

OPERATOR'S MANUAL

SPIN / RELIEF REEL MOWER GRINDER

RG5500



FRONTIER
E Q U I P M E N T™

This book consists of three manuals:

The OPERATORS MANUAL in ENGLISH 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 maintenance department to install the equipment and to do all maintenance except routine daily maintenance.

The OPERATORS MANUAL in SPANISH which is the same as the English version only translated into Spanish.

DEALER PREPARATION/INSTALLATION CHECK LIST

Frontier RG5500 Spin/Relief Reel Mower Grinder

THIS CHECKLIST IS TO REMAIN IN OWNER'S MANUAL

It is the responsibility of the dealer to complete the procedures listed below, then review this checklist with the customer upon the delivery or the sale of this equipment. The installation training goes over the basic operational functions of the equipment. To ensure adequate training, we require that the following items are reviewed by your John Deere Dealer. Please check off to ensure that you understand the following items before the installation training is complete:

- | | |
|--|--|
| <input type="checkbox"/> 1. Equipment is completely assembled | <input type="checkbox"/> 7. Review proper positioning of reel |
| <input type="checkbox"/> 2. All shields are in place and in good condition. | <input type="checkbox"/> 8. Explain use of reel grinder relief mechanism |
| <input type="checkbox"/> 3. All decals in place and readable. (See pages) | <input type="checkbox"/> 9. Review traverse proximity switch positioning |
| <input type="checkbox"/> 4. Overall condition good (i.e. paint, welds, electrical) | <input type="checkbox"/> 10. Explain use of reel grinder alignment gage |
| <input type="checkbox"/> 5. Verify there is sufficient electrical power to operate the machine. | <input type="checkbox"/> 11. Explain reel grinder spin speed vs. quality |
| <input type="checkbox"/> 6. Review Operators, Assembly & Service Manuals, and any additional training material if available. | <input type="checkbox"/> 12. Discuss reel grinder set-up chart in manual |
| | <input type="checkbox"/> 13. Review General Maintenance |

Dealer's Signature _____

Purchaser's Signature _____

Safety



IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF REEL GRINDERS



Safety is a primary concern in the design, manufacture, sale, and use of reel grinders. As manufacturer of reel grinders, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a reel grinder. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. Always use proper shielding as specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for the grinding wheel, safety signs and an operators manual. Never bypass or operate the machine with any of the guards or safety device removed.

Read and fully understand all the safety practices discussed on pages 4 and 5 of this manual. All safety rules must be understood and followed by anyone who works with reel grinders.

Before operating a reel grinder, an operator must read and understand all of the information in the owner's manual and in the safety signs attached to the product. A person who has not read or understood the owner's manual and safety signs is not qualified to operate the unit. Accidents occur often on machines that are used by someone who has not read the owner's manual and is not familiar with the equipment. If you do not have an owner's manual or current production safety signs, contact the manufacturer or your dealer immediately.

Reel grinders are designed for one-man operation. Never operate the grinder with anyone near, or in contact with, any part of the grinder. Be sure no one else, including bystanders, are near you when you operate this product.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the grinder knows and understands that this is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the John Deere dealer. Read manual instructions and safety rules. Make sure all items on the Preparation Check List in the Operator's Manual are completed before releasing equipment to the owner.

TO THE OWNER:

Read this manual before operating your Frontier equipment. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in this manual and safety decals on the equipment.

For service, your authorized John Deere dealer has trained mechanics, genuine Frontier service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine Frontier service parts.

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Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

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 correctly followed, could result in personal injury.

The **Caution Symbol** identifies special instructions or procedures which, if not strictly observed, 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 cutting unit is securely fastened with the clamps provided before operating.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN GRINDER WITH CARE.** Follow instructions in Service Manual for lubrication and preventive maintenance.
14. **DISCONNECT POWER BEFORE SERVICING,** or when changing the grinding wheel.
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 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.

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.



AVOID INHALATION OF DUST generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or MSHA respirators, safety glasses or face shields, and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.

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This machine is intended for grinding the reel of reel type mower units ONLY. Any use other than this may cause personal injury and void the warranty.

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. Machine is for indoor use only. Do not use a power washer to clean the machine.



Low Voltage Relay

The grinder is equipped with a high-low voltage relay which is factory preset at 100-140 VAC. If the power supply line does not deliver 100-140 VAC power under load, the relay will open and trip out the starter. If this occurs, your power supply line is incorrect and must be correct before proceeding further with the grinder.

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DAILY MAINTENANCE BY THE OPERATOR

On a daily basis, clean the machine by wiping it off.

On a daily basis, remove all grinding grit from the grinding shaft, traverse shafts, and tooling bar area.

On a daily basis, inspect the machine for loose fasteners or components.

Contact your company's Maintenance Department if damaged or defective parts are found.



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

SAFETY INSTRUCTIONS

PLEASE TAKE SPECIAL NOTE OF THE FOLLOWING WARNING DECALS LOCATED ON THE GRINDER.

GRINDING WHEEL RPM

CAUTION	ATENCIÓN
<p>To Avoid Injury: -Do not exceed grinding wheel maximum operating speed of 3600 revolutions per minute.</p>	<p>Para evitar lesiones: -No exceda la velocidad de funcionamiento máxima, de 3600 revoluciones por minuto, de la rueda rectificadora.</p>

GENERAL INFORMATION

CAUTION
<p>To Avoid Injury: -Read Operator's Manual before operating, servicing, or repairing equipment. Follow all safety rules and instructions. (Manuals are available from your selling dealer.) -Keep bystanders away from equipment during operation. Keep all shields in place and in good condition. -Wear all of the appropriate safety equipment specified in the Operator's Manual while operating this machine. -Always make sure machine is off and all machine movement has stopped before leaving machine. -Never allow children or untrained persons to operate equipment.</p>
ATENCIÓN
<p>Para evitar lesiones: -Lée el manual del operador antes de la puesta en funcionamiento, del mantenimiento o de la reparación del equipo. Siga todas las reglas e instrucciones de seguridad especificadas en el manual del operador. (Los manuales se encuentran disponibles a través de su distribuidor.) -Mantenga al personal ajeno alejado del equipo durante el funcionamiento. Mantenga todos los protectores en su lugar y en buenas condiciones. -Durante el funcionamiento de esta máquina, utilice todos los equipos de seguridad correspondientes especificados en el manual del operador. -Asegúrese siempre de que la máquina se encuentre apagada y haya dejado de moverse antes de abandonarla. -Nunca permita que un niño o una persona sin capacitación pongan la máquina en funcionamiento.</p>

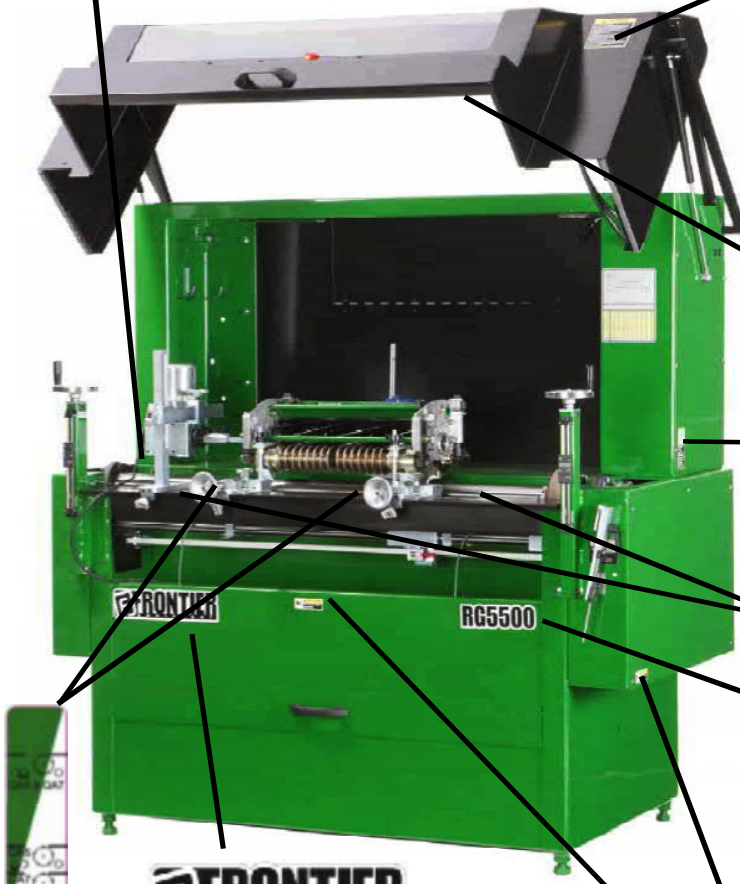
ELECTRICITY

CAUTION

<p>To Avoid Injury: -Make sure all electrical power to this machine has been disconnected before removing any electrical panels or covers for maintenance.</p>
ATENCIÓN
<p>Para evitar lesiones: -Asegúrese de que se haya desconectado por completo el suministro eléctrico de esta máquina antes de retirar los paneles eléctricos o las cubiertas para el mantenimiento.</p>

SHARP OBJECTS

CAUTION		ATENCIÓN
<p>To Avoid Injury: -Keep hands away from rotating objects</p>		<p>Para evitar lesiones: -Mantenga las manos alejadas de los objetos giratorios</p>



Label Sheet
(English and Spanish)
Part Number 5NT155301
(English and French)
Part Number 5NT155302

GETTING TO KNOW YOUR GRINDER



SPECIFICATIONS

Traversing Switches	Solid state, non-contacting proximity switches.
Overall Width	71" [181 cm]
Overall Height	69" [175 cm] with door closed, 87" [221 cm] with door open
Overall Depth	42" [107 cm] without workstation, 79" [201 cm] with optional workstation
Weight	1450 lbs. [658 kg] 1650 lbs shipping weight [748 kg]
Base Construction	Precision heavy duty reinforced welded steel base
Carriage Rails	Precision Ground, Hardened Steel - 1.000 Dia. [25.4 mm]
Grind Head Motor	1HP AC Motor, 3450 RPM
Spin Motor	.20 HP Fan Cooled Variable Speed DC Motor
Sound Level	More than 75 Dba, Less than 95 Dba
Auto Traverse	Belt driven with easy to engage clamp system
Control System	*Safety grind motor and spin drive door interrupt switches *Reversible Spin drive for variable speed Spin or variable torque relief functions *Variable speed traverse control.
Options:	*Manual Winch and Boom Kit, Electric Winch and Boom Kit or Lift Platform.

GETTING TO KNOW YOUR GRINDER (Continued)

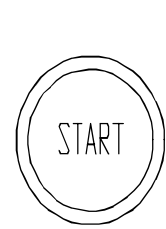
CONTROL PANEL COMPONENT IDENTIFICATION

Review the following control panel component descriptions before proceeding with the instructions



SYSTEM START PUSHBUTTON

The green pushbutton is the system start switch. Pushing it will engage the magnetic starter and power the control panel. The magnetic starter will not engage unless the emergency stop pushbutton is pulled out and the grinding motor switch and spin motor switch are turned off.



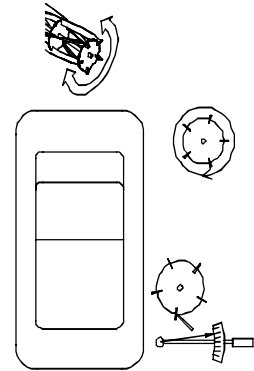
GRIND SELECTOR SWITCH

Variable speed spin

Switch must be up to perform spin grinding operations.

Variable Torque Relief

Switch must be down to perform relief grinding operations.

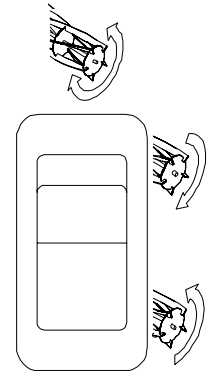


SPIN DRIVE ROTATION SWITCH

Forward / Off / Reverse

This switch reverses the direction of the spin drive motor.

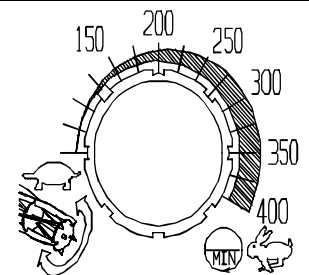
IMPORTANT: Because the spin drive motor can be flipped on the horizontal adjustment arm, the direction may be opposite of what is shown on the decal.



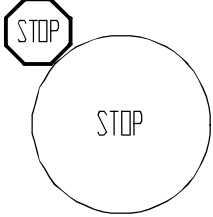
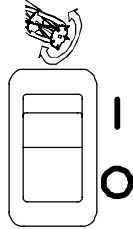
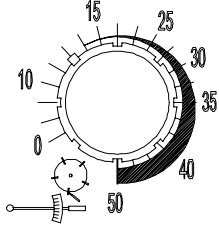
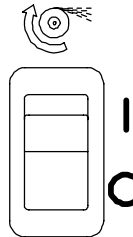
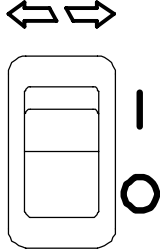
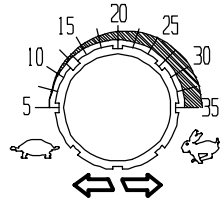
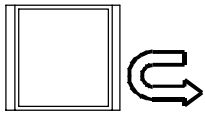
SPIN SPEED POTENTIOMETER DIAL RPM

Adjusts the speed of reel rotation when you have the grind selector switch set at variable speed spin.

GUARD DOORS MUST BE SHUT FOR SPIN DRIVE TO OPERATE.



GETTING TO KNOW YOUR GRINDER (Continued)

<p>PUSH-PULL EMERGENCY STOP BUTTON</p> <p>Push in to cut all power to the control panel functions. This removes power from all motors, including the grinding motor, traverse motor, spin motor, etc. To restore power, pull up on button and press the Start button.</p>	
<p>SPIN MOTOR SWITCH On / Off</p> <p>Turn the Spin Motor on and off.</p> <p>! GUARD DOORS MUST BE SHUT FOR GRIND MOTOR TO OPERATE.</p>	
<p>RELIEF TORQUE DIAL</p> <p>Adjusts the Spin Drive Motor torque (the torque holding the reel blade to the relief finger) when Grind Selector Switch is set at variable Torque Relief.</p>	
<p>GRINDING WHEEL MOTOR SWITCH On / Off</p> <p>Turn the Grinding Wheel Motor on and off.</p> <p>! GUARD DOORS MUST BE SHUT FOR GRIND MOTOR TO OPERATE.</p>	
<p>TRAVERSE MOTOR SWITCH</p> <p>Turns the traverse drive motor ON/OFF.</p>	
<p>TRAVERSE SPEED POTENTIOMETER DIAL - FT / MIN</p> <p>Adjusts the speed of the left & right movement of the Grinding wheel.</p>	
<p>TRAVERSE REVERSE SWITCH</p> <p>Reverses the direction of the grinding head if pushed when the head is moving.</p>	

GETTING TO KNOW YOUR GRINDER (Continued)

FRONT AND REAR MOWER MOUNTING

The mowing unit should be placed in the machine with the rear roller on the table and front roller held in the front tooling. The front tooling can be moved side to side along the tooling bar so they can be positioned as far apart as necessary to accommodate all reel widths. Decals on the tooling bar make it easy to position the tooling based on the width of the reel. To move the tooling, loosen the knob located at the front of the tooling base and slide tooling along the tooling bar. The tooling should be located as close to the frame as possible leaving the maximum room to use the position gauge (the gauge will be discussed in the alignment section). The horizontal position is attained by using the hand wheel located at the front of the tooling. If you are grinding a QuickAdjust mowing unit (QA7 or QA5), use the decals located on the tooling to quickly position the reel. There are two positions for each reel depending on how the front roller is mounted. See FIG 2.

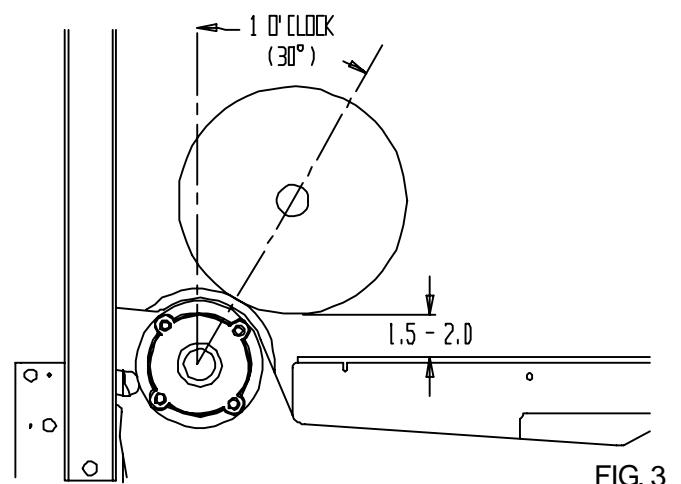
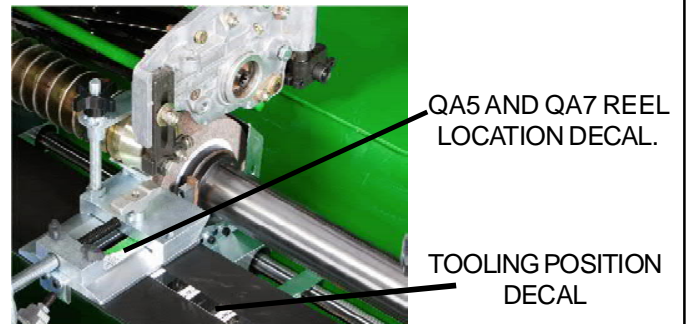
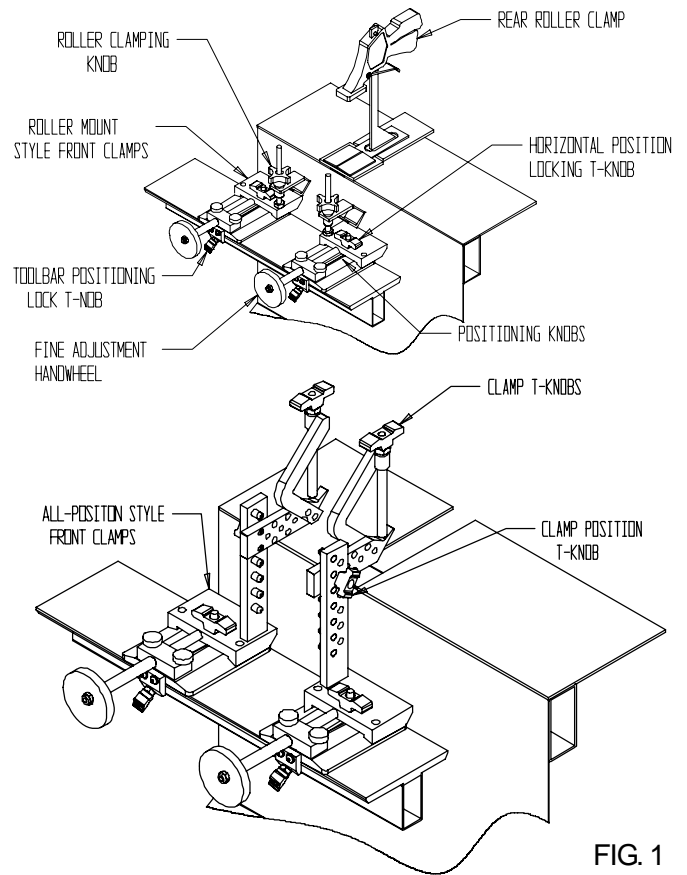
If you are using the all-position brackets, the vertical and horizontal position can be adjusted by loosening the knobs located on the side of the tooling and moving to a new set of pins.

Verify that the reel is positioned properly for the spin wheel and relief wheel by checking the travel limits, both wheels will need to have clearance to come off the reel on both sides. Checking during setup will eliminate the need for major adjustments and alignments when going from spin grinding to relief grinding. When the mower is in place lock it into position by tightening all knobs. Lift the rear roller onto the angled bracket and clamp the roller firmly by squeezing the clamp handle.

REEL POSITION

The reel should be positioned so that it is at a one o'clock or 30° angle position in reference to the grinding wheel. See FIG 3. If the all-position brackets are used try to position the unit so that the bottom of the reel is between 1.50-2.00" [38-51MM] off the table. When using the roller mount style tooling try to maintain the one o'clock position and check for clearance between the reel and grinding wheel. Verify that the proper relief angle can be achieved with this setting and make any adjustments if necessary.

If you are grinding a QA7 or QA5 reel using the roller style mounts, use the decals located on the tooling to obtain the optimal position to grind the reel. See FIG 2

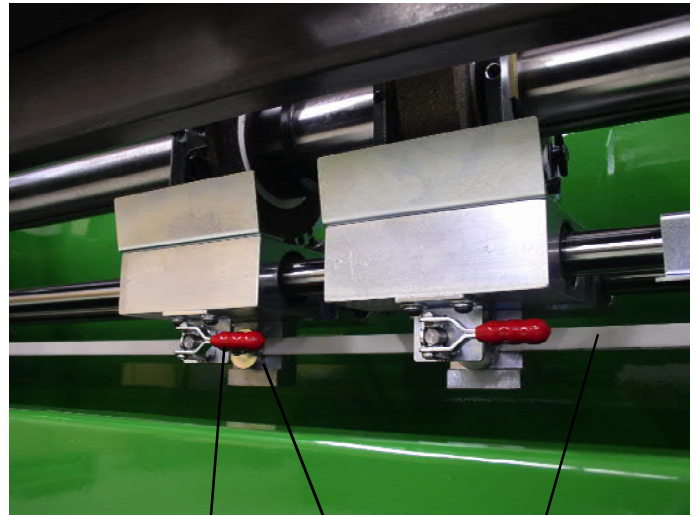


GETTING TO KNOW YOUR GRINDER (Continued)

TRAVERSE ENGAGEMENT AND RELEASE

The belt that drives the relief and spin hubs left and right can be engaged and released by flipping the clamp located on the bottom of the grinding head assemblies. Moving the lever to the left will engage the belt and moving it to the right will disengage the belt. The tip can be adjusted if necessary to increase or decrease the tension on the belt. See adjustments in the service manual for more details.

THE BELT CLAMP TIP IS ADJUSTED AT THE FACTORY TO ALLOW THE BELT TO SLIP IF THE HUB COMES IN CONTACT WITH SOMETHING. CAUTION SHOULD BE USED WHEN ADJUSTING THE TIP. IF THE CLAMP IS OVERTIGHTENED, THE BELT WILL NOT SLIP WHICH MAY CAUSE DAMAGE TO THE MACHINE OR REEL.



TRAVERSE BELT
ENGAGEMENT
LEVER

CLAMP TIP
TRAVERSE BELT

FIG.4

TRAVERSE PROXIMITY SWITCHES

Two movable proximity switches determine the left and right limits of grinding head assembly. An LED on the switch lights when the grinding head gets close to the head of the proximity switch. The sensors are mounted in the Proximity Brackets located on the traverse shafts. The brackets can easily be slid along the shafts for quick and easy travel limit adjustments. When switching from the spin mode to the relief mode, the brackets will need to be lifted off the shafts and snapped back on the shafts in the proper position.

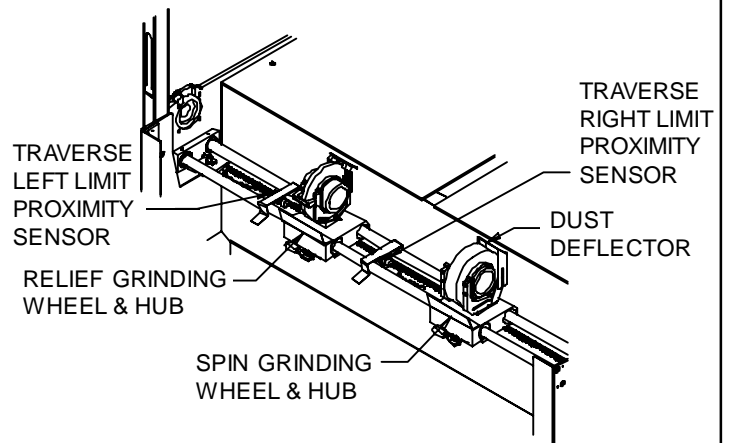


FIG. 5

SPIN/RELIEF GRINDING HEAD

This grinder is equipped with separate spin and relief grinding wheels. When the setup is done properly the reel will be only need to be positioned and aligned once for both cycles. The spin wheel is located on the right side of the machine and is wider than the relief wheel. Move the wheel that is not being used as far to that side as possible to give the maximum amount of room to setup and operate the machine. The proximity sensors must be moved so that the wheel in use is between the two sensors. Make sure that the wheel that is not in use is not engaged to the drive belt.

GETTING TO KNOW YOUR GRINDER (Continued)

RELIEF ANGLE ADJUSTMENT

Rotating the finger system around the grinding wheel will change the relief angle. By loosening the large ratchet handle the finger system can be rotated to achieve the factory angles, or whatever angle you select. See FIG. 6. By rotating the finger forward the relief angle will decrease and rotating it rearward the relief angle will increase. Retighten the ratchet handle when adjustment is correct.

RELIEF WHEEL DIAMETER ADJUSTMENT

As the wheel wears, the finger system will need to be adjusted to maintain the correct gap between the fixed finger and wheel. To move the finger system loosen the small ratchet handle. See FIG. 6. The gap between the fixed finger and the grinding wheel should be between .06" [1.5 mm] and .18" [4.6 mm] depending on the amount of existing relief on the reel. Retighten the ratchet handle after the adjustment is made.

INDEX FINGER ADJUSTMENTS

The Relief Assembly includes two fingers. See FIG. 6. The Fixed Relief Finger hold the blade in position during the relief grind process. The Movable Index Stop Finger moves from the Relief Finger Side (back side) of the reel blade when traversing from right to left, to the grinding wheel side (front side) of the reel blade when traversing from left to right. The indexing finger allows the grinder to index to the next blade automatically during the relief grind. Improper adjustment of the relief fingers assembly may result in a bad grind or possibly damage to the reel or machine.

The Index Finger Stop Position Knob adjusts where the Index finger stops when the reel blade indexes. See FIG. 6. Proper position of this stop is critical to allow the reel blade to smoothly transition from the Index Finger to the Fixed Finger.

IMPORTANT! After adjusting the Index Finger Stop Position Knob there should be 1/32" [0.8 mm] clearance between the index finger and the reel blade when you push on the index finger. This will allow the Fixed Relief Finger to guide the reel blade during the relief grind cycle. The Reel blade should never be riding on the Index Finger when grinding.

The Index Stop Pin is height adjustable. It should be adjusted to catch the reel blade and still leave enough clearance to the reel spider after the relief is ground to the depth required.

There is a forward position stop on the Finger system located near the pivot point of the Index Finger. This will only need to be adjusted if there is a clearance issue with the finger when it travels forward. See FIG 7.

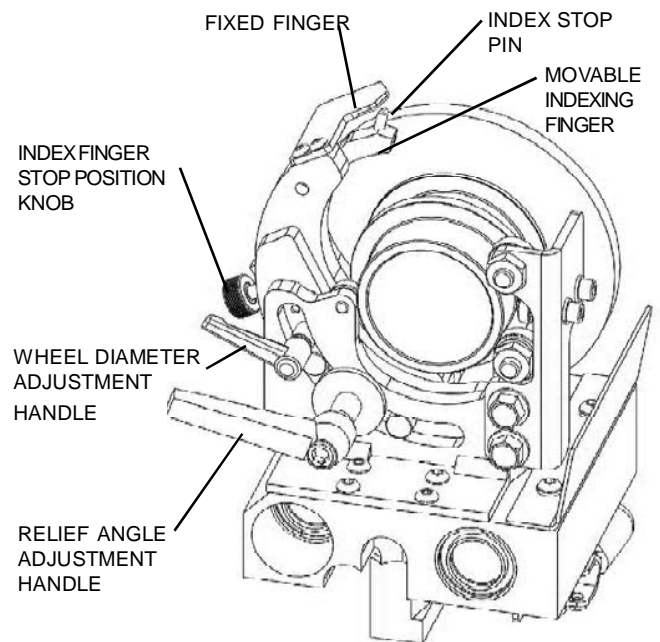


FIG. 6

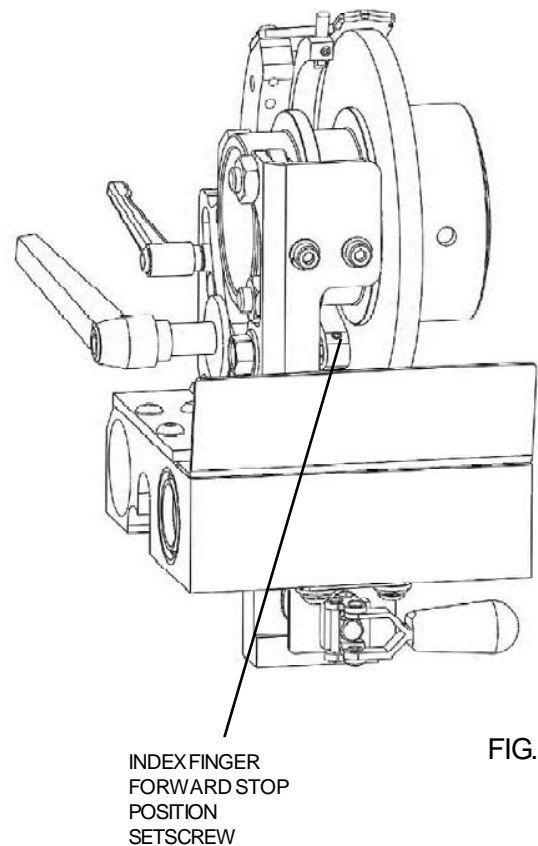


FIG. 7

GETTING TO KNOW YOUR GRINDER (Continued)

ALIGNMENT GAUGE

A properly ground reel should be cylindrical. All taper must be ground out of the reel. To ensure the reel will be ground correctly it **MUST** be aligned precisely prior to grinding. The digital alignment gauge is used for accurate reel setup. The gauge is used for setting the horizontal alignment and checking for taper within thousands of an inch. The digital gauge allows you to measure one end of the reel by extending the slide rail until you make contact with the center shaft of the reel. See FIG. 8. By measuring at the far left and the far right on the center shaft you can adjust the horizontal alignment using the front tooling adjustment knobs until the alignment is within .005 inches [.13mm].

When this is completed, you can then reset the gauge to zero on the center shaft, retract the gauge slide and measure the outer surface of a reel blade. By comparing the readings on the left side of the reel to the right side of the reel, you can determine exactly how much taper you have in the reel. Compensating for taper will be explained later in the grinding procedure.

NOTE: The gauge can be set for both inch and metric readout.

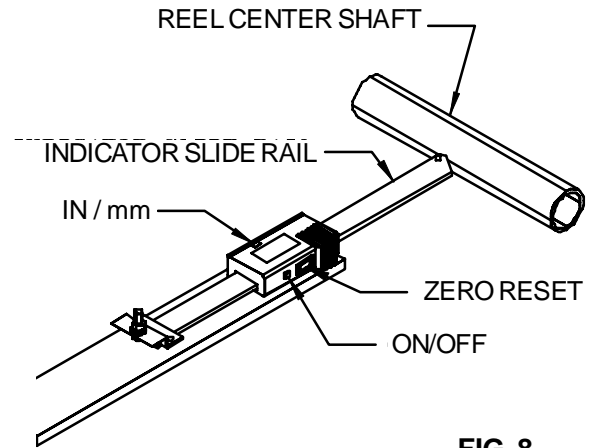


FIG. 8

OPERATING INSTRUCTIONS

PREPARE MOWING UNIT FOR SHARPENING

Always follow the procedures specified in the cutting unit manual when preparing the unit for sharpening. It is recommended that the reel to be sharpened is thoroughly cleaned. Remove the wheels and bed bar, if possible, from the reel. **The bedknives should be sharpened when the reel is sharpened.** Inspect, adjust and/or replace any worn or damaged bearings. Make sure the reel bearings are in good working condition and adjusted properly so the reel turns easily by hand.

Because this grinder mounts the reel using the reel rear roller and front roller if applicable, the bearings in the rollers must be in good repair with no free play. **The front and rear rollers must be properly aligned parallel to the reel prior to grinding.**



REELS WITH EXCESS TENSION ON THE BEARINGS WILL BE EXTREMELY DIFFICULT TO SPIN GRIND AND COULD CAUSE DAMAGE TO THE REEL OR THE SPIN DRIVE MECHANISM ON YOUR GRINDER. NO MORE THAN 25. IN. LBS MAXIMUM TORQUE LOAD TO ROTATE THE REEL IS ALLOWED OR DAMAGE TO THE SPIN DRIVE COULD OCCUR.

LIFTING REEL INTO POSITION

The RG5500 grinder does not come standard with a lift device. If the facility does not have a lift, it is recommended that the winch and boom kit or Rear Lift Platform is used.

WINCH & BOOM KIT

The Winch & Boom kit mounts to the back right side of the cabinet. When using the Winch & Boom, position the cutting unit behind the machine and secure the spreader bar to the cutting unit. Use the winch to lift the unit and swing the reel into the working area of the machine. (Refer to manual in kit for further instructions.) See FIG. 9 - Available with a Manual or Electric winch.

REAR LIFT PLATFORM

The Rear Lift Table is a portable platform that can be used to raise the reel up level to the grinder. The reel can be rolled onto the platform with the front of the reel facing the front of the grinder. With rear roller clamp removed the reel can be rolled from the platform into the machine from the rear. The Workstation uses a 12V rechargeable system to power the platform and can be moved around the facility on the 4 caster wheels.

See FIG. 10

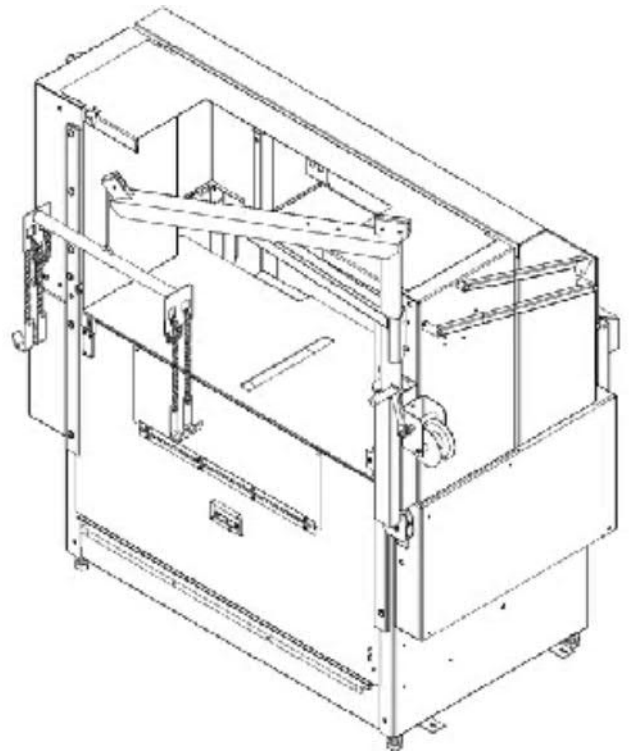


FIG. 9

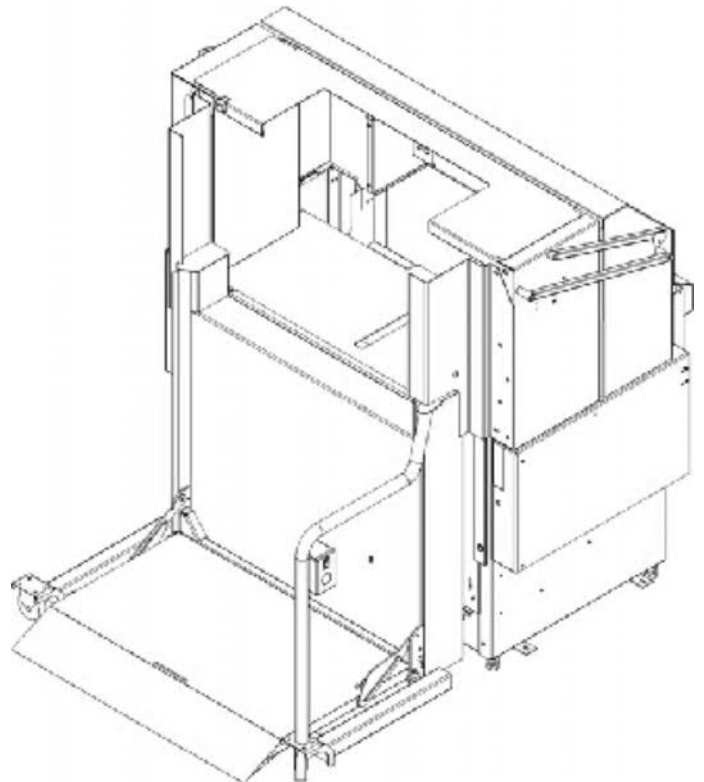


FIG. 10

OPERATING INSTRUCTIONS (Continued)

INSTALL REEL

Move the reel to the approximate position having the rear roller on the tabletop, and front roller on the front roller Mounts.

! MAKE SURE THE GRINDING WHEEL IS LOW ENOUGH TO CLEAR THE REEL. YOU CAN LOWER THE GRINDING WHEEL BY TURNING BOTH HANDWHEELS COUNTERCLOCKWISE.

Position front reel in the center of the machine. Move the roller mounts as far out as possible to the ends of the front roller. (See FIG 11). Use the decals on the tooling bar to aid in the positioning of the front tooling. Check for clearance to the tooling, front roller and frame with both the spin and relief wheels. This will ensure that you will not have to move the reel between the spin and relief grinding. NOTE: On large reels it may be necessary to offset the reel slightly from center to allow the spin drive to be mounted on the appropriate side of the cutting unit.

Place the rear roller onto the rear roller clamp. (See FIG 12).

If using the all-position brackets, set the vertical height of the clamps so that the bottom of the reel is 1.5-2.0 inches [38-51mm] above the table. It is also recommended to mount the support arm with as little extension from the all position bracket as possible leaving just enough clearance for mounting the reel in the "V" of the support arm.

Position the reel in and out by adjusting the front handwheels. The reel should be positioned so that the reel shaft is located at a 1 o'clock or 30° position to the grinding wheel. See figure 13. If there are clearance issues the reel can be moved forward or backward to resolve this issue. If you are grinding a QA5 or QA7 reel use the decals located on the tooling to quickly locate the reel in the optimal position. See FIG 2. After the reel is positioned correctly lock down the front roller and tighten the rear clamp. Make sure all knobs are tight before grinding.

! FIRMLY TIGHTEN ALL LOCKING KNOBS BEFORE GRINDING. ANY LOOSE KNOBS, CLAMPS OR BEARINGS WILL ADVERSELY AFFECT THE GRIND QUALITY.

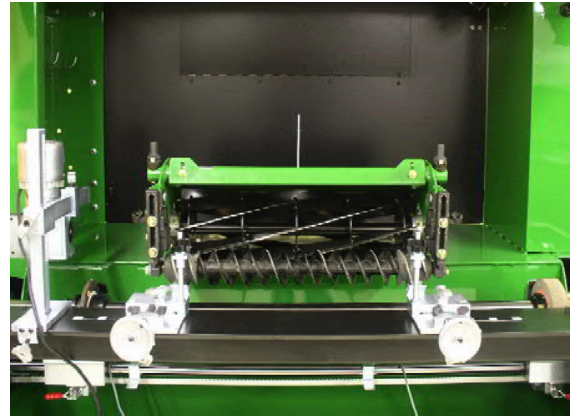


FIG. 11



FIG. 12

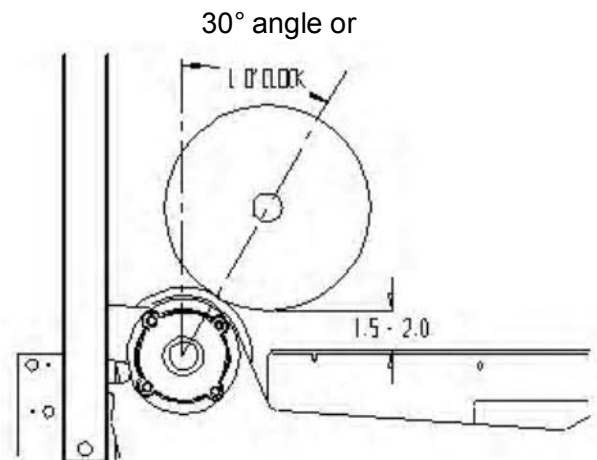


FIG. 13

OPERATING INSTRUCTIONS (Continued)

ALIGN THE REEL

IMPORTANT: When measuring to the reel center shaft always make sure you are contacting an area free of dirt and grass.

The digital gauge horizontal extension bracket is vertically adjustable to allow the digital gauge to be positioned to avoid any reel frame member. In addition, the mounting of the vertical slide to the horizontal weldment has three positions. Removed the knob on the side to adjust the tilt of the vertical slide if necessary to avoid a reel frame member. See FIG. 14.

Before aligning the cutting unit, loosen the horizontal locking knobs on the tooling, to allow the cutting unit to be adjusted in the horizontal plane. See FIG. 14.

To align the cutting unit, move the digital gauge assembly as far as possible to the left side of the reel. Extend the digital gauge making sure the tip of the gauge is centered on the reel center shaft. See FIG 15. With the gauge pressed against the reel center shaft, set the gauge to zero. Retract the gauge and move to the right side of the reel and measure to the center of the reel shaft. Do not rotate the reel shaft except for a minimum amount if there are clearance issues to the reel blades. With the gauge against the center shaft, adjust the horizontal handwheel until the gauge reads zero. Repeat adjustments going from one side to the opposite side until the alignment is within .005" [.13 mm].

CHECKING FOR TAPER

First, measure the left side of the reel as far to the left as possible with the digital alignment gauge, make sure the tip of the gauge is centered on the reel center shaft. Set the gauge to zero, then measure to the edge of one blade. Remember or write this number down. Move to opposite side and do the same thing. Compare the two numbers; the difference is the amount of taper in the **radius** of the wheel.

NOTE: TO OBTAIN A CORRECT TAPER READING TO BE USED WITH THE TAPER CHART LATER, THE READING MUST BE TAKEN AS CLOSE TO THE ENDS OF THE REEL AS POSSIBLE GIVING THE MAXIMUM DISTANCE BETWEEN READINGS.

To remove the taper in the reel, the side of the reel that is larger will need to be infed heavier to remove this extra material.

Remove the gauge and store the digital gauge on the pin located on the front right side of the machine. The gauge base can be placed inside the machine out of the way.

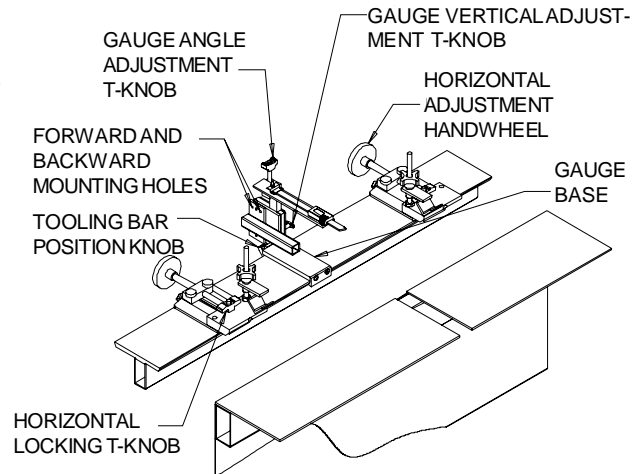


FIG. 14



FIG. 15

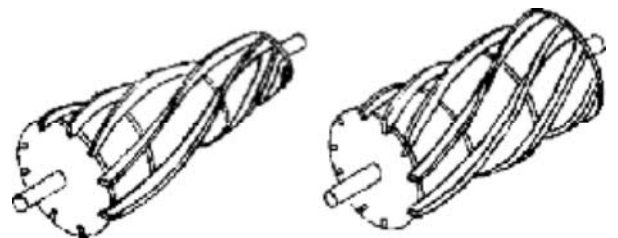


FIG. 16

OPERATING INSTRUCTIONS (Continued)

ALIGNMENT OF GRINDING SHAFT TO REEL

To align the grinding shaft to the reel bring the shaft up so that the spin wheel is about ¼ inch [6 mm] from the reel blades. Move the spin wheel to one side of the reel and raise the grinding shaft until the wheel just touches the blade. Move the wheel to the other side of the reel and bring the shaft up until the wheel just touches. Recheck from side to side and make minor adjustments until the wheel touches the same on both ends of the reel. The grind shaft is now aligned vertically to the reels outer diameter. Zero the gauges located on the vertical adjustment housing. Check for high spots in the reel by moving the wheel the length of the reel while spinning the reel. If there are high spots lower the shaft equally on both ends and zero out the gauges again.



FIG. 17

SETTING THE TRAVERSE LIMITS

Move the grinding wheel to the right until the wheel has cleared the reel by approximately ¼ inch [6 mm] (if clearance to the frame allows). Disengage both the relief and Spin grinding assemblies from traverse belt. Turn the Traverse speed potentiometer to zero and turn on the Traverse Motor Switch. This will activate the proximity sensors. Move the right Traverse Travel Limit switch in until the light on the proximity sensor illuminates. Move the wheel to the opposite end, clearing the reel as mentioned above, and set the left Traverse Travel Limit Switch. (Fig 17) Engage the traverse belt and slowly turn the Traverse Speed up. Allow the wheel to traverse from end to end to verify the switches stop and reverse the direction of the grinding wheel. Verify that the grinding wheel travels fully off the reel at each end. Note: If the reel will hit the frame, then adjust travel sensors so the wheel does not contact the frame.

! IF THE REEL FRAME EXTENDS BELOW THE REEL ITSELF, MAKE SURE THE STOP IS SET SO THAT THE GRINDING WHEEL DOES NOT RUN INTO THE FRAME WHILE GRINDING.

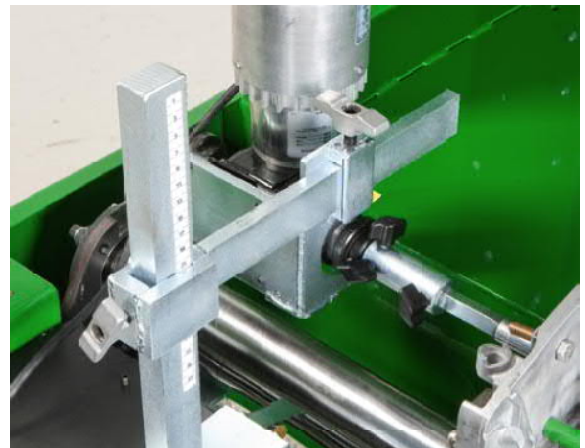


FIG. 18

ATTACHING THE VARIABLE SPEED SPIN DRIVE UNIT TO THE REEL

The spin drive unit attaches to the end of the reel shaft or a drive system component. Consult the cutting unit manual for proper spin drive placement and attachment. Determine which side to mount the spin drive. This will generally be the same drive system component used for backlapping. See FIG. 18.

IMPORTANT: When spin grinding, the reel should turn in the same direction as the grinding wheel. See FIG. 19.

Before positioning the spin unit let us familiarize ourselves with the available adjustments and coupler/drive assemblies. See FIG. 20.

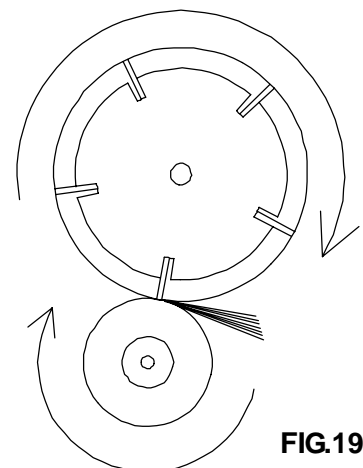


FIG.19



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OPERATING INSTRUCTIONS (Continued)

Knob A—

Allows the spin unit to be loosened and moved in and out.

Knob B-

Allows the spin unit to be loosened and moved up and down.

Knob C –

Allows the spin assembly to be loosened from the tooling bar and moved side-to-side.

When positioning the spin unit it may be necessary to complete several of the above adjustments to properly align the spin unit to the reel.

THE COUPLER ASSEMBLY INCLUDES:

RUBBER SLEEVE COUPLER: This is placed in the corresponding flange coupler already mounted in the spin drive shaft. See FIG. 21.

DRIVE COUPLER ADAPTER ASSEMBLY: This is mounted to the rubber coupler.

Note: If the Drive Coupler Adapter is removed, there is a short square drive shaft attached to the Adapter Sleeve. This can be used with a socket if there is limited space.

ADAPTER SLEEVE: Connects the rubber coupler to the square drive adapter.

SQUARE DRIVE ADAPTER: This is inserted into the drive coupler adapter. The square drive adapter has approximately 2" [51 mm] of movement. It will be necessary to move this when attaching reel to spin drive unit. This adapter shaft has a groove machined into it on the opposite end of the snap ring. This groove is there to advise that you have reached the maximum extension of the square drive shaft. If you cannot connect the reel without extending past this groove, then the spin unit must be repositioned on the tooling bar (Knob C). A 1/2" [12.7 mm] square drive socket or reel drive adapter is used to connect the square drive adapter to the reel.

NOTE: The 1/2" [12.7 mm] square drive socket or adapter that is placed on the reel when spin grinding is **NOT** included with the grinder. See next page for details

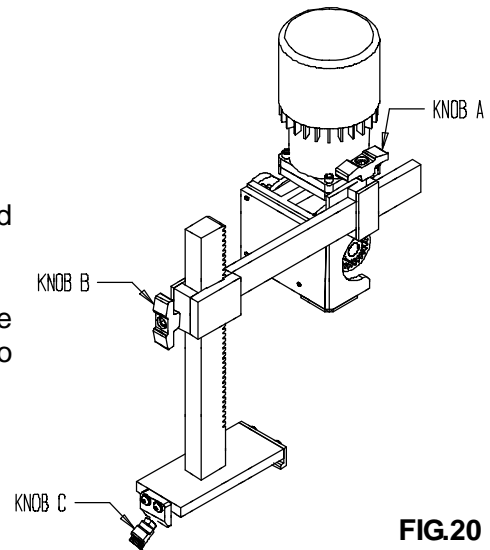


FIG. 20

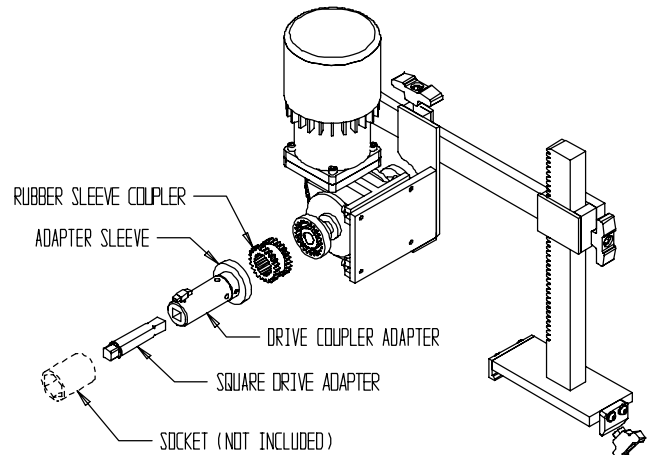


FIG. 21



DO NOT EXTEND SQUARE SHAFT PAST GROOVE, INSTEAD REPOSITION SPIN UNIT.

The following procedures will make setting up the spin drive unit easier.

1. Move spin drive unit close to the reel. Align the shaft on the spin drive with the nut on reel by completing the necessary adjustments discussed above.
2. Now slide the spin drive unit approximately 7" [18 cm] from the reel drive coupling point and securely fasten to the tooling bar tightening the locking knob. (Knob C)
3. Place the proper 1/2" [12.7 mm] square drive socket or adapter on the reel drive nut and then insert the square drive shaft into the socket. Place the adapter sleeve over the drive shaft and insert the drive coupler adapter assembly into it. Finally place the rubber coupler onto the drive coupler adapter. See FIG. 21.
4. By holding the square drive shaft firmly into position with your left hand you will be able to move the other components to the right and insert the rubber coupler into the flange on the spin drive unit. When this is done tighten the T-Knob on the adapter sleeve to hold all parts in place.
5. Finally readjust the spin drive unit if it is not in alignment.

NOTE: It is not necessary to have perfect alignment but it must be close enough so that the coupler remains engaged and that excess torque is not applied to the reel.

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