

FUEL PRESSURE DILEMA

By Fay Gregory, A&P

June 1987, our AT6-D lost fuel pressure during a practice ILS approach to a local airport. After switching tanks, the fuel pressure returned, but we made a precautionary landing to further investigate the problem. After turning off the runway, we switched back to the original tank and lost fuel pressure - switched again - no fuel pressure - use of the wobble pump would not hold fuel pressure either. Both tanks were more than half full at the time. We called several round engine experts and got lots of advise. For ten days, we pulled, checked, rechecked - replaced every hose and connection from the wobble pump back to the tanks - even dropped the belly pans and looked inside the tanks - after they were drained. All vents, lines, hoses were free of obstruction. The wobble pump was thoroughly inspected and cleaned with no apparant obstructions, leaks, etc. After several extended runups - all systems operating perfect - and several high speed taxiis - we test flew the aircraft for an extended period of time over the airport. All systems operated normal.

That was about nine months and more than 100 hours of flying ago...now, here we go again...after a formation flight, with an approach to land at our home airport - power settings reduced - fuel pressure was lost again. The big difference this time was that the wobble pump carried the fuel pressure load needed to safely land and taxi off the runway. Again, ample fuel was in both tanks. A runup was completed using the wobble pump to obtain the pressure - all tank positions were used - when the wobble pump was not operated the fuel pressure would drop. The engine driven fuel pump was removed and replaced with a newly overhauled unit. After an extensive run-up, with all systems operating perfect - the test flight was conducted. Immediately after liftoff, the fuel pressure dropped. The wobble pump brought the pressure back up to normal and it held - but we still landed to investigate. On final, reduced power settings, the fuel pressure started to drop again - the wobble pump was used to carry the pressure needed. After landing, investigation discovered a leak in the wobble pump that had not been noticed previously. The very small rope-type packing behind the large nut where the operational handle sets was repacked and tightened. An extensive runup again - all systems were operational and normal. Several high speed taxiis were performed - and then a test flight. Everything normal. We returned to the airport and landed - everything okay - we rechecked the fuel pump installation and the packing of the wobble pump. (Oh, I might add- the pressure relief valve on the wobble pump was checked and cleaned as well - nothing abnormal was found during that procedure - this was done at the time of packing the wobble pump) A two hour test flight was performed using various speeds and settings, as well as switching tanks - all systems normal and operational.

The old engine driven fuel pump that was removed was disassembled and investigated. One of the carbon vanes that surrounds the shaft in the assembly was lodged and stuck off to one side. Obviously, this was one problem. The leak in the wobble pump was another separate problem that just happened to occur at the same time. Whether that small leak could have caused such a loss of pressure - both at the high power settings at takeoff and the reduced power settings on final - we can't be sure, but since the repacking behind the nut, all systems are normal and operational.

Has anyone experienced similar difficulties and might have a suggestion to check an area that we possib'y missed? Does anyone know of an approved-electric boost pump and installation procedures that could be used on the AT6-D aircraft?