100R Unleaded Avgas Transition Plan

Background

The 118th US Congress -- in response to technical recommendations from the EPA's endangerment finding issued August 18, 2023 regarding the health concerns of toxic lead emissions from the combustion of 100LL aviation gasoline -- has specifically delegated to FAA (working in close partnership with a broad range of industry and federal government stakeholders) certain responsibilities to eradicate lead from aviation gasoline by December 31, 2030, and including across Alaska by end of 2032. It is understood that the actions stemming from these FAA / Industry responsibilities are not meant to adversely affect the safe and efficient operation of the piston-engine aircraft fleet.

In addition, the FAA with Industry support has an active and ongoing role in approving the use of unleaded avgas for use in FAA-certificated engine models and aircraft types, and all other uncertificated models. This may include the use of traditional type certification (TCDS) methods, or supplemental type certification (STC) methods, or the newly architected (FAA Co-led) "piston fleet authorization" fuel initiative (aka PAFI) method.

In conjunction with these alternative certification or approval pathways, the FAA and Industry will strive to not adversely impact the supply of 100LL during the transition phase at specified airports until the availability of the new unleaded fuel is a) widely approved for a broad range of aircraft at such locations and b) it complies with the preferred industry consensus fuel standard (i.e. ASTM International) as commercially available. Industry stakeholders will be focused on ensuring that avgas supply during the transition period will occur without disruption to the NPIAS (FAA grant assurance) airports.

The following outline characterizes the transition plan for the deployment of Swift Fuels 100R Unleaded Avgas across the US market and certain international markets that are synergistic with FAA regulatory authority, our industry partners and US-aviation cross-border interests.

About Swift Fuels Avgas

Swift Fuels is the only company in the US to produce and deploy unleaded avgas that is FAA-certificated and compliant with ASTM International fuel standards. We have sold over 5.8 million gallons of unleaded avgas to airports, FBOs, private users, and flight schools. Our aim has been to educate pilots and communities on the merits of unleaded avgas without imposing a government mandate. Pilots benefit from extended oil change intervals, fewer sparkplug changes, far less fouling, longer engine life, and the total elimination of toxic lead emissions.

Since November 2024, Swift Fuels has deployed 100R unleaded avgas US and EU flight schools using Cessna 172 R/S model aircraft. As of July 14 2026, Swift Fuels has received FAA AML certificates for **1,200 engine models** and **1,600 airframe models** which will allow 100R unleaded avgas to be sold commercially in an expanded network of airfields and tanks. Accordingly, we expect the vast majority of UL94 sales sites to have become 100R commercial sites by the end of 2026.

On a separate path but in parallel with this work, Swift Fuels will be seeking to certify a slate of engines and aircraft representing a higher octane, BMEP and compression ratio group we call the "550-Series" which includes the continental TSIO-550-K and the naturally aspirated IO-550-N engines and many other similar engine configurations. This set is underway now and is expected to be completed in the next 6 to 12+ months. These testing activities are proprietary to Swift Fuels.

Another third path but in parallel with the above 2 tracks, Swift Fuels will be seeking to test and approve various large bore radials and turbocharged engines that remain to be addressed. This final set is also underway in parallel at this time and is expected to be completed within the next 12 to 24 months. These testing activities are proprietary to Swift Fuels.

Swift Fuels has recently sought the guidance of the FAA certification organization to help make sure we can streamline decisions and adequately address issues as they arise in the weeks and months ahead. Effective May 1, 2026, Swift Fuels agreed to a new working relationship with FAA to utilize test cell assets managed by the FAA Tech Center by joining the PAFI program. Note: Strictly following the PAFI approval processes may not indemnify Swift Fuels against future fuel-related liability claims tied to the PAFI test program. Swift Fuels believes our intentional exceedance of traditional (minimum FAR) testing requirements and our direct involvement in advanced testing alongside the FAA and OEMs helps us provide the highest possible assurance to our ultimate customers that our 100R unleaded fuel will be the "gold standard" of any unleaded avgas alternative in the global marketplace.

Role of ASTM International

For the past many decades, ASTM International has been the voluntary consensus standard of choice for all US transportation fuels and additives – including autogas (D4814), 100LL avgas (D910), UL94 avgas (D7547), jet fuel (D1655), SAF (D7566), and diesel fuel (D975). Swift Fuels has advocated for a formal stipulation of requiring all commercially available unleaded avgas products to have an ASTM Specification. To date, both Swift Fuels and PAFI abide by pursuing ASTM International as the preferred standard. Recently, Swift Fuels in collaboration with its 80-member task force and ~600 broader member companies globally, earned an ASTM International

Production Specification for 100R unleaded avgas called D8603. Our 100R fuel formulation and our advanced additive package called AvADD are proprietary products of Swift Fuels.

Intermixability

As 100LL is widely available today across the country, all our Swift Fuels unleaded fuel products are proven to be 100% intermixable with 100LL at any ratio – without compromising the performance of the FAA-approved engine or aircraft. For example, if your engine/aircraft is FAA-approved for using 100R, and you mix any ratio from zero to 99% 100LL, there will be no problem or issue with the engine – it will perform as FAA-approved in the certification documentation. This helps us focus on a critical point – our FAA approvals via STC is documented by fuel placards, engine tags, and POH, AFMS documents providing the pilot with clear instructions for continued airworthiness. Swift Fuels chose the STC certification pathway, because we want each pilot and the FAA-authorized A&P/IA mechanics who install our STC package to confirm and be clear about the placards and operating instructions. In addition, experimental aircraft can receive a portfolio of key information from Swift Fuels to support their aircraft OEM approvals. Swift Fuels believes these methods together are the safest and smartest method to run the transition to unleaded avgas. Our STC method has already been employed successfully by our firm and our pilot customers for over 10 years.

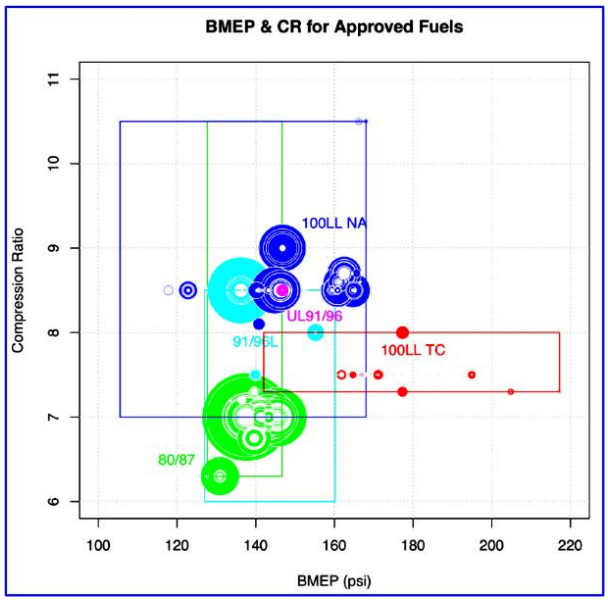
Note: No aviation gasoline product will be allowed to intermix with any Swift Fuels unleaded avgas product unless ASTM International has approved evidence of satisfactory intermixability with our fuel. So far, only 100LL meets this test. This is described in our FAA STC documentation. Furthermore, there must be no compatibility issues from using new alternative fuels that might impact aircraft components, fuel system components or supply chain issues as reported from ASTM International approved testing. All new candidate fuels must be tested before they enter the market. New candidate fuels that have demonstrated compatibility problems in ASTM testing cannot be mixed with Swift Fuels products.

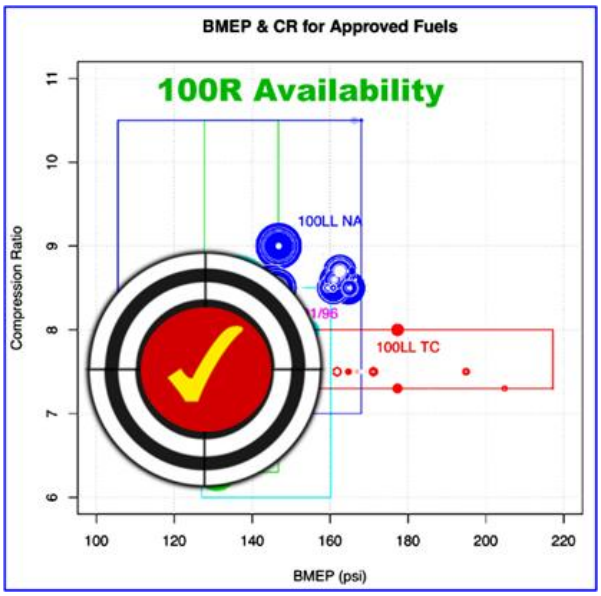
Note: Swift Fuels does not allow fuels containing aromatic amines to intermix with our unleaded fuel products. Our proprietary testing has been reported over the past 6+ years to FAA, CRC, API, National Academy of Science, and numerous other agencies which showed serious deterioration of critical fuel system components including elastomers, bladders, sealants, fabrics, anti-corrosion paint, epoxy, etc. when using as little as 2% meta-toluidine. According to the OSHA safety data sheet, G100UL can contain up to 6% (wt.) of meta-toluidine. That is why G100UL is explicitly disallowed currently from use in aircraft / engines with Swift Fuels products. Swift Fuels does not indemnify claims or harm stemming from the use of aromatic amines in any piston engine fuel, aircraft, fuel tank, or related supply chain vessel.

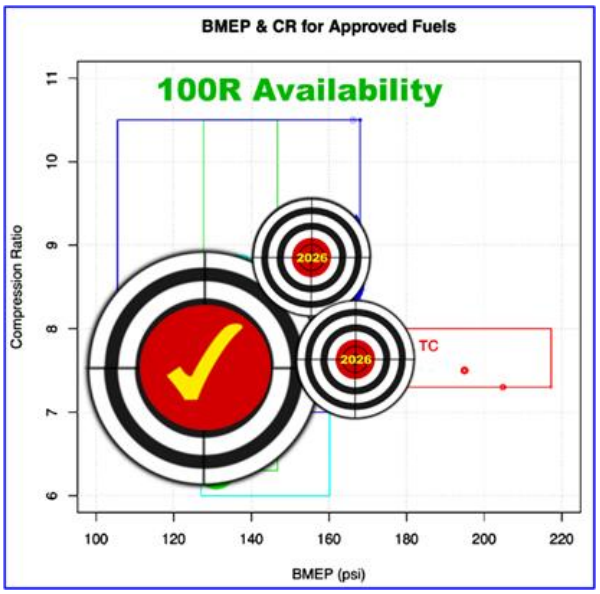
Transition Plan

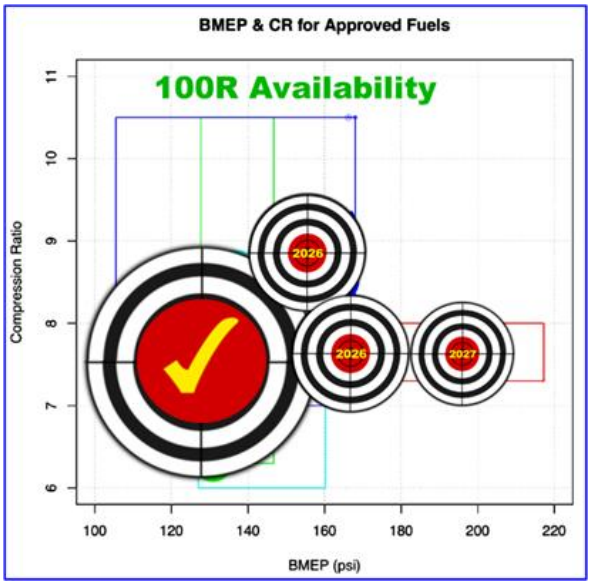
Complete FAA-Certification Work

Swift Fuels certification work is being completed in tranches to allow critical segments of the unleaded avgas market to utilize FAA-approved fuels once our work is completed. The lower octane (≤ 94 motor octane) portion of the market (including ROTAX testing) is being deployed first to replace UL94, followed by the middle tier of higher horsepower naturally aspirated and turbocharged engines (called the “550-Series”) expected in 12 to 18 months, followed by a final diverse set of moderate compression, large bore, turbocharged and radial engines planned for completion by the end of 2027. These dates may depend upon the availability of FAA and Tech Center resources. All experimental aircraft transitions to 100R will be fully initiated by end of 2026.









100R Aircraft Engine Certification Plans NOW (✅) and by end 2026 / 2027 / 2028

Complete & Maintain ASTM International Specification

Swift Fuels has presented our 100R fuel comprehensive fuel research results from the past several years to ASTM International and as of September 4th 2025 has earned a globally approved Production Specification. The ASTM industry consensus body maintains oversight of this fuel standard impacting the global supply chain. The specification will be maintained as long as the fuel remains active in the commercial marketplace. Airport and FBO's across the country work with Swift Fuels to accommodate the fuel requirements for their local and transient aircraft fleets. Swift Fuels also works collaboratively with all the major avgas distributors in various US and global markets, many of whom mandate the use of ASTM International fuel standards.

Deploy 100R to Selected US Sites

Swift Fuels began the deployment of 100R in November 2024 following FAA's approval of our initial 100R STC in September 2024. So far, 100R has been actively utilized on FAA-approved aircraft located at five US flight schools located in California, Missouri and Illinois. By the end of 2027, we expect to have over 300 airfields actively deployed with 100R to demonstrate the basis allowing the regulatory transition away from 100LL. In October 2026, Swift Fuels will begin a process to solicit a formal waiver of Title 49 47107 (a) 22) grant assurance language to reflect the readiness of 100R in all or selected NPIAS airports to replace 100LL. Large scale deployments will follow in 2027. 100R rollouts will continue across all regions that demonstrate readiness as the December 2030 deadline approaches. Alaska will be coordinated by a similar method until 2032.

Deploy 100R to International Sites

Swift Fuels began the deployment of 100R internationally by early January 2025 following the FAA's approval of our initial 100R STC in September 2024 using existing bi-lateral arrangements with various regulatory bodies. So far, Germany, Belgium, The Netherlands, and Austria are all using the new 100R fuel in FAA-approved aircraft. These sites will expand across UK and greater Europe soon. Canada, Australia, and Latin America will be added in the months ahead. We expect to have global reach by the end of 2027.

Test Intermixability of New Alternative Fuels

The introduction of new fuels from the 2 alternative competitors to Swift Fuels will not be allowed in the transition plan until a) an ASTM production specification must demonstrate that no adverse compatibility issues or intermixability issues are shown to exist with 100R, and b) the FAA-certification approval of the engine and airframe is demonstrated to be as good or better than 100R in its overall performance. Compared to 100R, no degradation of engine or aircraft performance will be allowed to occur as a result of intermixing in FAA-certificated or experimental aircraft.

Questions on Transition Plan

Please contact our offices if you have questions:

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