

General Aviation Joint Steering Committee  
**Outreach Guidance Document**  
**2017/03-28-104 (I) PP**

This outreach guidance is provided to all FAA and aviation industry groups that are participating in outreach efforts sponsored by the General Aviation Joint Steering Committee (GAJSC). It is important that all outreach on a given topic is coordinated and is free of conflicts. Therefore, all outreach products should be in alignment with the outline and concepts listed below for this topic.

**Outreach Month: November 2018**

**Topic: Engine Maintenance and Performance Monitoring - SCF-SE-49**

**Background:** The General Aviation Joint Steering Committee (GAJSC) System/Component Failure work group contends that inadequate engine maintenance has led to a significant number of general aviation power failures. The GAJSC also believes that flight data monitoring can help to forecast system/component problems before they reach the point of failure.

Airlines have long been required to equip their aircraft with flight data and voice recorders. These were, in the beginning, rudimentary devices to record basic flight information. But now they have evolved to a plethora of sensors throughout the aircraft. Data from these sensors can be recorded onboard or streamed to the ground where it can be subjected to manual or automated analysis. Information derived from the data is very useful in maintenance planning and invaluable in accident investigation. The equipment and processes to acquire and distribute the data are collectively known as *Flight Operational Quality Assurance* or FOQA. But such equipment is for the big guy's only, right? General Aviation aircraft aren't equipped with anything like that sort of hardware..... Or are they?

While it's true that most GA aircraft don't have dedicated automatic flight data recording devices now; we will be able to enjoy the benefits of equipage in the future. In the meantime it's often surprising to see what we already have. Manufacturers are already offering self-contained flight data and visual data recorders for GA airplanes and helicopters. Operators of this equipment must periodically down load and analyze the recorded data – often with the aid of dedicated computer programs.

Many data monitoring operations are less automated. Turbine operators are accustomed to manually recording engine cycle and performance information for trend and engine health analysis. Recip. pilots can do much the same thing by tracking engine power, fuel flow, oil temperature and pressure. Panel mounted GPS systems and many hand held units are already capable of recording position, heading, speed, and altitude. Some engine monitors have recording capability and many aircraft owners participate in oil analysis programs – a tool for gauging engine health and heading off expensive or, in some cases, disastrous problems. Some aircraft – particularly helicopters are equipped with metallic chip detectors that can forecast engine and transmission failures in time to make a safe landing.

And don't forget basic instrumentation such as Air Speed Indicators, Attitude Indicators, Angle of Attack, Manifold Pressure, RPM, and G indicators – all of which give immediate feedback as to whether design limitations have or are about to be exceeded. When automated equipment becomes available we'll all know a lot more about the health of the airplanes we fly. Until then – we urge you to consider the information that's already available on every flight.

**Teaching Points:**

- Discuss the safety benefits of proper engine maintenance.
- Discuss the safety benefits of Flight Data Monitoring (FDM).
- Acquaint pilots with the availability of FDM hardware and software.
- Discuss means of manual data acquisition.
- Encourage pilots to adopt FDM processes.

**References:**

- ***Engine Maintenance and Flight Data Monitoring Power Point***
- ***Flight Data Monitoring Systems and Non-Required Safety Enhancing Equipment***
  - ***SCF-PP: GAJSC System Component Failure Report***
    - <http://www.gajsc.org/document-center/>

**IMPORTANT** – Once you have completed outreach on this topic, please help us track the outreach you have done by entering a PTRS record.

PTRS Activity Code	National Use	Primary Area	Key word	Description	Performance Target	Due Date	LDR 12XXFAAST
2685	NPP14	K	032	Promote "Topic of the Month" within the FSDO area	1 per FSDO per month	09/15/18	OR0100