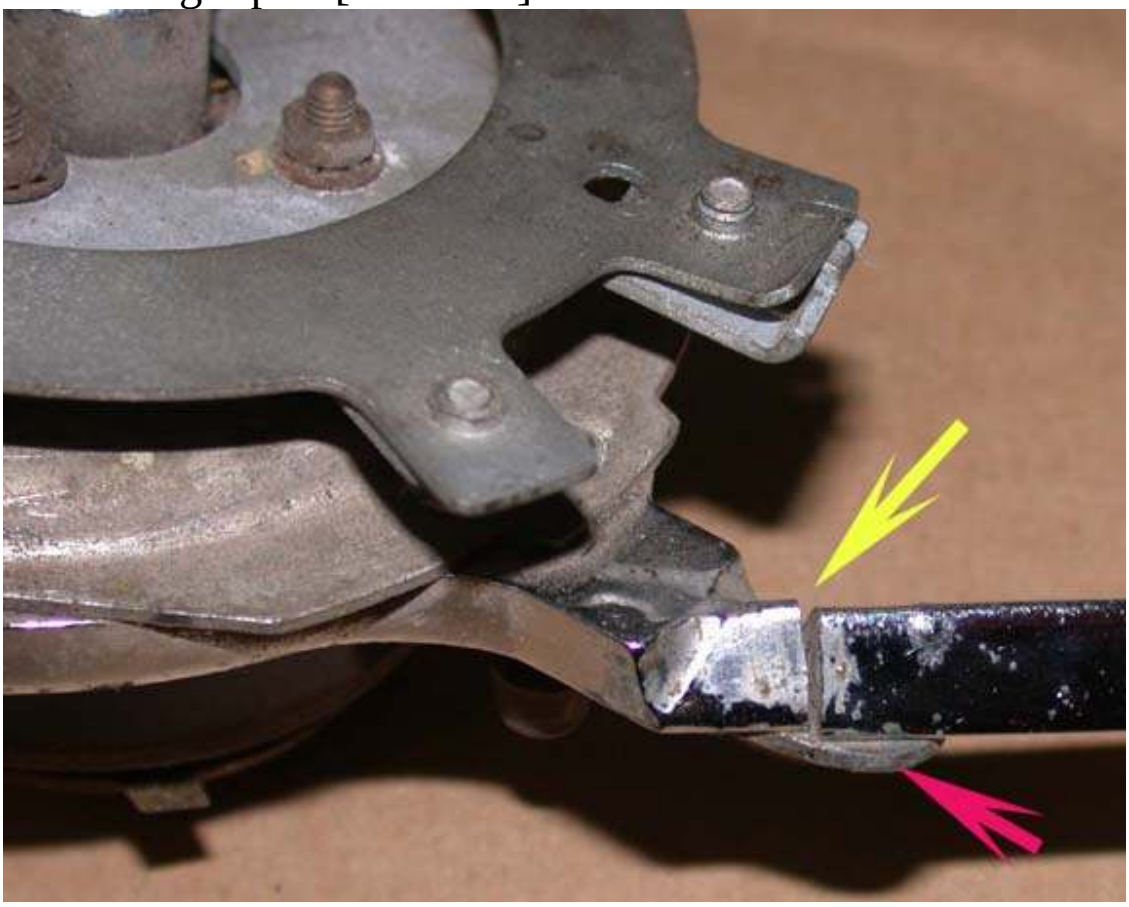
Horn Ring repair [Die-Cast]



Picture 1. Broken Horn Ring – note previous repair using a bridging plate

Die-cast Repair
Until recently it was assumed 'by me' that items made from die cast could not be repaired. Well these items are getting scarce and what is left is looking less than pristine

Definition-Spoke. *For the purposes of this article the three parts that radiate from the inner hub to join the outer ring have been called spokes. Picture 1 has a broken spoke.*

These can be repaired and refinished and here is a basic outline; Pictures 1 to 8:

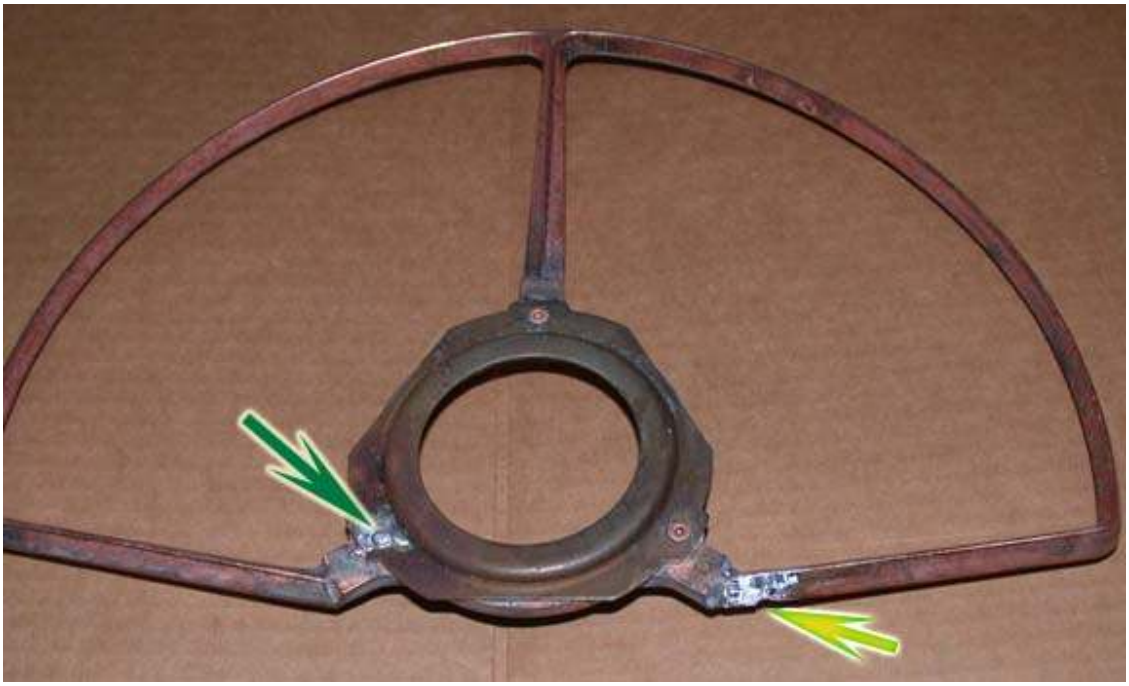
- Examine the original and check its <u>all there and justifies</u> repair
- Remove anything that can be, and have a plater strip it of chrome
- Examine on return; it should now be bare die cast or covered in copper
- Prepare areas to be welded by cleaning only the surface
- Hold in clamps/jig in such a way as to maintain its normal shape

Picture 2. ZA horn ring with attachments taken off [bridging/repair plate removed]

- Use an oxidizing oxy flame for heating
- Fill or weld work area with the flux-less Cromweld Zinc welding rod no. 321671
- Once parent metal is melted adjust the heat to maintain control
- Build weld area in excess of its final shape [No flux used with No. 321671 rod]
- Allow to cool and file [or/and use a Dremel as its very hard] to reshape to original
- After reshaping the horn ring can be outsourced to refinish and chrome, or alternatively prepare faults/imperfections yourself and ask plater to electroplate in copper and then fill faults/imperfections with solder
- Once smoothed give to plater for finalisation and chroming
- In addition. Studs located in the central steel plate can be soldered at their rivet end if found to be loose. See pictures No3 & No5.

Warning.

This process cannot be rushed and will not be cheap
Make sure an oxidizing flame is used when welding
Don't overheat but control heating of die cast
Gain the skills by practicing first



Picture 3. Initial repairs to spoke and soldering of loose rivet on left

Picture 4. Underside repair. Note the three studs, they are riveted from front.

Damage as exhibited on a ZA and ZB Horn Ring

ZA horn ring had a break in the spoke and is discussed in above text. While the repair to the ZB horn ring is different and explained here.

The ZB horn ring had met with some misfortune in a previous life, being distorted around the circular support ring and fractured close to a connecting spoke.

Straightening the *support ring connecting the three spokes caused the existing fracture to break completely [picture 5] and develop a further fracture near the [picture 6] left spoke. Next two pictures show progress of this repair.

Definition – Support ring. *The ZB horn setup has been simplified to include an inner ring in its hub construction/casting and for the purposes of this article is now called the support ring. Picture 5 shows support ring repair in progress.*

Comment

To again emphasize, it's important to hold the item being repaired in such a way as to re-establish the original shape, and maintain that shape during welding.

Picture 5. ZB Horn Ring. Shown on right is repair of major break in the support ring

Picture 6. ZB Horn Ring. Shown on the left is repair to the fracture in the support ring

Picture 7. ZA and ZB Horn rings after initial welding of die cast and soldering of rivets

Picture 8. ZA and ZB horn rings back from re-chroming

Conclusion

Products in die-cast can come back to life, **picture 8**, although it seems increasingly difficult to find materials, experience and electroplaters for the resurrection to happen. Keep in mind die-cast in our 1950's cars is a mix of metals that attacks itself, causing both cavities and blistering over a period of time. Blistering can be seen in **picture 1.**

Experience to make it all happen came about thanks to the willing assistance of retired master welder Vern Stephens; Plus a local chrome plating firm, still using the three plating process, was fortunately available to me. [Environmental considerations are making these electroplating firms scarce]

Die-cast welding rods were difficult to find at this time. Alternatively die-cast welding rods can be produced from old die-cast products although you need to know what your doing. {Vern prefers the correct flux-less no. 321671 die-cast welding rods but states, that "old refrigerator door handles are typically of a high quality die-cast"}.

Loz {Laurence} Scott; Geelong MG Car Club. October 2004.

End