

400 Series Rotary Cutter



Owner / Operator Manual



MANUFACTURING CORPORATION™
6001 E. Hwy 27 • OZARK, ALABAMA 36360
PHONE: (334) 795-6603 • FAX: (334) 795-3029
WEB: 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.

Copyright Infomation

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Cover

Illustrated: Model 472 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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BROWN MANUFACTURING CORP.

Limited Warranty

1. LIMITED WARRANTIES

1.01. . Brown Manufacturing Corp. warrants for one year from the purchase date to the original non-commercial, governmental, or municipal purchaser ("Purchaser") and warrants for ninety (90) days to the original commercial or industrial purchaser ("Purchaser") that the goods purchased are free from defects in material or workmanship.

1.02. Manufacturer will replace for the Purchaser any part or parts found, upon examination at its factory, to be defective under normal use and service due to defects in material or workmanship.

1.03. This limited warranty does not apply to any part of the goods which has been subjected to improper or abnormal use, negligence, alteration, modification, or accident, damaged due to lack of maintenance or use of wrong oil or expendable items such as blades, shields, guards, or tires except as specifically found in your Operator's Manual.

1.04. Except herein, no employee, agent, Dealer, or other person is authorized to give warranties of any nature on behalf of the Manufacturer.

2. REMEDIES AND PROCEDURES

2.01. This limited warranty is not effective unless the Purchaser returns the Registration and Warranty Form to Manufacturer within 30 days of purchase.

2.02. Purchaser claims must be made in writing to the Authorized Dealer ("Dealer") from whom Purchaser purchased the goods or an approved Authorized Dealer ("Dealer") within 30 days after Purchaser learns of the facts on which the claim is based.

2.03. Purchaser is responsible for returning the goods in question to the Dealer.

2.04. If after examining the goods and/or parts in question, Manufacturer finds them to be defective under normal use and service due to defects in material or workmanship, Manufacturer will:

- (a) Repair or replace the defective goods or part(s) or
(b) Reimburse Purchaser for the cost of the part(s) and reasonable labor charges (as determined by Manufacturer) if Purchaser paid for the repair and/or replacement prior to the final determination of applicability of the warranty by Manufacturer. (The choice of remedy shall belong to Manufacturer).

2.05. Purchaser is responsible for any labor charges exceeding a reasonable amount as determined by Manufacturer and for returning the goods to the Dealer, whether or not the claim is approved. Purchaser is responsible for the transportation cost for the goods or part(s) from the Dealer to the factory.

3. LIMITATION OF LIABILITY

3.01. . MANUFACTURER DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES FOR A PARTICULAR PURPOSE.

3.02. MANUFACTURER MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUSTA INABILITY FOR USE OF THE GOODS.

3.03. EXCEPT AS PROVIDED HEREIN, MANUFACTURER SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO PURCHASER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS, OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY THE GOODS INCLUDING, BUT NOT LIMITED TO, ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE GOODS OR ANY BREACH OF THIS WARRANTY. NOT WITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, MANUFACTURER'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY PURCHASER OR OTHERS SHALL NOT EXCEED THE PRICE OF THE GOODS.

3.04. NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS WARRANTY OR TRANSACTIONS UNDER THIS WARRANTY MAY BE BROUGHT MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.

4. MISCELLANEOUS

4.01. Proper venue for any lawsuits arising from or related to this limited warranty shall be only in Dale County, Alabama.

4.02. Manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.

4.03. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.

4.04. Applicable law may provide rights and benefits to Purchaser in addition to those provided herein.

KEEP FOR YOUR RECORDS (ATTENTION: READ YOUR OPERATOR'S MANUAL)

ATTENTION: Purchaser should fill in the blanks below for his reference when buying repair parts and/or for proper machine identification when applying for warranty.

Brown Implement Model _____ Serial Number _____

Date Purchased _____ Dealer _____

Brown Manufacturing Corp.
6001 E. Hwy 27
Ozark, AL 36360
800-633-8909
brown@brownmfgcorp.com



TO THE OWNER/OPERATOR/DEALER

In addition to the standard Limited Warranty shown on the facing page, Brown Manufacturing Corp. also provides:

- 1.) ONE-YEAR (12 months) {or 90 days for Commercial/Industrial Users} LIMITED WARRANTY on the DRIVELINE components provided they have been properly maintained† and have not been subjected to abuse or misuse.
- 2.) FIVE-YEAR (60 months) LIMITED WARRANTY* on GEARBOX components provided they have been properly maintained† and have not been subjected to abuse or misuse except as limited below.

* WARRANTY LIMITATIONS - GEARBOX

A) Warranty is ONE-YEAR (12 months) for Seals (After one year, seals are considered to be WEARING PARTS and replacement is user's responsibility).

B) User's Gearboxes may be rebuilt by Brown Manufacturing Corp. or replaced by new or rebuilt Gearboxes at the option of Brown Manufacturing Corp.

† NOTE — "properly maintained" specifically includes, but is not limited to:

A) Running Gearboxes with the proper amount of the correct lubricant.

B) Adjusting Slip Clutches correctly to provide protection for Driveline and Gearbox Components.

To keep your implement running efficiently and safely read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

REQUIRED OF THE OWNER:

1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard, and
2. Provide Seatbelts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seatbelt while the tractor is moving; and
4. Ensure that each employee tightens the Seatbelt sufficiently to confine the employee to the protected provided by ROPS.

REQUIRED OF THE OPERATOR:

1. Securely fasten seatbelt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going — especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly — no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
9. When the tractor is stopped, set brakes securely and use park lock, if available.

Please complete the form below and mail to: Brown Mfg. Corp. - 6001 E. Hwy. 27 - Ozark, AL 36360
 6 BROWN MANUFACTURING CORP. ® WARRANTY REGISTRATION INFORMATION

Brown Model _____ Serial No. _____ Purchase Date (mm/dd/yy) ___/___/___
 Purchaser Last Name _____ First Name _____ M.I. _____
 Street & No., RFD,
 Box, &/or Apt. No. _____
 City: _____ State or Province: _____ Zip _____
 Dealer: _____
 City: _____ State or Province _____ Zip _____

. I have informed the Purchaser of this product of Warranty terms, provisions, and procedures that are applicable, reviewed the contents of the Operator's Manual including safety equipment, safe operation, and maintenance, reviewed the Safety Signs on implement (and tractor if possible), and Purchaser's responsibility to train his operators in safe operation.

. IMPLEMENTS: I have explained that Deflectors, Chain Guards, or Solid Skirts must be maintained in good repair and installed except in areas where persons, vehicles, livestock, or other property will not be endangered by thrown objects and where such safety equipment would prevent the mower's reasonable performance of its assigned task.

. DRIVELINES: I have made certain that all driveline, gearbox, and other shields are in good repair and fastened securely in place to prevent injuries from entanglement or thrown objects.

Dealer's Signature: _____ Date: _____

I have been instructed on the paragraphs above, received and have been instructed on the contents of the Operator's Manual including safety signs, safety equipment, safe operation, maintenance, and the potential hazards of unauthorized alterations or modifications of the product. I have been informed of the warranty provisions and know that the warranty is not in effect until this form is received by Brown Manufacturing Corp.

I understand the Implement Guarding statements above and the potential hazards of operating without such guards. I understand that the operator is responsible for the safety of others in the area. I have examined the product and accept it as being complete and in satisfactory condition with all required guards.

CUSTOMER COPY

Purchaser's Signature: _____ Date: _____

**PRE-DELIVERY SERVICE
 CHECK AND ADJUST OR LUBRICATE AS REQUIRED**

See Operator's Manual for Details

Inspection performed — Warranty and Safety Procedures Explained — Installation Complete

<input type="checkbox"/> Gearbox (Oil Levels)	<input type="checkbox"/> Drivelines (Proper Length and Lubrication)
<input type="checkbox"/> Wheel Hubs (Lubricate)	<input type="checkbox"/> Gearbox Vent Plugs (Location and Operation)
<input type="checkbox"/> Wheel Hub Seals	<input type="checkbox"/> Tail Wheel Arm(s) (Height Adjustment)
<input type="checkbox"/> Wheel Bearing (Check Grease and Preload)	<input type="checkbox"/> Deflectors Front and Rear
<input type="checkbox"/> Shredding Attachments	<input type="checkbox"/> Correct Blade Rotation Direction
<input type="checkbox"/> Axle Arms and Beams	<input type="checkbox"/> All Bolts — Pins and Nuts (Proper Torque)
<input type="checkbox"/> A-Frame Pivot and Links	<input type="checkbox"/> Cutting Height (Adjust Front to Rear)
<input type="checkbox"/> Protective Shields (Operation and Installation)	<input type="checkbox"/> Driveline Clutch (Torque Limiter) (Adjust and Run In)
<input type="checkbox"/> Safety Decals (Installed)	<input type="checkbox"/> Operator's Manual (Supplied)
<input type="checkbox"/> Tractor PTO Shield (Installed)	<input type="checkbox"/> S.M.V. Emblem (Installed if Needed)

Purchaser's Signature _____ Date _____ Dealer's Signature _____ Date _____

Please complete the form below and mail to: Brown Mfg. Corp. - 6001 E. Hwy. 27 - Ozark, AL 36360

7 BROWN MANUFACTURING CORP. ® WARRANTY REGISTRATION INFORMATION

Brown Model _____ Serial No. _____ Purchase Date (mm/dd/yy) ____/____/____

Purchaser Last Name _____ First Name _____ M.I. _____

Street & No., RFD,
Box, &/or Apt. No. _____

City: _____ State or Province: _____ Zip _____

Dealer: _____

City: _____ State or Province _____ Zip _____

. I have informed the Purchaser of this product of Warranty terms, provisions, and procedures that are applicable, reviewed the contents of the Operator's Manual including safety equipment, safe operation, and maintenance, reviewed the Safety Signs on implement (and tractor if possible), and Purchaser's responsibility to train his operators in safe operation.

. IMPLEMENTS: I have explained that Deflectors, Chain Guards, or Solid Skirts must be maintained in good repair and installed except in areas where persons, vehicles, livestock, or other property will not be endangered by thrown objects and where such safety equipment would prevent the mower's reasonable performance of its assigned task.

. DRIVELINES: I have made certain that all driveline, gearbox, and other shields are in good repair and fastened securely in place to prevent injuries from entanglement or thrown objects.

Dealer's Signature: _____ Date: _____

I have been instructed on the paragraphs above, received and have been instructed on the contents of the Operator's Manual including safety signs, safety equipment, safe operation, maintenance, and the potential hazards of unauthorized alterations or modifications of the product. I have been informed of the warranty provisions and know that the warranty is not in effect until this form is received by Brown Manufacturing Corp.

I understand the Implement Guarding statements above and the potential hazards of operating without such guards. I understand that the operator is responsible for the safety of others in the area. I have examined the product and accept it as being complete and in satisfactory condition with all required guards.

CUSTOMER COPY

Purchaser's Signature: _____ Date: _____

**PRE-DELIVERY SERVICE
CHECK AND ADJUST OR LUBRICATE AS REQUIRED**

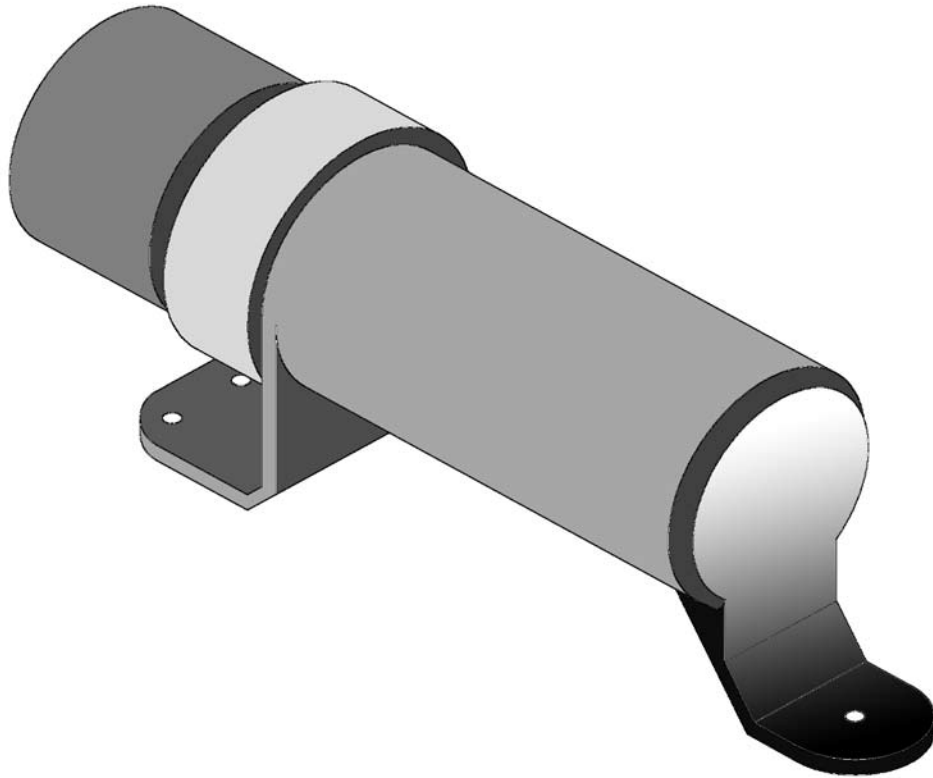
See Operator's Manual for Details

Inspection performed — Warranty and Safety Procedures Explained — Installation Complete

<input type="checkbox"/> Gearbox (Oil Levels)	<input type="checkbox"/> Drivelines (Proper Length and Lubrication)
<input type="checkbox"/> Wheel Hubs (Lubricate)	<input type="checkbox"/> Gearbox Vent Plugs (Location and Operation)
<input type="checkbox"/> Wheel Hub Seals	<input type="checkbox"/> Tail Wheel Arm(s) (Height Adjustment)
<input type="checkbox"/> Wheel Bearing (Check Grease and Preload)	<input type="checkbox"/> Deflectors Front and Rear
<input type="checkbox"/> Shredding Attachments	<input type="checkbox"/> Correct Blade Rotation Direction
<input type="checkbox"/> Axle Arms and Beams	<input type="checkbox"/> All Bolts — Pins and Nuts (Proper Torque)
<input type="checkbox"/> A-Frame Pivot and Links	<input type="checkbox"/> Cutting Height (Adjust Front to Rear)
<input type="checkbox"/> Protective Shields (Operation and Installation)	<input type="checkbox"/> Driveline Clutch (Torque Limiter) (Adjust and Run In)
<input type="checkbox"/> Safety Decals (Installed)	<input type="checkbox"/> Operator's Manual (Supplied)
<input type="checkbox"/> Tractor PTO Shield (Installed)	<input type="checkbox"/> S.M.V. Emblem (Installed if Needed)

Purchaser's Signature _____ Date _____ Dealer's Signature _____ Date _____

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 your local Brown dealer for free replacement.

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.

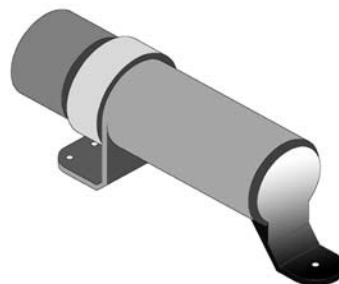
 WARNING	
	<p>Before operating your machine, stop and read this owners manual. Do not attempt to operate the unit until you fully understand the material covered in this manual. Without the knowledge contained in this manual, injury or death can result.</p>

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.

IMPORTANT NOTICE:

OWNER'S MANUAL STORAGE CONTAINER

- * Brown Manufacturing provides an Owner's Manual storage container on all equipment.
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- * If the Owner's Manual becomes lost or damaged, contact Brown Mfg. or your local Brown dealer for free replacement.



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

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.



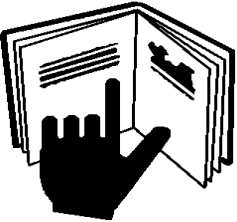
Follow safety instructions

- 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.

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

Part No.: SD-010, All models.

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

Part No.: SD-001A, All models.

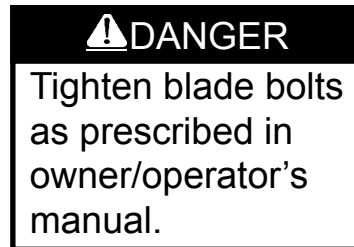
! WARNING
To prevent serious injury or death:
<ul style="list-style-type: none"> • Operate only at 540 RPM PTO. • Keep guards and shields in place.

SD-007A, Standard models*.

*All Brown 400 Series 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

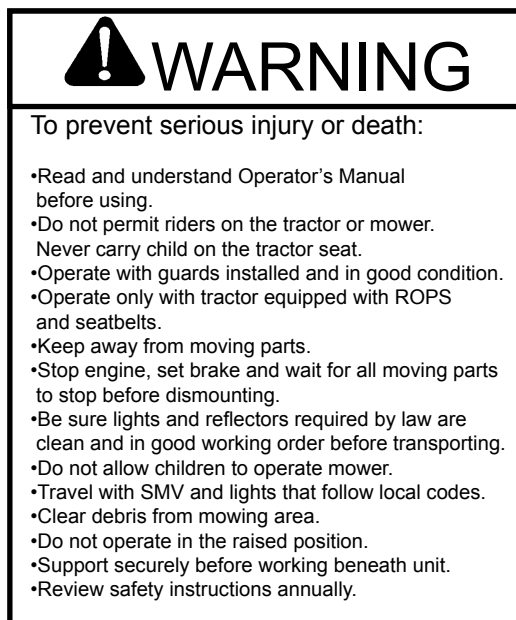
Safety Decals (continued)



Part No.: SD-002, All models.



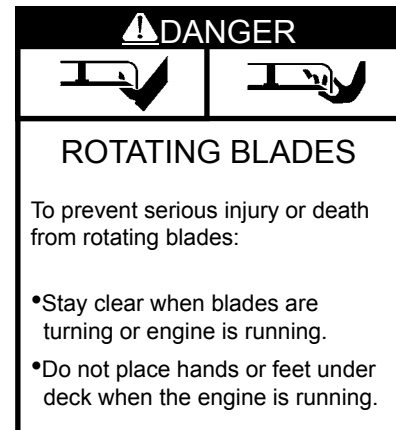
Part No.: DC-3-5-018, All models.



Part No.: SD-009A, All models.



Part No.: SD-SW2, All models.



Part No.: SD-005A, All models.

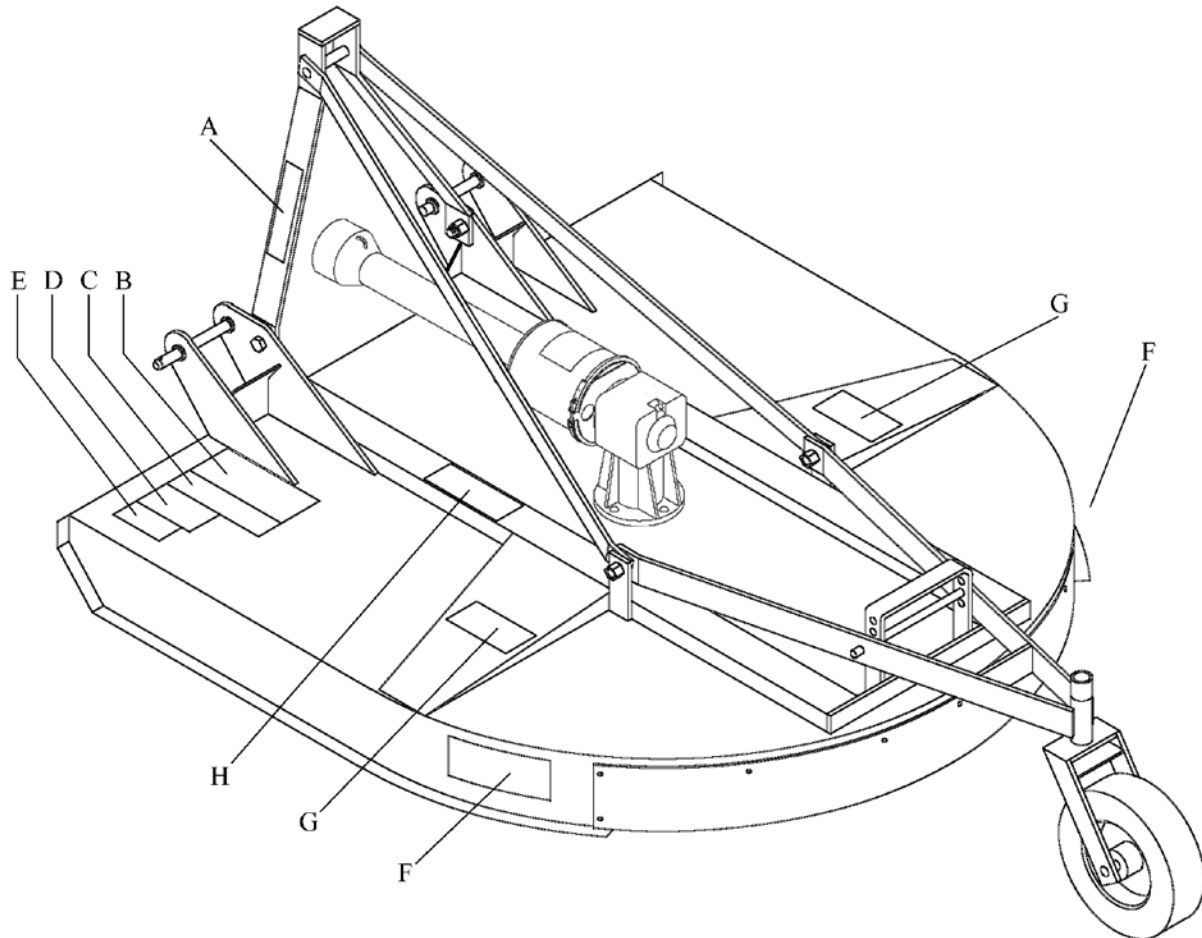


Part No.: SD-006A, All models.

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-007A	Safety Decal: Operate at 540 RPM PTO.
B	SD-009A	Safety Decal: (General safety issues.)
C	SD-002	Safety Decal: Tighten blade bolts.
D	SD-SW2	Safety Decal: When servicing, use proper tools and equipment.
E	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. (2 req.)
H	SD-006A	Safety Decal: Rotating driveline.
Not pictured	DC-3-5-018	Safety Decal: Shield missing (placed on drive shaft, under shields).
Not pictured	SD-400	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.

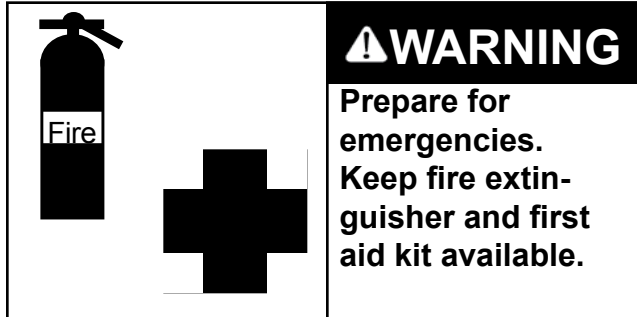
Keep the machine clean of debris, trash, and any other flammable material.



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.



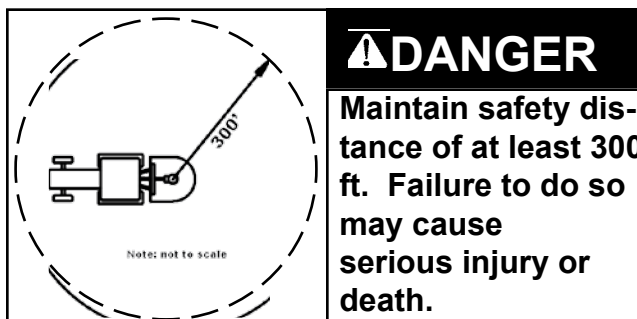
⚠️ Warning! Check equipment before operating.

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 mower deck!**



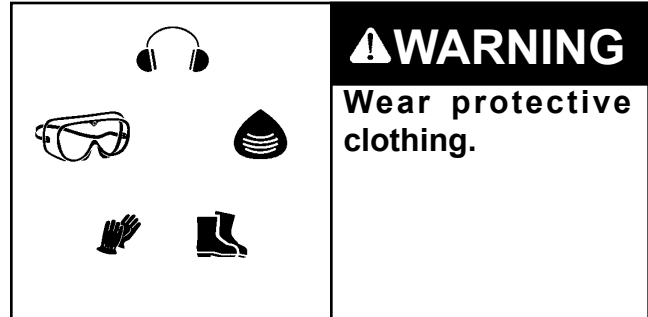
⚠️ Danger! Maintain safety distance.

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

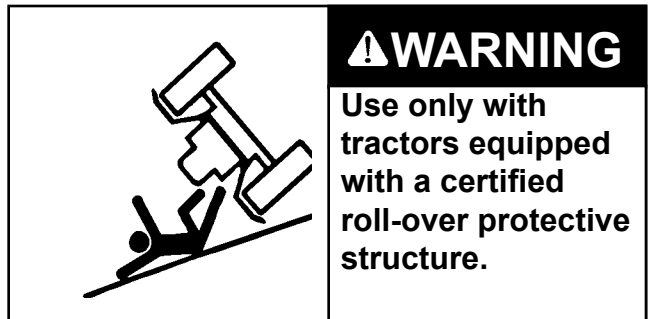
Warning! Wear protective clothing.

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



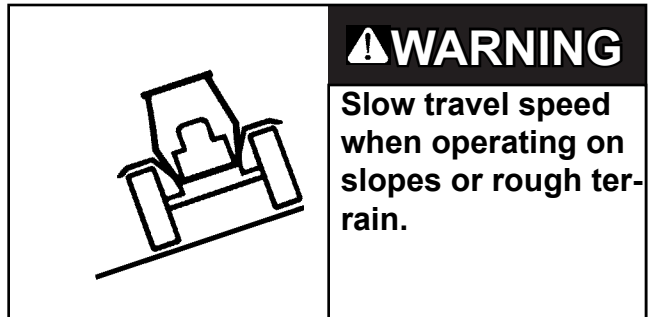
Warning! Roll-over protection.

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.**



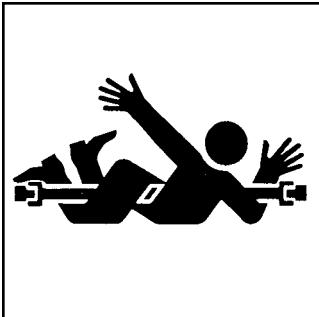
Equipment Safety



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

⚠Danger! Keep riders off machine.

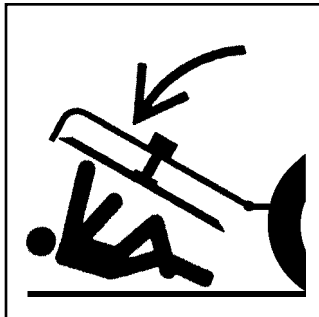
Riders can be seriously injured or killed by entanglement or by falling.



⚠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.



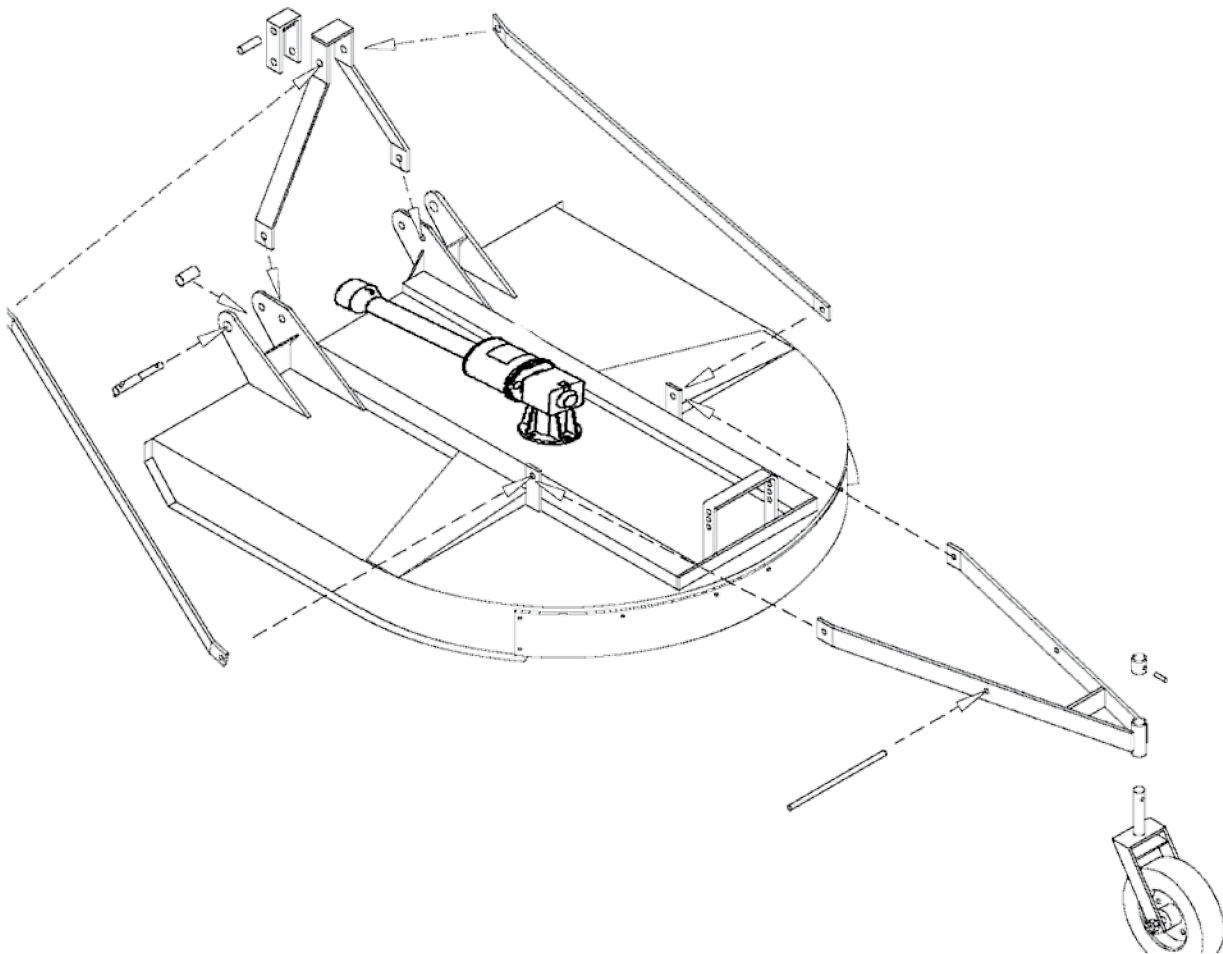
⚠WARNING
Exercise caution while working under cutter deck. Failure to heed warnings may lead to serious injury or death.

⚠Warning! Hazardous service conditions.

While working under the mower deck, be aware of safety hazards. Follow safety precautions specified in this manual (see page 22). Failure to exercise caution may lead to serious injury or death.

Assembly

1. Fold tailwheel arms back from their shipping position toward the height adjustment brackets. Install tailwheel stem into fork holder tube, placing collar over stem and inserting roll key through collar and stem. Install height adjustment pin through arm and bracket. *Assembly for models 472D and 484 is almost identical to that of the 460 and 472; the 472D and the 484 have twin tailwheels and require this step to be completed twice.*
2. Install A-frame on hitch brackets. Install A-frame braces to outside of front tailwheel brackets. Remove bolt from top of A-frame and mount A-frame braces to outside surface of A-frame.
Note: Keep top toggle in position when reinstalling A-frame bolt.
3. Raise the mower with a tractor and properly adjust the tailwheel height. Next, reinstall lynch pins into height adjustment pin.
4. Tighten all bolts securely.



Assembly

5. 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.
6. Remove both bolts from the clutch hub. Slide the hub onto the input shaft of the gearbox. Be certain that the lock pin snaps into the groove on the input shaft of the gearbox. *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 on the hub. Reinstall the lock bolts and tighten securely. Re-torque lock bolts on all models 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.



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.

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 gear box.
 - d. With the drive shaft compressed (pushed together fully), measure the overall length of the shaft.
 - 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 to the latter length. **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 (See Page 24). 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 in the groove of the tractor's PTO shaft.**



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. The flexible toggle should be in a relaxed position, note Figure "A".

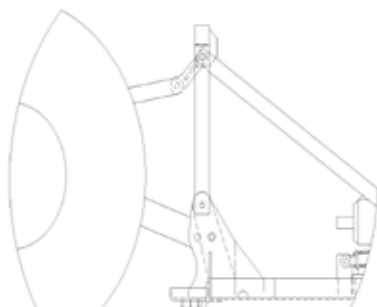
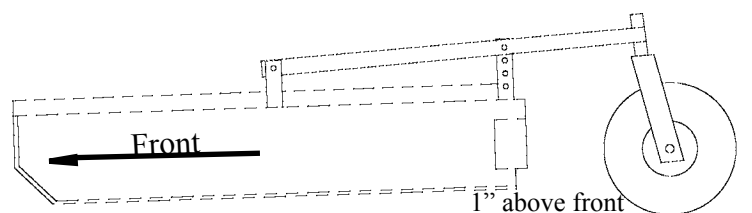


Figure "A"



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.

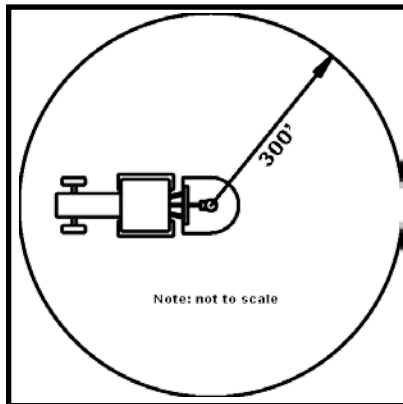
Warning! Operate mower only with the specified PTO RPM. Brown 400 Series mowers are designed to operate at 540 RPM; however, a 1000 RPM design is an option.

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



Observe the following guidelines when operating the mower:

- Do not back the mower into material, as this may bend the mower deck.
- 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.


Warning! Avoid personal injury. Never operate machine around bystanders. Always maintain a distance of at least 300 feet.

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

 **Danger!** Failure to follow these safety guidelines will 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 holding the slip clutch to the input shaft of the gearbox.

 **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.


 **Danger!** Failure to maintain freely pivoting blades will cause severe vibration or blade breakage which will result in injury or death. Blades that are bent or deformed may not pivot and must be replaced.

3. Tighten blade bolts and blade bar nut. See tightening blade bolt section on Page 23.

 **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 gearbox is cottonpicker spindle grease.**
5. Check the blades; sharpen or replace as necessary.

 **Warning!** Use only blades and blade bolts supplied by Brown Manufacturing Corporation. Only Brown has access to the engineering and test data necessary to produce a high-quality blade that meets all safety and quality requirements.


 **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

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.**

 **Danger!** Blade bolts will stretch with use and must be tightened. Allowing blade bolts to run loose will damage bottom of blade carrier and will lead to jammed blades. Loose or jammed blades can and will cause serious injury or death.

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 using a 1 11/16” 6 point socket to approximately 600 to 700 ft./lbs. Blades must pivot freely after tightening; check for jammed blades.
6. Remove blade bar cotter pin and tighten nut with a 1 1/2” socket. Torque nut to 700 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; always tighten to next alignment slot.**

 **Warning!** Failure to keep blade bolts tight can and will cause: blade breakage; warping of blade bar; ejection of blade from mower. These hazards can cause serious injury or death.

 **Warning!** 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 mower.

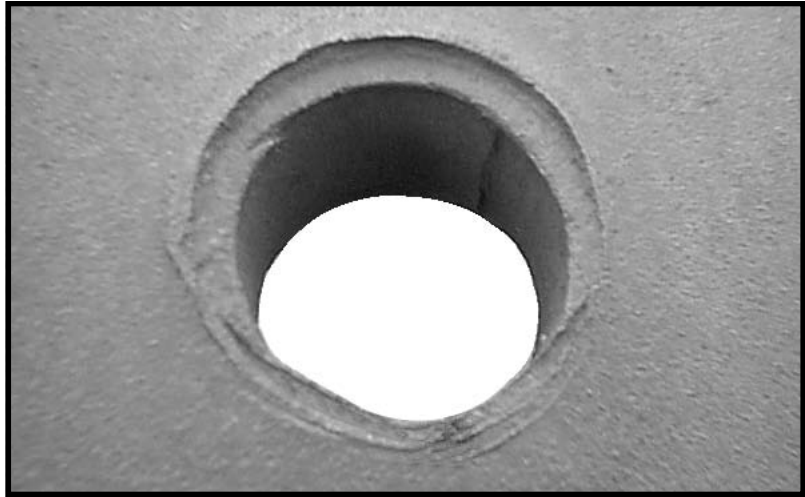
(continued on next page)

Maintenance

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!

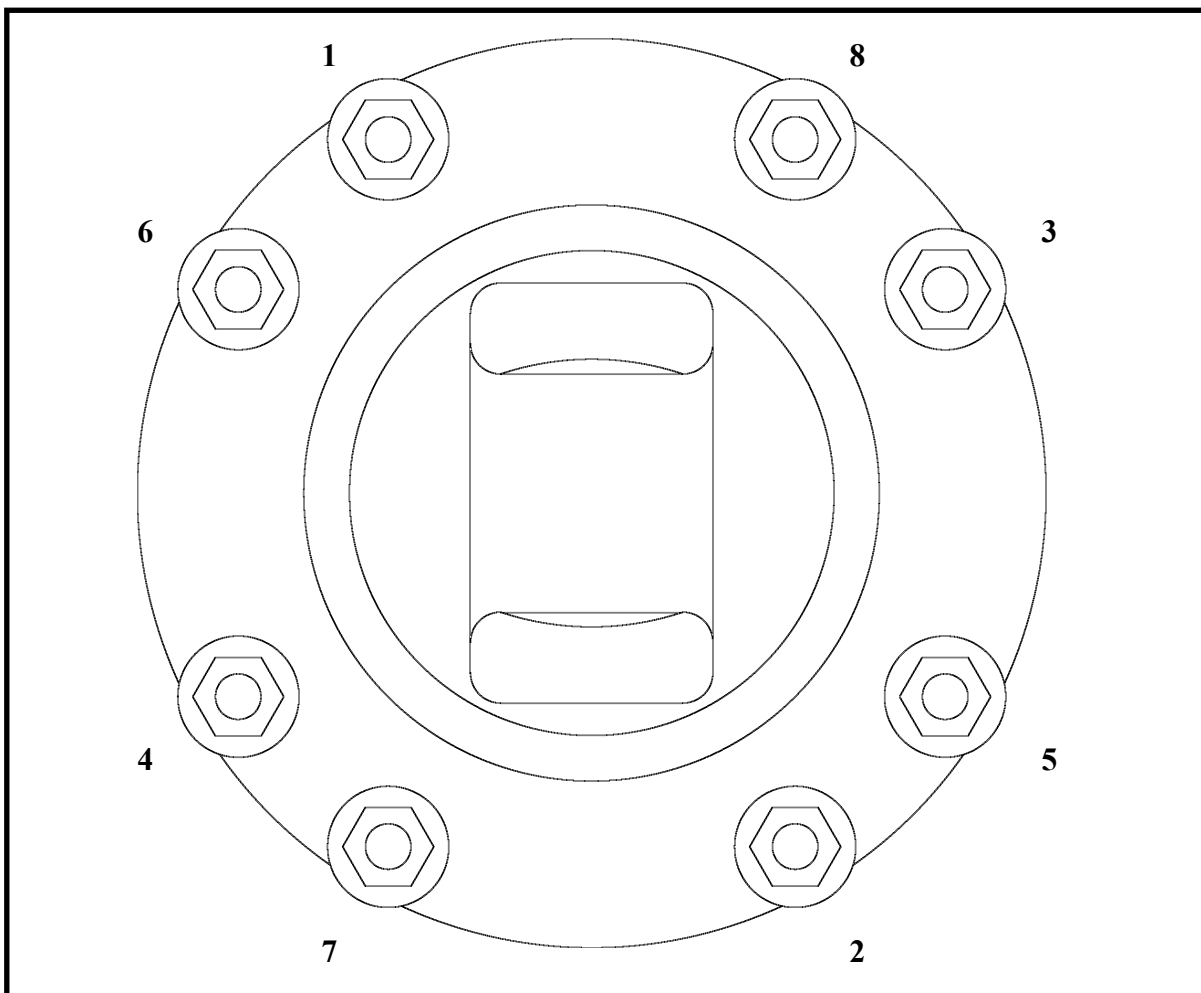
Proper Gearbox Lubrication

On level ground, remove the 1/8" (lower) pipe plug from the rear of the gearbox housing. If the oil level is not at the 1/8" port, oil must be added. Remove the 1/2" (upper) vent plug from the housing and add the recommended lubricant (cottonpicker spindle grease) until the oil level reaches the lower port. **Make certain both plugs are replaced and tightened securely before operating.**

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.



Troubleshooting

Problem	Possible Cause(s)	Possible Solution(s)
Excessive vibration	<ol style="list-style-type: none"> 1. Loose gearbox bolts 2. Loose blade bar and/or blade bolts 3. Blades are not freely swinging 4. Broken, bent, or warped blades 5. Blade bar not seated properly on shaft 6. Blades not paired by weight 	<ol style="list-style-type: none"> 1. Tighten bolts 2. Tighten blade bar nut or blade bolt nuts 3. Clear blade of obstruction or repair blade carrier (see page 21) 4. Replace set of blades and bolts 5. Remove blade bar; clean hub and shaft; reseal 6. Check blades for equal weight
Excessive clutch slippage	<ol style="list-style-type: none"> 1. Worn clutch linings or plates 2. Oil on lining 3. Glazed friction lining 4. Excessive force on clutch 5. Dull Blades 	<ol style="list-style-type: none"> 1. Repair clutch 2. Replace linings 3. Clean with emory cloth 4. Reduce ground speed, material intake, or tractor size 5. Resharpen or replace
Overheating gearbox	<ol style="list-style-type: none"> 1. Insufficient lubricant level 2. Improper lubricant 3. Debris build-up around gearbox 4. Bearing or gears set improperly 	<ol style="list-style-type: none"> 1. Fill to full level 2. Replace with correct lubricant 3. Remove debris 4. Consult dealer
Noisy gearbox	<ol style="list-style-type: none"> 1. Rough gears 2. Worn bearings 3. Insufficient lube level 	<ol style="list-style-type: none"> 1. Run for a short break-in period or replace gears 2. Replace bearing 3. Add lube.
Leaking gearbox	<ol style="list-style-type: none"> 1. Damaged oil seal 2. Bent shaft 3. Oil seal installed incorrectly 4. Oil level too high 5. Shaft rough or pitted in oil seal area 6. Shaft bore worn in casting 7. Damaged gasket 8. Loose bolts 	<ol style="list-style-type: none"> 1. Replace seal 2. Replace seal and shaft 3. Replace seal 4. Drain oil to proper level 5. Replace shaft 6. Replace casting or gearbox 7. Replace gasket 8. Tighten bolts.
Short blade life	<ol style="list-style-type: none"> 1. Cutting too low 2. Cutting in sandy or rocky conditions 3. Inadequate blades 4. Ground speed too fast 	<ol style="list-style-type: none"> 1. Increase cutting height 2. Increase cutting height 3. Replace with Brown blades 4. Slow ground speed
Not cutting clean	<ol style="list-style-type: none"> 1. Dull blades 2. Insufficient PTO speed 3. Cutter not level 4. Ground speed too fast 5. Blades are not freely swinging 6. Low engine RPM 	<ol style="list-style-type: none"> 1. Sharpen or replace blades 2. Use correct PTO speed 3. Adjust cutter 4. Reduce ground speed 5. Clear blade of obstruction 6. Increase tractor RPM

Specifications

Model	Gearbox	Cutting Width	Tailwheels	Driveshaft Size	Weight	Slip Clutch	Hitch
460	120 HP	60"	1	5	900 lbs.	2-disc	Category I/II
472	120 HP	72"	1	5	1060 lbs.	2-disc	Category I/II
472D	120 HP	72"	2	5	1180 lbs.	2-disc	Category I/II
484	120 HP	84"	2	6	1375 lbs.	4-disc	Category II

Standard Features

Reinforced round-back deck design

All welded, 7 ga. (3/16") steel deck

2 free-swinging blades, 1/2" x 4" high-tensile, updraft

Flexible, 3-point A-frame with clevis-style hitch

2" to 12" cut height

1 : 1.46 gear ratio

7 ga. (3/16") round disc stump jumper with 1" x 5" bar

1/4" x 2" replaceable steel slides (*M-484: 3/8" x 2"*)

Replaceable front & rear rubber deflectors

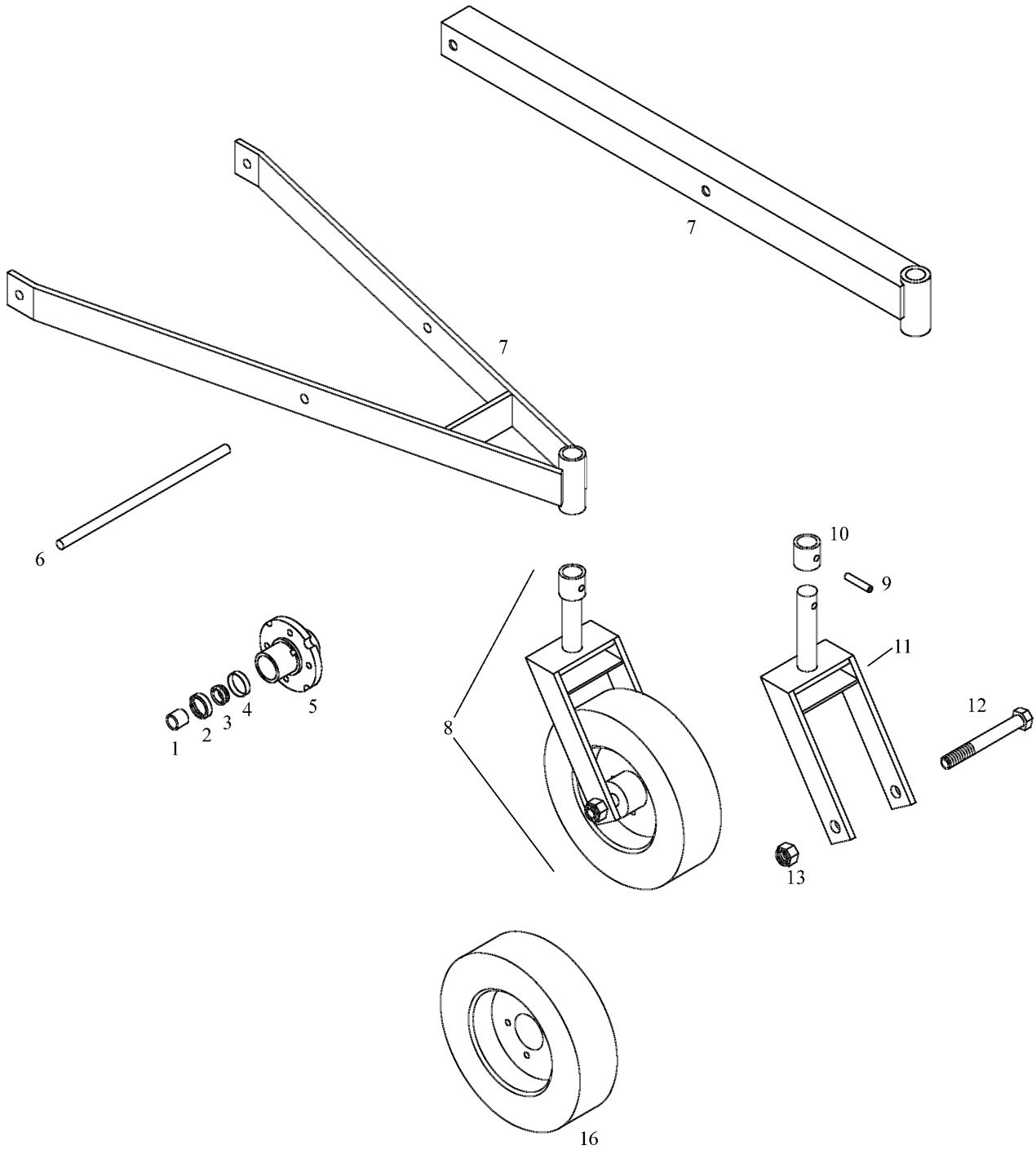
Options

Part No.

Front 5/16" chain curtain deflector	<i>For 460: 4-007</i> <i>For 472: 4-009</i> <i>For 484: 4-011</i>
Rear 5/16" chain curtain deflector	<i>For 460: 4-008</i> <i>For 472: 4-010</i> <i>For 484: 4-012</i>

Replacement Parts

Tailwheel Assembly



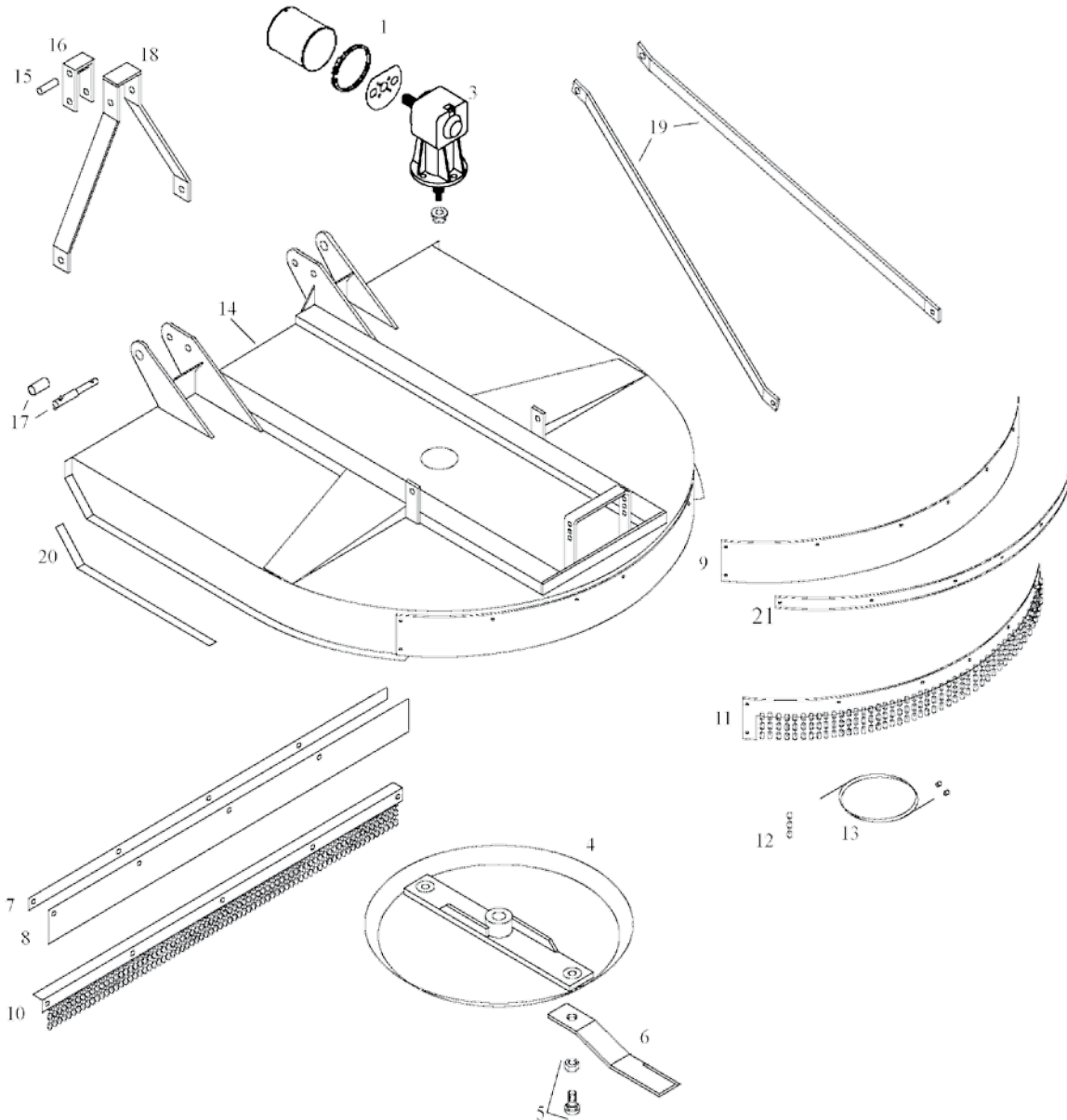
Replacement Parts

Tailwheel Assembly (*continued*)

Ref. No.	Part No.	Description
1	67-S	Spacer (pair)
2	64-T	Seal (2 req. per tailwheel)
3	65-T	Bearing (2 req. per tailwheel)
4	65-C	Cup (2 req. per tailwheel)
5	67T 67T-A	Tailwheel hub only with cups and lug bolts Complete tailwheel hub assembly
6	4-024	Height adjustment pin with clips
7	4-014 4-015 4-016	460: Tailwheel arm with fork holder 472: Tailwheel arm with fork holder 472D, 484: Tailwheel arm with fork holder
8	4-032	Complete tailwheel assembly
9	61-D	Roll pin
10	61-C	Collar
11	4-013	Fork
12	4-033	Axle
13	4-034	Axle nut
16	69-A	Tire and wheel assembly

Replacement Parts

Deck Assembly



Ref. No.	Part No.	Description
1	T5-WS6	Bell shield
3	WHD-20	120 HP gearbox
4	4-021 4-022 4-023 (NLA)	460: Stump jumper 472, 484 after s/n 1192: Stump jumper 484 through s/n 1192: Stump jumper (use 4-022 with 4-029A blades)
5	TC-133KL	Blade bolt assembly
6	500-27A 4-029A	460, 472, 484 through s/n 1192: Blade 484 after s/n 1192: Blade
7	4-001S 4-002S 4-003S	460: Metal strap 472: Metal strap 484: Metal strap

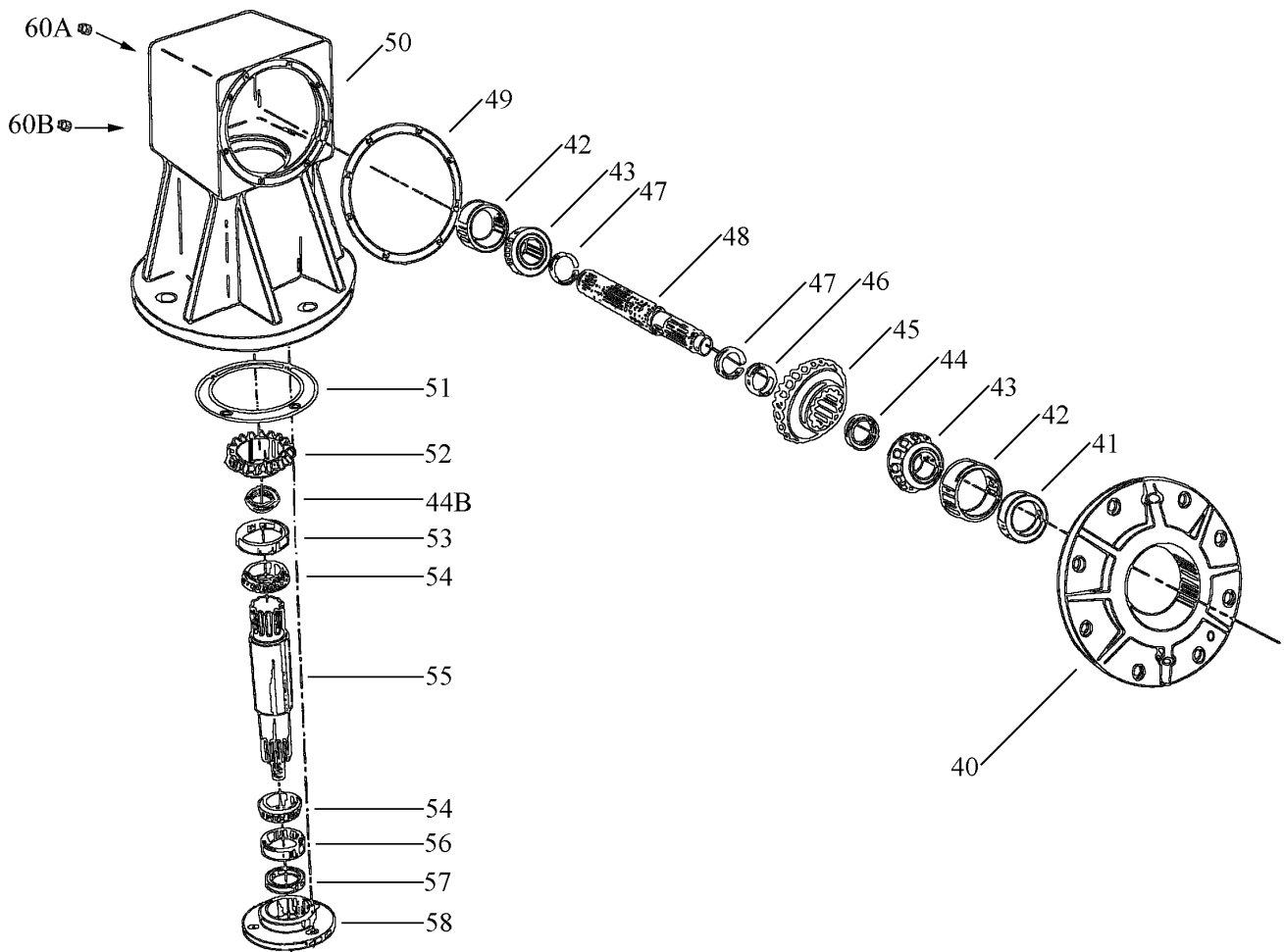
Replacement Parts

Deck Assembly (*continued*)

Ref. No.	Part No.	Description
8	4-001	460: Rubber front deflector
	4-002	472: Rubber front deflector
	4-003	484: Rubber front deflector
9	4-004	460: Rubber rear deflector
	4-005	472: Rubber rear deflector
	4-006	484: Rubber rear deflector
10	4-007	460: Chain front deflector
	4-009	472: Chain front deflector
	4-011	484: Chain front deflector
11	4-008	460: Chain rear deflector
	4-010	472: Chain rear deflector
	4-012	484: Chain rear deflector
12	TC2-009	Front chain links (5 pcs.)
	TC2-010	Rear chain links (4 pcs.)
13	4-007C	460: Front cable with clamps
	4-008C	460: Rear cable with clamps
	4-009C	472: Front cable with clamps
	4-010C	472: Rear cable with clamps
	4-011C	484: Front cable with clamps
	4-012C	484: Rear cable with clamps
14	4-035A	460: Deck
	4-030A	472: Deck
	4-031A	484: Deck
15	4-025A	Spacer
16	4-025	460: Category I toggle
	4-025B	472, 484: Category II toggle
17	4-095	460, 472: Category I/II lift pin with spacer & lynch pin
	4-095S	460, 472: Lift pin spacer
	TC-126	484: Category II lift pin with lynch pin
18	4-017	460, 472: A-frame
	4-018	484: A-frame
19	4-026	460: A-frame brace
	4-027	472: A-frame brace
	4-028	484: A-frame brace
20	4-019	460, 472: Slide with plow bolts, lock washer, and nuts
	4-020	484: Slide with plow bolts, lock washer, and nuts
21	4-004S	460: Metal strap
	4-005S	472: Metal strap
	4-006S	484: Metal strap
Not pictured	500-021	460: Category I top pin with lynch pin
	500-022	472, 484: Category II top pin with lynch pin
Not pictured	TC-126A	7/16" lynch pin

Replacement Parts

120HP Gearbox



Ordering replacement parts

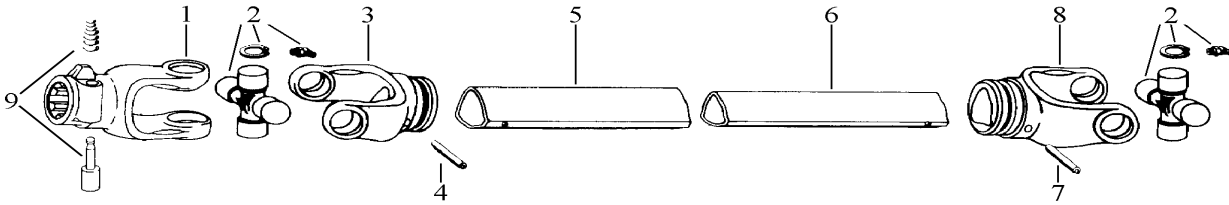
Please contact the nearest Brown dealer for replacement parts. They will be able to meet most of your equipment needs.

Replacement Parts

120HP Gearbox (*continued*)

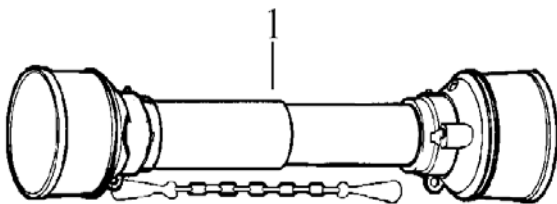
Ref. No.	Part No.	Description
40	WHD-201	Input housing plate
41	WHD-202-20	Input seal
42	WHD-203	Input cup (front & rear)
43	WHD-204	Input bearing (front & rear)
44	WHD-205 WHD-207-20	Spacer <i>1000 RPM: Spacer</i>
44B	WHD-207-20	<i>1000 RPM: Spacer</i>
45	WHD-206 WHD-206-20	<i>540 RPM: Input gear</i> <i>1000 RPM: Input gear</i>
46	WHD-207	<i>540 RPM: Spacer</i>
47	WHD-208	Lockring
48	WHD-221-20	Input shaft
49	WHD-210	Input gasket
50	WHD-211	Housing
51	WHD-212	Output gasket
52	WHD-213 WHD-213-20	<i>540 RPM: Output gear</i> <i>1000 RPM: Output gear</i>
53	WHD-214	Output bearing cup (upper)
54	WHD-215	Output bearing (upper & lower)
55	WHD-216	Output shaft
56	WHD-217	Output bearing cup (lower)
57	WHD-218	Output seal
58	WHD-219	Output plate
59	TC-134	Slotted nut (not pictured)
60A 60B	WHD-201C WHD-201B	1/2" vent plug 1/8" pipe plug
Not pictured	TC-002	Blade bar washer
Not pictured	WHD-20	Complete gearbox
Not pictured	TC-LUBE	Gearbox lubricant (1 qt.) - 2 qts. required.

Replacement Parts (Driveline)



Ref. No.	Part No.	Description
1	4-050 TC-304 TC-304A	460, 472: Quick-hitch yoke 484 (540 RPM): Quick-hitch yoke 484 (1000 RPM): Quick-hitch yoke
2	4-051 TC-305	460, 472: U-joint kit 484: U-joint kit
3	4-052 TC-306	460, 472: Outer tube yoke 484: Outer tube yoke
4	TC-307	Roll key
5	4-053 TC-309A	460, 472: Outer tube 484: Outer tube
6	4-054 TC-311A	460, 472: Inner tube 484: Inner tube
7	TC-312	Roll key
8	4-055 TC-313	460, 472: Inner tube yoke 484: Inner tube yoke
9	TC-323	Pin kit
Not pictured	4-056 4-057 4-057-1000	460, 472: Drive shaft (front section) 484 (540 RPM): Drive shaft (front section) 484 (1000 RPM): Drive shaft (front section)
Not pictured	4-058 4-059	460, 472: Drive shaft (rear section) 484: Drive shaft (rear section)
Not pictured	B472 B484 B484-1000	460, 472: Complete drive shaft 484 (540 RPM): Complete drive shaft 484 (1000 RPM): Complete drive shaft

Driveline Safety Shield

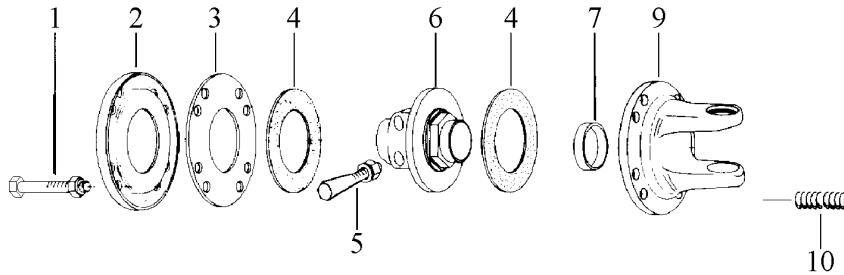


Part No. Description

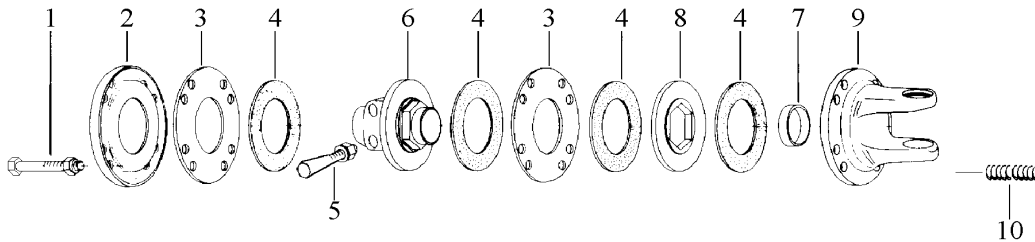
4-073	460, 472: Complete shield assembly
4-093	484: Complete shield assembly

Replacement Parts

2-Disc Slip Clutch (460, 472)



4-Disc Slip Clutch (484)



Ref. No.	Part No.	Description
1	4-074 4-075	460, 472: Bolt 484: Bolt
Not pictured	4-090	Nut for spring bolt
2	4-076	Backing plate
3	4-078	Spacer
4	T5-W20	Clutch lining
5	4-081 TC-330 4-082	Bolt with washer & lock nut (2 req.) 460, 472: Tapered bolt with nut (1. req.) 484: Tapered bolt with nut (1 req.)
6	4-084	484: Hub (1-3/4" x 20 spline)
7	4-085	Bushing
8	4-086	484: Hex plate
9	4-087 4-088	460, 472: Rear flange yoke 484: Rear flange yoke
10	4-089	Spring
Not pictured	4-091-20 4-092	460, 472: Complete slip clutch assembly 484: Complete slip clutch assembly

Ordering replacement parts

Please contact the nearest Brown dealer for replacement parts. They will be able to meet most of your equipment needs.

M-400 Series
Version 2.1.0
April 2006

