

Bondstrand M80 Pipe Shaver

for Quick-Lock® bell x spigot joints
in 8- through 16-inch diameters

Introduction

The M80 pipe shaver is designed to prepare Quick-Lock spigot ends on Bondstrand pipe as described in the Bondstrand Assembly Instructions, FP170. Pipe is shipped from the factory with prepared spigot ends, but pipe cut to length on the jobsite must be provided with a new spigot end before assembly. Spigot ends can be prepared on 10 through 16-inch pipe of any Bondstrand series with the Quick-Lock joint using the M80 tool. The M80 tool can also be used to shave 8-inch Quick-Lock spigots and is to be preferred to the B-1 tool when preparing 8-inch Bondstrand Series 2000M and 7000M marine pipe that have greater wall thicknesses than Bondstrand industrial pipe.

The M80 pipe shaver requires a different arbor for each pipe size. The expanding arbor slips into the pipe and the O-rings expand to grip the inside pipe surface when the tie bar is tightened. As the frame is rotated around the feed tube, the cutting tools advance and shave a cylindrical surface (spigot) on the pipe. When adjusted and used as described in these instructions, the shaver prepares an excellent bonding surface with a controlled diametral tolerance.

This unit can be rotated by hand or with a portable power drive such as is used for threading ½ to 2-inch steel pipe. A key in the portable power drive engages a keyway in the power drive seat to rotate the unit.

Operating instructions

1) Check your shaver – If this is your first use of the M80 pipe shaver, check to see that all parts are included or available. The following parts are included with the M80 pipe shaver and case:

- a) Shaving tool complete with two cutting tool assemblies.
- b) Pipe shaver gauge (BB) with 0.015-inch feeler gauge attached.
- c) Two turning handles (U) and attaching cap screws (AD). These are not needed if a power drive is used.
- d) Six Allen wrenches, sizes $\frac{3}{32}$, $\frac{1}{16}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$ and $\frac{3}{8}$ inch.
- e) Arbors (Q) complete with O-rings are available separately (See drawing on page 3).
- f) In addition, you will need the equipment listed in the Bondstrand Quick-Lock Assembly Instructions, FP170. A wrench fitting a 1½ inch hex head will also be required. A portable power drive is not required but it makes the job much easier. Contact the manufacturers or their representatives for information on the following portable power drives:

Operating instructions (cont.)

shaver is handled with care at all times, and not dropped, hit or abused in any way that might cause a change in setting. After extensive use, the cutting inserts (W) may get dull or show wear. Simply loosen socket head cap screws (AF) using $\frac{3}{32}$ inch Allen wrench and rotate both inserts 90° to obtain a new pair of cutting edges. Readjust to obtain correct shaving diameters. Ameron stocks replacement cutting inserts (W) for your convenience: simply order Ameron Commodity Code 00250400.

9) Reset for different pipe diameter

You will have to repeat these steps each time a change in pipe diameter is made. Minimizing the number of diameter changes made on the shaver will expedite your project.

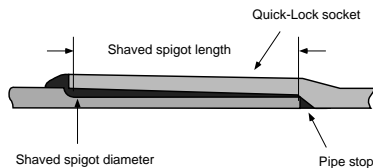
Store the shaver in a dry location, protected from moisture, as you would any machine tool.

Nominal Pipe Size		Item Q - M80 Pipe Tool Arbors			
(in)	(mm)	Arbor Part Number ¹	O-Ring Model	O-Ring Part Number	Quantity
8	200	80220401	AN6227-70	80020400	2
10	250	A0220401	AN6227-75	A0020400	2
12	300	B0220401	AN6227-79	B0020400	2
14 ²	350	C0220401	AN6227-82	C0020400	2
16 ²	400	D0220401	AN6227-85	D0020400	2

1) Arbor includes two (2) O-rings.

2) Consult Ameron for availability of arbors for shaving 14 and 16-inch Bondstrand marine pipe.

Standard spigot dimensions



Nominal Pipe Size	(in)	(mm)	Shaved Diameter		Shaved Length		(min)	(max)	
			Inches	Millimeters	Inches	Millimeters			
8	200		(min)	(max)	(min)	(max)			
10	250	8.547	8.563	217.0	217.4	2 1/2	2 5/8	64	67
12	300	10.682	10.698	271.3	271.7	2 3/4	2 7/8	70	72
14	350	12.684	12.700	322.2	322.6	3	3 1/8	75	79
14	350	13.929	13.945	353.8	354.2	3 1/2	3 5/8	89	92
16	400	15.909	15.925	404.1	404.5	4	4 1/8	102	105

Important Notice

This literature and the information and recommendations it contains are based on data reasonably believed to be reliable. However, such factors as variations in environment, application or installation, changes in operating procedures, or extrapolation of data may cause different results. Ameron makes no representation or warranty, express or implied, including warranties of merchantability or fitness for purpose, as to the accuracy, adequacy or completeness of the recommendations or information contained herein. Ameron assumes no liability whatsoever in connection with this literature or the information or recommendations it contains. Product specifications are subject to change.



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Operating instructions (cont.)

The shaver is a precision tool and must be handled with care.

Before handling the shaver, engage knurled slide sleeve (G) by sliding it fully forward under the power drive seat. Handling the shaver with slide sleeve disengaged may cause injury.

Caution: Do not reverse power drive to return cutting head to starting position. Do not use power drive to advance cutting head beyond maximum pointer depth (about 3 inches). Shaver will jam at end of travel, possibly causing injury. When using shaver to make nipples, avoid possible injury when advancing cutting head by turning shaver manually.

These tools fit a power drive seat 3.62 inches (91.9 millimeters) in diameter.

Porta-Thread	Greenlee Tool Co. Rockford, IL	Model 440	120 VAC
Amaz-O-Thread	Collins Machinery Corp. Monterey Park, CA	PN13800 PN14300	120 VAC Compressed air
Ridgid	Ridgid Tool Co. Elyria, OH	Model 700	120 VAC
Port-A-Pony	Curtis Tools St. Louis, MO.	PN24446 PN24445 PN20690	120 VAC 240 VAC Compressed air 90 psi @ 100 cfm

2) Locate cutting tool assemblies

Locate cutting tool assemblies in the appropriate slots in frame B for the desired pipe size, and assemble slide plate (K), washer (T) and socket head cap screw (AE) on each assembly, and tighten screws (AE) with $\frac{3}{8}$ -inch Allen wrench.

3) Adjust cutting edges

- Disengage slide sleeve (G) by sliding it fully out from under the power drive seat and draw tie bar (D) back so that feed tube (C) is fully back into frame (B), and reengage slide sleeve (G). Remove nut (H) from tie bar (D), remove arbor (Q) if one is on tie bar, and slip pipe shaver gauge (BB) onto feed tube (C).
- With the $\frac{5}{16}$ -inch Allen wrench, slightly loosen socket head cap screw (AG) on one cutting tool assembly. Adjust form tool (P) in toward or out from pipe shaver gauge (BB) with adjusting screw (AA) until cutting insert (W) is separated from pipe shaver gauge (BB) by the thickness of the 0.015-inch feeler gauge. Lock form tool (P) in place by tightening socket head cap screw (AG). Recheck position of cutting insert (W) after the form tool (P) is locked in place, and readjust if necessary. Repeat procedure to set second form tool (P).
- Remove gauge (BB) and slip arbor (Q) over feed tube (C). Turn nut (H) onto tie bar (D) so that key on nut (H) will engage slot in arbor (Q). *Nut (H) will be tightened later.*

4) Mount shaver in end of pipe

With the Bondstrand pipe cut to length and firmly held in position (See photos of padded vise in the Bondstrand Assembly Instructions), you are now ready to mount the shaver on the end of the pipe. Disengage slide sleeve (G) and slide arbor (Q) and feed tube (C) forward, away from frame (B) and re-engage slide sleeve (G). Slip arbor (Q) into Bondstrand pipe until the end of arbor (Q) nearest to frame (B) is flush with end of pipe. Now with a $1\frac{1}{8}$ -inch wrench, tighten tie bar (D) (looking toward frame [B], turn hex head clockwise) so that arbor (Q) is locked firmly inside pipe. Again disengage the slide sleeve (G), slide frame (B) toward pipe until cutting inserts (W) are nearly touching the end of pipe, and re-engage the slide sleeve.

5) Shave the spigot

If a portable power drive is used, slide the drive onto the power drive seat. If you are going to turn the shaver by hand, attach handles (U). Begin turning shaver frame clockwise (looking toward pipe), and continue turning and shaving pipe surface until desired spigot length is cut (See table on page 4).

6) Check shaved diameter

- After shaving one inch of the first spigot, you will need to check the shaved diameter. First, disengage the slide sleeve (G), slide frame (B) away from pipe until cutting inserts (W) are at the starting position, and re-engage the slide sleeve (G). With the arbor (Q) still firmly in place, measure the shaved diameter of the new spigot using a circumferential wrap tape such as a Pi Tape® with a vernier reading to 0.001 inch (0.02 millimeter) on diameter. See table on page 4 for tolerance range on spigot diameters. If your measured diameter falls well within this tolerance range, you may proceed to Step 7.

Operating instructions (cont.)

- b) If the diameter measured in Step 6a was borderline or outside the recommended tolerance range, a slight adjustment of the two form tools (P) is required. Loosen socket head cap screw (AG) slightly and adjust screw (AA) as required on both tools. A quarter turn of adjusting screw (AA) will change the diameter of spigot by 0.020 inch (0.50 millimeter).
- c) If the spigot is too small, go to Step 7 and cut off and discard the shaved spigot. Reposition arbor (Q) in pipe end and shave new spigot after adjustment, repeating Steps 4, 5 and 6 until the proper diameter is obtained.
- d) Spigot too large—after adjustment, repeat Step 6 until proper diameter is obtained.

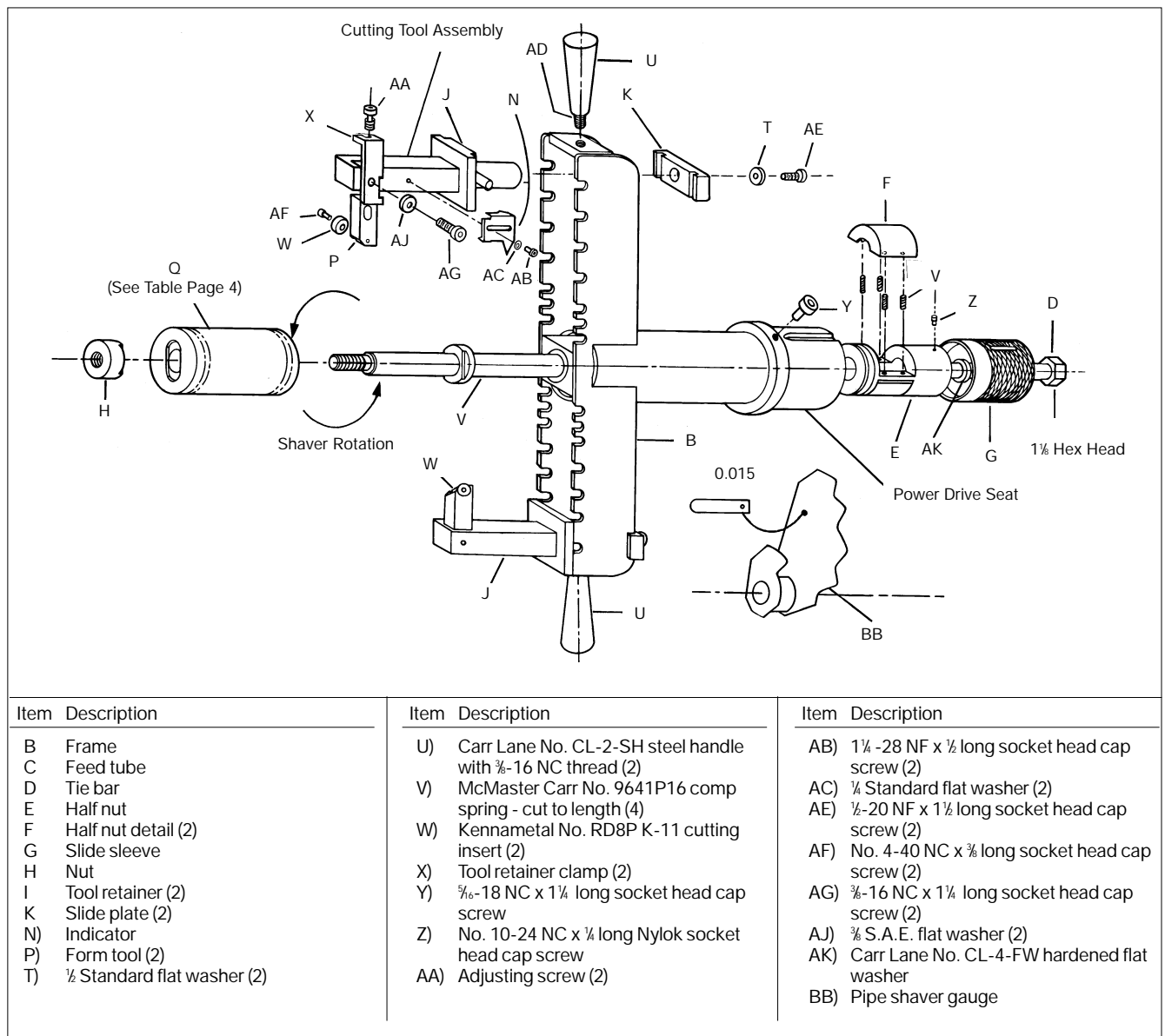
Shaving a spigot in one pass produces a slightly larger diameter than is produced by shaving thin cuts on repeated passes. To shave acceptable diameters on one pass, you must adjust the shaver based on measurements of spigots made in a single pass.

7) Remove shaver from pipe

To remove arbor (Q) from pipe, loosen tie bar (D) using a 1½ inch wrench (looking toward frame [B], turn hex head counterclockwise). With slide sleeve (G) engaged, slide arbor (Q) out of the pipe.

8) Recheck adjustment for wear or abuse

Once the shaver has been properly adjusted for a given pipe size, you will usually need to check spigot diameters only at the beginning and middle of each shift, provided the



Item	Description	Item	Description	Item	Description
B	Frame	U)	Carr Lane No. CL-2-SH steel handle with ¾-16 NC thread (2)	AB)	1¼ -28 NF x ½ long socket head cap screw (2)
C	Feed tube	V)	McMaster Carr No. 9641P16 comp spring - cut to length (4)	AC)	¼ Standard flat washer (2)
D	Tie bar	W)	Kennametal No. RD8P K-11 cutting insert (2)	AE)	½-20 NF x 1½ long socket head cap screw (2)
E	Half nut	X)	Tool retainer clamp (2)	AF)	No. 4-40 NC x ¾ long socket head cap screw (2)
F	Half nut detail (2)	Y)	¾-18 NC x 1¼ long socket head cap screw	AG)	¾-16 NC x 1¼ long socket head cap screw (2)
G	Slide sleeve	Z)	No. 10-24 NC x ¼ long Nylok socket head cap screw	AJ)	¾ S.A.E. flat washer (2)
H	Nut	AA)	Adjusting screw (2)	AK)	Carr Lane No. CL-4-FW hardened flat washer
I	Tool retainer (2)			BB)	Pipe shaver gauge
K	Slide plate (2)				
N)	Indicator				
P)	Form tool (2)				
T)	½ Standard flat washer (2)				