

# 684 Model Heavy Duty Cutter

**ATTENTION:**  
ALL WARRANTY WORK **MUST** BE APPROVED  
BY BROWN MFG. CORP.

**BEFORE** WORK BEGINS



## Owner / Operator Manual



MANUFACTURING CORPORATION™  
6001 E. Hwy 27 • OZARK, ALABAMA 36360  
PHONE: (334) 795-6603 • FAX: (334) 795-3029  
[www.brownmfgcorp.com](http://www.brownmfgcorp.com)

### **⚠️ WARNING**



Before operating your machine, stop and read this owners manual. Do not attempt to operate the unit until you fully understand the material covered in this manual. Without the knowledge contained in this manual, injury or death can result.

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**Cover** Illustrated: Model 684 rotary mower.

**Disclaimer**

Due to engineering improvements and revision of product specifications, the information contained in this manual is subject to change without notice.

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# Warranty Statement

## LIMITED WARRANTY

BROWN MANUFACTURING CORP. hereby warrants that Brown's products will be free from defects in material and workmanship under normal use according to the provisions and limitations herein set forth. All parts, specifically EXCLUDING expendable 'wear' parts, that become unserviceable, due to defective material or workmanship, within three months / 90 days from date of the original retail purchase, shall, at Brown's option, be repaired or replaced.

## LIMITATIONS

The obligations of Brown for breach of warranty shall be limited to products manufactured by Brown; (1) that are installed, operated, and maintained according to Brown's instruction furnished and/or available to the purchaser upon request; (2) that are installed according to all other applicable Federal, State, and local codes or regulations; and (3) that the purchaser substantiates were defective in material and workmanship notwithstanding that they were properly installed and correctly maintained as set forth and were not abused or misused. The obligation of Brown shall be limited to replacing or repairing the defective product, at the option of Brown. Brown shall not be responsible for any labor or cost of removal or repairing or reinstallation of its products and shall not be liable for transportation costs to and from its plant in Ozark, Alabama. Use of parts for modification or repair of the product or any component part thereof not authorized or manufactured by Brown specifically for such product shall void this warranty. This warranty shall not apply to any damage to or defect in the Brown's products that is directly or indirectly caused by; (1) FORCE MAJEURE, act of GOD, or other accident not related to an inherent product defect; or (2) abuse, misuse, or neglect of the such product, including any damage caused by improper assembly, installation, adjustment, or faulty instruction of the purchaser. **OTHER THAN AS EXPRESSLY SET FORTH HEREINABOVE, BROWN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO ANY OF BROWN'S PRODUCTS, INCLUDED BUT NOT LIMITED TO ANY MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BROWN BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE SUFFERED BY PURCHASER OR ANY OTHER PERSON OR ENTITY CAUSED IN WHOLE OR IN PART BY ANY OF BROWN'S PRODUCTS.** Any person or entity to whom this warranty extends and who claims breach of warranty against Brown must bring suit thereon within one year from the date of occurrence of such breach of warranty or be forever barred from any and all legal or other remedies for such breach of warranty. Brown is not responsible for and hereby disclaims any undertaking, representation, or warranty made by any dealer, distributor, or other person that is inconsistent with or in any way more expensive than the provisions of this limited warranty. This warranty grants specific legal rights and shall be read in conformity with applicable state law. In some jurisdictions, the applicable law mandates warranty provisions that provide greater rights than those provided for herein. In such case, this limited warranty shall be read to include such mandates provisions; and any provision herein that is prohibited or unenforceable in any such jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceable without invalidating the remaining provisions and without affecting the validity or enforceability of such provisions in any other jurisdiction.

## STATEMENT OF POLICY

In accordance with our established policy of constant improvement, we reserve the right to amend these specifications at any time without notice.

## WARRANTY BY MANUFACTURER

Dealer/distributor understands and agrees that the manufacturer extends only the following warranty to its customers. In the event dealer/distributor extends any additional warranty such as enlarging the scope or period of warranty or undertaking a warranty of fitness for any particular purpose or obligation not encompassed in manufacturer's warranty, dealer/distributor shall be solely responsible therefore and shall have no recourse against manufacturer with respect thereto.

# Owner Registration

## WARRANTY NOTES

- All parts returned to Brown Manufacturing Corp. for warranty inspection must be received freight prepaid.
- If a warranty claim is approved, replacement or repaired parts will be returned to the customer freight prepaid.
- If a dealer makes any type of approved warranty repair, only parts and labor will be credited by Brown Manufacturing Corp. **No service call or transportation charges are warrantable.**
- No returned parts will be inspected for warranty claims if not received with a Return Authorization Number. **Without a RA#, Brown Manufacturing Corp. cannot and will not be responsible for any returned goods.**
- Drive shaft / slip clutch warranties:** Many factors can cause a slip clutch to fail. Most failures are not caused by the quality of workmanship or of materials used in the component. Therefore, all warranty claims on drive shafts / slip clutches are sent to the manufacturer of the component. All warranties approved by the component manufacturer will be handled and settled by that manufacturer.
- Use of any replacement parts other than original Brown replacement parts will void all warranties.**

**⚠WARNING:** The use of after-market replacement parts will change the operational conditions of the machine, shorten the life of other components, lead to failure of the machine, and create safety hazards to all persons near the machine. Brown equipment is designed to use original manufacturer replacement parts meeting the exact specifications of the machine and crafted from high-quality materials. After-market replacement parts are neither engineered to meet the machine’s exact specifications nor manufactured to the same high standards as original Brown replacement parts.

### For Your Records

Model: 684  
 Serial No.: \_\_\_\_\_  
 Date Purchased: \_\_\_/\_\_\_/\_\_\_  
 Dealer: \_\_\_\_\_  
 Date Registered: \_\_\_/\_\_\_/\_\_\_

### Owner Registration



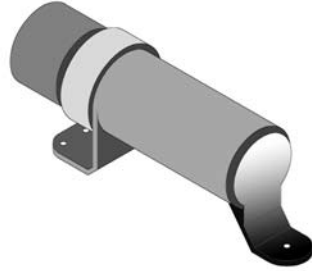
**Important:** To place the manufacturer’s warranty into effect, this card must be mailed within thirty (30) days after receiving equipment.

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_  
 Model: 684

**Return to:**  
 Brown Manufacturing Corp.  
 6001 E. Hwy 27  
 Ozark, AL 36360

Serial No.: \_\_\_\_\_  
 Date Purchased: \_\_\_/\_\_\_/\_\_\_  
 Dealer: \_\_\_\_\_

## IMPORTANT NOTICE: OWNER'S MANUAL STORAGE CONTAINER





- \* Brown Manufacturing provides an Owner's Manual storage container on all equipment.
- \*This holder is mounted in a convenient location and provides the owner with the proper safety and operation information.
- \*Two (2) copies are provided with each unit.
- \*One copy is for the **owner** to have at office for review when not operating the equipment.
- \*Second copy is to stay with the unit at all times. This will provide the **operator** the information needed for safe and proper operation of the unit.
- \*If the Owner's Manual becomes lost or damaged, contact Brown Mfg. or local dealer for replacement.

**Please use envelope.**

# Equipment Safety

## Warning: Read this manual before operation.

Operators of the equipment must read and understand this manual. Failure to read this manual and follow these safety and operating instructions could result in serious bodily injury or even death.

 <b>WARNING</b>	
	<p>Before operating your machine, stop and read this owners manual. Do not attempt to operate the unit until you fully understand the material covered in this manual. Without the knowledge contained in this manual, injury or death can result.</p>

**Each operator of the equipment should review this manual every six (6) months.** You are encouraged to duplicate this manual and to distribute it to each operator of the equipment for their training and reference. Additional copies are available from Brown Manufacturing Corporation.

# Equipment Safety

## Recognize safety information

This is the safety alert symbol. When you see this symbol on your equipment or in this manual, be alert to the potential for personal injury or injury to others.



## Understand signal words

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



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



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



## Follow safety instructions





- Read owner/operator manual.
- Replace missing or damaged safety decals.
- Safety decals and this manual must be considered a permanent part of your equipment.
- Should ownership of the equipment be transferred, this manual must also be transferred.
- Unauthorized modifications to the equipment are not recommended. This could impair the function, safety, and life of the machine.
- For any part of this manual that you do not understand, contact your dealer or Brown Manufacturing Corporation at (800) 633-8909.
- All implements with moving parts are potentially dangerous. Due to this fact, there is no substitute for a safe, knowledgeable operator. It is important that all persons operating this equipment read, understand, and follow the instructions provided in this manual.





# Equipment Safety

## Safety Decals


The following safety decals should be attached to the equipment at all times. Should any decals become damaged or lost, it is the responsibility of the owner to replace it. Additional decals may be obtained from the dealer or Brown Manufacturing Corporation.

 <b>WARNING</b>	 <b>ADVERTENCIA</b>
	<p>Antes de probar la unidad por primera vez deben remitirse a las instrucciones contenidas en el manual.</p>
<p>Read and understand owner's manual before operating unit.</p>	 <b>ADVERTISSEMENT</b> <p>S'assurer de bien comprendre toutes les consignes du manuel de propriétaire avant d'utiliser la unité.</p>

Part No.: SD-010.

 <b>DANGER</b>	
	<p><b>THROWN OBJECT HAZARD</b></p> <p>To prevent serious injury or death from thrown objects:</p> <ul style="list-style-type: none"> <li>• Stay clear when blade is turning.</li> <li>• Operate only with all guards installed and in good condition.</li> <li>• Stop operation if bystanders come within several hundred feet.</li> </ul>

Part No.: SD-001A.

 <b>WARNING</b>
<p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> <li>• Operate only at 540 RPM PTO.</li> <li>• Keep guards and shields in place.</li> </ul>

SD-007A, Standard models\*.

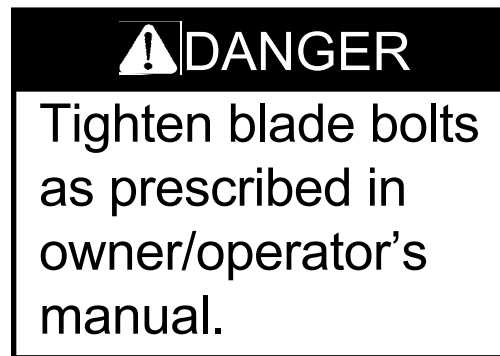
\*All Brown 684 Model rotary mowers are equipped for 540 RPM PTOs as standard. Equipping for 1000 RPM PTOs is an option, however; in such a case, use safety decal SD-008A.

# Equipment Safety

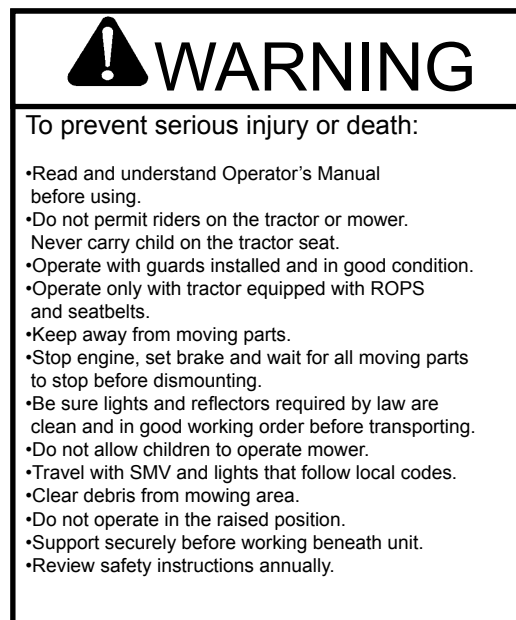
## Safety Decals (continued)



Part No.: DC-3-5-018.



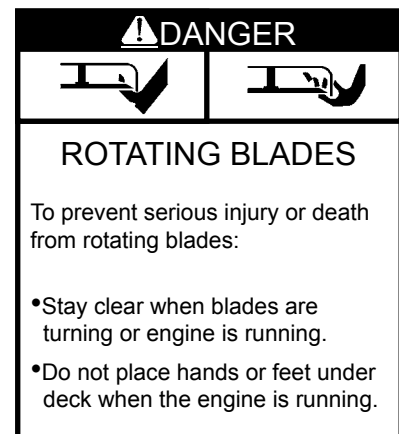
Part NO.: SD-002.



Part No.: SD-009A.



Part No.: SD-SW2.



Part No.: SD-005A.

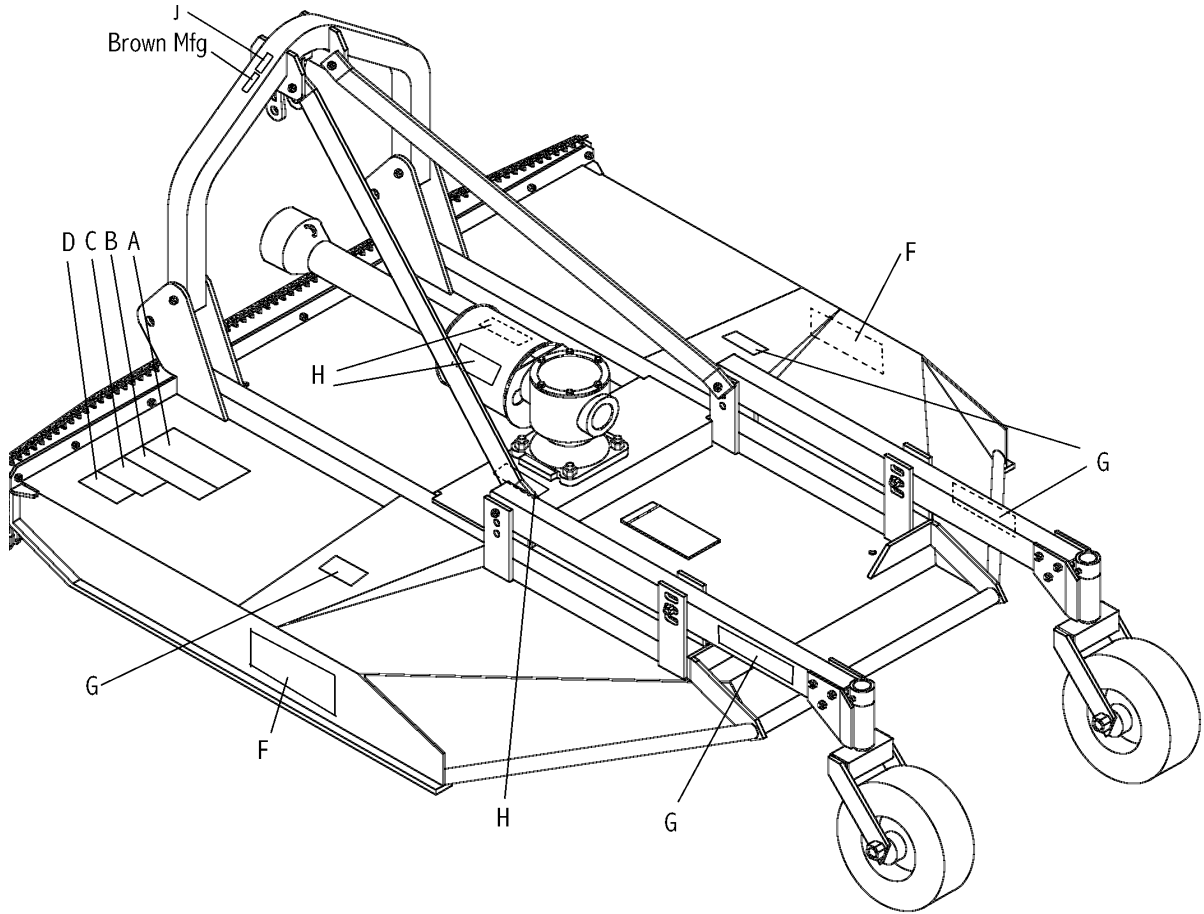


Part No.: SD-006A.

# Equipment Safety

## Safety Decals (*continued*)

Safety decals must be positioned as illustrated below. Use this diagram to correctly identify missing, damaged, or illegible decals for replacement.

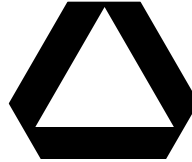


Ref. No.	Part No.	Description
A	SD-009A	Safety Decal: (General safety issues.)
B	SD-002	Safety Decal: Tighten blade bolts.
C	SD-SW2	Safety Decal: When servicing, use proper tools and equipment.
D	SD-010	Safety Decal: Read and understand owners manual.
F	SD-001A	Safety Decal: Thrown object hazard. (2 req.)
G	SD-005A	Safety Decal: Rotating blades. (4 req.)
H	SD-006A	Safety Decal: Rotating driveline. (3 req.)
J	SD-007A SD-008A	Safety Decal: Operate only at 540 RPM. Safety Decal: Operate only at 1000 RPM.
Not pictured	SD-672	Complete safety decal set

# Equipment Safety

## Warning! Transport with care.

Before transporting to a new location, make certain that the slow-moving vehicle (SMV) emblem is installed and is clearly visible. Use flashing lights and follow local traffic regulations.

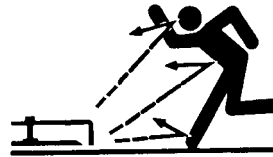


### ⚠️ WARNING

Transport with care. Use slow-moving vehicle emblem and flashing light. Follow local traffic regulations.

## Danger! Protect bystanders, clear work area of debris.

Do not operate the mower near people. Debris can be thrown hundreds of feet. Clear work area of foreign objects such as wire, glass, and other debris. Debris thrown by the mower can cause serious injury or death.



### ⚠️ DANGER

Do not operate cutter near bystanders. Clear work area of debris before operating.

## Warning! Parking and dismounting.

The rotating parts of this mower continue to rotate even after the PTO has been disengaged. The operator should remain seated until rotation has stopped. He should then set the brake, turn off the engine, and remove the key. See tractor manual for proper parking procedure.



### ⚠️ WARNING

Wait for all rotation to stop before dismounting tractor.

## Caution! Avoid fires.

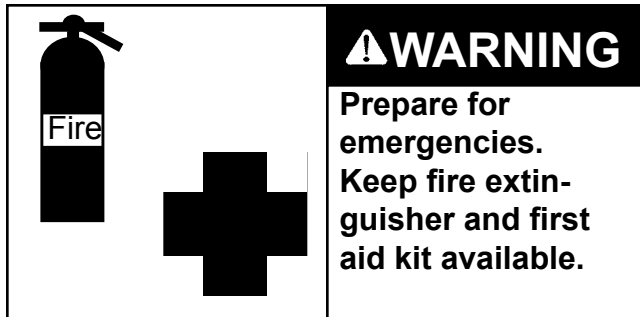
Keep the machine clean of debris, trash, and any other flammable material.



### ⚠️ CAUTION

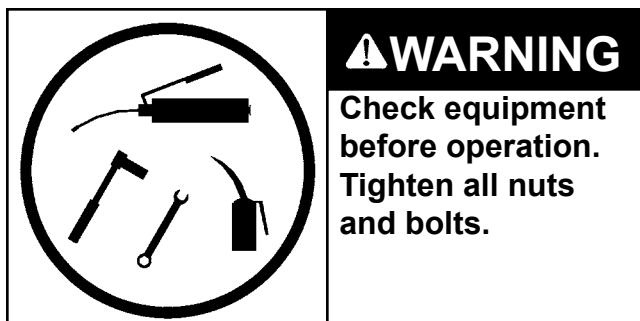
Keep machine clean of debris. Flammable debris on machine poses fire hazard.

# Equipment Safety



## Warning! Prepare for emergencies.

Keep fire extinguisher and first aid kit available. Inspect fire extinguisher and check for charge daily. Check first aid kit for expired contents and keep stocked.



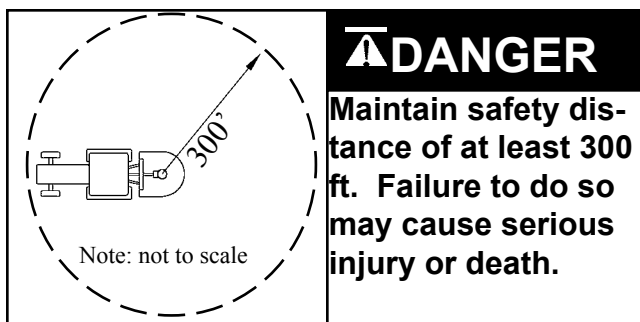
## Warning! Check equipment before operating.

Tighten all nuts and bolts before operating. Make certain that equipment is lowered to ground before attempting to make adjustments or perform maintenance. Replace or repair any safety device, bolts, etc., if damaged or worn.



## Danger! Stay clear of rotating blades.

The mower is designed to cut grass and brush up to two inches in diameter. **Keep hands and feet from under cutter deck!**



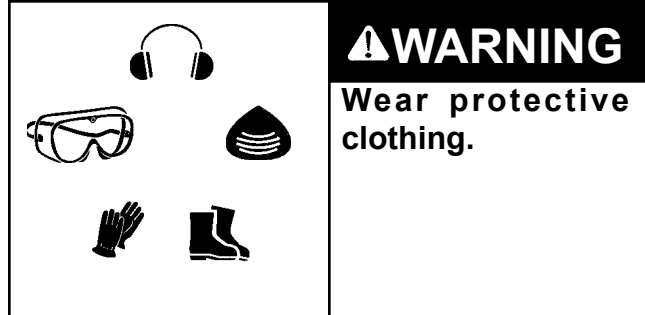
## Danger! Maintain safety distance.

The mower creates a serious discharge hazard. Always maintain a safety distance of at least 300 ft. **Never operate mower with bystanders present!**

# Equipment Safety

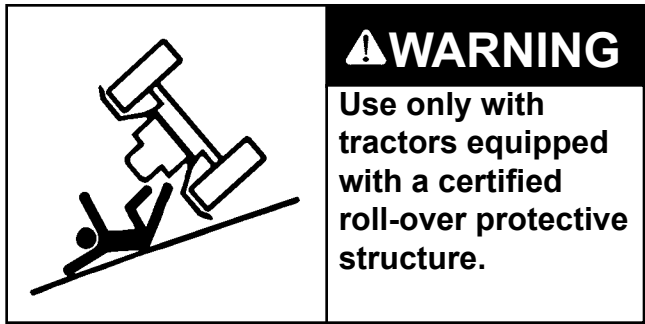
## Warning! Wear protective clothing.

Wear close-fitting clothing and other protective devices appropriate for the job.



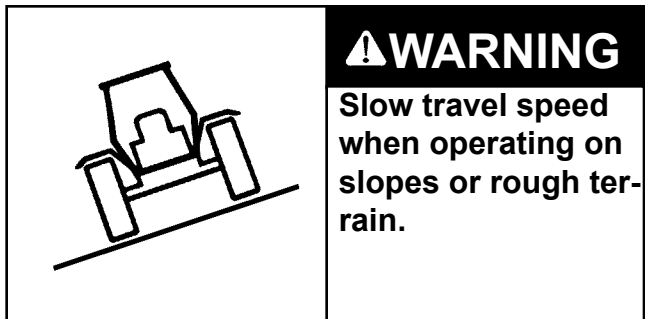
## Warning! Roll-over protection.

Do not operate the mower on any tractor not equipped with a certified roll-over protective structure (ROPS).



## Warning! Slopes and rough terrain.

When operating on slopes or rough terrain, decrease travel speed. Do not operate in an area where the tractor could roll over. **Be sure to fasten safety belt when operating tractor!**



## Danger! Tighten blade bolts.

Blade bolts will stretch with use and must be tightened. Follow maintenance instructions in this manual (see page 21). **If the mower is operated with loose blade bolts, blades and blade carrier will be damaged. Operation with damaged blades and blade carrier will lead to blade ejection and will cause serious injury or death.**



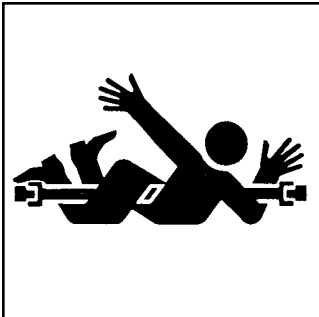
# Equipment Safety



**⚠ DANGER**  
 Riders can be injured or killed. Keep riders off machine.

**Danger! Keep riders off machine.**

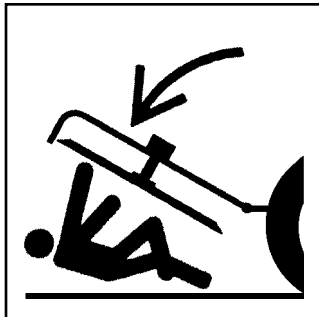
Riders can be seriously injured or killed by entanglement or by falling.



**⚠ DANGER**  
 Stay clear of rotating drivelines. Keep driveline shields in place.

**Danger! Stay clear of rotating drivelines.**

Entanglement in driveline can cause serious injury or death. Keep driveline shields in place at all times during operation. Driveline must turn freely inside shields. Driveline shields must be chained to prevent rotation.



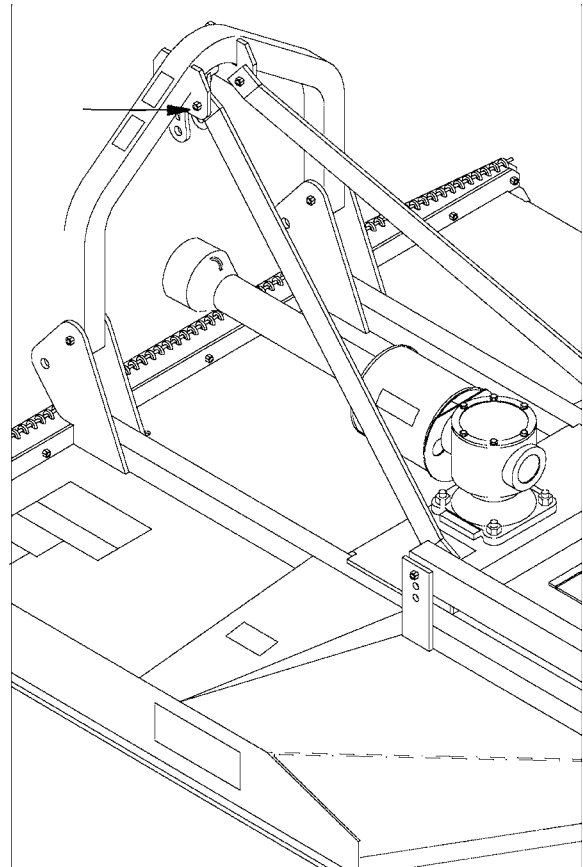
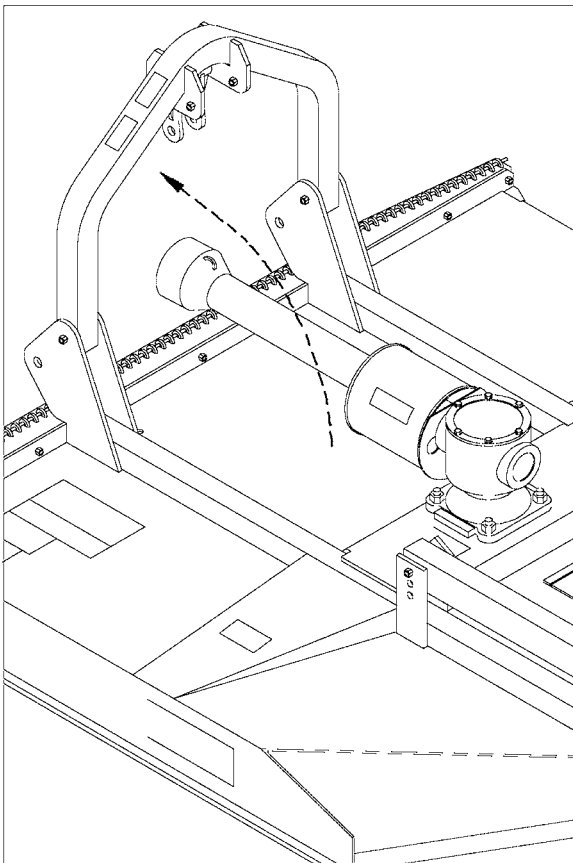
**⚠ WARNING**  
 Exercise caution while working under cutter deck. Failure to heed warnings may lead to serious injury or death.

**Warning! Hazardous service conditions.**

While working under the mower deck, be aware of safety hazards. Follow safety precautions specified in this manual (see page 20). Failure to exercise caution may lead to serious injury or death.

# Assembly

1. Install tailwheel stem into fork holder tube, placing collar over stem and inserting roll key through collar and stem.
2. Raise A-frame from its shipping position to its operational position (almost perpendicular to the mower deck). Install A-frame braces to the mounting brackets at the top of the A-frame with the provided bolts and tighten securely.
3. Bolt the rear end of the A-frame braces to the mounting brackets near the rear of the machine deck and tighten securely.
4. Tighten all bolts securely.





# Assembly

4. Separate the male and female halves of the drive shaft. Apply heavy grease to the telescoping portion of the male drive shaft; recouple the drive shaft.

5. Locate the slip clutch bell shield, clamp, and mounting plate attached to the machine. Remove the mounting bolts, flat washers, and lock washers from the gearbox face plate. Position the bell shield mounting plate (flat side up) over the input shaft and align it with the threaded holes in the gearbox face plate. Secure with bolts, flat washers, and lock washers previously removed.



**Warning!** The driveline shield and bell shield must be kept in good operating condition. Failure to maintain safety shields can result in injury or death.

6. Remove both lock bolts from the clutch hub assembly. Slide the hub onto the input shaft of the gearbox. Align the groove on the input shaft with the bolt holes in the hub. Reinstall the lock bolts and tighten securely. **Retorque lock bolts every hour for the first eight hours of use. Failure to do so will result in decreased life of the clutch hub and gearbox shaft splines.**

7. Slide aluminum bell shield and bell shield clamp over drive shaft and attach bell shield to mounting plate with the clamp. Adjust clamp as needed to assure proper attachment.

8. Check the drive shaft for proper length:

- a. Hitch the mower to the tractor.
- b. Lift the mower to the tractor's maximum lift position.
- c. Measure the distance from the PTO of the tractor to the input shaft of the mower's gearbox.
- d. Push both halves of the drive shaft together fully. Measure the overall length.
- e. If the length of the compressed drive shaft is greater than the length between the PTO and input shaft, then the drive shaft must be shortened.

**Please note that equal amounts must be removed from each section of the drive shaft.**

# Operation



Before hitching mower to your tractor, make sure all safety devices are installed on both the mower and the tractor.

Please follow all safety instructions and procedures.

## Attach equipment to tractor.

Be sure the tractor is equipped with the correct category hitchpins, top link, etc.

Be extremely careful when positioning tractor to hitch to the equipment.



**Caution!** Never allow anyone between the tractor and the equipment during the hitching process.

Be certain that the mower has been lubricated properly and check oil level in gear box prior to connecting driveline to tractor. Also, do not tighten the top link such that the flex-link toggle is fully extended toward the tractor. The flex-link should be in a relaxed position when on level ground.

Attach the driveline to the tractor. **When attaching driveline to PTO shaft, be certain that the quick-disconnect pin is properly seated.**



**Warning!** A loose driveline could disconnect and cause personal injury or property damage.

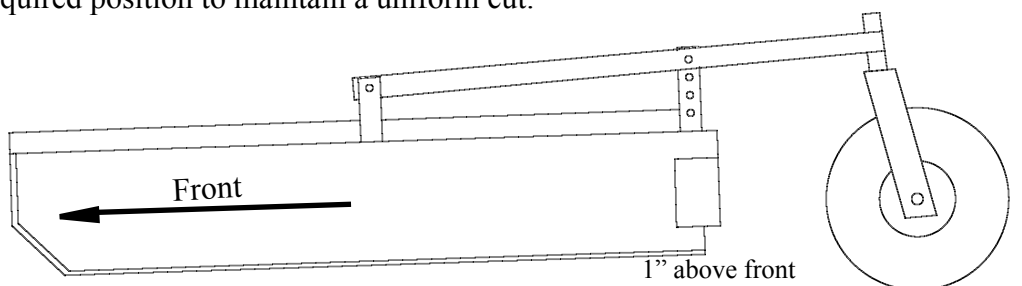
## Adjust cutting height.



**Warning!** Be certain that tractor engine is stopped, key is removed, and all rotation of the mower has ceased before making adjustments.

**Caution!** Avoid very low cutting heights. Striking the ground with blades causes a damaging shock that can damage both the mower and the tractor.

Using the tailwheel adjustment and the tractor's lift arms, set the mower to the desired height; the mower is designed to operate with a cutting height range between 2" and 12". Note that, on level ground, the front of the mower should be 1" below the rear (see illustration). Set the tractor's lift stop at the required position to maintain a uniform cut.



# Operation

## Starting mower

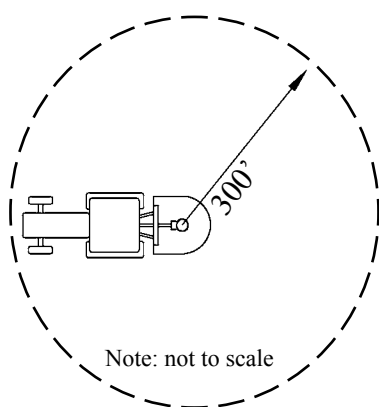
Power for operating the mower is supplied from the tractor PTO. Refer to your tractor manual for instructions on engaging and disengaging the PTO.

**Warning!** Do not operate this mower unless the tractor has a live, or independent, PTO. The momentum created by the blade carrier can push the tractor forward unexpectedly.

**Warning!** Operate mower only with the specified PTO RPM. Brown 684 Model mowers are designed to operate at 540 RPM; however, a 1000 RPM design is an option.

## Operating speed

Proper operating speed for equipment will depend upon the height, density, and type of the material to be cut. Regardless of chosen ground speed, always operate the PTO at the recommended RPM when cutting.



## General Operation

**Warning!** The mower creates a very serious discharge hazard. Maintain a safe distance from nearby persons and property. **Do not operate when bystanders are present.**

**Warning!** Avoid personal injury. Remove all rocks and other debris from work area before cutting.

Observe the following guidelines when operating the mower:

- Never lower the mower onto material.
- Avoid tight turns near trees or stationary objects. The deck may be damaged by side impact.

**Remember:** The safe operation of this equipment is the responsibility of the operator. The operator should be familiar with both the tractor and the equipment. He must read and understand all applicable operator manuals and follow all safety practices.

# Maintenance

## Safety When Working Under Mower Deck

Never work under the mower deck until:

- the mower is sufficiently braced and supported
- the tractor engine is off, brake is set, and key is removed
- PTO has been disengaged
- driveline is disconnected
- rear tractor tires have been secured with tire chocks
- the mower is cooled



**Warning!** Failure to follow these safety guidelines can result in serious injury or death.

## Initial Maintenance



**Warning!** These maintenance practices must be followed every hour for the first eight hours of operation; the practices must also be performed every hour for the first eight hours following the removal/replacement of any of the components named in this section. Check daily thereafter.

1. Tighten the bolts and tapered shank keeper bolt holding the slip clutch to the input shaft of the gear box.

**Caution!** Failure to tighten the keeper bolts will shorten the life of the slip clutch hub.

2. Check for debris deposited between the blade bar and the blades. Debris found jamming or locking the blades must be removed to insure that the blade may pivot freely on the blade bolt.



**Warning!** Failure to maintain freely pivoting blades will cause severe vibration or blade breakage which can result in injury or death.

3. Tighten blade bolts and blade bar nut.



**Warning!** Failure to tighten blade bolts and blade bar nut can cause blade bolts, blades, or output shafts to break, which can result in injury or death.


4. Check for debris deposited around the output shaft or tailwheel axle.
5. Tighten gearbox mounting bolts.


**Caution!** Failure to keep the gearbox bolts tightened can cause the blades to strike the bottom of the mower deck or break the output shaft of the gearbox.

# Maintenance

## Daily Maintenance

1. Repeat all steps listed under the “Initial Maintenance” section on a daily basis after the initial maintenance has been performed.
2. Lubricate the driveshaft tubes and U-joint.
3. Lubricate the tailwheel hub.
4. Check and maintain the proper amount of lubricant in the gearbox. **The recommended lubricant for the gear box is SAE 85-140 weight gear oil or equivalent.**
5. Check the blades; sharpen or replace as necessary. **When sharpening blades, only sharpen the beveled edge. Also, be certain that paired blades weigh within 1oz. of each other. When replacing blades, replace both blades of the pair.**

 Warning! Use only blades and blade bolts supplied by Brown Manufacturing Corporation.


 Warning! If the blades must be sharpened, follow the proper safety procedures listed on page 22 of this manual for working under the mower deck.

## Tightening Blade Bolts and Blade Bar

Tighten blade bolts each hour for the first eight hours of use; tighten daily thereafter. **Repeat hourly inspections each time the blades are removed/replaced.**

 Warning! Blade bolts will stretch with use and must be tightened.

1. Disengage PTO; be certain that all rotation has stopped.
2. Lift mower high enough to place suitable supports under the mower deck.
3. Turn tractor engine off; remove key; lock transmission and brakes; chock rear wheels.
4. Disconnect driveline.
5. Use a pipe wrench to hold the blade bolt; torque blade bolt nut to approximately 600 to 700 ft./lbs.
6. Remove blade bar cotter pin and tighten nut with a 2-9/16” socket. Torque nut to 2200 ft./lbs.; continue to torque until cotter pin hole aligns with nut. Install a new cotter pin. **Never loosen nut to align cotter pin hole.**

 Warning! Failure to keep blade bolts tight will cause damage to the blade carrier. If this occurs,

*(continued on next page)*

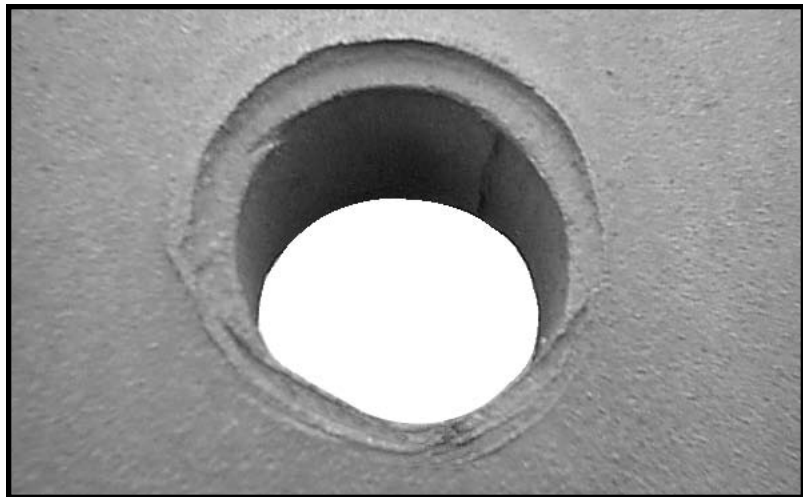
# Maintenance

refurbish the blade carrier; otherwise, tightening the blade bolt after the blade carrier is damaged will jam the blade, causing the blade to break. This occurrence can cause serious injury or death.

**!** If blade bolts are allowed to run loose, the obvious danger is for the bolt to come completely loose, allowing the blade, bolt, and nut to be ejected from the cutter.

## Tightening Blade Bolts (*continued*)

**!** The second danger is that when the bolt is not sufficiently tight, the blade is allowed excess vertical movement when it strikes an object, be it something it will cut or something into which it should not come in contact. In this situation, the blade is being hammered against the blade carrier and flexed, or bent, up around the edge of the blade carrier at least twelve (12) times per second, generally fifteen (15) times per second. This situation will cause the blade to break from fatigue and to be ejected from the mower.



**!** The third danger is that, while the second situation is occurring, the blade bolt is also hammering the underside of the blade carrier; the shoulder of the blade bolt beats an indentation around the blade bolt hole into which the bolt shoulder will fit. When this damage occurs, the blade bolt will pull up into the indentation when the bolt is tightened, causing the blade to jam so that it can no longer pivot on the blade bolt. A jammed blade will break either from fatigue or from catastrophic occurrence and will allow the blade to be ejected. A blade carrier damaged in this manner must be taken out of service immediately. Repair the blade carrier (contact Brown Mfg. Corp. for instructions) and replace the blades and blade bolts before returning the machine to service.

**!** All three of the described occurrences will cause the blades to break and be ejected. An ejected blade can and will cause serious injury or death.

**REMEMBER: Blades must pivot freely and blade bolts must be tight!**

## Sharpening Blades

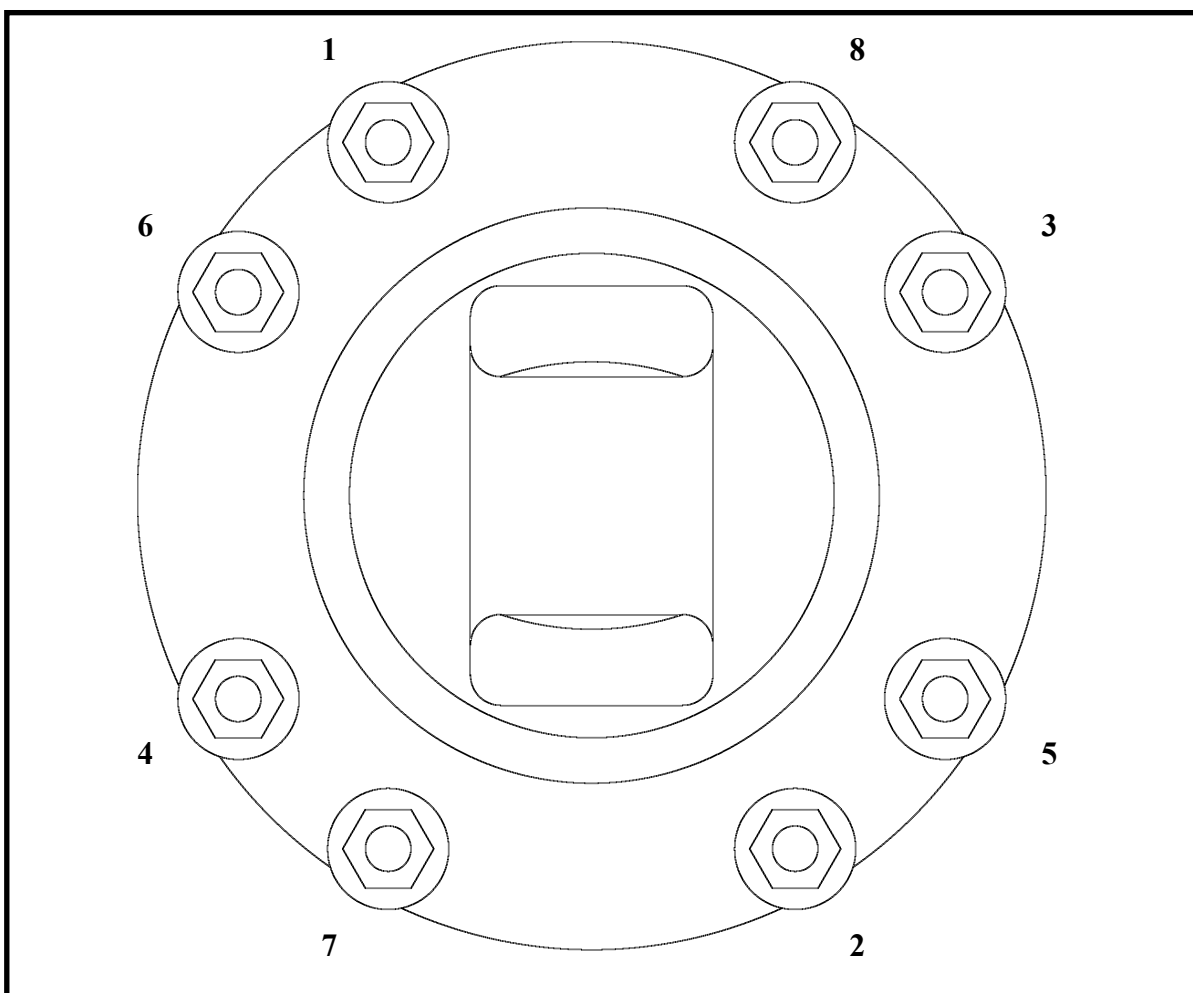
The blades are cut from Ultra-KOR alloy, a space-age material. **Do not use a grinder to sharpen blades!** Instead, sharpen blades with a cutting torch, restoring proper edge bevel. Finish the edge carefully with a side grinder, taking care not to super-heat the blade material.

Caution! Sharpening blades with grinder or super-heating blade with side grinder will decrease the life of the blades. Contact Brown Manufacturing Corporation for additional information.

# Maintenance

## Slip Clutch Adjustment

Check the slip clutch regularly; tighten the spring bolts if necessary. When tightening clutch bolts, torque the bolt nuts in sequence, as illustrated. Incrementally torque each bolt nut until each clutch spring measures 1" to 1-1/32" in length.



## Proper Gearbox Lubrication

With the mower sitting level, find and remove the combination vent plug/dip stick. Wipe the dip stick clean and reinsert. Then remove. Oil should touch the dip stick. If not, add oil until it is no higher than 1/2" to 1" on the dip stick. Excess oil in the gearbox will be exhausted through the vent plug/dip stick.

**Make certain plug is replaced and tightened securely before operating.**











# Troubleshooting

<b>Problem</b>	<b>Possible Cause(s)</b>	<b>Possible Solution(s)</b>
Excessive vibration	<ol style="list-style-type: none"> <li>1. Loose gearbox bolts</li> <li>2. Loose blade bar and/or blade bolts</li> <li>3. Blades are not freely swinging</li> <li>4. Broken, bent, or warped blades</li> <li>5. Blade bar not seated properly on shaft</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten bolts</li> <li>2. Tighten blade bar nut or blade bolt nuts</li> <li>3. Clear blade of obstruction</li> <li>4. Replace set of blades and bolts</li> <li>5. Remove blade bar; clean hub and shaft; reseal</li> </ol>
Excessive clutch slippage	<ol style="list-style-type: none"> <li>1. Worn clutch linings or plates</li> <li>2. Oil on lining</li> <li>3. Glazed friction lining</li> <li>4. Excessive torque on clutch</li> <li>5. Dull blades</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair clutch</li> <li>2. Replace linings</li> <li>3. Clean with emory cloth</li> <li>4. Reduce ground speed, material intake, or tractor size</li> <li>5. Sharpen or replace blades</li> </ol>
Overheating gearbox	<ol style="list-style-type: none"> <li>1. Insufficient lubricant level</li> <li>2. Improper lubricant</li> <li>3. Debris build-up around gearbox</li> <li>4. Bearing or gears set improperly</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill to full level</li> <li>2. Replace with correct lubricant</li> <li>3. Remove debris</li> <li>4. Consult dealer</li> </ol>
Noisy gearbox	<ol style="list-style-type: none"> <li>1. Rough gears</li> <li>2. Worn bearing</li> </ol>	<ol style="list-style-type: none"> <li>1. Run for a short break-in period or replace gears</li> <li>2. Replace bearing</li> </ol>
Leaking gearbox	<ol style="list-style-type: none"> <li>1. Damaged oil seal</li> <li>2. Bent shaft</li> <li>3. Oil seal installed incorrectly</li> <li>4. Oil level too high</li> <li>5. Shaft rough or pitted in oil seal area</li> <li>6. Shaft bore worn in casting</li> <li>7. Damaged gasket</li> <li>8. Loose bolts</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace seal</li> <li>2. Replace seal and shaft</li> <li>3. Replace seal</li> <li>4. Drain oil to proper level</li> <li>5. Replace shaft</li> <li>6. Replace casting or gearbox</li> <li>7. Replace gasket</li> <li>8. Tighten bolts.</li> </ol>
Short blade life	<ol style="list-style-type: none"> <li>1. Cutting too low</li> <li>2. Cutting in sandy or rocky conditions</li> <li>3. Inadequate blades</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase cutting height</li> <li>2. Increase cutting height</li> <li>3. Replace with Brown blades</li> </ol>
Not cutting clean	<ol style="list-style-type: none"> <li>1. Dull blades</li> <li>2. Insufficient PTO speed</li> <li>3. Cutter not level</li> <li>4. Ground speed too fast</li> <li>5. Blades are not freely swinging</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen or replace blades</li> <li>2. Use correct PTO speed</li> <li>3. Adjust cutter</li> <li>4. Reduce ground speed</li> <li>5. Clear blade of obstruction</li> </ol>

# Specifications

<b>True Cutting Width</b>	84" (7')
<b>Overall Deck Width</b>	93" (7' 9")
<b>Cutting Height</b>	2" to 12"
<b>Deck Construction</b>	1/4" steel plate
<b>A-frame Construction</b>	3 x 3 x 1/4" tubing with Flex Link Category II hitch
<b>Weight</b>	2200 lbs.
<b>Blades</b>	Qty. 2, 5/8" x 6" Ultra-KOR alloy
<b>Blade Bar</b>	1" solid steel plate, 38-1/2" diameter
<b>Drive Shaft</b>	Heavy-duty, fully shielded
<b>Tail Wheel</b>	Qty. 2, 500 x 8 laminated solid tires
<b>Gearbox</b>	145 HP
<b>Slip Clutch</b>	Heavy-duty 85/120 HP, 4 disc slip clutch with 4 adjustable settings
<b>Horsepower Requirement</b>	60 HP PTO minimum
<b>Maximum Material Size</b>	4"

## Standard Features

1/4" steel plate deck

1" solid steel blade carrier, 38-1/2" diameter

Qty. 2, 5/8" x 6" high-tensile blades

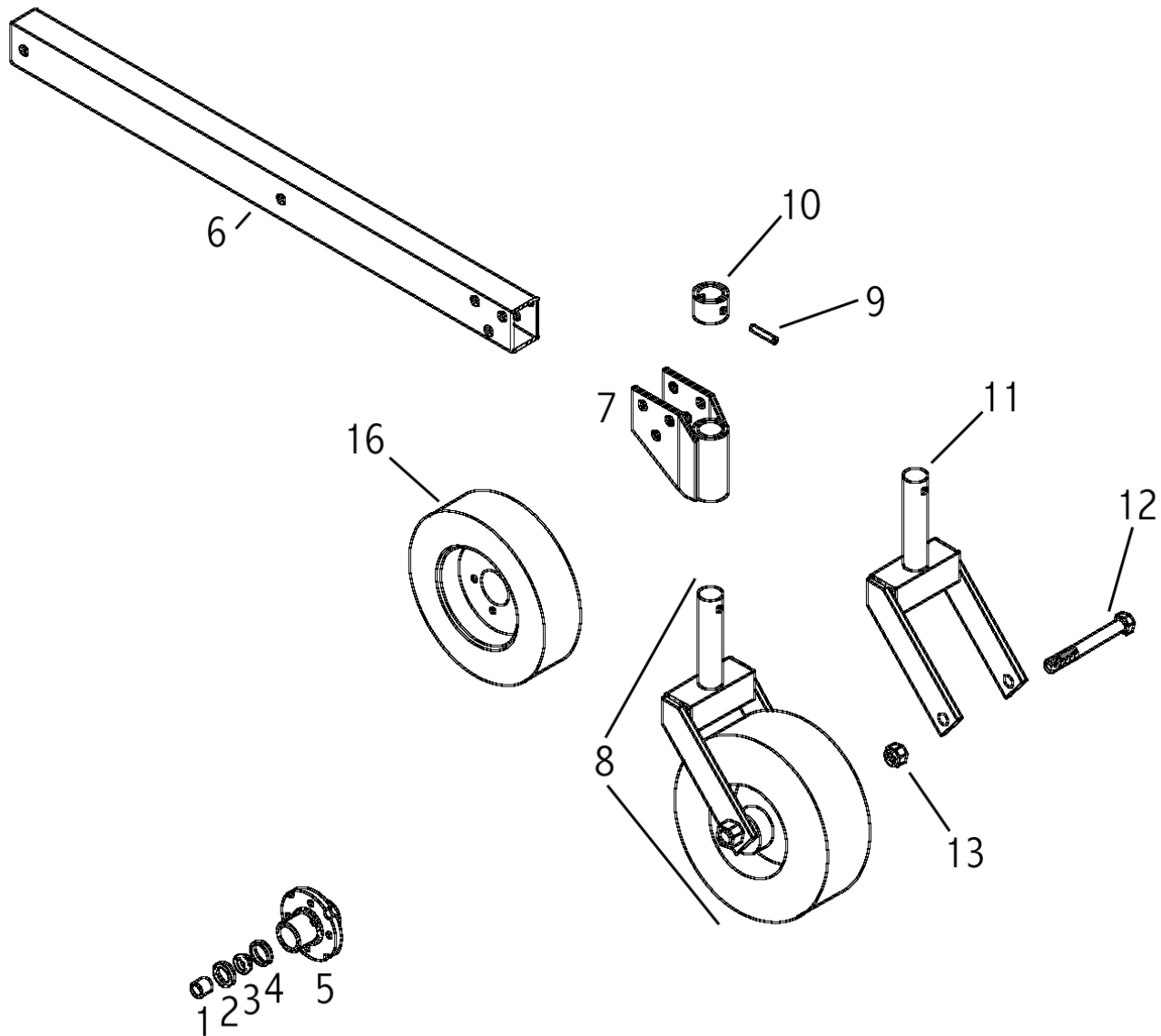
Front Chain Guard

4" diameter maximum material capacity

2" to 12" cutting height

# Replacement Parts

## Tailwheel Assembly - 2 Req'd



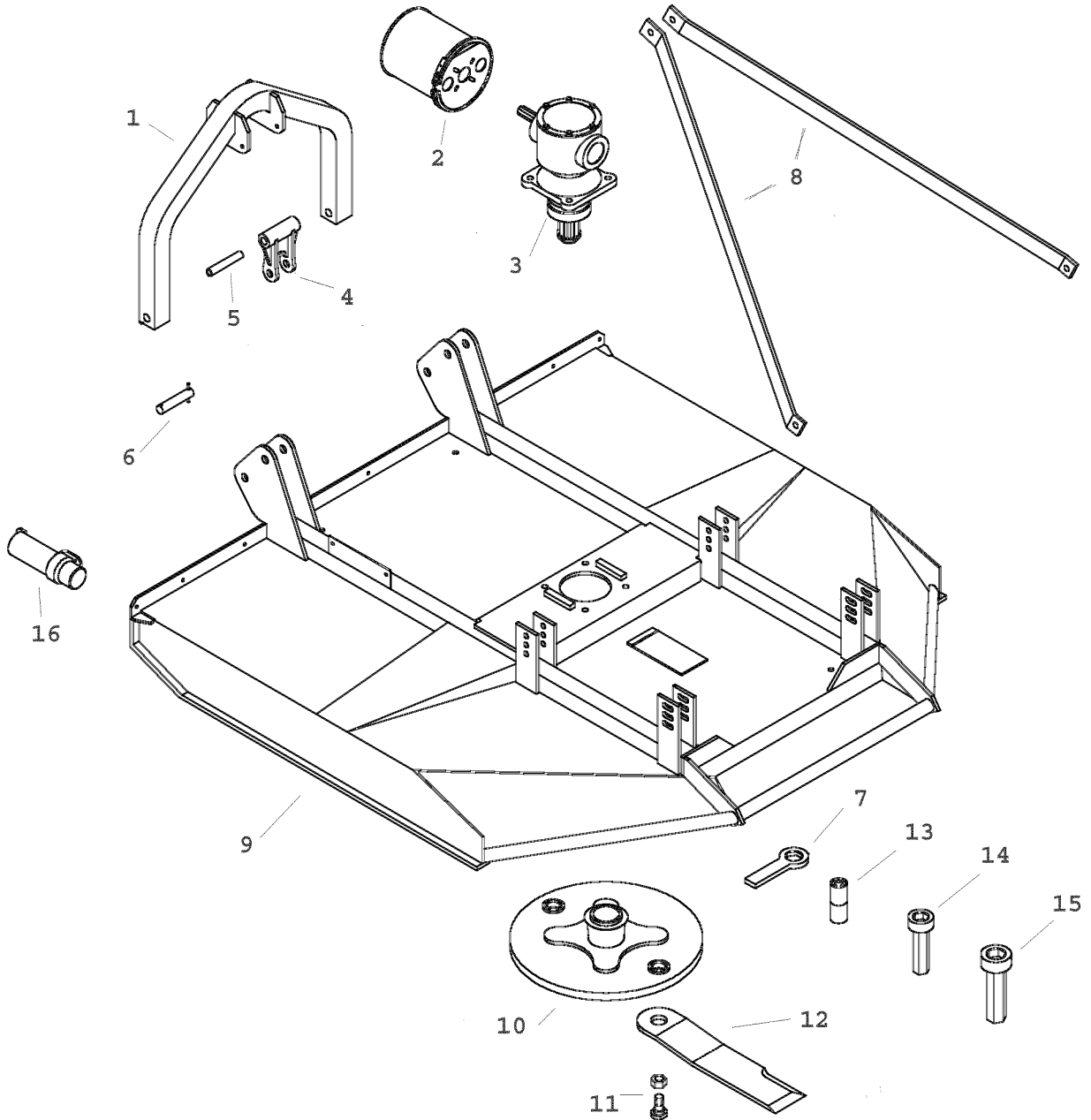
# Replacement Parts

## Tailwheel Assembly - 2 Req'd (*continued*)

Ref. No.	Part No.	Description
1	TC-107	Spacer (pair)
2	TC-108	Seal (2 req.)
3	TC-109	Bearing (2 req.)
4	TC-110	Cup (2 req.)
5	TC-111 TC-111A	Tailwheel hub only with cups Complete tailwheel hub assembly
6	684-01	Tailwheel arm
7	TC-119X	Tailwheel fork holder
8	6-010	Complete tailwheel assembly
9	TC-012	Roll pin (1/2" x 2")
10	TC-011	Collar
11	6-004	Fork
12	TC-106	Axle
13	TC-114	Axle nut
16	TC-113XA	Tire and wheel assembly

# Replacement Parts

## Deck Assembly





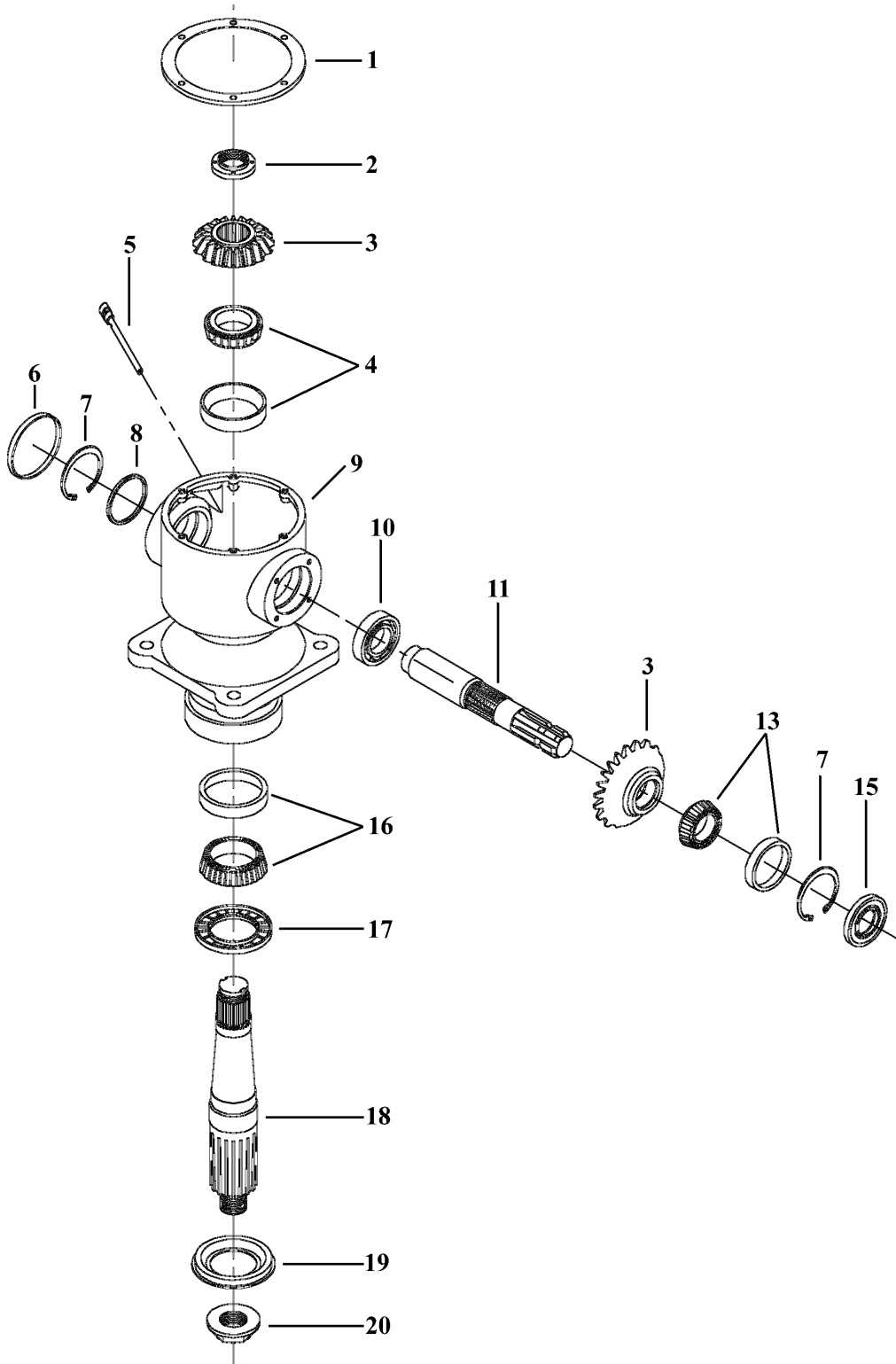
# Replacement Parts

## Deck Assembly (*continued*)

Ref. No.	Part No.	Description
1	BM-51	A-frame, tri-bend
2	BS-1A BS-1 BS-2 BS-3	Bell shield assembly Housing, bell shield Clamp, bell shield Plate, bell shield
3	BM-1000	145HP gearbox
4	TC2-003	A-frame toggle
5	TC2-016	A-frame toggle spacer
6	TC-126	Category II lift pin with lynch pin
7	TC-Wrench	Socket wrench
8	TC2-014	A-frame brace
9	N/A	Deck weldment - call factory
10	684-005	Blade carrier
11	T5-001-Kit	Blade bolt w/nut
12	T5-079B	Blade
13	T-2600-001	Removal tool
14	T5-004BS	165 Blade bolt socket
15	T5-054AS	145/165 Blade bar socket
16	MH-01	Manual container
Not pictured	TC-126A	7/16" lynch pin
Not pictured	684-08	Chain guard (front)

# Replacement Parts

## 145 HP Gearbox



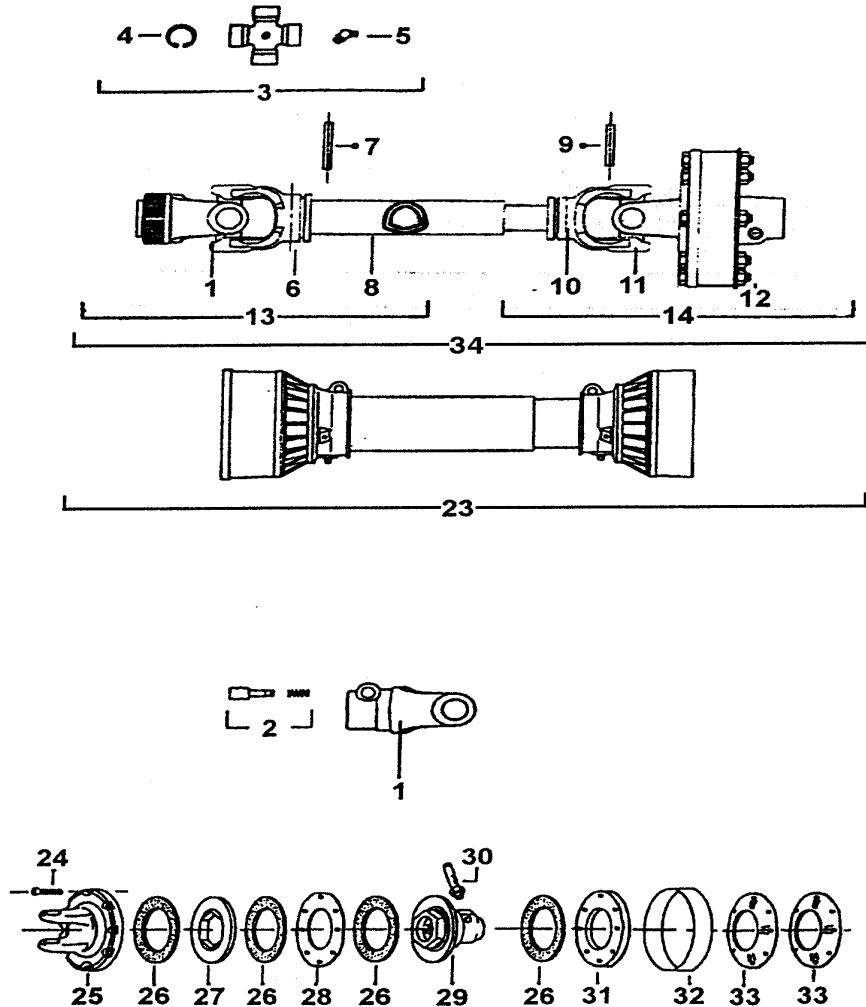
# Replacement Parts

## 145 HP Gearbox (*continued*)

Ref. No.	Part No.	Description
1	BM-100	Cover plate
2	BM-110	Top output shaft nut
3	BM-104 BM-113	Gear set - 1000 RPM Gear set - 540 RPM
4	BM-111	Bearing set, top output shaft
5	T5-068	Vent plug (w/ dipstick)
6	BM-107	Rear seal plug
7	BM-103	Lock ring (2 req.)
8	BM-108	Shim kit
9	BM-105	Gearbox housing
10	BM-109	Bearing set, rear input shaft
11	BM-102 BM-115	Input shaft - 1-3/4" x 6 spline Input shaft - 1-3/4" x 20 spline
13	T5-060	Bearing set, front input shaft
15	BM-101	Seal, input
16	BM-106 235-0032	Bearing set, bottom output shaft (32014) must specify when ordering. (old style) Bearing Set, bottom output shaft (33014) must specify when ordering.
17	T5-065	Seal, output
18	BM-112	Output shaft, tapered (must purchase w/ 235-0032 bearing)
19	T5-048	Output seal guard
20	T5-054A	Nut, flanged, castellated
21	T5-050	Bolt, Hex Head (M10 x 20) for Top Plate
Not shown	T5-074T-25	Oil plug
22	T5-052	Cotter pin, 5/16" x 3"
Not shown	T5-LUBE	85-140 gearbox lubricant (1 QT)

# Replacement Parts

## Drive Shaft & Slip Clutch



Ref. No.	Part No.	Description
1	T5-006-21 T5-006	Yoke with quick-disconnect pin kit, 1000 RPM Yoke with quick-disconnect pin kit, 540 RPM
2	TC-323	Quick-disconnect pin kit
3	T5-007	U-joint kit

# Replacement Parts

## Drive Shaft & Slip Clutch (*continued*)

Ref. No.	Part No.	Description
4	T5-008	U-joint clip
5	TC-305B	U-joint grease fitting
6	T5-009	Outer tube yoke
7	T5-010	Outer tube yoke pin
8	T5-011	Outer tube
9	T5-013	Inner tube yoke pin
10	T5-012	Inner tube
11	T5-014	Inner tube yoke
12	T5-3401 T5-3400	Complete slip clutch assembly, 1000 RPM Complete slip clutch assembly, 540 RPM
13	684-11 684-12	Front drive shaft with shield, 1000 RPM, 1-3/8" x 20 spline Front drive shaft with shield, 540 RPM, 1-3/8" x 6 spline
14	684-13 684-14	Rear drive shaft with shield, 1000 RPM, 1-3/4" x 21 spline Rear drive shaft with shield, 540 RPM, 1-3/4" x 6 spline
23	684-19	Complete shield assembly
24	T5-3404	Retainer bolt
25	T5-3405	Flange yoke
26	TC-326	Clutch lining (4 req.)
27	T5-3406	Lining plate
28	T5-3407	Inner plate
29	T5-3408 T5-3408-20	Clutch hub, 1-3/4" x 6 spline Clutch hub, 1-3/4" x 20 spline
30	T5-030	Flanged hub bolt
31	T5-3409	Tightening plate
32	T5-3411	Spring plate (2 req.)
33	T5-3410	Clutch housing band
34	B-684 B-684-1	Drive Shaft Complete, 540 RPM 1-3/8" -6 x 1-3/4" -6 Spline Drive Shaft Complete, 1000 RPM 1-3/8" -21 x 1-3/4" -20 Spline

# Notes

# Notes

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