

IMPORTANT: RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. If shipping damage is found, notify carrier at once. Shipping damage is NOT covered by warranty. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

SAFETY ISSUES:

IMPORTANT – USER SAFETY AND PROTECTION:

In setting up systems to fit your operations, care must be taken to select the proper components and design to insure appropriate that all safety measures have been taken to avoid the risk of personal injury and property damage from your application or system.

GARDNER BENDER IS NOT RESPONSIBLE FOR DAMAGE OR INJURY CAUSED BY UNSAFE USE, MAINTENANCE OR THE APPLICATION OF ITS PRODUCTS.

Please contact Gardner Bender for guidance when you are in doubt as to the proper safety precautions to be taken in designing and setting up your particular application.



**PORTABLE
CYCLONE®**

Figure 1. B1000 Portable Cyclone®

**PORTABLE
CYCLONE®**

**INSTRUCTIONAL
VIDEO**



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1.0 DESCRIPTION

- Bend 1/2" to 1" EMT, Rigid, and IMC Conduit and 1/2" to 3/4" PVC Coated Rigid Conduit
- Precise, repeatable bends for early stage apprentices. Takes the guess work out of bend angles.
- Attaches to most 11-R or 12-R pipe threader to use as a bending power source
- Consistent bends for larger jobs
- Save time on the job site. Makes a 90° bend in less than 10 seconds
- Easy setup and operation – Use the lever adjustment on rear of bender to adjust the level of the conduit before the bend
- Bend radius to NEC requirements
- Bend conduit vertically or horizontally – Install your own 3/4" threaded legs to create a custom stand
- Small and lightweight – Easy to carry around the jobsite
- 1 shoe for all sizes – no spare parts to carry around
- Pendant accessory included for easy and precise bending
- Approximately 35 lbs total (+20 lbs w/ threader attached)
- 1 Year Warranty

The **Portable Cyclone®**, GB model B1000 bender is used to bend EMT, IMC, rigid steel, rigid aluminum conduit, EMT aluminum, or PVC coated rigid conduit. The single bending shoe accommodates sizes 1/2", 3/4", and 1" conduit. The shoe is driven by a standard 11-R or 12-R pipe threader. It is recommended that the Gardner Bender PT200 Power Driver be used with this bender, but most common 11-R and 12-R threaders will also work. The bender has a single grooved acetal roller.

The bender control pendant consists of a variable speed trigger and a speed control box. Two short electrical cords on either side of the speed control box connect it to the threader and an outlet. A 6' 3.5mm cable connects the pendant to the speed control box. The bender can be used in a horizontal or vertical position.

Any situation which causes a voltage drop or increase must be corrected before using the B1000 Bender and a pipe threader.

Voltage drops may be caused by:

- Extension cords that are too long.
- Extension cords made of light (16-18 gauge) wire.
- Multiple power tools on a single circuit.
- Other devices which require high amperes to operate.


2.0 WARNINGS AND SAFETY

WARNING

This instruction manual contains warnings and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in safe condition.

READ THROUGH AND UNDERSTAND THE INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE USING THE BENDER.

- Keep the manual at hand to enable quick reference whenever necessary.
- Read through and understand the instructions for the power driver before use.
- The bender is to be used only in its intended applications.
- Understand and follow all the safety instructions contained in the manual.
- It is essential that all safety instructions are adhered to.
- Failure to follow the safety instructions may cause injury or bender damage.
- Do not carry bender by the roller. The roller can slide off and cause the user to drop the bender.

 **WARNING** is reserved for conditions and actions that can cause serious or fatal injury.

 **CAUTION** is reserved for conditions and actions that can cause injury or instrument damage.

WARNING

- Do not operate the bender on damp or wet surfaces. Do not stand on wet surfaces while operating the bender.
- Read and understand all instructions and warning information in this manual before operating this machine.
- Do not use this machine in a hazardous environment. Hazards include flammable liquids, gases, or other materials. Using this tool in hazardous environments can result in a fire or explosion.
- Electric shock hazard. Inspect power cord on threader and pendant before use. Repair or replace if it is damaged. Do not modify the power cord or plug.
- Always use safety glasses. Everyday glasses are NOT safety glasses. When using in dusty environment, use face or dust mask.
- Do not use extension cords that are longer than 30 m (100'). Do not use damaged extension cords. Use only three-wire extension cords that have three-prong grounding-type plugs and three-hole receptacles that accept the threader's plug.
- Keep hands away from bending shoe, rollers, and conduit when bender is in use with power driver.

⚠ WARNING

- Reduce the risk of unintentional starting by making sure switch on the threader is in off position before plugging in. Never leave the machine unattended. Turn power off on the threader and do not leave the machine until it comes to a complete stop.
- Keep working area of bender clear form any tools or other equipment when using the bender.
- Keep proper footing and balance at all times. Do not overreach above or around bender while it is in use.
- Unplug threader from any power source before disassembling, reassembling, and repairing any parts.

⚠ CAUTION

- During conduit bending keep hands, clothing and control cord away from the bending shoe and roller.
- Select an operating area large enough to permit loading pipe section and bending without striking objects or personnel.
- Do not attempt to bend conduit or pipe other than 1/2" through 1" IMC, EMT, rigid steel, PVC coated rigid, or aluminum. Bending other materials may damage the bender and will void the warranty.
- Conduit moves rapidly as it is bent. The path of the conduit must be clear of obstructions.
- 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.
- Use for bending only. Do not force machine to do a job for which it was not designed. Use this machine only for the manufacturer's intended purpose. Use other than that which is instructed in this manual can result in injury or property damage.
- Keep children away. All visitors should be kept safe distance from work area.
- Make workshop kid proof with padlocks, master switches, or by removing starter keys.
- Use recommended accessories. The use of improper accessories may cause risk of injury to person
- Maintain tool with care. Keep tool clean for best and safest performance. Follow maintenance and troubleshooting instructions for lubricating and changing parts.
- Support conduit when unloading it from shoe. Conduit can become loose while retracting the bending shoe.
- Keep all decals on threader clean and legible at all times.
- Inspect for any damaged/malfunctioning parts before using the bender. If any damaged/malfunctioning parts are found during inspection, repair or replace parts.

3.0 SPECIFICATIONS

Power Source	11-R or 12-R Pipe Threader
Weight	35 lbs.
Height	14.5 inches
Width	11 inches
Length	17 inches
Bend Capability	1/2" - 1" IMC, EMT, Rigid Steel, Rigid Aluminum, or EMT Aluminum
	1/2" - 3/4" PVC Coated Rigid
Contents Included	B1000 Portable Cyclone®
	Control Pendant
	Speed Control Box
	12-R Adapter
	Post Adapter
Other Available Units	PT200 Power Driver
	Portable Cyclone® Case
	Horizontal Mounting Hardware Kit
	Power Driver Case
	B1000PT Portable Cyclone® and Power Driver Kit

4.0 OPERATION

4.1 Bender Setup and Preliminary Adjustments for Vertical Bending

1. Position the bender in a level dry area large enough to permit loading and unloading various lengths of conduit. When bending in the vertical position, it is generally best to position the bender with the front at the end of a table or stand to give more room to bend longer lengths of conduit.
2. Identify the type (IMC, EMT or Rigid) and size of conduit to be bent.



Figure 2. Conduit Size and Type Indication Markings

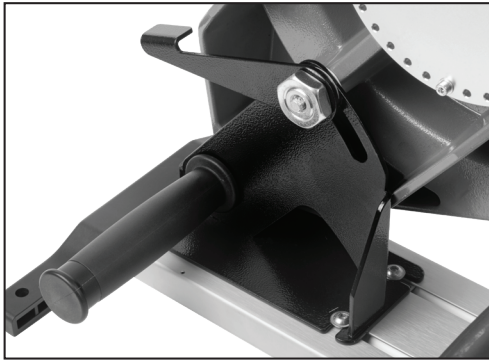


Figure 3. Angle Adjustment Lever

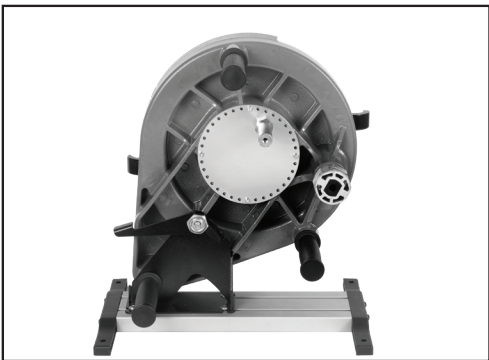


Figure 4. Bender Fully Raised for 1" Rigid

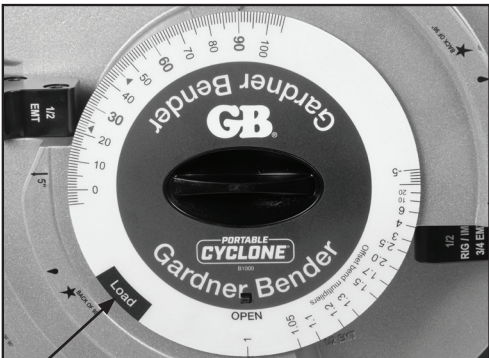


Figure 5. Indicator Arrow at LOAD

3. Locate the markings that indicate which grooves are used for specific types, and which grooves are used for specific size conduit. These are indicated on both the conduit hooks and the face of the shoe. **See Figure 2**
PVC-coated rigid conduit should be bent using the rigid groove of the same size as the PVC-coated conduit (either 1/2" or 3/4"). **See Figure 2**

4. For larger sizes of conduit the angle of the bender will need to be adjusted to allow for the conduit to be completely inserted into the hook. To adjust the angle of the bender, push up on the Angle Adjustment Lever on the backside of the bender to release the lever. **See Figure 3**

5. Lift up or bring down the front end of the bender to adjust its angle as necessary. The angle should be adjusted until the conduit is roughly level when it is locked into place against the roller. Once the angle is adjusted correctly, push down on the Angle Adjustment Lever to lock it in place. **See Figure 4**

6. Rotate the shoe by hand (or using the threader if it is already attached to the bender) until it's in a position to load the conduit. When the bend Angle Indicator Dial is level, the indicator arrow on the shoe should lie in the "Load" area on the decal. **See Figure 5**

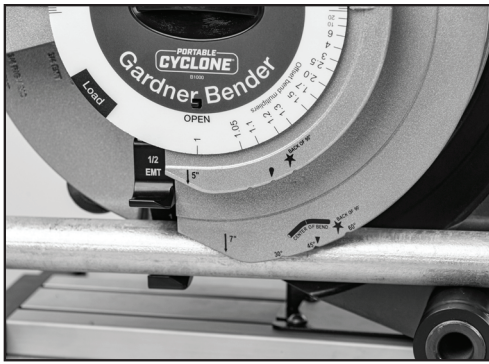


Figure 6. Conduit in the Starting Position

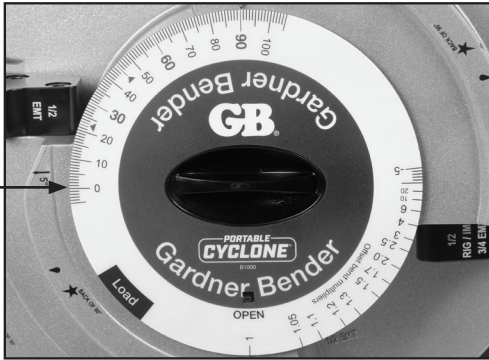


Figure 7. Indicator Arrow at Starting Position

7. Insert the conduit in the shoe groove marked with the number matching the size conduit being bent. The end of the conduit must extend a minimum of 2" beyond the hook. Once the conduit is inserted into the hook, continue to rotate the shoe until the conduit is locked into place against the roller. Readjust the angle of the bender if necessary. **See Figure 6**

8. Once the conduit is locked into its starting position, rotate the Angle Indicator Dial until the indicator arrow on the shoe lines up either with the 0 degrees mark on the dial or a certain number below 0 depending on the size and type of conduit being bent to account for spring back. **See "5.4 Spring Back Values". See Figure 7**
9. At this point as long as the Angle Indicator Dial is not moved the conduit can be removed from the bender and the shoe can be rotated freely without having to readjust the starting position for the conduit. If the angle adjustment lever is not moved and the same size and type of conduit is being repeatedly bent the steps above do not need to be repeated between bends.

4.2 Bending with the Gardner Bender PT200 Power Driver

NOTE: Read through and understand the instructions for the Gardner Bender PT200 Power Driver before using it with this bender.

1. The Gardner Bender PT200 Power Driver is an 11-R threader. If the 12-R die adapter attachment is on the bender it must be removed to attach the PT200. To remove the 12-R die adapter attachment from the bender use a 3mm metric Allen wrench to release the set screw on each side of the attachment and slide it off the bender. **See Figure 8 and Figure 9**

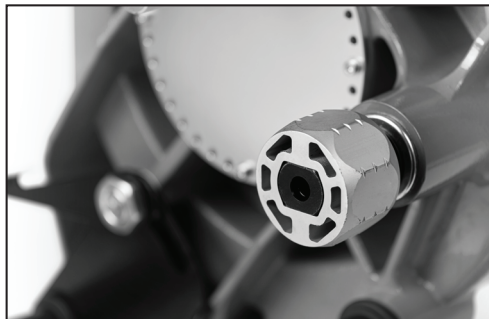


Figure 8. 11-R Die Head



Figure 9. 12-R Die Head

2. When the PT200 is being used, the Post on the back of the bender must be in the correct position to properly align with the clamp rod slot on the Power Driver. The best way to ensure that it is positioned correctly is to make sure the top screw on the back plate is in the third screw hole away from the Post. If it is not in the correct position, use a 3mm metric Allen wrench to unscrew the 4 screws holding the back plate in position. Rotate the back plate and post as necessary and screw the 4 screws back into place. **See Figure 10**

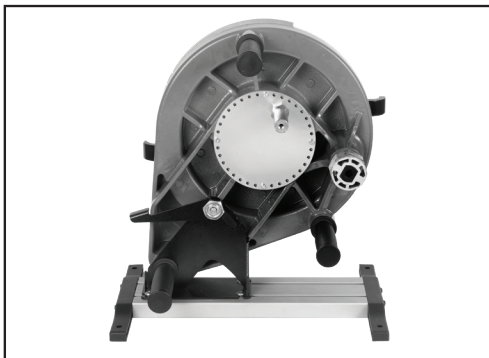


Figure 10. Post Correctly Positioned for PT200

3. Slide the PT200 Power Driver onto the 11-R Adapter on the back of the bender. The retaining ring inside the threader head should click into place onto the grooves on the 11-R adapter. If the power driver is not easily sliding on to the bender you may need to slightly rotate the 11-R Adapter to make sure it is aligned with the octagonal shape of the threader head.

The post on the back of the bender should be positioned into the clamp rod slot on the Power Driver. The bender is designed to allow the threader to be installed and removed without the need for any tools. The small amount of retention is all that is necessary to keep the threader properly positioned during normal use. There is no need to bolt the threader into place and doing so would only increase the time required to switch between conduit sizes.

4. The bender can be used either with or without the pendant trigger. If the pendant trigger is being used, plug the cord on the trigger into the Speed Control Box. Plug the power cord on the PT200 into the female cord on the Speed Control Box. Plug the male cord on the Speed Control Box into the nearest outlet or extension cord. **See Figure 11 and Figure 12**

NOTE: See the PT200 Power Driver instruction manual for recommended extension cord lengths and wire gauges.



Figure 11. Pendant and Speed Control



Figure 12. Plug the Pendant into the Speed Control Box



Figure 13. PT200 Trigger, Direction Switch, and Locking Switch

5. When the pendant is being used, the PT200 Locking Switch must be engaged. To lock the threader rotation, push down on the Locking Switch while the trigger is being squeezed. Squeeze the trigger again to release the locking mechanism. The locking mechanism must be released to change the Direction Switch on the threader. **See Figure 13**

NOTE: Make sure to release the locking mechanism whenever the Pendant Trigger is no longer being used. If the Locking Switch is engaged when the threader is plugged in without the Pendant Trigger it will immediately begin rotating, which could be hazardous.

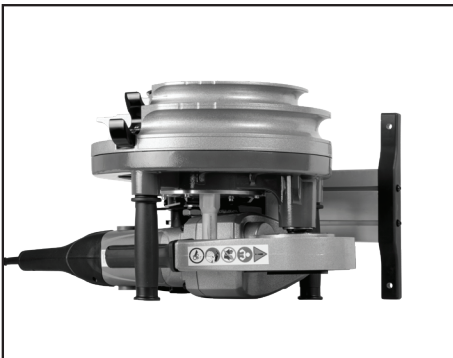


Figure 14. Threader and Legs Should Lie Against Bending Surface

6. The Portable Cyclone® can be used in both the horizontal and vertical position. If it is being used in the horizontal position, place it on its side laying on the 3 legs on the back of the bender. The base should be moved out of the way of the conduit to avoid damaging it during bending. Unlock the Angle Adjustment Lever and rotate the base away from the bender. The position of Die Adapter is not critical when bending vertically but everything should be in the same plane when bending horizontally. The correct position will vary based on threader being used. The 11-R Die Adapter can be adjusted inward or outward as necessary to ensure that the threader is the correct distance away from the bender to mount correctly and still lay against the ground. To do so unscrew the screws holding the 11-R Die Adapter in place using a 3mm metric Allen wrench. There are tapped holes in the end of the threader post and pinion gear shaft that can be used if a more permanent mounting of the threader is desired. This can be done using horizontal mounting hardware to attach the threader to the bender. See section "**6.6 Horizontal Threader Mounting Hardware**". **See Figure 14**



Figure 15. Back Foot Extends for Stability

7. If the conduit was removed when installing the PT200, insert the conduit back into the correct shoe groove. It is recommended that the shoe be slowly rotated back to the starting position before beginning the bend at full bending speed to avoid potentially damaging the bender.

NOTE: If the piece of conduit being bent is long and is putting too much weight on the back of the bender, extend the back foot to give the bender more balance. **See Figure 15**

8. To rotate the shoe in the bend direction, the Direction Switch on the PT200 should be set to the right position. Rotate the bending shoe by either pulling the trigger on the Pendant or the Power Driver itself if the Pendant is not being used. Continue to hold down the trigger to rotate the shoe until the Indicator Arrow on the shoe lines up with the angle you are bending to on the Angle Indicator Dial. If you did not compensate for spring back when zeroing the bender at the start of the bend you may need to go past the angle you are bending to by several degrees. **“See 5.4 Spring Back Values”**

NOTE: When using the Pendant the threader may coast by several degrees at the end of the bend depending on the size and type of conduit being bent. To bend to a precise angle with accuracy you should ease up on the Pendant as you get close to the desired bend angle to slow down the speed of the bender rotation.

NOTE: When bending larger sizes of rigid conduit the conduit will back drive the threader by several degrees at the end of the bend. This is normal and can be ignored. The angle reached before the threader back drive is the angle that the conduit was bent to.

9. Once the desired angle is reached, switch the Direction Switch on the PT200 to the left to reverse the direction of the Power Driver. Pull and hold the trigger to release the conduit. If the Pendant is being used the Power Driver trigger will need to be unlocked first before the Direction Switch can be changed.

4.3 Bending with an 11-R Threader (Not the Gardner Bender PT200 Power Driver)

NOTE: Read through and understand the instructions for the power driver you are using before using it with this bender.

1. If the 12-R die adapter attachment is on the bender it must be removed to attach an 11-R threader. To remove the 12-R die adapter attachment from the bender use a 3mm metric Allen wrench to release the set screw on each side of the attachment and slide it off the bender. **See Figure 8 and Figure 9**
2. The post on the back of the bender must be in the correct position to properly align with the clamp rod slot on the Power Driver. If it is not in the correct position, use a 3mm metric Allen wrench to unscrew the 4 screws holding the back plate in position. Rotate the back plate and post as necessary and screw the 4 screws back into place. Installation of the Post Adapter may be necessary to stabilize threaders with a larger clamp rod slot. **“See 6.5 Post Adapter”**. **See Figure 10**
3. Slide the Power Driver onto the 11-R Die Adapter on the back of the bender. The retaining ring inside the threader head should click into place onto the grooves on the die adapter. If the power driver is not easily sliding on to the bender you may need to slightly rotate the Die Adapter to make sure it is aligned with the octagonal shape of the threader head. The post on the back of the bender should be positioned into the clamp rod slot on the Power Driver.
4. The bender can be used either with or without the pendant trigger. If the pendant trigger is being used, plug the cord on the trigger into the Speed Control Box. Plug the power cord on the threader into the female cord on the Speed Control Box. Plug the male cord on the Speed Control Box into the nearest outlet or extension cord. **See Figure 11 and Figure 12**

NOTE: If the threader being used is a cordless threader, the pendant will not be compatible with it since the pendant needs to be plugged in to a power cord to function.



Figure 16. A cable tie or strap may be needed to keep trigger squeezed

5. When the pendant is being used, the threader trigger must either be continuously squeezed, or the locking switch must be engaged if the threader has a locking switch built in. If the threader does not have a locking switch, it is recommended to use a cable tie, strap, or similar device to keep the trigger held down during use. **See Figure 16**

NOTE: Make sure to release the locking mechanism whenever the Pendant Trigger is no longer being used. If the Locking Switch is engaged when the threader is plugged in without the Pendant Trigger it will immediately begin rotating, which could be hazardous.

6. Repeat steps 6 through 9 from section **“4.2 Bending with the Gardner Bender PT200 Power Driver”**.

NOTE: There may be some slight variations in the instructions based on how the threader being used functions.

4.4 Bending with a 12-R Threader

NOTE: Read through and understand the instructions for the power driver you are using before using it with this bender.

1. If the 12-R die adapter attachment is not on the bender it must be attached to slide on a 12-R threader. To attach the 12-R die adapter attachment onto the bender slide it on over the 11-R Adapter and use a 3mm metric Allen wrench to tighten the set screw on each side of the attachment. **See Figure 8 and Figure 9**
- NOTE:** The 12-R adapter will slightly wiggle when slid over the 11-R adapter. Slightly rotate the 12-R adapter counter-clockwise and hold in place while tightening set screws. Do not fully tighten one set screw before tightening the other. Tighten both screws simultaneously, periodically switching between the two. This will allow the adapter to properly turn concentrically after installation and avoid damage to the bender.
2. The post on the back of the bender must be in the correct position to properly align with the clamp rod slot on the Power Driver. If it is not in the correct position, use a 3mm metric Allen wrench to unscrew the 4 screws holding the back plate and post as necessary and screw the 4 screws back into place. Installation of the Post Adapter may be necessary to stabilize threaders with a larger clamp rod slot. **“See 5.5 Post Adapter”**. **See Figure 10**
 3. Slide the threader onto the 12-R Die Adapter on the back of the bender. The two retention locks on either side of the die head should click into place into the pockets on the die adapter. The post on the back of the bender should be positioned into the clamp rod slot on the Power Driver.
 4. The bender can be used either with or without the pendant trigger. If the pendant trigger is being used, plug the cord on the trigger into the Speed Control Box. Plug the power cord on the threader into the female cord on the Speed Control Box. Plug the male cord on the Speed Control Box into the nearest outlet or extension cord. **See Figure 11 and Figure 12**

NOTE: If the threader being used is a cordless threader, the pendant will not be compatible with it since the pendant needs to be plugged in to a power cord to function.

4.4 Bending with a 12-R Threader (cont.)

5. When the pendant is being used, the threader trigger must either be continuously squeezed, or the locking switch must be engaged if the threader has a locking switch built in. If the threader does not have a locking switch, it is recommended to use a cable tie, strap, or similar device to keep the trigger held down during use.

NOTE: Make sure to release the locking mechanism whenever the Pendant Trigger is no longer being used. If the Locking Switch is engaged when the threader is plugged in without the Pendant Trigger it will immediately begin rotating, which could be hazardous.

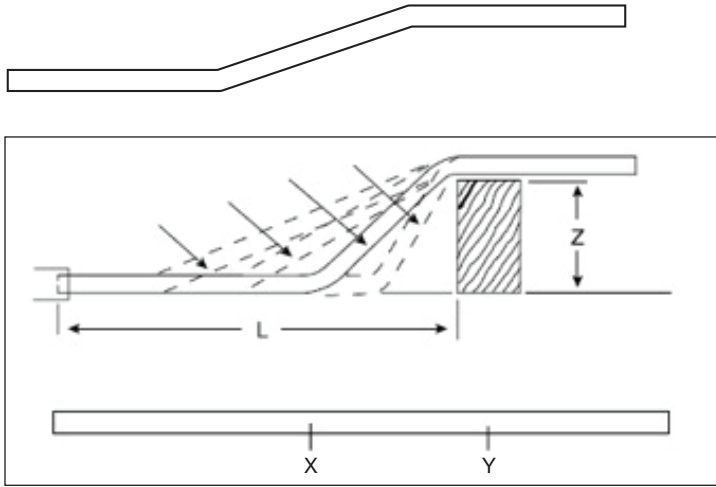
6. Repeat steps 6 through 9 from section "4.2 Bending with the Gardner Bender PT200 Power Driver".

NOTE: There may be some slight variations in the instructions based on how the threader being used functions.

5.0 MARKINGS AND BENDING GUIDE

These instructions are brief and will not cover all possible scenarios. Consult a conduit bending guide for more in-depth instructions. The instructions below are similar to the procedure that would apply when bending using a hand bender.

5.1 Offset Bending



(For pre-determined values use chart below)

Measure height of offset (Z) and multiply by a constant multiplier per angle of bend (see chart below) to determine distance between bends. Measure length (L) from end of conduit to offset and add shrinkage (see chart below). Mark this length on conduit (Y). Subtract distance between bends and mark point (X). Using arrow on bender, make desired bend at point (X). Reverse bender and repeat at point (Y).

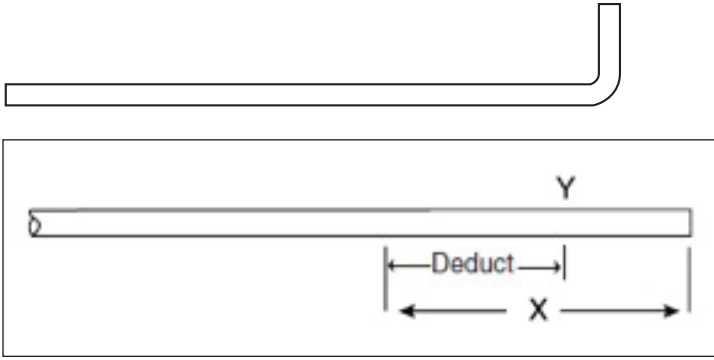
This chart is a guide for computing shrinkage. Remember, shrinkage values are only used when working into objects, not away. The Constant Multipliers below can also be found on the Angle Indicator Dial on the bender.

ANGLE OF BEND	CONSTANT MULTIPLIER	SHRINKAGE/INCH (25.4 MM) OF OFFSET DEPTH
10°	6.0	1/16" (1.6 mm)
22-1/2°	2.6	3/16" (4.8 mm)
30°	2.0	1/4" (6.1 mm)
45°	1.4	3/8" (9.5 mm)
60°	1.2	1/2" (12.3 mm)

Recommended Angle Bends per Offset Depths

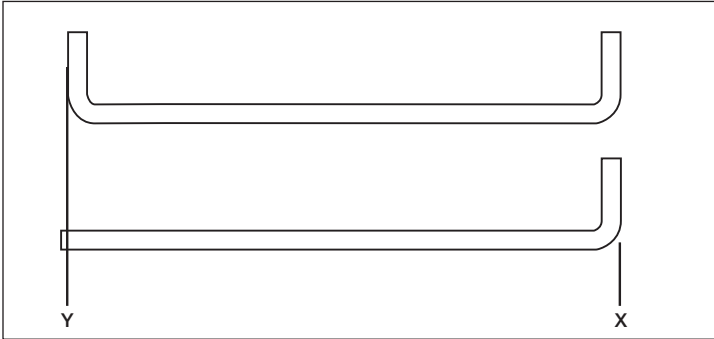
OFFSET DEPTH	ANGLE OF BEND	DISTANCE BETWEEN	CONDUIT SHORTENS
1" (2.5 cm)	10°	6" (15 cm)	1/16" (2 mm)
2" (5 cm)	22-1/2°	5-1/4" (13.5 cm)	3/8" (10 mm)
3" (7.5 cm)	30°	6" (15 cm)	3/4" (19 mm)
4" (10 cm)	30°	8" (20.5 cm)	1" (26 mm)
5" (12.5 cm)	45°	7" (18 cm)	1-7/8" (48 mm)
6" (15 cm)	45°	8-1/2" (21.5 cm)	2-1/4" (55 mm)
7" (17.5 cm)	45°	9-3/4" (25 cm)	2-5/8" (67 mm)
8" (20,5 cm)	45°	11-1/4" (28.5 cm)	3" (76 mm)
9" (23 cm)	45°	12-1/2" (32 cm)	3-3/8" (86 mm)
10" (25,5 cm)	45°	14" (35,5 cm)	3-3/4" (95 mm)

5.2 90° Stub-up Bending



Measure length of bend (X). Subtract the bender deduct length found next to the arrow on the bending shoe from length (X) and mark this length from the end of the conduit (Y). Line up (Y) with arrow on bender. Bend until 90° bend is formed.

5.3 Back-to-Back Bending



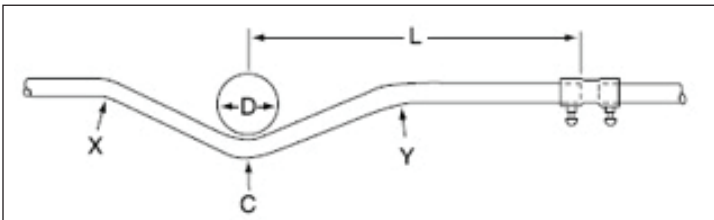
Measure and mark distance on the conduit from a fixed point (X), to the back of the 90° bend, point (Y). Align (Y) with the "Back of 90°" Star on bender and make a 90° bend. The conduit should be loaded into the bender with the unbent length of conduit first and the first bend behind the bender.

3-Point Saddle Bending



Measure the diameter (D) of the object (not to exceed 6"). Take length (L) and add 3/16" for every inch of the object size. Mark this length © from the end of the conduit. Multiply diameter (D) by 2.5 and mark this length to the left (X) and right (Y) of point ©. Align point © with the 45° rim notch on the bending shoe and make a 45° bend. Reverse conduit with bender, line up arrow on bender with point (X) and make a 22-1/2° bend. Repeat with point (Y).

5.4 Spring Back Values



Approximate Spring back values for a 90° bend are below. These values are only estimates and may vary slightly based on the brand of conduit being used:

Conduit Size	DEGREES OF SPRING BACK	
	EMT	Rigid/IMC
1/2"	5°	6°
3/4"	6°	7°
1"	7°	8°

6.0 OTHER FEATURES

6.1 Removing the Angle Indicator Dial

The Angle Indicator Dial on the front of the bender can be removed to use the center of the shoe as a storage area for the 12-R adapter or Pendant and Switch Control when they are not in use. To remove the front dial, push up on the “OPEN” tab on the face of the bender and pull off the dial. To put the dial back on, slide the dial up on to the center hole until the latches on the backside of the dial catch the rim of the hole. The dial may need to be slightly flexed outward to bend it over the rim. Push the “OPEN” tab back down to ensure that the dial is tightly secured to the bender. **See Figure 17 and Figure 18**

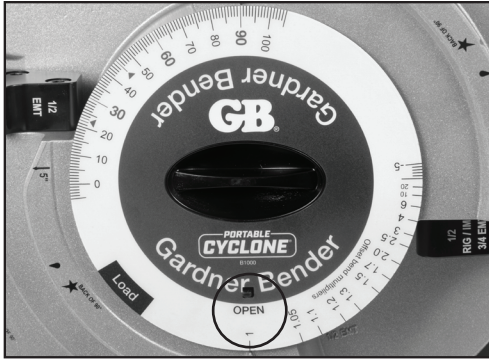


Figure 17. Push the OPEN Tab to Remove Dial

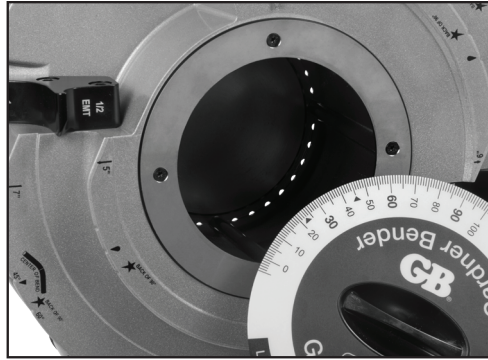


Figure 18. Use the Center Compartment as Storage

6.2 Removing the Legs

The 3 legs on the backside of the bender can be unscrewed to attach custom-length legs. Simply unscrew the legs and use any 3/4" NPT pipe to replace them. This can be done in situations where a third-party threader is being used that requires longer legs to bend in the horizontal position, to make a taller base for the bender, or to replace the legs if they become damaged. **See Figure 19 and Figure 20**

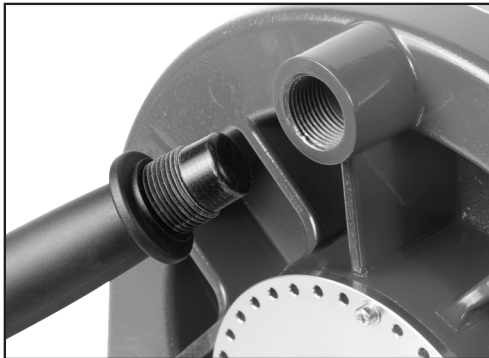


Figure 19. Unscrew the Legs on the Bender

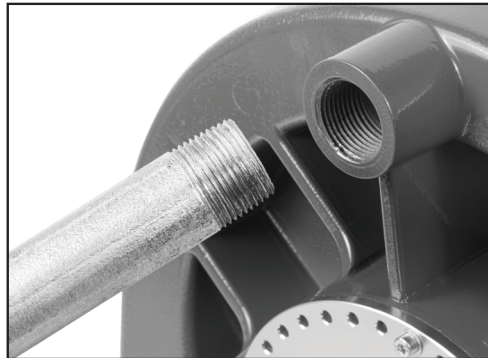


Figure 20. Use Any 3/4" NPT Pipe

6.3 Removing the Base and Feet

The bender can be removed from its base. Use a 4mm metric Allen wrench to release the 4 screws holding the bender to its base. The bender can be moved and attached to any portion of the base. The feet can also be removed by using a 4mm metric Allen wrench if they become damaged and need to be replaced. **See Figure 21 and Figure 22**



Figure 21. Remove Screws to Adjust Position or Remove from Base



Figure 22. Remove Screws to Remove Feet

6.4 Bolting the Bender to a Fixture

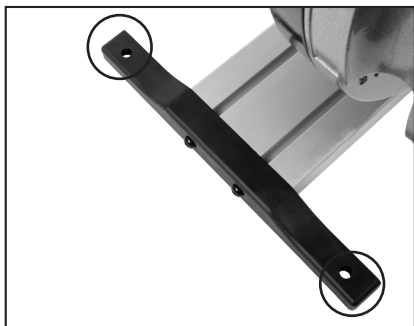


Figure 23. Use Mounting Holes to Attach Bender to Fixture

There are 4 holes on the feet of the bender that can be used to bolt the bender onto a fixture or table to keep it in place while bending. See Figure 23

6.5 Post Adapter

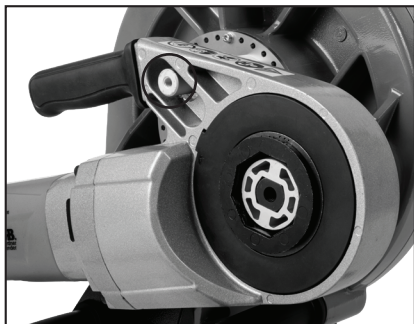


Figure 24. Post Adapter Placement on Bender

The Post Adapter may be required when using threaders that have a larger clamp rod slot. Thread the Post Adapter to the Post on the back of the bender. This is used to give the threader more stability during bending. See Figure 24

6.6 Horizontal Threader Mounting Hardware

To use the bender in the horizontal orientation with custom extended length legs the threader will need to be secured to the bender or a platform will need to be added to these extended legs. To secure the threader to the bender use the Horizontal Threader Mounting Kit or install the items below onto the bender. These parts can be found at most local hardware stores.

- (1) 5/16-18 x 5/8" UNC 2A Flanged Hex Head Bolt
- (1) 5/16" x 2" x 0.050" Fender Washer
- (1) 3/4" x 2" x 0.150" Fender Washer
- (1) 20mm Shaft Collar (Set screw type)

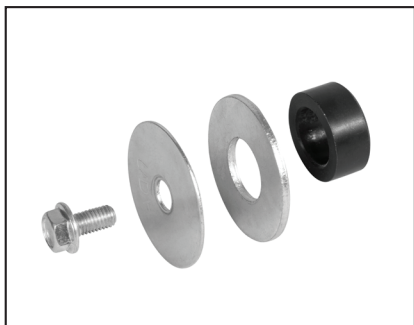


Figure 25. Horizontal Threader Mounting Hardware

To mount the PT200 Power Driver using mounting hardware slide the shaft collar onto the post on the back of the bender, followed by the 3/4" washer. Next, slide the PT200 onto the back of the bender until its retaining ring engages with the first notch on the 11-R die adapter. Slide the 5/16" washer onto the back post and screw the bolt into the end of the post. Tighten the bolt by hand. Once it is tight slide the shaft collar and 3/4" washer towards the threader and tighten the shaft collar to lock the threader in place. Finish tightening the bolt using a wrench to make sure the threader is tightly secured to the bender post. See Figure 25 and Figure 26

NOTE: There may be some slight variations in the instructions and mounting hardware required based on the threader being used.



Figure 26. PT200 mounted onto the B1000 using mounting hardware

7.0 MAINTENANCE

The Portable Cyclone® is largely maintenance free. The roller, ring gear, and pinion gear are lubricated from the factory. This grease will become dirty and contaminated over time and should be removed and replaced periodically. The service intervals between cleaning and regreasing will vary based on use.

The spindle bearing is a self lubricating polymer bearing. Lubrication is not required but one of the lubricants below can be applied if desired.

Recommended Lubricants:	Not Recommended Lubricants:
Waylube Oil	PTFE Sprays
Lightweight Oils	WD-40
Petroleum-Based Grease	Fluorocarbons
3-in-1 Oils	Silicone Oils, Grease or Spray

During initial startup out of the box and under heavy loads you may hear popping or unusual sounds. This should go away after a brief break in period. If it does not go away please contact Gardner Bender customer service.

The roller may wear down over time. If the roller looks damaged or worn and it is causing the conduit to be damaged, flattened, or kinked during bending the roller should be replaced.

Contact Gardner Bender Customer Service if there are any issues with the bender or replacement parts are required.

<https://www.gardnerbender.com/en/Contact>

Email: tech.support@gardnerbender.com

8.0 FEEDBACK



Scan this QR code to provide feedback on the Portable Cyclone®

9.0 WARRANTY INFORMATION

GARDNER BENDER LIMITED WARRANTY: Gardner Bender warrants its product against defects in workmanship and materials for 1 year from date of delivery to user. Chain is not warranted. Warranty does not cover ordinary wear and tear, abuse, misuse, overloading, altered products or use of improper fluid.

LIMITED: Limited means that GB warrants to the original purchasers of products from GB authorized distributors at the time of shipment such products shall be free of defects in material and workmanship while the tool is used under normal working conditions. Standard wear and tear, dulling over time, overloading, misuse, and acts of God are not covered under warranty. This warranty does not cover batteries, fuses, or test leads.

When a warranty claim arises, the purchaser must contact GB. If the defect comes under the terms of this limited warranty,

GB will arrange, at its sole discretion, one of the following options:

- The product will be repaired at an authorized GB Service Center
- Product will be replaced

The purchaser is solely responsible for determining the suitability of GB for the purchaser's use or resale, or for incorporating them into articles or using them in the purchaser's applications. The distributor is authorized to extend the foregoing limited warranty to its original purchasers in connection with the sales of GB products, provided that such products shall not have been altered by the distributor. The distributor shall be fully responsible for any warranties the distributor makes to its purchasers which are broader or more extensive than GB limited warranty.

LIFETIME WARRANTY

Warranty Limitation: The forgoing warranties are exclusive and are in lieu of all other express and implied warranties whatsoever, including but not limited to implied warranties of merchantability and fitness for a particular purpose. The foregoing warranties do not cover ordinary wear and tear, abuse, misuse, overloading, alterations, products which have not been installed, operated or maintained in accordance with GB written instructions. Test leads, fuses, and batteries are not covered under any implied warranty. "Lifetime" of products that are no longer offered by GB will be either repaired or replaced with an item of GB Instruments choice of similar value. Lifetime is defined as 5 years after GB discontinued manufacturing the product, but the warranty period shall be at least ten years from date of purchase. Original proof of purchase is required to establish original ownership of product. No warranty will be honored unless an invoice or other proof of purchase date is provided to Gardner Bender. Hand written receipts or invoices will not be honored.

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