

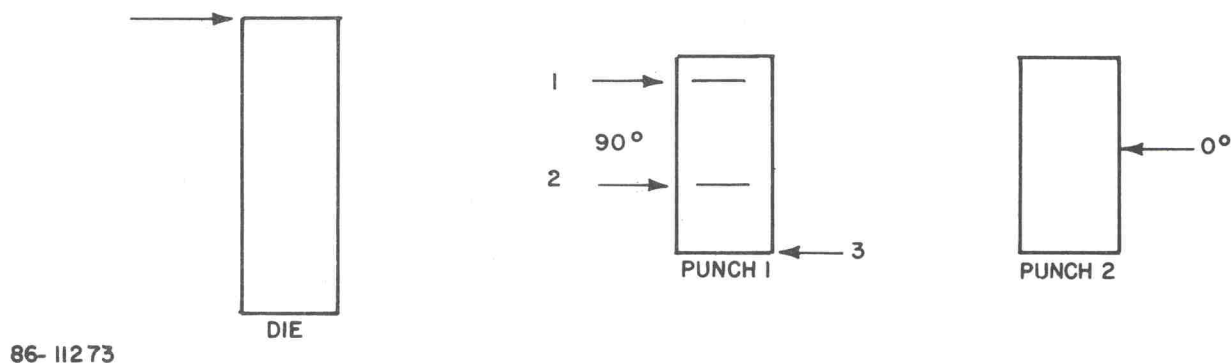


Figure A-9 VISUALLY OBSERVED RING IMPERFECTIONS

#### Die Outer Ring (A)

At 0 degrees the deep notch is approximately  $3/32$  of an inch wide by  $1/8$  of an inch long by  $1/64$  of an inch deep. The other two notches are small and not deep enough to measure.

All three were stoned and the edges smoothed out before assembly.

No. 1 strain gage was mounted at the 0-degree point. No. 2, 3, 4 gages were placed at 90, 180, 270 degrees respectively in a clockwise direction looking in the top.

Ring B was mounted into Ring A before the strain gages were installed on the latter.

#### Punch No. 1 Outer Ring (A)

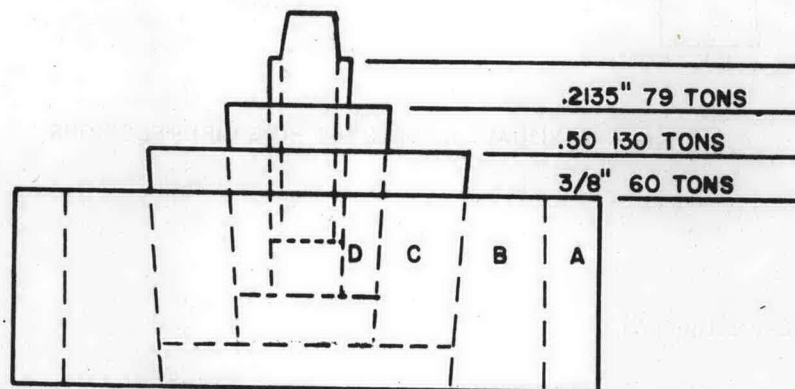
This ring has two fine lines as shown by arrows 1 and 2. These lines, as well as the spot No. 3, are not scratches or notches made after machining. They appear to have been there before machining. However No. 1 is a fine line  $5/16$  inch long, No. 2 is  $1/32$  inch wide and  $7/32$  inch long, and No. 3 is  $1/32$  inch wide by  $3/8$  inch long.

#### Punch No. 2 Outer Ring (A)

The outer ring has a notch at approximately 45 degrees from its axis. The notch measures  $7/16$  inch long,  $1/4$  inch wide, and no more than 0.003 inch deep. A strain gage was mounted at 0 degrees near the notch and three others at 90, 180, and 270 degrees from the first one.

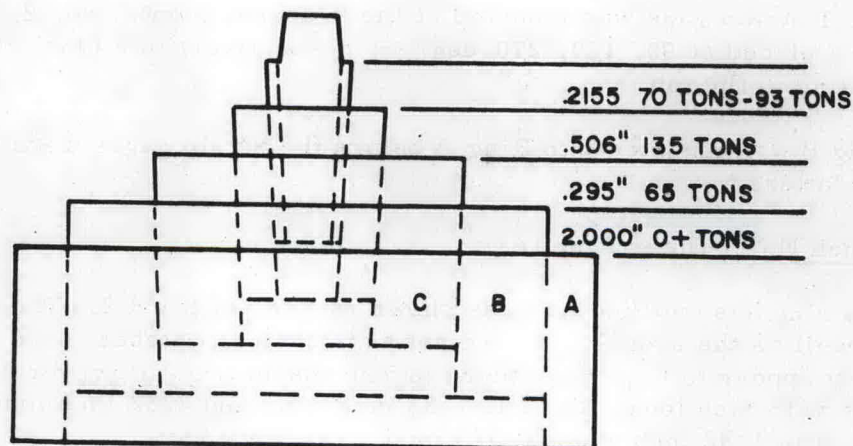
All other rings were visually inspected and no apparent nicks or notches were detected.

All strain gages were mounted 1 inch from either edge to read circumferential tensile stresses.



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Figure A-10 PUNCH ASSEMBLY NUMBER 1



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Figure A-11 PUNCH ASSEMBLY NUMBER 2

Note: The above diagrams show (schematically) the interference between each of the Punch elements, and the corresponding force required to assemble each element.