



## Safe and Effective Impact

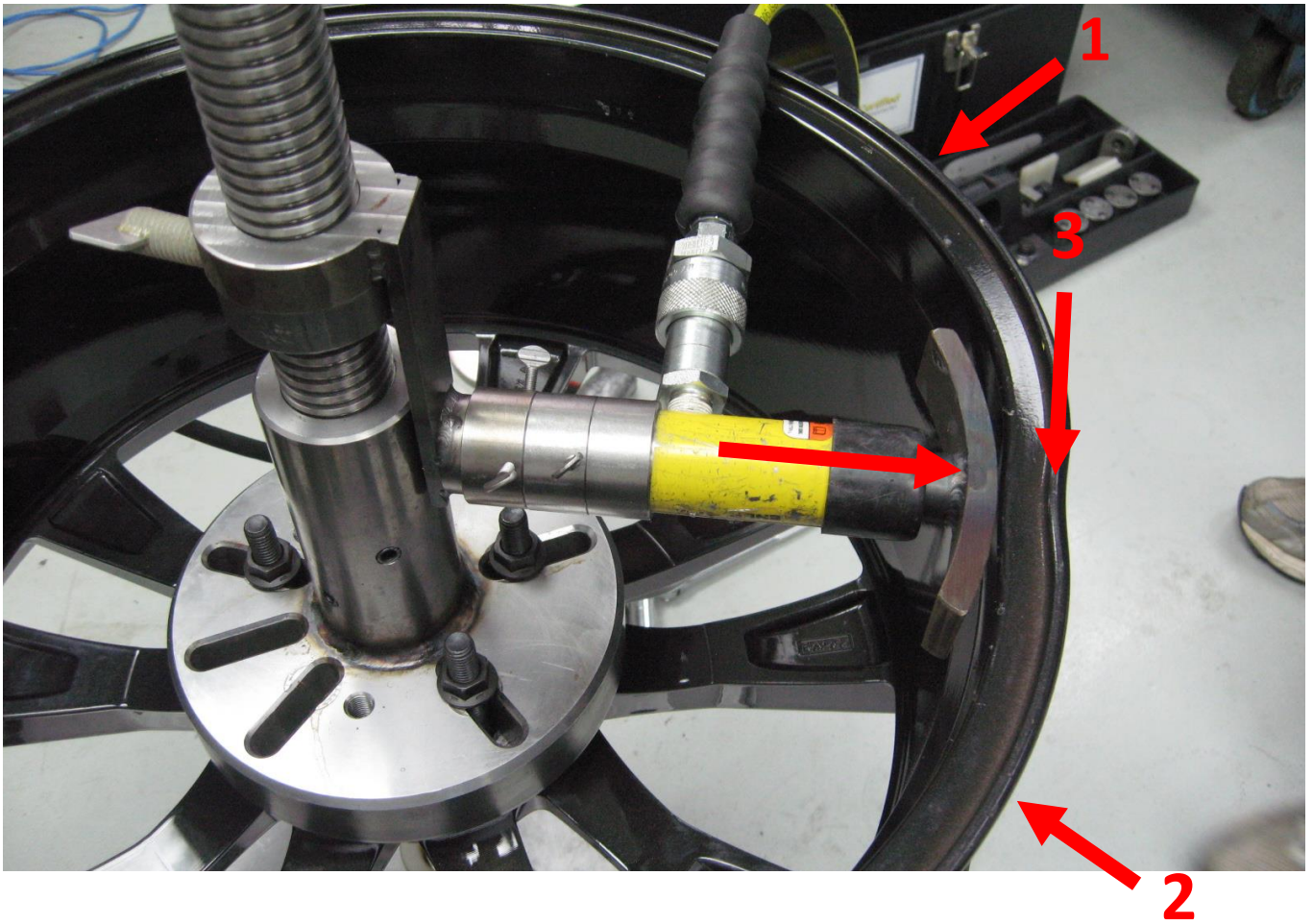
During typical wheel straightening procedures, impact against the wheel surface is frequently necessary. Impact should always be done while the bend site is under some hydraulic pressure. Whenever impact is used, **safety** should always be of paramount consideration. When done on a wheel while significant hydraulic pressure is being applied, be aware that the setup could burst out of position. So be mindful of the fact that anytime a hydraulic ram is under high pressure, a potentially dangerous situation exists.

Impact should be considered as one of the final steps in the straightening process. It works best when used **after** taking dial indicator readings. Tweaking with impact is an excellent strategy when fine adjustments are needed. Sometimes just one sharp blow to the damaged area while pressure is being applied can make the difference of a few thousandths of an inch.

When you have the bend site under pressure, you can expect different results when you strike the damaged area. The most common type of impact is **direct** with an appropriate hammer, such as soft metal or composite dead blow.

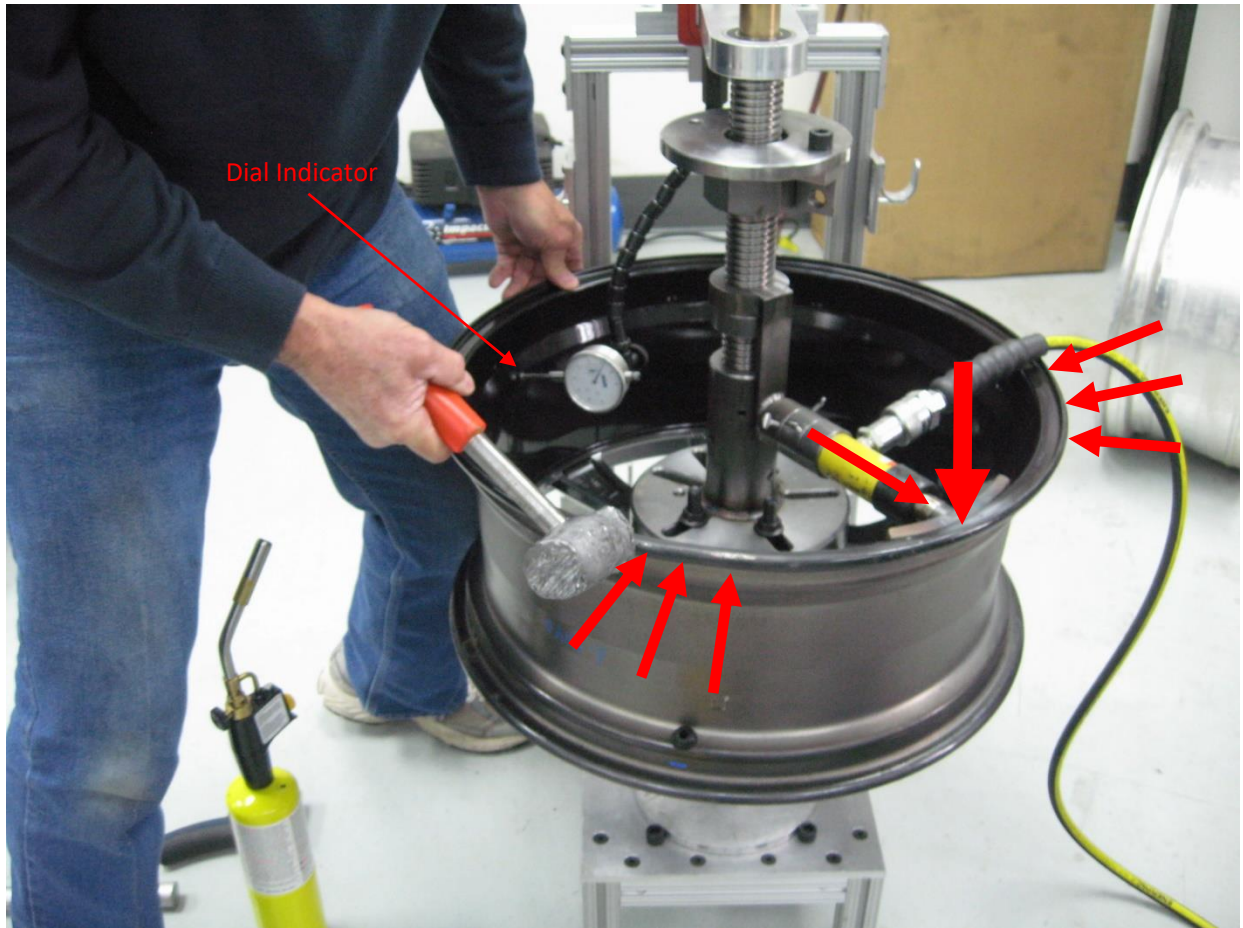
*A heavy steel hammer can also be used if the bend site of the wheel is protected with pieces of soft but durable material. This will act as a shield against heavy tool marks.*

**Indirect** blows can be transferred to the bend site accurately and safely with a drift punch made of soft metal, nylon or wood. The most **controllable** results can be expected without impact but with impact, different results can be expected, which are not as easily predicted.



There are three impact areas associated with virtually every inboard flange bend. One on each side of the bend and the third is directly downward over the bend site. The most effective impact is done with the lower axis ram under pressure at the bend site. When a wheel is bent, the areas on each side of the bend can be shocked with impact. This shocking expedites molecular movement in and around the bend area. While the hydraulic pressure force is pushing away from the mainshaft centerline, the impact on each side of the bend helps the metal in that area move inward and downward impact over the bend also helps the metal move back into its original position.

In many cases, impact is not necessary. However, when a bend begins to require an extreme amount of hydraulic pressure, impact is a good strategy. A minimal amount of impact is all that is usually necessary and it should be applied strategically. Light impact should be done at first at the strategic locations shown above. If more impact is needed, it is best to use a heavier hammer to strike to wheel rather than just hitting harder. Although the setup seen in the above photo is not yet ready for impact, the areas of impact adjacent to the bend site can be seen more clearly.



In the After the Dual-Axis hydraulic pressure process has moved the metal back into a shape that looks round to the naked eye, dial indicator readings will reveal the true runout. Once the runout shows the innermost spot on the wheel, the lower axis is placed against that mark and hydraulic pressure is added. Now the final adjustments can begin.

*When using impact always be aware of damaging the dial indicator. Before starting even light impact, remember to move the tip of the indicator away from the surface of the wheel. If heavier impact is required, take the indicator off the machine entirely*

While the bent area is under pressure, light impact is done on the areas previously described. After each impact session, the lower axis is removed and indicator readings are taken again. If there is no change, more hydraulic pressure is added and the impact is heavier. Additional heat may also be a necessary part of this strategy. Repeat this process is until the wheel is within balanceable tolerances.



Sometimes the nature and severity of the bend might necessitate the use of **heavier** impact. Here a heavy steel sledge is being used with a piece of urethane to protect the wheel surface. Pieces of soft metal, nylon, wood, leather or even a section of tire side wall can be used to protect the wheel from heavy tool marks.



When heavy impact must be applied at a **precise** location, the **Aluminum Drift Punch** is a useful tool. It is a softer grade of aluminum than an alloy wheel so tool marks can be kept at a minimum.

Regardless of the type of impact you use, remember that it should be done when the bend site is under pressure and always be mindful of safety.