



Advanced Preflight After Maintenance

The GAJSC and NTSB have determined that a significant number of general aviation fatalities could be avoided if pilots were to conduct more thorough preflight inspections of aircraft that have just been returned to service. In-flight emergencies have been the direct result of maintenance personnel who have serviced or installed systems incorrectly. In many cases, although the maintenance personnel made the initial mistake, the pilot could have prevented the accident by performing a thorough or advanced preflight check.

Did you know that maintenance-related problems are one of the most deadly causes of accidents in general aviation? Contributing to this is a pilot's failure to identify maintenance discrepancies because of a lack of knowledge and improper techniques used during the preflight of the aircraft.

In July 2014, the pilot of a Piper PA-12 *Super Cruiser* airplane was fatally injured after his airplane pitched up steeply during takeoff and crashed. The investigation found that the elevator control cables were installed incorrectly such that the elevator moved in the direction opposite to that commanded.

The preflight checklist for the airplane required the pilot to verify that the flight controls were free and correct.



What the Regulations Say ...

- Title 14 CFR 91.7 states, in part, that “the pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight.”
- Title 14 CFR 91.407 states, in part, that: “No person may operate any aircraft that has undergone maintenance ... unless ... it has been approved for return to service” and is logged in the aircraft records. An operational check flight is required for any maintenance that may appreciably change the aircraft's flight characteristics or substantially affect its operation in flight.

So What Can Pilots Do?

Advanced Preflight refers to conducting a preflight that goes beyond the normal preflight checklist. This is accomplished by obtaining a valuable maintenance history of the aircraft and developing an additional items checklist. While this requires some time, once you have developed the additional items checklist it can be used in conjunction with the aircraft's preflight checklist for all future preflight inspections.

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Some Tips for Advanced Checks

- ✓ *Become familiar with flight controls or systems prior to maintenance. It is easier to determine what becomes “abnormal” if you are familiar with how it should operate.*
- ✓ *Locate and review all of the aircraft records, to include additional documents such as receipts, work orders, FAA Form 337s (Major Repair and Alteration forms), and approval for return to service tags (8130–3 Forms). Also locate any Supplemental Type Certificate (STC) data, including data on items no longer installed on or in the aircraft.*
- ✓ *Coordinate with your mechanic before flying aircraft that have recently been maintained to get a clear determination as to what has been accomplished.*
- ✓ *After maintenance, check all systems more thoroughly than the normal preflight checklist implies.*
- ✓ *Pay particular attention to aircraft components that may have been affected by recent maintenance.*
- ✓ *Avoid becoming distracted or being interrupted in the middle of the preflight to ensure you do not accidentally miss or skip a step.*
- ✓ *Immediately be prepared to abort takeoff if something goes wrong or doesn’t feel right.*

Good Information ...

FAA Safety Team Course Catalog:

www.faasafety.gov/gslac/ALC/course_catalog.aspx

FAA Safety Team pamphlet:

<http://go.usa.gov/ck7EU>

FAA Safety Briefing article – “Advanced Preflight”:

<http://go.usa.gov/ck7ma>

FAA Pilot’s Handbook of Aeronautical Knowledge:

<http://go.usa.gov/ck7mp>

FAA Risk Management Handbook:

<http://go.usa.gov/ck7y2>

NTSB Safety Alert – Advanced Preflight After Maintenance:

<http://go.usa.gov/ck7Py>

AOPA article:

<http://flighttraining.aopa.org/students/presolo/skills/howtopreflight.html>

Aviation Safety Magazine article:

www.avweb.com/news/redundant/preflight_pilot_airplane_flight_ntsb_inspection_207912-1.html

