Flywheel Housing Alignment Pt 4

Now attach the throttle control bracket, using some anti-seize and two lock washers, but leave the bolts loose. Insert one "C" shaped shim (A-6400)[3], about .010'' thick under each ear, over the shaft of the bolt, and tighten securely. I have never found any authoritative Ford references on these shims, except at page 218 of the Service Bulletins, but word of mouth has it that they are to compensate for the paper gasket on the lower segment. This makes sense, because for reasons of production economy, the plane of the ears and the forward surface of the housing were undoubtedly machined parallel. Accordingly, if the housing is installed without the shims, it will generally be pulled in tight against the block at the top ears, and therefore deformed and misaligned with respect to the drive train axis. This has been confirmed in several examinations, and proves the point that a disturbingly high number of Model A's have been incorrectly assembled, even by ostensibly "expert" mechanics. There is no guarantee that one .010" shim under each ear will bring the housing into perfect alignment, but it is a good starting point. You may find that it takes more than one on each side, or even one on one side and two on the other. The possibility is very slim, however, that you will obtain proper alignment without at least one shim .somewhere. In a recent check of our "chapter car," a 1930 Deluxe De-livery, we found no shims. Use of the "crankshaft checker" revealed the top of the housing was pulled in about .020" with respect to the bottom, a far cry from the maximum of .006 allowed by the Service Bulletin. Although the cause is inconclusive, this car had just experienced a major clutch failure in which one of the eight torsion-vibration damping springs became dislodged from the clutch plate and was found chewed up and jammed between the plate and the flywheel. We installed one shim under each upper bolt and found the maximum deviation of .008" on our next check. A new plate and rebuilt pressure plate made the car run better than ever.

This alignment process is so much fun for a club seminar, and so easy to do, that you can experiment with many shims, made from all sorts of material (beer cans, aluminum guner flashing, etc.) and thereby bring the misalignment down to almost zero. Occasionally a badly warped housing will be found that cannot be trued. Then it's off to the flea market to find a usable one. If you prefer· to install the engine with the throttle control bracket off, to make it easier to get by the newly painted firewall, it is okay so long as you note exactly the shim configuration you had when you obtained your final satisfactory alignment with the engine still outside the car, with the throttle bracket on and the bolts torqued. Don't forget to safety wire the previously installed lower bolts.

Next comes the flywheel; cleaned, polished, with a good ring gear, and the twelve threaded holes for the pressure plate all cleaned with a 5/16-18 thread chaser. Screw two short engine manifold studs into any two holes in the c; shaft flange to use as convenient hangers when you heavy flywheel into place {4]. The flywheel might require a gentle taps with a heavy hammer, applied through a wood block, to seat it over the dowel pins, or even gentle pressure from the attaching bolts. But not too much! Abnormal force indicates something is wrong. Take the time check and correct the problem. With the flywheel finally seated over the dowels and against the flange, position dowel retainer (A-7609-B) and insert the four bolts (A-2 7/16-20 x 13/16" drilled hex head) and torque them to a 50 ft. lbs. if in good condition. Safety wire the heads ensuring that the wire is tucked against the flywheel to an interference with the clutch plate.

As an afterthought, I believe it is cost and effort effective routinely replace the pilot bearing (A-7600) in the flywheel the cost is only about $3.00, and the old one is e knocked out when the flywheel is off. Most modern rep mems are sealed and lubricated for life, so it makes no difference which side of the bearing faces forward. However, in those bearing with an open side, it is best to install them with the sealed side facing the clutch to avoid contamination from clutch facing debris. Always place a dab of grease in the center of the pilot bearing before mating it with the transmission main gear shaft. Now that the flywheel is on, use the second tool, the "Flywheel Checker" shown in Figure 4, for a final check of the entire assembly. Bolt it across any two opposing holes in the flywheel annulus, as shown in Photo 5, and perform a couple of checks exactly as you did with the other tool. If the flywheel is perfectly machined, the readings will be almost identical to those you obtained from the crankshaft flange. If they vary more than .005", according w the Service Bulletin for February 1928, there is too much wobble and the flywheel should be re-machined or replaced.

You are now ready for the clutch plate and clutch pressure plate. "Although it can be done in other ways, the easiest method involves the use of a used transmission main drive gear as a pilot. These are common items in the flea market junk boxes. Clean any preservative or dirt from the forward contact surface of the pressure plate and slip it over the pilot shaft. Then slip the new clutch plate over the splines, ensuring that the side with the longer boss goes toward the rear of the car. Most of the replacements are marked "This side toward flywheel" so you really can't go wrong.

Insert the end of the pilot shaft into the flywheel pilot bearing and push the plate and pressure plate forward until the clutch is snug against the flywheel and the pressure plate comes up against the annulus with the twelve bolt holes. Line things up with a small drift in a bolt hole and get all twelve of the bolts (5/16-18 x /4'" hex head) started. Don't be alarmed if the pressure plate does not come up snug against the fly- wheel. It will when you evenly tighten the bolts. These bolts use 5/16" lock washers. Work diagonally across the diameter, finally bringing the bolts (if new) up to no more than 20 ft. lbs. Again, I believe it is cost and effort effective to use new bolts and lock washers. Now remove the pilot shaft you used as an alignment tool and the assembly is ready to be placed in the car.

As you gain experience with these simple tools and procedures, you will also gain confidence and will become very comfortable in delving into the heart of your car. This effort is all the more enjoyable when done as a group in a club seminar. In such groups, new ideas inevitably surface, and everyone, regardless of his or her previous level of competence, always learns something. It may be a better way to start a cranking bolt, to hold a tool, or some new words to say upon experiencing a newly skinned knuckle. *If you would like copy of the original article, let me know - Editor*