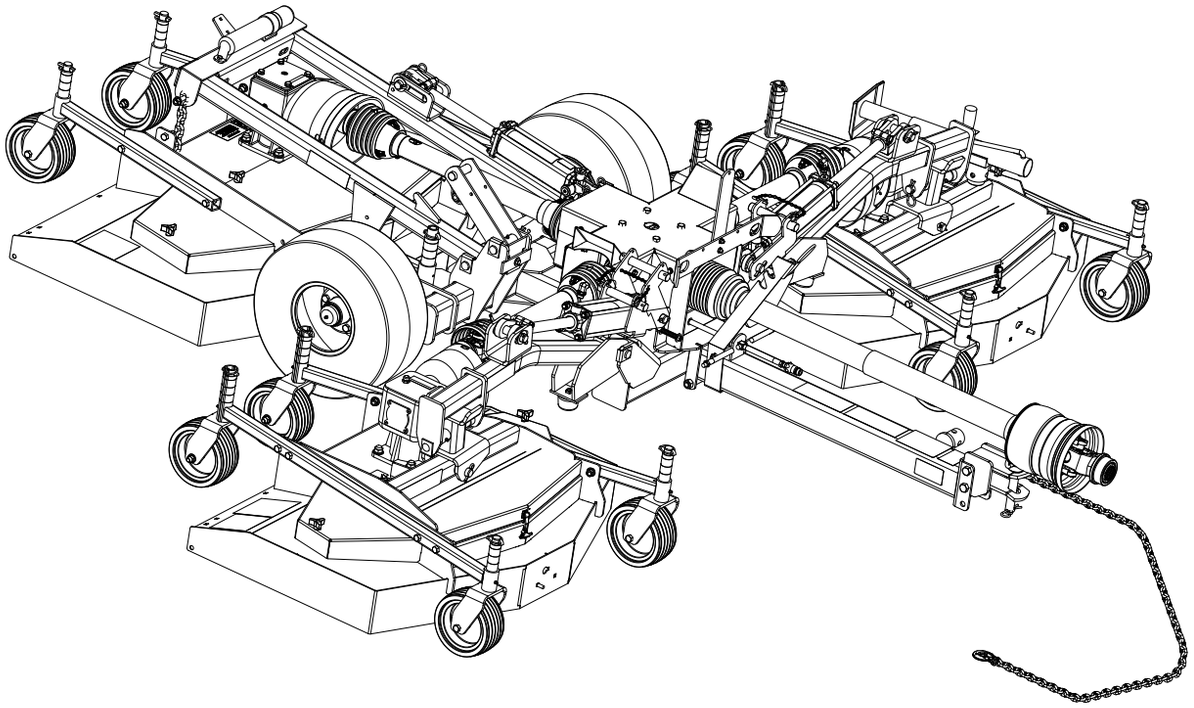
TURF BATWING®

TBW12.20



OPERATOR'S MANUAL

MAN1326

(Rev 09/26/2024)

WOODS®

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 Checklists 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 Checklist 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.

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

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

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

NOTICE Is used to address practices not related to physical injury.

NOTE Indicates helpful information.

TABLE OF CONTENTS

¡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

Cutting Width	12'
Cutting Height Range	1.5" - 5.0"
Shipping Weight (Approximately)	2,005 lbs.
Blade Speed (feet per minute)	17,900 (Center Deck) / 18,200 (Wing Decks)
Blade Spindles	9
Number of Blades	9
Universal Drive Series	(Input: ASAE Cat 3 CV; Wing: ASAE Cat 3)
Operating Temperature Range	-20°F to 110°F
Transport Wheels	20.0" x 8.8 - 8 Turf Tire and Wheel (2)
Caster Wheels	3.5" x 8" Solid (10)
Tractor PTO Speed	540 RPM
Recommended Tractor Horsepower	25 - 60 hp

GENERAL INFORMATION

⚠ 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.**

The purpose of this manual is to assist you in operating and maintaining your Turf Batwing 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 direction. These are determined by standing behind the tractor facing the direction of forward travel. Blade rotation is clockwise as viewed from the top of the mower.

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.**
- **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**
- **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result.**

CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

PREPARATION

- **Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.**
- **Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**
- **Route hydraulic hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hose immediately.**
- **Make sure all hydraulic hoses, fittings, and valves are in good condition and not leaking before starting power unit or using equipment. Check and route hoses carefully to prevent damage. Hoses must not be twisted, bent sharply, kinked, frayed, pinched, or come into contact with any moving parts. Operate moveable components through full operational range to check clearances. Replace any damaged hoses immediately.**
- **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.**
- **When attaching a pull-type unit to the tractor drawbar, always use a high-strength drawbar pin that meets the requirements of the latest version of ANSI/ASABE S625. The drawbar pin must have a device that will lock it into position. Secure safety chain to attachment and tractor.**
- **Do not leave a running machine unattended. Always park on level ground, disengage tractor PTO, set parking brake, and stop engine.**
- **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.**

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

- **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 the 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 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.**
- **Inspect chain shielding before each use. Replace if damaged.**
- **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, front tractor wheels could raise up resulting in loss of steering. The weight may be attained with front wheel weights, ballast in tires, front tractor weights or front loader. 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.**
- **Never attach the mower release rope to the operator, the operator's clothing, or the tractor seat.**
- **Make test turns, both left and right. Check that both the hydraulic hose and the mower transport lock release rope do not become taut or caught on any parts of the tractor or mower.**
- **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.**

OPERATION

- **Only engage power when equipment is at ground operating level. Always disengage power when equipment is raised off the ground.**
- **Do not allow bystanders within 25 feet of the area when operating, attaching, removing, assembling, maintaining, or servicing equipment.**
- **Never walk, stand, or place yourself or others under a raised wing or in the path of a lowering wing. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause wings to drop unexpectedly and cause severe injury or death.**
- **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).**
- **Stop the blade(s) when crossing gravel surfaces.**
- **Do not operate machine when shields or guards are removed.**
- **Do not leave a running machine unattended. Always park on level ground, disengage tractor PTO, set parking brake, and stop engine.**
- **Always comply with all state and local lighting and marking requirements. Turn on flashing warning lights whenever traveling on a public roadway.**

SAFETY RULES

⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠

- **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.**
- **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.**
- **Never direct discharge toward people, animals, or property.**
- **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.**
- **Never allow riders on power unit or attachment.**
- **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.**
- **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.**
- **Do not operate mowers on terrain that raises mowers beyond 25 degrees. Exceeding this design limit will result in U-joint "knocking noise" and potential driveline failure and could cause driveline to pull apart.**
- **Look down and to the rear and make sure area is clear before traveling in reverse.**
- **Do not operate or transport on steep slopes. Refer to tractor manual for proper ballasting and slope recommendations.**
- **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.**
- **Use caution while operating near dropoffs.**
- **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.**
- **Always connect safety chain from equipment to towing vehicle when transporting.**

TRANSPORTATION

- **The maximum transport speed for towed and semi-mounted machines is 20 mph (32 km/h). Regardless of the maximum speed capability of the towing tractor, do not exceed the implement's maximum transport speed. Doing so could result in:**
  - **The limit of the road conditions;**
  - **The maximum specified ground speed;**
    - **For towing operations as indicated in the operator's manual or SIS;**
    - **For the towed vehicle as indicated in its operator's manual, SIS, or information sign;**
- **The maximum ground speed of the towed equipment combination shall be limited to the lowest specified ground speed of any of the towed machines. This speed is the ground speed limitation.**

  EXAMPLE: If the tractor is capable of 40 km/h, the first implement has a SIS for 30 km/h, and the last implement's operator's manual states its specified ground speed is 25 km/h, the towed equipment combination ground speed limitation is 25 km/h.
- **The maximum transport speed for this machine is 20 mph (30 km/h). Regardless of the maximum speed capability of the towing tractor, do not exceed the implement's maximum transport speed. Doing so could result in:**
  - **Loss of control of the implement and tractor**
  - **Reduced or no ability to stop during braking**
  - **Implement tire failure**
  - **Damage to the implement or its components.**
- **Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.**
- **Always raise unit and install transport locks before transporting. Leak down or failure of mechanical or hydraulic system can cause equipment to drop.**

SAFETY RULES

⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠

- **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.**
- **Do not operate PTO during transport.**
- **Do not operate or transport equipment while under the influence of alcohol or drugs.**
- **Do not operate or transport on steep slopes. Refer to tractor manual for proper ballasting and slope recommendations.**

MAINTENANCE

- **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.**
- **Before performing any service or maintenance, disconnect driveline from tractor PTO.**
- **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 an authorized dealer.**
- **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.**
- **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**
- **Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.**
- **To prevent contamination during maintenance and storage, clean and then cover hose ends, fittings, and hydraulic ports with tape.**
- **Do not allow bystanders within 25 feet of the area when operating, attaching, removing, assembling, maintaining, or servicing equipment.**
- **Make sure attachment is properly secured, adjusted, and in good operating condition.**
- **Make certain all movement of equipment components has stopped before approaching for service.**
- **Frequently check blades. They should be sharp, free of nicks and cracks, and securely fastened.**
- **Do not handle blades with bare hands. Wear gloves. Careless or improper handling may result in injury.**
- **Your dealer can supply genuine replacement blades. Substitute blades, blade pins, blade bolts 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.**
- **Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.**
- **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.**
- **Do not disconnect hydraulic lines until engine is stopped, power unit is properly secured, equipment and all components are lowered to the ground, and system pressure is released by operating all valve control levers.**
- **When lubricating telescoping PTO drives, keep fingers out of shield access slots to prevent injury.**
- **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.**

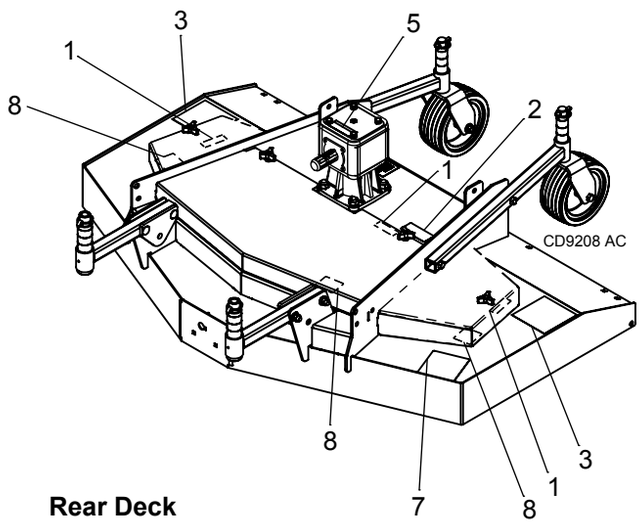
STORAGE

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

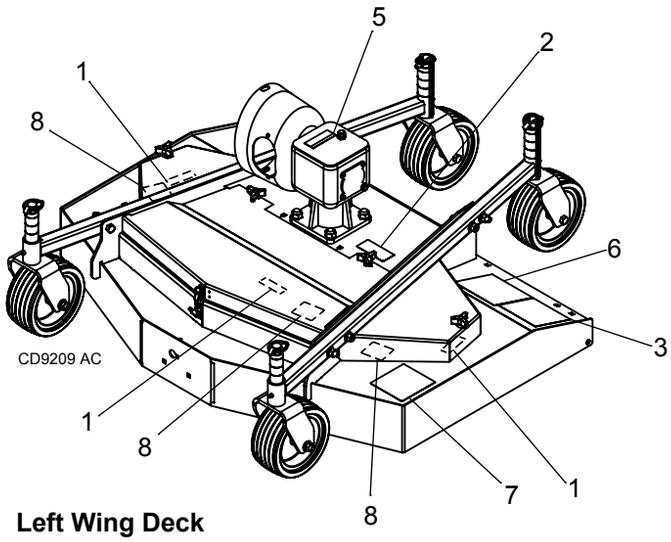
SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!



Rear Deck



Left Wing Deck

19 - 1002940 YELLOW FRONT REFLECTOR

4 - 57123 RED REAR REFLECTOR

9 - 18864

3 - 15503

BE CAREFUL!

Use a clean, damp cloth to clean safety decals.

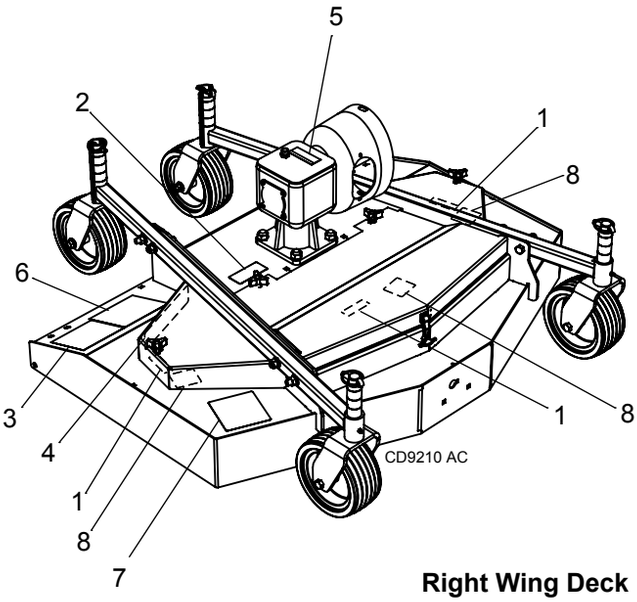
Avoid spraying too close to decals when using a pressure washer; high-pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.

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.

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!



Right Wing Deck

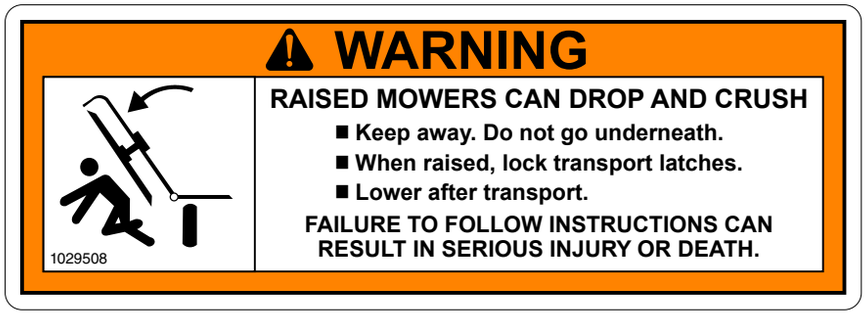
1 -18869

5 - 1004114

6 - 18865

7 - 1003751

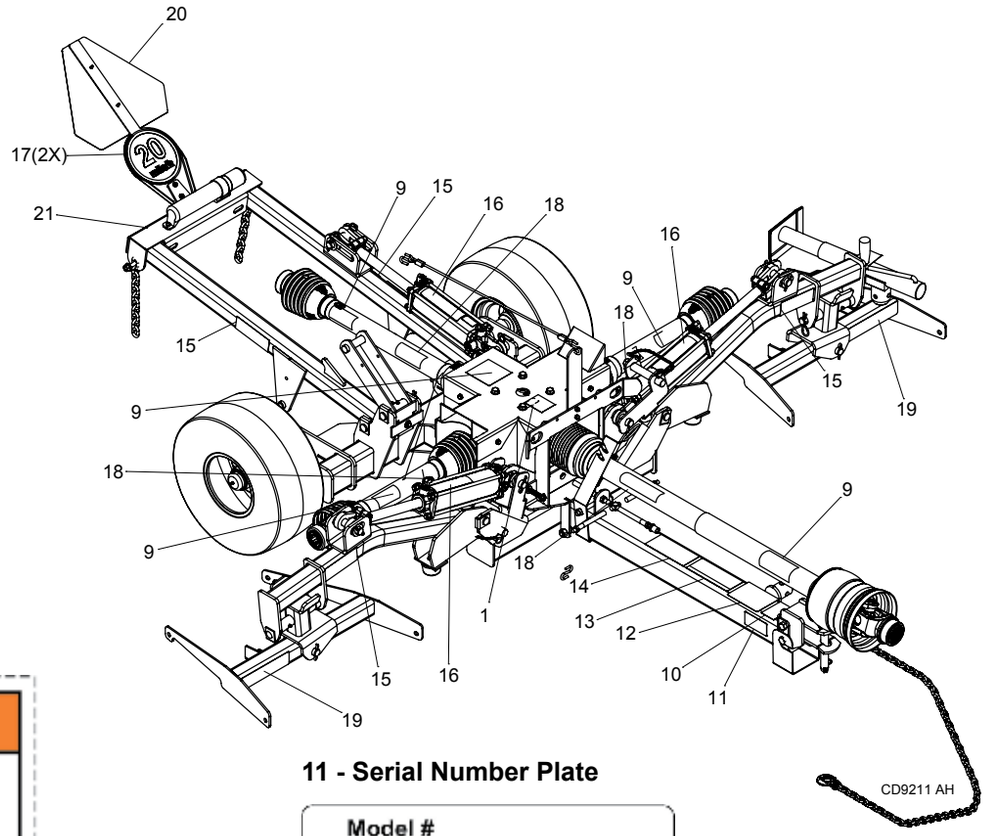
15 - 1029508



SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

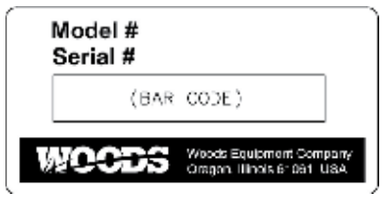
Replace Immediately If Damaged!



20 - 5WP24611 SMV SIGN
(optional)

10 - 18866

11 - Serial Number Plate



2 - 1032450

17 - 611520
(optional)

17M - 611521
(optional)

13 - 44656

SAFETY & INSTRUCTIONAL DECALS

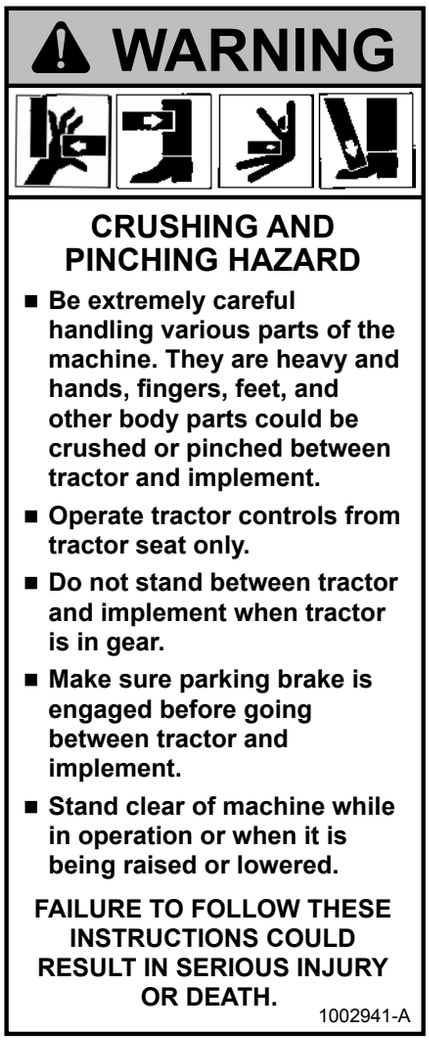
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

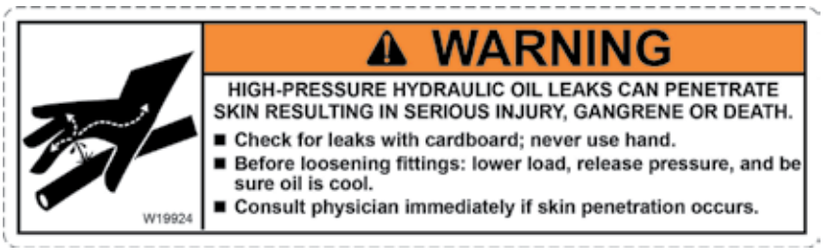
18 - 33347

12 - 18877

14 - 1002941



16 - W19924



8 - 626798

21 - 607900

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 12**.

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.

This section provides information for attaching the mower to the tractor and preparing it for field operation. Review this data prior to tractor hook-up and operation.

Lower mower to the ground when not in use.

⚠ 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

- **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 pres-sure, set parking brake, stop engine, remove key, and unfasten seat belt.**
- **Never allow riders on power unit or attachment.**
- **Never allow children or untrained persons to operate equipment.**
- **Keep bystanders and animals away from equipment.**
- **Operate tractor PTO at 540 RPM. Do not exceed.**
- **Do not operate machine when shields or guards are removed.**

⚠ 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 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.**

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.**

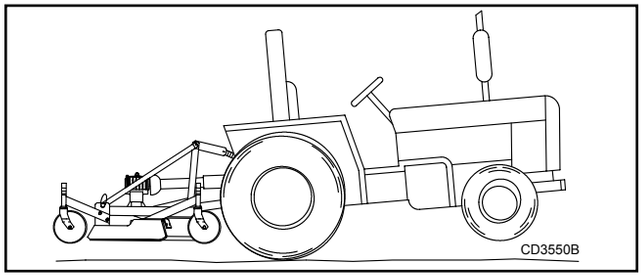


Figure 1. Tractor Stability

ATTACHING MOWER TO TRACTOR

⚠ WARNING

- **Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.**
- **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**
- **Never attach the mower release rope to the operator, the operator's clothing, or the tractor seat.**

1. Park mower and tractor on a level, hard-surfaced area.
2. Adjust tractor hitch bracket on trailer frame so the trailer is level when attached to the tractor. Pin the mower to the tractor. See Leveling Mower, page 16.

NOTE: When attaching mower to tractor drawbar, make sure the correct drawbar pin is used. A Category 1 drawbar pin is 1". A category 2 pin is 1-1/8". Failure to use the correct pin size will result in premature wear of hitch and drawbar hole. If the hitch on the mower doesn't match your tractor drawbar, contact your dealer to order the correct size hitch for your tractor. If mower will be attached to tractor for a long period of time, secure hitch to drawbar using a bolt, locknut, and washers assembled tightly. This will reduce wear on drawbar and hitch.

A 1-3/8" 6B spline PTO shaft is used for connecting the mower to the tractor. This mower is designed for 540 rpm PTO only.

IMPORTANT: The PTO drive shaft is intended for use with tractors that have 14 inches between the end of the PTO shaft and the tractor's drawbar hitch pin hole.

3. Attach the safety chain to the tractor as shown in Figure 2. Do not allow more slack than the minimum necessary for articulation. Do not use an intermediate support as the primary attaching point.

IMPORTANT: In all cases hydraulic lines and/or electrical cables used to operate the towed machine shall have more slack than the safety chain so that if a failure of the primary attaching system should occur, trailer will remain operable.

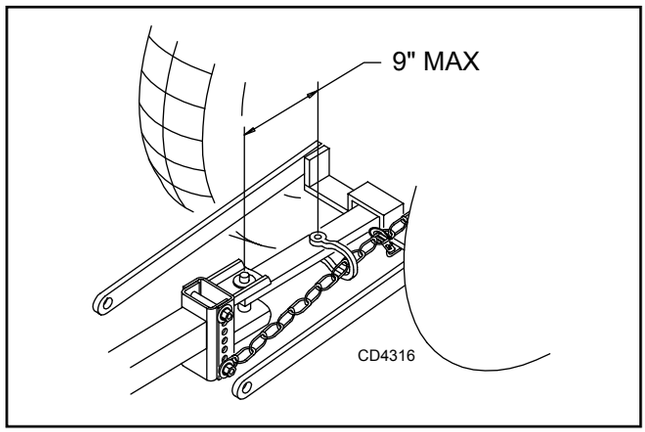


Figure 2. Tow Chain Installation

4. Attach the mower drive shaft to tractor PTO. Make sure the lock collar engages securely.
5. Attach the end of the mower transport lock release rope to a location on the tractor within easy reach of the operator.

IMPORTANT: When routing the rope, do not route through the hydraulic hose guide and do not allow rope slack to drop between the driveline shields and the gearbox rotating shafts.

6. Un-pin the parking jack from the trailer tongue and store in the jack storage location.

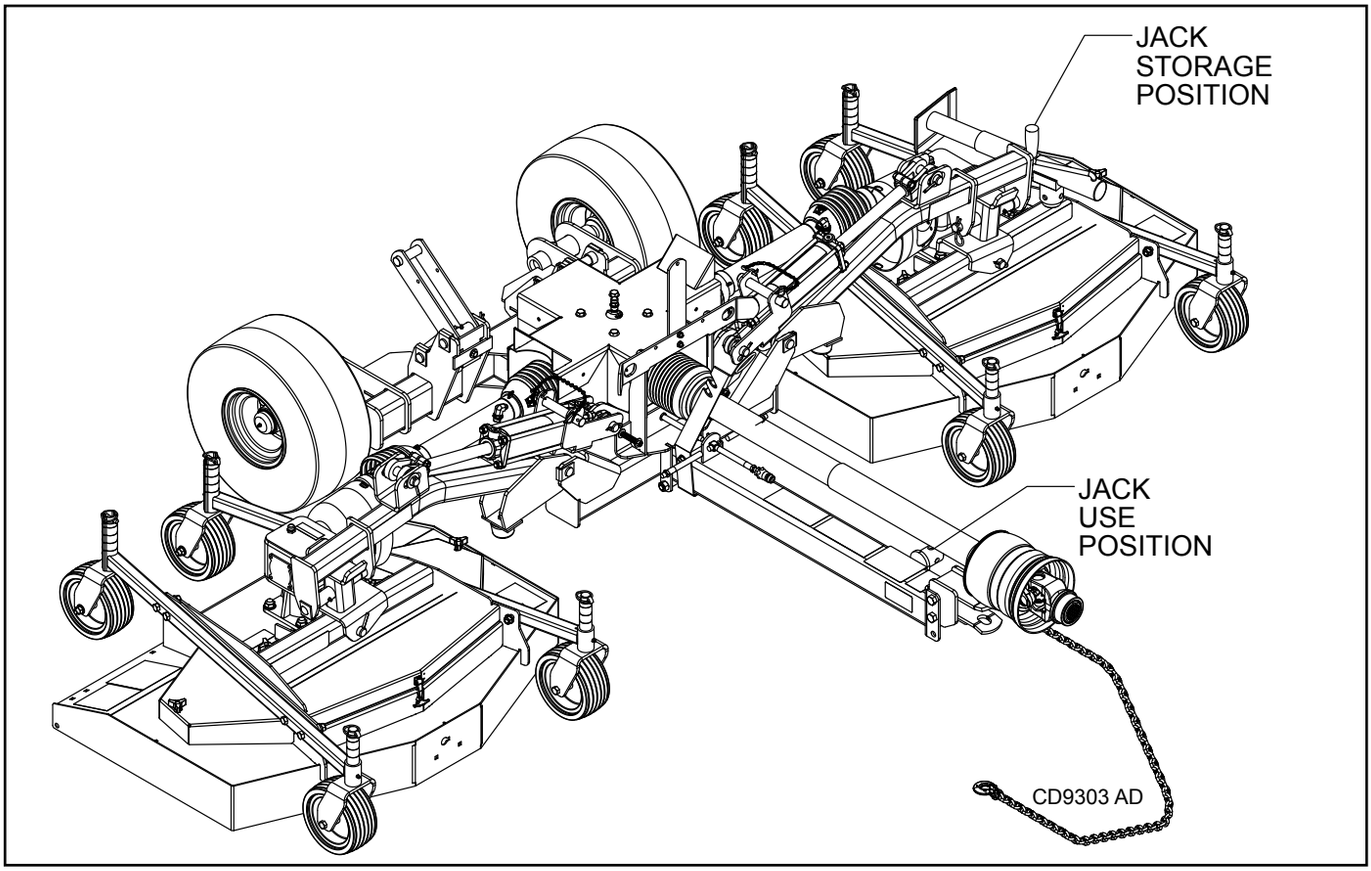


Figure 3. Jack Storage Location

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.**

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.

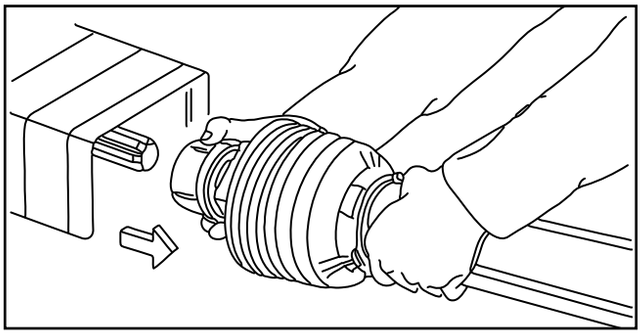


Figure 4. Lock Collar

Attaching Hydraulic Hoses

1. Inspect hydraulic hoses to ensure they are in good condition.
2. Clean hydraulic quick coupler before connecting them to the tractor hydraulic ports.
3. Attach hoses to tractor hydraulic ports. Do not allow hose slack to drag on the ground or become caught on tractor 3-point arms or other tractor components.

Interference Checks

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.**

1. With the mower in the transport position and the driveline not attached, turn the tractor wheels hard right or left and back up slowly. Use a spotter to watch the rear inside corner of the tractor. Stop the tractor before making contact with the mower.
2. Be sure that the tractor 3-point lift arms do not interfere with hydraulic hoses, driveline or mower frame. If there is any interference, remove the 3-point arms.

IMPORTANT: Contact between 3-point arms and mower can cause damage, especially when turning.

IMPORTANT: Do not operate mower with a quick hitch on the tractor. Damage may occur between the driveline and quick hitch when turning.

3. If the mower makes contact with the inside rear tractor tire, make note of the turn angle and be sure to avoid turns of this tight angle.

   NOTE: Contact between 3-point arms and mower can cause damage, especially when turning.

CV Driveline Turning Limits

NOTICE

- **Do not exceed turning angle of 80 degrees at the head of the Constant Velocity (CV) driveline or damage will occur.**

Check for excessive turn angle:

1. Disconnect the driveline from the tractor.
2. Start engine and turn as far right or left as possible.
3. Shut off the engine and connect the CV driveline to the tractor.
4. If it cannot be connected, the turn angle is too severe. Restart the tractor and straighten the angle slightly.
5. Shut off the engine and connect the CV driveline to tractor.
6. Repeat the process until the driveline can be connected.

IMPORTANT: The lesser of the two angles determined in Interference Checks and during the CV Driveline Turning Limits is the maximum turning angle that can be made.

Figure 5. Tractor Tire Interference

Leveling Mower

IMPORTANT: To ensure satisfactory mower performance, the trailer frame and decks must be leveled before operating the mower. During normal operation, the mower should be leveled twice each season. The mower must be leveled each time a tractor with a different drawbar height is used.

Follow this procedure to level the mower for operation:

1. Park the tractor and mower on a flat level surface with the decks in mowing position.
2. Inflate all tires to the recommended pressure: 70 psi for heavy duty trailer tires; 22 psi for turf trailer tires. Trailer wheel bolts should be torqued to 85 lb-ft.
3. Level the trailer frame by adjusting the hitch.
4. Remove the hitch clevis from the trailer frame and pin to the tractor drawbar.
5. Use the parking jack to adjust the trailer frame to the level position. Align the nearest hitch adjustment hole in the hitch clevis with a hole in the trailer frame. In some instances, the hitch clevis may need to be turned upside down to level the trailer frame and attach to the tractor drawbar.
6. Tighten the hardware to specifications in the Bolt Torque Chart on page 60. Readjust the level of the frame each time the drawbar height changes.
7. Attach the driveline to the tractor.

CUTTING HEIGHT ADJUSTMENT

⚠ 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.**

1. Level mower from side to side. Check by measuring from mower frame to the ground at each deck rail.
2. Verify that the same amount of spacers are under all caster arms.
3. Loosen cap screws that attach caster arm assembly to deck.
4. Set mower on the ground.
5. Re-tighten cap screws. This equalizes the clearance in the bolt holes.
6. Best mowing results will be obtained with front of mower level with, or slightly lower than, the rear.
7. Cutting height is controlled with front and rear caster wheel adjustment.
8. To raise rear of mower, move caster adjustment spacers under caster arms.
9. To raise front of mower, move spacers under front caster wheel 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

TRANSPORT

When transporting the mower moderate distances or to storage location, raise the wings and the rear deck until all three transport locks engage automatically. Place klik pins into wing pin lock holes and secure as shown in Figure 6.

To lower the wings and the rear deck:

1. Remove klik pins from wing pin lock holes and place in storage/operation hole.
2. Slightly raise the wings and rear deck to take pressure off the locking mechanisms.
3. Pull the transport lock release rope to disengage the locks. Lower the wings and rear deck and release the rope.

When transporting the mower short distances, raise the wings and the rear deck until all three transport locks engage automatically.

NOTE: An optional light kit is available that includes rear tail and turn signal lights. These lights are at the back of the mower and are connected to the tractor with a 7 pin connector. The kit provides hazard, turn, and tail light functions synchronized with the tractor lights that might be obscured by the mower. When the turn signal is used, the opposite tail and turn lights will remain steady on, while the activated tail and turn signal lights will flash.

IMPORTANT: In all cases hydraulic lines and/or electrical cables used to operate the towed machine shall have more slack than the safety chain so that if a failure of the primary attaching system should occur, trailer will remain operable.

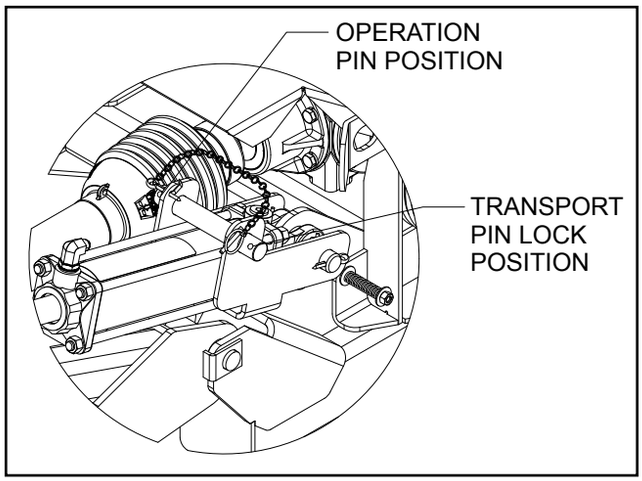


Figure 6. Klik Pin Location

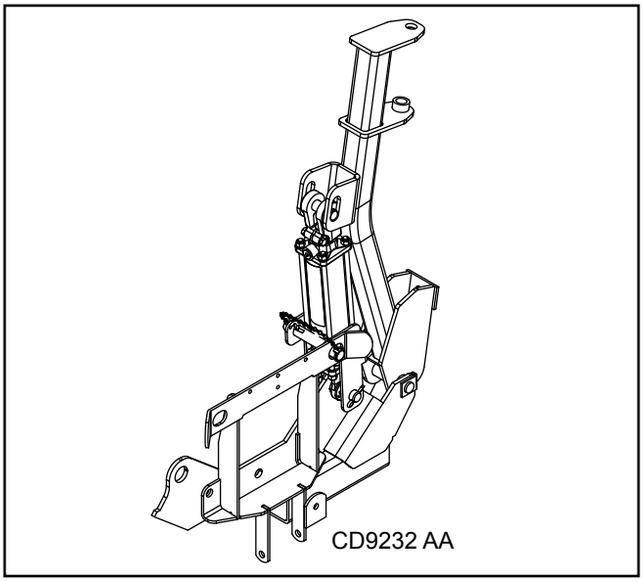


Figure 7. Lock Pin Installed (Right Wing)

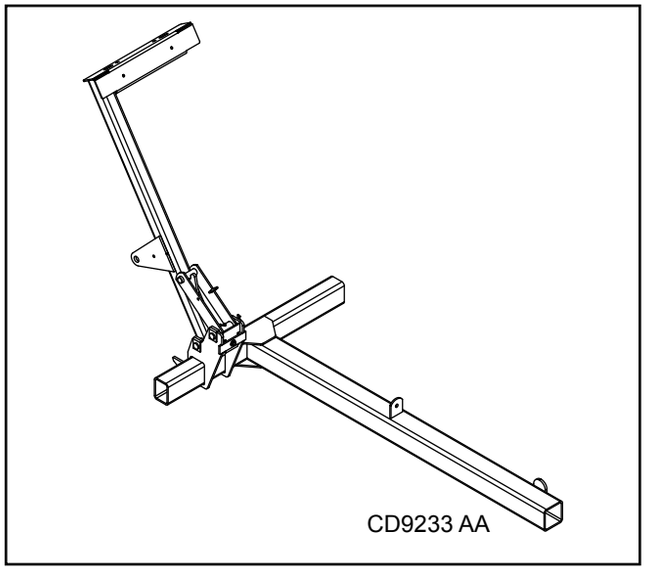


Figure 8. Rear Deck Lockup

STARTING AND STOPPING MOWER

⚠ WARNING

- **Do not operate PTO during transport.**
- **Never direct discharge toward people, animals, or property.**
- **Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.**

⚠ 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 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.**
- **Stopping the mower with belt in contact with a very hot pulley will bake and ruin belt.**

Power for operating the mower is supplied from the tractor PTO. Refer to your tractor manual for instructions on engaging and disengaging the PTO.

Operate PTO at 540 RPM. Know how to stop tractor and mower quickly in case of an emergency.

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

1. Raise mower just enough to clear accumulated material.
2. Continue running at least two minutes, allowing pulleys to cool.

To reduce the risk of thrown objects, do not raise the mower higher than necessary

OPERATING

⚠ WARNING

- **Do not operate mowers on terrain that raises mowers beyond 25 degrees. Exceeding this design limit will result in U-joint “knocking noise” and potential driveline failure and could cause driveline to pull apart.**

When engaging the PTO, engine rpm should always be low. Once engaged and ready for mowing, increase PTO speed to 540 RPM and maintain speed throughout the cutting operation.

Mower vibration tends to loosen bolts. All hardware should be checked regularly to maintain proper torque. Each time the mower is used, check all hardware to be sure it is secure. Recommended torque values can be found on page 60.

The condition of the terrain will determine cutting results. For best results, mower blades should be kept sharp at all times and the platform as level as possible. When mower blades show excessive wear, they should be replaced.

Operating Technique

⚠ 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.**

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

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

Always operate tractor PTO at 540 RPM to maintain proper blade speed and produce a clean cut.

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.

In general, lower cutting heights give a more even cut with less tendency to leave 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.

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.

Uneven Terrain

⚠ WARNING

- **Do not operate or transport on steep slopes. Refer to tractor manual for proper ballasting and slope recommendations.**
- **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.**

In extremely uneven terrain, rear wheel weights, front tractor weights and/or front tire ballast should be used to improve stability.

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

Avoid sudden starts and stops when traveling up or down hill.

Always mow down slopes, never up or across the face. Avoid operating on steep slopes.

Slow down on sharp turns and slopes to prevent tipping and losing control.

REMOVING MOWER FROM TRACTOR

1. Park the unit on a level, hard surface with the wings and rear deck fully lowered to the ground.
2. Block the wheels to keep the mower from rolling when unhitched from tractor.
3. Attach the jack to the side of the tongue and adjust the height to take the weight off the tractor hitch.
4. Disconnect the PTO shaft, untie the mower transport lock release rope from the tractor, and remove the hitch pin.
5. Store the PTO shaft tractor end on top of the mower trailer hitch. This keeps the tractor connection off the ground and clean.
6. Disconnect the hydraulic hose and light kit plug. Store these in the appropriate holes on the provided hose/wire holder. Loop excess lengths of hose, wire, and rope and rest in saddle on top of hose holder to keep these off the ground and clean.
7. Disconnect safety chain from tractor and inspect. Replace the safety chain if one or more links or end fitting are broken, stretched, or otherwise damaged or deformed. Loop safety chain over mower tongue to keep it off the ground and clean.
8. Stow safety chain on the hitch.

PRE-OPERATION CHECKLIST

(OWNER'S RESPONSIBILITY)

_____ Review and follow all safety rules and safety decal instructions on page 5 through page 12.

_____ 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, page 20. Make sure the PTO slip joint is lubricated and that the gearbox fluid levels are correct.

_____ Check that all hydraulic hoses and fittings are in good condition and not leaking before starting tractor. Check that hoses are not twisted, bent sharply, kinked, frayed or pulled tight. Replace any damaged hoses immediately.

_____ Make sure tractor ROPS or ROPS cab and seat belt are in good condition. Keep 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.

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.

⚠ 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

- **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**
- **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result.**

CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

- **Keep all persons and animals away from operator control area while performing adjustments, service, or maintenance.**
- **Do not disconnect hydraulic lines until engine is stopped, power unit is properly secured, equipment and all components are lowered to the ground, and system pressure is released by operating all valve control levers.**
- **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.**

⚠ 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.**

LUBRICATION INFORMATION

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

See Figure 9 and Figure 10 for lubrication points and frequency or lubrication based on normal operating conditions. Sever or unusual operating conditions may require more frequent lubrication.

Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations unless otherwise noted. Be sure to clean fittings thoroughly before attaching grease gun. One good pump of most guns is sufficient when the lubrication schedule is followed.

Gearbox Lubrication

Use SAE 90W gear lube in gearboxes. Fill to plug on side of gearbox. Check gearbox daily for evidence of leakage, and contact your dealer if leakage occurs.

Driveline Lubrication

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

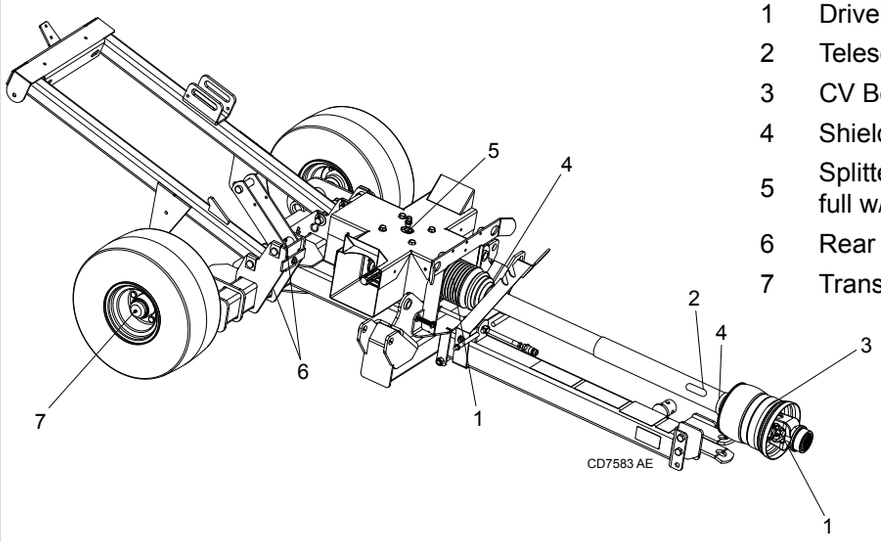
1. Lower mower decks to the ground.
2. Disconnect drivelines from decks.
3. Separate driveline half.
4. Apply grease all around and along inner shaft.
5. Reassembly driveline halves and connect to gearboxes.
6. Raise and lower decks several time to distribute grease along drivelines.

To grease the telescoping shaft of the CV drive, the drive must be disconnected from the tractor and fully collapsed to expose the grease fitting.

Seasonal Lubrication

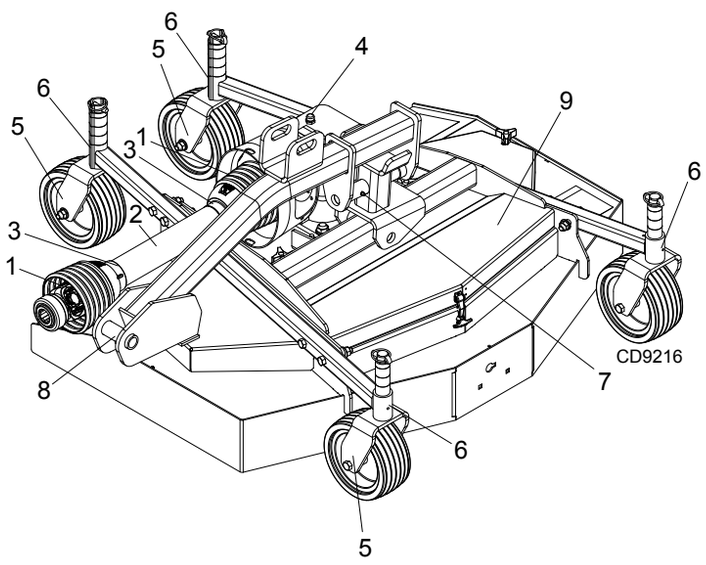
In addition to the daily recommended lubrication, a more extensive application is recommended seasonally.

1. Fill CV double yokes with 20 pumps of grease with the joints in a straight line.
2. Articulate CV body to maximum angle several times to ensure full coverage of joints.
3. Place joints in the straight position and add 10 additional pumps of grease to both joints.
4. Wipe telescoping drive clean of all old grease and contaminants.
5. Add a thin layer of new grease over telescoping drive.



REF	DESCRIPTION	FREQUENCY
1	Driveline U-Joints	8 Hours
2	Telescoping Shaft	40 Hours
3	CV Body	8 Hours
4	Shield Bearing	8 Hours
5	Splitter Gearbox (Fill 1/2 full w/SAE 90W gear lube	Check Daily
6	Rear Deck Pivot Arm	8 Hours
7	Transport Wheel Hub	8 Hours

Figure 9. Trailer Lubrication Points



REF	DESCRIPTION	FREQUENCY
1	Driveline U-Joints	8 Hours
2	Telescoping Shaft	40 Hours
3	Shield Bearing	8 Hours
4	Deck Gearbox (Fill 1/2 full w/SAE 90W gear lube	Check Daily
5	Caster Wheel Hubs	8 Hours
6	Caster Pivots	8 Hours
7	Wing Pivot	8 Hours
8	Arm Pivot	8 Hours
9	Idler arm Bushing (Oil)	40 Hours

Figure 10. Deck 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 nonflammable, non-toxic 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. 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.
2. Check that spring-loaded idler pivots freely. Clean and lubricate if necessary.
3. Loosen gearbox mounting bolts, but do not remove. This will ensure the belt can be slid under gearbox shaft without pinching or cutting.
4. 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

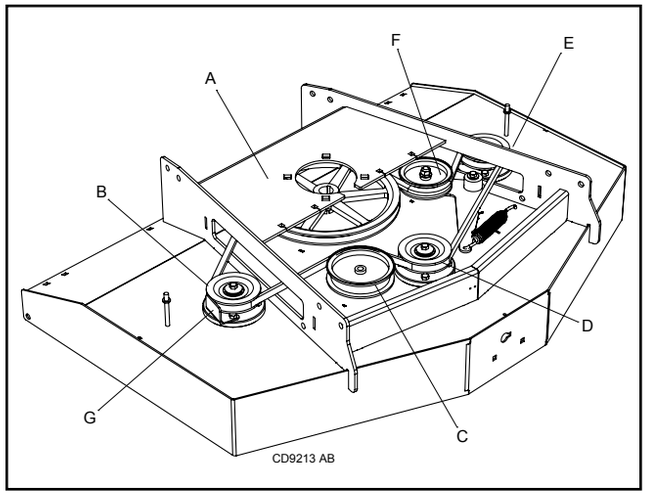


Figure 11. Belt Routing

NOTICE

- **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, back side idler C, and spindle sheave D as shown in Figure 11.
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. For rear deck only, 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.

BLADE SERVICING

⚠ WARNING

- **Before servicing blades, raise and lock mower in transport position, turn off engine, set parking brake and remove key.**
- **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. Raise mower decks to the transport position and make sure transport locks are engaged.
2. Shut off tractor, relieve hydraulic pressure in cylinders, set parking brake and remove key.
3. Inspect blades before each use to determine that they are mounted securely and are in good condition.
4. Replace any blade that is bent, excessively nicked, worn, or has any other damage.
5. Small nicks can be ground out when sharpening.

Blade Removal

⚠ WARNING

- **Do not handle blades with bare hands. Wear gloves. Careless or improper handling may result in injury.**

1. Remove bolt (1), Figure 14, which has right hand threads.
2. Remove washer and blade.

Blade Sharpening

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.**

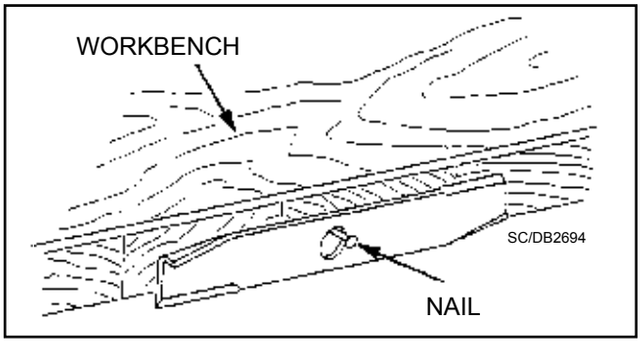


Figure 12. Blade Balancing

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 12.

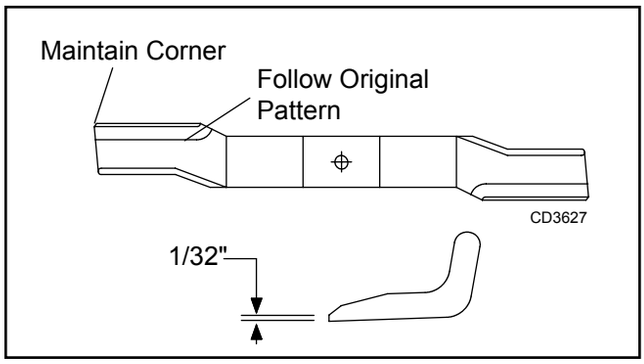


Figure 13. Blade Sharpening

Blade Installation

⚠ 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 12. Torque bolt (1) into shaft assembly to 100 lbs-ft.**

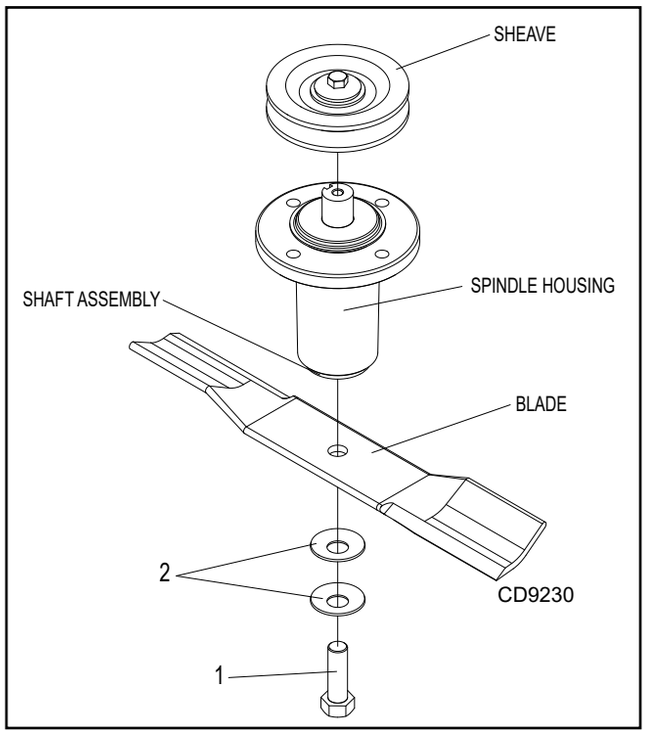


Figure 14. Blade and Spindle Assembly

1. Place blade over the bottom of the shaft assembly.
2. Place bell washer (2) over blade and insert blade bolt (1). Torque blade bolt to 100 lbs-ft.

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.**

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 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.
	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.
	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 90 degrees to first pass. Raise rear of mower high enough to permit material discharge.
	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	Pinched by belt 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.**

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.

Permatex® 3D Aviation Form-A-Gasket or equivalent is recommended as a sealant.

Remove Spindle

1. Remove belt shields from deck.
2. Remove belt.
3. Remove blade from spindle assembly.
4. Remove bolt (1) and cup washer (2) holding sheave. Remove sheave (4) and square key (3) from spindle shaft.
5. Remove nuts (6) and bolts (9) that secure spindle to mower. (See Figure 15.)

Install Spindle

1. Install spindle assembly in mower using bolts (9) and nuts (6). Torque spindle bolts to 35 lbs-ft.
2. Ensure dust slinger (10) is covering top bearing. Slide sheave (4) on spindle shaft with long end of hub protruding toward spindle. Align key-way in sheave with key-way in shaft and insert key (3).
3. Install washer (2) and bolt (1). Torque to 35 lbs-ft.
4. Rotate sheave and check for free movement or excessive end play.

1. 3/8 NC x 1-1/4 HHCS GR5
2. Cup washer
3. Key
4. Sheave
5. 3/8 NC flange lock nut
6. Spindle assembly
7. Blade
8. Cup washer
9. 5/8 NF x 2 HHCS GR5
10. Slinger-dust

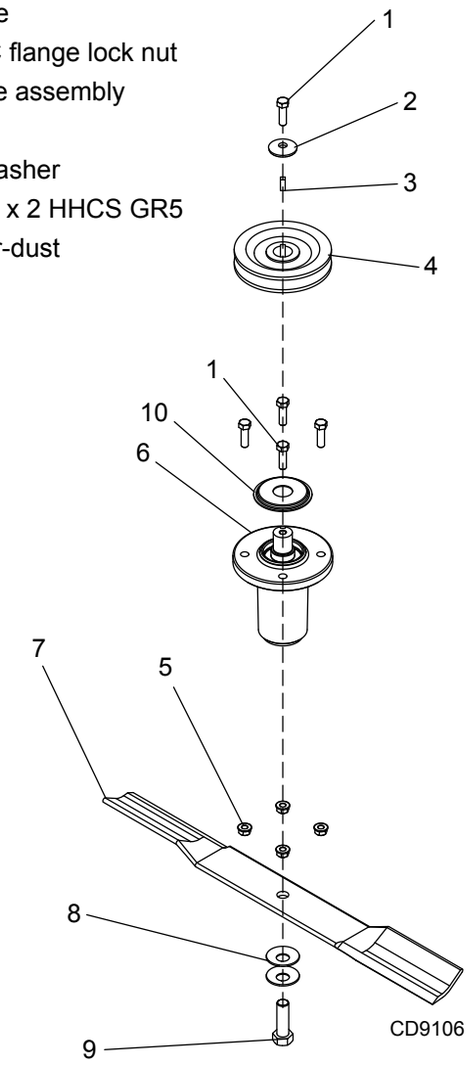


Figure 15. Blade Spindle Assembly

SPLITTER 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 of side level plug (front). Gearbox capacity is 1 liter/34 ounces.

Repair to this gearbox is limited to replacing bearings and seals. 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 and seals 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

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 think 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 tip 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.
5. Carefully press seal into housing, avoiding distortion to metal seal cage.

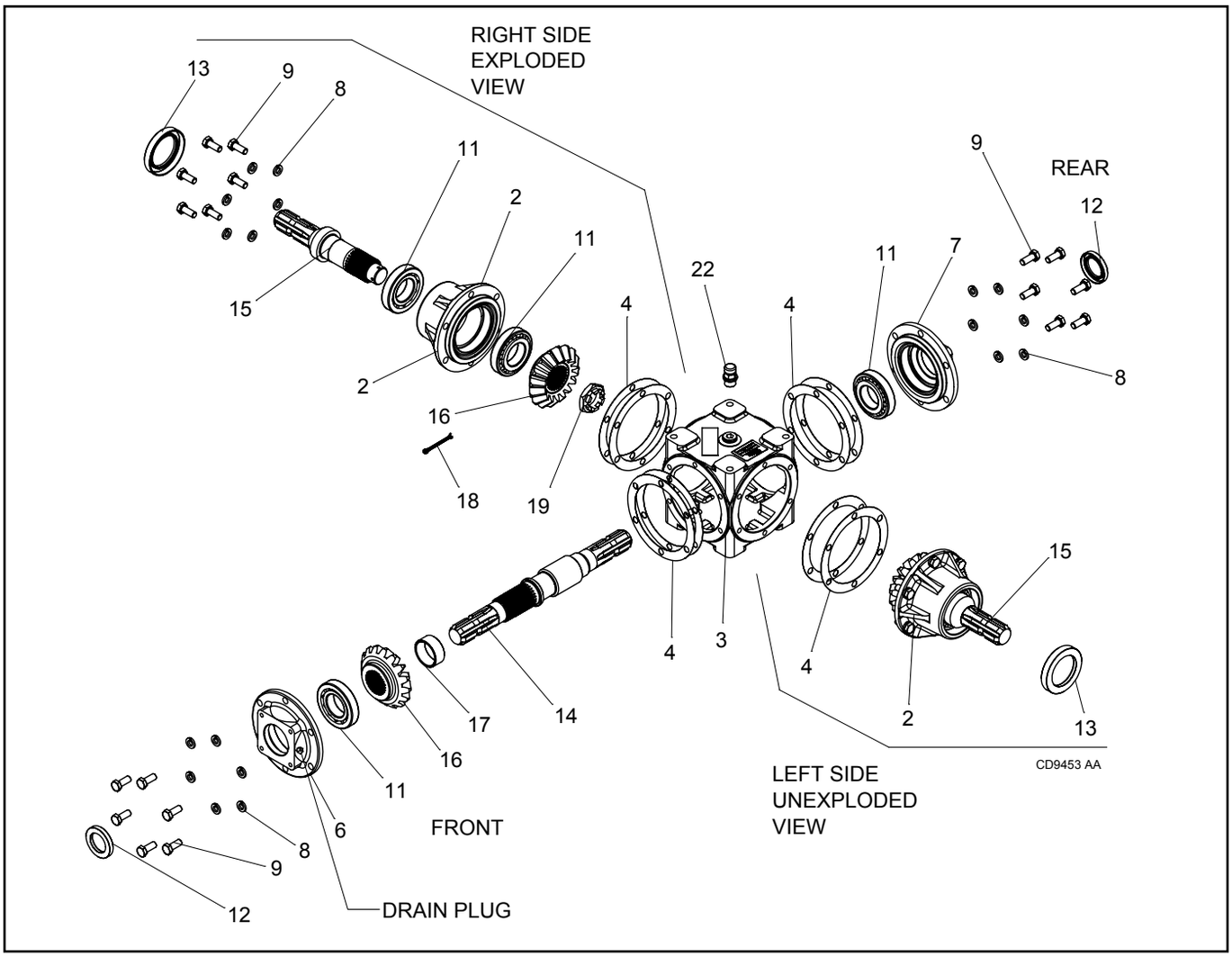


Figure 16. Splitter Gearbox Repair

Splitter Gearbox Bearing Replacement

NOTE: Gaskets have been selected for proper gear backlash.

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

Splitter Gearbox Disassembly

1. Disconnect drivelines from gearbox.
2. Remove top and side shields from gearbox. Save hardware. See page 46.
3. Remove gearbox from trailer saving hardware and set on bench.
4. Drain oil from gearbox and recycle.
5. Remove left and right hubs (2) from gearbox saving hub components, hardware (8&9) and gaskets (4).
6. Remove cotter pin (19) and castle nut (19) from side hub assemblies. Push shaft (15) through hub (2) with shaft exiting outer end of hub.
7. Remove front hub(6) and thru shaft (14), saving hub components, hardware (8&9) and gaskets (4).
8. Remove rear hub (7) saving hub components, hardware (8&9) and gaskets (4).
9. Inspect bearings and cones (11) for wear and/or damaged rollers and cage. Replace as necessary.

Splitter Gearbox Assembly

Side Hub Assemblies

1. Press bearing cups (11) into each end of side hubs making sure they are fully seated.
2. Press cone (11) onto side shaft (15) making sure cone is fully seated against shaft shoulder.
3. Assemble the shaft (15) into the side hub (2), then assemble second bearing cone (11) and gear (16) onto the shaft. Apply a thin coat of locktite #271 to shaft threads.
4. Install castle nut (19) on shaft and tightening components. Then loosen the castle nut to adjust the bearings for zero end play to a maximum preload of .83 ft-lbs of rolling torque.
5. Installing cotter pin (18) through nut (19) and shaft (15) and bend cotter pin ends around the radial surface of the nut. Set side hub assemblies aside.

Thru Shaft Assembly

6. Assemble spacer (17) and gear (16) onto thru shaft (14). Press new cone bearing (11) on shaft (14) against gear. Press a second bearing (11) onto the shaft making sure it is fully seated against the shoulder.
7. Install bearing cups(11) in hubs (6 & 7).
8. Install front hub(6) onto Housing (3) using gaskets (4), silicon, and hardware (9).
9. Install thru shaft (14) in Housing (3) with gear(16) against front hub (6). Install rear hub (7), gaskets, and silicon and tighten hardware to Housing (3).
10. The gap will vary from .004” to .040” when adjusting the bearings for zero end play to maximum preload of .83 ft-lbs of rolling torque. Tighten cap screws to 33 ftlbs.
11. Install right and left hub(2) assemblies with gaskets(4) and hardware (8&9).
12. Check the gear backlash. It should not exceed .024”. You should not have to adjust the backlash.
13. Remove side hubs(2) and then reinstall side hubs on housing using gaskets, silicon, and hardware. Tighten capscrews to 33 ftlbs.
14. Install all seals (12 &13).
15. Check the gearbox housing for leaks by plugging all holes except one. Apply 4 psi compressed air and immerse gearbox in water to verify there are no leaks.
16. Remove gearbox from water and dry off with compressed air. Add SAE 80W or 90W EP oil until it runs out the side level hole. Tighten all plugs.

DECK 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.
5. Carefully press seal into housing, avoiding distortion to the metal seal cage.

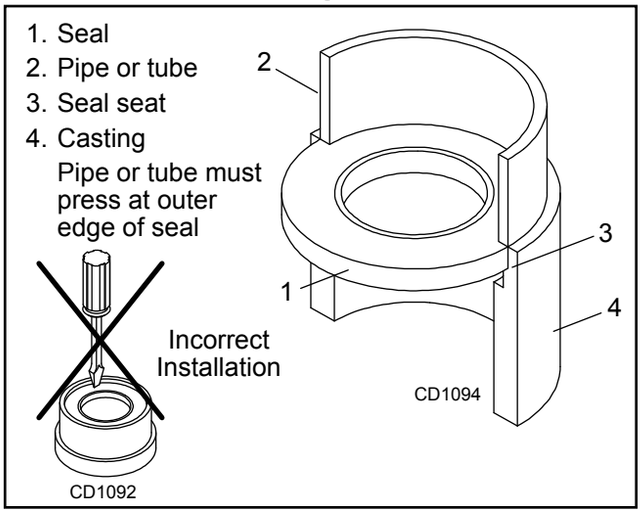


Figure 17. Seal Installation

Vertical Shaft Seal Replacement

Refer to Figure 18.

1. Disconnect and remove the driveline from the gearbox.
2. Remove vent plug (15) and siphon gear lube from housing through this opening.
3. Remove gearbox and sheave from mower deck.
4. Remove drive sheave from gearbox.
5. Remove vertical shaft seal. Replace with new seal (see Seal Replacement, page 29).

   Vertical seal should be recessed in housing.

   NOTE: Distortion to seal cage or damage to seal lip will cause seal to leak.
6. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.
7. Assemble gearbox and pulley to gearbox stand. Attach gearbox stand to mower deck.

Horizontal Shaft Seal Replacement

1. Disconnect and remove the driveline from the gearbox.
2. Remove vent plug (27), Figure 18, 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 29).

   Horizontal seal should be pressed flush with outside of housing.
4. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.

Remove Gearbox from Mower

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 19.
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.

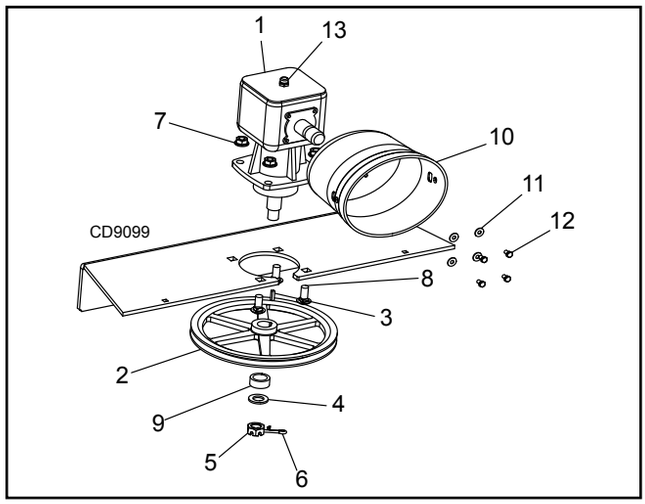


Figure 18. Gearbox Stand Assembly

1. Seal
2. Snap ring
3. Shim 55.4 mm x 61.7 mm
4. Bearing
5. Input shaft
6. Key, 8 mm x 10 mm x 30 mm
7. Input gear
8. Bearing
9. Shim, 60.3 mm x 71.7 mm
10. Snap ring
11. Oil cap
12. Out shaft & gear
14. Shim kit
15. Snap ring
16. Spacer
17. Shim, 60.3 mm x 71.7 mm
18. Snap ring
19. Seal
21. Snap ring
22. Washer, 25 mm x 44 mm x 4 mm
23. Castle nut M24 x 2
24. 3/16 x 2 Cotter pin
25. 3/8 Solid plug
26. M10 x 22 mm HHCS
27. Vent plug
28. Cover
29. Bearing
30. Spacer

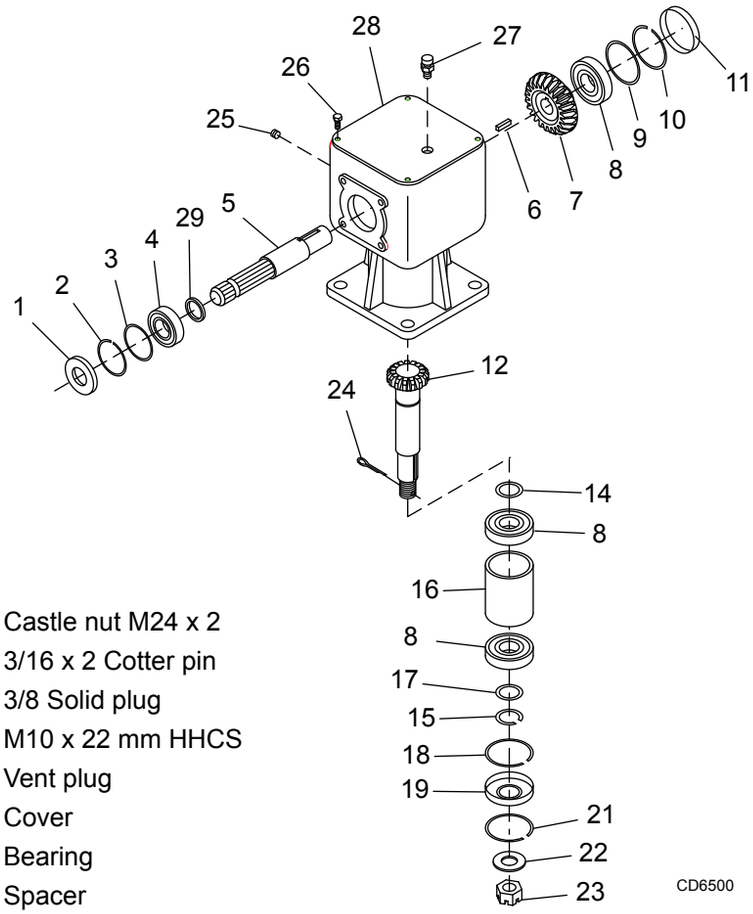


Figure 19. Deck Gearbox Assembly

Disassemble Gearbox

Refer to Figure 19.

1. Remove top cover (28), Figure 19, 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.

Reassemble Gearbox

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 shims (14), upper output bearing (8), spacer (16), lower output bearing (8), shims (17), and snap ring (15) on output shaft. Use new shims equal to the thickness of the original shims.
4. Press output shaft assembly into housing from the bottom opening.
5. Install 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. Install snap ring (21) and position it together with seal (19) by pressing it into position. Verify that the snap ring is seated properly.
8. 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).
9. Install key (6) on input shaft (5).
10. Place gear (7) through top of housing and align the two gears so they match.
11. While holding gear (7) in place, slide input shaft (5) through the gear and bearing (8).
12. Slide spacer (29) and bearing (4) over input shaft (5) and press into housing, using a round tube of the correct diameter and a hand press.
13. Slide shim (3) over input shaft and secure with snap ring (2).
14. 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).
15. Check that gear backlash is between .006" and 016". You should not have to adjust the backlash.
16. Press in input seal (1), using a round tube of the correct diameter. Be careful not to damage the seal lip.
17. Press oil cap (11) on to the rear cover of housing, using a round tube of the correct diameter.
18. 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.
19. 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

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

1. Attached drive sheave to output sheave with spacer and hub of sheave above outer belt groove. Secure using castle nut and hardware previously removed.
2. Install gearbox and sheave on gearbox stand and fasten with carriage bolts and nuts. Torque nuts to 175 ft-lbs.

Install Drive Sheave

1. When gearbox is installed on mower, dimension A (from the top of the mower deck to the center line of the drive pulley) must be 1 - 21/32 (±1/32"). This is a critical dimension and must be carefully adjusted for proper belt life. Add or subtract shim washers under idler pulley to align with drive pulley.
2. Fill gearbox half full with SAE 90W gear lube.
3. Check level after waiting five minutes to permit lube to work through bearings. Add lube, if necessary, until gearbox is half full.
4. Replace driveline shield. Attach driveline to gearbox.

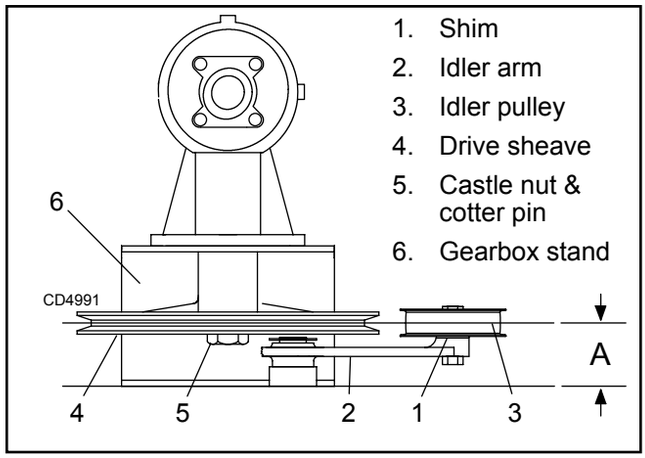


Figure 20. Drive Sheave Installation

UNIVERSAL JOINT REPAIR

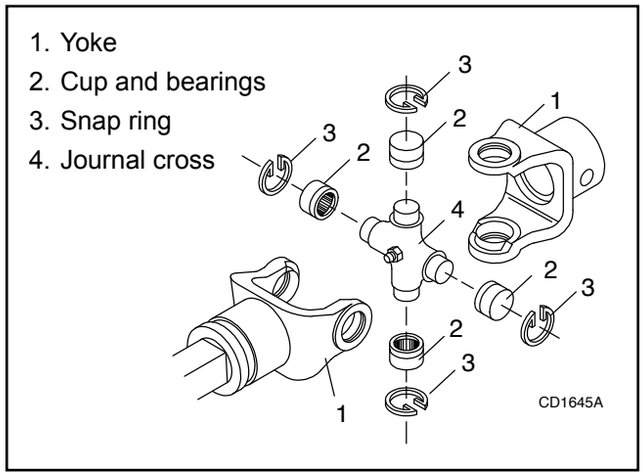


Figure 21. U-Joint Exploded View

U-Joint Disassembly

1. Remove external snap rings from yokes in four locations as shown in Figure 22.

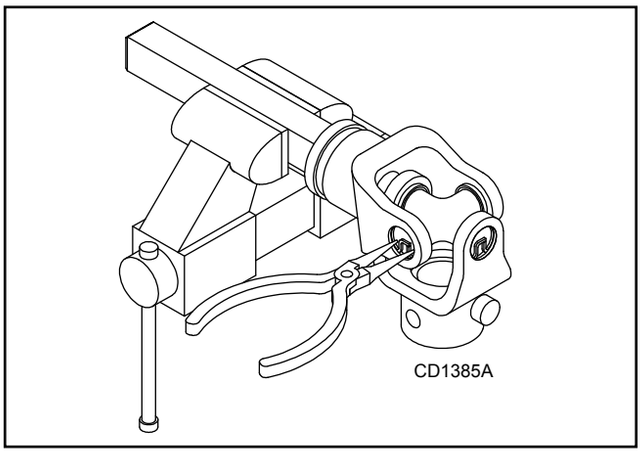


Figure 22.

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 23.

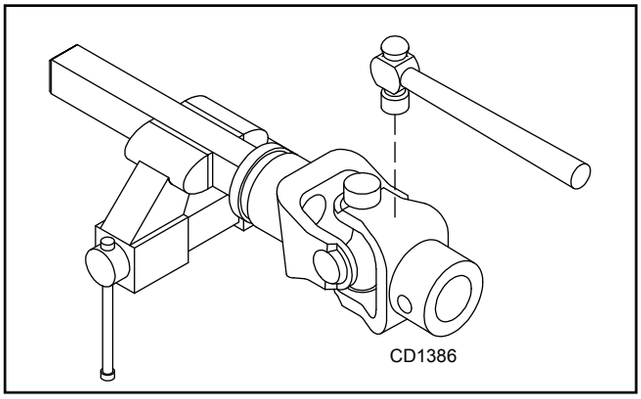


Figure 23.

3. Clamp cup in vise as shown in 4. and tap on yoke to completely remove cup from yoke. Repeat Step 2 & Step 3 for opposite cup.

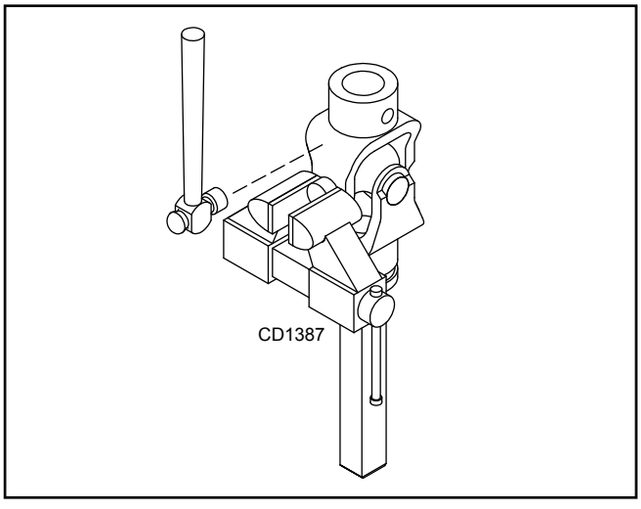


Figure 24.

4. Place universal cross in vise as shown in Figure 25 and tap on yoke to remove cup. Repeat Step 3 for final removal. Drive remaining cup out with a drift and hammer.

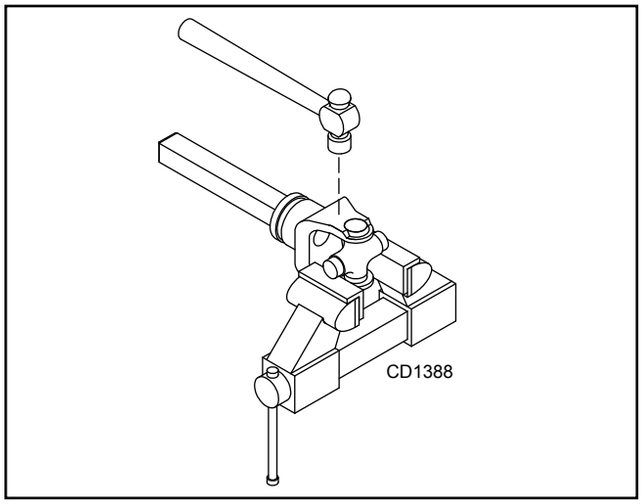


Figure 25.

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 26. 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.

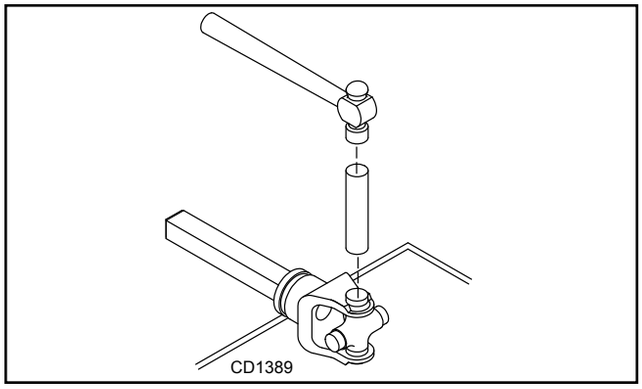


Figure 26.

ASSEMBLY

DEALER SET-UP INSTRUCTIONS

The mower is shipped mostly assembled but requires dealer set-up. The Woods dealer should deliver the mower to the owner completely assembled, lubricated, and adjusted for normal conditions.

Recommended torque values for hardware are located on page 60.

Complete checklists on page 38 when assembly is complete.

⚠ WARNING

- **Keep hands and body away from pressurized lines. Use paper or cardboard, not hands or other body parts to check for leaks. Wear safety goggles. Hydraulic fluid under pressure can easily penetrate skin and will cause serious injury or death.**
- **Make sure that all operating and service personnel know that if hydraulic fluid penetrates skin, it must be surgically removed as soon as possible by a doctor familiar with this form of injury or gangrene, serious injury, or death will result.**

CONTACT A PHYSICIAN IMMEDIATELY IF FLUID ENTERS SKIN OR EYES. DO NOT DELAY.

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

⚠ 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.**

Remove Shipping Straps

1. Remove drivelines from rear wing frame.
2. Attach CV driveline to splitter gearbox. Position CV joint towards the tractor. See page 46 for orientation.
3. Remove wire from rear of both the right and left wing decks.
4. Removed shipping strap from front of the right and left wing decks.
5. Remove parking jack from storage position on left wing.
6. Attach parking jack to trailer tongue frame.
7. Remove steel channel from below the hitch clevis.
8. Attach mower to the tractor hitch and secure with hitch pin and hair pin clip.
9. Attach the mower hydraulic hose to the tractor port. (See following section.)
10. Remove wing latch lock pins and place in storage position.
11. Lower wing decks to the ground.
12. Attach wing drivelines to the splitter gearbox first. Ensure right & left driveline u-joint orientations are mirror images to ensure the wings fold without binding. Attach wing drivelines to wing deck gearboxes.

Attach Hydraulic Hoses

⚠ WARNING

- **Air in hydraulic systems can cause erratic operation and allows loads or equipment components to drop unexpectedly. When connecting equipment or hoses or performing any hydraulic maintenance, purge any air in hydraulic system by operating all hydraulic functions several times. Do this before putting into service or allowing anyone to approach the equipment.**

Attach the mower hydraulic hose to the tractor port. Ensure there is enough slack in the hydraulic hose for the mower movement through turns, hills, and ditches. Avoid hose contact with moving parts including the driveline and wing frames. Gather extra hose slack, and loop hydraulic hose through the hose holder and secure.

NOTE: The mower hydraulic system should have been filled at the factory. Always assume it is empty. Fully purge air and fill the hydraulic system by raising and lowering wings several times while hooked to a tractor hydraulic supply. Keep all personnel away while raising and lowering.

OPTIONAL EQUIPMENT

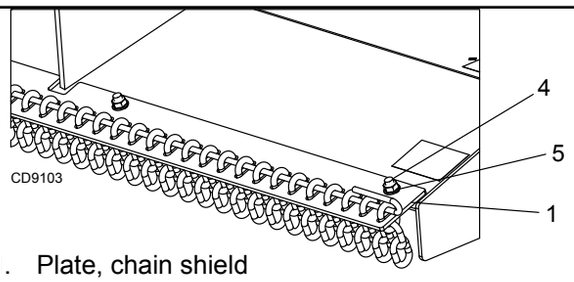
Chain Shielding Installation

⚠ 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.**

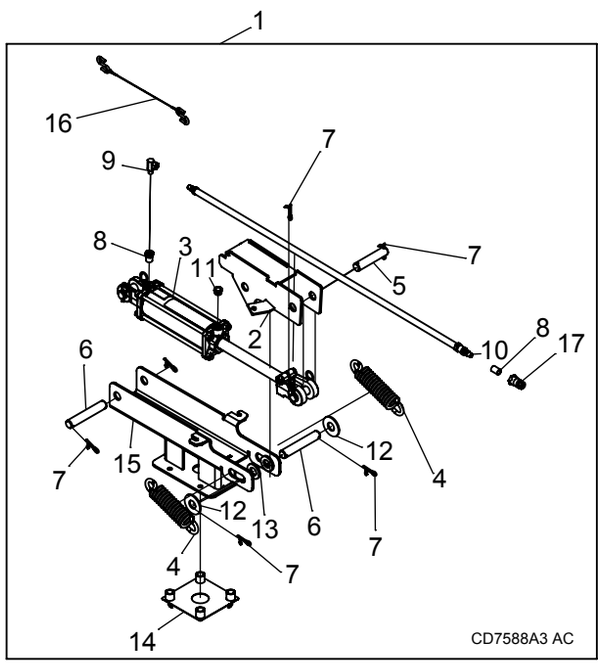
1. Install chain shielding plate (1) on top rear edge of mower frame as shown in Figure 27.
2. Secure with carriage bolts (4) and flanged lock nuts (5).
3. Insert carriage bolts from bottom upward as shown. Torque bolts to 35 lb-ft.



1. Plate, chain shield
4. Bolt, carriage 3/8 NC x 1
5. Nut, 3/8 NC lock

Figure 27. Chain Shielding Installation

Hydraulic Latch Release Installation



1. Release Kit.
2. Release slide
3. Cylinder
4. Spring
5. Pin, 1 x 4.08
6. Pin, 1 x 5.08
7. Cotter pin
8. Adaptor
9. Elbow
10. Hose, 108"
11. Vent plug
12. Flat washer, 1"
13. Washer, 1 x 1-7/8 x 1/4
14. Spacer Alignment
15. Release Base
16. Cable Assembly
17. Hydraulic Coupler

Figure 28. Hydraulic Latch Release Installation

1. Remove rope lever from the top of front latch.
2. Remove plugs from front and rear ports on cylinder and extend cylinder rod.
3. Install vent plug (11) in port near rod end.
4. Place release slide (2) over clevis on rod end of cylinder (3) and secure using pin (5) and two cotter pins (7).
5. Attach base end of cylinder to release base (1) using pin (6) and cotter pins (7).
6. Extend cylinder and align release slide (2) with release base (1). Insert pin (6), two washers (13) and secure using two flat washers (12) cotter pins (7) on the outside.
7. Attach springs (4) between base (1) and slide (2).
8. Install bushing (8) and elbow (9) into port at base of cylinder.
9. Remove the four bolts and washers from the top of gearbox shield.
10. Place latch assembly over gearbox shield, align holes and secure using the hardware previously removed.
11. Remove latch rope from between front latch and tractor.
12. Remove rope between front latch and rear lever. Replace with 1/8" cable and S Hooks. Crimp S Hooks closed.
13. Attach hydraulic hose (10) to elbow (9). Attach male quick coupler to opposite end of hose.
14. Route hose through hose holder ring on tongue to tractor remote. Loop any slack on hose holder. Check to make sure no safety decals are covered by attached accessory.
15. Operate hydraulic release to check function of lock mechanism.

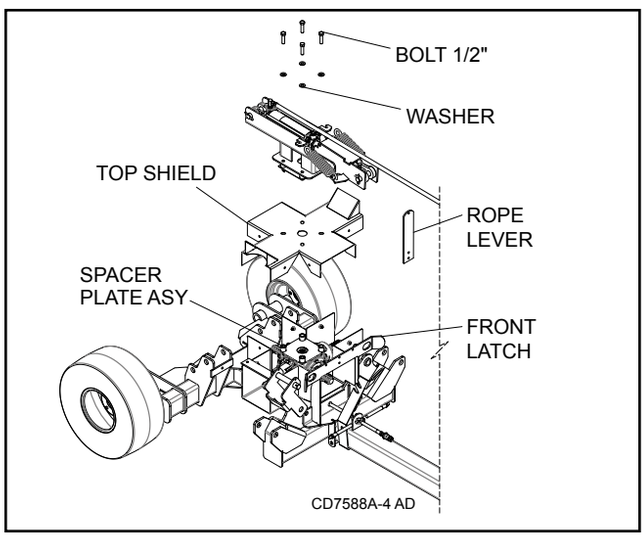
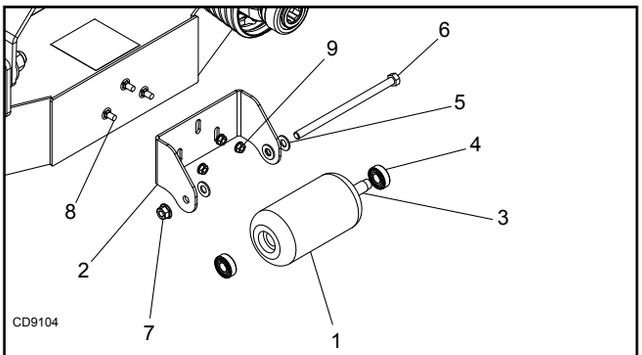


Figure 29. Latch Release to Trailer Connection

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 30.
4. Insert cap screw (6) through bracket and roller.
5. Secure with flanged lock nut (9). Do not over-tighten; roller must spin freely.



1. Roller
2. Roller bracket
3. Spacer
4. Bearing
5. Washer 1/2 flat SAE
6. HHCS 1/2 NC x 9 GR5
7. Nut, 1/2 NC flange locknut
8. Bolt, carriage 3/8 NC x 3/4
9. Nut, 3/8 NC lock

Figure 30. Front Roller Installation

Light Kit Assembly Installation (Optional)

1. Install module on rear side of gearbox stand on trailer using #10 x 1 self tapping screws in existing holes of gearbox stand. Install with single harness facing left and the two harnesses facing right as standing behind machine.
2. Install bent link onto rear wing frame using 3/8 x 3 1/2" hex head cap screws and flange lock nuts.
3. Install tail/turn cobo lamps onto bent link, making sure the red tail lights are towards the center of the machine. using 1/4" hex head cap screws and flange lock nuts.
4. Connect wire harness with 7 pin plug to the front of the light module with the 4 pin weatherpack connector. Connect rear 6 foot jumper wires from the rear light module to the tail/turn combo lamps.
5. Install P-Clips on bent bracket, rear hydraulic cylinder channel, rear wing lock, gearbox stand, and front wing bumper stand with wires inside of P clip when installing P clip with 3/8" hardware. Remove slack from wires, ensuring enough wire length to move with wing frame movement between transport and operation. Route remaining slack through wire holder at front of trailer. Check to make sure no safety decals are covered by attached accessory.
6. Connect 7 pin connector to tractor and ensure tail/turn lights of the mower match the tail/turn lights of the tractor.
7. Install SIS (speed indicator sign) brackets to rear wing frame using 1/4" hardware. Install SMV (slow moving vehicle) sign to SIS bracket using 1/4" hardware. Apply SIS decals to SIS bracket. Both metric and imperial signs are provided in the light/SIS/SMV kit.

1 Kit, TBW Complete
2 Link, Bent .18 X 6.79 X 61.24
4 Clamp .50 DIA Steel Cushion
5 Nut, Hex FLNG Lock 3/8 NC
6 HHCS 3/8 NC X 1 GR5 ZP
7 Bolt CRG 1/4 NC X 3/4
8 Nut Lock 1/4 NC Flange
9 HHCS 1/4 NC X 3/4 GR5
10 Nut, Hex FLNG 1/4 NC SRTD
11 Led AG Combo Lamp LH
12 HHCS 1/4 NC X 1 GR5
13 Screw, Self Tap #10 X 1"
14 Led AG Combo Lamp RH
15 Wire Harness 5FT
16 AG Enhancer Module
17 Wire Harness, 16 FT Main
18 Sign (SMV) Slow Moving Vehicle
19 Bracket, TBW SIS
20 Bracket, TBW SMV and SIS

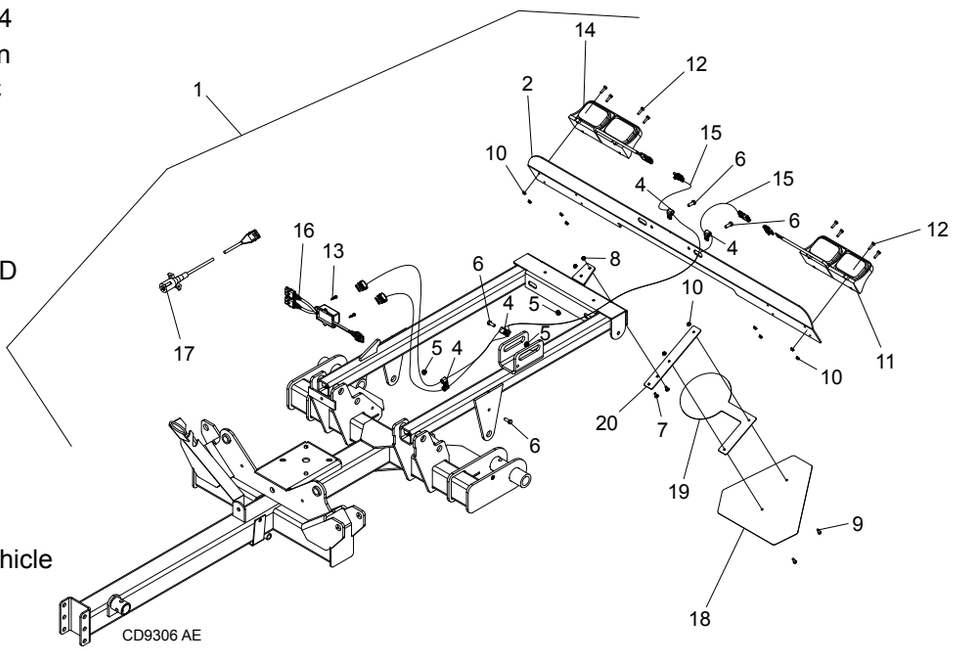
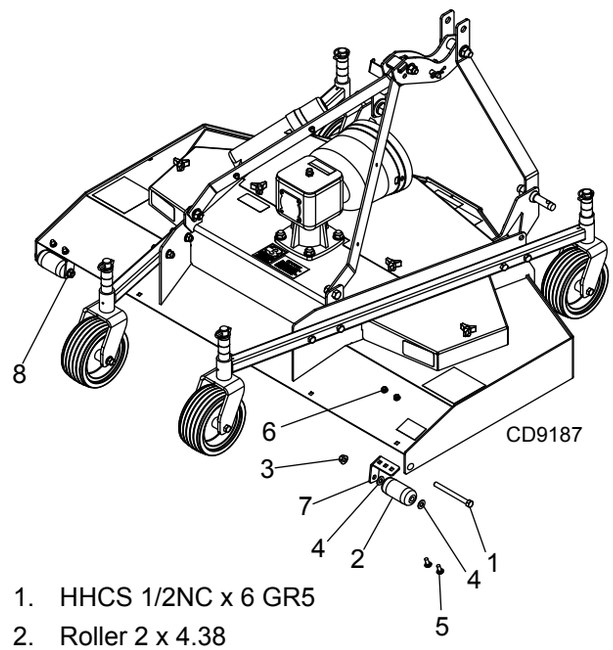


Figure 31. Light Kit Assembly

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) throu 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 32. Install ½ 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.



1. HHCS 1/2NC x 6 GR5
2. Roller 2 x 4.38
3. Nut, 1/2NC flanged locknut
4. Washer, ½ flat SAE
5. Bolt, carriage 3/8NC x 1
6. Nut, 3/8NC flanged locknut
7. RH roller angle bracket
8. LH roller angle bracket

Figure 32. 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 checklists 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 mower attitude and belt alignment

_____ Check and grease all lubrication points as identified in "lubrication information" on page 19.

_____ Check the level of gearbox fluids before delivery. Service, if required, as specified in the lubrication information on page 19.

DEALER DELIVERY CHECKLIST

(DEALER'S RESPONSIBILITY)

_____ Show customer how to make adjustments and select proper PTO speed.

_____ 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 how to determine the turning limits of the CV PTO driveline.

_____ Show customer the safe, proper procedures to be used when mounting, dismounting, and storing equipment.

_____ Make customer aware of optional equipment available so that customer can make proper choices as required.

_____ 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.

_____ Explain to customer the potential crushing hazards of going underneath raised equipment.

_____ Point out all guards and shields. Explain their importance and the safety hazards that exist when not kept in place and in good condition.

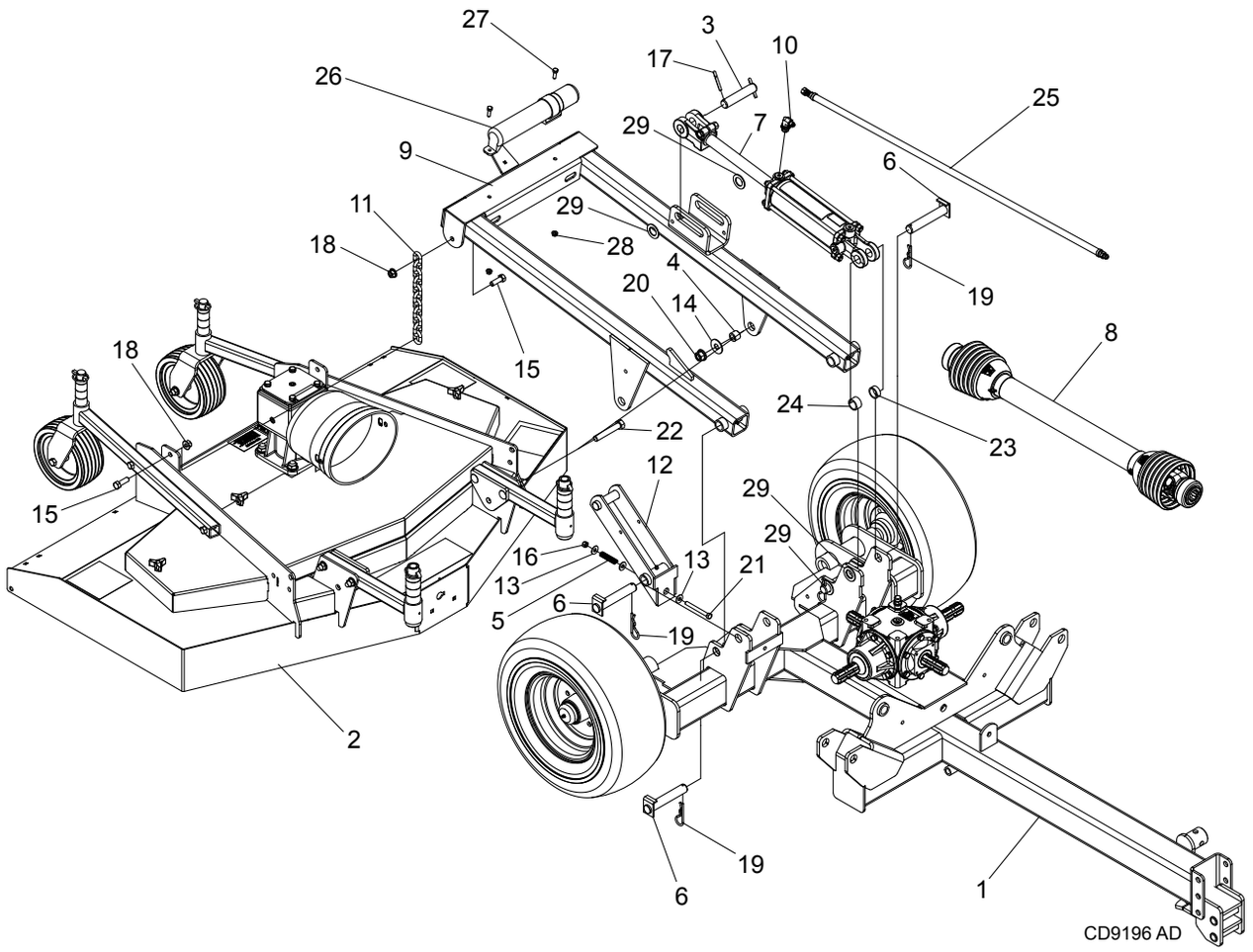
WOODS®

PARTS INDEX

Turf Batwing Mower

TBW12.20

REAR WING FRAME ASSEMBLY



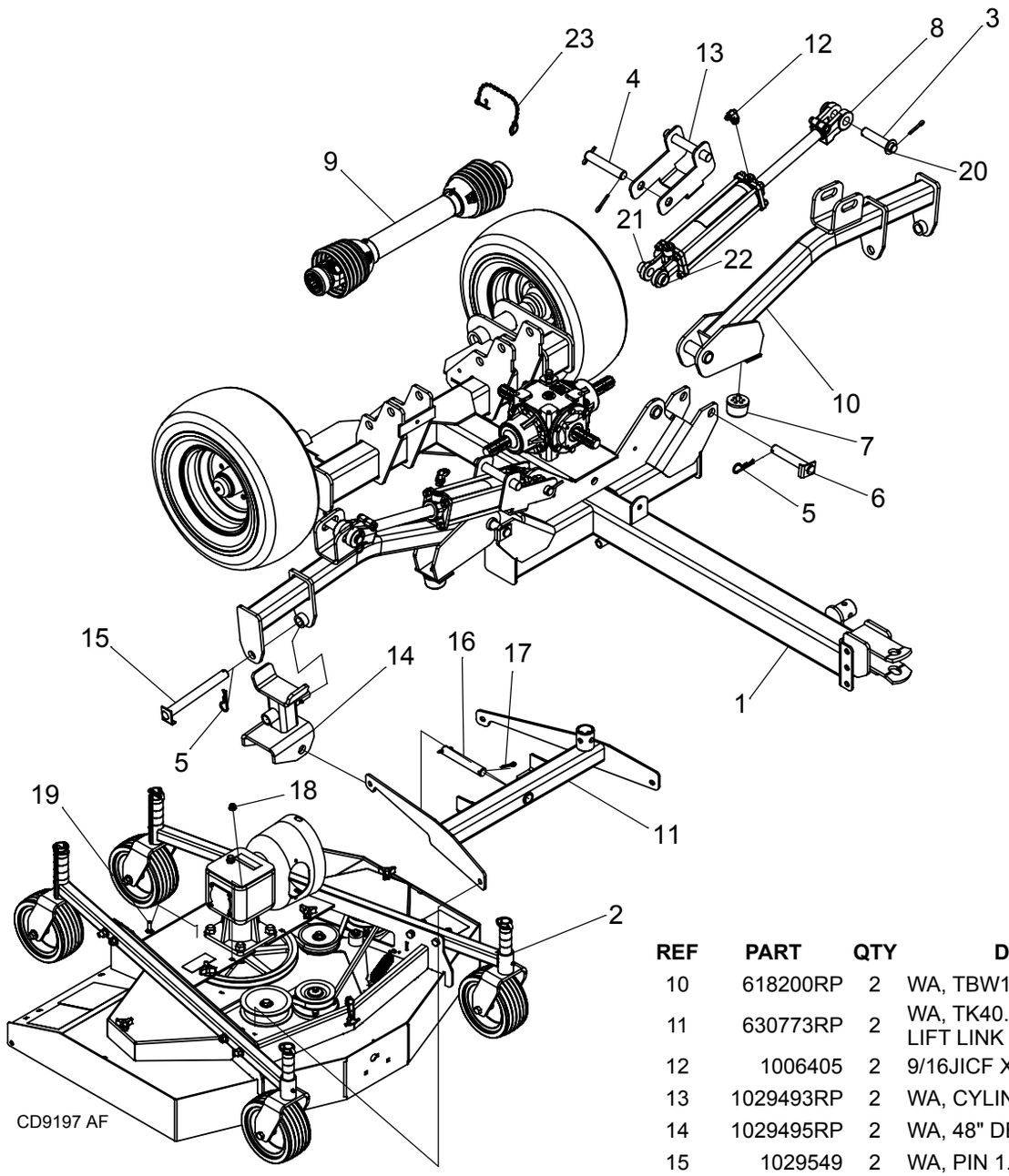
REF	PART	QTY	DESCRIPTION
1	NSS	1	TBW12.20 TRAILER
2	NSS	1	CENTER DECK
3	8345	1	PIN HDLS 1.00 X 4.08
4	12313	2	.625 X 1.00 X .789 HT SLV
5	21957	1	SPR/CMP0.58 .08 2.4 40
6	38001	4	WA WING HINGE PIN
7	597267	1	CYLINDER, 3.0 X 1.25 X 8.0 NPT 8 AG (PAGE 54)
8	601752	1	DRIVELINE, CMPL 30.2 X 45.1 (PAGE 52)
9	626444RP	1	WA, REAR WING, TBW12.20
10	1006405	1	9/16 JICF X 1/2 90 EL 3/32 RSTR
11	1016953	2	5/16 CHAIN LINK 11
12	1029529RP	1	WA, REAR LOCK
13	*	5	WASHER, FLAT 3/8
14	*	2	WSHR 5/8 FLAT ZP
15	*	4	BOLT, HEX 1/2 NC X 1.50 GR5
16	*	1	NUT LOCK 3/8 NC ZP

REF	PART	QTY	DESCRIPTION
17	*	2	1/4 X 1-1/2 COTTER PIN
18	*	4	NUT LOCK 1/2 NC FLANGE
19	*	4	3/16 SAFETY PIN
20	*	2	NUT, HFN 5/8 NC, LOCK
21	*	1	HHCS 3/8 NC X 3-1/2 GR5
22	*	2	HHCS 5/8 NC X 3-3/4 GR5 ZP
23	65129	1	PIPE 1 SCH 40 X 0.50
24	33647	1	PIPE 1 SCH 40 X 0.75
25	1006403	1	HOSE, .25 48 9/16 JICF 9/16 JICM
26	1026530	1	MANUAL TUBE
27	*	2	HHCS 5/16 NC X 1 GR5
28	*	2	NUT, HEX FLNG LOCK 5/16 NC
29	*	4	WASHER, FLAT, 1 SAE ZP

NSS NOT SERVICED SEPARATELY

* STANDARD HARDWARE, OBTAIN LOCALLY

WING FRAME ASSEMBLY



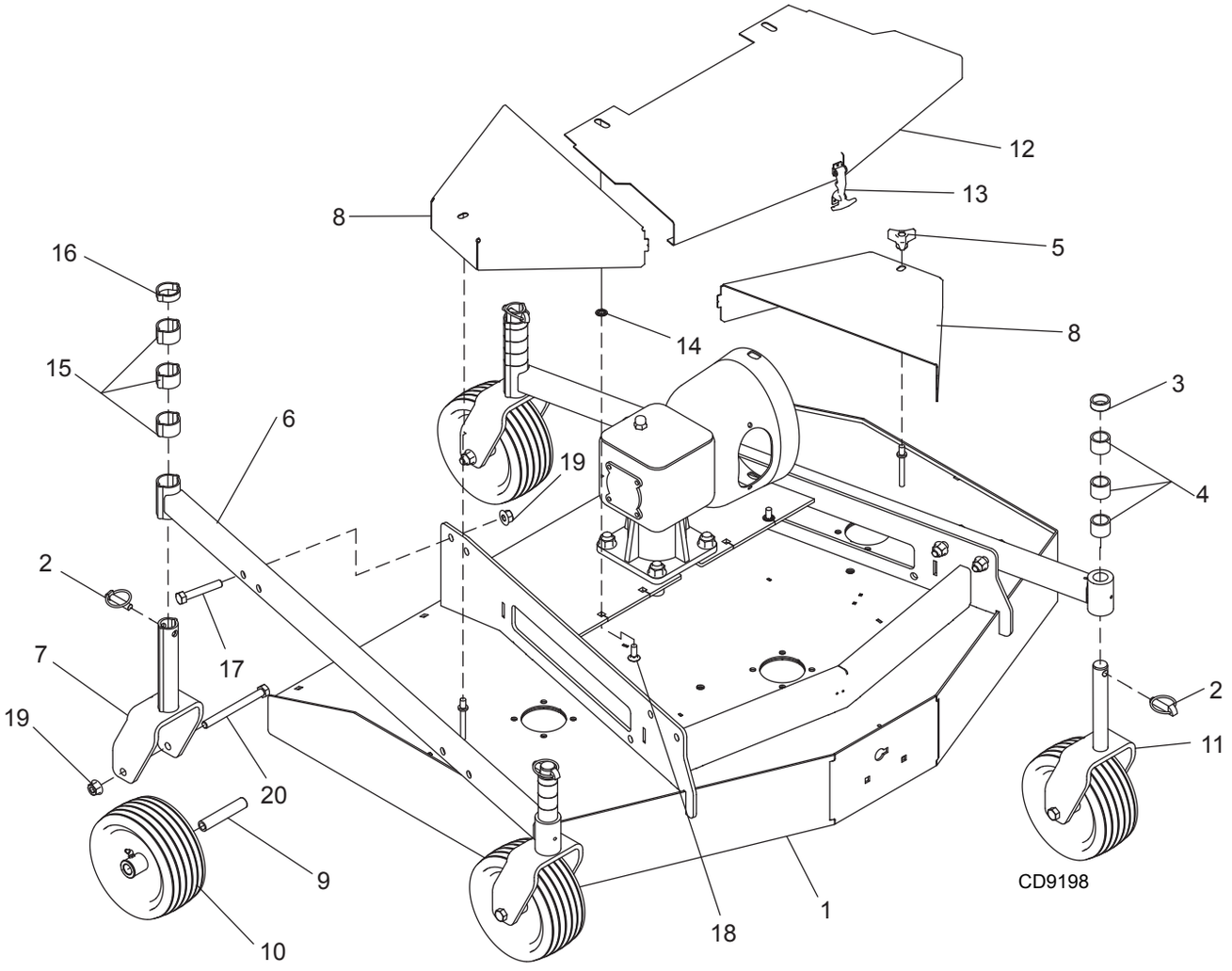
REF	PART	QTY	DESCRIPTION
1	NSS	1	TBW12.20 TRAILER
2	NSS	1	WING DECK
3	8345	2	PIN HDLS 1.00 X 4.08
4	8347	2	PIN, HDLS 1.00 X 5.08
5	18270	4	3/16 SAFETY PIN
6	38001	2	WA WING HINGE PIN
7	62440	2	PAD ASM-BUMPER
8	597269	2	CYLINDER, 3.0 X 1.25 X 10.0 NPT8 (PAGE 53)
9	601736	2	DRIVELINE, CMPL 22.1 X 31.9 (PAGE 50)

REF	PART	QTY	DESCRIPTION
10	618200RP	2	WA, TBW12.20 WING FRAME
11	630773RP	2	WA, TK40.20T DECK LIFT LINK WING LH
12	1006405	2	9/16JICF X 1/2 90 EL 3/32 RSTR
13	1029493RP	2	WA, CYLINDER LOCK
14	1029495RP	2	WA, 48" DECK LINK, WING
15	1029549	2	WA, PIN 1.00 X 9.09
16	W8348	2	PIN, HDLS 1.00 X 5.58
17	*	12	1/4 X 1-1/2 COTTER PIN
18	*	4	NUT, HEX FLNG LOCK 3/8 NC
19	*	4	BOLT CRG 3/8 NC X 1-1/4 GR5
20	*	3	WASHER, SAE FLAT 1
21	33647	1	PIPE 1 SCH 40 X 0.75
22	65129	1	PIPE 1 SCH 40X 0.50
23	38264	2	ASY-LYNCH PIN, CHAIN & COTTER

NSS NOT SERVICED SEPARATELY

* STANDARD HARDWARE, OBTAIN LOCALLY

WING DECK ASSEMBLY

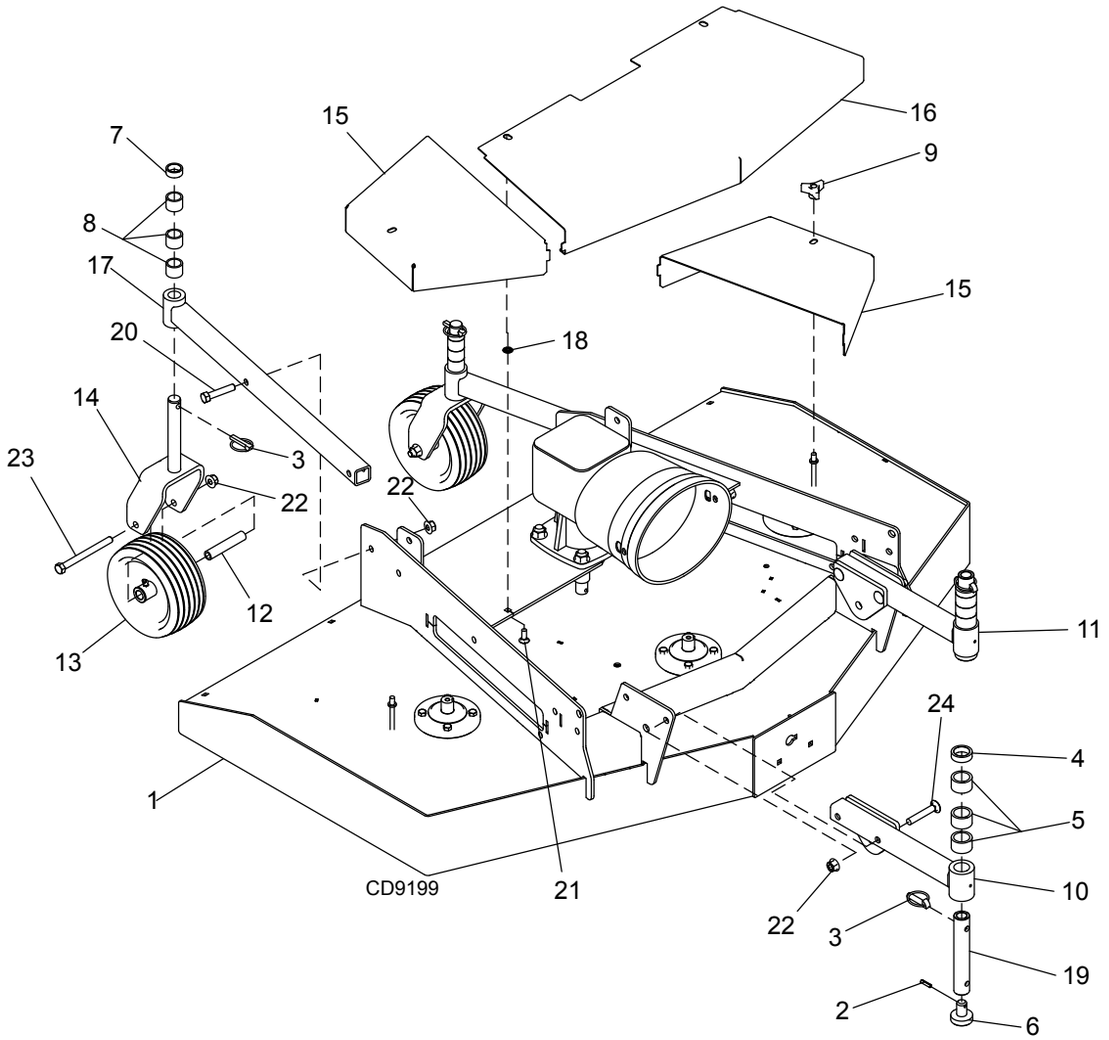


REF	PART	QTY	DESCRIPTION
1	NSS	1	DECK WING
2	43627	4	LINCH PIN, PLATED
3	65129	2	PIPE 1 SCH 40 X 0.50
4	65130	6	PIPE 1 SCH 40 X 1.00
5	66840	4	KNOB, 3 PRONG 3/8 NC
6	611570RP	2	WA, WHEEL ARM
7	615344RP	2	WA, CASTER YOKE NON-ROTATE
8	615359RP	2	PLATE, BELT SHIELD 48" DECK
9	616069	4	SLEEVE,.51 X.75 X 3.92 HT
10	616070	4	WHEEL, 8.00 X 3.45 X.75 GRAY
11	616130RP	2	WA, CASTER YOKE
12	626440RP	1	PLATE, CENTER BELT SHIELD 48" DECK
13	1001975	1	FLEX DRAW LATCH

REF	PART	QTY	DESCRIPTION
14	1028375	2	NUT, 3/8 PUSH-ON BOLT RETAINER
15	1029873RP	6	SLEEVE, 1.00 LENGTH
16	1029874RP	2	SLEEVE,.50 LENGTH
17	-----	*8	HHCS 1/2 NC X 2-3/4 GR5 ZP
18	-----	*2	CARRIAGE BOLT 3/8 NC X 1 GR5 ZP
19	-----	*12	LOCK NUT 1/2 NC FLANGE
20	-----	*4	HHCS 1/2 NC X 5-1/2 GR5

NSS	NOT SERVICED SEPARATELY
HHCS	HEX HEAD CAP SCREW
*	STANDARD HARDWARE, OBTAIN LOCALLY

REAR DECK ASSEMBLY



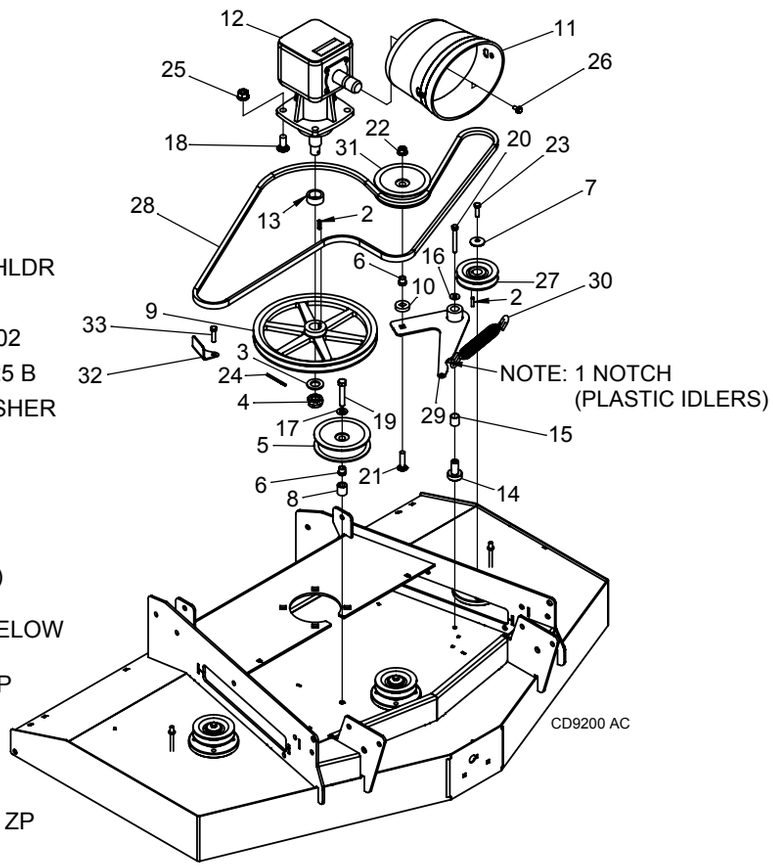
REF	PART	QTY	DESCRIPTION
1	NSS	1	DECK CENTER
2	15134	2	PIN SPIROL .25 X 1.00
3	27542	4	LINCH PIN, PLATED
4	52853	2	PIPE, 1-1/4 SCDL 80 X .50
5	52855	6	PIPE, 1-1/4 SCDL 80 X 1.00
6	58999	2	WEAR PAD
7	65129	2	PIPE 1 SCH 40 X 0.50
8	65130	6	PIPE 1 SCH 40 X 1.00
9	66840	4	KNOB, 3 PRONG 3/8 NC
10	611574RP	1	WA, WHEEL ARM RH
11	611575RP	1	WA, WHEEL ARM RH
12	616069	2	SLEEVE,.51 X.75 X 3.92 HT
13	616070	2	WHEEL, 8.00 X 3.45 X.75 GRAY
14	616130RP	2	WA, CASTER YOKE
15	616143RP	2	PLATE, BELT SHIELD 60" DECK
16	616201RP	1	PLATE, CENTER BELT SHIELD 60" DECK
17	620303RP	2	WA, WHEEL ARM REAR CENTER
18	1028375	2	NUT, 3/8 PUSH-ON BOLT RETAINER
19	1029484	2	SLEEVE, DR .81 X 1.25 X 7.34
20	-----	*4	HHCS 1/2 NC X 2-1/2 GR5 ZP
21	-----	*2	CARRIAGE BOLT 3/8 NC X 1 GR5 ZP
22	-----	*10	LOCK NUT 1/2 NC FLANGE
23	-----	*2	HHCS 1/2 NC X 5-1/2 GR5
24	-----	*4	CARRIAGE BOLT 1/2 X 3

NSS	NOT SERVICED SEPARATELY
HHCS	HEX HEAD CAP SCREW
*	STANDARD HARDWARE, OBTAIN LOCALLY

BELT DRIVE - COMMON PARTS & PLASTIC BACKSIDE IDLER

SERIAL NUMBER 10009645645000 AND BELOW (PLASTIC IDLER COMPONENTS)

REF	PART	(2X) WING QTY	CTR QTY	DESCRIPTION
1	NSS	2	1	DECK
2	6593	8	4	KEY, 1/4 X 1/4 X 1
3	20893	2	1	WASHER, 25 MM X 44 MM X 4 MM
4	51946	2	1	NUT, CASTLE METRIC M24 X 2
5	67283	2	1	IDLER BEARING 5.50 D X .69 ID
6	67284	4	2	SLEEVE, .5 X .9 X .76 SHLDR
7	70005	6	3	WASHER, CUPPED
8	613792	2	1	SLEEVE, .53 X 1.00 X 1.02
9	616065	2	1	SHEAVE, 12.65 PD X 1.25 B
10	616147RP	2	1	PLATE, IDLER ARM WASHER
11	1002048	2	1	CLUTCH SHIELD 100 & 143 MM BC
12	1006649	2	-	GEARBOX, REPAIR 1:2.5 25 HP (PAGE 48)
12	611563RP	-	1	GEARBOX, REPAIR 1:1.92 30 HP (PAGE 48)
13	1008113	-	1	SPACER FOR S/N 10008880065000 AND BELOW
13	610197	-	1	SPACER FOR S/N 10008880065001 AND UP
14	W71430	2	1	BEARING PEDESTAL
15	W74068	2	1	BUSHING, IDLER ARM
16	-----	*2	*1	WASHER, FLAT 3/8
17	-----	*2	*1	WASHER, FLAT 1/2 SAE ZP
18	-----	*8	*4	CARRIAGE BOLT 5/8 NC X 1.50 GR5
19	-----	*2	*1	HHCS 1/2 NC X 2-3/4 GR5
20	-----	*2	*1	HHCS 3/8 NC X 3 GR5
21	-----	*2	*1	CARRIAGE BOLT 1/2 NC X 2
22	-----	*2	*1	LOCK NUT 1/2 NC FLANGE
23	-----	*6	*3	HHCS 3/8 NC X 1-1/4 GR5 ZP
24	-----	*2	*1	COTTER PIN 3/16 X 2
25	-----	*8	*4	HEX FLANGE LOCK NUT 5/8 NC
26	-----	*8	*4	HEX FLANGE BOLT M8 X 16 CL8.8
27	616067	-	3	SHEAVE, 4.00 PD X 1.00, B
27	616068	6	-	SHEAVE, 4.20 PD X 1.00, B
28	616089	-	1	V-BELT, W92 ARAMID
28	626206	2	-	V-BELT, W76 ARAMID
29	616188RP	-	1	WA, IDLER ARM TK60.20
29	618209RP	2	-	WA, IDLER ARM TK48.20T



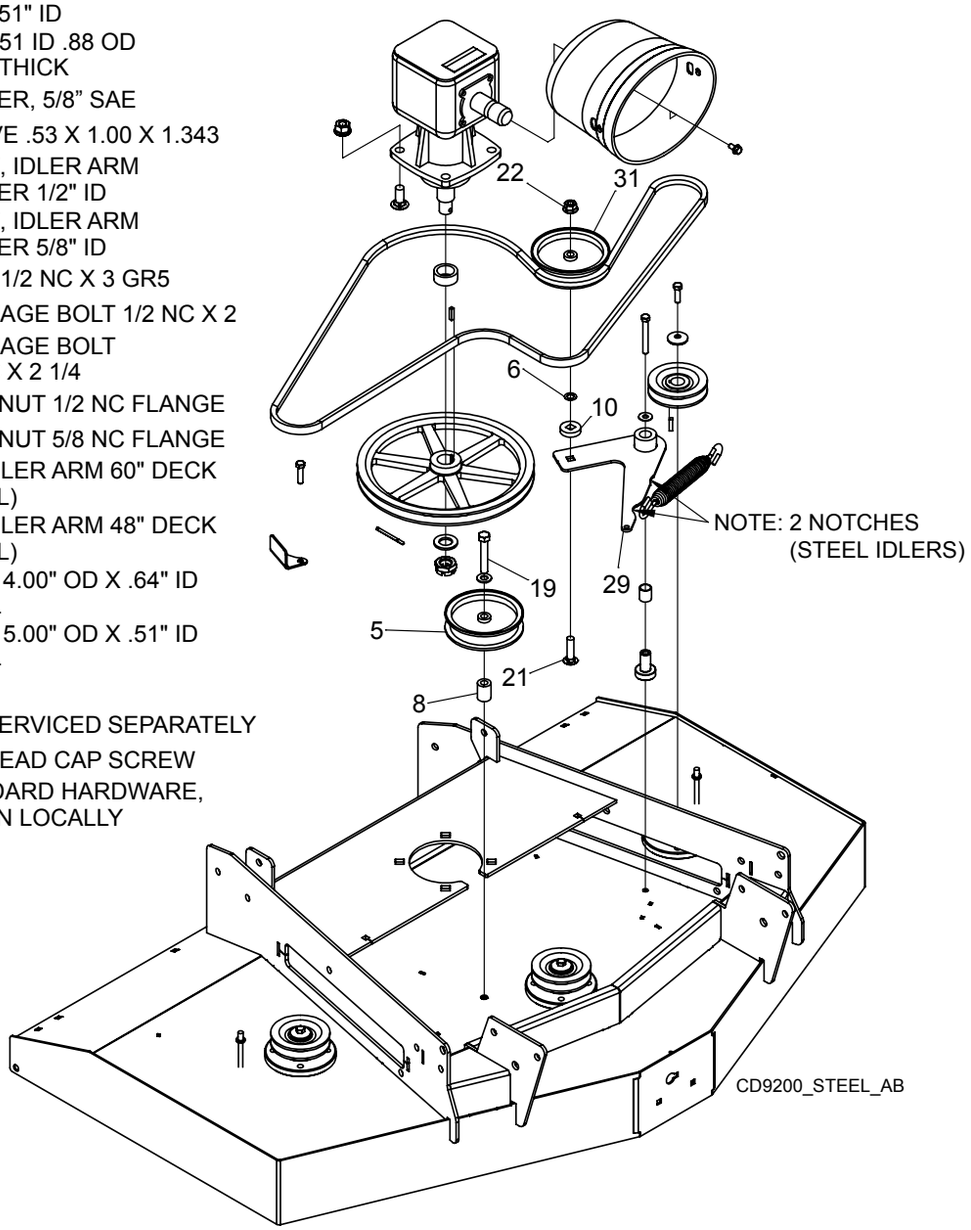
REF	PART	(2X) WING QTY	CTR QTY	DESCRIPTION
30	1042375	-	1	SPRING, .177 X 1.22 X 9.88 CAP HOOK
30	626189	2	-	SPRING, .166 X 1.125 X 7.876 CAP HOOK
31	67282	2	-	IDLER BEARING 4.00" OD X .67" ID
31	67283	-	1	IDLER BEARING 5.00" OD X .67" ID
32	636622	2	1	BELT GUIDE
33	-----	2	1	HHCS 3/8 X 1 1/2 ZP GR5

NSS	NOT SERVICED SEPARATELY
HHCS	HEX HEAD CAP SCREW
*	STANDARD HARDWARE, OBTAIN LOCALLY

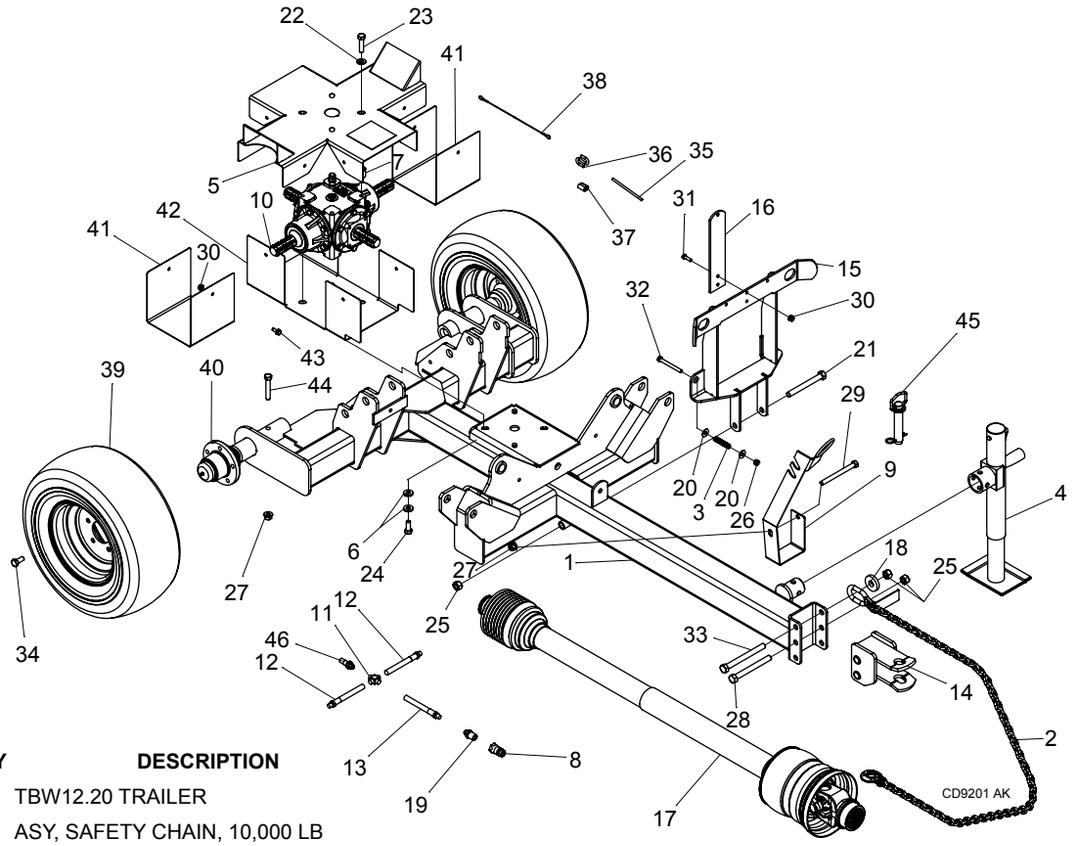
BELT DRIVE - STEEL BACKSIDE IDLER

SERIAL NUMBER 10009645645001 AND UP

REF	PART	(2X) WING QTY	CTR QTY	DESCRIPTION
5	53595	2	1	IDLER BEARING 5.50 OD X .51" ID
6	31983	-	1	SHIM .51 ID .88 OD 18 GA THICK
6	-----	*2	-	WASHER, 5/8” SAE
8	645768	2	1	SLEEVE .53 X 1.00 X 1.343
10	616147RP	-	1	PLATE, IDLER ARM WASHER 1/2" ID
10	632941RP	2	-	PLATE, IDLER ARM WASHER 5/8" ID
19	-----	*2	*1	HHCS 1/2 NC X 3 GR5
21	-----	-	*1	CARRIAGE BOLT 1/2 NC X 2
21	-----	*2	-	CARRIAGE BOLT 5/8 NC X 2 1/4
22	-----	-	*1	LOCK NUT 1/2 NC FLANGE
22	-----	*2	-	LOCK NUT 5/8 NC FLANGE
29	645771RP	-	1	WA, IDLER ARM 60" DECK (STEEL)
29	645773RP	2	-	WA, IDLER ARM 48" DECK (STEEL)
31	610447	2	-	IDLER 4.00" OD X .64" ID STEEL
31	53595	-	1	IDLER 5.00" OD X .51" ID STEEL
	NSS			NOT SERVICED SEPARATELY
	HHCS			HEX HEAD CAP SCREW
	*			STANDARD HARDWARE, OBTAIN LOCALLY



TRAILER ASSEMBLY



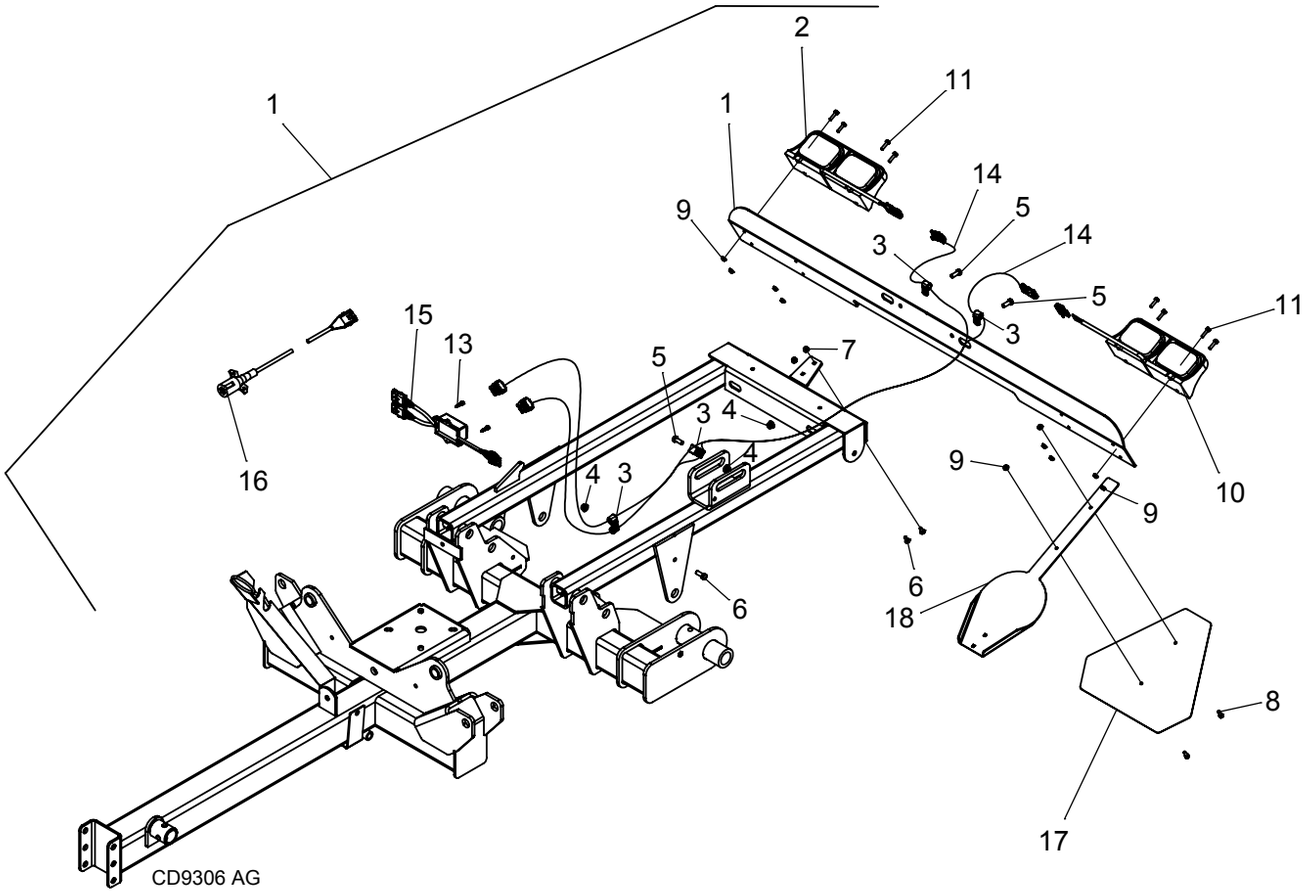
REF	PART	QTY	DESCRIPTION
1	NSS	1	TBW12.20 TRAILER
2	19407	1	ASY, SAFETY CHAIN, 10,000 LB
3	21957	2	SPR/CMP 0.58 .08 2.4 40
4	23790	1	SWIVEL PARKING JACK
5	637504RP	1	SHIELD, TBW SPLITTER BOX
6	57811	8	WSHR 1/2 FLAT EXTRA THK HRDN
7	62626	4	.76 X 1 X 1 TUBE
8	66511	1	CPLR MALE ISO 1/2 NPT
9	632867RP	1	WA, WIRE AND HOSE HOLDER
10	625961RP	1	GEARBOX, 4-WAY 100 HP OIL
11	1006401	1	CROSS 9/16 JICM X 1/4 NPTF
12	1006402	2	HOSE .25 33 9/16 JICF 9/16 JICM
13	1008350	1	HOSE .25 80 9/16 JICF 9/16 JICF
14	1029501RP	1	WA, TBW150C HITCH
15	1029518RP	1	WA, WING RELEASE
16	1029542	1	LINK, .25 X 2.50 X 11.25
17	1029868	1	DRV ASY CMPL-CV 14R, 46.9 X 62.1
18	W8424	1	WSHR 3/4 ID 2OD 3/8 THICK
19	54315	1	ADAPTER 1/4 NPTF 1/2 NPTM
20	*	6	WASHER, FLAT 3/8
21	*	1	HHCS 5/8 NC X 5-1/2
22	*	4	WASHER, FLAT, 1/2 SAE ZP
23	*	4	HHCS 1/2 NC X 2 GR5
24	*	4	HHCS 1/2 NC X 1-1/4 GR5 ZP
25	*	3	NUT LOCK 5/8 NC
26	*	2	NUT LOCK 3/8 NC ZP
27	*	1	NUT LOCK 1/2 NC FLANGE

REF	PART	QTY	DESCRIPTION
28	*	1	HHCS 5/8 NC X 6 HT
29	*	1	HHCS 1/2 NC X 5-1/2 GR5
30	*	3	NUT, HEX FLNG LOCK 5/16 NC
31	*	2	HHCS 5/16 NC X 1 GR5
32	*	2	HHCS 3/8 NC X 3-1/2 GR5
33	*	1	HHCS 5/8 NC X 6-1/2 GR5
34	1258	10	BOLT, HEX WHEEL, 1/2 -20 NF X 1-1/8
35	38296RP	1	ROPE .25 X 95.0
36	38257	3	S HOOK .25 X 2.25
37	38295	3	SLV OVAL .12WA X .53 X .84
38	636621	1	Cable 25.62"
39	WP38298G	2	WHEEL - TIRE 20.5 X 8.00 X 10 GRAY
40	1001020RP	2	ASY WHEEL HUB - AXLE
41	636647RP	2	SHIELD, TBW SPLITTER BOX BOTTOM SIDE
42	636646RP	1	SHIELD, TBW SPLITTER BOX BOTTOM CENTER
43	*	1	BOLT, HEX FLNG 5/16 NC X .75 GR5
44	*	2	HHCS 1/2 NC X 3 GR5 ZP
45	S071051C0	1	PIN, 1 X 4-1/4 IN SWIV HITCH W/CL
46	1006400	1	FITTING, BULKHEAD 9/16 JICM X 1/4 NPTM

NSS NOT SERVICED SEPARATELY

* STANDARD HARDWARE, OBTAIN LOCALLY

STANDARD SMV, SIS SIGN AND OPTIONAL LIGHTS

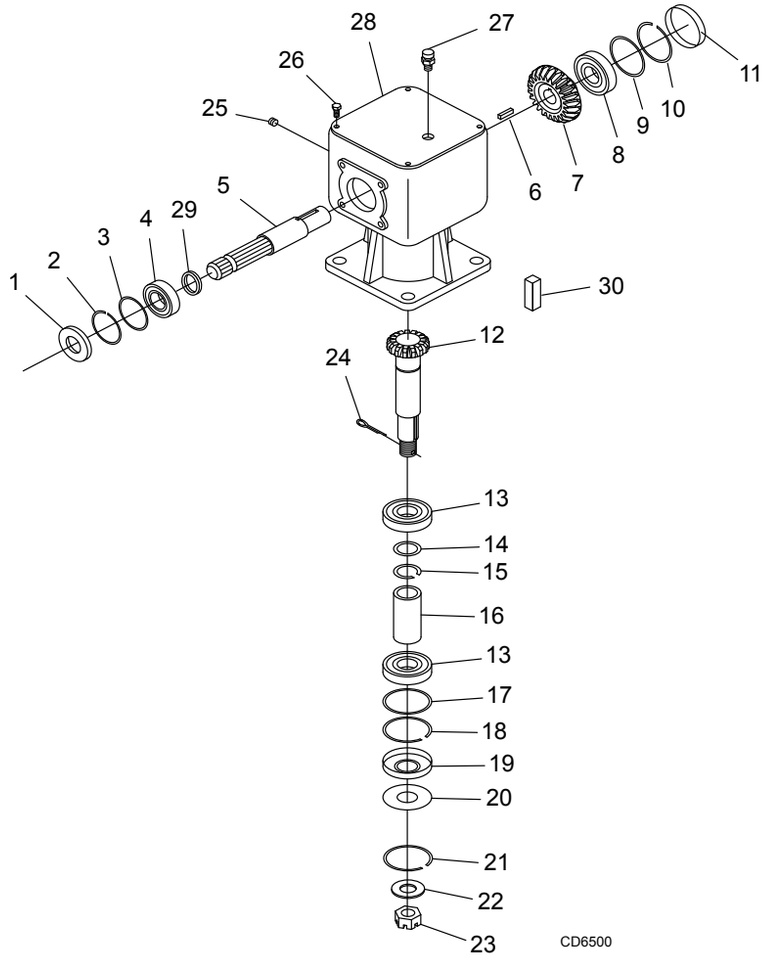


REF	PART	QTY	DESCRIPTION
1	631709	1	KIT, TBW LIGHT (ITEM 17 & 18 EXCLUDED)
2	615363RP	1	LINK, BENT .18 X 6.79 X 61.24
3	78059	10	CLAMP .50 DIA STEEL CUSHION
4	14350*	12	NUT, HEX FLNG LOCK 3/8 NC
5	839*	10	HHCS, 3/8 X 1 GR5 ZP
6	21937*	2	BOLT CRG 1/4 NC X 3/4
7	62521*	2	NUT, LOCK 1/4 NC FLANGE
8	2457*	2	HHCS, 1/4 NC X 3/4 GR5
9	W70065*	8	NUT, HEX FLNG 1/4 NC SRTD
10	1040275	1	LED AG COMBO LAMP LH
11	10378*	8	HHCS 1/4 NC X 1 GR5
12	1040276	1	LED AG COMBO LAMP RH
13	630695	3	SCREW, SELF TAP #10 X 1"
14	629808	2	WIRE HARNESS 5FT
15	1040277	1	AG ENHANCER MODULE
16	1036887	1	WIRE HARNESS, 16 FT MAIN
17	24611	1	SIGN (SMV) SLOW MOVING VEHICLE
18	636640	1	BRACKET, TBW SMV AND SIS

* STANDARD HARDWARE, OBTAIN LOCALLY

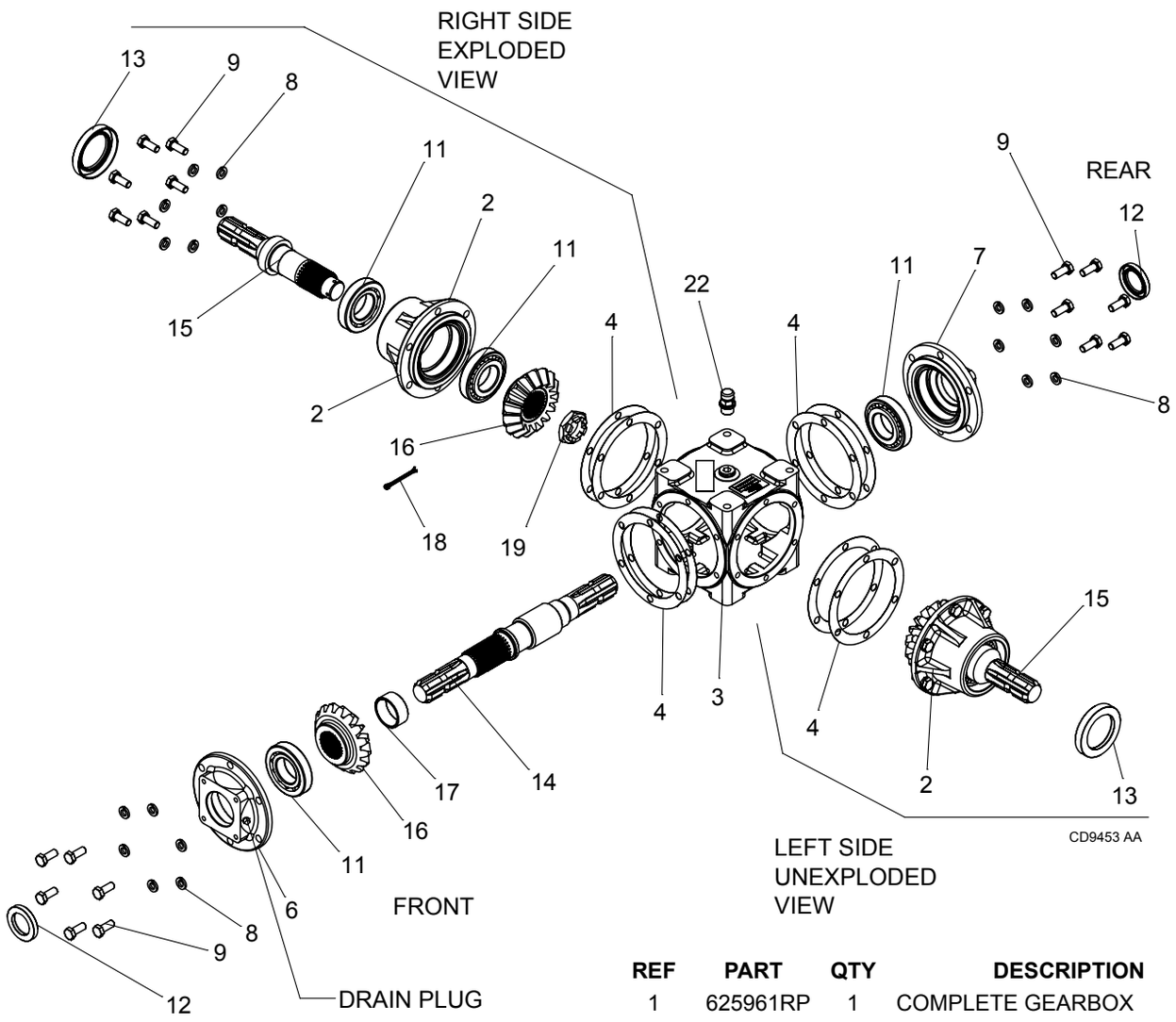
GEARBOX ASSEMBLY

FOR S/N 10008880065000 AND BELOW



REF	WING DECK	QTY	CENTER DECK	QTY	DESCRIPTION
A	1006649		1006648		COMPLETE WING GEARBOX
1	W39275	1	W39275	1	SEAL
2	1007861	1	1007861	1	SNAP RING
3	1007865	1	1007865	1	SHIM KIT
4	51850	1	51850	1	BALL BEARING
5	N/S	1	N/S	1	INPUT SHAFT
6	20894	1	20894	1	KEY 8 X 10 X 30 MM
7	N/S	1	N/S	1	INPUT GEAR
8	20890	4	20890	1	BALL BEARING
9	1007864	1	1007864	1	SHIM KIT
10	57466	1	57466	1	SNAP RING
11	57374	1	57374	1	OIL CAP
12	N/S	1	N/S	1	OUTPUT SHAFT & GEAR
13	-----	1	20891	2	BALL BEARING
14	1007866	1	1007863	1	SHIM KIT
15	1007859	1	W20895	1	SNAP RING
16	1007858	1	20886	1	SPACER
17	1007862	1	1007862	1	SHIM KIT
18	57466	1	W39251	1	SNAP RING 81 MM
19	57463	1	20900	1	SEAL
20	-----	1	20888	1	WASHER, 1.58 X 3.13 X .04
21	W1007860	1	20897	1	SNAP RING
22	20893	1	20893	1	WASHER 25 X 44 X 4 MM
23	51946	1	51946	1	CASTLE NUT M24 X 2
24	64803	1*	64803	1*	3/16 X 2 COTTER PIN
25	N/S	1*	N/S	1*	3/8 SOLID PLUG
26	N/S	4*	N/S	4*	M10 X 22 MM CAP SCREW
27	39325	1	39325	1	VENT PLUG
28	1007873	1	1007873	1	COVER
29	1007857	1	-----	1	SPACER
30	-----	1	-----	1	KEY 1/4 X 1/4 X 1
	*				STANDARD HARDWARE, OBTAIN LOCALLY

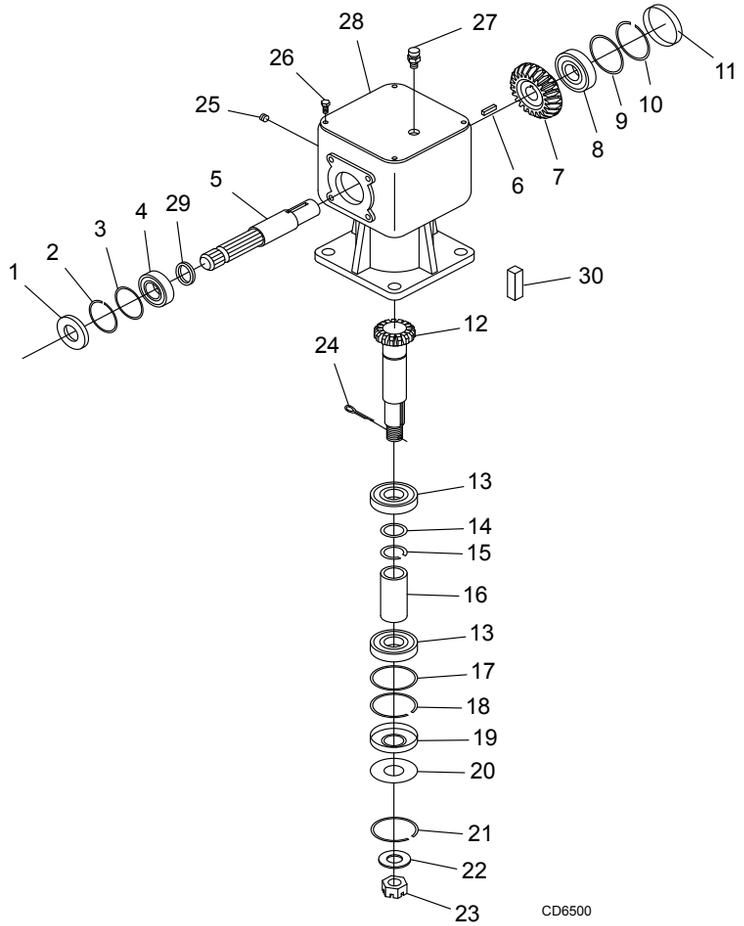
SPLITTER GEARBOX



REF	PART	QTY	DESCRIPTION
1	625961RP	1	COMPLETE GEARBOX
2	------	2	HUB, END
3	------	1	HOUSING
4	645191	1	KIT, GASKET
6	------	1	HUB, FRONT
7	------	1	HUB, REAR
8	------	24	WASHER, LOCK 10
9	------	24	HHCS, M10 X 1.5 X 25
11	58817	6	BEARING, CUP & CONE
12	58815	2	SEAL, THRU SHAFT
13	58816	2	SEAL, WING SHAFT
14	------	1	SHAFT, THRU
15	------	2	SHAFT, END
16	------	3	GEAR
17	------	1	SPACER
18	------	2	PIN, COTTER 4 X 50
19	------	2	NUT, CASTLE
22	1011780	1	PLUG, VENT

GEARBOX ASSEMBLY

S/N 10008880065001 AND UP



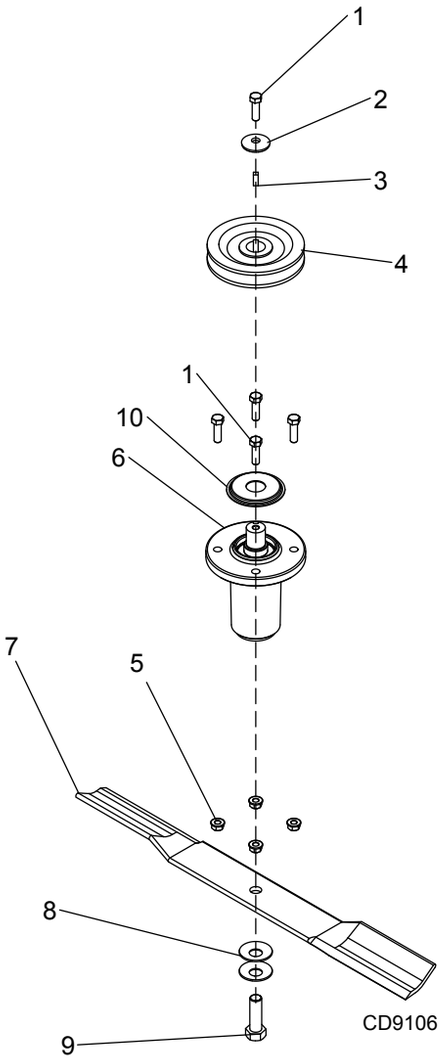
REF	WING DECK	QTY	CENTER DECK	QTY	DESCRIPTION
A	1006649		611563RP		COMPLETE CENTER GEARBOX
1	W39275	1	W39275	1	SEAL
2	1007861	1	(2.5 MM X 62 MM X 65 MM INT)	1	SNAP RING
3	1007865	1	637528	1	SHIM KIT
4	51850	1	51850	1	BALL BEARING
5	N/S	1	N/S	1	INPUT SHAFT
6	20894	1	20894	1	KEY 8 X 10 X 30 MM
7	N/S	1	N/S	1	INPUT GEAR
8	20890	4	20890	1	BALL BEARING
9	1007864	1	637528	1	SHIM KIT
10	57466	1	57466	1	SNAP RING
11	57374	1	57374	1	OIL CAP
12	N/S	1	N/S	1	OUTPUT SHAFT & GEAR
13	-----	1	1018326	2	BALL BEARING
14	1007866	1	637528	1	SHIM KIT
15	1007859	1	W20895	1	SNAP RING
16	1007858	1	N/S	1	SPACER
17	1007862	1	637528	1	SHIM KIT
18	57466	1	(2.5 MM X 99 MM INT)	1	SNAP RING
19	57463	1	20900	1	SEAL
20	-----	1	20888	1	WASHER, 1.58 X 3.13 X .04
21	W1007860	1	20897	1	SNAP RING
22	20893	1	-----	1	WASHER 25 X 44 X 4 MM
23	51946	1	618208	1	CASTLE NUT M24 X 2
24	64803	1*	64803	1*	3/16 X 2 COTTER PIN
25	N/S	1*	N/S	1*	3/8 SOLID PLUG
26	N/S	4*	N/S	4*	M10 X 22 MM CAP SCREW
27	39325	1	39325	1	VENT PLUG
28	1007873	1	-----	1	COVER
29	1007857	1	N/S	1	SPACER
30	-----	1	-----	1	KEY 1/4 X 1/4 X 1
	*				STANDARD HARDWARE, OBTAIN LOCALLY

BLADE & SPINDLE ASSEMBLY

REF	WING DECK	CENTER DECK	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	616068	-----	1	SHEAVE, 4.20 PD X 1.00 B
4	-----	616067	1	SHEAVE, 4.00 PD X 1.00 B
5	14350	14350	4	NUT, 3/8 NC FLANGE HEX LOCK
6	616095	616095	1	SPINDLE ASSEMBLY
7	626199	616074	1	BLADE, HIGH SUCTION (STANDARD)
8	10635	10635	2	CUP WASHER
9	1008095	1008095	1	HHCS 5/8 NF X 2 GR5
10	NSS	NSS	1	SLINGER-DUST

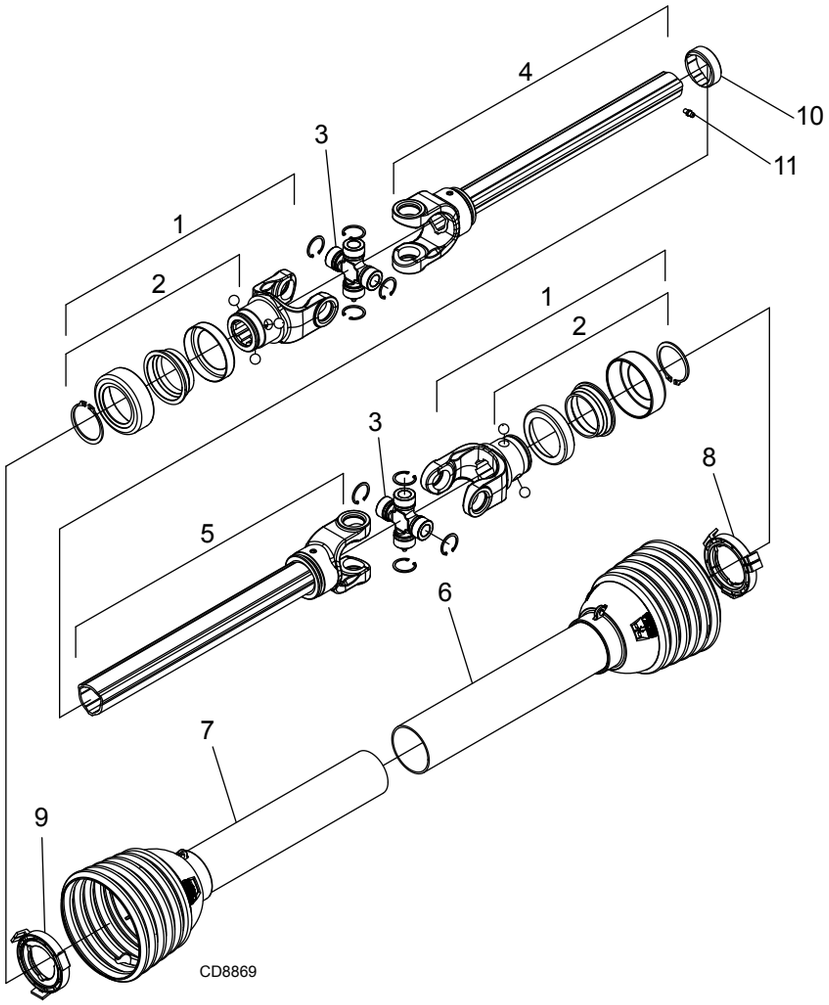
* STANDARD HARDWARE, OBTAIN LOCALLY

NSS NOT SERVICED SEPARATELY



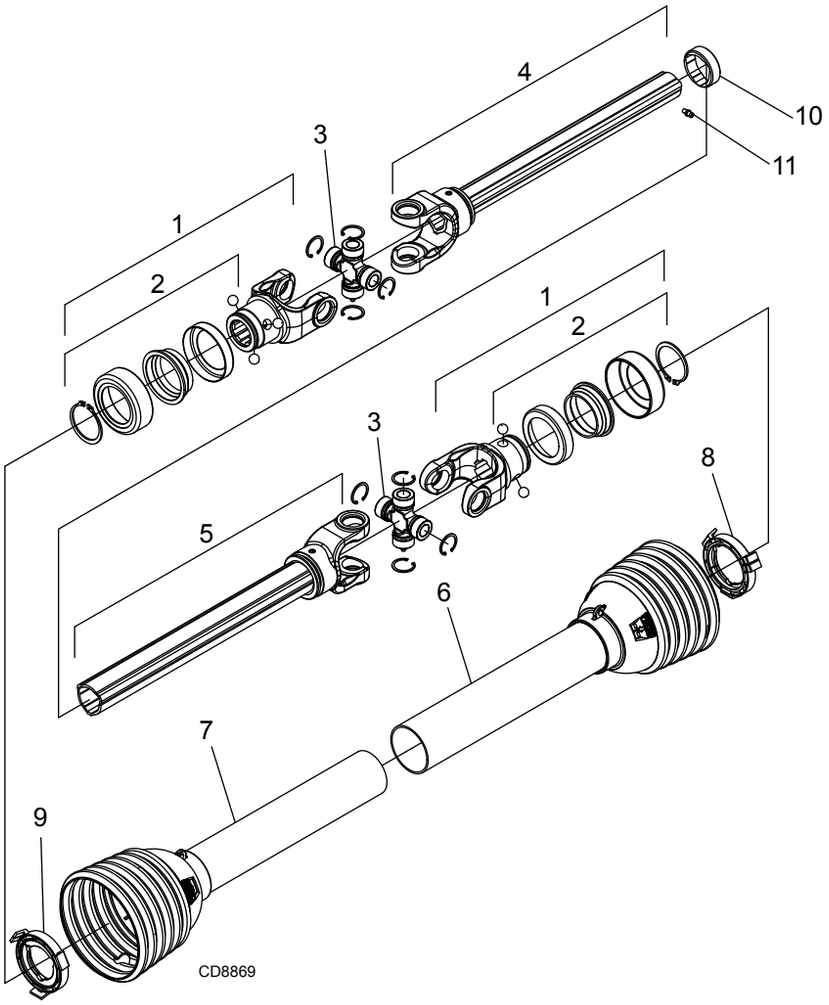
WING DRIVELINE ASSEMBLY

Identified by ribbed shields and grease fittings in cross bearing caps



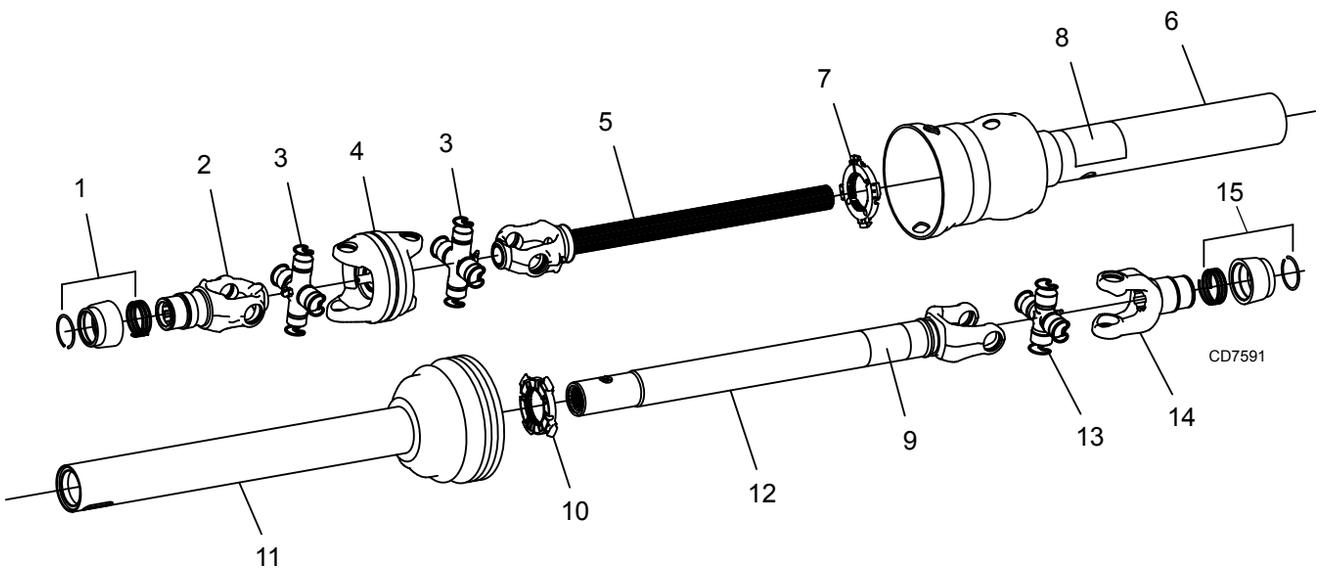
REF	PART	QTY	DESCRIPTION
A	601736	1	COMPLETE DRIVELINE ASY
1	1044051	1	COMPLETE COLLAR YOKE C12 1-3/8 - 6
2	1044050	1	LOCK COLLAR REPAIR KIT
3	1044052	2	CROSS & BEARING KIT
4	605257	1	OUTER YOKE & TUBE
5	605258	1	INNER YOKE & TUBE
6	605259	1	OUTER SHIELD WITH BEARING
7	605260	1	INNER SHIELD WITH BEARING
8	605784	1	OUTER SHIELD BEARING
9	605785	1	INNER SHIELD BEARING
10	620299	1	BEARING OUTER TUBE
11	631781	1	GREASE ZERK, NIPPLE

REAR DRIVELINE ASSEMBLY



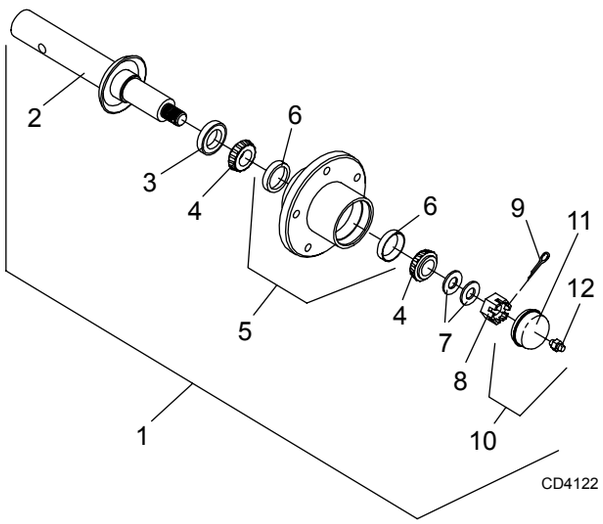
REF	PART	QTY	DESCRIPTION
A	601752	1	COMPLETE DRIVELINE ASY
1	1044051	1	COMPLETE COLLAR YOKE C12 1-3/8 - 6
2	1044050	1	LOCK COLLAR REPAIR KIT
3	1044052	2	CROSS & BEARING KIT
4	605261	1	OUTER YOKE & TUBE
5	605262	1	INNER YOKE & TUBE
6	605263	1	OUTER SHIELD WITH BEARING
7	605264	1	INNER SHIELD WITH BEARING
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

CV DRIVESHAFT ASSEMBLY



REF	PART	QTY	DESCRIPTION
A	1029868		COMPLETE DRIVELINE ASSEMBLY
1	19851	1	SLIDE LOCK REPAIR KIT
2	1017362	1	YOKE, QD CV 1-3/8 - 6
3	1017363	2	U-JOINT REPAIR KIT 14CV
4	1017364	1	CV BODY W/FITTING 14
5	1017365	1	YOKE & SHAFT, CV SPLINED 23.6
6	1017366	1	OUTER SHIELD CV
7	1024636	1	DRIVE SHAFT BEARING KIT
8	18864	1	DECAL, DANGER ROTATING DRIVELINE
9	33347	1	DECAL, DANGER GUARD MISSING
10	1017367	1	INNER BEARING KIT
11	1017368	1	INNER SHIELD CV
12	1017369	1	YOKE & TUBE 14R X 39.3
13	154	1	U-JOINT REPAIR KIT 14R
14	53858	1	YOKE, 14 X 4.31 X 1.38 QD
15	53857	1	SLIDE COLLAR REPAIR KIT

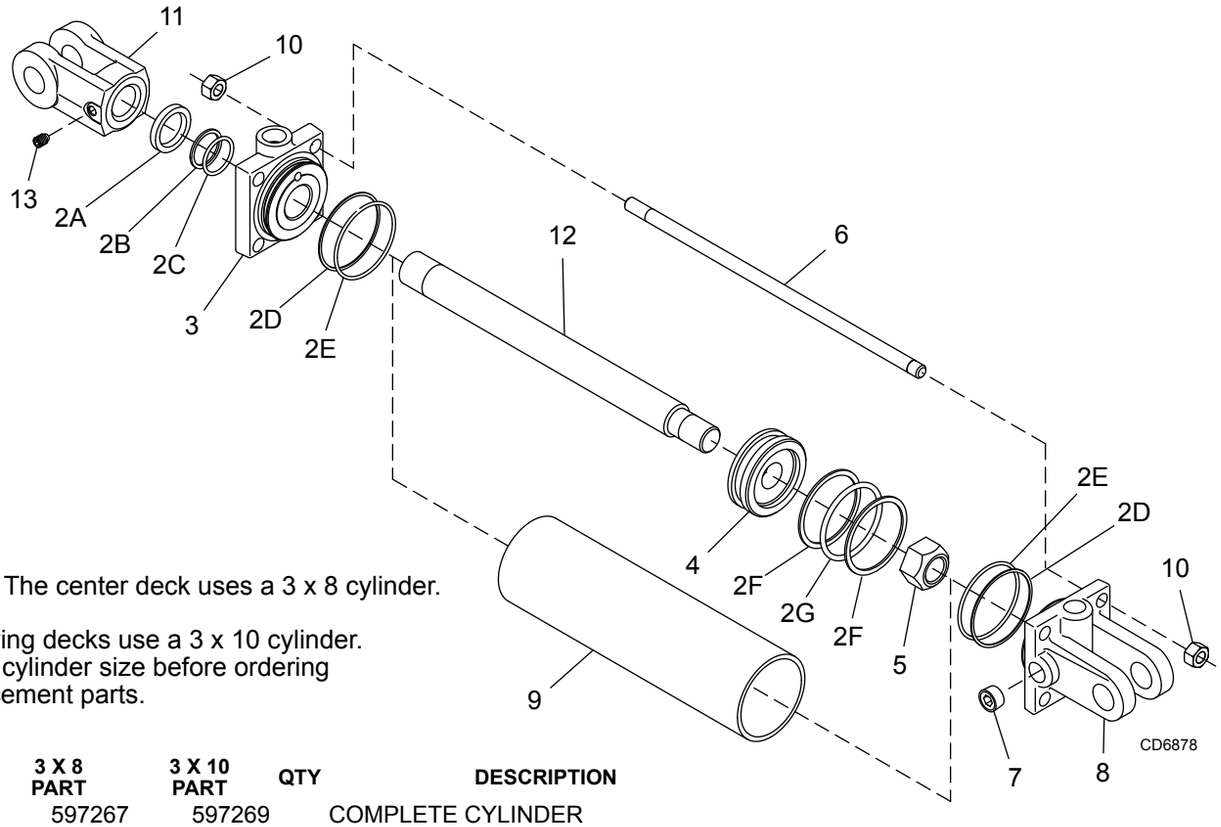
HUB AND AXLE ASSEMBLY



REF	PART	QTY	DESCRIPTION
1	1001020RP	1	WHEEL HUB & AXLE ASSEMBLY
2	1001021RP	1	AXLE SHAFT
3	314	1	SEAL, 1.50 X 2.44 X .31
4	2303	2	BEARING, CONE
5	38437	1	WHEEL HUB, HOUSING W/CUPS
6	2305	2	BEARING, CUP
7	1257 *	2	WASHER, FLAT 3/4 STANDARD
8	5849	1	NUT, SLOTTED HEX 3/4 NF
9	1256 *	1	PIN, COTTER 3/16 X 1
10	14133RP	1	HUB CAP, ASSEMBLY W/FITTING
11	531	1	HUB CAP
12	6270 *	1	GREASE FITTING, 1/4 TAPERED THREAD

* STANDARD HARDWARE, OBTAIN LOCALLY

HYDRAULIC CYLINDER



Note: The center deck uses a 3 x 8 cylinder.

The wing decks use a 3 x 10 cylinder. Verify cylinder size before ordering replacement parts.

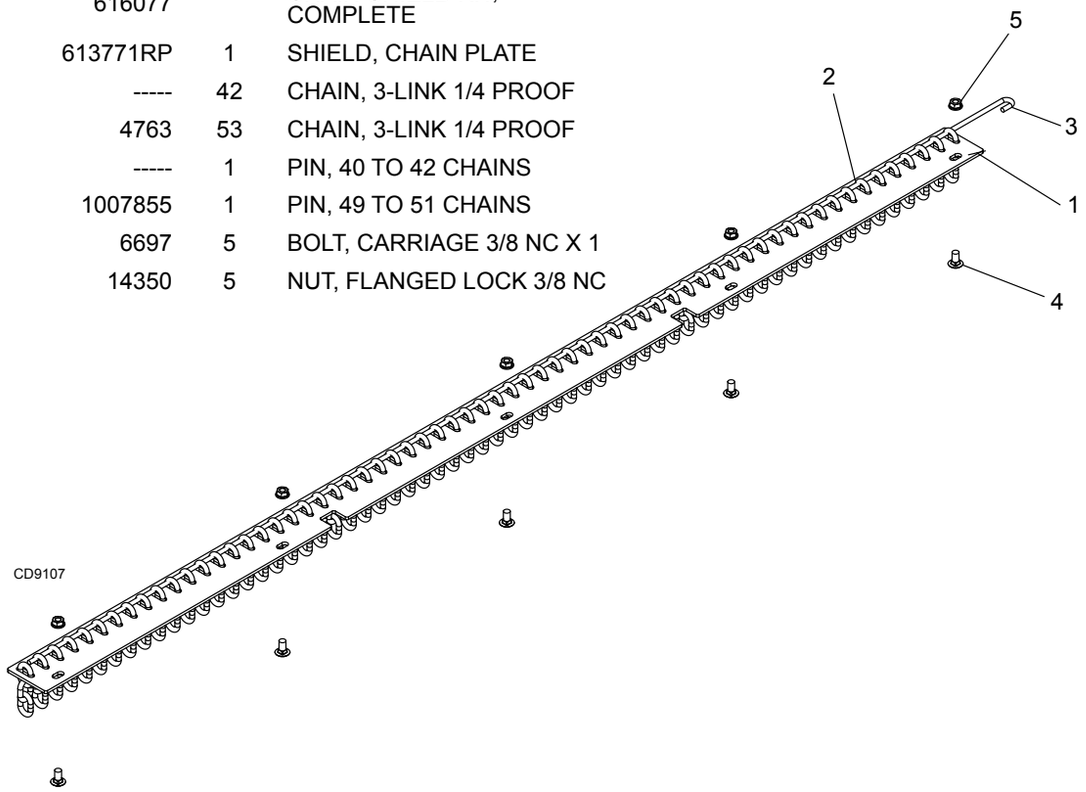
REF	3 X 8 PART	3 X 10 PART	QTY	DESCRIPTION
1	597267	597269		COMPLETE CYLINDER
2	600251	600251	1	SEAL REPAIR KIT (INCLUDES ITEMS 2A - 2G)
2A	†	†	1	WIPER SEAL
2B	†	†	1	ROD SEAL
2C	†	†	1	ROD O-RING
2D	†	†	2	CAP SEAL
2E	†	†	2	CAP O-RING
2F	†	†	2	PISTON SEAL
2G	†	†	1	PISTON O-RING
3	N/S	N/S	1	CYLINDER HOUSING - ROD END
4	N/S	N/S	1	PISTON
5	N/S	N/S	1	JAM NUT
6	N/S	N/S	4	CYLINDER TIE ROD
7	*	*	3	1/2 PIPE PLUG
8	N/S	N/S	1	CYLINDER HOUSING - BUTT END
9	N/S	N/S	2	CYLINDER BARREL
10	N/S	N/S	8	TIE ROD NUT
11	N/S	N/S	1	CYLINDER CLEVIS
12	N/S	N/S	1	CYLINDER ROD
13	*	*	1	SET SCREW 3/8 X 3/4 DOG POINT INCLUDED IN SEAL KIT

* STANDARD HARDWARE, OBTAIN LOCALLY

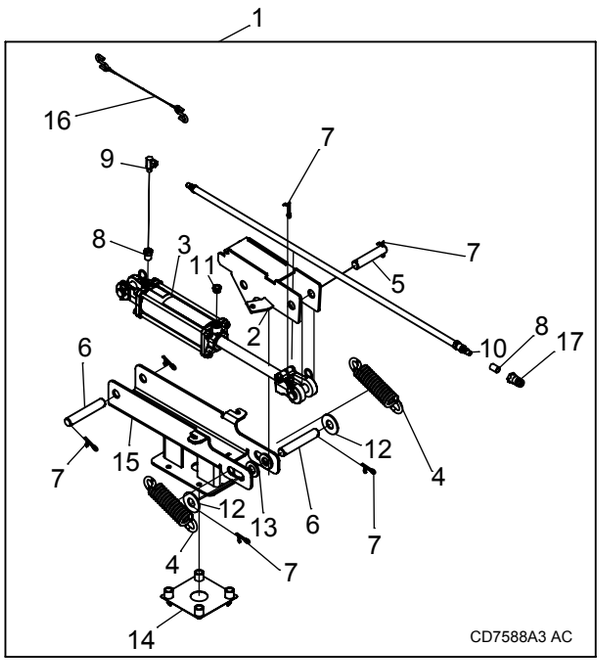
N/S NOT SERVICED

REAR CHAIN SHIELDING ASSEMBLY (OPTIONAL)

REF	WING DECK	CENTER DECK	QTY	DESCRIPTION
A	626442	616077		CHAIN SHIELD KIT, COMPLETE
1	626443RP	613771RP	1	SHIELD, CHAIN PLATE
2	4763	-----	42	CHAIN, 3-LINK 1/4 PROOF
2	-----	4763	53	CHAIN, 3-LINK 1/4 PROOF
3	1007854	-----	1	PIN, 40 TO 42 CHAINS
3	-----	1007855	1	PIN, 49 TO 51 CHAINS
4	6697	6697	5	BOLT, CARRIAGE 3/8 NC X 1
5	14350	14350	5	NUT, FLANGED LOCK 3/8 NC

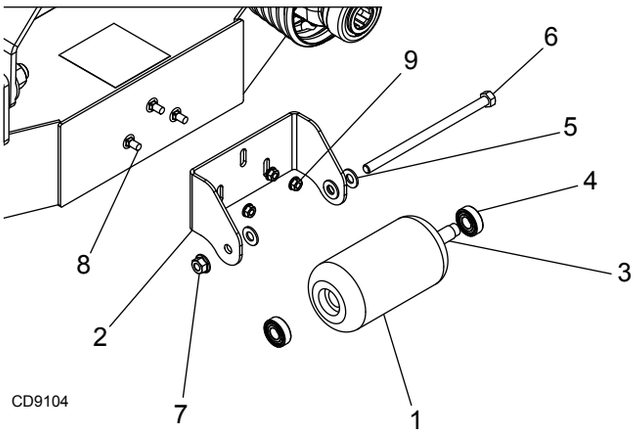


HYDRAULIC RELEASE KIT (OPTIONAL)



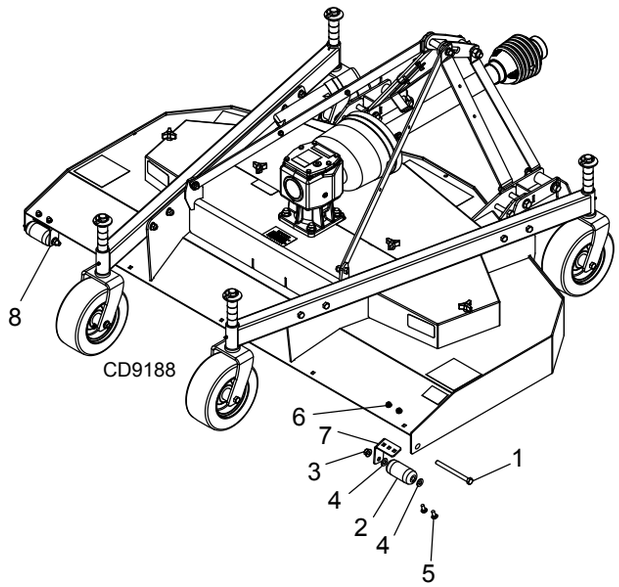
REF	PART	QTY	DESCRIPTION
1	1029535	1	KIT, LATCH RELEASE TBW12.20
2	1029537RP	1	WA, RELEASE SLIDE
3	597267	1	CYLINDER, 3.0 X 1.25 X 8.0 NPT 8 AG
4	24512	2	SPRING, EXTENSION 1.88 .37 8.3 562
5	8345	1	PIN HDLS 1.00 X 4.08
6	8347	2	PIN, HDLS 1.00 X 5.08
7	1285	6	1/4 X 1-1/2 COTTER PIN
8	W11893	2	ADAPTER 1/4 NPTF 1/2 NPTM
9	10290	1	1/4 X 1/4 90 EL 1/16 RSTR
10	17628	1	HOSE, 1/4 108 9/16 JICF 1/4 NPTM
11	11975	1	1/2 NPT VENT PLUG
12	832	2	WSHR 1 STD FLAT
13	11920	2	WSHR 1 X 1-7/8 X 1/4
14	636643RP	1	WA, SPACER ALIGNMENT
15	1029536RP	1	WA, RELEASE BASE
16	636621	1	CABLE. 24.62
17	66511	1	COUPLER, HYD

FRONT ROLLER ASSEMBLY (OPTIONAL)



REF	PART	QTY	DESCRIPTION
-	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	6697	3	BOLT, CARRIAGE, 3/8 NC X 1"
9	14350	3	NUT, 3/8 NC FLANGE LOCKNUT

REAR 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

NOTES

INDEX

BOLT TORQUE CHART

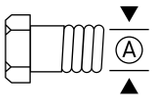
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

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

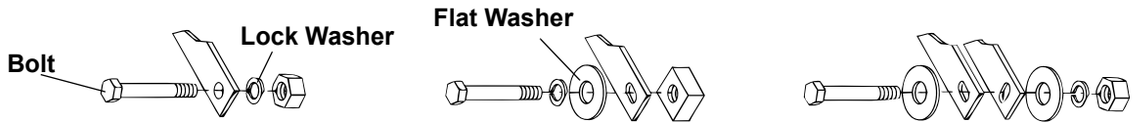
SAE Grade 2
(No Dashes)

SAE Grade 5
(3 Radial Dashes)

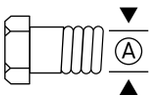
SAE Grade 8
(6 Radial Dashes)

Ⓐ		Marking on Head					
		SAE 2		SAE 5		SAE 8	
Diameter (Inches)	Wrench Size	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

Metric
Grade 8.8

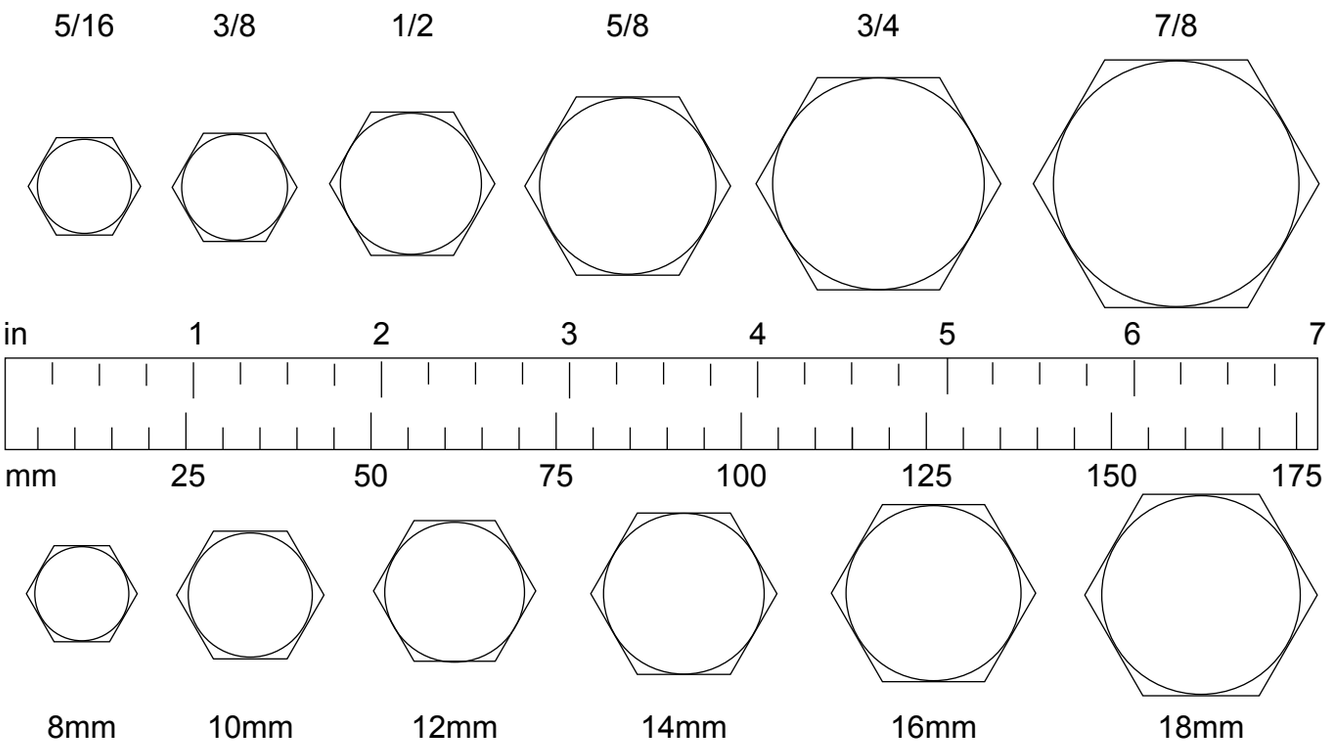
Metric
Grade 10.9

Ⓐ		Coarse Thread				Fine Thread				Ⓐ
		Marking on Head				Marking on Head				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
Diameter & Thread Pitch (Millimeters)	Wrench Size	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	Diameter & Thread Pitch (Millimeters)
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

AG . . . . . Agriculture
ASABE . . . . . American Society of Agricultural & Biological Engineers (formerly ASAE)
ASAE . . American Society of Agricultural Engineers
ATF . . . . . Automatic Transmission Fluid
BSPP . . . . . .British Standard Pipe Parallel
BSPTM . . . . . British Standard Pipe Tapered Male
CV . . . . . Constant Velocity
CCW . . . . . Counter-Clockwise
CW . . . . . .Clockwise
F . . . . . Female
FT . . . . . Full Thread
GA . . . . . .Gauge
GR (5, etc.) . . . . . Grade (5, etc.)
HHCS . . . . . .Hex Head Cap Screw
HT . . . . . Heat-Treated
JIC . . . . . Joint Industry Council 37° Degree Flare
LH . . . . . Left Hand
LT . . . . . Left
m . . . . . Meter
mm . . . . . Millimeter
M . . . . . .Male
MPa . . . . . Mega Pascal
N . . . . . Newton
NC . . . . . .National Coarse
NF . . . . . National Fine
NPSM . . . . . National Pipe Straight Mechanical
NPT . . . . . National Pipe Tapered
NPT SWF . . National Pipe Tapered Swivel Female
ORBM . . . . . .O-Ring Boss - Male
P . . . . . Pitch
PBY . . . . . Power-Beyond
psi . . . . . Pounds per Square Inch
PTO . . . . . Power Take Off
QD . . . . . Quick Disconnect
RH . . . . . Right Hand
ROPS . . . . . Roll-Over Protective Structure
RPM . . . . . .Revolutions Per Minute
RT . . . . . Right
SAE . . . . . Society of Automotive Engineers
UNC . . . . . Unified Coarse
UNF . . . . . .Unified Fine
UNS . . . . . Unified Special

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WOODS®

2606 South Illinois Route 2
Post Office Box 1 000
Oregon, Illinois 61061 USA

800-319-6637 tel
800-399-6637 fax
woodsequipment.com