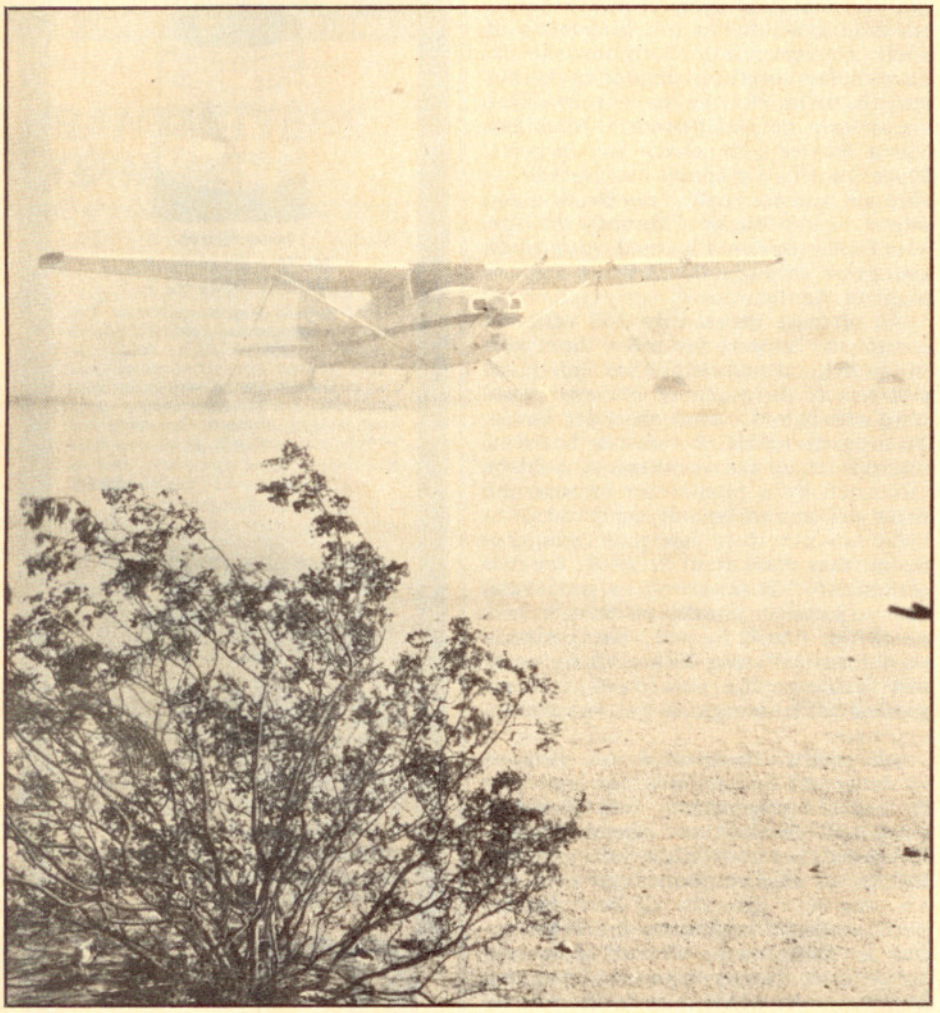
# Some Thoughts

by DON DOWNIE / AOPA 188441

■■ There were horizontal sheets of blowing sand, and gusts of 69 mph, reported by the municipal airport four miles distant.

I wasn't worried about having the Cessna 170 blown away. I had the cheapest, strongest tiedowns ever used at this desert hideaway at Twentynine Palms, Calif. They'll work at any airport regardless of the type of soil or the amount of rain—unless the whole field is blown or washed away.

Take three used auto or truck tires —the price is right—and dig a hole in the ground the size of each tire. Put the tires in the hole vertically and spread the bottom of each tire with a two-by-four or a large rock. Then fill up the hole with dirt and perhaps wet it a bit. That tire isn't going to be pulled out.



*Author's plane, tied to auto tires sunk in the sand, rides out a Southern California dust storm.*

If the tires are sunk deeply enough so that only the top shows above the taxiway surface, there's no danger of catching a tailwheel or bumping a wheel fairing. Chains and/or ropes can be recessed down, under the exposed portion of tire.

There are chain tiedowns through these tires of mine. However, metal tends to rust and there's always the chance of a weak link. As the wind picked up, I took the three pieces of 3,500-pound-test, ⅝-inch nylon rope that go with the airplane and doubled-up on the tiedowns. Since there's no stretch in chain, and nylon does have some give to it, I tied the nylon tight and left the chains somewhat loose.

As the wind continued to pick up, I shoveled the area around the main gear to drop it a foot or so, thus lowering the angle-of-attack of the tail-dragger.

When the sand began to blow, I took a roll of heavy aluminum cooking foil and covered the fuel vent atop the center of the wing, the pitot tube, both cabin vents and the carburetor air cleaner box. It didn't keep out all the dirt, but it helped.

An old sailplane trick can be helpful in strong winds. Try tying two-by-fours, or whatever, along the top of a wing surface to act as full-span spoilers. With a board tied to the top of the wing surface at the point of highest lift, that wing isn't about to fly.

Short stakes or simple screw-in tiedowns pull out of either soft sand or wet ground. However, I carry six 3- to 4-foot lengths of surplus aluminum in the airplane on all trips. The price is right and so is the weight. Couple this package with a short-handled ax to drive the stakes into the ground at an angle away from the aircraft and you have a tiedown that will withstand just about anything. I've jammed these aluminum stakes so hard into the ground that I've buckled them trying to remove them.

Also on board at all times are two

# on Tiedowns

sets of 90° aluminum extrusions about five inches long to act as wheel chocks. The pairs are tied together with a foot or more of light cord and tinkle like chimes as you haul them out from under the back seat. Here again, light weight and low cost.

Perhaps other pilots have had better luck than I, but I never use the parking brake on a light airplane unless I've stopped on a steep incline and can't get someone to chock the aircraft. Parking brakes have been a headache to me ever since I began flying. Many lightplanes' parking brakes will stick in the "on" position by heat expansion, making the airplane impossible to move without bleeding a hydraulic line.

Be careful not to tie ropes to struts because of the danger of buckling them. Several aircraft have been lost in high winds when the tiedown rings pulled completely out of the structure because of loads applied at an angle. Where wing bolts protrude, as they do on the 170B, I tied the nylon around the strut and the chain to the tiedown ring. Of course, if the ship is equipped so that there's a chance of having that rope slip toward the center of the strut, you'll probably buckle the whole structure.

If you don't have rudder locks available, take two pillows and jam them between the rudder and elevator, provided the geometry of the aircraft makes this possible. The pillows can be tied in place with light cord and will eliminate rudder buffeting that could cause structural damage. When control locks are not available, use both seatbelts to secure the wheel or stick. If you have any feel for the direction of the wind, tie the wheel so that the "down" aileron is on the downwind side of the airplane. Every little bit helps.

Some aircraft require flap locks to prevent banging when the wind is from the tail of the aircraft. In this situation, a temporary fix with rope and a couple of pieces of wood will usually do the job. Remember that you have to undo everything that you did to protect your airplane. Those airspeed and cowling covers, air scoop coverings, control and flap locks, vent covers and any other protection must be removed.

When an airplane has been standing out in a storm, a most careful preflight should be planned. Look for any structural damage around control hinges or wing skins at the points where high loads collect. A suspicious wrinkle going forward from the flap-aileron junction could be indicative of a warped wing panel.

Check all hinges and controls for unusual slack from buffeting.

Pay particular attention to your fuel drains if the ship has been tied down in heavy rain or sand. Drain all sumps and check each sample. Then shake the wingtips vigorously and repeat the procedure.

I must have drained at least two gallons of precious fuel out of the dusty, bedraggled 170B to make sure that there wasn't any sand remaining in the fuel system. Then, on my first takeoff to fly four miles to the municipal airport and top off with fuel, I was more than a little alert for a rough engine caused by dirt in the lines or screens.

So you get back home and stuff the bird in a hangar or into your nice clean tiedowns. The job isn't over. If the ship's a rental, tell the operator what happened. He'll want to vacuum out all the dust he can. If it's your own ship, look for some tiresome hours with a vacuum cleaner, an air gun, solvent spray, detergent and perhaps even some touch-up paint.

When you're out in the open and the wind picks up, use everything you can find to protect your ship. If there's a truck available, park it in front of your plane both as a windbreak and also to permit an extra tiedown around the prop hub. With no truck, use a passenger car or anything that's big and heavy.

If you can stay away from violent weather, you're that much farther ahead of the game. If you're stuck with it, use your head and do everything possible to minimize or prevent damage. □