Propeller Installation Procedure

In order to help ensure a vibration free operation, the propeller should always be properly mated to the shaft taper. The tapers of both the shaft and propeller hub should be in contact over at least 70% of their surface (ABS recommendation) area to transmit power effectively and without undue stress. The following procedure is written as a guideline to help in the installation of the propeller on its shaft. In this procedure, it is assumed that the tapers of both the shaft and propeller are made to the same specifications and with a taper of 3/4" on diameter per foot.

Step 1: Remove the key from the propeller shaft. Examine it for any obvious imperfections or burrs. If necessary, file the key to correct.

Step 2: Examine both the propeller bore and the propeller shaft for any obvious imperfections or burrs. Again, correct if necessary.

Step 3: Put a smooth coating of Prussian blue liquid compound on the propeller shaft taper.

Step 4: Install the propeller on the shaft taper (insure that the propeller is fully seated on the taper), then remove the propeller. The amount of contact between the prop hub and shaft taper will be indicated by the amount of Prussian blue that has transferred from the shaft taper to the inside of the prop hub.

Step 5: To determine high spots between the prop hub and shaft, repeat Steps 3 and 4; however, once the prop hub is on the shaft taper, rotate the prop hub one rotation. High spots are indicated by streaks in the Prussian blue upon transfer. If you do not have a minimum 70% contact (as indicated in Step 4) and there are high spots as indicated in Step 5, use an appropriate lapping compound to improve the fit of the propeller to the shaft taper. Repeat steps 3 thru 5 until satisfactory results are achieved.

Step 6: Install the propeller snugly onto the shaft taper. Please note that the key **should not** be in place during this step.

Step 7: Mark a thin line on the shaft at the forward edge of the propeller hub, or make an accurate measurement of the distance from the large end of the propeller hub to a strut or some other fixed point.

Step 8: Remove the propeller from the shaft.

Step 9: Re-install the key in the propeller shaft. If the propeller keyway has radiused corners please note that the key has the matching radius.

Step 10: Install the propeller snugly onto the shaft taper and check to see if the propeller moves forward to the line or measurement made in **Step 7**. If it does, skip down to **Step 11**. If not, perform the following:

10a: Hold a light near the keyway on the large end of the propeller bore. Inspect the keyway fit by checking for light around the keystock in the small end of the propeller bore.

10b: There could be a small amount of light visible on the top of the keystock. If not, the keystock may be jamming and preventing the propeller from going back to its

original postion. Remove the key, secure it in avise, and file a small amount from the top of the keystock.

10c: There should not be any light visible on the sides of the keystock. If there is, the keystock is under size and should not be used. The propeller could also be jamming on the sides of the keystock. To check for this, carefully observe the end of the keystock as the propeller is moved up the shaft taper. See if the keystock moves slightly to one side during the installation. If so, a very small amount should be filed from the side of the keystock in the area of contact. Another way to observe this is to check the position of the keystock after the propeller is up the taper. See if the keystock is pushed to one side or the other of the keyway. If it is, a very small amount should be filed from the side of the keystock in the area of contact.

10d: Replace filed key in shaft keyway with filed edge on top.

10e: Replace the propeller on the shaft and fit snugly on the taper. Check to see if it reaches the line or measurement made in Step 7. If it does not line up then repeat **Step 10a** through **Step 10e**.

Step 11: Check the fit of the propeller onto the shaft by inserting a 0.001" feeler gauge in several locations on both ends of the propeller hub. If the gauge slides in more than 1/8", then the fit may not be good. Consider using a lapping compound, and go back to **Step 3** above.

Step 12: When propeller hub moves to the correct position, install the heavy hex propeller nut on shaft and torque to seat the propeller. Remove heavy hex nut and install the jam nut if your shaft is so equipped. Then re-install heavy hex nut and torque as necessary.