

HARTZELL PROPELLER COMPANY
PIQUA, OHIO

BULLETIN NO. 9 (SEABEE)

JUNE 13, 1950

SUBJECT: Longitudinal cracks developing in the blade shanks.
(Propeller Model HC-12X20-2, -3/8427, plastic blades.)

1. Longitudinal cracks or splitting between the laminations of the plastic blade shanks has been observed on a number of Seabee propellers after they have been in service for some time. These cracks usually start at the base of the blade at the leading or trailing edge and sometimes extend outboard of the hub clamp an inch or so. They invariably start at one of the lag screws, which suggests that the screw is the prime cause; however, since the cracks often do not show up until the blade has experienced 300 or 400 hours indicates that the continued vibration is largely responsible. Also these cracks occur far more frequently on Seabees than other aircraft.
2. While the incidence of small longitudinal cracks does not ordinarily reduce the strength of the propeller with respect to the centrifugal loads, it is important that cracks do not progress to the point where some unforeseen weakness might develop. It has been our general policy to remove from service all blades which come into our plant for repair,, having cracks extending outboard of the blade clamps. This policy is overly conservative to be applied to all aircraft in the field, because it would cause unjustifiable hardships. We recommend, therefore, that blades be retired which have cracks extending more than two inches outboard of the blade clamp, or lesser crack which extends all the way through to the pilot tube, as evidenced by seepage of grease through the crack.
3. All blades should be closely inspected for cracks immediately, and if any are found within the above tolerance the end of the crack marked with a pencil. Frequent inspections should follow to ascertain whether or not the crack is progressing. The blade should be replaced if any crack extends beyond the limit noted.