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Report to the Membership:
Meeting of General Aviation Pilot/Owner Associations and Manufacturers
Regarding 100LL Avgas Replacement

The Cirrus Migration 8, in Dayton, OH became the fortuitous place and opportunity for a quickly organized meeting of many of the prominent Pilot/Owner Associations, Aviation manufacturers and trade associations to gather to discuss the path to a future transition from 100 low-lead avgas to some yet-to-be determined lead-free alternative. This meeting was unprecedented in that never before has such a wide-ranging group of owner advocacy groups and aviation manufacturers gathered to voice their concerns and represent owner/pilots interests on such a fundamental and critical issue such as fuel.

Present at the meeting were, in order of seating:

Tim Roehl, President, GAMI
Vincent Zarrella, Piper Aircraft
Rhett Ross, President, Teledyne Continental Motors
Lee Buechler, Organizer, Clean 100 Octane Coalition
Keith Kohout, Director, American Bonanza Society
Jonathan Sisk, President & Ombudsman, Malibu Mirage Owners & Pilots Assoc.
Tony Saxton, Techincal Advisor, Twin Cessna Flyer
Curt Sanford, President, Cirrus Owners & Pilots Assoc.
Gordon Feingold, Fuel Issue Liaison , Cirrus Owners & Pilots Assoc.
Rob Hackman, VP Regulatory Affairs, AOPA
Craig Fuller, President, AOPA
Pat Waddick, Exec. VP, COO, Cirrus Aircraft
Walt Desrosier, VP Engineering & Maintenance, GAMA

Unable to attend the meeting were representatives from other type clubs that have joined the Clean 100 Octane Coalition:

Mooney Aircraft Pilots Association
Cessna Advanced Aircraft Club
Beech Pilot Proficiency Program

Interest in this issue has exploded in recent weeks after Teledyne Continental Motors released a statement interpreted by many as endorsing 94UL (basically 100LL without the tetraethyl lead additive resulting in 94-octane avgas) as a likely candidate for an unleaded fuel. Following TCM's announcement, a large

number of owner/pilots began to realize that such a solution would not work for operators of higher performance/output engines. While these operators represent about 30% of the general aviation piston fleet, they consume about 70% of the fuel. Curt Sanford of COPA, noted that selection of the wrong fuel (sub 100 octane) would kill about 70% of the GA economy as well – fuel sales, FBO services, maintenance, aircraft values, etc. The resulting devastation of the GA support infrastructure would in turn adversely impact even those aircraft owners whose engines could operate on a lower octane fuel.

Also prior to this meeting, AOPA President Craig Fuller had released a statement on the 100LL replacement issue, that the owner groups found encouraging: "The new fuel must operate safely in high-compression and turbocharged engines, and it has to be manufactured, distributed, and sold at a realistic price." However, the same statement included some ambiguity because in one sentence it included 94UL as one of "several promising unleaded alternatives…" The full text of Mr. Fuller's statement and a video interview can be found online at http://m.aopa.org/advocacy/articles/2010/100617avgas.html.

The meeting began with a presentation from AOPA's Rob Hackman and GAMA's Walt Desrosier on the history of the issue from the perspective of a group of stakeholder organizations called FAST, an acronym for Future of Avgas Strategy & Transition. The FAST group includes, in alphabetical order:

- AOPA – Aircraft Owners & Pilots Association
- API – American Petroleum Institute
- EAA – Experimental Aircraft Association
- GAMA – General Aviation Manufacturers Association
- NATA – National Air Transportation Association (Fixed Based Operators)
- NBAA – National Business Aviation Association
- NPRA – National Petrochemical & Refiners Association

Obviously, each of these groups brings a wealth of experience and knowledge and impact assessment to the discussion from their specific disciplines. The FAST committee has been working to build consensus among its wide-ranging members on the process and form the 100LL replacement should take. They have done an excellent job of documenting the situation and providing a framework and boundaries for a solution. Based on the presentation, I found the following points very constructive:

- The inevitability of a transition away from leaded aviation gasoline based on both economic and environmental factors.
- The very small relative market that aviation gasoline represents (0.1% of all transportation fuel) will dictate only one unleaded fuel solution, not multiple grades. A dual-fuel approach is not viable. This conclusion is re-enforced by the fact that there is typically only one tank for Avgas at the airport.
- The 2006 Petition by Friends of the Earth to regulate GA lead fuel emissions under the Clean Air Act has created a strong case for EPA action.
- The potential regulatory actions that could take place includ an Endangerment Finding by the EPA that would accelerate the timetable for regulation of lead content in avgas and the host of economic and legal repercussions.
- The most desirable replacement for 100LL would be transparent in operation for all GA piston aircraft without significant modification, reduction in power output, or more restrictive operating limitations. Realities concerning a transition period would also dictate that the fuel will need to co-mingle gracefully with 100LL in both aircraft operation and distribution infrastructure during a transition period.

I also found the following concerns with the FAST Plan position:

- It makes the assumption, based on their testing, that an unleaded solution is not available for the near term and prepares for a lengthy bureaucratic process to incrementally further reduce lead in avgas rather than eliminate it.
- It sees one option of the process for developing an unleaded fuel as revolving around a consensus fuel specification, rather than the fuel specification being derived after the fact from the discovery of an operationally successful fuel.
- The FAST Plan Resolutions include "incentivizing continued investment and development of high-octane unleaded avgas", but it is not clear what form or magnitude that incentive has taken, or what portion is directed to fund R&D at the CRC, FAA Test Center, or assistance to private industry. In my limited research following the meeting, I have been unable to find a private firm that has received any sort of incentives from FAST.

The presentation included how the ASTM's Coordinating Research Council Unleaded Avgas Group (CRC) has tested more than 200 fuel blends over the past 20 years, looking for a high-octane unleaded alternative. Those that demonstrated adequate detonation resistance were tested further to analyze other fuel properties as defined by the ASTM's D910 specification for 100LL avgas. The irony here is the assumption that the required innovation can be found within the constraints of the D910 spec. After looking for it within or near the D910 spec for 20 years, it seems obvious that the solution will probably be found elsewhere and ***that an earnest effort outside of the constraints of the D910 spec has not yet been conducted.*** This distinction was not lost on the attendees, many of whom are entrepreneurs and high tech executives with an understanding of how innovation and breakthroughs occur, and the necessary atmosphere to foster them.

What is missing from the FAST Plan seems to be the understanding that the solution for this problem will likely be born from the type of out-of-the-box innovation which typically comes from individuals or small "skunk works" type of companies, not from industry consensus committees – Thomas Edison, Kelly Johnson, Burt Rutan, and others come to mind.

The FAST group also speaks of the coming transition to an unleaded fuel on a timetable of up to a decade or more, and still hypothetical. During the lengthy FAST presentation, I interrupted to point out that one next generation fuel candidate actually flew their own high-compression, turbocharged Cirrus SR22 700 miles from Ada, Oklahoma to Dayton, OH to this very gathering, on 100-octane pure unleaded fuel on first leg and on co-mingled (with 100LL) fuel in the wing tanks on the second leg – all without any alterations to the aircraft engine or any change to its operating parameters or limitations. While that feat does not resolve the 100LL replacement issue, it certainly moves the ball much closer to the goal post. Our industry seems reluctant to move on from its position of speaking hypothetically about a possible solution to one of acknowledging tangible progress and working to facilitate and encourage development and testing of all possible solutions.

Tim Roehl, President of GAMI addressed the meeting to report on the status of his company's efforts to pursue a dual track process for gaining approval of their G100UL avgas, though the ASTM CRC and through the FAA's Supplemental Type Certificate process. To date, the FAA has not been responsive at the ACO or directorate level in allowing GAMI's STC application to demonstrate compliance with the FAA regulations in the turbo-normalized Cirrus SR22. The FAA has a long standing advisory circular that fully describes in three pages what must be done to qualify a new fuel (AC 20-24B). It would appear that despite the regulatory authority to approve or deny the applicant's STC based on substantiating testing, the FAA institutionally prefers to outsource the decision making to the ASTM and avoid the issue.

I commented that besides the FAA's charge to promote safety, its charter also provides that it will promote aviation innovation and progress (not stifle it). To this end, the various owner/pilot groups requested of Craig Fuller, that AOPA direct its considerable lobbying and advocacy efforts toward influencing the FAA Administrator to, at a minimum, instruct its certification management personnel on the importance of this issue and remove any barriers to any applicant desiring to gain approval of an unleaded high-octane fuel through the STC process. I believe this must now be the critical focus of our advocacy efforts. Our strategy in making our voices heard on this issue will be two-fold, directly to the highest levels within the FAA and also to those involved with Congressional oversight of the FAA.

My opinion, based on Mr. Fuller's participation and statements, is that AOPA will join with the growing coalition of type clubs to lobby the FAA and all stakeholders to foster the kind of innovation that will be required to arrive at a 100LL-replacement solution that will work for all of GA piston aircraft owners, pilots, and manufacturers, and protect the economic interests that we all share in the aviation community. Further, it is my opinion that there was a consensus at this meeting that a sub-100 octane fuel is not a viable solution and that all resources should be directed toward developing a full 100 octane solution that will have the least overall economic impact on the fleet and the industry.

The owner groups invited AOPA to join with the coalition in organizing an event at next month's AirVenture Oshkosh to publicize our position on the 100LL replacement fuel and the efforts of the coalition to advocate for the interests of their members on this industry critical issue.

Subsequent to the meeting, I asked Robert Hackman of AOPA to make available to our members a copy of the FAST Plan presentation, which I will post on our website when it becomes available for those looking for more background details.

In closing, I think that the meeting in Dayton was a worthwhile effort in advocating for our members. This issue will be with us for some time to come. However, the timetable should be determined by the pace at which the technology can be developed and proven, not by the pace at which it can be debated and discussed within the groups wanting to control the process.

Respectfully submitted,

Jonathan Sisk, President
MMOPA Board of Directors