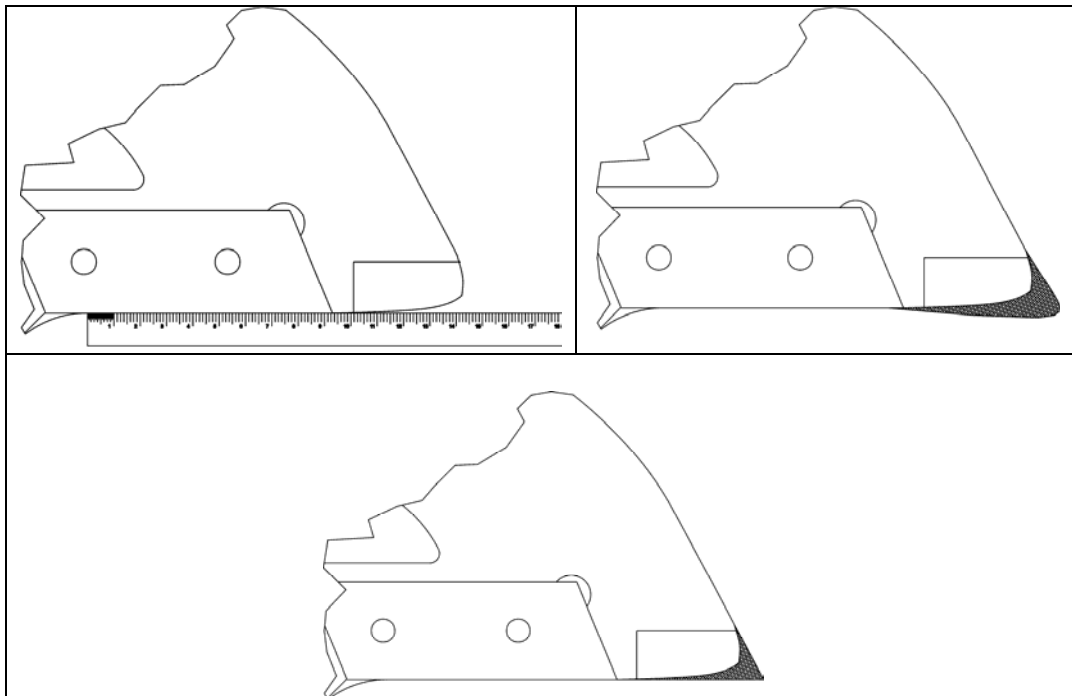


SUBJECT: PIERCING TIP MAINTENANCE AND REPLACEMENT

MODEL(S): ALL NPK SHEARS

MAINTENANCE

To maintain maximum piercing efficiency, the piercing tip should be checked daily for wear. The rate of wear will be greatly influenced by the types of material being processed and the amount of piercing being done. To check the jaw and tip for wear, close the shear until the piercing tip is beginning to enter the lower jaw (tunnel). The piercing tip should fit squarely in the fixed jaw tunnel. If a large gap is noted and the tip is rounded, this is an indication that the piercing tip requires attention. Also, if material is being drug through the tunnel and not efficiently pierced by the tip, this is an indication that the tip is in need of attention. The length of time between piercing tip maintenance will greatly influence if a tip can be repaired or if the tip must be replaced.



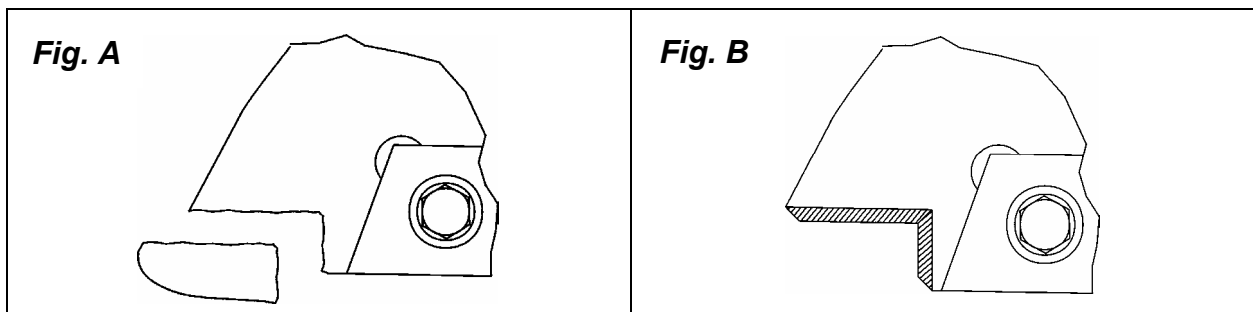
BUILD-UP OF THE PIERCING TIP

Before beginning the build-up of the existing piercing tip, it is necessary to first grind off all remaining hardface material. After determining the amount of build-up required, preheat the tip and surrounding area to 300° - 400°F (150° - 200°C). Using a suitable underlay rod, build-up the areas in question by using stringer welds. Peen the weld after each pass. Continue to build the areas by overlaying weld stringers. Stop periodically and cycle the piercing tip through the fixed jaw tunnel to check the amount of build-up that is still required. Maintain preheat of jaw area.

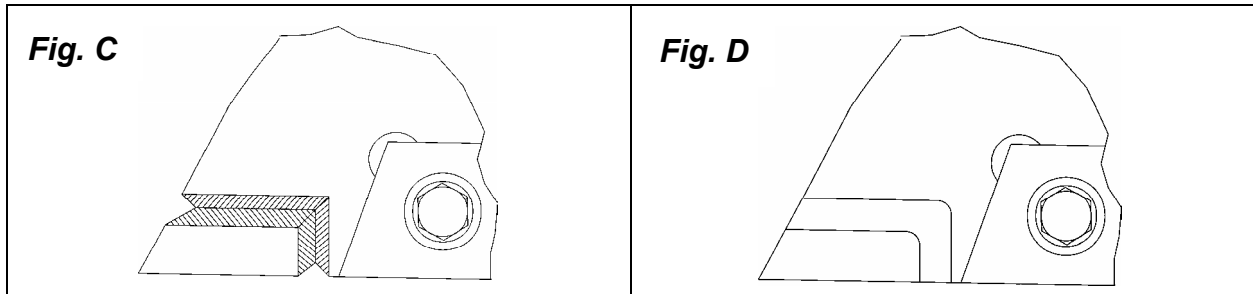
After build-up is complete, it may be required to hardface the piercing tip. **NOTE:** Use no more than 2 layers of hardface. Hardfacing will help prolong the life of the tip and increase the amount of time a tip can be used before maintenance is once again required. After hardfacing, grind the tip so it passes through the tunnel area.

REPLACING PIERCING TIP

To install a new tip, carbon arc off the old tip to the approximate dimension of your model piercing tip. Please note that a seat for the tip is present in the upper jaw, see Fig. A. The surface must be prepared by chamfering the edge of the seat, see Fig. B. **NOTE:** Be sure area is free from all carbon residues, leaving it flat and smooth.



Place the new tip into the seat. Use a straight edge to position the tip before tacking into place. Place the straight edge against the face of the cutting blade and maintain the alignment to the side edge of the replaceable tip.



Move tip squarely against the edge, making sure it is level, then tack firmly in place, see Fig. C and D. Cycle the shear to check the clearance of the new tip. **NOTE:** Some grinding may be required to fit the tip properly to the tunnel.

1. Remove worn tip by carbon arcing off.
2. Prepare surface for new tip.
3. Place new tip into proper location.
4. Dry welding rod to 300°F + (150°C +).
5. Preheat weld area to 300°F - 400°F (150° - 200°C).

Joining and build-up

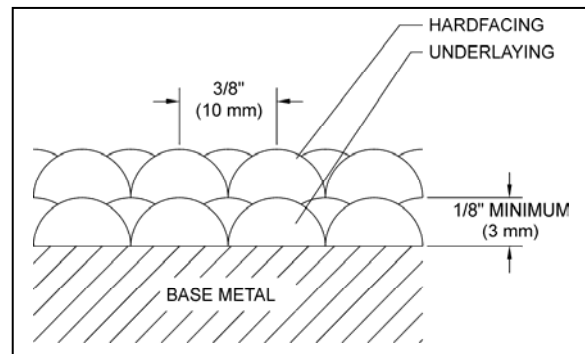
For joining, stringer beads are best. For build-up, weaving is acceptable. Use one of the following rods (or wire equivalent) or equal: Airco Austex 361, Cronatron 7770, Eutectic 3205, Hobart Smooth Arc MC, McKay Chrome-mang, Stody 2110.

Hardface

Hardface can only be applied over base material or underlayment weld. Never hardface existing hardface.

Welding rod: Airco Tubecraft 1A, Cronatron 7355, Eutectic N6006, Postalloy 214, Stody 31 or equal.
In Canada: NCH Canada Inc. Wear-X #176 or equal.

- Dry welding rod at 300°F+.
- Preheat the jaw weld area to 350°F and maintain this temperature during the welding operation. It is very important to maintain this temperature in cold environments.
- Adjust weld current to rod manufacturer's specifications.
- Peen each layer. Do not exceed 2-3 layers of hardface.
- Cool slowly. Cover weld in cold environments.



DO NOT WELD OVER OLD HARDFACING!

Remove all old hardfacing before applying new underlay rod.