

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Westward® Hydraulic Pipe Bender

Description

Westward hydraulic pipe bender is designed to be used for mild steel pipe bending. System features heavy steel welded construction, complete with 8 forming attachments for a wide variety of pipe diameters, and built-in pressure by-pass system to protect from overload operation. Capable of bending standard steel pipes from 1/2" up to 3" diameters. Minor distortion can occur since the pipe is not internally supported.

Specifications

Model	Cylinder Capacity	Product Size	Max. Working Pressure	Cylinder Stroke	Attachment (Shoe Range)
1VW36A	15 Ton (30,000 Lb.)	31-1/8" x 30-3/8" x 38-1/8"	10,000 PSI	9-7/8"	8 Pcs (1/2"~3")

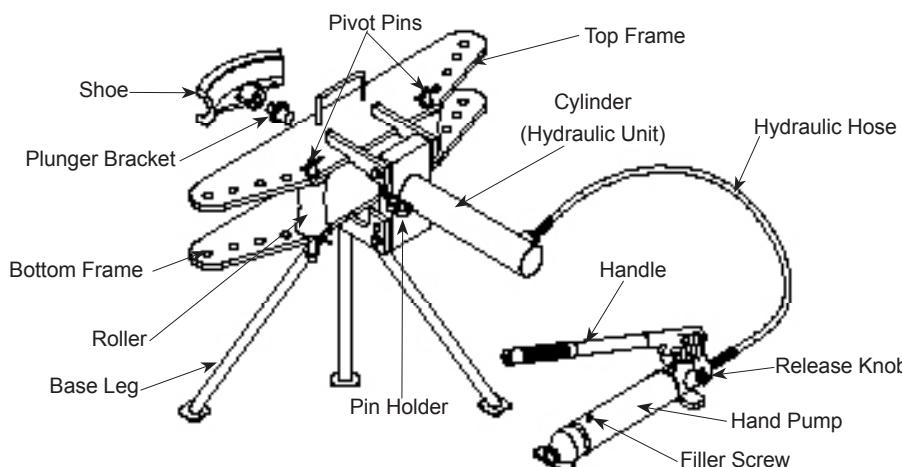


Figure 1 - Hydraulic Pipe Bender Components

General Safety Information

WARNING Study, understand, and follow all instructions before operating this device. Do not exceed rated capacity. Use only on hard, level surfaces. Ensure that the bend point is properly on the shoe. Always wear safety goggles when using this equipment. Inspect hydraulic unit before each use. Do not use if bent, broken, leaking, or damaged components are noted. No alteration of this product is allowed. Do not use this device for any purpose other than that for which it was intended. Failure to heed any one or a combination of these warnings may result in severe personal injury and/or property damage.

Assembly

Use Figure 3 (on page 3) as reference.

1. Attach three base legs (#14) onto base bracket (#13) and secure by lock pins (#11) and snap pins (#12).
2. Attach frame assembly (#8 & 9) onto base bracket (#13) and secure with allen bolt (#5).
3. Attach two rollers (#4) between lower frame (#8) and top frame (#9), then secure the rollers between frames in suitable hole with pivot pin (#10) and snap pin (#7).
4. Thread cylinder (#1) into cylinder bracket (#2).
5. Connect hand pump (#3, hydraulic

hose) to cylinder.

6. Place a suitable shoe (#15 ~ #22) onto plunger bracket (#6).

Operation

CAUTION Before starting, be sure pivot pins are through bottom frame and secured in position with snap pin. Locate the size of conduit / pipe you are bending, and select the suitable shoe. Always measure conduit prior to bending. Do not pull, push or lean against assembled bender.

BENDING

1. Refer to table 1 on page 2 to select the correct shoe size for pipe. Attach shoe on plunger bracket.
2. Measure minimum length of pipe required on each end from table 1. Position roller and ensure the pivot pins go through both frames and are secured with snap pins.
3. Mark the desired bend location on pipe. Place pipe into bender and align the mark with the center of the bending shoe.
4. Operate the hand pump slowly and check the bend angle occasionally until desired angle is meet.

CAUTION This pipe bender is not designed for thin wall tubing. Operating on thin wall tubing can cause tubing breakage and collapse.

RELEASE PIPE

1. Retract the cylinder by slowly turning the release knob counterclockwise. Release speed can be controlled by the amount the release knob is turned.
2. Remove left side pivot pin and roller. Place pivot pin in pin holder.
3. Remove pipe from bender after cylinder plunger is fully retracted.

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Size of shoe	
# 15 - 1 1/2"	max. bend angle 62°
# 16 - 3/4"	max. bend angle 75°
# 17 - 1"	max. bend angle 85°
# 18 - 1 1/4"	max. bend angle 99°
# 19 - 1 1/2"	max. bend angle 80°
# 20 - 2"	max. bend angle 80°
# 21 - 2 1/2"	max. bend angle 97°
# 22 - 3"	max. bend angle 91°

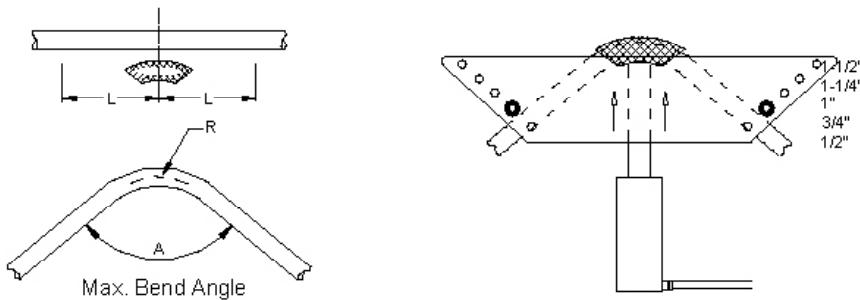


Figure 2 - Bending reference drawing for 1VW36A

Nominal Pipe Size (Outside Diameter)	Schedule Pipe	Wall Thickness (in)	Suitable Shoe	Pipe Bend Inside Radius "R"	Minimum Distance "L"
1/2" (0.84")	40, 80	0.109, 0.147	1/2"	3-1/4"	7-1/2"
3/4" (1.06")	40, 80	0.113, 0.154	3/4"	4-1/2"	8-3/4"
1" (1.32")	40, 80	0.133, 0.179	1"	5-3/4"	10-1/4"
1-1/4" (1.66")	40, 80	0.140, 0.191	1-1/4"	7-1/4"	11-1/2"
1-1/2" (1.90")	40, 80	0.145, 0.200	1-1/2"	8-1/4"	13-1/4"
2" (2.38")	40, 80	0.154, 0.218	2"	9-1/2"	15"
2-1/2" (2.88")	40	0.203	2-1/2"	11-1/4"	16-3/4"
3" (3.50")	40	0.216	3"	13"	18-1/2"

Table 1- Shoe and pipe size references

CAUTION Use only a good grade hydraulic oil (Mobil DTE 13M or equivalent), avoid mixing types of oil. Do not use brake fluid, alcohol, glycerin, motor oil, or dirty oil. Improper fluid can cause serious internal damage to the jack rendering it inoperative.

Maintenance

1. Keep cylinder retracted and pump release knob closed when not in use.
2. Avoid sharp kinks in hydraulic hose (broken hydraulic hose and high-pressure fluid can cause injury).
3. Check pump every 3 months, if hydraulic oil is required (cylinder extends less than 9 7/8"), refill at filler screw hole.

4. Replace damaged components with factory authorized replacement parts only.

REPLACING OIL

For best performance and long life, replace the complete fluid supply at least once a year.

1. Remove oil filler screw by turning counter-clockwise.
2. Turn pump over and drain oil out through oil filler screw hole. Dispose oil in accordance with local regulations
3. Refill with new oil through the oil filler screw hole.

Note: Do not allow dirt or other foreign material to enter the hydraulic system when filling.

4. After refilling, remove air from system by opening release valve and rapidly pumping handle several times. Reinstall oil filler screw when done.

LUBRICATION

1. Apply a coating of light lubrication oil to pivot points, axles and hinges every 3 months.

RUST PREVENTION

1. Periodically check the pump piston and cylinder for signs of rust or corrosion.
2. Clean as needed and wipe with a clean, oil saturated cloth.

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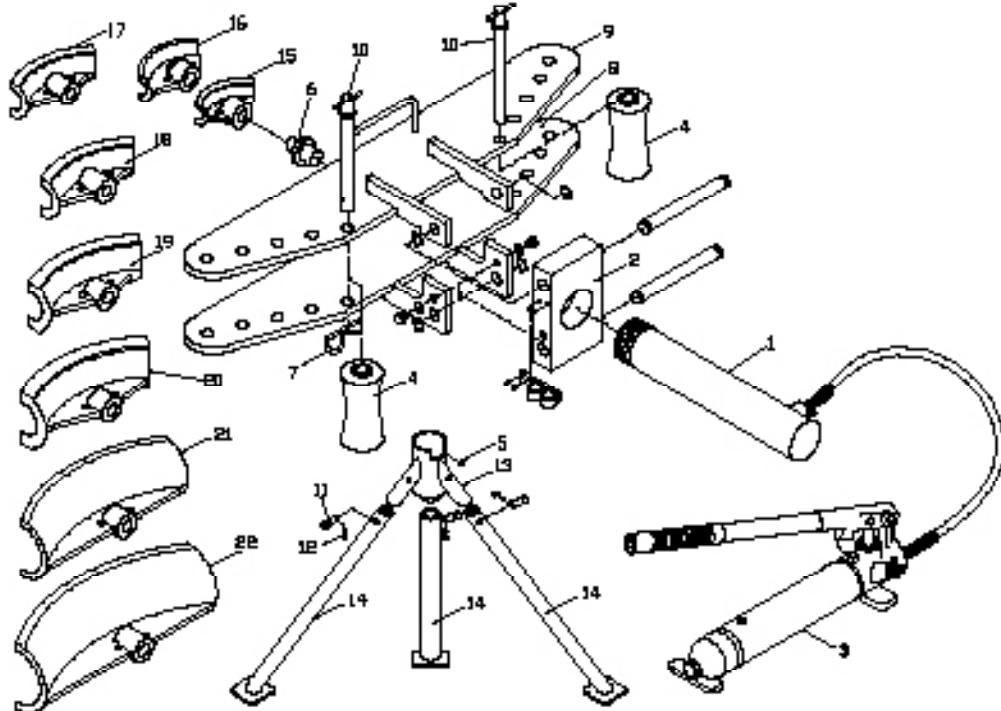


Figure 3 - Assembly reference drawing for 1VW36A

LIMITED WARRANTY

WESTWARD ONE-YEAR LIMITED WARRANTY. *Hydraulic Pipe Bender*, Model covered in this manual, are warranted by Westward to the original user against defects in workmanship or materials under normal use for one year after date of purchase. For limited warranty claim procedures, see **PROMPT DISPOSITION** below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.

LIMITATION OF LIABILITY. To the extent allowable under applicable law, Westward's liability for consequential and incidental damages is expressly disclaimed. Westward's liability in all events is limited to and shall not exceed the purchase price paid.

WARRANTY DISCLAIMER. Westward has made a diligent effort to provide product information and illustrate the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are **MERCHANTABLE**, or **FIT FOR A PARTICULAR PURPOSE**, or that the products will necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in the "LIMITED WARRANTY" above is made or authorized by Westward.

PRODUCT SUITABILITY. Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Westward attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this Limited Warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

PROMPT DISPOSITION. Westward will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Westward at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

Manufactured for Grainger International, 100 Grainger Pkwy., Lake Forest, Illinois 60045 U.S.A.

For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

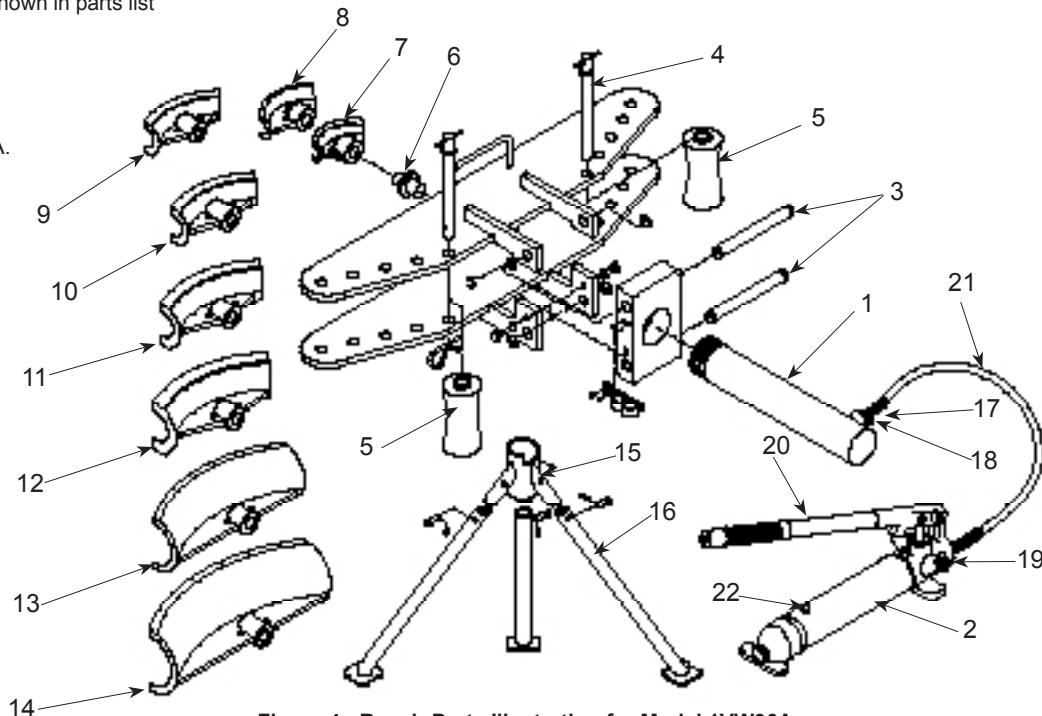


Figure 4 - Repair Parts Illustration for Model 1VW36A

Repair Parts List

Reference Number	Description	Part Number For Model: 1VW36A	Quantity
1	Hydraulic Unit, 15 Ton (Cylinder)	F150-20000-000	1
2	Hand Pump Assembly	F100-20000-000	1
3	Pin	T090-00013-000	2
4	Pivot Pin	T090-05000-000	2
5	Roller	T090-00012-000	2
6	Plunger Bracket	T090-00015-000	1
7	Shoe - 1/2", max. bend angle 62°	T090-00001-000	1
8	Shoe - 3/4", max. bend angle 75°	T090-00002-000	1
9	Shoe - 1", max. bend angle 85°	T090-00003-000	1
10	Shoe - 1 1/4", max. bend angle 99°	T090-00004-000	1
11	Shoe - 1 1/2", max. bend angle 80°	T090-00005-000	1
12	Shoe - 2", max. bend angle 80°	T090-00006-000	1
13	Shoe - 2 1/2", max. bend angle 97°	T090-00007-000	1
14	Shoe - 3", max. bend angle 91°	T090-00008-000	1
15	Leg Holder	T090-03000-000	1
16	Base Leg	T090-04000-000	3
17	Hose Coupler - Male	F040-90009-kK05	1
18	Cylinder Coupler - Female	F040-90009-K04	1
19	Release Knob	F040-21000-000	1
20	Pump Handle	F100-90009-K01	1
21	Hydraulic Hose	F040-22000-000	1
22	Oil Filler Screw	F040-90107-K02	1