

INSTALLATION

TB-17

February 1999

Gasketed Pipe Assembly

PWPipe products are designed for low insertion force and effective sealing. Bar and block assembly is the recommended method of assembly. Small diameter pipes can easily be assembled by one worker, while some larger diameters may require two people working together.

When pipe diameter is greater than 12 inches and the pipe weight is greater than 25 pounds per foot, the diameter and weight of the pipe itself has a significant effect on ease of assembly. Therefore, 21-inch SDR 64 PIP pipe weighing 16 pounds per foot can be bar-assembled while 14-inch DR 18 C905 pipe weighing 27 pounds per foot would be difficult to bar together.

Besides quicker installation of a pipe line, the major advantage of barring pipe is that the worker is in "touch" with the process. This assures proper alignment, assembly, and seated gaskets. As soon as mechanical equipment, such as a backhoe, is employed, this advantage is lost.

When mechanical assembly is necessary due to pipe weight and diameter considerations, **proper alignment** and **straight pushing** of pipe lengths are critical. Standard good mechanical assembly practice takes alignment into consideration and produces reliable leak-free pipe lines.

Insertion force curves for normal and forced insertion of pipe joints are shown on the opposite side of this bulletin. Normal, straight alignment insertion produces a predictable insertion curve characterized by a distinct assembly peak. **Straight alignment** assembly will not dislodge gaskets. Forced, improper alignment insertion produces an insertion curve characterized by the tremendous force necessary to dislodge the gasket from the race, trap it between the bell and spigot surfaces, and stretch it backwards. The insertion force necessary to assemble a joint with dislodged gaskets is so extreme, it can only be accomplished using mechanical equipment without the operator's knowledge of the dislocation.

Joint Insertion Instructions

1. Clean the gasket area. Remove sand, dirt, grease, and debris. Do not remove gaskets from bells - removal could cause improper reinstallation.

2. Check the gasket. Make sure it is seated uniformly in the groove by running your finger around the inner edge of the gasket. If the gasket has a plastic retainer ring, make sure it is properly seated into the rubber portion of the gasket.

3. Clean the spigot. Use a rag to wipe the spigot clean.

4. Lower the pipe into the trench carefully to avoid getting dirt into the bell or spigot.

5. Lubricate. Apply lubricant to the bevel of the spigot end and approximately mid-way back to the reference line. A thin layer of lubricant may be applied to the face of the gasket, but be careful not to get lubricant behind or under the gasket.

WARNING: Use only those lubricants supplied by PWPipe - the use of other lubricants may cause deterioration of pipe or gasket.

6. Keep lubricated areas clean. If dirt or sand adhere to lubricated areas, clean and re-lubricate.

7. Assemble pipe. Insert the spigot end into the pipe until it contacts the gasket uniformly. **Straight alignment is essential.** Apply steady pressure by hand or by mechanical means (bar and block, come-along, hydraulic jack) until the spigot slips through the gasket. Insert pipe until the stop line is flush with the bell end.

8. If undue resistance to pipe insertion is encountered or if the pipe cannot be inserted to the reference mark, disassemble the joint and check the position of the gasket.

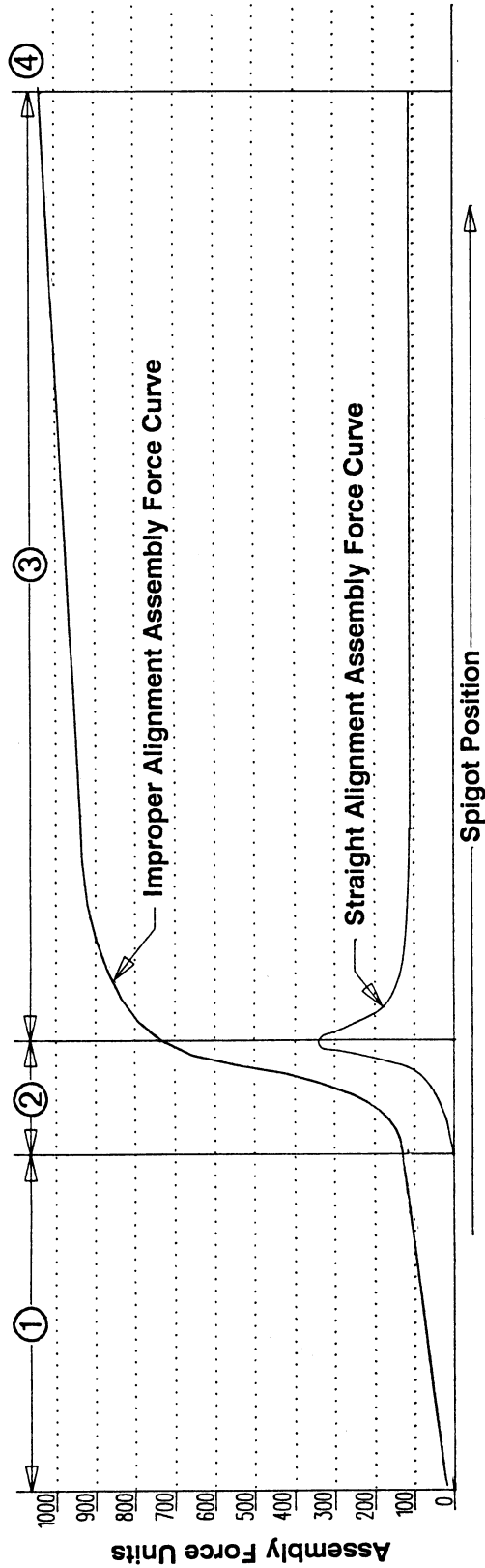
a. If the gasket has been dislodged from the race, inspect the pipe and

gasket for damage, replace damaged items, clean the components, and repeat the assembly steps, assuring straight alignment.

b. If the gasket is still properly positioned, verify proper positioning of the reference mark. Relocate the mark if it is not correctly positioned. In general, fittings allow less insertion than do pipe bells. If the pipe still cannot be inserted properly, call PWPipe for assistance.

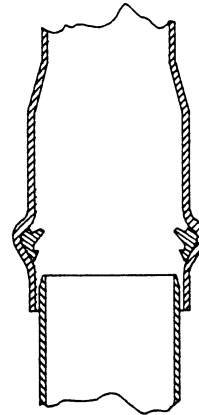
9. If the pipe must be field-cut, mark the entire circumference to ensure a square cut. Bevel the field cut the same as a factory bevel if the spigot is being installed into PWPipe bells. Mechanical joint fittings do not require a bevel. If being installed into fittings, follow manufacturer's recommendations. Round off any sharp edges on the leading edge of the bevel with a pocket knife or a file. Mark cut end with an insertion line similar to uncut pipe.

Joint Assembly Force Comparison

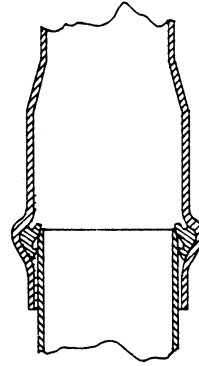


Straight Alignment Bell-and-Spigot Assembly

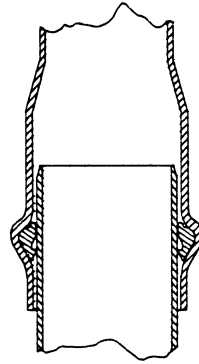
Reference Mark



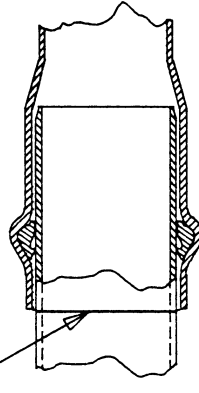
- ① Spigot enters bell lip with proper straight alignment



- ② Spigot compresses gasket evenly



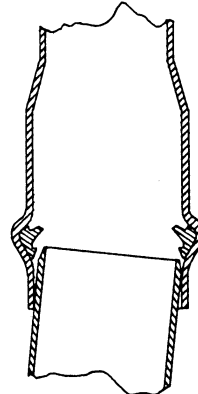
- ③ Gasket compressed; Spigot rides on smooth pipe surface



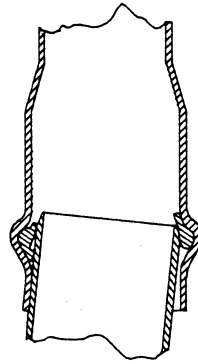
- ④ Reference mark on spigot reaches bell lip, ending joint assembly

Improper Alignment Bell-and-Spigot Assembly

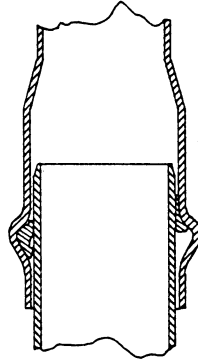
Reference Mark



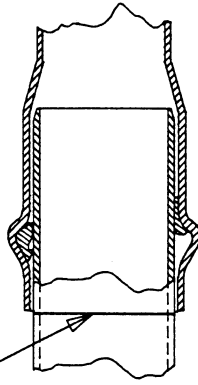
- ① Spigot enters bell with improper alignment



- ② Improper alignment causes edge of spigot to catch gasket



- ③ As spigot is inserted, gasket is dislodged from groove ("Fishmouthed")



- ④ Reference mark on spigot reaches bell lip, ending joint assembly