Unaffordable, unavailable

As the GA fleet ages, replacement parts are getting harder to come by

BY MIKE BUSCH

RECENTLY, A CLIENT with an older Cessna 182 Skylane reported that his nose landing gear strut was leaking fluid and repeatedly going flat. Inspection revealed that the original chrome strut piston had become badly pitted and was tearing up the nose strut seals. The owner's shop checked the Textron Aviation parts system and found that they had one replacement strut piston in stock, and clearly, they were extremely proud of it. The price: $9,200. That's nearly 10 percent of the fair market value of the whole airplane. Yikes!

Textron wants $9,200 for a replacement nose gear strut piston for an older Skylane.

TRACI DABERKO

Salvage yards like BAS Parts Sales, Dawson Aircraft Parts and Salvage, Texas Air Salvage, Air Salvage of Dallas, and Preferred Air Parts sometimes offer these strut pistons in as-removed condition for $2,500 to $3,500, but we couldn't find one in stock at any of them. We even checked on eBay, but no joy. So, we concluded the best bet might be to find a shop capable and approved to re-chrome the pitted strut. As I'm writing this, we're checking with Delta Strut in Stockton, California, which specializes in Beechcraft landing gear repair but sometimes will work on Cessna and Piper struts. Fingers crossed.

Although the cost of a new replacement nose strut piston from Textron is ridiculous, at least it's still available. More and more often, we're finding that some repair parts are not available at any price. We half-jokingly refer to such parts as being made of "unobtanium."

My yoke-mounted 696

I ran into this issue recently in connection with the Garmin GPSMAP 696 that I've had yoke-mounted in my Cessna 310 since it was first introduced in 2008. These days, I also use an iPad Mini running ForeFlight and Bluetoothed to a Stratus ADS-B receiver that displays TIS-B traffic and FIS-B weather. But I've been reluctant to give up my old GPSMAP 696 because it's the only thing in my cockpit that provides me with SiriusXM aviation weather (which I much prefer to FIS-B weather), as well as SiriusXM audio that provides music and news to the entertainment input of my intercom system. This is important because I get nervous picking my way through a cold front without SiriusXM weather,

Garmin no longer supports the GPSMAP 696.

and I'm incapable of greasing my landings without classical music (preferably Bach or Mozart) in my headset.

My yoke-mounted GPSMAP 696 has a data/power cable that is connected to a circuit breaker on my avionics bus and to an RS-232 output from my panel-mounted Garmin GNS 530W navigator. This provides ship's power to the 696 and automatically transfers the 530W's flight plan to the 696. In addition, an audio cable runs from the 696 audio output jack to my intercom's entertainment input jack, a USB cable runs to the Garmin GXM 40 "hockey puck" XM receiver/antenna, and a coaxial cable runs to a Garmin GA 25 remote GPS antenna. I have all these cables neatly tie-wrapped together in a fashion that allows full and free movement of the control yoke.

This setup has worked flawlessly for the past 15 years. But last summer, my GPSMAP 696 started occasionally reporting that it had lost ship's power. Whenever this happened, I found I could wiggle the power/data cable and restore the power. At first, this happened only rarely so I could live with the wiggle-the-cable fix. But the problem got progressively more frequent.

Finally, the 696 started reporting it no longer was receiving data from the 530W, and no amount of cable wiggling would bring it back. That settled it—I needed to troubleshoot the issue and figure out some way to fix it.

Unobtainable cable

At first, I thought that perhaps the cable had developed a bad spot from repeated flexing because of yoke movement. Or that perhaps the socket in the 696 had become worn or corroded. But after a couple of hours of meticulous trouble-shooting and fault isolation, I concluded the problem lay in the right-angle plug at the end of the cable where the wires made a sharp 90-degree bend. Since the plug was a molded assembly, there was no way of opening it up to repair it without destroying the plug—don't ask me how I know this.

The author couldn't find a replacement power/data cable for his 696 anywhere (even eBay).

The most obvious solution would be to replace the power/data cable. I located the part number for the cable (010-11206-15) but found that Garmin had discontinued this item many years ago. A search of avionics distributors and aviation parts supply houses came up dry. I found some ads on eBay for what purported to be 696 power/data cables, but careful examination of the accompanying photos revealed that they had the wrong type of connectors and were clearly not compatible with the 696.

Getting desperate now, I wondered whether there might be some way to source the connector itself. It was a round four-pin connector about 3/8-inch in diameter that struck me as reminiscent of a small DIN-style connector (DIN stands for Deutsches Institut für Normung, a German standards organization from the 1950s.) Researching this on the website of my favorite electronics distributor DigiKey revealed that there was a four-pin mini-DIN plug, but its pin configuration was not the same as the plug on the Garmin cable. Darn!

More searching on the DigiKey site revealed a four-pin connector from a California manufacturer called Kycon whose photo and spec sheet looked like it just might be compatible with the socket in the 696. It was Kycon part number KPPX-4P and while not a right-angle plug, I figured I could make it work—if it actually fit the 696 socket. I ordered one, fingers and toes crossed. The connector cost about five bucks although shipping cost about twice that. It showed up in my mailbox two days later.

Diabolical plug

I excitedly opened the package and was surprised when I found what appeared to be a build-it-yourself connector kit consisting of eight (count 'em) separate components. One of them was a tiny plastic thingy with four pins, which I quickly determined matched the configuration of the four-pin socket on the 696. Another appeared to be a round metal barrel that appeared to fit in into the 696 socket. Yet another looked like a cable strain-relief fitting, and the remaining four components included a spring plus some plastic and metal thingies whose purposes were certainly not obvious. Naturally, no instructions were packed with the connector kit.

The author found this Kycon KPPX-4P plug that fit the socket on the 696.

Some Googling located a YouTube video from Kycon purporting to demonstrate via animation how the KPPX-4P plug was to be assembled. It was sufficiently confusing that I watched it three times. The animation indicated that the strain relief, the spring, and a couple of other parts were first slid over the cable. Then the cable and its individual wires were stripped and prepared for soldering to

the tiny solder cups on the round four-pin carrier. Now, I've been soldering electronic stuff since I was in grade school, but it was clear that soldering wires to these solder cups was going to be a non-trivial task.

For one thing, the four-pin assembly was so tiny that the soldering was going to have to be done under considerable magnification. For another, it was going to be necessary to apply enough heat to melt

The Kycon connector came as a kit with eight tiny pieces and no assembly instructions.

the solder but not enough heat to melt the plastic pin carrier. I'm not going to tell you how I found this out. Suffice it to say that I jumped on the DigiKey website and ordered two more KPPX-4P connectors, having ruined the first one.

Two days later, the second package arrived. The good news was that my second attempt at soldering the wires to the four pins without destroying the plastic pin carrier was a lot more successful. The bad news was that my first attempt at assembling the pin carrier to the six other components in the kit resulted in destruction of several of the parts. Color me frustrated.

Fortunately, I still had one more KPPX-4P kit left, and the third attempt proved the charm. The result of my efforts was two feet of four-wire cable with a KPPX-4P on one end and bare wires on the other end. When I plugged the Kycon connector into my 696 and connected my 24-volt power supply to the red and black wires, the 696 powered up. Yes!

The next day, I drove to my hangar with my 696 and its new two-foot dongle in tow. I chopped the defective right-angle plug off the end of the Garmin cable and carefully attached the Garmin cable to the new dongle, using crimp splices and shrink-wrap tubing. I then tidied up and secured the wire bundle from the 696 to all the other stuff connected to it using tie-wraps and Adel clamps.

I powered up the airplane, moved the control yoke through its full range of motion, and wiggled all the wires. My 696 was back in business.

Thought experiment

After taking a victory lap, a thought popped into my head: What would have happened if I had been a "normal" aircraft owner—one who wasn't an A&P mechanic? Presumably I'd have taken the airplane to an avionics shop to get the problem resolved.

Would the avionics shop tell me, "Sorry, those Garmin power/data cables are no longer available"? Or would they have done all the detective work necessary to find the Kycon KPPX-4P connector? If they did that, would they have ordered one on speculation to see if it fit the socket in the 696? Would they have located the instructional video for assembling the connector? Or would they have told me, "Sorry, we found a connector that might possibly work, but it's not FAA-approved"?

What do you suppose the likelihood of them going through everything I went through to come up with a viable solution, and what would the invoice total be? My best guess is that instead of replacing the five-dollar connector that had gone bad, they would have suggested I toss my old unsupported 696 and let them sell me a new Garmin Aera 760 touchscreen portable ($1,549), a GDL-51 SiriusXM receiver ($775), and the associated cables and yoke mount hardware. Keeping a 45-year-old airplane with 20-year-old avionics can certainly be a challenge. ■

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