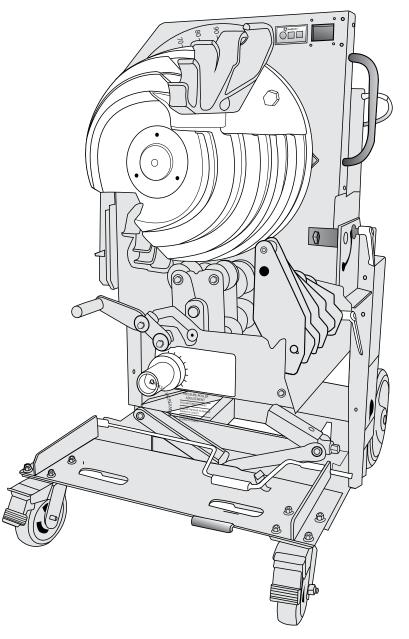


**TOOLS & EQUIPMENT** 

# **Operating Instructions** BENDMAX<sup>™</sup> Power Bender (PB-2000)



Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.



FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY OR DEATH.

# BEFORE OPERATING THIS TOOL, READ AND UNDERSTAND ALL OF THE INSTRUCTIONS AND SAFETY INFORMATION IN THIS MANUAL

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#### DESCRIPTION

The Southwire **BENDMAX<sup>™</sup> Power Bender** is intended to bend 3/4" to 2" conduit and pipe.

This bender has the capability to accommodate the following types of conduit and pipe:

- Electrical Metallic Tubing
- Intermediate Metallic Conduit
- Rigid Conduit

# SAFETY

Safety is essential in the use and maintenance of Southwire Tools and Equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

**WARNING:** Read and understand all instructions and safety information in this manual before operating or servicing this tool.

# PURPOSE OF THIS MANUAL

This manual is intended to familiarize all personnel with the safe operation of the Southwire **BENDMAX<sup>™</sup> Power Bender**. Keep this manual available to all personnel. Replacement manuals are available at no charge at **www.southwiretools.com**.

All specifications are nominal and may change as design improvements occur. Southwire Tools and Equipment shall not be liable for damages resulting from misapplication or misuse of its products.

# **IMPORTANT SAFETY INFORMATION**





This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

#### 

Immediate hazards which, if not avoided, WILL result in severe injury or death.

#### 

Hazards which, if not avoided, COULD result in severe injury or death.

### 

Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.

#### **A**WARNING

Electrical Shock Hazard:

- Inspect the power cord before use. Repair or replace the cord if damaged.
  Connect the power cord to a 120 volt, 20 amp receptacle on a ground fault
- protected circuit only. Refer to "Grounding Instructions."
- Do not modify the power cord or plug.
  Disconnect the unit from power before servicing.

Failure to observe this warning could result in severe injury or death.

#### 

For continued protection against risk of fire and electric shock, replace ONLY with same manufacturer, type, and rating of fuse. Refer to the "Maintenance" section of this manual.

Failure to observe this warning could result in severe injury or death.



#### **A**WARNING

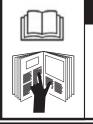
Keep guards in place and in working order.
Remove any tools from bender before



see that all tools are removed from bender before turning it on. Failure to observe these warnings

operating. Form habit of checking to

could result in severe injury or death.



#### 

Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Failure to observe this warning could result in severe injury or death.

### 



Do not use this tool in a hazardous environment. Hazards include flammable liquids, gases, or other materials. Using this tool in a hazardous environment can result in a fire or explosion. Failure to observe this warning could

result in severe injury or death.



#### 

Do not use in dangerous environment. Do not use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.

• Do not immerse the pendant switch in water or any other liquid.

Failure to observe these warnings could result in severe injury or death.

#### 

Always use safety glasses. Everyday glasses only have impact resistant lenses; they are NOT safety glasses. When using in dusty enviornment, use face or dust mask. Failure to wear eye protection could result in serious eye injury from flying debris.

#### 

- Reduce the risk of unintentional starting. Make sure switch is in off position before plugging in.
- Never leave tool running unattended. Turn power off. Do not leave tool until it comes to a complete stop.
- Disconnect tools before servicing and when changing accessories such as shoes, rollers, and the like. Accidental start-up could result in serious injury. Failure to observe these warnings could result in severe injury or death.

#### 

- Never stand on tool. Serious injury could occur if the tool is tipped.
- Do not overreach. Keep proper footing and balance at all times.

Failure to observe these warnings could result in severe injury or death.

#### **A**WARNING

Pinch points:

- Keep hands away from bending shoe, rollers, and conduit when bender is in use.
- Support conduit when unloading. Conduit can become loose and fall if not properly supported.

Failure to observe these warnings could result in severe injury or death.

### **A**WARNING

Extension cords:



- Use only three-wire, 12 AWG extension cords that have three-prong grounding-type plugs and three-hole receptacles that accept tool's plug.
- Do not use extension cords that are longer than 30 m (100 ft).
- Repair or replace damaged extension cords.

Failure to observe these warnings could result in severe injury or death.

### **A**CAUTION

- Inspect the bender before use. Replace worn, damaged, or missing parts with Southwire replacement parts. A damaged or improperly assembled component could break and strike nearby personnel.
- Maintain tools with care. Keep tool clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

Failure to observe these precautions may result in severe injury or property damage.

# 

- Select the appropriate shoe groove and support roller for the type and size of conduit before bending.
- Do not bend conduit over 96 degrees. Overbending could result in the other shoe hook colliding with the conduit.

Failure to observe these precautions may result in severe injury or property damage.

# 

Adjust fork spacing to match fork tubes on bender. Ensure front wheel brakes are engaged before inserting forks into fork tubes.

Failure to observe these warning could result in severe injury or death.

#### **A**CAUTION

- Conduit moves rapidly as it is bent. The patch conduit must be clear of obstructions. Be sure clearance is adequate before starting the bend.
- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts, Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
- Do not force rollers or alter tool. It will do the job better and safer at the rate for which it was designed.
- Use right tool. Do not force tool or attachment to do a job for which it was not designed.
- Use this tool for the manufacturer's intended purpose only. Use other than that which is instructed in this manual can result in injury or property damage.

Failure to observe these precautions may result in severe injury or property damage.

# FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY OR DEATH

# 

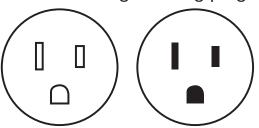
Electrical Shock Hazard:

- Do not modify the plug provided with the tool.
- Connect this tool to a grounded receptacle on a 20 amp ground fault protected circuit. Failure to observe these warnings could result in severe injury or death.

This tool must be grounded. In the event of a malfunction or breakdown, an electrical ground provides a path of least resistance for the electric current. This path of least resistance is intended to reduce the risk of electric shock. This tool's electric cord has a grounding conductor and a grounding plug as shown. Do not modify the plug.

Connect the plug to a corresponding receptacle that is properly installed and grounded in accordance with all national and local codes and ordinances.

Do not use an adapter.



Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

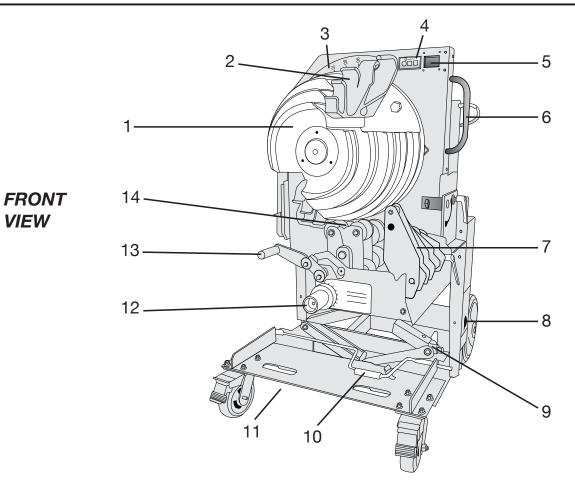
Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

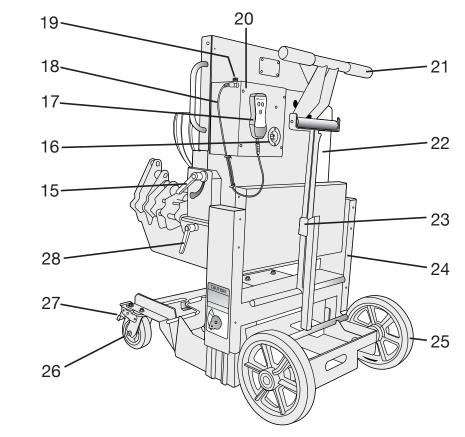
# **IDENTIFICATION** (See Front and Back Views on Page 6)

- 1. 3/4" 2" EMT, IMC, Rigid Bending Shoe 15. Locking Tilt Handle
- 2. Bending Hooks (EMT-Gray) (IMC, Rigid-Black)
- 3. Analog Protractor
- 4. Zero and Spring back Setup
- 5. Digital Display
- 6. Bender Support Handle
- 7. 3/4"- 2" Rollers
- 8. Elevation Travel Indicator
- 9. Elevation Control Screw Jack
- 10. Elevation Control Screw Handle
- 11. Fork Tube
- 12. Squeeze Adjustment Knob
- 13. Roller Assembly Lock handle
- 14. 11/2"-2" EMT and IMC Roller

- 16. Power Receptacle
- 17. Hand Pendent
- 18. Pendent Control Cable
- 19. 15 Amp Fuse
- 20. Power Switch
- 21. Push Cart Handle
- 22. Motor
- 23. Conduit Support Stand
- 24. Gearbox
- 25. Wheel
- 26. Caster
- 27. Caster Brake
- 28. 2 Degree Fine Adjustment Handle

#### **IDENTIFICATION** cont.







6

# FEATURES

- Single shoe bending of 3/4" to 2" EMT, IMC, and Rigid conduit.
- Four large wheels for easy transportability.
- Adjustable elevation control allows for ergonomic working height.
- Squeeze adjustment allows for variations in conduit.
- · Back lite digital display for easy viewing.
- Fork tubes provided for easy forklift mobility.
- Onboard conduit support stand for easy feeding of conduit into bender.
- Front locking casters to securely keep bender in place during use.
- Quick release lock handle to easily pivot bender between vertical and horizontal positions.
- Billet aluminum hand pendent for durability.
- 2 Degree fine adjustment for easy leveling.
- Programmable spring back setting for accurate bending.

# TRANSPORTING OF BENDER

Refer to the "Identification" section of this manual.

#### To transport the BENDMAX<sup>™</sup> on the ground

- 1. Ensure bender is in the vertical position. If bender is in the horizontal position, loosen locking tilt handle (15) by turning counter clockwise and lift up on bender support handle (6). Once in the vertical position align base of locking tilt handle into slot and turning the handle clockwise till tight.
- Ensure the bender is in the lowest setting.
   Refer to section labeled "ELEVATION OF THE BENDMAX<sup>™</sup>" to insure bender is in the lowest position for transport.
- 3. If not already installed, place conduit support stand (23) on the back of the bender in supplied hooks.
- 4. Unlock caster brakes (27) and use push cart handle (21) to maneuver bender to desired location.
- 5. Lock caster brakes (27) by pushing down with foot once transport is complete.

#### To transport this bender by fork lift

- 1. Ensure caster brakes (27) are locked by pressing down with foot.
- Ensure the bender is in the lowest setting. Refer to section labeled "ELEVATION OF THE BENDMAX<sup>™</sup>" to insure bender is in the lowest position for transport.
- 3. Insert the forks into the fork tubes (11) at bottom of bender.

# 

Adjust fork spacing to match fork tubes on bender.

Ensure front wheel brakes are engaged before inserting forks into fork tubes

Failure to observe this warning could result in severe injury or death.

#### SETUP

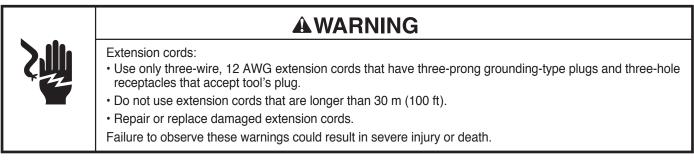
### 



Always use safety glasses. Everyday glasses only have impact resistant lenses; they are NOT safety glasses. When using in dusty enviornment, use face or dust mask. Failure to wear eye protection could result in serious eye injury from flying debris.

Refer to the "Identification" section of this manual.

- 1. Position the bender so that there is room to load conduit and engage the front caster brakes (27).
- 2. Place the bender in the desired vertical or horizontal bending position. Refer to section labeled "CHANGING THE BENDING PLANE OF THE BENDMAX<sup>™</sup>".
- 3. Plug approved 12 AWG extension cord into the power receptacle (16) from grounded 20 amp outlet.



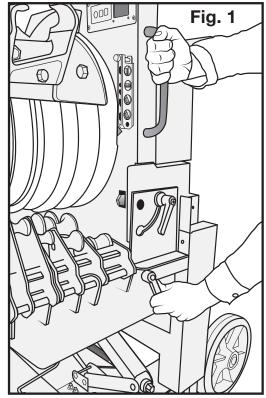
4. Plug the Pendent Control Cable (18) into housing under Power Switch (20) then into Hand Pendent (17).

# LEVELING OF THE BENDMAX<sup>™</sup>

Refer to the "Identification" section of this manual.

 To level the **BENDMAX<sup>™</sup>** Power Bender, place a magnetic level to the front plate just under the digital display (5). Loosen the two degree fine adjustment handle (28) and use Bender Support Handle (6) to find the level position on the magnetic level.

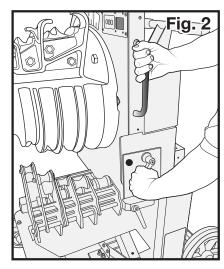
Tighten fine adjustment handle (28) to secure in place as shown in (Fig 1).

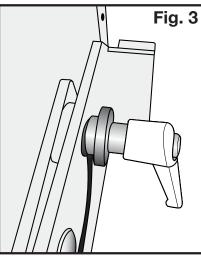


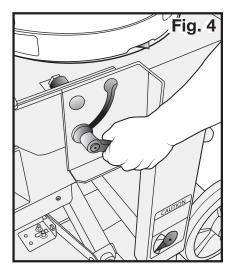
# CHANGING THE BENDING PLANE OF THE BENDMAX<sup>™</sup>

Refer to the "Identification" section of this manual.

1. Rotate the Locking Tilt Handle (15) counter clockwise to loosen and free up the bending platform (Fig 2). Place hand on Bender Support Handle (6) and allow the bender head platform to transition backwards. Once in the horizontal plane, align the anchor set spacer (Fig 3) into slot and tighten Locking Tilt Handle (15) by turning clockwise to secure in place as seen in (Fig 4).





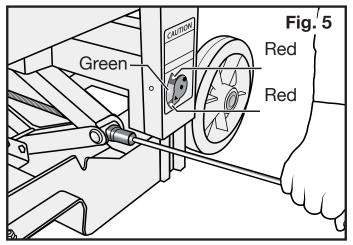


# **ELEVATION OF THE BEND**MAX<sup>™</sup>

Refer to the "Identification" section of this manual.

1. To raise the elevation control for the **BENDMAX<sup>™</sup>** Power Bender, remove the elevation control screw handle (10) from its stored location. Insert socket end of handle onto the end of the elevation control screw jack (9) and rotate handle clockwise to raise the unit upwards or counter clockwise to lower unit as shown in (Fig 5).

**CAUTION:** Ensure you carefully observe the Elevation Travel Indicator (8) to ensure you stay within the **GREEN** area when using an 18V Drill to raise and lower bender. Ensure you stay out of the **RED** area on the travel indicator as shown in Fig. 5 by the arrow. **Failure to stay in the green range** could result in elevation control jack damage.



2. Once proper height has been found secure elevation control screw handle (10) back in its stored location.

# **OPERATION**



#### 

Do not use this tool in a hazardous environment. Hazards include flammable liquids, gases, or other materials. Using this tool in a hazardous environment can result in a fire or explosion.

Failure to observe this warning could result in severe injury or death.



# 

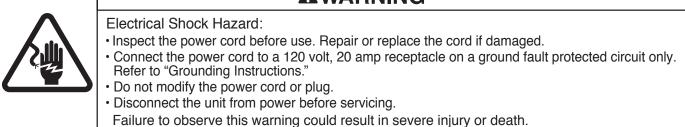
Pinch points:

- Keep hands away from bending shoe, rollers, and conduit when bender is in use.
- Support conduit when unloading.

Conduit can become loose and fall if not properly supported. Failure to observe these warnings could

result in severe injury or death.

### **A**WARNING

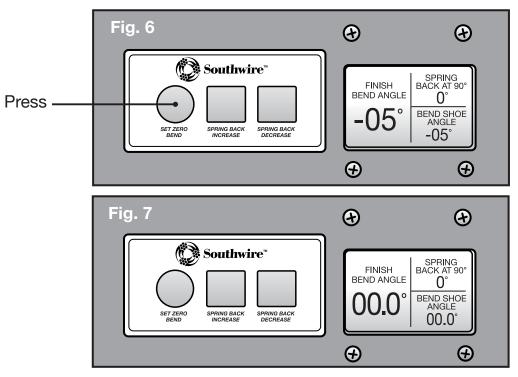


# CALIBRATING THE DIGITAL PROTRACTOR

Refer to the "Identification" section of this manual.

#### ZERO AND SPRING BACK SET UP

1. To Zero the Digital Protractor place yellow **"Arrow"** on bending shoe to zero on the analog protractor and press the **"SET ZERO BEND"** soft key on set up panel (4) as shown in (Figs. 6 and 7).



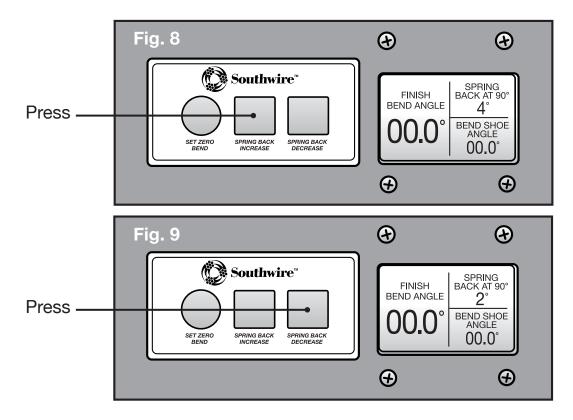
2. To set spring back, start at 4 degrees of spring back. Minor adjustments can be made after a test bend has been made.

# CALIBRATING THE DIGITAL PROTRACTOR cont.

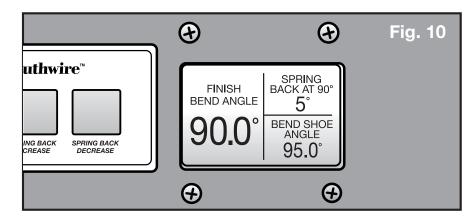
Refer to the "Identification" section of this manual.

#### ZERO AND SPRING BACK SET UP cont.

3. Locate Zero and Spring Back Set-up panel (4) and press the "SPRING BACK INCREASE OR SPRING BACK DECREASE" soft key until desired spring back is shown on top right corner of digital display (5) as shown in (Figs. 8 and 9).



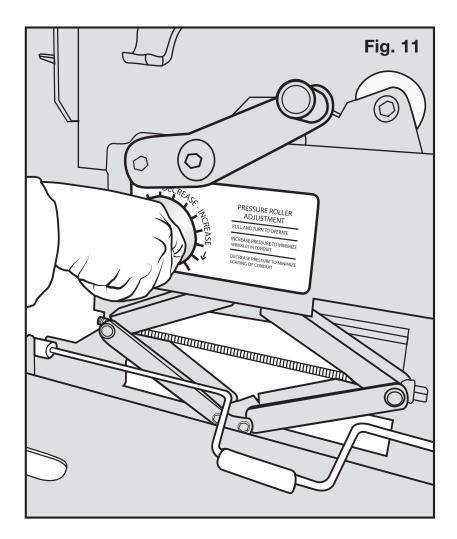
4. This setting will compensate for the spring back and adjust the bending degrees of the digital display shown on the left side of the display as shown in (Fig 10).



### SQUEEZE ADJUSTMENT

Refer to the "Identification" section of this manual.

1. When bending 1<sup>1</sup>/<sub>2</sub>", or 2" EMT or IMC, the amount of squeeze applied to the conduit can be adjusted to compensate for conduit variations. The squeeze is adjustable by turning the squeeze adjustment knob (12) to increase or decrease the amount of tension needed to properly seat the conduit as shown in (Fig 11).



**Note:** Test bend should be performed to ensure proper squeeze is set. Minor adjustments may be required.

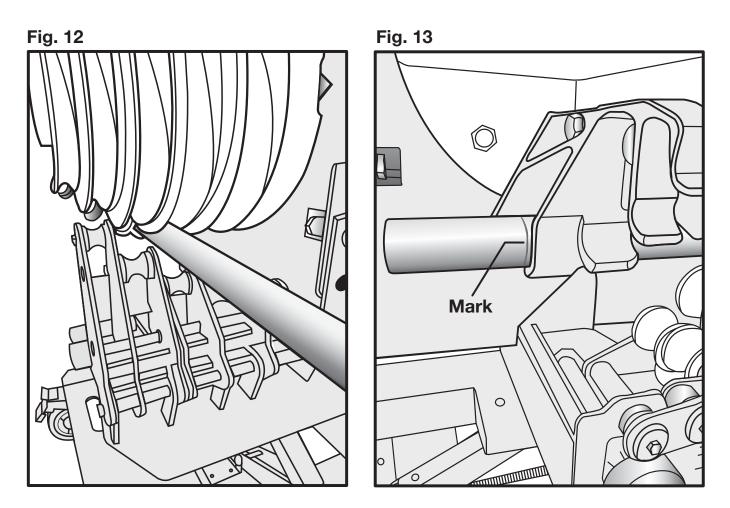
# BENDING

Refer to the "Identification" section of this manual.

- 1. Turn on bender by pressing on the green power switch (20).
- Use the BEND, RETURN or JOG button on hand pendent (17) to orient the shoe so that the hooks of the conduit type to be bent are around the 7 o'clock (approximately –5°) position on the analog or digital display.

(Gray hooks are for EMT; Black hooks are for IMC and Rigid.)

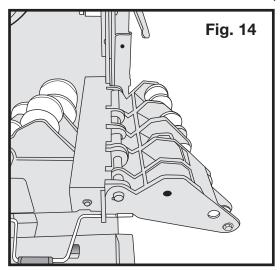
3. Load the conduit into the appropriate sized roller and groove (Fig 12) so that the bending mark is aligned with the front edge of the hook as shown in (Fig 13).

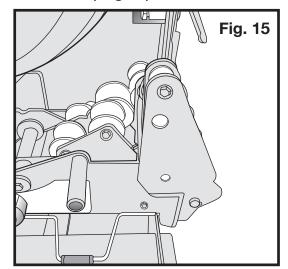


#### **BENDING** cont.

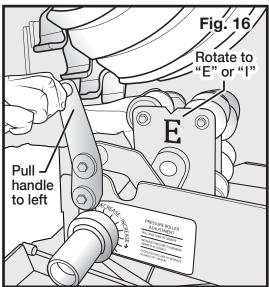
#### 4. Bending the conduit

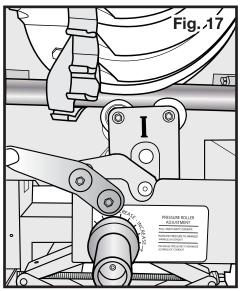
4A. For 3/4" through 1<sup>1</sup>/<sub>4</sub>" EMT, IMC, or rigid conduit, ensure the 3/4" - 2" Rollers (7) are in the upright position, as shown in (Figs. 14, 15). For 1<sup>1</sup>/<sub>2</sub>" - 2" rigid conduit sizes utilize the 3/4" - 2" rollers (7) while in the upright position.





4B. For 1<sup>1</sup>/<sub>2</sub>" and 2" EMT or IMC conduit, use the 1<sup>1</sup>/<sub>2</sub>" - 2" EMT and IMC Roller (14) by turning the assembly to reflect "E" for EMT or "I" for IMC. EMT and IMC Roller Lock Handle (13) may have to be pulled to the left to allow roller assembly to be rotated (Fig 16). Once properly selected, raise the rollers from the retracted position to the upright (engaged) position by rotating the EMT and IMC Roller Lock Handle (13) counter clockwise to lock and secure conduit in place, as shown in (Fig 17).



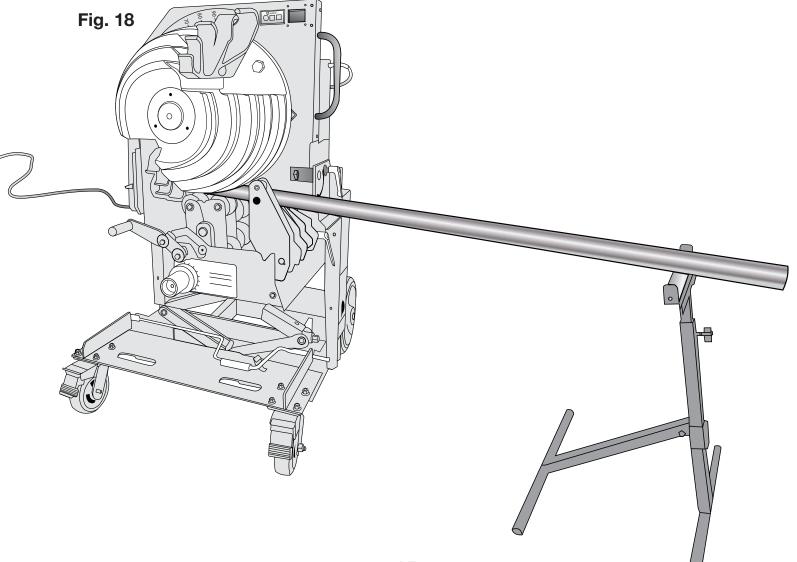


**Note:** Test bend should be performed to ensure proper squeeze is set. Minor adjustments may be required. To make adjustments to the squeeze setting, refer to section labeled **"SQUEEZE ADJUSTMENT".** 

# CONDUIT SUPPORT STAND

Refer to the "Identification" section of this manual.

- Each **BENDMAX<sup>™</sup>** Power Bender comes with a Conduit Support Stand (23) located on the back of the bender.
- 2. To use this stand, Remove it from its stored position by lifting stand off the frame mounted hooks and place to the right as viewed from the front of bender. The stands height can be adjusted by loosening the screw knob and lifting up on the roller. Once proper height is obtained, screw knob clockwise to tighten.
- 3. Once conduit is loaded into the bender rollers, minor adjustments can be made to Conduit Support Stand to facilitate easy feeding of conduit into the bender.
- 4. This feature can help to eliminate the need to find a coworker to hold and help load long runs of conduit as seen in (Fig 18).



### ADDITIONAL ITEMS

- A. Personal protective equipment
- B. Portable band saw or other conduit cutting device
- C. Appropriate reamer or filing tool
- D. Tape measure
- E. Black marker
- F. Magnetic level (Southwire MCB Level)
- G. EMT, IMC or Rigid Conduit

#### **SPECIFICATIONS**

- Model #PB2000
- Stock #59840601
- Name BENDMAX<sup>™</sup> Power Bender
- Length 38"
- Width 30"
- Height 50"
- Weight 600 lbs (273kg)
- Patent Pending

#### TROUBLESHOOTING

	PROBLEM	CAUSE	DIAGNOSIS	CURE
1	Bender will not operate	Power source	Check for voltage at power source	If power is on, go to (#3)
2	No power at bender	Bad extension power cord	Ohm extension cord for broken wire	Replace extension cord
3	Power to bender but will not operate	Power switch in the off position	Check power switch is lite green when in the "ON" position	Replace switch
		Fuse blown	Inspect 15 amp fuse	Replace fuse
		Motor bad	Check for power at motor	Replace motor
4	Motor runs but will not bendBad gear boxChain from jack shaft to sl sprocket broken	Chain from transfer shaft broken	Remove cover and visually check for broken parts	Replace broken parts
		Bad gear box	Motor running but no output through gear box	Replace gear box
		Chain from jack shaft to shoe sprocket broken	Remove cover and visually check for broken parts	Replace broken parts
		Key between motor and gearbox missing	Remove motor from gearbox	Replace key
5	Bender operates in only one direction	Bad Bend/Return switch	Ohm switch for open contact or shorted contacts	Replace Pendent
		Bad pendent cord	Ohm for broken wire	Replace pendent cord

#### What Does This Warranty Cover?

#### Five-Year Limited Warranty on Contractor Equipment

Under Southwire's Contractor Equipment 5-Year Limited Warranty, Southwire Company, LLC warrants that all Southwire Contractor Equipment will be free from manufacturer defects for a period of five (5) years from the date of the original end user's purchase. The following products are excluded from this 5-Year Limited Warranty and are subject to separate warranty terms: rope, blades, dies, draw studs, grips, Southwire Contractor Equipment electronic components, and Material Boxes. Under this 5-Year Limited Warranty, the following are also excluded and Southwire Company, LLC will have no liability for any of the following: normal wear and tear resulting from product use and damage arising out of misuse, abuse, modification, and improper product maintenance. This warranty also does not cover Southwire Contractor Equipment products that have been modified by any party other than Southwire Company, LLC or its authorized third party designee. This 5-Year Limited Warranty is not transferrable to or enforceable by any person other than the product's original end user.

#### One-Year Limited Warranty on Rope, Blades, Dies, Draw Studs, Grips, and Southwire Contractor Equipment Electronic Components

Under this 1-Year Limited Warranty, Southwire Company, LLC warrants that all Southwire Ropes, Blades, Dies, Draw Studs, Grips, and Southwire Contractor Equipment Electronic Components will be free from manufacturer defects for a period of one-year from the date of the original end user's purchase. Under this 1-Year Limited Warranty for the aforementioned Southwire Contractor Equipment items, the following are excluded and Southwire Company, LLC will have no liability for any of the following: normal wear and tear resulting from product use and damage arising out of misuse, abuse, modification, and improper product maintenance. This warranty also does not cover Southwire Contractor Equipment that has been modified by any party other than Southwire Company, LLC or its authorized third party designee. This 1-Year Limited Warranty is not transferrable to or enforceable by any person other than the product's original end user.

#### Exclusion of Incidental, Consequential, Indirect, Special and Punitive Damages

SOUTHWIRE MAKES NO WARRANTY THAT SOUTHWIRE CONTRACTOR EQUIPMENT PRODUCTS WILL BE MERCHANTABLE OR FIT FOR ANY PARTICULAR PURPOSE. SOUTHWIRE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, OTHER THAN THE RELEVANT WARRANTY SPECIFICALLY SET FORTH IN THIS WARRANTY SECTION. SOUTHWIRE WILL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES FOR ANY BREACH OF THIS LIMITED LIFETIME WARRANTY. *Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.* 

#### Warranty Claim Information/How Do You Get Service?

For all warranty, customer service, and product return authorizations and inquiries, please contact Southwire's Tools & Assembled Products at:

#### **Southwire Tools & Assembled Products**

840 Old Bremen Road Carrollton, GA, 30117

#### Phone Number: 1.855.SW.Tools

- 1. All warranty claims must be approved by Southwire's Tools & Assembled Products Warranty Department prior to return of product. If Southwire determines that a product is defective, Southwire will, at its option, repair or replace defective products or defective product components, free of charge.
- 2. Upon approval, Southwire will issue a Product Return Authorization Form which will include instructions on how and where to return the product. The product serial number and the original date of delivery must be set forth on the Product Return Authorization Form.
- 3. Southwire will cover standard freight charges (FedEx Ground rate) incurred in connection with products that Southwire ultimately determines to be defective.
- 4. All defective components and defective products that Southwire replaces under these Warranties will become Southwire's property and will be retained by Southwire.

#### Fixing Your Product When it is Out of Warranty

Southwire is happy to provide information about where a purchaser can send a product for repair at consumers' own expense, please contact **1.855.SW.tools** or **visit www.southwiretools.com/tools/home.do** for more information about servicing for Southwire Products.



# **TOOLS & EQUIPMENT**

#### southwiretools.com



1-855-SW-TOOLS Toll Free Technical Help

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05/16 PB-2000 Manual

