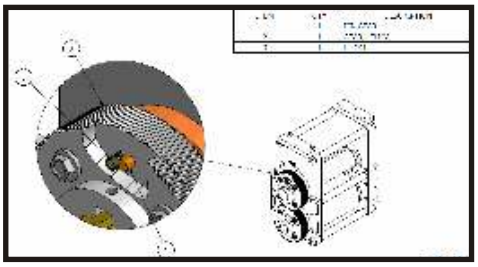
Punch Troubleshooting Guide

Conventional



Conventional (shear) Punching Troubleshooting

Poor punch life? Fuzzy punched holes? Too much dust? Chad hanging from punched holes?

These are all signs of poor punching performance. What could be the cause? Backlash, worn dies, ring misalignment, worn rings/tooling, sloppy shaft keyways, or abrasive papers may be causing issues. Here are some things you can do to improve your punching quality.

- Use serrations and shear ring as indicator for problem (punched shear rings in one direction only, for example, may indicate gear backlash/slop or incorrect ring alignment).
- Backlash must be tightened to eliminate gear slop. Maintenance managers typically know how to make the adjustments (reference backlash diagram at left).
- Top face of die must maintain sharpness for clean punching. Worn dies create fuzzy punched holes even with new punches. Carefully feel die edge with fingers. Dies must be replaced when dull (general replacement cycle: replace dies with every 3-4 punch changes).
- Examine punch and die shafts/keyways for heavy gouging and wear. Rings must slide easily on shaft and key. Shafts should be honed with a fine grit stone, and keyways replaced.
- Worn punch and die rings must be replaced when press wrap-ups and hammers damage cavities.
- Convert press to ELPS punch tooling when line hole punch life is poor due to abrasive substrates.

ELPS (Long Life)

ELPS (Long Life) Punching Troubleshooting

Poor punch life? Fuzzy punched holes? Too much dust? Chad hanging from punched holes? Disengagement and crashes?

These are all signs of poor punching performance. What could be the cause? Incorrect punch/die height, worn/bad bearings, uneven punch/die replacement, damaged punch/die cavities, and press crashes. Here are some things you can do to improve your punching quality.

- Use a dial indicator to check punch height. Use a rubber mallet to seat punches and dies with every replacement.
- Change punch and die set screws with every complete change.
- Change and flip punches and dies as a set.
- Locate bad bearing by feeling for roughness or drag while rotating the ring manually.
- Check for damaged punch or die seats indicated by uneven height. Replace damaged segments or rings.
- Take hammers away from operators. Pounding on the equipment makes the issue worse, not better.

EMT INTERNATIONAL | 1910 Cofrin Drive | Green Bay, WI 54302 | 920.468.5475 | 920.468.7991

www.emtinternational.com — info@emtinternational.com

Punch Troubleshooting Guide

Backlash Gears

Also view an animated demonstration on our website.

Backlash Gear Troubleshooting

- Picture shows a typical gear set. This set consists of a timing gear for the die shaft and an anti-backlash gear for the punch shaft. The timing gear adjusts the registration of the punch and die shafts. The anti-backlash gear is used to eliminate any backlash (movement) between the gear teeth.
- The presence of backlash between the gears is a source of shortened punch life and is very difficult to detect. Because it is so hard to find, it should be checked whenever you change punches and *always* before any timing change. If punch life seems short and the punched slug is hanging on the leading or trailing edge of the holes, inspect the punches as you take them out. In rotary punching, the punch head tends to look slightly oval because of the arc involved. When the gear train has backlash, this becomes more pronounced. We recommend having the gears tight enough that you can feel them rubbing as they turn. To adjust the anti-backlash gear (which is really two gears that can be offset to contact both sides of the timing gear tooth), loosen the bolts, tighten the wedge, and re-tighten the bolts.
- The other gear adjustment you have to make is timing. You check this when installing new punches. The punch head is larger than the die hole, so when you change a punch, roll the unit over one time and check to make sure that the punch has sheared all around. You should be timed close enough that a round ring is sheared off. By looking at this ring, you can determine which way the punch has to move to get in time. Also check for “across the web line up” at this time. To correct timing, loosen the timing gear bolts and turn the die ring. A dial indicator is very helpful at this point to see how much you are moving the punch.
- Tighten the bolts and shear another punch to check your move. Only one punch is needed to set the timing. You will find that a round pin, such as a 1/8” drill placed between the gear teeth, will hold the gears while you move the die ring shaft.

Contact EMT

For Additional Troubleshooting

If you are still experiencing poor punching quality after making all the necessary changes and adjustments, please contact our Technical Services department for an advanced discussion.

Click on the link below to contact Technical Services via our website, or call 920-468-5475.

EMT INTERNATIONAL | 1910 Cofrin Drive | Green Bay, WI 54302 | 920.468.5475 | 920.468.7991

www.emtinternational.com — info@emtinternational.com