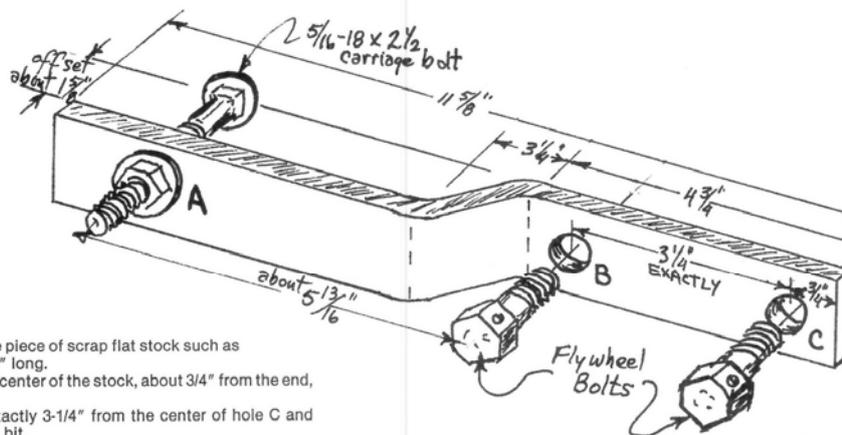


# Flywheel Housing Alignment Pt 3

Figure 3 -  
HANDY-DANDY  
MODEL A  
CRANKSHAFT  
CHECKER



Notes:

1. Use any available piece of scrap flat stock such as 3/8" x 1-1/4" x 12" long.
2. Drill hole C in the center of the stock, about 3/4" from the end, using a 1/2" bit.
3. Locate hole B 3-1/4" from the center of hole C and drill with the 1/2" bit.
4. Place in a vise, heat cherry red, and form the first bend about 4-3/4" from the end.
5. Reverse in the vise, heat again and make the second bend so the offset is about 1-5/8".
6. Using two of the regular flywheel bolts (A-21113: 7/16-20 x 13/16"), with two or three flat washers under the heads, bolt this tool to the crankshaft flange.
7. Locate hole A so the head of the carriage bolt will track the rear surface of the flywheel housing.
8. Drill and tap to accommodate a 5/16-18 x 2-1/2" carriage bolt. Secure with flat washer and hex nut on both sides of the bar.
9. Read page 218 of the Ford Service Bulletins!
10. Adjust the carriage bolt, lock, and use a feeler gauge to read the clearance all the way around the flywheel housing.

Figure 3 shows how to make an extremely simple and cheap tool, in no more that 30 minutes, using junk that almost everyone has around the house. It eliminates the need for an expensive dial indicator by employing an ordinary carriage bolt and a feeler gauge (something every Model A'er has in his toolbox). This is called the "Crankshaft Checker" or the "Poor Mans Dial Indicator".

With the engine mounted on a stand, or resting on a couple of 4 x4's and held upright by a hoist, carefully clean the mating surface of the rear of the block, including the two small bosses against which the two "ears" of the flywheel housing are bolted. Also, carefully inspect the housing for cracks or major distortion. The casting marks on the inside often obscure cracks originating at the engine mount bosses and running downward. Even a few gentle taps with a hammer will usually warn of cracks - you get a dull thud instead of a sharper tone. Machine shop magnaflux (or equivalent) inspections are other cost effective possibilities, Discard obviously warped or cracked parts. They can be repaired, but it is expensive. Good replacements are usually available in most swap markets.

Thoroughly clean the forward mating surface of the housing, particularly the "ear" contact area near the top. Apply the paper gasket (A-6396) and ensure that the two dowels that help support the housing are firmly in place. Swing the housing into place. Apply some anti-seize on the four lower attaching bolts (A-21110: 7/16-14 X 1/16 drilled hex head). Torque them to about 55 ft lbs, if new, and they show the 3 line Grade 5 head marking [2]. However, do not safety wire them yet because the housing may have to be removed and replaced before assembly is complete. No lock washers are used on these lower bolts. Also, do not install the two upper bolts (A-21121: 7/16-20 x 13/16 drilled head). You perhaps will have to use some flat washers under the bolt heads to compensate for the thickness of the flywheel and depending on the thickness of the stock from which you made the tool. Be sure the tool is absolutely tight against the crankshaft. Next comes the adjustment of the carriage bolt. Screw it in or out as required to cause it to barely touch the rear surface of the housing, somewhere near the top. Then screw it into the tool until you have about .030" clearance between the round head of the bolt and the housing flange. Use an ordinary feeler gauge, as shown in the figure for this, although a bent gauge, as shown in the figure, makes it a little easier. Now firmly lock the carriage bolt with the two hex nuts. You now have an absolutely fixed system with the respect to the circle of rotation of the crankshaft. If the housing were perfectly aligned with respect to the crankshaft axis, you could move the crankshaft through a complete revolution and the bolt head would remain at exactly the same distance from the flange. But this generally not the case.

Just for practice, go ahead and take a series of feeler gauges readings all the way around the flange of the housing. Record them on a piece of masking tape attached to the housing, or on a separate sketch, being sure to remember that these are only trial readings because the two upper bolts are not in place. Take as many readings as you like, avoiding the areas right over the bolt holes in the flywheel there may be burrs or local deformations which will generate misleading values. It is a good idea to go around at least twice, just to establish a consistent technique with your gauge. Don't worry if you have a scatter of two or three thousands, because the system isn't much better than that, but it's good enough.

The next step is intended to demonstrate the surprising flexibility of the housing. Position the bolt head of the tool somewhere near the top of the flange and take a reading. Insert a long, heavy screwdriver between the two ears and between the housing and the block, as shown in Photo 4, and gently pry the housing away from the block. The bottom is securely fastened by four bolts, yet the top moves away from it with very little pressure. In fact you can observe how the gap widens between the block and the housing at the ears. *Part 4 next month - Editor*

