

Safety Notice SN-29

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AIRPLANE PILOTS HIGH RISK WHEN FLYING HELICOPTERS

There have been a number of fatal accidents involving experienced pilots who have many hours in airplanes but with only limited experience flying helicopters.

The ingrained reactions of an experienced airplane pilot can be deadly when flying a helicopter. The airplane pilot may fly the helicopter well when doing normal maneuvers under ordinary conditions when there is time to think about the proper control response. But when required to react suddenly under unexpected circumstances, he may revert to his airplane reactions and commit a fatal error. Under those conditions, his hands and feet move purely by reaction without conscious thought. Those reactions may well be based on his greater experience, ie., the reactions developed flying airplanes.

For example, in an airplane his reaction to a warning horn (stall) would be to immediately go forward with the stick and add power. In a helicopter, application of forward stick when the pilot hears a horn (low RPM) would drive the RPM even lower and could result in rotor stall, especially if he also "adds power" (up collective). In less than one second the pilot could stall his rotor, causing the helicopter to fall out of the sky.

Another example is the reaction necessary to make the aircraft go down. If the helicopter pilot must suddenly descend to avoid a bird or another aircraft, he rapidly lowers the collective with very little movement of the cyclic stick. In the same situation, the airplane pilot would push the stick forward to dive. A rapid forward movement of the helicopter cyclic stick under these conditions would result in a low "G" condition which could cause mast bumping, resulting in separation of the rotor shaft or one blade striking the fuselage. A similar situation exists when terminating a climb after a pull-up. The airplane pilot does it with forward stick. The helicopter pilot must use his collective or a very gradual, gentle application of forward cyclic.

To stay alive in the helicopter, the experienced airplane pilot must devote considerable time and effort to developing safe helicopter reactions. The helicopter reactions must be stronger and take precedence over the pilot's airplane reactions because everything happens faster in a helicopter. The pilot does not have time to realize he made the wrong move, think about it, and then correct it. It's too late; the rotor has already stalled or a blade has already struck the airframe and there is no chance of recovery. To develop safe helicopter reactions, the airplane pilot must practice each procedure over and over again with a competent instructor until his hands and feet will always make the right move without requiring conscious thought. AND, ABOVE ALL, HE MUST NEVER ABRUPTLY PUSH THE CYCLIC STICK FORWARD.

Also see Safety Notices SN-11 and SN-24.