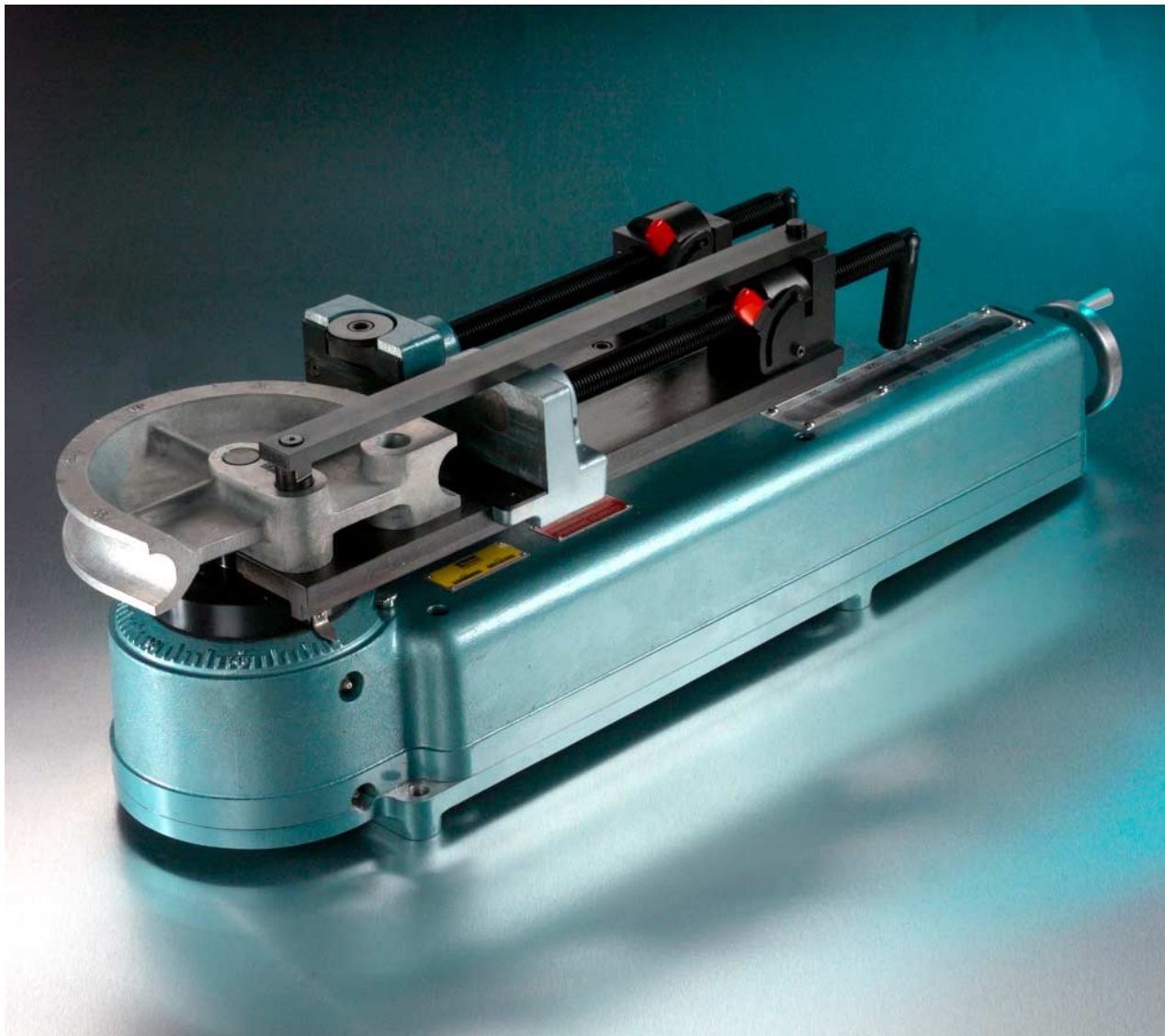


## Parker Hydraulic Tube Bender, Model HB632



***The Fitting Authority***

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# Parker Hydraulic Tube Bender

## Model HB632

For 3/8" - 2" (10-50mm) tubing and 3/8 to 1 1/2 IPS

The Parker Model HB632 Tube Bender is a hydraulically operated bender for bending annealed steel and stainless steel tubing from 3/8" O.D. through 2" O.D. It is operated by means of a separate power source producing 10,000 psi hydraulic pressure. It can be operated without bolting to a table or bench if no mandrels are required, making it an excellent unit to move about and use at the point where the tubing installation is being made. It can also be attached to a table and used with mandrels.

### Capacity

Table 1 below assigns a Model Code for each model of Parker tube benders. Table 2 gives the capacity for all Parker benders. The Model HB632 is represented by model code C so you can easily check for its capabilities.



**Part No.: 631050**

#### Bender Construction

The bender consists of a cast aluminum housing, with a hydraulically actuated drive mechanism which enables an operator to make bends up to 180° in one continuous smooth operation on tubing up to 2" in diameter.

Tube Bender Model Codes				
Model Code	Model No.	Tubing O.D. Capacity	Bender Type	Rated Torque (in./lbs.)
A	412	1/4" – 3/4"	Worm & Gear	2,700
B	424	1/4" – 1-1/4"	Worm & Gear	11,000
C	HB632	1/4" – 2"	Hydraulic	52,000
D	CP432	3/8" – 2"	Hydraulic	N/A

Table 1 –Tube Bender Model Codes

Tube Benders Maximum Capacity Guide*													
Tube O.D.	Material	Tube Wall Thickness (inches)											
		0.035	0.049	0.058	0.065	0.072	0.083	0.095	0.109	0.120	0.134	0.156	0.188
Tube Bender Model Codes													
3/4"	S	ABCD	ABCD	ABCD	ABCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
	SS	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
1"	S	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
	SS	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	CD	CD
1-1/4"	S	BCD	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	CD
	SS	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	C	C
1-1/2"	S	BCD	BCD	BCD	BCD	BCD	CD	CD	CD	CD	CD	CD	CD
	SS	BCD	BCD	CD	CD	CD	CD	CD	CD	CD	CD	C	C
2"	S	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD
	SS	CD	CD	CD	CD	CD	CD	CD	CD	CD	CD	—	—

Table 2 –Tube Benders Maximum Capacity Guide

\* See page 3 for pipe bending capabilities

### Specifications:

- 1) Min. tube size 3/8"
- 2) Max. tube size 2"
- 3) Min. bend radius 1 1/8"
- 4) Max. bend radius 12" (special order)
- 5) Max. tube bend 180°
- 6) Weight –470 lbs. (77.1 kg) without accessories

- 7) Minimum tube wall thickness (% of O.D.) 4% with mandrel, 7% without mandrel
- 8) The HB632 is capable of bending 1/2" O.D. and under fully annealed steel and stainless steel tubing with no limit on tube wall thickness
- 9) The HB632 is capable of bending SOFT aluminum and copper tubing with no limit on wall thickness.
- 10) For HARD copper, ALLOY STEEL, and HIGH STRENGTH aluminum, use the tabulations shown for stainless steel.

## Bender Parts and Accessories



900085 – Pump (std.)



974671 – High Flow Pump



Close Bend Radius Blocks

Standard Radius Blocks



Tie Bar



660221 – Radius Block Adapter Plate



Slide Blocks

Clamp Blocks



Bender Table – 520515

Heavy, all steel construction, strongly braced to keep bender, mandrel rod and rod stop assembly rigidly braced. Length 10 feet; weight 421 lbs.

### Mandrel Rods

#### Part No. — See table

Mandrel rods are for use with the HB632 Model Bender and Exactol Models 412/424 benders. Mandrel rods (as well as mandrel rod stop assembly) are required when using mandrels. Overall mandrel rod lengths are approximately eight feet. Mandrel rod diameters are determined by tube I.D. (See Table 3.)

Part No.	Mandrel Rod Dia. (in.)	Tube I.D.
520506	1/4	0.283 – 0.362
520507	5/16	0.363 – 0.484
520508	13/32	0.485 – 1.489

Table 3 – Mandrel Rod Sizes

### Mandrel Rod Stop Assembly

#### For use with Model HB632 Bender

The mandrel rod stop assembly holds and supports the end of the mandrel rod in alignment with the tubing. The rod stop assembly is bolted to the other end of bender table. It keeps the mandrel and rod in alignment when mandrel bending. The stop screws can be adjusted for correct length and positioning of the mandrel in the tubing.



Part No. 631141 – HB632 Mandrels, Mandrel Rods and Rod Stop Assembly

#### Part Name

#### Part No.

Mandrel Rod Stop Assembly  
(for Bender Model HB632) ..... 631141

### Universal Side Angle Indicator

#### Part No. 520520

Accurately determines the angle between tube bends in different planes, and keeps out-of-plane angles accurate when making repeated bends. Incorporates a large, easy-to-read vernier dial. Maximum 3/4" O.D. tubing can be used if the tubing must be extended through the indicator. Maximum 1 1/2" O.D. tubing can be used if the end of tube is held in the clamp jaw.



Part No. 520520 – Universal Side Angle Indicator

# Radius Blocks



When using radius blocks 631057-112, 631060-128, 974330 and 974350, first install the radius block adapter plate over the king pin, and then mount the radius block upon it, as shown above.

**Close bend radius blocks** — These blocks have a threaded pin which threads directly into both Triple-Lok and Ferulok (Seal-Lok requires an adapter) tube fitting nuts, permitting a first bend very close to the end of the tube.

## Inch Radius Block Chart

Size	Tube O.D.		AND10111 Standard		MS33611 Standard		Radius Block – Close Bend**		
	in.	mm	Part No.	Radius* in. mm	Part No.	Radius* in. mm	Part No.	Radius* in. mm	
6	3/8	9.5	540502	1 1/4 31.8	590512-18	1 1/8 28.6	—	—	—
8	1/2	12.7	530763	1 1/4 31.8	590515-24	1 1/2 37.5	530597	1 1/4	31.8
10	5/8	15.9	530764	1 1/2 37.5	590518-30	1 7/8 47.6	530601	1 1/2	38.1
12	3/4	19.0	530765	1 3/4 43.8	590521-36	2 1/4 57.2	530605	1 3/4	44.5
14	7/8	22.2	530766	2 50.2	590523-42	2 5/8 66.7	530609	2	50.8
16	1	25.4	—	—	590524-48	3 76.2	530613	3	76.2
18	1 1/8	28.6	530768	3 1/2 88.9	590526-54	3 3/8 85.7	530617	3 1/2	88.9
20	1 1/4	31.8	—	—	590527-60	3 3/4 95.3	530621	3 3/4	95.2
24	1 1/2	38.2	530770	5 127.0	590530-72	4 1/2 114.3	530625	5	127.0
28	1 3/4	44.5	—	—	631057-112	7 177.8	—	—	—
32	2	50.8	—	—	631060-128	8 203.2	—	—	—

\*Radius to tube centerline.

\*\*Note: Sizes 20 and 24 close bend radius blocks requires the removal of the clamp arm before installation.

## Metric Radius Block Chart

Tube O.D. (mm)	Standard Radius Blocks		Close Bend Radius Blocks***	
	Part No.	Radius (mm)	Part No.	Radius (mm)
10	810023	32	—	—
12	780175	32	780185	32
14	780176	38	780186	38
15	780177	38	780187	38
16	780178	38	780188	38
18	780179	44	780189	44
20	780180	44	780190	44
22	780181	89	—	—
25	780182	100	—	—
30	780183	128	—	—
32	780184	128	—	—
35	974344	105	—	—
38	530770	127	530625	127
38	590530-72	114.3	—	—
42	974347	128	—	—
50	974350	150	—	—

## Accessories for Close Bend Radius Blocks

Tube O.D. (in.)	Threaded Pin Part No.	Seal-Lok Adapter Part No.
1/2	930420-8	930421-8
5/8	930420-10	930421-10
3/4	930420-12	930421-12
1	930420-16	930421-16
1 1/4	930420-20	930421-20
1 1/2	930420-24	930421-24

Threaded Pins and Seal-Lok Adapters for Close Bend Radius Blocks

\*\*\*Note: Size 38mm close bend radius blocks requires removal of the clamp arm before installation.

## Inch Pipe Size Radius Block Chart

Nominal Pipe Size (in.)	O.D. (in.)	Part No.	Bend Radius (in.)	Max. Pipe Schedule
3/8	0.675	974325	2 1/4	80
1/2	0.840	974326	2 5/8	160
3/4	1.050	974327	3 1/4	80
1	1.315	974328	4	80
1 1/4	1.660	974329	5	80
1 1/2	1.900	974330	6	40

# Slide Blocks



# Clamp Blocks



## Inch Tube Sizes

Size	Tube O.D. (in.)	Part No.
6	3/8	864276
8-12-16-24	1/2, 3/4, 1, 1 1/2	520516
10-14-18-20	5/8, 7/8, 1 1/8, 1 1/4	520518
28	1 3/4	631063
32	2	631066

Slide Block

Size	Tube O.D. (in.)	Part No.
6	3/8	864266
8-12-16-24	1/2, 3/4, 1, 1 1/2	631092
10-14-18-20	5/8, 7/8, 1 1/8, 1 1/4	631093
28	1 3/4	027418-28
32	2	027418-32

Clamp Block

## Metric Tube Sizes

Size	Tube O.D. (in.)	Part No.
10-12-14-16	10-12-14-16	790016
15-16-18-20	15-16-18-20	780192
22-25-30-32	22-25-30-32	780193
35	35	974345
38	38	520516
42	42	974348
50	50	974351

Slide Block

Size	Tube O.D. (mm)	Part No.
10-12-14-16	10-12-14-16	790017
15-16-18-20	15-16-18-20	780195
22-25-30-32	22-25-30-32	780196
35	35	974346
38	38	631092
42	42	974349
50	50	974352

Clamp Block

## IPS Tube Sizes

Nominal Pipe Size (in.)	O.D. (in.)	Part No.
3/8, 1/2, 3/4	0.675, 0.840, 1.050	974331
1	1.315	974336
1 1/4	1.660	974340
1 1/2	1.900	974342

Slide Block

Nominal Pipe Size (in.)	O.D. (in.)	Part No.
3/8, 1/2, 3/4	0.675, 0.840, 1.050	974332
1	1.315	974338
1 1/4	1.660	974341
1 1/2	1.900	974343

Clamp Block

# Instructions for Medium to Heavy Wall Tube Bending

The bender is shipped completely assembled except for attaching a pump, hose and installing selected bender dies.

## Step 1: Mounting Tube Bender

Position bender centered across the end of bender table and bolt securely in place. The Parker bender table has pre-drilled holes for bender attachment.

3 bolts, nuts and washers required for mounting bender

## Step 2: Connect Pump to Bender

Connect the hose to the pump (3/8" pipe end) and then connect hose to the bender. Be careful not to twist the hose when tightening. Use a pipe sealant on the pipe threads. The make-up for the pipe end is 2 to 3 turns from finger tight. The assembly torque for the Seal-Lok hose end that is connected to the bender is 360 in. lbs.

## Step 3: Select and Install Radius Block

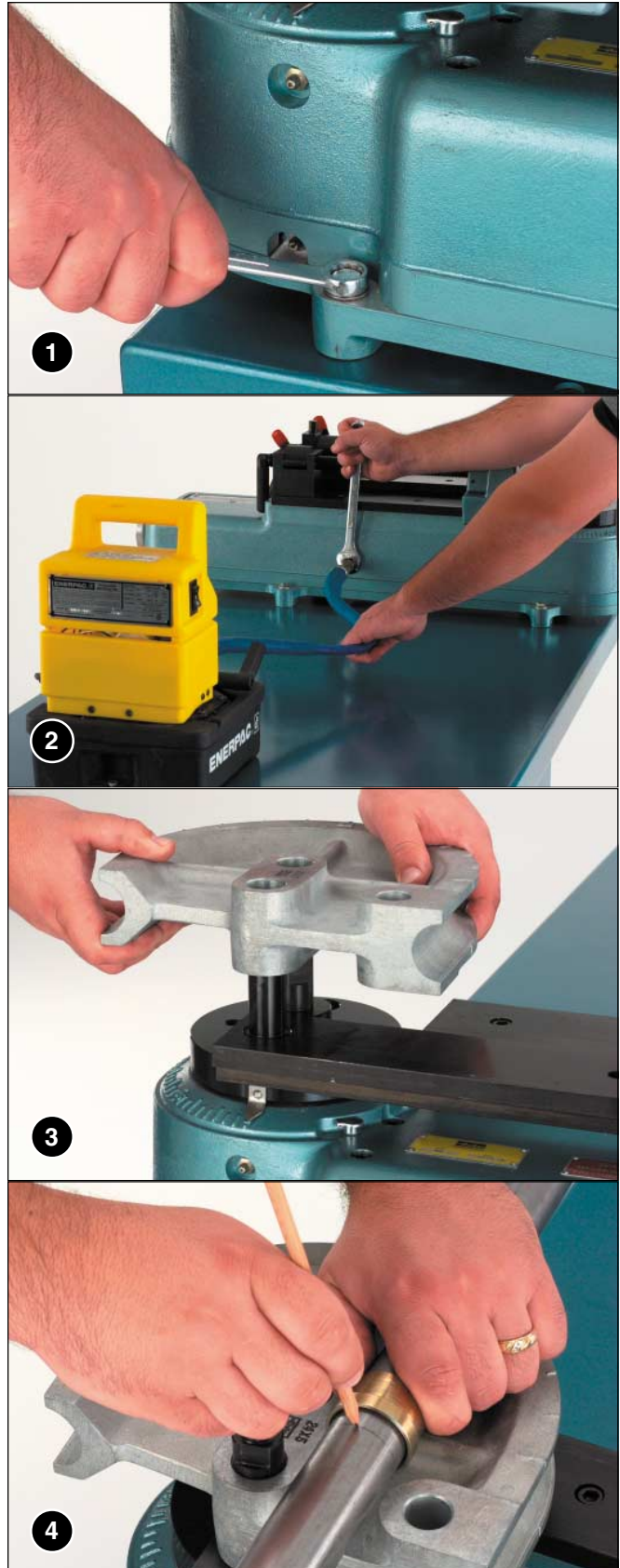
Select the proper radius block according to the chart on page 3. Then install the selected radius block on the king and drive pins with the open end of the block toward the clamp arm.

Radius blocks are accurately milled and bored to slip easily onto posts. Light lubrication of the posts will aid assembly. When handling radius blocks, as well as the slide and clamp blocks, care should be taken to avoid nicking the grooved surfaces.

## Step 4: Mark the Tube

The first bend is easy. Simply measure from the end of the tube to the desired length of the centerline\* of the first bend.

\*For information on tube bending, centerline measurement, and back-bending compensation, see Parker Principles of Tube Line Fabrication, Manual 4306-B5.



### Step 5: Select Slide and Clamp Block Grooves

Select the proper groove of the slide block and clamp block for the outside diameter of tube (sizes are marked on end of each block). Lubricate the slide block to facilitate its sliding. Place the clamp block in its vise. Do not lubricate the clamp block. It's held in place magnetically.

### Step 6: Rapid Positioning

Both the clamp and slide block vise screws feature rapid positioning, with a quick acting cam lock mechanism. To use, pull the respective cam lock mechanism to disengage, push the screw forward, then push the cam lock forward to engage.

### Step 7: Positioning the Tube

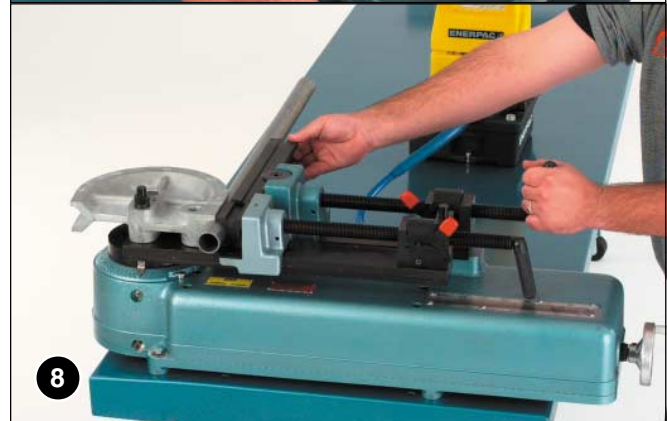
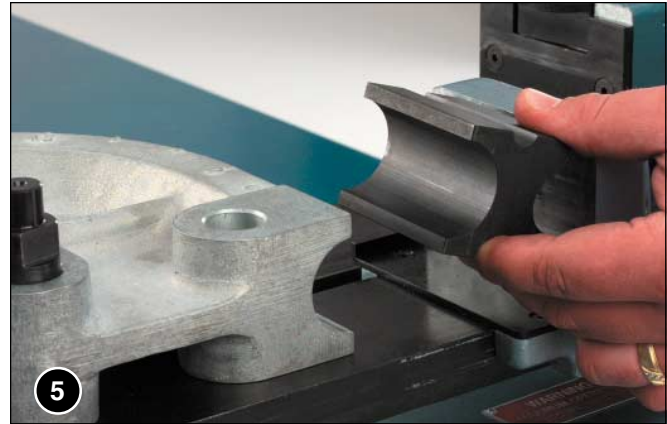
Advance the clamp block vise as described above. Then position the tube in the clamp block so that the mark is tangent to the radius block at the desired angle ( $90^\circ$  for  $90^\circ$  bend;  $45^\circ$  for  $45^\circ$  bend, etc.). Use triangles to obtain accurate results (see diagram). The tubing should be positioned in the bender so that the end measured from, or "measurement end", is to the left as you face the bender.

For  $180^\circ$  bends, position the mark similar to  $90^\circ$  bends. On long lengths of tubing, support is recommended to prevent sag.

### Step 8: Clamp the Tube

When in the proper position, clamp the tube with the clamp block vise. Next, advance the slide block vise using the rapid positioning sequence described.

Rotate the slide block retainer to the proper height and insert the slide block. Then bring into snug position against the tube, but not with so much pressure as to prevent the block from sliding freely. The clamp block and slide block should not be touching.





**Step 9: Using the Tie Bar (when required)**

If the tube is over 1" O.D. (25mm or 1/2 IPS), or heavy wall, or if mandrel bending, the tie bar must be used to prevent tube slippage and the clamp arm from flexing.

**Step 10: Setting Bend Angle**

Set the angle to be bent on the angle indicator by turning the angle adjusting handle on the back of the bender housing. Generally add two to five degrees to the angle you wish to bend to compensate for the spring-back in the tube.

**Step 11: Bending the Tube**

To bend the tube, start the pump and close the valve.

**CAUTION** — Should it become apparent that the bend is too long for the slide block, stop the bender and loosen the slide block vise. Return the slide block to its original position. Retighten the vise screw and complete the bend.

When the preset angle has been reached, shut off the pump.

**Step 12: Completed Bent Tube**

Remove the tie bar, if in use, retract the slide and clamp vises, and pull the tube out from the radius block and lift up. Your tubing is bent, without flattening or cracking.

Releasing system pressure by opening the valve will relieve tension in the bender and the clamp arm will return to its original position.



# Instructions for Thin Wall Tube Bending with Mandrel Equipment

## When to Mandrel Bend

For short radii bends and thin-wall tubing, mandrel equipment is necessary to prevent wrinkling, collapsing, or kinking of the tube. The mandrel supports the tube wall on the inside and maintains a full cross-section in a smooth bend. This is important and should be included as an indispensable part of bending equipment.

The rule that is generally followed to determine whether or not a mandrel is necessary is as follows: When the wall thickness of the tube to be bent is 7% or more of the tube O.D., a mandrel is usually not necessary. On wall thicknesses that ranges between 4-6% of the tube O.D., it is necessary to use a mandrel to avoid wrinkling and flattening in the bend area. These calculations are based on a bend radii of between three and four times the tube O.D.

Since mandrel equipment must be accurately aligned and rigidly held, we recommend the use of the bender table.

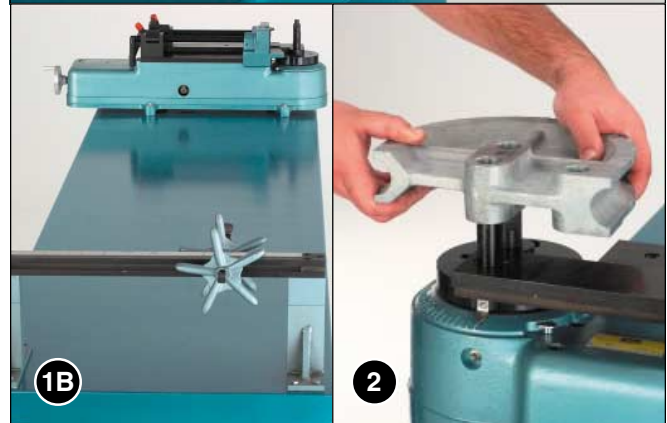
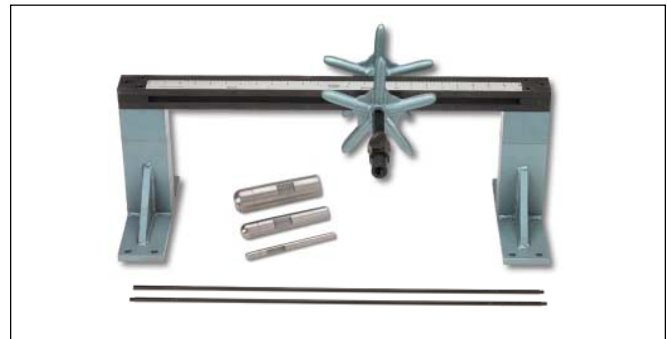
## Mandrel Rod Stop Assembly

This assembly holds the end of the mandrel rod in proper alignment with the tubing and bender. It bolts to the back end of the table. A scale permits accurate alignment of the stop screws. (Although not an extractor, this assembly is necessary to secure the mandrel and rod during the bending process.)

The Parker bender table has pre-drilled holes for the bender and rod stop assembly attachment. These pre-drilled holes insure proper bender and rod stop assembly alignment.

## Step 1: Mandrel Stop Rod Assembly Installation

The mandrel rod stop assembly must be rigidly mounted to the bender table in proper alignment with the bender. Zero ("0") at the end of the mandrel rod stop assembly scale must be in line with the center of the king pin.



## Mandrel Specifications and Data

Size	Tube O.D.		Part No.	Type	Wall Thickness				
	in.	mm			in.	in.	in.	in.	
6	3/8	9.5	924417	Solid	—	.035	.042	—	—
8	1/2	12.7	924417	Solid	—	.035	.042	.049	—
10	5/8	15.9	924417	Solid	.035	.042	.049	.058	.065
12	3/4	19.0	924417	Solid	.035	.042	.049	.058	.065
14	7/8	22.2	924417	Solid	.035	.042	.049	.058	.065
16	1	25.4	924417	Solid	.035	.042	.049	.058	.065
18	1 1/8	28.6	924417	Solid	—	.049	.058	.065	—
20	1 1/4	31.8	924417	Solid	—	.049	.058	.065	—
24	1 1/2	38.1	924417	Solid	.049	.058	.065	.083	—

To order mandrels, specify part number, size and wall thickness.

Example: 924417-12X058

## Mandrel Rod Specifications and Data

Mandrel Rod Size	Mandrel Rod Dia.		Tube I.D. inches (mm)	Part No.	Type
	in.	mm			
1/4	1/4	6.4	.283 (7.2) to .362 (9.2)	520506	Solid
5/16	5/16	7.9	.363 (9.2) to .484 (12.3)	520507	Solid
13/32	13/32	10.3	.485 (12.3) to 1.489 (37.8)	520508	Solid

**Step 2: Select Radius Block, Mandrel and Rod**

Select the proper radius block according to the chart on page 3. Select the mandrel and mandrel rod according to the outside diameter and wall thickness of the tubing.

**Step 3: Install and Adjust Mandrel**

- a) The selected mandrel is screwed onto one end of the mandrel rod. The other end of the mandrel rod is screwed into the adapter and then into the universal joint tongue on the rod stop assembly. The scale provided permits accurate alignment of the stop screw. The stop screw should be centered to the dimension on the scale corresponding to the bend radius.
- b) For average bending the mandrel should be adjusted so that the scribed line on its circumference is 5/8" behind the line scribed on the face of the radius block. This adjustment is made by turning the mandrel rod stop handles at the rear of the bench. The mandrel may be moved inward slightly to produce a more perfectly round cross-section or it may be moved slightly outward to ease the bending effort. Extreme care must be used in establishing this position as even the slightest adjustment will affect the results.

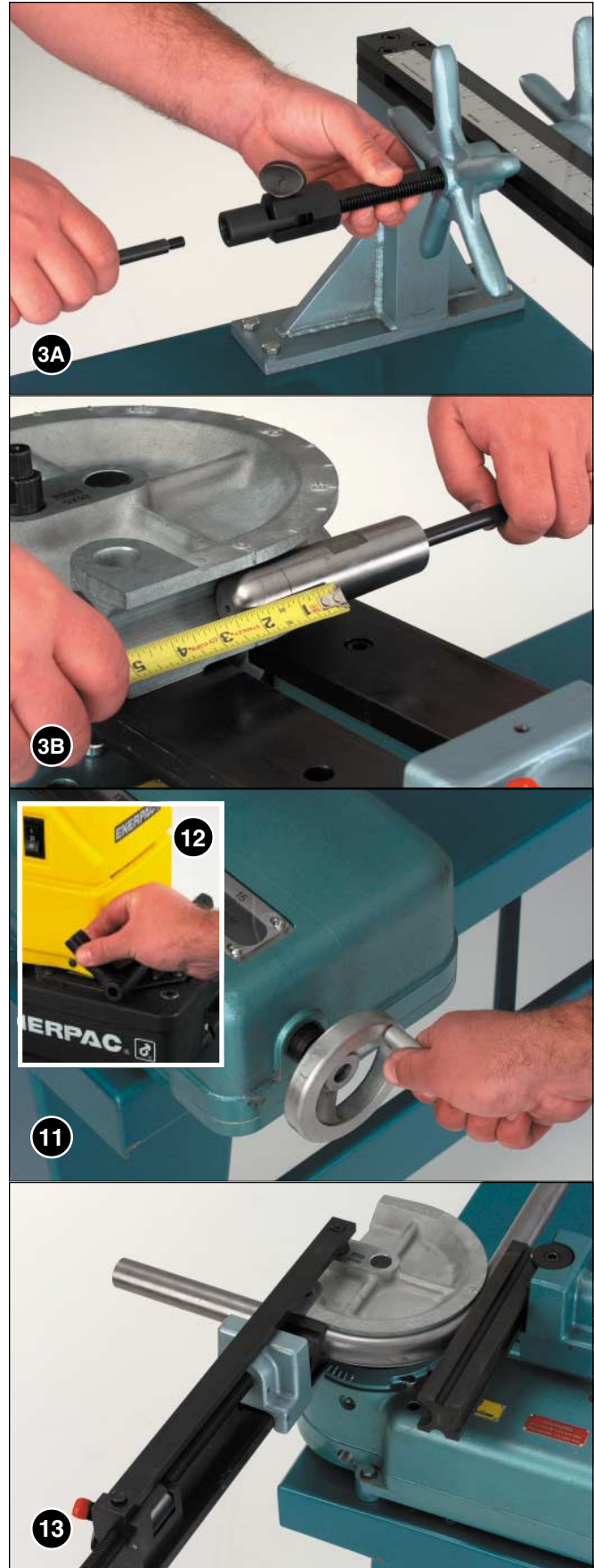
**Step 4: Insert the Tube**

First lubricate the mandrel with light lubricating oil. Then, slip the tube over the mandrel.

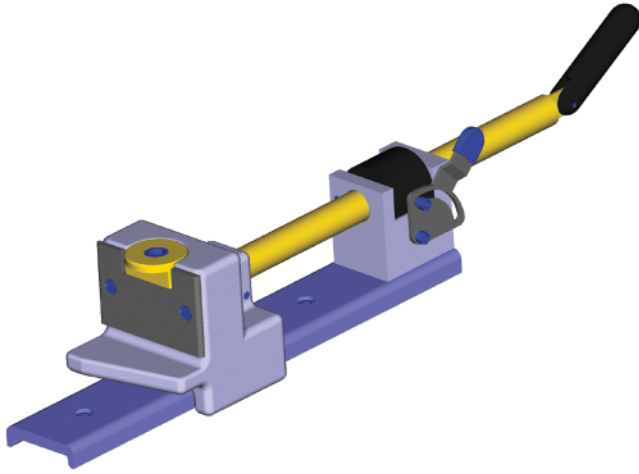
These eight steps are a repeat of Steps 4 through 11 given on pages 5-7.

**Step 5: Mark the Tube****Step 6: Select Slide and Clamp Block Grooves****Step 7: Rapid Positioning****Step 8: Positioning the Tube****Step 9: Clamp the Tube****Step 10: Using the Tie Bar****Step 11: Setting the Bend Angle****Step 12: Bending the Tube****Step 13: Completed Bent Tube**

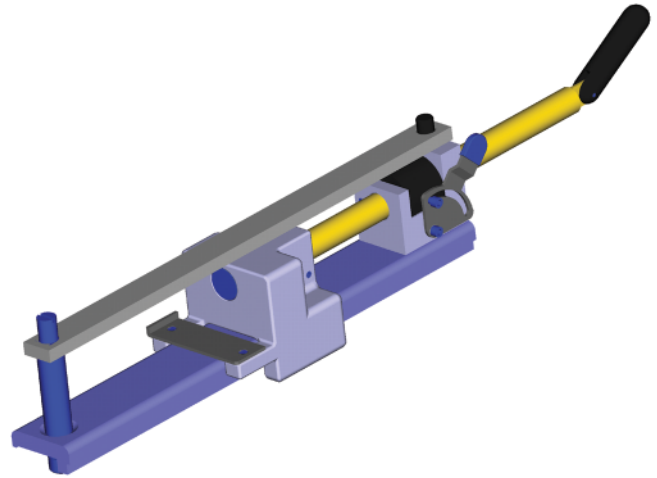
After completion of the bend, remove the tie bar, retract the slide and clamp block vises, and by pulling the tubing to the left, slide it off of the mandrel rod assembly. Then release the system pressure by opening the valve. The clamp arm will return to the starting position.



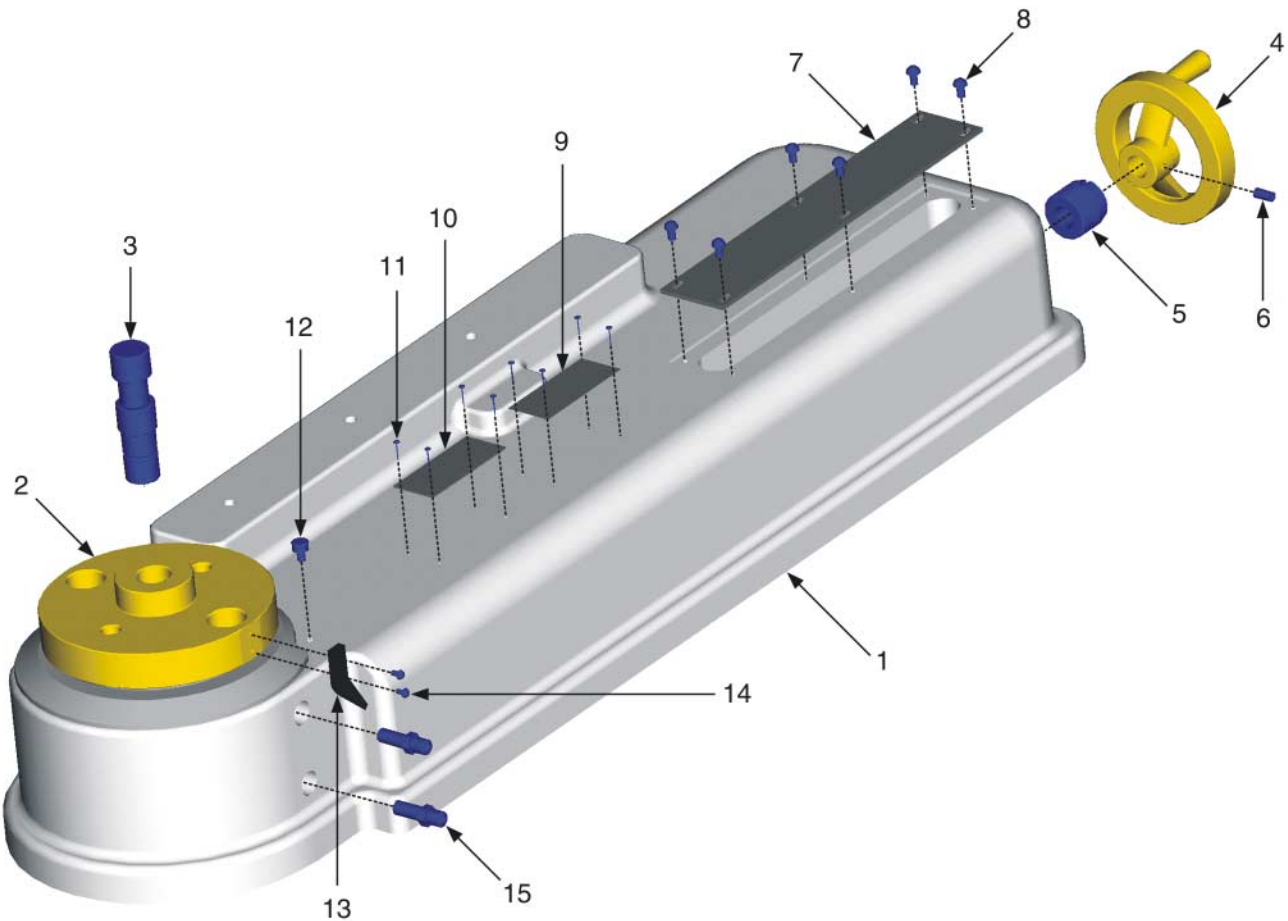
# HB632 Tube Bender Parts Diagrams

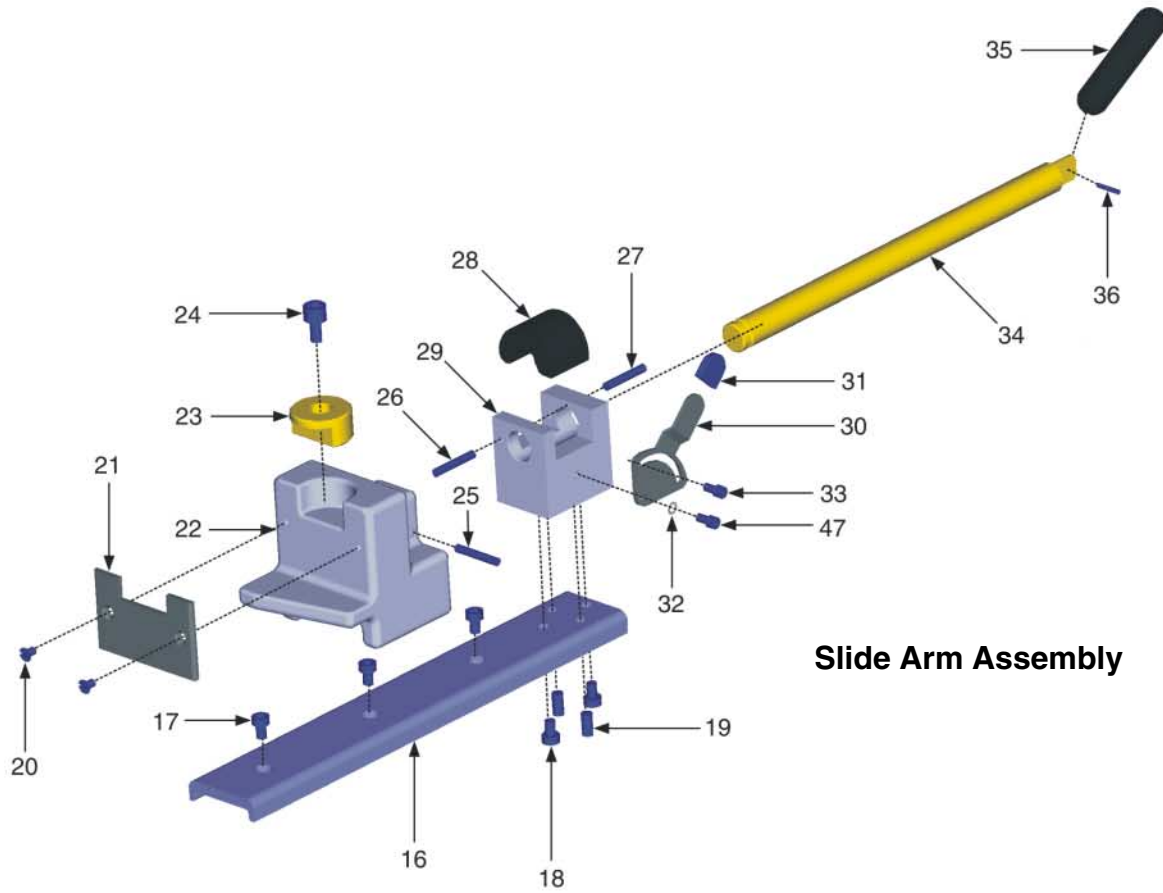


Slide Arm Assembly

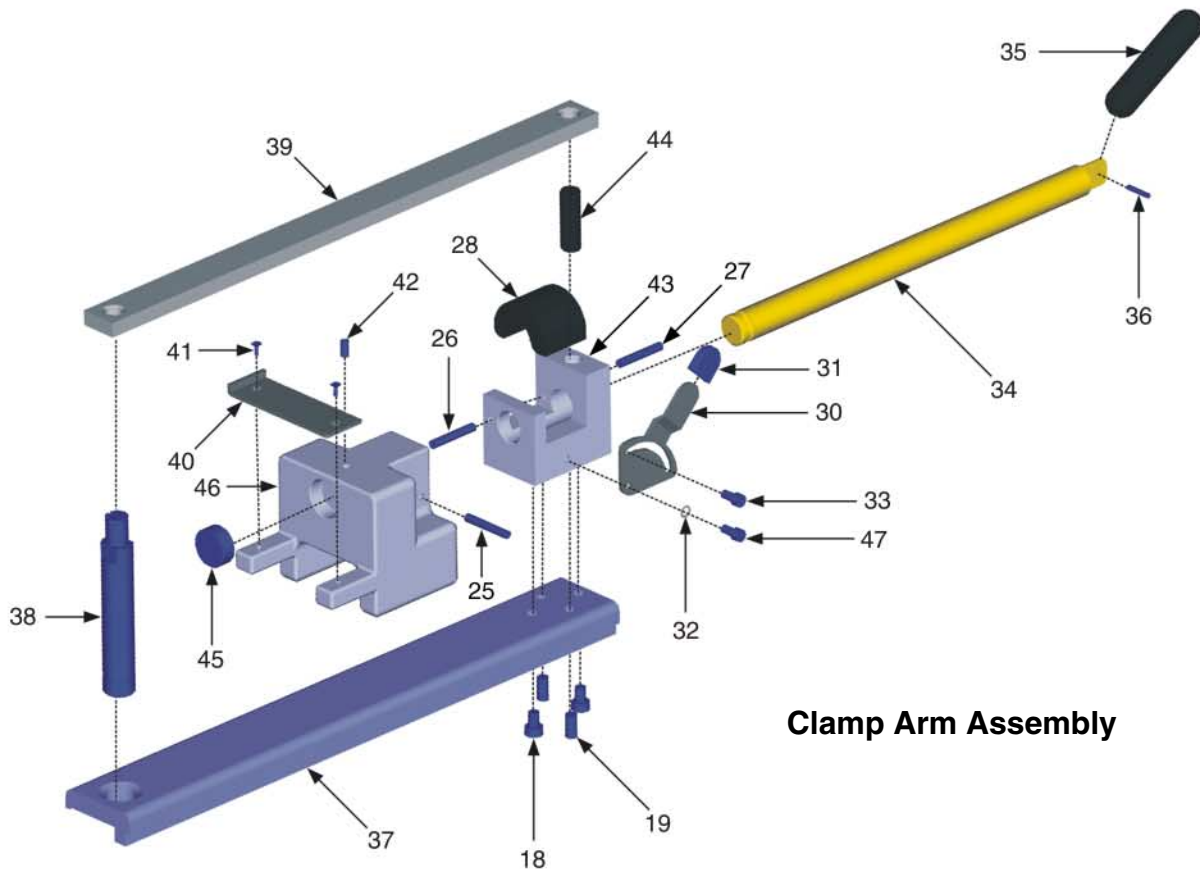


Clamp Arm Assembly





**Slide Arm Assembly**



**Clamp Arm Assembly**

## HB632 Tube Bender Parts List

Item No.	Part No.	Qty.	Description
1	—	1	Main Housing with Internal Components*
2	—	1	King Pin*
3	<b>6-1638-10</b>	1	Center Post
4	<b>660220</b>	1	Hand Wheel
5	—	1	Screw Bushing*
6	<b>13302</b>	1	1/4-20 x 3/8" Socket Head Cap Screw
7	<b>631138</b>	1	Angle Indicator Plate
8	<b>10-24X3/8</b>	8	#10-24 Round Head Screw
9	<b>631139</b>	1	Warning Plate
10	<b>550609</b>	1	Nameplate
11	<b>13050</b>	8	#0-1/8 Drive Screw
12	<b>502-G</b>	2	Oil Hole Cover, 5/16" diameter
13	<b>631136</b>	1	Radial Pointer
14	<b>13179</b>	2	#6-32 x 1/4" Round Head Screw
15	<b>13359</b>	2	1/8" NPTF Grease Fitting
16	<b>660219</b>	1	Slide Rail
17	<b>13321</b>	4	3/8-16 x 3/4" Socket Head Cap Screw
18	<b>13305</b>	4	3/8-16 X 1 Socket Head Screw
19	<b>13320</b>	2	Dowel Pin, 3/8" dia. x 1-1/2" long
20	<b>13367</b>	2	1/4-20 x 5/8" Flat Head Screw
21	<b>900135</b>	1	Wear Plate
22	<b>631100</b>	1	Vise Face, Slide Rail
23	<b>631101</b>	1	Slide Block Retainer
24	<b>13327</b>	1	1/2-13 x 1" Socket Head Cap Screw
25	<b>13328</b>	2	Roll Pin, 1/4" dia. x 1-7/8" long
26	<b>970096</b>	2	1/4" dia. x 1" long Drive Lok "C" pin
27	<b>13509</b>	1	1/4" dia. x 1-1/4" long Drive Lok "C" pin
28	<b>970088</b>	2	Pivot Half Nut
29	<b>970086</b>	1	Slide Arm Bracket
30	<b>970089</b>	2	Cam Latch
31	<b>970090</b>	2	Red Grip
32	<b>970093</b>	1	0.261" I.D. x 0.432" O.D. Wave Washer
33	<b>970091</b>	1	Dowel Pin, 1/4" dia. x 3/4" long
34	<b>631103</b>	1	Vise Adjusting Screw
35	<b>522196</b>	1	Vise Adjusting Screw Handle
36	<b>5/32 X 7/8 ROLL PIN</b>	1	Roll Pin, 5/32" dia. x 7/8" long
37	<b>660224</b>	1	Clamp Rail Arm
38	<b>660238</b>	1	Drive Post
39	<b>660438</b>	1	Tie Bar
40	<b>660228</b>	1	Spacer Plate
41	<b>13346</b>	2	#8-32 x 5/8" Flat Head Screw
42	<b>13302</b>	1	1/4-20 x 3/8" Socket Head Set Screw, Nylon
43	<b>13387</b>	1	Clamp Arm Bracket
44	<b>13102</b>	1	Dowel Pin, 5/8" dia. x 1-1/2" long
45	<b>660227</b>	1	Cup Magnet, 1-1/4" dia. x 1", 15lb.
46	<b>660226</b>	1	Vise Face, Clamp Arm
47	<b>970092</b>	2	1/4" x 1-1/4" Socket Head Shoulder Screw
34,35,36	<b>13750</b>	2	Vise Adjusting Screw Sub-Assembly
18,19,25-28,30-47	<b>13387</b>	1	Clamp Arm Assembly
18,19,26-28,30-33,43,44,47	<b>13750</b>	1	Clamp Arm Bracket Sub-Assembly
18,19,26-33,47	<b>13388</b>	1	Slide Arm Bracket Sub-Assembly

\*Contact the Tube Fittings Division for repair. Phone: (614) 279-7070.

# Maintenance and Warranty

## Bender Maintenance

The bender is equipped with two grease fittings on the side to lubricate the king pin bearings. This should be done at least once a year.

There are two oil hole covers on the top of the unit. These should be serviced once a year by running oil into them while the bender is rotating to lubricate the roller chain.

The threads of the vise screws should receive a few drops of oil occasionally to make certain they stay in working condition.

Visually check all hydraulic connections regularly for leakage.

## Warranty

The bender and accessories are warranted to be free of defects in workmanship for a period of one year from date of sale. The bender has a sticker placed over the king pin. Removal of the sticker voids the bender warranty. Alterations to the bender or accessories voids the warranty of the part.

## Repair

The bender can be repaired. External parts are available for sale (see Parts List). For repair of internal parts, the bender must be returned to Parker Hannifin Tube Fittings Division. Please contact the Division (614-279-7070) before sending the bender back for repair.

# Troubleshooting

Problem	Probable Cause	Solution
Bender will not rotate	No hydraulic power supply	Verify the hydraulic pump is connected, the connections are not leaking, and the valve is closed
	Angle indicator is set at 0°	Set the angle indicator to the desired bend angle
Tube slips in clamp block	Clamp block not tightened	Tighten clamp block
	Incorrect radius or clamp block	Check that the radius and clamp blocks match tube size
Tube is flattened or mis-shaped	Tube requires mandrel for bending	Check chart for mandrel bending
	Incorrect slot on slide block is used	Verify that the slot on the slide block used matches the tube size
Bender will not complete the bend	Tube wall thickness is too large	Check the capacity chart to verify the bender is rated for the wall thickness of the tube to be bent
	Slide block is overtightened	Lightly clamp the slide block –do not overtighten
	Pump is low on fluid	Check fluid level in the hydraulic pump

# Fluid Connectors Group Regional Sales Offices & Service Centers

**Your complete source** for quality tube fittings, hose & hose fittings, brass fittings & valves, quick-disconnect couplings, and assembly tools, locally-available from a worldwide network of authorized distributors.

**Fittings & Couplings:** Available in inch and metric sizes covering SAE, BSP, DIN, GAZ, JIS and ISO thread configurations, manufactured from steel, stainless steel, brass, aluminum, nylon and thermoplastic.

**Hose, Tubing and Bundles:** Available in a wide variety of sizes and materials including rubber, wire-reinforced thermoplastic, hybrid and custom compounds.

**Worldwide Availability:** Parker operates Fluid Connectors manufacturing locations and sales offices throughout North America, South America, Europe and Asia-Pacific.

**For information,** contact the nearest Regional Sales Office listed, or **call toll-free 1-800-C-PARKER (1-800-272-7537).**

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Sales Office & Service Center**  
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(905) 945-2274  
(905) 945-3946 FAX  
**(Contact Grimsby for other  
Service Center locations.)**



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