

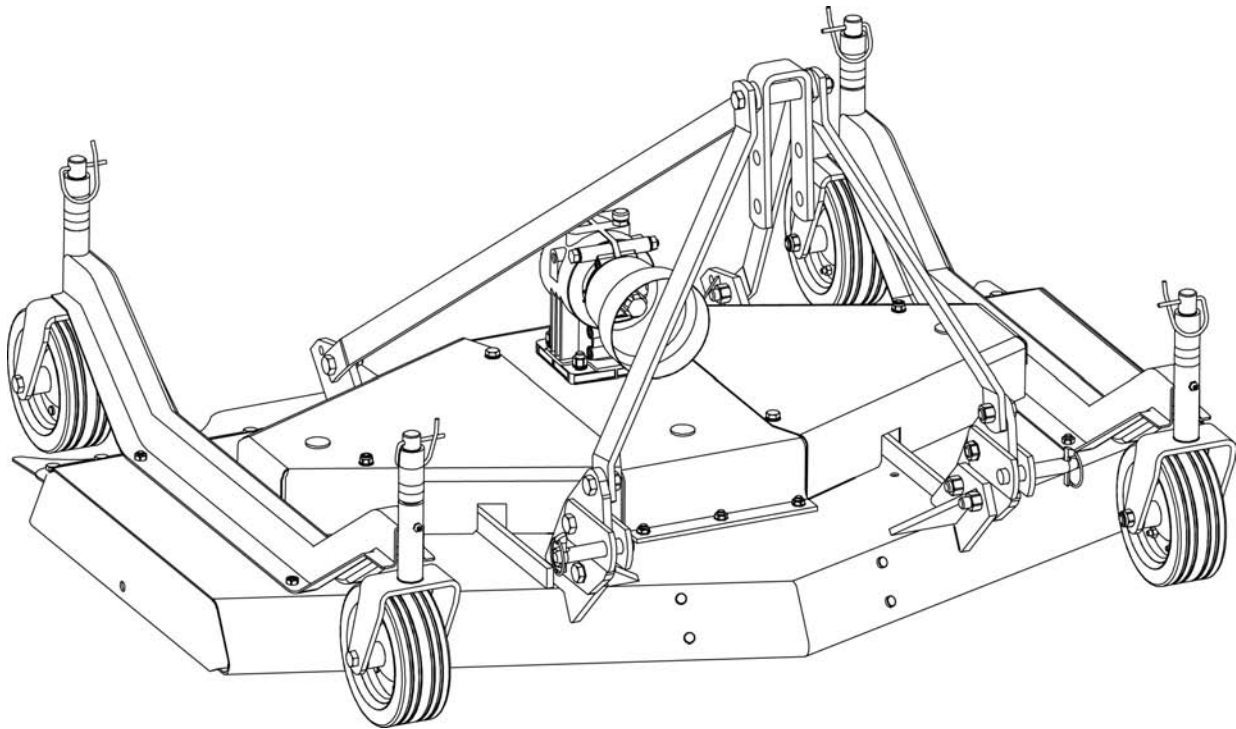
BEFCO[®]

Operator's Manual

CYCLONE

Three Spindle Grooming Mower

C30-RD4, C30-RD5, C30-RD6



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

Manual 971-173B

May 2018

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.

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1 - GENERAL INFORMATION

Thank you and congratulations for having chosen our implement. Your new grooming 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.

If you have purchased a special version of this implement to be coupled with tractors that have a PTO with counter clockwise rotation and/or tractors with a different PTO speed (1000 or 2000 rpm), please replace the instructions in this manual with the actual speed and direction of rotation of your implement.



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 insure that this has been done.

¹ See Chapter 8 - Warranty.

Warranty does not cover the following:

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

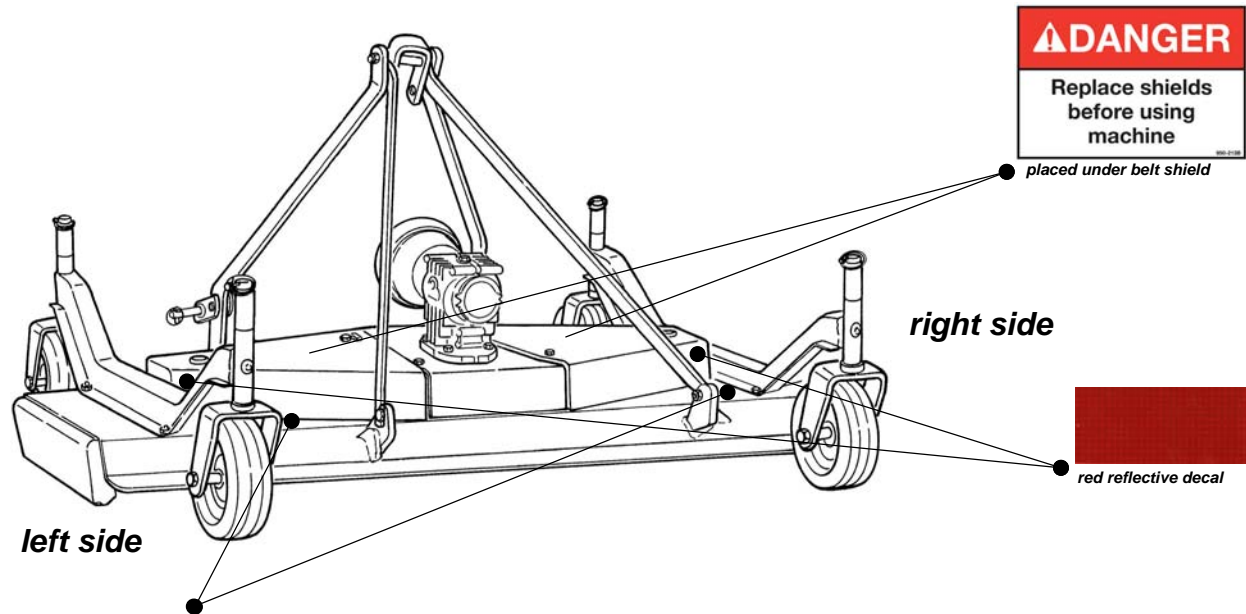
2.03 - Messages and Signs



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; replace immediately if damaged.



⚠ DANGER
Replace shields before using machine

placed under belt shield

right side



red reflective decal

left side

⚠ DANGER

Rotating blades and thrown objects

- Do not put hands or feet under or into mower when engine is running.
- Before mowing, clear area of objects that may be thrown by blades.
- Do not operate in vicinity of other persons.
- Keep guards in place and in good condition.

Blade contact or thrown objects can cause serious injury or death.

⚠ WARNING

Crushing and Pinching Hazard

- Be extremely careful handling various parts of the hitching mechanism. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

Failure to follow these instructions could result in serious injury or death.

⚠ WARNING

Falling off can result in being run over.

- Tractor must be equipped with ROPS (or ROPS CAB) and seat belt. Keep foldable ROPS system in "locked up" position at all times.
- Buckle up! Keep seat belt securely fastened.
- Allow no riders.

Raised equipment can drop and crush.

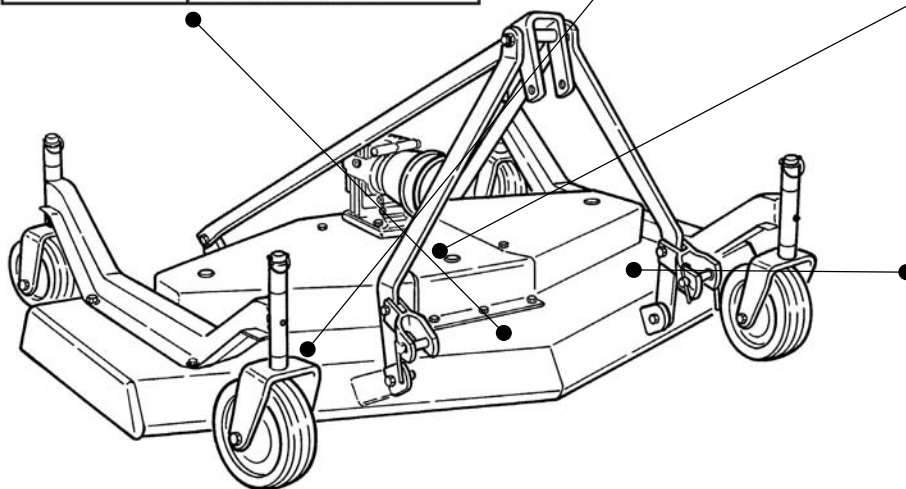
- Before working underneath, follow all instructions and safety rules in operator's manual and securely block all corners of equipment with jack stands.
- Securely blocking prevents equipment dropping from hydraulic leakdown, hydraulic system failures or mechanical component failures.

Falling off or failing to block securely can result in serious injury or death.

⚠ DANGER

Avoid injury from PTO

- Entanglement can cause serious injury or death.
- Keep driveline shields in place & in good condition.
- Keep hands, feet and clothing away.
- Operate only with 540 RPM.



⚠ CAUTION

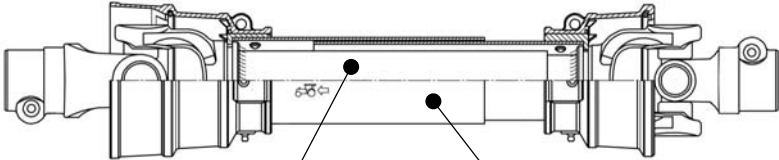
To avoid serious injury:

- Read Operator's Manual before operating, servicing or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer).
- Know location and function of controls.
- Keep all shields in place and in good condition.
- Stay clear of power driven parts.
- Never allow riders.
- Never allow children or untrained persons to operate equipment.
- Keep bystanders at a safe distance away from mower during operation.
- Before mowing, clear area of objects that may be thrown by blades.
- Use extra caution on uneven terrain. Decrease speed when turning.
- Tractor must be equipped with a Roll-Over-Protection-System (ROPS) and seatbelt.
- Keep foldable ROPS systems in the "locked up" position at all times.
- Keep seatbelt securely fastened.

Before dismantling or servicing

- Shut off engine and remove key.
- Lock parking brake.
- Wait for all movement to stop
- Lower or block up mower.

Safety decals - driveline; replace immediately if damaged.



placed on outer tube



placed on outer shield

3 - OPERATION

You have purchased a three spindle mower designed especially for the mowing of grassy areas where a highly professional cut is required without wasting time.

This mower is perfect for the maintenance of parks, private lawns, industrial parks, airports, hospital grounds, schools, highways, golf courses, sport complexes, etc. The C30 series, for tractors up to 30 HP, come in working widths of 4', 5' and 6'. The mower can be either tractor front or rear mounted. On your mower, the tractor PTO transmits its power through a driveline to a speed multiplier gearbox. A pulley is attached to the pinion gear shaft of the gearbox which, via high resistance belts, transmits power to pulleys coupled to the three individual spindle shafts. Blades are secured to these shafts which turn at a high blade tip speed to cut the grass.

Our C30 grooming mower comes equipped with 4 swivel wheels. Aside from regulating the cutting height, the wheels are set in such a way as to allow the mower to follow the contour of the terrain and give a precise level cut even in undulating conditions.

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 300 feet from a rotary mower. Only properly trained people should operate this machine.
4. 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 rotary mower.

5. 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.
6. 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.
7. Do not allow riders on the mower or tractor at any time. There is no safe place for riders.
8. Do not operate unless all personnel, livestock and pets are at least 300 feet away to prevent injury by thrown objects.
9. Before backing up, disengage the mower and look behind carefully.
10. Install and secure all guards and shields before starting or operating.
11. Keep hands, feet, hair and clothing away from moving parts.
12. This rotary mower is designed for use only on tractors with 540 rpm power take off.
13. 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.
14. 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.
15. Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened.
16. Stop mower immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.
17. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
18. 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.
19. 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.
20. 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!
21. Inspect the entire machine periodically². Look for loose fasteners, worn or broken parts, and leaky or loose fittings.
22. Use only the driveline supplied with the mower. Do not use it if it is missing any shield or safety protection.

² See Chapter 4 - Maintenance.

23. Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" tractor and mower.
24. Avoid sudden starts and stops while traveling up or downhill.
25. 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.

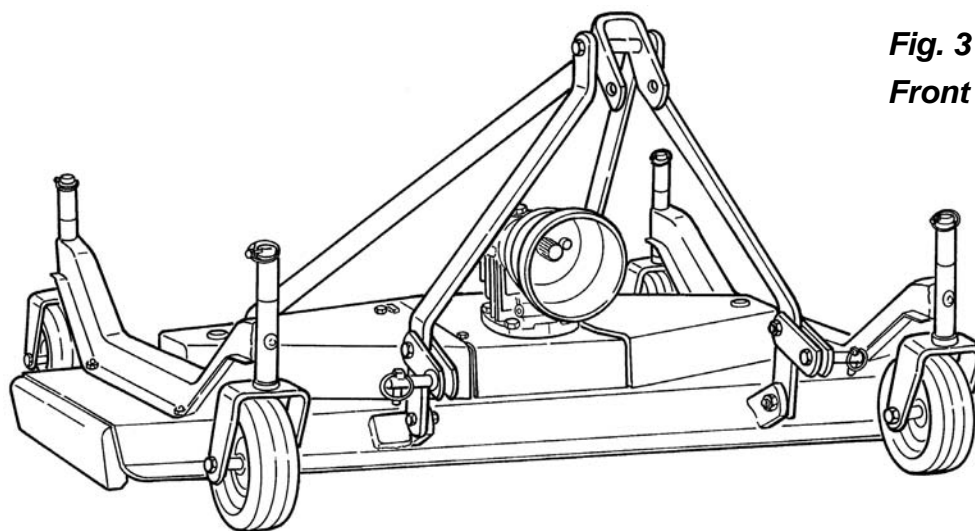
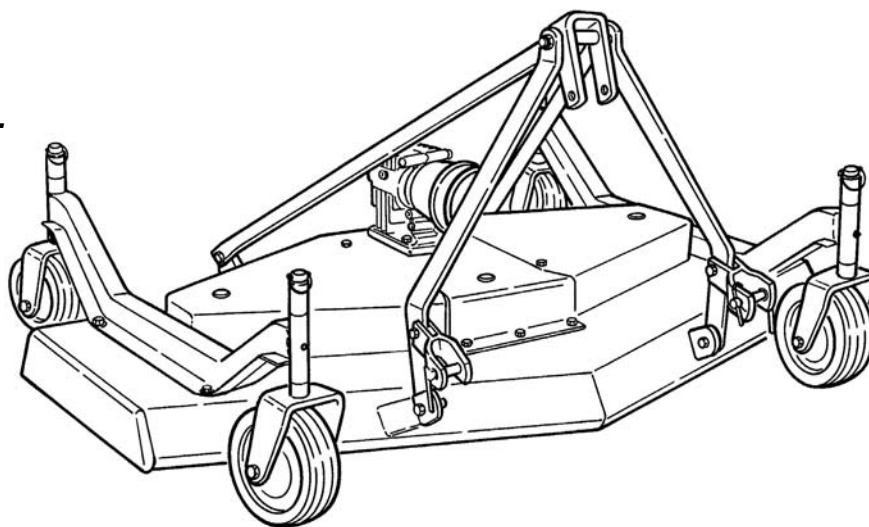


Fig. 3
Front mount mower.

Fig. 4
Rear mount mower.



³ See Chapter 7 - Pre-Delivery Checklist.

As mentioned above, all our grooming mowers may be either tractor front or rear mounted. Changing our mowers from front mount to rear, or vice versa, can be easily done at our authorized dealerships. This is accomplished by simply turning the three point hitch and the gearbox 180 degrees (see fig. 3 & 4).

3.03 - Assembly Instructions



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.

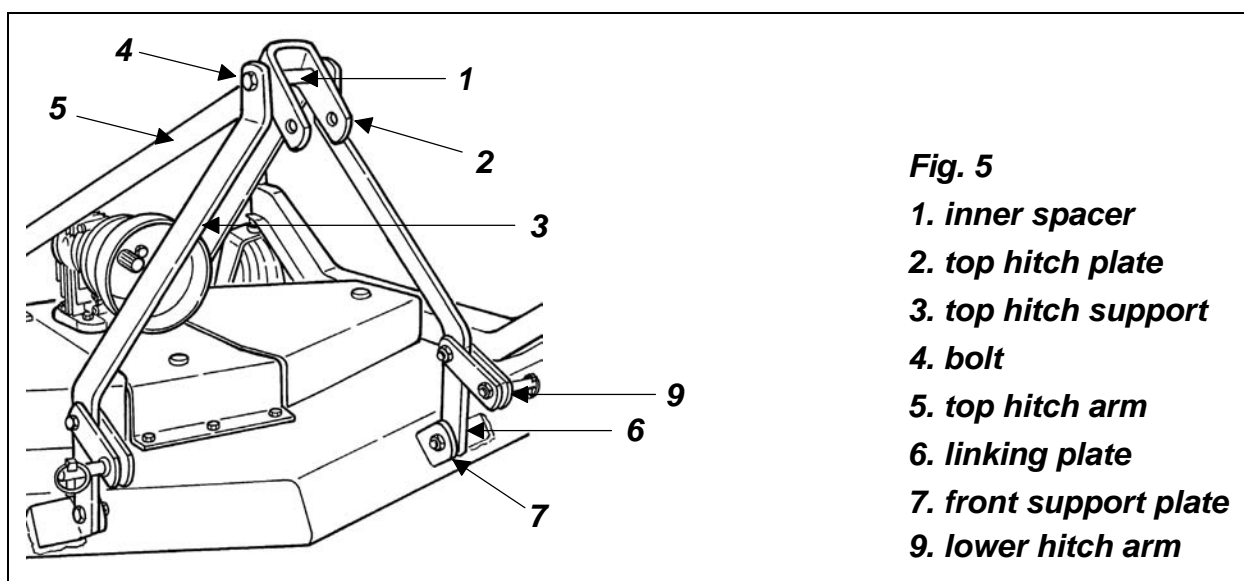


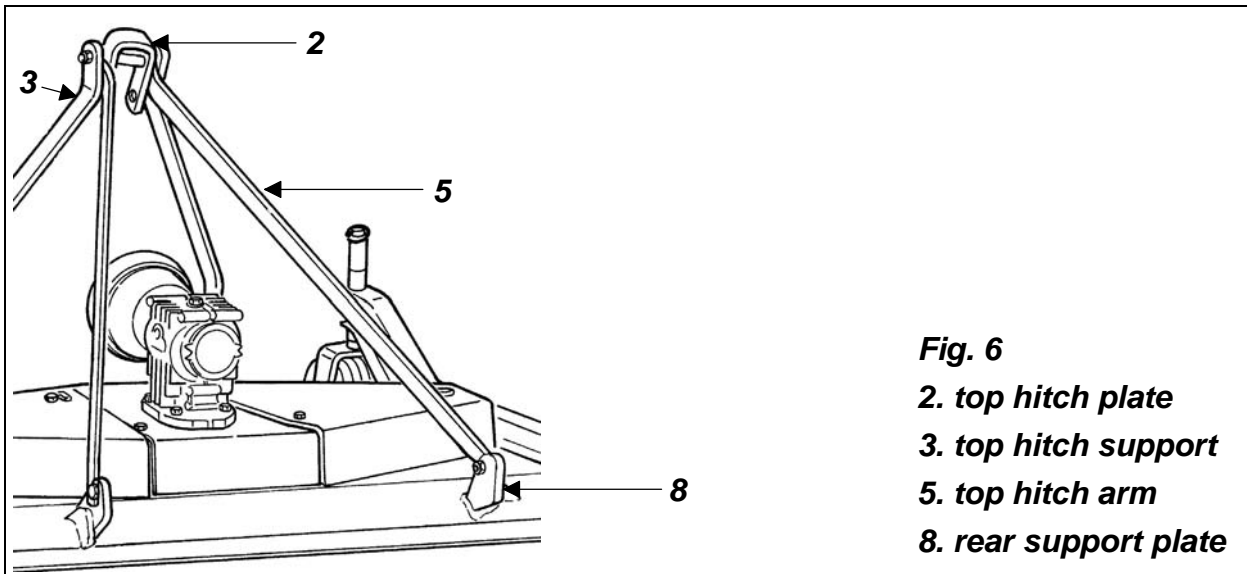
Fig. 5

- 1. inner spacer
- 2. top hitch plate
- 3. top hitch support
- 4. bolt
- 5. top hitch arm
- 6. linking plate
- 7. front support plate
- 9. lower hitch arm

To assemble the mower proceed as follows:

1. Unbolt the wheel arms and discard the mounting bracket.
2. Separate the wheel arms and remove the hardware bag secured between them.
3. **IMPORTANT: Remove the belt shields to inspect around the belt area and under the gearbox central plate to be sure the area is clear of packing material such as blocks of wood, paper, etc.**
4. Bolt the wheel arm assemblies to the mower deck with the flat washer and locknuts. There is no difference between left/right or front/rear. Be sure both assemblies are securely mounted.
5. Assemble each wheel to the yokes with one bolt M14x140 and one inner bushing. Tighten down snugly. The wheel should turn freely but have no side to side movement.
6. Replace the belt shields.
7. Bolt up the top hitch arms (see #5, fig. 5 & 6) to the **outside** of the rear support plates on the rear of the mower (see #8, fig. 6).

8. Bolt up the top hitch supports (see #3, fig. 5 & 6) to the **inside** of the linking plates (see #6, fig. 5) that are already bolted to the **outside** of the front support plates (see #7, fig. 5).
9. Bolt up the top hitch plate (see #2, fig. 5 & 6) with one bolt M16x140. It should be bolted as follows: Bolt, top hitch support, top hitch arm, top hitch plate, spacer, top hitch plate, top hitch arm, top hitch support, locknut. **Tighten the locknut down securely, the top hitch plate should be able to swivel 360°.**
10. Install the lower hitch arms (see #9, fig. 5) onto the top hitch supports. Tighten the bolts holding the lower hitch arms. Be sure they are able to swivel.
11. Grease wheel arms and spindles. Check the gearbox for oil. It should be approximately half full.
12. Install driveline and ensure it 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 4.06⁴** of this manual, if it is determined that the driveline is too long and needs to be shortened. Contact your local dealer if it is determined that the driveline is too short for your tractor.



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.

⁴ See Section 4.06 - Driveline, for instructions on how to determine correct driveline length and procedures for shortening the driveline.

The cutting height is the distance from the blades to the ground. The cutting height is adjusted by **moving the spacers on the wheel yokes**. Placing spacers between the wheel arm and the wheel yoke raises the cutting height by the size of the spacer. Removing the spacers, lowers it by the same height (**see fig. 7**).

Be sure all wheel arms are adjusted equally. This is the only way to ensure a completely uniform cut.

IMPORTANT: Very low cutting heights should be avoided. Damaging shock loads occur when the blades strike the ground repeatedly. This can cause damage to the mower.

Cutting lower than 2" under most circumstances should be avoided.

The cutting height is adjustable from 1" to 4".

A front anti-scalp roller is also available upon request. This accessory is particularly helpful when cutting over uneven terrain.

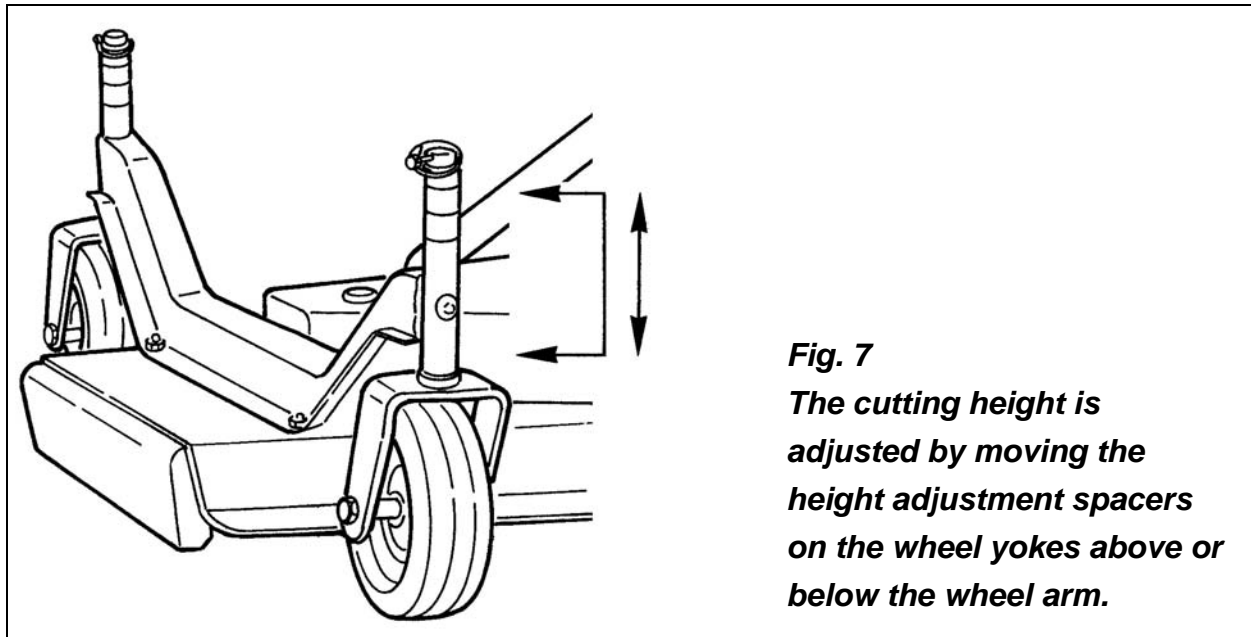


Fig. 7
The cutting height is adjusted by moving the height adjustment spacers on the wheel yokes above or below the wheel arm.

3.05 - Pre-Operational Check

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

1. The spindle bearings have been greased.
2. The belts for proper tension.
3. The oil level in gearbox. Using a flashlight, check inside the gearbox to verify that it's approximately half full.
4. The driveline cross and bearings have been greased.
5. No wrappings or foreign objects are around the blades, belts or driveline.

6. The blades are properly installed and the blade bolts properly torqued⁵.
7. All hardware is tight.
8. The tractor, to ensure correct direction of PTO and rpm speed.
9. All safety shields and guards are in place and tightly attached.
10. No people or animals are in the work area.
11. When working, make sure the tractor hitch is in the "float" position, in order to allow the mower to follow the contour of the ground.



DANGER: Stay clear of rotating driveline. Entanglement in rotating driveline can cause serious injury. Disengage PTO, 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.

3.06 - Attaching to the Tractor

Unit may be used on tractors ranging from 16 to 30 HP equipped with a standard PTO and category 1 three point hitch⁶. **Never use this mower with tractors over 30 HP.**



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



CAUTION: Always ensure that the tractor tire pressure is correct according to the tractor operator's manual.



DANGER: Failure to ensure a secure coupling of the implement to the tractor can cause injury and damage to the implement or tractor.

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 welded to 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 to follow the ground contour and yet remain as level as possible when raised to transport position.

⁵ See Table 1, page 32.

⁶ See Table 2, page 32.

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.

3.07 - 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. With the engine idling, slowly engage the PTO drive. Move the throttle lever until the PTO speed indicated on the mower is obtained.

The mower is 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 starting⁷.
7. Checking to ensure that the cutting edge is the leading edge of the blade⁸.
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.

⁷ See Section 4.03 - Blade Maintenance.

⁸ See Section 4.03 - Blade Maintenance.

10. Checking the tractor tires for the proper pressure in accordance with the tractor operator's manual.
- 11. Checking that the PTO shield, belt shields 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 implements 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.

3.08 - 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 3 to 8 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.

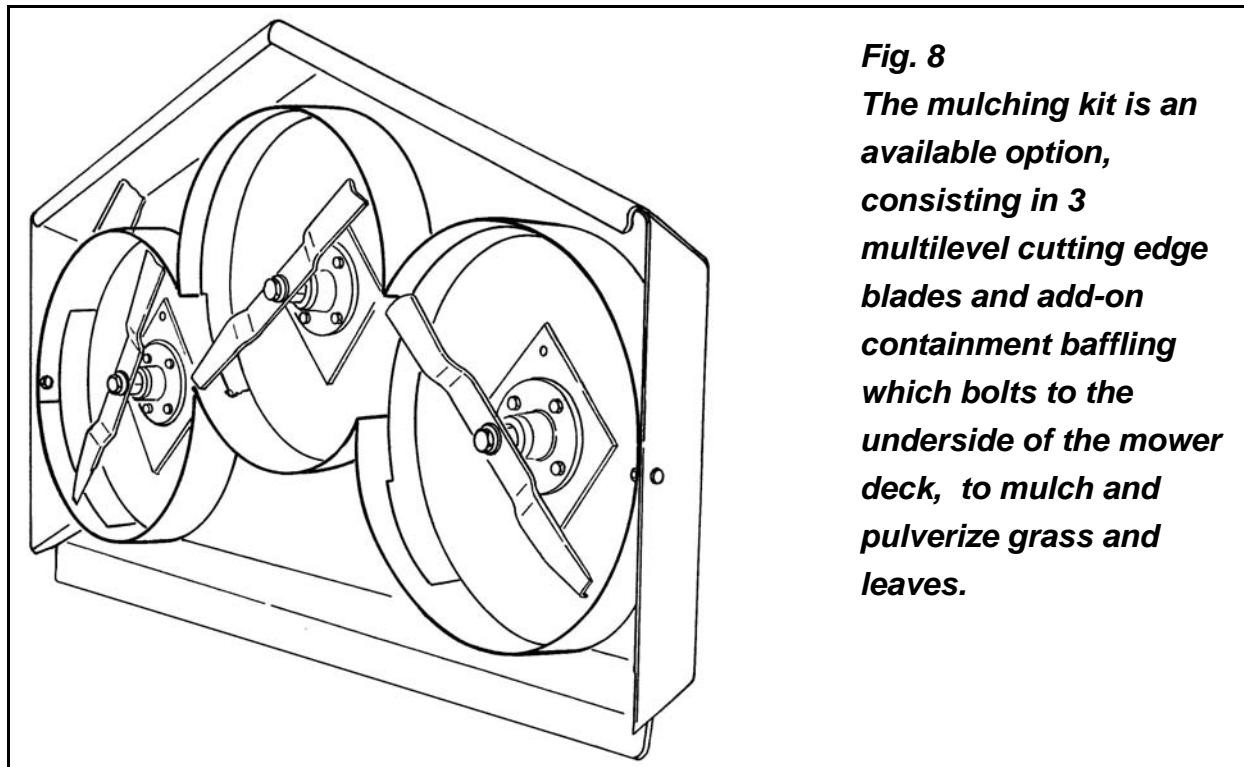


Fig. 8
The mulching kit is an available option, consisting in 3 multilevel cutting edge blades and add-on containment baffling which bolts to the underside of the mower deck, to mulch and pulverize grass and leaves.

The mulching kit is an option available for our mowers. This kit, containing 3 multilevel cutting edge blades and add-on containment baffling which bolts to the underside of the mower deck, mulches and pulverizes grass and leaves.

Another benefit of the mulching kit is safety. In fact, the kit greatly reduces the possibility of thrown objects. This is particularly important when mowing around schools, public parks and golf courses.

If you are using a **mulching kit**, you need to reduce your ground speed to under 2 mph (see fig. 8).

3.09 - 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. For cleaner cuts and efficient mowing, the blades must be kept sharp⁹.

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 in 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.

⁹ See Sharpening Blades in section 4.03 - Blade Maintenance.

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: The mower blades can throw objects hundreds of feet 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 finishing mowers always disengage the PTO, lock parking brake, stop engine and allow the mower blades to come to a complete stop before dismantling the tractor.

3.10 - 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.

An anti-scalping roller is recommended for uneven ground contours. The roller rides the nose of the mower over a mound to help keep the nose from bulldozing or the blades from scalping the ground.

3.11 - 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.

3.12 - Transport

Before raising the mower for transport, the tractor top link must be adjusted so when lifted, the rear of the machine is higher than the front (the mower's nose is tilted downward). To do this, shorten the tractor top link until the top hitch plate is locked forward and no longer able to pivot. This will keep the mower locked in position and minimize the shaking and bouncing during transport which can damage the hitch or frame.



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.

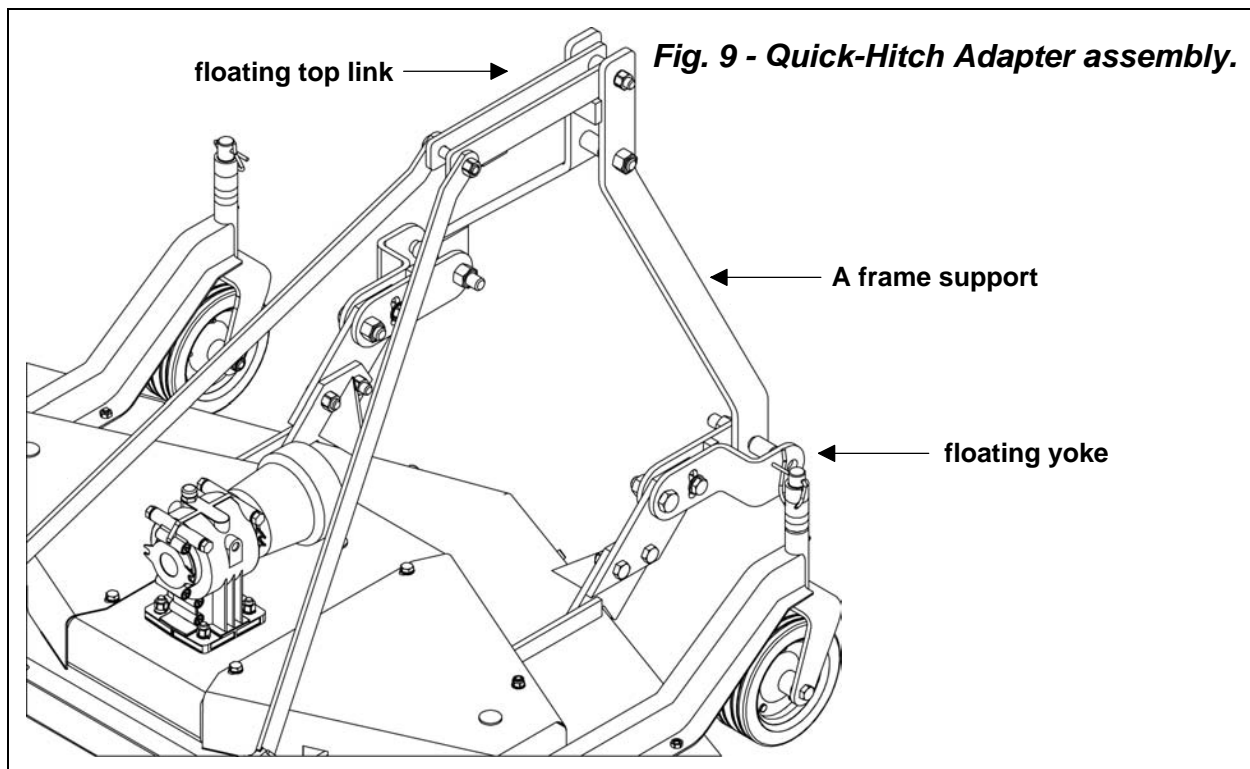
3.13 - Quick Hitch Adapter Assembly and Operation

Using a Quick Hitch system:

The C30 series mowers can be used with a Quick Hitch system, allowing for quick and easy hookup, by installing an optional adapter. This optional adapter has floating yokes that will allow the mower to follow the contour of the ground.



WARNING: When using a Quick Hitch on a PTO driven implement always ensure there is the proper driveline overlap prior to use. If there is not the minimum 6" driveline overlap do not use and contact your nearest dealer to purchase a longer driveline.



Quick Hitch Adapter assembly (see fig. 9):

1. Remove hitch pins from grooming mower's linking plates.
2. Remove M16x140 bolt on top of the three point hitch of the grooming mower.
3. Remove M20x45 bolts that hold the top hitch supports to the linking plates of the mower.
4. Attach the floating yokes of quick hitch adapter assembly to the linking plates of the mower. Note: Two ½" long bushings for the floating yokes are provided in the hardware bag of the quick hitch adapter kit. Ensure these bushings are installed onto the M16x60 bolt.
5. Attach the floating top link to the top hitch arms using the M16x90 bolt and nut.

6. Attach the A-frame support to the floating top link using the M16x110 bolt and nut.
7. Install the M20x110 bolt with the 1-1/8" spacer into the A-frame support.
8. Insert the M20x140 bolt into the floating yokes. The order should be as follows: bolt, first half of floating yoke, 1-3/8" spacer, A-frame support, M20 jam nut, second half of floating yoke, M20 nut. The two M20 nuts need to be jammed against each side of the floating yokes of the grooming mower. This will allow some motion in the spacer.
9. Loosen the M16x40 bolts that secure the top hitch arms to the rear support plates of the mower. Only loosen slightly. The arms must be able to move slightly up and down.
10. Tighten all hardware, ensuring all bolts and nuts have enough play to allow quick hitch adapter to move up and down.

Quick Hitch Adapter operation:

After completing assembly of the adapter, the tractor lift arms should be raised and locked in a position so the floating yokes are horizontal. Ensure that the M16x60 bolt is approximately in the center of the slot on the floating yoke. Positioning the bolt in this location allows the mower to have maximum float both up and down.



CAUTION: Improper setup of the quick hitch adapter can result in equipment damage. A replacement driveline must generally be installed to prevent injury or equipment damage when using the quick hitch adapter.



CAUTION: If the three point hitch of the tractor is set in the lowest position, the driveline may bottom out against the quick hitch resulting in a bent driveline. If the mower is lifted after the driveline has been bent, it may also damage the gearbox, mounting plates and other hardware.

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 deck 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. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
12. Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
13. After servicing, be sure all tools, parts and service equipment are removed.
14. Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts¹⁰.

¹⁰ Refer to Table 1 - Torque Specifications, page 32.

15. Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications. The company will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
16. 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

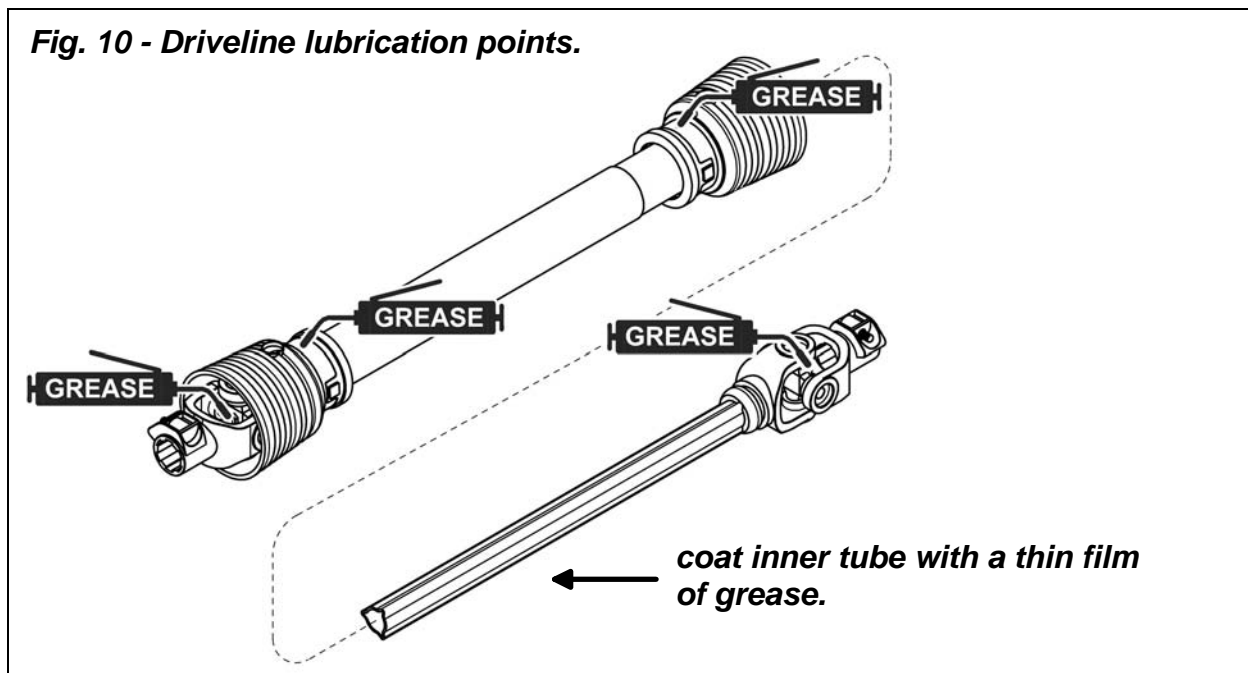
The accompanying illustrations show lubrication points. The chart gives the frequency of lubrication in hours, based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

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:

1. Check the condition of mower blades for nicks or dull edges. Sharpen if necessary.
2. Replace bent or damaged blades¹¹.
3. Also check blades for damage after hitting an obstruction.
4. Clean foreign material from mower deck and belt area.



Every 8 hours:

1. **Lubricate the driveline (see fig. 10) and the wheel yokes (see fig. 11):** Apply two or three shots of grease to the driveline cross and bearings and to the inner and

¹¹ See Section 4.03 - Blade Maintenance.

outer locking rings; apply the same amount to the wheel arm grease fittings. 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.

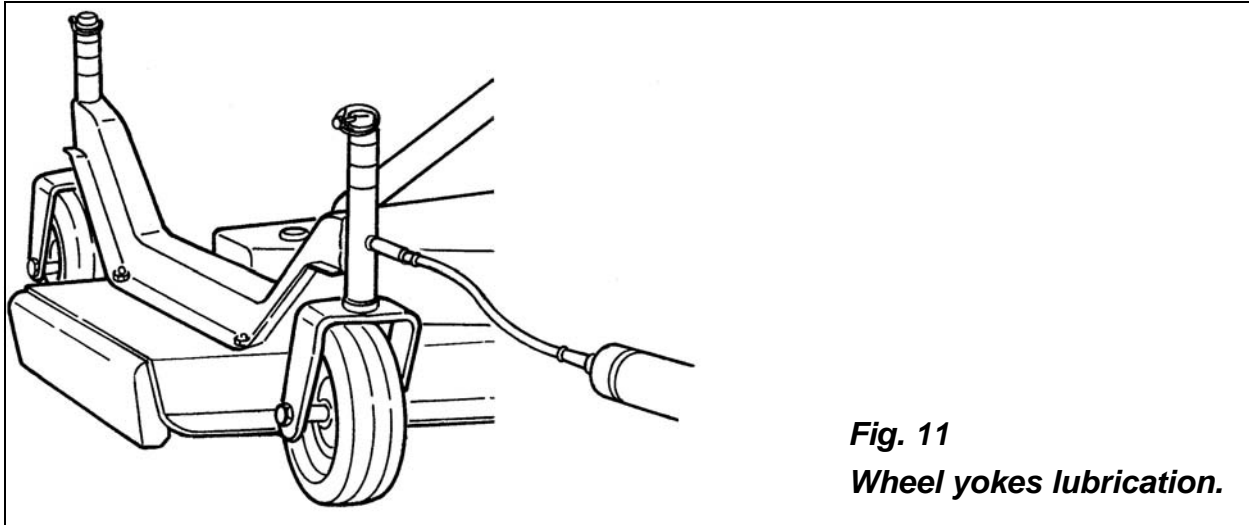


Fig. 11
Wheel yokes lubrication.

Every 20 hours: Lubricate the driveline telescoping shafts: Apply a thin film of grease on the inner tube of the driveline (see fig. 10).

Every 25 hours: Check hardware tightness; mower vibrations can loosen bolts. Check tightness of the hardware periodically, using **Table 1** as a guide¹².

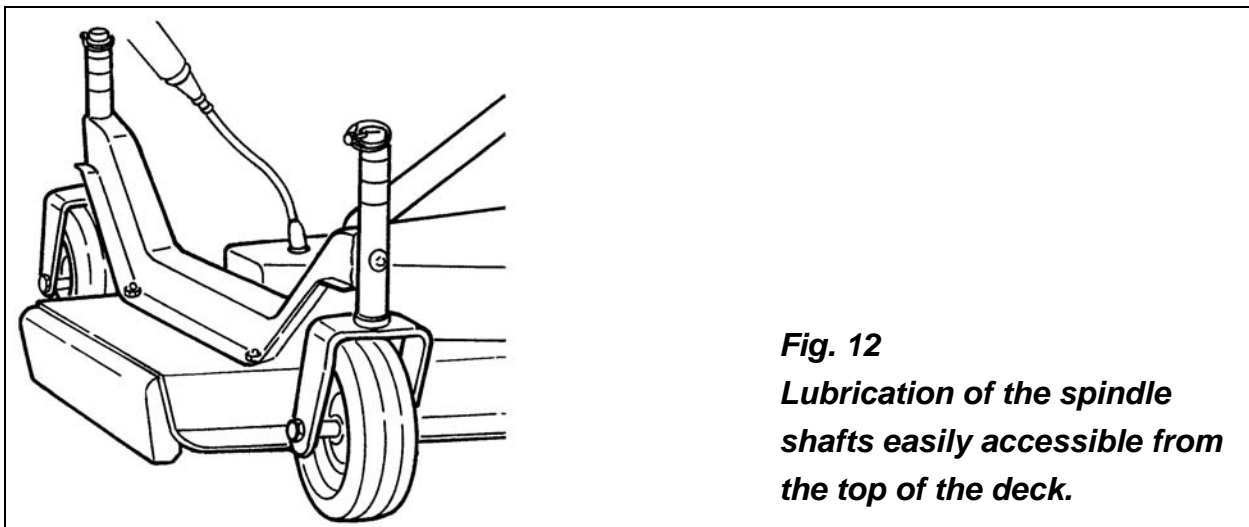


Fig. 12
Lubrication of the spindle shafts easily accessible from the top of the deck.

¹² See Table 1, Torque Specifications, page 32.

Every 50 hours:

1. Lubricate the three spindles with two or three shots of multipurpose grease (**see fig. 12**). The top grease fittings are easily accessible from the top of the deck by simply removing the plastic dust guards.
2. Check belt tension¹³.

4.03 - Blade Maintenance

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

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.

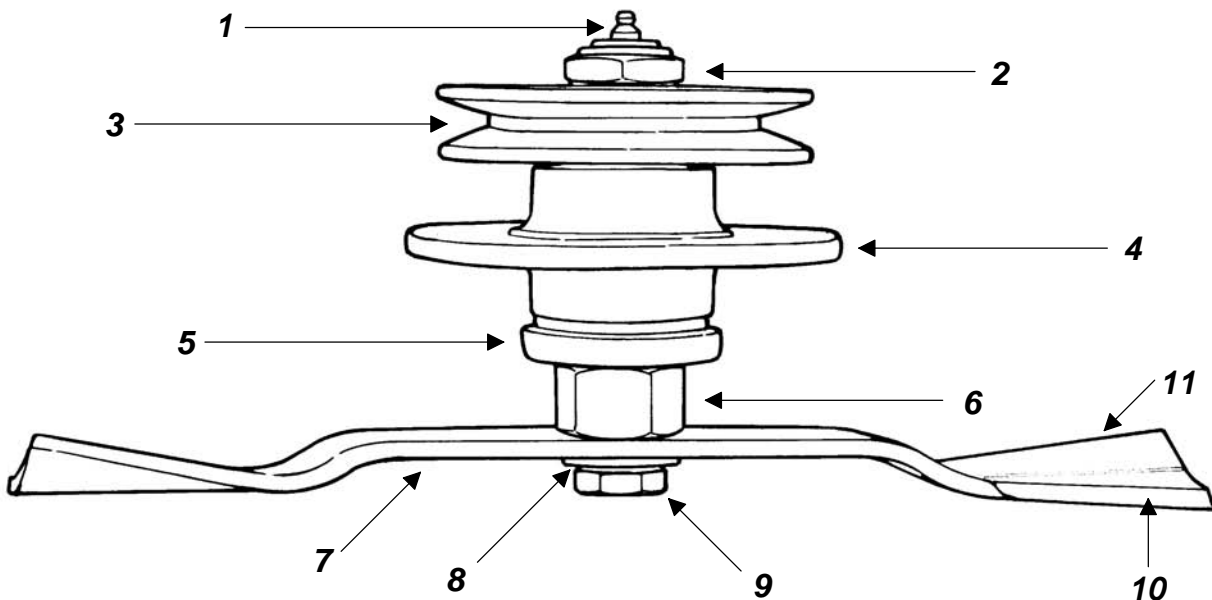


Fig. 13 - Spindle assembly.

- | | | |
|--------------------------|---|---------------|
| 1. grease fitting | 7. blade | Ground |
| 2. hexagonal nut | 8. cup washer | |
| 3. pulley | 9. blade bolt | |
| 4. rotor support | 10. cutting edge close to ground | |
| 5. cover | 11. lift wing | |
| 6. shaft | | |

¹³ See Section 4.04 - Belt Tension.

Installing or removing blades

If the mower blades need to be installed, do the following:

1. The blade turns in a **counter clockwise** direction when viewed from the bottom of the deck. The cutting edge must be towards the direction of rotation. The lift wing of the blades is closest to the deck and the cutting edge away from it (**see fig. 13**).
2. Install the cup washer (**see fig. 13**) over the blade bolt and secure the blade in place as described above.
3. With a wrench, block the spindle and tighten the bolt to 103 lb. ft. (**see fig. 14**).
4. To remove the blades reverse the procedure.



WARNING: 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: 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 hundreds of feet from the mower.

Sharpening Blades

Blade sharpening is extremely important in order to get the best cutting results. Sharp blades permit a high quality cut and also reduce HP thus lowering cost.

To sharpen blades, first remove them following the above instructions.

Place the blade in a vise and sharpen them by using a hand file or grinder. **Do not sharpen the blades to a sharp cutting edge.** The cutting edge should be between $\frac{1}{64}$ " to $\frac{1}{32}$ " to prevent excessive pitting and dulling of the blades. Sharpen both ends of the blade equally for balance and always maintain corners. Always keep all three blades sharpened equally in order to maintain balance.

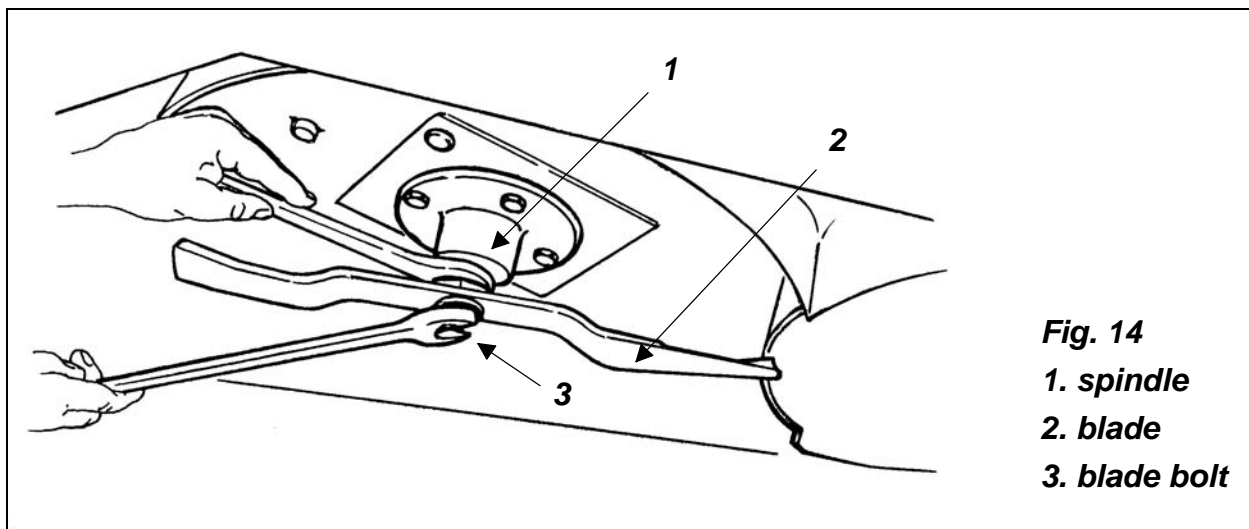


Fig. 14
1. spindle
2. blade
3. blade bolt



CAUTION: Unbalanced or warped blades can cause damage to the mower and/or personal injury. Replace damaged blades before operating the mower. Sharpen both ends of the mower blades equally or until the blade is balanced.

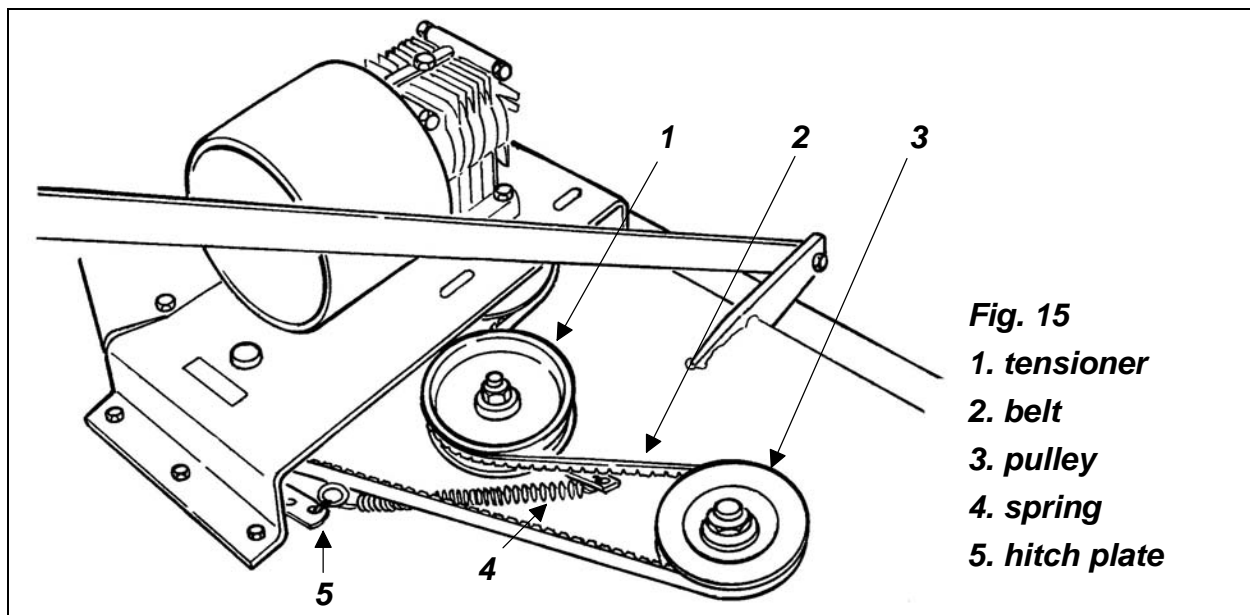
4.04 - Belt Tension

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 $\frac{5}{16}$ "- $\frac{3}{8}$ ".

Belt tension adjustment

The mower has an automatic belt tensioner. The tension is created by a spring connecting a tensioner pulley to a fixed hitch plate with 2 positions (**see fig. 15**). Upon delivery, the spring is located in the first position. When the belt stretches after use, adjust the tension by relocating the spring in the other hole. If the belt has stretched to the point that the belt is not tight enough even in the second hole, then it is necessary to replace the belt.



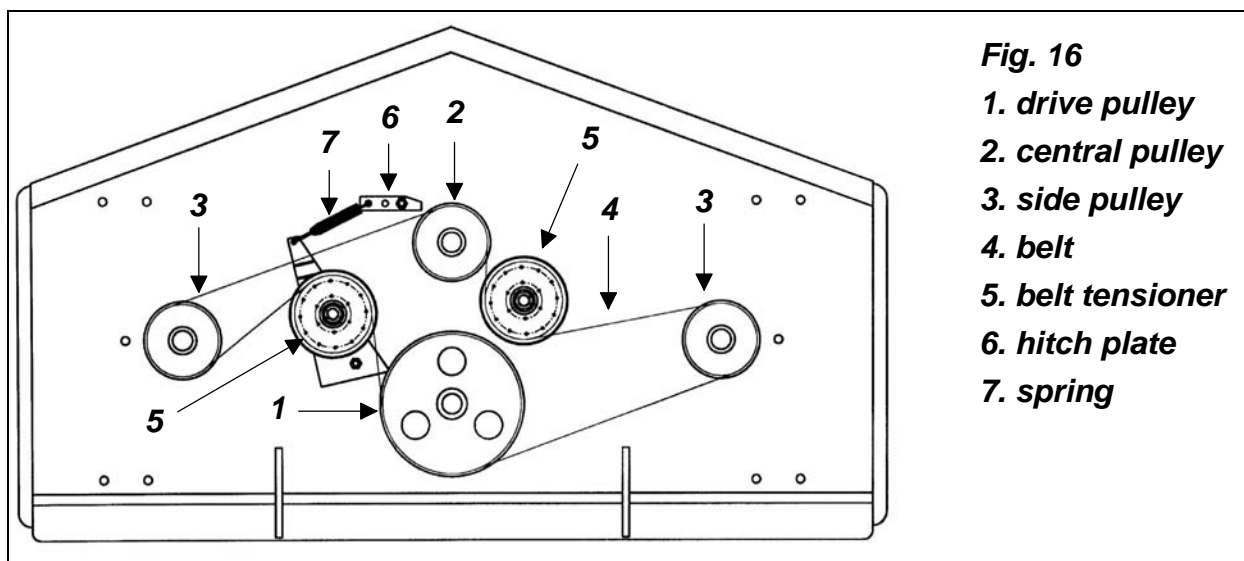
4.05 - Belt Replacement

If the belt has been stretched or damaged to the point where the proper tension cannot be obtained it must be changed.

To replace the belt do the following:

1. Remove belt shields. Clean foreign material from the mower deck and belt area.

2. Release spring tensioner to loosen belt.
3. Loosen rear nuts holding central plate (do not remove them).
4. Remove front nuts holding central plate (**see fig. 15**).
5. Lift the front of the central plate and remove old belt.
6. Replace new belt starting from the right spindle pulley (**see fig. 16**).
7. Lower central plate. Replace front nuts. Tighten front and rear nuts holding down central plate.
8. Replace spring tensioner.
9. Check belt for proper tension.
10. Reinstall the belt shields.

**Fig. 16**

1. drive pulley
2. central pulley
3. side pulley
4. belt
5. belt tensioner
6. hitch plate
7. spring

4.06 - 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.

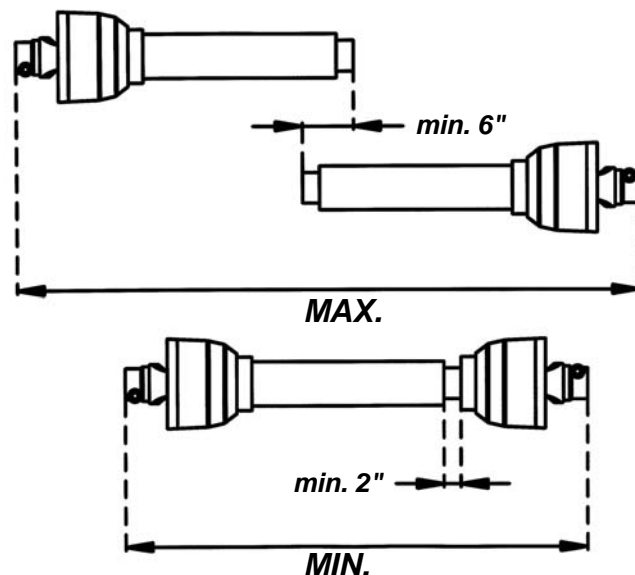
In the collapsed position the driveline should be approximately 2" from bottoming out to prevent possible damage to the tractor or implement. When the driveline is in the maximum extended position, the ideal minimum overlap of the two halves should be approximately 6" (**see fig. 17**).

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.

Fig. 17



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 - C30 GROOMING MOWERS - TECHNICAL FEATURES

| Series C30, Rear Discharge, for tractors up to 30 HP, PTO 540 rpm, 3 point hitch cat. 1 | | | | | | | | | | | |
|---|-------|-------------------|------------------|---------------|----------------------|----------------------------------|-------------|-------------------|-------------------|------------------------------------|---------------------|
| Model | HP | Workin g width | Overall width | Weight lb. | Rotor rpm/mi n | Blades tip speed ft/min | # Blades | Cutting height | # Belts & type | # Wheels & size | Driveline 1 3/8" |
| C30-RD4A C30-RD4H | 16-30 | 48" | 51" | 329 340 | 3,037 | 13,188 | 3 | 1"-4" | 1 BX | 4 - 9"x3.5" AT 4 - 8.4"x3.2" HT | ASAE cat. 2 |
| C30-RD5A C30-RD5H | 20-30 | 60" | 62" | 364 375 | 2,803 | 14,763 | 3 | 1"-4" | 1 BX | 4 - 9"x3.5" AT 4 - 8.4"x3.2" HT | ASAE cat. 2 |
| C30-RD6A C30-RD6H | 25-30 | 72" | 74" | 429 440 | 2,278 | 14,566 | 3 | 1"-4" | 1 BX | 4 - 9"x3.5" AT 4 - 8.4"x3.2" HT | ASAE cat. 2 |

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:

1. Remove the belt¹⁴.
2. Remove the nut holding the pulley to the gearbox pinion shaft.
3. Remove the pulley.
4. Remove the nuts holding the gearbox to the central plate.
5. Remove the gearbox.

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 - Blade Spindle

To remove a blade spindle:

1. Remove the belt¹⁵.
2. Remove the nut holding the pulley to the spindle shaft (**see fig. 13**).
3. Remove the blades¹⁶.
4. Unbolt the bolts holding the rotor support to the mower deck.
5. If necessary remove and replace the bearings from the rotor using presses or extractors.
6. Reassemble in reverse order **ensuring that the nut securing the top pulley (see fig. 13) is tightened to 118 lb. Ft.**

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.

¹⁴ See Section 4.05 - Belt Replacement.

¹⁵ See Section 4.05 - Belt Replacement.

¹⁶ See Section 4.03 - Blade Maintenance.

| Description | Quantity |
|-------------------------|----------|
| Blades | 3 |
| Blade bolts and washers | 3 |
| Belts | 1 |

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 Maintenance¹⁷.
5. Touch up scratches by sanding the area and applying a light coat of primer and paint to prevent rust from forming.
6. Loosen the belts if the mower is to be stored for an extended length of time.
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 |

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

¹⁷ 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. | Cup washer not between blade and bolt. Ground speed too fast. Blades need sharpening. Caster wheels uneven. | Check washer location at all 3 spindles. Shift to lower gear. Sharpen blades. Adjust wheel position. |
| Blades turning but not cutting. | Direction of blades is wrong. | Blade should turn CCW when you face deck bottom. See Blades Maintenance section. |
| Belt slippage. | Lack of tension. Object clogging mower. Debris in pulleys. | Tighten belt. Remove object. Clean pulleys. |
| Mower vibrates. | Object wrapped around blade. Belt damaged. | Remove object. Replace belt. |
| Belt squeal. | Belt slipping. | Tighten belt. |
| Grass build up at exit. | Wet grass. Grass too high. Tractor rpm too slow. | Allow grass to dry. Raise mower, shift to lower gear, make two passes over grass. Mow grass high 1st pass, 2nd pass cut to desired height. Increase tractor rpm, check engine and PTO speeds. |
| Belts are tight when installing. | Wrong belt size. Installed belts incorrectly. | Check belt size. See Belts Replacement section. |
| Streaking conditions in swath. | Too wet to mow. Blades cannot cut grass pressed down by wheels. Dull blades. Blades worn down, preventing overlap. | Allow grass to dry. Maintain engine speed and shift to lower gear. Sharpen blades. Change blades. |
| Cut grass windrows. | Ground speed too low. Tractor rpm too slow. | Increase ground speed. Increase tractor rpm, check engine and PTO speeds. |
| 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 engine, 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 dealers 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, had 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, other: _____</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[®]

P.O. Box 6036
Rocky Mount, NC 27802-6036
Tel.: 252.977.9920 - Fax: 252.977.9718
www.befco.com

