918-I

Heavy Duty Roll Grooving Machine

OPERATOR'S MANUAL

RIDGID®

⚠ WARNING!

Read this Operator's Manual carefully before using this tool. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.

General Safety Information

WARNING! Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

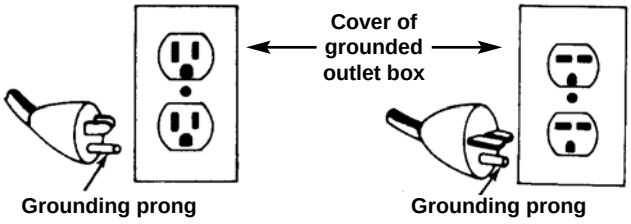
SAVE THESE INSTRUCTIONS!

Work Area Safety

- **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- **Do not operate electric tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Electric motors create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away while operating a tool.** Distractions can cause you to lose control.
- **Keep floors dry and free of slippery materials such as oil.** Slippery floors invite accidents.

Electrical Safety

- **Grounded tools must be plugged into an outlet, properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.



- **Avoid body contact with grounded surfaces.** There is an increased risk of electrical shock if your body is grounded.
- **Don't expose electrical tools to rain or wet conditions.** Water entering an electrical tool will increase the risk of electrical shock.
- **Do not abuse cord. Never use the cord to pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electrical shock.
- **When operating a tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electrical shock.
- **Keep all extension cord connections dry and off the ground. Do not touch plugs with wet hands.** This practice reduces the risk of electrical shock.
- **Use only three-wire extension cords which have three-prong grounding plugs and three-pole receptacles which accept the machine plug.** Use of other extension cords will not ground the tool and increase the risk of electrical shock.
- **Use proper extension cords.** *(See chart.)* Insufficient conductor size will cause excessive voltage drop, loss of power.

Minimum Wire Gauge for Extension Cord			
Nameplate Amps	Total Length (in feet)		
	0-25	26-50	51-100
0-6	18 AWG	16 AWG	16 AWG
6-10	18 AWG	16 AWG	14 AWG
10-12	16 AWG	16 AWG	14 AWG
12-16	14 AWG	12 AWG	NOT RECOMMENDED

Personal Safety

- **Stay alert, watch what you are doing and use common sense when operating a tool. Do not use tools while tired or under the influence of drugs, alcohol, or medications.** A moment of inattention while operating tools may result in serious personal injury.
- **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair and clothing away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
- **Avoid accidental starting. Be sure switch is OFF before plugging in.** Plugging tools in that have the switch **ON** invites accidents.
- **Remove wrenches or adjusting keys before turning the tool ON.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not over-reach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care

- **Do not use tool if switch does not turn it ON or OFF.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce risk of starting the tool accidentally.
- **Store idle tools out of the reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
- **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.
- **Keep handles dry and clean; free from oil and grease.** This allows for better control of the tool.

Service

- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified repair personnel could result in injury.
- **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance Section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electrical shock or injury.

Specific Safety Information

⚠ WARNING

Read this operator's manual carefully before using the Roll Groover. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.

⚠WARNING Foot Switch Safety

Using this machine without a foot switch increases the risk of serious injury. A foot switch provides better control by letting you shut off the motor by removing your foot. If clothing should become caught in the machine, it will continue to wind up, pulling you into the machine. Because the machine has high torque, the clothing itself can bind around your arm or other body parts with enough force to crush or break bones.

Roll Groover Safety

- **Roll Groover is made to groove pipe and tubing. Follow instructions in Operator's Manual on machine uses.** Other uses may increase the risk of injury.
- **Keep hands away from grooving rolls. Do not wear loose fitting gloves when operating unit.** Fingers could get caught between grooving and drive rolls.
- **Keep guards in place. Do not operate the groover with guard removed.** Exposure to grooving rolls may result in entanglement and serious injury.
- **Set-up groover on a flat, level surface. Be sure the groover and stands are stable.** Will prevent tipping of the unit.
- **Do not wear loose clothing. Keep sleeves and jackets buttoned. Do not reach across the machine or pipe.** Clothing can be caught by the pipe resulting in entanglement and serious injury.
- **Do not use this Roll Groover without a foot switch.** Foot switch is a safety device to prevent serious injury.
- **Properly support pipe with pipe stands. Use two pipe stands to groove pipe over recommended minimum lengths.** Prevents tipping of the unit.
- **When grooving pipe, keep hands away from the end of the pipe. Do not reach inside pipe end.** Will prevent being cut on sharp edges and burrs.
- **Lock foot switch when not in use.** *(See Figure 1.)* Avoids accidental starting.

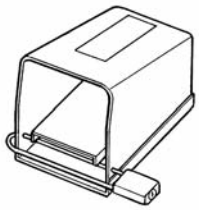


Figure 1 – Locked Foot Switch

SAVE THESE INSTRUCTIONS!

Description, Specifications, Standard Equipment and Accessories

Description

The RIDGID 918-I Roll Groover forms rolled grooves in steel, stainless steel, aluminum, PVC pipe and copper

tubing. The grooves are formed by the hydraulic feeding of a grooving roll into the pipe which is supported by a drive roll.

The 918-I Roll Groover includes two (2) groove and drive shaft sets that can groove the following pipe:

- 2″ – 6″ Schedule 10 and 40
- 8″ – 12″ Schedule 10 and 8″ Schedule 40

With additional roll sets, the groover can also be adapted to groove the following:

- 2″ – 6″ copper tubing (Types K, L, M, DWV)
- 1″ Schedule 10 and 40
- $1^1/_4$″ – $1^1/_2$″ Schedule 10 and 40

CAUTION When properly used, the Model 918-I makes grooves that are dimensionally within the specifications of AWWA C606-87. Selection of appropriate materials and joining methods is the responsibility of the system designer and/or installer. Before any installation is attempted, careful evaluation of the specific service environment, including chemical environment and service temperature, should be completed.

Specifications

Roll Grooving Capacity

(See Table II for wall thickness)

- 1″ to 12″ Schedule 10
- 1″ to 8″ Schedule 40
- 2″ – 6″ Copper Types K, L, M, DWV
- 2″ – 8″ Schedule 40 PVC

CAUTION Do not use to groove 8″ Schedule 40 steel pipe harder than 150 BHN. Doing so may result in improperly formed grooves that do not meet required specifications.

Depth Adjustment .....Indexed Adjustment Knob

Actuation.....Hydraulic Hand Pump

Motor

Type .....Universal

Horsepower.....1.2

Volts .....120V Single Phase AC, 60Hz

Amps .....12 Amps

Controls.....Rotary Type ON/OFF Switch and ON/OFF Foot switch

Weight .....185 lbs. (84.1 kg)

Operating Speed.....45 RPM (no load)

Standard Equipment

918-I Roll Groover Only

- 918-I Groover with 2″ – 6″ Drive Shaft and Groove Set
- 8″ – 12″ Drive Shaft and Groove Set
- Carrying Case for Drive Shaft and Groove Set
- $^1/_8$″ T-Handle Hex Wrench (groove roll changeout)
- $^3/_{16}$″ Hex Wrench (transmission coupling)
- $^5/_{32}$″ Hex Wrench (transmission cover)
- Spanner Wrench (Drive shaft changeout)
- Nipple Bracket/Pipe Stabilizer

A pipe stabilizer is available as an accessory to aid in the grooving of short lengths of pipe.

918-I Roll Groover Models

Catalog No.	Model No.	Description	Weight	
			lb.	kg.
64977	918-I	Roll Grooving Machine Complete, 115V	185	84,1
65902	918-I	Roll Grooving Machine Complete, 230V (Export Only)	185	84,1

Accessories

- Groove and drive roll set for $1^1/_4$″ – $1^1/_2$″ Schedule 10 and Schedule 40. (set includes drive shaft, groove roll and carrying case.)
- Groove and drive roll set for 1″ Schedule 10 and Schedule 40, groove and drive roll for $1^1/_4$″ – $1^1/_2$″ Schedule 10, 40. (Set includes groove rolls, drive shaft, and carrying case.)

NOTE! Drive shaft change-out is necessary for roll grooving below 2″.

- Groove Roll and Drive Roll Set for Copper 2″ – 6″ (Types K, L, M and DWV)
- VJ-99 Pipe Stand

Figure 2 – 918-I Roll Groover

Roll Groover Assembly Instructions

⚠ WARNING

To prevent serious injury, proper assembly of the Roll Groover is required. The following procedures should be followed:

Assembling Roll Groover

1. To identify the parts for the 918-I Roll Groover, refer to the parts diagram and parts list.
2. Attach right and left legs to the rear support/handle assembly using 3/8″ – 16 x 2 1/2″ hex screws and lock washers. Do not tighten screws.
3. Attach the tool tray assembly to the rear and front legs using the four (4) 3/8″ – 16 x 2 3/4″ hex screws and lock washers. Do not tighten screws.
4. Insert axle into tabs extending from the rear support/handle assembly and secure using four (4) retaining rings.
5. Mount the roll groover/base assembly to the stand using four (4) 3/8″ – 16 x 2 1/2″ hex screws, washers and wing nuts. Be careful not to “hook” the switch assembly on the stand rail. Movement of the stand legs may be required to align the base assembly.

   Bolt heads go to top, wing nuts and lock washers to the bottom (stand) side. Installation of the last bolt requires opening of the motor cover.
6. Tighten the six (6) screws and four (4) wing nuts holding the leg and tray assemblies together. Slide the wheels onto the axle and install retaining rings to hold the wheels on the axle.
7. Cut the tie wrap that holds the hydraulic pump in place for shipping. Remove the bolts/wing screws from the bottom of the pump’s mounting plate.
8. Place the pump mounting plate over the hole and slot on the left side of the 918-I (left side as you look at the front of the 918-I). From the bottom of the base plate, insert the 3/8 - 16 x 1″ bolt with washer into the hole and screw into pump mounting plate. Secure the bolt with the 3/8″ nut.
9. From the bottom of the base plate, insert the wing screw with lock washer into the pump mounting plate (through the slot) and tighten as required.

NOTE! During 918-I operation, the hydraulic pump should be in the outermost position. During transportation, the hydraulic pump should be in the innermost position.

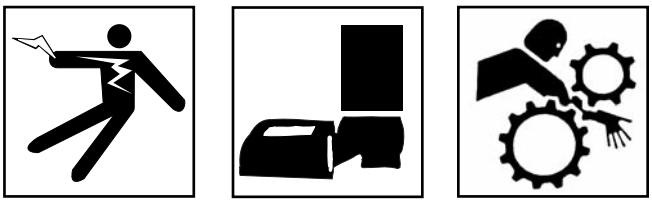
Bolting the 918-I Stand to the Shop Floor

1. Mark the spot where the 918-I is to be bolted.
2. Align spot with the 918-I stand bolt-down attachment holes *(Figure 3)*.

Figure 3 – Bolt-Down Attachment Holes

Machine Inspection

⚠ WARNING



Do not use this Roll Groover without a foot switch.

To prevent serious injury, inspect your Roll Groover. The following inspection procedures should be performed on a daily basis.

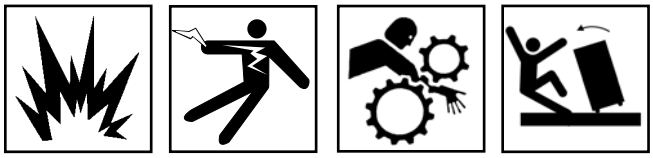
1. Make sure machine is unplugged and the switch is set to the OFF position.
2. Make sure the foot switch is present and attached to the machine.
3. Inspect the power cord and plug for damage. If the plug has been modified, is missing the grounding pin or if the cord is damaged, do not use the machine until the cord has been replaced.
4. Make sure all bolts holding the Roll Groover and hydraulic pump to the base are tight.
5. Check that guard mounted to the roll groover is in place *(Figure 3)*.

⚠ WARNING Do not operate Roll Groover with guard removed. Exposure to moving grooving rolls may result in fingers being crushed.

6. Inspect the Roll Groover for any broken, missing, misaligned or binding parts as well as any other conditions which may affect the safe and normal operation of this equipment. If any of these conditions are present, do not use the Roll Groover until any problem has been repaired.
7. Lubricate the Roll Groover if necessary according to the Maintenance Instructions.
8. Use groover rolls and accessories that are designed for your Roll Groover and meet the needs of your application. The correct groover tools and accessories allow you to do the job successfully and safely. Accessories suitable for use with other equipment may be hazardous when used with this Roll Groover.
9. Clean any oil, grease or dirt from all equipment handles and controls. This reduces the risk of injury due to a tool or control slipping from your grip.
10. Inspect the groove rolls to insure they are not damaged or worn. Worn groover rolls can lead to pipe slippage and poor quality grooves.

Machine and Work Area Set-Up

⚠ WARNING



To prevent serious injury, proper set-up of the machine and work area is required. The following procedures should be followed to set-up the machine:

1. Locate a work area that has the following:
   - Adequate lighting
   - No flammable liquids, vapors or dust that may ignite.
   - Grounded electrical outlet
   - Clear path to the electrical outlet that does not contain any sources of heat or oil, sharp edges or moving parts that may damage electrical cord.
   - Dry place for machine and operator. Do not use the machine while standing in water.
   - Level ground
2. Clean up the work area prior to setting up any equipment. Always wipe up any oil that may be present.
3. Place machine on a flat, level surface. Be sure the groover and stands are stable. See Assembly Instructions for bolting 918-I stand to shop floor.
4. Properly support the pipe with pipe stands. See Chart "A" for maximum lengths with one (1) stand.

⚠ WARNING Failure to properly support the pipe can result in the unit tipping or the pipe falling.

5. Make sure switch is in the OFF position.
6. Position the foot switch so that the operator can safely control the roll groover and workpiece. It should allow the operator to do the following:
   - Stand with left hand on pump handle.
   - Use the foot switch with his left foot.
   - Have convenient access to the groover without reaching across the machine.

   Machine is designed for one person operation.
7. Plug the machine into the electrical outlet making sure to position the power cord along the clear path selected earlier. If the power cord does not reach the outlet, use an extension cord in good condition.

⚠ WARNING To avoid electrical shock and electrical fires, never use an extension cord that is damaged or does not meet the following requirements.

- The cord has a three-prong plug similar to shown in Electrical Safety section.
- The cord is rated as "W" or "W-A" if being used outdoors.
- The cord has sufficient wire thickness (14 AWG below 25′/12AWG 25′ - 50′). If the wire thickness is too small, the cord may overheat, melting the cord's insulation or causing nearby objects to ignite.

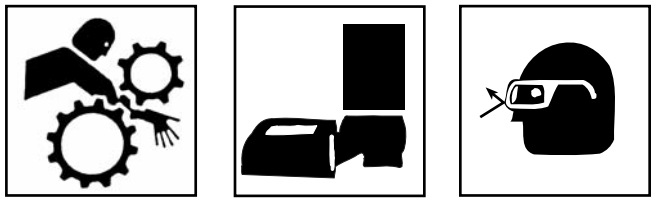
⚠ WARNING To reduce risk of electrical shock, keep all electrical connections dry and off the ground. Do not touch plug with wet hands.

8. Check the unit to insure it is operating properly.
   - Flip the switch to ON. Press and release the foot switch. Check that the groove roll rotates in a clockwise direction as you are facing the groover. Have the machine serviced if it rotates in the wrong direction or if the foot switch does not control its stopping or starting.
   - Depress and hold the foot switch. Inspect the moving parts for misalignment, binding, odd noises or any other unusual conditions that may affect the safe and normal operation of the machine. If such conditions are present, have the roll groover drive serviced.
   - Release the foot switch and flip the switch to OFF.
9. Check the groove and drive rolls to insure they are the correct size.

CAUTION Use of roll sets on both carbon and stainless steel pipe can lead to contamination of the stainless steel material. This contamination could cause corrosion and premature pipe failure. To prevent ferrous contamination, use roll sets dedicated for stainless steel grooving.

Operating the 918-I Roll Groover

⚠ WARNING



Do not wear loose clothing when operating a Roll Groover. Keep sleeves and jackets buttoned. Do not reach across the machine or pipe.

Do not use this Roll Groover if it has a broken or missing foot switch. Always wear eye protection to protect eyes from dirt and other foreign objects.

Keep hands away from grooving rolls. Do not wear loose fitting gloves when operating groover. Use pipe stands to support pipe.

When grooving, keep hands away from end of pipe. Do not reach inside pipe end.

Pipe Preparation

1. Pipe ends must be cut square. Do not use cutting torch.
2. Pipe out-of-roundness must not exceed the total O.D. tolerance listed in groove specifications, *Table 1*.

NOTE! Determine out-of-roundness by measuring maximum and minimum O.D. at 90 degrees apart.

3. All internal or external weld beads, flash or seams must be ground flush at least 2 inches back from pipe end.

NOTE! Do not cut flats on gasket seat area.

Pipe/Tubing Length

The following chart lists the minimum length of pipe or tubing to be grooved and the maximum length to be grooved with one (1) pipe stand.

Groovable Pipe Lengths – Inches					
Nom. Size	Min. Length	Max. Length	Nom. Size	Min. Length	Max. Length
1	8	36	4	8	36
1 1/4	8	36	4 1/2	8	32
1 1/2	8	36	5	8	32
2	8	36	6 O.D.	10	30
2 1/2	8	36	6	10	28
3	8	36	8	10	24
3 1/2	8	36	10	10	24
4	8	36	12	10	24

Chart A – Minimum/Maximum Pipe Length

Pipe Set-Up

1. Pipe or tubing longer than the specified maximum lengths listed in Chart A must be supported with two (2) pipe stands. The second pipe support should be located 3/4 of pipe length from roll groover.

⚠ WARNING Failure to use two stands may result in the unit tipping or the pipe falling.

2. Raise upper groove roll housing by placing pump release lever in RETURN position (away from operator) *(Figure 4)*.
3. Square pipe and pipe support to roll groover making sure pipe is flush against drive roll flange *(Figure 5)*.

Figure 4 – Close-up of Release Lever on 918-I Pump

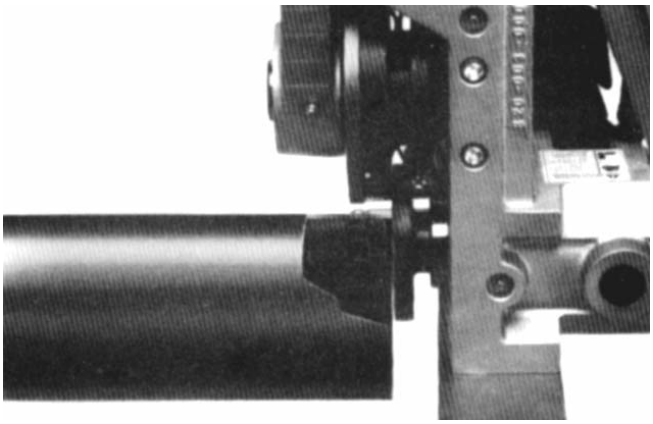


Figure 5 – Squaring Pipe up against Flange of Drive Roll

4. Level pipe by adjusting pipe stand *(Figure 6)*.
5. Slightly offset pipe and pipe stand (approximately $^1/_2$ degree) toward operator *(Figure 7)*.

Figure 6 – Leveling Pipe on Pipe Support and 918-I Roll Groover

Figure 7 – Offset Pipe on 918-I (exaggerated for clarity)

Adjusting Roll Groove Depth

NOTE! Due to differing pipe characteristics, a test groove should always be performed when setting up or changing pipe sizes. The index depth adjustment knob must be reset for each diameter of pipe/tube.

1. Advance the upper groove roll by placing the pump release lever in ADVANCE position (toward operator) and pump the handle until the upper roll contacts the pipe to be grooved.

NOTE! Upper roll should only touch the pipe surface. Care must be taken not to penetrate pipe surface with upper roll by applying excessive pressure.

2. Turn down the indexed depth adjustment knob (clockwise) until it stops against the top of the machine *(Figure 8).*
3. Back the depth adjustment knob off one turn.

Figure 8 – Close-up of Depth Adjustment Knob Being Turned Down Against Top Casting

Forming the Roll Groove

CAUTION Pipe wall thickness cannot exceed the maximum wall thickness specified in the “Pipe Maximum and Minimum Wall Thickness” Table II. Do not use to groove 8″ schedule 40 steel pipe that is harder than 150 BHN.

1. Flip the switch from OFF and step on machine foot switch while applying downward pressure on the 918-I pump handle. Allow one full pipe rotation between quarter strokes of the pump handle.

⚠WARNING If pipe begins to “walk off” the drive roll, stop the machine and check “Pipe Set-Up” procedure.

2. To help prevent “walking”, apply pressure on outside of pipe with right hand *(Figure 9)*.

⚠ WARNING Do not reach inside of pipe. Keep hands away from sharp edges and burrs on end of pipe.

NOTE! Do not overfeed upper groove roll. Maintain constant even downward pressure, pausing to allow one pipe revolution per quarter stroke of the pump handle.

3. When the depth adjustment knob contacts the machine casting, allow two complete pipe revolutions to even out groove depth.
4. Release foot switch and retract upper groove roll by placing the pump release lever in the RETURN position (toward operator).
5. Check groove diameter before proceeding with additional grooves.

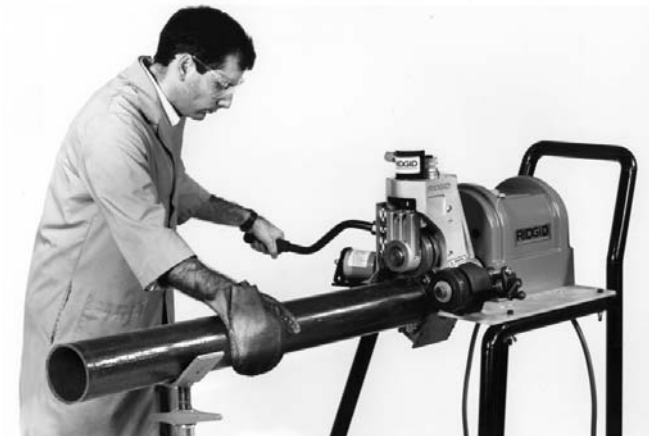


Figure 9 – Grooving Pipe While Exerting Light Hand Pressure Toward Operator

NOTE! Groove diameter should be measured using a diameter tape. To decrease groove diameter (increase groove depth), rotate the index depth adjustment knob one mark counter-clockwise. To increase groove diameter (decrease groove depth), rotate the depth adjustment knob clockwise.

Roll Grooving Tips with Model 918-I

1. If pipe tends to "walk off" drive roll, increase offset dimension *(Figure 7)*.
2. If drive roll flange shaves pipe end, decrease offset dimension.
3. If pipe end flare is excessive, lower pipe end to level with roll groover.
4. If pipe wobbles and/or "walks off" drive roll, raise pipe end to level with roll groover.
5. Short lengths of pipe (under three feet) may require slight pressure to maintain the 1/2 degree offset dimension.

Grooving Short Lengths of Pipe

Without Stabilizer

1. Properly set-up pipe to ensure pipe is level and square on the shoulder of the drive roll.
2. When grooving, exert pressure on the pipe towards the operator *(Figure 9)*.

⚠ WARNING Do not attempt to groove any pieces of pipe shorter than 8″ *(See Chart A)*. Increases risk of fingers being crushed in the grooving rolls.

⚠ WARNING Do not reach inside of pipe. Keep hands away from sharp edges and burrs on end of pipe.

With Stabilizer

NOTE! Once stabilizer is adjusted for a selected pipe diameter and wall thickness, it does not have to be readjusted.

1. Properly set up pipe to ensure pipe is level and square on the shoulder of the drive roll.
2. Engage hydraulic pump and bring groove roll (upper roll) down until it contacts outside diameter of the pipe.

Figure 10 – Adjusting Pipe Stabilizer

3. Tighten down stabilizer roll until roll contacts outside diameter of the pipe. Continue to tighten stabilizer one full turn after making contact on outside diameter of pipe *(Figure 10)*.

⚠ WARNING Do not reach across pipe to adjust stabilizer.

NOTE! If pipe "walks off" of drive shaft during the roll grooving operation, the stabilizer will need to be further tightened 1/2 turn.

⚠ WARNING Do not use the pipe stabilizer on 8″ or shorter workpieces. Increases risk of fingers being crushed in the grooving rolls.

Removing and Installing Groove Roll and Drive Shaft

NOTE! As groove dimensions are determined by the roll set geometry, specific roll sets are required when grooving the following:

- 2″ – 6″ Schedule 10, 40
- 8″ – 12″ Schedule 10, 8″ Schedule 40
- 2″ – 6″ Copper tubing (Types K, L, M, DWV)
- 1″ Schedule 10, 40
- $1^1/_4$″ - $1^1/_2$″ Schedule 10, 40

⚠WARNING Make sure machine is unplugged from power source before changing the roll sets.

⚠WARNING When removing groove rolls and shafts, be sure they are properly supported. Failure to provide support may cause them to drop suddenly.

Removing and Installing Roll Sets with Solid Drive Shafts (2″ – 6″, 8″ – 12″)

1. Removing Groove Rolls:
   - Fully raise the upper roll assembly by moving the pump release lever to the DOWN position.
   - Loosen set screw in grooving roll and remove groove roll shaft and groove roll *(Figures 11 & 12)*.

Figure 11 – Loosen Set Screw in Groove Roll

Figure 12 – Remove Groove Roll Shaft and Groove Roll

2. Removing Solid Drive Shaft:
   - Open motor and transmission cover.
   - Use $^3/_{16}$″ hex key to loosen the two screws on the front half of the transmission coupling *(Figure 13)*.

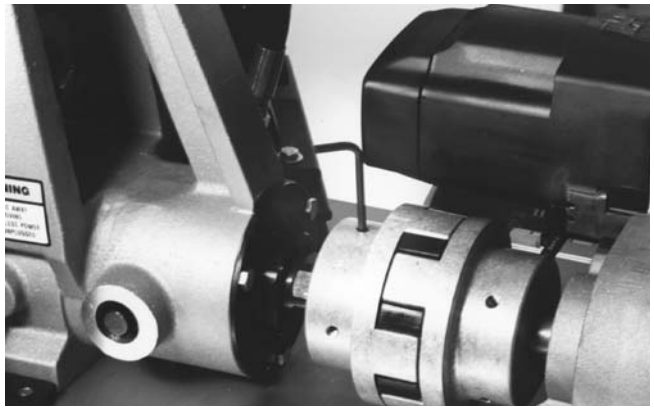


Figure 13 – Loosen the Two Screws on the Transmission Coupling

   - Use the spanner wrench to loosen and remove the drive shaft retaining nut *(Figure 14)*.
   - Remove drive shaft *(Figure 15)*.

Figure 14 – Loosen and Remove Drive Shaft Retaining Nut

3. Installing Solid Drive Shaft aligning hex with opening in coupling.
   - Install new drive shaft through the 918-I housing and the drive shaft bearing retaining nut (with text out), aligning hex with opening in coupling.
   - Use spanner wrench to tighten the drive shaft bearing retaining nut.
   - Tighten transmission coupling set screws.
   - Close motor and transmission cover.

⚠WARNING Do not use groover with motor cover removed or open.

4. Installing Groove Roll:
   - With upper roll housing fully raised and drive shaft in place, insert groove roll into upper roll assembly and fully insert upper roll shaft through bearings and groove roll.

- Tighten groove roll set screw into detent on upper roll shaft.
- Using a grease gun, grease the drive shaft through the fitting on the side of the groover.

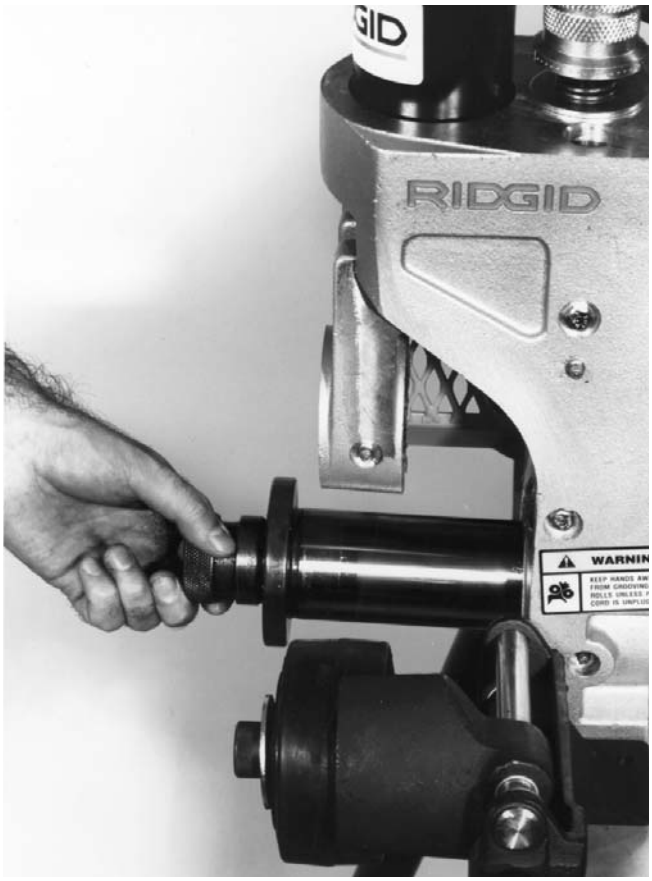


Figure 15 – Remove Drive Shaft

Removing and Installing Roll Sets with Two-Piece Drive Shafts (1″, 1¼″ – 1½″, 2″ – 6″ Copper)

1. Removing Groove Roll:
   - Fully raise the upper roll housing by moving the pump release lever to the return position, away from the operator.
   - Loosen groove roll set screw *(Figure 11)*. Grasp groove roll and remove upper shaft and groove roll from the Groover *(Figure 12)*.
2. Removing Drive Roll From Drive Shaft:
   - Open motor and transmission cover.
   - Use 3/16″ hex key to loosen the two screws on the front half of the transmission coupling *(Figure 13).*
   - Use the spanner wrench to loosen and remove the drive shaft retaining nut *(Figure 14)*.
   - Pull the drive shaft assembly forward. Remove drive shaft bearing retaining nut and the front half of the coupling *(Figure 16)*. Reinsert drive shaft.

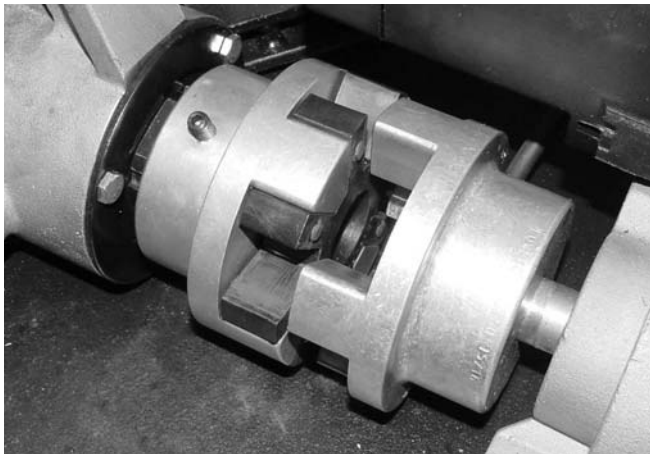


Figure 16 – Removing Bearing, Retaining Nut and Front Half of Coupling

   - Manually rotate the drive shaft while applying pressure to the spindle lock pin until the lock pin engages the spindle lock hole in the drive shaft.
   - With the spindle lock engaged, use a 15/16″ wrench to loosen the draw bolt *(Figure 17)*.
   - Tap draw bolt with a mallet to release drive roll from drive shaft.
   - Unthread draw bolt from drive roll, remove drive roll.

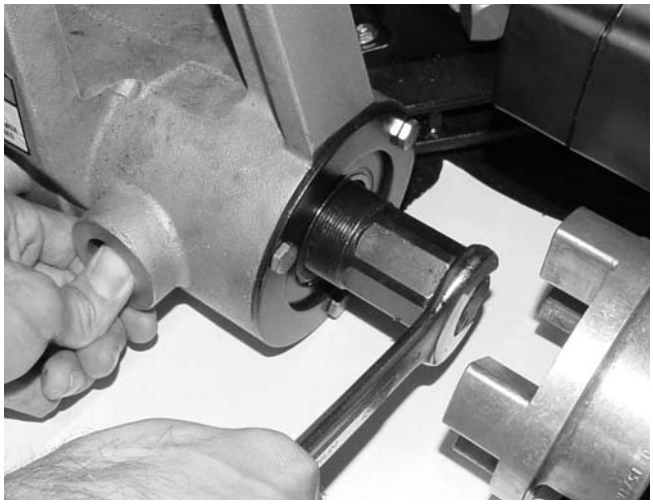


Figure 17 – Engaging Spindle Lock and Loosen Draw Bolt

3. Installing New Drive Roll:
   - Install new drive roll, insert and hand-tighten draw bolt.

- Manually rotate the drive shaft/drive roll assembly while applying pressure to the spindle lock pin until the lock pin engages the spindle lock hole in the drive shaft.
- With the spindle lock engaged, use a wrench to tighten the draw bolt.
- Release pressure on the spindle lock pin, allowing to retract.
- Pull drive shaft assembly forward. Insert front half of coupling onto back half. Insert drive shaft assembly through the bearing retaining nut, aligning hex with opening in coupling.
- Use spanner wrench to tighten the drive shaft bearing retaining nut.
- Tighten transmission coupling set screws.
- Close motor and transmission cover.

⚠WARNING Do not use groover with cover removed or open.

4. Installing Groove Roll:
   - With upper roll housing fully raised and drive shaft in place, insert groove roll into upper roll assembly and fully insert upper roll shaft through bearings and groove roll.
   - Tighten groove roll set screw into detent on upper roll shaft.
5. Using a grease gun, grease the drive shaft through the fitting on the side of the Groover.

Changing from Solid Drive Shaft Roll Set to Two-Piece Drive Shaft

1. Removing Groove Roll:
   - Fully raise the upper roll housing by moving the pump release lever to the return position, away from the operator.
   - Loosen groove roll set screw *(Figure 11)*. Grasp groove roll and remove upper roll shaft and groove roll from Groover *(Figure 12)*.
2. Changing Solid Drive Shaft Roll Set to Two-Piece Drive Shaft:
   - Open motor and transmission cover.
   - Use $^{3}/_{16}$″ hex key to loosen the two screws on the transmission coupling *(Figure 13)*.
   - Use the box wrench to remove the drive shaft bearing retaining nut *(Figure 14)*.
   - Remove the drive shaft *(Figure 15)*.
   - Remove the front half of the coupling.
   - Assemble proper drive roll to drive shaft (two-piece style) with draw bolt hand-tight.
   - Insert two-piece drive shaft assembly into 918-I.
   - Manually rotate the drive shaft while applying pressure to the spindle lock pin until the lock pin engages the spindle lock hole in the drive shaft assembly.
   - With the spindle lock engaged, use a wrench to tighten the draw bolt.
   - Release pressure on the spindle lock pin, allowing to retract.
   - Pull drive shaft assembly forward. Insert front half of coupling onto back half. Insert drive shaft assembly through the bearing retaining nut, aligning hex with opening in coupling.
   - Use spanner wrench to tighten the drive shaft bearing retaining nut.
   - Tighten transmission coupling set screw.
   - Close motor and transmission cover.

⚠WARNING Do not use groover with cover removed or open.

3. Installing groove roll:
   - With upper housing fully raised and drive shaft in place, insert groove roll into upper roll assembly and fully insert upper roll shaft through bearings and groove roll.
   - Tighten groove roll set screw into detent on upper roll shaft.
4. Using a grease gun, grease the drive shaft through the fitting on the side of the groover.

Accessories

⚠WARNING Only the following RIDGID products have been designed to function with the 918-I Roll Groover. Other accessories suitable for use with other tools may become hazardous when used on this Roll Groover.

To prevent serious injury, use only the accessories listed below.

Catalog No.	918-I Accessories
48405	Roll Set for 8″ – 12″ Sch. 10, (8″ Sch.40) with Carrying Case
48407	Roll Set for 1¼″ to 1½″ Sch. 10/40 with Carrying Case
48412	Roll Set for 1″ Sch. 10/40 and 1¼″ to 1½″ Sch. 10/40 with Carrying Case
48417	Roll Set for Copper (2″ - 6″)
76822	English Diameter Tape
76827	Metric Diameter Tape
	Pipe Stands (See Ridge Tool Catalog)

NOTE: A Roll Set consists of a Groove Roll and a Drive Roll.

Table I. Standard Roll Groove Specifications(1)

NOTE! All Dimensions are in Inches.

NOM. PIPE SIZE	PIPE DIAMETER O.D.	TOL.	T MIN. WALL THK.	A GASKET SEAT +.015/-.030	B GROOVE WIDTH +.030/-.015	C GROOVE DIAMETER O.D.	TOL.	D NOM. GROOVE DEPTH (Ref.) (2)
1	1.315	+.013 -.013	.065	.625	.281	1.190	+.000 -.015	.063
1 1/4	1.660	+.016 -.016	.065	.625	.281	1.535	+.000 -.015	.063
1 1/2	1.900	+.016 -.016	.065	.625	.281	1.775	+.000 -.015	.063
2	2.375	+.024 -.016	.065	.625	.344	2.250	+.000 -.015	.063
2 1/2	2.875	+.029 -.016	.083	.625	.344	2.720	+.000 -.015	.078
3	3.50	+.030 -.018	.083	.625	.344	3.344	+.000 -.015	.078
3 1/2	4.00	+.030 -.018	.083	.625	.344	3.834	+.000 -.015	.083
4	4.50	+.035 .020	.083	.625	.344	4.334	+.000 -.015	.083
5	5.563	+.056 .022	.109	.625	.344	5.395	+.000 -.015	.084
6	6.625	+.050 -.024	.109	.625	.344	6.455	+.000 -.015	.085
8	8.625	+.050 -.024	.109	.750	.469	8.441	+.000 -.020	.092
10	10.75	+.060 -.025	.134	.750	.469	10.562	+.000 -.025	.094
12	12.75	+.060 -.025	.156	.750	.469	12.531	+.000 -.025	.110

(1) As per AWWA C606-87

(2) Nominal Groove Depth is provided as a reference dimension only. Do not use groove depth to determine acceptability of a groove.

NOTE! Fitting manufacturer's recommendations should be followed regarding maximum allowable flare diameters.

Table II. Pipe Maximum and Minimum Wall Thickness

NOTE! All Dimensions are in Inches.

Pipe Size	CARBON STEEL OR ALUMINUM PIPE OR TUBE		STAINLESS STEEL PIPE OR TUBE		PVC PIPE	
	Wall Thickness		Wall Thickness		Wall Thickness	
	Min.	Max.	Min.	Max.	Min.	Max.
1″	.065	.133	.065	.109	.133	.133
1 1/4″	.065	.140	.065	.140	.140	.140
1 1/2″	.065	.145	.065	.145	.145	.200
2″	.065	.154	.065	.154	.154	.154
2 1/2″	.083	.203	.083	.188	.203	.276
3″	.083	.216	.083	.188	.216	.300
3 1/2″	.083	.226	.083	.188	.226	.318
4″	.083	.237	.083	.188	.237	.337
5″	.109	.258	.109	.188	.258	.258
6″	.109	.280	.109	.188	.280	.280
8″	.109	.322	.109	.188	.322	.322
10″	.134	.165	.134	.188	—	—
12″	.156	.180	.156	.188	—	—

CAUTION: Do not use to groove 8″ schedule 40 steel pipe that is harder than 150 BHN. Attempting to groove this harder pipe may result in improperly formed grooves that do not meet required specifications.

Table III. Troubleshooting

PROBLEM	CAUSE	CORRECTION
Rolled groove too narrow or too wide.	Incorrect size of grooving and driving rolls.	Install correct size of grooving and driving rolls.
	Mismatched grooving and driving rolls.	Match grooving and driving rolls.
	Grooving roll and/or driving roll worn.	Replace worn roll.
Rolled groove not perpendicular to pipe axis.	Pipe length not straight.	Use straight pipe.
	Pipe end not square with pipe axis.	Cut pipe end square.
Pipe does not track while grooving.	Pipe not level.	Adjust stand to level pipe.
	Groover not level.	Level groover.
	Pipe axis not offset 1/2 degree from drive roll axis.	Offset pipe 1/2 degree *(See Figure 7).*
	1/2 degree offset not sufficient.	Offset pipe slightly more.
	Not applying pressure to pipe.	Apply pressure to pipe *(See Figure 9).*
	Not using stabilizer.	Use stabilizer.
	Excessive weld seam.	Grind flush 2″ from end of pipe.
	Pipe end not square.	Cut pipe end square.
Pipe flared at groove end.	Pipe not level.	Adjust stand to level pipe.
	Operator is advancing groove roll too fast.	Slow down pumping action. Refer to proper operating instructions.
	Pipe is too hard.	Replace pipe.
	Stabilizer too tight.	Adjust stabilizer.
Pipe drifts back and forth on driving roll axis while grooving.	Pipe length not straight.	Use straight pipe.
	Pipe end not square with pipe axis.	Cut pipe end square.
Pipe rocks from side to side.	Pipe stand too close to end of pipe.	Move pipe stand in 1/4 distance from end of pipe.
	Pipe end flattened or damaged.	Cut off damaged pipe end.
	Hard spots in pipe material or weld seams harder than pipe.	Use high quality pipe of uniform hardness.
	Grooving roll feed rate too slow.	Feed grooving roll into pipe faster.
	Pipe support stand rollers not in correct location for pipe size.	Position pipe stand rollers for pipe size being used.
Groover does not roll groove in pipe.	Pipe wall maximum thickness exceeded.	Check pipe capacity chart.
	Wrong rolls.	Install correct rolls.
	Pipe material too hard.	Replace pipe.
	Adjustment nut not set.	Set depth.
Groove does not meet specification.	Maximum pipe diameter tolerance exceeded.	Use correct diameter pipe.
	Mismatched grooving and driving rolls.	Use correct set of rolls.
	Grooving 8″ Sch.40 steel pipe harder than 150 BHN.	Do not groove hard pipe.
Pipe slips on driving roll.	Driving roll knurling plugged with metal or worn flat.	Clean or replace driving roll.
	Grooving roll feed rate too slow.	Feed grooving roll into pipe faster.

Table III. Troubleshooting (cont.)

PROBLEM	CAUSE	CORRECTION
Pipe raises or tends to tip groover over backwards.	Not level.	Adjust stands to level pipe.
Pump not delivering oil, cylinder does not advance.	Pump release valve open.	Close release valve.
	Low oil in reservoir.	Check oil level per instructions.
	Dirt in pump body.	Have serviced by qualified technician.
	Seats worn or not seating.	Have serviced by qualified technician.
	Too much oil in reservoir.	Check oil level per instructions.
Pump handle operates with "spongy" action.	Air trapped in system.	Position ram lower than pump by tipping the machine on its side opposite the operator. Extend and return the cylinder piston several times to permit air to return to the pump reservoir.
	Too much oil in reservoir.	Check oil level per instructions.
Cylinder extends only partially.	Pump reservoir is low on oil.	Fill and bleed system.
	Depth adjustment set incorrectly.	Follow depth adjustment instructions.

Table IV. Copper Roll Groove Specifications

1	2		3	4	5	6	7	8
Nom. Size Inches	**Tubing Outside Diameter O.D.**		**A Gasket Seal A +.03 –.00**	**B Groove Width +.03 –.00**	**C Groove Dia. +.00 –.02**	**D Nominal Groove Depth (1)**	**T Min. Allow. Wall Thick.**	**Max. Allow. Flare Dia.**
	Basic	**Tolerance**						
2″	2.125	±0.002	0.610	0.300	2.029	0.048	0.064	2.220
2½″	2.625	±0.002	0.610	0.300	2.525	0.050	0.065	2.720
3″	3.125	±0.002	0.610	0.300	3.025	0.050	0.045	3.220
4″	4.125	±0.002	0.610	0.300	4.019	0.053	0.058	4.220
5″	5.125	±0.002	0.610	0.300	5.019	0.053	0.072	5.220
6″	6.125	±0.002	0.610	0.300	5.999	0.063	0.083	6.220

(1) *Nominal groove depth is provided for reference only. Do not use groove depth to determine acceptability of groove.*

Maintenance Instructions

⚠ WARNING Make sure machine is unplugged from power source before performing maintenance or making any adjustments.

Hydraulic Fluid Level

Remove the reservoir filler cap *(Figure 18)*. The oil level should come to the fill line when the pump is resting on its base and the ram is fully retracted. Use only high grade hydraulic oil.

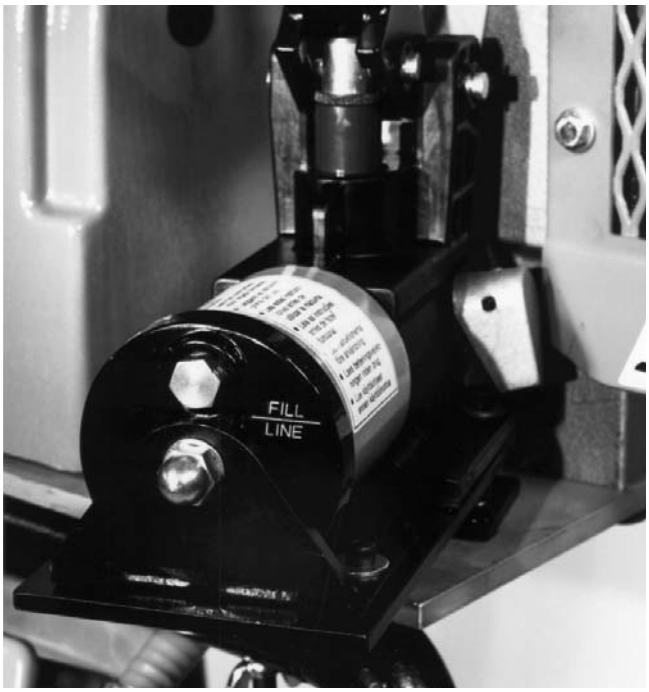


Figure 18

Lubrication

Drive Shaft and Groove Roll Shaft Bearings.

Lubricate with multi-purpose grease through fittings located on groove roll shaft and lower roll housing once a month, and after roll change.

Removing the Base Unit From the Stand

1. Unplug the 918-I from the power source.
2. Remove the four bolts that hold the base unit plate to the stand *(Figure 19)*.

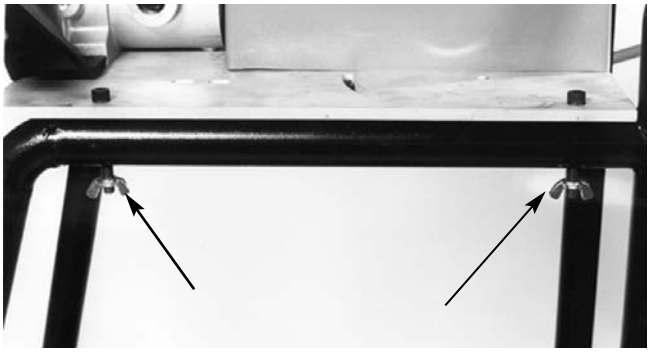


Figure 19

3. As the base unit is being removed, be careful to not “hook” the switch assembly on to the stand rail *(Figure 20)*.

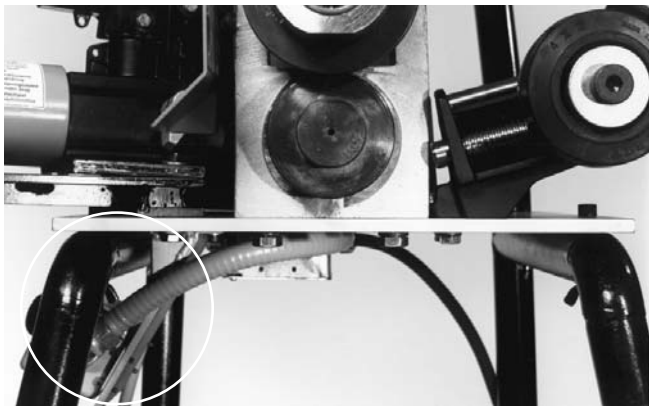


Figure 20 – Removing Base Assembly From Stand

Machine Storage

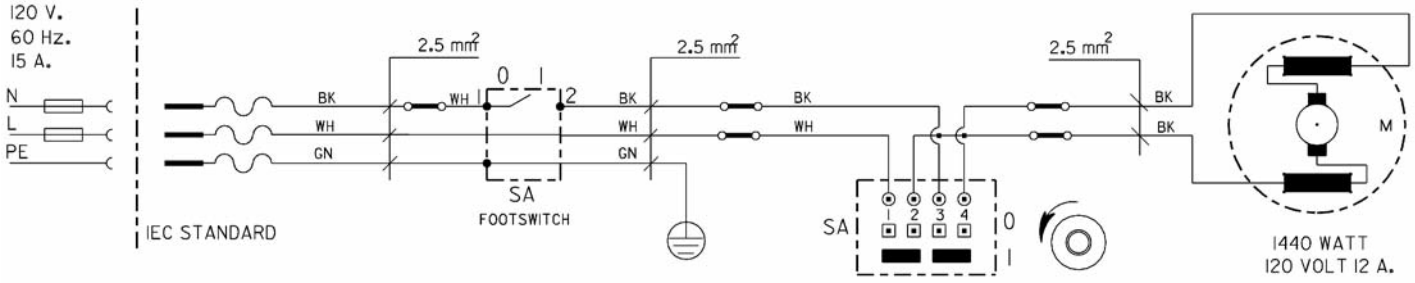
⚠ WARNING Motor-driven equipment must be kept indoors or well covered in rainy weather. Store the machine in a locked area that is out of reach of children and people unfamiliar with roll groover equipment. This machine can cause serious injury in the hands of untrained users.

Service and Repair

Service and repair work on this Roll Groover must be performed by qualified repair personnel. Machine should be taken to a RIDGID Independent Authorized Service Center or returned to the factory. All repairs made by Ridge service facilities are warranted against defects in material and workmanship.

⚠ WARNING When servicing this machine, only identical replacement parts should be used. Failure to follow these instructions may create a risk of serious injury.

918-I Wiring Diagram



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