

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

22c

DOYLE™

PREMIUM RATCHETING TUBE BENDER KIT FOR SIZES 1/4" TO 7/8"



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

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When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein.
Tools required for assembly and service may not be included.

⚠ WARNING

Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.

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SAFETY

SETUP

OPERATION

MAINTENANCE

WARNING SYMBOLS AND DEFINITIONS

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

WARNING

Read all safety warnings and all instructions.

Failure to heed these markings may result in personal injury and/or property damage.

1. Wear ANSI-approved safety goggles, heavy-duty work gloves, and steel-toe work boots during set up and/or use.
2. **To prevent injury from burns, do not apply heat to pipe.**
3. Use only on free standing pipe. Do not use on pipe that is part of an assembly or that is installed into a structure.
4. Use for aluminum and copper tubing only
5. Study, understand, and follow all instructions before operating this device.
6. Inspect lines carefully after forming; discard damaged or malformed lines.
7. Do not use on painted pipe or pipe that has debris on it.
8. Keep bystanders out of work area.
9. Inspect before every use; do not use if parts are loose, damaged.
10. No alterations shall be made to this product.
11. This product is not a toy. Keep it out of reach of children.
12. Maintain labels and nameplates. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
13. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



SAVE THESE INSTRUCTIONS.

Specifications

Mandrel Range	1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8"
Max. Bending Angle	90 degrees
Pipe Type	Soft aluminum and soft copper tube

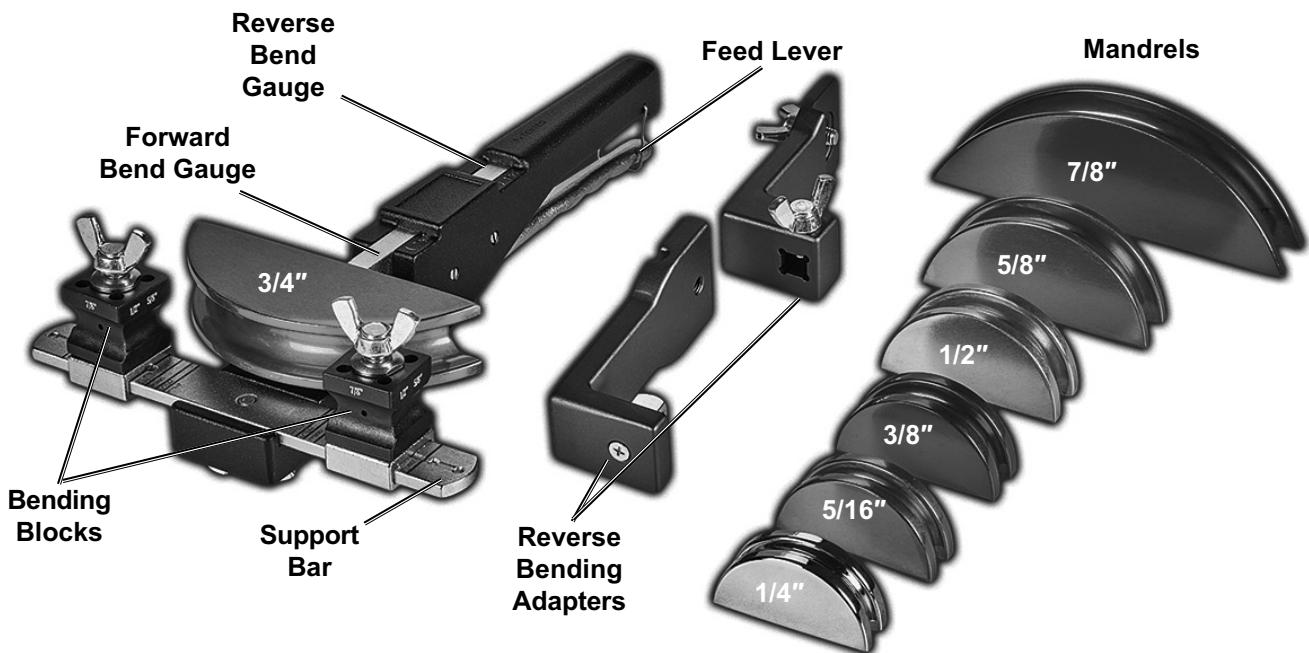
Setup - Before Use:



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Note: For additional information regarding the parts listed in the following pages, refer to *Parts List and Diagram* on page 6.

Functions



Forward Tube Bending

SAFETY

CAUTION! TO PREVENT INJURY: Only use soft aluminum and soft copper tube.

Note: Practice on scrap work pieces until familiar with Tube Bender capabilities.

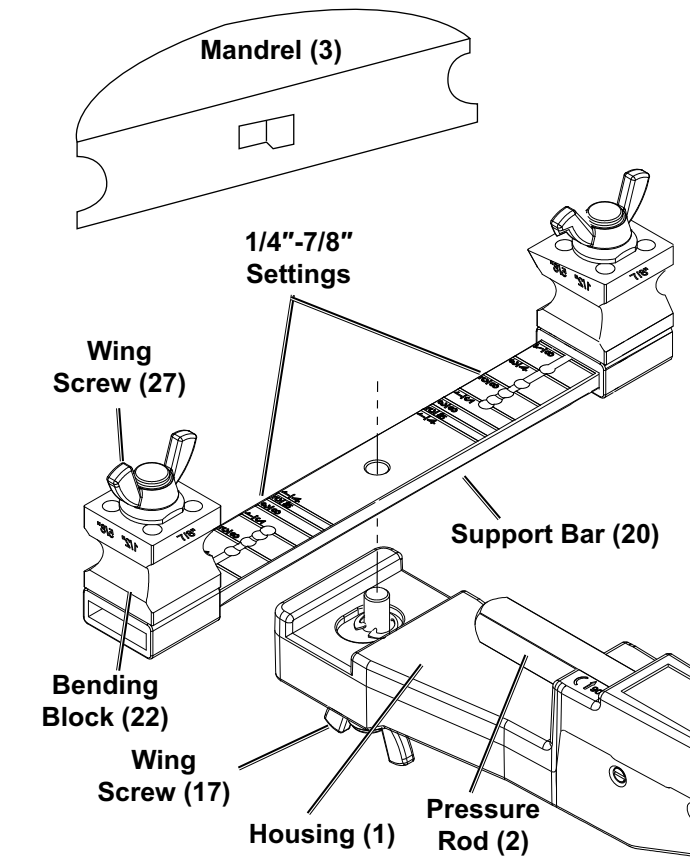
1. Release Feed Lever (8) and then hold Housing (1) upright to allow Pressure Rod (2) to retract with gravity.
2. Slide desired size Mandrel (3) onto Pressure Rod.
3. Loosen two Wing Screws (27) on Bending Blocks (22) then set Bending Blocks on Support Bar (20) settings to match Mandrel size.

SETUP

Note: Bending Blocks will rotate freely after Wing Screws are tightened.

4. Tighten two Wing Screws.
5. Place Support Bar Assembly onto Housing.
6. Tighten Wing Screw (17).
7. Match Bending Block size to Mandrel size by rotating Bending Blocks until correct size is facing Mandrel.

OPERATION



Note: Use only with tube size that matches the Mandrel size exactly. **Tube will deform significantly if it does not match the Mandrel size exactly.**

8. Place tube between Mandrel and Bending Blocks.
9. Squeeze Feed Lever repeatedly until tube is bent to desired angle.

MAINTENANCE

Reverse Tube Bending

CAUTION! TO PREVENT INJURY: Only use soft aluminum and soft copper tube.

Note: Practice on scrap work pieces until familiar with Tube Bender capabilities.

1. Release Feed Lever (8) and then hold Housing (1) upright to allow Pressure Rod (2) to retract with gravity.
2. Place Reverse Adapter 2 (5) onto Pressure Rod.
3. Place Reverse Adapter 1 (4) onto Housing.
4. Tighten Wing Screw (17).
5. Place desired size Mandrel (3) onto Reverse Adapter 1.
6. Place Support Bar (20) Assembly onto Reverse Adapter 2 upside down.
7. Tighten Wing Screw (27).

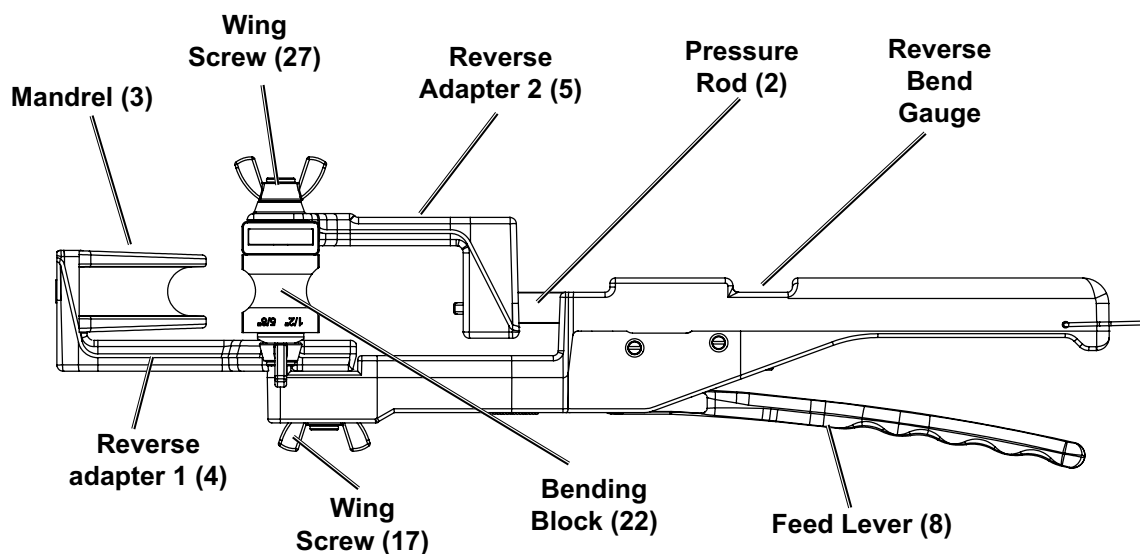
8. Loosen two Wing Screws (27) on Bending Blocks (22) then set Bending Blocks on Support Bar settings to match Mandrel size.

Note: Bending Blocks will rotate freely after Wing Screws are tightened.

9. Tighten two Wing Screws.
10. Match Bending Block size to Mandrel size by rotating Bending Blocks until correct size is facing Mandrel.

Note: Use only with tube size that matches the Mandrel size exactly. **Tube will deform significantly if it does not match the Mandrel size exactly.**

11. Place tube between Mandrel and Bending Blocks.
12. Squeeze Feed Lever repeatedly until tube is bent to desired angle.



Maintenance and Servicing Instructions



Procedures not specifically explained in this manual must be performed only by a qualified technician.

WARNING

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:

Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

1. **BEFORE EACH USE**, inspect the general condition of the Tube Bender. Check for:
 - loose hardware,
 - misalignment or binding of moving parts,
 - cracked or broken parts,
 - any condition that may affect its safe operation.

If a problem occurs, have the problem corrected before further use.

Do not use damaged equipment.

2. **AFTER EACH USE**, wipe with a clean cloth. Store indoors out of children's reach.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Parts List

Part	Description	Qty
1	Housing	1
2	Pressure Rod	1
3	Mandrel	7
4	Reverse Adapter 1	1
5	Reverse Adapter 2	1
6	Wing Screw	1
7	Wing Screw	1
8	Feed Lever	1
9	Spring	1
10	Pressure Spring	1
11	Head Screw	1
12	Flat Spring	1
13	Catch Lever	1
14	Catch Bolt	1
15	Fillister Head Screw	2
16	Spiral Pin	2

Part	Description	Qty
17	Wing Screw	1
18	Sheet Metal Screw	1
19	Clamping Spring	1
20	Support Bar	1
21	Sliding Block	2
22	Bending Block	2
23	Indexing Head	2
24	Spring	2
25	Pin	2
26	Cap	2
27	Wing Screw	2
28	Spring	2
29	Pin	2
30	Spring	2
31	Steel Ball	2

SAFETY

SETUP

OPERATION

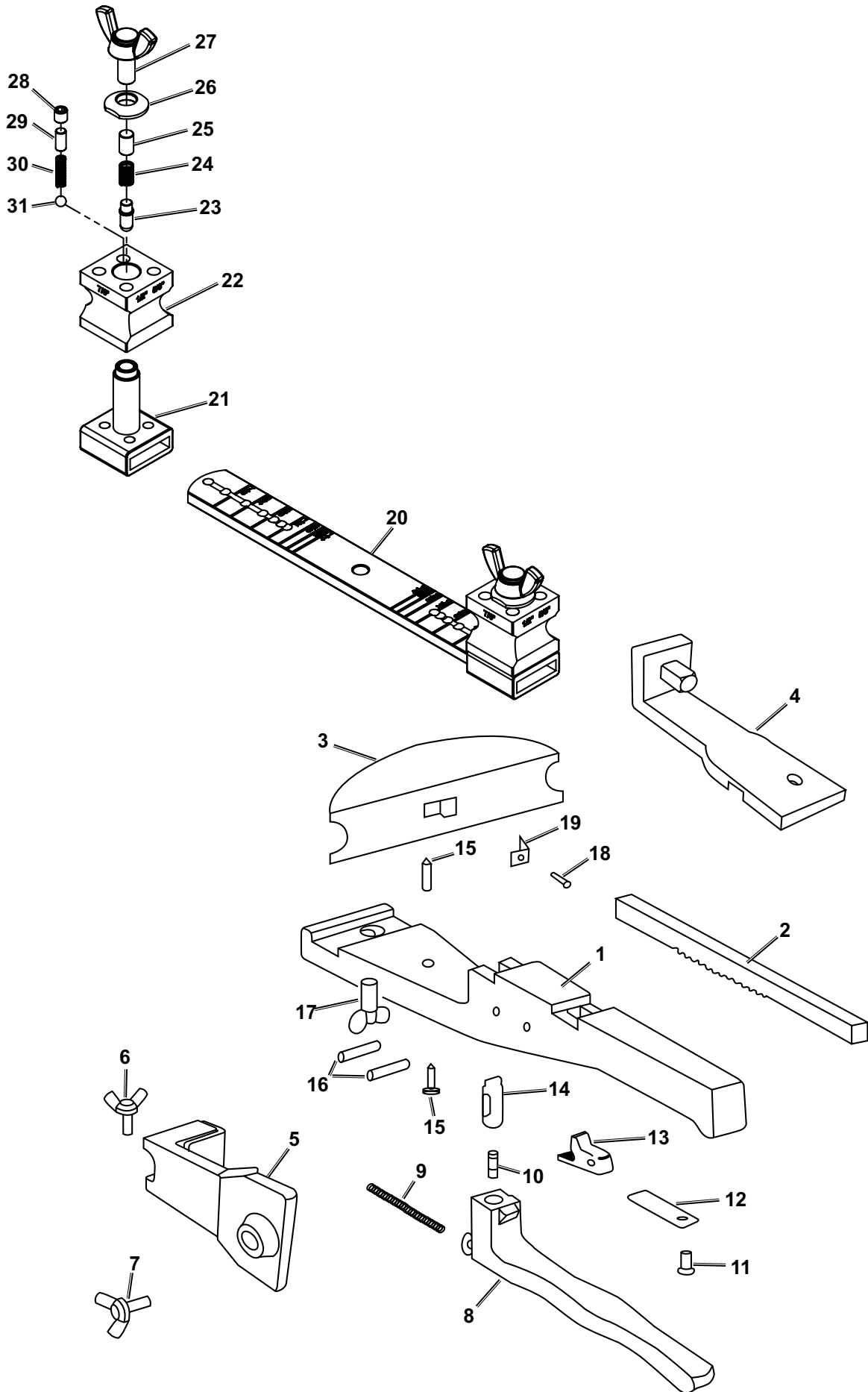
MAINTENANCE

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175443724 when ordering parts.

Assembly Diagram



SAFETY

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Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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