

THE CROSSWIND LANDING

by Randy Brooks

On the Hatz aircraft, the cross wind landing requires definite and finely gauged action which will be the result of good training and practice. As the airplane drifts with the wind, it will touch the ground, going sideways as well as forward if not corrected by the pilot. Due to the instability of the tail wheel type aircraft, this side swiping and ground contact will trigger a ground loop. The pilot must stop this motion before the Hatz touches the ground. There is only one way to prevent this and that is to keep it straight over the ground. To do this the Hatz must slice sideways through the air.

There are two basic methods that the pilot may use to prevent this sideways motion above the runway:

Method (1) Dip the wing into the wind enough to stop movement in relation to the runway and line up the Hatz with direction of flight by use of rudder. This side slip is usually blended into the hold-off of the three point landing. Immediately prior to final touch down the wings are usually leveled. It is permissible in a strong cross wind (15 to 20 mph) to make actual ground contact with windward wheel first.

Method (2) Fly the Hatz in a normal fashion, allowing for drift by crabbing into the wind. The pilot assures that his actual flight path is exactly down the middle of the runway. Just prior to ground contact, at the very last second, apply rudder to yaw the nose into the direction the Hatz is actually traveling --- straight down the runway. (This is the method used in flying the Stearman type aircraft)

The Hatz landing gear is an excellent gear for take-off, but all wrong for cross wind landings, unless the pilot flies it until the landing is complete.

What makes the Hatz want to ground loop is simply the fact that its center of gravity is behind the main wheels. The aircraft would really prefer to roll tail-first. The ground loop is nothing but the Hatz' attempt to get its tail out in front.

Should any outside force such as a crosswind or a pilot's clumsy foot work on the rudder or brakes start a swerve, the Hatz will want to curl up into a ground loop. The centrifugal force produced by any swerve will tend to tighten the swerve. In making a cross wind landing and you have neglected to compensate sufficiently for the drift and you are moving sideways at the moment you contact the ground, the main wheels try to arrest the sideways motion. The Hatz, once moving sideways, wants to continue. The ship's center of gravity is located aft of main wheels which results in a force to swing the tail. The tail wheel is free to caster and will not constrain the tail movement; it merely supports it. As the Hatz continues sideways and the main wheels resist it, the tail swings in the direction of the drift. Unless this is instantly checked by strong, quick opposite rudder and brake, if needed, a swerve will develop. The vicious thing is that it will cause centrifugal force to develop and result in the Hatz's rolling path to swerve more sharply. This continues to build up and results in an ever-tightening spiral with the Hatz twirling on the spot. If the surface is slippery, such as ice or wet grass, the Hatz may go into a tail first slide!

Actually, the ground loop seldom develops so far as it may heel over and dig the wing tip into the ground and then it is ALL over.

I hope that this little bit of information gives you the directions necessary to control the ground loop.