

## Procedure 2101: Installation of Pre-Formed Band Clamps Using Punch Style Tool

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### Selection

- Select the proper pre-formed band clamp using Procedure 1001: Pre-formed Band Clamp Selection (page 6).

### Preparation

- Prepare and mark the hose using Procedure 1100: General Preparation Instructions (pages 9-10).

### Notes

- 1. For hoses having a helical wire, make certain that the clamp tail and the helical wire are pointing in the same direction. Refer to Procedure 1100: General Preparation Instructions (page 10) for illustration.
- 2. Never grasp the knob of a punch style tool with a 'closed fist.' If the clamp tail breaks suddenly, there will be no resistance to the operator's pressure on the lever and injury to the operator may occur.
- 3. Testing is the only way to know for sure if proper tension has been achieved. As a visual indicator, the clamp OD (Outside Diameter) should be equal to or less than the hose OD.
- 4. In some instances, it may be impossible to lower the knobbed lever to the full down position without the risk of prematurely breaking the clamp's tail or damaging the tool. When this situation arises, move the pulling dog lever on the tool to release the knobbed lever, then lower the knobbed lever to the full down position.
- 5. Use a hammer or mallet with a malleable iron or brass head. Using one with a case hardened head, such as a claw hammer or ball-peen hammer, will dramatically shorten the tool's life, and if it shatters, could cause severe injury to the operator.

### Process

- 1. Slide the clamp(s) over the hose end.
- 2. Insert the coupling. Refer to step 9 of Procedure 1100: General Preparation Instructions (pages 9-10).
- 3. To use the punch style tool:
  - a. Insert clamp tail into the slot until the clamp buckle is against the tool head.
  - b. Place the 'T' handle on a flat surface.
  - c. Using an opened palm on the knob, raise and lower the lever fully. 
  - d. Repeat Step 'c' until clamp is properly tensioned.
  - e. When clamp is properly tensioned, have the knobbed lever in the full down position.
  - f. Strike the tool punch with a soft-headed hammer or mallet several times to set the lock.
  - g. Firmly hold the hose with one hand. Raise then lower the tool to break the clamp's tail. 
  - h. For assemblies using multiple clamps, repeat the process.

*Note:* When multiple clamps are used, clamp buckles must be offset to prevent a leak path; 2 clamps - buckles at 180°, 3 clamps - buckles at 120° and 4 clamps - buckles at 90°.
- 4. Inspect results using Procedure 3002: Band Clamp Inspection (page 52).
- 5. Test the assembly using Procedure 4000: General Hydrostatic Testing Information (page 60) and Procedure 4001: Hydrostatic Testing (page 61).