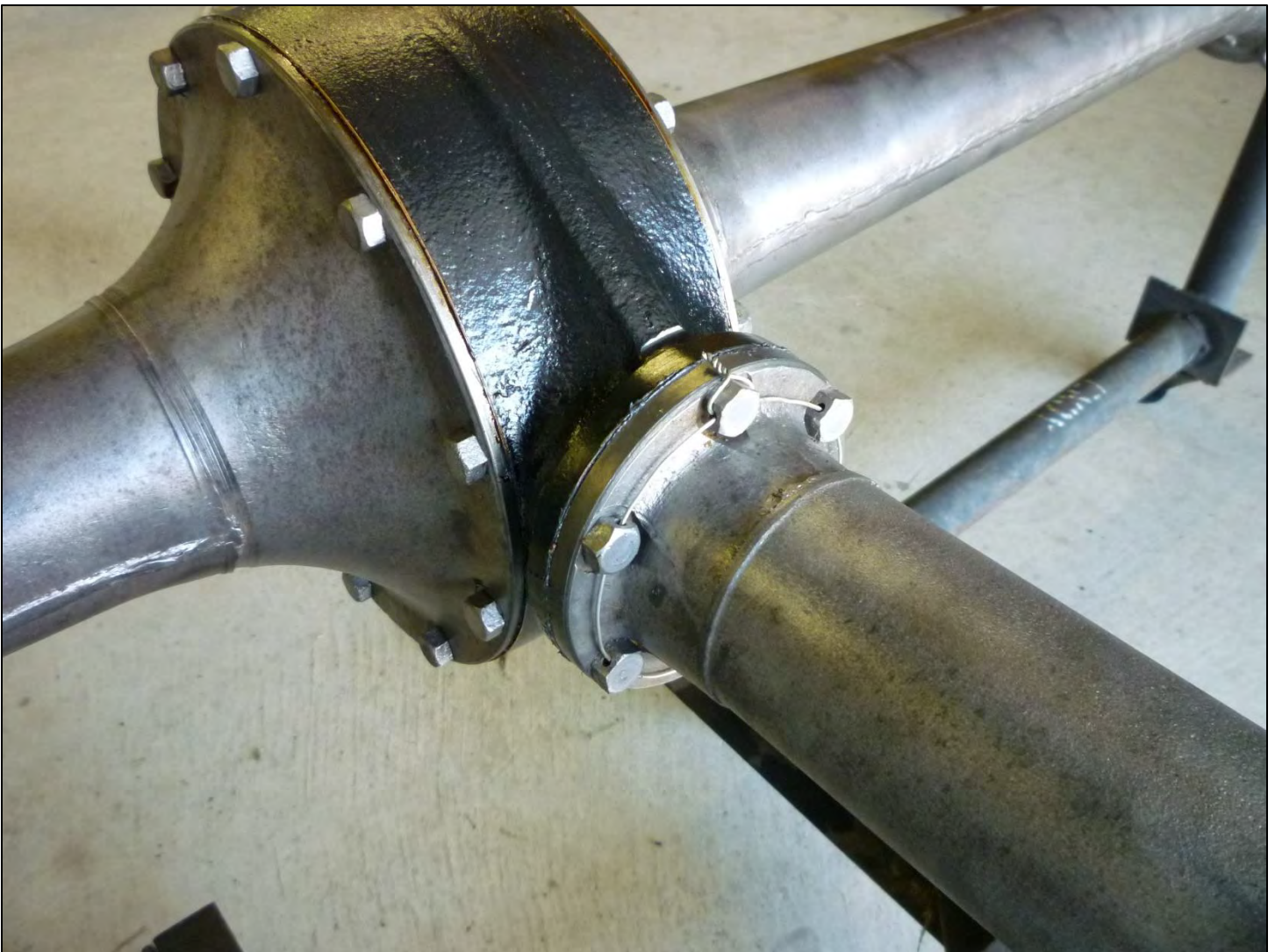


Model A Banjo Cracking

by Tom Endy 2023

The banjo is part of the rear axle assembly and is sometimes referred to as the third member. During Model A production the banjo went through three progressions. All banjo housings are functionally interchangeable. From the beginning of production to early 1929 the banjo did not have support gussets behind the flange where the torque tube attaches. Support gussets were added in early 1929. Their purpose is to strengthen the area around the flange. Apparently Henry experienced some cracking of the early banjos. The support gussets can be seen in the photo below. There is one on top and one on the bottom. In mid-1930 the third change to the banjo was to reposition the fill plug. The fill plug was moved from the center line to the left. This allows viewing of the condition of the ring gear in the differential. Consult the judging standards to determine the exact dates of the changes.



The top support gusset is seen directly above and to the left of where the safety wire terminates. There is an identical gusset on the bottom. The torque tube attaches to the banjo flange and is secured with six retaining bolts and is safety wired.

When installing a Mitchell overdrive the torque tube is removed and discarded. The drive shaft is also removed and discarded. The Mitchell stub shaft is installed in place of the drive shaft and the rear flange of the overdrive is bolted direct to the banjo flange in place of the torque tube.



This photo shows a crack on the top left side of a 1930 banjo with support gussets that came out of my grandson's 1930 Tudor. The slot headed screw is a mystery and appears to have been included during the original casting of the banjo.

Early in the three year restoration of my grandson's 1930 Tudor the rear axle assembly was completely overhauled. The banjo used was an early 1930 with the support gussets and the fill and drain plugs in line. Soon after a slight oil spot was noticed under the banjo. It was thought to be coming from the drain plug, so pipe sealer was added to the threads. However the oil leak persisted. A closer inspection seemed to show the leak was at the joint of the banjo flange and the torque tube.

When we were installing the overdrive sometime later we investigated this problem. We ran a flat file over the banjo flange and inspected the banjo for cracks, no cracks were found. We applied sealer liberally to the flange gasket. After the overdrive was installed the oil leak became profuse. This time an inspection revealed a serious crack at the top of the banjo right behind the flange where the overdrive attached. The crack was apparently there when the differential was overhauled and went unseen. The weight of the overdrive must have opened the crack up more and the leak became extreme. The rear axle assembly had to be removed from the car and disassembled and the banjo replaced.



This photo shows the crack continuing on to the top right side of the banjo from the left side.

It is common for cracks to occur in the early banjos that do not have the support gussets, but is almost never seen with the later banjos with the support gussets. The occurrence of a banjo crack is usually associated with a bust-up of the ring and pinion gears.



This photo show an additional crack in the banjo from the 1930 Tudor that is on the lip on the left side of the banjo flange where the left axle housing bolts on. There are also two witness marks on the left side where a ring and pinion bust-up must have occurred sometime in the past.

It is common to see a crack such as this at all four bolt holes nearest the torque tube flange on the early banjos without the support gussets.



This is an early banjo without support gussets.

These early banjos were susceptible to cracking just behind the flange where the torque tube attaches. When rebuilding a Model A rear axle assembly that has an early banjo, it is prudent to replace it with a later one.

When rebuilding a rear axle assembly for a customer I have always advised them of the potential for cracks if the banjo is an early version without the support gussets. In most cases the customer opted to have the banjo replaced with a later one. Banjos have been found in abundance over the years at swap meets and I have been able to acquire an inventory.



This is an early banjo without the support gussets. It came out of an early 1928 Phaeton that was brought up from Argentina a number of years ago.

I was asked to overhaul the rear axle assembly and I replaced the banjo with a later one. The banjo apparently experienced some cracking and some resourceful fellow was able to repair it by welding on re-bar supports.