

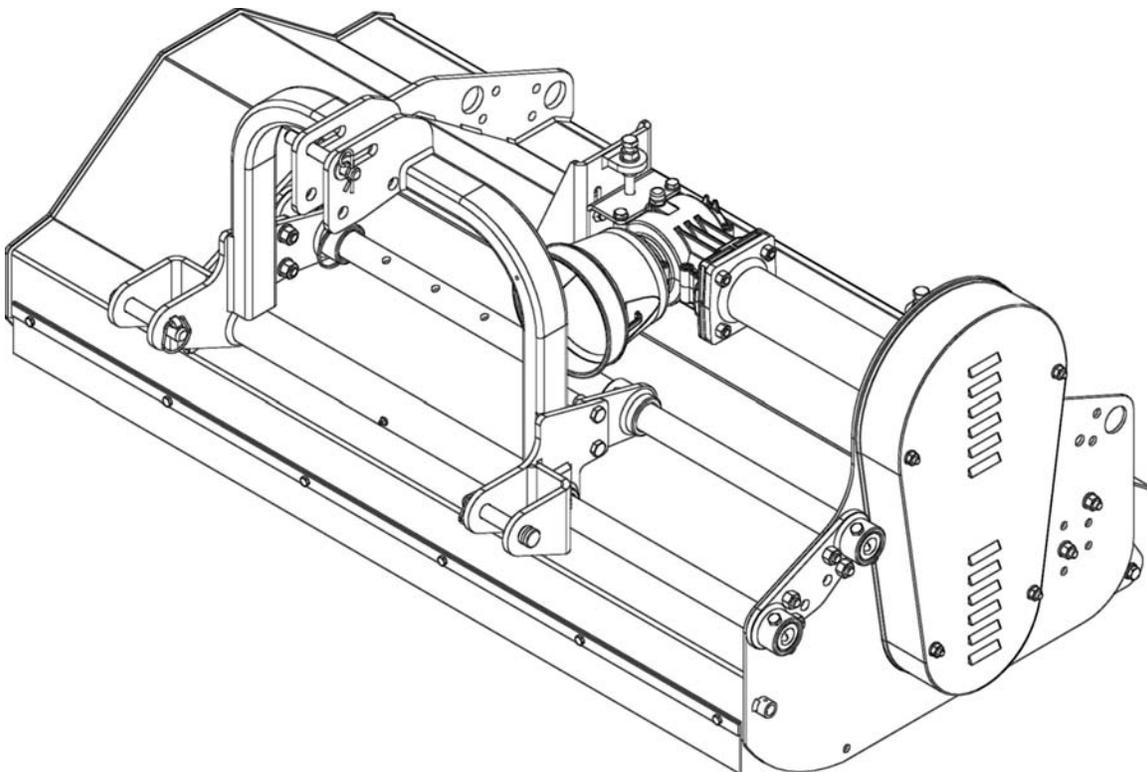
BEFCO®

Operator's Manual

HURRICANE

Flail Mower

H40-S48, H40-S60, H40-S72



The operator's manual is a technical service guide and must always accompany the machine.

Manual 971-417B

October 2019

SAFETY

Take note! This safety alert symbol found throughout this manual is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.



*This symbol means:
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!*

Signal Words

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal words for each have been selected using the following guidelines:



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



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

INDEX

1 - GENERAL INFORMATION	4
1.01 - General	4
1.02 - Warranty Information	4
1.03 - Model and Serial Number ID	5
2 - SAFETY PRECAUTIONS	6
2.01 - Preparation	6
2.02 - Starting and Stopping	7
2.03 - Messages and Signs	7
3 - OPERATION	10
3.01 - Operational Safety	10
3.02 - Set Up	12
3.03 - Assembly Instructions	13
3.04 - Cutting Height Adjustment	14
3.05 - Optional Side Skids	16
3.06 - Optional Hydraulic Cylinder	17
3.07 - Optional Front Steel Deflectors	17
3.08 - Pre-Operational Check	18
3.09 - Attaching to the Tractor	19
3.10 - Working Position	20
3.11 - Start Up	21
3.12 - Working Speed	22
3.13 - Operating Techniques	22
3.14 - Uneven Terrain	23
3.15 - Removing Mower from the Tractor	24
3.16 - Transport	24
4 - MAINTENANCE	26
4.01 - Maintenance Safety	26
4.02 - Service	27
4.03 - Blade Maintenance	29
4.04 - Blade Options	30
4.05 - Belt Tension	33
4.06 - Belt Replacement	34
4.07 - Reverse Gearbox Direction	35
4.08 - Reverse Rotor Direction	35
4.09 - Driveline	36
5 - REPAIR PROCEDURES	39
5.01 - Gearbox	39
5.02 - Rotor Shaft	39
5.03 - Suggested Spare Parts	40
5.04 - Storage	40
6 - TROUBLESHOOTING	41
7 - PRE-DELIVERY CHECKLIST	42
8 - WARRANTY	43

1 - GENERAL INFORMATION

Thank you and congratulations for having chosen our implement. Your new flail mower is a technologically advanced machine constructed of high quality, sturdy components that will fulfill your working expectations. Read this manual carefully. It will instruct you on how to operate and service your mower safely and correctly. Failure to do so could result in personal injury and/or in equipment damage.

1.01 - General

The implement described in this manual is to be used with tractors with PTO at 540 rpm and clockwise rotation.



CAUTION: Always ensure that the coupling of the implement with the tractor is done at the same PTO speed and direction of rotation. Do not operate this implement at a PTO speed or direction of rotation other than that shown on the implement. Serious damage can occur to the machine and/or the operator.



CAUTION: Unless otherwise specified, all hardware is metric. Use only metric tools on metric hardware. Other tools that do not fit properly can slip and cause injury.



CAUTION: Right hand and left hand sides of the implement are determined by facing in the direction the implement will travel when going forward (see fig. 2).

1.02 - Warranty Information

Carefully read the Warranty section¹, detailing coverage and limitations of this warranty. **Warranty** is provided for customers who operate and maintain their equipment as described in this manual. Warranty registration is accomplished by the dealer by completing and forwarding the **Warranty Registration** form to the Company, along with a copy of the dealer's invoice. It is in your best interest to ensure that this has been done.

Warranty does not cover the following:

1. Cleaning, transporting, mailing and service call charges.

¹ See Chapter 8 - Warranty.

2. Normal wear items such as belts, blades, bearings, drivelines, shear pins, slip clutches, etc.
3. Depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use.
4. The use of non-original spare parts and accessories.

Your Authorized Company Dealer has genuine parts in stock. Only these approved replacement parts should be used.

This limited warranty covers defective material and workmanship. The cost of normal maintenance or repairs for accidents or improper use and related labor will be borne by the owner.

1.03 - Model and Serial Number ID

Attached to the frame is an ID plate showing the model and the serial number. Record your implement model and serial number in the space provided below. Your dealer needs this information to give you prompt, efficient service when you order parts.

BEFCO	1781 S. Wesleyan Blvd. – P.O. Box 6036 Rocky Mount, N.C. 27802 – U.S.A. Tel: 1.252.977.9920 Fax: 1.252.977.9718
MODEL:	
SERIAL:	
VERSION:	

2 - SAFETY PRECAUTIONS

Safety is the primary concern in the design and manufacture of our products. Unfortunately our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment. It is the operator's responsibility to read and understand all safety and operating instructions in the manual and to follow these.

Allow only properly trained personnel to operate the mower. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operation, to acquaint yourself with the machines. It is the mower owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating, reads and understands the operator's manuals and is instructed in safe and proper use.

2.01 - Preparation



1. Before operating equipment read and understand the operator's manual and the safety signs (**see fig. 2**).
2. Thoroughly inspect the implement before initial operation to assure that all packaging materials, i.e. wires, bands, and tape have been removed.
3. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining and/or repairing the implement.
4. Operate the mower only with a tractor equipped with an approved Roll-Over-Protective-System (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the tractor.
5. Clear area to be cut of stones, branches or other debris that might be thrown, causing injury or damage.
6. Operate only in daylight or good artificial light.
7. Ensure mower is properly mounted, adjusted and in good operating condition.
8. Ensure that all safety shielding and safety signs are properly installed and in good condition.

2.02 - Starting and Stopping



1. Be sure that no one is near the machine prior to engaging or while the machine is working.
2. Be sure the tractor is in "Neutral" before starting engine.
3. Mower operating power is supplied from tractor PTO. Refer to your tractor manual for PTO engagement and disengagement instructions. Always operate PTO at 540 rpm. Know how to stop the tractor and mower quickly in case of an emergency.
4. When engaging PTO, the engine rpm should always be low. Once engaged and ready to start cutting, raise PTO speed to 540 rpm and maintain throughout cutting operation.
5. Check the tractor master shield over the PTO stub shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new shield if old shield is damaged or missing.
6. After striking an obstacle, disengage the PTO, shut the tractor down, wait for all moving parts to come to a complete stop and thoroughly inspect for damage before restarting.
7. Never engage the PTO until the mower is in the down position and resting on the ground. Never raise the mower until all blades have come to a complete stop.
8. To park the vehicle safely, stop vehicle on a level surface (not on a slope), disengage PTO, engage the parking brake, stop the engine, remove the key, and wait for engine and all moving parts to stop before leaving the operator's seat.
9. Stay clear of rotating drivelines. Entanglement in rotating driveline can cause serious injury or death. Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before getting near it.

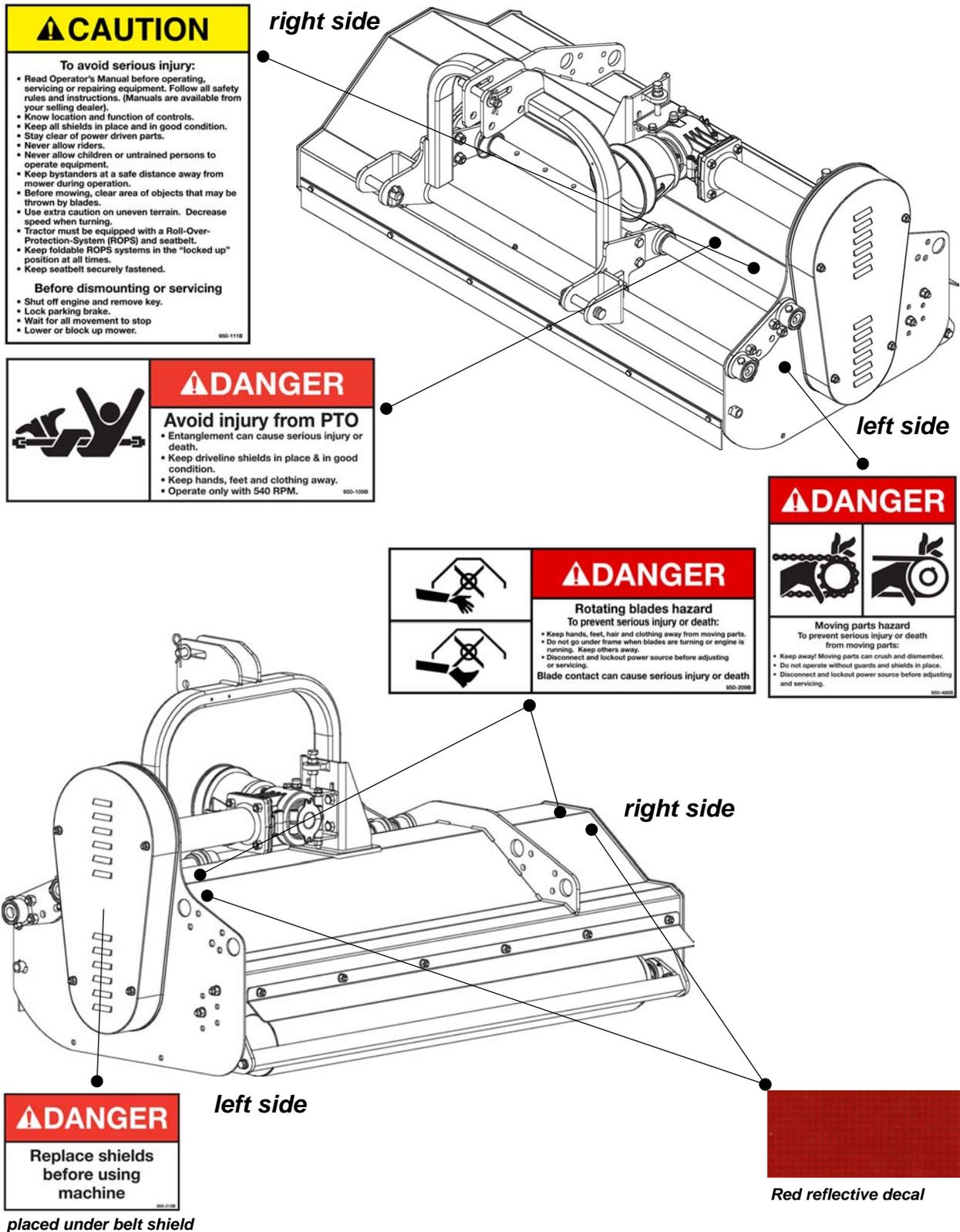
2.03 - Messages and Signs



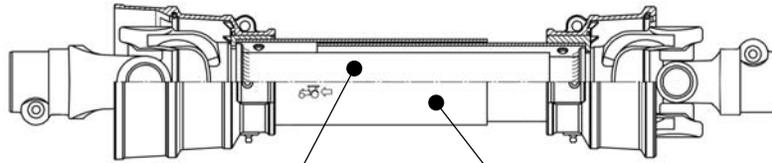
1. Read and adhere to all safety and operating decals on this machine (**see fig. 2**).
2. Before dismounting tractor: Allow moving parts to stop, stop engine, set brake and remove the key of unattended equipment.
3. Keep away from rotating blades and driveline.
4. Keep guards and shields in place and in good condition.
5. Do not mow with bystanders in area.
6. Allow no riders on tractor or mower.
7. Allow moving parts to stop before repair.
8. Securely support mower before working underneath.

Additional warning and operating decals are available at no extra charge. Please specify model and serial number when ordering.

Fig. 2 - Safety decals - implement; replace immediately if damaged.



Safety decals - driveline; replace immediately if damaged.



placed on outer tube



placed on outer shield

3 - OPERATION

The Hurricane is a sturdy and easy to use flail mower. It is especially designed to offer the best performance wherever professional, highly accurate, safe mowing are required. The Hurricane H40-S is engineered to be used with tractors from 16 to 40 HP, 540 rpm and category 1 three point hitch or category 1 quick hitch. It is available in three mowing sizes of 4', 5' and 6' and can work either center mounted behind the tractor or offset to the right up to 16".

The tractor PTO power is transferred via a driveline to the gearbox on the mower. From this, the power is sent along a horizontal drive shaft to a side pulley connected to a second pulley by 2 belts which are attached to a horizontal rotor.

This rotor, which must be perfectly balanced due to its high rotation speed, carries wide overlapping blades mounted on double pivot blade carriers. The blades turn in a clockwise direction, going against the direction of travel. This cutting motion from bottom to top allows for a much cleaner finish.

Our flail mower can be either front or rear tractor mounted. The gearboxes can be turned 180 degrees and the three point hitch is reversible (**see fig. 3**).

The cutting height is controlled by the rear roller.

3.01 - Operational Safety



CAUTION: Our mowers are designed considering safety as the most important aspect and are the safest available in today's market. Unfortunately, human carelessness can override the safety features built into our machines. Injury prevention and work safety, aside from the features on our mowers, are very much due to the responsible use of the equipment. It must always be operated prudently following with great care, the safety instructions laid out in this manual.



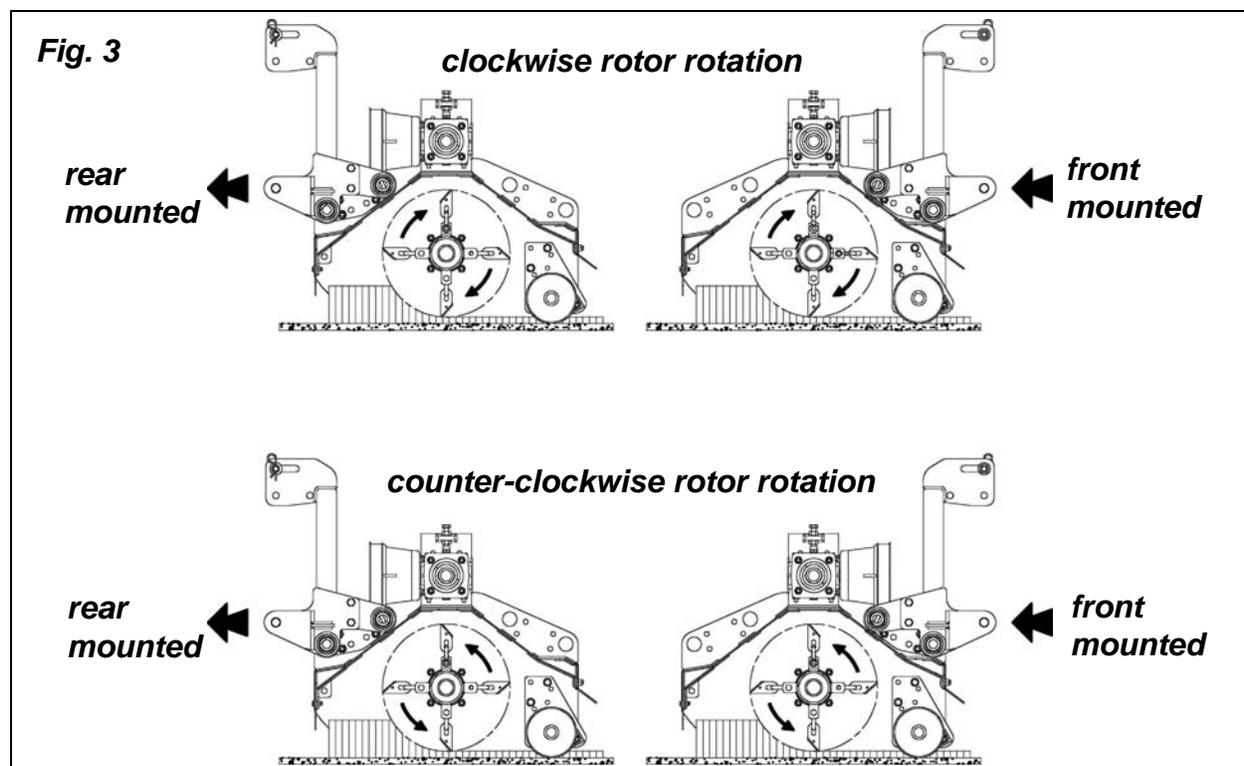
1. The use of this equipment is subject to certain hazards which cannot be prevented by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using.
2. Do not operate the tractor and mower when you are tired, sick or when using medication.
3. Keep all helpers and bystanders at least 100 yards from a flail mower. Only properly trained people should operate this machine.
4. When this machine is operated in populated areas where thrown objects could injure persons or property, a standard equipment front rubber strip or the optional front steel deflectors must be installed.

5. The majority of accidents involve entanglements on the driveline, injury of bystanders by objects thrown by the 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 operator's manual and is not familiar with a flail mower.
6. Always stop the tractor, set brake, shut off the tractor engine, remove the ignition key, lower implement to the ground and allow mower blades to come to a complete stop before dismounting tractor. Never leave equipment unattended with the tractor running.
7. Never place hands or feet under mower with tractor engine running or before you are sure all motion has stopped. Stay clear of all moving parts.
8. Do not allow riders on the mower or tractor at any time. There is no safe place for riders.
9. Do not operate unless all personnel, livestock and pets are at least 100 yards away to prevent injury by thrown objects.
10. Before backing up, disengage the mower and look behind carefully.
11. Install and secure all guards and shields before starting or operating.
12. Keep hands, feet, hair and clothing away from moving parts.
13. This flail mower is designed for use only on tractors with 540 rpm power take off.
14. Never operate tractor and mower under trees with low hanging limbs. Operators can be knocked off the tractor and then run over by the rotating blades.
15. 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 guard rails and concrete abutments. Such impact could cause the 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 contact such obstacles.
16. Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened.
17. Stop mower immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.
18. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
19. Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.
20. Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.
21. When using a unit, a minimum 20% of tractor and equipment weight must be on tractor front wheels. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a front end loader, front wheel weights, ballast in tires or front tractor weights. When attaining a minimum 20% of 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!

22. Inspect the entire machine periodically². Look for loose fasteners, worn or broken parts, and leaky or loose fittings.
23. Use only the driveline supplied with the mower. Do not use it if it is missing any shield or safety protection.
24. Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" tractor and mower.
25. Avoid sudden starts and stops while traveling up or downhill.
26. Always cut down slopes; never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and/or loss of control.

3.02 - Set Up

Notice to dealer: Pre-delivery setup and service including lubrication is the responsibility of the authorized dealer. It is up to him to assure that the machine is in perfect condition and ready to be used. It is his responsibility to ensure that the customer is aware of all safety aspects and operational procedures for the mower. He must also fill out the Pre-Delivery Checklist³ prior to delivering the mower.



As mentioned above all our flail mowers may be either front or rear mounted to the tractor. This can easily be done at our authorized dealerships. If your tractor is equipped with a 540 rpm clockwise turning front PTO, this is accomplished by simply turning the three point hitch and the gearbox 180 degrees (**see fig. 3**).

² See Chapter 4 - Maintenance.

³ See Chapter 7 - Pre-Delivery Checklist.

3.03 - Assembly Instructions

The H40-S series flail mowers are shipped almost completely assembled. Follow the instructions below to assemble remaining items on the flail mower (**see fig. 4**):

1. Using a crow bar open the top of the crate then remove the sides of the crate.
2. Slide the upper and lower guide tubes through the left tube holder bracket located next to the belt shield. Keep the side of the tubes with the hole on the end to the left of the flail mower.
3. Position the three point hitch over the flail mower and run the upper and lower guide tubes through the holes on the three point hitch and into the holes of the right tube holder bracket of the flail mower.
4. Secure the upper and lower guide tubes by lining up the holes on the end of the tubes to the holes on the left tube holder bracket. Secure tubes using the supplied M10x75 bolts and M10 nuts.
5. Using the lynch pin secure the three point hitch through the desired hole on the upper guide tube. The hole chosen will determine the amount of offset on the mower.

Note: All hardware needed for assembly will be found either on the machine or in the hardware bag. Assembly will be easier if all parts are loosely assembled before tightening the hardware.



CAUTION: Stand clear of bands when cutting as they could be under sufficient tension to cause them to fly loose. Take care in removing bands and wire, they often have extremely sharp edges and cut very easily.

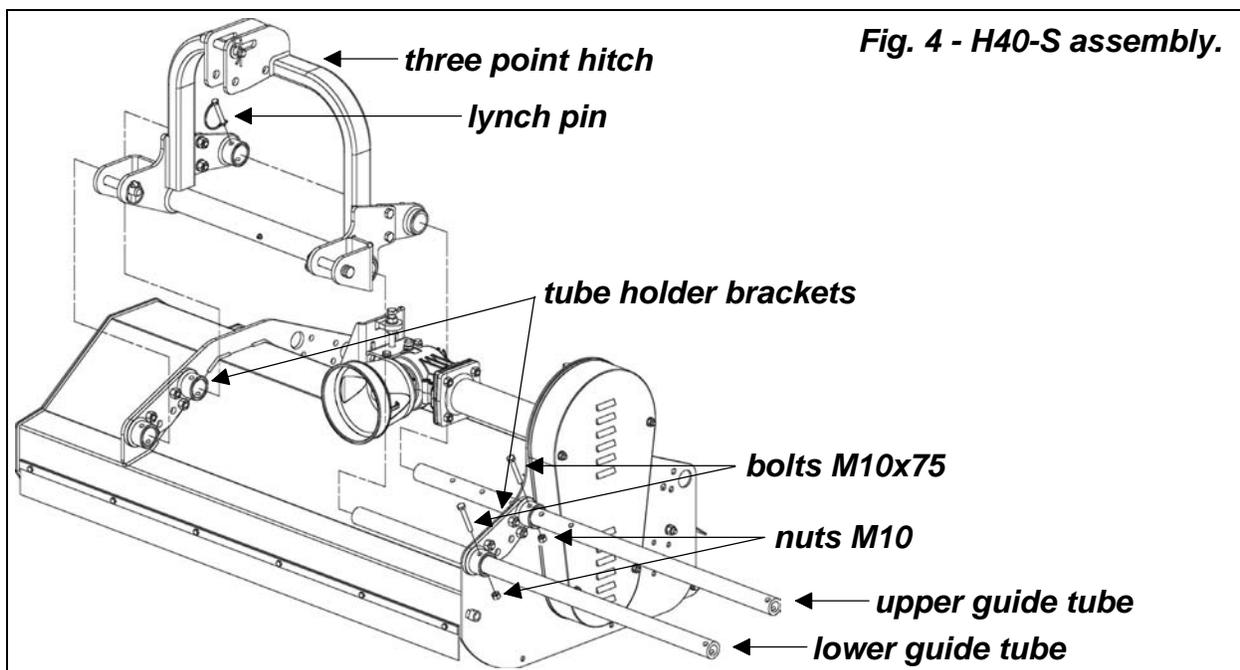


Fig. 4 - H40-S assembly.

3.04 - Cutting Height Adjustment



WARNING: Keep hands and feet away from moving blades.

Be sure tractor engine is off, parking brake is locked, and key is removed before making any adjustments.

Never rely on the tractor lift system. Install blocks or stands under the mower deck to prevent it from falling.

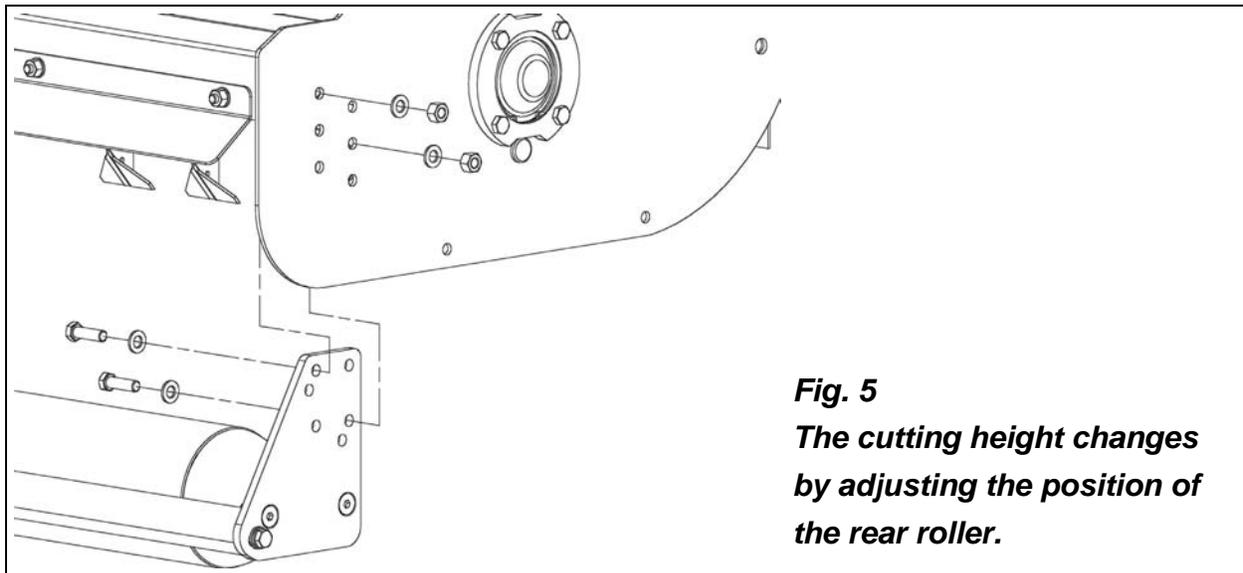


Fig. 5
The cutting height changes by adjusting the position of the rear roller.

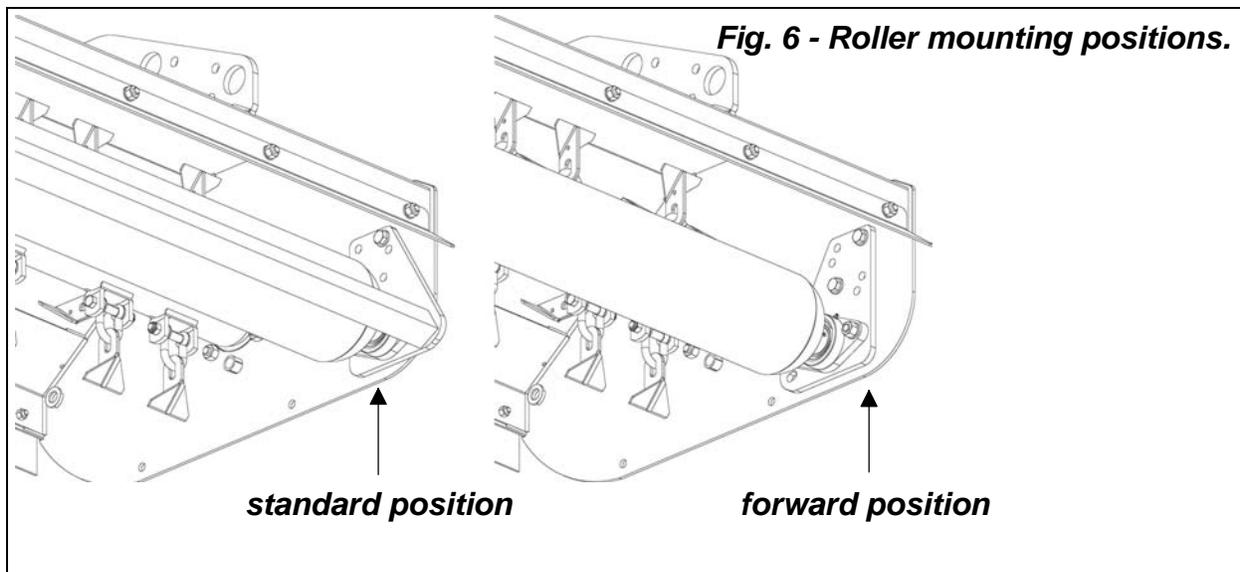
The cutting height is the distance from the blades to the ground. It is changed by adjusting the position of the rear roller (see fig. 5). The machine has 3 different cutting height positions. The available cutting heights are: 3/4", 1-1/2" and 2-3/8".

H40-S flail mowers have height adjustment rollers that can be mounted in a standard or forward position (see fig. 6). In the **standard position** most of the cut grass will be discharged in front of the roller. The roller scraper will prevent grass from building up on the rear roller. If the roller is mounted in the **forward position**, most of the cut grass will be discharged behind the roller. Mounting the roller in the forward position allows for the blades to keep the rear roller clean from grass build up.

Note: When using rear roller in the forward position, the roller scraper will need to be removed.

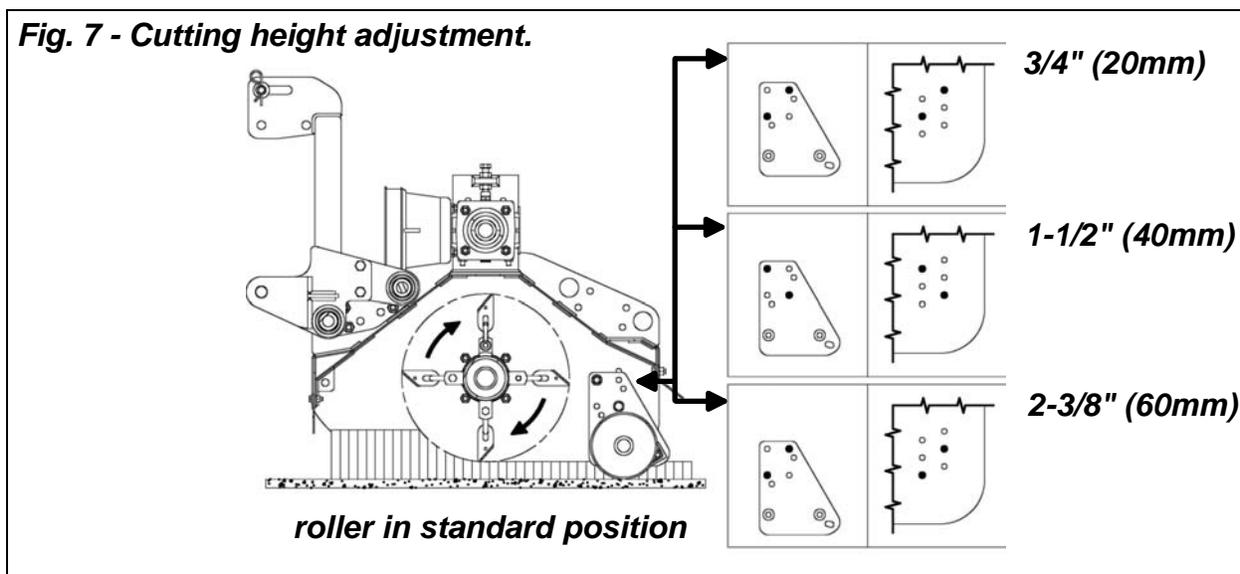


WARNING: When using the unit for commercial mowing applications, the operator must keep the roller mounted in the standard position to reduce the risk of injury or damage to property from thrown objects.

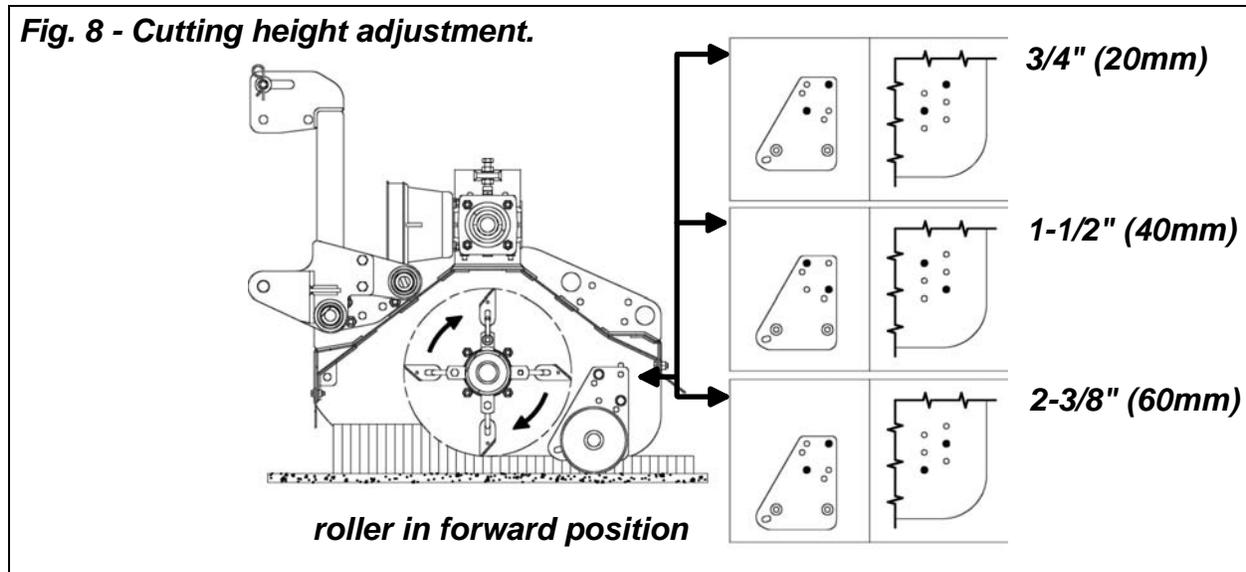


To change the cutting height do the following (see fig. 5):

1. Loosen and remove the four bolts (two per side) holding the roller support brackets.
2. Select the desired cutting height (see fig. 7 & 8). There are 6 different hole positions available, two are used at a time.
3. Insert the bolts into the two holes chosen for the desired cutting height. Ensure the left and right roller brackets are in the same holes in order to maintain a level roller that is parallel to the ground.
4. Tighten the bolts and nuts to the proper torque⁴.
5. Be sure the mower is level and lock the tractor arms so they will not float down or up when cutting.



⁴ Refer to Table 1 - Torque Specifications, page 38.

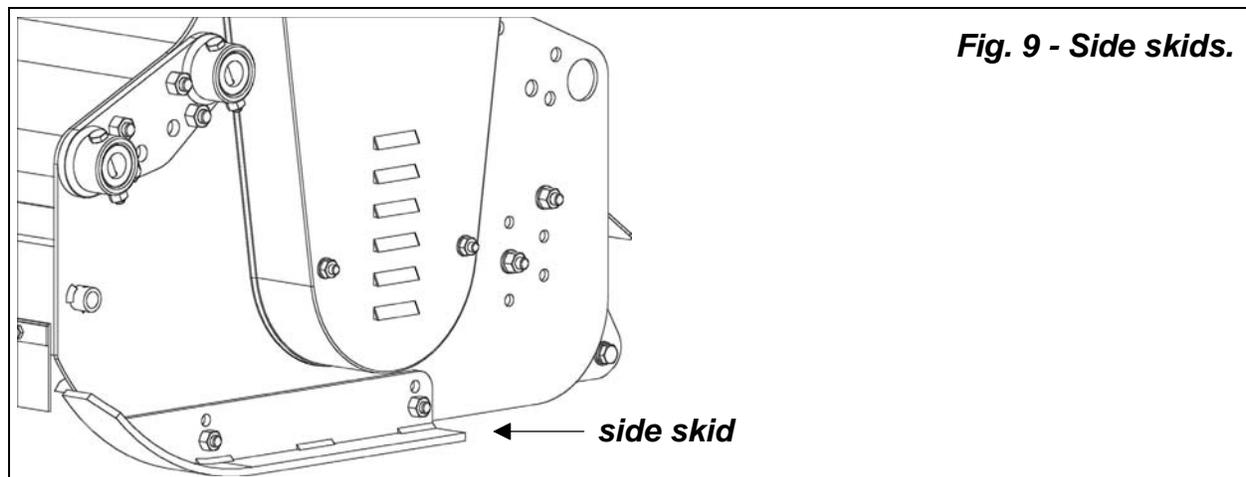


WARNING: When using dethatching blades operator must use the height adjustment roller in the standard position with the roller mounted away from the blades (see fig. 19). Mounting roller in the forward position with dethatching blades installed will cause impact of the blades against the roller.



WARNING: When the height adjustment roller is mounted in the forward position and the unit is equipped with hammer blades, in order to mow at the lowest possible cutting height (3/4"), operator must use the predisposed holes (see fig. 21) to avoid collision of blades against the roller.

3.05 - Optional Side Skids



Our H40-S flail mowers can be equipped with adjustable side skirts that are easily mounted on the side panels of the machine. The side skirts (**see fig. 9**) will help prevent scalping on uneven terrain.

3.06 - Optional Hydraulic Cylinder

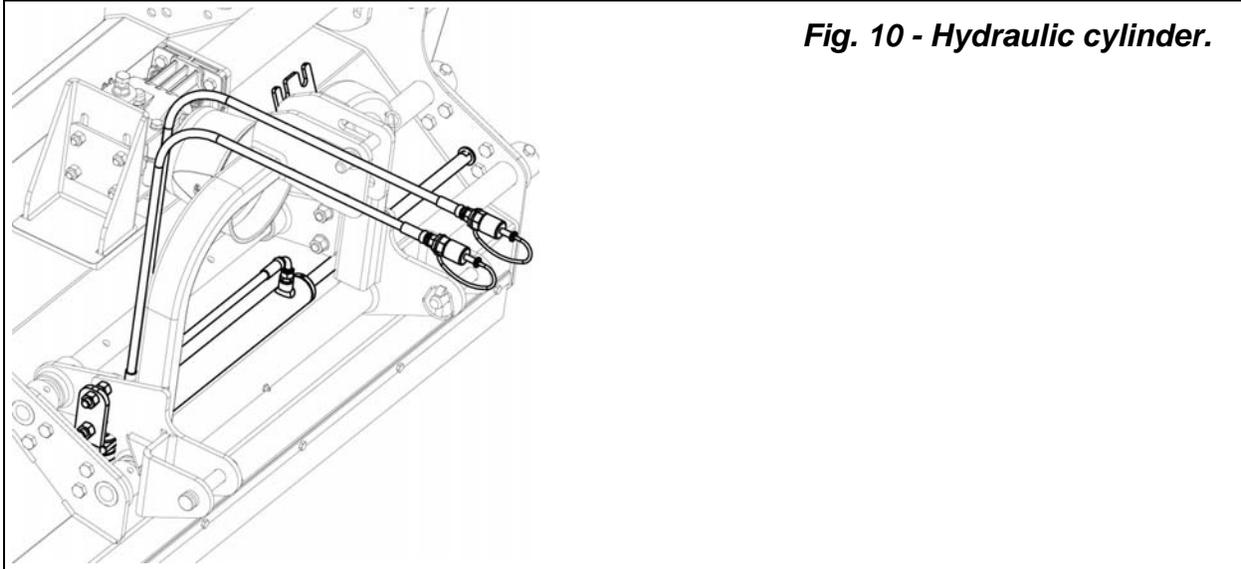


Fig. 10 - Hydraulic cylinder.

The H40-S flail mowers can be equipped with a dual action hydraulic cylinder that allows the unit to be offset hydraulically up to 16" to the right (**see fig. 10**). The hydraulic cylinder option requires the tractor to have two rear hydraulic remotes available.

3.07 - Optional Front Steel Deflectors

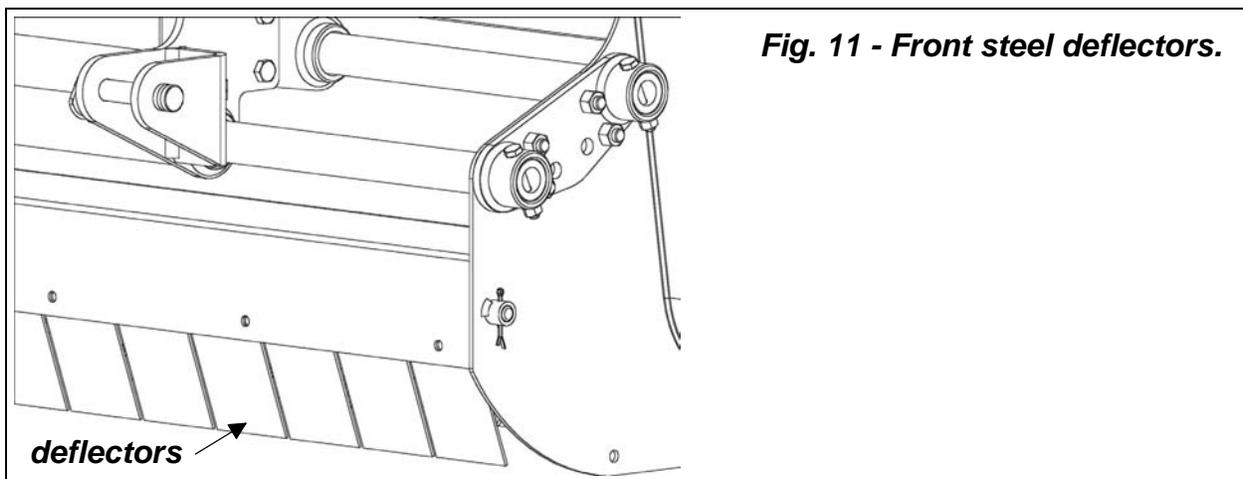


Fig. 11 - Front steel deflectors.

The H40-S flail mowers can be equipped with front steel deflectors (**see fig. 11**) that are suitable for heavy or commercial mowing applications such as the mowing of tree

prunings, road sides or public parks. It is advisable to use the front steel deflectors whenever the mower is equipped with hammer type blades (see fig. 18).



WARNING: Front steel deflectors should be used in all commercial mowing applications or whenever flail mower is equipped with hammer type blades (see fig. 18) to reduce the risk of injury or damage to property from thrown objects.



WARNING: Front steel deflectors cannot be used when flail mower is equipped with dethatching blades (see fig. 18) as this will cause impact of the blades against the deflectors. Replace steel deflectors with standard front rubber strip when using dethatching blades (see fig. 20).

3.08 - Pre-Operational Check

IMPORTANT: Check each of the following, carefully, prior to engaging the equipment:

1. The roller bearings have been greased.
2. The oil level in gearbox. Using a flashlight, check inside the gearbox to verify that it's approximately half full.
3. The driveline cross and bearings have been greased.
4. No wrappings or foreign objects are around the blades, belts or driveline.
5. The blades are properly installed and the blade bolts properly torqued⁵.
6. All hardware is tight.
7. The tractor, to ensure correct direction of PTO and rpm speed.
8. All safety shields and guards are in place and tightly attached.
9. No people or animals are in the work area.
10. When working, make sure the tractor hitch is locked in position so the front of the flail mower will not float down while mowing.



DANGER: Stay clear of rotating driveline. Entanglement in rotating driveline can cause serious injury. Disengage PTO, wait for all moving parts to come to a complete stop, engage parking brake or place transmission in "Park", shut off the tractor and remove the key before working around hitch, attaching or detaching driveline, making adjustments, servicing or cleaning the machine.

⁵ Refer to Table 1 - Torque Specifications, page 38.

3.09 - Attaching to the Tractor

Unit may be used on tractors ranging from 16 to 40 HP equipped with a standard PTO and category 1 three point hitch or category 1 quick hitch⁶. **Never use this mower with tractors over 40 HP.**



CAUTION: Check the tractor PTO rpm to ensure it is set at 540 and turns clockwise.



CAUTION: Never attempt to attach the mower to the tractor or make any adjustments to it without first turning the tractor off.



DANGER: Failure to ensure a secure coupling of the implement to the tractor can cause injury and damage to the implement or tractor. If necessary, wheel weights, front tractor weights and/or tire ballast should be used to improve stability. Be sure that the tractor tire pressure is correct. It is important to strictly follow the safety guidelines and instructions laid out in the tractor operator's manual.

To attach the mower to the tractor do the following:

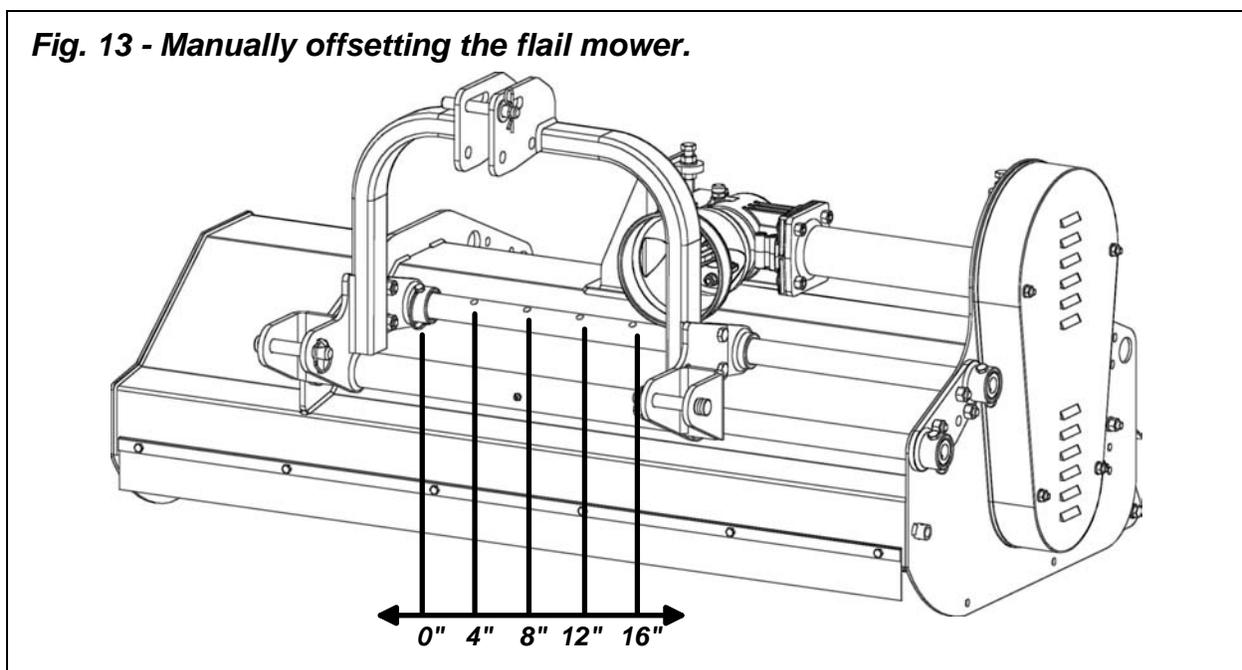
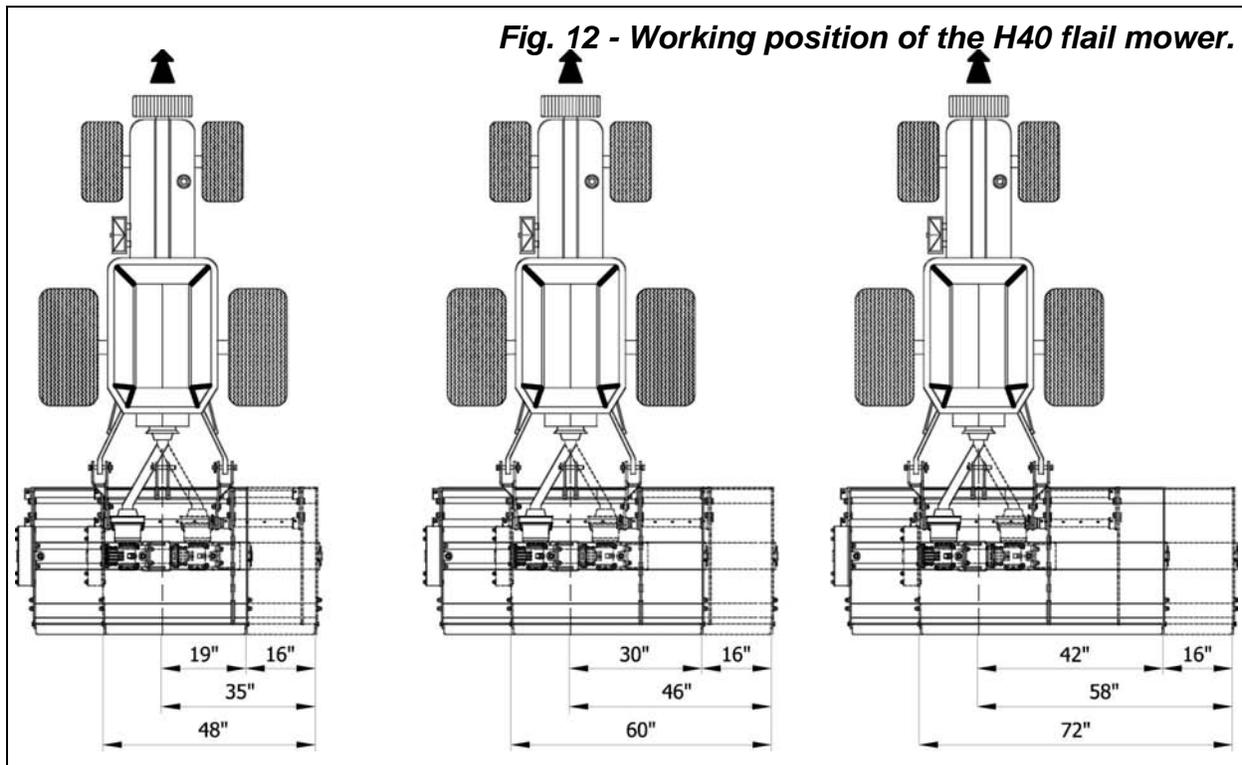
1. Back the tractor up to the mower in order to slip the tractor hitch arms over the hitch pins on the mower hitch arms. **Turn off the tractor engine.** Secure them in place with the lynch pins.
2. Adjust the tractor sway blocks or chains to remove all side movement.
3. Attach the top link. Adjust tractor top link to allow the mower, in the working position, to remain as level as possible with respect to the ground.
4. Install the shielded driveline to the tractor by first lining up the splines and depressing the snap pin. Push the yoke onto the PTO shaft as far as it will go. Release the pin and pull back slowly until the pin clicks in place. Repeat this operation on the implement end.
5. Attach the driveline chains to the tractor and to the mower to keep the driveline protection from turning. The chains should not be too tight.
6. Ensure the driveline has at least 2" from bottoming out in its shortest working position and has the minimum 6" overlap in its longest working position. Refer to **Section 4.08**⁷ of this manual, if it is determined that the driveline is too long and needs to be shortened. Contact your authorized dealer if it is determined that the driveline is too short for your tractor.

⁶ Refer to Table 2 - Technical Features, page 38.

⁷ See Section 4.09 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

3.10 - Working Position

H40-S flail mowers can be adjusted to be center mounted behind the tractor or offset up to 16" to the right of the tractor. Offsetting the mower will allow you to cut grass closer to trees, sidewalks, etc. (see fig. 12).



Offsetting the mower is a quick and easy operation. To offset the mower remove the pin located on the rear tube of the mower, push the three point hitch to the desired offset, line up the holes and secure it with the pin. With the standard manual offset the operator can choose one of five different positions (see fig. 13).

NOTE: Whenever mowing in an area where no particular offset is required, it is advisable keep the flail mower in the 8" position (see fig. 13) as it allows the driveline to work in the straightest possible position. This will prolong the life of the driveline and that of its components.

3.11 - Start Up



DANGER: The mower must always be lowered to the ground before starting tractor engine or engaging PTO lever.

Lower mower to the ground with the tractor rock shaft control lever until the roller is on the ground and the mower frame is parallel to the ground. Lock the tractor rock shaft control lever in this position. With the engine idling, slowly engage the PTO drive. Move the throttle lever gradually until the PTO speed indicated on the mower is obtained.

The mower is normally set for a PTO speed of 540 rpm.

Shift the transmission to a slow speed gear and start forward, increase the ground speed by shifting upward until the desired speed is obtained. Do not mow in reverse unless absolutely necessary and only after careful observation of the area behind the mower.



CAUTION: Do not operate this mower at a PTO speed or direction of rotation other than that shown on the mower. Serious damage can occur to the machine and/or the operator.

Before starting to mow, never forget that the **operator is responsible** for the following:

1. Safe and correct driving of the tractor and mower.
2. To learn precise safe operating procedures for both the tractor and the mower.
3. To ensure all maintenance and lubrication has been performed on the mower.
4. To have read and understood all safety aspects for the mower in the operator's manual.
5. To have read and understood all safety decals on the mower.
6. Checking the condition of the blades. Worn or damaged blades should be changed before starting⁸.
7. Checking to ensure that the cutting edge is the leading edge of the blade.

⁸ See Section 4.03 - Blade Maintenance.

8. Checking that there is no wire, weed, grass or other material wrapped around blades.
9. Checking to see if front weights need to be added to the tractor in order to maintain balance.
10. Checking the tractor tires for the proper pressure in accordance with the tractor's operator's manual.
- 11. Checking that the PTO shield, belt shield, front rubber strip and all other shielding are on the machine and securely in place.**
12. Making sure the proper attire is worn. Avoiding loose fitting clothing which can become entangled. Wearing sturdy, tough-soled work shoes and protective equipment for eyes, hands, ears and head. Never operate tractor or implement in bare feet, sandals or sneakers.
13. Checking area for stones, branches and other debris that might be thrown.
14. Ensuring proper lighting is available, sunlight or good artificial lighting.

3.12 - Working Speed

The mowing speed depends on ground conditions, tractor HP, mowing height, and grass thickness. Only a test run will enable you to gauge the optimal working speed for your conditions.

Under most conditions a 1 to 4 mph ground speed is best. As a rule of thumb, and if the conditions permit, grass dispersion is increased by higher ground speeds.

In order to obtain the best cut possible, always keep the tractor rpm up to the speed indicated on the mower. When increasing or decreasing mowing ground speed, always use gear selection, not engine speed. This will maintain the constant maximum blade speed necessary for a clean cut.

3.13 - Operating Techniques

All of the following factors are important in selecting the proper forward speed:

1. Height of grass.
2. Type of grass.
3. Density of grass.
4. Type of terrain.
5. Grass condition, wet or dry.

This mower has been designed to cut grass with heights from 4" to 8". It is recommended to avoid cutting grass taller than 10".

For the best results, try cutting the grass at least once per week during growing season. Tall, dense grass should be cut at low speed, while thin medium grass can be cut at a faster ground speed.

Always operate PTO at 540 rpm. This is necessary to maintain proper blade speed and obtain a clean cut.

Under certain conditions, tractor tires may roll some grass down and prevent it from being cut at the same height as the surrounding area. If this occurs reduce the tractor

ground speed but maintain a 540 rpm engine speed. The lower ground speed will permit the grass to at least partially rebound. Under some conditions grass will not rebound enough to be cut even, resulting in an uneven appearance. In general, lower cutting height gives a more even cut with less tendency to leave tire tracks. If cut is still not satisfactory, cut the area twice.

Mow extremely tall grass twice. On the first pass use a high cutting height. On the second pass, position the mower at the desired height and, when practical, mow at a right angle of travel to the first pass.

Plan your pattern to travel straight forward whenever possible.

It is better to cut grass more often, than too short. Short grass deteriorates rapidly in hot weather and invites weed growth during growing season.

If at any time the mower should jam resulting in belt slippage of 2 or more seconds, raise the mower and continue for 2-3 minutes. This will allow the pulleys to cool and prolong belt life.



DANGER: Never operate the mower without first ensuring that all protective devices are properly installed. The mower blades can throw objects 100 yards or more which could result in personal or property damage.

Pick up all rocks and other debris before mowing. Enter new areas carefully. Cut grass higher at first, allowing mower to clear hidden objects.



CAUTION: For emergency reasons learn how to stop the tractor and mower quickly. On the flail mowers always disengage the PTO, lock parking brake, stop engine and allow the mower blades to come to a complete stop before dismounting the tractor.

3.14 - Uneven Terrain



DANGER: Be careful of rollover when operating tractor and mower over uneven ground.

The following precautions should always be observed when working on uneven terrain:

1. In extremely uneven terrain rear wheel weights, front tractor weights, and/or tire ballast should be used to improve stability.
2. Observe the type of terrain and develop a safe working pattern.
3. Whenever traction or stability is doubtful, first test drive over the terrain with the PTO disengaged.

4. Operate the implement up and down steep slopes, not across slopes, to prevent the tractor from tipping. Avoid sudden stops and starts, and slow down before changing directions on a slope.
5. Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up the tractor and implement.
6. Slow down on sharp turns and slopes to prevent tipping or loss of control.
7. Avoid tipping the mower while cutting.
8. Watch for holes, roots or other hidden objects. Do not use near the edge of a gully, ditch or stream bank.

3.15 - Removing Mower from the Tractor



CAUTION: Disengage tractor PTO. Set parking brake. Stop engine and remove key from ignition. Disconnect mower driveline from tractor PTO shaft. Collapse driveline and store in appropriate place. Disconnect three point linkage and carefully drive tractor away from mower.

3.16 - Transport



CAUTION: Make sure PTO is disengaged and blades have stopped turning before raising mower to full transport position. Do not tow tractor and mower behind other vehicles. Use a properly equipped trailer with heavy tie-downs for towing operations.

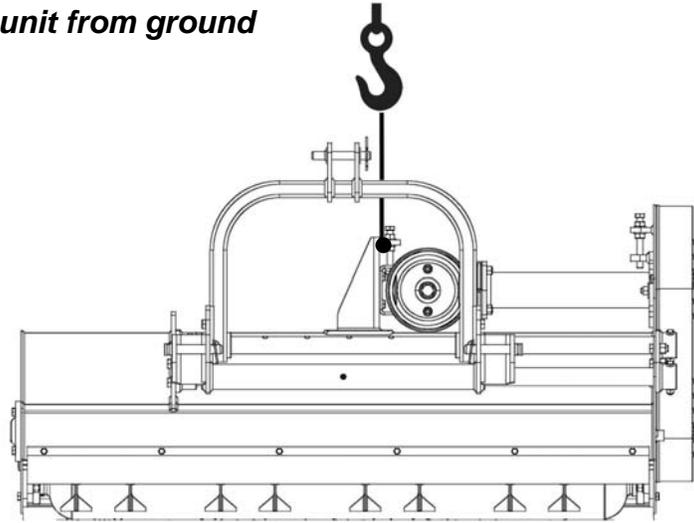
Before transporting:

1. Always select a safe ground speed that is appropriate for the terrain.
2. Beware of traffic on public roads. Install a SMV (Slow Moving Vehicle) sign when traveling on roads or streets. Comply with all federal, state and local laws.
3. Reduce ground speed when turning and take care that the implement does not strike obstacles such as trees, fences or buildings.
4. Always disengage PTO before raising the implement to transport position.
5. When raising the mower be sure the PTO driveline does not hit either the mower or the tractor.
6. During transport the mower should not be lifted over 14"-16" from the ground.

If it is necessary to load the flail mower on a truck, tie one strap around the gearbox mounting plate of the flail mower. Adjust the length of the strap to remove any slack and secure it to the hook on the hoist (**see fig. 14**). Ensure that the load bearing capacity of

the strap is sufficient to hold the weight specified in the technical features table for the machine⁹. Slowly raise the unit to make sure the weight is balanced correctly.

Fig. 14 - Lifting unit from ground



⁹ Refer to Table 2 - Technical Features, page 38.

4 - MAINTENANCE



DANGER: Stop engine, lock parking brake and remove key before performing any service or maintenance.

Never rely on the tractor lift system. Install blocks or stands under the mower to prevent it from falling.

Always use personal protection devices, such as glasses or gloves when performing maintenance.

Keep fingers out of slots to prevent injury.

4.01 - Maintenance Safety



1. Good maintenance is your responsibility.
2. Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.
3. Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
4. Make no repair or adjustments with the tractor engine running. Before working on the machine, disengage the PTO, shut off the engine, set the brakes, and remove the ignition key.
5. Be certain all moving parts on attachment have come to a complete stop before attempting to perform maintenance.
6. Never work under equipment unless it is blocked securely.
7. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
8. Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened.
9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.
11. After servicing, be sure all tools, parts and service equipment are removed.
12. Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts¹⁰.
13. Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original

¹⁰ Refer to Table 1 - Torque Specifications, page 38.

specifications. The company will not claim responsibility for use of unapproved parts and/or accessories and any other damages as a result of their use.

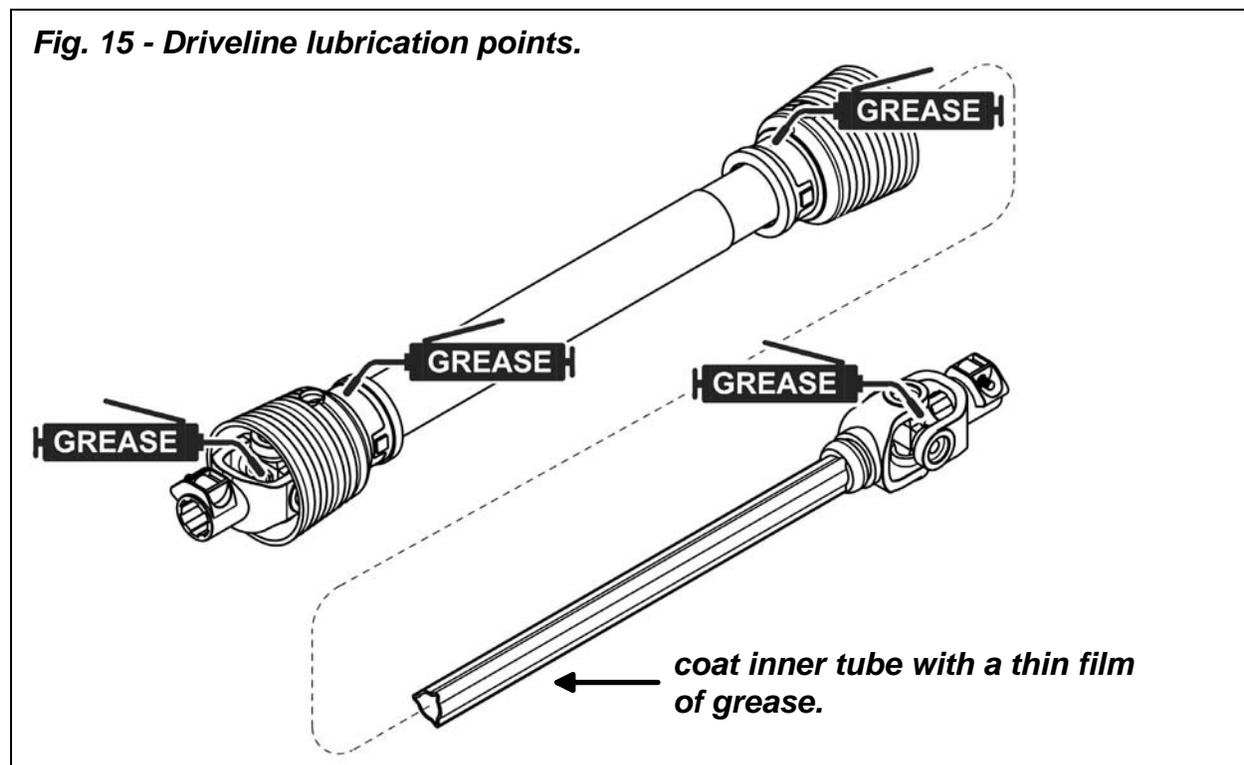
14. Unauthorized modifications to the machine may impair the function and/or safety of the machine and reduce its life. If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

4.02 - Service

The accompanying illustrations show lubrication points. The chart gives the frequency of lubrication in hours, based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

Use a good quality SAE multipurpose type grease for all locations shown. Be sure to clean fittings thoroughly before using grease gun.

Use 90 wt. gear oil in gearbox.



Hourly or whenever an obstacle is hit:

1. Check the conditions of the blades, double pivot rings, blade carrier brackets welded to the rotor, proper blade mountings or broken or missing blades. **Even a single missing or broken blade can unbalance the rotor and create serious damage to the mower or grave danger to nearby persons.**
2. **Do not continue mowing if even one blade is broken or missing. Broken or missing blades must be replaced immediately¹¹. Heavily worn blades should be replaced as a complete set in order to maintain a balanced rotor.**

¹¹ See Section 4.03 - Blade Maintenance.

3. Remove any wrappings, weeds, paper, wire, etc., from the blades and rotor.

Every 8 hours:

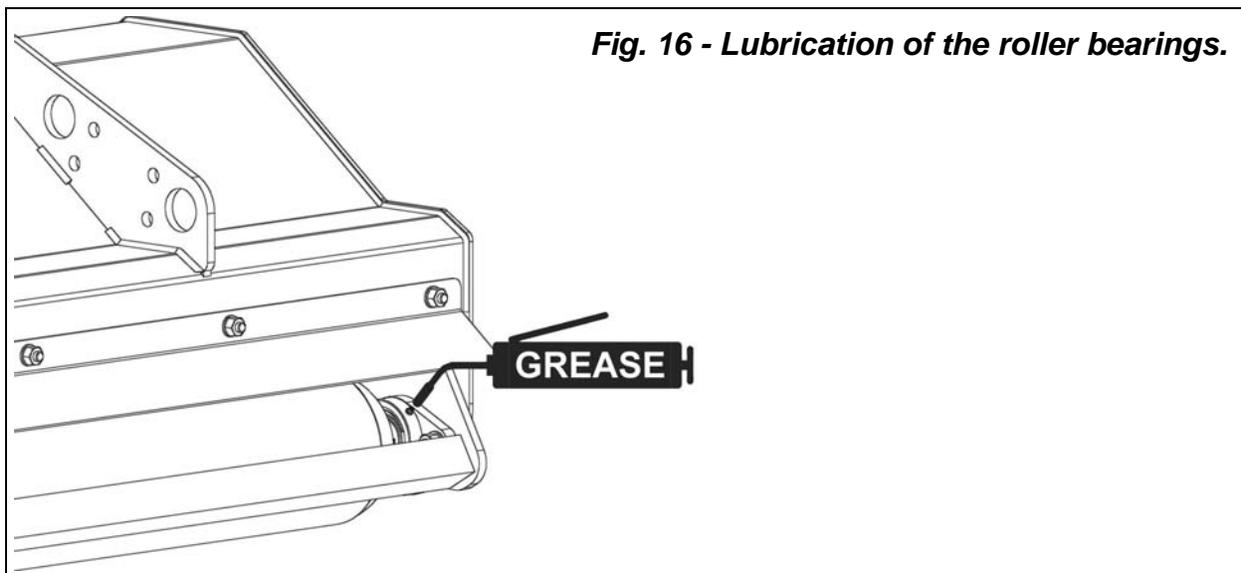
- 1. Lubricate driveline (see fig. 15) and roller bearings (see fig. 16):** Apply two or three shots of grease to the driveline cross and bearings and to the inner and outer locking rings (see fig. 15); apply the same amount to the roller bearings. (See the driveline manufacturer operator's manual for further information on the driveline.)
- 2. Check gearbox oil level** by removing the breather plug. Using a flashlight, check inside the gearbox to verify that it is approximately $\frac{1}{2}$ full. When filled correctly the oil level should be approximately halfway on the input shaft. When fully drained gearbox requires approximately 20 fl. oz. (0.6 qt.) of oil. If needed add SAE 90W gear oil.
Note: Never overfill gearbox. Oil will expand when hot. Overfilling will likely cause excess oil to blow out of breather cap.

Every 20 hours: Lubricate the driveline telescoping shafts: Apply a thin film of grease on the inner tube of the driveline (see fig. 15).

Every 25 hours:

- 1. Check hardware tightness;** mower vibration can loosen bolts¹². Check tightness of the hardware periodically.
- 2. Check belt tension¹³.**

The bearings in the rotor supports are sealed, and therefore require no maintenance.



DANGER: The beginning of abnormal vibrations from the rotor may mean it is out of balance. A single broken or missing blade is enough to cause this. An unbalanced rotor, due to its high rotation speed, can dislodge itself from the side

¹² See Table 1, page 38.

¹³ See Section 4.05 - Belt Tension.

bearing supports thus damaging the mower and cause serious injury to persons nearby. Always find the source of the vibration. Bring the rotor back in balance by replacing blades, removing wrappings, etc. If this does not remove the vibrations, the rotor may have to be rebalanced at our Authorized Company Dealerships.

4.03 - Blade Maintenance



CAUTION: When the blades are replaced, it is important that all the blades are of the same type and weight. A rotor unbalanced by different blades can damage the mower.



CAUTION: Do not substitute blades or any bolt for the blade retaining bolt. Company blades and blade retaining bolts are specially made for this application. Using non original parts can effect the quality of cut and may also cause damage to the mower.



DANGER: Always remember the rotor must remain well balanced at all times to avoid dangerous vibrations which can damage the overall structure of the mower and cause serious injury to any nearby persons. It is therefore recommended that whenever worn blades are changed, the entire set be changed to avoid unbalancing the rotor with blades of different weights. If a single blade or set in a certain area is replaced, it is best to also replace the blade or set of blades opposite to maintain balance. If after replacing some of the blades, the vibration remains or increases, it is best to then replace the entire set. If this still does not remove the vibrations, the mower should be taken to an Authorized Company Dealership to determine if it is necessary to rebalance the rotor.



DANGER: Proper torque must be used when tightening the blade retaining bolt. If these safety precautions are not followed, the blade could come off during operation and be thrown 100 yards or more from the mower. Ensure that once the bolts are tight, the blades are able to pivot freely with the double pivot ring. This is imperative to not cause damage to the mower.

In order for the mower to work properly, and to always obtain a precision cut with lower HP requirements thus keeping cost down, proper blade maintenance is important. Blades must be kept sharp, at their original length and corners maintained. A blade must be replaced if, due to wear or damage, its original shape has been distorted.

Installing or removing blades

If the mower blades need to be installed, do the following (see fig. 17):

1. Loosen and remove the lock nuts.
2. Remove the double pivot ring bolt.
3. Remove the worn blades and double pivot ring from the blade carrier welded onto the rotor. Replace with new blades and possibly a new double pivot ring.
4. Ensure the cutting edge of the blades is the leading edge in the direction of rotation.
5. Replace the bolt and torque the nut to 95 N.m. (70 lb.ft).

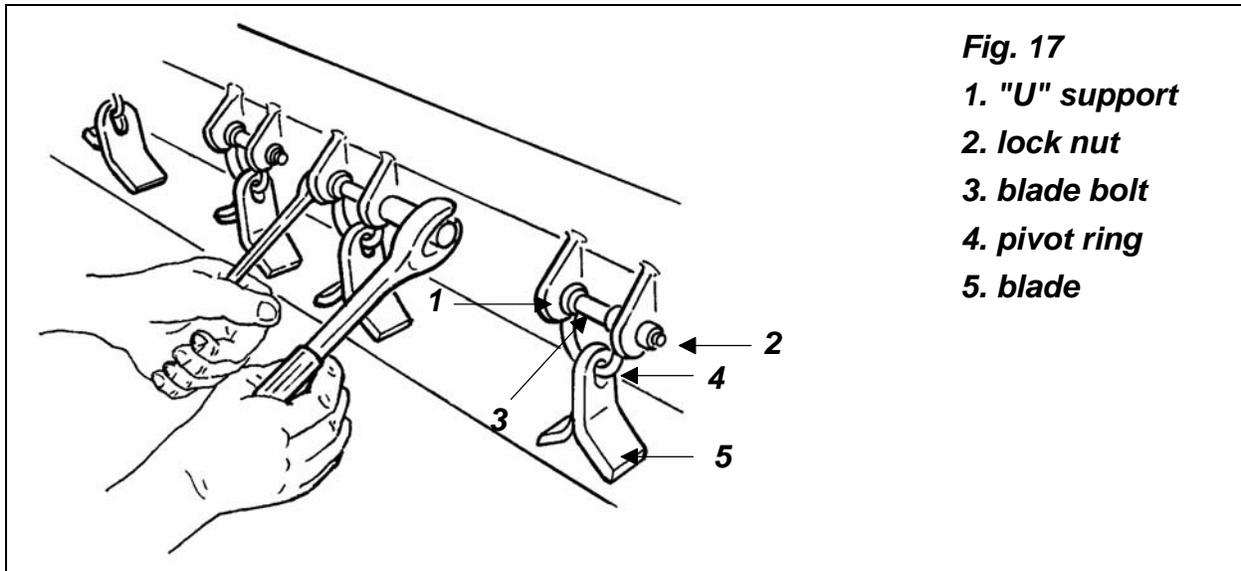


Fig. 17

1. "U" support
2. lock nut
3. blade bolt
4. pivot ring
5. blade

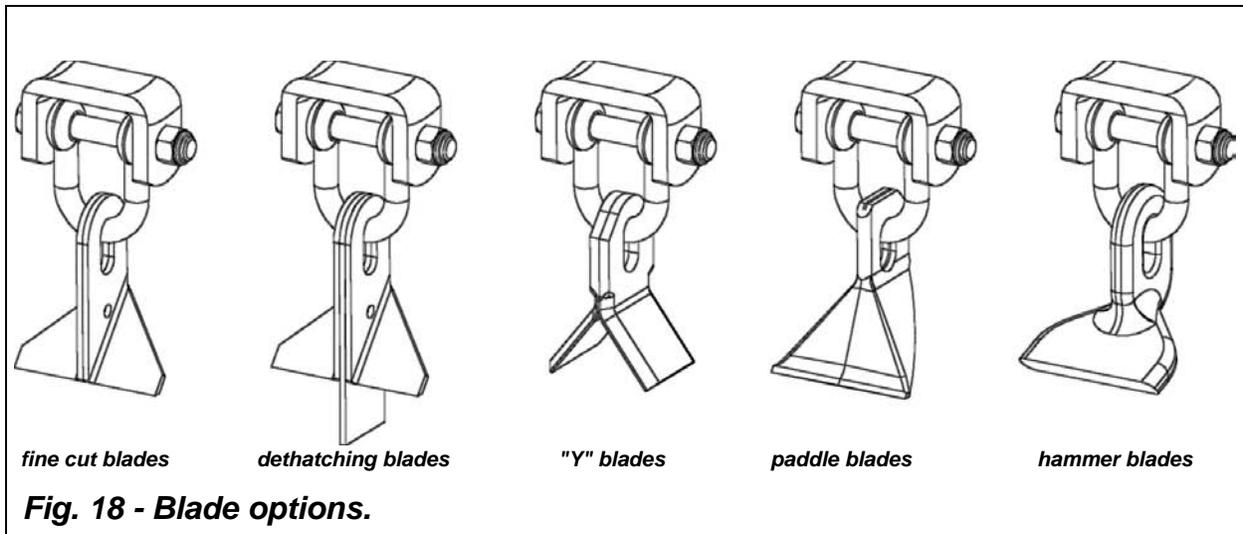


WARNING: To avoid possible injury always wear proper eye and hand protection when servicing mower blade.

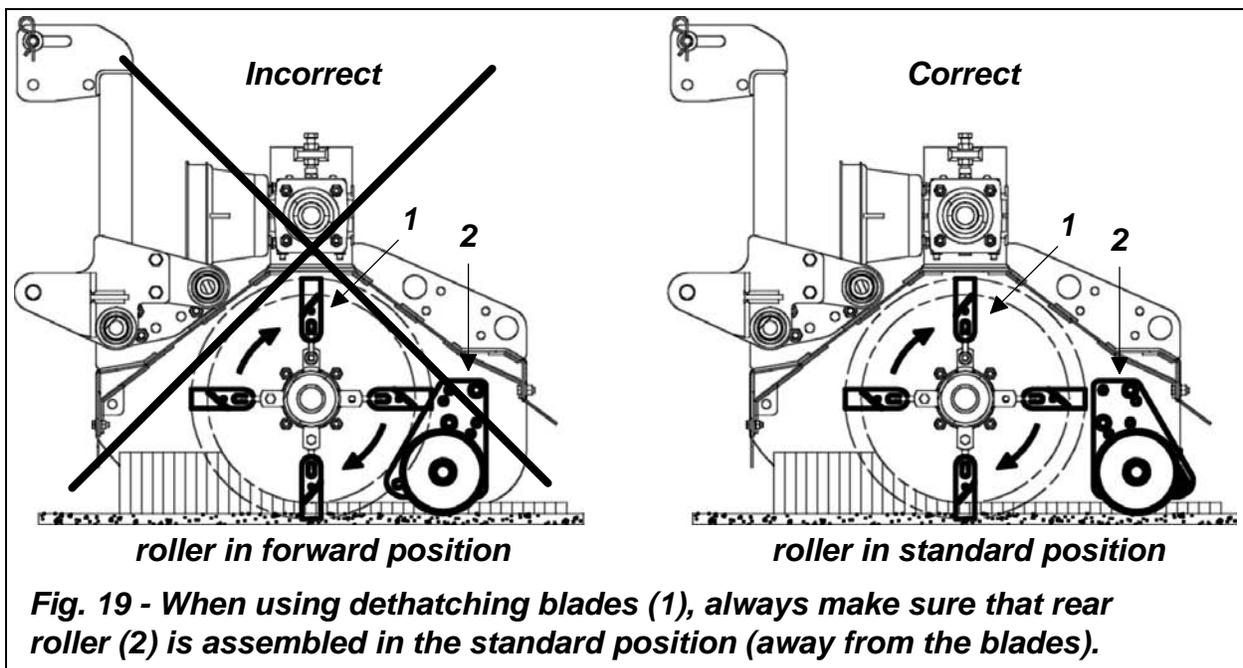
4.04 - Blade Options

An array of cutting blades is available for your specific needs (see fig. 18). Every blade is mounted on a double pivot ring that helps prevent blade breakage.

Fine cut blades offer the best result when mowing sports fields or well-kept yards. Reversible "Y" blades offer for a good compromise when mowing in public parks and other municipal applications where mowing is less frequent. Paddle blades offer good results when mowing both grass and small diameter branches and allow a better expulsion of the flailed product. Hammer type blades are ideal for heavier mowing conditions, when mowing small stalks or when mowing over the prunings in vineyards and orchards. Also available is a straight "dethatching" blade which is used in unison with either the "fine cut" blade or the "Y" blade. This blade cuts into grass roots and brings the dead thatch to the top.



WARNING: Dethatching blades cannot be used when the height adjustment rear roller is assembled in the forward position (see fig. 19). When using dethatching blades operator must use the height adjustment roller in the standard position with the roller mounted away from the blades. Mounting roller in the forward position with dethatching blades installed will cause impact of the blades against the roller.



WARNING: Dethatching blades cannot be used in conjunction with the optional front steel deflectors (see fig. 13). Using dethatching blades with front steel deflectors installed will cause impact of the blades against the deflectors (see fig. 20).

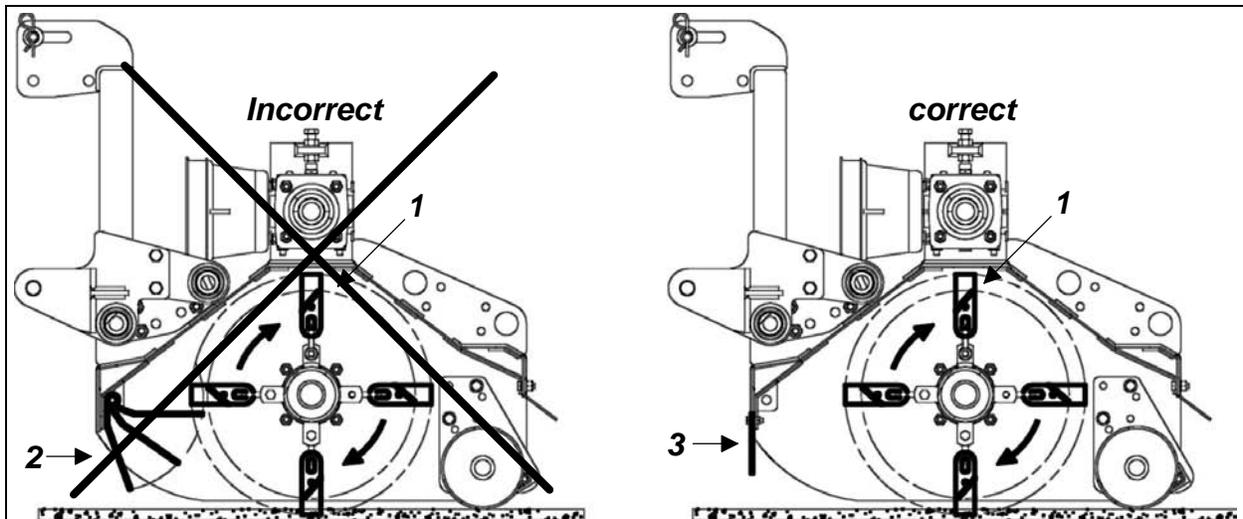


Fig. 20 - Dethatching blades (1) cannot be used with optional front steel deflectors (2). Use only the standard front rubber strip (3) when unit is equipped with dethatching blades.



WARNING: When a unit is equipped with hammer blades and roller is in the forward position; specific predisposed holes (see fig. 21) must be used to mow at the lowest cutting height (3/4") to avoid collision of blades against the roller.

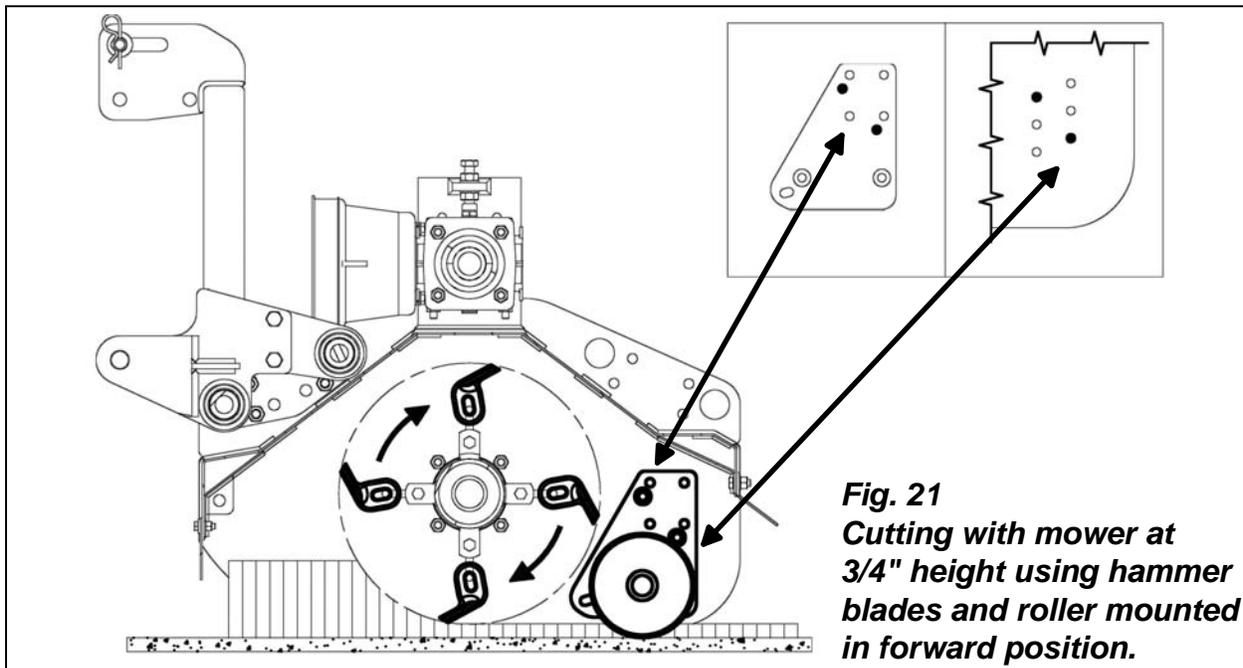
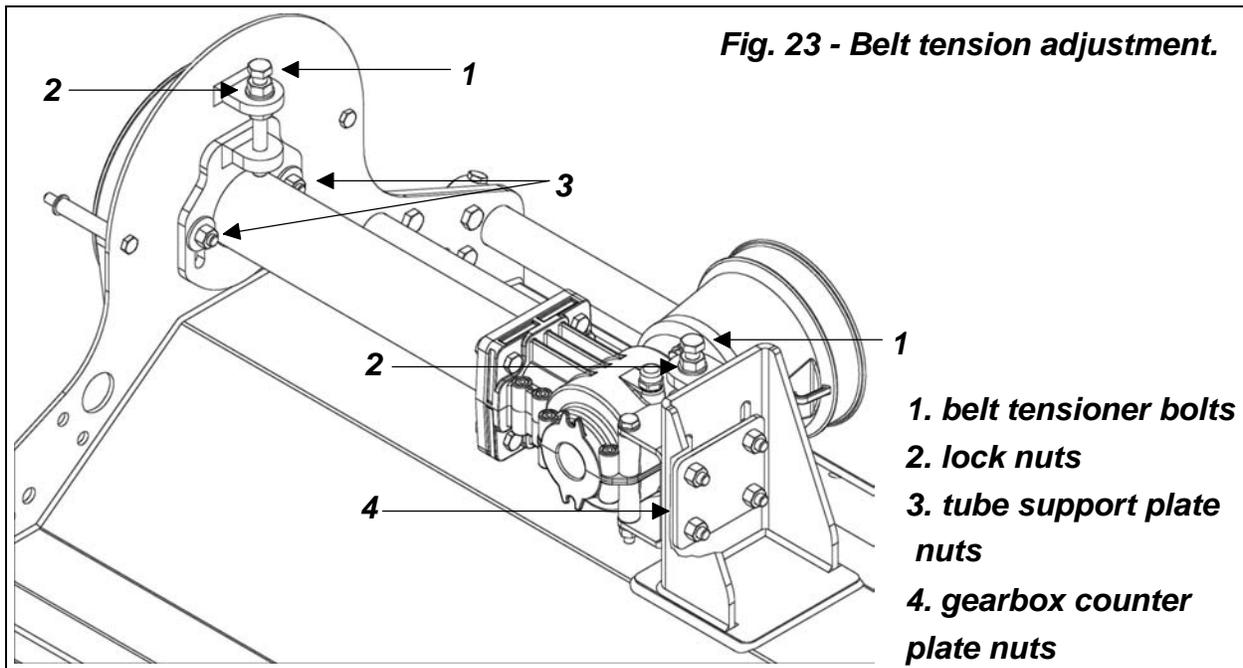
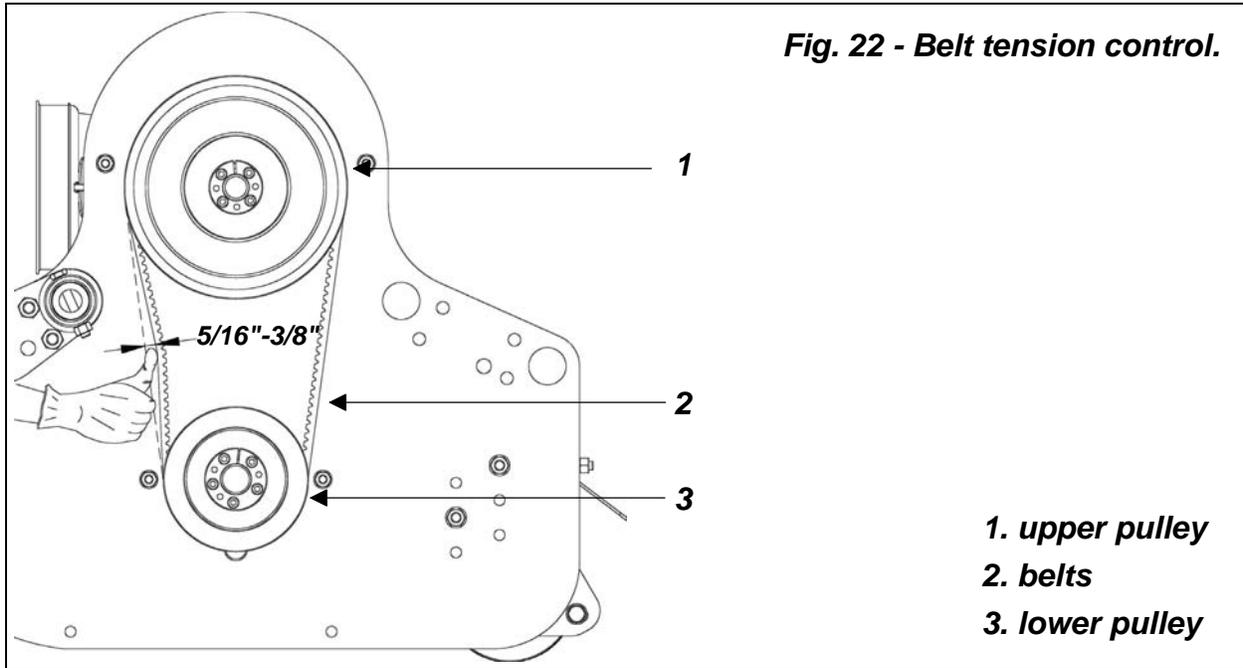


Fig. 21
Cutting with mower at 3/4" height using hammer blades and roller mounted in forward position.

4.05 - Belt Tension

Belt tension control

Check the belt tension by applying a force of 12-15 lb. pushing against the belt halfway between the pulleys. The belt deflection should be between 5/16" - 3/8" (see fig. 22).



Belt tension adjustment

To adjust the tension do the following:

The H40-S flail mower is equipped with a double belt side transmission and a manually loaded belt tensioner. To adjust the belt tension, loosen the nuts securing the tube support plate (**see #3, fig. 23**) and the gearbox counter plate (**see #4, fig. 23**). Loosen both the lock nut over the gearbox and the one by the belt driven transmission (**see #2, fig. 23**). Tighten the belt tensioner bolts (**see #1, fig. 23**) until obtaining the correct belt deflection (**see fig. 22**). When the belt deflection is between 5/16" and 3/8", tighten the nuts on the gearbox counter plate (**see #4, fig. 23**) and on the tube support plate (**see #3, fig. 23**), use a straight edge to make sure that you maintain correct pulley alignment between the upper and lower pulley (**see fig. 24**). When the gearbox counter plate nuts and the tube support plate nuts are secured, release any tension from the belt tensioners bolts (**see #1, fig. 23**) by loosening them by half a turn, then secure them using the lock nuts (**see #2, fig. 23**).

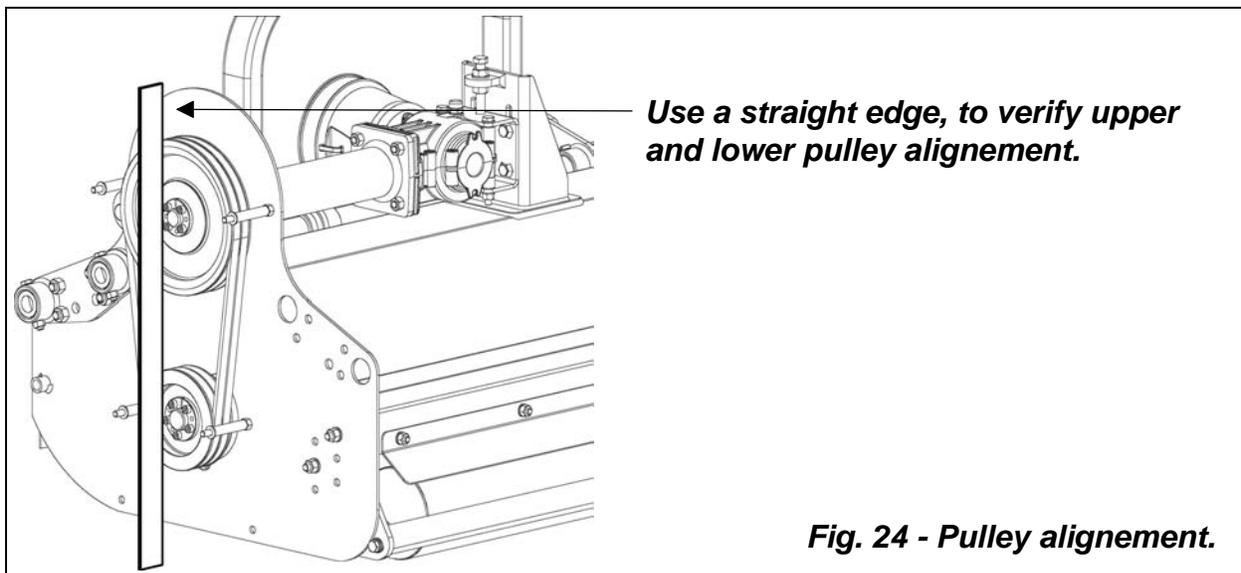


Fig. 24 - Pulley alignment.

4.06 - Belt Replacement

If the belts have stretched or damaged to the point where the proper tension cannot be obtained they must be changed. Both belts must be replaced at the same time.

To replace the belts do the following:

1. With the mower stopped and, if possible supported by stands, remove the belt shield. Clean the belts, pulleys, and shield of grass, dust and dirt.
2. Release tension from the belts by loosening the tube support plate nuts (**see #3, fig. 23**) and gearbox counter plate nuts (**see #4, fig. 23**).
3. Loosen locknuts (**see #2, fig. 23**).
4. Loosen belt tensioner bolts (**see #1, fig. 23**) to release any remaining tension on belts.
5. Remove the old belts and replace them with the new belts using a screwdriver if needed.

6. Tighten belt tensioner bolts (**see #1, fig. 23**) to apply tension to the belts.
7. Ensure that the belts have a deflection that is between 5/16" and 3/8" (**see fig. 22**).
8. Secure belts by tightening tube support plate nuts (**see #3, fig. 23**) and gearbox counter plate nuts (**see #4, fig. 23**).
9. Release tension from the belt tensioner bolts (**see #1, fig. 23**) by loosening them a half turn.
10. Tighten locknuts (**see #2, fig. 23**).
11. Replace the belt shield.

4.07 - Reverse Gearbox Direction

The H40-S flail mower in its standard configuration is to be used with a tractor that has a PTO that turns clockwise (right turning).

Occasionally a tractor will have a counter-clock wise (left turning) PTO (this is more common when the tractor has a PTO in the front). In this case, in order to properly operate the flail mower, the direction of rotation of the H40 input shaft must be reversed to obtain a counterclockwise rotation.

To reverse the direction it is necessary to replace the input shaft with a counterclockwise input shaft and to move the ring gear to the other side of the input shaft. This operation entails opening the gearbox. We recommend this be done only at an Authorized Company Dealership.

Note: As an accessory the flail mower may come with a driveline equipped with an overrunning clutch. **IMPORTANT:** Always check the direction of rotation on the tractor's PTO to be sure it is the same as the overrunning clutch. If the tractor comes with a counterclockwise (left) turning PTO, the overrunning clutch mounted on the driveline must be replaced with a counterclockwise clutch.

4.08 - Reverse Rotor Direction

The flail mower is normally supplied with a clockwise rotor rotation in order to obtain an against the grain cut (**see fig. 3**). It is possible to reverse the direction of cut and obtain a counterclockwise rotation by replacing the input shaft with a counterclockwise shaft.

To reverse the direction do the following:

1. Remove the ring gear from the standard clockwise input shaft.
2. Replace standard input shaft with a counterclockwise shaft.
3. Reassemble the ring gear to the other side of the newly replaced counterclockwise shaft.
4. Ensure that the blades are mounted correctly. Most blades are single edge and will need to be turned around in order to cut in the new direction.

This operation entails opening the drive transmission. We recommend this be done only at an Authorized Company Dealership.

4.09 - Driveline

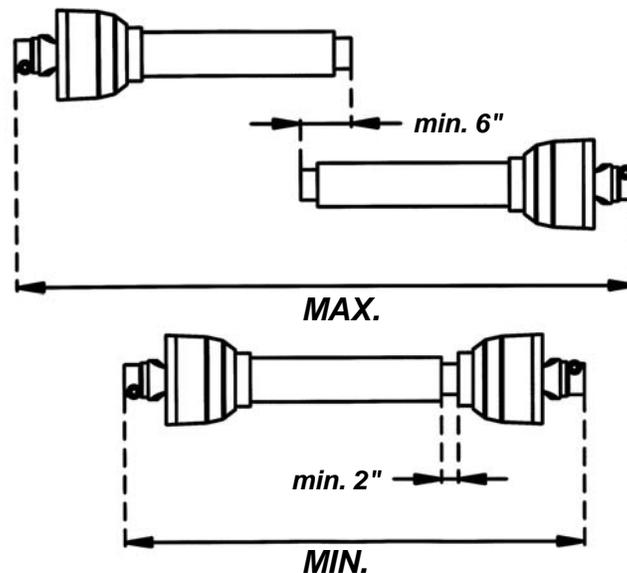


DANGER: Only use the original driveline supplied with this mower and always with the safety shielding.

Carefully read and file away the driveline operator's manual supplied by the manufacturer. The following does not substitute the information found in the driveline manual.

IMPORTANT: Always check driveline length during initial setup and when connecting to a different tractor.

Fig. 25



In the collapsed position the driveline should be approximately 2" from bottoming out to prevent possible damage to the tractor or implement. When the driveline is in the maximum extended position, the ideal minimum overlap of the two halves should be approximately 6" (see fig. 25).

If determined that the driveline is too long, follow these procedures to adjust the length:

1. Separate the two driveline halves. Connect one half to the tractor PTO and the other half to the mower.
2. Raise and lower the mower with the 3 point hitch to find the position where the driveline is shortest. Hold the half shafts side by side and mark the desired length on the outer female tube guard leaving a 1½" gap between the end of the guard tube and bell guard.
3. Cut off both guard tubes the same amount as marked in step 2.
4. Shorten both drive tubes the same amount as guard tubes.
5. De-burr and clean filings from drive tubes and apply grease to outside of inner telescoping tube.

6. Reassemble the driveline halves and connect to tractor and mower. Raise and lower mower again to be sure driveline does not bottom out in its shortest position and has a minimum overlap of 6" in the longest position.
7. Install both driveline safety chains. One should be hooked in a hole on the outer driveline yoke shield and to the tractor to restrict outer shield rotation. The second one should be hooked in a hole on the inner driveline yoke shield and to the implement to restrict inner shield rotation.

If determined that the driveline is too short for your tractor, contact your local dealer.



CAUTION: Always work with the driveline as straight as possible. This will prolong its life and that of its components. It is advised not to work at an angle greater than 15 degrees

TABLE 1 - TORQUE SPECIFICATIONS

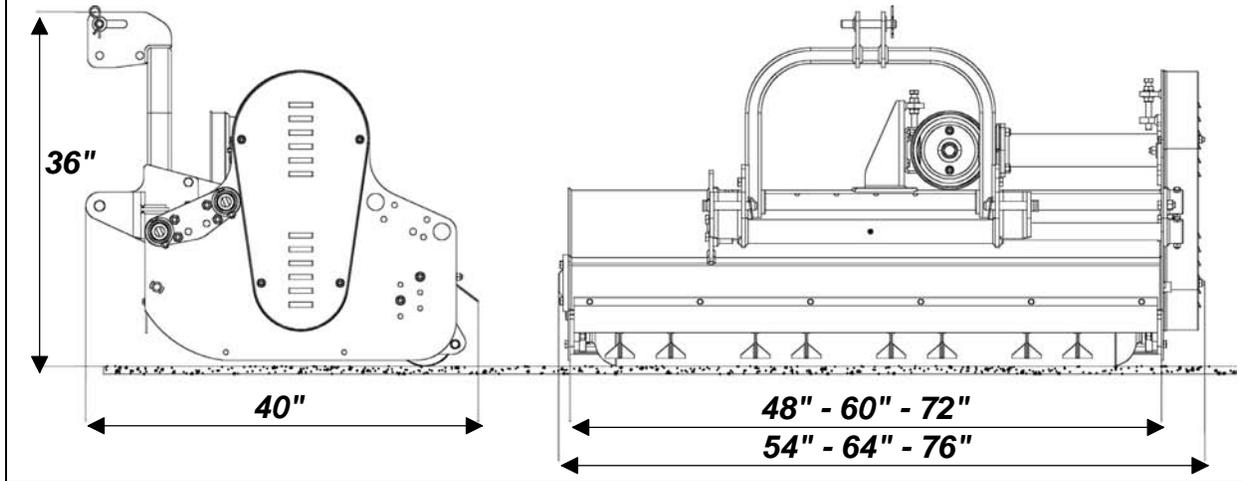
Metric (ISO) treaded bolts head marking							Inch (SAE) treaded bolts head marking								
	Class 5.8		Class 8.8		Class 10.9			Grade 2		Grade 5		Grade 8			
Bolt size mm	Thread mm	N.m	ft-lb	N.m	ft-lb	N.m	ft-lb	Bolt size inch	Thread inch tpi	N.m	ft-lb	N.m	ft-lb	N.m	ft-lb
M5	0.8	4	3	6	4	9	7	1/4"	20	7	5	11	8	16	12
M6	1	6	4	10	7	15	11	1/4"	28	8	6	13	10	19	14
M8	1.25	16	12	25	18	36	27	5/16"	18	15	11	24	17	33	25
M8	1	17	13	26	19	38	28	5/16"	24	17	13	26	19	37	27
M10	1.5	31	23	48	35	71	52	3/8"	16	27	20	42	31	59	44
M10	1.25	33	24	51	38	75	55	3/8"	24	31	23	47	35	67	49
M10	1	35	26	53	39	78	58	7/16"	14	43	32	67	49	95	70
M12	1.75	54	40	84	62	123	91	7/16"	20	48	36	75	55	106	78
M12	1.5	56	41	87	64	128	94	1/2"	13	66	48	102	75	144	106
M12	1.25	59	44	90	66	133	98	1/2"	20	75	55	115	85	163	120
M14	2	84	62	133	98	195	144	9/16"	12	95	70	147	109	208	154
M14	1.5	94	69	142	105	209	154	9/16"	18	106	79	164	121	232	171
M16	2	131	97	206	152	302	223	5/8"	11	132	97	203	150	287	212
M16	1.5	141	104	218	161	320	236	5/8"	18	149	110	230	170	325	240
M18	2.5	181	133	295	218	421	310	3/4"	10	233	172	361	266	509	376
M18	2	196	145	311	229	443	327	3/4"	16	261	192	403	297	569	420
M18	1.5	203	150	327	241	465	343	7/8"	9	226	167	582	430	822	606
M20	2.5	256	189	415	306	592	437	7/8"	14	249	184	642	473	906	668
M20	1.5	288	212	454	335	646	476	1"	8	339	250	873	644	1232	909
M22	2.5	344	254	567	418	807	595	1"	12	371	273	955	704	1348	995
M22	1.5	381	281	613	452	873	644	1-1/8"	7	480	354	1077	794	1746	1288
M24	3	444	327	714	526	1017	750	1-1/8"	12	539	397	1208	891	1958	1445
M24	2	488	360	769	567	1095	808	1-1/4"	7	677	500	1519	1120	2463	1817
M27	3	656	484	1050	774	1496	1103	1-1/4"	12	750	553	1682	1241	2728	2012
M27	2	719	530	1119	825	1594	1176	1-3/8"	6	888	655	1992	1469	3230	2382
M30	3.5	906	668	1420	1047	2033	1499	1-3/8"	12	1011	746	2268	1673	3677	2712
M30	2	1000	738	1600	1180	2250	1659	1-1/2"	6	1179	869	2643	1949	4286	3161
M36	4	1534	1131	2482	1830	3535	2607	1-1/2"	12	1326	978	2974	2194	4823	3557

When using lock washers with nuts, increase torque values by 5%.

TABLE 2 - HURRICANE H40-S FLAIL MOWER - TECHNICAL FEATURES

Series H40-S, for tractors up to 40 HP, PTO 540 rpm, 3 point hitch cat. 1										
Model	HP	Working width	Overall width	Weight lb.	Rotor rpm/min	Blades tip speed ft/min	# Blades	Cutting height	# Belts & Type	Driveline 1 3/8"
H40-S48	16-40	48"	54"	552	2278	8858	48	3/4" - 2 3/8"	2 SPBX	ASAE 3 rd cat
H40-S60	20-40	60"	64"	624	2278	8858	64	3/4" - 2 3/8"	2 SPBX	ASAE 3 rd cat
H40-S72	25-40	72"	76"	697	2278	8858	76	3/4" - 2 3/8"	2 SPBX	ASAE 3 rd cat

Table 3 - Overall dimensions.



5 - REPAIR PROCEDURES



CAUTION: All repair procedures must be done by authorized dealerships. It is not recommended that untrained individuals perform any repair work. The following operations are detailed for qualified personnel only.

5.01 - Gearbox

To remove the gearbox from the frame do the following:

1. Release belt tension on the pulleys by loosening the tube support plate nuts and gearbox counter plate nuts, unscrew lock nuts then unscrew belt tensioner bolts **(see fig. 23)**¹⁴.
2. Remove the belts¹⁵.
3. Unbolt the bolts holding the gearbox to the support plate on the frame.
4. Loosen the split lock bushing on the upper pulley then remove the pulley.
5. Slide the gearbox and driveshaft assembly out of the frame.
6. Unbolt the nuts which hold the gearbox to the drive shaft tube.

If it is necessary to replace any part on the inside of the gearbox, it is important to replace oil seals or gaskets to ensure a tight fit when reassembling.

To replace the gearbox, follow the above instructions in reverse order.

5.02 - Rotor Shaft

To remove the rotor do the following:

1. Release belt tension on the pulleys by loosening the tube support plate nuts and gearbox counter plate nuts, unscrew lock nuts then unscrew belt tensioner bolts **(see fig. 23)**¹⁶.
2. Remove the belts¹⁷.
3. Remove the pulley from the left side of the rotor.
4. Back off the bearing set screw in the rotor support.
5. Unbolt the bolts that attach the rotor support to the frame.
6. Remove the rotor supports.
7. Slide the rotor from the right side panel and then from the left side.

To replace the rotor, follow the above instructions in reverse order.

¹⁴ See Section 4.05 - Belt Tension.

¹⁵ See Section 4.06 - Belt Replacement.

¹⁶ See Section 4.05 - Belt Tension.

¹⁷ See Section 4.06 - Belt Replacement.

5.03 - Suggested Spare Parts

It is suggested that the following spare parts be kept on hand for the mower at all times to prevent a minor problem from delaying work.

Description	Quantity
Blades	1 set
Blade bolts and nuts	1 set
Double pivot ring	1 set
Belts	2

5.04 - Storage

After seasonal use it is important to perform the following for prolonged storage:

1. Wash the mower carefully.
2. Inspect the mower and replace worn or damaged parts.
3. Tighten all hardware.
4. Grease all areas indicated under Maintenance¹⁸.
5. Loosen the belts if the mower is to be stored for an extended length of time.
6. Touch up scratches by sanding the area and applying a light coat of primer and paint to prevent rust from forming.
7. Cover the mower from the elements in order to have it in perfect condition for the start of the next season.
8. Make sure all parked machines are on a hard, level surface, and engage all safety devices.
9. Do not permit children to play on or around the stored unit.

Touch up paint available:	
Part #	Description
7300007	Primer, gray - aerosol spray can
7300008	Paint, Befco orange - aerosol spray can
7300010	Paint, Befco black - aerosol spray can



WARNING: Be sure to store the implement on a hard level surface and away from people especially children.

Note: The machine demolition operations should be carried out in compliance with all federal, state and local environment protection laws.

¹⁸ See Chapter 4 - Maintenance.

6 - TROUBLESHOOTING



WARNING: Be sure tractor engine is off, parking brake is locked, and key is removed before making any adjustments.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Uneven cutting.	Machine not parallel to the ground. Blades are worn or bent. Loose belts.	Roller is not in the same adjustment hole pattern. The tractor lift arms are not lifting equally. Change blades. Adjust belt tension.
Grass not cut and/or bent over.	Wrappings around rotor. Wet grass. Grass too high. Tractor rpm too slow.	Remove wrappings. Allow grass to dry. Raise mower, shift to lower gear, make two passes over grass. Mow grass high 1 st . pass, 2 nd . pass cut to desired height. Increase tractor rpm, check engine and PTO speeds.
Belts squeal.	Belts slipping due to loose belts. Belts slipping due to high grass.	Tighten belts. Raise mower, shift to lower gear, make two passes over grass. Mow grass high 1 st . pass, 2 nd . pass cut to desired height.
Excessive blade wear.	The cutting height is too low.	Raise the cutting height.
Mower vibrates.	Worn, broken or bent blades. Mower not running at proper PTO speed. Object wrapped around rotor. Rotor out of balance.	Replace blades. Set tractor throttle for 540 rpm. Remove object. Balance rotor.
Noisy mower.	Loose components. Excessive rpm. Low oil in gearbox.	Tighten hardware. Back off tractor rpm to 540. Fill to proper level.
Striping or windrowing.	Worn, broken or bent blades. Grass not being picked up after tractor tires tracks. Mower not running at rated PTO rpm. Mower not level. Wrapping or material buildup.	Replace blades. Grass is too high. Cut in two passes at a slower ground speed. Set tractor throttle for 540 rpm. Level mower with tractor hitch arms. Clean rotor.
Oil blowing out of gearbox breather cap.	Gearbox overfilled.	Use a siphon pump to drain excess oil out of gearbox.

7 - PRE-DELIVERY CHECKLIST

To the dealer: Inspect the machine thoroughly after assembly to assure it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

- Gearbox oil level.
- Guards and shield properly fastened.
- Lubrication of grease fittings.
- All hardware properly tightened.
- All decals properly located and readable (**see fig. 2**).
- Blades properly installed, blade bolts and nuts tightened.
- Overall condition (touch up scratches, clean and polish).
- Test run, check for excessive vibration or overheating of bearings.
- Operator's Manual.

Review the Operator's Manual with the customer. Explain the following:

- Warranty.
- Safe operation and service.
- Correct machine installation and operation.
- Daily and periodic lubrication, maintenance and inspections.
- Troubleshooting.
- Operational procedures and storage.
- Parts and service.
- Fill out the Pre-Delivery Checklist and Warranty Registration form.
- Give customer the Operator's Manual and encourage the customer to read the manual carefully.

IMPORTANT: Warranty is not valid unless Pre-Delivery Checklist and Warranty Registration form in Operator's Manual is completed in detail and mailed to the Company.

Model Number: _____

Serial Number: _____

Delivery Date: _____

Dealer's Signature: _____

8 - WARRANTY

BEFCO's responsibility will be limited to substitution of the acknowledged defective merchandise to the same place of delivery as the previous one was supplied.

1. LIMITED WARRANTY

BEFCO, Inc. herein referred to as the Company, warrants its machines and related accessories, hereafter referred to as the Machine, to be free from defects in material and workmanship, for a period of twelve (12) months from the date of invoice to the first registered owner; this limited warranty does not apply to common wear items and excludes belts, shear pins, oil, grease, tires, tubes, hydraulic hoses, knives and PTO shafts.

Labor will be reimbursed at \$40.00 per hour based on BEFCO's time schedule.

Cost of transport to the servicing dealer is the responsibility of the customer.

Warranty coverage shall not be transferable from the first owner to any subsequent owner.

2. DISCLAIMER OF ALL OTHER WARRANTIES AND REMEDIES

Neither the Company nor any company affiliated with the Company makes any warranties, representations or promises, expressed or implied, as to the quality, performance or application of its products other than those set forth herein and does not make any implied warranty of merchantability or fitness.

The only remedies the purchaser has in connection with the breach, or performance of any warranty on the Company's Machine are those set forth herein. In no event will the dealer, the Company, or any company affiliated with the Company, be liable for:

- a. Injuries or damages of any kind or nature, direct, consequential or contingent to person or property.
- b. Any expenses incurred by the owner to repair, replace or rework any allegedly defective item.
- c. Any loss, cost, forfeiture or damages (including loss of profits; loss of crops; loss because of delay in field operations; any expenses or loss incurred for labor, supplies, substitute machine rental; liabilities of the owner to its customers or third persons; and all other consequential damages, losses, liabilities or damages for any other reasons) whether direct or indirect, and whether or not resulting from or contributed to by the default or negligence of the Company, its agents, employees and subcontractors which might be claimed as a result of the use or failure of the equipment delivered.

The Company's liability based on this limited warranty or any other applicable laws shall be limited to replacement or refund of the purchase price of the product.

The limited warranty extended herein gives you specific rights and you may also have other rights which vary from state to state. Neither the dealer nor the Company personnel has the authority to make any representation or to modify the terms and limitations of this warranty in any way.

Other than the limited warranty extended hereby there is no other expressed warranty in connection with the design, safety or use of any of the Company's products except as to title. All implied warranties are expressly disclaimed pursuant to the terms of this warranty.

3. CUSTOM WORK

If the Machine is used for commercial purposes such as custom work, the period warranted for the Machine is limited to six (6) months from the date of delivery to the first registered owner and does not cover any labor charges incurred.

4. RENTAL

If the Machine is used for rental purposes the period warranted for the Machine is limited to thirty (30) days from the date of delivery to the first registered owner and does not cover any labor charges incurred.

5. REGISTRATION

In order to qualify for coverage on this limited warranty, the product and name of the original purchaser must be registered with the Company by a completed Machine Pre-Delivery Checklist and Warranty Registration along with a copy of the dealer's invoice to the first registered owner to the Company within fourteen (14) days after the date of delivery to the original purchaser.

6. WARRANTY SERVICE

Warranty Service must be performed by a dealer authorized by BEFCO. If the warranty service requested is approved, the owner shall pay only for labor beyond the rate allowed, for overtime labor, and for any mileage charge for transporting the equipment to and from the dealer's shop. It is assumed that the dealer has the appropriate general and special tools to service the Machine. Time required for replacement of knives, oil, grease and to remove excessive dirt from the Machine is not subject to reimbursement by the Company. The owner is required to clean the Machine before presenting it to the dealer for service work. The Machine must be delivered within thirty (30) days after failure date by the owner to the dealer to be eligible for warranty consideration.

7. UNAPPROVED SERVICE OR MODIFICATION

All obligations of the Company under this limited warranty shall be terminated if:

- a. Proper service and operation instructions as outlined in the Operator's Manual and on the instruction sticker on the Machine, are not followed.
- b. The Machine is modified or altered in any way not approved by the Company.
- c. The Company does not receive a copy of the dealer's invoice to the first registered owner within fourteen (14) days from the date of delivery.
- d. The Company has not been paid in full, by the dealer, for the Machine.

8. ACCIDENTS AND NORMAL MAINTENANCE

This limited warranty covers defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use. The costs of normal maintenance or repairs for accidents or improper use, and related labor will be borne by the owner.

9. REPLACEMENT PARTS

BEFCO, Inc. warrants replacement parts to be free from defect in material and workmanship for a period of thirty (30) days from the date of delivery to the original purchaser.

WARRANTY REGISTRATION

BEFCO, Inc.
P.O. Box 6036
Rocky Mount, NC 27802-6036

Tel: (252) 977.9920 - Fax: (252) 977.9718

Dealer _____ Acct. # _____	Retail Customer _____
Street _____ Country _____	Street _____
Town _____ State _____ Zip _____	Town _____ State _____ Zip _____
Date of delivery _____ Invoice # _____	Phone _____
Model # _____ Serial # _____	
<p>Pre-Delivery Checklist:</p> <p><input type="checkbox"/> Oil in gearbox.</p> <p><input type="checkbox"/> Greased fittings.</p> <p><input type="checkbox"/> Safety guards in place.</p> <p><input type="checkbox"/> All hardware tight.</p> <p><input type="checkbox"/> Bolts torqued correctly.</p> <p><input type="checkbox"/> Attached unit to tractor. Yes/No.</p> <p><input type="checkbox"/> Field adjusted. Yes/No.</p> <p><input type="checkbox"/> Test run. Dry/Infield.</p> <p><input type="checkbox"/> Safety decals.</p> <p><input type="checkbox"/> Operator's Manual.</p> <p>The machine described above, has been prepared for delivery according to the Pre-Delivery Checklist and the Customer has been instructed in its care and operation and the condition of warranty.</p>	<p>Tractor make: _____</p> <p>Model: _____; HP _____</p> <p>Type of operation: Private homeowner, Landscaping, Commercial maintenance, Golf Course, Municipality, Turf Farm, others: _____</p> <p>Approximate number of acres machine will be used on annually: _____</p> <p>I hereby acknowledge that: I have received and accepted delivery of the machine described. The equipment was checked thoroughly for loose or missing parts and has been adjusted in accordance with the Pre-Delivery Checklist. I have read and understand the nature and extent of the warranty and understand clearly that there were and are no other representations of warranties either expressed or implied, made by anyone. I have been advised on proper operation, maintenance and lubrication procedure of this equipment. I have been instructed on and do understand the application, limitation and capacities this equipment was designed and recommended for, all as described in the Operator's Manual and literature published by the Company.</p>
Inspected by: _____	
Date: _____	Date: _____
Dealer's Signature: _____	Customer's Signature: _____

This registration along with a copy of the invoice must be sent to BEFCO, Inc. within 14 days of date of purchase.

Sender:

Fold here

*Place stamp
here*

BEFCO, Inc.

Warranty Department

P.O. Box 6036

Rocky Mount, NC 27802-6036

Cut along this line



Use only original spare parts

All rights reserved. It is unlawful to copy, reprint or use any of the information or details in this manual without the expressed written permission of the Company. Technical information provided in this manual is approximate, the Company reserves the right to modify or improve the models shown for technical or commercial purposes. Pictures in this manual do not necessarily show the machine as delivered.

BEFCO[®]

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