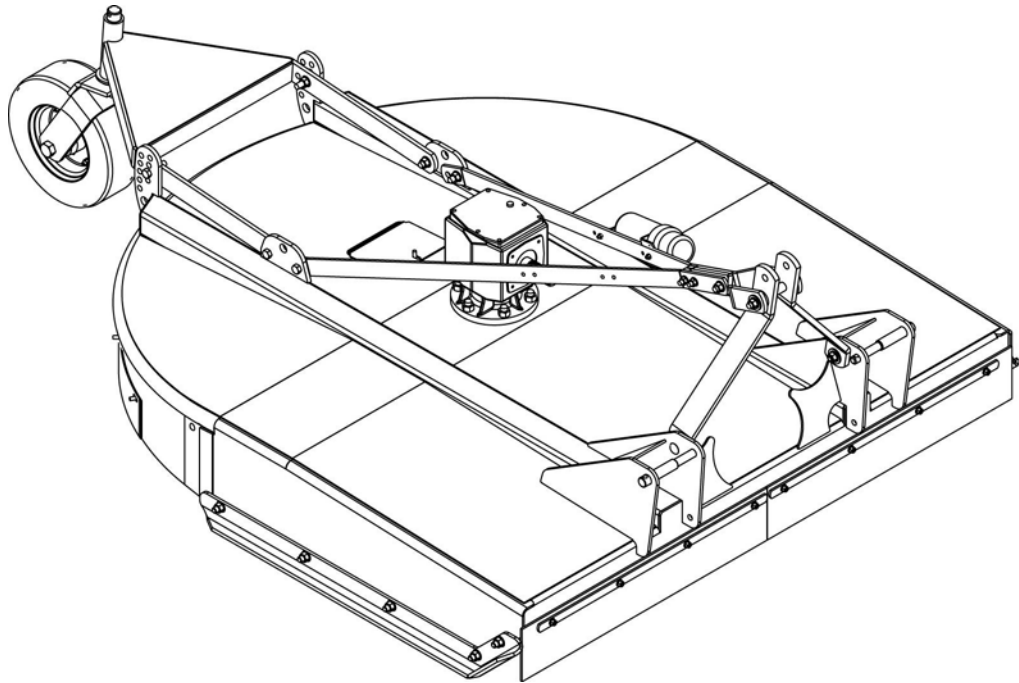


WOODS BRUSHBULL™ ROTARY CUTTER

BB600X
BB720X
BB840X
BB840XP

Serial Number 1127329 & Above



MAN0654
(Rev. 07/09/2010)

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. Please contact your dealer to complete this form. 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 personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



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



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



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

**IMPORTANT
or NOTICE**

Is used to address practices not related to personal injury.

NOTE

Indicates helpful information.

WOODS®

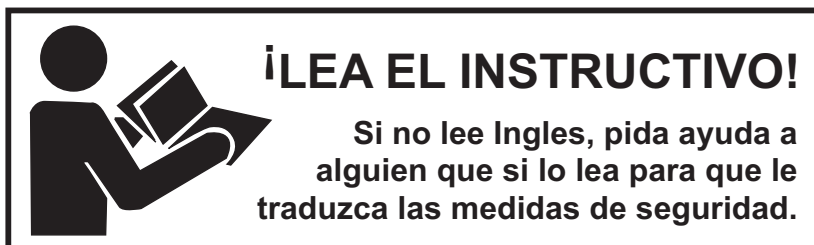
ALITEC™
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2 Introduction

Gen'l (Rev. 3/5/2010)

TABLE OF CONTENTS

INTRODUCTION	2
SPECIFICATIONS	4
GENERAL INFORMATION	4
SAFETY VIDEO ORDER FORM	5
SAFETY RULES	7
SAFETY DECALS	10
OPERATION	13
OWNER SERVICE	20
TROUBLE SHOOTING	26
DEALER SERVICE	28
ASSEMBLY INSTRUCTIONS	35
DEALER CHECK LISTS	44
INDEX TO PARTS LISTS	45
BOLT TORQUE CHART	64
BOLT SIZE CHART & ABBREVIATIONS	65
INDEX	66
REPLACEMENT PARTS WARRANTY	67
PRODUCT WARRANTY	BACK COVER



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

3-Point Hitch	Category I / II
Cutting Height	2" - 12"
Blade Spindle	1
Number of Blades	2
Blades	Heat Treated Alloy Steel
Blade Rotation	CCW
Tractor PTO rpm	540
Universal Drive	Category 4
Cutter Frame Thickness	1/4"
Tailwheel	5" x 16"

Specification	BB600X	BB720X	BB840X	BB840XP
Cutting Width	60"	72"	84"	84"
Overall Width	67.5"	79.5"	91.5"	91.5"
Weight (Approximate lbs.)	1039 lbs	1140 lbs	1280 lbs	1870 lbs
Blade Speed (Feet per minute)	15,525	15,900	16,000	16,000
Gearbox	1:1.83	1:1.47	1:1.35	1:1.35
Recommended Maximum Tractor HP	30-120	35-120	40-120	40-120

GENERAL INFORMATION

WARNING

■ Some illustrations in this manual show the equipment with safety shields removed to provide a better view. This equipment should never be operated with any necessary 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.

4 Introduction

MAN0654 (Rev. 10/19/2007)

BE SAFE!

BE ALERT!

BE ALIVE!

BE TRAINED

Before Operating Mowers!



ASSOCIATION OF
EQUIPMENT
MANUFACTURERS

*Safety Training
Does Make a Difference.*

Free Mower Safety Video

Fill out and return the order form and we will send you a FREE VHS or DVD video outlining ***Industrial and Agricultural Mower Safety Practices***. The 22 minute video, developed in cooperation with AEM (Association of Equipment Manufacturers), 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



Free Mower/Cutter Safety Video Order Form

- Please send me (Select one)
- VHS** Format - VHS01052 Safety Video
- DVD** Format - DVD01052 Safety Video

Name: _____ Phone: _____

Address: _____

Mower/Cutter Model: _____ Serial #: _____

Send to: ATTENTION: DEALER SERVICES
 WOODS EQUIPMENT COMPANY
 PO BOX 1000
 OREGON IL 61061-1000
 USA

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. **CON-**

TACT 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.

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

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

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

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

■ Make sure driveline guard tether chains are attached to the tractor and equipment as shown in the pamphlet that accompanies the driveline. Replace if damaged or broken. Check that driveline guards rotate freely on driveline before putting equipment into service.

■ Before starting power unit, check all equipment driveline guards for damage. Replace any damaged guards. Make sure all guards rotate freely on all drivelines. If guards do not rotate freely on drivelines, repair and replace bearings before putting equipment into service.

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

(Safety Rules continued on next page)

(Rev. 10/31/2008)

Single Spindle_MD (Rev. 5/11/2007)

Safety 7

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



(Safety Rules continued from previous page)

- Inspect chain, rubber, or steel band shielding before each use. Replace if damaged.
- Make sure shields and guards are properly installed and in good condition. Replace if damaged.
- Remove accumulated debris from this equipment, power unit, and engine to avoid fire hazard.
- Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)
- 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 or front tractor weights. Weigh the tractor and equipment. Do not estimate.
- Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.

OPERATION

- Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.
- Full chain, rubber, or steel band shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.
 - If this machine is not equipped with full chain, rubber, or steel band shielding, operation must be stopped when anyone comes within 300 feet (92 m).
 - This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).
- 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 systems in "locked up" position at all times.
- Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.
- Operate tractor PTO at 540 RPM. Do not exceed.
- 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.
- Use extreme care and reduce ground speed on slopes and rough terrain.
- Watch for hidden hazards on the terrain during operation.
- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.
- Leak down or failure of mechanical or hydraulic system can cause equipment to drop.
- On pull-type units with optional hydraulic cutting height adjustment, use a single-acting cylinder with a maximum extended length of 28-1/4" (718 mm) from attaching point center to center.
- Before performing any service or maintenance, disconnect driveline from tractor PTO.

TRANSPORTATION

- Always comply with all state and local lighting and marking requirements.
- Do not operate PTO during transport.
- The maximum transport speed for towed and semi-mounted machines is 20 mph (32 km/h). Regardless of the maximum speed capability of the towing tractor, do not exceed the implement's max-

SAFETY RULES



ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



imum transport speed. Doing so could result in:

- Loss of control of the implement and tractor
 - Reduced or no ability to stop during braking
 - Implement tire failure
 - Damage to the implement or its components.
- Use additional caution and reduce speed when under adverse surface conditions, turning, or on inclines.
 - Never tow this implement with a motor vehicle.
 - Always raise unit and install transport locks before transporting. Leak down or failure of mechanical or hydraulic system can cause equipment to drop.
 - Always attach safety chain to tractor drawbar when transporting unit.
 - Do not operate or transport on steep slopes.
 - Do not operate or transport equipment while under the influence of alcohol or drugs.
 - 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 or front tractor weights. Weigh the tractor and equipment. Do not estimate.

MAINTENANCE

- Before performing any service or maintenance, disconnect driveline from tractor PTO.
- Before working underneath, disconnect driveline, 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.
- Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.
- Make sure attachment is properly secured, adjusted, and in good operating condition.
- Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.
- 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.
- 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.
- 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.
- Your dealer can supply original equipment hydraulic accessories and repair parts. Substitute parts may not meet original equipment specifications and may be dangerous.
- Leak down or failure of mechanical or hydraulic system can cause equipment to drop.
- Explosive separation of tire and rim parts can cause serious injury or death. Release all air pressure before loosening bolts on wheel.

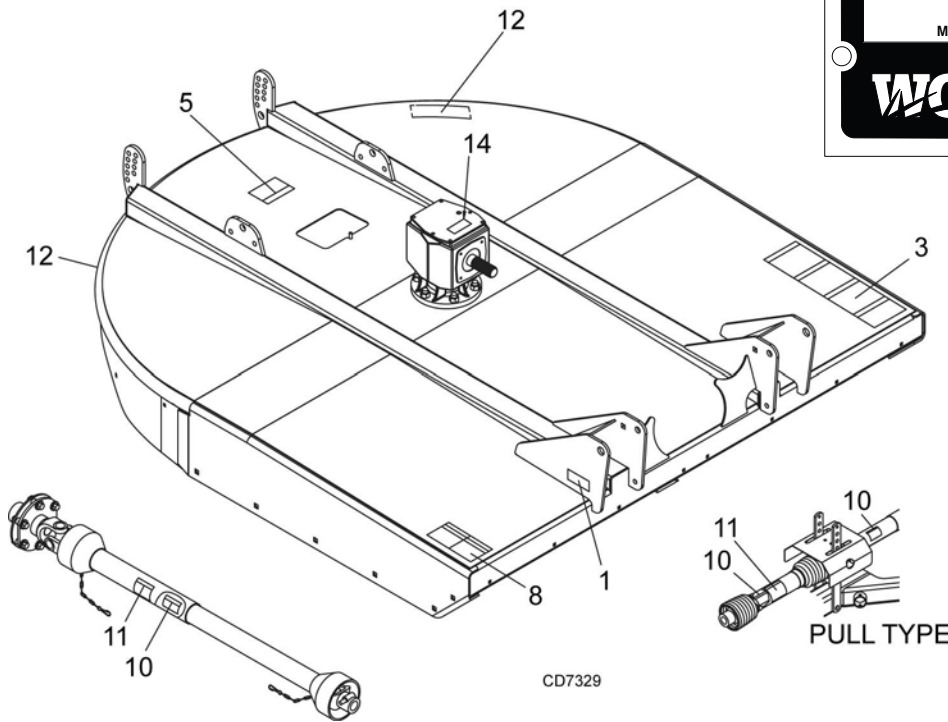
STORAGE

- Raise cutter and block securely. Block wheels and raise tongue with jack. Disconnect driveline and secure up off the ground.
- Disconnect cutter driveshaft and secure up off ground. Raise cutter with 3-point hitch. Place blocks under cutter side skids. Lower cutter onto blocks. Disconnect cutter from tractor 3-point hitch and carefully drive tractor away from cutter.
- Keep children and bystanders away from storage area.

SAFETY & INSTRUCTIONAL DECALS



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



1 - SERIAL NUMBER PLATE

**12 - PN 57123
 RED REFLECTOR 9"**

CD7329

8 - PN1006682

DANGER

**ROTATING BLADES AND
 THROWN OBJECTS**

- 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.

**BLADE CONTACT OR THROWN OBJECTS CAN CAUSE
 SERIOUS INJURY OR DEATH.**

DANGER

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

DO NOT OPERATE WITHOUT -

- All driveline guards, tractor and equipment shields in place
- Drivelines securely attached at both ends
- Driveline guards that turn freely on driveline

1006682-A



SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!



3 - PN1006681

WARNING
<p style="text-align: center;">CRUSHING AND PINCHING HAZARD</p> <ul style="list-style-type: none"> ■ Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement. ■ Operate tractor controls from tractor seat only. ■ Do not stand between tractor and implement when tractor is in gear. ■ Make sure parking brake is engaged before going between tractor and implement. ■ Stand clear of machine while in operation or when it is being raised or lowered.

WARNING
<p style="text-align: center;">TO AVOID SERIOUS INJURY OR DEATH:</p> <ul style="list-style-type: none"> ■ 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 20 mph.

WARNING
<p style="text-align: center;">FALLING OFF CAN RESULT IN BEING RUN OVER.</p> <ul style="list-style-type: none"> ■ 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. ■ Allow no riders. <p style="text-align: center;">RAISED EQUIPMENT CAN DROP AND CRUSH.</p> <ul style="list-style-type: none"> ■ 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 from dropping from hydraulic leakdown, hydraulic system failures or mechanical component failures.

WARNING
<p>DO NOT EXCEED PTO SPEED OF</p> <p style="font-size: 1.2em;">540 RPM</p> <p>PTO speeds higher than 540 RPM can cause equipment failure and personal injury.</p>

PN1006348 (See Figure 16)

WARNING	EXPLOSION HAZARD
<p>RELEASE ALL AIR PRESSURE BEFORE LOOSENING BOLTS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH. MAX. SPEED: 20 MPH, MAX. WEIGHT: 4000 LBS., MAX. AIR PRESSURE: 40 PSI.</p>	

11 - PN18864

DANGER
<p>ROTATING DRIVELINE CONTACT CAN CAUSE DEATH</p> <p>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

14 - PN 1004114

DANGER
<p>If shaft connection is visible, shield is missing. Replace shield before operating equipment.</p>

5 - PN 15502

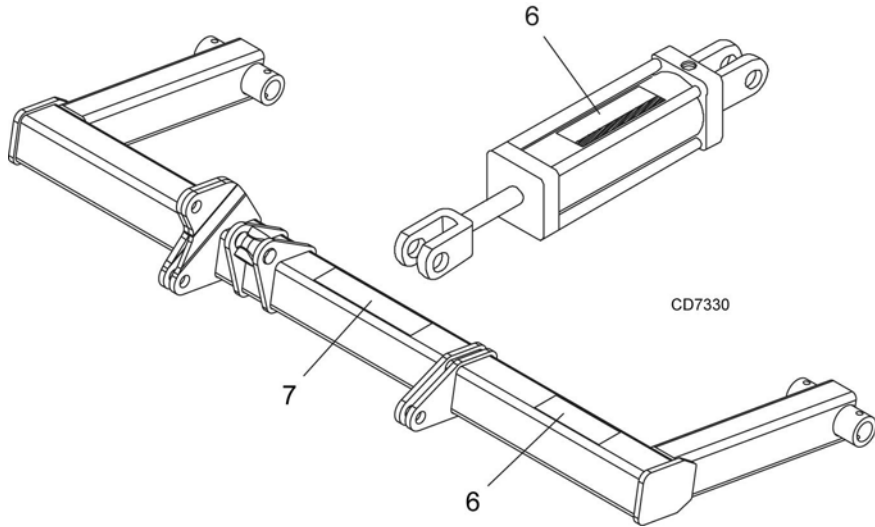
WARNING
<p>ROTATING COMPONENTS</p> <p>Do not operate without cover in place. Look and listen for rotation. Do not open cover until all components have stopped.</p> <p>CONTACT WITH ROTATING PARTS CAN CAUSE SERIOUS INJURY.</p>

10 - PN 33347

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

(Safety Decals continued on next page)

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



6 - PN 19924 (PULL-TYPE ONLY)

 19924-B	! 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.

7 - PN 1004991 (PULL-TYPE ONLY)

 1004991	! WARNING	<p>TRANSPORT LOCK AND CYLINDER REQUIREMENTS</p> <p>SINGLE-ACTING FULL EXTENSION</p> TRANSPORT LOCK
	<p style="text-align: center;">RAISED CUTTER CAN DROP AND CRUSH</p> <ul style="list-style-type: none"> ■ Cutters must be equipped with transport lock. ■ Before working underneath, transport lock must be in the raised position. All corners of cutter must be securely blocked with jack stands. ■ All transport components must be functional, kept in good condition, and stored on equipment. ■ Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures. <p style="text-align: center;">FAILURE TO FOLLOW INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.</p>	

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, or in the United States and Canada call 1-800-319-6637.

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 to page 12. Be sure to complete the Pre-Operation check list on 19 before operating this Cutter.

This medium-duty cutter is designed for grass and weed mowing and shredding.

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

⚠ DANGER

■ Full chain, rubber, or steel band shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.

- If this machine is not equipped with full chain, rubber, or steel band shielding, operation must be stopped when anyone comes within 300 feet (92 m).
- This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).

⚠ WARNING

- Never allow riders on power unit or attachment.
- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- Operate tractor PTO at 540 RPM. Do not exceed.
- Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.

⚠ CAUTION

- Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, 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.

TRACTOR STABILITY

⚠ WARNING

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

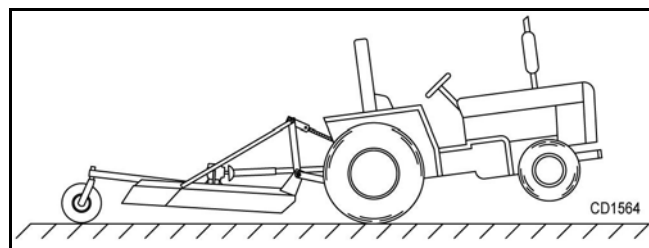


Figure 1. Tractor Stability

CONNECTING CUTTER TO TRACTOR (MOUNTED CUTTER)

⚠ WARNING

- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
 - Make sure driveline will not bottom out at the shortest length and that it has at least 1/3 overlap at the longest length.
 - With cutter adjusted to transport position, set upper stop on tractor lift quadrant to prevent cutter from contacting the driveline when being raised.
1. Attach tractor 3-point lift arms to category I or category II side of hitch pins (5) and secure (Figure 2).
 2. Attach tractor top link (1) to cutter top link attachment point (2).
 3. Raise cutter to transport position and adjust tractor top link until cutter is level in this position.
 4. Adjust the tractor lower 3-point arm anti-sway devices to prevent cutter from swinging side to side during transport.
 5. Adjust tractor drawbar so that it will not interfere with cutter or driveline.

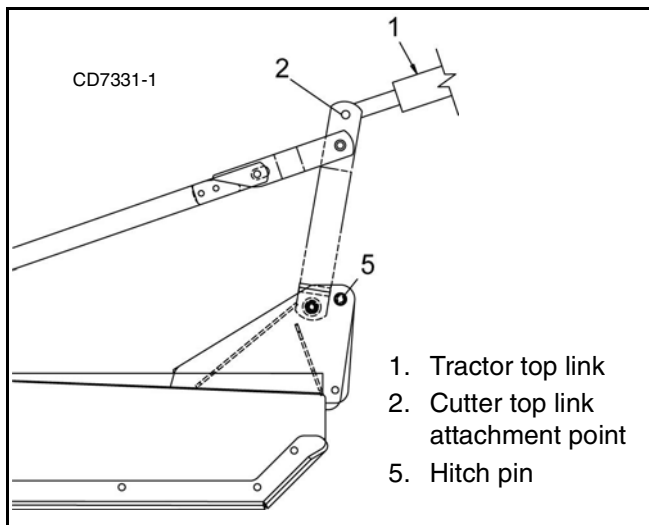


Figure 2. Cutter to Tractor Connection

QUICK HITCH SET-UP AND TOP LINK ADJUSTMENT

NOTICE

- Avoid contact with driveline when raising cutter.
- Make sure driveline will not bottom out at the shortest length and that it has at least 1/3 overlap at the longest length.
- With cutter adjusted to transport position, set upper stop on tractor lift quadrant to prevent cutter from contacting the driveline when being raised.

Category I and II

Refer to Figure 3.

1. To mount tractor top link, use lowest hole provided in the tractor's top link attachment bracket.
2. Assemble hitch pins (5) in proper position.
3. Place A-frame arms (7) (square hole) on mast plate (15).
4. Secure with carriage bolts (16), sleeves (17), flat washers (18), and flange lock nuts (19).
5. Connect brace arms (6) to the brace arm pivot hole (10) on the inside of rear lug (9).
6. Use the second hole on the end of the brace arm and secure using cap screws (20) and flange lock nuts (19).
7. Attach top link (1) to top hole (2) on A-frame arms (7).

8. Raise cutter to transport position and adjust tractor top link until cutter is level in this position.

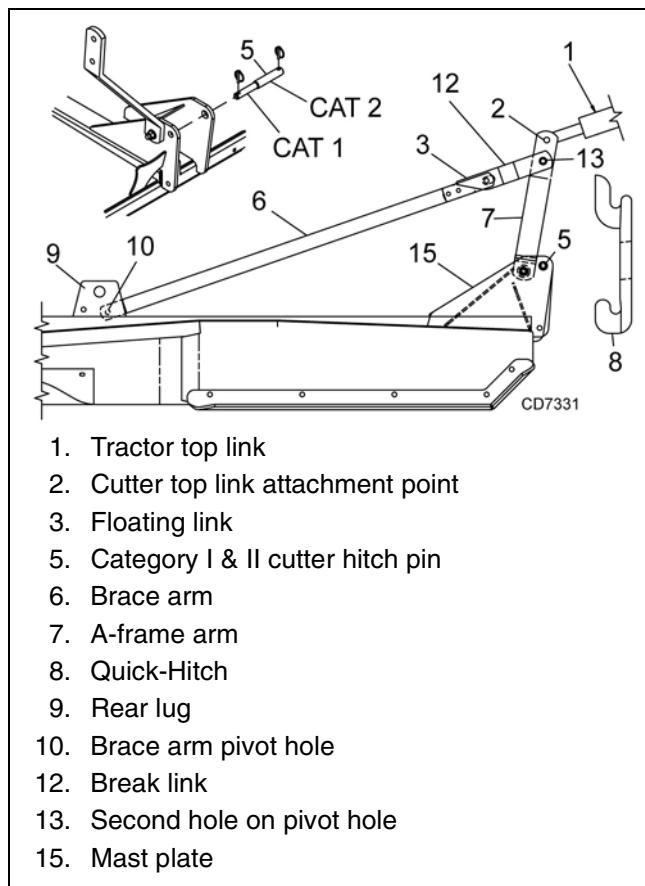


Figure 3. Quick Hitch Set-Up

DRIVELINE ADJUSTMENT (MOUNTED)

Attach the cutter to the tractor 3-point hitch (or quick hitch if available). Do not attach driveline. Raise and lower cutter to determine maximum and minimum distance between the tractor PTO shaft and the gearbox input shaft. If the distance is too large, the driveline will be too short for proper engagement. If distance is too small, the driveline may bottom out in operation and damage the cutter or tractor.

The driveline length must be sufficient to provide at least 1/3 driveline length of engagement during operation. There must be at least 4 inches of engagement at the cutter's lowest possible point of operation. The driveline must not bottom out when raised to the maximum height possible.

If driveline is too short, please call your Woods dealer for a longer driveline.

If driveline is too long, please follow the instructions for shortening the driveline.

Shortening Driveline

NOTICE

■ If attaching with quick hitch, the distance between the tractor PTO and gearbox input shaft will increase. Please follow the steps as you would for a 3-point hitch to insure proper engagement.

1. Move cutter up and down to get the shortest possible distance between tractor PTO shaft and gearbox input shaft.
2. Separate driveline into two halves and connect them to the tractor PTO and gearbox.
3. Place driveline halves parallel to one another to determine how much to shorten the driveline.



Figure 4. Drive Halves Placed Parallel

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

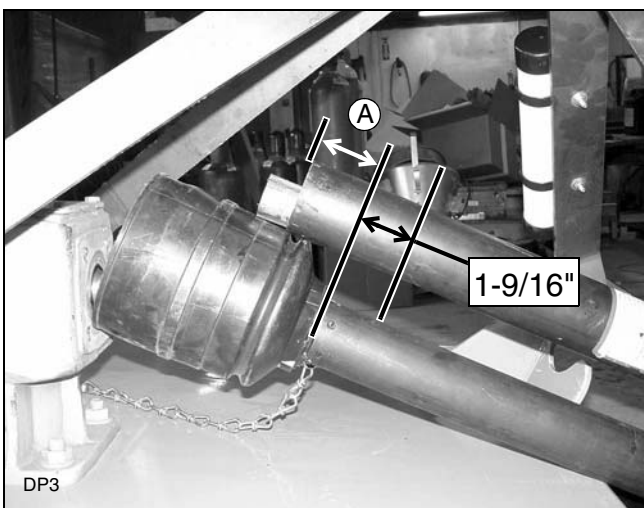


Figure 5. Determine Shield Length

5. Cut the shield to the overall dimension.

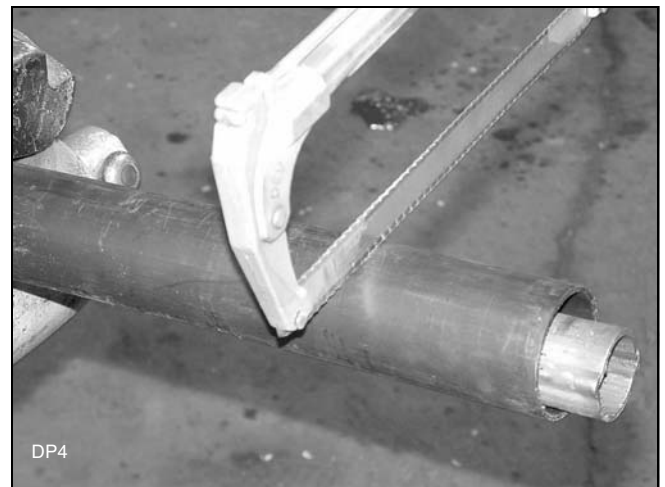


Figure 6. Cut Shield

6. Place the cutoff portion of the shield against the end of the shaft and use as a guide. Mark and cut the shaft.



Figure 7. Cut Shaft to Length

7. Repeat step 6 for the other half of the drive.
8. File and clean cut ends of both drive halves.

Do not use tractor if proper driveline engagement cannot be obtained through these methods.

Connect driveline to tractor PTO shaft, making sure the spring-activated locking collar slides freely and locks driveline to PTO shaft.

DRIVELINE INTERFERENCE CHECK

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

CUTTING HEIGHT ADJUSTMENT (MOUNTED CUTTER)

⚠ WARNING

- Before working underneath, disconnect driveline, 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.
- Avoid low cutting heights. Striking the ground with blades produces one of the most damaging shock loads a cutter can encounter. Allowing blades to contact ground repeatedly will cause damage to cutter and drive.

When selecting a cutting height, you should consider the area of operation. If the ground is rolling and has mounds the blades could contact, set the cutting height accordingly.

1. Level cutter from side to side. Check by measuring from cutter frame to the ground at each deck rail.
2. Adjust, using tractor 3-point arm leveling device.

NOTE: Keep the front of cutter level with or slightly lower than rear for best mowing.

3. Control cutting height with tractor 3-point arms, rear tailwheel adjustment, or optional check chains.
4. To raise rear of cutter, move tailwheel down.
5. To raise front of cutter, raise tractor 3-point arms or shorten optional check chains.

The cutting height is the distance between the blade and the ground. The blades are approxi-

mately 11.5" below the deck. To check cutting height, do the following:

- a) Place a straight edge along top edge of deck.
- b) Select a cutting height; as an example, for an approximate cutting height of 3", set the center of the deck 14.5" above the ground:

$$\begin{array}{r} 3" \text{ Desired cutting height} \\ + 11.5" \text{ Distance blade cutting edge is below deck} \\ \hline = 14.5" \end{array}$$

- c) Adjust the front-to-rear attitude from 1/2" to 3/4" higher than the front.

CHECK CHAIN ADJUSTMENT (MOUNTED)

1. Refer to Install Check Chain (Optional), page 42 for check chain installation.
2. After making cutting height adjustment, adjust both chains (3) in check chain bracket (2) so you have the same number of links on each side. This will keep your cutting level.

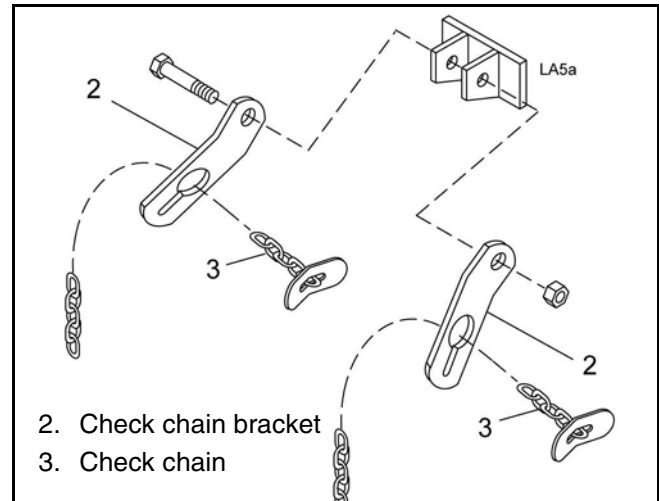


Figure 8. Check Chain Adjustment

INSTALLATION AND REMOVAL OF DRIVELINE (TRACTOR PTO)

To Install:

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

To Remove:

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

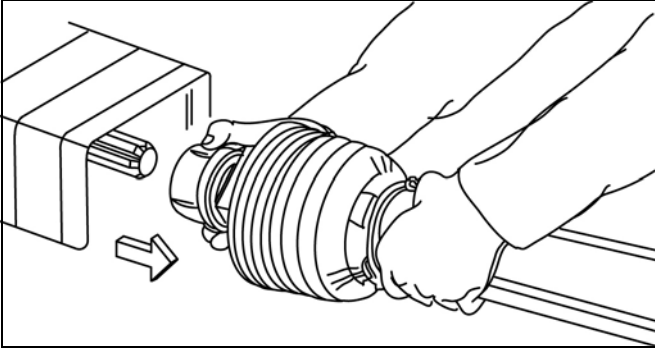


Figure 9. Lock Collar

CONNECTING CUTTER TO TRACTOR BB840XP (PULL-TYPE)

NOTICE

■ The horizontal distance between the end of the tractor PTO shaft and the drawbar hitch point should be 14" for 540 rpm cutter. This distance must not vary more than plus or minus (1") or the drive may be damaged when turning.

1. Adjust tractor drawbar to obtain the desired drawbar-to-hitch-point distance.

NOTE: On some tractors, a drawbar kit must be used to obtain the required dimension. Check with your tractor dealer for assistance.

2. Raise cutter tongue to tractor drawbar height with jack provided.
3. Secure cutter to tractor drawbar with a high-strength drawbar pin 3/4" or larger. Retain pin in place during operation.
4. Connect cutter drive line to tractor PTO shaft, making sure the spring-activated lock pin slides freely and is seated in tractor PTO splined groove.
5. Move parking jack the storage position on the tongue.
6. Adjust H-frame bearing height to ensure the front drive line is parallel to the ground. Secure with 5/8 x 5-21/32 clevis pin and 3/16 x 1-1/2 cotter pin.
7. Attach drive shaft shield to bearing housing using two 3/8 x 1 cap screws and 3/8 lock washers.
8. Attach safety tow chain to drawbar support. Leave enough slack for turning.

Hydraulic Connection

1. Inspect hydraulic hoses to ensure they are in good condition.
2. Clean the fittings before connecting them to the tractor hydraulic ports.
3. Attach the hydraulic hose from the cutter to the tractor.
4. Route the hose through the hose holder on H-frame and be sure the hose can slide freely in the holder. Do not allow hose slack to drag on the ground or become caught on tractor protrusions.
5. From the operator position, start tractor and raise and lower deck several times to purge trapped air from the hydraulic cylinder.

Interference Check

1. Be sure that tractor 3-point lift links do not interfere with hydraulic hoses, cutter driveline, or cutter frame.
2. Check for straight-ahead operation and at full-turning angles. If there is any interference, remove the lower lift links.
3. Contact between tractor lift links and cutter parts can cause damage, especially when turning.

CUTTING HEIGHT ADJUSTMENT BB840XP (PULL-TYPE)

⚠ WARNING

■ On pull-type units with optional hydraulic cutting height adjustment, use a single-acting cylinder with a maximum extended length of 28-1/4" (718 mm) from attaching point center to center.

Cutting height range is from 2" to 13". A hydraulic cylinder or ratchet jack is available for cutting height adjustment.

To adjust cutter for normal mowing, select a cutting height (example: 3 inches). Blades are approximately 11.5" below the deck.

Using any of the optional cutting height mechanisms, raise or lower the tailwheel and set the center of the deck is 14.5' above the ground to achieve a 4" cutting height.

Loosen the jam nut on the attitude rod that runs from the tongue to the tailwheel. Adjust rod in or out until rear of deck is approximately 1/2 inch more than front of deck.

DRIVELINE ADJUSTMENT **BB840XP (PULL-TYPE)**

With the cutting height established, adjust the driveline carrier bearings in the H-frames so that the front driveline is parallel to the ground with cutter in cutting position.

TRANSPORTING BB840XP (PULL-TYPE)



Figure 10. Transport Lock Operation

1. Always transport with cutter in raised, locked position.
2. Raise cutter with hydraulic cylinder to max height.
3. Rotate transport lock into position over cylinder rod. See Figure 10.
4. Lower cylinder against transport lock.
5. To lower cutter for operation, extend hydraulic cylinder. Rotate transport lock back away from cylinder rod.
6. Lower cutter to desired cutting height.

OPERATING TECHNIQUE

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

Gearbox protection is provided by a slip clutch with replacement fiber disc. The slip clutch is designed to slip when excessive torsional loads occur.

3. Move slowly into material. Adjust tractor ground speed to provide a clean cut without lugging the tractor engine. Use a slow ground speed for better shredding.

Proper ground speed will depend on the terrain and the material's height, type, and density.

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

4. Always operate tractor PTO at 540 rpm to maintain proper blade speed and to produce a clean cut.
5. Under certain conditions tractor tires may roll down some grass and prevent cutting at the same height as the surrounding area. When this occurs, reduce your ground speed but maintain PTO at 540 rpm. The lower ground speed will permit grass to rebound partially.

SHREDDING MATERIAL

For shredding, set the cutter lower at rear. Determine how much lower to set the rear by experimenting in different situations.

STORAGE

⚠ WARNING

Mounted Cutters

■ **Disconnect cutter driveshaft and secure up off ground. Raise cutter with 3-point hitch. Place blocks under cutter side skids. Lower cutter onto blocks. Disconnect cutter from tractor 3-point hitch and carefully drive tractor away from cutter.**

■ **Keep children and bystanders away from storage area.**

BB840XP (Pull-Type)

■ **Raise cutter and block securely. Block wheels and raise tongue with jack. Disconnect hydraulic lines to optional cylinder. Disconnect driveline and secure up off the ground.**

PRE-OPERATION CHECK LIST **(OWNER'S RESPONSIBILITY)**

- ___ Review and follow all safety rules and safety decal instructions on page 7 through page 12.
- ___ Check that equipment is properly and securely attached to tractor.
- ___ Make sure driveline spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- ___ Set tractor PTO at 540 rpm.
- ___ Lubricate all grease fitting locations. Make sure PTO shaft slip joint is lubricated.
- ___ Check to be sure gear lube runs out the small check plug on side of gearbox.
- ___ Check that all hardware is properly installed and secured.
- ___ Check that blades are sharp and secure and cutting edge is positioned to lead in a counter-clockwise rotation.
- ___ Check that shields and guards are properly installed and in good condition. Replace if damaged.
- ___ Check cutting height, front-to-rear attitude, and top link adjustment.
- ___ Place tractor PTO and transmission in neutral before starting engine.
- ___ Inspect area to be cut and remove stones, branches, or other hard objects that might be thrown and cause injury or damage.



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

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

CAUTION

■ **If you do not understand any part of this manual and need assistance, see your dealer.**

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

BLOCKING METHOD

WARNING

■ **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.**

To minimize the potential hazards or working underneath the cutter, follow these procedures:

1. Jackstands with a load rating of 1000 lbs or more are the only approved blocking device for this cutter. Install a minimum of four jackstands (shown by Xs in Figure 11) under the cutter before working underneath unit.
2. Do not position jackstands under wheels, axles, or wheel supports. Components can rotate and cause cutter to fall.
3. Consider the overall stability of the blocked unit. Just placing jackstands underneath will not ensure your safety.

4. The working surface must be level and solid to support the weight on the jackstands. Make sure jackstands are stable, both top and bottom. Make sure cutter is approximately level.
5. With full cutter weight lowered onto jackstands, test blocking stability before working underneath.
6. If cutter is attached to tractor when blocking, set the brakes, remove key, and block cutter before working underneath.
7. Securely block rear tractor wheels, in front and behind. Tighten tractor lower 3-point arm anti-sway mechanism to prevent side-to-side movement.

LUBRICATION INFORMATION

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

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

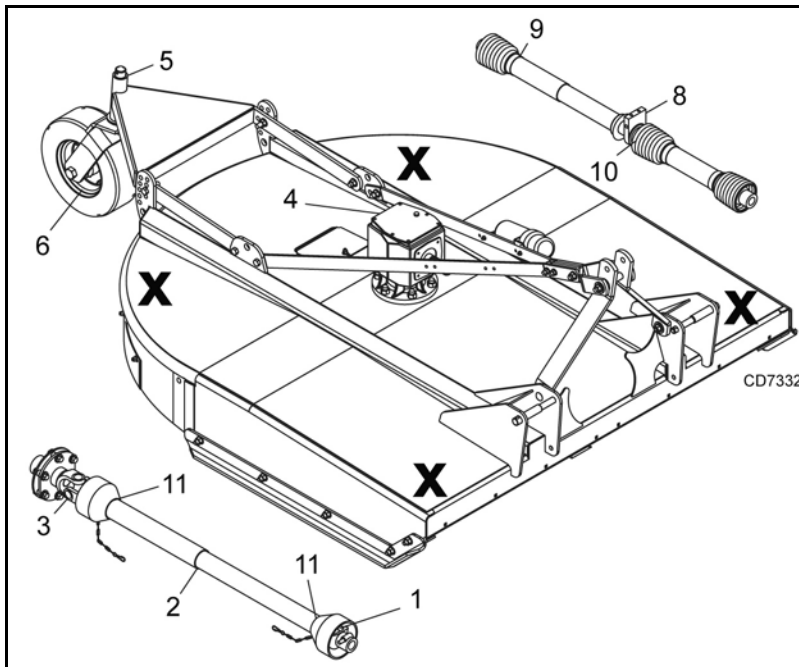
See Figure 11 for lubrication points and frequency or lubrication based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

Gearbox Lubrication

For gearbox, use a high quality gear oil with a viscosity index of 80W or 90W and an API service rating of GL-4 or -5 in gearboxes. Fill gearbox until oil runs out the side plug on gearbox. Check gearbox daily for evidence of leakage, and contact your dealer if leakage occurs.

Driveline Lubrication

1. Lubricate the driveline slip joint every eight operating hours. Failure to maintain proper lubrication could result in damage to U-joints, gearbox, and driveline.
2. Lower cutter to ground, disconnect driveline from tractor PTO shaft, and slide halves apart but do not disconnect from each other.
3. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.



1. Front U-joint (Mounted)----- 8 hrs.
2. Slip joint (apply grease to square shaft) ----- 8 hrs.
3. Rear U-joint (Mounted)----- 8 hrs.
4. Gearbox -----Daily
5. Tailwheel pivot tube ----- 8 hrs.
6. Tailwheel (Mounted)----- 8 hrs.
6. Tailwheel (Pull-type)----- 10 hrs.
8. Carrier bearing (Pull-type)- 10 hrs.
9. Slip joint (Pull-type) ----- 10 hrs.
10. Center U-joint (Pull-type) - 10 hrs.
11. Plastic shield bearings --- 10 hrs.

Figure 11. Jackstand Placement and Lubrication Points

BLADE SERVICE

Blade Removal

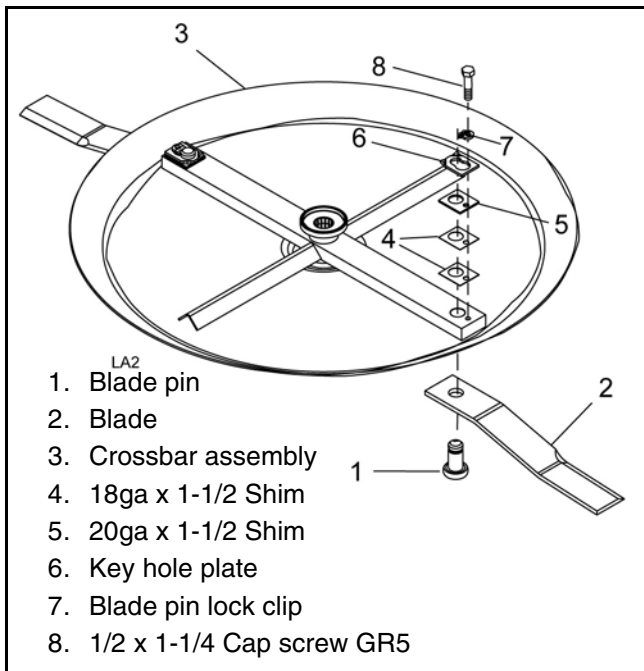


Figure 12. Blade Assembly

NOTICE

■ If blade pin (1) is seized in crossbar and extreme force will be needed to remove it, support crossbar from below to prevent gearbox damage.

1. Disconnect driveline from tractor PTO.

2. Raise cutter and block securely (see Figure 11).
3. Open blade access cover and align crossbar assembly (3) with blade access hole in the cutter frame. Remove cap screw (8) blade pin lock clip (7) keyhole plate (6) and shims (5 & 4). Carefully drive blade pin out of crossbar.
4. Rotate crossbar and repeat for opposite blade.

Blade Installation

Refer to Figure 12.

CAUTION

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

NOTICE

■ Crossbar rotation is counterclockwise when looking down on cutter. Be sure to install blade cutting edge to lead in counterclockwise rotation.

■ Always replace or sharpen both blades at the same time.

1. Inspect blade pin (1) for nicks or gouges, and if you find any replace the blade pin.
2. Insert blade pin through the blade. Blade should swivel on blade pin; if it doesn't determine the cause and correct.

3. Align crossbar assembly (3) 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.

4. Insert blade pin (1) through blade. Push blade pin through crossbar.

5. Install shims (4 & 5) over blade pin.

NOTE: Only use enough shims to allow keyhole plate (6) to slide into blade pin groove.

6. Install blade clip (7) over keyhole plate and into blade pin groove.

7. Secure into position with cap screw (8). Torque cap screw to 85 lbs-ft.

8. Repeat steps for opposite side.

NOTE: 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 gearbox bearings. Vibration may also cause structural cracks to cutter.

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.

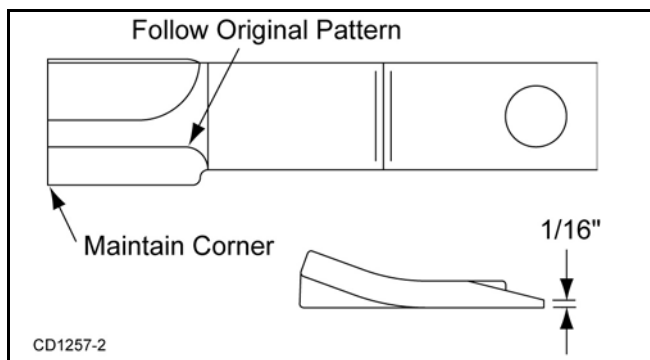


Figure 13. Blade Sharpening

SLIP CLUTCH ADJUSTMENT

Mounted Cutters & BB840XP S/N 1127329 & Above (Figure 14)

The slip clutch is designed to slip so that the gearbox and driveline are protected if the cutter strikes an obstruction.

A new slip clutch or one that has been in storage over the winter may seize. Before operating the cutter, make sure it will slip by performing the following operation:

1. Turn off tractor engine and remove key.
2. Remove driveline from tractor PTO.
3. Loosen six 10 mm cap screws (6) to remove all tension from Belleville spring plate (5).
4. Hold clutch hub (3) solid and turn shaft to make sure clutch slips.
5. If clutch does not slip freely, disassemble and clean the thrust plate faces (4), flange yoke (1), and clutch hub (3).
6. Reassemble clutch.
7. Tighten Belleville spring (5) until it is against the thrust plate (4) of the clutch, and then back off each of the six nuts by 2 full revolutions. The gap between Belleville spring and thrust plate should be 1/8" as shown in Figure 14.
8. If a clutch continues to slip when the spring is compressed to 1/8" cap, check friction discs (2) for excessive wear. Discs are 1/8" when new. Replace discs after 1/16" wear. Minimum disc thickness is 1/16"

SLIP CLUTCH ADJUSTMENT

BB840XP S/N 1127328 & Below (Figure 15)

The slip clutch is designed to slip so that the gearbox and driveline are protected if the cutter strikes an obstruction.

A new slip clutch or one that has been in storage over the winter may seize. Before operating the cutter, make sure it will slip by performing the following operation:

1. Turn off tractor engine and remove key.
2. Remove driveline from tractor PTO.
3. Loosen six 12 mm cap screws (7) to remove all tension from the compression springs (8).
4. Hold clutch hub (3) solid and turn shaft to make sure clutch slips.

5. If clutch does not slip freely, disassemble and clean the flange yoke (1), clutch hub (3), drive plate (4), drive plate (5), and thrust plate faces (6).
6. Reassemble clutch.
7. Compress each of the six compression springs (8) by tightening the six cap screws (7) and lock nuts (10). The compression springs should be

compressed to a height of 1-7/16", not including washer (9). The minimum spring height is 1.36". See Figure 15.

8. If a clutch continues to slip when the springs are compressed to 1.36", check friction discs (2) for excessive wear. Discs are 1/8" when new. Replace discs after 1/16" wear.

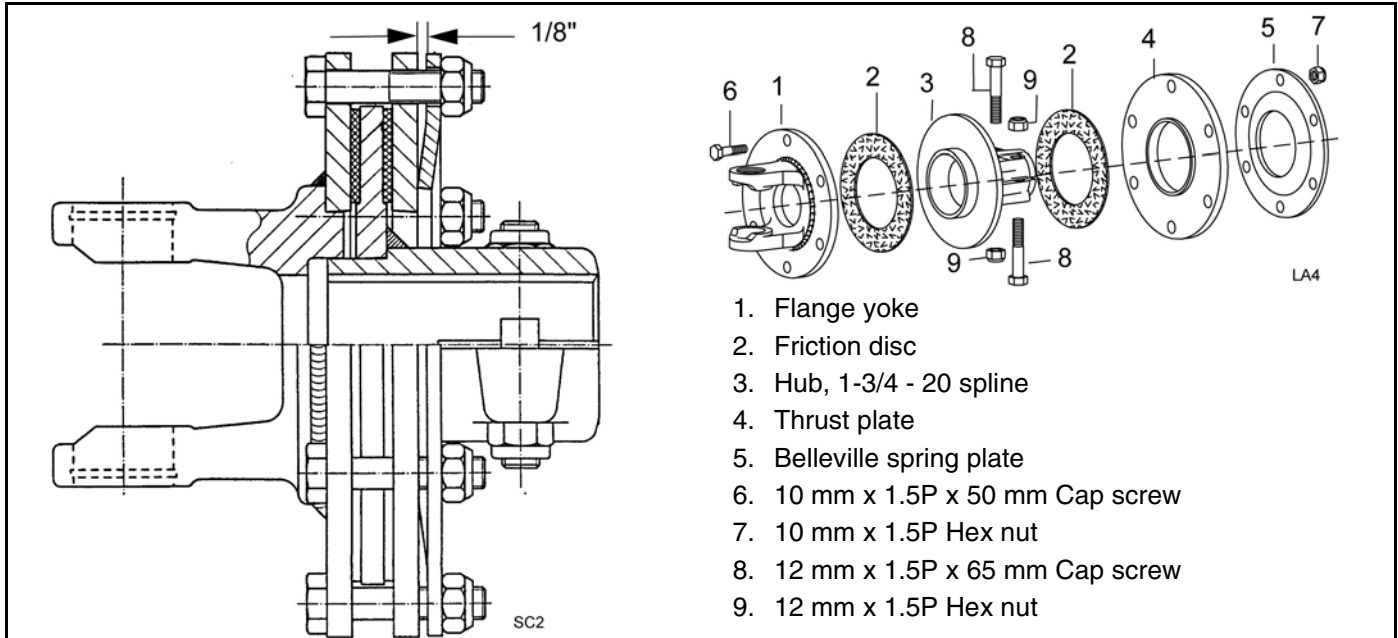


Figure 14. BB600X, BB720X, BB840X & BB840XP S/N 1127329 & Above Slip Clutch Assembly

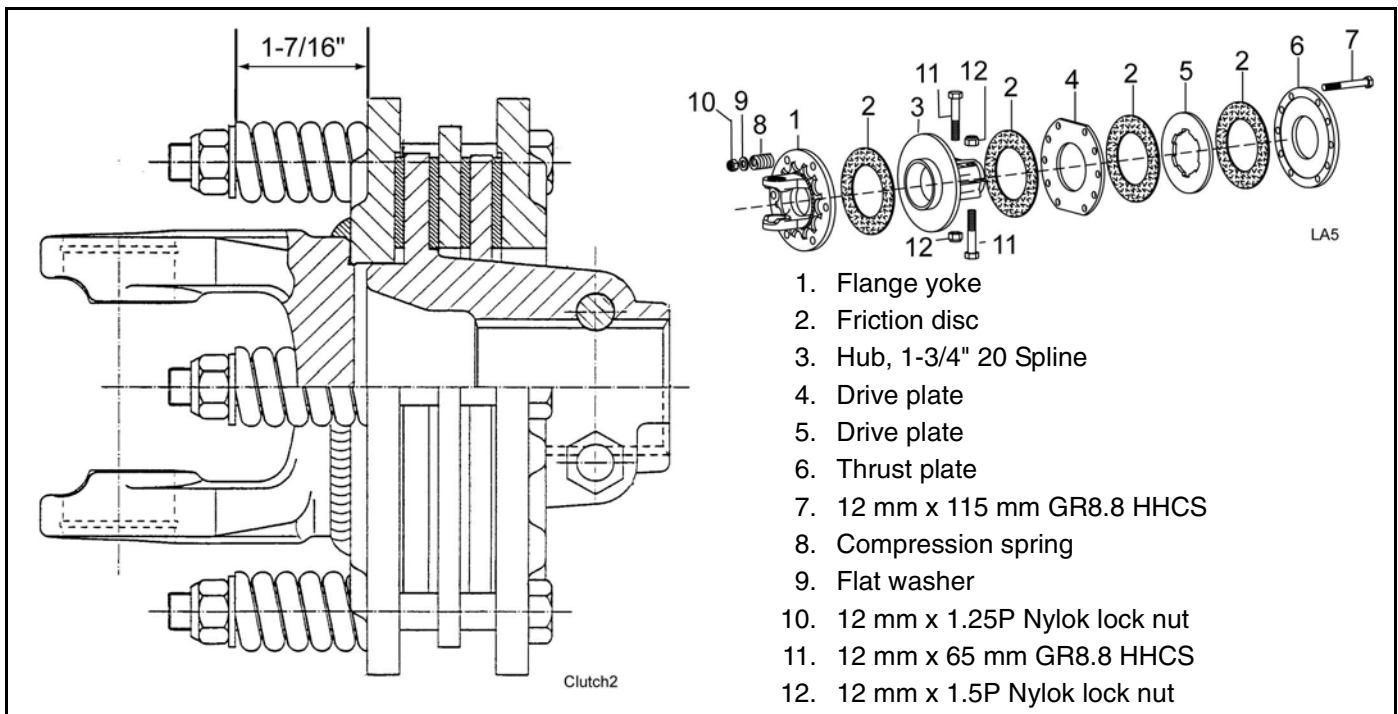


Figure 15. Slip Clutch Assembly BB840XP S/N 1127328 & Below

SHIELDING REPAIR

DANGER

■ Full chain, rubber, or steel band shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.

- If this machine is not equipped with full chain, rubber, or steel band shielding, operation must be stopped when anyone comes within 300 feet (92 m).
- This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).

Rear Band

Inspect rear band each day of operation, replace if bent, cracked, or broken.

Optional Rubber Shielding

Inspect rubber shielding each day of operation and replace if cracked or broken.

Optional Chain Shielding

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

SERVICING TIRES SAFELY

Used Aircraft Tires (Figure 16)

WARNING



■ Explosive separation of tire and rim parts can cause serious injury or death. Release all air pressure before loosening bolts.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure and result in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and an extension hose long enough to allow you to stand to the side — not in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims, or missing lug bolts and nuts.

Never remove split rim assembly hardware (A) with the tire inflated.



Figure 16. Split Rim Tire Servicing

CLEANING CUTTER

After Each Use

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

Periodically or Before Extended Storage

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



TROUBLESHOOTING

MOWING CONDITIONS

PROBLEM	POSSIBLE CAUSE	SOLUTION
Grass cut lower in center of swath than at edge	Height of cutter lower at rear or front	Adjust cutter height and attitude so that cutter rear and front are within 1/2" of same height. See Cutting Height Adjustment (Mounted Cutter), page 16.
Streaking conditions in swath	Conditions too wet for mowing	Allow grass to dry before mowing.
	Blades unable to cut that part of grass pressed by path of tractor tires	Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
	Dull blades	Sharpen or replace blades.
Material discharges from cutter unevenly; bunches of material along swath	Material too high and too much material	Reduce ground speed but maintain 540 rpm at tractor PTO or make two passes over material. Raise cutter for the first pass and lower to desired height for the second and cut at 90° to first pass. Raise rear of cutter high enough to permit material to discharge but not so high to cause conditions listed above.
	Grass wet	Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
	Rear of cutter too low, trapping material under cutter	Adjust cutter height and attitude.
Cutter will not cut all the time (Slip clutch drive only)	Slip clutch slipping	Adjust slip clutch according to instructions in SLIP CLUTCH adjustment, page 22.

NOTES

DEALER SERVICE

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

WARNING

■ Before working underneath, read manual instructions, securely block up, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failure, or mechanical component failure.

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

CAUTION

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

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

Refer to Figure 17.

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

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

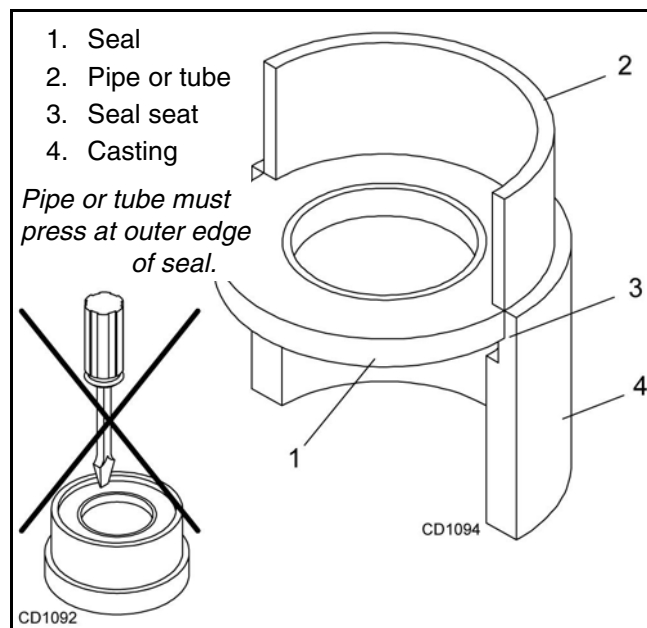


Figure 17. Seal Installation

Vertical Shaft Repair

Refer to Figure 18.

1. Disconnect and remove the rear driveline from the gearbox.
2. Remove vent plug (24) and siphon gear lube from housing through this opening.
3. Remove crossbar (see **Crossbar Removal, page 31**).
4. Remove protective seal (8) and vertical shaft seal (18). Replace seal (18) with new seal (see **Seal Replacement, page 28**).

Vertical seal should be recessed in housing. Horizontal seal (19) should be pressed flush with outside of housing.

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

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

6. Remove and replace any seal damaged in installation.

Horizontal Leak Repair

Refer to Figure 18.

1. Disconnect and remove the rear driveline from the gearbox.
2. Remove vent plug (24) and siphon gear lube from housing through this opening.
3. If the leak occurred at either end of horizontal shaft, remove oil cap (20) and/or oil seal (19). Replace with new one (refer to **Seal Replacement, page 28**).
4. Fill gearbox with SAE 80W or 90W gear lube until it runs out the level plug.

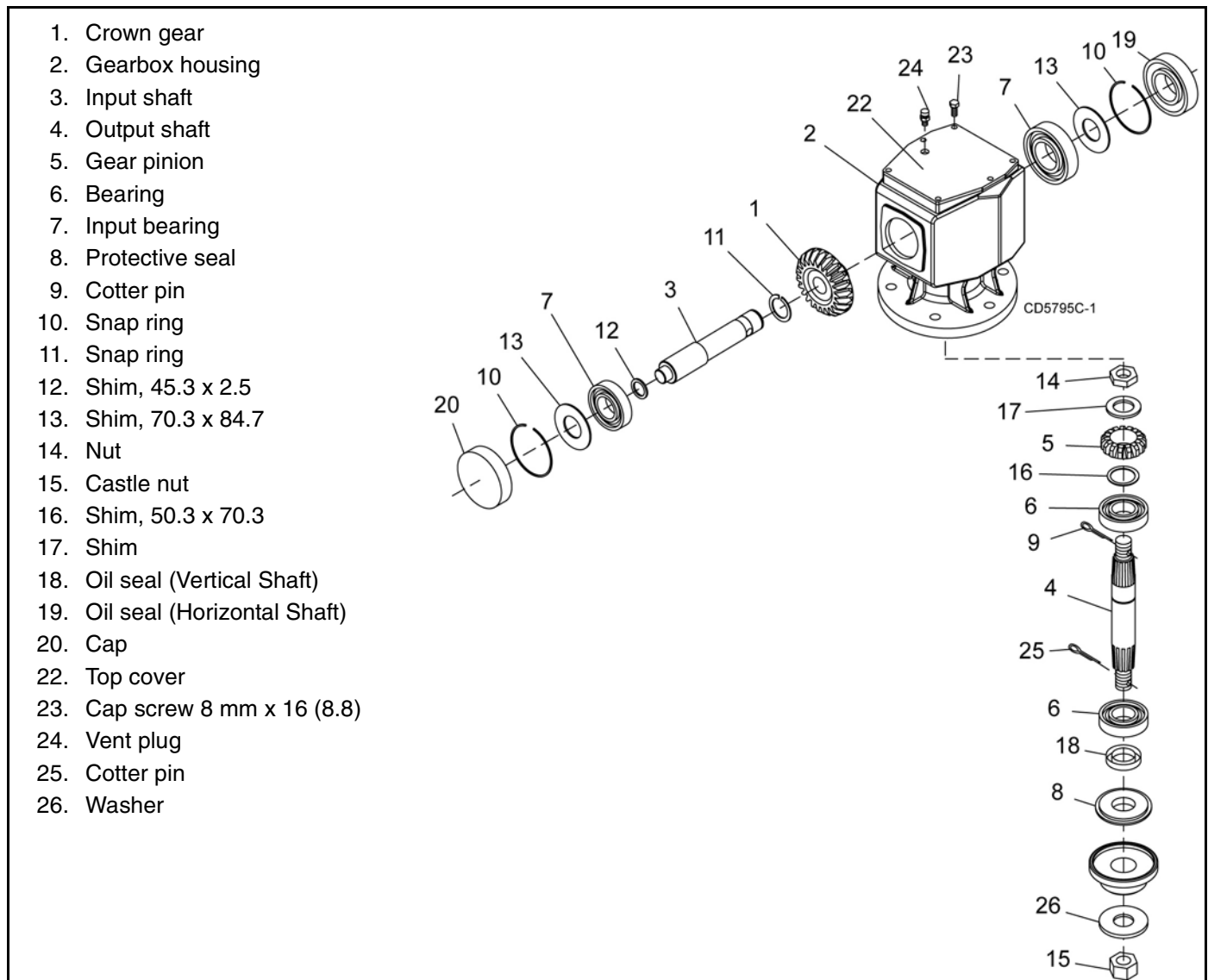


Figure 18. Gearbox Assembly

GEARBOX REPAIR

Remove Gearbox from Cutter

Refer to Figure 18.

1. Disconnect and remove the rear driveline from the gearbox.
2. Remove breather level plug (24) and siphon gear lube from housing through this opening.
3. Remove 9 ga. wire and nut from vertical shaft and remove crossbar (see **Crossbar Removal, page 31**).
4. Remove the six bolts that attach gearbox to cutter and remove gearbox.

Disassemble Gearbox

Refer to Figure 18.

1. Remove plug from side of gearbox and pour out gear oil.
2. Remove oil cap (20) (to be replaced).
3. Remove snap ring (10) and shim (13) from input shaft (3).
4. Support gearbox in hand press and push on input shaft (3) to remove bearing (7).
5. Remove six cap screws (23) and top cover (22) from housing. Remove gear (1) from inside housing.
6. Remove oil seal (19) from front of housing (to be replaced).
7. Remove snap ring (10) and shim (13) from front of housing (2).
8. Remove input bearing (7) by using a punch and hammer from outside of housing.
9. Support housing in vise in a horizontal position.
10. The castle nut (15), 9 ga. wire (25), and hub are already removed with the stump jumper/crossbar. Remove the protective seal (8), and oil seal (18).
11. Remove cotter pin (9), castle nut (14), and washer (17) from output shaft (4).
12. Remove output shaft (4) by using a punch and hammer and tap on top to drive down. Remove gear (5) and shim (16) from inside housing.
13. Remove bottom bearing (6) by using a punch and hammer from the top, outside the housing.
14. Support housing upside down (top cover surface) and remove second bearing (6) by using a punch and hammer from the bottom side of the housing.
15. Inspect gears for broken teeth and wear. Some wear is normal and will show on loaded side.

Forged gear surfaces are rough when new. Check that wear pattern is smooth.

16. Inspect vertical and horizontal shafts for grooves, nicks, or bumps in the areas where the seals seat. Resurface any damage with emery cloth.
17. Inspect housing and caps for cracks or other damage.

Gearbox Assembly

Refer to Figure 18.

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

1. Clean housing, paying specific attention to areas where gaskets will be installed.
2. Wash housing and all components thoroughly. Select a clean area for gearbox assembly. Replace all seals, bearings, and gaskets. All parts must be clean and lightly oiled before reassembling.
3. Insert both output bearings (6) in the housing, using a round tube of the correct diameter and a hand press.
4. Slide output shaft (4) through both bearings (6) until it rests against top bearing (6).
5. Slide shim (16) over output shaft (4).
6. Press gear (5) onto output shaft (4) and secure with washer (17), castle nut (14), and cotter pin (9).
7. Apply grease to lower seal lips (18) and press seal (18) over output shaft (4), using a tube of the correct diameter. Be sure not to damage the seal lip.

Press in housing so that seal is recessed. Press protective seal (8) until seated flush with housing. Verify that the seal (8) is seated correctly.
8. Press bearing (7) into the housing, using a round tube of the correct diameter and a hand press. Secure with shim (13) and snap ring (10).
9. Secure snap ring (11) on input shaft (3) if not already secure.
10. Place gear (1) through top of housing and align gear (1) and gear (5) so that gear teeth are a match.
11. While holding gear (1) in place, slide input shaft (3) through gear (1) and bearing (7). Align splines on shaft (3) and gear (1).
12. Slide spacer (12) over input shaft (3) and press bearing (7) onto input shaft (3), using a round tube of the correct diameter and a hand press.

13. Slide shim (13) over input shaft (3) and secure with snap ring (10).
14. Check input shaft end float by moving the input shaft (3) by hand. If end float is higher than 0.012", insert shim between input shaft (3) and rear bearing (7). Repeat until end float is less than 0.012". Check rotational torque by hand. The torque should be less than 2.2 lbs-inch.
15. Check that the gear backlash is between 0.006" and 0.016". You should not have to adjust the backlash.
16. Press in input oil seal (19), using tube of correct diameter. Be careful not to damage seal lip.
17. Press oil cap (20) on to cover the rear of housing, using a tube of the correct diameter.
18. Place top cover (22) on top of housing and secure with six cap screw (23).
19. Check gearbox housing for leaks by plugging all holes except one. Apply 4 psi compressed air and immerse the gearbox in water to verify that there are no leaks.
20. Remove gearbox from water and dry off with compressed air. Add SAE 80W or 90W EP oil until it runs out of side level hole. Tighten all plugs.

Reinstall Gearbox

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

1. Set gearbox on cutter and fasten with bolts and nuts. Torque bolts to 300 lbs-ft.
2. Attach crossbar (see **Crossbar Installation, page 32**).

CROSSBAR REMOVAL

1. It is necessary to gain access to bottom side of cutter for crossbar removal. See **BLOCKING METHOD, page 20**.

NOTE: You will need to use either the puller screw (Item 6, Figure 19) or a small hydraulic jack to remove the crossbar.

2. Remove blade pin hardware, blade pins and blades from crossbar.
3. Remove retaining wire from bottom of crossbar and remove nut and washer.
4. **Refer to Figure 19.** Attach clevis (1) to each end of crossbar, using blade pins, spacers, keyhole plates, and blade pin clips.
5. Position tube assembly (5) with threaded nut toward crossbar for puller screw removal or down for hydraulic jack removal.

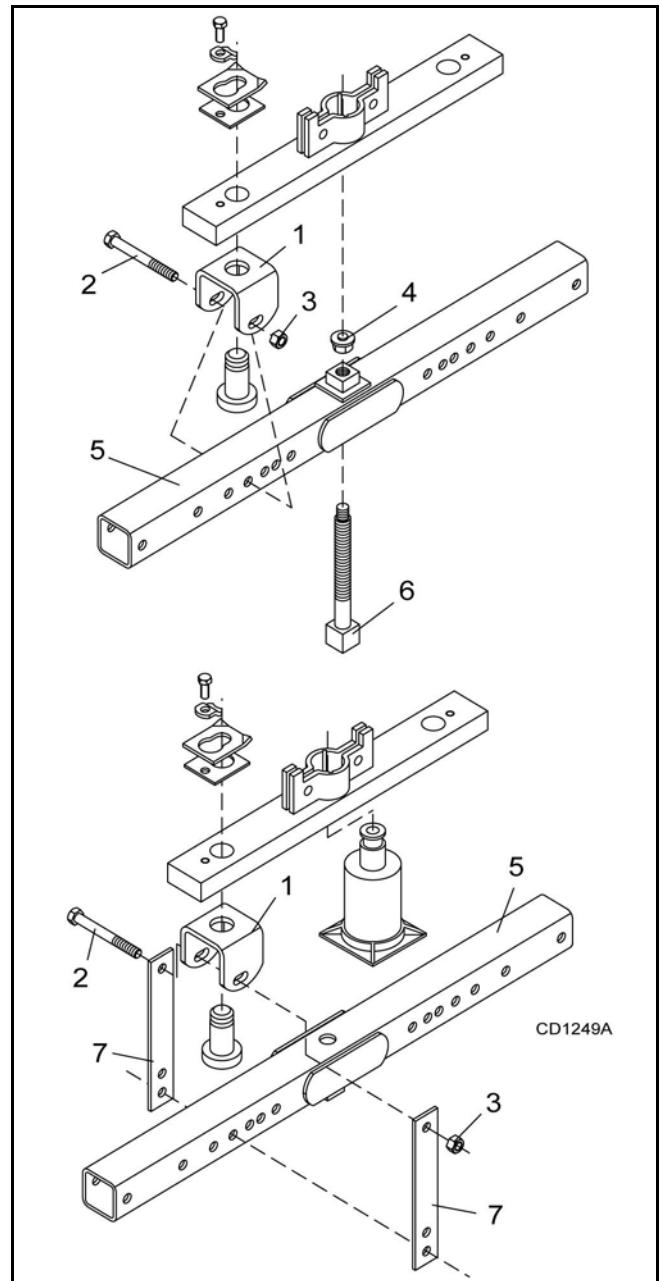


Figure 19. Crossbar Removal

6. For removal with puller screw, attach tube (5) to each clevis with bolts (2) and nuts (3). Place pad (4) in nut and thread puller screw (6) into nut from bottom. Tighten until pad is solid against gearbox shaft. For best results, strike head of puller screw with a hammer while tightening with a wrench.
7. For removal with a jack, attach tube to each clevis with puller links (7), bolts (2), and nuts (3). Place jack on tube with end of jack pressing against gearbox shaft. Slowly apply force with jack.

NOTE: Hydraulic jack will not operate if tipped more than 90°. Use care to prevent bending crossbar during removal.

CROSSBAR INSTALLATION

Using emery cloth (220 or finer), remove surface rust, Loctite® and foreign material from hub, splined gearbox, vertical shaft, and crossbar as shown in Figure 20.

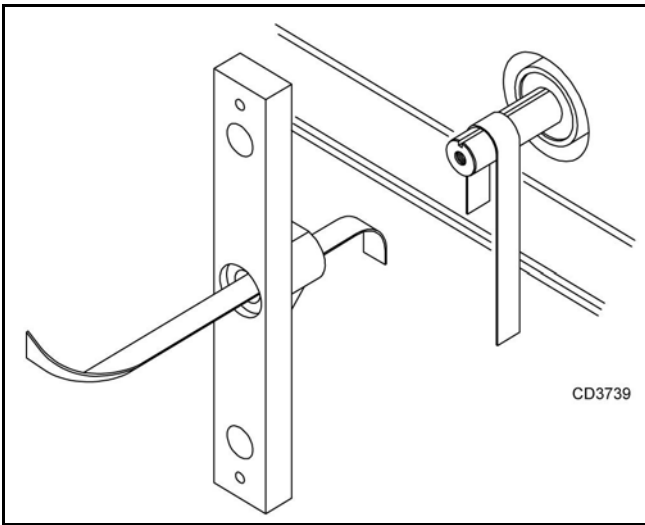


Figure 20

Refer to Figure 21.

8. Install crossbar (2) on splined shaft. Install washer (5) and nut (3). Torque nut to 450 lbs-ft.
9. Install cotter pin (4) (supplied) through gearbox shaft and slots in nuts. Twist end of pin around nut (3).

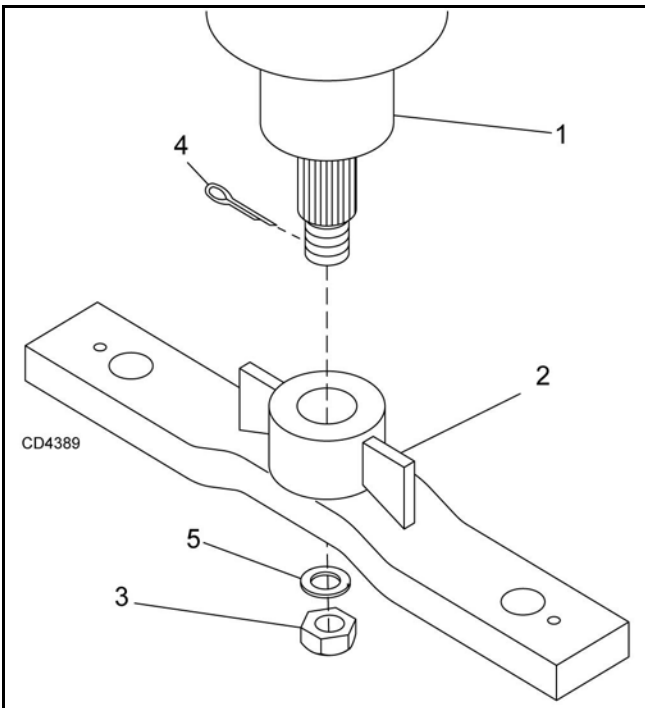


Figure 21

UNIVERSAL JOINT REPAIR

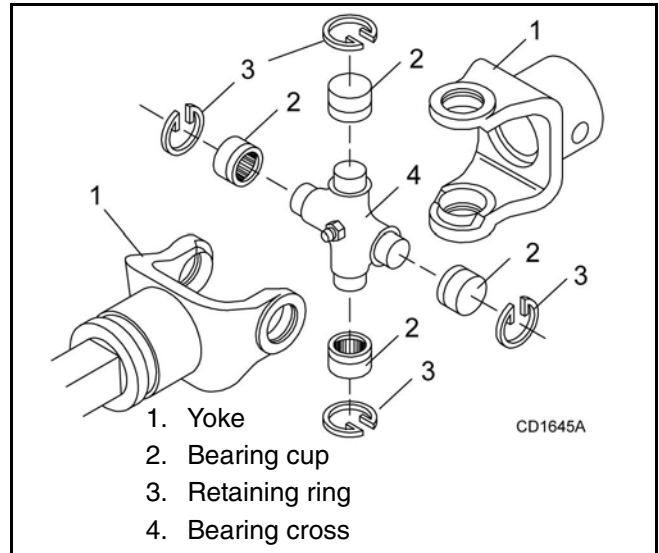


Figure 22. U-Joint Exploded View

U-Joint Disassembly

1. Remove external snap rings from yokes in four locations as shown in Figure 23.

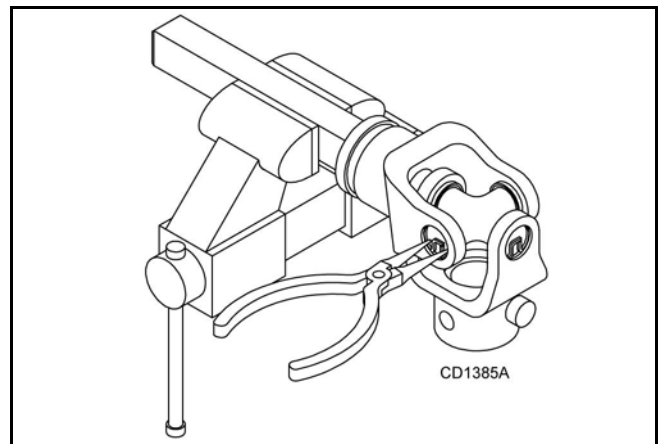


Figure 23. Remove Snap Ring

2. With snap rings removed, support drive in vise, hold yoke in hand and tap on yoke to drive cup up out of yoke. See Figure 24.

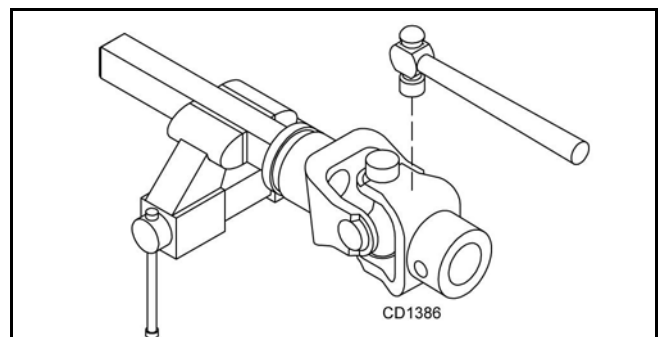


Figure 24. Remove Bearing Cups

3. Clamp cup in vise as shown in Figure 25 and tap on yoke to completely remove cup from yoke. Repeat Step 2 & 3 for opposite cup.

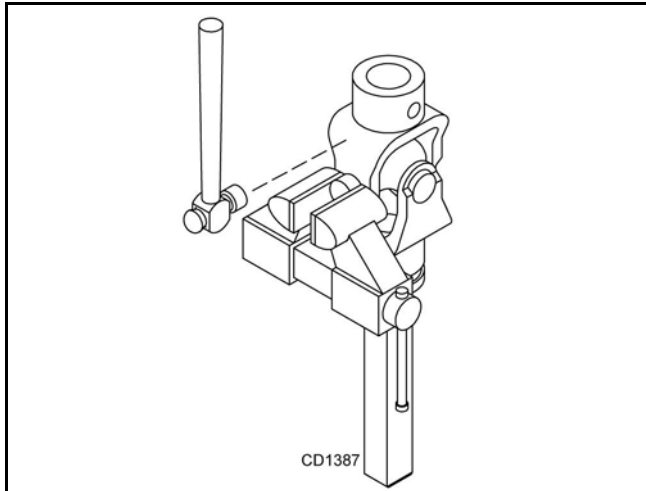


Figure 25. Remove Bearing Cups

4. Place universal cross in vise as shown in Figure 26 and tap on yoke to remove cup. Repeat Step 3 for final removal. Drive remaining cup out with a drift and hammer.

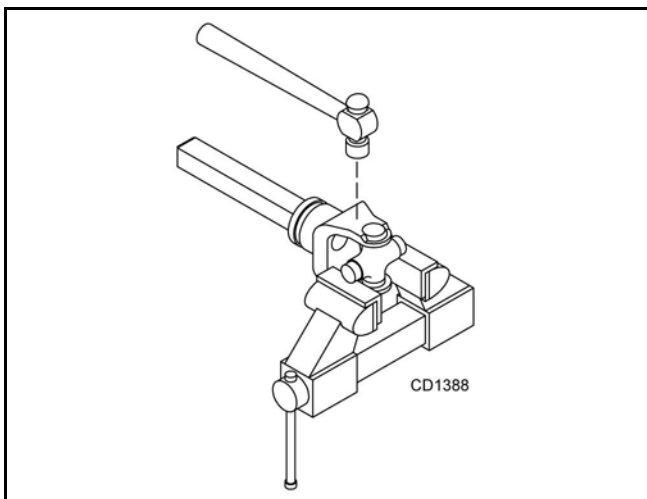


Figure 26. Remove Bearing Cups

U-Joint Assembly

1. Place seals securely on bearing cups. Insert cup into yoke from outside and press in with hand pressure as far as possible. Insert journal cross into bearing cup with grease fitting away from shaft. Be careful not to disturb needle bearings. Insert another bearing cup directly across from first cup and press in as far as possible with hand pressure.

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.

2. Seat cups by placing a drift or socket (slightly smaller than the cup) on cup and rap with a hammer. See Figure 27. Install snap ring and repeat on opposite cup.
3. Repeat Step 1 & Step 2 to install remaining cups in remaining yoke.
4. Move both yokes in all directions to check for free movement. If movement is restricted, rap on yokes sharply with a hammer to relieve any tension. Repeat until both yokes move in all directions without restriction.

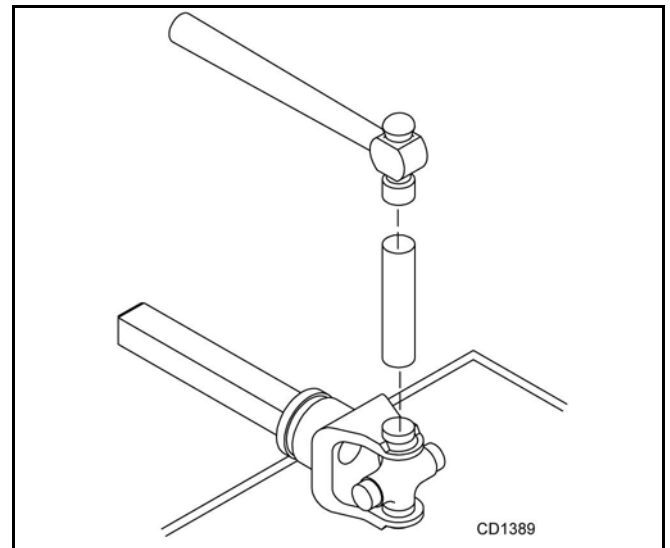


Figure 27. Install Bearing Cups

SERVICING TIRES SAFELY

Used Aircraft Tires (Figure 28)

! WARNING



■ Explosive separation of tire and rim parts can cause serious injury or death. Release all air pressure before loosening bolts.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an

increase in air pressure and result in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and an extension hose long enough to allow you to stand to the side — not in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims, or missing lug bolts and nuts.

Never remove split rim assembly hardware (A) with the tire inflated.



Figure 28. Split Rim Tire Servicing



ASSEMBLY

DEALER SET-UP INSTRUCTIONS

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

Complete **Dealer Check Lists, page 44** when you have completed the assembly.

The cutter is shipped partially assembled. Assembly will be easier if aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located in the Bolt Torque Chart, page 64.

⚠ DANGER

■ Full chain, rubber, or steel band shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.

- If this machine is not equipped with full chain, rubber, or steel band shielding, operation must be stopped when anyone comes within 300 feet (92 m).

- This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).

⚠ WARNING

- Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.
- Connect PTO driveline directly to power unit PTO shaft. Never use adapter sleeves or adapter shafts. Adapters can cause driveline failures due to incorrect spline or incorrect operating length and can result in personal injury or death.

⚠ 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.

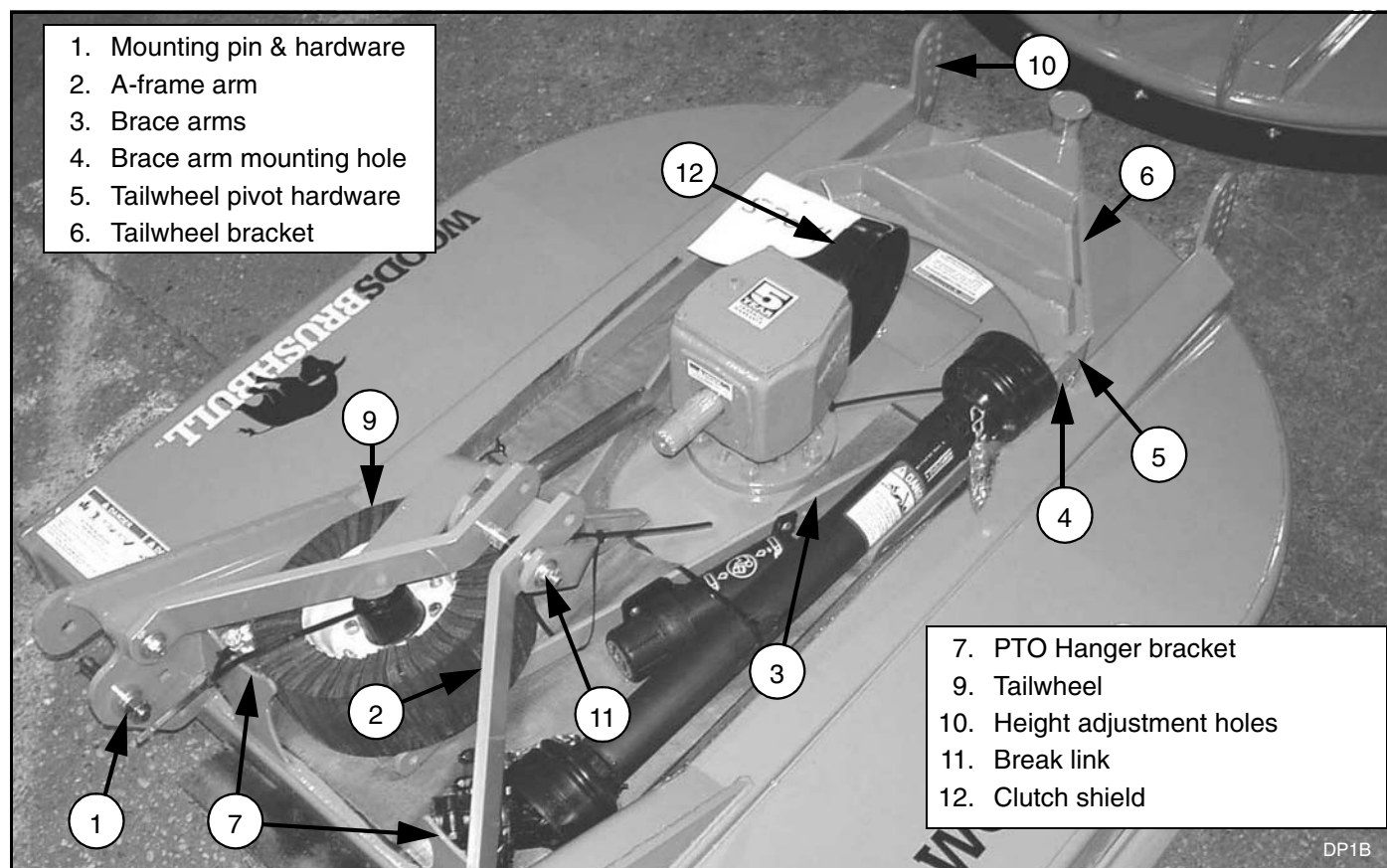


Figure 29. Shipping Configuration

(Rev. 10/31/2008)
MAN0654 (Rev. 10/19/2007)

Assembly 35

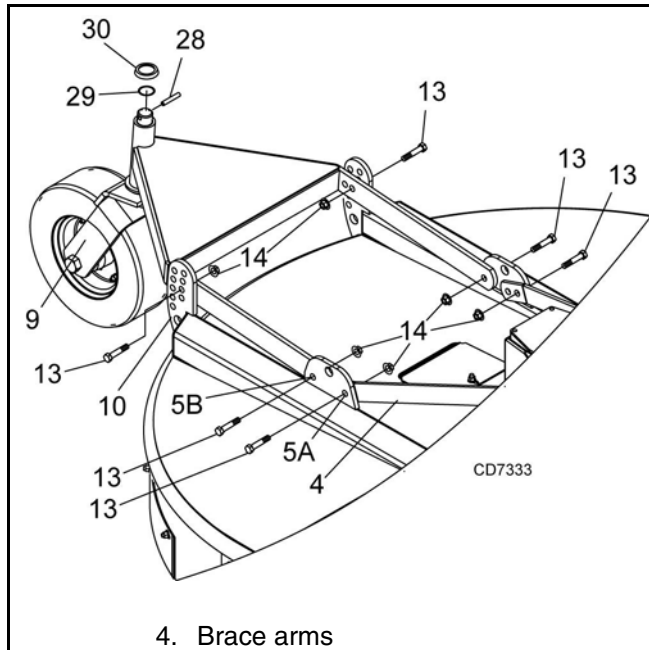
Disassemble Shipping Unit

Refer to Figure 29.

1. Position cutter flat and place a block underneath the rear of the cutter to raise it off the ground.
2. Remove all parts that are wired or strapped to cutter. Remove parts from manual tube and hardware that is securing tailwheel bracket (6) and brace arms (8) to cutter.

ASSEMBLE MOUNTED CUTTER

Install Tailwheel



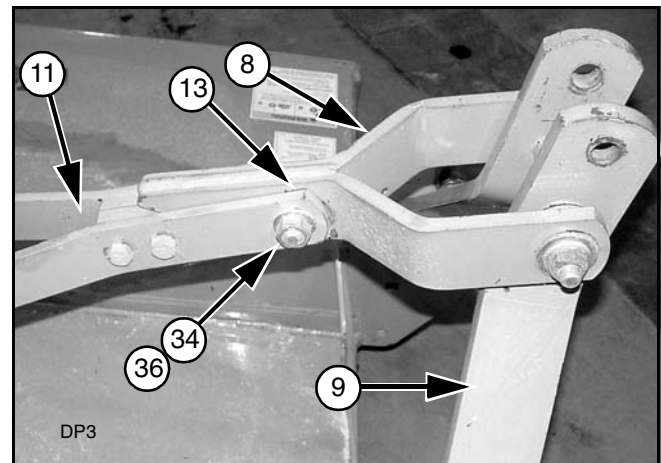
4. Brace arms
- 5A. Brace arm mounting hole
- 5B. Tailwheel pivot hole
6. Tailwheel bracket
9. Tailwheel assembly
10. Height adjustment holes
13. 5/8 NC x 2 Cap screw
14. 5/8 NC Flange lock nut
27. Washer, .18 x 1.62 x 3
28. Spiral pin 3/8 x 2
29. O-Ring
30. Washer

Figure 30. Tailwheel Installation

1. Attach tailwheel bracket (6) to cutter at the tailwheel pivot holes (5B) using cap screw (13) and flange lock nut (14) previously removed.
2. Select desired height adjustment holes (10), and secure tailwheel bracket with cap screws (13) and flange lock nuts (14). Cutting height adjustment will be necessary when cutter is fully assembled. See "Cutting Height Adjustment (Mounted Cutter)" on page 16.
3. Raise rear of cutter and insert tailwheel assembly (9) into tailwheel bracket (6). Secure with o-ring (29), washer (30), and spiral pin (28).
4. Place diagonal brace bars (4) on the inside of frame rails and attach to diagonal brace mounting holes (5A). Secure using cap screws (13) and flange lock nuts (14).

Connect A-Frame Arms

1. Rotate A-frame arms (9) and break link (8) forward and up.
2. Attach brace arms (11) to the break link (8) using cap screw (36), sleeve (13), and flange lock nut (34).



8. Break link
9. A-Frame arms
11. Brace arms
13. Sleeve, .628 x 1.0 x 1.25
34. 5/8 NC Flange lock nut
36. 5/8 NC x 2-3/4 HHCS GR5

Figure 31. Brace Arm Connection

Install Slip Clutch Driveline

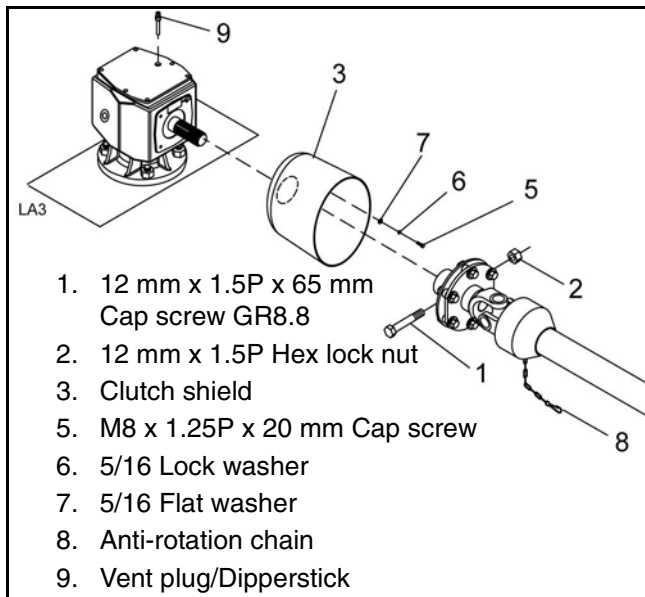


Figure 32. Slip Clutch Driveline Assembly

A new slip clutch, or one that has been in storage over the winter, may seize.

NOTICE

■ A grade 8.8 metric bolt must be used to attach clutch driveline to gearbox.

1. Before operating slip clutch, make sure it will slip. Refer to SLIP CLUTCH adjustment, page 22.
2. Position the shield (3) against gearbox. Install shield and torque bolts (5) to 12 lbs-ft.
3. Install driveline onto gearbox input shaft and secure with bolts (1) and nuts (2).
4. Lubricate rear driveline half and install front driveline half.

INSTALL SAFETY SHIELDING

Install Optional Chain Shielding

⚠ DANGER

■ Full chain, rubber, or steel band shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.

- If this machine is not equipped with full chain, rubber, or steel band shielding, operation must be stopped when anyone comes within 300 feet (92 m).
- This shielding is designed to reduce the risk of thrown objects. The mower deck and protective devices cannot prevent all objects from

escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet (92 m).

The optional chain shielding assemblies are ready for installation when you receive them.

1. Refer to **Front & Rear Chain Shielding, page 58** and attach as shown by inserting the bolts from inside the cutter frame out through the shielding.
2. Install hardware as shown in the parts drawing.

Install Rubber Deflector

1. Attach rubber deflector (1) and link (2) to front of cutter using carriage bolts (3) and flange lock nuts (4).
2. Insert bolts from inside the cutter frame out through the shielding.

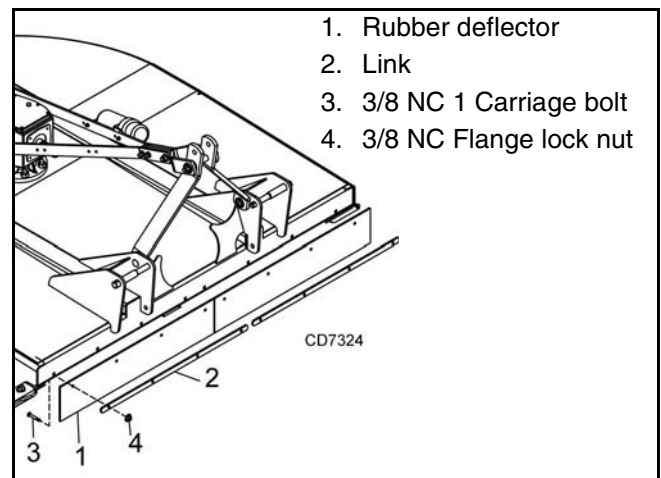


Figure 33. Rubber Deflector and Foot Guard Installation

FILL GEARBOX

NOTICE

■ Gearbox is not filled at the factory. Prior to delivery to customer, make sure gearbox is filled only half-full with 80W or 90W API GL-4 or GL-5 gear lube. Use side hole to remove any excess oil.

1. Remove vent plug/dipperstick (9) on top of gearbox and plug on side of gearbox. Use 5/16" allen wrench to remove plug.
2. Make sure vent plug hole is clear.
3. Fill gearbox until oil runs out the side hole on gearbox. Use a high quality gear oil with a viscosity index of 80W or 90W and an API service rating of GL-4 or GL-5.
4. Install side plug and vent plug.

ASSEMBLE BB840XP (PULL-TYPE)

Install Tailwheel Yoke

Refer to Figure 34.

1. Position pull-type wheel yoke (1) behind cutter with cylinder lugs offset to the right.
2. Attach wheel yoke brackets to rear deck lugs using two clevis pins, secure with cotter pins.
3. Attach wheel and hub using 1/2" x 3" bolts and 1/2" nuts.

Install Attitude Rod

1. Place attitude rod into pivot block in wheel yoke. The rod is a very tight fit; use care to prevent thread damage.
2. Loosely install spacer, washer, and nuts on end of attitude rod.

Install Height Adjustment Device

Ratchet

1. Place one end of ratchet (13) over lug on deck and secure with pin (4) and cotter pins (6).
2. Attach opposite end of ratchet (13) over lug on tailwheel and secure with pin (12) and two cotter pins (6).

Cylinder

1. Place base end of hydraulic cylinder (14) around lug on deck and secure with pin (4) and cotter pins (6).
2. Extend cylinder rod, place transport lock bracket (18) over cylinder rod end and around lug on tailwheel.
3. Align holes of cylinder rod, transport lock bracket and lug on tailwheel. Secure assembly using pin (12) and cotter pins (6).

Install Hydraulic Hose



- **On pull-type units with optional hydraulic cutting height adjustment, use a single-acting cylinder with a maximum extended length of 28-1/4" (718 mm) from attaching point center to center.**

NOTICE

- **If using a cylinder other than the one supplied by Woods, make sure a breather fitting is installed in the cylinder rod end port. Use a restricter fitting in the base end port to dampen the cutter lowering action.**

1. Install reducer bushing (15) and restricter elbow (16) in port at base end of cylinder (14). Position elbow to point toward front of cutter.

NOTE: Make sure there is a breather fitting installed in the rod end port.

2. Connect hose (17) to elbow (16).
3. Install optional stroke control kit (19) to cylinder rod. Stroke control kit is used to set cut height.

Install SMV Emblem

1. Align holes of manual tube (20) and SMV mounting bracket (21) and attach both items to deck using cap screws (22) washers (23), lock washers (24) and hex nuts (25).
2. Attach SMV socket (26) to SMV mounting bracket using two carriage bolts (27) and lock nuts (28).
3. Attach SMV emblem (29) to SMV bracket (30) using two round head cap screws (31) and hex nuts (32).
4. Insert SMV bracket (30) and emblem (29) into socket (26).

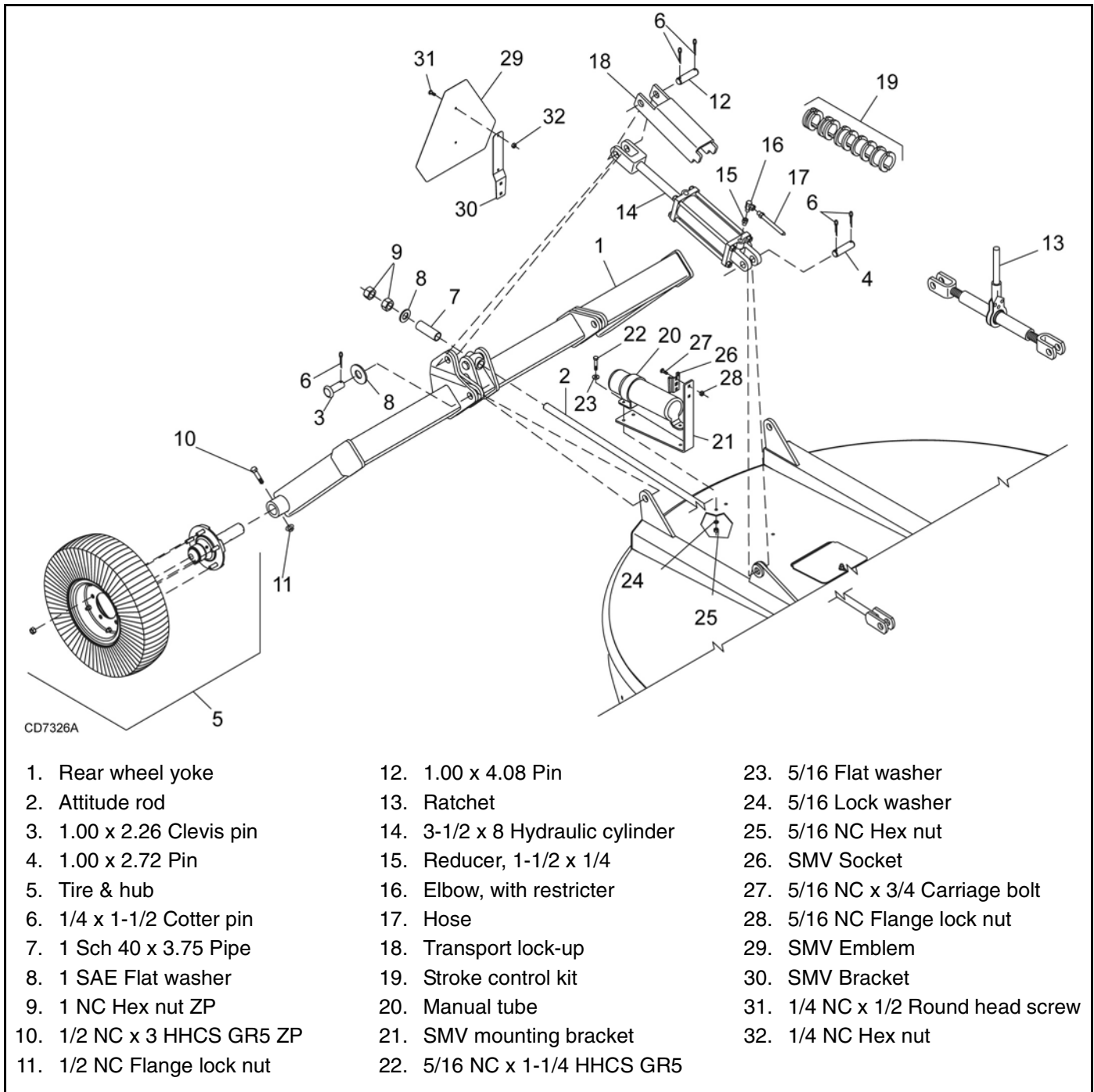


Figure 34. Rear Tailwheel Installation

Install Tongue

1. Align tongue (1) with top holes on the inside of mast plates.
2. Assemble 3/4 x 2-1/2 bolt (4), 3/4 washer (2), 3/4 x 1-1/8 x 5/8 bushing (18), washer (3) and nut (19). As shown in Figure 35.
3. Attach attitude rod (27) to tongue as shown in Figure 35. Secure with clevis pin (9) and cotter pin (20).
4. Attach H-frame (5) to front of tongue (1) as shown, secure with clevis pin (7) and cotter pin (8).
5. Raise front of cutter and install parking jack (28) to support tongue.
6. Attach safety tow chain (26) to tongue using 3/4 x 2-1/2 bolt (4) and 3/4 washer (2).

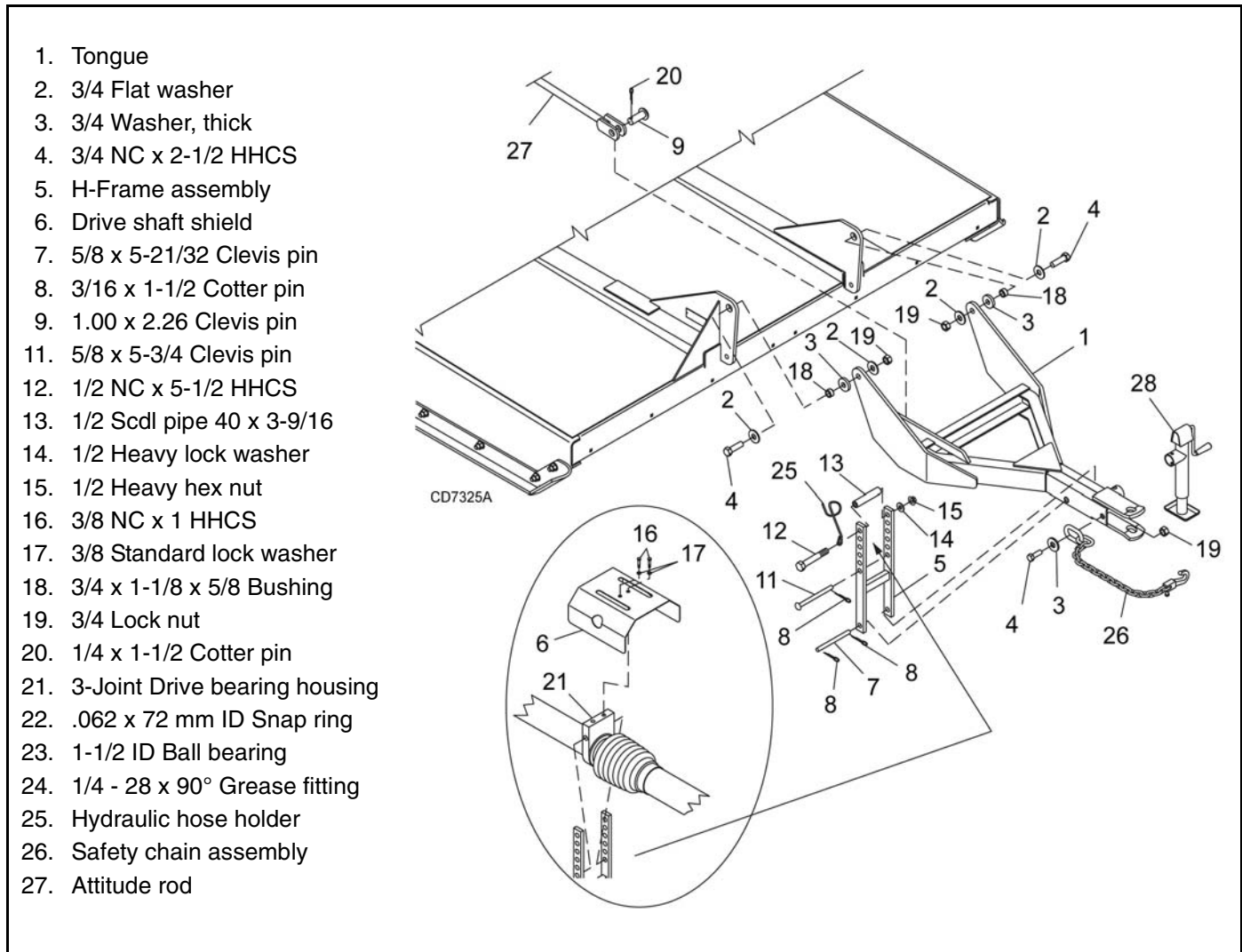
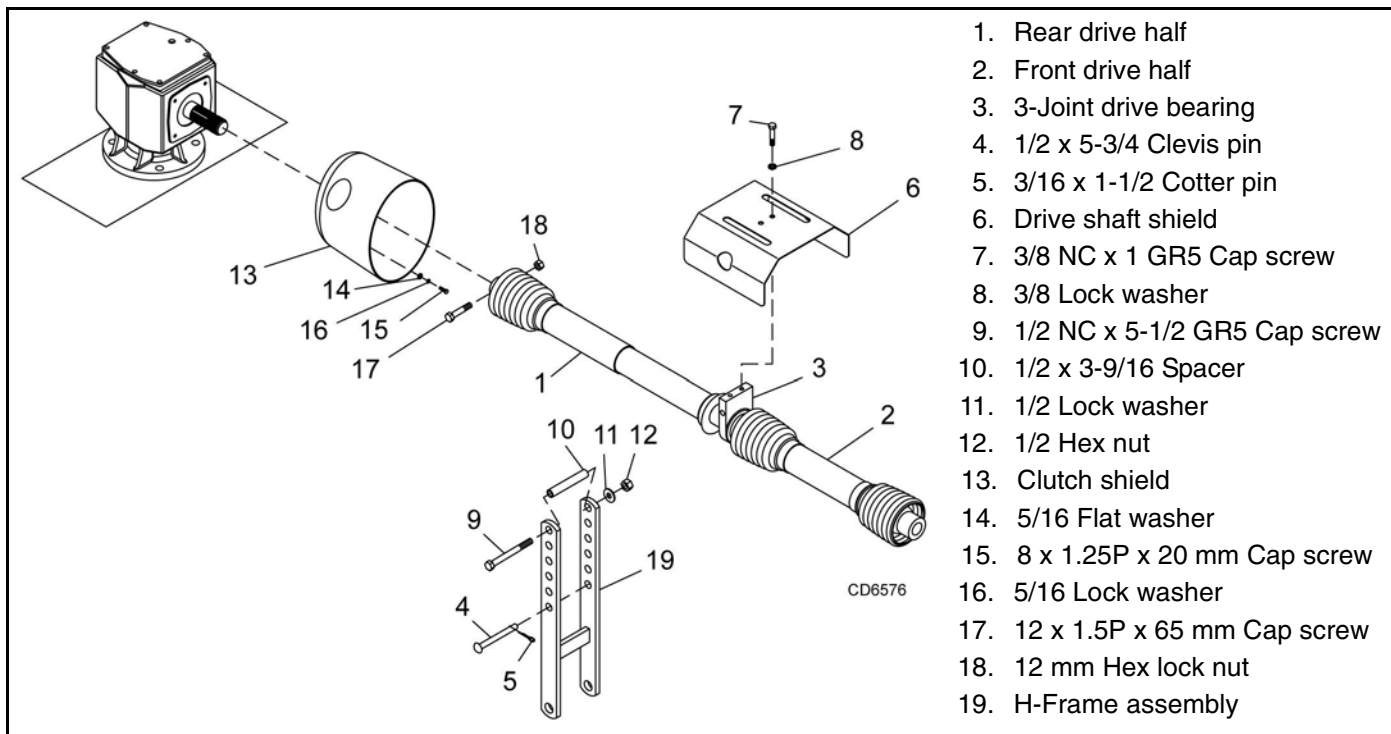


Figure 35. Tongue and H-Frame Installation



1. Rear drive half
2. Front drive half
3. 3-Joint drive bearing
4. 1/2 x 5-3/4 Clevis pin
5. 3/16 x 1-1/2 Cotter pin
6. Drive shaft shield
7. 3/8 NC x 1 GR5 Cap screw
8. 3/8 Lock washer
9. 1/2 NC x 5-1/2 GR5 Cap screw
10. 1/2 x 3-9/16 Spacer
11. 1/2 Lock washer
12. 1/2 Hex nut
13. Clutch shield
14. 5/16 Flat washer
15. 8 x 1.25P x 20 mm Cap screw
16. 5/16 Lock washer
17. 12 x 1.5P x 65 mm Cap screw
18. 12 mm Hex lock nut
19. H-Frame assembly

Figure 36. Three-Joint Drive Installation

Install Three-Joint Drive

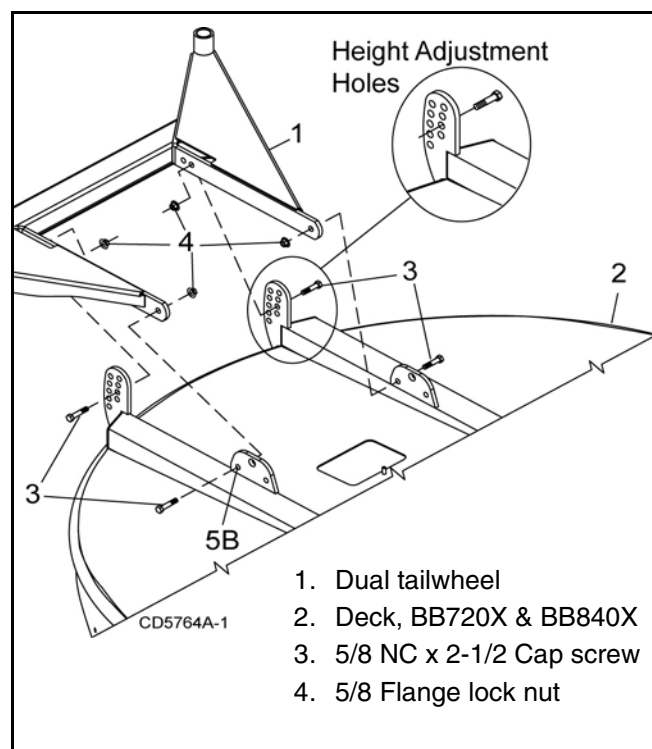
Refer to Figure 36.

1. Position shield (13) against the gearbox and secure with cap screw (15), lock washer (16), and flat washer (14). Torque to 12 lbs-ft.
2. Attach rear half (1) of drive to PTO shaft and secure with two cap screws (17) and lock nuts (18).
3. Grease forward two inches and all sides of rear drive. Slide front drive half (2) onto rear drive.
4. Place carrier bearing holder (3) between H-frame (19) and secure in adjustment hole with clevis pin (4) and cotter pins (5).
5. Place drive shield (6) over carrier bearing holder and secure with two cap screws (7) and two lock washers (8).
6. Install cap screw (9), sleeve (10), lock washer (11) and hex nut (12) to top hole of H-frame.

2. Secure with cap screws (3) and hex nuts (4).
3. Torque hardware to 175 lbs-ft.

INSTALL DUAL TAILWHEEL BB720X & BB840X (OPTIONAL)

1. Attach dual tailwheel (1) to main frame (2) using position 5B and desired height adjustment holes as shown in Figure 37.



1. Dual tailwheel
2. Deck, BB720X & BB840X
3. 5/8 NC x 2-1/2 Cap screw
4. 5/8 Flange lock nut

Figure 37. Dual Tailwheel Installation

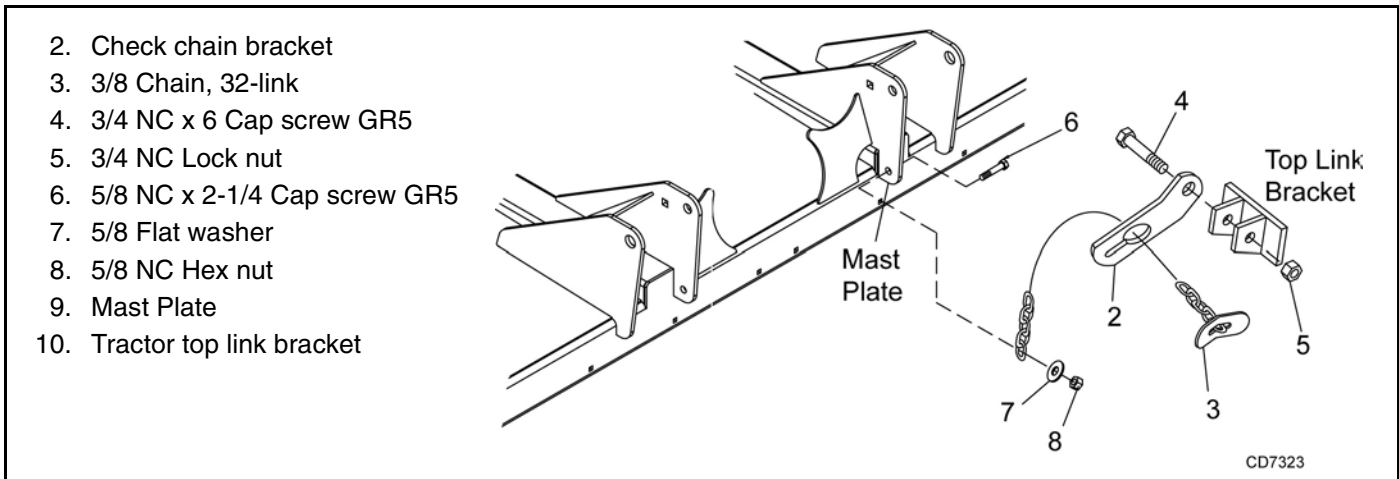


Figure 38. Optional Check Chain Assembly

INSTALL CHECK CHAIN (OPTIONAL)

Check chains are used to carry the front of cutter at a set height. See Figure 38.

1. Thread check chains (3) through check chain bracket (2).
2. Attach lower end of check chain (3) to mast plate (9) with bolt (6), washer (7), and nut (8).
3. Attach keyhole brackets (2) to each side of tractor top link bracket (10) with bolt (4) and nut (5).

1. Remove the rear baffle and hardware.
2. Replace the two 3/8" carriage bolts that were removed from each side of the rear frame. Torque to 35 lbs-ft.
3. Turn the baffle 180-degrees. Secure to the inside of the two mounting brackets with carriage bolts (2) and lock nuts (3) that were previously removed.
4. Secure baffle to the brackets attached to each of the side frames with 3/8 self-tapping screws (1).
5. Tighten all hardware 35 lbs-ft.

RELOCATE BAFFLE

NOTE: Baffle may need to be relocated to the front of the cutter to prevent excessive blow-out when cutter is used on a non-cab tractor.

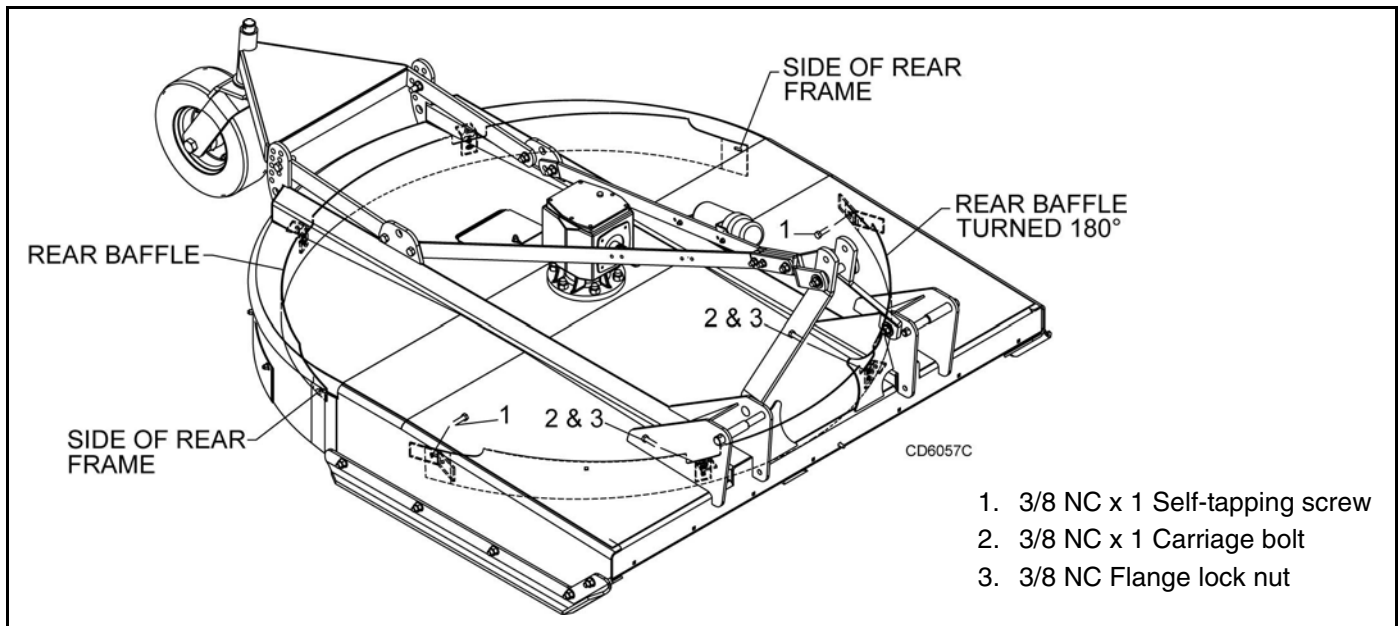


Figure 39. Baffle Installation

NOTES

DEALER CHECK LISTS

PRE-DELIVERY CHECK LIST (DEALER'S RESPONSIBILITY)

NOTICE

■ **Gearbox was not filled at the factory. It must be serviced before operating cutter. (See Fill Gearbox, page 37). Failure to service will result in damage to gearbox.**

Inspect cutter thoroughly after assembly to make sure it is set up properly before delivering it to the customer. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory, corrections are made, or services are performed.

- ___ Check all bolts to be sure they are properly torqued.
- ___ Check that all cotter pins are properly installed and secured.
- ___ Check that PTO shaft is properly installed.
- ___ Check that gearbox is properly serviced and seals are not leaking.
- ___ Check and grease all lubrication points as identified in, **Lubrication Information, page 20.**
- ___ Check that blades have been properly installed.

DELIVERY CHECK (DEALER'S RESPONSIBILITY)

- ___ Show customer how to make adjustments. Describe the options available for this cutter and explain their purpose.
- ___ Explain importance of lubrication to customer and point out lubrication points on cutter.
- ___ 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.
- ___ Point out all guards and shielding. Explain their importance and the safety hazards that exist when not kept in place and in good condition.
- ___ For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!
- ___ Explain to customer that when equipment is transported on a road or highway, safety devices should be used to give adequate warning to operators of other vehicles.



BRUSHBULL™

Rotary Cutters

BB600X

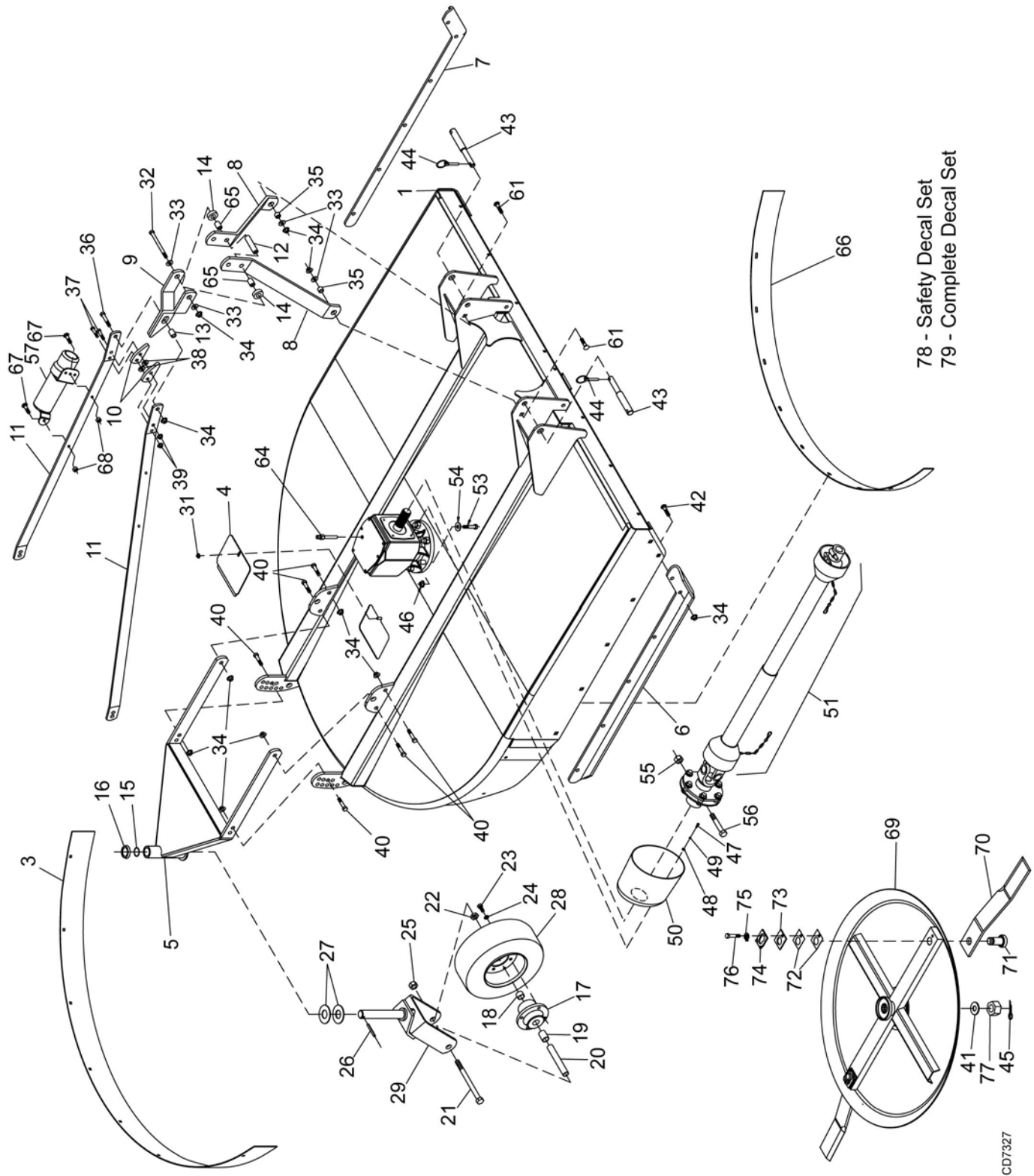
BB840X

BB720X

BB840XP

BB600X, BB720X, BB840X, BB840XP ASSEMBLY	46 - 47
GEARBOX ASSEMBLY	48 - 49
BB600X & BB720X SLIP CLUTCH DRIVE ASSEMBLY	50
BB840X SLIP CLUTCH DRIVE ASSEMBLY	51
BB840XP FRONT DRIVE ASSEMBLY (S/N 1127328 & Below)	52
BB840XP REAR DRIVE ASSEMBLY (S/N 1127328 & Below)	53
BB840XP FRONT DRIVE ASSEMBLY (S/N 1127329 & Above)	54
BB840XP REAR DRIVE ASSEMBLY (S/N 1127329 & Above)	55
BB840XP REAR TAILWHEEL YOKE ASSEMBLY	56
BB840XP TONGUE ASSEMBLY	57
FRONT & REAR CHAIN SHIELDING (OPTIONAL)	58
RUBBER SHIELDING (STANDARD)	59
CHECK CHAIN ASSEMBLY (OPTIONAL)	59
BB720X & BB840X DUAL TAILWHEEL (OPTIONAL) W/WHEEL HUB ASSEMBLY	60
BB840XP 15" WHEEL ASSEMBLY	61
BB840XP HYDRAULIC CYLINDER	62
BB840XP HYDRAULIC HOSE KIT	63
BB840XP HYDRAULIC CYLINDER STROKE CONTROL KIT	63

BB600X, BB720X, & BB840X ASSEMBLY



46 Parts

MAN0654 (Rev. 10/19/2007)

BB600X, BB720X, & BB840X PARTS LIST

REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	—	1	Deck weldment	42	301130 *	12	5/8 NC x 1-1/2 Carriage bolt, GR5
3	57122	1	Rear band BB600X	43	1026542	2	Step pin cat 1-2
3	57046	1	Rear band BB720X	44	27542	2	7/16 x 11/32 Klik pin HT
3	57084	1	Rear band BB840X	45	----		Cotter pin
4	57050	1	Bent link, .14 x 9.0 x 7.84	46	2371	6	3/4 NC Lock nut
5	1024148	1	Tailwheel weldment	47	24801 *	4	M8 x 1.25 x 20 mm HHCS
6	57118	1	Right side skid BB600X	48	35155 *	4	5/16 SAE Flat washer
6	57048	1	Right side skid BB720X	49	2472 *	4	5/16 Lock washer
6	57078	1	Right side skid BB840X	50	1002048	1	Clutch shield 100 & 143 MM BC
7	57119	1	Left side skid BB600X	51	57413	1	Complete driveline BB600X, BB720X
7	57049	1	Left side skid BB720X	51	57417	1	Complete driveline BB840X
7	57079	1	Left side skid BB840X	53	30068	6	3/4 NC x 2-1/2 HHCS GR5
8	57134	2	Offset link, .62 x 3.0 x 21.23 x 11.0	54	57798	6	3/4 SAE Flat washer
9	57130	1	Break link	55	57261	1	12 mm x 1.5P Hex lock nut
10	57133	2	Link, .50 x 2.0 x 4.48	56	57262	1	12 mm x 1.5P-65 mm HHCS
11	1028795	2	Offset link BB600X	57	1003828	1	Manual tube
11	1028796	2	Offset link BB720X	58	314 †	2	Seal for 1-1/2 shaft
11	1028797	2	Offset link BB840X	59	310 †	2	Bearing cone
12	57095	1	Sleeve, .64 x 1.0 x 2.6	60	309 †	2	Bearing cup
13	66661	1	Sleeve, .628 x 1.0 x 1.25	61	2855 *	2	5/8 NC x 2 Carriage bolt GR5
14	57096	2	Washer, 1.03 x 2.0 x .38	64	57057	1	Dip stick
15	12889	1	O-ring, 3/32 x 1-9/16 OD	65	1001519	2	5/8 x 1 x 1 HT Sleeve
16	12881	1	Washer cap T160 TW	66	1004132	1	Bolt-in baffle 5 ft.
17	—	1	Wheel hub assembly (See page 60 for hub breakdown)	66	1004133	1	Bolt-in baffle 6 ft.
18	15574	1	Sleeve 1.25ID x 1.5OD x .903	66	1004134	1	Bolt-in baffle 7 ft.
19	15575	1	Sleeve 1.25ID x 1.5OD x 1.86	67	24409 *	2	5/16 NC x 1 Carriage bolt
20	15573	1	Sleeve 1.0ID x 1.25OD x 5.81	68	4529	2	5/16 NC Hex nut
21	15087	1	1NC x 9.0 HHCS GR5	69	57060	1	Crossbar assembly BB600X, BB720X
22	1386	1	1 NC Jam nut	69	57080	1	Crossbar assembly BB840X
23	4119 *	4	1/2 NF x 1 HHCS GR5	70	57099KT	1	Blade kit BB600X
24	855 *	4	1/2 Lock washer	70	1003675KT	1	Blade kit, Flat BB600X
25	34279 *	1	1 NC Lock nut	70	19160KT	1	Blade BB720X, BB840X
26	4674	1	3/8 x 2 Spirol pin	70	19162KT	1	Blade kit, Flat BB720X, BB840X
27	2370	2	Washer, 1.62 x 3 x .18	71	32616	2	Blade pin
28	12577	1	4 x 8 Tire w/rim 5" wide	72	10520	2	18 GA 1-1/2 Blade pin shim
29	15580	1	Tailwheel clevis weldment	73	13946	2	20 GA 1-1/2 Blade shim
30	6697 *	14	3/8 NC x 1 Carriage bolt GR5 (NS)	74	32603	2	Keyhole plate
31	14350 *	15	3/8 NC Flange lock nut	75	32604	2	Blade pin lock clip special
32	23638 *	1	5/8 NC x 7 HHCS GR5	76	6100 *	2	1/2 NC x 1-1/4 HHCS GR5
33	692 *	4	5/8 Flat washer	77	39323	1	Castle nut M30 x 2P
34	19025 *	22	5/8 NC Flange head lock nut	78	15358	1	Safety decal set
35	67222	2	Sleeve, 5/8 x 1 x 43/64 HT	79	1000623	1	Complete decal set
36	986 *	1	5/8 NC x 2-3/4 HHCS GR5				
37	5621 *	2	1/2 NC x 2-3/4 HHCS GR5				
38	854 *	2	1/2 Flat washer				
39	11900 *	2	1/2 NC Flange lock nut				
40	902 *	6	5/8 NC x 2 HHCS GR5				
41	1024670 *	1	Washer, 1.22 x 2.205 x .236				

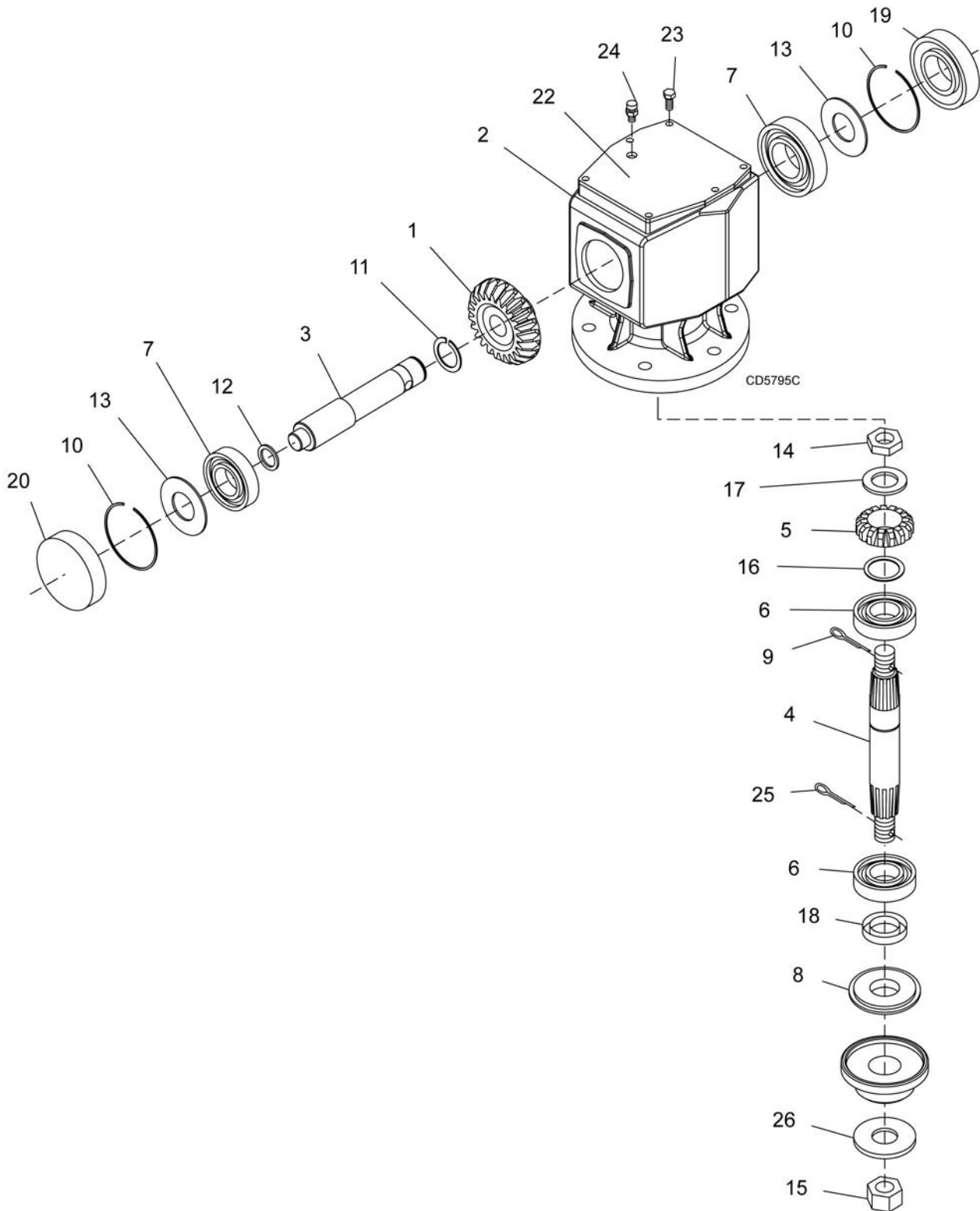
NS Not Shown

† Part of hub assembly

HHCS Hex Head Cap Screw

* Standard hardware obtain locally

GEARBOX ASSEMBLY



48 Parts

MAN0654 (Rev. 10/19/2007)

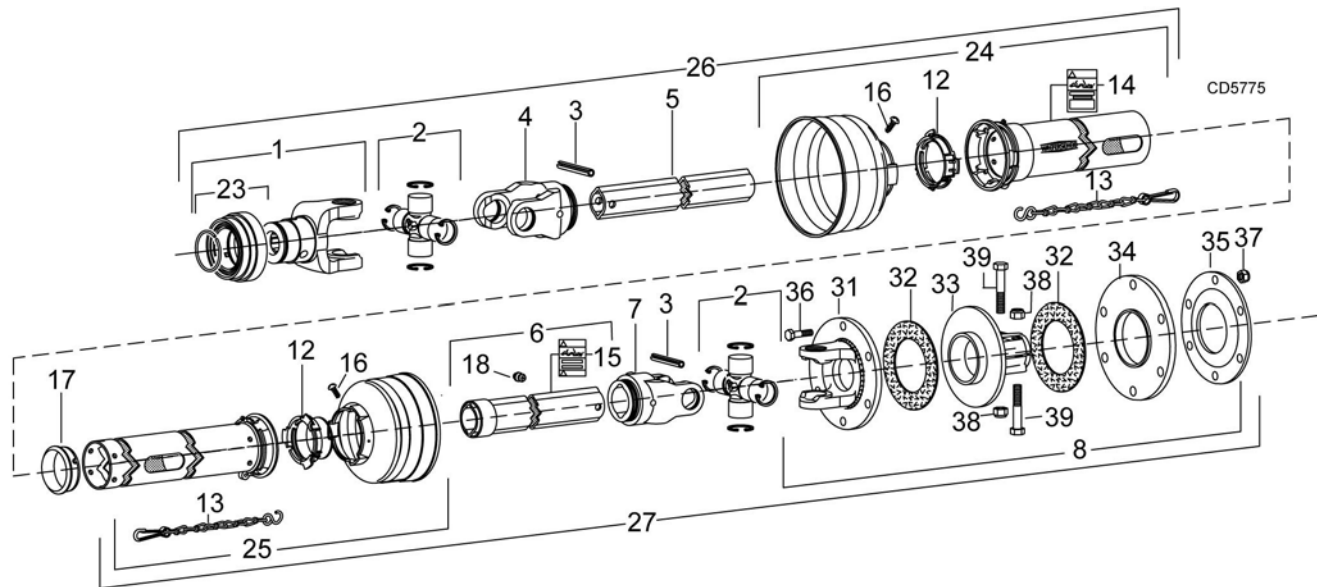
GEARBOX ASSEMBLY PARTS LIST

REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
	58804	1	Gearbox, Repair assembly (BB600X)	11	57321	1	Snap ring 50 UNI7435
	58805	1	Gearbox, Repair assembly (BB720X)	12	57471	1	Shim 45.3 x 2.5 (57471 Kit)
	58806		Gearbox, Repair assembly (BB840X)	13	57471	2	Shim 70.3 x 84.7 (57471 Kit)
1	57314	1	Gear crown Z22 M7 (BB600X)	14	39261	1	Nut M30 x 1.5 (BB600X)
1	57315	1	Gear crown Z25 M6.5 (BB720X)	14	57329	1	Nut M40 x 1.5 (BB720X & BB840X)
1	57316	1	Gear crown Z23 M6.7 (BB840X)	15	39323	1	Castle nut M30 x 2
2	-----	1	Gearbox housing	16	57471	1	Shim 50.3 x 70.3 (57471 Kit)
3	57319	1	Input shaft 1-3/4 - 20	17	57471	1	Shim 30.3 x 44 x1 (57471 Kit) (BB600X)
4	57357	1	Output shaft (BB600X)	17	57471	1	Shim 40.3 x 61.7 x 1 (57471 Kit) (BB720X & BB840X)
4	57356	1	Output shaft (BB720X & BB840X)	18	39289	1	Oil seal 50 x 90 x 10
5	57370	1	Gear pinion Z12 M7 (BB600X)	19	57318	1	Oil seal 45 x 85 x 10
5	57359	1	Gear pinion Z18 M7 (BB720X)	20	57371	1	Cap
5	57358	1	Gear pinion Z17 M6.7 (BB840X)	22	57372	1	Top cover
6	39263	2	Bearing cup & cone	23		* 6	M8 x 16 HHCS GR8.8
7	39411	2	Bearing cup & cone	24	57057	1	Breather level plug
8	57338	1	Protective seal	25		* 1	Cotter pin (B6 x 60)
9		* 1	Cotter pin B 4 x 50	26	1024670	1	Washer, 1.22 X 2.205 X .236
10	57320	2	Snap ring 85 UNI7437				

HHCS Hex Head Cap Screw

* Standard hardware obtain locally

BB600X & BB720X SLIP CLUTCH DRIVE ASSEMBLY



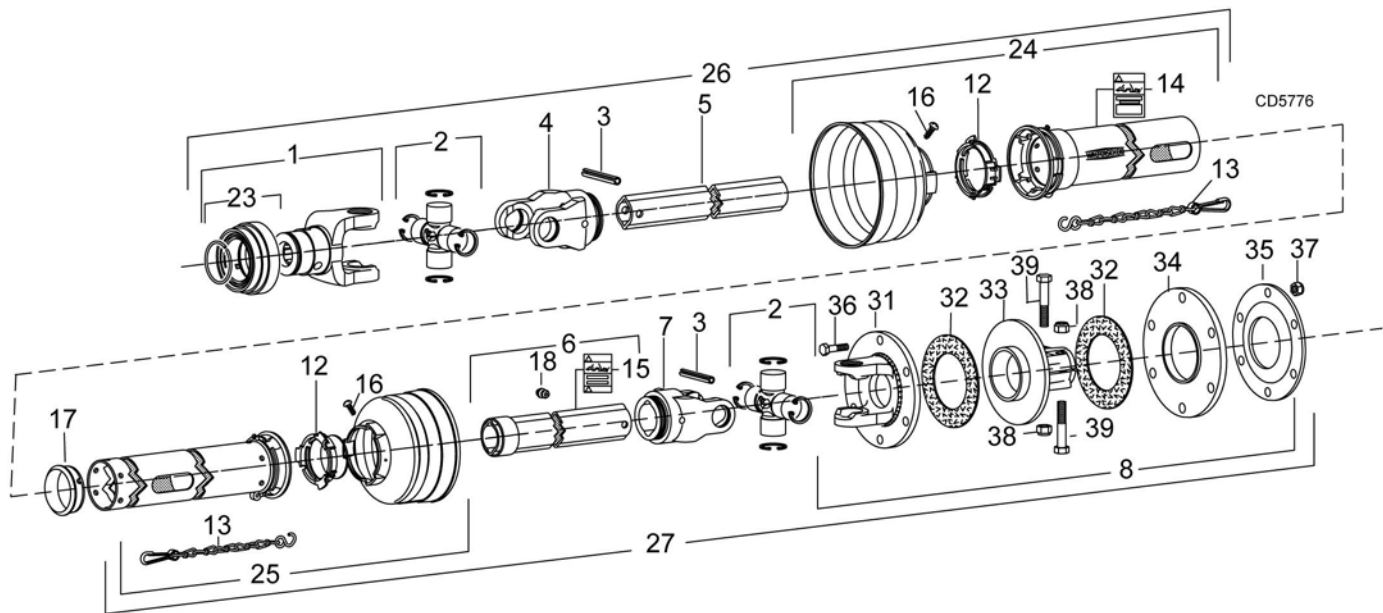
REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
	57413	1	Complete 540 Drive assembly	24	57268	1	Outer guard half
1	40574	1	Yoke, 1-3/8 Spline ASGE	25	57269	1	Inner guard half
2	110	2	Cross and bearing	26	57414	1	Shaft asy, male (complete/guard)
3	40764	2	Spring pin 10 X 80	27	----	1	Shaft asy, female (complete w/guard) (NSS)
4	40575	1	Inboard yoke	31	57438	1	Flange yoke
5	40587	1	Inner profile	32	57432	1	Friction disc (pkg of 2)
6	40593	1	Outer profile & sleeve	33	57440	1	Hub, 1-3/4" 20 Spline
7	40576	1	Inboard yoke	34	57434	1	Thrust plate
8	57416	1	Friction clutch 1340, 1-3/4, 20 spline	35	57439	1	Belleville spring
12	40766	2	Bearing ring SC25	36	57259	6	M10 x 1.5P x 55 mm GR8.8 Cap screw
13	40777	2	Anti-rotation chain	37	57260	6	M10 x 1.5P Hex lock nut w/nylon insert
14	18864	1	Decal, Danger Rotating driveline	38	57261	2	M12 x 1.75P Hex lock nut w/nylon insert
15	33347	1	Decal, Danger guard missing	39	57262	2	M12 x 1.75P x 65 mm Cap screw GR8.8
16	40778	2	Screw				
17	40767	1	Support bearing				
18	40779	1	Grease fitting				
23	40589	1	Slide collar kit				

NSS = Not Serviced Separately

50 Parts

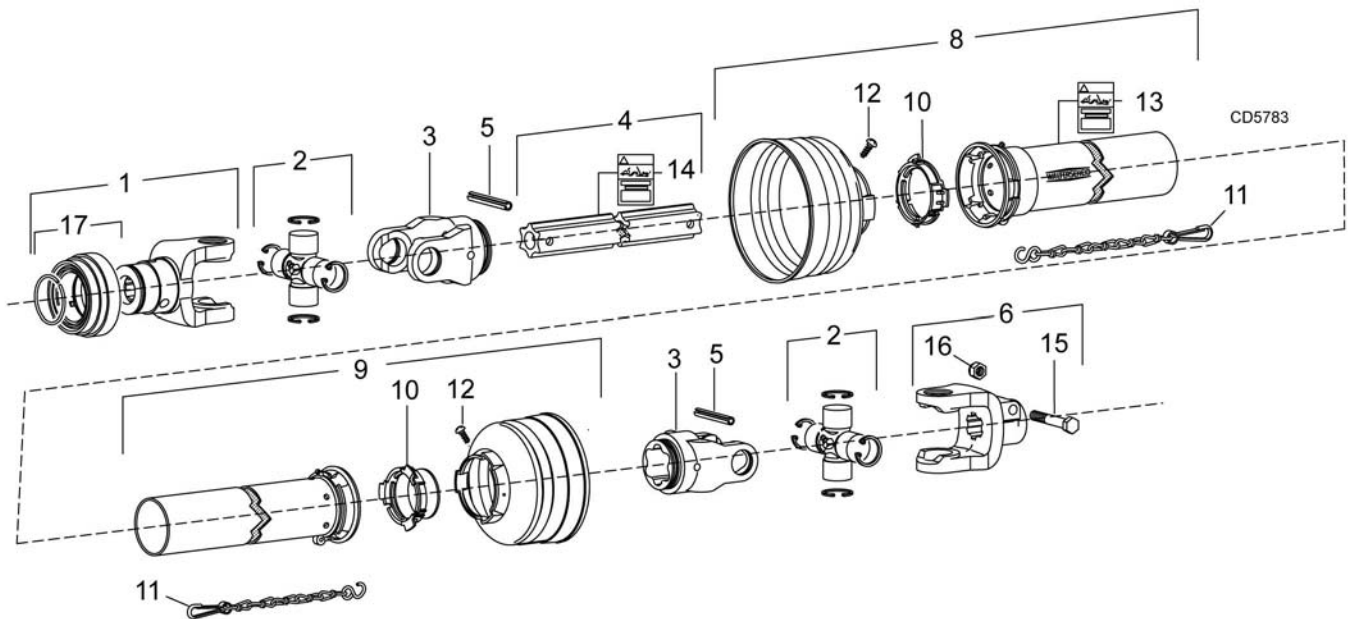
MAN0654 (Rev. 10/19/2007)

BB840X SLIP CLUTCH DRIVE ASSEMBLY



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
	57417	1	Complete 540 Drive assembly	24	40590	1	Outer guard half
1	40574	1	Yoke 1-3/8 - 6 spline	25	57267	1	Inner guard half
2	110	2	Cross & bearing kit	26	57410	1	Shaft asy, male (complete w/guard)
3	40764	2	Spring pin 10 x 80	27	----	1	Shaft asy, female (complete w/guard) (NSS)
4	40575	1	Inboard yoke	31	57438	1	Flange yoke
5	40587	1	Inner profile	32	57432	1	Friction disc (pkg of 2)
6	40593	1	Outer profile & sleeve	33	57440	1	Hub, 1-3/4" 20 spline
7	40576	1	Inboard yoke	34	57434	1	Thrust plate
8	57416	1	Friction clutch 1340 1-3/4, 20 spline	35	57439	1	Belleville spring plate
12	40766	2	Bearing ring SC25	36	57259	6	10 mm x 1.5P x 55 mm HHCS GR 8.8
13	40777	2	Anti-rotation chain	37	57260	6	10 mm x 1.5P Hex lock nut (w/nylon insert)
14	18864	1	Decal, Danger rotating driveline	38	57261	2	M12 x 1.75P Hex lock nut (w/nylon insert)
15	33347	1	Decal, Danger Guard missing	39	57262	2	M12 x 1.75P x 65 mm HHCS GR 8.8
16	40778	2	Screw				
17	40767	1	Support bearing				
18	40779	1	Grease fitting				
23	40589	1	Slide collar kit				
							HHCS = Hex Head Cap Screw
							NSS = Not Serviced Separately

BB840XP (PULL-TYPE) FRONT DRIVE ASSEMBLY S/N 1127328 & BELOW

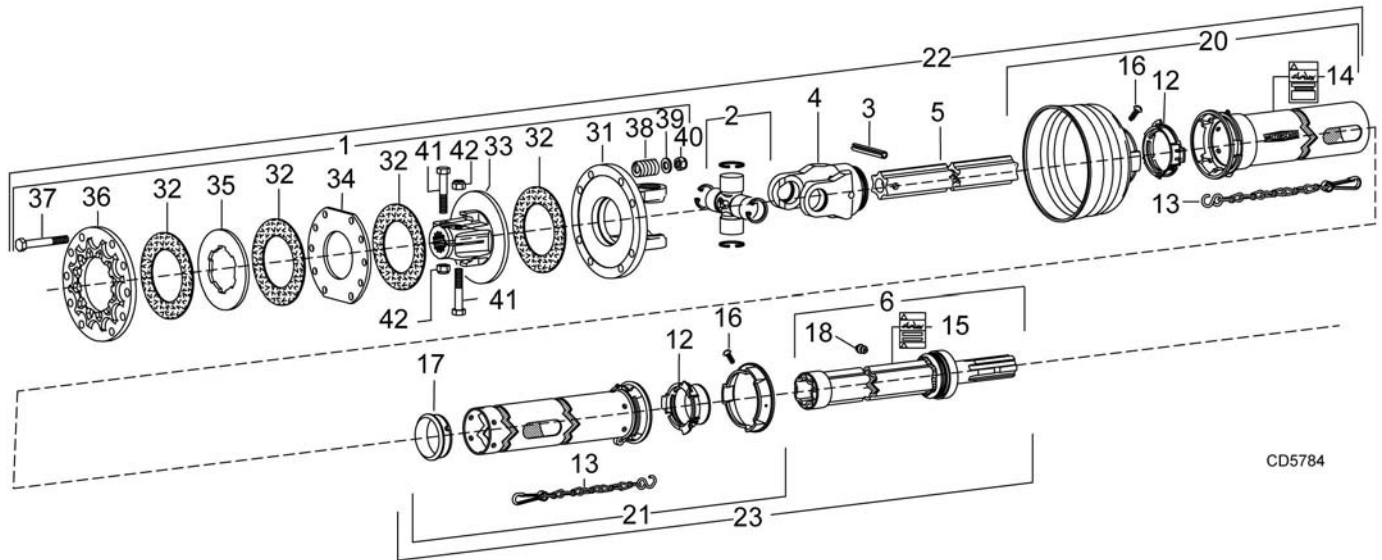


REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
	57429	1	Complete 540 rpm Front drive assembly	9	40728	1	Inner shield
1	40563	1	Yoke 1-3/8 - 6 spline (540 rpm)	10	40766	2	Bearing ring SC25
2	40566	2	Cross & Bearing	11	40777	2	Anti-rotation chain
3	40751	2	Inboard yoke	12	40778	2	Screw
4	40753	1	Outer profile	13	18864	1	Danger decal, rotating driveline
5	40765	2	Spring pin 10 x 90	14	33347	1	Danger decal, shield missing
6	46624	1	Yoke 1-3/8 - 6 spline I.C.	15	19811	1	1/2 NC x 2 HHCS GR8
8	40727	1	Outer shield	16	765	1	1/2 NC Hex nut
				17	40758	1	Lock collar kit ASG.

52 Parts

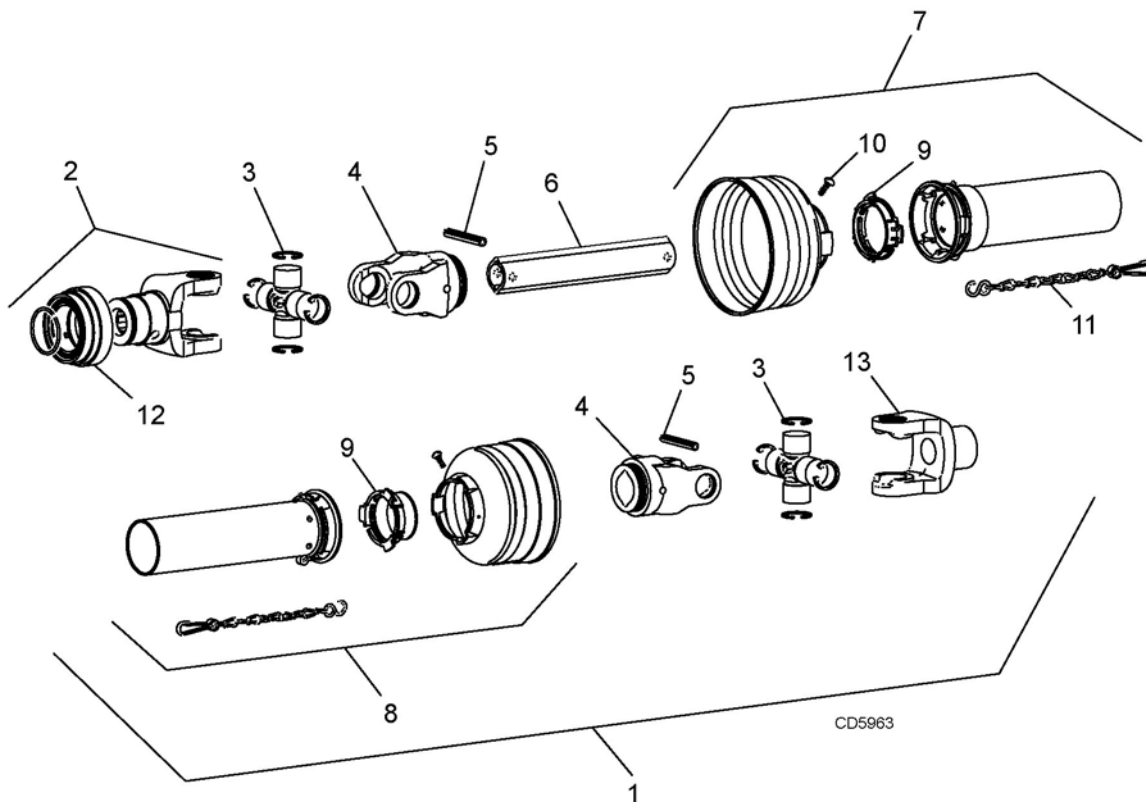
(Rev. 10/31/2008)
MAN0654 (Rev. 10/19/2007)

BB840XP (PULL-TYPE) REAR DRIVE ASSEMBLY S/N 1127328 & BELOW



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
	----	1	Complete rear drive assembly	21	57276	1	Inner guard half
1	57421	1	Friction clutch	22	57278	1	Male drive half, complete
2	40566	1	Cross & Bearing	23	57279	1	Female drive half, complete
3	40765	1	Spring pin 10 x 90	31	57441	1	Flange yoke
4	40750	1	Inboard yoke	32	57432	2	Friction disc (pkg of 2)
5	40752	1	Inner profile	33	57442	1	Hub 1-3/4 - 20 spline I.C.
6	57274	1	Outer profile, w/sleeve & stub	34	57443	1	Drive plate
12	40766	2	Bearing ring SC25	35	57256	1	Drive plate
13	40777	2	Anti-rotation chain	36	57257	1	Thrust plate
14	18864	1	Danger decal, rotating driveline	37	57263	6	M12 x 115 mm x 1.25 P HHCS
15	33347	1	Danger decal, shield missing	38	57258	6	Spring
16	40778	2	Screw	39	57265	6	Flat washer
17	40767	1	Support bearing	40	57264	6	M12 x 1.25 P Hex nut
18	40779	1	Grease fitting	41	57262	2	M12 x 65 mm x 1.75 P HHCS
20	57275	1	Outer guard half	42	57261	2	M12 x 1.75 P Hex nut

BB840XP (PULL-TYPE) FRONT DRIVE ASSEMBLY S/N 1127329 & ABOVE



CD5963

REF	PART	QTY	DESCRIPTION
1	40599	1	Complete drive assembly
2	40574	1	Yoke, 1-3/8 - 6SP (complete with lock collar)
3	110	2	Cross and bearing kit
4	40576	2	Inboard yoke
5	40764	2	Spring pin 10 mm x 80 mm (package of 10)
6	40588	1	Outer profile (cut to length)

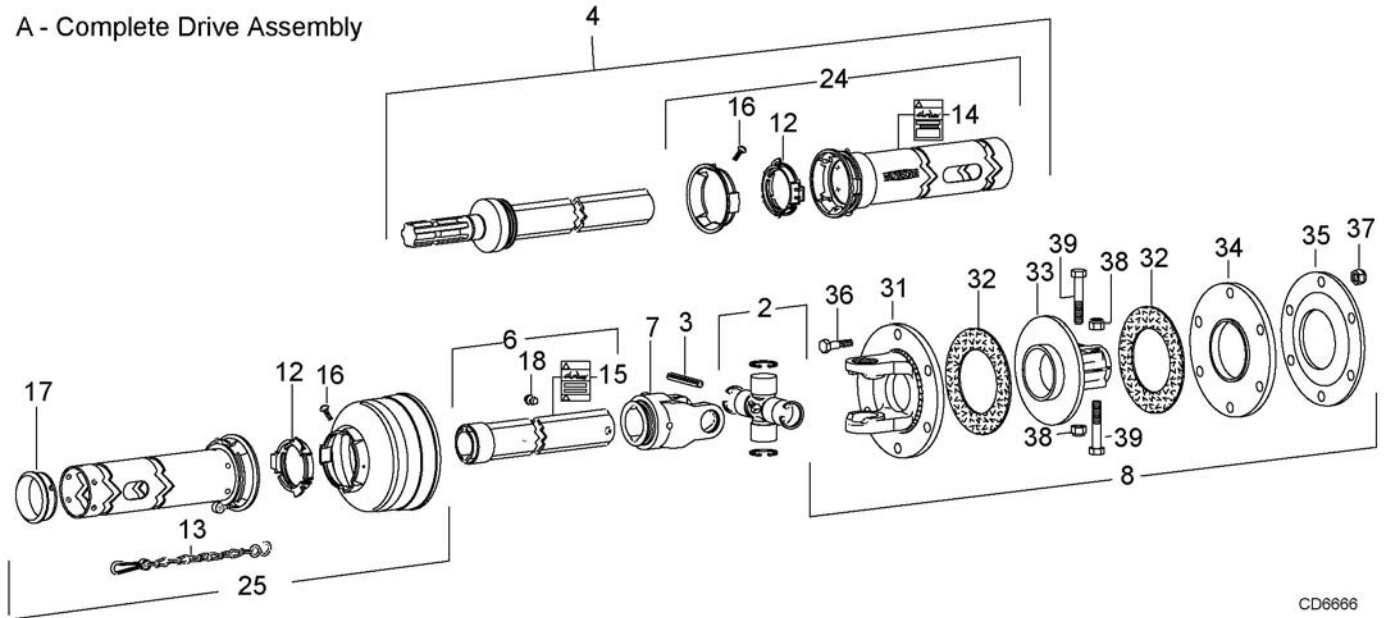
REF	PART	QTY	DESCRIPTION
7	40590	1	Guard, outer half, also includes items 9, 10 and 11 (cut to length)
8	40591	1	Guard, inner half, also includes items 9, 10 and 11 (cut to length)
9	40766	2	Bearing ring (package of 2)
10	40778	2	Screw (package of 10)
11	40777	2	Anti-rotation chain
12	40589	1	Lock collar repair kit (without yoke)
13	15308	1	Yoke, 1-3/8 - 6SP clamp type

54 Parts

(Rev. 10/31/2008)
MAN0654 (Rev. 10/19/2007)

BB840XP (PULL-TYPE) REAR DRIVE ASSEMBLY S/N 1127329 & ABOVE

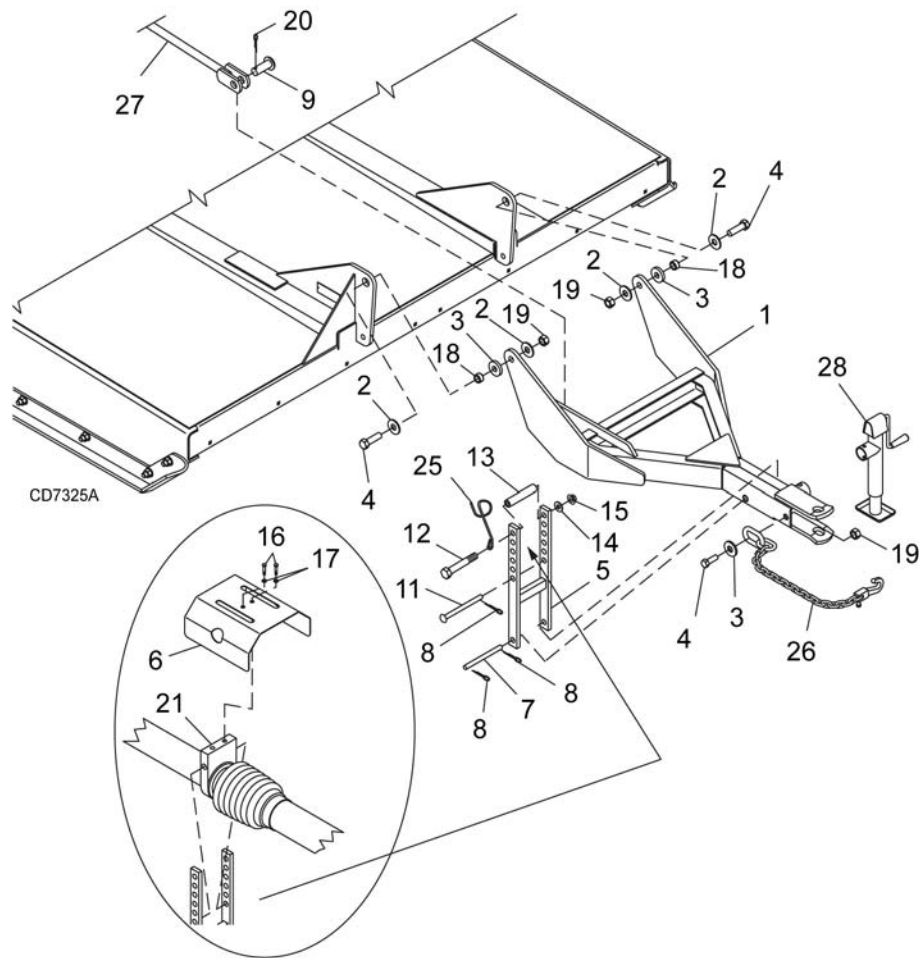
A - Complete Drive Assembly



CD6666

REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
A	1019870	1	Complete 540 Drive assembly	18	40779	1	Grease fitting
2	110	2	Cross and bearing	24	1019857	1	Outer guard half
3	40764	2	Spring pin 10 X 80	25	1019858	1	Inner guard half
4	1019859	1	Inboard yoke	31	57438	1	Flange yoke
6	40593	1	Outer profile & sleeve	32	57432	2	Friction disc
7	40576	1	Inboard yoke	33	57440	1	Hub, 1-3/4" 20-spline
8	57416	2	Friction clutch	34	57434	1	Thrust plate
12	40766	2	Bearing ring	35	57439	1	Belleville spring
13	40777	1	Anti-rotation chain	36	57259	6	M10 x 1.5P x 55 mm Cap screw GR8.8
14	18864	2	Decal, Danger rotating driveline	37	57260	6	M10 x 1.5P Lock nut w/nylon insert
15	33347	1	Decal, Danger guard missing	38	57261	2	M12 x 1.5P Lock nut w/nylon insert
16	40778	2	Screw	39	57262	2	M12 x 1.5P x 65 mm Cap screw GR8.8
17	40767	1	Support bearing				

BB840XP (PULL-TYPE) TONGUE ASSEMBLY

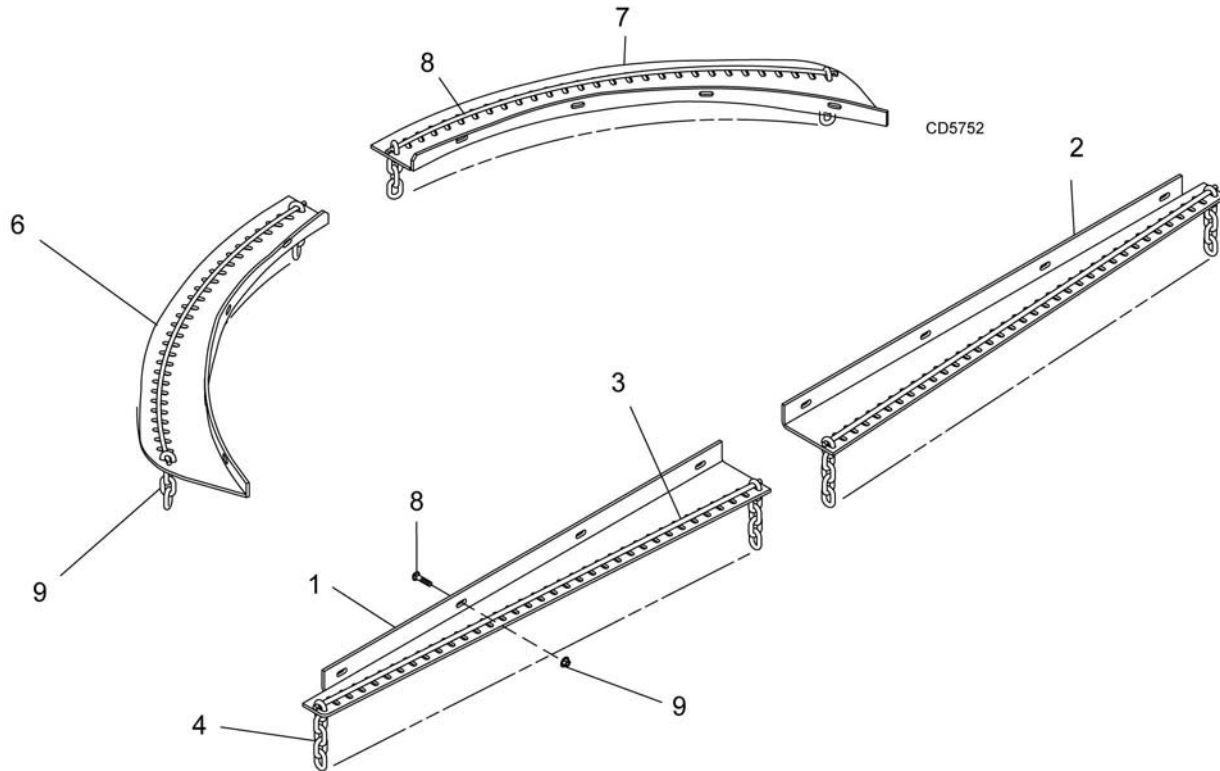


REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	1023144	1	Tongue assembly	17	838 *	2	3/8 Standard lock washer
2	1257 *	4	Washer 3/4 flat ZP	18	10083	2	Bushing 3/4 x 1-1/8 x 5/8 HT
3	8424	3	Washer 3/4 ID 2 OD 3/8 thick	19	2371	3	Lock nut 3/4 NC
4	30068	3	3/4 NC x 2-1/2 HHCS GR5	20	1285 *	1	1/4 x 1-1/2 Cotter pin
5	7668	1	H-Frame assembly	21	32347	1	3-Joint drive bearing housing assembly (includes 22, 23, & 24)
6	44637	1	Drive shaft shield	22	12128	1	.062 x 72 mm ID snap ring (NS)
7	8317	1	Clevis pin 5/8 x 5-21/32	23	13133	1	1-1/2 ID Ball bearing (NS)
8	1266 *	3	Cotter pin 3/16 x 1-1/2	24	2985 *	1	1/4 - 28 x 90° Grease fitting (NS)
9	46605	1	Clevis pin 1.00 x 2.26	25	3443	1	Hydraulic hose holder
11	404	1	Clevis pin 5/8 x 5-3/4	26	19407	1	Safety chain assembly
12	12305 *	1	1/2 NC x 5-1/2 HHCS GR5	27	1003491	1	Attitude rod
13	7035	1	Pipe 1/2 schedule 40 x 3-9/16	28	23790	1	Parking jack
14	855 *	1	1/2 Lock washer, heavy				
15	1093 *	1	1/2 Heavy hex nut				
16	839 *	2	3/8 NC x 1 HHCS GR5				
				NS			Not Shown
				HHCS			Hex Head Cap Screw
				*			Standard hardware, obtain locally

(Rev. 10/31/2008)
MAN0654 (Rev. 10/19/2007)

Parts 57

FRONT & REAR CHAIN SHIELDING (OPTIONAL)



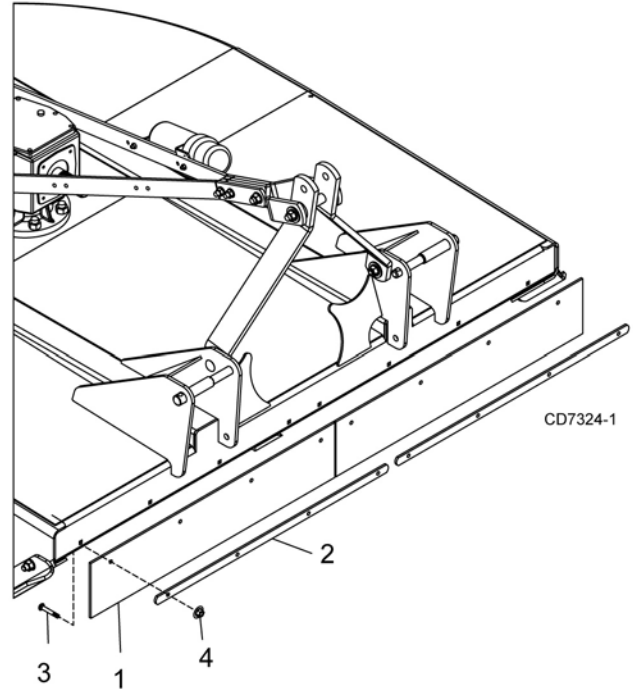
REF	QTY	BB600X	BB720X	BB840X	DESCRIPTION
1	1	57143	57090	1023048	Right front chain plate
2	1	57144	57091	1023047	Left front chain plate
3	2	1003645	1007850	1007851	.243 Dia bent pin (front)
4		5496	5496	5496	5/16-7 Link chain (front)
6	1	57142	57088	57125	Right rear chain plate
7	1	57141	57089	57149	Left rear chain plate
8	2	57138	57085	57146	.243 Dia rolled bent pin (rear)
9		4069	4069	4069	5/16 - 4 Link chain (rear)
10	16	6697*	6697*	6697*	3/8 NC x 1 Carriage bolt
11	16	14350	14350	14350	3/8 NC Flange hex nut

* Standard Hardware, Obtain Locally

RUBBER SHIELDING (STANDARD)

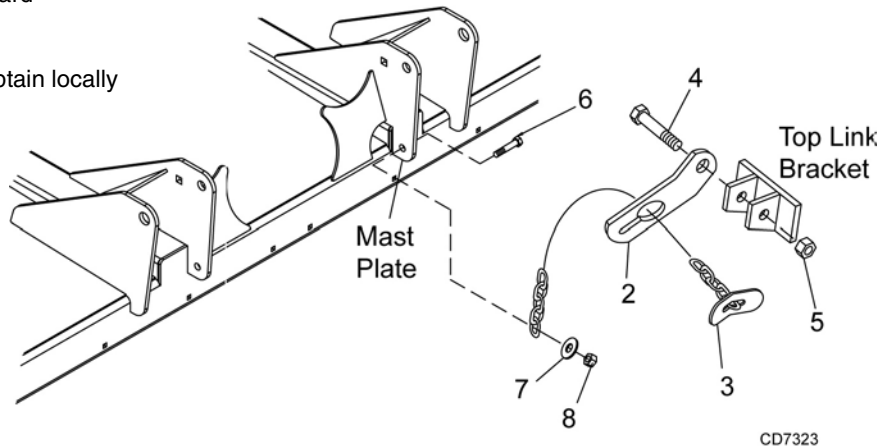
REF	PART	QTY	DESCRIPTION
A	1013208	1	Rubber shield kit 5 foot BB600X (includes items 1-4)
A	1013209	1	Rubber shield kit 6 foot BB720X (includes items 1-4)
A	1023042	1	Rubber shield kit 7 foot BB840X (includes items 1-4)
1	1004129	2	Rubber deflector 31.25 BB600X
1	1004130	2	Rubber deflector 37.25 BB720X
1	1024119	2	Rubber deflector 43.25 BB840X
2	1013214	2	Link, .25 x 1.00 x 28.75 BB600X
2	1013215	2	Link, .25 x 1.00 x 34.75 BB720X
2	1024118	4	Link, .25 x 1.00 x 16.00 BB840X
3	20973	8*	3/8 NC x 1-1/4 Carriage bolt
4	14350	8	3/8 NC Flange hex nut

* Standard Hardware, Obtain Locally

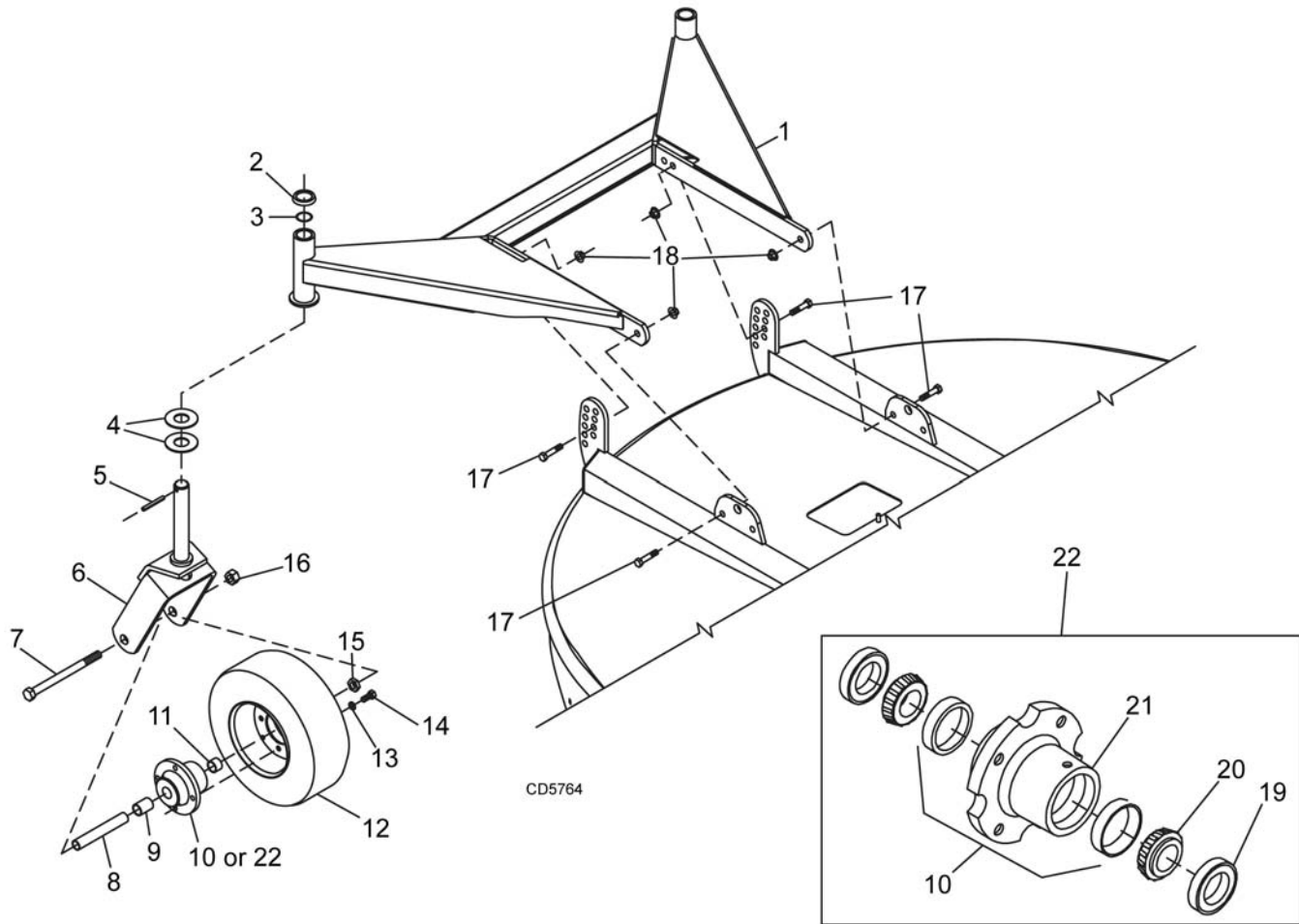


CHECK CHAIN ASSEMBLY (OPTIONAL)

REF	PART	QTY	DESCRIPTION
1	10521	1	Check chain complete
2	7906	2	Check chain bracket, lower
3	18048	2	3/8 Chain, 32-Link and check lug
4	2377 *		3/4 NC x 6 HHCS GR5
5	2371 *		3/4 NC Hex lock nut
6	12274 *		5/8 NC x 2-1/4 HHCS GR5
7	3632 *		5/8 Flat washer, standard
8	6239 *		5/8 NC Hex nut
			* Standard hardware, obtain locally



BB720X & BB840X DUAL TAILWHEEL (OPTIONAL) WITH WHEEL HUB ASSEMBLY



REF	PART	QTY	DESCRIPTION
1	57101	1	Dual tailwheel assembly
2	12881	2	Washer T160 ETC w/cap
3	12889	2	3/32 x 1-9/16 OD O-ring
4	2370	4	Washer, 1.62 x 3 x .18
5	4674*	2	3/8 x 2 Spirol pin
6	15580	2	Tailwheel clevis
7	15087	2	1 NC x 9.0 HHCS GR5
8	15573	2	Sleeve, 1.0 ID x 1.25 OD x 5.81
9	15575	2	Sleeve, 1.25 ID x 1.50 OD x 1.86
10	15591	2	Wheel hub assembly (includes item 21)
11	15574	2	Sleeve, 1.25 ID x 1.50 OD x .903

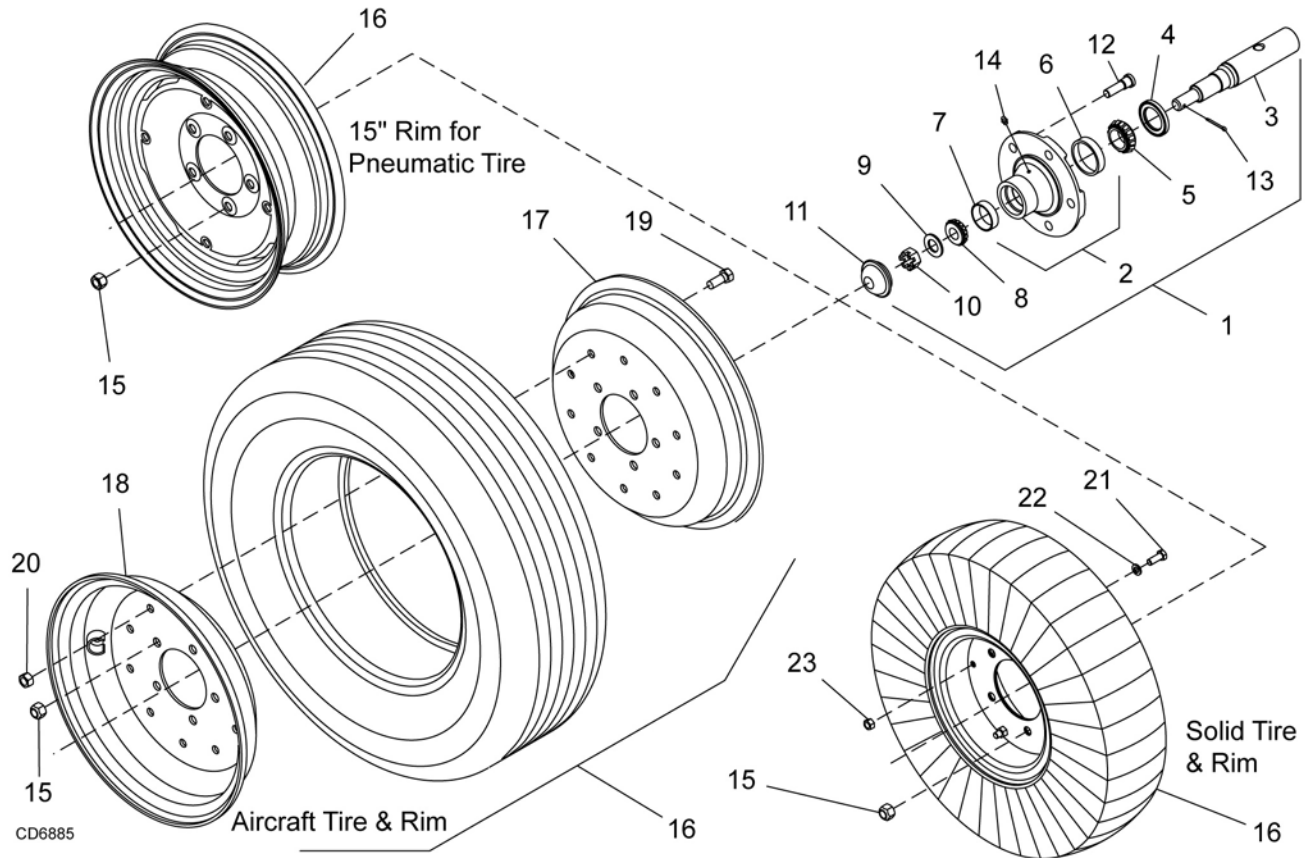
REF	PART	QTY	DESCRIPTION
12	12577	2	4 x 8 Tire w/rim 5" wide
13	855*	8	1/2 Lock washer
14	4119*	8	1/2 NF x 1 HHCS GR5
15	1386	2	1" NC Jam nut
16	34279	2	1" NC Lock nut
17	11854*	4	5/8 NC x 2-1/2 HHCS GR8
18	19025	4	5/8 NC Flange lock nut
19	314	2	Seal for 1-1/2 shaft
20	310	2	Bearing cone
21	309	2	Bearing cup
22	15277	2	Wheel hub assembly (includes items 19, 20, & 21)

* Standard Hardware, Obtain Locally

60 Parts

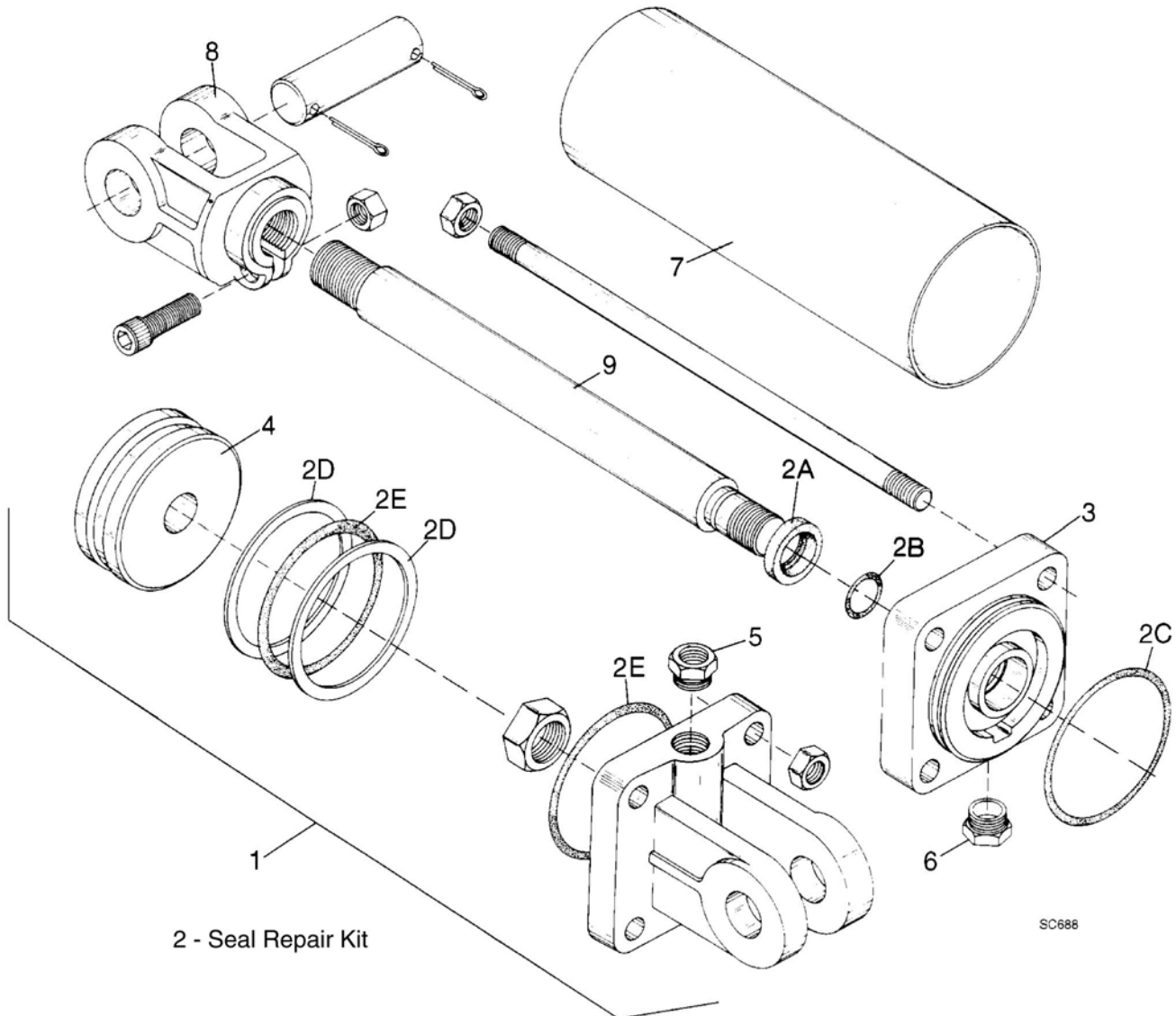
(Rev. 4/24/2009)
MAN0654 (Rev. 10/19/2007)

BB840XP (PULL-TYPE) 15" WHEEL ASSEMBLY



REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	1017050	1	Heavy hub assembly (includes items 1 through 15)	16	1028820F	1	24 x 7.25 x 12 Aircraft tire, rim & hardware, foam filled - 5 bolt
2	1017034	1	Heavy wheel hub with cups (includes items 6,7,14)	16	1017030	1	29 x 9 x 15 Aircraft tire, rim & hardware - 5 bolt
3	1017033	1	Axle	17	1028821	1	12.0 x 6.0 Rim half (for 24" aircraft wheel only) -or-
4	1017027	1	Seal	17	1017026	1	15.0 x 6.0 Rim half (for 29" aircraft wheel only)
5	1017028	1	Bearing cone	18	1022822	1	12.0 x 6.0 Rim half w/ valve hole (for 24" aircraft wheel only)
6	1017036	1	Bearing cup	18	1017025	1	15.0 x 6.0 Rim half w/ valve hole (for 29" aircraft wheel only)
7	1017037	1	Bearing cup	19	6100	*	1/2 NC x 1-1/4 HHCS GR5
8	1017029	1	Bearing cone	20	765	*	1/2 NC Locknut
9	1017031	1	Washer	21	19887	*	3/8 NC x 1 HHCS GR8
10	1017032	1	Castle nut	22	838	*	3/8 Standard lock washer
11	1017035	1	Hub cap	23	835	*	3/8 NC Hex nut
12	1017038	5	Stud	-	1015833	1	29 x 9 x 15 Inner tube (for 29" aircraft wheel only)
13	1017069	1	Cotter pin	-	1017042	2	Rim half for 6 x 9 solid tire
14	1017067	1	Grease fitting	*			Standard hardware, obtain locally
15	35317	5	Nut, lug 1/2 NF				
16	1017088	1	15" Rim for pneumatic tire - 5 bolt -or-				
16	1017040	1	6.00 x 9 Solid tire, rim & hardware - 5 bolt -or-				
16	1028820	1	24 x 7.25 x 12 Aircraft tire, rim & hardware - 5 bolt -or-				

BB840XP (PULL-TYPE) HYDRAULIC CYLINDER 3-1/2" BORE X 8" STROKE

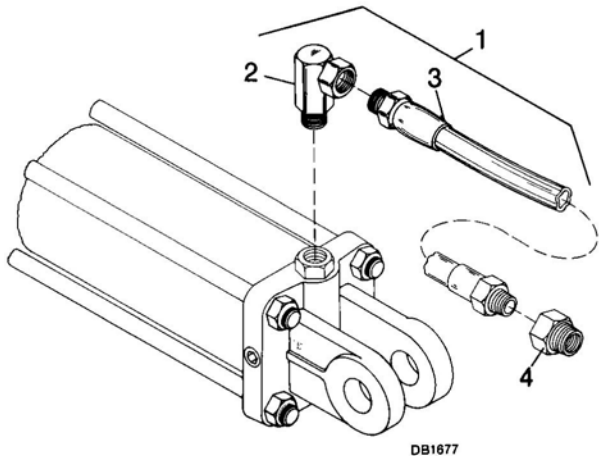


REF	PART	QTY	DESCRIPTION	REF	PART	QTY	DESCRIPTION
1	10475	1	Hydraulic cylinder, complete (single acting)	4	23544	1	Piston
2	23540	1	Seal repair kit (includes 2A thru 2E)	5	11893	1*	1/2 x 1/4 Pipe reducer bushing
2A	^	1	1-1/4 ID Wiper seal	6	11975	1	1/2 NPT Vent plug
2B	^	2	U-Cup	7	-----	1	Cylinder barrel
2C	^	2	3/16 x 3-1/2 OD O-ring	8	23549	1	Cylinder rod clevis
2D	^	2	3-1/2 OD Back-up washer	9	23551	1	Cylinder rod
2E	^	1	Piston seal O-ring				
3	23543	1	Rod housing, 1-1/4 bore				* Standard hardware, obtain locally
							^ Included in seal kit

62 Parts

(Rev. 10/31/2008)
MAN0654 (Rev. 10/19/2007)

BB840XP (PULL-TYPE) HYDRAULIC HOSE KIT

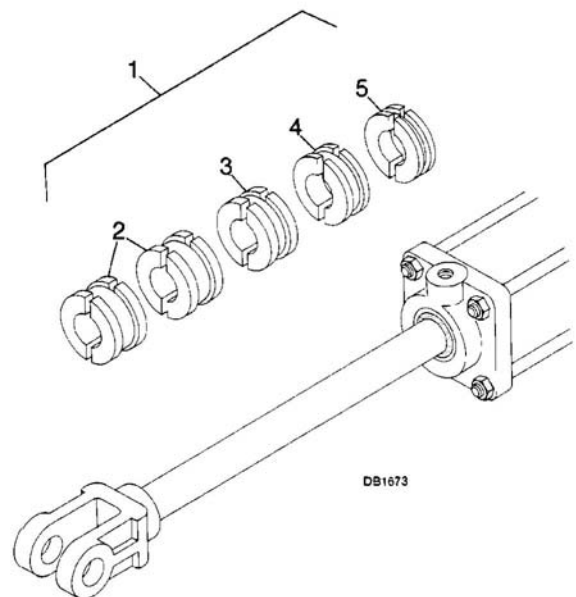


REF	PART	QTY	DESCRIPTION
1	9382	2	1/4 x 156 Hose kit and fittings (contains items 2 thru 4)
2	10290	2	90° Elbow, 1/4 NPTM x 1/4 NPTF with 1/16 restrictor
3	8669	2	Hose, 1/4 NPT x 156"
4	11893	2*	1/2 x 1/4 Pipe reducer bushing

* Standard hardware, obtain locally

BB480XP HYDRAULIC CYLINDER STROKE CONTROL KIT

REF	PART	QTY	DESCRIPTION
1	24098	1	Stroke control set for 1-1/4" cylinder rod (contains items 2 thru 5)
2	-----	2	1-1/2" Segment
3	-----	1	1-1/4" Segment
4	-----	1	1" Segment
5	-----	1	3/4" Segment



BOLT TORQUE CHART

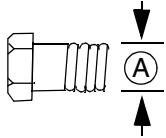
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

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 Grade 2
(No Dashes)

SAE Bolt Head Identification

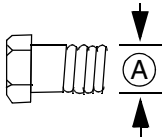


SAE Grade 5
(3 Radial Dashes)



SAE Grade 8
(6 Radial Dashes)

Ⓐ 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
Grade 8.8

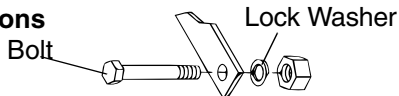
Metric Bolt Head Identification



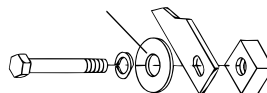
Metric
Grade 10.9

Ⓐ 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



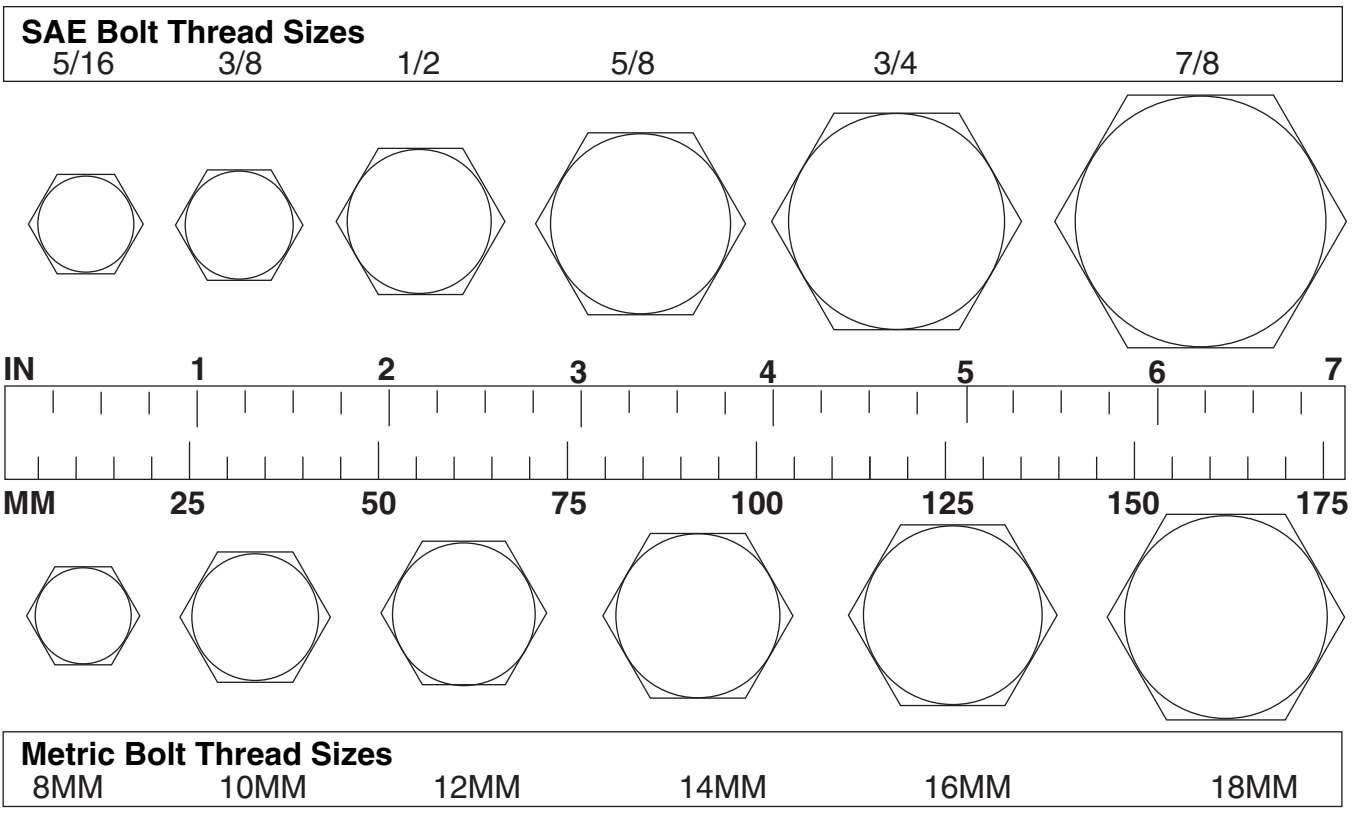
Flat Washer



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

INDEX

ASSEMBLY

- Dealer Set-up Instructions 35
 - Disassemble Shipping Unit 36
- Fill Gearbox 37
- Install Safety Shielding
 - Install Optional Chain Shielding 37
 - Install Rubber Deflector & Foot Guard 37

DEALER CHECK LIST

- Delivery Check (Dealer's Responsibility) 44
- Pre-Delivery Check List (Dealer's Responsibility) 44

DEALER SERVICE

- Crossbar Installation 32
- Crossbar Removal 31
- Gearbox Maintenance 28
 - Horizontal Leak Repair 29
 - Seal Installation 28
 - Seal Replacement 28
 - Vertical Shaft Repair 29
- Gearbox Repair
 - Assemble Gearbox 30
 - Disassemble Gearbox 30
 - Reinstall Gearbox 31
 - Remove Gearbox from Cutter 30
- Servicing Tire Safety 33
- Universal Joint Repair
 - U-Joint Assembly 33
 - U-Joint Disassembly 32
 - U-Joint Repair 32

GENERAL

- Abbreviations 65
- Bolt Size Chart 65
- Bolt Torque Chart 64
- General Information 4
- Introduction 2
- Obtaining Replacement Manuals 2
- Specifications 4
- Table of Contents 3
- Warranty
 - Product 67
 - Replacement Parts 68

OPERATION

- Check Chain Adjustment (Mounted Cutter) 16
- Connecting Cutter to Tractor (Mounted Cutter) 13
- Connecting Cutter to Tractor BB840XP (Pull-Type) 17
 - Hydraulic Connection 17
 - Interference Check 17
- Cutting Height Adjustment (Mounted Cutter) 16
- Cutting Height Adjustment BB840XP (Pull Type) 17

OPERATION (CONTINUED)

- Driveline Adjustment (Mounted Cutter) 14
 - Driveline Interference Check 16
 - Shortening Driveline 15
- Driveline Adjustment BB8400XP (Pull Type) 18
- Installation & Removal of Driveline (Tractor PTO) 16
- Operating Technique 18
- Pre-Operation Checklist 19
- Quick Hitch Set-Up and Top Link Adjustment Category I and II 14
- Shredding Material 18
- Storage
 - BB840XP (Pull-Type) 18
 - Mounted Cutter 18
- Tractor Stability 13
- Transporting BB840XP (Pull-Type) 18

OWNER SERVICE

- Blade Service
 - Blade Installation 21
 - Blade Removal 21
 - Blade Sharpening 22
- Blocking Method 20
- Cleaning Cutter
 - After Each Use 24
 - Periodically or Before Extended Storage 25
- Lubrication Information
 - Driveline Lubrication 20
 - Gearbox Lubrication 20
- Servicing Tire Safety 24
- Shielding Repair
 - Optional Chain Shielding 24
 - Optional Rubber Shielding 24
 - Rear Band 24
- Slip Clutch Adjustment
 - BB840XP (Pull-Type) 22
 - Mounted Cutters 22

PARTS

- Parts Index 45

SAFETY

- Blocking Method 20
- Check List
 - Delivery Check List (Dealer's Responsibility) 44
 - Pre-Delivery Check List (Dealer's Responsibility) 44
 - Pre-Operation (Owner's Responsibility) 19
- Free Mower Safety Video Order Form 5, 6
- Safety & Instructional Decals 10, 11, 12
- Safety Rules 7, 8, 9
- Safety Symbols Explained 2

TROUBLESHOOTING

- Mowing Conditions 26



WARRANTY

All Models Except Mow'n Machine™ 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 loaders and backhoes are warranted for two (2) years from the date of delivery to the original purchaser.

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)
Gearbox Seals	All units listed below	2 years
Gearbox components	BW1260, BW1620, BW1800, BW2400	8 years
	BW240HD, BW180HD, BW180HB, BW126HB	7 years
	BB48X, BB60X, BB72X, BB84X, BB600X, BB720X, BB840X, BB6000X, BB7200X, BB8400X, DS1260, DSO1260, DS1440, TS1680, BW126-3, BW180-3, BW240	6 years
	PHD25, PHD35, PHD65, PHD95, 2162, 3240, DS96, DS120, RCC42, RM550-2, RM660-2, RM990-3, PRD6000, PRD7200, PRD8400, 7144RD-2, 9180RD-2, 9204RD-2, S15CD, S20CD, S22CD, S25CD, S27CD, BW180LH, TC/R74, TC/R68, TC/R60	5 years
	RDC54, RD60, RD72, TBW150C, TS/R60, TS/R52, TS/R44	3 years (1 year if used in rental or commercial applications)
Blade spindles	RM550-2, RM660-2, RM990-3, PRD6000, PRD7200, PRD8400, 7144RD-2, 9180RD-2, 9204RD-2	3 years
Rust-through	BB600, BB720, BB840, BB6000, BB7200, BB8400, BW126-3, BW126HB, BW180-3, BW180HB, BW180HD, BW1260, BW1800, BW240, BW240HD, 2162, 3240, DS1260, DSO1260, DS1440, TS1680	10 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:

Woods Equipment Company

2606 South Illinois Route 2
Post Office Box 1000
Oregon, Illinois 61061 USA

800-319-6637 tel
800-399-6637 fax
www.WoodsEquipment.com



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WARRANTY

(Replacement Parts For All Models Except Mow'n Machine™
Zero-Turn Mowers and Woods Boundary™ Utility Vehicles)

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.

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