

12-36 MKIV 3" Boring Bar Line Boring Machine Operating Manual

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DOCUMENT NUMBER

SPR-MAN-12-36MKIV

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SUPERIOR

One Company, *Superior* Results.

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ABOUT US

Superior Plant Rentals, LLC. (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 rents and sells 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.



WARNING:

SPR York 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 York will do its best to ensure that the information and procedures contained in this manual are correct and up-to-date. SPR York 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 York 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.
2910 S Ruby St. Gonzales, LA 70737 | Phone: 225.647.7771

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

Superior Plant Rentals LLC.
2160 Wellspring Drive, Beaumont TX 77705 | Phone: 409.853.4382

Superior Plant Rentals LLC.
8233 Leopard Street, 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

INTERNATIONAL

SPR York Holdings ULC
1641 17th Ave, Campbell River, BC, Canada, V9W 4L5 | Phone: 250.286.6400

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INTRODUCTION

USING THE MANUAL

This manual describes the general operation of the SPR York 12-36 line-boring machine. As the new owner of this product, we strongly urge you, and any other operators, to read and understand the information in this manual.

The customer shall ensure that only people thoroughly trained in safe work procedures operate this machine. Safe working procedures are required when operating rotating machine tools. The misuse of this machine could result in severe injury or death.

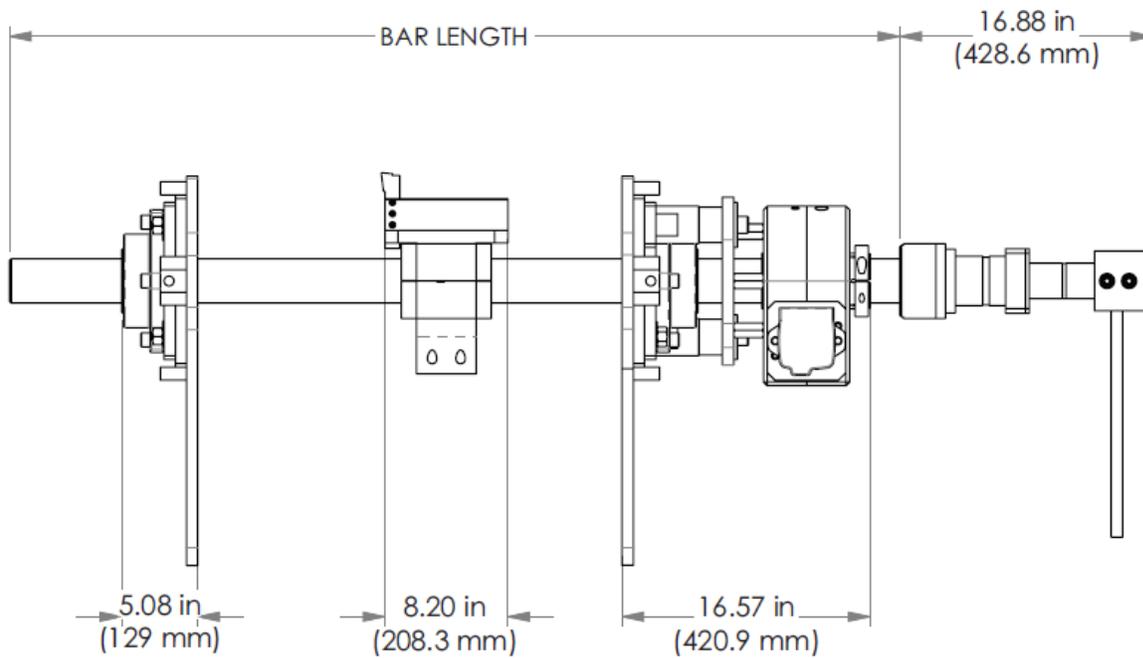
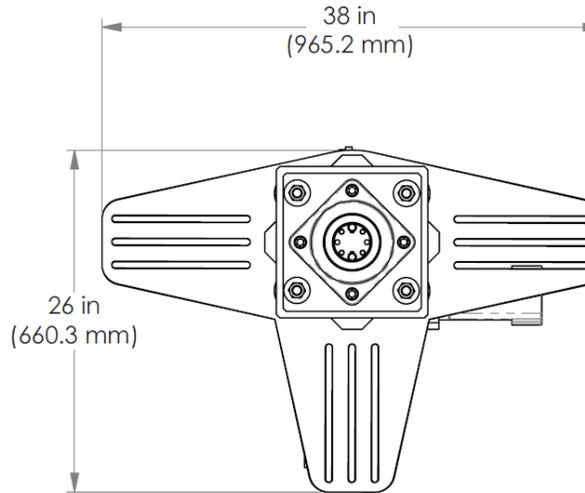


Rotating machine parts can cause serious injuries, even death!

RECEIVING YOUR NEW YORK 12-36

- Individually inspect all the pieces for signs of shipping damage. Check the packing slip for any errors, omissions, or missing pieces.
- Immediately call our shipping/receiving department at 888.783.9675 if any shipping damage is discovered.
- Check hydraulic fluid level; we recommend an AW46 light hydraulic fluid. **FILL RESERVOIR WITH “CLEAN” HYDRAULIC OIL.**
- Ensure that the electric motor is properly connected to your power supply.
- Correct motor rotation is very important. Incorrect motor direction will cause pump failure and void the warranty. The output shaft should always rotate clockwise.
- Always shut down and start up the electric motor with the hydraulic flow in the neutral position. **DO NOT START THE ELECTRIC MOTOR UNDER LOAD**

SPECIFICATIONS CHART



Min/Max diameters	8 in - 36 in (203.2 mm - 914.4 mm)
Max Bar Length	240 in (6096 mm)
Feed rate	Variable .375 in (9.5 mm) / min up to 5.5 in (139.7 mm) / min
Rapid traverse	5.5 in (139.7 mm) / min
Rotation speed	20 rpm to 125 rpm
Tooling	Indexable carbide insert

SAFETY PRECAUTIONS

Proper training and safety precautions can help avoid accidents. **For maximum safety and performance, read the entire instruction manual before operating this machine.** Always follow these safety precautions:

- Keep others clear from the machine when it is running.
- Keep clear of the rotating bar. Never try to remove chips while the machine is running.
- Disconnect the power when inserting or adjusting the cutting tool.
- Wear protective goggles, footwear, and ear plugs. Please observe all company and government work-safe practices.
- Do not wear loose fitting clothing that could get caught up or wrapped in the machine.
- Flying chips can cut or burn you. Do not remove cuttings with bare hands.
- Do not operate in water. Watch for electrical hazards.

MACHINE SAFETY

- Do not rapid transverse while cutting.
- Wait until the bar has come to a complete stop before changing direction of the bar drive motor.
- Turn off the power when changing or setting tool bits.



Please observe all company and government work safety practices.



WARNING!
MOVING PARTS.

Keep hands, loose clothing, and hair away from rotating or moving parts. Disconnect the air supply from the machine and unplug all equipment prior to adjusting or servicing. If electric, remove power from the machine 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.



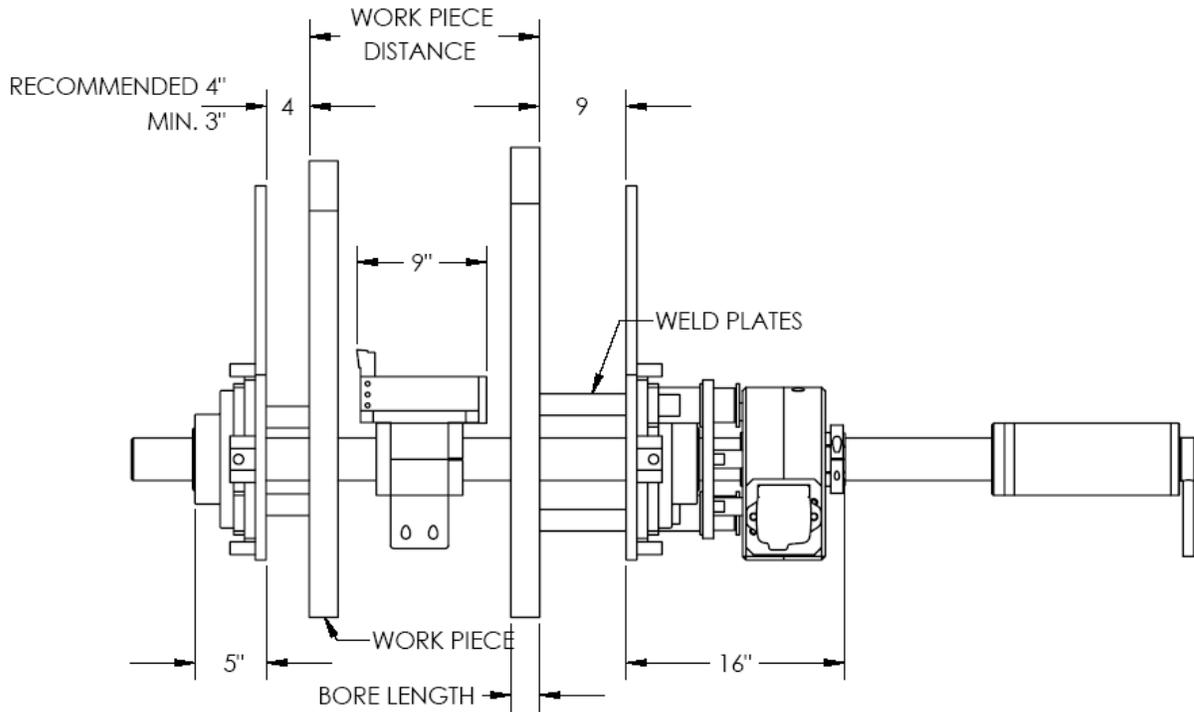
WARNING!
EAR PROTECTION.

Ear protection should be worn while operating or working near loud equipment.

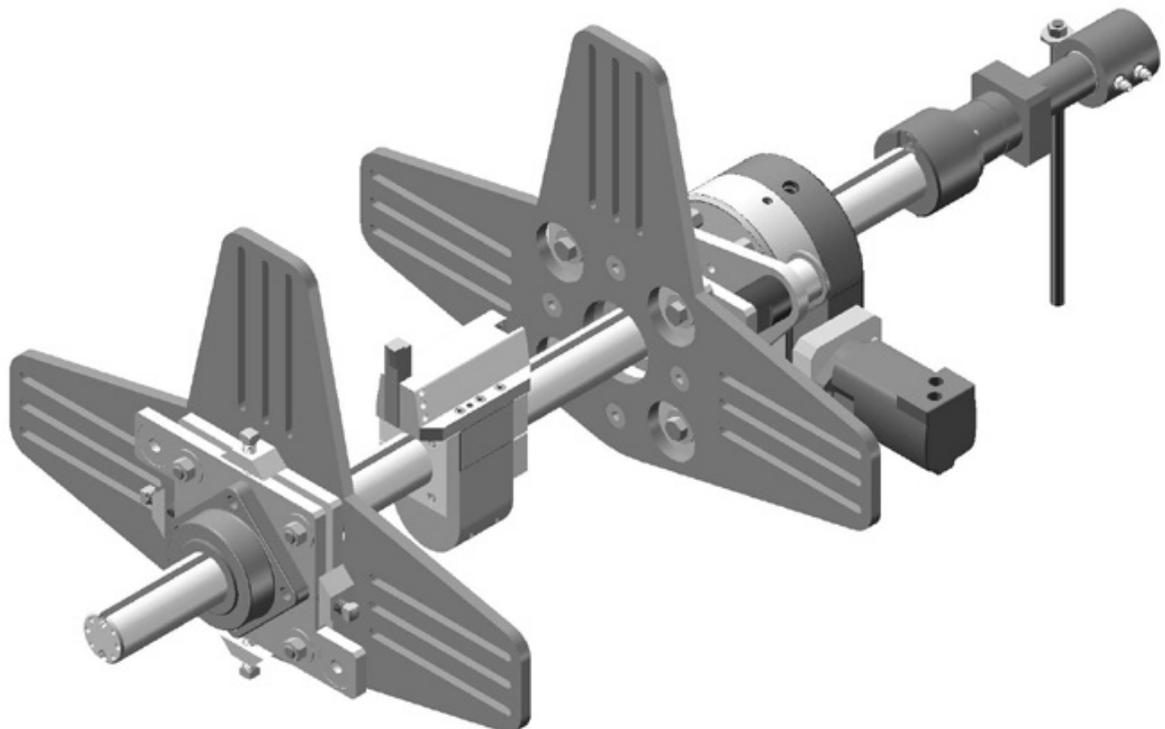
SETUP AND OPERATION

TYPICAL SETUP

TO DETERMINE RECOMMENDED BAR LENGTH



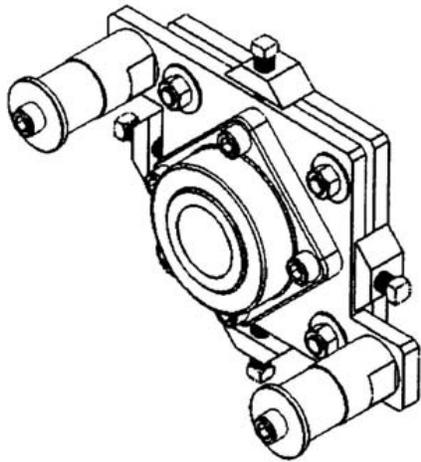
34" PLUS WORKPIECE DISTANCE = MINIMUM BAR LENGTH



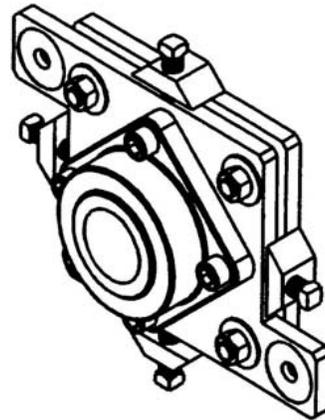
BAR SETUP

The SPR York 12-36 can be set up several ways depending on the work area. Tack weld plates are provided; however, in some cases you may want to pick up an existing bolt pattern on the work piece. If so, a special set up fixture would be required and can be manufactured at SPR York.

- Attach the three-leg mounting fixture to each end of the work piece, ensuring that they are roughly centered in the bore. Further final adjustments can be made with the slots in the three-leg mounting and the X/Y bearing mount plates.
- Slide the bearings over each end of the boring bar and mount them to bearing plates.



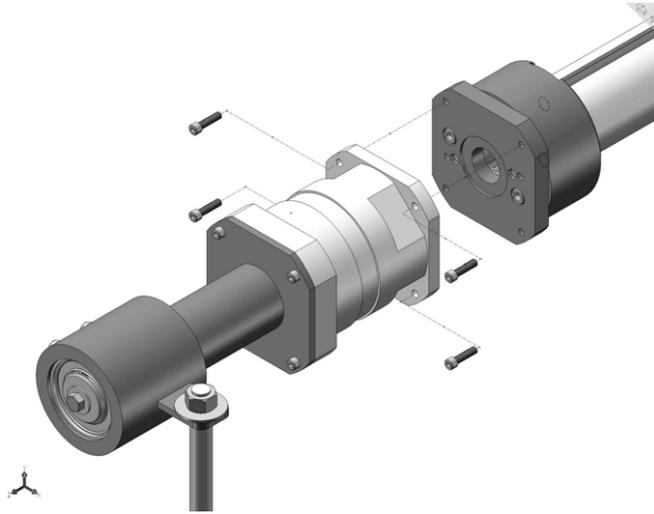
**Bar Rotation Unit Mount
Floating Bearing**



**Tail Stock Mount
Fixed Bearing**

- Mount the split tool head to the boring bar. Assemble the two-piece #7 slider plates on the boring bar. The fit between these plates and the boring bar must be adjusted. The slider plates support the boring head as it travels along the bar. If the fit is too loose, the boring head could vibrate during a cut and leave a poor surface finish. If the fit is too tight, the feed mechanism could be damaged. Once each plate is assembled on the boring bar, it should be adjusted as tight as possible, but still allow it to slide along the bar by hand.
- After both slider plates are adjusted properly, the two-piece (#9 and #13) boring head can be assembled. The bronze half-nut in the lower section (#13) is fixed in place, but the half-nut in the upper section (#9) is adjustable. Before assembling the two halves on the boring bar, the mounting bolts for the half-nut (#12) in the upper section must be loosened. When the two sections of boring head are assembled on the boring bar, the half-nut in the upper section will shift to mesh with the leadscrew in the bar. The two sections can now be bolted together. Once they have been tightened, the mounting bolts for the half-nut can be tightened as well. The two slider plates can now be attached to each side of the boring head. Once the boring head assembly is completed, the cutting tool holder (#4) can be mounted using the appropriate spacer blocks. **(See drawing on page 9.)**

- Center the bar by sweeping the bore; adjust the boring bar alignment with the jacking screws on the jacking plate. When alignment is achieved, tighten the bearing to the jacking plate to prevent further movement.
- Remove the tool head, then remove the boring bar. Install the bar rotation drive onto the bar and reinstall into the bore. Attach the feed motor assembly. Make hydraulic connections to feed motor and bar rotation drive.



OPERATION

FEED CONTROLS

The feed speed and direction is controlled via the pendant. The pendant has the following controls:

- Feed Direction – Left – Neutral – Right
- Feed Speed Control
- Bar Rotation Lock – On/Off
- E-Stop (shuts off power to feed and bar rotation)

NOTE: Engage E-stop when adjusting cutting tool or accessing the bore.

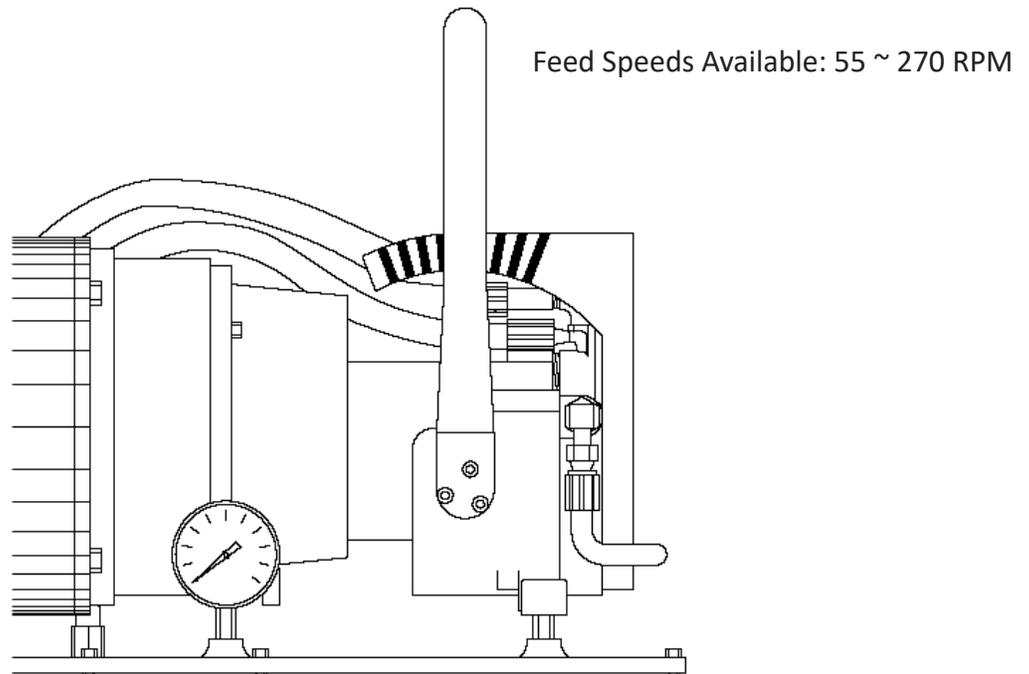


Extreme caution should be used when operating this machine. Misuse can cause serious injuries, even death. Ensure nothing can get caught in the rotating bar, e.g. hands, clothing, and extension cords.

BAR ROTATION DRIVE

Bar rotation direction and speed are controlled via the lever mounted on the hydraulic power unit. You can stop the bar rotation via a toggle switch on the pendant control.

NOTE: Engage E-stop when adjusting the cutting tool or accessing the bore.



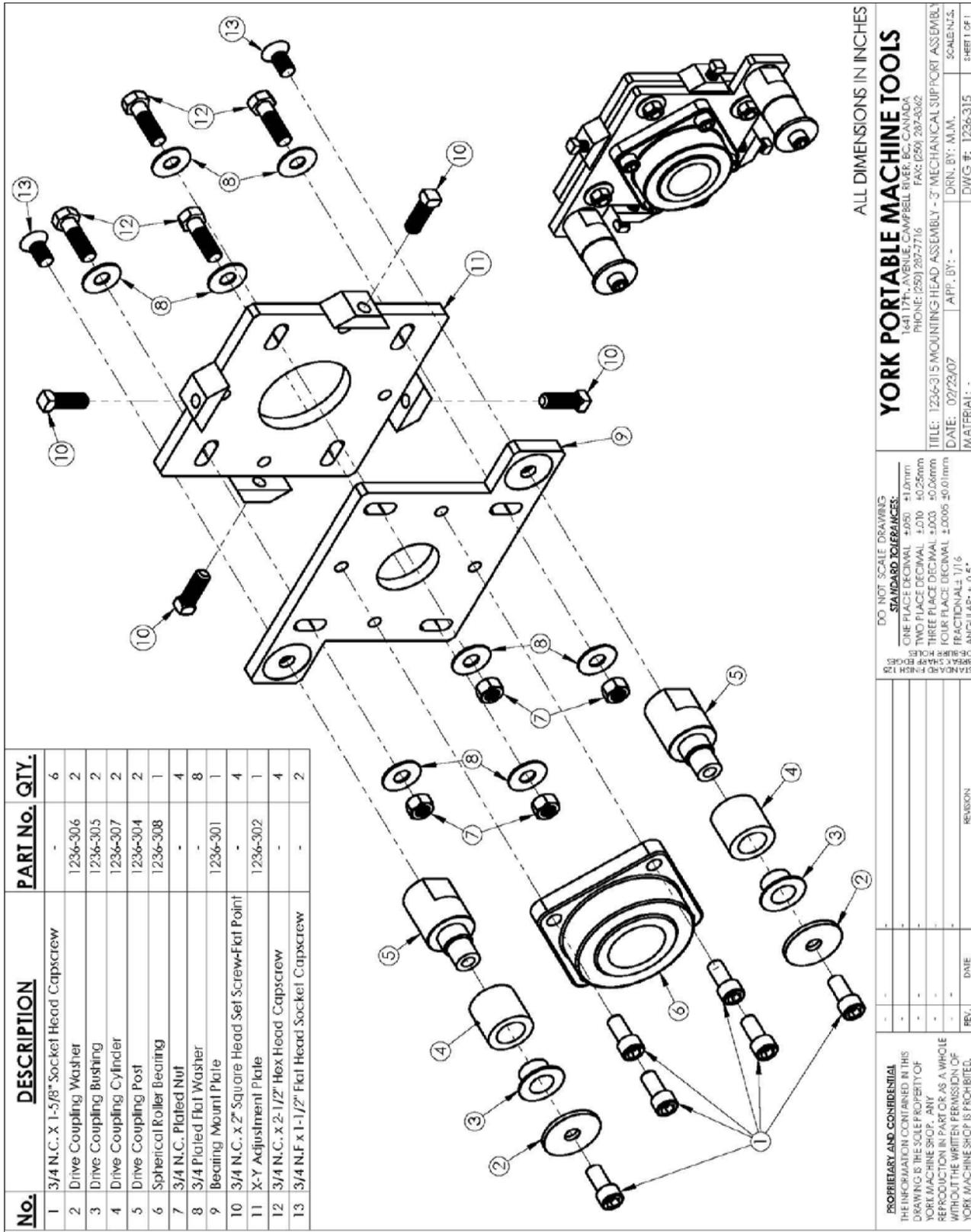
DRAWINGS

No.	DESCRIPTION	PART No.	QTY.
1	3/8 N.C. x 1-1/2" Socket Head Capscrew	-	6
2	3/8 N.C. x 1/2" socket Set Screw - Flat Point	-	6
3	Cuffing Tool	1236-419	1
4	Boring Head Tool Holder	1236-405	1
5	3/8 N.C. x 1-1/4" Socket Head Capscrew	-	8
6	3/8 N.C. x 3-1/4" Socket Head Capscrew	-	6
7	Slider Bearing Plate	1236-401	2
8	3/8 N.C. X 3" Socket Head Capscrew	-	6
9	Boring Head Top	1236-403	1
10	3/8 ϕ x 1" Dowel	-	4
11	Boring Head Key Nut	1236-404	2
12	1/4 N.C. x 1/2" Socket Head Capscrew	-	6
13	Boring Head Bottom	1236-402	1
14	Counterweight Balance	1236-406	1
15	3/8 N.C. x 2" Socket Head Capscrew	-	4
16	BORING HEAD EXTENSION - <u>OPTION</u>	1236-409	-

DO NOT SCALE DRAWING
STANDARD TOLERANCES:
 ONE PLACE DECIMAL ± 0.50 ± 1.0 mm
 TWO PLACE DECIMAL ± 0.10 ± 0.25 mm
 THREE PLACE DECIMAL ± 0.03 ± 0.06 mm
 FOUR PLACE DECIMAL ± 0.0005 ± 0.01 mm
 FRACTIONAL $\pm 1/16$
 ANGULAR: $\pm 0.5^\circ$

YORK PORTABLE MACHINE TOOLS
 1641 17th AVENUE, CAMPBELL RIVER, BC, CANADA
 PHONE: (250) 287-7716
 FAX: (250) 287-8362

TITLE: 1236-415 BORING HEAD - 3" BORING HEAD ASSEMBLY
 DATE: 03/07/07 APP. BY: - DRN. BY: M.M. SCALE: N.T.S.
 MATERIAL: - DWG #: 1236-415 SHEET 1 OF 1



ALL DIMENSIONS IN INCHES

YORK PORTABLE MACHINE TOOLS

1641 17th Avenue, Campbell River, BC, Canada
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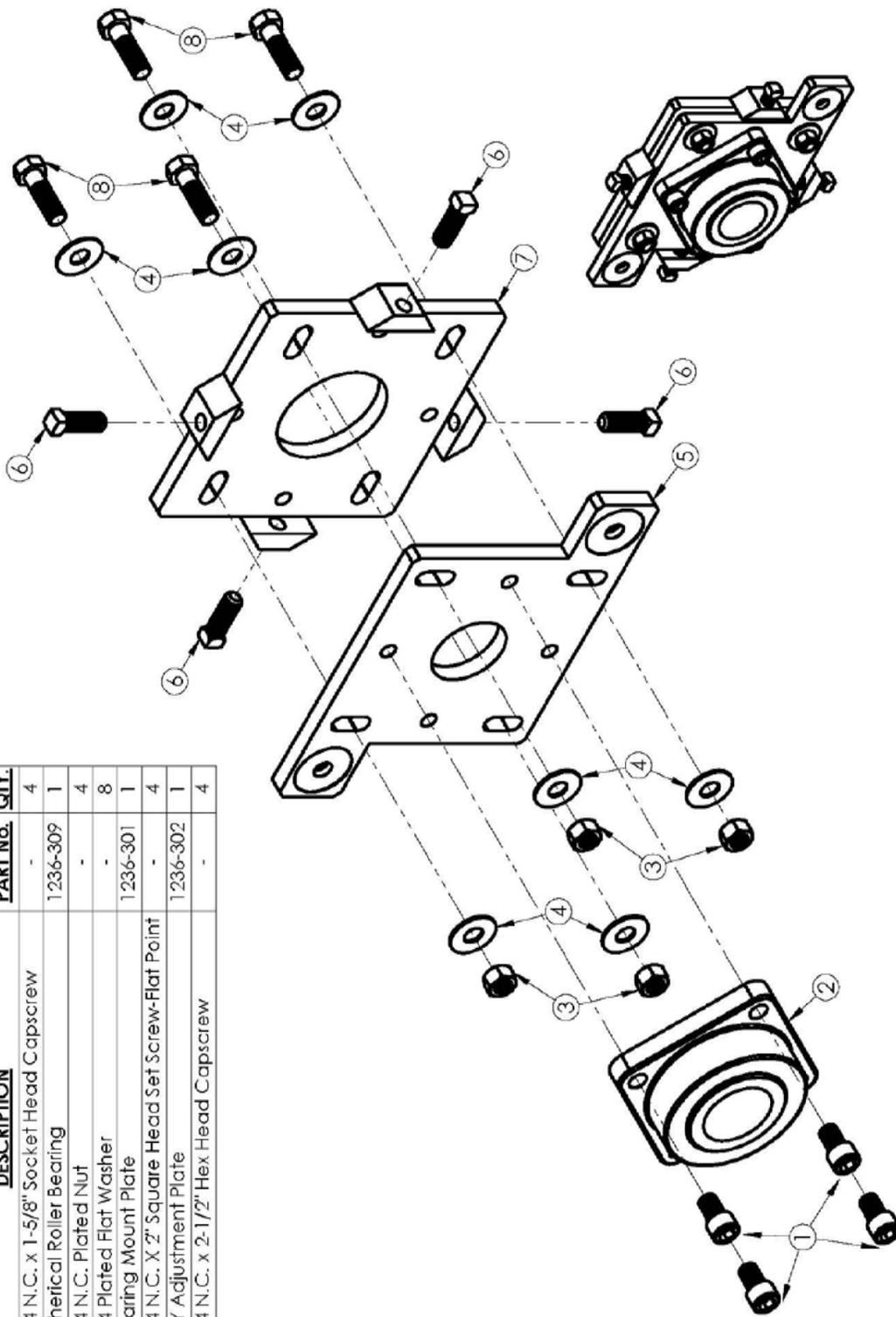
TITLE: 1236-315 MOUNTING HEAD ASSEMBLY - 3" MECHANICAL SUPPORT ASSEMBLY
 DATE: 02/23/07 APP. BY: M.M.M. SCALE: 1:1
 DWG. #: 1236-315 SHEET OF 1

DO NOT SCALE DRAWING
STANDARD TOLERANCES:
 ONE PLACE DECIMAL ±.050 ±.07mm
 TWO PLACE DECIMAL ±.010 ±.025mm
 THREE PLACE DECIMAL ±.003 ±.008mm
 FOUR PLACE DECIMAL ±.0005 ±.010mm
 FRACTIONAL ±.016
 ANGULAR ±.05°

REV.	DATE	REVISION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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No.	DESCRIPTION	PART No.	QTY.
1	3/4 N.C. x 1-5/8" Socket Head Capscrew	-	4
2	Spherical Roller Bearing	1236-309	1
3	3/4 N.C. Plated Nut	-	4
4	3/4 Plated Flat Washer	-	8
5	Bearing Mount Plate	1236-301	1
6	3/4 N.C. X 2" Square Head Set Screw-Flat Point	-	4
7	X-Y Adjustment Plate	1236-302	1
8	3/4 N.C. x 2-1/2" Hex Head Capscrew	-	4



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1441 17th AVENUE CAMPBELL RIVER BC CANADA
 PHONE: (250) 267-7716 FAX: (250) 267-5362

TITLE: 1236-300 TAILSTOCK ASSEMBLY - 3" MECHANICAL SUPPORT ASSEMBLY

DATE: 02/26/07 APP. BY: DRN, BY: M.M. SCALE: 1:1
 MATERIAL: DWG #: 1236-300 SHEET 1 OF 1

DO NOT SCALE DRAWING

STANDARD TOLERANCES:

ONE PLACE DECIMAL ±.050 +1.0mm
 TWO PLACE DECIMAL ±.010 ±.25mm
 THREE PLACE DECIMAL ±.003 ±.02mm
 FOUR PLACE DECIMAL ±.0005 ±.01mm
 FRACTIONAL ± 1/16
 ANGULAR ± .05°

REV.	DATE	REASON

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No.	DESCRIPTION	PART No.	QTY.
1	3/8 N.C. x 1-1/2" Socket Head Capscrew	-	6
2	3/8 N.C. x 1/2" socket Set Screw - Flat Point	-	6
3	Cutting Tool	1236-408	1
4	Boring Head Tool Holder	1236-405	1
5	3/8 N.C. x 1-1/4" Socket Head Capscrew	-	8
6	3/8 N.C. x 3-1/4" Socket Head Capscrew	-	8
7	Slider Bearing Plate	1236-401	2
8	Boring Head Top	1236-403	1
9	3/8 ϕ x 1" Dowel	-	4
10	Boring Head Key Nut	1236-404	2
11	1/4 N.C. x 1/2" Socket Head Capscrew	-	6
12	Boring Head Bottom	1236-402	1
13	Counterweight Balance	1236-406	1
14	3/8 N.C. x 2" Socket Head Capscrew	-	4
15	BORING HEAD EXTENSION - OPTION	1236-409	-

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YORK PORTABLE MACHINE TOOLS

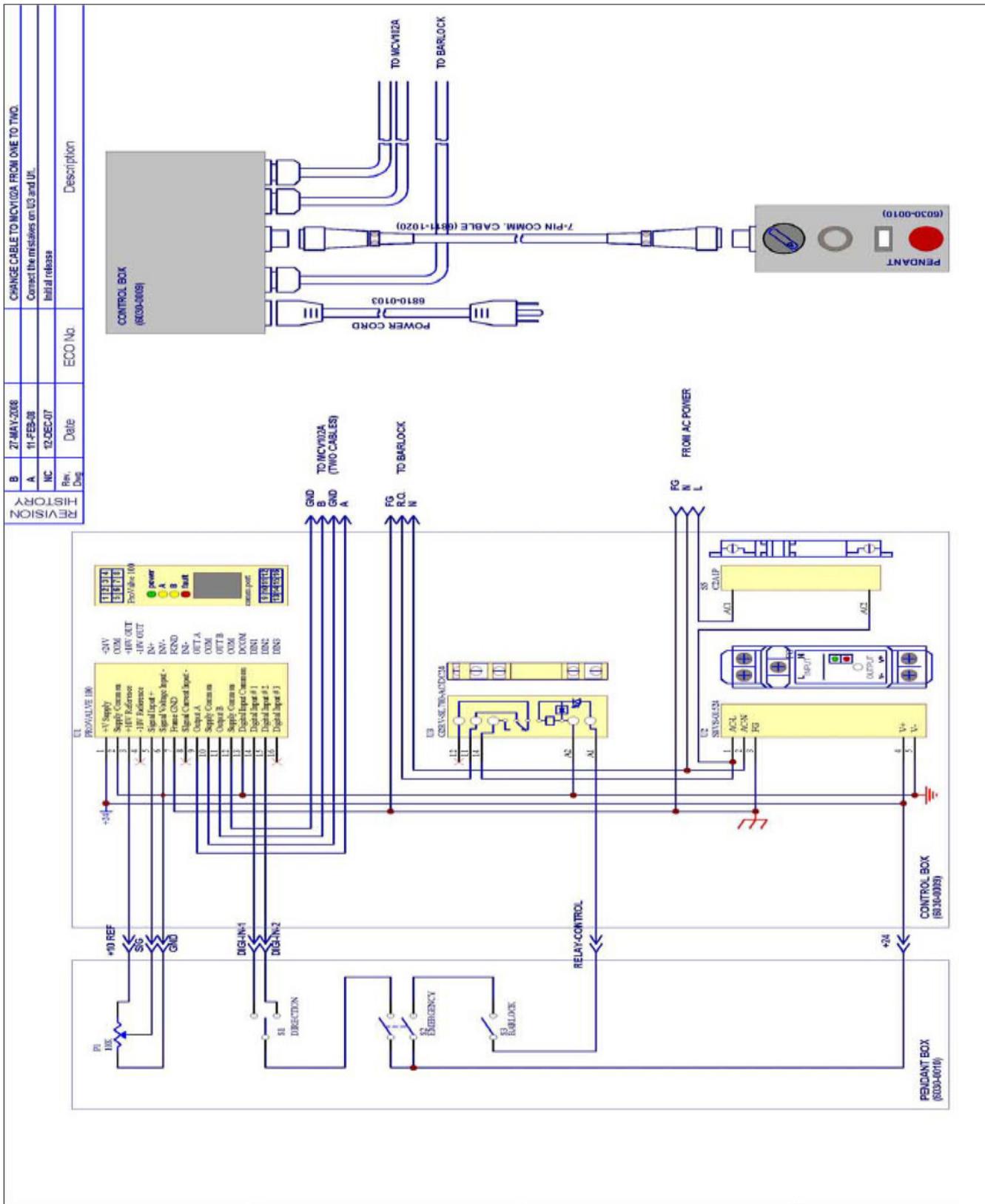
1401 174th AVENUE, CAMPELL, ONT. L0R 1S0, CANADA
 PHONE: (505) 287-2716 FAX: (505) 287-8352

TITLE: 1236-415 BORING HEAD - 3" BORING HEAD ASSEMBLY
 DATE: 03/07/07 APP. BY: -
 MATERIAL: -
 DRN. BY: M.M.L. SCREENING: -
 DWG #: 1236-415 SHEET 011

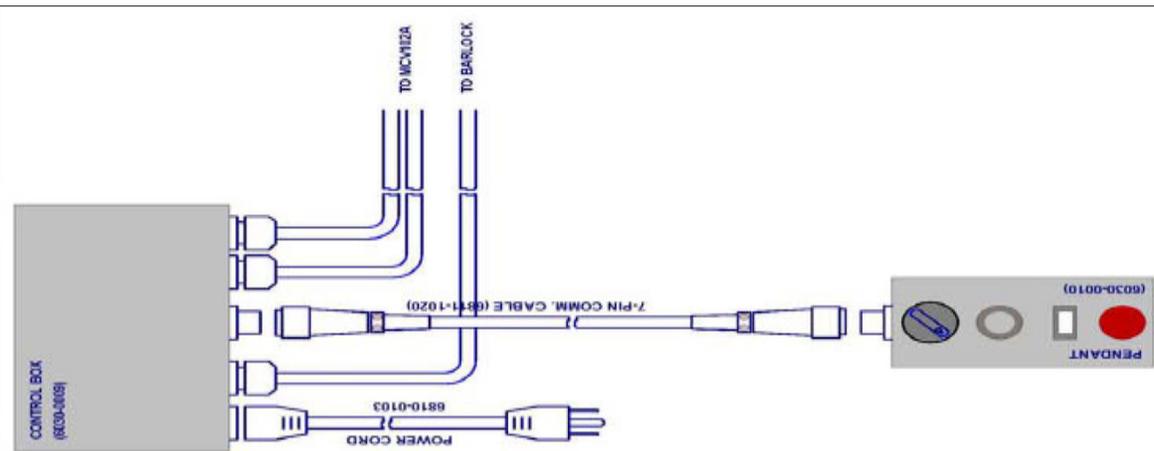
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 THREE PLACE DECIMAL ±.003 ±.008mm
 FOUR PLACE DECIMAL ±.0005 ±.001mm
 FRACTIONAL ± 1/16
 ANGULAR ± 0.5°

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REV.	DATE	REVISION



Rev.	Date	ECO No.	Description
B	27-MAY-2008		CHANGE CABLE TO MC/V12A FROM ONE TO TWO.
A	11-FEB-08		Contact the mistakes on U3 and U1.
NC	10-DEC-07		Initial release



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

NO OTHER WARRANTY IS VALID



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