FOLEY COMPANY

ACCU-660
MANUAL
BEDKNIFE GRINDER

This book consists of two manuals:

The OPERATORS MANUAL which contains all the information on operating and doing routine daily maintenance on this equipment.

The ASSEMBLY and SERVICE MANUAL which is used by the maintainence department to install the equipment and to do all maintenance except routine daily maintenance.

FOLEY COMPANY

We are committed to:

Providing superior customer support, training, and service.

Manufacturing the highest quality products at an unequaled value.

Setting the industry standard by investing in technological product innovation.

Manufacturing products specifically designed to maintain original equipment manufacturers' specifications.

Interacting with and supporting all original equipment manufacturers.

FOLEY COMPANY

ACCU-660 MANUAL BEDKNIFE GRINDER

OPERATORS MANUAL

WARNING

You must thoroughly read and understand this manual before operating the equipment, paying particular attention to the Warning & Safety instructions.

SAFETY INSTRUCTIONS

Safety Awareness Symbols are inserted into this manual to alert you to possible ***Safety Hazards***. Whenever you see these symbols, follow their instructions.

The ***Warning Symbol*** identifies special instructions or procedures which, if not strictly observed, **could result in personal injury.**

The ***Caution Symbol*** identifies special instructions or procedures which, if not correctly followed, **could result in damage to or destruction of equipment.**

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE WRENCHES AND OTHER TOOLS.**
3. **KEEP WORK AREA CLEAN.**
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use Grinder in damp or wet locations. Machine is for indoor use only. Keep work area well lit.
5. **KEEP ALL VISITORS AWAY.** All visitors should be kept a safe distance from work area.
6. **MAKE WORK AREA CHILD-PROOF** with padlocks or master switches.
7. **DON'T FORCE THE GRINDER.** It will do the job better and safer if used as specified in this manual.
8. **USE THE RIGHT TOOL.** Don't force the Grinder or an attachment to do a job for which it was not designed.
9. **WEAR PROPER APPAREL.** Wear no loose clothing, gloves, neckties, or jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
10. **ALWAYS USE SAFETY GLASSES.**
11. **SECURE YOUR WORK.** Make certain that the bedbar and bedknife is securely fastened with the magnets and centers provided before operating.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in the Assembly and Service Manual for lubrication and preventive maintenance.
14. **DISCONNECT POWER BEFORE SERVICING.**
15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure all switches are OFF before plugging in the Grinder.
16. **USE RECOMMENDED ACCESSORIES.** Consult the manual for recommended accessories. Using improper accessories may cause risk of personal injury.
17. **CHECK DAMAGED PARTS.** A guard or other part that is damaged or will not perform its intended function should be properly repaired or replaced.
18. **KNOW YOUR EQUIPMENT.** Read this manual carefully. Learn its application and limitations as well as specific potential hazards.
19. **KEEP ALL SAFETY DECALS CLEAN AND LEGIBLE.** If safety decals become damaged or illegible for any reason, replace immediately. Refer to replacement parts illustrations in Service Manual for the proper location and part numbers of safety decals.
20. **DO NOT OPERATE THE GRINDER WHEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.**

SAFETY INSTRUCTIONS

IMPROPER USE OF GRINDING WHEEL MAY CAUSE BREAKAGE AND SERIOUS INJURY.

Grinding is a safe operation if the few basic rules listed below are followed. These rules are based on material contained in the ANSI B7.1 Safety Code for "Use, Care and Protection of Abrasive Wheels". For your safety, we suggest you benefit from the experience of others and carefully follow these rules.

DO

1. **DO** always **HANDLE AND STORE** wheels in a **CAREFUL** manner.

2. **DO VISUALLY INSPECT** all wheels before mounting for possible damage.

3. **DO CHECK MACHINE SPEED** against the established maximum safe operating speed marked on wheel.

4. **DO CHECK MOUNTING FLANGES** for equal and correct diameter.

5. **DO USE MOUNTING BLOTTERS** when supplied with wheels.

6. **DO** be sure **WORK REST** is properly adjusted.

7. **DO** always **USE A SAFETY GUARD COVERING** at least one-half of the grinding wheel.

8. **DO** allow **NEWLY MOUNTED WHEELS** to run at operating speed, with guard in place, for at least one minute before grinding.

9. **DO** always **WEAR SAFETY GLASSES** or some type of eye protection when grinding.

10. **DO TURN OFF COOLANT** before stopping to avoid creating an out-of-balance condition.

DON'T

1. **DON'T** use a cracked wheel or one that **HAS BEEN DROPPED** or has become damaged.

2. **DON'T FORCE** a wheel onto the machine **OR ALTER** the size of the mounting hole. If wheel won't fit the machine, get one that will.

3. **DON'T** ever **EXCEED MAXIMUM OPERATING SPEED** established for the wheel.

4. **DON'T** use mounting flanges on which the bearing surfaces **ARE NOT CLEAN, FLAT AND FREE OF BURRS.**

5. **DON'T TIGHTEN** the mounting nut **EXCESSIVELY.**

6. **DON'T** grind on the **SIDE OF THE WHEEL** (see Safety Code B7.2 for exception).

7. **DON'T** start the machine until the **WHEEL GUARD IS IN PLACE.**

8. **DON'T JAM** work into the wheel.

9. **DON'T STAND DIRECTLY IN FRONT** of a grinding wheel whenever a grinder is started.

10. **DON'T FORCE GRINDING** so that motor slows noticeably or work gets hot.

11. **DO NOT** Powerwash machine.

SAFETY INSTRUCTIONS/SPECIFICATIONS/ DAILY MAINTENANCE

This machine is intended for grinding the bedknife from a reel type mowing unit ONLY. Any use other than this may cause personal injury and void the warranty.

This machine is intended for indoor use only.

To assure the quality and safety of your machine and to maintain the warranty, you MUST use original equipment manufactures replacement parts and have any repair work done by a qualified professional.

ALL operators of this equipment must be thoroughly trained BEFORE operating the equipment.

Do not use compressed air to clean grinding dust from the machine. This dust can cause personal injury as well as damage to the grinder. Do not power wash the grinder.

CONTENTS

SPECIFICATIONS

Electrical Requirements ..... 115V 50/60 Hz, 15-amp circuit
Net Weight ..... 670 lbs [304 kg]
Shipping Weight ..... 700 lbs [318 kg]
Maximum Grinding Length ..... 32 in. [813 mm]
Sound Level ..... Less than 75 Dba

OPERATING CONDITIONS: THIS MACHINE IS INTENDED FOR INDOOR USE ONLY.

AMBIENT TEMPERATURE:	+5°C/ 40°F to +40°C/ 100°F
RELATIVE HUMIDITY:	50% RH, +40°C/100°F. Higher RH may be allowed at lower temperatures. - no condensation must be present.
ALTITUDE:	up to 1000m/ 3280 ft. above mean sea level.
TRANSPORTATION AND STORAGE:	-25°C/-15°F to +55°C / 130°F

Means must be provided to prevent damage from humidity,vibration and shock.

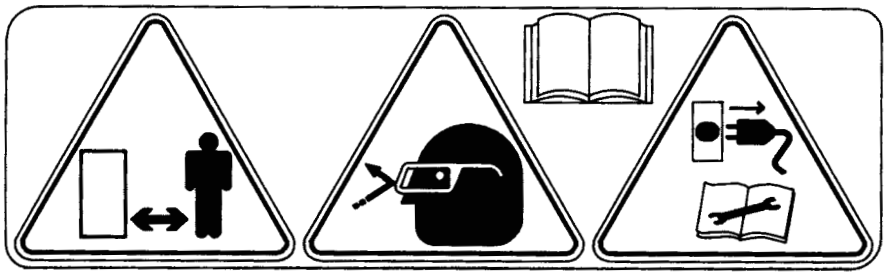
DAILY MAINTENANCE

On a daily basis, clean the grinder by wiping all areas down.
On a daily basis, check coolant tray fluid level.
On a daily basis, inspect the grinder for loose fasteners or components and tighten.
Contact your company's Maintenance Department if damaged or defective parts are found.

DO NOT USE COMPRESSED AIR TO CLEAN GRINDING DUST FROM THE GRINDER.

SAFETY INSTRUCTIONS

PLEASE TAKE SPECIAL NOTE OF THE FOLLOWING WARNING DECALS LOCATED ON THE ACCU-660 BEDKNIFE GRINDER.



Symbols for "Read Operators Manual", "wear safety glasses" and "disconnect power before servicing".

Symbol for keep visitors a safe distance away from grinder.

Symbol identifying a panel, cover, or area as having live electrical components within.

Symbol for caution relating to RPM of the motor and minimum safe rated RPM of the grinding wheel.

Symbol identifying a sharp object which will cause serious injury.

GETTING TO KNOW YOUR GRINDER

FIG. 1 shows the major areas of the Grinder which will be referred to in the operating instructions in the remainder of this manual.

The next few pages show details of some of those areas and point out the various controls you will use when operating.

CONTROL BOX
The control box contains the electrical controls for the Grinder. START and STOP switches are located on the top panel. See Page 7 for details.

GRINDING HEAD
The grinding head consists of the grinding wheel and safety guard, and the motor which drives the wheel. See Page 7 for details.

CARRIAGE AND VERTICAL ADJUSTER
The carriage and vertical adjuster provide a movable support for the grinding head. A handwheel (see Page 7 for details) adjusts the grinding wheel position forward and back. An eccentric cam and lock adjusts the grinding wheel position up and down.

BEDKNIFE SUPPORTS
Two magnets and center assemblies support the bedknife for grinding. A fixed magnet and center assembly on the left end, and an adjustable magnet and center assembly on the right end. See Page 8 for details.

TOOLING ROTATION
To grind the top face and front face of the bedknife the tooling assembly rotates. This rotation is accomplished through an arm on the right side with a pointer and lock to set the correct angle. See Page 8 for details.

COOLANT TRAY
A large coolant tray built into the base serves as a splash guard and collects the splashed liquid for return to the Coolant Pump.

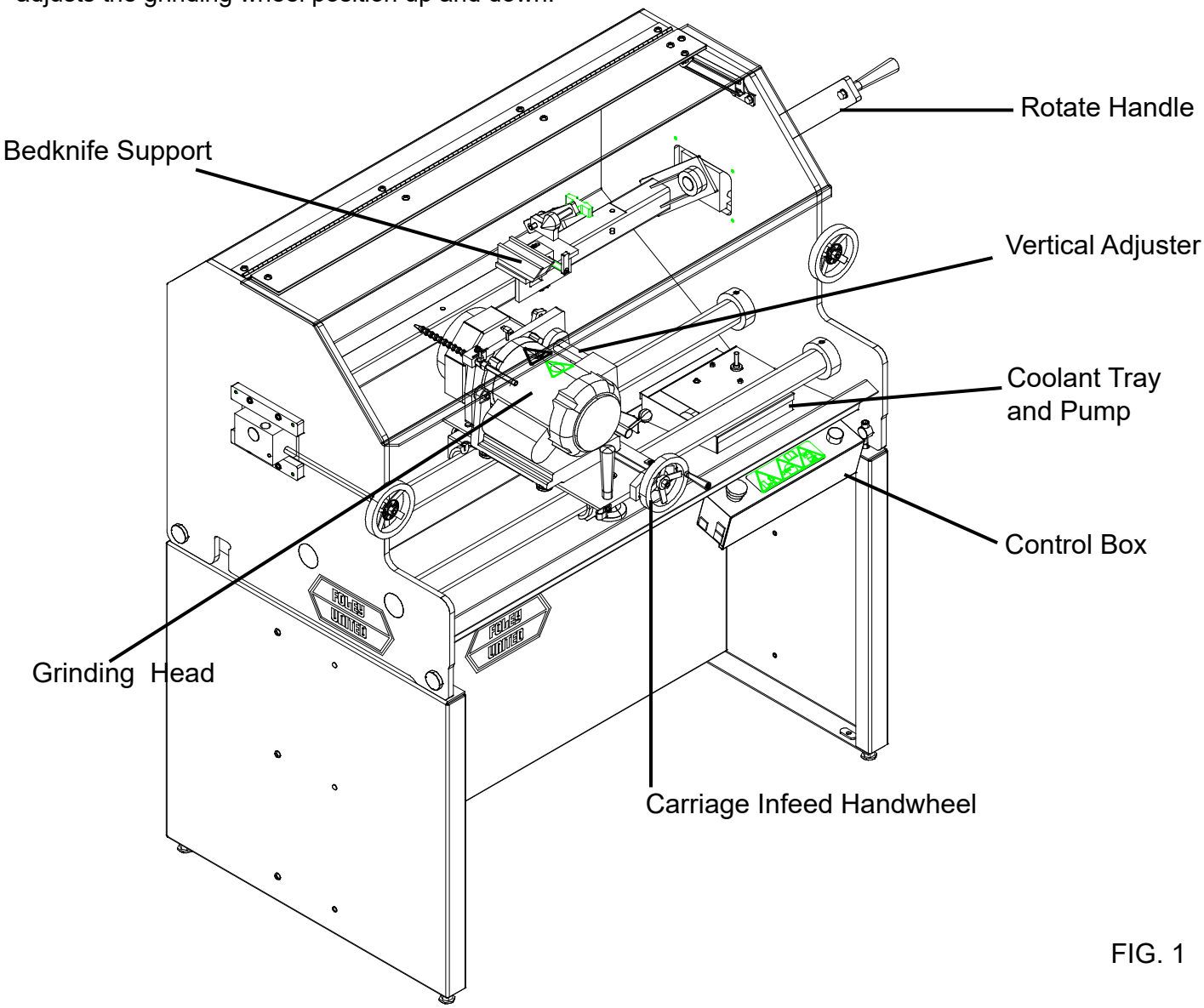


FIG. 1

GETTING TO KNOW YOUR GRINDER (Continued)

START Button - Green (FIG.2)
Acts as a reset or start button after STOP has been pressed. The guard door must be closed or the start button will not reset.

STOP Button - Red (FIG.2)

Shuts down power to the Grinder

To start the grinding operation: With the guard door closed, press the START button. The grinding motor and the coolant pump will start immediately.

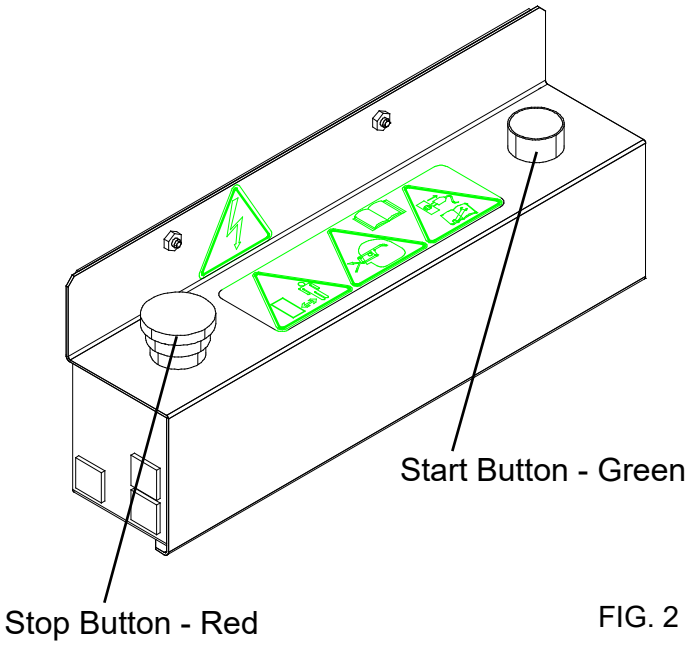


FIG. 2

GRINDING HEAD (FIG. 3)

Vertical Eccentric Adjustment and Lock
Moves the grinding head up and down.

Horizontal Handwheel
Moves the grinding head infeed in and out.

Horizontal Adjustment Scale
Calibrated in .002 in [.05mm] increments, so you can accurately move the grinding wheel in for each pass across the face of the bedknife.

Wheel Guard Lock Screws
A T-knob holds the guard in position. Loosen it to pivot the guard when the guard interferes with the bedbar.

Diamond Wheel Dresser
Allows you to dress the grinding wheel. Cleaning and dressing the grinding wheel improves the quality of the grind. See Page 11 for more information.

COOLANT SYSTEM (FIG. 3)
See Page 14 for more information about the system.

Coolant Nozzle
Directs a stream of coolant onto the bedknife and grinding wheel. For precise aiming, the nozzle and connecting tubing are completely flexible.

NOTE: The connecting tube can be shortened by removing segments as desired

Coolant Flow Valve
Controls the volume of coolant flowing to the nozzle. Use only enough flow to cool the bedknife. Excess flow will cause excess splashing - and **won't** improve performance.

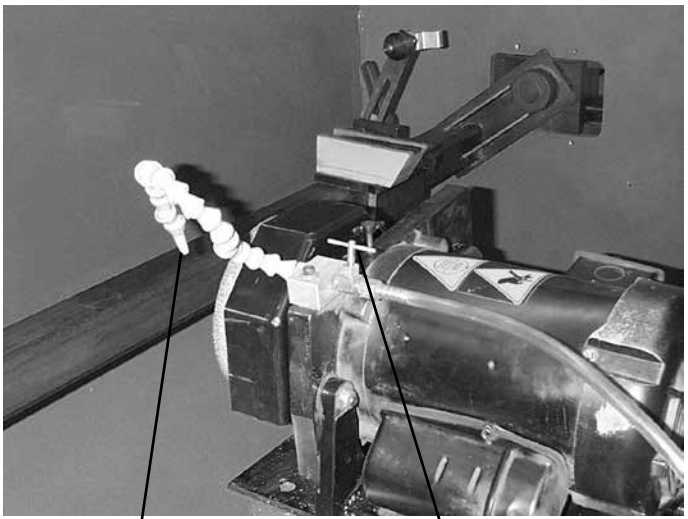


FIG. 3

FIXED BEDKNIFE SUPPORT (FIG. 4)

The bedknife and bedbar is held in position by two magnets and centers. The left side magnet and center position is fixed.

ADJUSTABLE BEDKNIFE SUPPORT (FIG. 5)

The right side magnet and center is adjustable to match bedknife width.

Right Hand Adjustable Support Lock Knob

Locks the right magnet and center assembly in position on the tooling bar slide. See FIG. 2

TOOLING ALIGNMENT ADJUSTERS (FIG. 6)

Left Hand and Right Hand

Adjustment Handwheel

Adjusts the sides of the tooling assembly which allows the tooling assembly to be adjusted to the bedknife to get maximum life from bedknives.

BEDKNIFE GAGE (FIG. 4)

On the outside of each magnet is a retractable bedknife gage. These gages are used to align the bedknife to the grinding wheel carriage travel.
See Page 14 for detailed explanation of use.

TOOLING ROTATION (FIG. 6)

To achieve the angles as described on page 9, the ACCU-660 Bedknife grinder has a movable tooling bar with an angle indicator and lock. FIG. 6 shows the upper or top face angle pointer and decal, and the lower or front face angle pointer and decal. The tooling bar is moved from front face to top face with a lever and handle on the left side of the grinder.

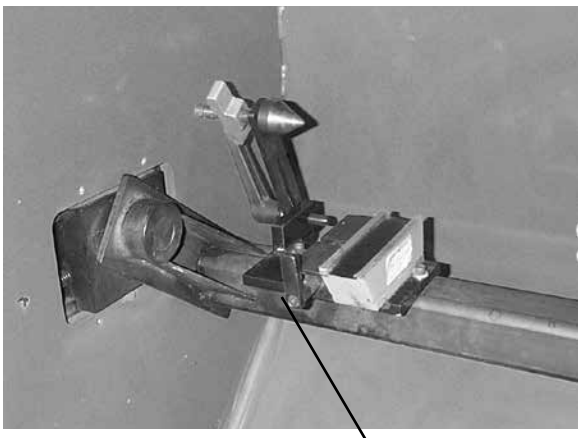


FIG. 4

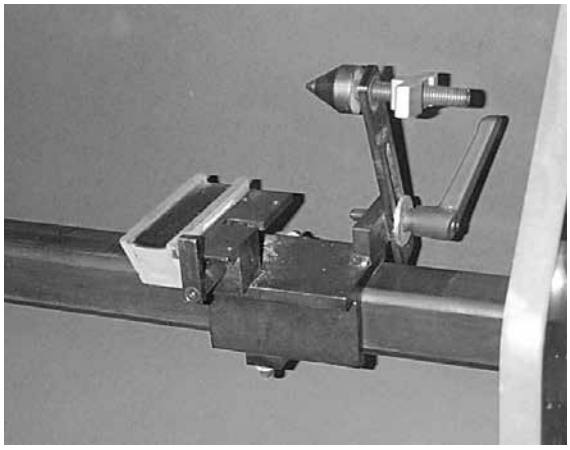


FIG. 5

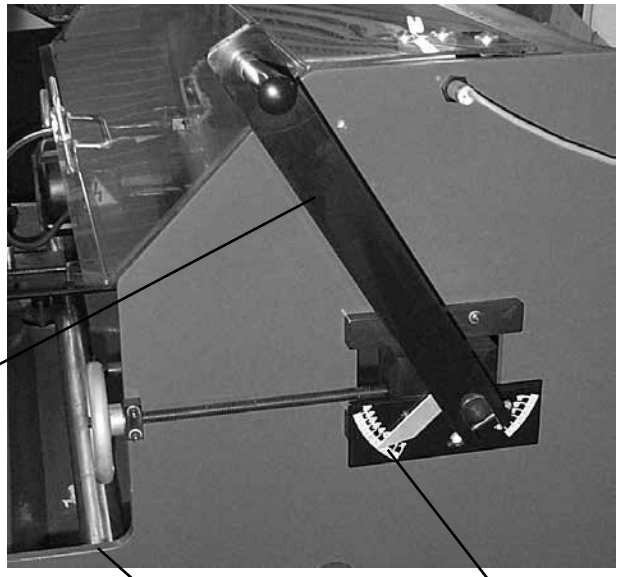


FIG. 6

WHEN TO SHARPEN THE BEDKNIFE

NOTE: To fully sharpen a reel mower, you need to grind the reel blades (using a Reel Grinder) **and** reshape the cutting edge of the bedknife (using the ACCU-660 Bedknife Grinder).

NOTE: New bedknives should be ground before being put into use. New bedknives deform and move to match the shape of the bedbar at the time of installation and therefore **MUST** be ground to a straight surface after installation.

When the grass is not being cut cleanly, or the cut ends of the grass appear torn or ragged, the edges of the reel blade and bedknife have become rounded and need sharpening. See FIG. 7A. The purpose of sharpening is to restore the sharp edges to the reel and bedknife as well as to return the mowing unit to the manufacturers recommended configuration. See FIG. 7B.

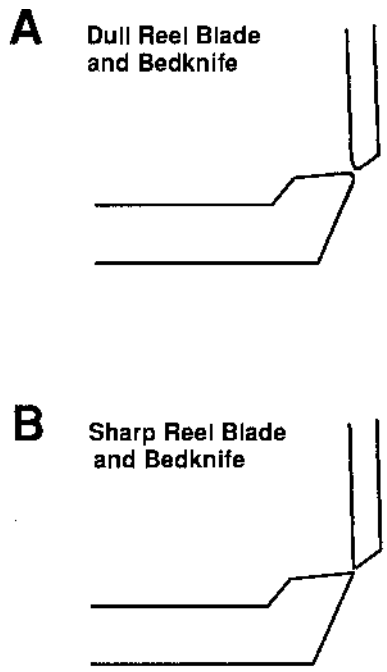


FIG. 7

BEDKNIFE GRINDING ANGLES

The bedknife has two faces that normally need to be ground - the top face and the front face (on some models, the front face may be curved and not need grinding.)

The proper grinding angles for the two faces will vary, depending on the reel manufacturer. **Always follow the manufacturer's recommended specifications for bedknife angles.**

Typically, however:

- There will be a +8 to -10 degrees clearance angle ground on the top face. It will **usually** be
- measured relative to the bedknife mounting surface. See FIG. 8-A.
- There will be a 0-30 degrees clearance angle ground on the front face. It will **usually** be
- measured relative to a line **perpendicular** to the bedknife mounting surface. See FIG. 8-B.

How to obtain these angles is discussed in more detail in the operating instructions, beginning on Page 13.

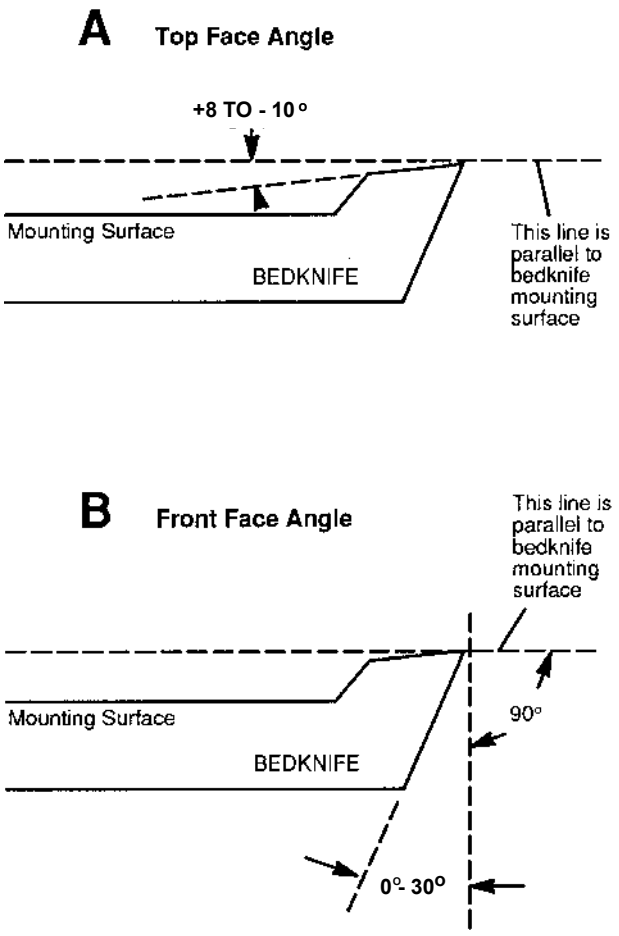


FIG. 8

GENERAL OPERATING INFORMATION (Continued)

MOUNTING A GRINDING WHEEL

To replace the grinding wheel: See FIG. 11.

1. Push the Emergency Stop button.
2. Unscrew the mounting flange that holds the grinding wheel, using a 3/4" open-end wrench. **NOTE:** The Lock Flange has a left handed thread, hold the wheel and turn the wrench clockwise looking at the Lock Flange.
3. Remove the old wheel and install the new one.
4. Screw on the flange finger tight, then tighten approximately 1/8 turn further with the wrench. It will self-tighten when the motor is turned on.

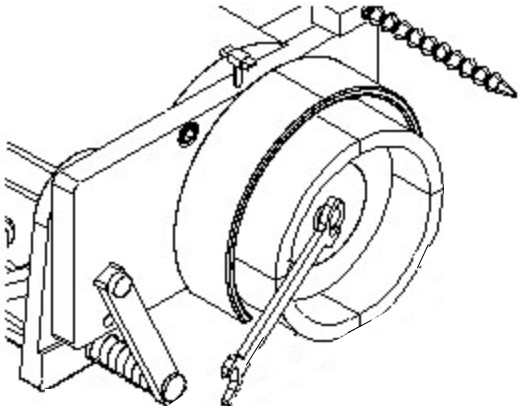


FIG. 11

IF THE WHEEL FLANGE IS OVERTIGHTENED, THE GRINDING WHEEL MAY CRACK AND FLY APART.

5. After you install a new or different wheel, it is recommended that you dress it before grinding. Dressing trues the grinding surface of the wheel and removes the hard glaze sometimes remaining from the manufacturing process. This dressing properly prepares the wheel for grinding. See Page 11.

GRINDING WHEELS AVAILABLE FOR ACCU- 660 BEDKNIFE GRINDER

WHEEL PART NO.	COLOR/DESCRIPTION/SIZE	GRIT	
3700060	White/red (ruby) flare-cup wheel 6/3-1/4 x 2 0.627 inch bore, vitrified ruby	60	
3700062	White flare-cup wheel, 6/ 3-1/4 x 2 0.627 inch bore, vitrified	46	
3700268	White/red (ruby) straight-cup wheel, 6 x 2 x 0.627 inch bore, vitrified ruby	60	
3700411	White straight-cup wheel, 6 x 2 x 1.25 inch bore, vitrified	46	
3700696	Borazon straight-cup wheel, 6 x 1-1/2 x 0.625 inch bore	120	For normal or extra hardened bedknife.

,**For more information on flare-cup wheels, see Page 13.**

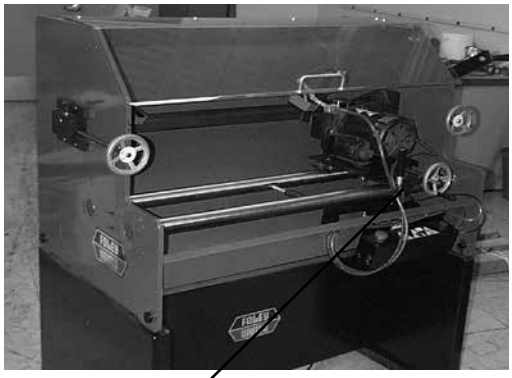
GENERAL OPERATING INFORMATION (Continued)

DRESSING THE GRINDING WHEEL

Dress the grinding wheel whenever there is any glazing ("glazing" is the buildup of stone dust, grinding grit, and coolant on the face of the wheel). For best results, also dress the wheel before making the final grind.

REFER ALSO TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.

For dressing, always move the grinding head to the right hand side of the machine as shown in FIG. 12, so you are clear of the bedknife.



Grinding Head on Right Side FIG. 12

With the wheel turning, lift the dresser movement arm off its holder, push it forward and swing the dresser around to the grinding face of the wheel. Turn the adjuster ring until the diamond point **JUST** touches the wheel. See FIG. 13 or 14. When completed, rotate handle clockwise against the lock bracket before pulling back and replace the dresser movement arm in the holder.

DRESSER IN LOCKED POSITION

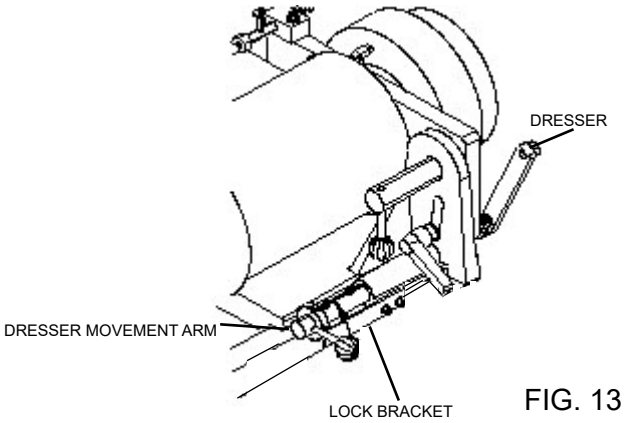


FIG. 13

If the dresser is adjusted to far into the wheel the area supporting the diamond will be ground and the diamond may be lost. Adjust so the diamond just touches the wheel.

NOTE: Excessive dressing will shorten the life of the wheel. To little dressing will inhibit proper grinding.

DRESSER UNLOCKED & READY TO USE

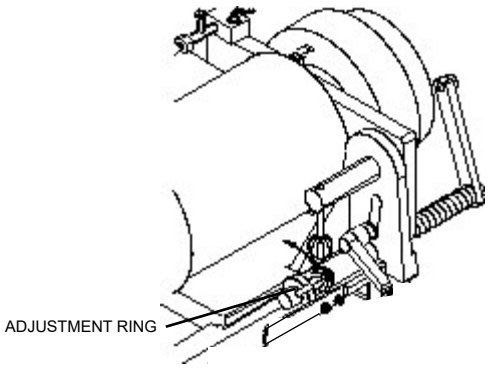


FIG. 14

Replacing the Wheel

A new vitrified grinding wheel is 2" [51 mm] deep. When it wears down to a depth of 0.75" [19 mm], it should be replaced. See FIG. 15.

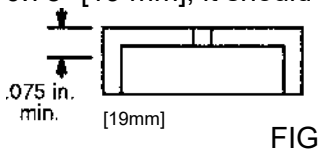


FIG. 15

ROTATING THE WHEEL GUARD

Some bedknives and bedbars have mounting ears so close to the bedknife top face that there is no clearance for the wheel guard. For these applications, generally a flared cup grinding wheel should be used and the grinding wheel guard can be loosened and rotated so the clearance area of the guard allows the bedknife to be ground without interference. When completed, **ALWAYS** reposition the guard to its normal position with the clearance notch down. See FIG. 16

FOR OPERATOR SAFETY, THE GRINDING WHEEL GUARD MUST BE USED WITH THE CLEARANCE AREA UP <u>ONLY</u> WHEN REQUIRED FOR BEDBAR CLEARANCE.

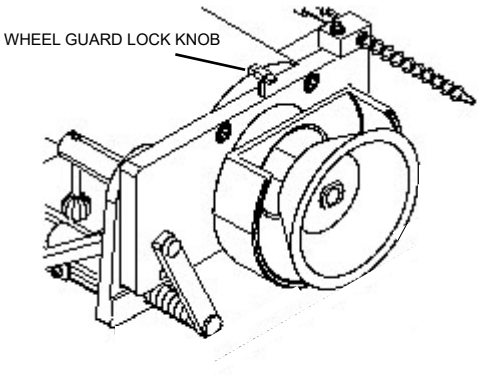


FIG. 16

GENERAL OPERATING INFORMATION (Continued)

USING FLOOD COOLANT

For quality grinding, we highly recommend using flood coolant to prevent heat buildup on the knife edge.

IF YOU DRY-GRIND, NEVER ALLOW THE BEDKNIFE EDGE TO CHANGE COLOR OR YOU MAY LOSE THE TEMPER IN THE KNIFE EDGE.

ALWAYS READ THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE COOLANT YOU ARE USING. BELOW ARE WARNINGS THAT APPLY TO MOST COOLANTS.

AVOID CONTACT OF COOLANT WITH EYES: IT WILL CAUSE EYE IRRITATION. WEAR FACE SHIELD OR GOGGLES WHEN HANDLING CONCENTRATE. IN CASE OF CONTACT, FLUSH EYES WITH WATER FOR 15 MINUTES AND CONTACT A PHYSICIAN.

AVOID BREATHING MISTS. PROVIDE LOCAL VENTILATION. KEEP CONCENTRATED BOTTLE CLOSED WHEN NOT IN USE.

CONTINUED CONTACT OF CONCENTRATE ON SKIN MAY CAUSE IRRITATION. WASH WITH SOAP AND WATER AFTER CONTACT.

DO NOT TAKE INTERNALLY. IF INGESTED, CONSULT PHYSICIAN AND DO NOT INDUCE VOMITING.

(HAZARD POTENTIAL APPLIES TO CONCENTRATE, AND IS LESS AT NORMAL USE DILUTION.)

Mixing the Coolant

Mix Part No. 3708620 Coolant in a separate container, at a ratio of 50 parts water to 1 part concentrate. Refer also to the label on the Coolant container. If the coolant tray is empty, this will take about 8 gallons of water and 1.3 pint of concentrate [12.5 liters of water, and 0.25 liter of concentrate].

THE COOLANT RATIO AS SPECIFIED MUST BE USED. TO HIGH A CONCENTRATION OR LOW A CONCENTRATION WILL CAUSE CORROSION AND PERFORMANCE PROBLEMS.

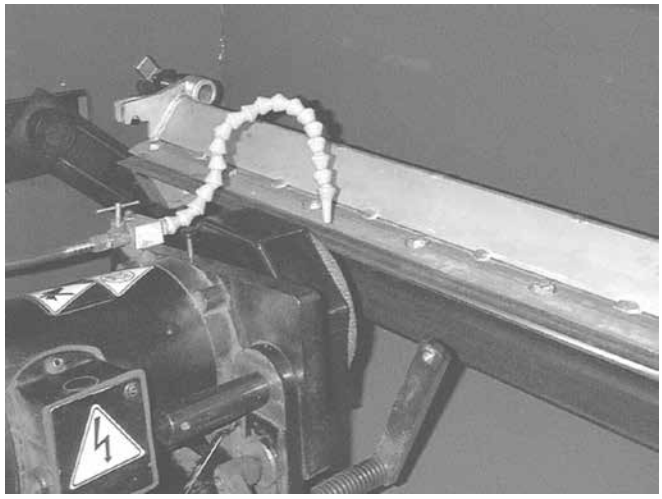


FIG. 17

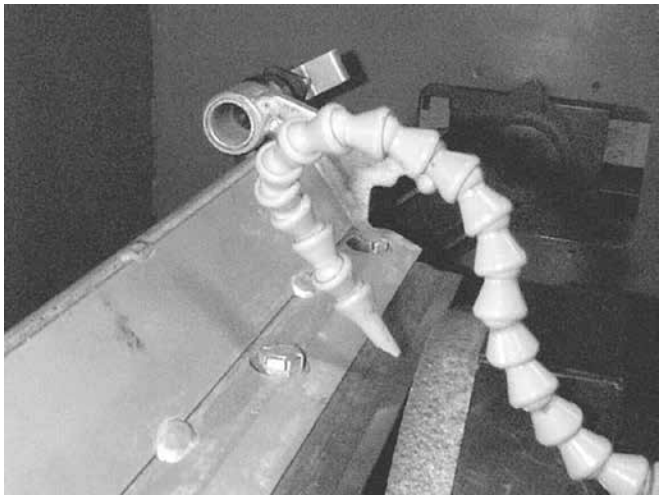


FIG. 18

Using the Coolant

Direct the nozzle so the coolant sprays onto the bedknife face being ground. See FIG. 17 or 18.

Some coolant will then also be deflected onto the grinding wheel. Adjust the flow valve so there is a steady stream of coolant. Avoid a stronger flow than needed, excessive coolant doesn't cool more, and increases splattering.

Fluid Level in Coolant Tank

Check the fluid level in the Coolant tray daily to avoid running out while grinding. Keep the coolant level between .25 - .50 inches [6-12 mm] above the top of the coolant sump.

The pump inlet must **always** be completely submerged in water. Never add plain water to the coolant when the level is low. Always add water and concentrate in the correct proportions. It is recommended to pre-mix coolant and water in a separate container for this purpose.

USE OF COOLANT OTHER THAN FACTORY SUPPLIED COOLANT CONCENTRATE IS NOT RECOMMENDED. ALTERNATIVE COOLANT CONCENTRATES MAY CAUSE CORROSION AND GRINDING PROBLEMS.

MOUNTING A BEDKNIFE FOR GRINDING

Inspect and Clean the Bedknife
Inspect the bedknife for damage (cracks, warping, bushing wear, excessive bedknife wear). Replace or repair if necessary, see the mowing unit manufacturer's manual. Thoroughly clean the bedknife, especially on the bottom where the magnets will attach. **It is recommended to thoroughly wire brush these areas.**

Prepare the Machine for Mounting the Bedknife
Pivot the tooling assembly to the horizontal position (Front face grinding position) and set the bedknife angle to 0 front face angle. Position the grinding head all the way to the right, then crank the carriage back (away from the magnets) to gain clearance for the bedknife.
Always wipe any grindings, dirt, etc. from the magnets and the tooling bar right side slide area before mounting the bedknife.

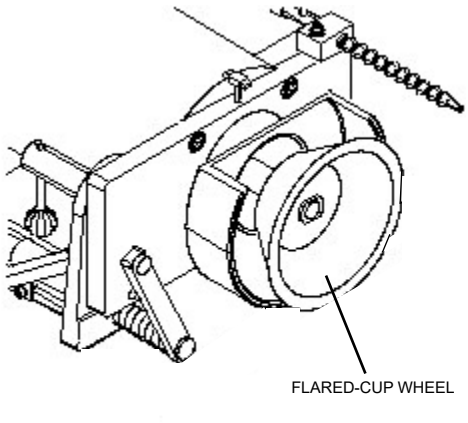


FIG. 19

USING A FLARE CUP WHEEL FOR ADDED CLEARANCE

The shape of some bed bars requires using an **optional** flare-cup grinding wheel to clear the end supports. See FIG. 19.

Flare-cup wheels can be ordered in several 6" [150 mm] diameter versions. For most applications, the 6" vitrified straight cupped wheel is used. However, if the end mounting flanges of the bedknife are more than 2" [50 mm] high or near the front face of the knife, you may need the optional 6" flared cup wheel.

For Part Numbers and descriptions of all available grinding wheels, refer to the Grinding Wheels list on Page 10.

MOUNTING A BEDKNIFE FOR GRINDING (Continued)

Mount the Bedknife

1. Pull both gage tips forward and rotate the gage into position, straight up. Loosen the lock knob and on the right side magnet and center assembly. See FIG. 21. Set the bedknife / bedbar assembly to be ground on the magnets. Move the right side magnet assembly until the alignment gage tips are at both ends of the bedknife, then tighten the right side magnet lock knob enough to secure the magnet.

2. Position the bedknife so the unworn tips on a used bedknives or the ends of a new bedknife are on the gage tips. See FIG. 22 Pull the bedknife forward firmly against the gage tips. Install the centers by loosening the arms lock handles only enough to slide the arms and loosening the center lock knobs. Position the center into a bedknife hole and tighten the center lock knob and the arm lock handle on both sides. See FIG. 23. Turn down and park both alignment gage tips.

The center should not load the bedbar in any direction and should be tightened into the bedbar only enough to hold the bedbar rigid.

BEDKNIVES WITH DUAL CUTTING EDGES

Some mowing unit manufacturers and some after market bedknife manufacturers make a bedknife with Dual Cutting Edges as shown in FIG. 24A.

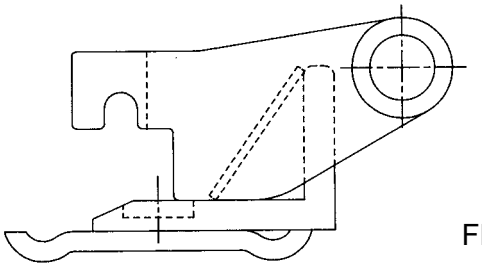


FIG. 24A.

Because of the two radiused surfaces that these bedknives present to the magnets there is minimal holding force.
Therefore, to achieve a solid hold with the magnets, you must file the bottom side of the bedknife with a flat bastard file as shown in Fig 24B.
You must file with a uniform stroke across both radius. File until you have developed flats on the radius that are a minimum of 3/32 (.09) [2.3mm] wide and uniform in width for the length of the magnet on each end of the bedknife.

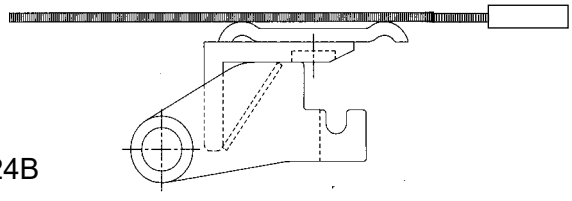


FIG. 24B

FIG. 21

Right Hand Adjustable support Lock Knob

Gage Tip

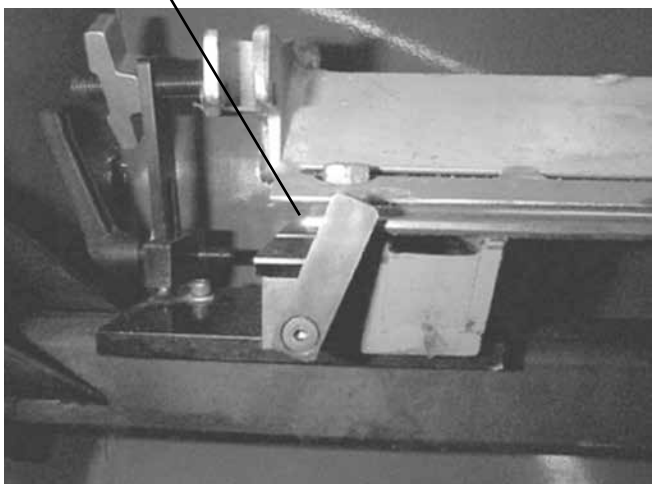
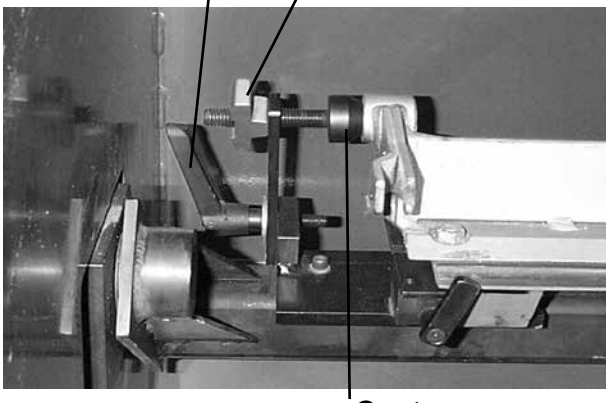


FIG. 22

Lock Handle

Lock Knob



Center

FIG. 23

OPERATING INSTRUCTIONS (Continued)

BEDKNIFE ALIGNMENT

With this alignment you are aligning the bedknife faces to the grinding head by moving the bedknife support.

Alignment is accomplished by touching the grinding wheel to the bedknife.

With the bedknife / bedbar assembly mounted per procedure on page 14 and in the front face grinding position with the front face angle set to the mower manufacturers factory specification, move the grinding head to the left end of the bedknife. Now adjust the carriage infeed handwheel until the wheel *just* touches the bedknife at the end nib of the knife face on a used bedknife, or the full knife face on a new bedknife. On used bedknives, if you do not want to grind back to factory specifications, but want to grind to match the worn bedknife, then touch the grinding wheel inside the end nib. See FIG. 25.

GRINDING WHEEL AT LEFT END OF BEDKNIFE

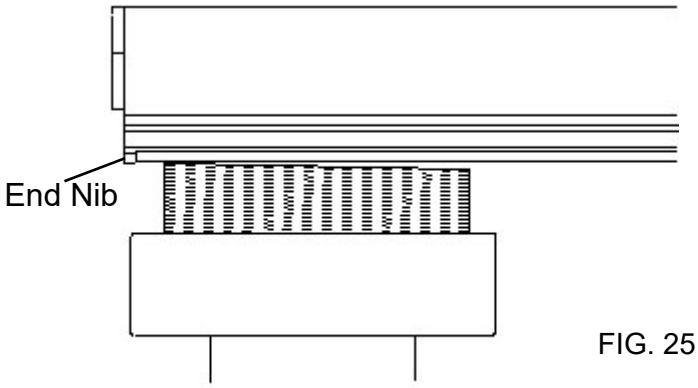


FIG. 25

Next, move the grinding head to the right end of the bedknife. Now without moving the grinding head infeed, adjust the tooling bar right side adjuster until the grinding wheel *just* touches the bedknife end nib or the knife face on a used bedknife, or the full knife face on a new bedknife. Again, on a used bedknife if you do not want to grind back to factory specifications, but want to grind to match the worn bedknife, touch the grinding wheel inside the end nib. See FIG. 26. Because when you adjust the right side, the left side also moves a small amount, you should go to the left and right sides several times to verify that you *just* contact the knife at both ends. This can be done while grinding the knife.

GRINDING WHEEL AT RIGHT END OF BEDKNIFE

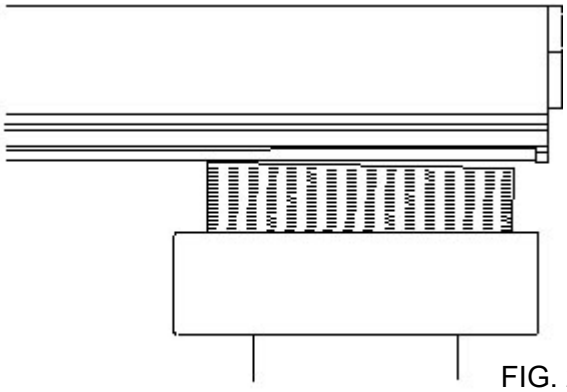


FIG. 26

NOTE: These adjustments are done at the side handwheels, NOT at the infeed handwheel on the grinding head.

Grind the front face per the instructions on Page 16 and 17.

Then, rotate the tooling bar to the Top Face position and repeat the above procedure to grind the Top Face. Grind the top face per the instructions on Page 18-19.

GRINDING THE FRONT FACE

NOTE: The following instructions presume that you have already studied all previous sections of this manual.
NOTE: On some mower bedknives, the front face is curved and therefore may not have to be sharpened.

Position the Bedknife for Front-Face Grinding (See FIG. 27)
Loosen the right side tooling rotate lock handle. Rotate the tooling assembly to the front face position (down) and set the front face angle to the mower manufacturers factory specification. Tighten the tooling rotate lock handle.

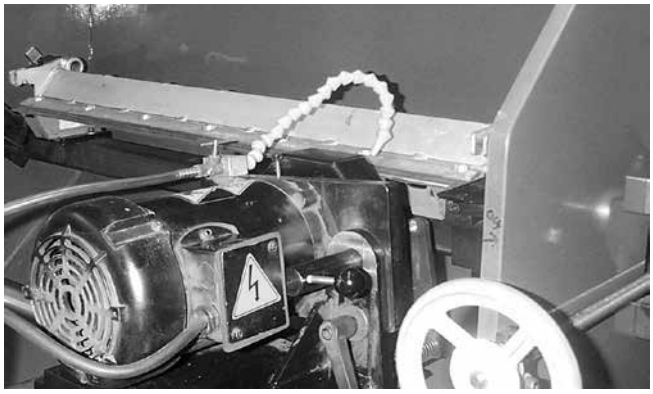


FIG. 27

Set the Grinding Wheel in Vertical Position
Position the grinding head so that the grinding wheel just touches the front face of the bedknife. With the vertical cam and lock lever, adjust the grinding head so the grinding wheel rim extends 1/2" [12mm] or as much as possible above the front face to be ground. See FIG. 28.

IF THE GRINDING WHEEL RIM DOES NOT EXTEND OVER THE BEDKNIFE FACE, IT WILL WEAR UNEVENLY AND CAUSE GROOVES ACROSS THE SURFACE OF THE BEDKNIFE.

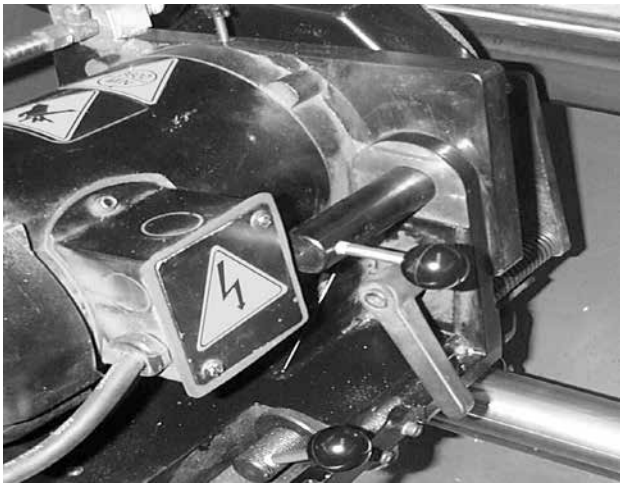


FIG. 28

Check for interference:

1. Back out the grinding head so the wheel no longer touches the front face of the bedknife.

2. Manually move the carriage to the left with the traverse handle until the contact area of the grinding wheel is about 1" [25 mm] beyond the area to be ground on the bedknife. Be prepared to STOP traversing earlier if there is any interference between the grinding wheel and the bedbar.

Manually move the carriage back to the right until the grinding wheel reaches the point where it covers the entire area to be ground and goes past that point by 1" [25 mm] or more if possible.

NOTE: The area of the grinding wheel which contacts the bedknife is on the left side of the wheel. When grinding the left end of the bedknife, the area of the wheel which doesn't contact the bedknife will still be over the bedknife. See FIG. 29. When you go to the right end of the Grinder, the wheel traverses completely off the bedknife.

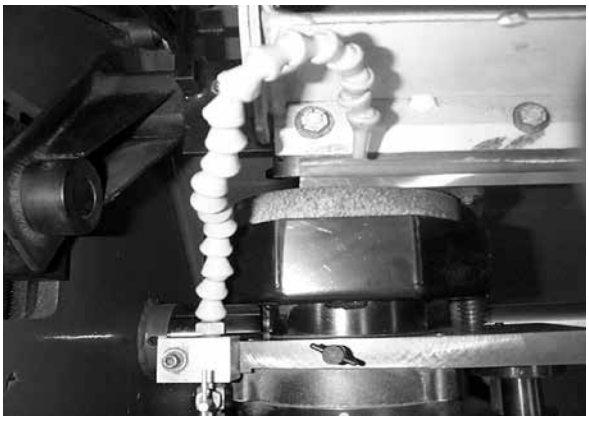


FIG. 29

Align the bedknife per the procedure on Page 15.

GRINDING THE FRONT FACE (Continued)

Grind the Bedknife

When you are satisfied with the grinder head travel, and alignment, begin grinding:

REFER TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.

NOTE: At this point you won't know the condition of the grinding wheel after the previous job. Always dress the wheel before grinding . See Page 11.

1. With the guard door closed, hit the green START button, the Grinding Wheel and coolant pump will start running.
2. Check that the nozzle is directing coolant onto the bedknife. See FIG. 17 and 18 on page 12.

3. With the grinding wheel positioned on the left side of the bedknife, use the horizontal infeed handwheel to crank the grinding head in (clockwise) until the wheel is removing metal lightly from the bedknife. It is recommended to take off about .002 to .003" [.05 to .075 mm] per pass.

NOTE: The horizontal adjustment dial is calibrated in .002" [.05 mm] increments.

4. Continue grinding the bedknife in this manner until you are satisfied with the front face grind. Dress the wheel when necessary. (see "Dressing the Grinding Wheel" on Page 11)
5. Dress the wheel before the final **spark out** grind. For spark out procedure, see the top of page 19.

By partially grinding both surfaces, the top face and the front face, as shown in FIG. 30, you will resharpen a used bedknife with the least metal removal. FIG. 30 also shows how much stock would be removed if you ground the top face surface until sharp. Partially grinding both surfaces is the preferred method for life utilization of the bedknife.

FIG. 30

GRINDING THE TOP FACE

NOTE: The following instructions presume that you have already studied all previous sections of this manual.

Position the Bedknife for Top-Face Grinding (See FIG. 31)

When rotating from front face grinding to top face grinding, the grinding head must be backed out three full turns. Rotate the tooling assembly to the top face position (up) and set the top face angle to the mower manufacturers factory specifications.

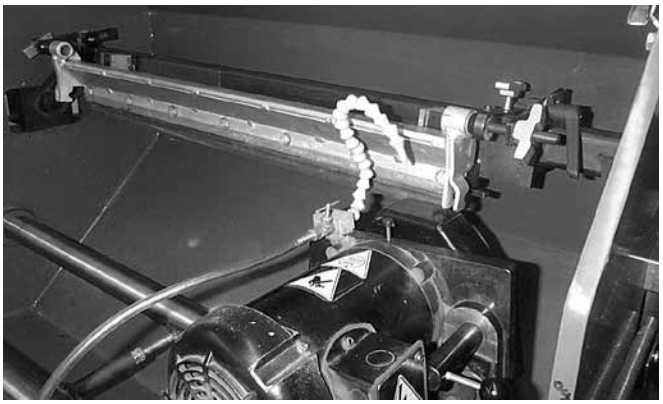


FIG. 31

Set the Grinding Wheel Vertical Position

Position the grinding head so that the grinding wheel *just* touches the top face of the bedknife. Check to see if the rim of the grinding wheel is extended 1/2" [50mm] above the top face of the grinding wheel. If you have previously ground the front face it most often will be correct. If not, with the vertical cam and lock lever, adjust the grinding head. See FIG. 32.

If the shape of the bedbar interferes with the wheel guard or grinding wheel you will need to make adjustments per Page 11.

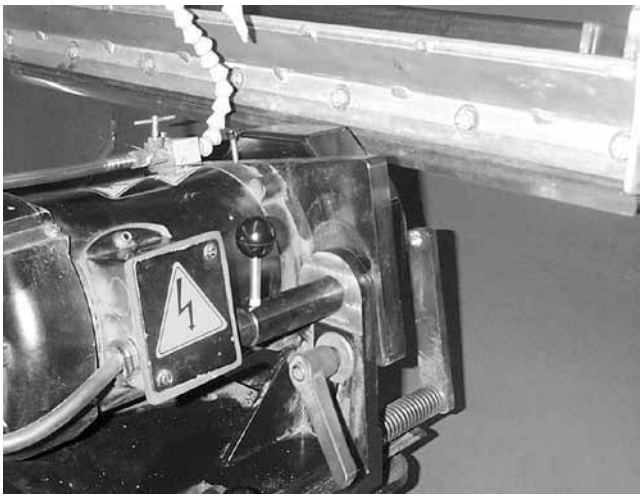


FIG. 32

IF THE GRINDING WHEEL RIM DOES NOT EXTEND OVER THE BEDKNIFE FACE, IT WILL WEAR UNEVENLY AND CAUSE GROOVES ACROSS THE SURFACE OF THE BEDKNIFE.

Check for interference the same as done on the front face, See page 16.

Align the bedknife per the procedure on Page 15.

NOTE: Top face alignment is fully independent of the front face alignment and MUST be done.

When you are satified with the grinding head travel and alignment, begin grinding:

REFER ALSO TO THE "SAFETY RULES WHEN GRINDING" ON PAGE 3.

Follow the front face grinding procedures on page 17 to grind the Top Face.

On the spark out passes, crank the grinding head in (clockwise) only about .001" [.025 mm] and then spark out. For sparking out, always traverse the grinding head 10 - 20 passes without cranking the grinding head in further. To get the finest grind, traverse at a slower speed for this final grinding sparkout. This process improves the surface finish of the grind and improves the grind quality.

NOTE: What you are looking for is a "near sparkout", about a 99% reduction in grinding spark from a normal grind. Don't continue sparking out until you have **no sparks**, because this could be an extremely long time.

REMOVING THE BEDKNIFE

To remove the bedknife, rotate the tooling assembly to the front face grinding position (down). Remove the right hand center from the bedbar by backing the center back as far as necessary. DO NOT loosen the arm lock; grasp the bedknife and pull it off the magnets. If the next bedknife to be ground is the same type and size as the previous, simply mount it and proceed with verifying mounting and proceeding with new alignment. If the next bedknife to be ground is a different type or size, follow the full installation procedure.