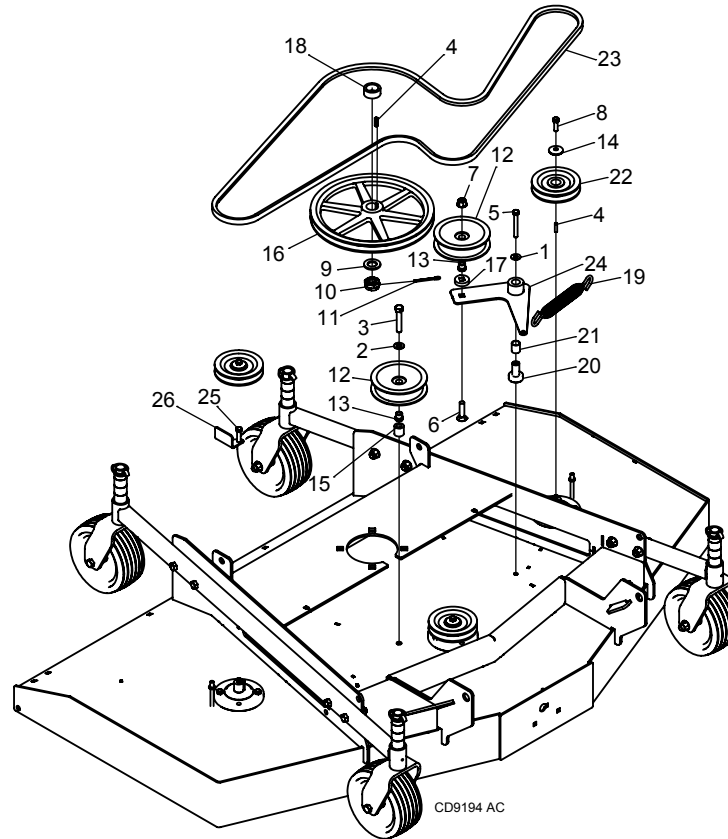
TK60.20 & TK72.20 MAIN FRAME ASSEMBLY (CONTINUED)



REF	TK60.20	TK72.20	QTY	DESCRIPTION
1	639	639	*8	HHCS 1/2 NC X 2-1/2 GR5 ZP
2	5607	5607	*4	CARRIAGE BOLT, 5/8 NC X 1.50 GR5
3	6697	6697	*2	CARRIAGE BOLT, 3/8 NC X 1 GR5 ZP
4	11900	11900	*12	LOCK NUT, 1/2 NC FLANGE
5	12305	12305	*4	HHCS 1/2 NC X 5-1/2 GR5
6	39325	39325	1	PLUG, VENTED 3/8 NPT
7	43627	43627	4	LINCH PIN, PLATED
8	65129	65129	4	PIPE 1 SCH 40 X .50
9	65130	65130	12	PIPE 1 SCH 40 X 1
10	66840	66840	4	KNOB, 3 PRONG 3/8 NC
11	609225	609225	*4	LOCK NUT, HFN 5/8 NC
12	616069	616069	4	SLEEVE, .51 X .75 X 3.92 HT
13	616070	616070	4	WHEEL, 8.0 X 3.45 X .75 GRAY
14	616130RP	616130RP	4	CASTER YOKE
15	616143RP	616143RP	2	PLATE, BELT SHIELD
16	1002048	1002048	1	CLUTCH SHIELD, 100 & 143 MM BC
17	611563RP	611563RP	1	GEARBOX, CW 1:1.92 30 HP
18	1028375	1028375	2	NUT, 3/8 PUSHON BOLT RETAINER
19	1041071	1041071	*4	BOLT, HEX FLANGE M8 X 16 CL8.8, DRI-LOC
20	29375	29375	8	BEARING, 3/4 X 1-1/8 FLANGE
21	616201RP	616142RP	1	PLATE, CENTER BELT SHIELD
22	610651RP	610589RP	2	WHEEL ARM

* STANDARD HARDWARE, OBTAIN LOCALLY

TK60.20 & TK72.20 BELT DRIVE - PLASTIC BACKSIDE IDLERS



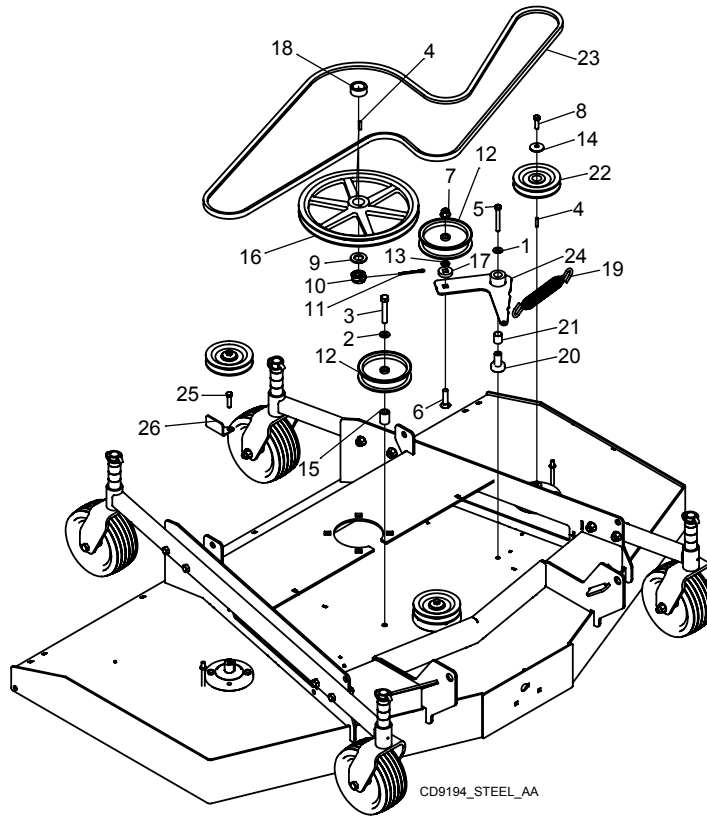
REF	TK60.20	TK72.20	QTY	DESCRIPTION
1	565	565	*1	WASHER, FLAT 3/8
2	3598	3598	*1	WASHER, FLAT 1/2 SAE ZP
3	5621	5621	*1	HHCS 1/2 NC X 2-3/4 GR5
4	6593	6593	*4	KEY, 1/4 X 1/4 X 1
5	7747	7747	*1	3/8 NC X 3 GR5
6	10284	10284	*1	CARRIAGE BOLT, 1/2 NC X 2
7	11900	11900	*5	LOCK NUT, 1/2 NC FLANGE
8	12169	12169	*15	HHCS 3/8 NC X 1-1/4 GR5 ZP
9	20893	20893	1	WASHER, 25MM X 44MM X 4MM
10	51946	51946	1	CASTLE NUT, METRIC M24 X 2
11	64803	64803	*1	COTTER PIN, 3/16 X 2
12	67283	67283	2	IDLER BEARING, 5.50 D X .69 ID
13	67284	67284	2	SLEEVE, .5 X .9 X .76 SHLDR
14	70005	70005	3	WASHER, CUPPED
15	613792	613792	1	SLEEVE, .53 X 1 X 1.02
16	616065	616065	1	SHEAVE, 12.65 PD X 1.25, B
17	616147RP	616147RP	1	PLATE, IDER ARM WASHER
18	1008113	1008113	1	SLEEVE, 1.25 X 1.75 X .75 SN 1000888006500 AND LOWER
18	610197	610197	1	SLEEVE, 1.28 X 1.75 X .60 SN 1000888006501 AND HIGHER
19	1042375	1042375	1	SPRING, .177 X 1.22 X 9.88 CAP HOOK
20	71430	71430	1	BEARING, PEDESTAL
21	74068	74068	1	BUSHING, IDLER ARM
22	616067	----	3	SHEAVE, 4.00 PD X 1.00, B
22	----	616064	3	SHEAVE, 4.75 PD X 1.00, B
23	616089	616088	1	V-BELT, ARAMID
24	616188RP	616138RP	1	IDLER ARM
25	976	976	*1	HHCS 3/8 X 1 -1/2 GR5
26	636622RP	636622RP	1	BELT GUIDE

* STANDARD HARDWARE, OBTAIN LOCALLY

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TK60.20 & TK72.20 BELT DRIVE - STEEL BACKSIDE IDLERS S/N 10009621405001 AND HIGHER

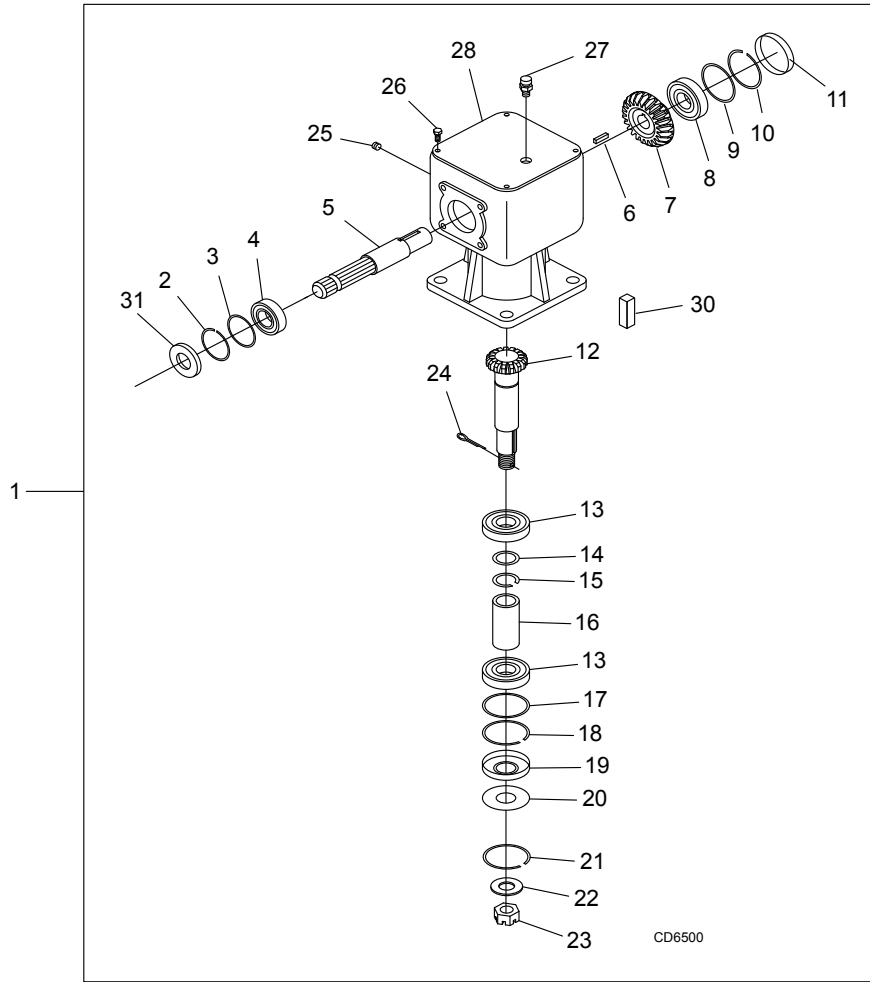


REF	TK60.20	TK72.20	QTY	DESCRIPTION
1	565	565	*1	WASHER, FLAT 3/8
2	3598	3598	*1	WASHER, FLAT 1/2 SAE ZP
3	5621	5621	*1	HHCS 1/2 NC X 3 GR5
4	6593	6593	*4	KEY, 1/4 X 1/4 X 1
5	7747	7747	*1	3/8 NC X 3 GR5
6	10284	10284	*1	CARRIAGE BOLT, 1/2 X 2
7	11900	11900	*5	LOCK NUT, 1/2 NC FLANGE
8	12169	12169	*15	HHCS 3/8 NC X 1-1/4 GR5 ZP
9	20893	20893	1	WASHER, 25MM X 44MM X 4MM
10	51946	51946	1	CASTLE NUT, METRIC M24 X 2
11	64803	64803	*1	COTTER PIN, 3/16 X 2
12	53595	53595	2	IDLER 5.00" OD X .51" STEEL
13	31983	31983	1	SHIM .50 ID X .88 OD X 18 GA THICK
14	70005	70005	3	WASHER, CUPPED
15	645768	645768	1	SLEEVE .53 X 1.00 X 1.343
16	616065	616065	1	SHEAVE, 12.65 PD X 1.25, B
17	616147RP	616147RP	1	PLATE, IDER ARM WASHER
18	1008113	1008113	1	SLEEVE, 1.25 X 1.75 X .75 S/N 1000888006500 AND LOWER
18	610197	610197	1	SLEEVE, 1.28 X 1.75 X .60 S/N 1000888006501 AND HIGHER
19	1042375	1042375	1	SPRING, .177 X 1.22 X 9.88 CAP HOOK
20	71430	71430	1	BEARING, PEDESTAL
21	W74068	W74068	1	BUSHING, IDLER ARM
22	616067	----	3	SHEAVE, 4.00 PD X 1.00, B
22	----	616064		SHEAVE, 4.75 PD X 1.00, B
23	616089	616088	1	V-BELT, ARAMID
24	645771RP	645769RP	1	WA, IDLER ARM
25	976	976	*1	HHCS 3/8 X 1 -1/2 GR5
26	636622RP	636622RP	1	BELT GUIDE

* STANDARD HARDWARE, OBTAIN LOCALLY

TK60.20 & TK72.20 GEARBOX ASSEMBLY

S/N 1000888006500 OR LOWER



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	1006648		COMPLETE GEARBOX	18	39251	1	SNAP RING
2	1007861	1	SNAP RING	19	20900	1	SEAL
3	1007865	1	SHIM KIT	20	20888	1	WASHER, 1.58 X 3.13 X .04
4	51850	1	BALL BEARING	21	20897	1	SNAP RING 81 MM
5	N/S	1	INPUT SHAFT	22	20893	1	WASHER 25 X 44 X 4 MM
6	20894	1	KEY 8 X 10 X 30 MM	23	51946	1	CASTLE NUT M24 X 2
7	N/S	1	INPUT GEAR	24	64803	1*	3/16 X 2 COTTER PIN
8	20890	1	BALL BEARING	25	N/S	1*	3/8 SOLID PLUG
9	1007864	1	SHIM KIT	26	N/S	4*	M10 X 22 MM CAP SCREW
10	57466	1	SNAP RING	27	39325	1	VENT PLUG
11	57374	1	OIL CAP	28	1007873	1	COVER
12	N/S	1	OUTPUT SHAFT & GEAR	30	6593	1	KEY
13	20891	2	BALL BEARING	31	W39275	1	SEAL
14	1007863	1	SHIM KIT				
15	20895	1	SNAP RING				
16	20886	1	SPACER				
17	1007862	1	SHIM KIT				

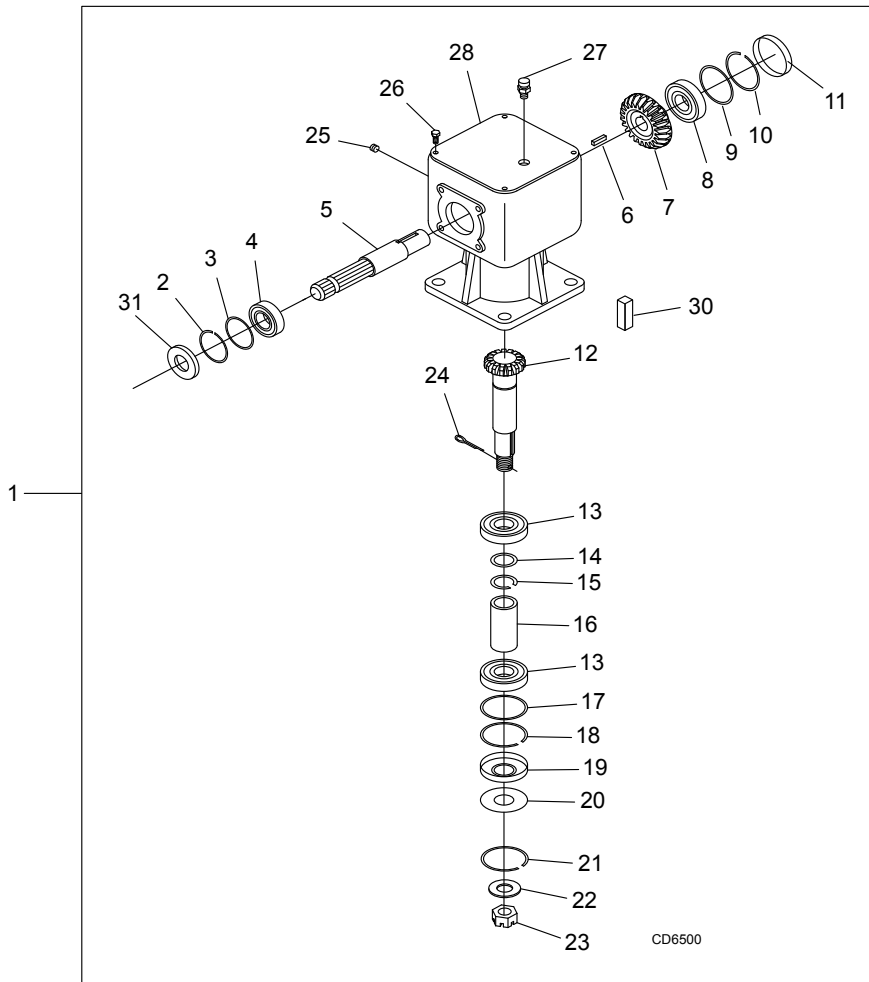
* STANDARD HARDWARE, OBTAIN LOCALLY

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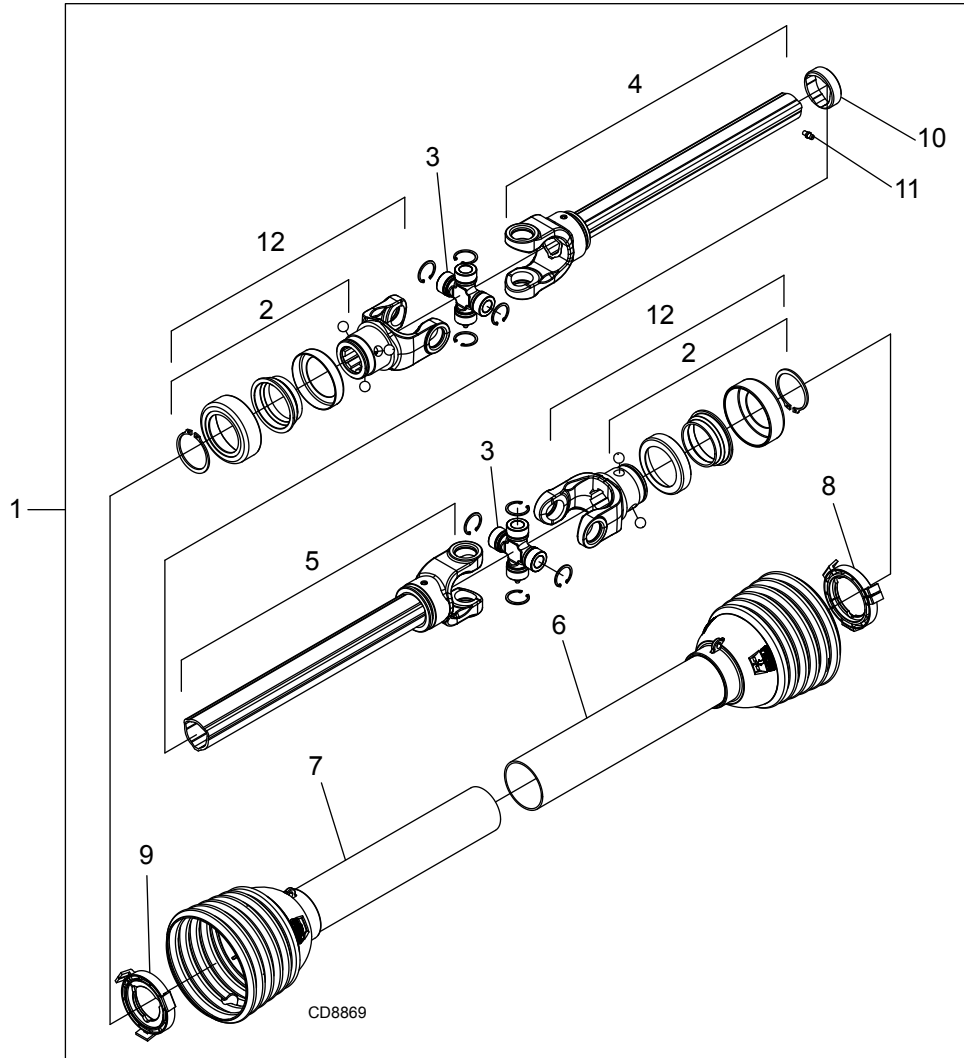
TK60.20 & TK72.20 GEARBOX ASSEMBLY

S/N 10008880065001 AND UP



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	611563RP	1	GEARBOX	17	637528	1	SHIM KIT
2	N/S	1	SNAP RING 2.5 MM X 62 MM INT	18	N/S	1	SNAP RING 2.5 MM X 99 MM INT
3	37528	1	SHIM KIT	19	20900	1	SEAL
4	51850	1	BALL BEARING	20	20888	1	WASHER, 1.58 X 3.13 X .04
5	N/S	1	INPUT SHAFT	21	20897	1	SNAP RING
6	20894	1	KEY 8 X 10 X 30 MM	22	----	1	N/A
7	N/S	1	INPUT GEAR	23	61208	1	CASTLE NUT M24 X 2
8	20890	1	BALL BEARING	24	64803	1*	3/16 X 2 COTTER PIN
9	637528	1	SHIM KIT	25	----	1*	3/8 SOLID PLUG
10	57466	1	SNAP RING	26	----	4*	M10 X 22 MM CAP SCREW
11	57374	1	OIL CAP	27	39325	1	VENT PLUG
12	N/S	1	OUTPUT SHAFT & GEAR	28	----	1	COVER
13	1018326	2	BALL BEARING				
14	637528	1	SHIM KIT				* STANDARD HARDWARE, OBTAIN LOCALLY
15	W20895	1	SNAP RING				
16	N/S	1	SPACER				

TK60.20 & TK72.20 DRIVELINE ASSEMBLY
S/N 1000888006500 OR LOWER

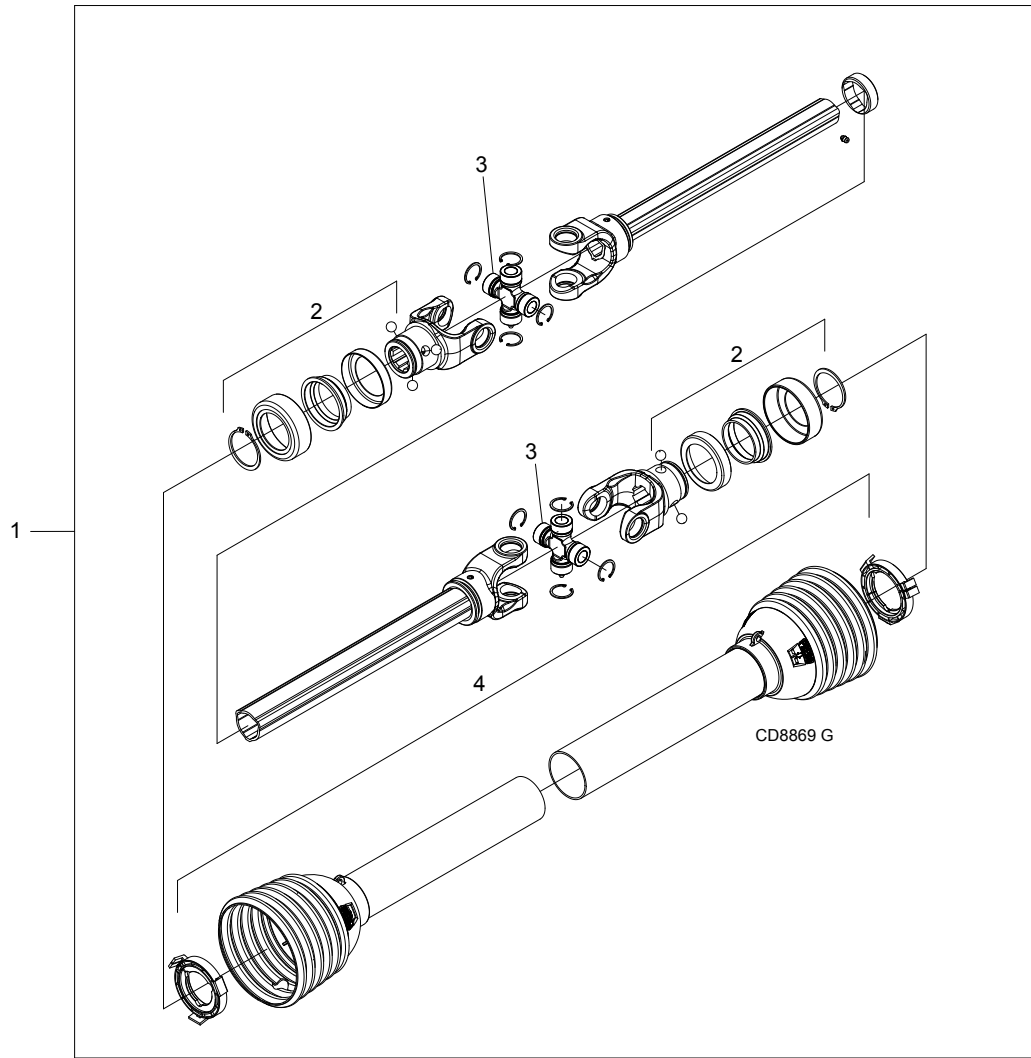


REF	PART	QTY	DESCRIPTION
1	601752	1	COMPLETE DRIVELINE ASY
2	1044050	1	LOCK COLLAR REPAIR KIT
3	1044052	2	CROSS & BEARING KIT
4	605261	1	OUTER YOKE & TUBE
5	605262	1	INNER YOKE & TUBE
6	605263	1	OUTER SHIELD WITH BEARING
7	605264	1	INNER SHIELD WITH BEARING
8	605784	1	OUTER SHIELD BEARING
9	605785	1	INNER SHIELD BEARING
10	620299	1	BEARING OUTER TUBE
11	613791	1	FITTING, GREASE ZERK NIPPLE M6 - 1
12	1044051	1	COMPLETE COLLAR YOKE C12 1-3/8 - 6

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TK60.20 & TK72.20 DRIVELINE ASSEMBLY
S/N 10008880065001 AND UP



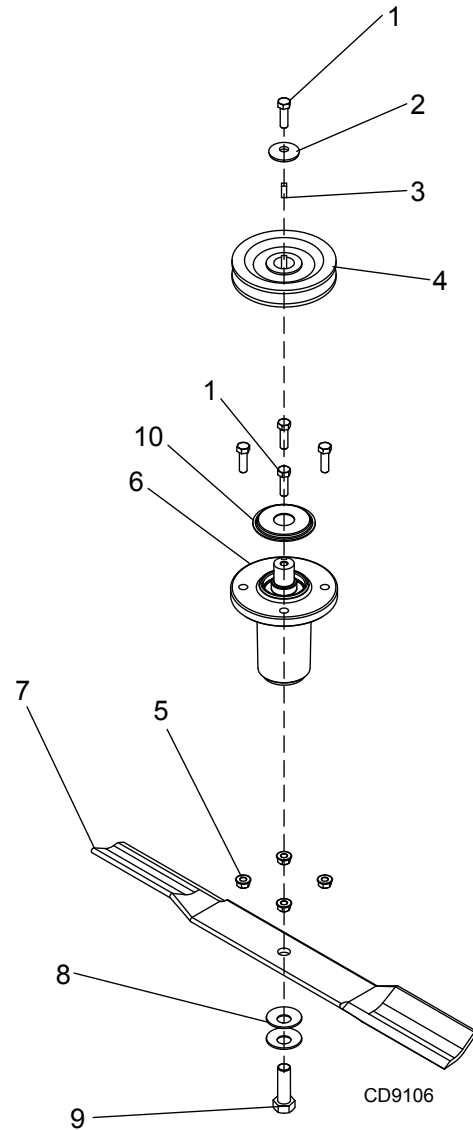
REF	PART	QTY	DESCRIPTION
1	621089	1	COMPLETE DRIVELINE
2	605289	2	LOCK COLLAR REPAIR KIT
3	611564	2	CROSS & BEARING KIT
4	638217	1	SHIELD KIT, COMPLETE

TK60.20, TK72.20 BLADE & SPINDLE ASSEMBLY

REF	TK60.20	TK72.20	QTY	DESCRIPTION
1	12169	12169	5	HHCS 3/8 NC X 1-1/4 GR5 ZP
2	70005	70005	1	WASHER, CUP
3	W70072	W70072	1	KEY, SQUARE
4	616067	----	1	SHEAVE 4.00 PD X 1.00 B
4	----	616064	1	SHEAVE 4.75 PD X 1.00 B
5	14350	14350	4	NUT, 3/8 NC FLANGE HEX LOCK
6	616095	616095	1	SPINDLE ASSEMBLY
7	616074	616072	1	BLADE, HIGH SUCTION (STANDARD)
7	613780	613781	1	BLADE, LOW SUCTION
8	10635	10635	2	CUP WASHER
9	1008095	1008095	1	HHCS 5/8 NF X 2 GR5
10	NSS	NSS	1	SLINGER-DUST

* STANDARD
HARDWARE,
OBTAIN LOCALLY

NSS NOT SERVICED
SEPARATELY

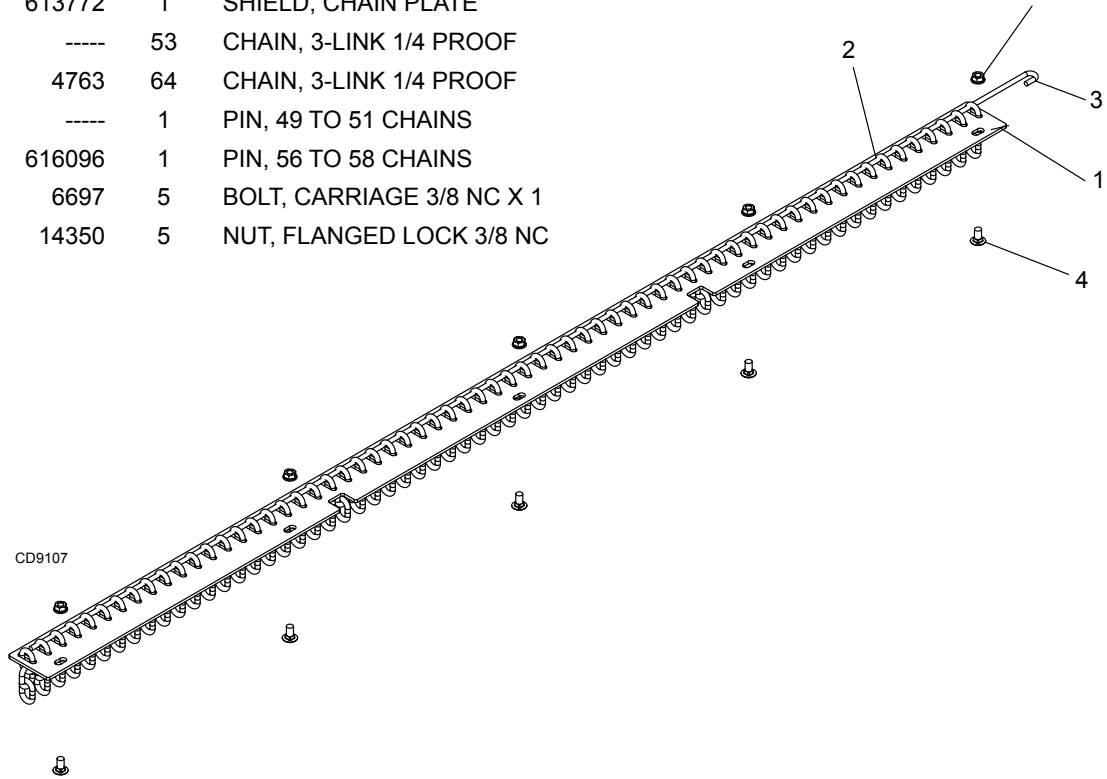


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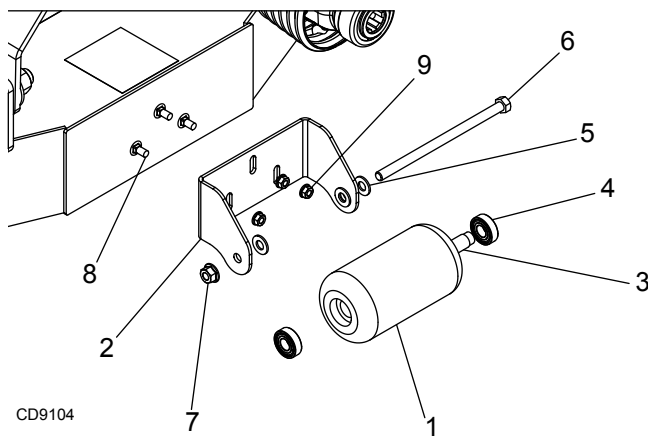
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TK60.20 & TK72.20 REAR CHAIN SHIELDING ASSEMBLY (OPTIONAL)

REF	TKP60.40	TKP72.40	QTY	DESCRIPTION
A	616077	616076		CHAIN SHIELD KIT, COMPLETE
1	613771	----	1	SHIELD, CHAIN PLATE
1	----	613772	1	SHIELD, CHAIN PLATE
2	4763	----	53	CHAIN, 3-LINK 1/4 PROOF
2	----	4763	64	CHAIN, 3-LINK 1/4 PROOF
3	1007855	----	1	PIN, 49 TO 51 CHAINS
3	----	616096	1	PIN, 56 TO 58 CHAINS
4	6697	6697	5	BOLT, CARRIAGE 3/8 NC X 1
5	14350	14350	5	NUT, FLANGED LOCK 3/8 NC

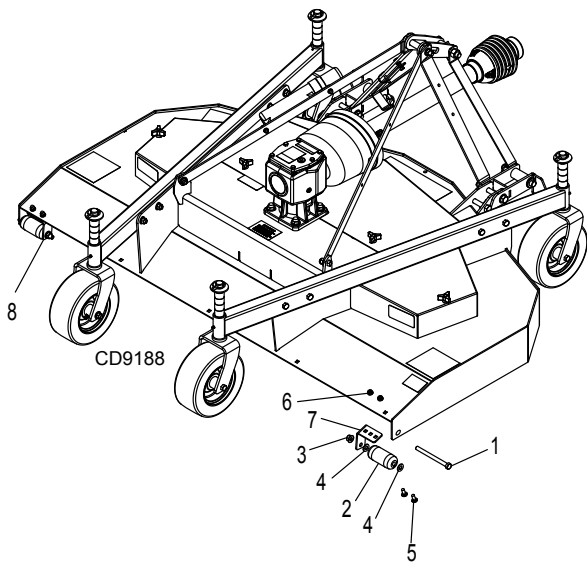


TK60.20 & TK72.20 FRONT ROLLER ASSEMBLY (OPTIONAL)



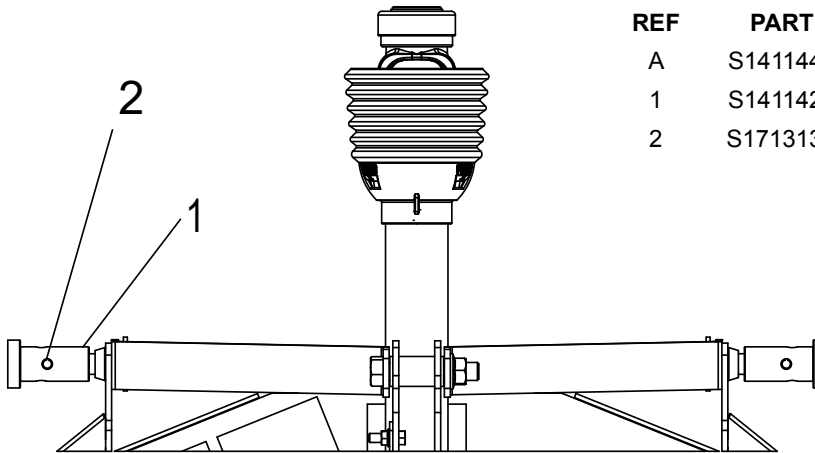
REF	PART	QTY	DESCRIPTION
A	616079		FRONT ROLLER KIT, COMPLETE
1	1006418	1	ROLLER
2	613774RP	1	ROLLER BRACKET
3	1006420	1	SPACER
4	35193	2	BEARING
5	3598	2	1/2 FLAT WASHER SAE
6	38107	1	HHCS 1/2 NC X 9 GR5
7	11900	1	NUT, 1/2 NC FLANGE LOCKNUT
8	24597	3	BOLT, CARRIAGE, 3/8 NC X 3/4
9	14350	3	NUT, 3/8 NC FLANGE LOCKNUT

TK60.20 & TK72.20 REAR ANTI-SCALP ROLLER ASSEMBLY (OPTIONAL)



REF	PART	QTY	DESCRIPTION
-	618210		REAR ROLLER KIT, COMPLETE
1	13563	2	HHCS, 1/2 NC X 6 GR5
2	1029865	2	ROLLER, 2 X 4.38
3	11900	2	NUT, 1/2 NC FLANGE LOCKNUT
4	3598	4	1/2 FLAT WASHER SAE
5	6697	4	BOLT, CARRIAGE, 3/8 NC X 1
6	14350	4	NUT, 3/8 NC FLANGE LOCKNUT
7	603652RP	1	TK REAR ROLLER BRACKET RH 1.50
8	603653RP	1	TK REAR ROLLER BRACKET LH 1.50

TK60.20 & TK72.20 QUICK HITCH BUSHING KIT



REF	PART	QTY	DESCRIPTION
A	S14114400	1	QUICK HITCH KIT, COMPLETE
1	S14114200	2	BUSHING, CAT 1 QH
2	S17131300	2	ROLL PIN 7/16 X 1-3/8

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BOLT TORQUE CHART

Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

Fasteners must always be replaced with the same grade as specified in the manual parts list.

Always use the proper tool for tightening hardware: SAE for SAE hardware and Metric for metric hardware. Make sure fastener threads are clean and you start thread engagement properly.

All torque values are given to specifications used on hardware defined by SAE J1701 MAR 99 & J1701M JUL 96.

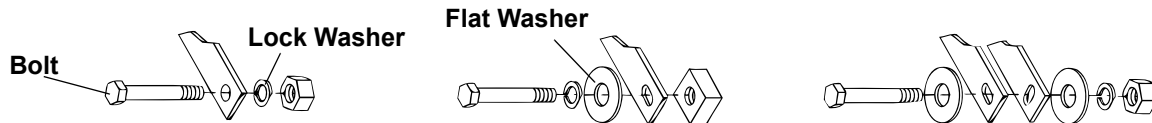
SAE SERIES TORQUE CHART

SAE Bolt Head Identification



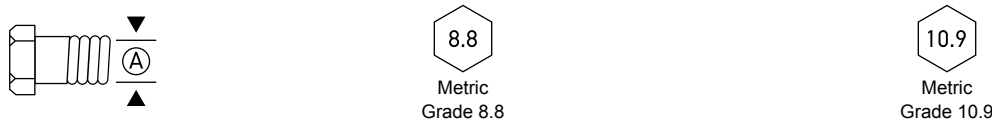
Ⓐ	Diameter (Inches)	Wrench Size	Marking on Head					
			SAE 2		SAE 5		SAE 8	
			lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18	
5/16"	1/2"	12	17	19	26	27	37	
3/8"	9/16"	23	31	35	47	49	67	
7/16"	5/8"	36	48	55	75	78	106	
1/2"	3/4"	55	75	85	115	120	163	
9/16"	13/16"	78	106	121	164	171	232	
5/8"	15/16"	110	149	170	230	240	325	
3/4"	1-1/8"	192	261	297	403	420	569	
7/8"	1-5/16"	306	416	474	642	669	907	
1"	1-1/2"	467	634	722	979	1020	1383	

TYPICAL WASHER INSTALLATIONS



METRIC SERIES TORQUE CHART

Metric Bolt Head Identification

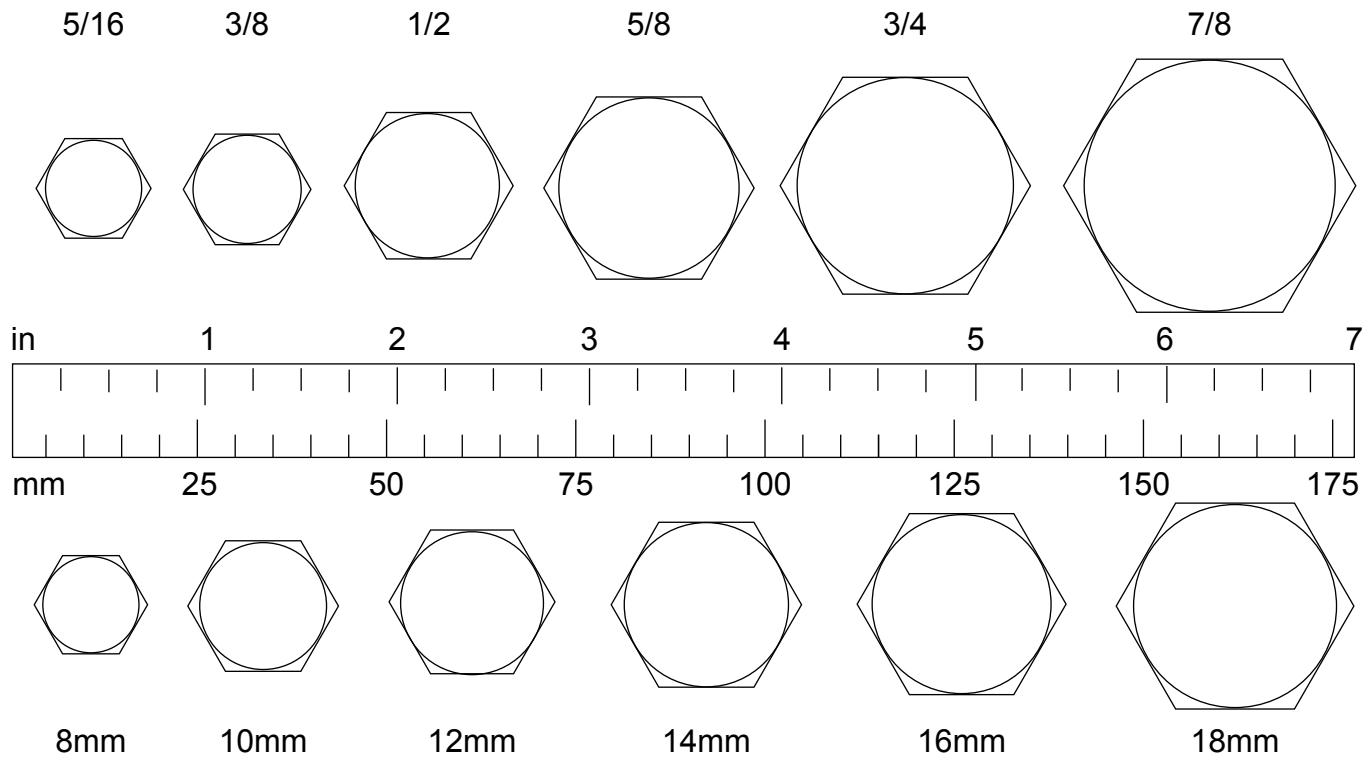


Ⓐ	Diameter & Thread Pitch (Millimeters)	Wrench Size	Coarse Thread				Fine Thread				Ⓐ	Diameter & Thread Pitch (Millimeters)
			Marking on Head									
			Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9			
			N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft		
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0		
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0		
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25		
12 x 1.75	18 mm	68	50	94	70	75	55	103	76	12 x 1.25		
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5		
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5		
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5		
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5		
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5		
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0		
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0		

BOLT SIZE CHART

Note: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and metric bolts.

SAE BOLT THREAD SIZES



METRIC BOLT THREAD SIZES

ABBREVIATIONS

AGAgriculture	HTHeat-Treated	ORBO-Ring Boss - Male
ASABEAmerican Society of Agricultural & Biological Engineers (formerly ASAE)	JICJoint Industry Council 37° Degree Flare	PPitch
ASAEAmerican Society of Agricultural Engineers	LHLeft Hand	PBYPower-Beyond
ATFAutomatic Transmission Fluid	LTLeft	psiPounds per Square Inch
BSPPBritish Standard Pipe Parallel	mMeter	PTOPower Take Off
BSPTMBritish Standard Pipe Tapered Male	mmMillimeter	QDQuick Disconnect
CVConstant Velocity	MMale	RHRight Hand
CCWCounter-Clockwise	MPaMega Pascal	ROPSRoll-Over Protective Structure
CWClockwise	NNewton	RPMRevolutions Per Minute
FFemale	NCNational Coarse	RTRight
FTFull Thread	NFNational Fine	SAESociety of Automotive Engineers
GAGauge	NPSMNational Pipe Straight Mechanical	UNCUnified Coarse
GR (5, etc.)Grade (5, etc.)	NPTNational Pipe Tapered	UNFUnified Fine
HHCSHex Head Cap Screw	NPT SWFNational Pipe Tapered Swivel Female	UNSUnified Special

PART NO.
MAN1299

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