

APC 7.4 x XXX series Q40 Pylon Racing Carbon Composite Propeller Warning

Several failures have recently occurred in APC 7.4 x 7.5 Q40 propellers. The failures appear to be of a fatigue endurance type, located approximately 1.0 inch from the hub center. These carbon filled propellers had previously not shown any tendency for this recently experienced failure mode in seemingly similar racing environments.

Several of the failures occurred during a Q40 pylon race in Oregon where the air density was less than nominal due to the higher altitude. We speculate that the lower air density may adversely affect engine torsional vibration.

Two courses of action exist to mitigate the (apparent) fatigue endurance issue:

(1) The previously existing series of Q40 racing propellers should no longer be used with recent long stroke motor designs.

An upgraded Q40 propeller has been designed with increased dimensions near the failure location. These new propellers are now in production and are available from Landing Products. The new propeller design is equivalent (in aerodynamic performance) to the previous 7.4 X 7.5. The current improved design has the following label engraved on the blade:

(Q40 1)

(2) Fatigue endurance properties may be significantly improved by removing moisture from the composite material. It is recommended that the propellers be conditioned (heated) at 250 degrees F. for 2 hours. The propellers should then be stored in an airtight container that includes desiccant to preserve the dry condition.