

Balance Shaft Installation For 2011-2020 Ford 2.2L Duratorq Diesel Engines

The AERA Technical Committee offers the following information for balance shaft installation for 2011-2020 Ford 2.2L Duratorq diesel engines. This information should be referenced anytime the balance shafts have been removed from this engine.

This engine uses a balance assembly that is driven by a gear mounted on the crankshaft in the lower cylinder block as shown in Figure 1.

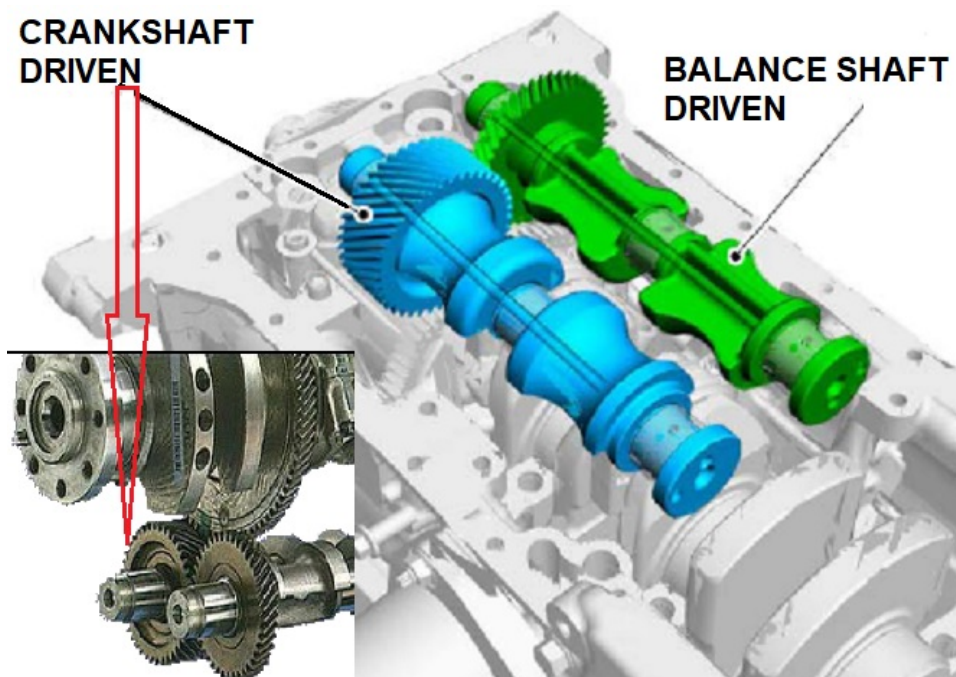


Figure 1. Lower Crankcase Balance Shaft

Originally, the balance shaft assembly housing is shimmed to the block to obtain the proper backlash between the crankshaft and driven balance shaft gears. To aid in reassembly, the shim thickness used at that time was etched into the assembly mounting area as shown in Figure 2. This provides a starting point during reassembly before measuring the backlash clearance.

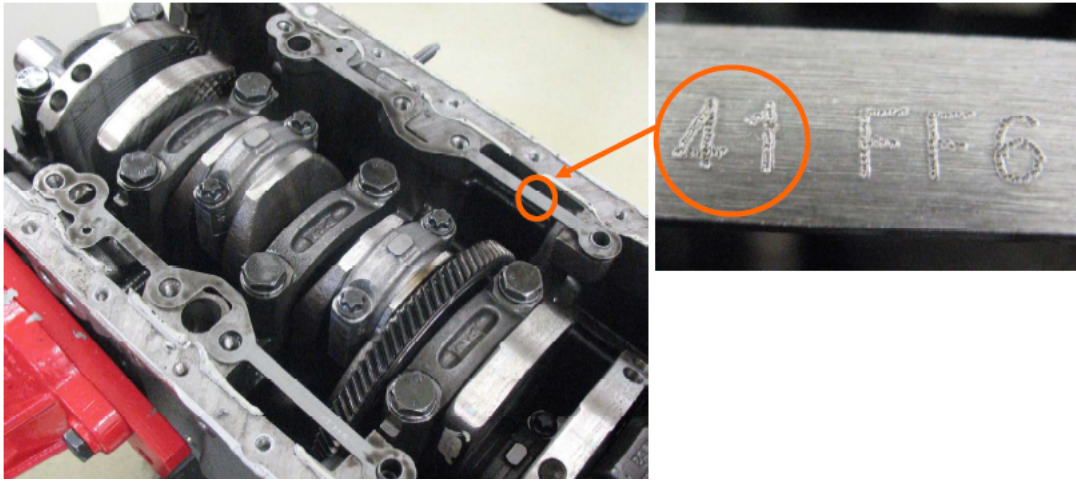


Figure 2. Original Shim Thickness Used

If machine work has been done to the crankshaft, gears or block, different thickness shims may be required (2 Used) as shown in Figure 3.

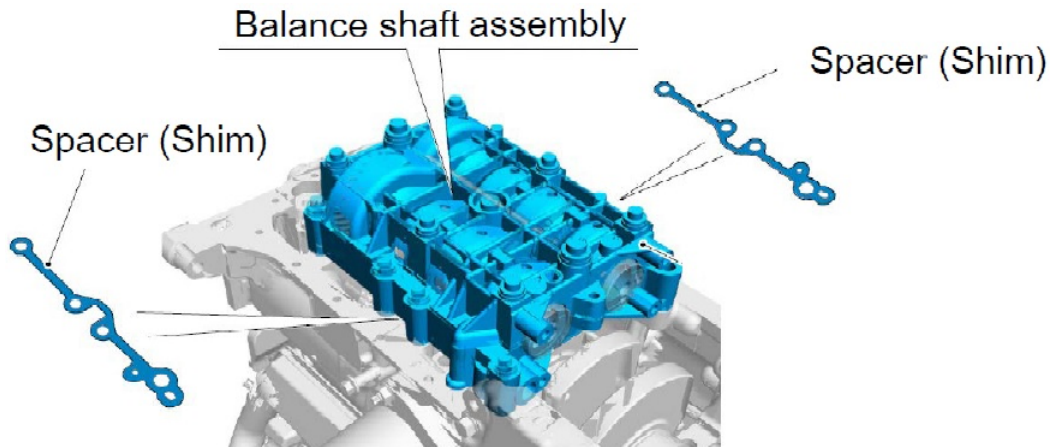


Figure 3. Shim Locations

To allow adjustment of the assembly, seventeen different thicknesses are available as shown in Figure 4. The backlash range is listed as .0039-.0028" (.010-.070 mm) for all gears.

2.2L Duratorq TDCi (DW) Diesel

Balance shaft assembly

Minimum clearance	Shim thickness	Shim marking
0,05	1,51	51
0,06	1,49	49
0,07	1,47	47
0,08	1,47	47
0,09	1,45	45
0,1	1,43	43
0,11	1,41	41
0,12	1,41	41
0,13	1,39	39
0,14	1,37	37
0,15	1,35	35
0,16	1,35	35
0,17	1,33	33
0,18	1,31	31
0,19	1,29	29
0,2	1,29	29
0,21	1,27	27
0,22	1,25	25
0,23	1,23	23
0,24	1,23	23
0,25	1,21	21
0,26	1,19	19
>0,26	1,19	19

Figure 4. Shim Thickness Chart

The alignment of the shafts is also crucial and should be noted while positioning the assembly onto the lower crankcase. See Figure 5 for the correct procedure and torque the bolts to 29.5 FT/LBS (40 Nm).

Alignment of balance shafts

- Lock crankshaft (303-1059)
- Align balance shafts in **9/12** c'clock
- Set down balance shaft assembly

