

# Brush Mowers

## Standard- and Heavy-duty

Hardware Kit  
80900555

**Congratulations on your purchase of an authentic ABI 3-point attachment! Please read these instructions thoroughly and contact customer service if further instruction for safe and effective use is needed.**

### TO THE CUSTOMER

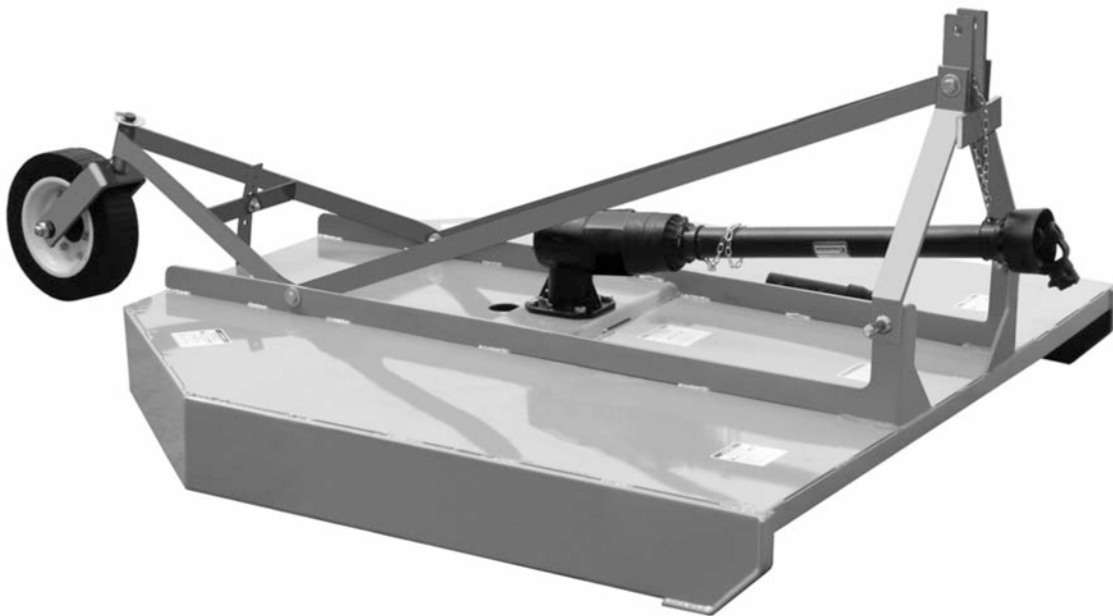
This manual contains valuable information about your new Brush Mower. It has been prepared to give you helpful suggestions for safety, operation, adjustment and service.

It is the owner's and or operator's responsibility to:

- Read and understand the information contained in this manual. The use of this equipment is susceptible to certain hazards that cannot be protected against by mechanical means or product design. All operators of this equipment must read and understand this entire manual,

paying particular attention to safety and operating instructions, prior to using.

- Operate, lubricate, assemble, and maintain the equipment in accordance with all instructions and safety procedures in this manual.
- Inspect the equipment prior to each use and replace or repair any parts that are worn or damaged.



### STATEMENT OF POLICY

It is the policy of ABI Attachments to improve its products where it is possible and practical to do so. ABI Attachments reserves the right to make changes or improvements in design and construction at any time, without incurring the obligation to make these changes on previously manufactured units.



### CUSTOMER SERVICE CENTER

Ph: (855) 211-0598 M-Th 8<sup>AM</sup> - 8<sup>PM</sup>; Fri. 8-5 EST  
[ABIsupport.com](http://ABIsupport.com)

## SAFETY

**READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL, ESPECIALLY IN THE SAFETY SECTION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.**



**THIS SYMBOL MEANS  
ATTENTION! BE ON THE ALERT!  
YOUR SAFETY IS INVOLVED!**

**TAKE NOTE! THIS SAFETY ALERT SYMBOL IS FOUND THROUGHOUT THIS MANUAL. THIS SYMBOL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS CONCERNING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS.**

### CRITICAL TERMS:

The critical terms **DANGER**, **WARNING** and **CAUTION** are used with the safety messages in this manual and with each safety decal. They are defined as follows:



**DANGER:** Indicates an immediate hazardous situation that, if not avoided, could result in serious injury or death. This Critical Term is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.



**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



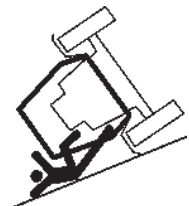
**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It also may be used to alert against unsafe practices.

### EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns in designing and developing

a Brush Mower. However, every year accidents occur which could have been avoided by a few moments of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions and insist those working with or for you adhere to them.

- In order to provide a better view, certain illustrations in this manual may show an assembly with a safety guard removed. However, equipment should never be operated in this condition. **Keep all guards in place.** If guard removal becomes necessary for repairs, reinstall the guard prior to use.
- Replace any safety decal that is not legible or is missing. The locations of such safety decals are indicated in this manual.
- Never operate this equipment while using alcoholic beverages or drugs that can hinder alertness or coordination. Consult your doctor about operating this machine while taking prescription medications.
- **Under no circumstances should children under the age of 18 be allowed to work with or around this equipment. Do not allow anyone to operate or assemble this equipment until they have read this manual and have developed a thorough understanding of the safety precautions and operation.** Review safety instructions with all users often.
- This equipment is dangerous to anyone unfamiliar with its operation. The owner/operator is responsible for reading and following all of the instructions in the manual. The operator should be a responsible, properly qualified and physically able person familiar with farm machinery and competent in this equipment's operation.
- Never exceed the limits of a piece of machinery. If its ability to do a job, in a safe manner, is in question - **DON'T TRY IT.**
- Use a tractor equipped with a Roll Over Protective System (ROPS) and seat belts. Only properly trained people should operate this machine. Always stop the PTO, set break, shut off the tractor engine, remove the



tractor key, and allow implement to come to a complete stop before dismounting tractor. Never leave equipment unattended with tractor running.

- Do not modify the equipment in any way. Unauthorized modifications could result in serious injury or death and may impair the function and shorten the life of the equipment and void any warranty coverage.
- In addition to the design of this implement, including safety decals and safety equipment, accident prevention is dependent upon the awareness, common sense, forethought, and proper training of everyone involved in the operation, transport, maintenance, and storage of the machine. Also refer to safety messages and operating instructions in each of the appropriate sections of the tractor manual. Pay close attention to the safety decals affixed to both the tractor and Brush Mower.
- For non-agricultural applications, OSHA, ASAE, SAE, and ANSI standard require the use of chain guards, deflectors, or solid skirts at all times. We strongly recommend the use of chain guards or solid skirts to agricultural applications as well to reduce the risk of property damage, serious bodily injury or even death from objects thrown or from contact with the cutting blades.

### Blocking Requirements

- **NOTE:** Jack stands with a load rating of 1,000 lbs. are the only approved blocking device for the mower. Install a minimum of (4) four jack stands under the mower before working underneath the unit.  
Do not position jack stands under wheels, axles, or wheel supports. Components can rotate and cause the mower to fall.  
Make sure the working surface and mower are level and the jack stands are solid to support the weight of the mower.  
With the full weight of the mower on the jack stands, always test the stability of the mower before working underneath.  
If the mower is attached to the tractor when blocking, set brakes, remove key, and block mower according to the instruction above.  
Securely block the rear tractor wheels, in front and behind. Tighten tractor lower 3-Point arm anti-sway mechanism to prevent sideways motion.

## STARTING AND STOPPING SAFETY

- Check the tractor master guard over the PTO shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new guard if the old guard is damaged or missing.
- All tractors that are not equipped with a “live” Power Take Off (PTO) need to be equipped with an over-running PTO clutch. These are available through most farm equipment stores.



### WARNING



**When attempting to stop a tractor that does not have a live PTO, the momentum created by the blades of the mower can cause the tractor to be pushed forward. Do NOT operate this mower unless the tractor has a live or independent PTO.**

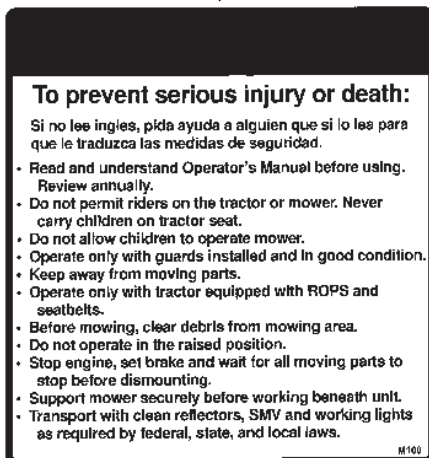
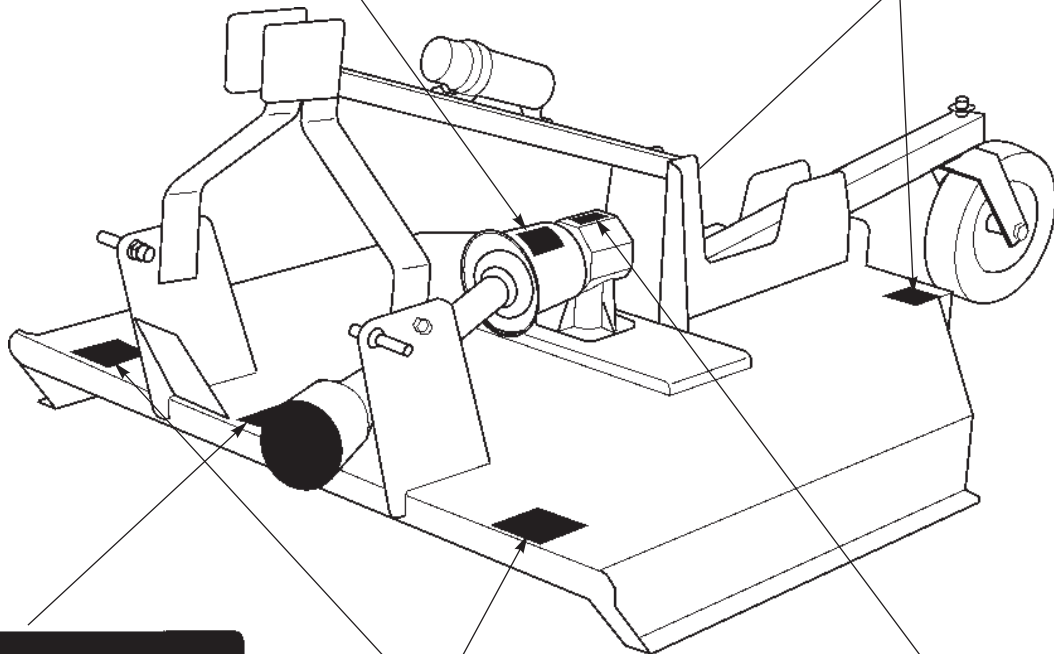
**NOTE: The addition of an over-running PTO clutch may change the length of the PTO driveline required. Pay extra attention to the instructions on the PTO driveline installation. Be sure that the driveline system guarding is sufficient.**

- The Brush Mower operating power is supplied from the tractor PTO. Refer to your tractor manual for PTO engagement and disengagement instructions. Know how to stop the tractor and mower quickly in case of emergency.
- The engine RPM should always be at idle speed when engaging the PTO. Once engaged and you are ready to start cutting, increase the PTO speed to approximately 540 RPM and maintain throughout the cutting operation. The Brush Mower is designed for use on tractors with a 540-RPM power take off. Do not exceed horsepower recommendations.
- Most accidents occur because of neglect or carelessness. Keep all assistants and bystanders several hundred feet from the operating Brush Mower.
- When machine is operated in populated areas where thrown objects could injure persons or property, operation must be stopped if anyone comes within 200 feet.
- The majority of the accidents involve entanglement on the driveline, injury of bystanders by the objects thrown by the

# Safety Decal Placement

The safety decals and positions on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area or specific function related to that area that requires your SAFETY AWARENESS.

If safety decals become detached or damaged, request decal sheet 16881000 by calling 855-211-0598 or visiting [ABIsupport.com](http://ABIsupport.com)



rotating blades, and operators being knocked off the tractor by low hanging limbs and then being run over by the mower. Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the owner's manual and is not familiar with a Brush Mower.

- Install and secure all guards and shields before starting or operating. The discharge chute, flaps, driveline guards and tractor guards should be used and maintained in good working condition. They should be inspected carefully before each use for missing or broken cables, chain links, shields, and guards. Worn items must be replaced at once to reduce the possibility of injury.
- Disengage Power Take Off (PTO) and place tractor transmission in neutral before attempting to start the tractor engine.
- Many varied objects, such as wire, cable, rope, or chains can become entangled in the working parts of the mower. These objects could then swing outside the housing at a greater velocity than the rotating blades. Such an occurrence is extremely hazardous. Never allow the cutting blades to contact objects which may cause damage to the mower or serious injury to the operator. Cut higher at first, allowing mower to clear such hidden objects. Never assume an area is clear. **Always Check!**
- Always stop the tractor, disengage PTO, allow mower blades to come to a complete stop, lower implement to the ground, set brake, shut off the tractor engine and remove the ignition key before dismounting tractor. Never leave equipment unattended while the tractor is running.
- Never place hands or feet under mower. Stay clear of all moving parts.
- Do not reach or place any part of your body under the equipment until it is blocked securely.
- Do not allow riders on the Brush Mower or tractor at any time. There is no safe place for riders.

## PREPARATION

- Never operate the tractor and mower until you have read and completely understand this manual, the Tractor Operator's Manual, and each of the safety messages found on the safety decals on the tractor and mower.

- Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintenance, repairing, removal, or moving the implement. Do not wear loose fitting clothing or jewelry and be sure to contain long hair around equipment.
- **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!** Tractors with or without mowers attached can often create enough noise to cause permanent hearing loss. We recommend that you use hearing protection if the noise in the operator's position exceeds 80db. Long-term exposure to noise levels over 90db adjacent to the operator may cause permanent total hearing loss.
- NOTE: Hearing loss from loud noises (from tractors, chain saws, radios, and other sources close to the ear) is cumulative over a lifetime, with no chance of natural recovery.
- Always wear your seat belt. Serious injury or even death could result from falling off the tractor - particularly during a rollover when the operator could be trapped under the ROPS or the tractor.
- Clear area to be cut of stones, branches and other debris that might be thrown causing injury or damage.
- Operate only in daylight or good artificial light.
- Ensure mower is properly mounted, adjusted and in good operating condition.
- Ensure that all safety guards and safety decals are properly installed and in good condition.
- Do not operate unless all personnel, livestock, and pets are several hundred feet away to prevent injury by thrown objects. Never direct the discharge chute toward anyone.
- Never operate tractor and Brush Mower under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the rotating blades.
- The rotating parts of this machine have been designed and tested for rugged use. However, they could fail upon impact with heavy, solid objects such as steel



guardrails, concrete abutments, and tree stumps. Such an impact could cause broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the cutting blades to come in contact with such objects.

- Stop cutter and tractor immediately upon striking an obstruction. Turn engine off, remove key, then inspect and repair any damage before resuming operation.
- Stay alert for uneven terrain, holes, rocks, roots and other hidden hazards. Keep away from drop-offs and hazards that could cause rollover. Use extreme care and maintain minimum ground speed when transporting or operating on hillsides, over rough ground and when operating close to ditches or fences. Be careful and slow down when turning sharp corners and changing direction on slopes. Do not start or stop suddenly on slopes and avoid operating on steep slopes. In extremely uneven terrain, rear wheels weights, front tractor weights, and/or tire ballast should be used to improve stability.
- Drive Brush Mower diagonally over sharp dips and avoid sharp drops to prevent tractor and Brush Mower from "hanging up". Always cut downward on slopes, never cut across the face. Always check tractor manual for proper use on slopes. Practice will improve your skills in maneuvering on rough terrain.
- A minimum of 20% of the tractor and equipment weight must be on the tractor's front wheels. Without this weight, the tractor could tip over, causing personal injury or death. The weight may be attained with a front-end loader, front wheel weights, ballast in the tires or front tractor weights. When attaining a minimum 20% of the tractor and equipment weight on the front wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment.  
**Do NOT guess or estimate!**
- This manual covers two types of Brush Mowers - the Heavy Duty and Standard Duty Mowers. The Heavy Duty Mower has a slip clutch attached to the gearbox. The Standard Duty have a shear bolt.

## **Slip Clutch Adjustment (when unit is supplied with one)**

The Slip Clutch is designed to slip so that the gearbox and driveline are protected if the implement strikes an obstruction.

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

1. Turn off tractor engine and remove key.
2. Remove driveline from tractor PTO.
3. Loosen the cap screws to remove all tension from the spring plate.
4. Hold clutch hub solid and turn shaft to make sure clutch slips.
5. If clutch does not slip freely, disassemble and clean the thrust plate faces, flange yoke, and clutch hub.
6. Reassemble clutch.
7. Finger tighten spring until it is against the thrust plate of the clutch and then tighten each of the nuts by  $1\frac{1}{2}$  - 2 full rotations. Try the implement and watch for clutch to slip. Adjust nuts another  $\frac{1}{2}$  turn as needed until clutch stops slipping.
8. If clutch continues to slip when the spring is compressed, check friction disc for excessive wear. Disc are  $\frac{1}{8}$ " thick when new. Replace discs after  $\frac{1}{16}$ " wear. Minimum disc thickness is  $\frac{1}{16}$ ".

## **Shear Bolt Replacement**

1. Slide yoke shield back.
2. Realign holes in yolk and shaft and remove shear bolt with hammer and punch.
3. Install new shear bolt. Lock yolk shield into place. Use only genuine ABI Attachments replacement bolts.

# PTO SHAFT MODIFICATION (For Heavy Duty Mowers)

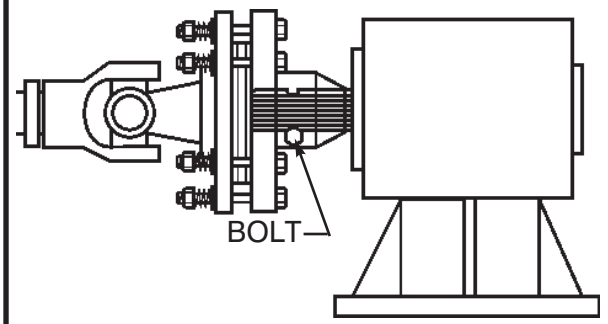
Read and thoroughly understand the following instructions before attempting assembly. If you are not comfortable making the necessary changes, please refer this project to a qualified professional.

## **WARNING: Never stand between tractor and Brush Mower when backing up the tractor to the hitch.**

Attach unit to the tractor's Category 1 3-Point hitch as described in the tractor's Operating Manual.

### **To install PTO shaft with Slip Clutch**

- 1) Remove bolt as shown.
- 2) Attach PTO shaft.
- 3) Line up hole and groove in shaft.
- 4) Replace bolt and tighten.



**NOTE:** Due to the many variations in tractor hitch points and distances between equipment gearbox input shaft and tractor PTO output shafts, some combinations will require PTO shafts to be shortened. If it is determined that this is the case, follow the instructions in the next steps.

1. Raise and lower the Mower in order to locate the shortest distance between gearbox input shaft and tractor PTO output shaft. With the Mower in the shortest distance position, shut down the tractor and **securely block the mower in place**. See Blocking Requirements.



## **WARNING**



**If the Mower is raised up so that the PTO shaft is at an angle sharper than 35 degrees, PTO MUST BE STOPPED!**

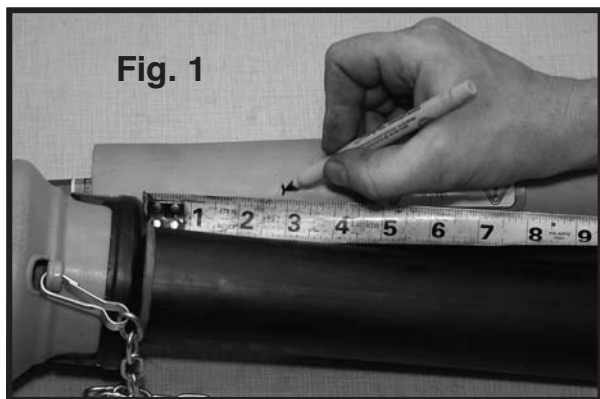
2. Pull apart the PTO shaft and attach outer section to tractor PTO shaft. **NOTE:** Be sure to pull on PTO shaft section to ensure yoke has locked into place.
3. Place and hold inner PTO shaft section next to outer section and check if PTO shaft is too long. Each section should end approximately 3" short of reaching the U-joint shield on the opposite section. If the shaft is too long, measure 3" back from each U-joint shield and mark the other shaft section. Be sure to do this for both PTO shaft halves. **NOTE:** Do **not** cut PTO shaft sections at this time.
4. Raise Mower and remove blocking. Raise and lower Mower in order to locate the longest distance between equipment input shaft and the tractor PTO output shaft. With the Mower in the longest distance position, shut down the tractor and **securely block the Mower in place**.
5. As in Step 3, hold PTO shaft sections together and check for a minimum of 6" of overlap. If the PTO shaft has been marked for cutting, the overlap is the distance between the two marks. If the PTO shaft has less than 6" of overlap, **DO NOT USE**.

**NOTE:** If the PTO shaft is too long, see further instructions below for sizing.

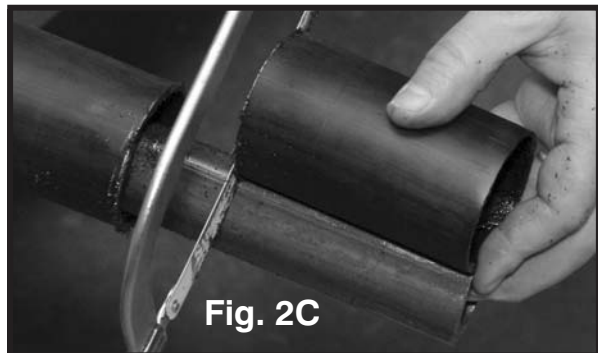
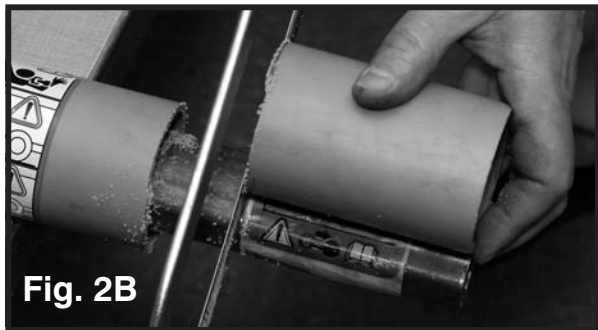
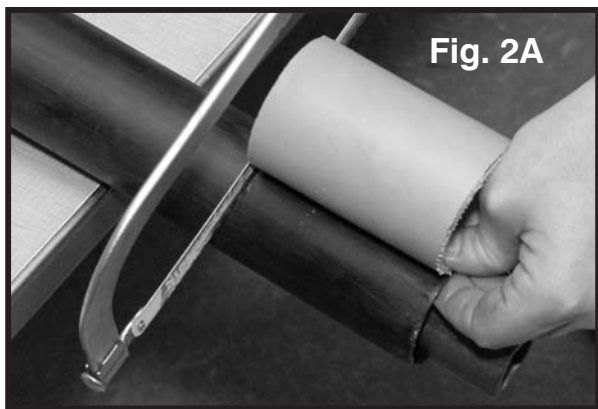
6. Apply multi-purpose grease to the outside of the male (inner) PTO shaft section. Assemble PTO shaft and install on Mower and tractor.
7. Pull on tractor side of PTO shaft yoke to be sure it has locked in place. Make certain PTO shaft shielding is in place and good working condition.
8. The PTO shaft shield is a non-rotating design and must be secured prior to use. Using the chain on each yoke shield, attach to a fixed object on the tractor and equipment ends so that the PTO shaft shield will not rotate during operation.

## Cutting PTO Shaft

1. After determining how much to cut off, be sure to cut off equal lengths of each PTO shaft section, but be careful not to cut off too much. Clamp end of PTO shaft in a vice, and cut off shield where marked. (See Fig. 1).



2. Using the cut section of the shield as a guide, cut the same amount off of each shaft. (See Fig. 2A, 2B & 2C).



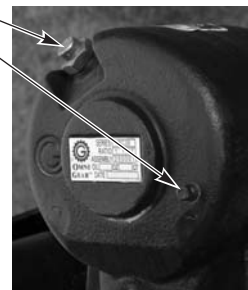
3. Repeat Steps 1 and 2 for the other section of the PTO shaft.
4. Use a file to deburr the PTO shafts. Clean up all chips, burrs and filings from both ends of the PTO shaft.

**IMPORTANT NOTE:** If the bolt that attaches the PTO shaft to the gearbox gets sheared, replace with a **Grade 2 bolt ONLY**. Replacement with any other grade of bolt will void your warranty and may cause permanent damage to the PTO shaft, gearbox, or tractor.

## PRE-OPERATION INSTRUCTIONS

**IMPORTANT - THE MOWER IS SHIPPED WITHOUT OIL IN GEAR BOX AND WITHOUT GREASE IN GREASE FITTING. ALWAYS CHECK OIL IN GEARBOX WITH UNIT ON LEVEL GROUND BEFORE OPERATING. USE TYPE 80W-90 GEAR OIL (1 qt.). DO NOT OVERFILL OR DAMAGE TO THE GEARBOX MAY RESULT.**

1. Remove 1/2" top vent plug and 1/8" overflow plug from gearbox as shown in the illustration. Fill gearbox using recommended gear oil until oil begins to flow out from the overflow plug hole.
2. Replace top vent and overflow plugs and wipe away any excess oil. Be sure vent plugs are kept clear of any dirt or debris to allow air to pass through.
3. Grease the zerk on the tail wheel.
4. With the Mower on level ground, adjust tractor lift arms so that the deck is level or slightly lower in the front. If the deck is lower in the back, the unit will take more horsepower to operate.





## Grease Fittings Lubrication

For all grease fittings use a SAE high-temp multi-purpose lithium grease. Do not let excessive grease collect on or around parts, particularly when operating in sandy areas.

Be sure to clean grease fittings before applying any grease.

Daily lubrication of the driveline U-joints is necessary. Failure to maintain proper lubrication will result in premature wear and damage to the U-joints, gearbox, and/or driveline.

## Lubrication Frequency

- **Every 8 hours or daily** - Gauge Wheel Pivots, Wheel Hubs, Blade Spindle, U-joints, Driveline Slip Joint. Lubrication intervals are for mowers operating under normal conditions. Severe or unusual conditions may require more frequent lubrication.  
Lubricating the Gauge Wheel is not necessary. The Wheel Pivot Shaft has a zerk fitting to grease the wheel pivot. Failure to lubricate the Driveline Slip Joint every 8 hours or daily, could result in damage to the U-joints, gearbox, and driveline.
- To lubricate Driveline Slip Joint, lower mower to ground, disconnect driveline from tractor PTO shaft and slide halves apart, but do not disconnect from each other. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.
- Inspect all guards to insure they are in good working order. If not, replace before using.
- Check all bolts and nuts to insure they are tight and secure.

## TRANSPORT SAFETY

- Always observe state and local laws governing highway safety and the travel of farm machinery on public roads.
- The use of flashing amber lights is acceptable in most locations. However, some locations prohibit their use. Local laws should be checked for all lighting and marking requirements.
- When driving the tractor and equipment on roads or highways, use flashing amber warning lights and a slow moving vehicle (SMV)

identification emblem. Do not exceed 20 mph. Reduce speed on rough roads and surfaces.

- Plan your route to avoid heavy traffic.
- Always install transport locks, pins or brackets before transporting.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all circumstances, including narrow bridges, intersections, etc. Watch for traffic when crossing or operating in close proximity to roadways.
- Turn curves and go up and down hills only at a low speed at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe control. Slow down on rough and /or uneven surfaces. Always check tractor manual for proper use on slopes.
- Use extreme care and maintain minimum ground speed when operating close to ditches and/or fences. Be careful when turning sharp corners.
- Never allow riders on either the tractor or mower.

## ATTACHING TO TRACTOR



### WARNING



**Never stand, or allow anyone else to stand, between the tractor and the Brush Mower while backing the tractor up to the hitch.**

- Step 1 Attach to the tractor's 3-Point hitch as described in the Tractor's Operator's Manual.
- Step 2 Apply any multi-purpose grease to the outside of the male (inner) PTO shaft section. Assemble PTO shaft and install on Brush Mower and tractor.



### WARNING



**Failure to install the retaining clip on the gearbox input shaft would allow the driveline to swing freely if the bolt is sheared causing possible injury or death.**

- Step 3 Pull shaft on tractor side of PTO shaft yoke to be sure it has locked in place. Make certain PTO shaft guards are in place and in good working condition.
- Step 4 The PTO shaft guard is a non-rotating design and must be secured prior to equipment use. Use the chain on each yoke guard to attach to fixed objects on both the tractor and equipment ends that will not allow the PTO shaft guard to rotate during operation.

## PRE-OPERATIONAL ADJUSTMENTS

Set tractor's lift control stop at a position that will prevent the PTO shaft from coming in contact with the front edge of the mower when it is at full lift. Consult your tractor manual for instructions.

### CUTTING HEIGHT ADJUSTMENT

To prevent the blades from striking the ground, your Brush Mower should be set to the highest position that will give you the desired cutting height. By setting your mower up this way, you reduce blade wear and stress on the mower. Mowing at regular intervals will produce far better results than periodic mowing.

NOTE: For best results in heavier cutting conditions adjust the deck so the rear of the mower is approximately 2" higher than the front. This method requires less horsepower and ground speeds of approximately 3-5 mph. If finer shredding results are desired, adjust the deck to level or slightly lower in the rear. This method will keep foliage under the deck longer resulting in finer pieces. The down side of this method is that it takes a lot more horsepower and requires a very slow ground speed. This method is not recommended unless PTO speed of 540 RPM can be maintained.

## OPERATING INSTRUCTIONS

This mower was designed to cut PASTURE GRASS AND ROUGH VEGETATION UP TO 2 1/4" IN DIAMETER. Use of your Brush Mower to cut any vegetation larger than 2 1/4" in diameter may damage the mower and void your warranty.

To start operation, reduce engine speed to idle and engage the tractor PTO. Before starting to

cut, gradually increase the engine speed full PTO speed.



### DANGER



**Do not disengage PTO when engine is at full PTO rpm. Always bring the tractor to idle speed before disengaging the PTO.**

### MOWER CUTTING TIPS

Always keep the blades sharp. A sharp blade produces cleaner cuts and requires less horsepower.

Analyze the area to be cut beforehand to determine the best cutting procedure. Consider the brush height, thickness, type, and terrain.

These mowers are designed to cut brush up to 2 1/4" in diameter.

Normally, ground speed of the tractor will range from 2-5 mph. Tall, dense grass and brush should be cut at low speeds, while thin, medium grass can be cut at a faster ground speed.



### WARNING



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



### WARNING



Make sure driveline will not bottom out at the shortest length and that it has at least 1/3 overlap at the longest length.

With mower adjusted to transport position, set upper stop on tractor lift quadrant to prevent cutter from contacting the driveline when being raised.

### TAILWHEEL HEIGHT ADJUSTMENT

The Brush Mower can be adjusted to several cutting heights. To adjust cutting height, raise Brush Mower and block SECURELY in position. Remove bolts from adjusting plate and adjust the tailwheel tube to desired position. Reinsert the bolt and tighten the nut.

## MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Keep service area clean and dry.
- Be sure electrical outlets and tools are properly grounded.
- Use adequate light for the job at hand.
- Make sure there is ample ventilation. Never operate the tractor engine in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this mower, disengage the PTO, be certain all moving parts on attachments have come to a complete stop, shut off the engine, set the brakes, and remove the ignition keys before attempting to perform maintenance.
- Never work under equipment unless it is blocked securely. See Blocking Requirements in this manual.
- Always use personal protection devices such as eye, hand and hearing protectors when performing any service or maintenance.
- Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened in place.
- Periodically tighten all bolts, nuts, screws and check that all cotter pins are properly installed to make certain unit is safe to operate.
- When completing maintenance or service, make sure all safety guards and devices are installed before using the Brush Mower.
- After servicing, be sure all tools, parts and service equipment are removed from the Brush Mower.
- Do not allow debris, grease or oil to build up on any deck or platform surfaces.
- Where replacement parts are necessary for periodic maintenance and servicing, factory replacement parts must be used to restore your equipment to original specifications.
- The manufacturer and/or distributor will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.

- A first aid kit should be kept readily accessible while performing maintenance on this equipment.

## STORAGE SAFETY

- Following use, or when unhooking the mower, disengage the PTO, stop the tractor, set the brakes, shut off the engine and remove the ignition keys.
- Store the unit in an area away from human activity.
- Do not park equipment where it can be exposed to direct contact with livestock for long periods of time. Damage to mower and/or livestock injury could result.
- Make sure all parked machines are on a hard, level surface and that all safety devices are engaged.

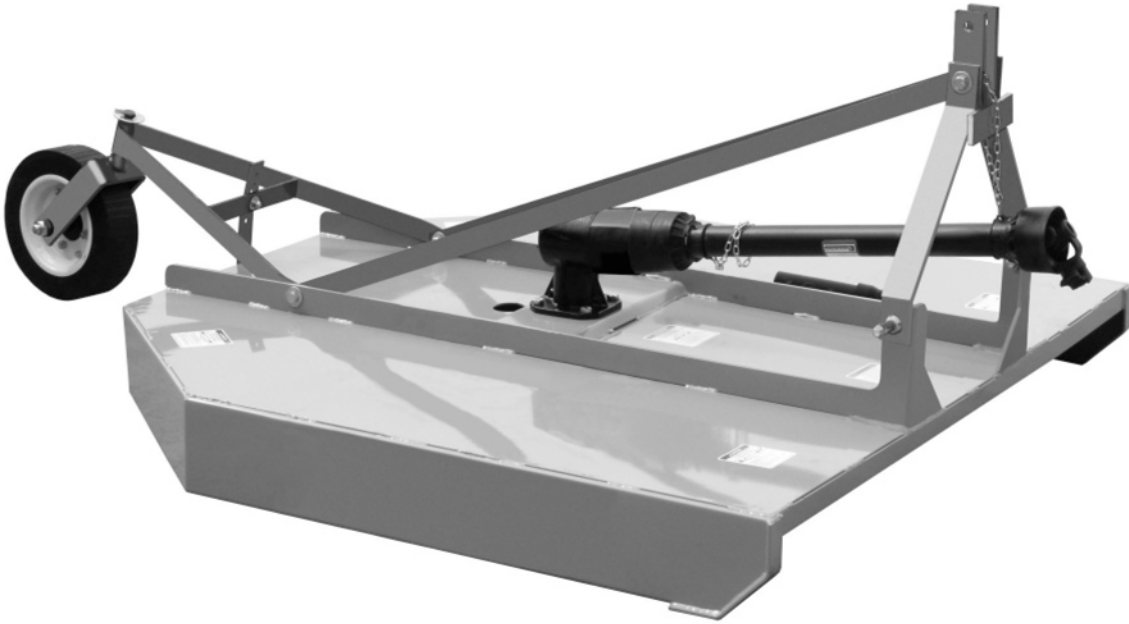
## TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Leaves a streak of uncut or partially cut grass</b>	1. Mower not level side to side.	Level 3 Point Hitch linkage on tractor.
	2. Blades dull or bent.	Sharpen or replace blades.
	3. Carrier RPM too low.	Use correct PTO speed.
	4. Field conditions are so wet that the tractor tire is pushing grass into mud.	Too wet to mow. Stop operation and wait until it is drier.
	5. Ground speed too fast.	Reduce ground speed by shifting to a lower gear.
	6. Blades lock back.	Free blades.
	7. Blades riding up due to blade bolt wear or loose bolts.	Replace blade bolts.
	8. Grass is down from previous weather conditions.	Mow in only one direction.
	9. Possible build up of material under mower.	Clean mower.
	10. Weed and grass stems are pushed down by tractor tires and do not rebound up so they can be cut (this can happen when weed/grass is high).	Mow again in opposite direction. Mow back and forth with enough overlap to mow tire track of previous cut again. Offset mower to left 4"-6" by adjusting stabilizer bars. Then mow in counter clockwise direction (rotation direction of blades will help cut stems pushed forward).
<b>Grass cut lower in center of swath than at edge</b>	Height of mower lower at rear or front.	Adjust mower height and attitude so that mower rear and front are within ½" of same height. See tailwheel adjustment instructions.
<b>Material discharges from mower unevenly; bunches of material along swath.</b>	1. Material too high and too much material.	Reduce ground speed but maintain 540 rpm at tractor PTO, or make two passes over material. Raise mower for the first pass and lower to desired height for the second and cut a 90° to first pass. Raise rear of mower high enough to permit material to discharge, but not so high that conditions listed above occur.
	2. Grass Wet.	Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
	3. Rear of cutter too low, trapping material under mower.	Adjust mower height and attitude. (see instructions).
<b>Gearbox overheating</b>	1. Low on lubricant.	Fill to proper level.
	2. Improper type lubricant.	Replace with proper lubricant.
	3. Excessive trash build-up around gearbox.	Remove trash.



PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Blade is scalping ground</b>	1. Mower too low.	Raise mower-reset tail wheel and 3 Point control stop.
	2. Field is ridged.	Cut field at a different angle.
	3. Field is too wet.	Stop and wait until it is drier.
<b>Mower will not cut. (Shear bolt drive only)</b>	Shear bolt sheared.	Install new shear bolt. Use Grade 2 ONLY.
<b>Mower moves from side to side when cutting</b>	Loose tractor sway chains or bars, or sway blocks improperly installed.	Adjust sway chains, bars, or sway blocks.
<b>PTO contacts cutter front frame when raised</b>	Raising mower too high or incorrect adjustment of tractor top link.	Adjust top link or tractor lift stops. (see attachment instructions).
<b>Blade bolts come loose</b>	1. Bolts not tightened.	Tighten bolts to 350 ft./lb.
	2. Bolt hole elongated or oversized.	Replace blade carrier.
	3. Blade bolt threads are worn or damaged.	Replace blade bolt, lockwasher, and nut.
<b>Blade wears too fast</b>	1. Cutting in sandy conditions.	Increase cutting height.
	2. Cutting in rocky conditions.	Increase cutting height.
	3. Blades hitting ground.	Increase cutting height.
<b>Mower seems to require excessive power</b>	1. Advancing into grass or brush too rapidly.	Reduce forward travel speed.
	2. Hitting ground.	Raise mower and reset tailwheel.
	3. Worn or dull blades.	Sharpen or replace blades.
	4. Tractor not large enough.	Use more horsepower tractor.
<b>Excessive vibration</b>	1. Check gearbox bolts.	Tighten if loose.
	2. Check for loose nuts on bladeholder and blades.	Tighten if loose.
	3. Check for bent output shaft. If shaft is bent, oil will normally leak from bottom seal.	Replace shaft if bent.
	4. Check to see if blades are free-swinging.	Free blades so they swing.
	5. Check for even wear on each blade tip. Were both blades changed at the same time?	Weigh blades. Weight should be within 1 oz. of each other. Always replace both blades.
	6. Blade broken.	Replace blades, in sets.
	7. Blade beam bent.	Replace blade beam.
	8. New blade or bolts matched with worn blade or bolts.	Replace blades or bolts in sets.

PROBLEM	POSSIBLE CAUSE	POSSIBLE REMEDY
<b>Excessive vibration</b>	9. Drivelines not placed correctly. Implement and tractor yokes must be in line.	Replace driveline.
	10. Wire or rope wrapped around blade beam.	Remove wire or rope.
	11. Blades worn and are out of balance.	Replace blades, in sets.
<b>Gearbox noisy</b>	1. Rough gears.	Run in or change gears.
	2. Worn bearings.	Replace bearings.
	3. Low oil in gearbox.	Check level and add oil.
<b>Gearbox leaking</b>	1. Damaged oil seal.	Replace seal.
	2. Bent shaft.	Replace oil seal and shaft.
	3. Shaft rough in oil seal area.	Replace or repair shaft.
	4. Oil seal installed wrong.	Replace seal.
	5. Oil seal not sealing in the housing.	Replace seal or use a sealant on outside diameter of seal.
	6. Oil level too high.	Drain oil to proper level.
	7. Hole in gearbox.	Replace gearbox.
	8. Gasket damaged.	Replace gasket.
	9. Bolts loose.	Tighten bolts.
<b>Excessive wear of tailwheel tire</b>	1. Tire not turning properly.	Check wheel assembly for proper lubrication.
	2. Tailwheel not casting properly.	Check tailwheel yoke assembly for proper lubrication or for mechanical binding.
<b>Front hitch "A" frame bending sideways</b>	1. Operator turning sharply hitting objects with tailwheel frame of mower deck.	Drive carefully and plan turns to avoid hitting buildings, posts, trees, etc.
	2. Tailwheel not casting properly.	Check tailwheel yoke (see above under tire wear).
	3. Mower is being operated too low and mower deck is contacting ground during turns.	A. Raise mower (especially on rough ground) B. Set stop on hitch controls lever so hitch lift arms do not drop mower on ground.
	4. Tractor 3 point hitch is leaking down and mower deck is contacting ground.	A. Repair tractor hitch hydraulic system. B. Use limit chains to keep lift arms from going lower than set limit.



## Parts List for all Brush Mowers

Item No.	Description	Cat. 1 Lift Pin	PTO Shaft	Gear Box	Stump Jumper	Cutter Blades	Blade Bolt	Blade Nut	Blade Washer	Safety Decal Sheet
80110040ABI	4' Standard Duty	3018352	1728011	2088028	2088026	3018433	1308012	1308015	1308016	1688100
80110050ABI	5' Standard Duty		1728012			3018434				
80110060ABI	6' Standard Duty					3018435				
80110080ABI	6' Heavy Duty		call for #	call for #	call for #	call for #	call for #	call for #		
80110090ABI	7' Heavy Duty									