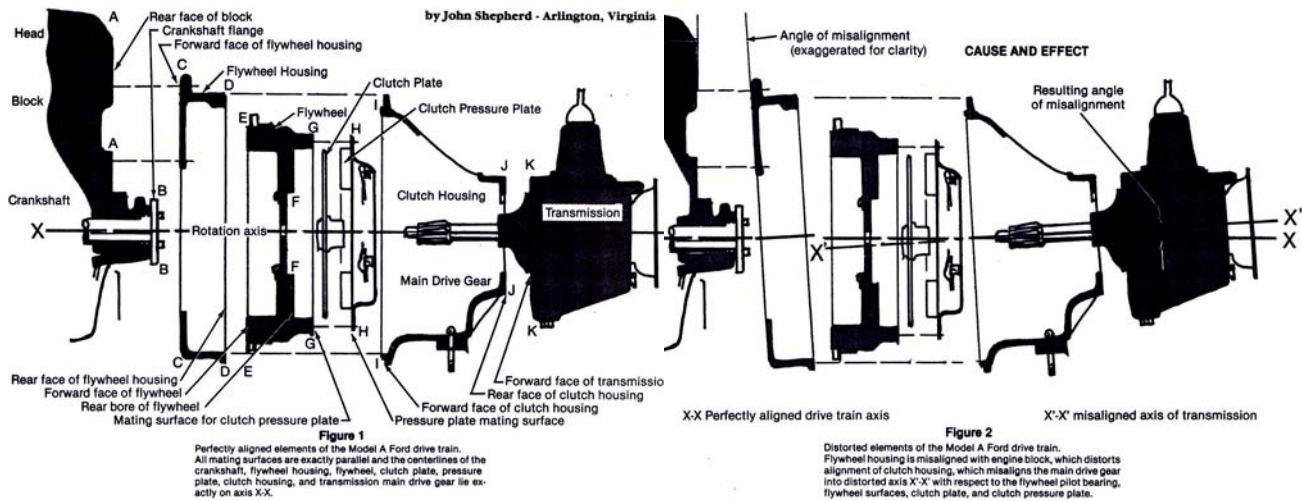


Flywheel Housing Alignment Pt 2



For those of us who enjoy studying the Ford Service Bulletins, the two brief notes on Page 218, February 1928, pertaining to the flywheel and its housings, are likely to stimulate considerable interest. However, for most of us backyard mechanics, the mere suggestion of a need for a dial indicator is a sure turn-off. We quickly turn the page and look for something simple, such as adjusting the ignition points. Consequently, we don't always pay the attention we should to some of the very important fine points in our haste to get our cars back on the road. The proper alignment of the flywheel housing, which is a tremendously important to a properly running Model A, is a major example.

The scene varies from place to place, but the scenario is generally the same. The engine is out of the car, having been bored and rebabbitted, the valves are all finished, the engine pan is on and we now anticipate the easy part of finishing up with the flywheel, clutch, housing and transmission. First comes the flywheel housing, clean it up, paint it "Ford engine green" Don't forget the gasket, slap the four lower bolts into the block, and don't forget the safety wire. Next comes the flywheel, all faced and polished from the machine shop. Then, the new clutch plate and rebuilt pressure plate. We're all done!

Hopefully the foregoing tragic sequence of events will never happen to you, because if it does, a major problem is probably in the making.

Instead of being absolutely square with the axis of the crankshaft, the top of the flywheel housing has actually been tilted forward as seen from the side. Although imperceptible to the naked eye, this oversight will generally lay the foundation for a slough of troubles which will, sooner or later, degrade much of the expense and effort that have gone into good machine work and good parts. This is because the initial alignment of the housing with the rear face of the engine block is one of the truly critical challenges to craftsmanship in Model A'ing - and one of the easiest to accomplish correctly.

In its simplest terms, misalignment of the housing creates a misalignment of the clutch housing, which in turn, causes misalignment of the transmission main drive gear with respect to the flywheel, clutch plate, and clutch pressure plate. By misalignment, we mean that the axial of the main drive gear shaft does not perfectly coincide with a line through the exact centres of the crankshaft main bearings, crankshaft rear flange, flywheel, clutch plate and pressure plate. These components of the forward drive train, unfortunately, do not have a universal joint to compensate for non-axial linearity, such as is located between the transmission and drive shaft.

Let's examine the situation in a little more detail. First, assume that the flywheel rear bore, which contacts the clutch plate, has been perfectly machined and is absolutely parallel to its forward bore which mounts to the crankshaft flange. Assume further that the machinist knew what he was doing and also removed enough material from the rear annulus of the flywheel (against which the clutch pressure plate mounts) to preserve the original flywheel "depth" of 1.123" [1] and has made this surface absolutely parallel with the other two.

So far so good. Two important parts are now in perfect axial alignment, the crankshaft and the flywheel. The crankshaft is solidly mounted to the block and the rear face of the block is manufactured exactly square to the centreline of the main bearings, so it is accurate to say that all three parts-the block, crankshaft, and flywheel-are in perfect alignment. But all is not well...

Because of the initial "cocking" of the flywheel housing and against the rear face of the block (by tightening the throttle bracket bolts without proper shims), there is a resulting axial misalignment of the shaft of the transmission main drive gear and its splines are cocked with respect to the splines of the clutch plate. Further, the forward end of the shaft is cocked in the pilot bearing. *More in part three - Editor (Original article by John Shepherd - Arlington Virginia)*