

About MAX BMW Motorcycles Machine Shop Articles: 2017 brings MAX BMW's Machine Shop to full operational status and a series of articles on our individual machines and operational practices. In this series, we highlight some of the specific equipment, tools and jigs we have developed to come to the exacting standards of ultimate quality, attention to detail, accurate measurements and swift turnaround of customer jobs.

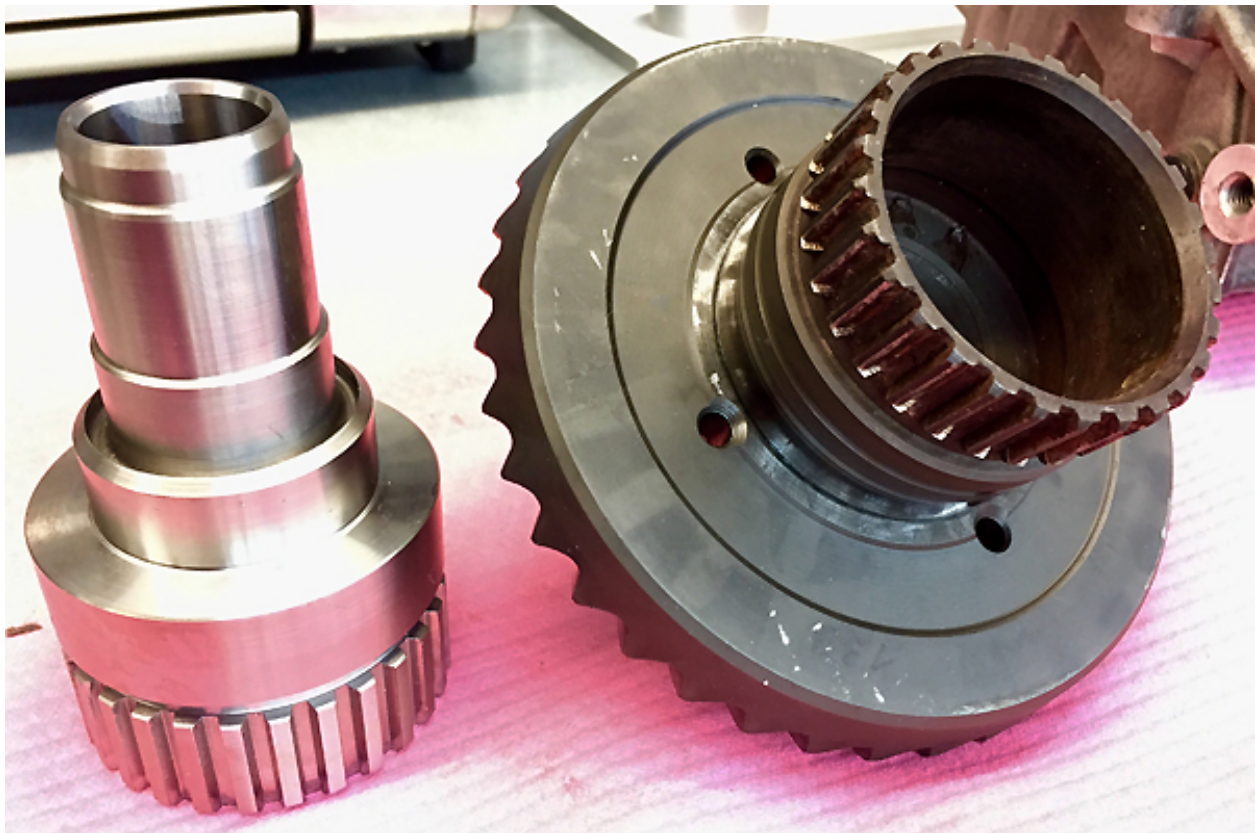
MAX BMW

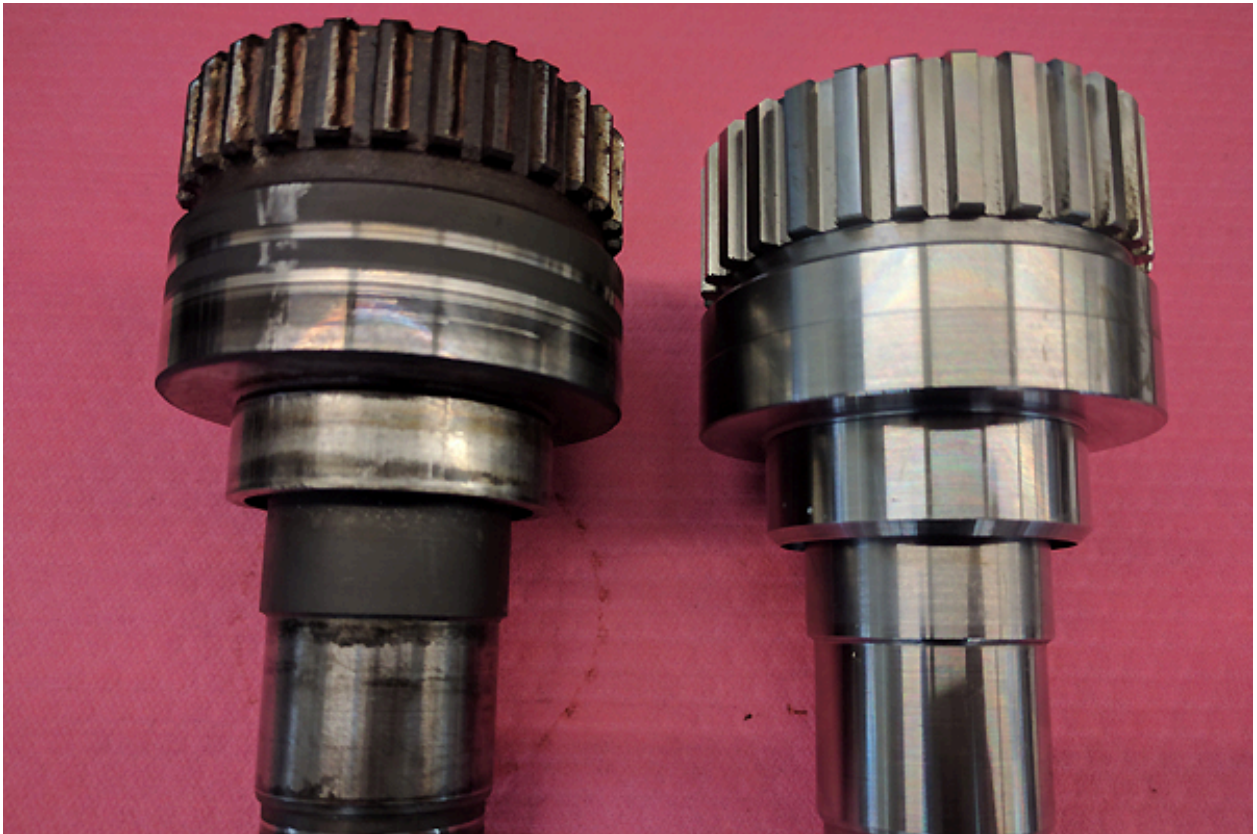
Motorcycles

ARTICLE 6
May 11, 2017

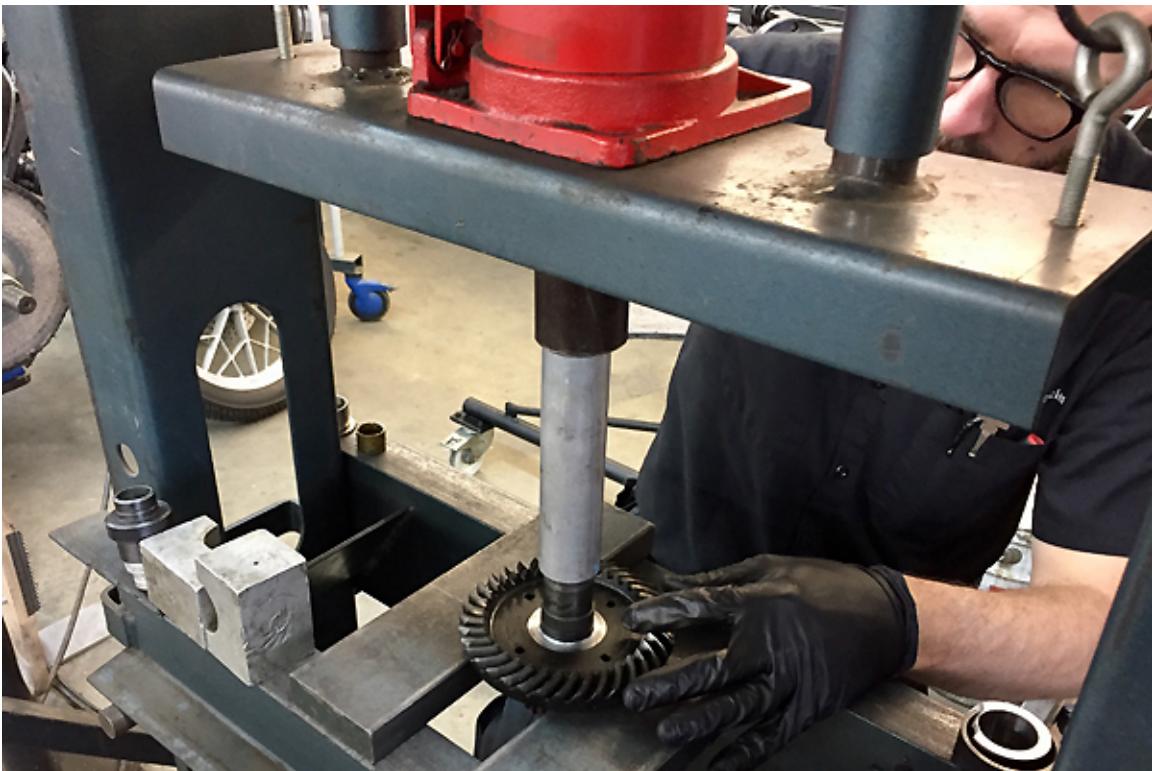
Airhead Rear Drive Spline Replacement/Upgrade

In our last article we hinted at some of the new services we are offering in the MAX BMW Machine Shop. A very popular one is our rear drive spline replacement for your 1970-1984 Twin Shock BMW. With many people choosing to increase the power and performance of their airheads, the rear drive splines become the weak link. The extreme wear often found on these splines is because of the hardness difference between the splined shaft and the splined hub. The softer splines tend to wear significantly faster than the hub splines. Our new splined shaft is a much harder material and has deeper splines allowing for more complete engagement of the hub splines. While routine checking and lubrication will help prolong the lifespan of your original splines, if they're significantly worn, the best option is our repair/upgrade process.

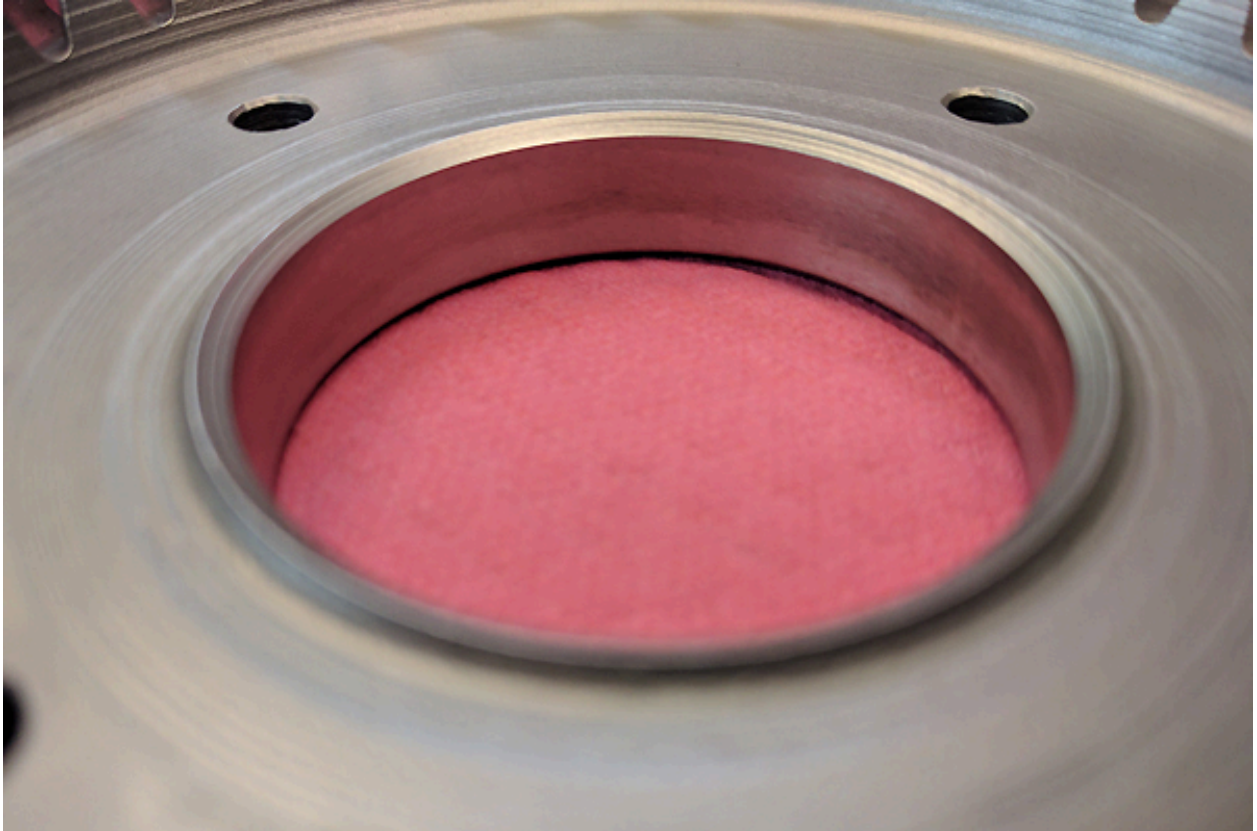




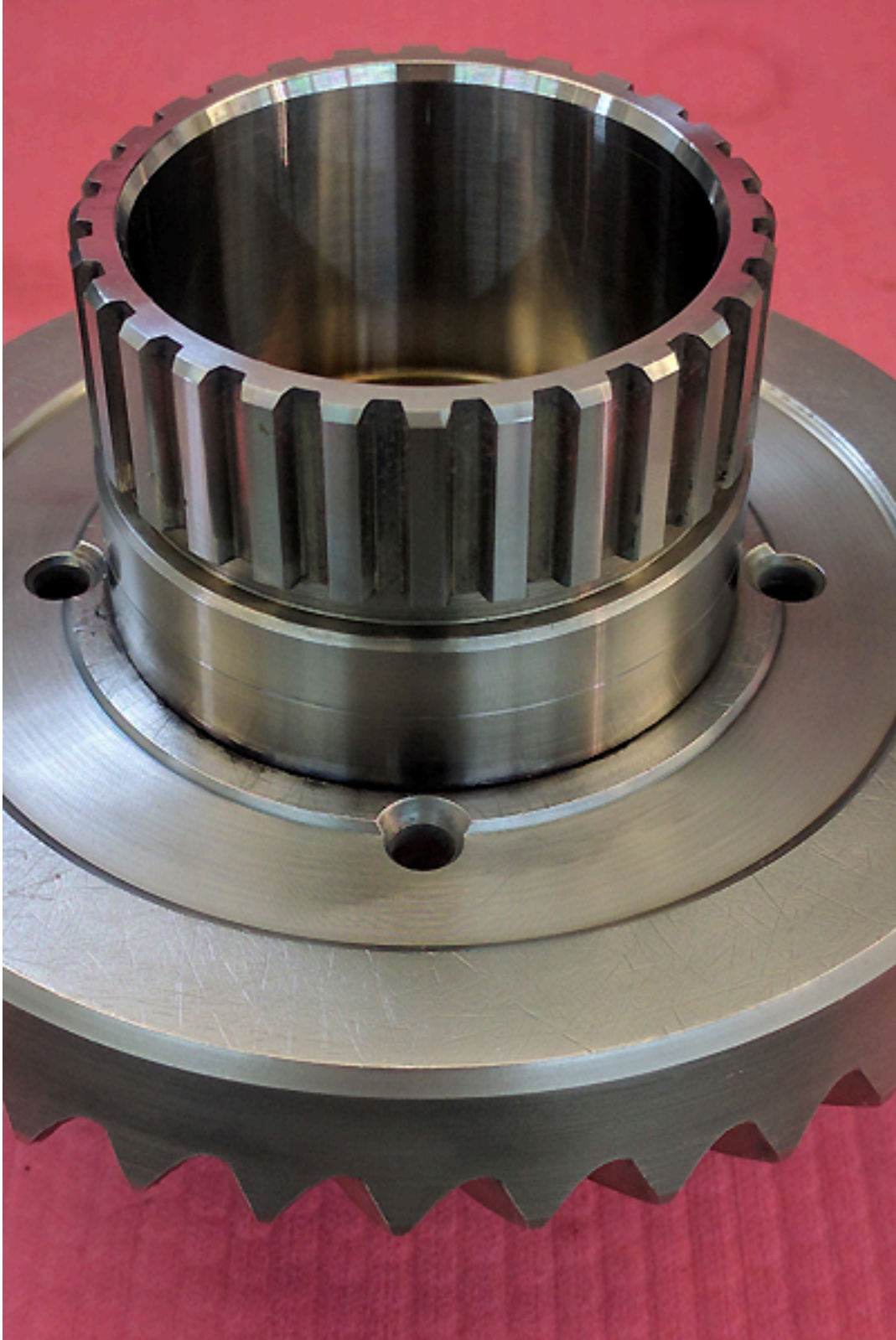
Our first step is to set up the gear assembly in the lathe and remove the original weld. We then press apart the splined shaft and the ring gear.

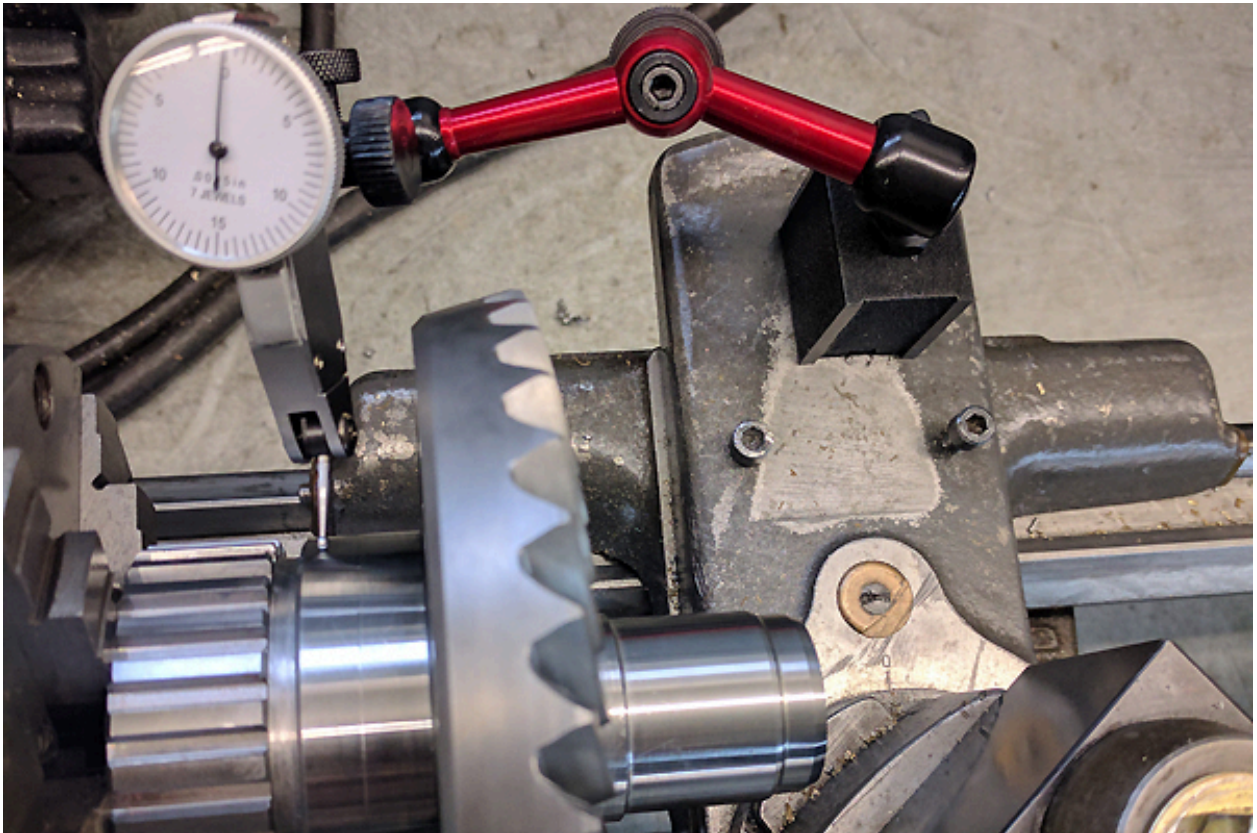
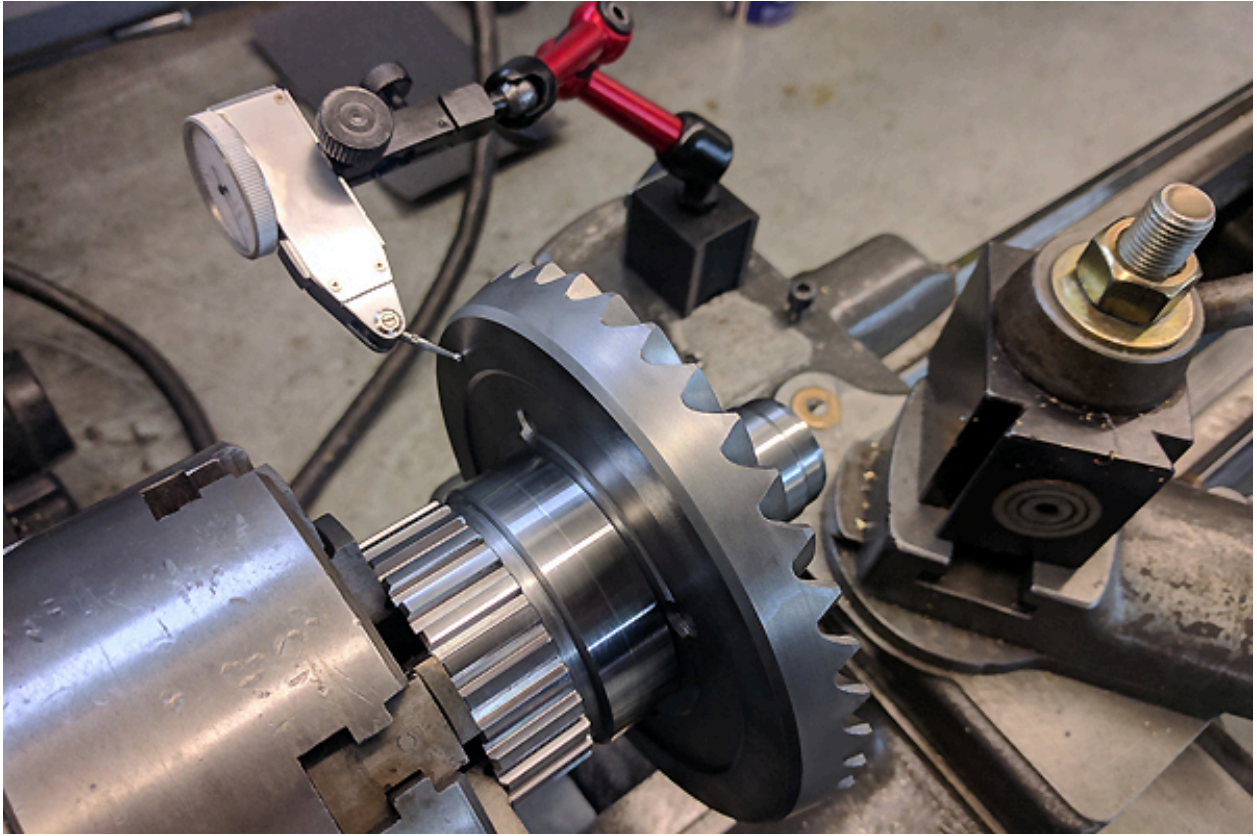


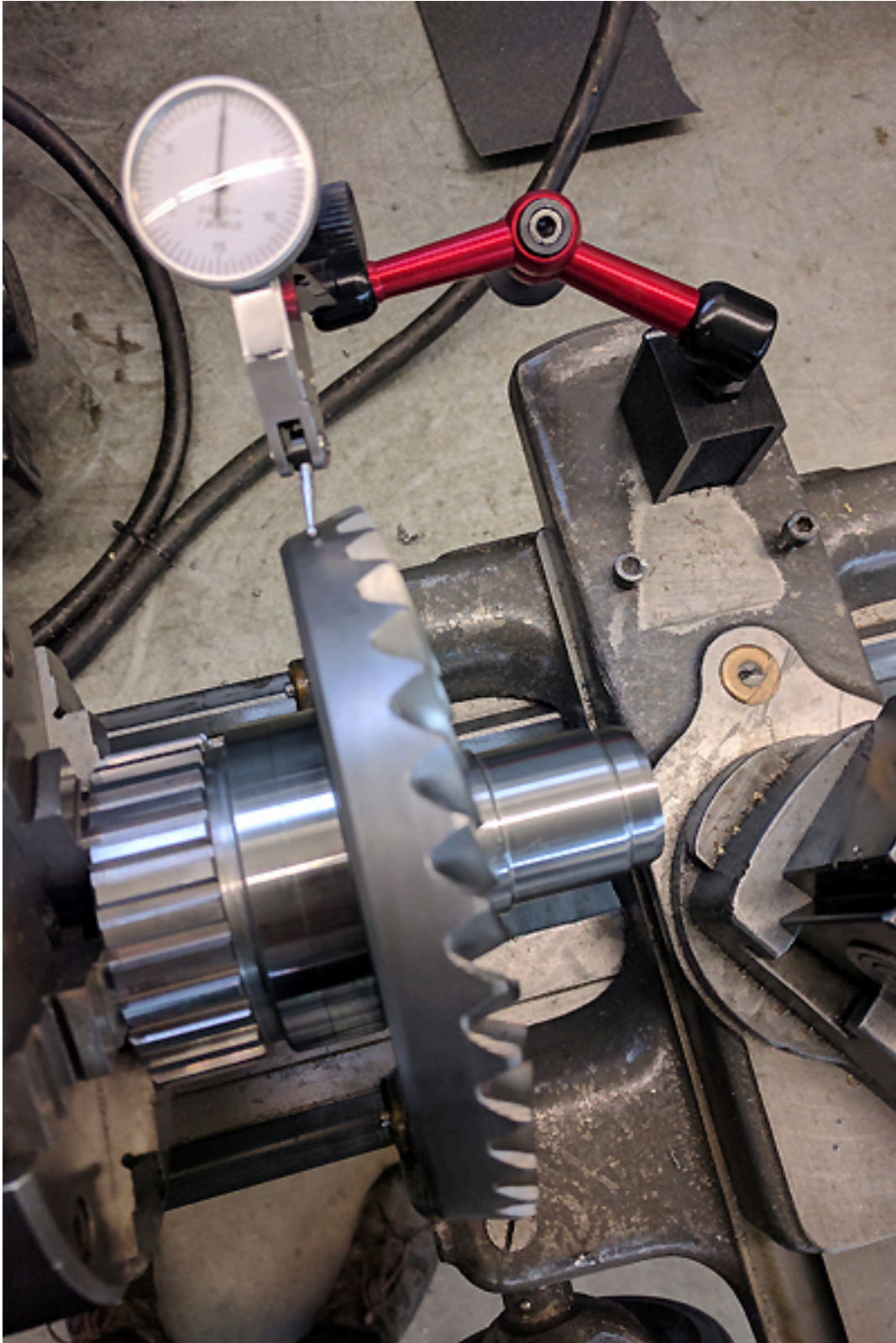
In the next step, we machine a chamfer on the inside diameter to aid in welding penetration when the new parts are mated together.



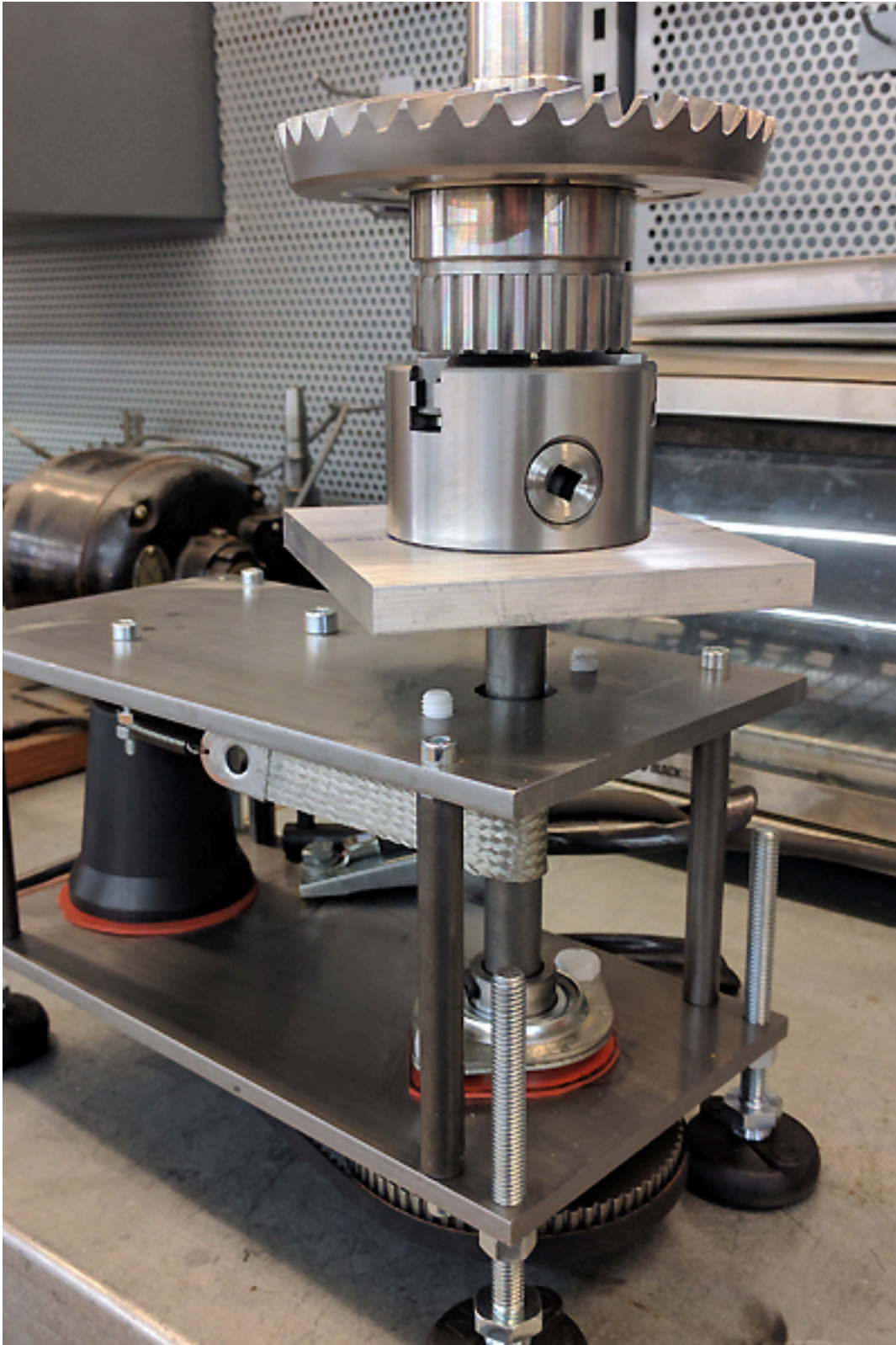
After thoroughly cleaning the ring gear, it gets pressed onto the new splines and chucked in the lathe to double check run-out (both parallel and perpendicular to the center-line). For best performance and lifespan, we look for .050mm (.002") or less before we weld.

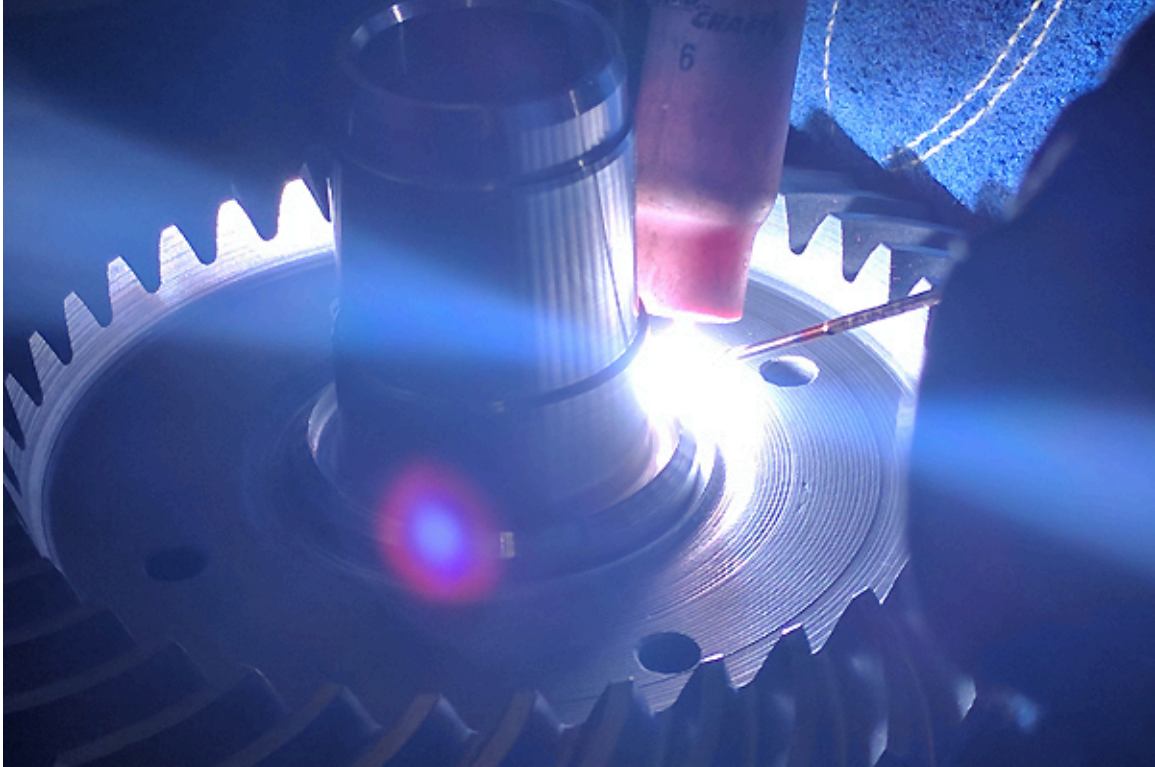






Once ready for welding, we install the pressed together assembly into the chuck of a foot operated turntable of our own design. This allows us to weld all the way around the part without having to stop or re-position by hand.





Our Miller Syncrowave 210 Tig welder does the work of joining the new parts.



How many miles does your bike have on it? Have you ever looked at your splines to see what kind of shape they are in? It's as simple as removing the rear wheel as if you were going to replace a tire. If you need help with the inspection and evaluation of your bike, give us a call. Our new high quality splines could very well outlast your bike!

Click here to see a short video of this process:

[BMW AIRHEAD REAR SPLINE REPLACEMENT - MAX BMW MACHINE](#)

Direct YouTube Link: <https://youtu.be/mCbY5nEbcRg>

Our machinist, Nathan, cut his teeth in the machining industry starting with a degree in Automotive Restoration and in High Performance Engine Machining. He worked in Tennessee and North Carolina building 900+ hp dirt race engines as well as working a stint in the world of NASCAR. Coming to MAX BMW has allowed him to further focus his skills by taking advantage of specialized BMW training. Pursuing his love of these bikes inspires Nate in developing custom adapters and fixtures, unique to MAX BMW, aiding in broad restoration abilities and enhancing the high-performance side of BMW Motorcycles.

See our Machine Shop page at: <https://www.maxbmwmotorcycles.com/max-bmw-machine-services.html>