

Fitting Instructions for Taper Pin secured Crank Gears

These gears are secured to the crankshaft by a taper pin that is driven through a tapered hole in both the gear and the crankshaft.

There are three possible fitting situations, new gear with existing crankshaft, new crankshaft with existing gear and both the crankshaft and gear being new or old. In all cases, there are a number of steps to be taken on assembly and it is recommended that the taper-pin hole is always reamed to ensure the best possible fit for the pin in both components.

1. **Checking** - The gear should be medium drive fit on the crank, if not corrective measures are required before proceeding.
2. **Checking** - It should be noted that some adjustment might be needed, as the woodruff key to locate the gear may not fit correctly because of the proximity of the thrust washer. Some members trim the key whilst others cut a small indent in the thrust washer to allow a full key to be used.
3. **Alignment** - All the following operations must be completed with the thrust washer and woodruff key fitted and so providing the correct alignment of the gear to the crankshaft.
4. **Assembly** - Ensure that the thrust washer is held firmly between the crankshaft and gear so that it cannot rotate. Clamp to prevent any movement of the thrust washer and gear during all the subsequent operations.
5. **Drilling the pilot hole in a new crankshaft** - If you are using a new crankshaft, drill a pilot hole for the taper pin prior to commencing the reaming operation. This is best accomplished by using a pillar drill with the drill bit selected being size on the small end of the tapered hole in the gear and the crankshaft so positioned that the smaller diameter in the gear is uppermost before drilling commences. Many pillar drills have the ability to tilt the table so it is best to check that the table is not angled before starting the operation.
6. **Reaming** –ream the hole on the assembly with a taper reamer suitable for a number 5 taper pin (taper 1 in 48 on diameter). The reamer must be inserted on the side of the gear where the taper hole is largest.
7. Only remove sufficient material such that the holes cleans-up in both components. With a new gear, this activity will typically remove more material from the gear than from the previously used crankshaft so in this case it is important to confirm the taper hole in the crankshaft has cleaned up.
8. **Final Assembly** – New taper pins are normally somewhat longer than the hole in the gear so it will be necessary to trim the pin. Fit the pin with a light drive, mark the areas to be trimmed-off, remove the pin and trim the ends. Then refit the pin driving home with a pin punch to secure the gear.

Note - On a new gear, we expect the smallest diameter of the pre-machined hole to be 0.245" to 0.250" diameter