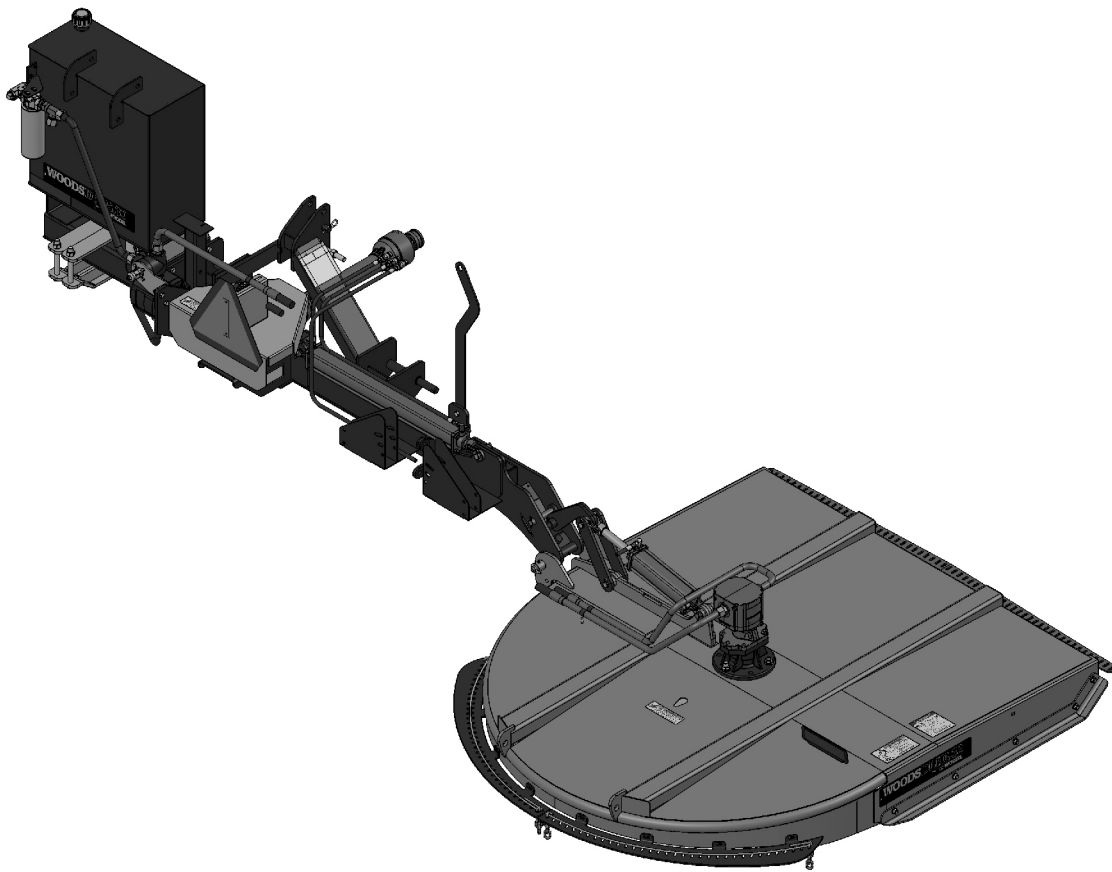


DITCH BANK ROTARY CUTTER

DBH5.31
DBH5.31Q
DBH6.31
DBH6.31Q



MAN1248

(Rev. 7/18/2019)

WOODS®

OPERATOR'S MANUAL

TO THE DEALER:

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

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

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

TO THE OWNER:

Read this manual before operating your Woods equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.

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

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

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

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

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

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

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



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



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



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



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

**IMPORTANT
or NOTICE**

Is used to address practices not related to physical injury.

NOTE Indicates helpful information.

ALITEC™

CENTRAL FABRICATORS®

GANNON®

WAIN-ROY®

WOODS®

WOODS®

2 Introduction

Gen'l (Rev. 2/25/2016)

TABLE OF CONTENTS

INTRODUCTION	2
SPECIFICATIONS	4
GENERAL INFORMATION	4
ONLINE SAFETY VIDEO	5
SAFETY	7
SAFETY RULES	7
INSTALLATION	7
TRAINING	7
PREPARATION	7
TRANSPORTATION	8
OPERATION	8
MAINTENANCE	9
STORAGE	9
SAFETY & INSTRUCTIONAL DECALS	10
OPERATION	13
OPERATION	13
GENERAL TRACTOR REQUIREMENTS	13
TRACTOR FRONT END STABILITY	13
CONNECT CUTTER TO TRACTOR	14
CUTTING HEIGHT ADJUSTMENT	14
PRE-OPERATION CHECKLIST	15
GENERAL MOWING	15
TRANSPORT	17
STORAGE	17
OWNER SERVICE	18
OWNER SERVICE	18
LUBRICATION	18
BLADE SERVICING	19
CHAIN SHIELDING REPAIR	20
OIL FILTER SERVICE	20
SCREEN FILTER SERVICE	20
FLEXIBLE COUPLER DISK REPLACEMENT	21
CLEANING	21
TROUBLESHOOTING	22
DEALER SERVICE	26
DEALER SERVICE	26
GEARBOX MAINTENANCE	26
SEAL REPLACEMENT	26
SEAL INSTALLATION	26
GEARBOX REMOVAL	27
GEARBOX INSTALLATION	27
PUMP MAINTENANCE	27
MOTOR MAINTENANCE	28
PUMP & MOTOR SEAL AND GEAR REPLACEMENT	29
SPINDLE FLANGE MAINTENANCE	30
BLADE ROTATION CHANGE	31
CROSSBAR	32
UNIVERSAL JOINT REPAIR	33
DEALER CHECK LISTS	35
ASSEMBLY INSTRUCTIONS	36
ASSEMBLY INSTRUCTIONS	36
DEALER SET UP INSTRUCTIONS	36
PARTS INDEX	43
APPENDIX	57
BOLT TORQUE CHART	57
BOLT SIZE CHART & ABBREVIATIONS	58
INDEX	59
REPLACEMENT PARTS WARRANTY	61
PRODUCT WARRANTY	62



¡LEA EL INSTRUCTIVO!

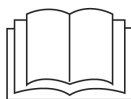
Si no lee Ingles, pida ayuda a alguien que si lo lee para que le traduzca las medidas de seguridad.

NOTICE:

If you would like to receive a free Spanish language translation of the Safety Rules section of this manual, plus a set of Spanish language safety decals, please contact your local Woods dealer.

AVISO:

Si desea recibir una traducción al español gratuita de la sección Reglas de seguridad de este manual y un juego de etiquetas de seguridad en español, por favor comuníquese con su concesionario local de Woods.



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

SPECIFICATIONS

	<u>DBH5.31</u>	<u>DBH5.31Q</u>	<u>DBH6.31</u>	<u>DBH6.31Q</u>
Cutting Width	60"	60"	72"	72"
PTO Speed (rpm)	540	1000	540	1000
Blade Tip Speed (feet per minute)	15,800	16,000	18,900	17,700
Minimum Tractor Weight Recommended	4000 lbs	4000 lbs	5000 lbs	5000 lbs
Minimum Tractor HP Recommended	55 HP	55 HP	60 HP	60 HP
Minimum 3-Point Lift Capacity	2500 lbs	2500 lbs	3000 lbs	3000 lbs
Weight (Approximate) Including Hydraulic Oil and Counter Weights	2250 lbs.		2450 lbs.	

Cutting Height (Depending on 3-point hitch height)	2" - 10"
3-Point Hitch	Category 2 & 3
Offset from Centerline Tractor PTO to Inside Edge of Cut (Approximate).....	65"
Transport Width from Centerline PTO to Right Side with Head Raised (Approximate).....	73"
Transport Width from Centerline PTO to Left Side with Head Raised (Approximate).....	51"
Blade Rotation	CCW (With Option to Convert To CW)

GENERAL INFORMATION


WARNING

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

The purpose of this manual is to assist you in operating and maintaining your cutter. 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, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

Throughout this manual, references are made to right and left directions. These are determined by standing behind the equipment facing the direction of forward travel. Blade rotation is counterclockwise as viewed from the top of the cutter.

BE SAFE!

BE ALERT!

BE ALIVE!

BE TRAINED

Before Operating Mowers!



*Safety Training
Does Make a Difference.*

Watch a Mower Safety Video Online

The AEM (Association of Equipment Manufacturers) offers a safety training video, *Industrial and Agricultural Mower Safety Practices*. The 22-minute video can be viewed online for free at TheAEMStore, <https://youtu.be/uEWXsDqhDq0>

It reinforces the proper procedures to follow while operating your mowing equipment. The video does not replace the information contained in the Operator's Manual, so please review this manual thoroughly before operating your new mowing equipment.

Also, available from the Association of Equipment Manufacturers:

A large variety of training materials (ideal for groups) are available for a nominal charge from AEM. Following is a partial list:

- **Training Package for Rotary Mowers/Cutters-English**

Contains: DVD & VHS (English)

Guidebook for Rotary Mowers/Cutters (English)

AEM Industrial/Agricultural Mower Safety Manual (English)

AEM Agricultural Tractor Safety Manual (English)

- **Training Package for Rotary Mowers/Cutters-English/Spanish**

Contains: DVD & VHS (English/Spanish)

Guidebook for Rotary Mowers/Cutters (English/Spanish)

AEM Industrial/Agricultural Mower Safety Manual (English/Spanish)

AEM Agricultural Tractor Safety Manual (English/Spanish)

AEM training packages are available through:

AEM at: www.aem.org

or

Universal Lithographers, Inc.

Email: aem@ulilitho.com

800-369-2310 tel

866-541-1668 fax

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.

INSTALLATION

■ Hydraulics must be connected as instructed in this manual. Do not substitute parts, modify, or connect in any other way.

TRAINING

■ 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 instructed in and be 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.**

■ Never allow children or untrained persons to operate equipment.

PREPARATION

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

■ 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.

■ 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.

■ After connecting hoses, check that all control lever positions function as instructed in the Operator's Manual. Do not put into service until control lever and equipment movements are correct.

■ Set tractor hydraulic relief valve at 2500 psi (170 bars) (17,000 kPa) to prevent injury and equipment damage due to hydraulic system failure.

■ Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.

■ 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.

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

■ Make sure attachment is properly secured, adjusted, and in good operating condition.

■ Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



- 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.
- Do not put this equipment into service unless all side skids 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.
- 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.

TRANSPORTATION

- 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.
- Before transporting, stop tractor PTO, raise cutter center section, then raise cutter head, and install transport bar. A raised cutter head can fall and crush. Keep away; never go underneath. Lower cutter head after transport and for storage.
- Always comply with all state and local lighting and marking requirements.
- Never allow riders on power unit or attachment.
- Do not operate PTO during transport.
- Do not operate or transport on steep slopes.
- Do not operate or transport equipment while under the influence of alcohol or drugs.

- Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.

OPERATION

- Do not allow bystanders in the area when operating, attaching, removing, assembling, 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 must be installed at all times. Thrown objects could injure people or damage property.
 - If the machine is not equipped with full chain shielding, operation must be stopped.
 - 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 (92m).
- 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 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 (1000 RPM on Q Series cutters). Do not exceed.
- Raise or lower wings slowly to prevent personal injury or damage to cutter.



SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



- Look down and to the rear and make sure area is clear before operating in reverse.
- Do not operate or transport on steep slopes.
- Do not stop, start, or change directions suddenly on slopes.
- Watch for hidden hazards on the terrain during operation.
- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, set parking brake, remove key, inspect, and repair any damage before resuming operation.

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.
 - 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, clean and then cover hose ends, fittings, and hydraulic ports with tape.
 - Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.
 - Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.
 - Make sure attachment is properly secured, adjusted, and in good operating condition.
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.
 - 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. Careless or improper handling may result in serious injury.
 - Your dealer can supply genuine replacement blades. Substitute blades may not meet original equipment specifications and may be dangerous.
 - Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.
 - 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.
 - Never perform service or maintenance with engine running.
 - Do not disconnect hydraulic lines until machine is securely blocked or placed in lowest position and system pressure is released by operating valve levers.
 - Service and maintenance work not covered in OWNER SERVICE must be done by a qualified dealership. Special skills, tools, and safety procedures may be required. Failure to follow these instructions can result in serious injury or death.

STORAGE

- Keep children and bystanders away from storage area.
- Store on level, solid ground.
- Block equipment securely for storage.

SAFETY & INSTRUCTIONAL DECALS



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



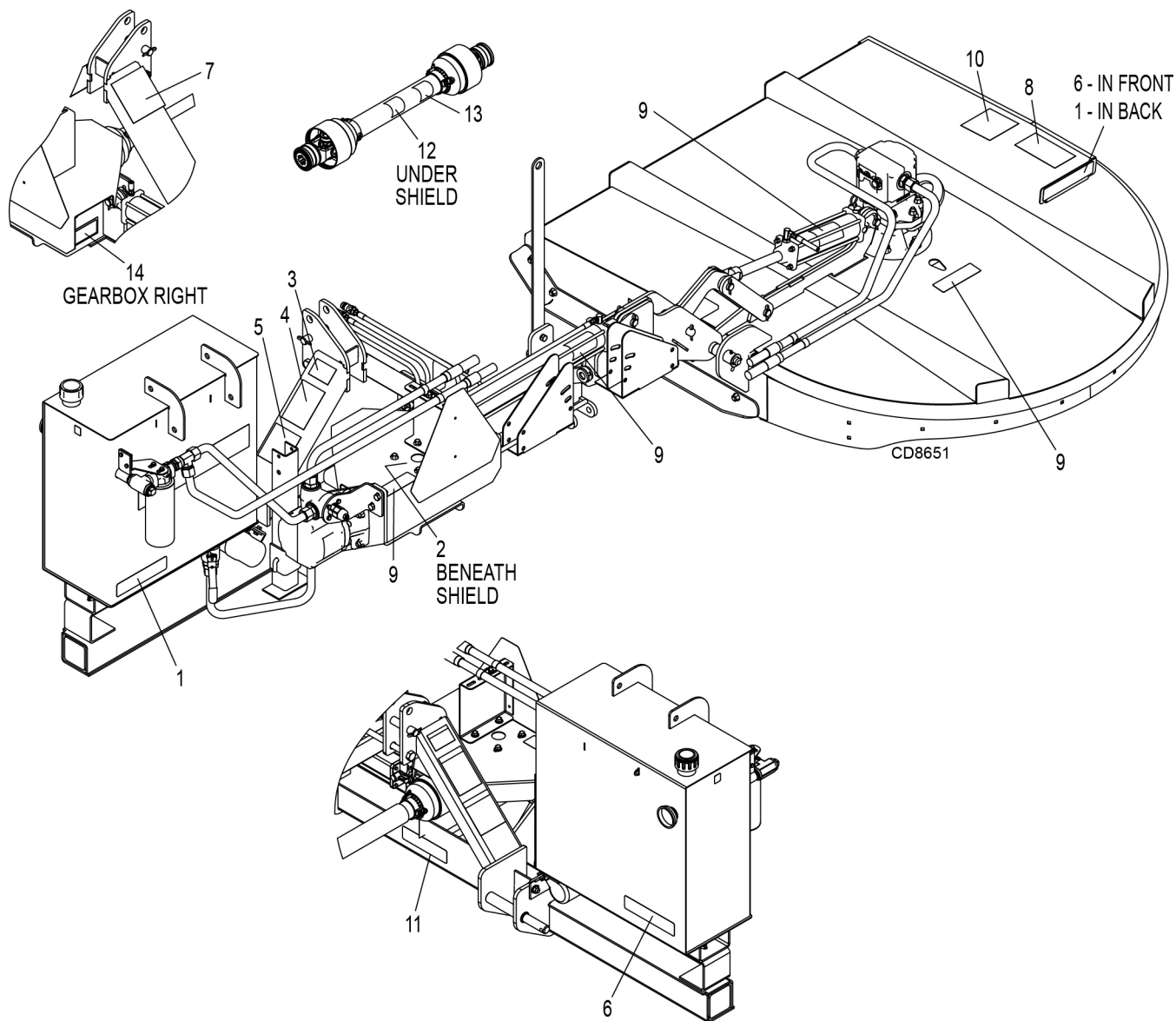
Replace Immediately If Damaged!

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 Decals continued on next page)

SAFETY & INSTRUCTIONAL DECALS

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

(Safety Decals continued from previous page)

2 - PN 1004114

DANGER

If shaft connection is visible, shield is missing. Replace shield before operating equipment.

1004114

1 - REAR RED REFLECTOR
(PN 57123)

6 - FRONT AMBER REFLECTOR
(PN 1002940)

4 - PN 29029

14 - SERIAL NUMBER PLATE

Model#
Serial#

(BAR CODE)

WOODS

Woods Equipment Company
Oregon, Illinois 61061 USA

3 - PN 18866 -or- PN 15922

WARNING

DO NOT EXCEED PTO SPEED OF
540 RPM

PTO speeds higher than 540 RPM can cause equipment failure and personal injury.

18866

-or-

WARNING

DO NOT EXCEED PTO SPEED OF
1000 RPM

PTO speeds higher than 1000 RPM can cause equipment failure and personal injury.

15922

WARNING

TO AVOID SERIOUS INJURY OR DEATH:

- Read Operator's Manual (available from dealer) and follow all safety precautions.
- Keep all shields in place and in good condition.
- Operate mower from tractor seat only.
- Lower mower, stop engine and remove key before dismantling tractor.
- Allow no children or untrained persons to operate equipment.
- Do not transport towed or semi-mounted units over 25 mph (40 km/h).

FAILURE TO OPERATE SAFELY CAN RESULT IN INJURY OR DEATH.

18877

5 - PN 1003751

WARNING

CRUSHING AND PINCHING HAZARD

- Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

1003751

7 - PN 18865

WARNING

FALLING OFF CAN RESULT IN BEING RUN OVER.

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

RAISED EQUIPMENT CAN DROP AND CRUSH.

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

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

18865

(Safety Decals continued on next page)

SAFETY & INSTRUCTIONAL DECALS



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Replace Immediately If Damaged!

(Safety Decals continued from previous page)

8 - PN 18964

	WARNING
	<p>RAISED WING EXPOSES BLADE AND INCREASES THROWN OBJECT HAZARDS.</p> <ul style="list-style-type: none"> Only raise for transport. Stop cutter and lock wing(s) up. <p>RAISED WING CAN FALL AND CRUSH.</p> <ul style="list-style-type: none"> Keep away. Lock up with wing transport bars. Lower wing(s) after transport and for storage. <p>FAILURE TO FOLLOW INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.</p>

12 - PN 33347

DANGER
<p>GUARD MISSING. DO NOT OPERATE.</p>
DANGER
<p>GUARD MISSING. DO NOT OPERATE.</p>
DANGER

9 - PN 19924

	WARNING
	<p>HIGH-PRESSURE HYDRAULIC OIL LEAKS CAN PENETRATE SKIN RESULTING IN SERIOUS INJURY, GANGRENE OR DEATH.</p> <ul style="list-style-type: none"> Check for leaks with cardboard; never use hand. Before loosening fittings: lower load, release pressure, and be sure oil is cool. Consult physician immediately if skin penetration occurs.

10 - PN 15503

DANGER			
<p>ROTATING BLADES AND THROWN OBJECTS</p> <ul style="list-style-type: none"> Do not put hands or feet under or into mower when engine is running. Before mowing, clear area of objects that may be thrown by blade. Keep bystanders away. Keep guards in place and in good condition. <p>BLADE CONTACT OR THROWN OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH.</p>			

11 - PN 57840 -or- PN 57841

540 RPM

-or-

1000 RPM

13 - PN 18864

DANGER
<p>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH KEEP AWAY!</p> <p>DO NOT OPERATE WITHOUT -</p> <ul style="list-style-type: none"> All driveline guards, tractor and equipment shields in place. Drivelines securely attached at both ends. Driveline guards that turn freely on driveline.

OPERATION

The operator is responsible for the safe operation of the cutter. The operator must be properly trained. Operators should be familiar with the cutter, the tractor, and all safety practices before starting operation. Read the safety rules and safety decals on page 7 through page 13.

This machine is a heavy-duty cutter designed for ditch-bank and side bank mowing. Five foot and six foot cutting heads are available in 540 RPM and 1000 RPM models.

The 1000 RPM unit is designated with the marking "1000 RPM" on the front and rear center frame, and the input gearbox has a "1000 RPM" tag attached to it.

! DANGER

■ Full chain shielding must be installed at all times. Thrown objects could injure people or damage property.

- If the machine is not equipped with full chain shielding, operation must be stopped.
- 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 (92m).

! WARNING

- Never allow children or untrained persons to operate equipment.
- Keep bystanders away from equipment.
- Never allow riders on power unit or attachment.
- Keep all persons away from operator control area while performing adjustments, service, or maintenance.

! CAUTION

- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, set parking brake, remove key, 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.

■ Operate tractor PTO at 540 RPM (1000 RPM on Q Series cutters). Do not exceed.

GENERAL TRACTOR REQUIREMENTS

Mount on tractors of adequate size; 4000 lbs minimum weight for DBH5.31, and 5000 lbs minimum weight for DBH6.31. Tractors should have a minimum 3-point lift capacity of 2500 lbs for the DBH5.31 and 3000 lbs for the DBH6.31.

Stabilizer bars must be used on lower 3-point hitch arms to minimize cutter side to side sway.

An adjustable, rigid top link must be used to achieve the tilt adjustments.

TRACTOR FRONT END 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, 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.

The use of 3-point mounted equipment can cause loss of tractor front end stability.

If there is any question at all of the tractor stability or the tractor rockshaft strength, use a counterweight of approximately 400 lbs or more on left end of cutter center frame. The rockshaft is required to carry all torsion load resulting from cutter head weight. Adding weight to the left side of the cutter frame reduces the torsion load.

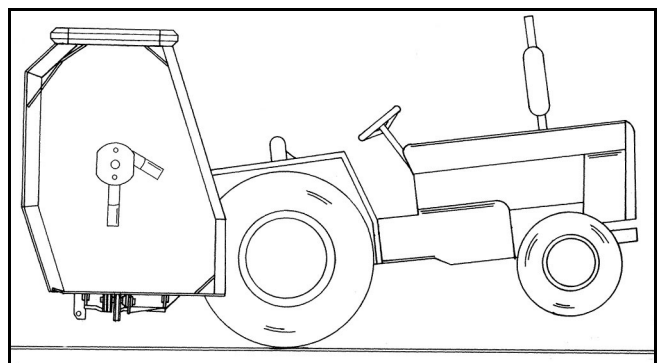


Figure 1. Tractor Stability

CONNECT CUTTER TO TRACTOR

Tractor Adjustments

Before attaching tractor to cutter, install sway blocks or sway chains, or adjust stabilizer bars. Refer to the tractor operator's manual for instructions.

Install tractor front end weights as recommended by the tractor manufacturer to provide 20% of weight on front wheels.

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, 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.**

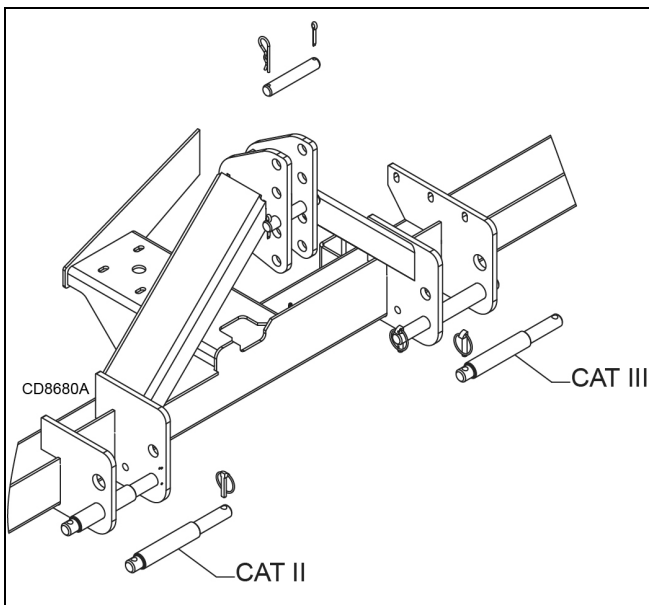


Figure 2. 3-Point Mounting Positions

Category 2 Standard Hitch

1. Position tractor lower lift arms between hitch mast plates.
2. Insert lower hitch pins to Cat 2 position through mast plates and tractor lower lift arms in either upper or lower holes, Figure 2.
3. Secure with lynch pins.
4. Attach top link for mounted units in the second hole of upper mast for the upper position, and the third hole for the lower position using top link pin.

Category 3 Standard Hitch

1. Position tractor lower lift arms between hitch mast plates.
2. Insert lower hitch pins to Cat 3 position through mast plates and tractor lower lift arms in either the upper or lower holes, Figure 2.
3. Secure with lynch pins.
4. Attach top link for mounted units in the top (upper) or second (lower) hole of upper mast using top link pin.

Category 2 & 3 Quick Hitches

1. Position lower hitch pins to Category 2 position in either the upper or lower holes Figure 2.
2. Use the upper hole that matches upper quick hitch point location. This is usually the fifth (lower) or third (upper) hole for Category 2 and the fourth (lower) or second (upper) hole for Category 3.
3. Secure with lynch pins.
4. Attach tractor to cutter and secure hitch according to hitch manufacturer's instructions.

WARNING

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

CUTTING HEIGHT & ATTITUDE ADJUSTMENT

Place tractor and cutter on a level area. Lower cutting head (parallel to ground but suspended in air). Adjust tractor 3-point lower arms to position cutter center section level from side to side and level with the cutting head. On some tractors, the left lift arm can telescope up or be locked down. When using this cutter, it must be locked down.

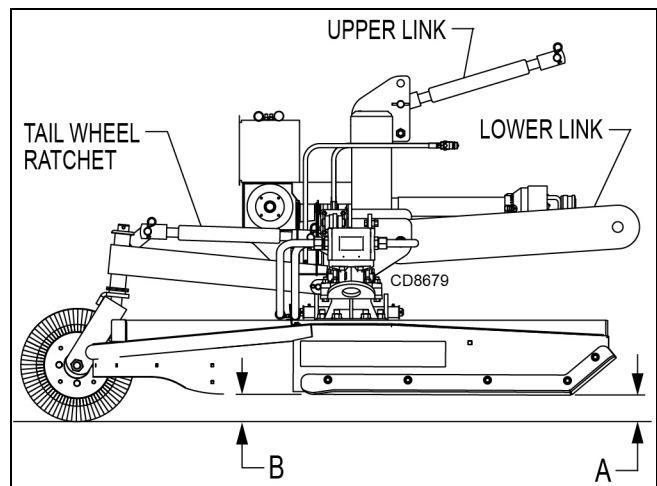


Figure 3. Attitude Adjustment

Cutting Height Adjustment

It is recommended that level cutting be practiced. This is done by following these steps:

1. With the lower link from tractor attached, adjust upper link so that height **A** equals height **B**.
2. If tailwheel option is applied, adjust tail wheel ratchet so that height **A** and **B** remain equal.

NOTE: Under conditions where extension and flex are used in uneven terrain, it may be feasible to employ a hydraulic top link to the upper hitch.

PRE-OPERATION CHECK LIST

(Owner's Responsibility)

- ___ Check hydraulic tank level using dip stick under cap. Level should be 5" from bottom of stick.
- ___ Hydraulic oil (in tank) is above 50° F.
- ___ Check to ensure blades are sharp, secure, and cutting edges are positioned in the direction of crossbar rotation.
- ___ Check to be sure gearbox is half full of 90W gear lube and has vent plug installed.
- ___ Check to ensure PTO shaft universal joints and all other lubrication points are properly serviced.
- ___ Check to ensure all safety shielding is properly installed and in good condition.
- ___ Check to ensure PTO shielding rotates freely.
- ___ Clear mowing area of debris that could be picked up and thrown by cutter.
- ___ Check cutting height and cutter attitude.
- ___ Place tractor PTO and transmission in neutral before attempting to start engine.
- ___ Review and follow all safety practices presented on page 7 through page 13.

NOTICE

- **Make sure all hydraulic connections are tight and all hydraulic lines and hoses are in good condition before engaging tractor PTO.**

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.

WARNING

- **Do not disconnect hydraulic lines until machine is securely blocked or placed in lowest position and system pressure is released by operating valve levers.**

GENERAL MOWING

WARNING

- **Look down and to the rear and make sure area is clear behind tractor and cutter before operating in reverse.**

This cutter may be used for mowing in either forward or reverse. Reverse mowing will enable you to cut close to obstructions. When mowing in both directions, cutter should be level front to rear.

Cutter Head Hydraulic Lift

The cutter head is raised with a 3.5" single-acting hydraulic cylinder. The cylinder, which lifts only, is controlled by the tractor hydraulic controls. The head is lowered by gravity.

There is an orifice restrictor in the hydraulic line to control the descent

When mowing, set hydraulic valve in the neutral position, unless using optional gauge wheel(s) then set in float. This will allow cutter to follow the ground contour.

Always use the tractor hydraulic system with built-in float when available. On tractors with closed-center systems that do not have float, you may lock the control in the down mode. This will allow the head to float. Please use Gauge Wheel option while using float operation. See page 52.

Do not lock the control in the down mode on tractors with open-center systems. Refer to the tractor owner's manual or contact your dealer if you have questions as to the type of hydraulic system used on your tractor.

Operate the open-center system that does not have a float with the control in the neutral position. This will not allow cutter head to float up when encountering an obstruction.

For tractors without hydraulic controls, an auxiliary control valve may be used. It has three positions: pull out to raise, push in to slightly lower, and push all the way in and snap into detent to allow cutter head to float.

Operating Extension Cylinder

Verify that transport bar is disengaged from deck and holstered. Verify that extension is properly greased before operating. When operating cylinder, make sure that areas where deck will extend or retract are free of obstacles. Do not extend or retract the deck as a means for starting a cutting operation.

NOTICE

- Never install a double-acting cylinder as damage to the cutter will occur.

Tractor and Cutter Operation

DANGER

- Full chain shielding must be installed at all times. Thrown objects could injure people or damage property.

- If the machine is not equipped with full chain shielding, operation must be stopped.
- 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 (92m).

WARNING

- Keep bystanders away from equipment.
- Never allow riders on power unit or attachment.

This cutter is operated with tractor controls. Engage the PTO control at idle rpm to prevent undue stress on tractor, cutter drivelines and gearboxes. Set tractor PTO speed and tractor throttle to operate at either 540 rpm or 1000 rpm, depending on which model cutter you have. Change ground travel by using higher or lower gears. Be sure operator is familiar with all tractor controls and can stop it and the cutter in an emergency. The operator should give complete, undivided attention to operating the tractor and cutter when mowing.

Brush and Ditch Bank Mowing

WARNING

- Never direct discharge toward people, animals, or property.

- Do not raise cutter head with PTO engaged. A raised cutter head exposes blades and increases thrown object hazards. Always operate with cutter head close to surface being cut.

When operating this cutter on ditch banks and cutting brush, the operator must be alert. Should the cutter hit an obstruction, the front of the tractor will usually slide toward the ditch (to the right). It would be possible to run the tractor and cutter into the ditch if mowing speed is too high or operator is not alert. On steep banks, it may be necessary to use the left turning brake to counteract the load occurring when cutter is hitting brush.

This cutter can handle brush up to 2" without serious damage if reasonable judgement is used. Sometimes, in ditches, it is well to raise the hitch and cutter head as high as needed and then lower it gradually onto top of brush. This will produce a good shredding job and usually is the best method for heavy brush.

When mowing steep banks with cutter on the uphill side, it is possible to raise cutter head high enough to over-center and make it difficult to lower. When this occurs, it will be necessary to maneuver tractor to cause lowering to take place.

Hydraulic Drive

All adjustments to the hydraulic drive system have been made at the factory. It is designed to flow 20 gpm of oil up to 4000 psi pressure. The pressure relief valve is set for 4000 psi.

When the mower is overloaded, the pressure relief valve will operate as oil is by-passed. When this occurs, stop the tractor, or back up, to start the mower blades rotating again. Continued by-passing of oil "over relief" will overheat the unit and can cause damage to hydraulic components.

The DBH5.31 and DBH6.31 mowers are supplied with a temperature gauge mounted on top of the reservoir. If the oil temperature gets over 180°F, stop mowing until this temperature drops to a safe level. This gauge is to aid in obtaining maximum use from the mower.

For operating in highly loaded conditions, consider adding the cooler option to the hydraulic tank. See page 55.

CAUTION

- Frequent or continuous contact of blades with the ground will cause mower hydraulic oil to overheat and may cause cutter damage. Be sure to follow initial start-up instructions before operating for the first time.

TRANSPORT

WARNING

■ Before transporting, stop tractor PTO, raise cutter hitch, then raise cutter head and install transport bar. A raised cutter head can fall and crush. Keep away; never go underneath. Lower cutter head after transport and for storage.

Transport lock-up bar should be used when unit is under transport.

When transporting the machine or working on the underside, attach lock-up bar (1) to cutter frame and secure with safety pin (2).

Engaging Lock-Up Bar

1. Retract deck extension with hydraulic cylinder.
2. Raise deck with deck hydraulic pivot cylinder.
3. Remove safety pin (2) from pin at deck near to motor.
4. Remove lock-up bar (1) from holster at hitch. Rotate towards deck.
5. Engage lock-up bar hole to pin. Slide onto pin.
6. Reinstall safety pin (2).
7. To lower deck for operation, retract deck pivot and extension cylinders. Remove safety pin and return lock-up bar and pin to storage position.

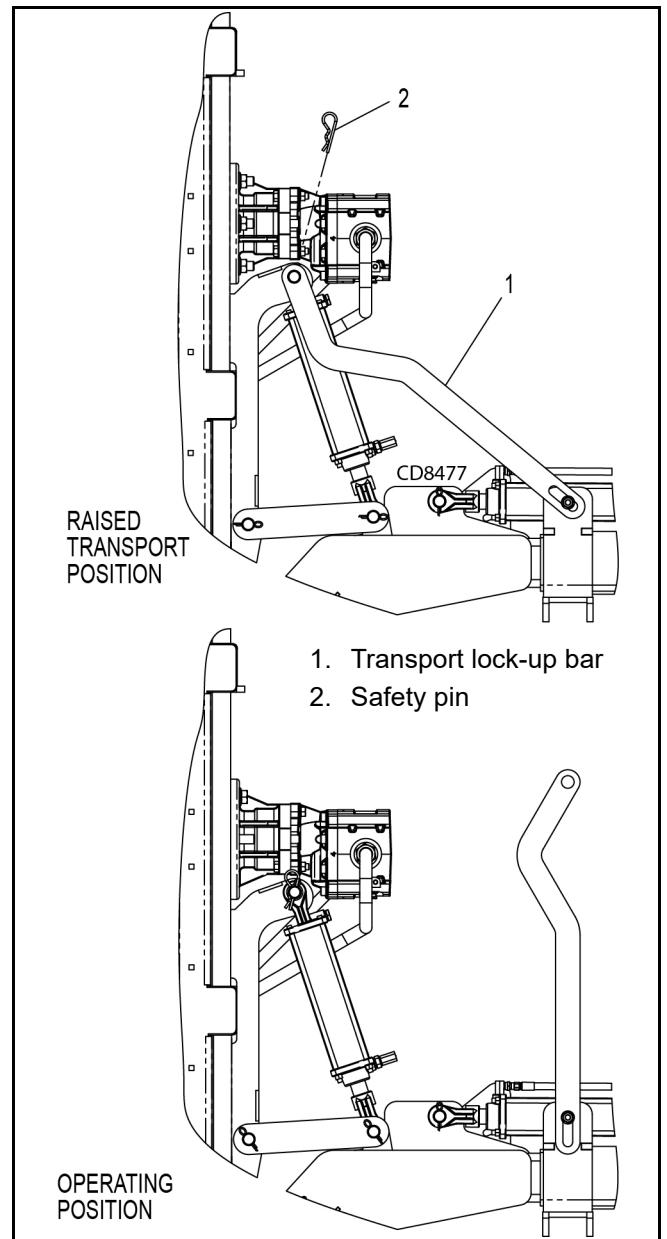


Figure 4. Lock-Up Bar

STORAGE

WARNING

■ Do not disconnect hydraulic lines until machine is securely blocked or placed in lowest position and system pressure is released by operating valve levers.

When unhooking and parking the cutter, lower cutter head to ground. Lower the jack stand. Lower hitch until 3-point arms are released and then disconnect. Be sure to disconnect PTO and hydraulic lines before moving tractor away.

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.

WARNING

■ For service and adjustments, lower center frame and cutter head to ground and disconnect cutter driveline from tractor PTO. Raise as needed for working room and securely block all sections of this equipment before working underneath. Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.

■ When transporting the machine or working on the underside, attach lock-up bar as shown on page 18.

■ Make sure shields and guards are properly installed and in good condition. Replace if damaged.

■ Do not disconnect hydraulic lines until machine is securely blocked or placed in lowest position and system pressure is released by operating valve levers.

■ Operate tractor PTO at 540 RPM (1000 RPM on Q Series cutters). Do not exceed.

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

WARNING

■ Lower cutter head to ground, shut off tractor engine and remove key before servicing.

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

Figure 3 shows the lubrication points. The chart gives the frequency in operating hours based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication. Some reference numbers have more than one location; be sure to check number of points.

Use a SAE multi-purpose type grease. Be sure to clean fitting thoroughly before using grease gun.

Use a good quality 90W gear lube in gearboxes.

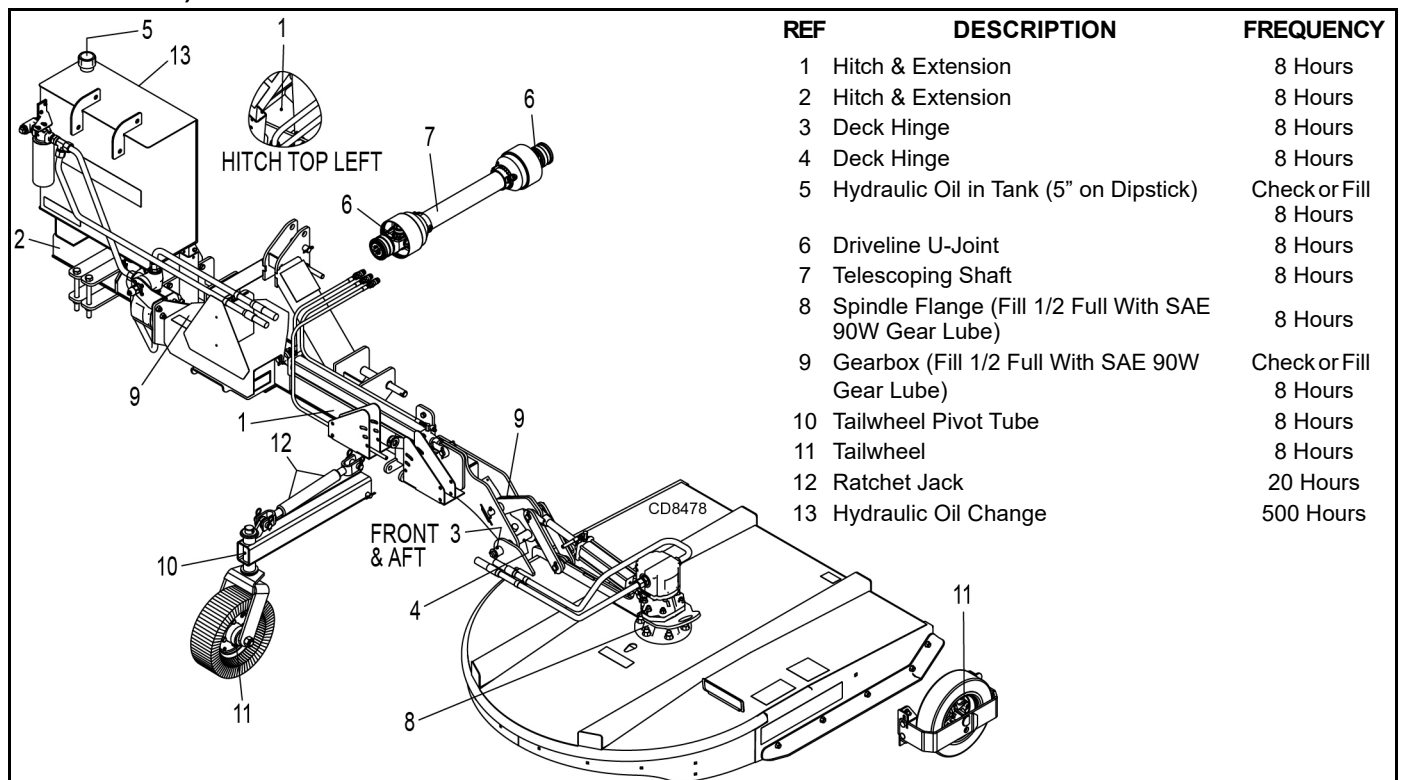


Figure 3. Lubrication Points

Gearbox

Each Woods gearbox is equipped with tapered bearings throughout. These bearings are preset at the factory and normally do not require adjustment during their useful life. Gearbox must be half full of SAE 90 gear lube. Check every eight hours. If there are any leaks around bolts or covers, apply #3 Permatex® or Gasket Compound to seal. Check seals to be sure they do not leak.

Hydraulic Drive Oil Recommendations

Use of type "A" or "F" automatic transmission fluid is recommended for all ambient temperatures; however, the following motor oils may be used:

- SAE 30-30W for temperatures above 90°F
- SAE 20-20W for 35° to 90°F
- SAE 10-10W for temperatures below 35°F

Oil level should be checked daily and oil added as necessary to maintain level at full mark on dipstick. Capacity is 35 gallons.

Oil Leaks

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.

WARNING

■ 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.

Most oil leaks occur in the tubes, hoses and fittings. If you have an oil leak, check where the leak is and fix it. Three types of fittings are used on this machine:

- O-Ring seal fittings on pumps, motors, etc. - A leak here is usually from a faulty O-ring.
- Pipe fittings - Use Teflon® tape to seal these "thread seal" joints.
- Hose, hose nipple, and clamp fitting - Surfaces should be in good condition. Hoses should be of correct size and clamps tightened.

BLADE SERVICING

CAUTION

■ Do not handle blades with bare hands. Careless or improper handling may result in serious injury.

Raise cutter head and lock in up position. Inspect blades before each use to determine that they are properly installed and in good condition. Check to be sure blades are snug but still swivel on blade pin (see Blade Installation). Replace any blade that is bent, excessively nicked, worn or has any other damage. Small nicks can be ground out when sharpening.

Blade Removal (Figure 4)

Align crossbar and blade pin assembly with blade access hole in cutter frame. Remove bolt (1) and blade pin lock clip (5). Slide keyhole plate (4) out of blade pin groove and remove. Remove spacers and drive pin out of crossbar.

NOTICE

■ If blade is seized in crossbar and extreme force will be required to remove it, support crossbar from below to prevent gearbox damage.

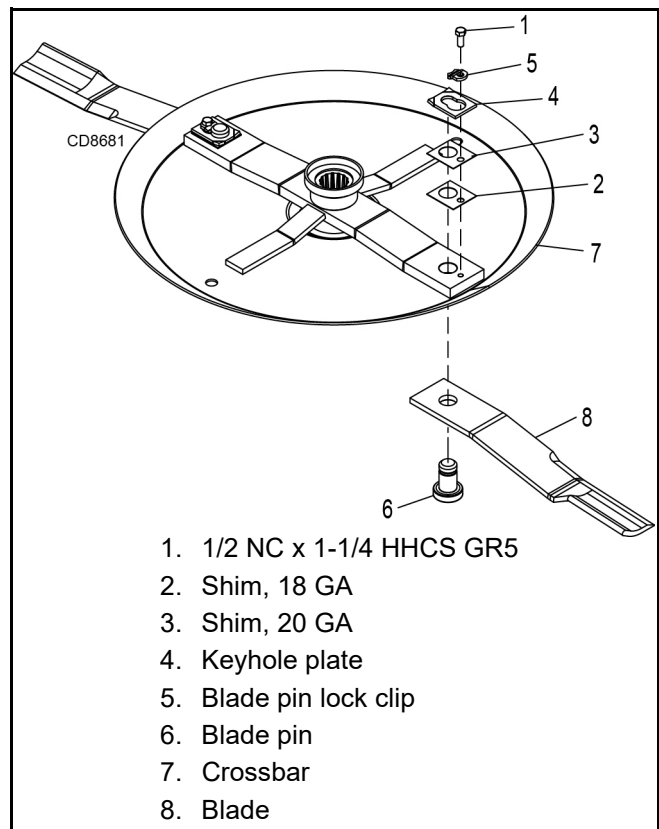


Figure 4. Blade Removal/Installation

Blade Installation (Figure 4)

NOTICE

- Crossbar rotation is counter-clockwise when looking down on the cutter.

CAUTION

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

NOTE: Always replace or sharpen both blades at the same time.

1. Inspect blade pin (6) for nicks or gouges, and if you find any, replace the blade pin.
2. Insert blade pin through the blade (8). Blade should swivel on blade pin; if it doesn't, determine the cause and correct.
3. Align crossbar (7) with blade access hole in cutter frame. Apply a liberal coating of Never Seez[®] or equivalent to blade pin and crossbar hole. Make sure blade offset is away from cutter. Push blade pin through crossbar. Pin should rotate freely prior to installing blade clip (5).
4. Install shims (2 & 3) over blade pin.

NOTE: Only use enough shims to allow keyhole plate (4) to slide into blade pin groove.

5. Install blade clip (5) over keyhole plate and into blade pin groove.
6. Secure into position with cap screw (1). Torque cap screw to 85 lbs ft.
7. Repeat steps for opposite side.

Blade should be snug but should swivel on pin without having to exert excessive force. Keep any spacers not used in the installation as replacements or for future installation.

Blade Sharpening

NOTICE

- When sharpening blades, grind the same amount on each blade to maintain balance. Replace blades in pairs. Unbalanced blades will cause excessive vibration which can damage gear-box bearings. Vibration may also cause structural cracks to cutter.

Always sharpen all blades at the same time to maintain balance. Follow original sharpening pattern. Do not sharpen blade to a razor edge, but leave at least a 1/16" blunt edge. Do not sharpen back side of blade.

1. Sharpen both blades at the same time to maintain balance. Follow original sharpening pattern.
2. Do not sharpen blade to a razor edge - leave at least a 1/16" blunt edge.
3. Do not sharpen back side of blade.

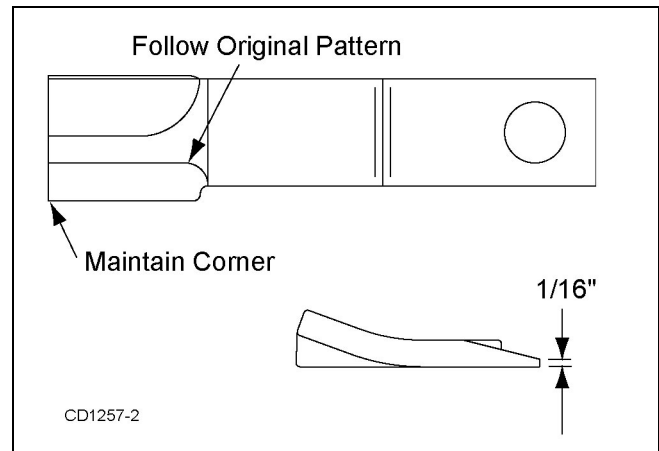


Figure 5. Blade Cutting Edge Sharpening

CHAIN SHIELDING REPAIR

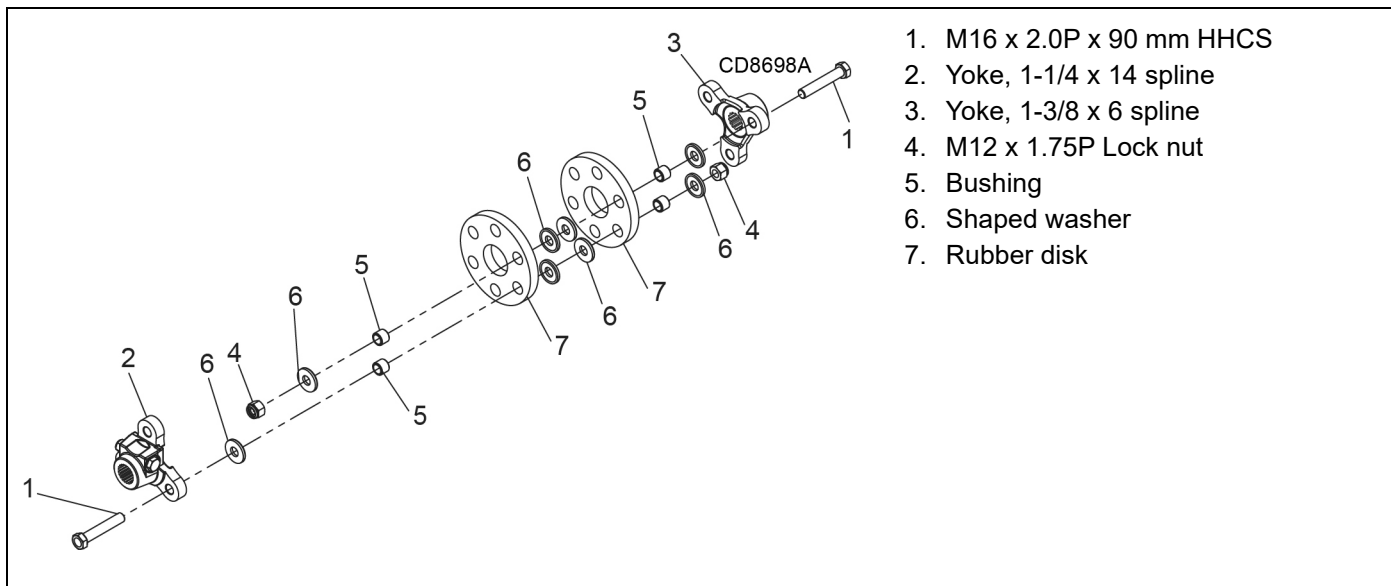
Inspect chain shielding each day of operation and replace any broken or missing chains as required.

OIL FILTER SERVICE

Change cloth filter with each oil change (See Lubrication section for schedule).

SCREEN FILTER SERVICE

Screen filter is provided to strain out 100 micron or larger debris and is located inside the hydraulic tank. Access to filter can be done when oil is changed. (See Lubrication section for schedule). Inspect screen for punctured or torn surface. Change or replace as necessary.



1. M16 x 2.0P x 90 mm HHCS
2. Yoke, 1-1/4 x 14 spline
3. Yoke, 1-3/8 x 6 spline
4. M12 x 1.75P Lock nut
5. Bushing
6. Shaped washer
7. Rubber disk

Figure 6. Flexible Coupling

FLEXIBLE COUPLER RUBBER DISK REPLACEMENT

The flexible coupler is designed to flex when striking heavy objects or during start-up to protect pump. The rubber disks will wear out over time and require replacement much like slip clutch disks. To maximize rubber disk life, lower tractor engine speed to an idle when engaging the PTO and avoid striking the ground with cutter blades.

Periodically inspect the disks for signs of cracking. A disk may run for some time after a crack starts but this is the first sign that disk replacement is required in the future.

To replace the disks, remove hardware items 5, 6, 7, and 8. Remove sleeves (6) from old disk and install in new disk. Reassemble and torque bolts to 85 lbs-ft. See Figure 6.

CLEANING

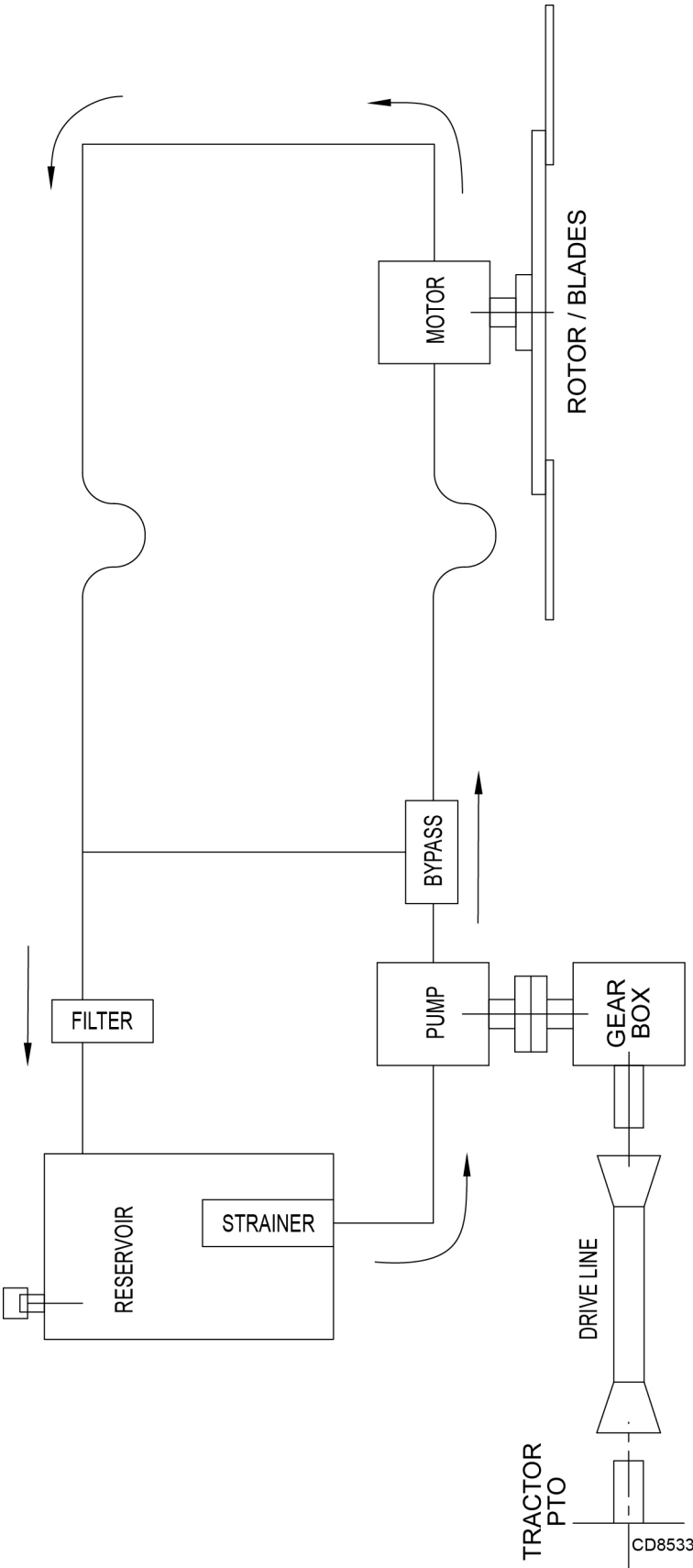
After Each Use

- 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.

TROUBLE SHOOTING HYDRAULIC CIRCUIT SCHEMATIC



TROUBLE SHOOTING

Problem	Possible Cause	Solution
Does not cut	Dull blades	Sharpen blades.
	Worn or broken blades	Replace blades. (Replace pairs only.)
	Incorrect PTO speed	Be sure PTO speed is set at 540 or 1000 RPM. Make sure to check your unit's rated PTO speed.
	Ground speed too fast	Reduce ground speed.
	Drive not functioning (blades do not turn when PTO is running)	Check drive shaft connection. Check gearbox.
	Gearbox malfunction	Repair gearbox.
	Pump or motor malfunction	Repair pump or motor
Streaks or gives rugged cut	Broken or worn blades	Replace or sharpen blades.
	Ground speed too fast	Reduce ground speed.
	Excessive cutting height	Lower cutting height. (Note: Set height so blades do not frequently hit ground.)
	Excessive lush and tall vegetation	Reduce ground speed.
Thrown objects	No shielding	Use chain shielding.
Excessive side skid wear	Running with skids continuously on ground	Set skids above ground, or install gauge wheels on cutter head.
Vibration	Broken blade	Replace blades in pairs.
Wing will not raise	Low oil	Add hydraulic fluid.

TROUBLE SHOOTING

Problem	Possible Cause	Solution
Oil Foam	Air getting in around pump shaft seal	Replace seal.
	Low on oil	Add oil to 5" on dip stick.
	Air getting in around or through suction hose fitting	Check and tighten fittings or if necessary, put a clamp on hose.
	Plugged suction hose screen	Check and clean - screen is in tank.
	Wrong kind of oil	Drain and fill with non-foaming oil.
	Water in oil	Change oil and flush system thoroughly and refill with clean oil.
Pump makes noise (other than normal relief valve noise when oil is going over the relief valve)	Oil too heavy	Drain and refill with proper oil.
	Oil too cold	Allow to run at slow speed until warm.
	Pump not getting enough oil due to restriction in suction line	Clean or replace suction line.
	Pump not getting enough oil due to collapsed suction hose	Replace hose.
	Pump not getting enough oil due to vacuum in reservoir	Remove cap and clean
	Foreign matter in pump	Disassemble, clean and inspect pump.

TROUBLE SHOOTING

Problem	Possible Cause	Solution
Oil heats (exceeds 200°F)	Overloading mower capacity	Reduce tractor speed and raise mower cutting height. (Keep average motor supply oil pressure below 1300 psi.)
	Oil too heavy or light	Use oil recommended on page 20. Clean or replace filter.
	Restriction in line (unlikely)	Pinch or flatten pressure hose. Replace as required. Replace system oil filter.
	Oil relieving at pressure other than 4000 psi	Pressure check and pressure relief valve for 4000 psi relief, replace if defective.
	Pump worn	Pump should flow 20 gpm minimum at 4000 psi. Repair or replace. Flush oil system and reservoir of foreign matter.
	Motor worn	Motor slows excessively when loaded (relief valve not acting). Repair or replace motor.

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, disconnect drive-line, raise cutter, lock in transport position, and block cutter securely. Hydraulic system leak down and failure of mechanical or hydraulic system can cause equipment to drop.

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

■ When completing a maintenance or service function, make sure all safety shields are in good condition and properly installed before placing cutter in service.

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.

GEARBOX MAINTENANCE

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

1. Fill gearbox with SAE 80W or 90W gear lube until it runs out the side level plug.

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.

2. 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 gasket or seal can be repaired without removing the gearbox from the cutter.

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.

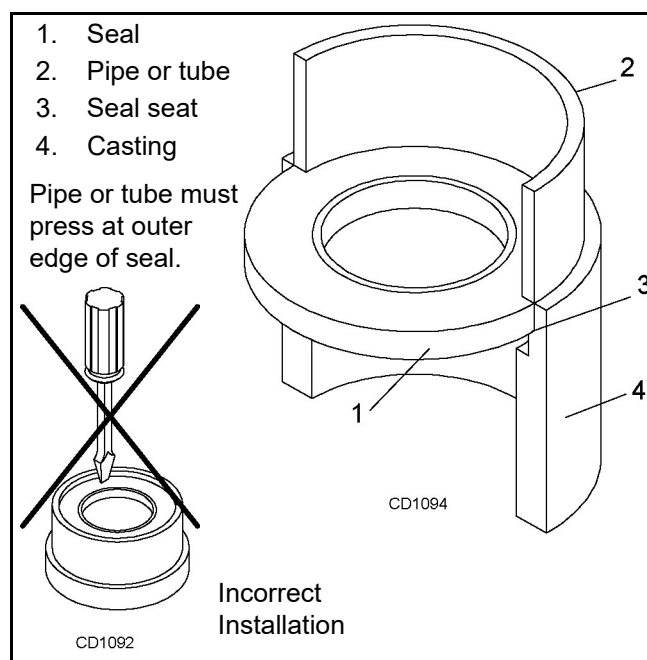


Figure 18. Seal Installation

GEARBOX REMOVAL

(See Figure 19)

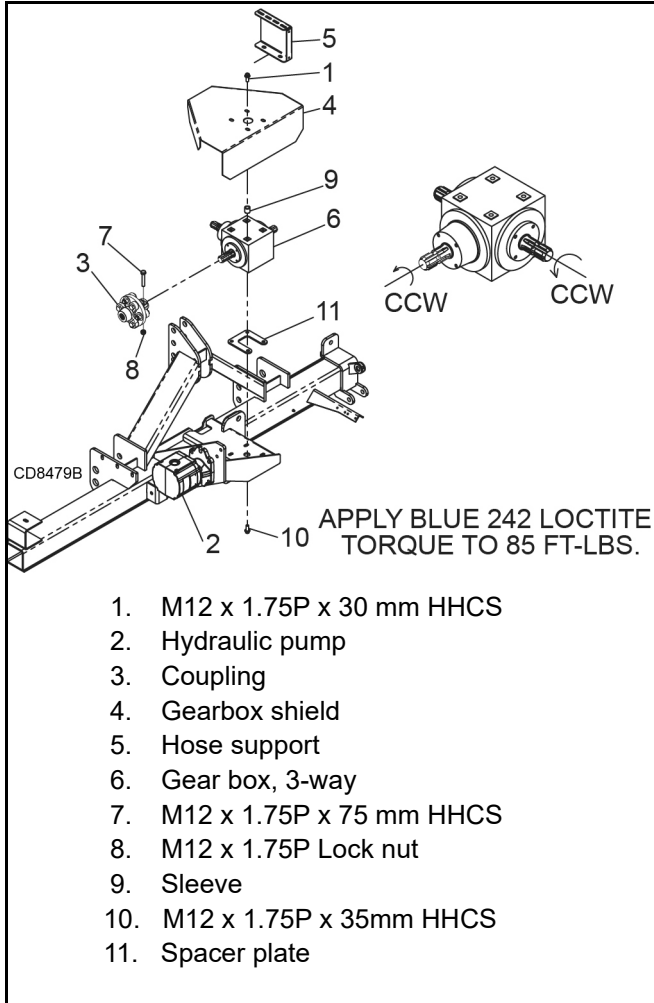


Figure 19. Gearbox Assembly

1. Disconnect the driveline from the tractor PTO and remove from gearbox (6).
2. Remove both hose clamps holding tubes to and from motor from top of hose support (5).
3. Disconnect gearbox shield (4) removing four M12 cap screws (1) and hose support (5).
4. Remove set of four M12 cap screws (1) below gearbox.
5. At coupler, remove M12 fastener set (3 & 7).
6. Slide gearbox (6) away from coupler (3) and hitch mounting surface. Leave coupler attached to pump (2) on hitch.

GEARBOX INSTALLATION

1. Verify good working condition of coupler (3) and clean mounting surface of hitch where gearbox (6) mounts onto.

2. Gearbox (6) should be mounted with breather port facing upwards. Verification of correct output shaft should be made by first rotating input shaft counter-clockwise and identifying output shaft with CCW rotation (while viewing output shaft). If gearbox vent is incorrectly located, swap plug with vent. Verify gearbox is filled correctly. (see gearbox section of manual).
3. Loosen and remove fastener set (7 & 8) from coupler.
4. Slide coupler onto appropriate output shaft (see step 2) of gearbox (6) so that gearbox shaft annulus aligns with fastener set hole. Apply and tighten fastener set (7 & 8).
5. Align gearbox (6) and coupler (3) combination onto pump (2) spline. A minimum of 1-1/4 inches of engagement is required. No lock of pump to coupler is required.
6. Align holes on bottom of gearbox (6) and holes of the spacer plate with slotted hose of hitch. Apply blue Loctite #242 to four M12 cap screws (10) and apply to gearbox (6). Torque to 85 lbs-ft.
7. Apply gearbox shield (4) with two M12 cap screws (1) hand tight in left holes.
8. Apply hose support (5) on top of gearbox shield aligning with two right holes. Apply M12 cap screws (1). Tighten all four screws to approximately 40 lbs-ft.
9. Apply hose to motor and hose from motor to the top of the hose support using clamps and fasteners from step 2 of gearbox removal.

PUMP MAINTENANCE

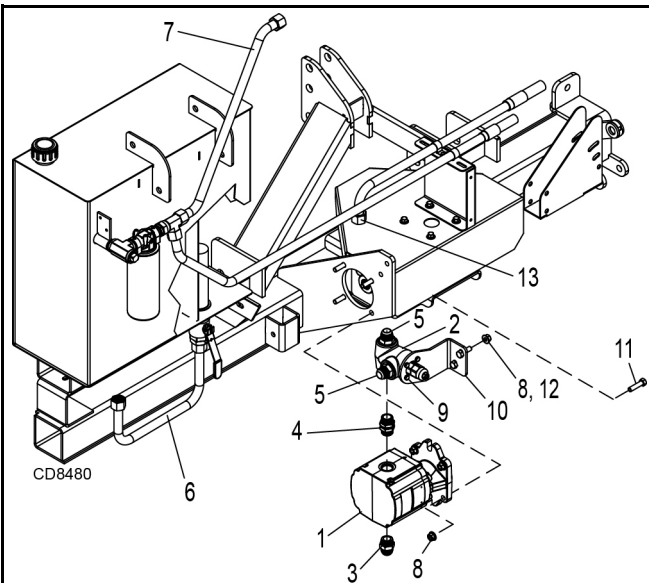
Pump Removal

(See Figure 20)

Care should be taken to contain a small volume of hydraulic oil which shall spill from removal of hydraulic lines.

1. Disconnect the driveline from the tractor PTO and remove from gearbox.
2. Close valve at bottom of hydraulic tank.
3. Taking care to capture oil, remove pump supply hose (6) at pump adapter (3).
4. Remove 1/2" fastener set (8 & 12) at bypass valve bracket (10) to hitch.
5. Remove four M8 cap screws (9) from bracket (10) and bypass valve (2). Bracket (10) is free to remove at this step.
6. Taking care to capture oil, remove hose to motor (13) from top valve adapter (5).

7. Taking care to capture oil, loosen adapter (4) below valve so that valve may be loosened and rotated CCW. Adapter jam nut is to be loosened.
8. Remove bypass hose (7) at adapter (5) swinging hose upwards and tightening JIC nut at opposite end so that oil does not drain from tank. Bypass valve assembly is free to remove at this step.
9. Remove 1" boss O-ring fitting (4) from top of pump (1) and 1-1/4" fitting (3) below pump.
10. Remove four 1/2" fastener set (8 & 11) from pump mount. Pump is free to remove at this step.



1. Hydraulic pump
2. Bypass valve
3. Adapter, 1" JICM x 1-1/4" ORBM
4. Adapter, 1" ORBM
5. Adapter, 1" JICM x 1" ORBM
6. Pump supply hose
7. Bypass hose
8. 1/2 NC Flange lock nut
9. M8-1.25P x 20 mm HHCS
10. Bypass bracket
11. 1/2 NC x 2 HHCS, GR5
12. 1/2 NC x 1-1/2 HHCS, GR5
13. Hose to motor

Figure 20. Pump Removal/Installation

Pump Installation

(See Figure 20)

NOTE: Larger pump port is inlet port.

1. Attach pump to hitch with pump inlet port pointing downwards. Apply blue Loctite #242 to four bolts (11). Slide pump spline into coupler and attach with fastener set (8 & 11) as shown with nut against

pump flange. Torque fasteners in cross fashion to 85 lbs-ft torque.

2. Attach 1" boss O-ring fitting (4) to top of pump (1) and 1-1/4" fitting (3) below pump (1).
3. Attach pump supply hose (6) to pump adapter (3).
4. Loosely attach bypass valve assembly from step 8 above, to adapter (4).
5. Once valve (2), is nearly in position with stem pointing to rear, attach bypass hose (7). It may be necessary to turn valve clockwise rotation while tightening hose (7).
6. Tighten adapter (4) jam nut below valve (2).
7. Attach bracket (10) to valve with cap screw (9) and to hitch with fastener set (8 & 12).
8. Attach hose to motor (13) to top adapter (5).
9. Open valve at tank. Verify oil level of tank is 5" above bottom of dip stick.
10. Review safety procedure for checking hydraulic leaks and mower operation.
11. Attach to tractor. Confirm proper cutter operation.

MOTOR MAINTENANCE

Motor Removal

(See Figure 21)

Secure and block unit and place deck level before beginning this procedure.

1. Close valve at tank.
2. At deck, remove clamps.
3. Being prepared to address some spilled oil, loosen both JIC nuts and hoses (5 & 7) before and after motor (1). Once nuts are free to rotate by hand, loosen and remove both hoses (5 & 7) from motor simultaneously, then elevate hoses up and away from deck. Take care not to drain excessive amounts of oil from hoses, secure in upright and elevated position.
4. Remove 1" O-ring boss fittings (6) from before and after motor.
5. Loosen four 1/2" fastener set (2 & 3) between motor (1) and spindle flange (8). Motor (1) is free to remove at this step. Cover spindle flange keeping foreign material out of internals.

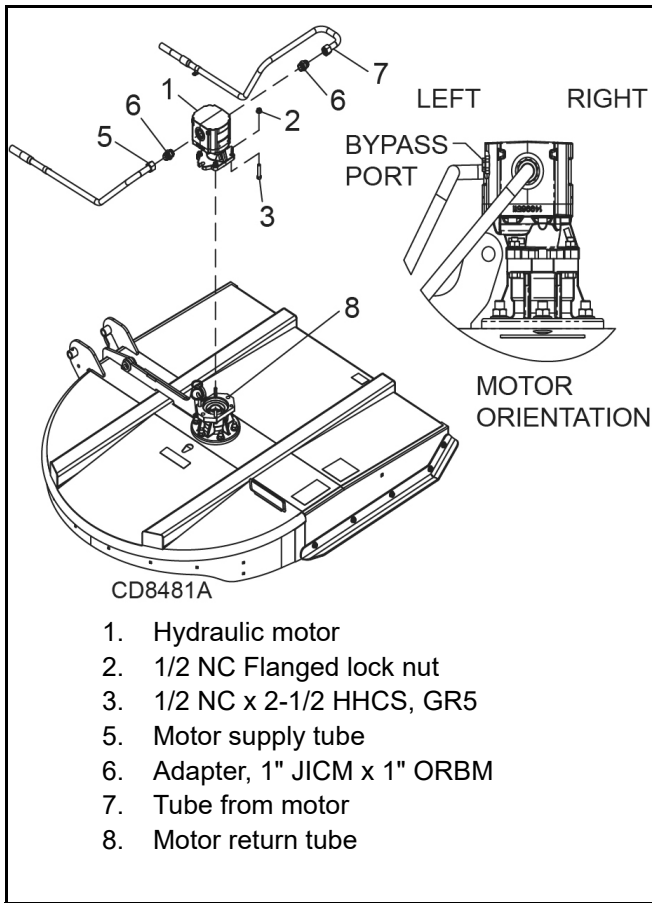


Figure 21. Motor Removal/Installation

Motor Installation

(See Figure 21)

1. Verify the mating surfaces of spindle flange (8) and motor (1) are clean. Apply RTV sealant to mating surface of spindle flange (8).
2. Carefully attach motor (1) to spindle flange (8), keeping bypass ports to the left as shown. Use four fasteners (2 & 3) and torque to 85 lbs-ft.
3. Apply adapters (6) to front and rear of motor.
4. Being prepared to address some spilled oil, attach hoses (5 & 6) to rear and front of motor, tightening JIC nuts to adapters (6).
5. Use clamps to attach both tubes (5 & 6) to deck.
6. Open valve at tank. Verify oil level is 5" above bottom of dip stick.
7. Review safety procedure for checking hydraulic leaks and mower operation.
8. Attach to tractor. Confirm proper cutting operation.

PUMP & MOTOR SEAL AND GEAR REPLACEMENT

The pump and motor are designed to provide power to the cutting deck. Lower cutting power can be traced to worn items inside pump and motor. Be sure to perform filter and strainer maintenance as directed. Elevated operating temperatures (above 180 degrees F.) reduce pump and motor seal life. For operating in highly loaded conditions, consider fitting the unit with the cooler option.

Seal inspection can be made once pump or motor is removed from the cutter (see sections on pump or motor replacement). Bench inspection of hydraulic components is recommended.

During disassembly, look for signs of advanced deterioration of primary components. Consider replacing pump or motor if such wear is determined. Replacing components could exceed the cost of replacing pump or motor.

Pump and Motor Primary Components Signs of Damage

(See Figure 22)

1. Scored or pitted sleeve bearings (7).
2. Drive or driven gear (11 & 12) damage to teeth, scored or pitted shafts or visible fractures.
3. Broken or fractured front cover (5) or gear housing (13) castings.

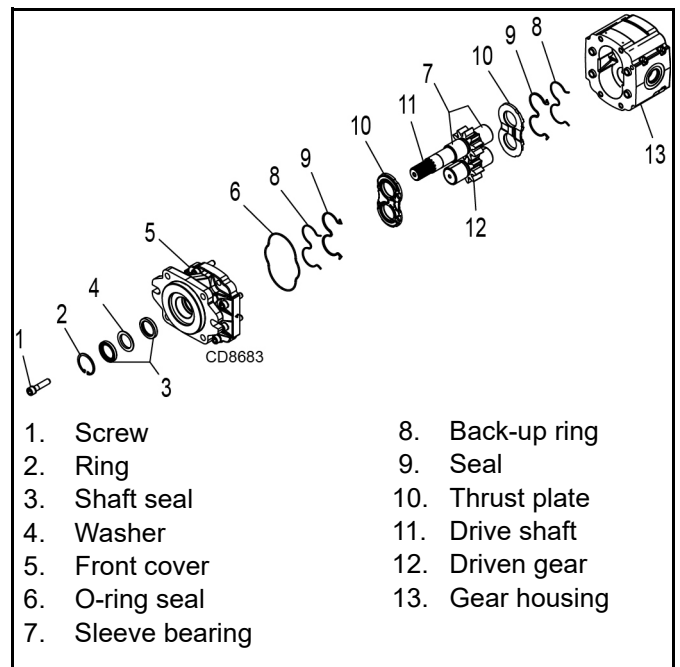


Figure 22. Pump and Motor Wear

Pump or Motor Disassembly

(See Figure 22)

1. Remove six screws (1) and ring (2).
2. Slide front cover (5) from shaft (11), retain shaft seals (3) and washer (4).
3. Remove O-ring (6), back-up rings (8), seals (9) from thrust plates (10) at both ends of gears. Replace all these items with seal kit replacement part.

Pump or Motor Reassembly

(See Figure 22)

1. Once seal kit is installed, reassemble seal (8), ring (9) and plate (10) onto rear of gear shafts (11) & (12) and install into housing (13). Apply same items to front of gear shafts (11 & 12) and into housing.
2. Place O-ring (6) onto front cover (5), place front cover onto housing (13).
3. Apply two new shaft seals (3) with washer (4) and ring (2).
4. Tighten all screws (1).
5. Reinstall pump or motor following instructions on pages 29 or 30.

SPINDLE FLANGE MAINTENANCE

Spindle Flange Removal

(See Figure 23)

Secure and block unit and place deck in lock-up position before beginning this procedure.

1. Following procedure to remove crossbar on page 33, loosen and remove crossbar assembly (3, 4 & 5).
2. At deck remove clamps.
3. Remove four 1/2" fastener sets (6 & 7) between motor (1) and spindle flange (2). Carefully remove and relocate motor (1) with attached hoses (11 & 12).
4. Remove six 3/4" fastener sets (8 & 9) at spindle flange to deck. Spindle flange (2) is free to remove at this step.

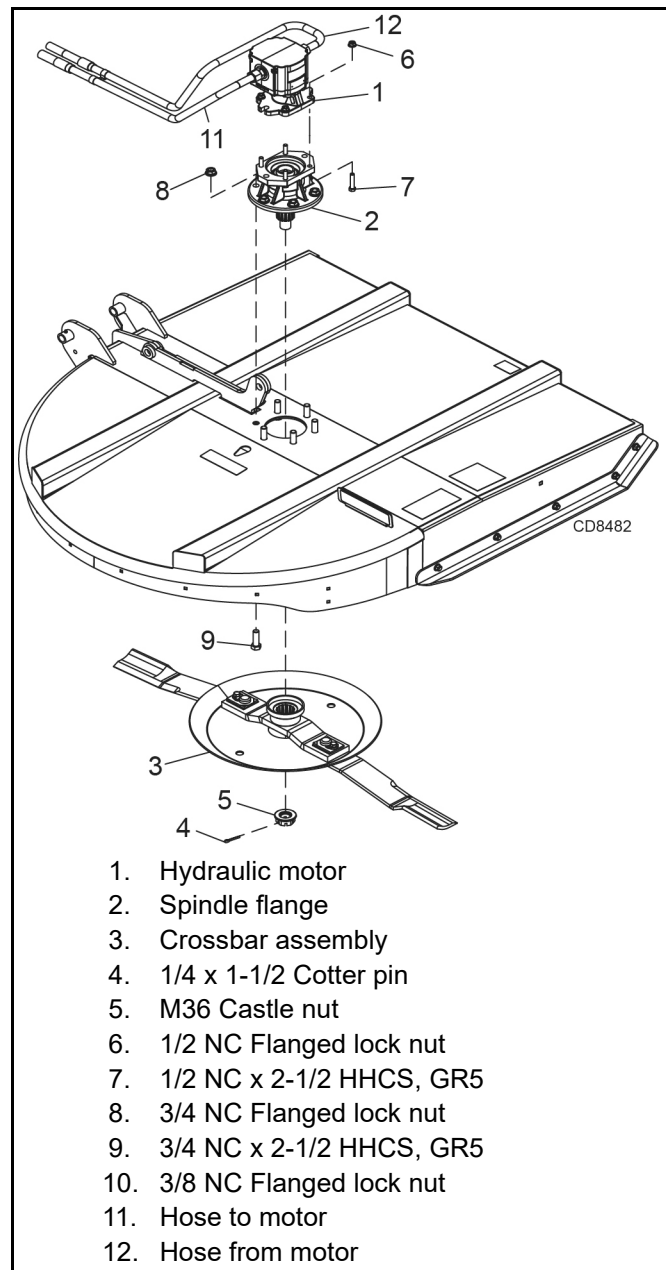


Figure 23. Spindle Flange Removal/Installation

Spindle Flange Installation

(See Figure 23)

1. Place spindle flange (2) on deck so that side plugs are facing hitch.
2. Install six 3/4" fastener sets (8 & 9) through deck and spindle flange. Torque in star pattern to 85 lbs-ft.
3. Install crossbar assembly (3) and secure with nut (5). Torque to 200 lbs-ft. Install cotter pin (4).
4. Clean any foreign material from mating surfaces of motor (1) and spindle flange (2). Clean with mild abrasive if necessary.

5. Apply 2 pints of gear oil to spindle flange (2).
6. Apply motor (1) with attached hoses (11 & 12) to spindle flange (2).
7. Apply four 1/2" fastener sets (6 & 7) to motor (1) and spindle flange (2). Torque to 85 lbs-ft.
8. Apply hose clamp nut (10) to deck
9. Review safety procedure for mower operation.
10. Attach to tractor. Confirm proper cutting operation.

BLADE ROTATION CHANGE

(See Figure 24)

The motor is designed to provide reverse blade rotation from counter-clockwise (factory setting), to clockwise.

! WARNING

NOTE: Dangers of thrown objects from mowing operation remain when blade rotation is reversed from factory setting. Owner is responsible for being aware of this danger to the operator.

Follow the steps to remove the motor. (See Page 30). In a clean place, change the motor rotation following these steps:

1. Carefully clean outside surface of motor.
2. Protect sharp edges of drive shaft using adhesive tape and apply grease on shaft end to avoid damaging the lip of the shaft seal.
3. Loosen and remove screws, ring, seals and washer (1, 2, 3, & 4).
4. Remove mounting flange (5), taking care to keep the flange as straight as possible during removal while allowing drive shaft and other components to remain in position.
5. Carefully move drive shaft (11) up to permit thrust plate (10) to be removed.
6. Remove driven gear (12), then drive gear (11). Do not rotate gears during this step.
7. Swap gear locations.
8. Replace thrust plate (10).
9. Remove grub screw (14) from mounting flange (5) and re-locate in other threaded hole.
10. Carefully wipe the mounting flange (5) machined surface with a lubricated flat stone.
11. Replace front cover (5), rotating 1/2 turn as shown.
12. Replace ring, seals and washers (2, 3, & 4).
13. Replace screws (1). Tighten in crisscross pattern applying a final torque of 100 lbs-ft.

14. Follow the steps to remove blades. (See Page 20).
15. Inspect spindle flange. Rotate and manipulate shaft assessing soundworthiness of bearings. Consider reworking or replacing spindle flange if audible sounds or excessive bearing play is detected. See paragraph on spindle flange work. (See Page 31).
16. Replace counter-clockwise rotation blades with clockwise rotation blades. See Page 47.
17. Replace motor. (See Page 30). Lubricate spindle flange. (See Page 19).
18. Follow start up procedure and test unit. (See Page 15).

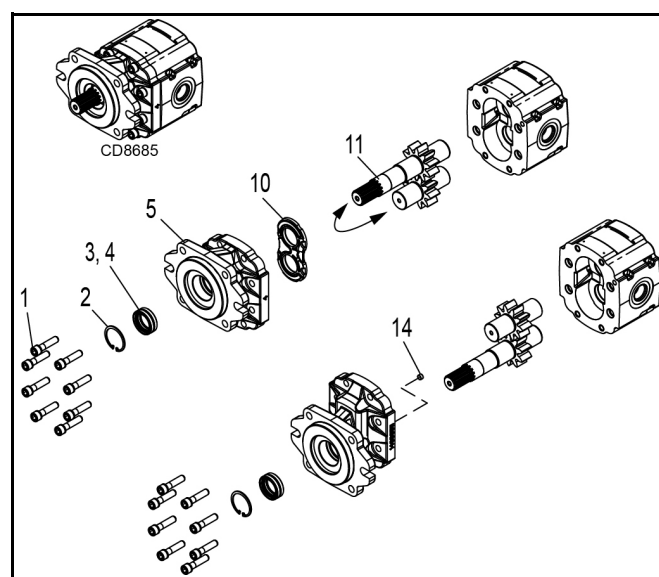


Figure 24. Blade Rotation Change

CROSSBAR

Removal

For crossbar removal, it is necessary to gain access to bottom side of cutter. Raise cutter and securely block up. You may use either puller screw (6) or a small hydraulic jack to remove crossbar. See Figure 25.

Loosen bolts on crossbar clamp. Remove bolt retaining washer by prying washer up and breaking weld. Remove washer and bolt. Remove blades from crossbar (see page 19). Assemble clevises (1) to each end of crossbar, utilizing blade pins, spacers, keyhole plates and blade pin clips.

Position tube assembly (5) with threaded nut toward crossbar. Install pad assembly (4) in nut on square tube assembly.

Bolt square tube assembly to the clevises using 5/8" x 4-1/2" bolts (2). Insert puller screw assembly (6) into square tube assembly (5) and tighten against pad assembly (4) on gear shaft as shown. For best results, strike head of puller screw with a sledge hammer while tightening screw with a wrench. If crossbar has been installed with Loctite, it may be necessary to apply heat (greater than 500°F) to crossbar to break Loctite bond.

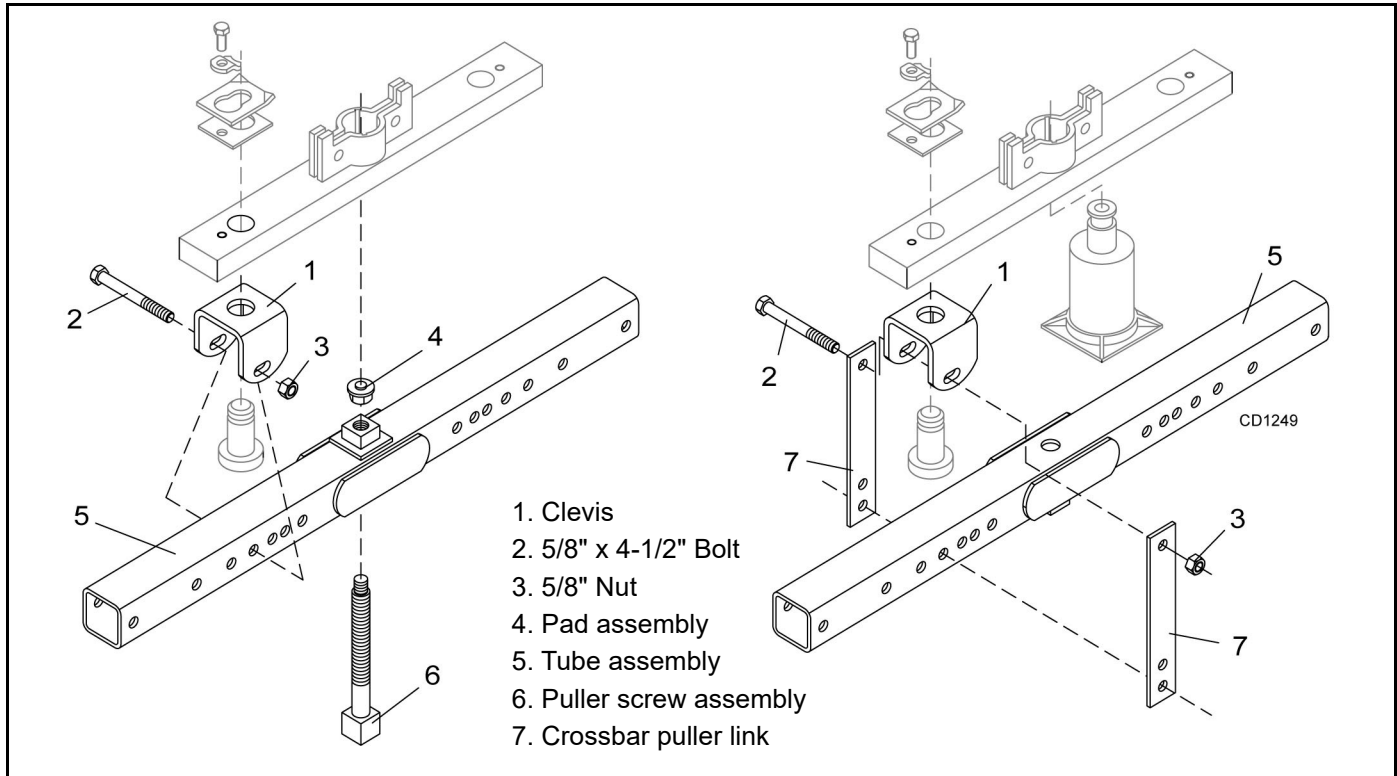


Figure 25. Crossbar Puller

To remove crossbar with hydraulic jack, install the clevis (1) using the blade pin spacers, keyhole plates and bolts to each end of crossbar. Position square tube (5) with threaded nut portion down.

Attach square tube to the clevises using crossbar puller links (7) to space it away from crossbar. Place hydraulic jack on square tube so end of jack presses against end of gearbox shaft. Slowly apply force with hydraulic jack.

NOTE: Hydraulic jack will not operate if tipped more than 90°. It may be necessary to apply heat to break Loctite bond on crossbar. Use caution to prevent bending crossbar when using either removal method.

Installation

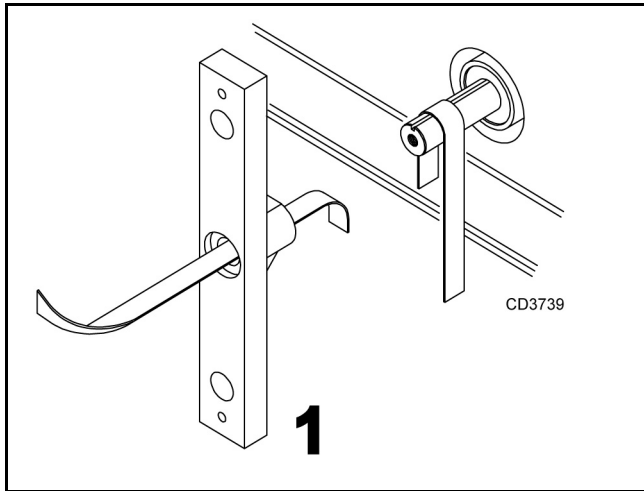


Figure 26.

1. Using emery cloth (220 or finer), remove surface rust and foreign material from hub, splined gearbox vertical shaft, and crossbar. See Figure 26.
2. Install crossbar on splined shaft. Install washer, castle nut and cotter pin. Torque nut to 450 lbs-ft.
3. Install blades. Reinstall using existing hardware. Torque cap screw to 85 lbs-ft.

UNIVERSAL JOINT REPAIR

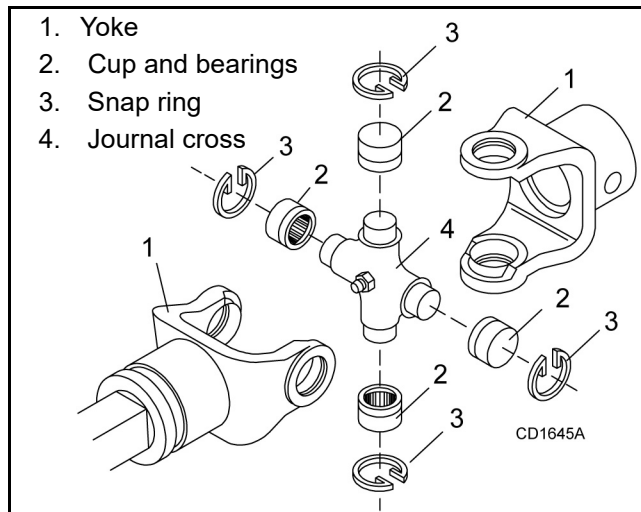


Figure 27. U-Joint Exploded View

U-Joint Disassembly

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

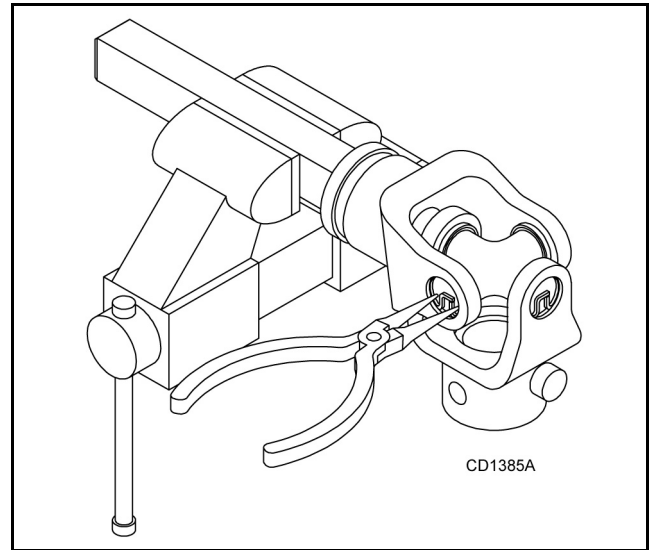


Figure 28.

2. With snap rings removed, support drive in vise, hold yoke in hand and tap on yoke to drive cup out of yoke. See Figure 28.

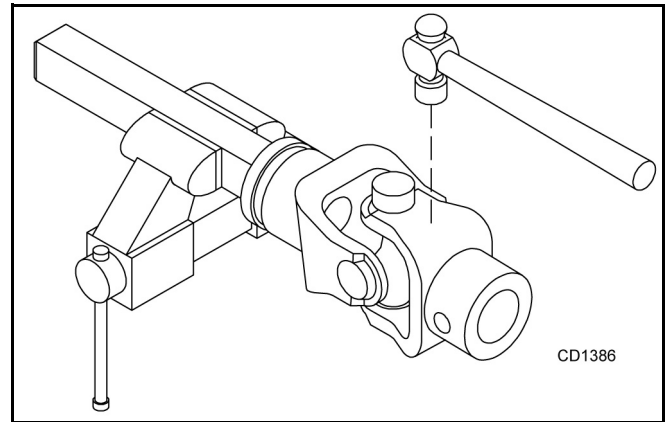


Figure 29.

3. Clamp cup in vise as shown in Figure 29 and tap on yoke to completely remove cup from yoke. Repeat step 2 & step 3 for opposite cup.

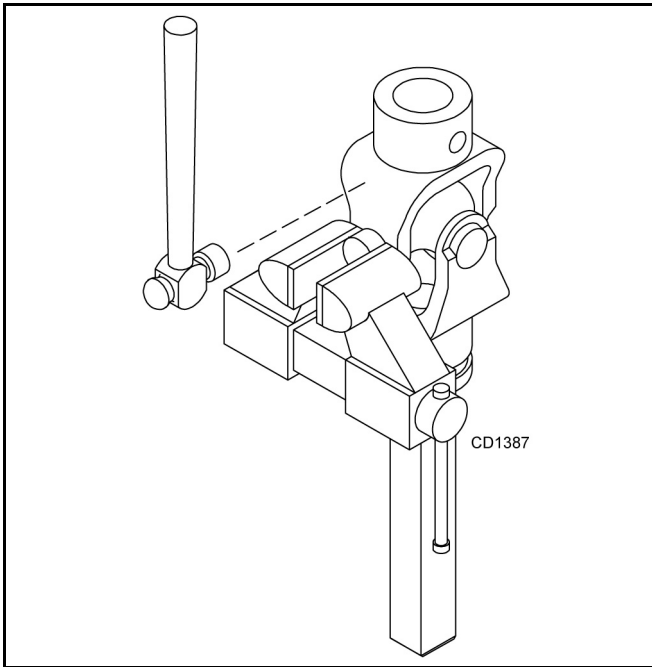


Figure 30.

4. Place universal cross in vise as shown in Figure 30 and tap on yoke to remove cup. Repeat step 3 for final removal. Drive remaining cup out with a drift and hammer.

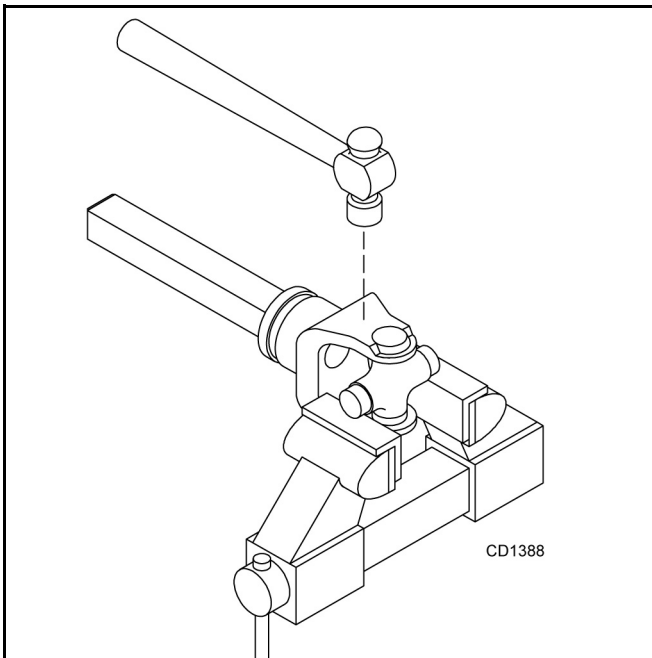


Figure 31.

U-Joint Assembly

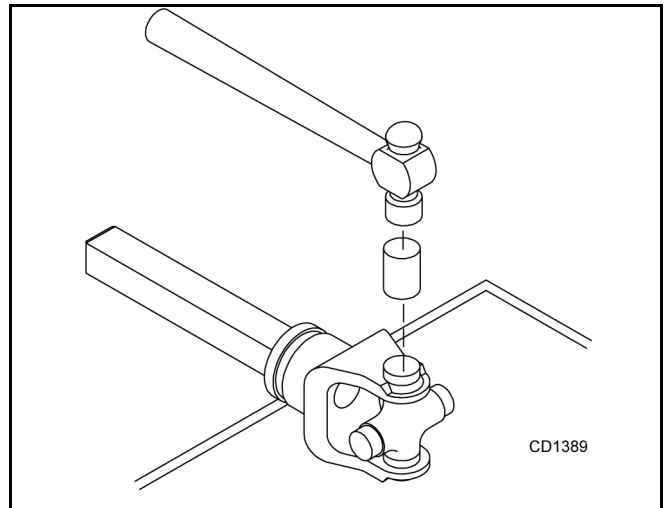


Figure 32.

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 32. 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.

DEALER CHECK LISTS

PRE-DELIVERY CHECK LIST

(DEALER'S RESPONSIBILITY)

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

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

- ___ Check that all safety decals are installed and in good condition. Replace if damaged.
- ___ Check that shields and guards are properly installed and in good condition. Replace if damaged.
- ___ Properly attach implement to tractor and make all necessary adjustments.
- ___ Check all bolts to be sure they are tight.
- ___ Check and grease all lubrication points as identified in "Service".
- ___ Check that blades have been properly installed.

DELIVERY CHECK

(DEALER'S RESPONSIBILITY)

- ___ Instruct customer how to lubricate and explain importance of lubrication.
- ___ Point out the safety decals. Explain their meaning and the need to keep them in place and in good condition. Emphasize the increased safety hazards when instructions are not followed.
- ___ Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.
- ___ Show customer the safe, proper procedures to be used when mounting, dismounting, and storing 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.



ASSEMBLY INSTRUCTIONS

DEALER SET-UP INSTRUCTIONS

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

Recommended torque values for hardware are located on page 56.

Complete check lists on page 35 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 From Pallet

Safety Note: It is recommended that unit be hoisted when moving. If using forklift, 60" min. forks are required, lifting only from deck end of pallet. **DO NOT FORK BELOW HITCH.**

1. Remove drive and chain shielding from pallet.

2. It is necessary to hoist unit using top hitch pin and bracket at motor. (See Figure 33). use rated chains or straps. Remove shipping strap from lower hitch pin and two shipping brackets at deck. Do not lift unit from below hitch as unit is prone to tipping under this condition.
3. Safely remove pallet, lower hitch stand and place unit on solid surface.
4. Remove shipping bracket from motor and discard.

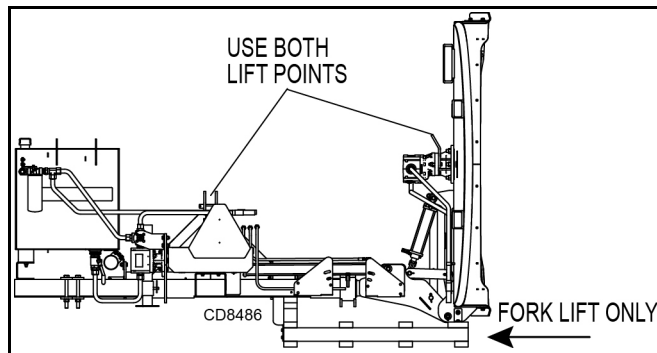


Figure 33. Cutter on Pallet

Chain Shielding

(See Figure 34)

DANGER

■ Full chain shielding must be installed at all times. Thrown objects could injure people or damage property.

- If the machine is not equipped with full chain shielding, operation must be stopped.
- 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 ft (92m).

Chain shielding assemblies are ready for installation when you receive them. (See Figure 34).

1. Install front chain shielding to front of frame using carriage bolts (1) and lock nuts (2).
2. Install rear chain shielding to rear of frame using carriage bolts (1) and lock nuts (2).

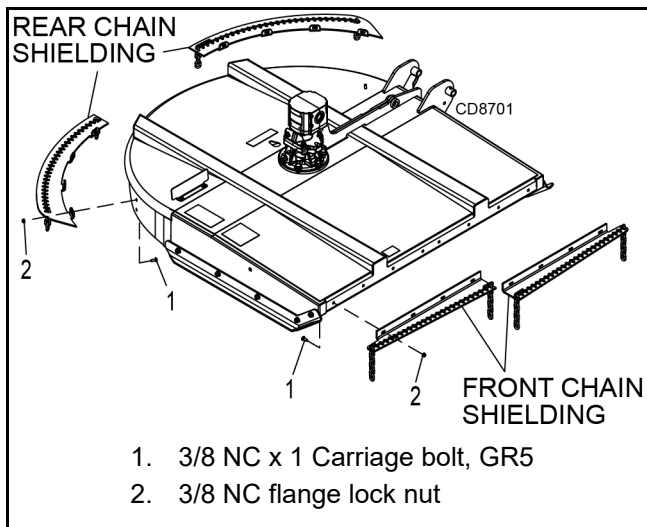


Figure 34. Chain Shielding Installation

Fill Hydraulic Tank

Unit is not shipped from factory with hydraulic oil. Remove tank cap and fill tank using type "A" or "F" automatic transmission fluid. Tank capacity is 35 gallons. Fill to within 5" of dip stick bottom. Based on ambient temperatures, the following motor oils may be used:

SAE 30-30W for temperatures above 90°F

SAE 20-20W for temperatures 35°F to 90°F

SAE 10-10W for temperatures below 35°F

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 deck flex cylinder hose and two extension cylinder hoses to the appropriate tractor ports. Hydraulic quick couplings are supplied.

NOTE: Always assume it is empty. Fully purge air and fill the hydraulic system by raising and lowering the deck plus extending and retracting the extension several times each while hooked to a tractor hydraulic sys-

tem. Keep all personnel away while raising and lowering.

Driveline

Drivelines for 540 and 1000 RPM tractors are unit ready. Attach outer sleeve to tractor.

! WARNING

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

■ **Operate tractor PTO at 540 RPM (1000 RPM on Q Series cutters). Do not exceed.**

! 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.**

Counter Balance

(See Figure 35)

Woods Ditch Bank Cutter can accommodate a variety of suitcase weights. Refer to Figure 35 to understand the application. Four counter balance bars (1) are provided with five 3/4" fastener sets (2 & 3) to secure one weight as shown. A fifth fastener set is provided to secure 2 to 3 additional weights to the first.

1. Remove four bars (1) and five fasteners (2 & 3) from hitch. A fastener set is located at the top hitch pin hole.
2. Place a single suitcase weight upon the hitch as shown. Position the weight such that a maximum distance is attained from all hydraulic components.
3. Attach four bars (1) with four fastener sets (2 & 3) to weight and hitch as shown. Torque to proper specifications stated in the back of this manual.
4. Stack 2 to 3 additional weights upon first weight as clearance allows.
5. Using fifth fastener set (2 & 3), secure all weights together as shown. Torque to proper specifications stated in the back of this manual.
6. Make sure all suitcase weights are secure and will not shift under operation. Re-tighten after first hour of service.

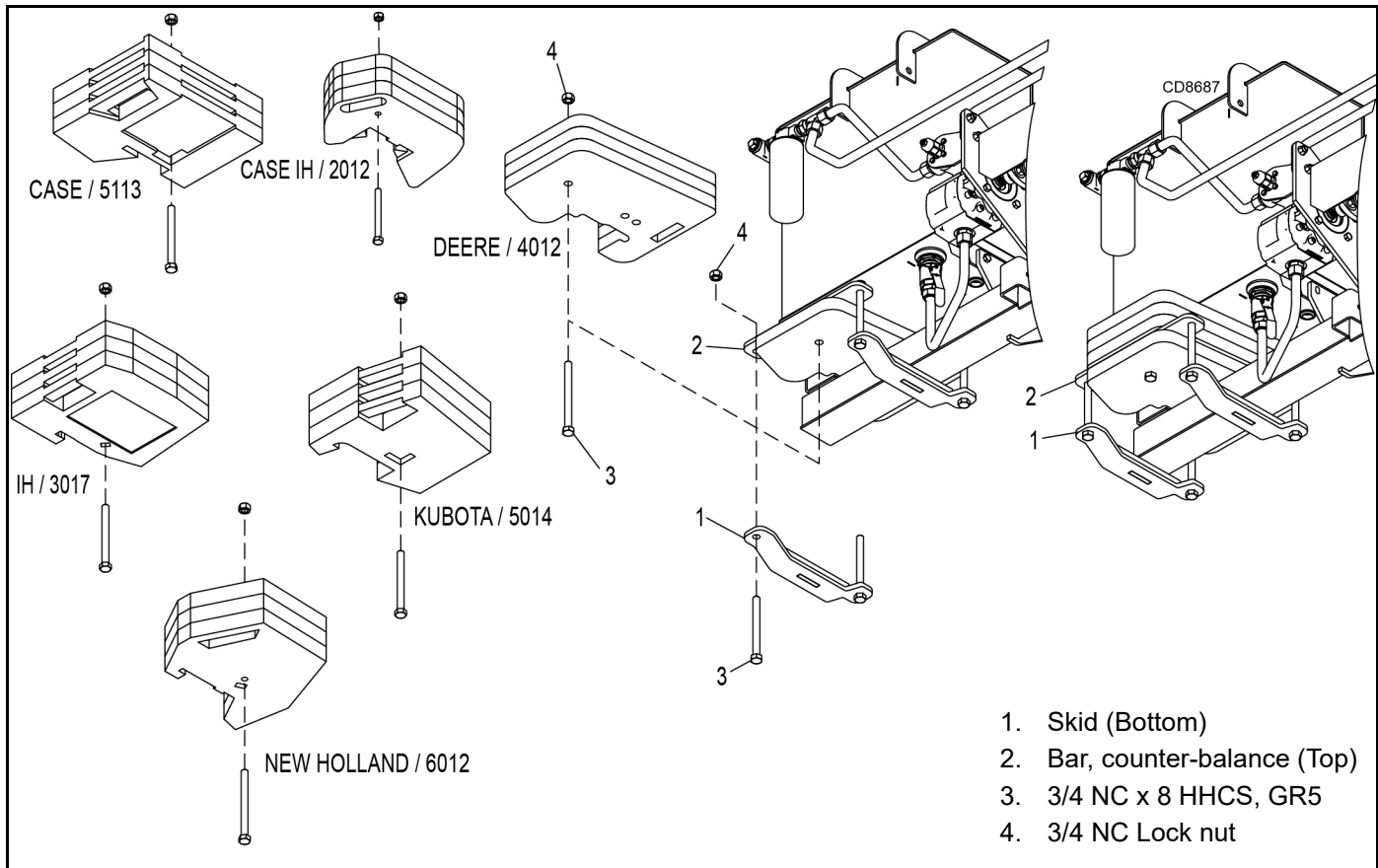


Figure 35. Counter Balance Weight Assembly

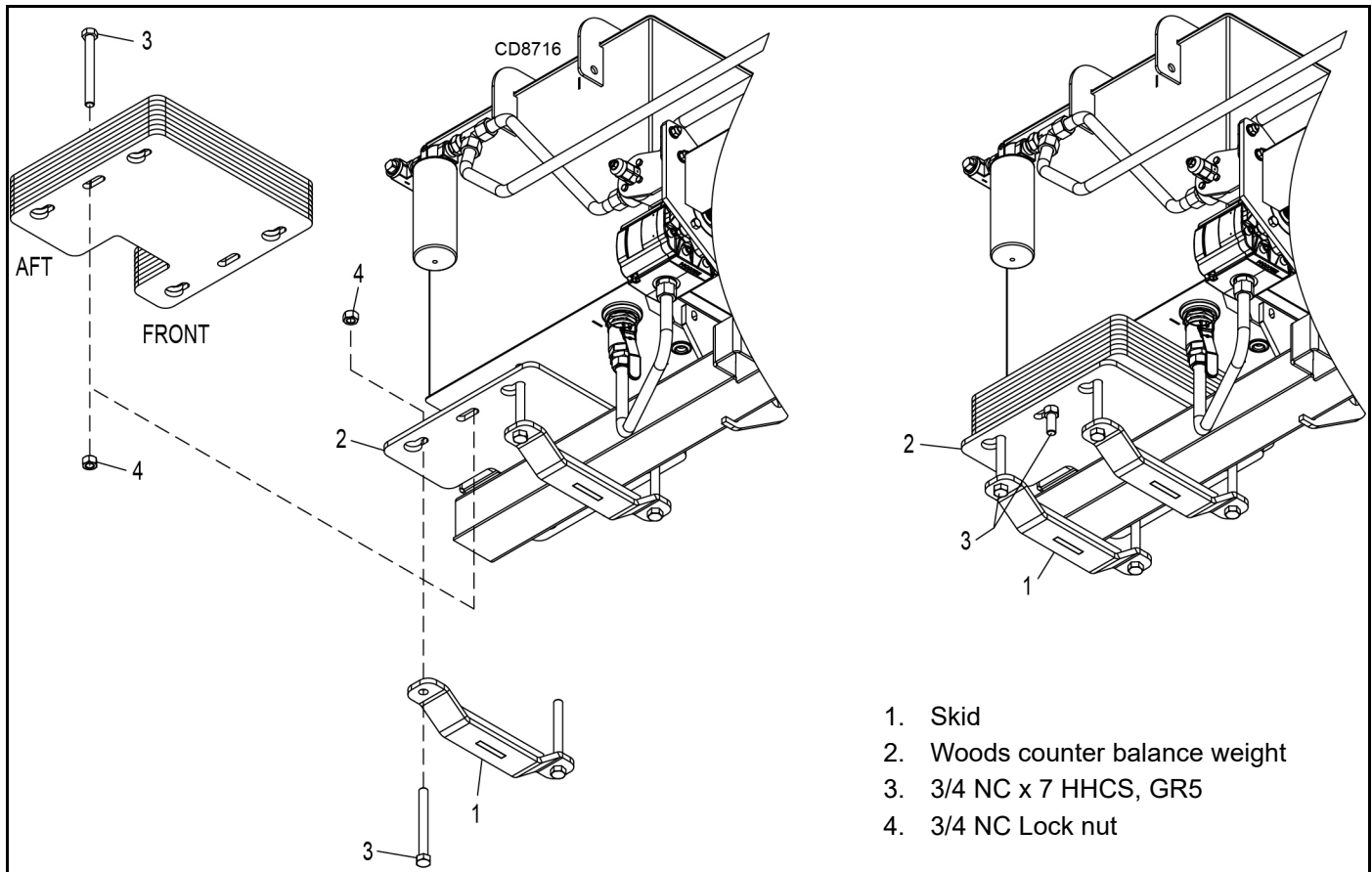
Woods Counter Balance (Optional)

(See Figure 36)

Counter balance weights are supplied as an accessory using counter balance kit, part number 1045138. Refer to Parts section. Weights are required to shift the attachment center of gravity towards the center of the hitch. Operators are to be aware of tractor stability when deck is fully extended. (Refer to Figure 36 to understand the application). Two skids (1), nine Woods counter balance plates (2) and six 3/4" cap screws (3) and lock nuts (4) are provided.

1. Place a single weight (2) upon the hitch as shown.
2. Clamp first weight (2) and skids (1) to hitch using cap screws (3) and lock nuts (4).
3. Stack remaining weights on top of first weight. Position weights to the right allowing cap screw (3) and lock nut (4) clearance thru left side of hole profile.
4. Clamp weight stack to the first weight using cap screw (3) and lock nuts(4).

Additional counter balance weights are available using part number 1045139. Refer to Parts section.



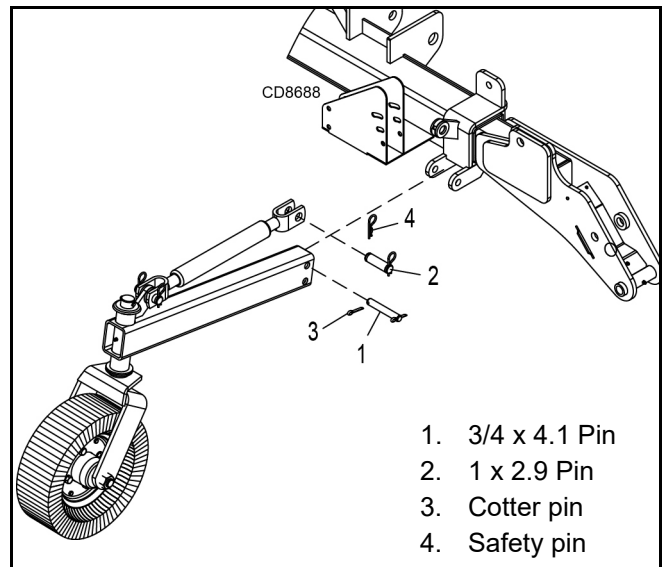
1. Skid
2. Woods counter balance weight
3. 3/4 NC x 7 HHCS, GR5
4. 3/4 NC Lock nut

Figure 36. Woods Counter Balance

Tail Wheel (Optional)

(See Figure 36)

1. Place 1 x 2.9 pin (2) from tail wheel ratchet thru top hitch hole. Secure with safety pin (4).
2. Place 3/4 x 4.1 tube pin (1) thru bottom lugs. Secure with cotter pin (3).
3. Adjust tail wheel ratchet as needed to accommodate level deck operation. See page 15.



1. 3/4 x 4.1 Pin
2. 1 x 2.9 Pin
3. Cotter pin
4. Safety pin

Figure 36. Tail Wheel Installation

Gage Wheel (Optional)

(See Figure 37)

Gage wheel is applied to right (and optionally the left) side of 5 or 6 foot deck.

1. Remove tab from right (left) side of deck side frame as shown.
2. Using four 1/2" fastener sets, attach gage wheel to side of deck as shown.
3. Adjust wheel height up or down 2" by relocating axle into provided holes.

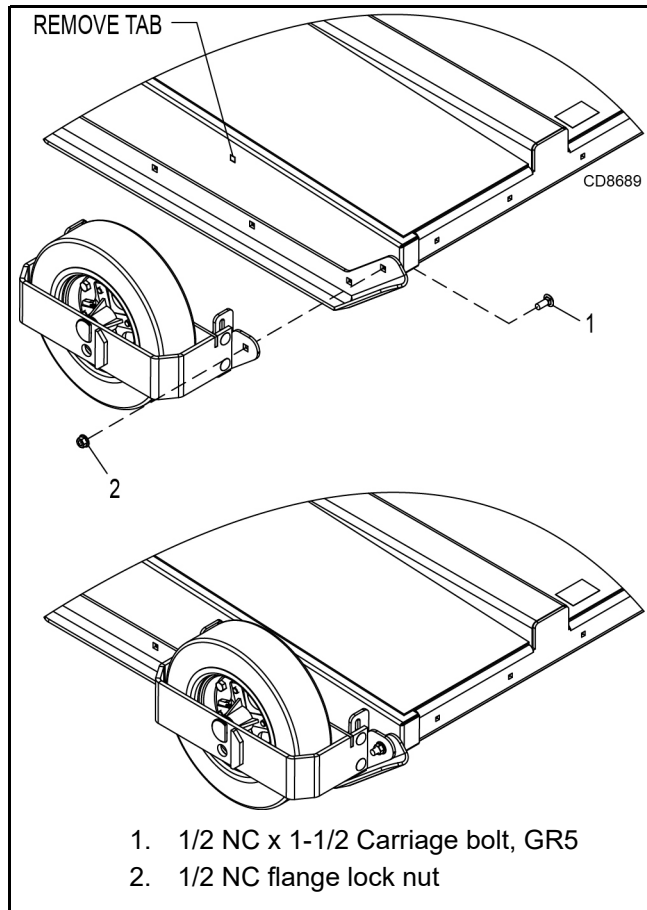


Figure 37. Gage Wheel Installation

Cooler Installation (Optional)

(See Figures 38 & 39)

Cooler option is an available upgrade designed to keep hydraulic oil below 170°F during heavy cutting. Cooler option mounts to the implement and draws electric power from the tractor 7 way plug. Fusing for 17 amp draw is necessary. Cooler crate option is sold under part number 1041830CRT.

NOTE: For this instruction, Right and Left are established facing the tank inlet.

1. Draining the tank is not necessary but precautions should be taken to capture a small amount of hydraulic oil.

2. Unclamp the hose from motor at the hose support above the gearbox.
3. Loosen JIC of bypass hose connection at the bypass valve and remove from tee.
4. Remove JIC of tee at filter. Hose from motor to stay with tee.
5. Remove fasteners of filter bracket at tank and filter. Retain fasteners, discard bracket.
6. Remove filter with adapter (right) and tee (left) from tank. Tee is pipe threaded.
7. Remove tee from filter and plug from tee. Discard plug.

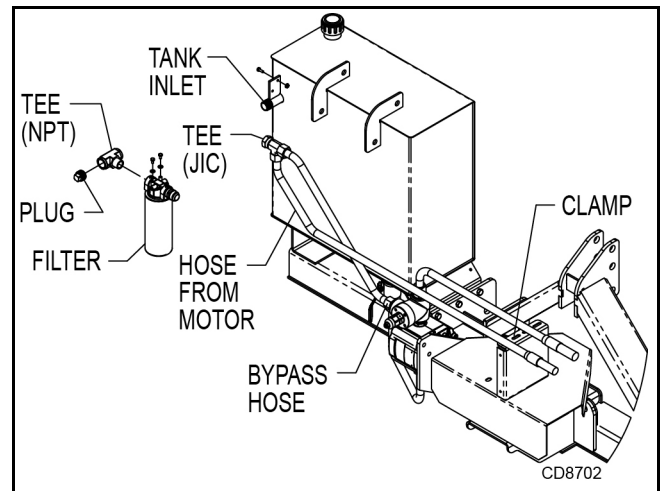


Figure 38. Cooler Pre-Installation

8. Attach JIC tee with hose to filter at adapter (right) as shown. Keep connection loose.
9. Attach tee (15) to tank. Use teflon tape on all male pipe threads. Tighten tee so hat run is vertical as shown.
10. Attach pipe (13) below and adapter (20) above as shown. Tighten.
11. Attach elbow (14) to pipe below and valve (17) as shown. Tighten so that valve points away from tank.
12. Attach elbow (14) to valve and pipe (13) above as shown. Tighten so that pipe is pointing upwards.
13. Attach tee (16) from step 6 to pipe and adapter (20) above. Tighten so that branch points right.
14. Attach filter from step 7 to tee (16).
15. Attach hose from step 4 to filter at adapter.
16. Attach bracket (8) using fasteners from step 5 to tank and filter.
17. Loosely attach brackets (9) to tank using fasteners (2 & 3).
18. Attach adapters (12) to cooler (7) as shown. Tighten.

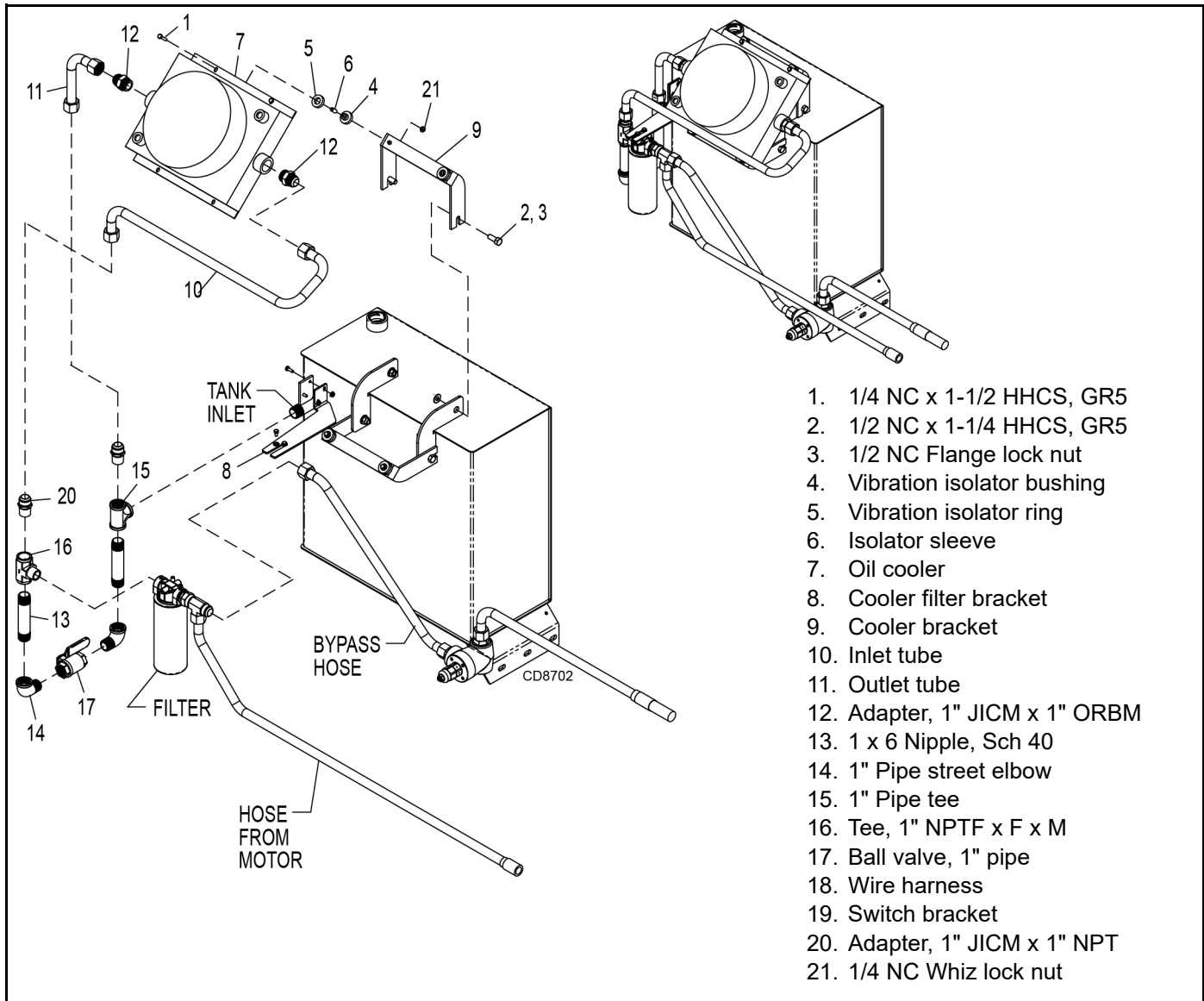


Figure 39. Cooler Installation

19. Loosely attach inlet and outlet tubes (10 & 11) to cooler as shown.
20. Loosely attach cooler and tube assembly to adapters (20). Inlet tube (10) attaches to aft adapter, outlet tube (11) attaches to inner adapter.
21. Adjust cooler and brackets (9) so that bracket holes align with cooler at all four places.
22. Assemble four vibration isolators (4 & 5) with sleeve (6). Attach at four cooler to bracket hole locations with four fastener sets (1 & 21) as shown. It may be necessary to rotate brackets and partially loosen inlet and outlet tube connections so that all fasteners can be inserted.
23. Tighten four fasteners (1 & 21) so that isolation is maintained between bracket and cooler.
24. Tighten all JIC connections.

25. Attach hose from motor clamp from step 2 to hose support above gearbox.
26. Attach bracket (19) to switch on wire harness (18). Bracket/switch should be installed to owners preferred location.
27. Plug 7 way connection to tractor. **Note:** Fuse for 17 amp draw. Switch on cooler fan. Operating direction is up and away from tank. Reverse direction as necessary to blow away material from back of cooler.
28. Check oil level in tank. Fill if necessary so that level is 5" from bottom of dip stick.

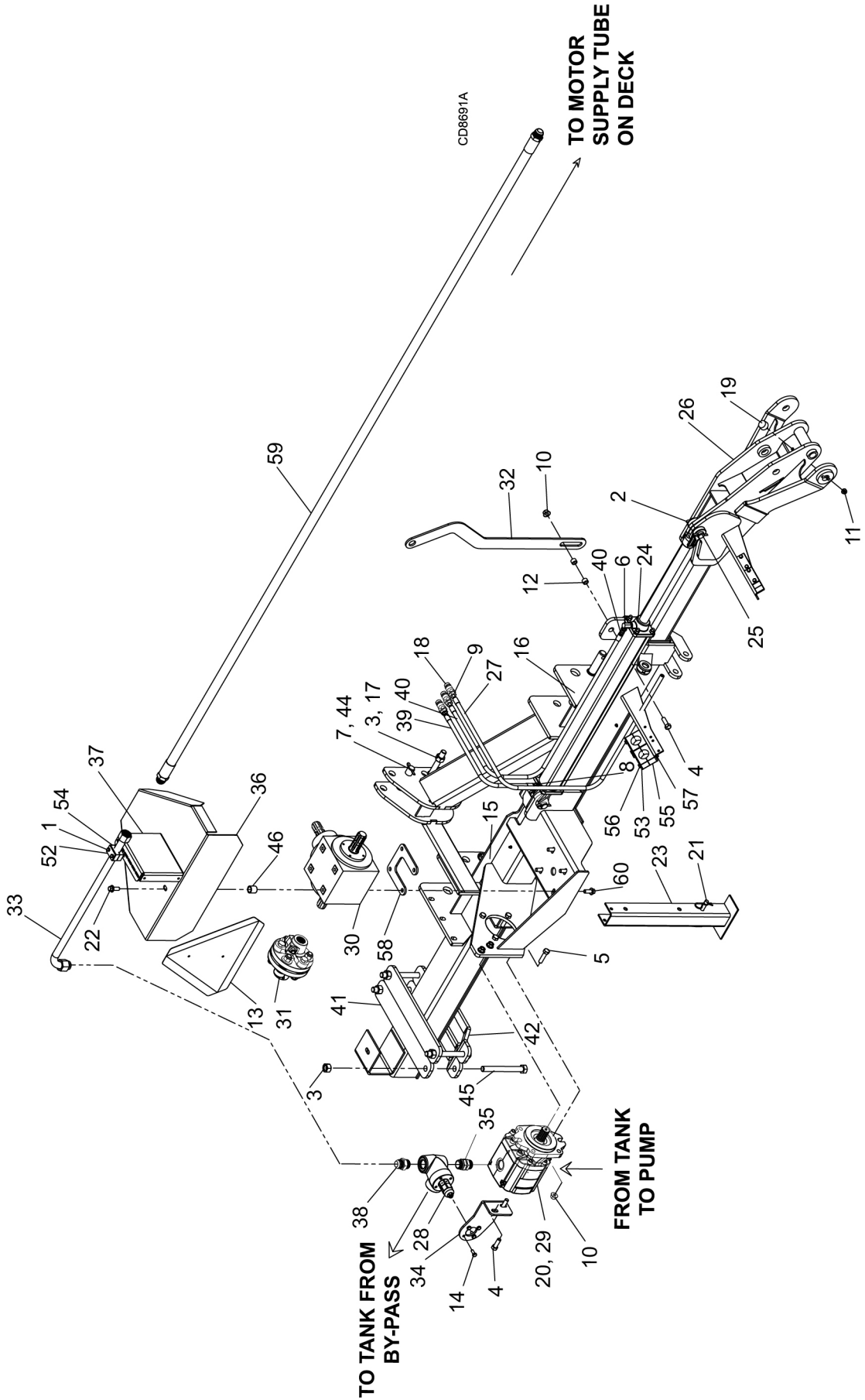
NOTE: Do not operate cooler when oil temperature is below 50°F. Open bypass valve (17) allowing fluid flow into tank during cold starts. Operate cooler fan once temperature is above 50°F. Close bypass valve (17) to direct all fluid into cooler.

NOTES

**Rotary Cutters:
DBH5.31, DBH6.31
DBH5.31Q, DBH6.31Q**

MAIN FRAME ASSEMBLY	44
CUTTER HEAD SECTION ASSEMBLY	46
HYDRAULIC TANK ASSEMBLY	48
GEARBOX ASSEMBLY	49
DRIVE ASSEMBLY	50
CHAIN SHIELDING ASSEMBLY	51
GAUGE WHEEL ASSEMBLY (OPTIONAL)	52
PUMP & MOTOR	53
FLEXIBLE DRIVE COUPLER	53
TAILWHEEL ASSEMBLY (OPTIONAL)	54
OIL COOLER ASSEMBLY (OPTIONAL)	55
COUNTER BALANCE KIT (OPTIONAL)	56
COUNTER BALANCE WEIGHT KIT (OPTIONAL)	56

MAIN FRAME ASSEMBLY

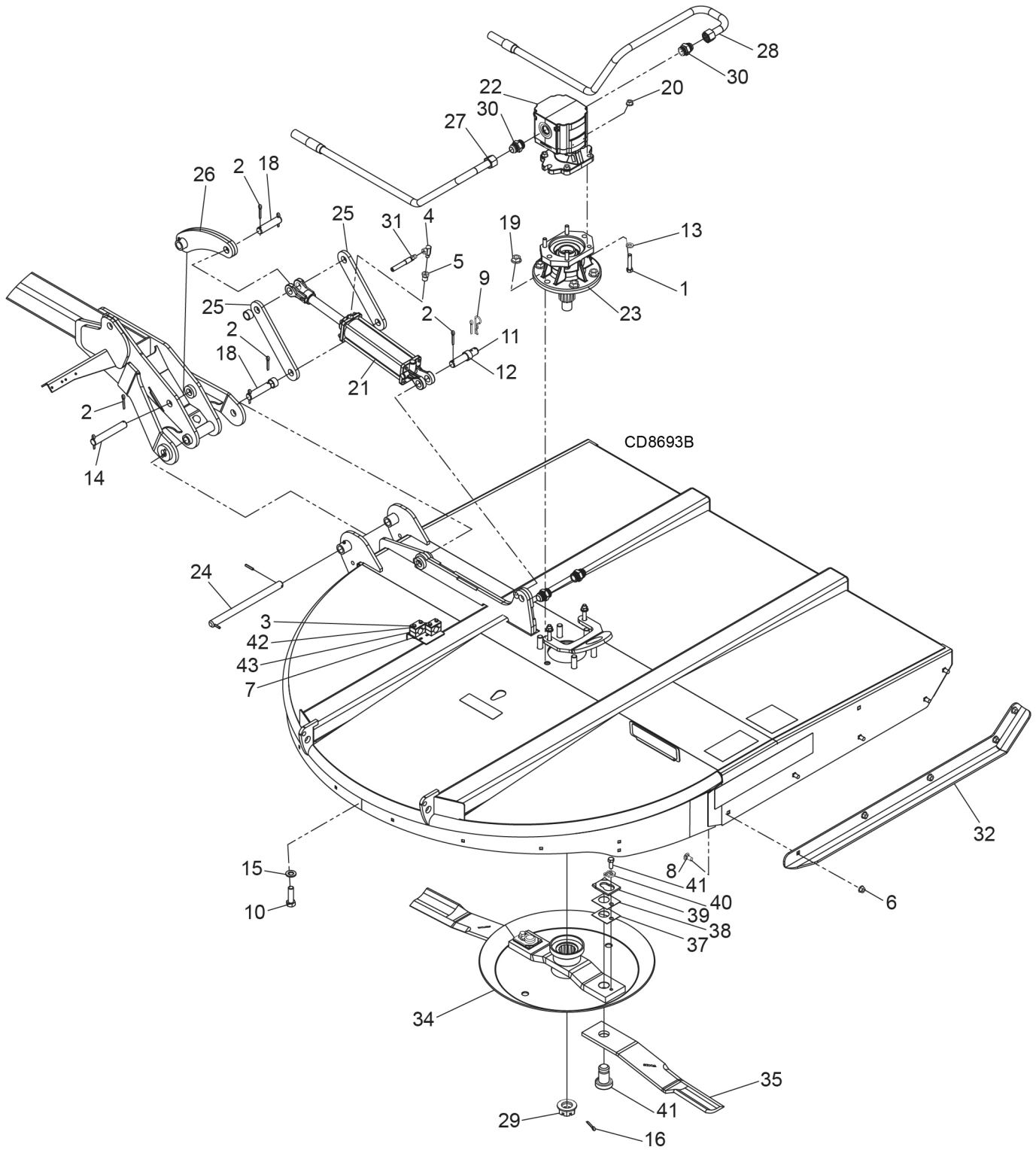


44 Parts

MAIN FRAME ASSEMBLY

REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	22348 *	8	1/4 NC x 2 HHCS, GR5	31	599244	1	Flexible drive coupler
2	1285 *	4	1/4 x 1-1/2 Cotter pin	32	1041546	1	Transport lock-up bar
3	2371 *	4	3/4 NC Lock nut	33	602746	1	Pump pressure tube
4	3379 *	3	1/2 NC x 1-1/2 HHCS, GR5	34	1043883	1	Bypass bracket
5	3699 *	4	1/2 NC x 2 HHCS, GR5	35	1041817	1	Adapter, 1" O-ring adj.
6	8151	1	3/8 x 1/4 x 90° Swivel elbow	36	1043888	1	Gearbox shield
7	8347	1	1.0 x 5.08 Headless pin	37	603052RP	1	Hose support
8	8573	1	1/4 NPTF x 3/8 NPTM Reducing bushing	38	1042380	1	Adapter, 1" JICM x 1" ORBM
9	W11893	3	1/4 NPTF x 1/2 NPTM Reducing bushing	39	1042386	1	Hose, 48" 1/4 NPT x 1/4 NPT
10	11900 *	7	1/2 NC Flanged hex lock nut	40	1042387	1	Hose, 84" 1/4 NPT x 9/16 JICF 90°
11	14350RP *	1	3/8 NC Flanged hex lock nut	41	1043890	2	Counter balance bar
12	22086	2	1/2 x 3/4 x 1/2 Sleeve	42	1045137	2	Skid
13	24611	1	SMV Emblem	44	18270	1	3/16 Safety pin
14	24801	4	M8-1.25P x 20 mm HHCS	45	12410	4	3/4 NC x 7 HHCS, GR5
15	27542 *	2	7/16 x 2 Klik pin	46	62626RP	4	Sleeve
16	39064	2	Hitch pin, CAT 2 & 3	47		1	M12-1.75P x 75 mm HHCS
17	39160	1	3/4 NC x 8 HHCS, GR5	48		1	M12-1.75P Lock nut
18	66511	3	1/2 NPT Male coupler	49	1045131	1	Complete decal set
19	W71444	1	Rubber bumper	50	1045132	1	Safety decal set
20	1045124	1	Pump/Motor seal kit	51	1045133	1	Spanish safety decal set
21	W100181	1	1/2 x 3 Bent pin with clip	52	603054RP	4	2" clamp cover
22	1028336	4	M12-1.75P x 30 mm HFS, CL10.9	53	603053RP	6	2.75" clamp cover
23	1036516RP	1	Parking stand	54	602751	4	1" Hose clamp cushion
24	1039044	1	Hydraulic cylinder, 2 x 30	55	602752	4	1.5" Hose clamp cushion
25	1039550	2	1.0 x 2.43 Pin	56	603058 *	8	1/4 NC x 3 HHCS, GR5
26	1039625RP	1	Extension frame	57	62521 *	16	1/4 NC Flange lock nut
27	8669	1	Hose, 156" x 1/4NPTF x 1/4 NPTF	58	599245RP	1	Spacer plate
28	1041523	1	Pressure relief valve, 4,000 PSI	59	602750	2	Hose, 133 1 JICM x 1 JICM
28A	1045113	1	Valve body	60	1028293 *	4	M12 - 1.75P X 35mm HFS CL10.9
28B	1045114	1	Valve cartridge				
29	1041525	1	Hydraulic pump, 6.65				
30	1045127	1	Gearbox 1:1.35 (DBH5.31 & DBH6.31) -OR-				* Standard Hardware, Obtain Locally
30	1045126	1	Gearbox 1.35:1 (DBH5.31Q) -OR-				HHCS Hex Head Cap Screw
30	1045125	1	Gearbox 1.46:1 (DBH6.31Q)				HFS Hex Flange Screw

CUTTER SECTION ASSEMBLY



46 Parts

(Rev. 7/18/2019)
MAN1248 (2/26/2018)

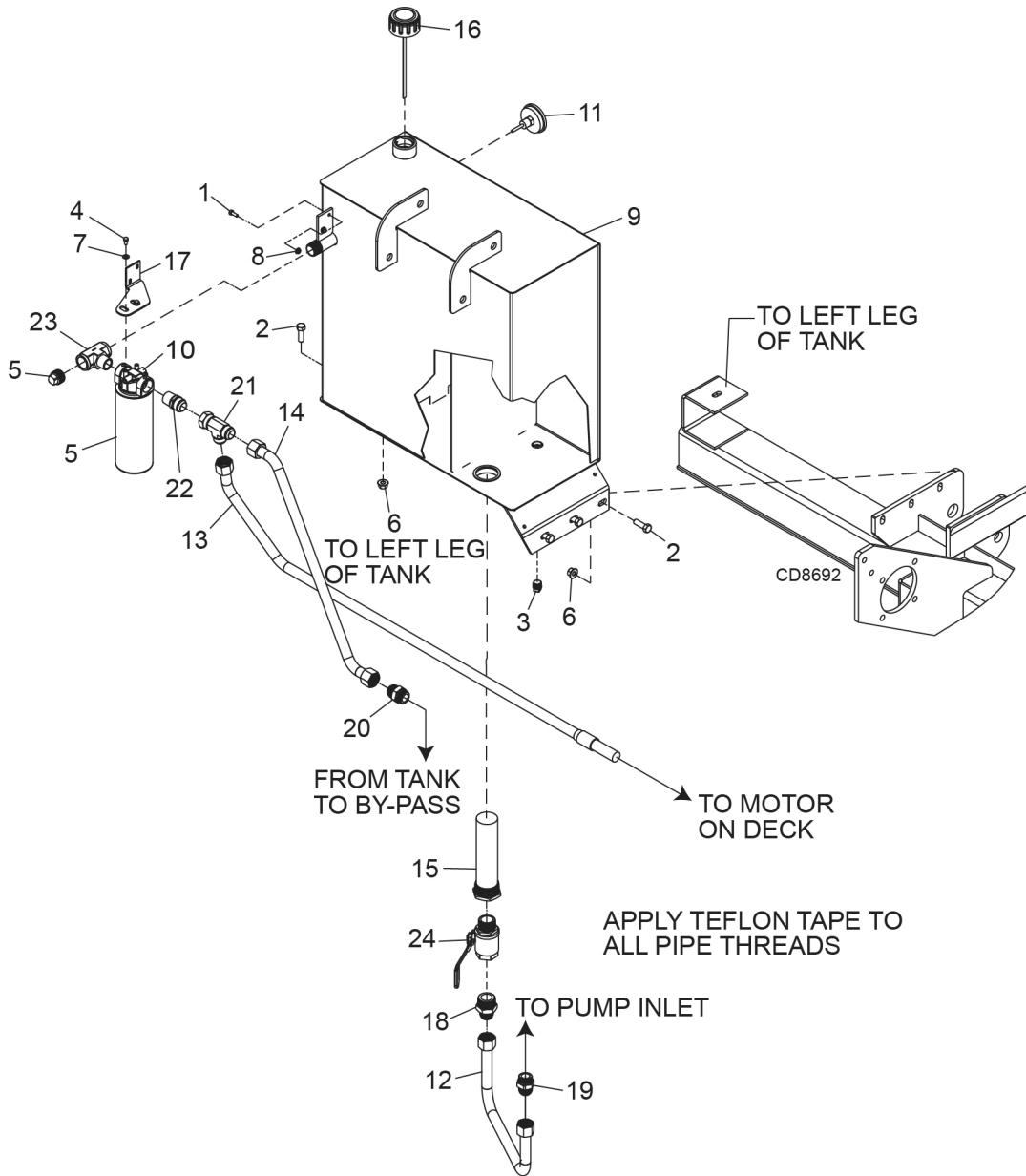
CUTTER SECTION ASSEMBLY

REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	639 *	4	1/2 NC x 2-1/2 HHCS, GR5	26	603476RP	1	Linkage at hitch
2	1285 *	8	1/4 x 1-1/2 Cotter pin	27	602749	1	Motor supply tube
3	22348	4	1/4 NC x 2 HHCS, GR5	28	602747	1	Motor return tube
4	10290	1	1/4 x 1/4 90° Elbow w/1/16 restrictor	29	1019606	1	Castle nut, M36
5	62521	1	1/4 NPTF x 3/4 ORB Reducing bushing	30	1042380	2	Adapter, 1" JICM x 1" ORBM
6	11900 *	10	1/2 NC Flanged hex lock nut	31	8669	1	Hose, 156" 1/4 NPTF x 1/4 NPTF
7	62521	4	1/4 NC Flange lock nut	32	1043894	1	Right skid, (DBH5.31) -OR-
8	14406 *	10	1/2 NC x 1 Carriage bolt	32	1043896	1	Right skid, (DBH6.31)
9	18270 *	1	3/16 Safety pin	33	1043895	1	Left skid, (DBH5.31) -OR-
10	30068 *	6	3/4 NC x 2-1/2 HHCS, GR5	33	1043897	1	Left skid, (DBH6.31)
11	32469	1	1 x 5.0 Lock up pin	34	1043892	1	Crossbar, (DBH5.31) -OR-
12	33647	3	Spacer, 3/4	34	1043887	1	Crossbar, (DBH6.31)
13	57816	4	1/2 SAE Flat washer	35	1043260KT	1	Blade kit, 1/2 x 4 x 25 CCW -OR-
14	53920	1	1.0 x 5.84 Pin	35	1043261KT	1	Blade kit, 1/2 x 4 x 25 CW
15	57798	6	3/4 Hardened flat washer	36	6100 *	2	1/2 NC x 1-1/4 HHC, GR5
16	64803 *	1	3/16 x 2 Cotter pin	37	10520RP	2	Blade shim, 18 Ga
17	66016 *	2	1/4 x 1-1/2 Spring pin	38	13946RP	2	Blade shim, 20 Ga
18	83461	2	Pin, Hdls 1.00 x 4.58	39	32603	2	Keyhole plate
19	W302207	6	3/4 NC Flanged lock nut	40	32604RP	2	Blade pin lock clip
20	1028903	4	1/2 NC Flanged hex lock nut, GR8	41	1009199	2	Blade pin
21	597275	1	Hydraulic cylinder, 3.5 x 10	42	603054RP	2	2" clamp cover
22	1041526	1	Hydraulic motor, 4.5	43	602751	2	1" hose clamp cushion
23	1041529	1	Spindle flange				
23A	1045121	1	Bearing				
23B	1045123	1	Seal protector				
24	603677RP	1	Pin, Hdls 1.00 x 15.75				
25	1043876	2	Linkage at deck				

* Standard Hardware, Obtain Locally

HHCS Hex Head Cap Screw

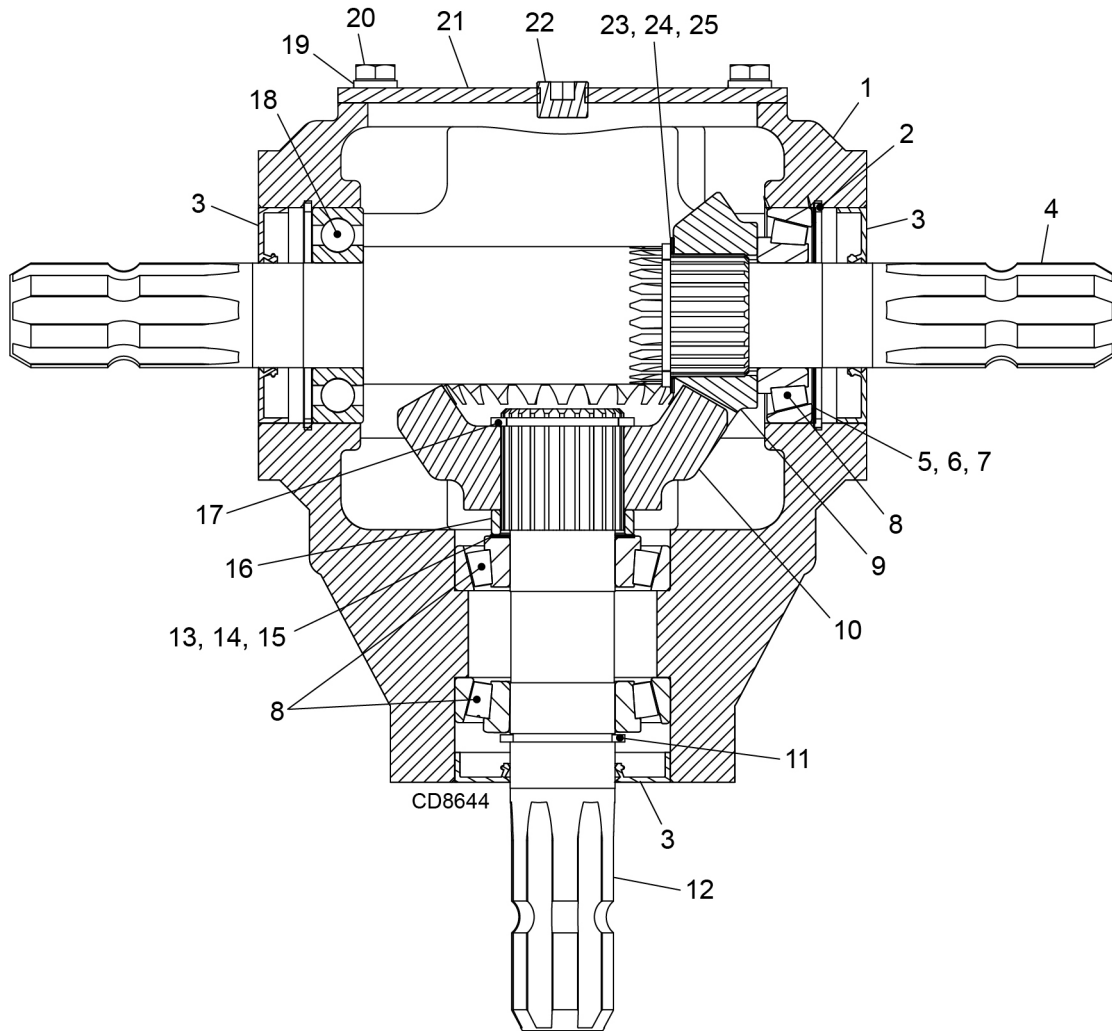
HYDRAULIC TANK ASSEMBLY



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	2457 *	2	1/4 NC x 3/4 HHCS, GR5	15	1041645	1	Strainer, tank mounted
2	3379 *	4	1/2 NC x 1-1/2 HHCS, GR5	16	1041647	1	Cap, breather
3	4510	1	1/2 Pipe plug	17	1043880	1	Filter bracket
4	5337 *	2	1/4 NC x 1/2 HHCS, GR5	18	1042378	1	Adapter, 1" JICM x 1-1/4 NPTM
5	1045112	1	Oil filter	19	1042379	1	Adapter, 1" JICM x 1-1/4 ORBM
6	11900 *	4	1/2 NC Flange hex lock nut	20	1042380	1	Adapter, 1" JICM x 1" ORBM
7	35155 *	2	5/16 SAE Flat washer	21	1042392	1	Adapter, Tee, 1" JIC M, M, F
8	62521 *	2	1/4 NC Flange hex lock nut	22	1042393	1	Adapter, 1" JICM x 1" NPTM
9	1039138RP	1	Hydraulic tank	23	1042400	1	Adapter, Tee, 1" NPT F, F, M
10	1045111	1	Oil filter head	24	1043240	1	Ball valve, 1-1/4 pipe
11	1040852	1	Temperature gauge				
12	1041640	1	Pump supply hose				
13	1041642	1	Tank return tube				
14	1041643	1	Bypass hose				

* Standard Hardware, Obtain Locally
 HHCS Hex Head Cap Screw

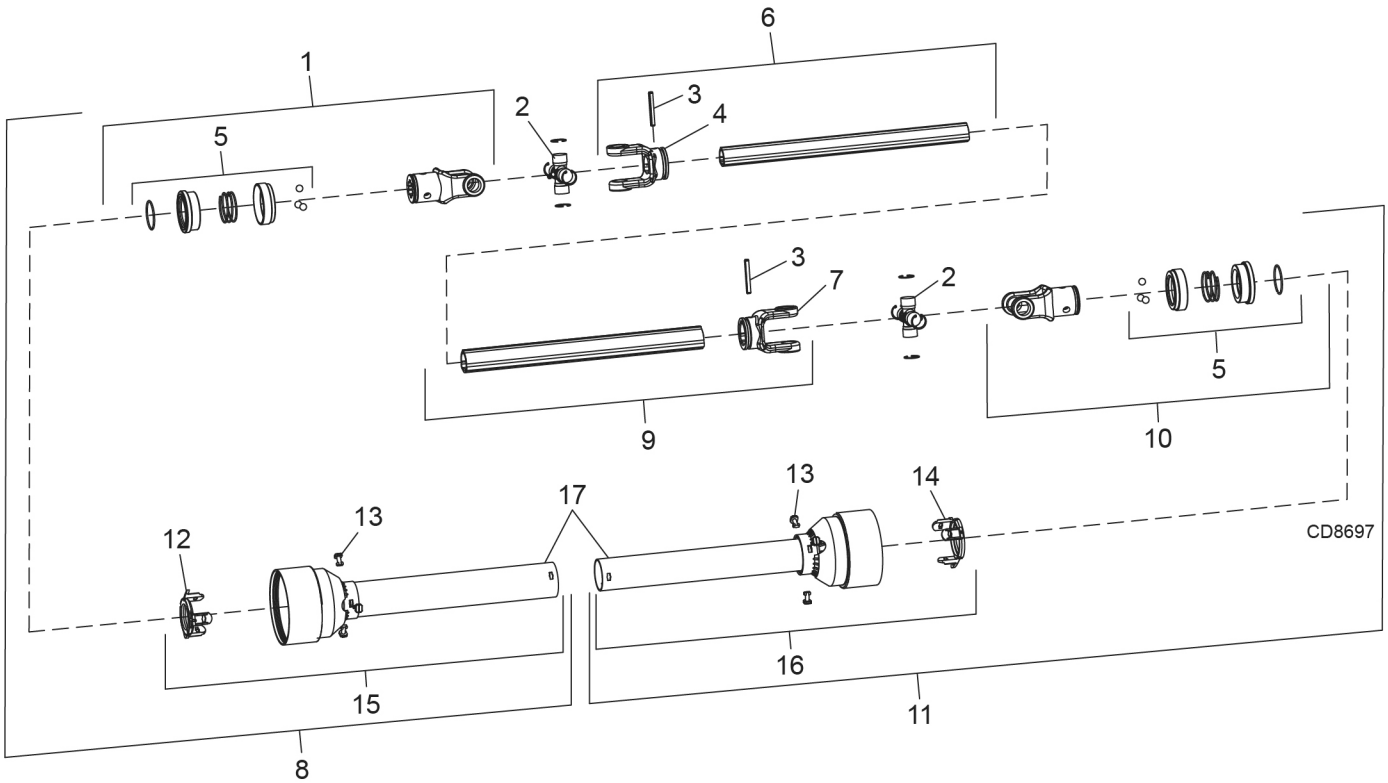
GEARBOX ASSEMBLY



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
A	1045127	1	Complete gearbox, (DBH5.31 & DBH6.31)	13	NSS	A/R	Shim, 35.25 x 48 x .25
B	1045126	1	Complete gearbox, (DBH5.31Q)	14	NSS	A/R	Shim, 35.25 x 48 x .5
C	1041525	1	Complete gearbox, (DBH6.31Q)	15	NSS	A/R	Shim, 35.25 x 48 x 1.0
1	NSS	1	Gearbox housing	16	NSS	1	Spacer, 41.5 x 47.5 x 8.3
2	NSS	2	Retaining ring	17	NSS	2	Snap ring, 40 x 2.5
3	1032401	3	Seal, 35 x 72 x 10	18	20890	1	Ball bearing, 6207
4	NSS	1	Through shaft	19	NSS	4	M8 Lock washer
5	NSS	A/R	Shim, 62 x 72 x .25	20	NSS	4	M8-1.25P x 16mm HHCS
6	NSS	A/R	Shim, 62 x 72 x .5	21	NSS	1	Cover
7	NSS	A/R	Shim, 62 x 72 x 1.0	22	27326	1	3/8 NPT Solid plug
8	1032448	3	Tapered roller bearing, 30207	23	NSS	A/R	Shim, 42.25 x 51.75 x .25
9A	NSS	1	15T Gear, (DBH5.31 & DBH6.31)	24	NSS	A/R	Shim, 42.25 x 51.75 x .5
9B	NSS	1	23T Gear, (DBH5.31Q)	25	NSS	A/R	Shim, 42.25 x 51.75 x 1
9C	NSS	1	22T Gear, (DBH6.31Q)	26	39325	1	3/8 Vent plug (Not shown)
10A	NSS	1	23T Gear, (DBH5.31 & DBH6.31)				
10B	NSS	1	17T Gear, (DBH5.31Q)				
10C	NSS	1	15T Gear, (DBH6.31Q)				
11	NSS	1	Snap ring, 35 x 2.5				
12	NSS	1	Input shaft				

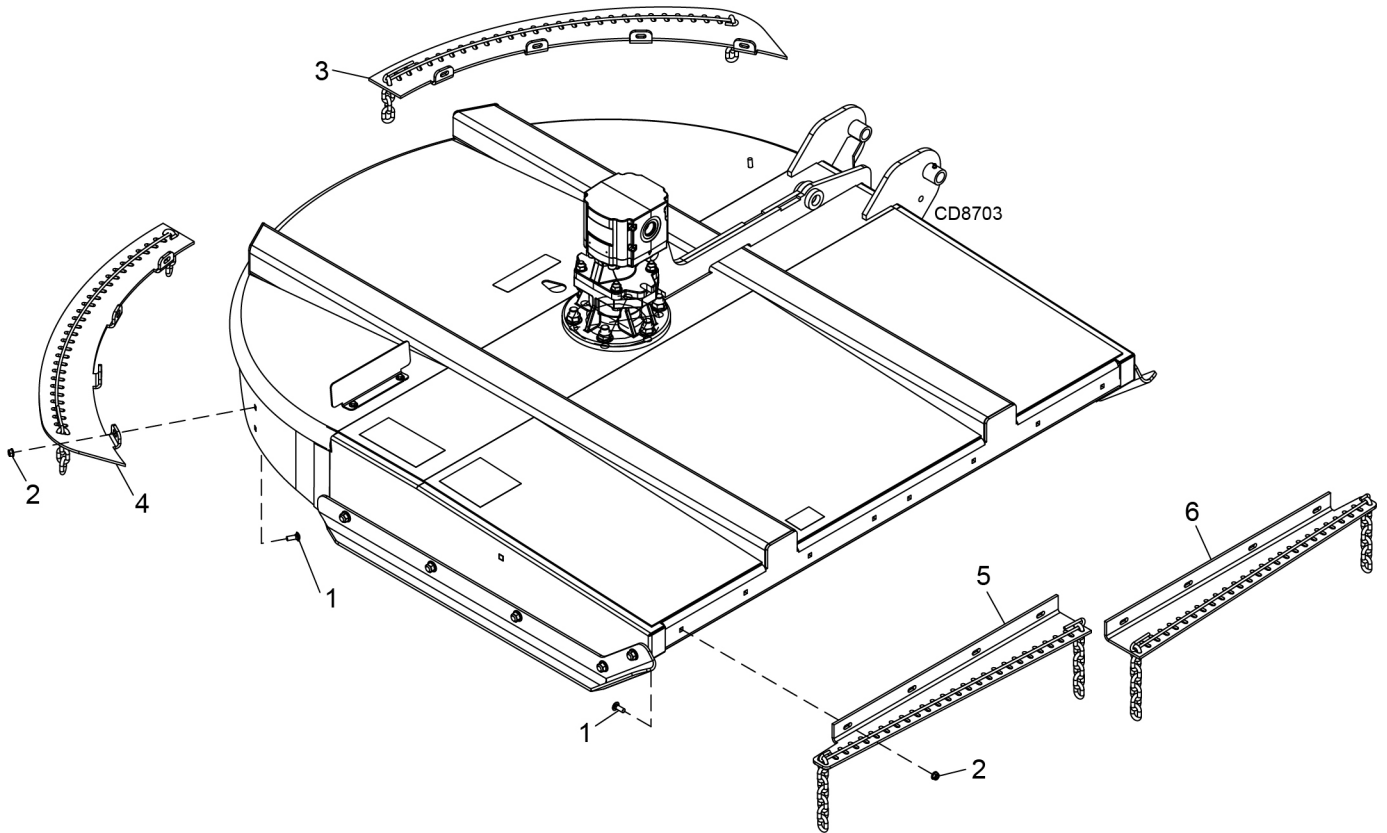
NSS Not Serviced Separately
 A/R As Required
 HHCS Hex Head Cap Screw

DRIVE ASSEMBLY



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
A	1041535	1	Complete drive assembly - 540 RPM	11	1045104	1	Inner half shaft with shield
A	1041536	1	Complete drive assembly - 1000 RPM	12	1045105	1	Outer shield bearing
1	1044919	1	Push collar yoke, 1-3/8-6 (540 RPM)	13	1045106	6	Cone locking pin
1	1044920	1	Push collar yoke, 1-3/8-21 (1000 RPM)	14	1045107	1	Inner shield bearing
2	1044921	2	Cross & bearing kit	15	1045108	1	Outer half shield assembly
3	1044922	2	Roll pin	16	1045109	1	Inner half shield assembly
4	1044923	1	Outer tube yoke	17	1045110	1	Complete shield assembly
5	1044924	2	Push collar kit				
6	1045100	1	Outer yoke & tube				
7	1045101	1	Inner tube yoke				
8	1045102	1	Outer half shaft with shield				
9	1045103	1	Inner yoke & tube				
10	1044919	1	Push collar yoke, 1-3/8-6				

CHAIN SHIELD ASSEMBLY



DBH5.31 CHAIN SHIELD

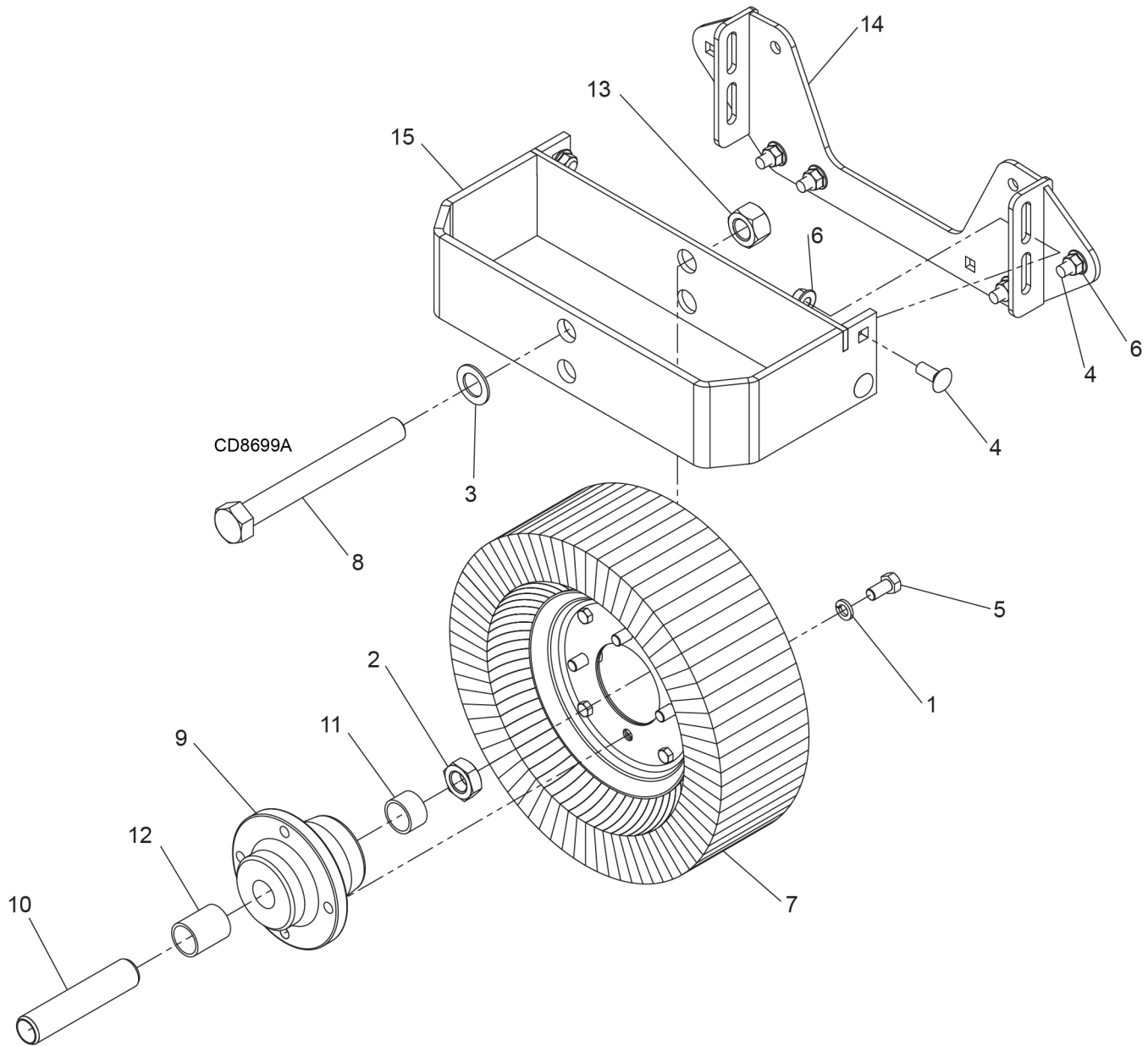
REF	PART	QTY	DESCRIPTION
1	6697 *	16	3/8 NC x 1 Carriage bolt, GR5
2	14350 *	16	3/8 NC Flange hex lock nut
3	1043882	1	Left rear chain bracket
4	1043881	1	Right rear chain bracket
5	57143RP	1	Right front chain bracket
6	57144RP	1	Left front chain bracket

DBH6.31 CHAIN SHIELD

REF	PART	QTY	DESCRIPTION
1	6697 *	16	3/8 NC x 1 Carriage bolt, GR5
2	14350 *	16	3/8 NC Flange hex lock nut
3	1043879	1	Left rear chain bracket
4	1043878	1	Right rear chain bracket
5	57090	1	Right front chain bracket
6	57091	1	Left front chain bracket

* Standard Hardware, Obtain Locally

GAUGE WHEEL ASSEMBLY (OPTIONAL)

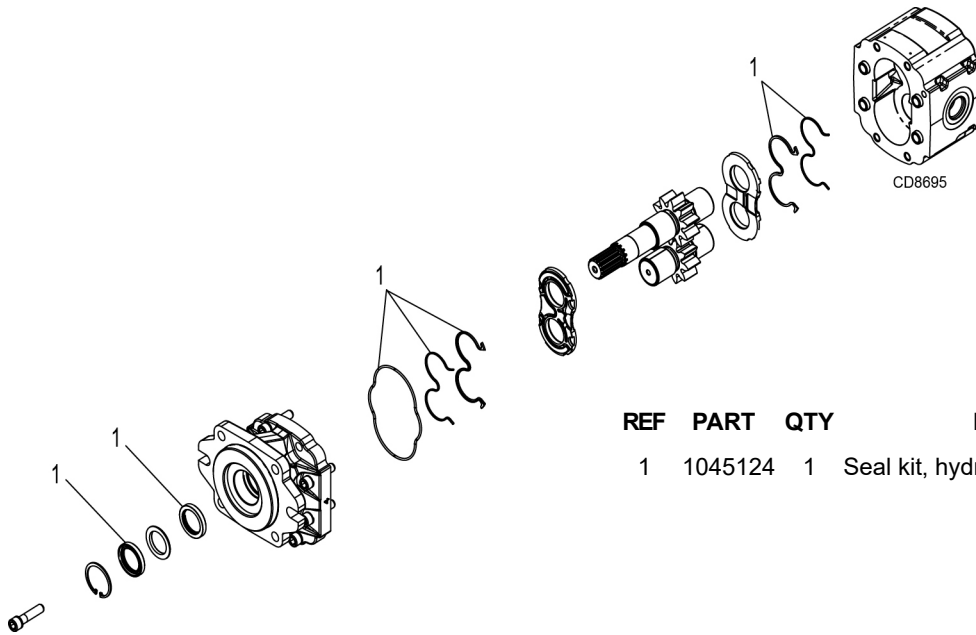


REF	PART	QTY	DESCRIPTION
A	1041840	1	Gauge wheel assembly, complete
1	855	4	1/2 lock washer
2	1386	1	1 NC jam nut
3	1863	1	1 flat washer
4	2615	8	1/2 NC x 1-1/4 carriage bolt, GR5
5	4119	4	1/2 NC x 1 HHSC, GR5
6	11900	8	1/2 NC FLANGE lock nut
7	12577	1	4 x 8 tire and rim
8	15087	1	1 NC x 9.0 HHCS, GR5
9	15277RP	1	Wheel hub

REF	PART	QTY	DESCRIPTION
10	15573	1	Sleeve 1.0 x 1.25 x 5.81
11	15574	1	Sleeve 1.25 x 1.50 x .903
12	15575	1	Sleeve 1.25 x 1.50 x 1.860
13	34279	1	1: NC Hex lock nut
14	598749RP	1	Deck side bracket
15	1045321RP	1	Wheel frame

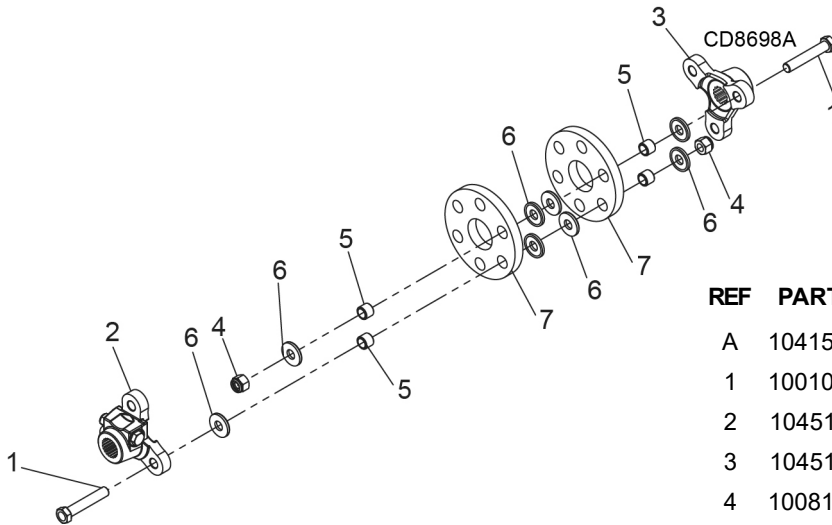
* Standard Hardware, Obtain Locally
 NSS Not Serviced Separately
 HHCS Hex Head Cap Screw

PUMP & MOTOR WEAR



REF	PART	QTY	DESCRIPTION
1	1045124	1	Seal kit, hydraulic motor

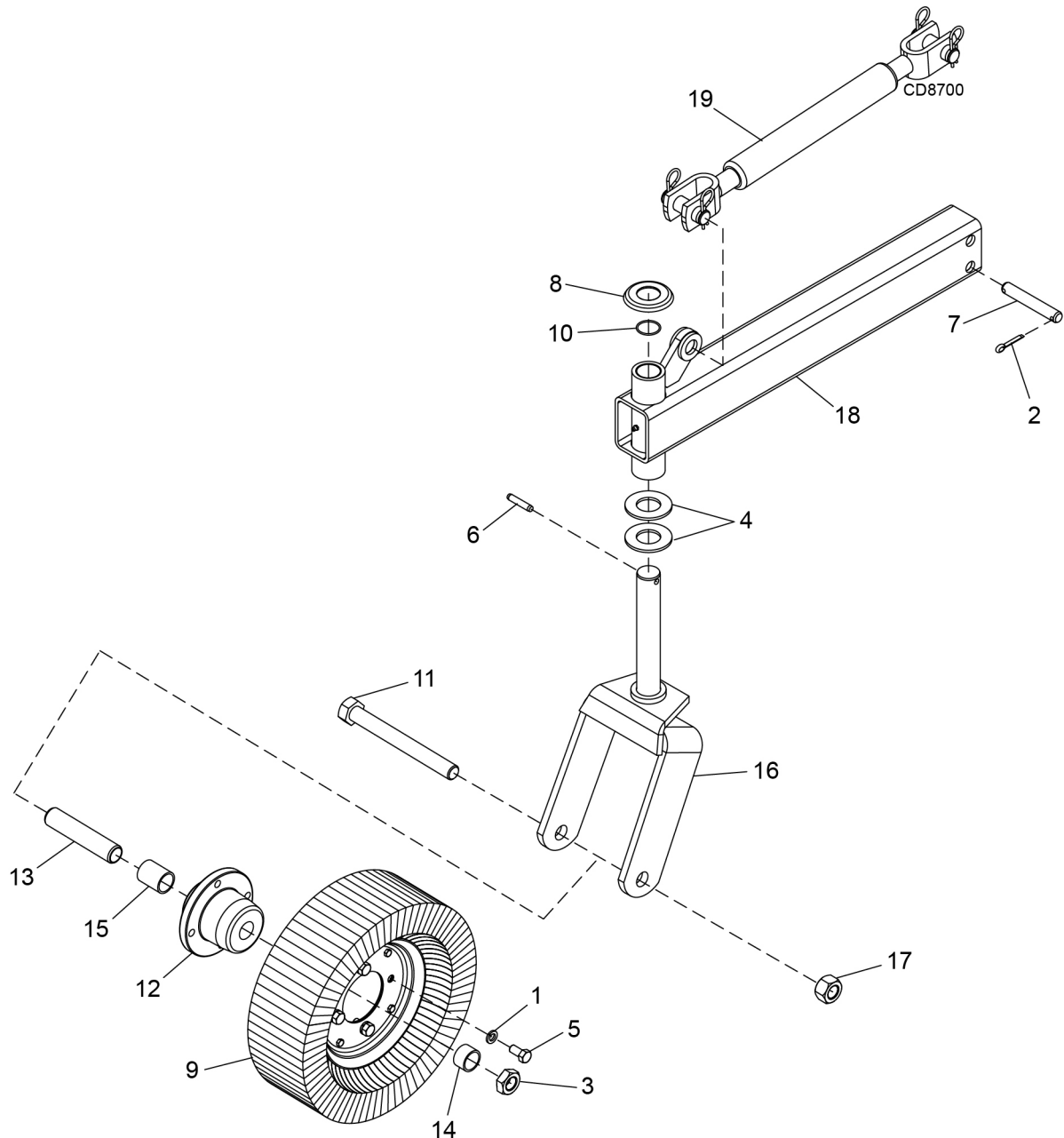
FLEXIBLE DRIVE COUPLER



REF	PART	QTY	DESCRIPTION
A	1041528	1	Flexible coupler assembly
1	1001042	6	M16-2.0P x 90 mm HHCS
2	1045116	1	Yoke, 1-3/8 - 6 spline
3	1045115	1	Yoke, 1-1/4 - 14 spline
4	1008146	6	M16 x 2.0P Lock nut
5	1008142	12	Bushing
6	1008141	24	Shaped washer
7	1008140	2	Rubber disc
8	1045118	1	M12-1.75P x 75 mm HHCS
9	1045119	1	M12 Lock washer
10	1045120	1	M12-1.75P Lock nut

HHCS Hex Head Cap Screw

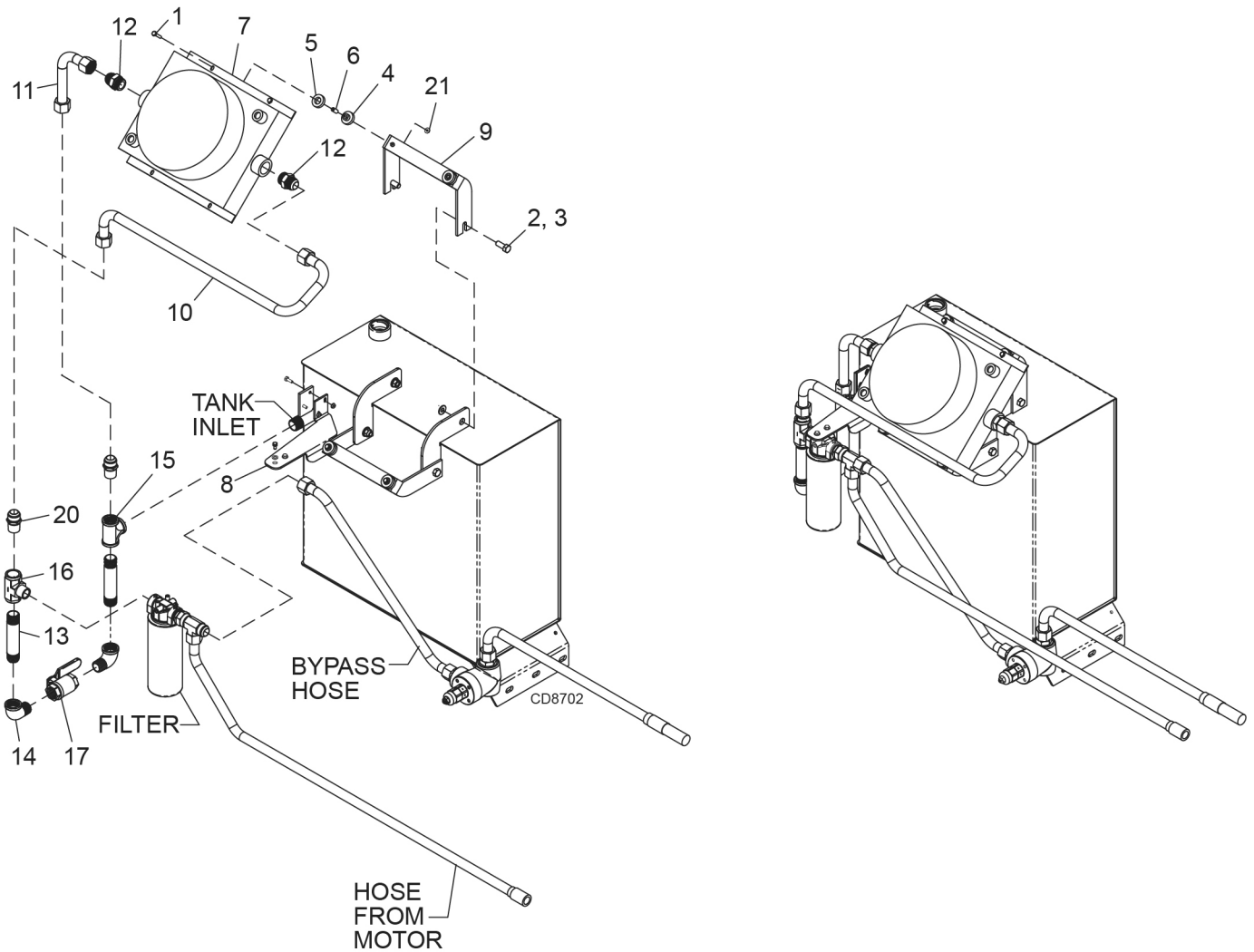
TAILWHEEL ASSEMBLY (OPTIONAL)



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
A	1043273	1	Tailwheel assembly, complete	13	15573	1	1.00 x 1.25 x 5.8 Sleeve
1	855 *	4	1/2 Extra heavy lock washer	14	15574	1	1.25 x 1.50 x .9 Sleeve
2	1285 *	2	1/4 x 1-1/2 Cotter pin	15	15575	1	1.25 x 1.50 x 1.8 Sleeve
3	1386	1	1 NC Hex jam nut	16	15580RP	1	Tailwheel clevis weld assembly
4	2370	2	1.62 x 3 x .18 Washer	17	34279	1	1 NC Hex lock nut
5	4119 *	4	1/2 NF x 1 HHCS, GR5	18	1043247	1	Tailwheel weld assembly
6	4674 *	1	3/8 x 2 Spirol pin	19	20020705	1	Ratchet jack with pipe
7	W8325	1	.75 x 4.1 Headless pin				
8	W12881	1	Washer, tailwheel cap				
9	12577	1	4 x 8 Rim & laminated tire				
10	12889	1	3/32 x 1-9/16 OD O-ring				
11	15087	1	1 NC x 9 HHCS, GR5				
12	15277RP	1	Wheel hub assembly				

* Standard Hardware, Obtain Locally
 HHCS Hex Head Cap Screw

OIL COOLER ASSEMBLY (OPTIONAL)

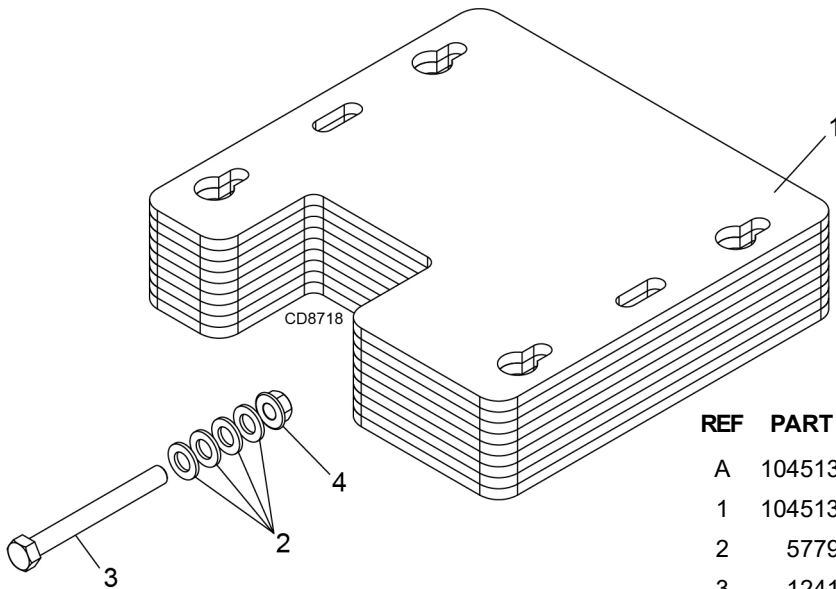


REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
A	1041830CRT	1	Oil cooler assembly, complete	13	1042390	2	1 x 6 Nipple, Schd 40
1	3184*	4	1/4 NC x 1-1/4 HHCS, GR5	14	1042391	2	1" Pipe, street elbow
2	6100*	4	1/2 NC x 1-1/4 HHCS, GR5	15	1042399	1	Tee, 1" pipe
3	11900*	4	1/2 NC Flange lock nut	16	1042400	1	Tee, 1" NPT F x F x M (Re-use)
4	78088	4	Vibration isolator, bushing	17	1042401	1	Ball valve, 1" pipe
5	78089	4	Vibration isolator, ring	18	1040860	1	Wire harness (Not Shown)
6	78090	4	Sleeve, isolator	19	1043891	1	Bracket, switch (Not Shown)
7	1040196	1	Oil cooler	20	1042393	2	Adapter, 1" JICM x 1" NPTM
8	1043884	1	Filter bracket	21	62521*	4	1/4 NC Flange lock nut
9	1043886	2	Cooler bracket				
10	1041883	1	Inlet tube				
11	1041834	1	Outlet tube				
12	1042380	2	Adapter, 1" JICM x 1" ORBM				

* Standard Hardware, Obtain Locally

HHCS Hex Head Cap Screw

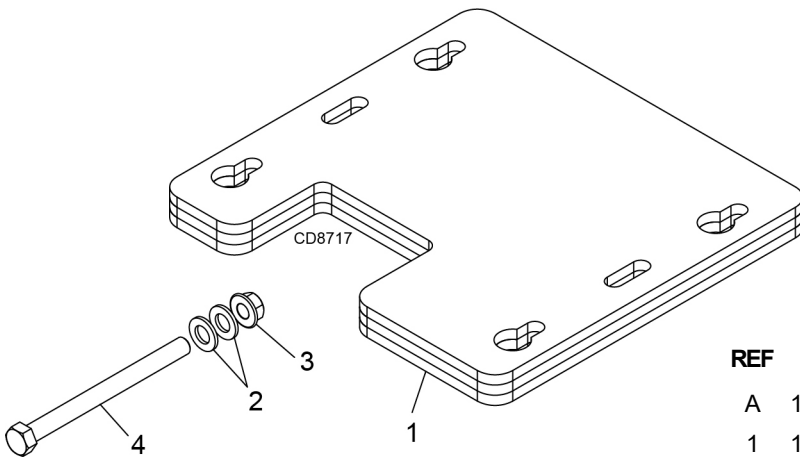
COUNTER BALANCE KIT (OPTIONAL)



REF	PART	QTY	DESCRIPTION
A	1045138	1	Counter balance kit, complete
1	1045134	9	Woods counter balance weight
2	57798	8	3/4 SAE Hardened flat washer
3	12410	2	3/4 NC x 7 HHCS, GR5
4	W302207	2	3/4 NC Flanged lock nut

HHCS Hex Head Cap Screw

COUNTER BALANCE WEIGHT KIT (OPTIONAL)



REF	PART	QTY	DESCRIPTION
A	1045139	1	Counter balance weight kit, complete
1	1045134	3	Woods counter balance weight
2	W301014	2	3/4 NC x 9 HHCS, GR5
3	W302207	2	3/4 NC Flanged lock nut
4	57798	4	3/4 SAE Hardened flat washer

HHCS Hex Head Cap Screw

BOLT TORQUE CHART

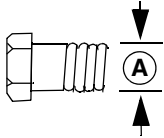
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

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

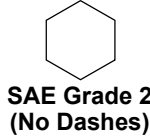
Always use the proper tool for tightening hardware: SAE for SAE hardware and Metric for metric hardware.

Make sure fastener threads are clean and you start thread engagement properly.

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



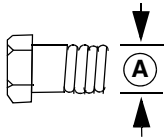
SAE SERIES TORQUE CHART



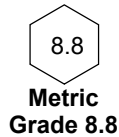
SAE Bolt Head Identification



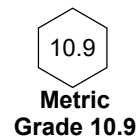
Ⓐ Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"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



METRIC SERIES TORQUE CHART

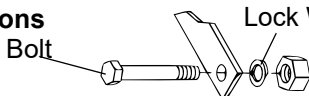


Metric Bolt Head Identification



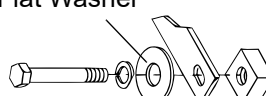
Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	COARSE THREAD				FINE THREAD				Ⓐ Diameter & Thread Pitch (Millimeters)
		MARKING ON HEAD				MARKING ON HEAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
		N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x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

Typical Washer Installations



Lock Washer

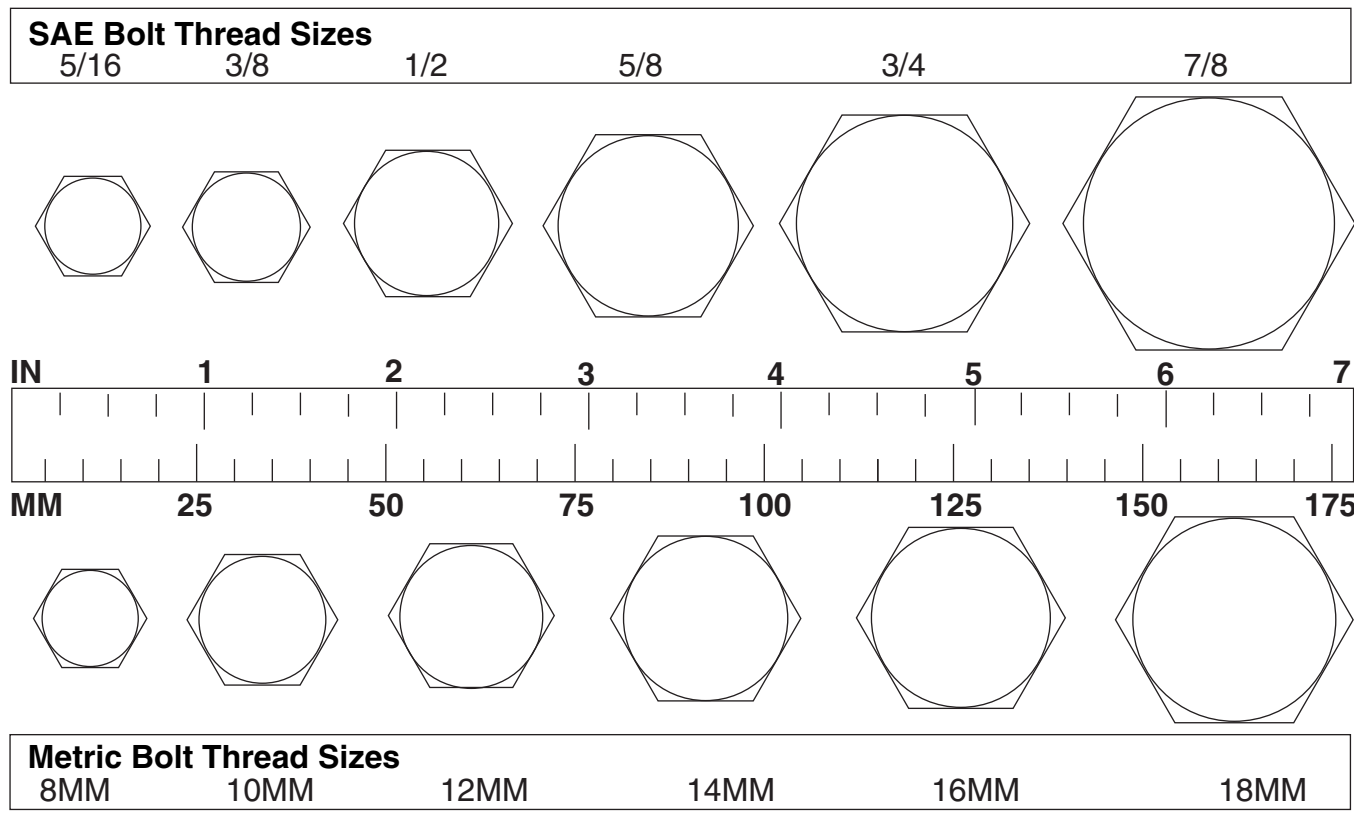
Flat Washer



8/9/00

BOLT SIZE CHART

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



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

INDEX

ASSEMBLY

Dealer Set-up Instructions 37

DEALER CHECK LISTS

Delivery (Dealer's Responsibility) 36

Pre-Delivery (Dealer's Responsibility) 36

DEALER SERVICE

1-Spool, 3-Way Valve 35

Crossbar

Installation 34

Removal 33

Shimming 34

Gearbox Maintenance 27

Seal Installation 27

Seal Replacement 27

Spring-Loaded Wheel Yoke Adjustment 35

Universal Joint 34

Assembly 35

Disassembly 34

Repair 34

DEALER SERVICES

Hydraulic Components

Hydraulic Drive Oil Recommendations 20

GENERAL

Abbreviations 59

Bolt Size Chart 59

Bolt Torque Chart 58

Introduction 2

Obtaining Replacement Manuals 2

Product Registration 2

Warranty

Product 62

Replacement Parts 61

OPERATION 14

Connect Cutter to Tractor

Mounted & Semi-Mounted

Category 2 & 3 Quick Hitches 15

Category 2 Standard Hitch 15

Category 3 Standard Hitch 15

Tractor Adjustments 15

Pre-Operation Check List 16

Tractor and Cutter Operation

Hydraulic Drive 17

Tractor Stability 14

OWNER SERVICE

Blade Servicing 20

Installation 21

Removal 20

Sharpening 21

Chain Shielding Repair 21

Cleaning 22

Flexible Coupler Rubber Disk Replacement 22

Gearbox 20

Lubrication 19

Oil Leaks 20

Slip Clutch Adjustment 21

PARTS

Parts Index 43

SAFETY

Check Lists

Delivery (Dealer's Responsibility) 36

Pre-Delivery (Dealer's Responsibility) 36

Pre-Operation 16

Safety & Instructional Decals 10

Safety Rules 7

Safety Symbols Explained 2

TROUBLE SHOOTING 23, 24, 25

NOTES



WARRANTY

(Replacement Parts For All Models Except Zero-Turn Mowers)

Woods Equipment Company (“WOODS”) warrants this product to be free from defect in material and workmanship for a period of ninety (90) days from the date of delivery of the product to the original purchaser with the exception of V-belts, which will be free of defect in material and workmanship for a period of 12 months.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS’ obligation under this Warranty is limited to, at WOODS’ option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND WOODS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

WOODS shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, Woods specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect WOODS’ ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

Answers to any questions regarding warranty service and locations may be obtained by contacting:

WOODS® | A Blount International Brand
2606 South Illinois Route 2
Post Office Box 1000
Oregon, Illinois 61061 USA
800-319-6637 tel
800-399-6637 fax
woodsequipment.com



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CENTRAL FABRICATORS®
GANNON®
WAIN-ROY®
WOODS®

WARRANTY

All Models Except Zero-Turn Mowers

Please Enter Information Below and Save for Future Reference.

Date Purchased: _____ From (Dealer): _____

Model Number: _____ Serial Number: _____

Woods Equipment Company ("WOODS") warrants this product to be free from defect in material and workmanship. Except as otherwise set forth below, the duration of this Warranty shall be for TWELVE (12) MONTHS COMMENCING ON THE DATE OF DELIVERY OF THE PRODUCT TO THE ORIGINAL PURCHASER.

All current model backhoes, loaders and mounts (except 3-pt. SAF-T-LOK® mounts) are warranted for two (2) years from the date of delivery to the original purchaser. The limited warranty covers any defects in the material and/or workmanship. Following the proper, recommended installation by an authorized Woods Dealer and normal use of a Woods mounting and backhoe or loader, if a tractor incurs damage resulting from the attachment, Woods will cover the existing tractor warranty in the event the manufacturer voids its tractor warranty because of the attachment. Warranty does not cover any misuse or abusive conditions that could cause premature wear or damage to attachment or tractor.

The warranty periods for specific parts or conditions are listed below:

Part or Condition Warranted	Model Number	Duration (from date of delivery to the original purchaser)
	All units invoiced after 4/30/2012	
Gearbox components	BB48X, BB60X, BB72X, BB84X, BB600X, BB720X, BB840X, BB6000X, BB7200X, BB8400X, DS12.50, TS14.60, DS1440, TS1680, DS8.30, DS10.40, DS8.50, DSO8.50, DS10.50, DSO10.50, DBH5.30, DBH6.30	6 years
	BW12, BW15, BW126X, BW180X, BW126XHD, BW180XHD, BW1260X, BW1800X, BW10.50, BW10.50Q, BW15.50, BW15.50Q, BW10.60, BW10.60Q, BW15.60, BW15.60Q, BW10.70, BW10.70Q, BW15.70, BW15.70Q	
	BW240X, BW240XHD, BW1620X, BW2400X	
	RD990X, PRD6000, PRD7200, PRD8400, S15CD, S20CD, S22CD, S25CD, S27CD, S30CD, TC/R74, TC/R68, TC/R60, TBW144, TBW180, TBW204, TSG50, S12ED, S15ED, S18ED, S20ED, TPD25, TPD35, TPD65, TPD95	
	RDC54, RD60, RD72, TBW150C, TS/R60, TS/R52, TS/R44, RC3.5, RC4, RC5, RC6	3 years (1 year if used in rental or commercial applications)
Blade spindles	RD990X, PRD6000, PRD7200, PRD8400, TBW144, TBW180, TBW204	3 years

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than WOODS, a WOODS authorized dealer or distributor, and/or a WOODS authorized service center. This Warranty does not cover normal wear or tear, or normal maintenance items. This Warranty also does not cover repairs made with parts other than those obtainable through WOODS.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS makes no warranty, express or implied, with respect to engines, batteries, tires or other parts or accessories not manufactured by WOODS. Warranties for these items, if any, are provided separately by their respective manufacturers.

WOODS' obligation under this Warranty is limited to, at WOODS' option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

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This Warranty is subject to any existing conditions of supply which may directly affect WOODS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, serviceperson, salesperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty. Answers to any questions regarding warranty service and locations may be obtained by contacting:

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