



Reel and Bedknife Sharpener RS-5100



Operators Manual

Locke Turf

307 Highway 52E Opp, Alabama 36467 (334) 493-1300

CONGRATULATIONS

You have invested in the best implement of its type on the market today.

The care you give your Locke Turf implement will greatly determine your satisfaction with its performance and its service life. We urge a careful study of this manual to provide you with a thorough understanding of your new implement before operating, as well as suggestions for operation and maintenance.

If your manual should become lost or destroyed, Locke Turf will be glad to provide you with a new copy. Order from Locke Turf, 307 Highway 52E, Opp, Alabama 36467.

As an Authorized Locke Turf dealer, we stock genuine Locke Turf parts which are manufactured with the same precision and skill as our original equipment. Our trained service personnel are well informed on methods required to service Locke Turf equipment, and are ready and able to help you.

Should you require additional information or assistance, please contact us.

YOUR AUTHORIZED
LOCKE TURF DEALER

BECAUSE LOCKE TURF MAINTAINS AN ONGOING PROGRAM OF PRODUCT IMPROVEMENT, WE RESERVE THE RIGHT TO MAKE IMPROVEMENTS IN DESIGN OR CHANGES IN SPECIFICATIONS WITHOUT INCURRING ANY OBLIGATION TO INSTALL THEM ON UNITS PREVIOUSLY SOLD.

BECAUSE OF THE POSSIBILITY THAT SOME PHOTOGRAPHS IN THIS MANUAL WERE TAKEN OF PROTOTYPE MODELS, PRODUCTION MODELS MAY VARY IN SOME DETAIL. IN ADDITION, SOME PHOTOGRAPHS MAY SHOW SHIELDS REMOVED FOR PURPOSES OF CLARITY. **NEVER OPERATE** THIS IMPLEMENT WITHOUT ALL SHIELDS IN PLACE.

REEL & BEDKNIFE SHARPENER

Operator's Manual

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RETAIL CUSTOMER'S RESPONSIBILITY UNDER THE LOCKE TURF INC. WARRANTY

It is the Retail Customer and /or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain, and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment.

It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard.

It is the Retail Customer's responsibility to deliver the product to the authorized Locke Turf distributor from whom he purchased it, for service or replacement of defective parts that are covered by warranty. Repairs to be submitted for warranty consideration must be made within fort-five (45) days of failure.

It is the Retail Customer's responsibility for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.

UNDERSTAND SIGNAL WORDS

DANGER: Indicates an imminently Hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the Most extreme situations.

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

CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or Moderate injury. It may also be Used to alert against unsafe Practices.

INTRODUCTION

More than merely devices created for mowing grass, the excellence of design, construction and operation of Locke power mowers is unparalleled. Introduced in 1928, tested and proven, Locke power mowers may be considered, in terms of today's technology, the ultimate response to the need for the highest degree of quality lawn care. These magnificent green machines are legendary and known throughout the world for generation-spanning durability and unequalled performance in the precision cutting of grass.

Locke power mowers are heavy-duty, precision instruments. No capricious model year or cosmetic style changes are instituted, although improvements are continually incorporated into all models. The most recent evidence this is in the introduction of the new "Commercial Series". Design and manufacturing innovations make this the mower for the next century. Whatever model of Locke power mower you have purchased you have our assurance that, with proper care, you are the owner of a machine which will provide many years of dependable service.

To extract the fullest possible value from the performance of your Locke power mower we urge you to read this manual very carefully. Should you find any of the instructions unclear, please contact your Locke dealer or call the Locke Factory Service Department.

Phone: 334-493-1300

Fax: 334-493-1400

Locke Mowers: The Finest Cut....For The Finest Lawns

DEALER PREPARATION CHECK LIST

REEL and BEDKNIFE SHARPENER

BEFORE DELIVERING MACHINE- The following check list should be completed. Use the Operator's Manual as a guide.

- 1. Assembly completed.
- 2. Gearbox filled with oil.
- 3. All fittings lubricated.
- 4. All shields in place and in good condition.
- 5. All fasteners torqued to specifications given in Torque Chart.
- 6. All decals in place and readable. (See decal page.)
- 7. Overall condition good (i.e. paint, welds)
- 8. Operators manual has been delivered to owner and he has been instructed on the safe and proper use of the mower.

Dealer's Signature _____

Purchaser's Signature _____

THIS CHECKLIST IS TO REMAIN IN OWNER'S MANUAL
It is the responsibility of the dealer to complete the procedures listed above before delivery of this implement to the customer.

Introduction

Safety First!

Locke Turf employees are fully aware of the need for safe operating procedures around all of our equipment. We hope that you will make a sincere effort to put safety above all other priorities. The Reel and Bedknife Sharpener requires an extra special

Measure of safety awareness. Please read and heed all of the safety alert information about your sharpener. As the operator of this piece of equipment, you are in complete control. Only you can prevent an accident from happening.

Getting Acquainted With Your Reel and Bedknife Sharpener

There are some features that have been incorporated into this unit that may not be found on other sharpeners. Take a moment to note some of the less obvious advantages of your new sharpener.

- Precision manufactured mounting brackets and the adjustable spin motor mounting decreases "set-up" time and insures ease of reel unit mounting and accuracy during the sharpening process.
- The one (1) horsepower wheel head motor produces faster sharpening time, with less adjustment to obtain the best possible cutting results.
- The Locke Turf Sharpeners allow a full range of adaptability.
- All primary points are easily accessible for maintenance.
- The pump supply line is equipped with a shut-off valve to regulate coolant flow.
- The three (3) gallon reservoir maintains more than adequate coolant flow to provide less heat build-up during the sharpening process.
- The wheel heads are positioned to provide better operator visibility.

Owner Assistance

The parts on your Locke Turf Reel and Bedknife Sharpener have been specially designed and should only be replaced with genuine Locke Turf parts. Should you require parts or service, contact your Locke Turf dealer. He has trained personnel, parts and the equipment to carry out all of your service requirements.

Your dealer wants you to be satisfied with your new machine. If for any reason you are not satisfied with the service received, the following actions are suggested:

1. First, discuss the matter with your dealership service manager. Make sure they are aware of any problems you may have and that they have had the opportunity to assist you.
2. If you still not satisfied, seek out the owner or General Manager of the dealership and explain the problem and request assistance.
3. For further assistance beyond that provided by your dealer, you may contact:

Locke Turf—Customer Service
307 Highway 52E
Opp, AL 36467

Serial Number

The serial number plate is located on the outside right frame, near the lower left corner. For your convenience, record the serial number and purchase date on this page. This serial number and purchase date on this page. This number provides important information about your sharpener and may be required to obtain the correct replacement part. Always use the serial number and model number when corresponding or ordering parts from your Locke Turf dealer.

Serial Number _____

Model Number _____

Date Purchased _____

Owner's Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

Name of Dealership _____

Dealer's Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

Store a copy of the above information in a separate location in case this manual is lost.

SECTION 1 - SAFETY

Important Safety Information

For your safety and to help in developing a better understanding of your equipment, we highly recommend that you read the operator's manual. Reading these sections not only provides valuable training but also familiarizes you with helpful information and its location. The parts sections are for reference only and don't require cover to cover reading. After reviewing the manuals, store them in a dry, easily accessible location for your future reference.

Safety Notations

This manual has been prepared to instruct you in the safe and efficient operation of your Reel and Bedknife Sharpener. Read and follow all instructions and safety precautions carefully.

Safety Rules

Most accidents are the result of negligence and carelessness, usually caused by failure of the operator to follow simple but necessary safety precautions. The following safety precautions are suggested to help prevent such accidents. The safe operation of any machinery is a major concern of consumers and manufacturers alike. Your Reel and Bedknife Sharpener has been designed with many built-in safety features. However, no one should operate this product before carefully reading the Operator's Manual.

1. Do not allow anyone to operate this machine who has not been properly trained in its safe operation.



2. **THIS SHARPENER CAN BE DANGEROUS AND CAUSE BODILY HARM IF NOT PROPERLY USED OR GUARDED. DO NOT ALLOW ANYONE TO ASSIST IN GRINDING; OBSERVERS SHOULD BE DISCOURAGED, OR REMAIN AT A SAFE DISTANCE!**

3. Be alert to others in the area while grinding.
4. Do not let children operate the grinder.
5. Never allow horse play around the grinder.
6. Always wear safety glasses when grinding.
7. To prevent personal injury caused by thrown objects, the use of front and rear canopy shields is an absolute necessity when spin grinding the reels.
8. Never spin grind reels while the canopy is in the raised position. As it is necessary to have the front canopy open, or raised, during "Relief"

grinding of reels, the following safety precautions must be observed.

- A. A full face shield should be worn when operating the grinder while "Relief" grinding reels with the canopy in open/raised position.
 - B. Some type of protective gloves must be worn to prevent serious injury. (Kevlar or Chain Mail type).
9. Never operate the grinder if the safety switch in the canopy is not functional.
 10. Do not open the electrical control box unless the power is off at the main switch box.
 11. Grind slowly over "high" areas and adjust according to instructions.



12. **ESCAPING COOLANT FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE THE SKIN. CHECK ALL HOSES BEFORE APPLYING PRESSURE. FLUID ESCAPING FROM A VERY SMALL HOLE CAN BE ALMOST INVISIBLE. USE PAPER OR CARDBOARD, NOT BODY PARTS, TO CHECK FOR SUSPECTED LEAKS. IF INJURED, SEEK MEDICAL ASSISTANCE FROM A DOCTOR THAT IS FAMILIAR WITH THIS TYPE OF INJURY. FOREIGN FLUIDS IN THE TISSUE MUST BE SURGICALLY REMOVED WITHIN A FEW HOURS OR GANGRENE WILL RESULT.**
13. Using the proper coolant aids the grinding process, prevents heat build-up and helps control dust.
14. Do not single blade or relief grind reels unless the finger guide is the correct distance from the grinding wheel and fully secured.

Prior To Operation

1. Familiarize yourself with all controls and safety precautions.
2. Before grinding, clear the work area of objects and debris that could become entangled in the reel or thrown from the sharpener.
3. Always insure that the reel is fully secured in the mounting brackets before spin grinding. When using "Out of Frame" brackets be sure the bearings are seated properly in the bearing housing collets. Using the "All Thread" adjusting rods of the Out of Frame Bracket Assembly, press the bearings squarely onto the reel unit shafts.

CAUTION

4. **DO NOT ROTATE THE REEL BY GRASPING THE BLADES WITH YOUR BARE HAND. THIS COULD RESULT IN SERIOUS INJURY TO YOUR FINGERS OR HAND.**
5. Be sure to check the clearance of the reel and/or bedknife before beginning the grinding operation. Too much "in-feed" will cause the stone to fragment or shatter.
6. Insure that the new grinding wheel is "dressed" and balanced correctly after replacing an old one.

Maintenance

1. Keep the canopy shielding in place and in good condition. Do not operate the grinder with the shields missing.
2. Periodically check for loose hardware and tighten if necessary.
3. Keep in mind that this is an abrasive machine; oil all points of lubrication daily and keep all working surfaces clean.
4. Thick grease should not be used on the wheel head guide rails.

Personal Safety Equipment

Locke Turf advises all users of Reel and Bedknife Sharpeners to use the following personal safety equipment. Always follow the operating instructions; your safety and the effective use of the product depends upon your actions.



Always wear Kevlar gloves when manually indexing the reel.

Kevlar Meat Cutter Gloves



Cartridge type respirator approved for pesticide vapors unless label specifies another type of respirator.

Respirator

Safety Decals

Your Reel and Bedknife Sharpener comes equipped with all safety decals in place. They were designed to help you safely operate your sharpener. Read and follow their directions.

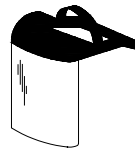
1. Keep safety decals clean and legible.
2. Replace all damaged or missing safety decals. To order new safety decals go to your dealer and refer to the parts section for the safety decal package part number.
3. Refer to this section for proper decal placement.

To install new safety decals:

1. Clean the area where the decal is to be placed. Spray this area with soapy water.
2. Peel backing from the decal. Press firmly on surface being careful not to cause air bubbles under the decal.
3. With a squeegee, work out any air bubbles that remain under the decal.



Face shield, goggles or full face respirator. Goggles with side shields or a full face respirator is required if handling or applying dusts, wettable powders or granules or if being exposed to spray mist.



Goggles or Full Face Shield



Wear hearing protection in this area.

Hearing Protection

IMPORTANT FEDERAL LAWS AND REGULATIONS* CONCERNING EMPLOYERS, EMPLOYEES AND OPERATIONS.

*(This section is intended to explain in broad terms the concept and effect of the following federal laws and regulations. It is not intended as a legal interpretation of the laws and should not be considered as such.)

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

This Act Seeks:

“...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources...”

DUTIES

Sec. 5 (a) Each employer-

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazard that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.
 - a. Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA Regulations

Current OSHA regulations state in part: “At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is or will be involved.” These will include (but are not limited to) instructions to:

Keep all guards in place when the machine is in operations:

Permit no riders on equipment;

Stop engine, disconnect the power source and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power or operating the machine.

EMPLOYEE TRACTOR OPERATING INSTRUCTIONS:

1. Securely fasten your seat belt if the tractor has a ROPS
2. Where possible avoid operating the tractor near Ditches, embankments and holes.
3. Reduce speed when turning, crossing slopes and on rough, slick or muddy surfaces
4. Stay off slopes too steep for safe operation
5. Watch where you are going especially at row ends, on roads and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly – jerky turns starts or stops
8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers
9. When tractor is stopped, set brake securely and use park lock if available

Child Labor Under 16 Years Old

Some regulations specify that no one under the age of 16 (sixteen) may operate power machinery. It is your responsibility to know what these regulations are in you own area or situation. (Refer to U.S. Dept, of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)

SECTION 2—ASSEMBLY INSTRUCTIONS AND SET-UP

Uncrating the Sharpener

Refer to Figures 2-1 and 2-2:

1. First, remove the eight (8) bolts securing the sharpener to the pallet. Fig. 2-1 (#1)
2. Using a fork lift, narrow the forks so they slide under the drain pan from the rear. Be careful to avoid hoses and electrical components. Make sure that the forks do not slide all the way up to the back of the Control Panel, Fig. 2-2 (#2), but have deep enough to lift the sharpener such that it is not unbalanced or top heavy.
5. Shift the sharpener back over the anchors and replace the legs.
6. Holding the legs to the side wall of the sharpener, fasten bolts until finger tight. Fig. 2-1 (#4)
7. Place an engineer's level on the two (2) round bars directly over each end of the cast bed. Level the sharpener front to back and left to right. Use flat shim stock under the four bolts around the base of the sharpener for proper leveling, if needed.

Locating The Grinder

NOTE

The following instructions apply mainly to a Combination Sharpener only. However, it is the manufacturer's recommendation that, if space is available, this locating procedure be followed:

Place the sharpener in a location with adequate lighting. It is considered that 13,400 Lumens at the working surface is adequate. This amount of lighting can be obtained by two (2) 8-foot fluorescent lights at a minimum height of 8 feet.

Leave a minimum of four (4) feet between the controls and the wall in back of the operator, if such is the case.

The sharpener should face an open area of the shop as the reel units will be installed from the "shop side" of the sharpener.

Securing the Sharpener

IMPORTANT

Read steps 1 through 9 before starting. Improper leveling may cause distortion of the sharpener bed.

1. Remove any brackets that have been installed for shipping.
2. Attach a stabilizer leg to each end, but do not tighten. Fig. 2-1 (#4).
3. Mark the floor through the four (4) holes at the base of the sharpener and the two (2) at each stabilizer leg. Fig. 2-1 (#1).
4. Remove the legs, shift sharpener out of the way, drill holes in the floor and insert anchors.
8. Tighten the anchor bolts securely to the floor. Fig. 2-1 (#1)
9. Tighten the stabilizer legs (#5) to sharpener through slots at (#4).

IMPORTANT

Do not tighten the stabilizer legs to sharpener before securing them to the floor.

Figure 2-1

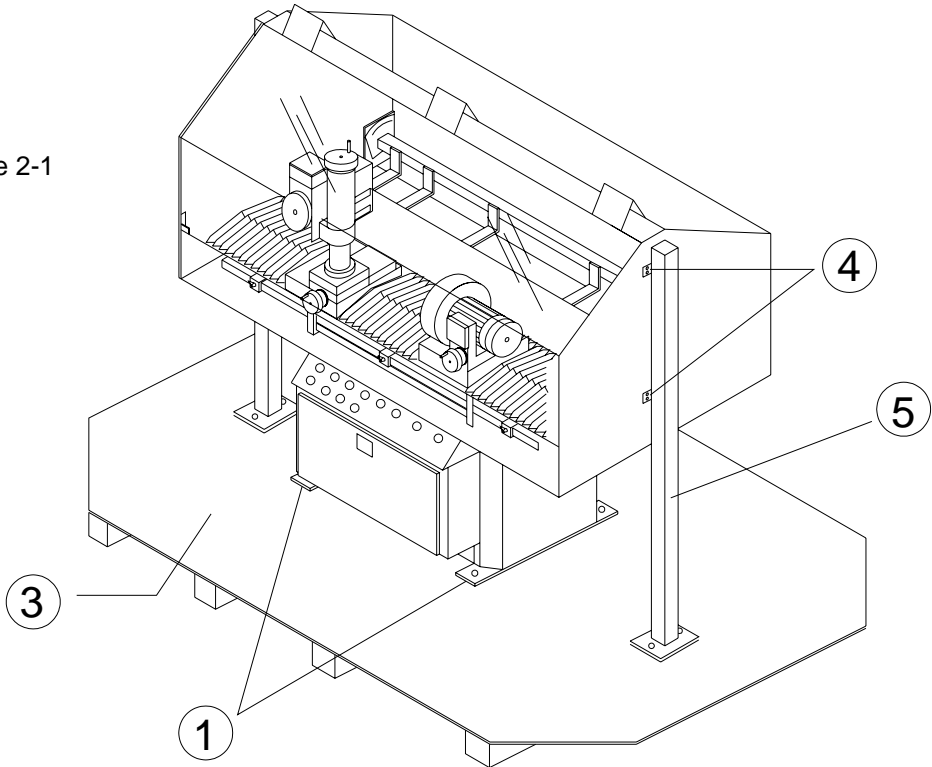
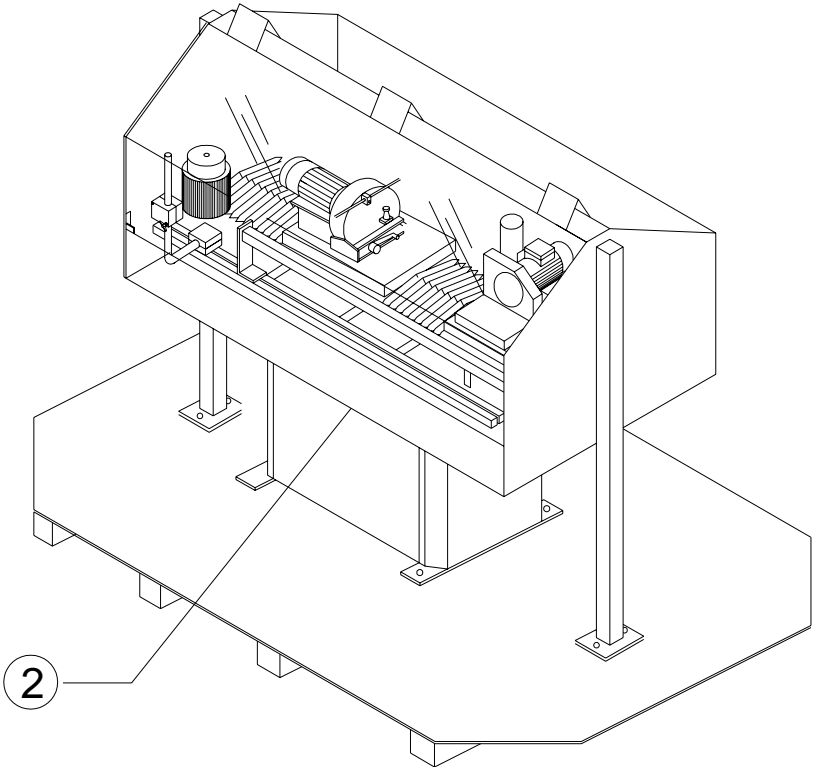


Figure 2-2



Wiring The 5100 Sharpener

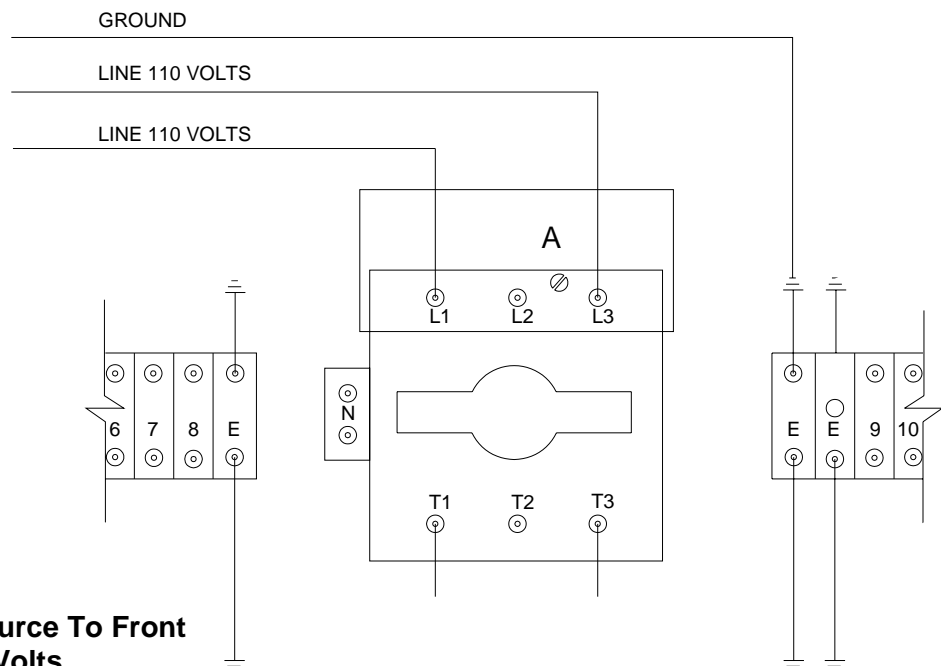


THIS SHOULD BE DONE BY AN EXPERIENCED, LICENSED ELECTRICIAN.

Wire the sharpener to a 20 amp, 220 volt breaker equipped with a disconnect. The electrical junction box is located in the upper center area inside the front panel.

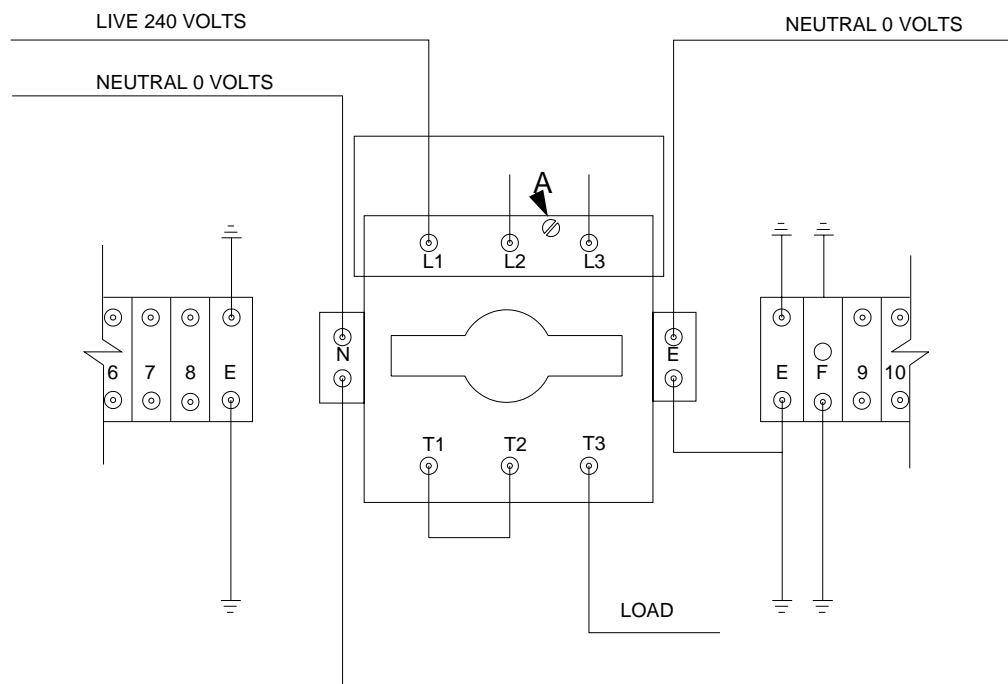
IMPORTANT

Disconnect all power during routine maintenance and when the sharpener will be out of service for extended periods of time.



Electrical Wiring Source To Front Panel Models –220 Volts

1. Unfasten the front panel on the control box and swing the door open.
2. Locate the disconnect. It is the black plastic switch located on the top center of the box.
3. Remove the screw A and slip off the cover.
4. Connect a 110V lead to the L1 position and a 110V lead to eh L3 position.
5. Connect the ground wire to the same position as the machine ground (the green/ yellow wire).
6. Replace the protective cover.
7. Close and secure the front panel.



Electrical Wiring Source To Front Panel Models—240 volts (Foreign)

1. Unfasten the front panel on control box and swing the door open.
2. Locate the disconnect. It is the black plastic switch located on the top center of the box.
3. Remove screw A and slip off the cover.
4. Connect a 0V lead to the neutral position and the 240V lead to the live position.
5. Connect the ground wire to the same position as the machine ground (the green/yellow wire).
6. Replace the protective cover.
7. Close and secure the front panel.

Coolant

1. Check the coolant reservoir and remove any foreign objects.
2. Be sure the drain hose is routed through the hole in the lid of the coolant tank.
3. Fill the tank with clean water, adding the proper amount of anti-rust additive. Recommended mixture ratios are between 50:1 and 25:1.



**FAILURE TO USE AN ANTI-RUST ADDITIVE
MAY DECREASE THE SERVICE LIFE OF
SOME PARTS! NEVER USE WATER ONLY,
AND DO NOT USE WATER SOLUBLE OIL.**

Overview—The RS 5100 is the latest development in the family of reel and bedknife sharpeners manufactured by Locke Turf.

Incorporating the dual wheel head, which is an exclusive and unique feature of the Locke Turf sharpeners, we now offer a 6" diameter grinding stone for sharpening and grinding reels.

The RS 5100 is a complete grinding system. Equipped with a powerful one (1) HP motor with a cupped stone on one end for sharpening bedknives and the new 6" stone on the other end for grinding reels.

The benefits of the 6" stone is the ability to relief grind small diameter, multi blade reels with much more ease. The smaller head permits spin grinding only without the need of removing the bedknife assembly. This will

prove beneficial in those times when a "quick" refreshing of the reel is needed, i.e. after top dressing.

The relief grinding operation is accomplished in most cases without the need to remove the front or rear roller of a mowing unit.

The RS 5100 utilizes the same quick attach brackets for securing reel units in the grinder for servicing. These brackets offer several benefits some of which are holding the reel unit in the sharpener via the bearing housings (which is the most accurate means to hold a reel for service), keeps grinding grit out of the reel bearings while grinding and will enable most reel units to be held in the grinder without removing the rollers. Another benefit is the fact that one can rotate the frame of the mowing unit to a position that will allow greatest access to the reel without interference of any part of the frame or its components.



Changing Wheel heads

The 5100 series is equipped with the unique "dual wheel head." On the left end of the motor is the stone for grinding reels. The right end of the motor is the cupped stone for grinding bedknives.

To change from one to the other, loosen the pedestal knob on the side of the column. (Fig. 3-24, Page 21) Raise the column up approximately 1" by turning hand wheel on top of the column.

Once the column has cleared the "V" stop, you can now rotate the wheel head into position for grinding. The guard for the wheel head not being used must be replaced and securely in position. The wheel head without operate with both shields off.

Tighten the pedestal knob on the side of the column. Disconnect and change water supply to the appropriate position.

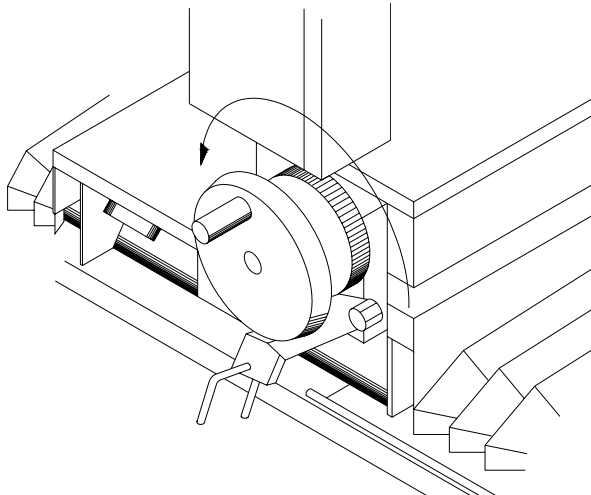
Follow procedures in Section 3 for spin, relief and bedknife grinding.

Spin Grinding

NOTE

When discussing spin grinding, any reference to the carriage or its associated parts means the reel carriage, located to the right as viewed for the operator's side.

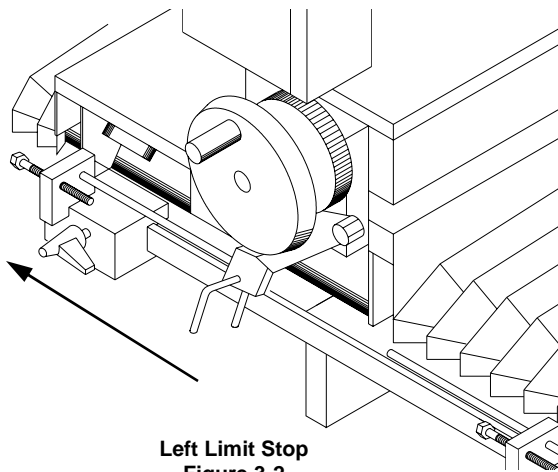
1. Open front canopy and adjust wheel head away from work table bars by turning infeed screw hand wheel counter clockwise, bringing wheel head towards operator. Figure 3-1



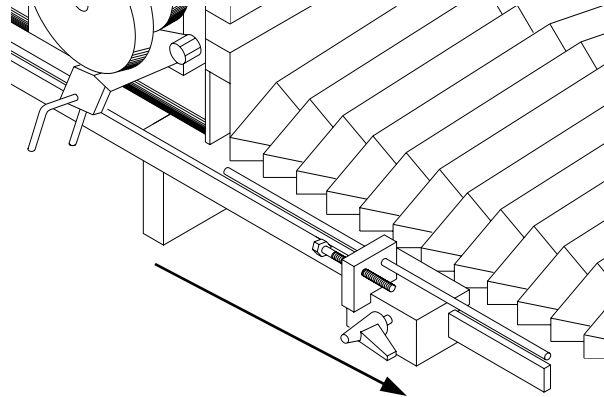
Infeed Screw Hand Wheel
Figure 3-1

Refer to Figure 3-2 and 3-3:

2. Slide limit stops to each end of the stop rail.

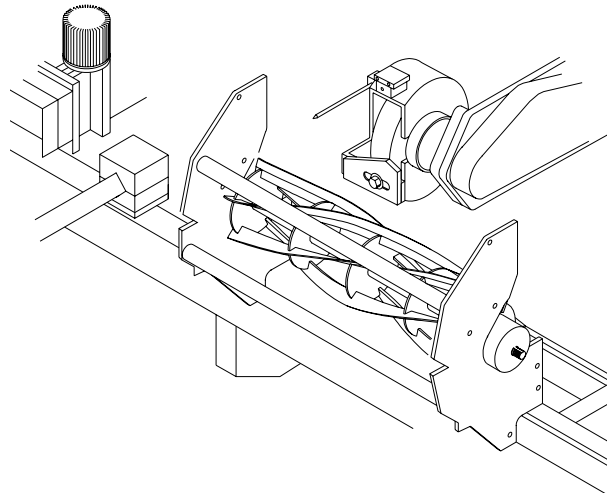


Left Limit Stop
Figure 3-2

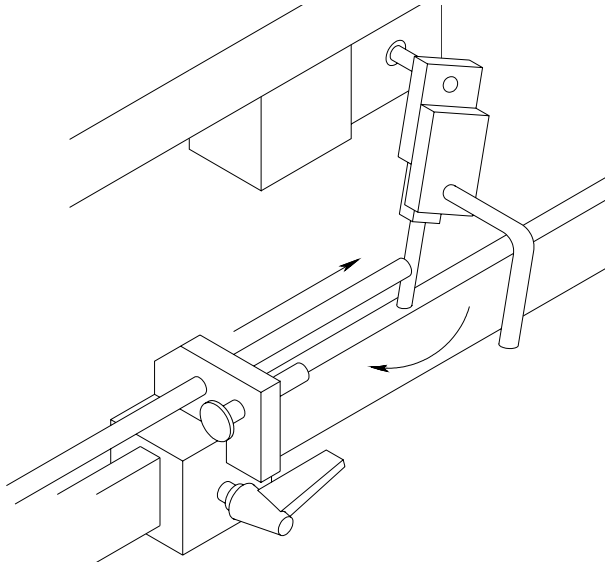


Right Limit Stop
Figure 3-3

3. Close the front canopy and open the rear canopy.
4. Securely attach the mounting brackets to the reel unit.
5. Place the reel unit into the grinder making sure the mounting brackets are fitted properly and sitting firmly on the work table bars. Leave the mounting bracket bases loose in the work table bars. Figure 3-4



6. Manually move grinding carriage left and right making sure there is ample clearance between the stone and the end of the reel blades. (It may be necessary to reposition the reel unit slightly.) When satisfied that the grinding wheel clears the reel unit at both ends, tighten the brackets. Figure 3-5.



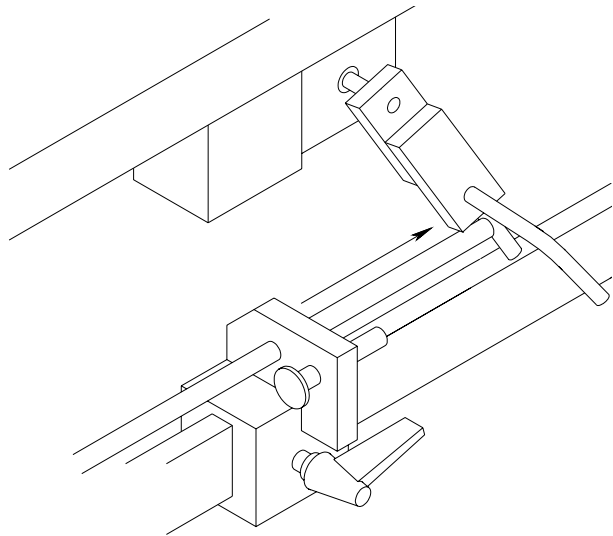
**Micro Switch Turned to the Left
Figure 3-6**

There are two ways to make reel adjustments:

- A. The grinder's movable base is used if the bed-knife is adjusted to the reel.
- B. The reel unit's own adjusters may be used if the reel to bedknife adjustment is made by moving the reel to the knife.

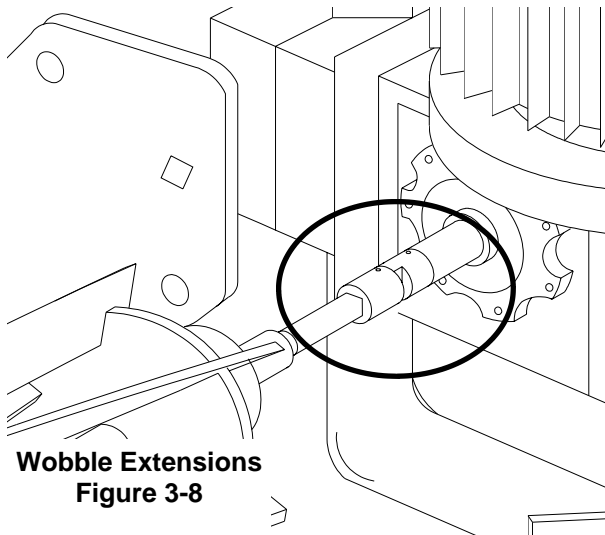
Refer to Figure 3-6 and 3-7:

Manually turn traverse micro switch arm (the white nylon rod) to the left. Move reel grinding carriage to the left of the reel unit making sure the grinding wheel clears the end of the reel blades. Keeping the carriage in this position slide the limit stop to the right until the actuating screw throws the traverse micro switch arm to the right. Tighten the handle on the center limit stop. Set the right limit stop in the opposite manner.



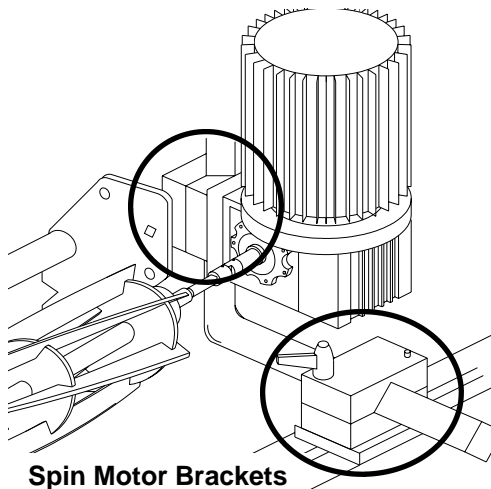
**Micro Switch Turned to the Right
Figure 3-7**

Now attach the drive coupler from the spin motor to the reel. In most cases, town wobble extensions work well. Figure 3-8

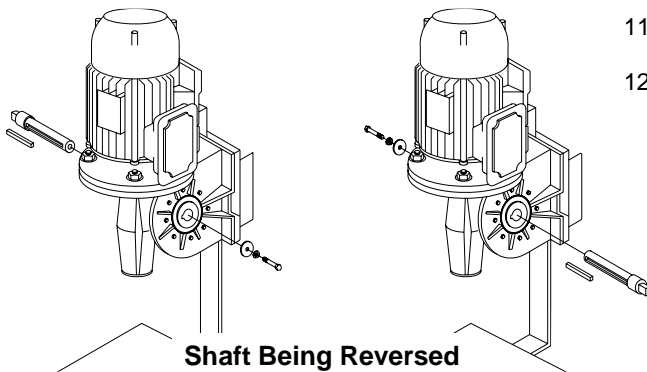


Wobble Extensions
Figure 3-8

Be sure the extension is as straight as possible. Adjusting the spin motor on its bracket may be necessary. Good alignment eliminates drive line chatter. Figure 3-9



Spin Motor Brackets
Figure 3-9



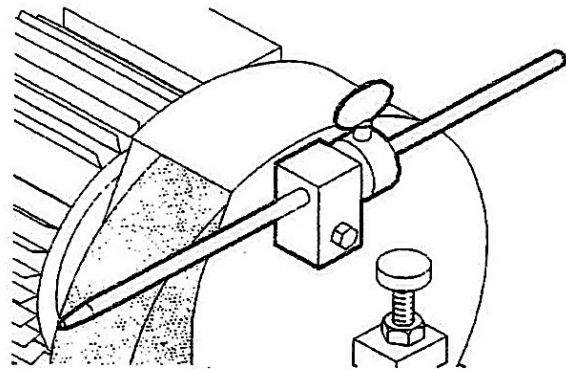
Shaft Being Reversed
Figure 3-9 A

NOTE

The spin motor shaft must be removed and installed on the opposite side of the drive unit for left drive reels. Do not turn drive assembly around on work table bars. (Fig 3-9A)

Once these steps have been completed, all mounting brackets on the reel unit and bases should be securely tightened. When grinding reels of the same make and model, subsequent units will be easier to place after the initial setup.

7. Close the rear canopy.
8. Open the front canopy.
9. A depth gauge is supplied to check that the reel's center shaft is parallel with the wheel head travel. Loosen the screw in the alignment stem collar and slide the alignment stem for ward until it makes contact with the reel's center shaft. Tighten the screw in the collar and remove depth gauge. Move carriage to opposite end of the reel and repeat instructions; taking notice of any differences, make adjustments accordingly. Figure 3-10



Depth Gauge
Figure 3-10

10. After checking the alignment, remove the depth gauge and close the front canopy.
11. Start the spin motor.
12. Adjust the dial on the RPM control to the proper speed setting for the diameter of the reel being ground. Refer to the chart located on the front panel for the proper setting. Figure 3-11

REEL DIAMETER	REV/MIN	DIAL READING
4	375	10.00
5	300	7.70
6	250	6.25
7	215	5.40
8	190	4.75
9	170	4.30
10	150	3.80

**RPM Setting
Figure 3-11**

- Start the wheel head.



CAUTION
PROLONGED CONTACT BETWEEN THE STONE AND REEL MAY CAUSE THE STONE TO CHIP OR BREAK APART, CAUSING SERIOUS INJURY TO THE OPERATOR. DAMAGE TO THE REEL MAY ALSO RESULT.

- With the carriage in the center of the reel, carefully adjust wheel head “in” toward reel until slight contact is made. Manually move grinding carriage left and right. If excessive vibrations or loud grinding sounds occur, quickly adjust wheel head “out,” away from the reel or press the “master kill” button. Check mounting brackets, reel bearings, etc., to make sure all are secure.

NOTE

Sometimes reels wear in either a concave or convex fashion. If the grinding wheel makes contact with the reel only in the center it indicates convex wear. Set limit stops so wheel head travels just beyond points of contact. Read through the following steps, then grind reel until contact is made throughout wheel head’s range of travel. Repeat step 15. If no contact is made beyond points just ground, move limit stops out slightly and regrind. Continue this procedure until contact is made throughout entire length of reel. If wear is concave, reel will have to be ground at each end. Set limit stops as indicated by step 6 and grind until contact is made throughout entire length of reel.

- If the results of step 14 are satisfactory, engage and start traverse.

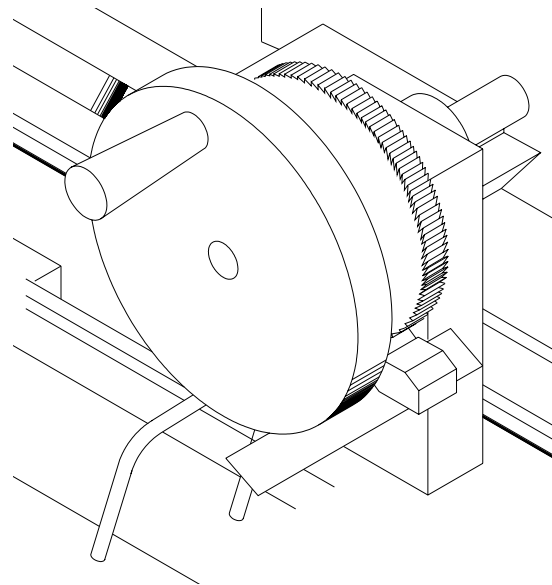
Engaging Traverse

5100 Series—Traverse engage lever is located on the left side of the carriage plate. Move it to the center position.

- Start the coolant pump, using only a “trickle” of coolant for spin grinding.
- Begin the spin grinding operation. Grind the reel until the leading edge has a square and sharp edge. For best results, infeed the wheel at 0.001” (one tooth per stroke). See the following instructions to set the auto infeed indexing ratchet wheel.

Indexing The Ratchet Wheel

The ratchet wheel, located just behind the hand wheel, is used to automatically index the amount of “in-feed” of the wheel head. Figure 3-12



**Ratchet Wheel
Figure 3-12**

The amount of “in-feed” per traverse cycle is set by adjusting the screw on the center limit stop. One, two or three teeth can be indexed, infeeding the grinding wheel 0.001, 0.002 or 0.003 inch per traverse cycle respectively.

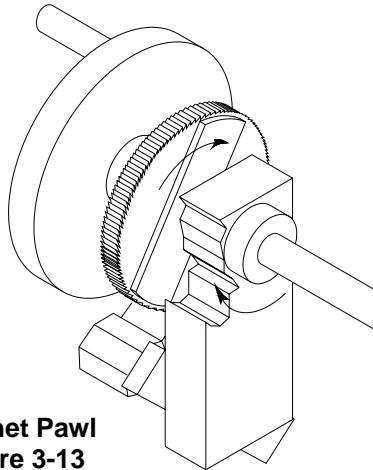
IMPORTANT

For reels, only 0.001 inch per traverse cycle is recommended by the manufacturer.

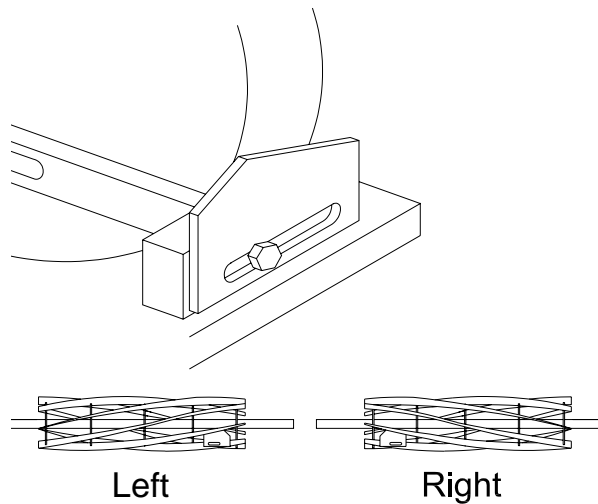
NOTE

The distance of travel will vary slightly with the speed of travel. The carriage will “overrun” the return stop if the speed is increased without readjusting the screw.

The total amount of "in-feed" can be pre-selected from 2 to 35 teeth (0.002 to 0.035 inch), by setting the knock-off arm located directly behind the ratchet wheel. In-feeding stops automatically when the knock-off arm has rotated around and makes contact with the ratchet "pawl." Figure 3-13

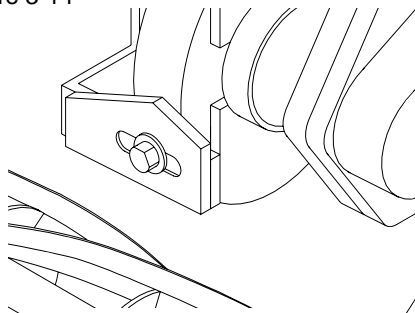


Ratchet Pawl
Figure 3-13



Manual Relief Grinding

1. Remove the drive coupler from the spin motor.
2. Slide the limit stops to each end of the stop rail so that they do not interfere with the ratchet mechanism. Otherwise, undesired infeeding might occur unnoticed.
3. Disengage the traverse.
4. Adjust the wheel head out away from the reel 1" to 1-1/2".
5. Move the finger guide into position. Maintain a clearance no greater than 1/8" between the guide plate and grinding stone—the closer the better. Figure 3-14



Finger Guide
Figure 3-14

6. Make sure the finger guide "peak" is located under the proper side of the grinding wheel. The guide may have to be reversed for a left helix reel. Figure 3-15

NOTE

Look down on the reel from immediately above the grinding wheel to be certain that the grinding wheel makes contact with the reel blade on one corner only. The peak of the finger guide must be directly below this point of contact. If you have another reel in which the blades "spiral" in the opposite direction, the grinding wheel will only make contact on the opposite corner. For this reason the finger guide plate must be reversed.

The helix, or "spiral" of reel blades differs according to the manufacturer. A close look at the finger guide reveals that the peak is positioned to one side of the grinding wheel. When the leading edge of the reel blade contacts the "right" side of the grinding wheel for relief grinding. If the leading edge of the reel blade contacts the "left" side of the grinding wheel for relief grinding. The finger guide plate is reversible to allow for his adjustment. Also, the hole in the finger guide plate is elongated to allow for readjustment as the stone wears.

⚠ CAUTION ⚠

IF THE BLADE DOES NOT SIT FIRMLY ON THE FINGER GUIDE, BROKEN OR CHIPPED PIECES OF STONE OR SHARP BITS OF METAL MAY CAUSE INJURY TO THE OPERATOR.

7. Starting at the end of a reel blade, carefully move the wheel head in toward the blade. Take extreme care that the blade you are grinding is placed firmly on the finger guide slope. At this point, do not let the grinding stone make contact with the blade. Check for clearance between the "next blade" and the grinding wheel. Figure 3-15
8. Start the wheel head.
9. Start the coolant pump at full flow.
10. Adjust the wheel head "in" to achieve the desired grind.

⚠ WARNING ⚠

INITIALLY, UNTIL THE OPERATOR IS VERY USED TO THIS OPERATION, WE RECOMMEND THAT THE GRINDING CARRIAGE BE MOVED BY HAND TO INSURE BETTER CONTROL.

11. Pull the carriage along gently when starting the relief grinds. Remember to have the coolant at full flow.

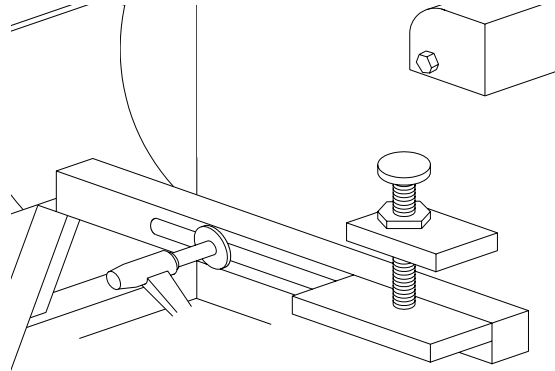
⚠ CAUTION ⚠

WHEN MANUALLY TURNING THE REEL, BE SURE TO KEEP HANDS CLEAR OF PINCH POINTS BETWEEN THE REEL AND STONE.

12. Make sure the grinding wheel clears the end of one blade before indexing to the next. There are two (2) methods of relief grinding:
 - a. Manually move the carriage to one end and return on the same blade before indexing to the next blade.
 - b. As the carriage reaches the end of one blade, the grinding wheel is moved clear of the blade, the reel is indexed to the next blade, and this blade is ground as the carriage returns.

Continue this operation until every blade is completely ground to the original equipment manufacturer's specifications. The thickness and hardness of the blades being sharpened determines how much material can be ground in one pass. With experience, the operator will get a feel for different blades.

13. The angle of relief is adjustable using the thumb bolt. Turn the thumb bolt clockwise for less angle and counter-clockwise for a greater relief angle. Figure 3-16

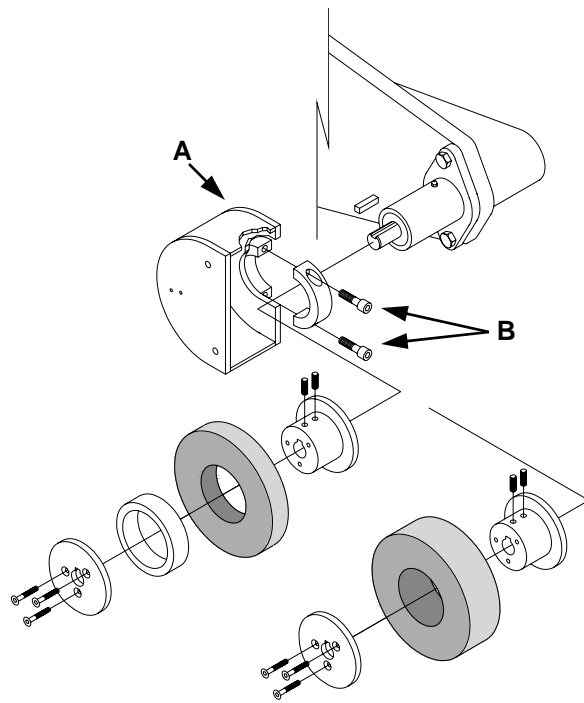


**Thumb Bolt
Figure 3-16**

NOTE

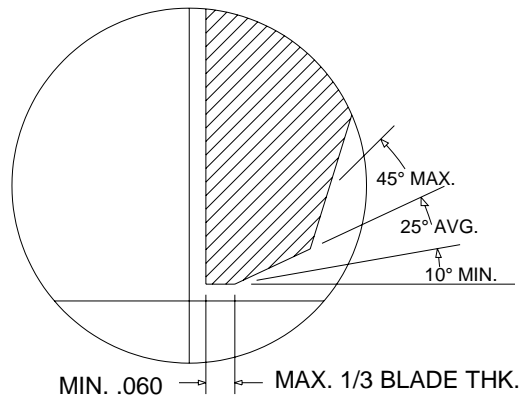
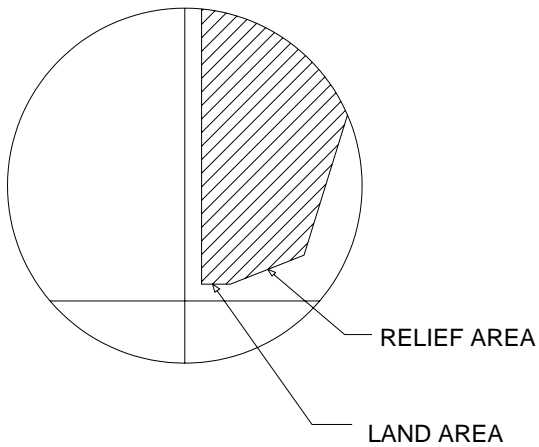
The lower the position of the finger guide, the greater the relief angle imparted to each blade. Conversely, the lower the center of the grinding wheel, the greater the relief angle. If the blade is positioned from the center of the grinding wheel (or above), no relief will be ground on the blade.

The guard (A) the finger guide is mounted to may be rotated to gain more grinding angles. Simply loosen the Allen screw (B) and move guard to the desired location and re-tighten. Figure 3-17



**Guard
Figure 3-17**

Grinding Relief Angles on Reels



Grinding the Angles

Relief grinding should be "tailored" to suit the application of the reel mower. The angle of the grind should be sufficient to last for a full season of use before normal wear completely removes all the relief. For example, a mower being used on Kentucky bluegrass fairways in Ohio will experience much less wear than a mower being used on a Zoysia grass sod field in Arizona.

NOTE

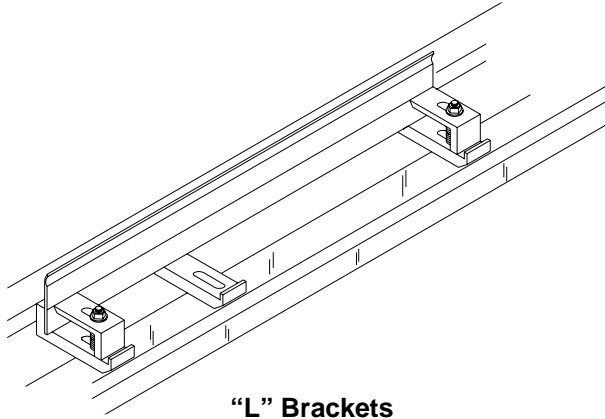
These specifications are to be used as a guide only if the original equipment manufacturer's specifications are not available. The manufacturer's recommendations should be followed when grinding reels.

A 10 degree relief angle is considered minimum; a 25 degree relief angle average and a 45 degree relief angle the maximum that should be ground on reel blades.

The land area of reel blades should have a surface no wider than .060 or less, which is equal to approximately 1/3 of the blade thickness.

Sharpening Bedknives

1. Install tool bar assembly on work table. Mount the bedbar with "leading edge" or "front face" of bedknife up on the tool bar and tighten the "L" bracket clamping bolts. Figure 3-18

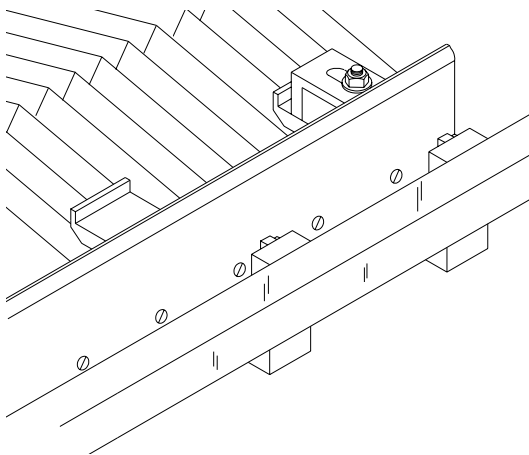


"L" Brackets
Figure 3-18

NOTE

The two (2) location brackets can be relocated along the toolbar to accommodate bed bars of varying length.

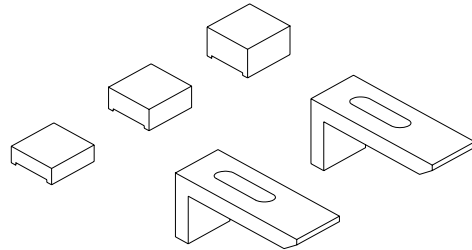
2. Make sure the back of the bedknife is flush with the key stock. Do not place bedbar screws on key stock. This will result in improper grinding of the bedknife. Figure 3-19



Bedknife Secured with "L" Brackets
Figure 3-19

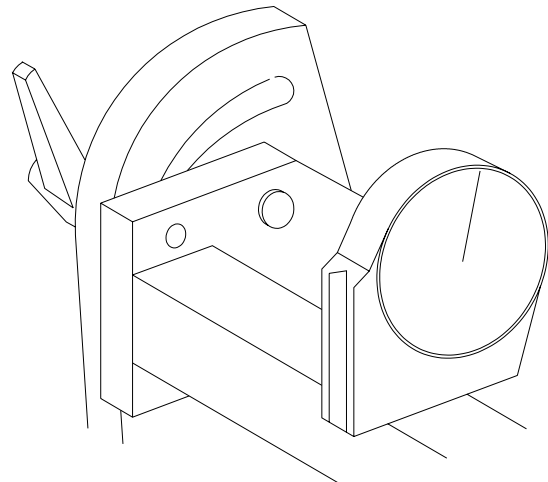
NOTE

The tool bar assembly is supplied with spacer blocks of three different thickness and "L" brackets of two (2) different lengths. Use these to adjust the height of the bedknife assembly to provide correct access for sharpening. Figure 3-2



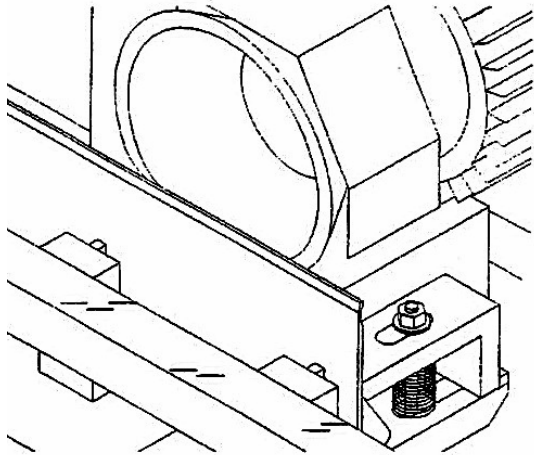
Bedknife Spacer Blocks and "L" Brackets
Figure 3-20

3. Place the "Angle Finder" on top of the tool bar and set the desired angle for grinding. Refer to the reel manufacturer's recommendations for the proper angle. Feel free to "scribe" your own marks for quick reference. Figure 3-21



Grinding Angle Adjustment
Found with Angle Finder
Figure 3-21

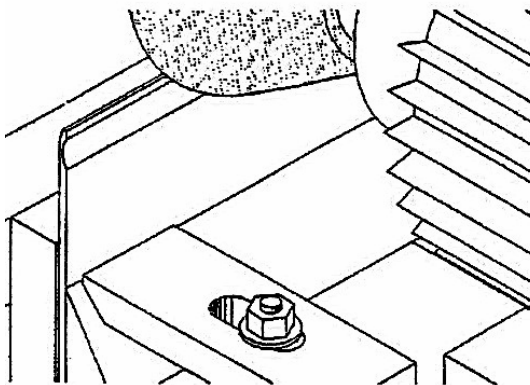
- The cupped grinding stone should not extend beyond the guard. Adjust the wheel head vertically on the pedestal mount so the inside edge of the cupped grinding stone is slightly below the top edge of the bedknife. This will insure an even wear pattern on the grinding face of the stone. Figure 3-22



Cupped Stone Adjustment
Figure 3-22

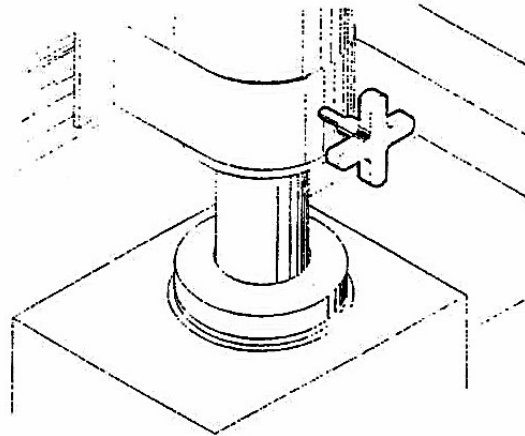


CAUTION
INJURY COULD OCCUR TO THE OPERATOR IF THE CUPPED STONE CHIPS OR BREAKS APART. MAKE SURE THE OUTSIDE EDGE OF THE CUPPED WHEEL DOES NOT MAKE CONTACT WITH OUTER PARS OF THE BEDBAR OR MOUNTING BRACKET. Figure 3-23



Outside Edge of Cupped Stone
Figure 3-23

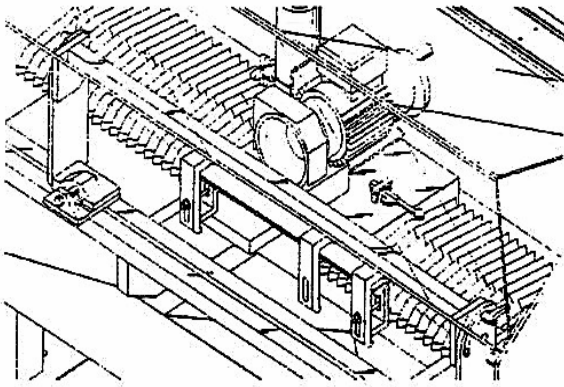
Once the adjustments in step 4 are complete, tighten the knob, making sure it seats into the groove of the pedestal. Figure 3-24



Pedestal Knob
Figure 3-24

- Set the limit stops so the wheel head clears each end of the bedknife by one (1) inch or more.
- Manually move grinding carriage left to right to insure that all points are clear.
- Start the pump on full flow. The nozzle should direct the coolant to the point of cupstone and the bedknife.
- Start the wheel head motor.
- Manually infeed the wheel head until there is slight contact with the bedknife. Traverse the wheel head the full length of the bedknife to insure there are no "high spots" and that the bedknife is equal distance from the cupstone.
- Engage and start the traverse. Continue to grind until the bedknife has a straight, sharp edge.
- Disengage the traverse and manually back the wheel head away from the bedknife. Stop the grinder.
- Loosen the handles on the sides of the tool bar and rotate the bedknife ± 90 degrees from its present position. (This is easiest from the back of the grinder, but it can be accomplished from either side.) Assure that when the bedknife is rotated the "top face" of the bedknife will be "down under." Figure 3-25

Repeat steps 6 through 12 and remove your sharpened bedknife.



**Bedknife Bracket Adjustment
Figure 3-25**

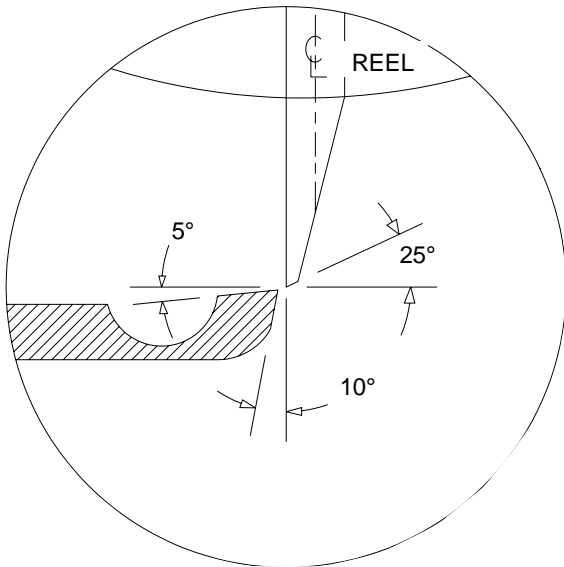
NOTE

These specifications are to be used as a guide only if the original equipment manufacturer's recommendations should be followed when grinding bedknives.

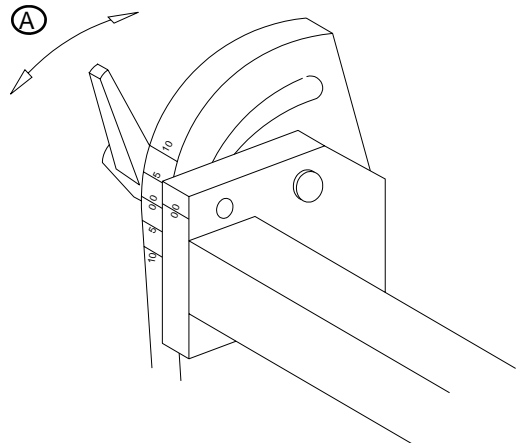
The required grind should be fairly easy to determine on a used bedknife showing a wear pattern. Simply adjust the mounting bracket until the grinding stone contacts the knife surface. (Arrow A)

Then, by rotating the bracket, adjust the reference marks on the angle setting gauge on the right end of the mounting bracket.

Grinding Relief Angles on Bedknives



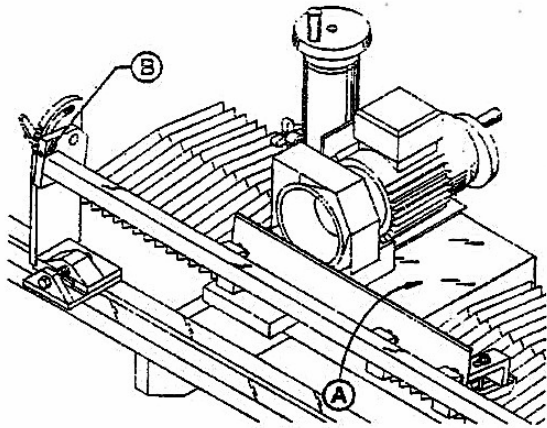
**Bedknife/Reel Relief Angle
Figure 3-26(a)**



**Bedknife Adjustment Handle
Figure 3-26(b)**

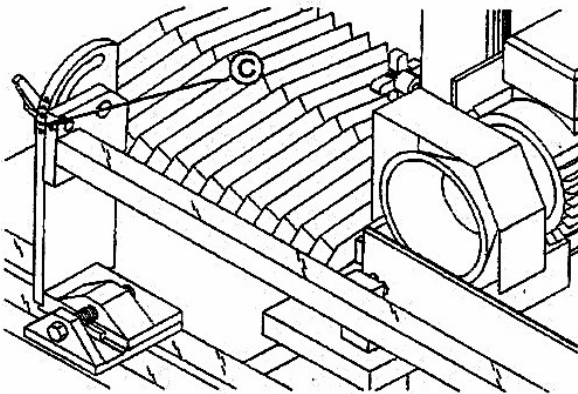
A shallow relief angle of 10 degrees to 15 degrees would more than likely last on golf course fairway turf for an entire season (3 to 6 months) but only a week or two on a sod farm.

A steep angle, on the other hand, may last two seasons on golf course fairway turf and only half a season on a sod farm.



Adjusting the Stone to the Bedknife
Figure 3-27

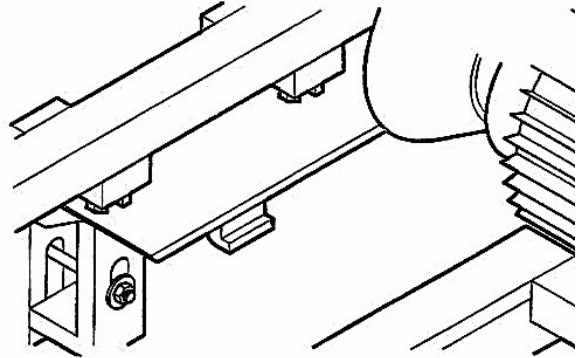
To achieve a 5 degree angle on the bedknife, rotate the bracket to the 5 degree reference mark. Figure 3-28, arrow C.



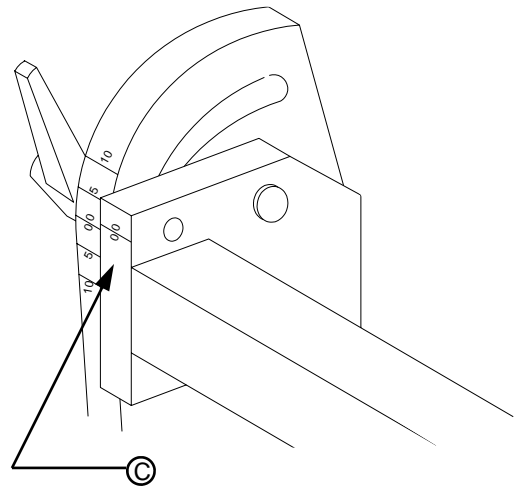
Setting Grinding Angles with Reference Marks
Figure 3-28

Refer to Figure 3-29 and 3-30:

The front face should be ground at an angle which insures the first contact with grass blades is made by the cutting edge.



Front Face of Bedknife
Figure 3-29

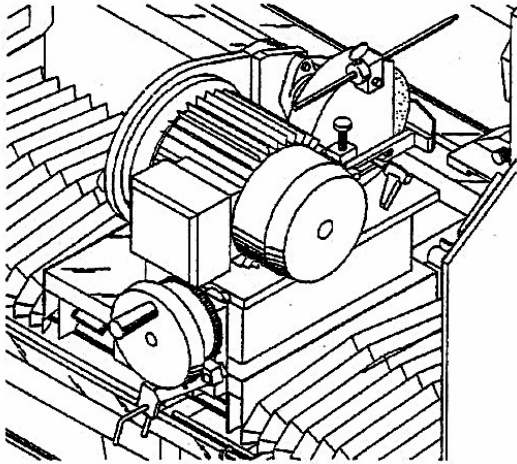


Grinding Angle Adjustment
Figure 3-30

SECTION 4—MAINTENANCE & LUBRICATION

Clean-Up

1. After use, wash the unit with its own water supply which should have an anti-rust additive. The reservoir holds approximately three gallons of clear water and recommended amounts of anti-rust additive.
2. Keep the wheel head carriage assembly clean. Figure 4-1



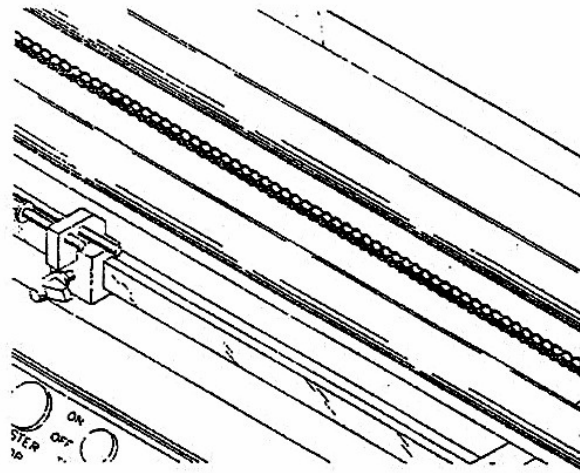
Wheel Head Carriage
Figure 4-1

Refer to Figure 4-2 and 4-3:

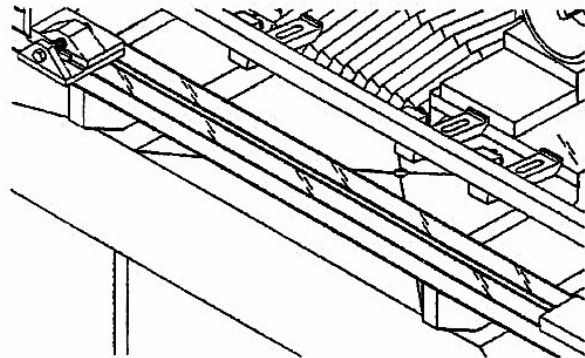
Using a chain and cable lubricant, occasionally oil the chain with a light coating. Chain and cable lube in a spray can is very effective. Use 30 wt oil on guide rails and work table rails. Use 90 wt oil on grease fittings and carriages.

NOTE

The long life of this machine is based on the quality of maintenance and continued use of anti-rust additive in the coolant.



Chain and Guide Rails
Figure 4-2



Work Table Bars
Figure 4-3

3. Clean the water reservoir and screens after approximately 60 to 70 units of work. To remove the water reservoir:

- A. Disconnect the power supply.
- B. Remove the rear cover from the machine.
- C. Pull the drain hose out of the lid.
- D. Slide the tank out.

Servicing the Stones



EXTREME CARE MUST BE TAKEN TO AVOID CRACKING THE STONE. A CHIPPED OR BROKEN STONE COULD CAUSE SERIOUS INJURY TO THE OPERATOR.

Dressing the Stone

For true roundness, dressing with an optional diamond dressing tool works well. To remove glazing, open the pores and reshape the cupped stone. An optional granite dressing stick may be used.

Belt Tension

The tension of the toothed drive belt may be adjusted by loosening the hex nut and sliding the tensioner up or down in the slotted hole. After desired tension is achieved, retighten the hex nut. Figure 4-4

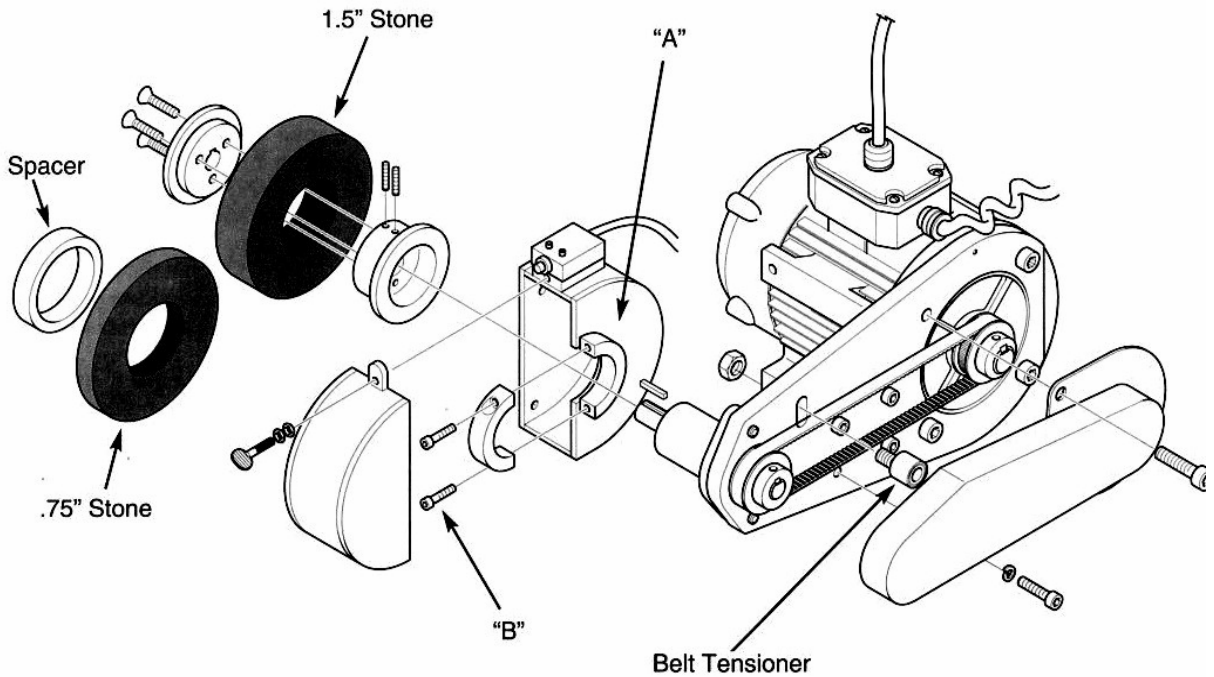


Figure 4-4

SECTION 5—TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Electric motors won't start	Master button "off" position	Twist master button clockwise. It should "pop up"
Spin motor won't start	Safety switch on hood not engaged	Close canopy
Pump runs but doesn't pump water	Water level low	Add water
	Valve off	Open valve
	Suction screen clogged	Pull tank out, clean suction screen on pump shaft

⚠ DANGER ⚠

ONLY QUALIFIED ELECTRICIANS SHOULD SERVICE THIS AREA OF THE GRINDER.

All electric motors are shipped with thermal overload switches in the electric panel, found in the bottom of the grinder. It may be necessary to open the front cover and reset the appropriate switch. For further assistance, contact you Locke Turf Dealer.



Frequently Asked Questions



SAFETY SHIELDS ARE INSTALLED FOR YOUR PROTECTION.

1. Why does the sharpener have safety shields?

Grinding stones frequently chip or even shatter, injuring the operator of an unshielded sharpener. Also, in spin grinding, an unshielded rotating reel presents a considerable hazard to loose clothing, fingers, hands and other objects. The rotating reel can also break free if a bearing fails a shaft break free if a bearing fails, a shaft breaks or a blade weld fails, sending metal fragments flying.

2. Why does the sharpener have the water/coolant mix?

Grinding reels creates an extreme amount of dust. There are documented cases of operators suffering injury from inhaling grinding dust. Also, the water/coolant mix helps cool the edges being ground. A blade, when subjected to excessive heat, may lose its temper. The result is a softer metal and a quicker wearing of the edges while mowing.

3. Why is there a variable speed drive?

In spin grinding reels, the peripheral or tip speed of the reel blades in relation to the speed of the grinding stone is directly related to the quality of the finish grind. Therefore, variable speed on these drive motors allows proper adjustment. Consult the chart for the diameter reel being ground. Some makes of reel mowers (e.g., Ransomes, John Deere, Jacobsen Greens King) have both right and left hand drive. Having a drive motor which facilitates driving from either side is necessary.

4. Why is the sharpener built so heavy?

Grinding reels is a precision operation. The guide rails, reel and bedknife brackets and grinder supports must be built soundly and solidly to keep the grinder stone moving parallel to the spinning reel or finished grind on a bedknife. This sharpener's base weighs over five hundred (500) pounds and the guide rails are set permanently into the frame, parallel and not adjustable by the operator. The heavy construction helps insure the components are solidly mounted, unlikely to become misaligned through frame twisting. It is important to level the sharpener and bolt it permanently to the floor. This helps insure true, accurate grinding.

5. Why are brackets used to attach units into the sharpener?

We use brackets that bolt into the same place as the bedknife shoe if available. Using these attachment points means that the reel is being ground in the same relationship as it is used in the field. Other sharpeners, which use rollers and/or axles to hold a reel unit, introduce the potential of inaccurate grinding due to worn bearings in the roller or axle. Misalignment between rollers and axles with the reel's axles may occur. Mounting the reel unit at the points where the bedknife attaches means that the operator need only concern himself with adjusting the reel parallel to the movement of the grinding wheel on the guide bars.

6. Why is it necessary to grind a new bedknife? Hasn't it been ground at the factory?

Bedknives are ground to certain specifications at various stages of their construction. They also undergo stress which will frequently bow or twist them. Furthermore, even new bedknives should always be mounted to their particular shoe prior to sharpening. If a bedknife style will not allow grinding, some bedbars must be surfaced before attaching the knives. In some cases a light twisting of the bedknife as it is forced to conform to the shoe. Sharpening must occur after mounting or the straight edge will be lost due to this twisting.

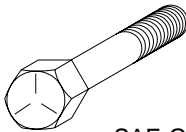
TORQUE SPECIFICATIONS

Proper torque for American fasteners used on Locke Turf equipment.
Recommended Torque in Foot Pounds (Newton Meters). *

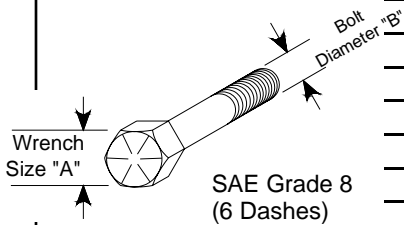
AMERICAN Bolt Head Markings



SAE Grade 2
(No Dashes)



SAE Grade 5
(3 Dashes)

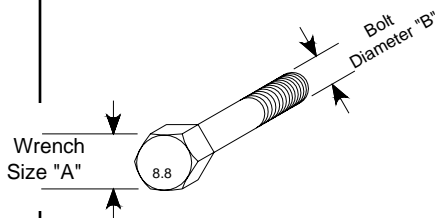


SAE Grade 8
(6 Dashes)

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 -20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 -28 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4 -16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 -8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (1992)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

Proper torque for American fasteners used on Locke Turf equipment.
Recommended Torque in Foot Pounds (Newton Meters). *

METRIC



Numbers appearing on bolt heads
Indicate ASTM class.

*Use 75% of the specified torque value
for plated fasteners. Use 85% of the
specified torque values for lubricated
fasteners.

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)



Locke Turf

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