



HITCHING A RIDE DOWN the ILS to Prescott, Arizona, with instrument student Patrick Shiels and flight instructor Fred Gibbs.

BAD START

BEACH VACATION NEARLY ON THE ROCKS

Each spring Jean and I look forward to flying to our annual beach retreat with friends in Southern California. That was still a few weeks away when I arrived at the airport one chilly morning for a local flight. Having preheated the engine overnight, I primed it as usual and turned the key.

The *Flying Carpet*, an older Cessna 182, has always been a terrific starter, rarely requiring more than half a turn to awaken the engine. But this morning the engine barely cranked—it just groaned to first compression, and stopped. I wasn't particularly alarmed as today's mission was minor, and starting problems are usually easily resolved. I first suspected a weak battery. However, the voltmeter showed the battery fully charged to 24 volts, indicating outstanding health and plenty of power to start the engine.

This airplane's battery is located back behind the baggage compartment. Thinking there might be a faulty connection or ground between it and the starter, I requested a ground power unit start from Flagstaff's Wiseman Aviation. However, their battery cart fared no better. That the engine turned at all absolved the ignition switch and starter solenoid. "Obviously," the problem must be the starter itself.

Mechanics Rory Goforth and Mike Clever towed the airplane to Wiseman Aviation, checked connections, and installed a new starter. But to everyone's surprise, the engine still wouldn't crank adequately to start.

Rory explained that the only possible remaining culprit in this simple system was the starter adapter. This clutch-like device mechanically connects the starter to turn the engine, and then disconnects it when the engine starts. I'd heard of starter adapters occasionally failing to disengage so the engine drags and burns out the starter, but never one that wouldn't start the engine. Mine was apparently slipping internally so the spinning starter wouldn't fully engage the engine.

STARTING THE ENGINE TO GET THERE WITH THIS PROBLEM WOULD REQUIRE HAND-PROPPING—SOMETHING I'D NORMALLY NEVER ASK ANYONE TO DO.

The cost of a factory remanufactured starter adapter proved astounding, but as often happens with aircraft parts, if you look hard enough there are affordable alternatives. Field overhauls were far more manageable. The real eye-opener came when discussing turnaround time.

Rory explained that the starter adapter mounts to the back of the Continental engine, where there's inadequate room to service it without unbolting and shifting the engine. Clearly this would be costly and time-consuming. What's more, Rory and Mike were booked for weeks before they could even start my major project. Horrified, I began mentally ticking off trips that might never happen—in particular, our long-planned beach vacation. I phoned Prescott's Arizona Air-Craftsman seeking alternatives.

"If you can get the airplane to Prescott we'll address it in the next week or two, and rebuild the starter adapter in our engine shop," offered mechanic Philip McQuaid. But starting the engine to get it there with this problem would require hand-propping—something I'd normally never ask anyone to do. Manual propping may be common for starting a small engine such as that of a Piper Cub, but it's far more difficult and dangerous for high-

compression engines, especially on tricycle-gear airplanes such as this one where leverage and clearance are compromised by the vertical propeller of the airplane. Great care, proper stance and technique, firmly securing the airplane, and perfect communications with the pilot are imperative to accomplish it safely.

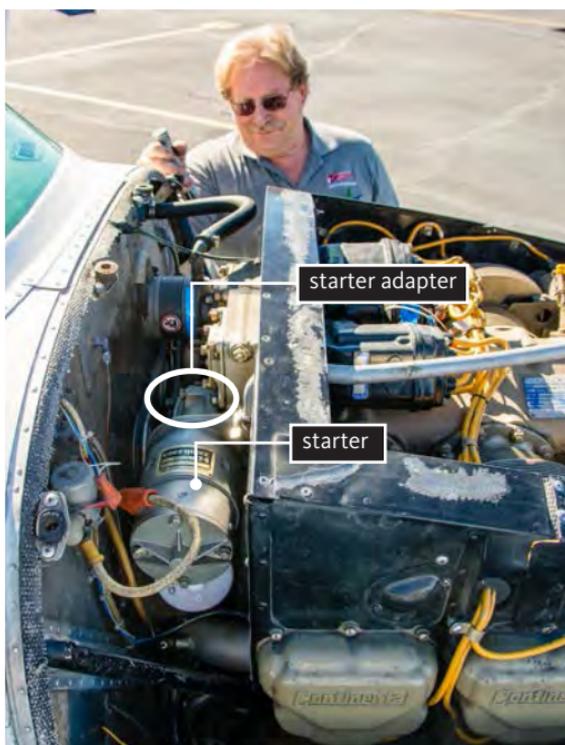
The one person I knew who was qualified to safely hand-prop the engine was out with a broken leg. Frantically calling around, I learned that Flagstaff flight instructor and FAA Team lead safety representative Fred Gibbs is experienced at the technique. Fred volunteered to do it, and we teamed up to start the airplane so I could deliver it.

After again preheating the engine, Fred and I prebriefed. He directed a prime-and-pull-through sequence for several turns with magneto and master switches off. Then we coordinated switches to attempt starting.

“Man, this thing has high compression!” said Fred, upon discovering he could hardly overcome a single compression stroke. After half a dozen fruitless attempts, my heart sank when the engine seemed unlikely to start. But on the next try it burst into life.

I’ve never appreciated a flight more than the half-hour hop from Flagstaff to Prescott. I expected a month of downtime, but within days Philip’s team had disconnected the exhaust, moved the engine, removed and overhauled the starter adapter, and were reassembling everything. Just two weeks after dropping the airplane, I hitched a ride back to Prescott with Fred and his instrument student Patrick Shiels. As much as I enjoy piloting, there was real pleasure riding in the back seat. Overjoyed to be retrieving my *Flying Carpet*, I drank in views of rare fog-shrouded meadows and canyons, and savored Patrick’s perfect instrument approach.

At Air-Craftsman, Philip dropped a massive steel coil into my hand. “This



ARIZONA AIR-CRAFTSMAN mechanic Leroy Dufresne examines the *Flying Carpet* after releasing it back to service.

spring is supposed to tighten around the rear accessory pulley driveshaft inside your starter adaptor to turn the engine when the starter’s engaged. But as you can see, it’s broken.” They’d replaced it along with bearings and seals; reassembled the adapter and engine; and run-tested everything.

After preflighting extra-thoroughly, I cranked the engine—and to my delight it spun like a top. Talk about a fresh start! Flying home with a grin on my face, I waxed philosophical. Yes, the bill had been significant, but more affordable than expected—and less than some past auto repairs. This is why pilots should always buy a bit less airplane than they can afford, and stash away a few dollars every flight hour as maintenance reserve. In any case, this ranked among just a handful of major unscheduled repairs in 16 years of aircraft ownership, so I couldn’t complain. Surf and sand, here we come! 🌊

Greg Brown is an aviation author, photographer, and former National Flight Instructor of the Year  (www.gregbrownflyingcarpet.com).