



**OPERATING INSTRUCTIONS
STYLE 83
UNIVERSAL HAND EXPANDER
FOR $\frac{3}{4}$ " to 4" EXPANSION RING COUPLINGS**

1. Study attached Fig. 1 & Fig. 4 to become familiar with the names of expansion unit parts.
2. Select correct Style 75 Expansion Unit (mandrel [1], segments [2], and segment holder[3]) for size coupling to be expanded.
3. Oil keyway grooves on segment holder (3). Apply a coat of grease (silicon or graphite) to mandrel (1) and insert into segment holder as shown on Fig. 1. Apply grease and oil lightly as needed for smooth operation. (Note: Grease fitting on top of expander body will require occasional greasing.)
4. Turn operating handle of expander counter clockwise and observe that the drawbar moves toward the threaded end of the expander body. Turn the handle until movement stops.
5. Pick up correct Expansion Unit. Thread mandrel (or mandrel adapter for smaller sizes) into expander drawbar and tighten by hand only. Be sure expander drawbar and mandrel or mandrel adapter are butted together. (Do not overtighten.)

Thread segment holder into body of expander and tighten by hand only. Make certain that segment holder butts against body of expander.

6. Note: On segment sizes smaller than 2 $\frac{1}{2}$ ", segment holder will not thread into body while mandrel is in fully extended position. Turn operating handle clockwise to retract drawbar approximately 2", segment holder can then be threaded into expander body. **Be sure that segment holder is butted against body.** Now, turn operating handle counter clockwise to bring mandrel out to its fully extended position. Segments are now fully relaxed.
7. Adjust Locating Plate. The locating plate (4) positions the coupling correctly over the segments. It is important that this adjustment be made accurately because of possible damage to the coupling and segments during the expansion cycle. Note: On sizes 2" and under, the locating plate is shown on Fig. 4.
8. Facing the Expansion Unit. Turn locating plate away from operator to the end of the thread. Slip coupling male or female **without hose bowl gasket** over segments. Expand segments with the expander until they **do not quite touch** the coupling hose bowl. (see Fig. 2). Pull the coupling back until it hits the expanded segments, turn the locating plate away from the coupling face $\frac{3}{4}$ turn. The locating plate will then properly locate couplings of similar type relative to the segments for good expansion.
The expander is now ready to attach couplings.

Note: Fig. 2 shows male part of coupling in relation to locating plate. Fig. 3 shows female part of coupling in relation to locating plate. The male and female parts shoulder against different areas on the locating plate.

9. Slip expansion ring over segments until it touches the segment holder. If segments have a lip, push expansion ring against the lip.

10. Expand segments **slightly**, until they grip the expansion ring and hold it in place without slipping. **Do not expand ring.** (This step may be eliminated on 1 1/2" x 1 3/4" or 2 1/2" x 3" couplings.)
11. Insert coupling tail gasket in coupling hose bowl.
12. Be sure the end of hose is cut square and clean. (The Akron Style 89 Hose Cutter is recommended.) Hose which is not cut square will result in leakage when hose is subjected to pressure.
13. Insert trimmed hose end into coupling hose bowl and against hose bowl tail gasket.
14. Hold coupling and hose as mentioned above and slip coupling and hose over expansion unit segments until coupling face is firmly against locating plate.
15. Hold coupling and hose firmly against locating plate with one hand and turn operating handle clockwise with other hand until the expanding segments hold coupling and hose in place. (On 3/4" and 1" couplings, turn handle counter clockwise.)
16. EXPANDING THE RING. Continue to turn operating handle in direction of expansion, moving drawbar key or indicator approximately one mark. Turn operating handle in reverse direction to release coupling from expansion unit, and check to see if expansion ring is properly expanded. Turn coupling slightly and re-expand.
17. Proper expansion has been accomplished when the rubber lining of the hose rolls up around the far end of the expansion ring until the hose and the ring form **at least** a continuous plain. (Tighter expansion may be required for some purposes.) Re-expand coupling if necessary until proper expansion of the ring has been accomplished.

Then, note where drawbar key or indicator is positioned so that additional couplings of the same size and type can be expanded to the same pressure the first time.

18. AFTER COUPLING HAS BEEN ATTACHED, INSPECT AS FOLLOWS:
 - a. Inspect expansion ring to be sure it is indented with outline of segments and that rubber behind expansion ring indicates some rolling effect due to compression.
 - b. If too high a pressure is used, the outside of a smooth finish coupling will show hairline fractures, a rippling effect, or distortion. A wire brushed or rough coupling will show distortion. If this occurs, reduce pressure.
 - c. If too low a pressure is used, expansion ring will not force hose into hose bowl enough to hold coupling on hose when subjected to pressure test. If this occurs, increase pressure.
 - d. Check "waterway" of coupling to be sure that segments have not indented waterway. If indenting is visible, the locating plate was not adjusted properly. Revert to step 7.

Figure 1

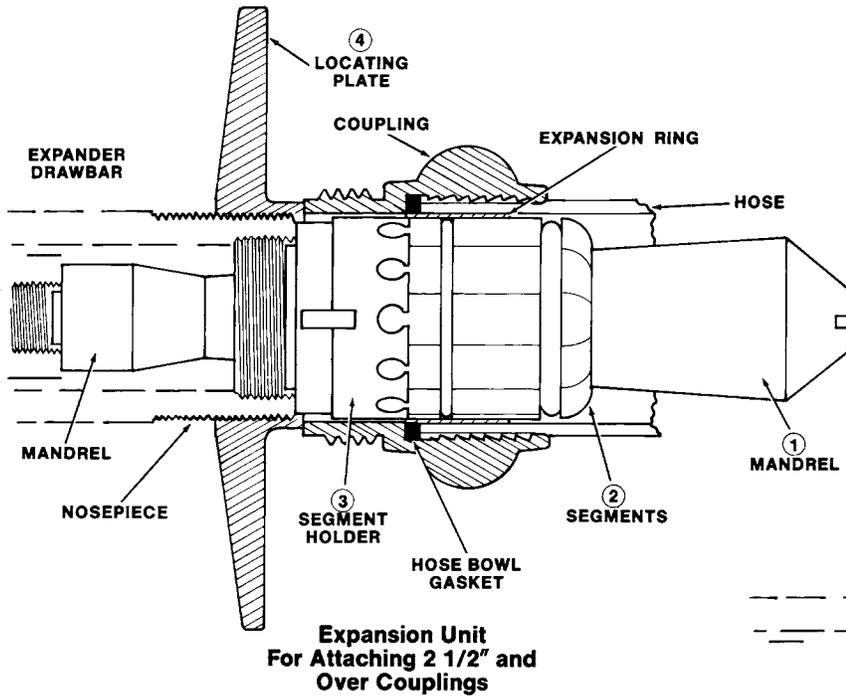


Fig. 1

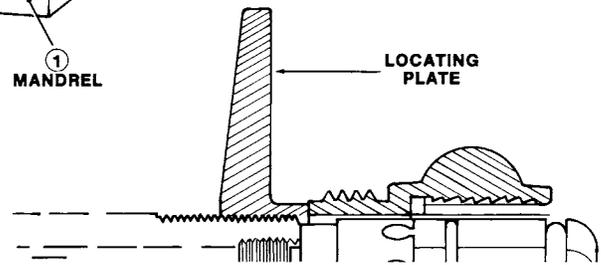


Fig. 2

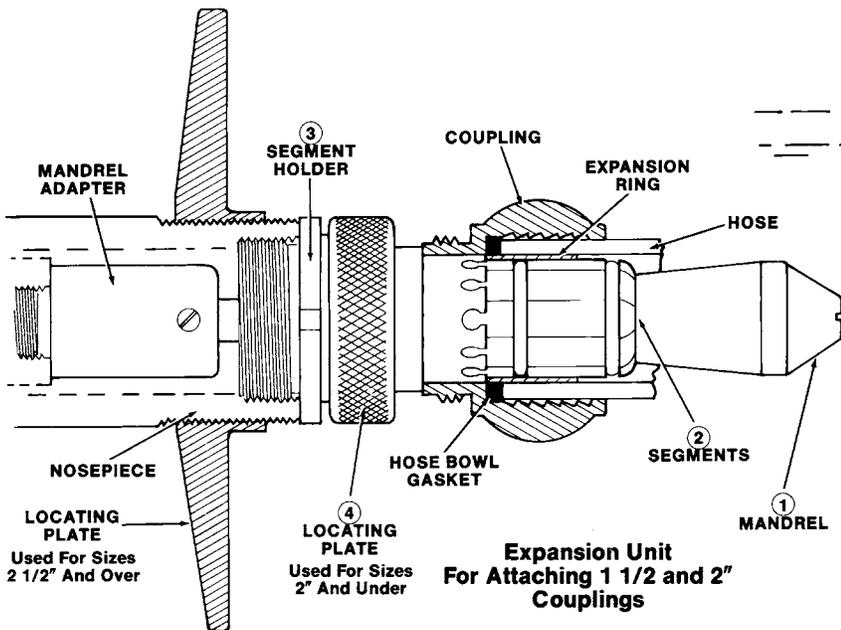


Fig. 4

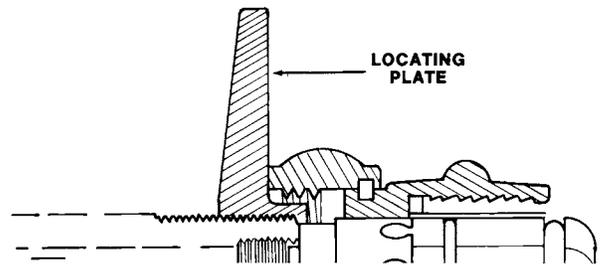


Fig. 3



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