YORK
PORTABLE MACHINE TOOLS

4-14 ET
Line Boring Machine
Operating Manual

CONFIDENTIALITY STATEMENT

DOCUMENT NUMBER SPR-MAN-4-14 ET
REV 02

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ABOUT US

Superior (SPR) specializes in portable machining, bore welding, line isolation, and testing solutions, providing equipment and tools manufactured under the highest standards of quality control and engineering expertise along with 24/7 service and support. Designed with the operator in mind, our tools and equipment deliver dependable and precise performance, providing cost-effective solutions and reduced downtime, making them beneficial resources in the Oil and Gas, Mining, Heavy Construction, Shipbuilding, Aerospace, Defense, and Power Generation industries.

SPR sells and rents equipment and tools; we offer our own line of portable ID/OD flange facers, linear/gantry and rotary mills, end prep bevelers, isolation and test plugs, line boring, and bore welders, as well as custom-designed equipment and tools.

Our team includes machining, test and isolation, and engineering experts, all with a thorough working knowledge of applications to support you with our equipment on any job. We understand the urgency of your projects and are committed to delivering the highest quality equipment and tools to satisfy the requirements of your clients.

SPR delivers outstanding customer service, specialized training by seasoned professionals, and tools as tough as the jobs you need them to do.

YORK
PORTABLE MACHINE TOOLS

SUPERIOR
PLANT RENTALS

CLIFF'S BITS
PRECISION GRINDING & TOOLING

YORK MACHINE SHOP
CUSTOM MACHINING, MANUFACTURING, AND REPAIRS

SUPERIOR HEAT EXCHANGERS
PORTABLE TOOLS AND MACHINERY

WARNING:

SPR is committed to continued product improvement; therefore, the machine you received may be slightly different than the one described herein. This manual and the information provided is a basic guideline for our customers. SPR will do its best to ensure that the information and procedures contained in this manual are correct and up-to-date. Superior cannot guarantee that the information and procedures contained herein are correct for all applications or situations.

The contents of this manual are subject to change without notice. It is the obligation of the user to read all information in this manual, become familiar with the equipment to be used, and exercise the utmost care in equipment operation. **Do not make any modifications to this equipment. Any modifications will void all warranty claims, as well as increase the risk of injury or harm.** Do not operate this equipment if all parts are not functioning at 100% efficiency. Notify us immediately for any needed repairs.

Note: SPR will supply all repair and replacement parts necessary for maintenance and operation of this machine. For repair, service, or additional information, please locate repair and replacement part description/part numbers within the O&M manual in the exploded view section and contact us for ordering.

USA

Superior Plant Rentals LLC.
350 Dowdy Road, Gonzales, LA 70737 | Phone: 225.647.7771

Superior Plant Rentals LLC.
1530 Live Oak Street, Webster, TX 77598 | Phone: 281.554.9400

Superior Plant Rentals LLC.
5450 Avenue A, Bldg. 1, Beaumont TX 77705 | Phone: 409.853.4382

Superior Plant Rentals LLC.
1745 N. Lexington Blvd., Corpus Christi, TX 78409 | Phone: 361.541.5900

Superior Plant Rentals LLC.
2030 Gladwick St., Unit B, Rancho Dominguez, CA 90220 | Phone: 310.356.6105

Superior Plant Rentals LLC.
3958 Airway Drive, Rock Hill, SC 29732 | Phone: 803.659.9822

Superior Plant Rentals LLC.
8001 Hwy 90, Moss Point, MS 39562 | Phone: 251.370.8039

INTERNATIONAL

SPR York Portable Machine Tools
1641 17th Ave, Campbell River, BC, Canada, V9W 4L5 | Phone: 250.286.6400

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SPECIFICATIONS CHART

4-14 ET Full Function Electric Feed Carriage	
Cutting Tool Travel	14 in (358 mm)
Feed Speeds	0 – 2.5 in per minute (64 mm per minute)
Feed Torque	200 in-lbs. (22.6 Nm)
Rapid Traverse	9 in per minute (228 mm per minute)
Weight	61 lbs (27.6 kg)
Manual Feed Carriage	
Cutting Tool Travel	14 in (358 mm)
Manual Feed Carriage Weight	36 lbs (16.3 kg)
Upgradeable to full function	
Electric Bar Drive - Eibenstock 4 Variable-Speed	
Bore Diameters	1.5 to 16 in (up to 24 in w/hydraulic) 38.1 to 406.4 mm (up to 609.6 mm w/hydraulic)
Power Options	110 or 240 V 50/60 Hz 110 V – 20 amps 3 hp (2200 W)
Bar Drive Torque	114 ft-lbs torque (154.56 Nm)
4 Variable-Speed Reversible Bar Drive Motor Weight	19.5 lbs (8.8 kg)
Hydraulic Bar Drives Electronic (HBD-E) & Manual (HBD-M) to be Used With 5HP Hydraulic Power Units Reversible Hydrostatic Drive	
Variable Rotational Bar Drive Motors	90 rpm, 333 ft-lb torque (449 Nm) 150 rpm, 208 ft-lb torque (280 Nm) 280 rpm, 106 ft-lb torque (141 Nm)
Bar rotation lock valve mounted on bar drive	
Hydraulic Bar Drive Motor Weight	26 lb (12 kg)

SAFETY PRECAUTIONS

Please follow this list of general safety guidelines when operating the 4-14 ET (electronic touch) Line Boring Machine. Safe machining practices should always be followed when operating SPR machines.

The customer shall ensure that only people thoroughly trained in safe work procedures operate this machine. Rotating machine parts can cause serious injuries, even death!

Before operating this machine, read the entire operating manual. Inspect machine, cord, and accessories for any damage. Wear safety glasses, ear plugs, and safety shoes while operating the 4-14 ET. Do not wear loose fitting clothing that could get wrapped up in the machine. For maximum protection keep your equipment clean and in good condition. Follow company and OSHA safety rules when operating equipment. Always disconnect the power supply when inserting or adjusting the cutting tool or servicing the machine. Moving machine parts can seriously injure operators. Understand and read all instructions before operating this machine.

WARNING! - MOVING PARTS.
Keep hands, loose clothing, and hair away from rotating or moving parts. Disconnect the power supply from the machine and unplug all equipment prior to adjusting or servicing.

WARNING! - ELECTRICAL SHOCK.
Possible shock if not handled properly.

WARNING! - KEEP DRY.
Keep all equipment and components away from any water source.

WARNING! - EYE PROTECTION.
Eye protection must be worn while operating or working near powered equipment.

WARNING! - EAR PROTECTION.
Ear protection should be worn while operating or working near loud equipment.

MACHINE SAFETY

The 4-14 ET is equipped with an emergency stop located on the control panel. There is also an emergency stop on the remote control unit.

- **Do not** rapid traverse into stop limit switches
- **Do not** rapid traverse while cutting.
- **Do not** leave machine unattended while in operation
- **Do not** replace brass shear pin (3/32” brazing rod) with steel. Use Part #414-070
- Beware of pinch points. Keep all body parts clear of the machine while it is running.
- Avoid leaving set screws (that are not being used) in the boring bar. They can vibrate loose and become seized in the bearings. This can cause damage to the bearings and feed system.
- Check the bars for any nicks or gouges. Minor nicks can be cleaned up using emery cloth. Do not use damaged bars.
- Wait until the bar has come to a complete stop before changing direction of the bar drive motor.
- The 4-14 ET is designed to shut down if there is a voltage interruption.

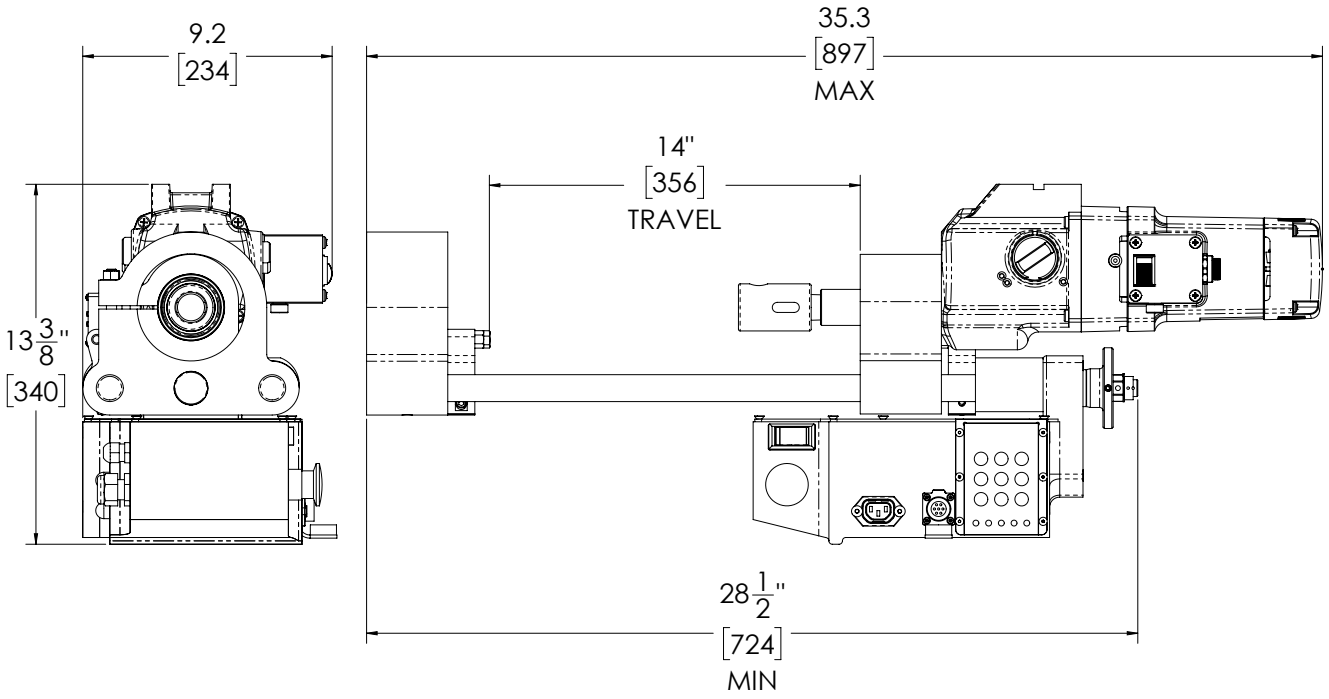
STANDARD EQUIPMENT

PRODUCT DESCRIPTION

INTRODUCTION

Applications
The 4-14 ET is the ideal choice for repeat line boring repairs on earthmoving, forestry, industrial manufacturing, and marine equipment. This portable, powerful machine interfaces with SPR York's bore welders so there is only one set up to do both. Many optional accessories are available allowing a wide range of line boring repairs.

When you receive the 4-14 ET Line Boring Machine:
Inspect the machine for shipping damage. Verify that all of the parts listed below, or on the Bill of Materials, are present. The 4-14 ET kit is generally shipped in one crate. The boring bars are located in the bottom under a false floor. The bar drive is shipped rotated upward. Loosen the clamping screws and rotate the bar drive clockwise so that it is parallel to the carriage. If any parts are missing, or if you have questions regarding the 4-14 ET, please contact a SPR York Portable Machine Tools or Superior Plant Rentals location nearest you immediately.



The SPR York 4-14 ET (electric touch) portable line boring machine is our finest yet, proven dependable and extremely powerful. Shown with our new high-torque Eibenstock 34 four variable-speed motor, this combination makes the 4-14 ET extremely portable. A unique feature is the variable speed feed system with rapid traverse. This feed system provides 14 in (358 mm) of cutting tool travel. Our control panel adds ease to the operation. Reduce your heavy equipment down time with the 4-14 ET portable line-boring machine.

The 4-14 ET includes:

- Electric 4-speed boring bar drive
- Electric Feed Carriage
- Aluminum chest
- 9/16” wrench, drive screws, shear pins, wedge

Options:

- Remote w/ 8 foot cable
- 5 bar packages - 1 1/4”, 2”, polished or chrome; other sizes available
- Carbide inserts
- Thru Bar Measuring kits
- Facing tool
- Snap Ring Grooving tool
- Off-set bar drive

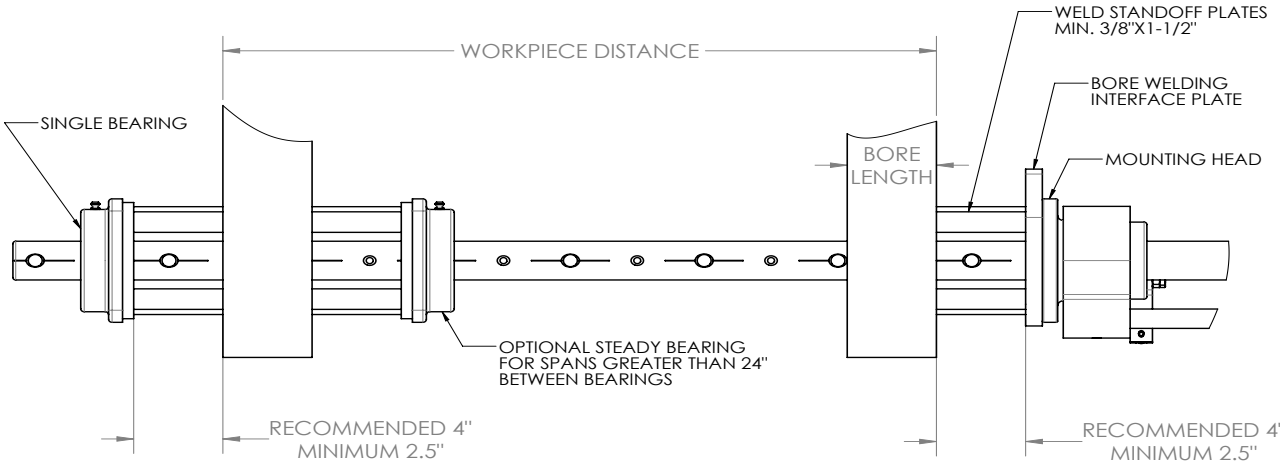
INITIAL SETUP

Bar Setup

Select the appropriate boring bar and insert it into the holes to be machined.

TO DETERMINE RECOMMENDED BAR LENGTH

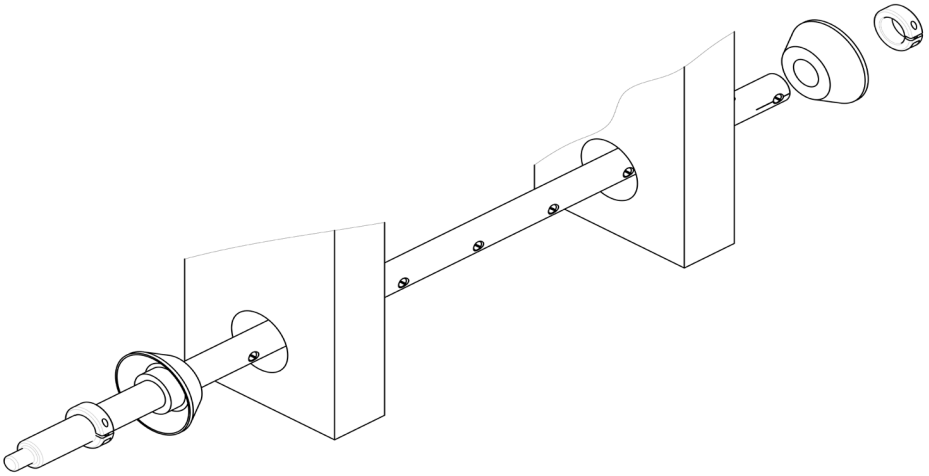
TO DETERMINE RECOMMENDED BAR LENGTH
FORMULA: 18" + WORKPIECE + ONE BORE LENGTH = RECOMMENDED BAR LENGTH



Slide line-up cones onto the ends of the bar with the cones facing into the bores that are to be machined.

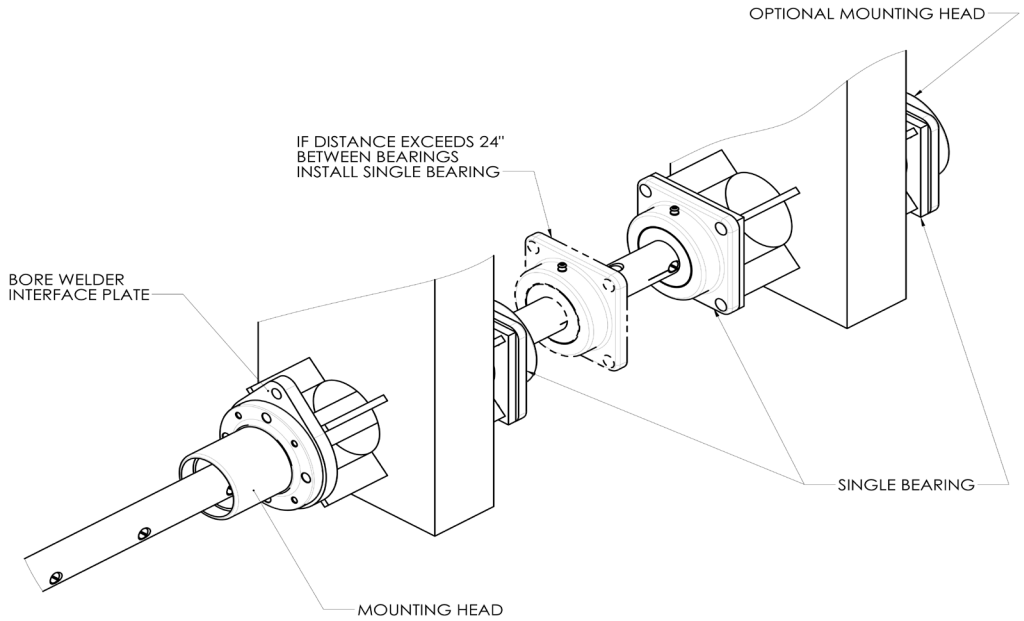
Slide a locking collar up to each line-up cone. Tighten the first locking collar onto the bar so that there is approximately 3/16” between a tool hole on the bar and the locking collar.

Slide the second locking collar along the bar until the bar is centered in the bore. Both line-up cones should be pulled tight into the bores.



The final tightening is as follows:

- Insert a tool bit or piece of square stock into the hole next to the clamping collar.
- Place a small pry-bar between the tool bit and the locking collar.
- Loosen the locking collar clamp screw.
- Pry the cones and the collar as tight as possible. If this procedure is done correctly, you should not be able to move the bar in either direction.
- Check that the boring bar is in the correct position on the machine that you are boring. Is the bar parallel to any other bores on the machine? Is the bar square to the machine? Depending on the condition of the worn bores, the line-up cones may need to be shimmed to permit the bar to be in the correct plane for boring. Repeat the clamping procedure using shims if required.
- Slide the assembled double bearing-mounting head and bore welder interface plate onto the bar end. On the other end of the bar, slide on a single bearing. Weld the bearings into position using four small pieces of flat bar. Be sure to leave enough room to remove the line-up cones. Care should be taken to avoid pulling the bearings out of alignment. Too much welding causes binding from excessive heat. We recommend small tack welds. Tack all four pieces (with as small a weld as possible) to the bore welder interface plate and the work piece. Only then can the welds be increased from ¼ to ½ " long. By welding the flat bar on the edge, their removal after the job is made easier. The welds can be broken off after the job by hitting them with a small hammer. The distance between the two bearings should not exceed 2' apart. A third bearing may need to be installed to control vibration and tool chatter while machining.



- On jobs where a third bearing is not possible, use a double bearing on each end of the bar. With a double bearing on each end, the line boring machine can be placed on either side of the job for maximum visibility.

- Loosen the locking collar clamps and slide the bar out of the bearings, allowing the line-up cones to be removed. If the bar slides through the bearings, you may proceed to the next step. If the bar binds, you will need to repeat the previous steps. In some cases, you can loosen the double bearing mounting head bolts on the welding plate and reposition the bearings using the set screws built into the mounting head. This may help to remove the bind.

- With the bar in position, slide the boring machine onto the double bearing mounting-head and tighten the nuts. DO NOT OVER TIGHTEN.

- Mount the bar drive motor onto the boring machine. Tighten the nuts to clamp the bar drive motor into place. DO NOT OVER TIGHTEN.

Be sure that extension cords match the power requirements of the machine. Do not operate in wet or explosive conditions.

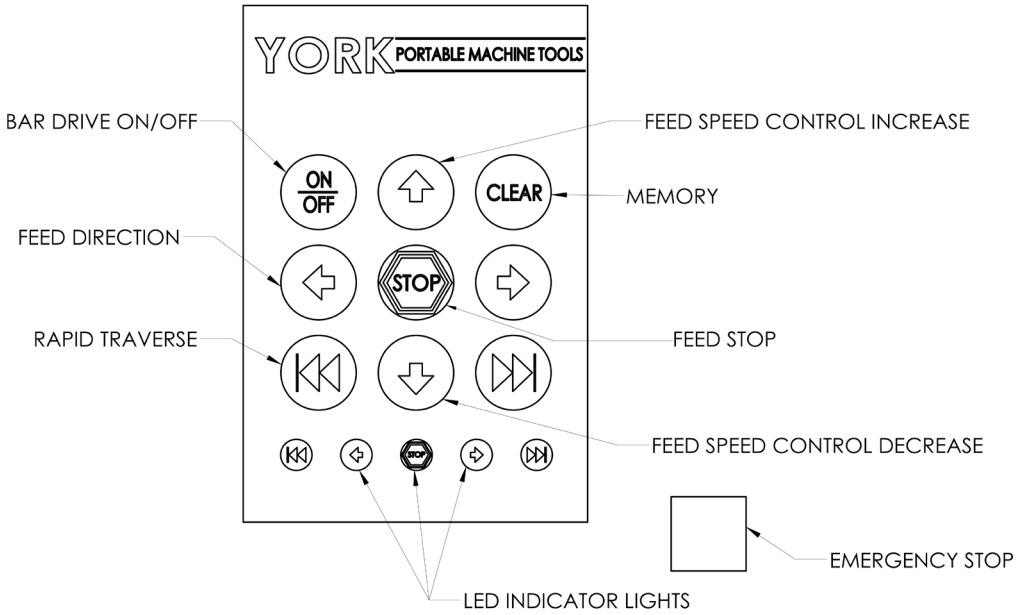
- Connect the boring bar to the bar drive motor by lining up the dimple in the boring bar with the set screw hole. Feed the coupling onto the stub end of bar until the dimple in the bar is visible through the set screw hole. Insert allen head set screw in the coupling to secure the bar to the coupling.

- Select a tool port in the boring bar you wish to use. Install an adjusting screw in the tool porthole. Insert the tool bit until it is tight against the adjusting screw. Clamp the tool bit in place using a flat point set screw.

- Always use a #10 extension cord – never stall the bar drive motor as serious damage may occur.

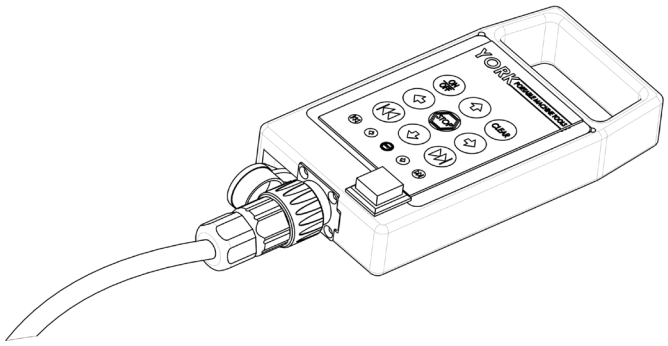
MACHINE OPERATION

Extreme caution should be used operating this machine.
Misuse can cause serious injuries, even death.



- Adjust the RPM speed and rotation direction on the Eibenstock bar drive motor.
- Turn on the rocker switch located to the left of the key pad to energize the feed system.
- 4-14 ET (electric touch): All the feed operations are controlled by the touch pad including the EMERGENCY STOP.
- Ensure nothing can get caught in the rotating bar e.g. hands, clothing, and extension cords.
- The feed speeds are adjusted by tapping the slow or fast function keys. These are the vertical arrows.
- Each tap will incrementally increase or decrease the feed speed; a beep will be heard when adjusting feed speeds.
- **On start-up the machine is set at zero feed; it will require a minimum of three taps on the touch pad to start the feed.** Continue to tap the feed button until desired speed is achieved. The stop function button (center) will stop the feed. The last speed feed used is now stored in memory. The first tap of the feed direction key in either direction will now start the feed at the last feed speed used. If you wish to have the unit start at a zero rate of speed, tap the clear function key to clear the memory.
- You do not have to use the stop function key to change direction or use rapid traverse.

Optional remote (Part # 414-098 c/w 8ft cable)



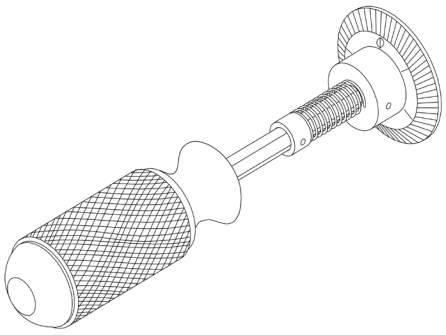
The optional remote key pad and all the functions are the same as the key pad on the 4-14 ET with the exception of an **emergency stop button** on the lower left of the remote.

To use the remote, first power down the 4-14 ET. Connect the cable and power up the machine, the unit will automatically detect the remote and all the functions are now controlled from the remote – the key pad on the 4-14 ET is now inoperative. To restore control to the key pad on the 4-14 ET, power down the machine and disconnect the remote. If you disconnect the remote from the 4-14 ET without powering down the key pad will remain inoperative.

Take a rough cut then re-adjust the tool bit by performing the following:

- Measure bore after a taking a rough-cut (Optional Thru-Bar Measuring Tool)
- Loosen the tool bit clamping screw slightly

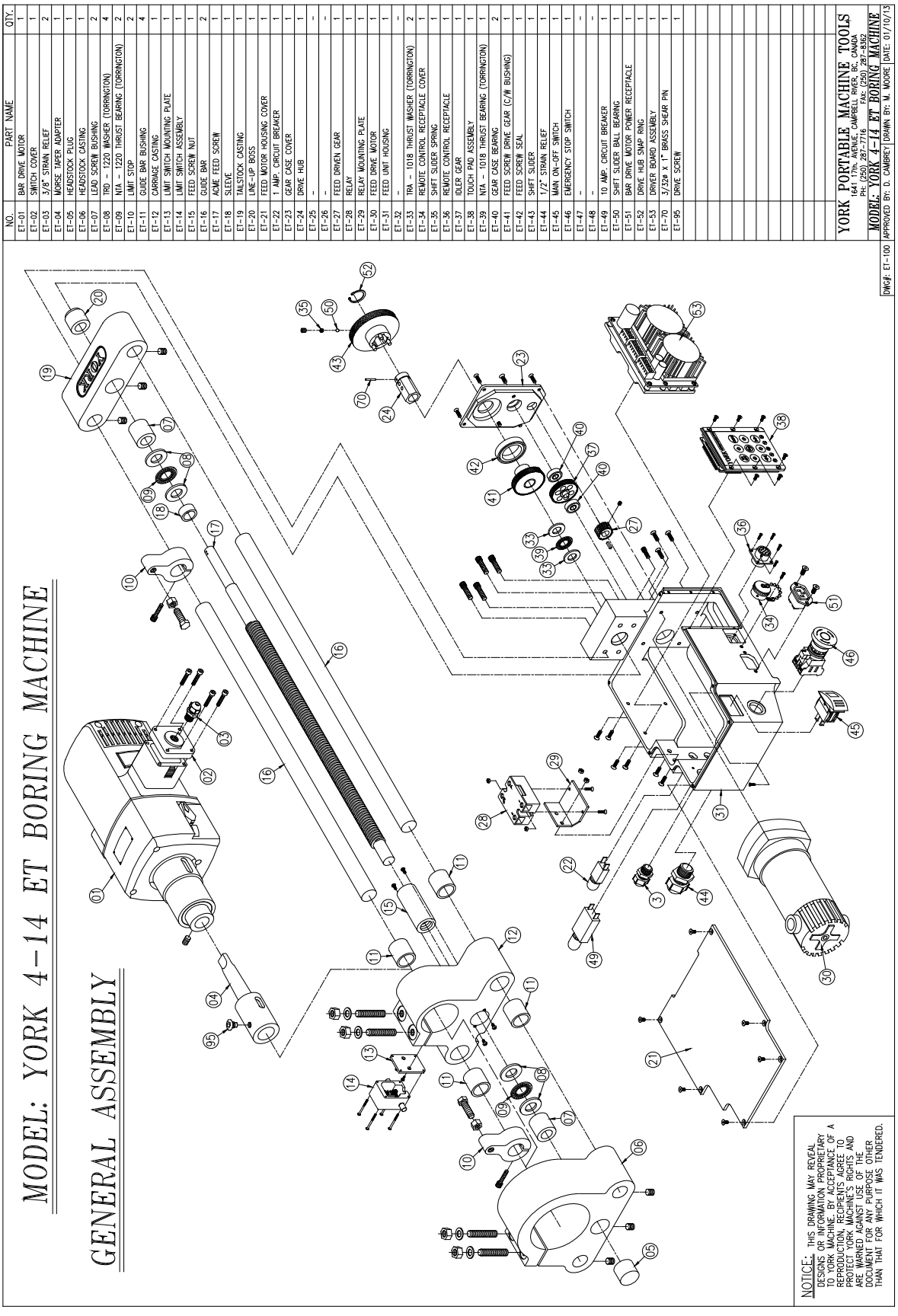
The SPR York calibration tool allows accurate adjustment of the cutting tool in increments of .001". The calibration tool inserts into an adjusting screw behind the tool bit. Across the center of each tool port is a scribed index line. As you turn the Calibration tool clockwise, you are advancing the tooling .001" for each graduation. (Note advancing the tool bit .001" will increase the bore diameter .002”).



Re-tighten the tool bit clamping set screw. It is important that only a flat point set screw be used. A regular cup point will tend to bite into the tool bit; this may move the tool bit away from the adjusting screw and cause an oversize hole to be bored.

Use Micro 100 brazed carbide tooling for maximum cutting tool performance. Micro 100 tools are available from the factory or from SPR York’s Southeast office at 1-800-979-1131.

EXPLODED VIEWS



NO.	PART NAME	QTY.
ET-01	BAR DRIVE MOTOR	1
ET-02	SWITCH COVER	1
ET-03	3/8" STRAIN RELIEF	2
ET-04	MORSE TAPER ADAPTER	1
ET-05	HEADSTOCK PLUG	1
ET-06	HEADSTOCK CASTING	1
ET-07	LEAD SCREW BUSHING	2
ET-08	TRD - 1220 WASHER (TORRINGTON)	4
ET-09	NTA - 1220 THRUST BEARING (TORRINGTON)	2
ET-10	LIMIT STOP	2
ET-11	GUIDE BAR BUSHING	4
ET-12	CARRIAGE CASTING	1
ET-13	LIMIT SWITCH MOUNTING PLATE	1
ET-14	LIMIT SWITCH ASSEMBLY	1
ET-15	FEED SCREW NUT	1
ET-16	GUIDE BAR	2
ET-17	ACME FEED SCREW	1
ET-18	SLEEVE	1
ET-19	TAILSTOCK CASTING	1
ET-20	LINE-UP BOSS	1
ET-21	FEED MOTOR HOUSING COVER	1
ET-22	1 AMP. CIRCUIT BREAKER	1
ET-23	GEAR CASE COVER	1
ET-24	DRIVE HUB	1
ET-25	-	-
ET-26	-	-
ET-27	FEED DRIVEN GEAR	1
ET-28	RELAY	1
ET-29	RELAY MOUNTING PLATE	1
ET-30	FEED DRIVE MOTOR	1
ET-31	FEED UNIT HOUSING	1
ET-32	-	-
ET-33	TRA - 1018 THRUST WASHER (TORRINGTON)	2
ET-34	REMOTE CONTROL RECEPTACLE COVER	1
ET-35	SHIFT SLIDER SPRING	1
ET-36	REMOTE CONTROL RECEPTACLE	1
ET-37	IDLER GEAR	1
ET-38	TOUCH PAD ASSEMBLY	1
ET-39	NTA - 1018 THRUST BEARING (TORRINGTON)	1
ET-40	GEAR CASE BEARING	2
ET-41	FEED SCREW DRIVE GEAR (C/W BUSHING)	1
ET-42	FEED SCREW SEAL	1
ET-43	SHIFT SLIDER	1
ET-44	1/2" STRAIN RELIEF	1
ET-45	MAIN ON-OFF SWITCH	1
ET-46	EMERGENCY STOP SWITCH	1
ET-47	-	-
ET-48	-	-
ET-49	10 AMP. CIRCUIT BREAKER	1
ET-50	SHIFT SLIDER BALL BEARING	1
ET-51	BAR DRIVE MOTOR POWER RECEPTACLE	1
ET-52	DRIVE HUB SNAP RING	1
ET-53	DRIVER BOARD ASSEMBLY	1
ET-70	3/32ø x 1" BRASS SHEAR PIN	1
ET-95	DRIVE SCREW	1

PARTS

ITEM	QTY	PART#	DESCRIPTION
01	1	414-001	4 Speed Bar Drive - 110 Volt, 60 Hz
		414-001-230v	4 Speed Bar Drive - 230 Volt, 50 Hz
(Note: 414-001 4 Speed Bar Drive shown in parts breakdown)			
03	2	ET-003	3/8" Strain relief c/w nut
04	1	414-004	Morse taper adaptor
05	1	414-005	Headstock plug
06	1	414-006	Headstock casting
07	2	414-007	Lead screw bushing
08	4	414-008	Washer
09	2	414-009	Thrust bearing
10	2	414-010	Limit stop assembly
11	4	414-011	Guide bar bushing
12	1	414-012	Carriage casting
13	1	FD-028	Limit switch mount plate
14	1	414-ET-LSH	Limit switch harness assembly (consult factory for version)
15	1	414-015	Lead screw nut
16	2	414-016	Guide bar
17	1	ET-017	Lead screw
18	1	414-018	Sleeve
19	1	414-019	Tailstock casting
20	1	ET-020	Line-up boss
21	1	FD2-024	Feed box housing cover
22	1	ET-022CB	1 Amp Circuit Breaker
23	1	FD2-025	Feed box, rear gear cover
24	1	ET-024	Drive hub
27	1	FD2-004	Feed motor drive gear
28	1	ET-028	Relay
29	1	FD2-003	Relay mounting plate
30	1	ET-030	Feed motor
31	1	FD2-023	Feed box housing

ITEM	QTY	PART#	DESCRIPTION
33	2	ET-033	Thrust washer
34	1	ET-034	Remote control receptacle cover not used with Q style
35	1	ET-035	Shift slider spring MT-L- spring
36	1	ET-036	Remote control receptacle
37	1	FD-020	Idler gear
38	1	ET-038	Touch panel assembly
39	1	ET-039	Thrust washer
40	2	ET-040	Gear case bearing
41	1	FD2-019	Feed screw drive gear
42	1	ET-042	Feed screw seal
43	1	ET-043	Shift slider
44	1	ET-044	1/2" Strain relief
45	1	414-045	Main On/Off switch
46	1	414-046	Emergency stop switch
49	1	ET-049CB	10 Amp circuit breaker
50	1	ET-050	Shift slider ball bearing
51	1	414-051	Power receptacle (4-14 and early ET)
		ET-051	Power receptacle (ET late)
52	1	ET-052	Drive hub snap ring
53	1	ET-053UGK-110v	Driver board assembly
70	1	414-070	3/32" x 1" Brass shear pin (3/32" brazing rod) !!Do not replace brass shear pin with steel!!
95	1	414-003	Drive screw
Additional Parts Not Listed			
	1	ET-189	Main power cord
	1	ET-190	ET late model

BAR SPEED CHART

Ideal Bore Diameter	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5
Bar Drive RPM	800	600	480	400	343	300	267	240	218	200	185	171	160	150	141

Ideal Bore Diameter	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16
Bar Drive RPM	133	126	120	114	109	104	100	96	92	89	86	83	80	77	75

Note: The *ideal* brazed cutting tool speed in mild steel = 300 ~ 400 Surface feet per minute (S.F.M.)

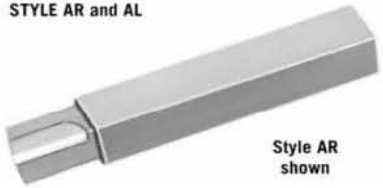
$\frac{4 \times C.S}{\text{Diameter}}$ C.S. = Cutting Speed Sample: 4 x 300 C.S. = 1200 / 4" (Diameter.) = 300 RPM

ROUGHING BORES!

For roughing bores, use quality Micro 100 brazed carbide cutting tools. Keep tooling sharp, and for best results, grind chip breaker. Increase feed speed until you can hear bar drive start to labor.

Micro 100®

	Left Hand	Right Hand
1/4"	AL-4	AR-4
3/8"	AL-6	AR-6
1/2"	AL-8	AR-8

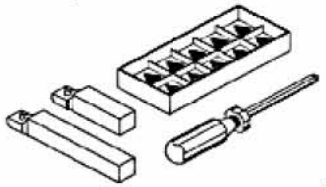


FINISHING BORES!

York Carbide Insert Tool Package 1/2"

The York insert tool places the carbide-cutting surface into the center of the bore - substantially improving cutting tool performance while extending tool holder life. Our tool holders use standard inserts that are readily available from most cutting tool suppliers. Insert tooling takes the guesswork out of tool geometry and improves the overall performance of your line-boring machine.

Kit Part# ITK-000
ITK-003 Replacement Insert (Round)
ITK-004 Replacement Insert (Sharp)
ITK-005 Replacement Micro 100 Insert



MAINTENANCE

GENERAL MACHINE MAINTENANCE

Do not lubricate the lead screw and guide bars. Oil or other lubricants will attract and hold dirt and grinding dust. Periodically clean the lead screw and the machine with compressed air. Wipe the guide bars and machine after each use; dirt and grit can severely shorten the life of the machine. Do not spray anything into the electric motor body.

BAR DRIVE

Monitor the temperature of the Eibenstock bar drive housing. Feel the back and sides of the motor. Air should be blowing out while running. Periodically the drive assembly should be cleaned, inspected, and greased when necessary.

CARRIAGE INSPECTION

If there is play in the casting, replacement bushings may be needed. A loose sleeve on the feed screw may be remedied by pressing in the bushing.

PROPER HANDLING

Do not drop, hit, or otherwise abuse your line boring machine. This equipment is designed as a portable machining assembly, and as such, is not designed to withstand excessive abuse. Care for your equipment will increase your utilization, the life of the machine, and minimize your repair cost.

TOOL BITS

Remember that tool bits (cutting tools) in good condition perform better. Do not try to use dull tool bits or force the tool bits into the work piece. if the tool bits seem to be tearing rather then cutting replace your cutting tool bits right away. Also listen to how the cut sounds and whether there is chatter. This also could indicate a dull cutter. When possible, leave unused tool bits in their packages to prevent them from being damaged. Please store tool bits that have been taken from their original package in a safe place.

WARRANTY

Superior Plant Rentals, LLC (SPR) warrants that the equipment manufactured by it will: (i) conform to SPR's written specifications and descriptions, and (ii) be free from substantial defects in design, materials, and workmanship for a period of one year from date of shipment to the original buyer, or six months from date of placing in service by buyer, whichever date is earlier.

During this period, if any equipment is proved to SPR's satisfaction to be defective, SPR will, at our sole and absolute discretion, and as SPR's sole warranty liability and buyer's sole remedy, repair, replace, or credit buyer's account for any equipment that fails to conform to the warranties, provided that: (i) SPR is notified in writing within 10 days following discovery of such failure with a detailed explanation of any alleged deficiencies; (ii) SPR is given a reasonable opportunity to investigate all claims; and (iii) SPR's examination of such equipment confirms the alleged deficiencies and that the deficiencies were not caused by accident, misuse, neglect, improper use, unauthorized alteration, repair, or improper testing.

Shipping cost of the alleged defective equipment to SPR is to buyer's account. However, if SPR agrees that the equipment is defective, then pursuant to this warranty, SPR will reimburse buyer its shipping cost to return the equipment to SPR.

The warranty against defects does not apply to: (1) consumable components or ordinary wear items, and (2) use of the equipment with equipment, components, or parts not specified or supplied by SPR or contemplated under the equipment documentation.

The following actions will void the one-year warranty:

1. Repairs or attempted repairs have been made by persons other than SPR personnel, or authorized service repair personnel;

2. Repairs are required because of normal wear;

3. The tool has been abused or involved in an accident;

4. There is evidence of misuse such as overloading of the tool beyond its rated capacity, use after partial failure, or use with improper accessories.

5. Damage to the motor due to lack of oiler/mister while tool was in use (pending motor type).

NO OTHER WARRANTY IS VALID

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SUPERIOR

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Edmonton, AB | Gonzales, LA | Houston, TX | Moss Point, MS
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