

DISPOSITION OF PUBLIC COMMENTS
POLICY MEMO. NO. PS-ANM-25-04
TITLE: CHEMICAL OXYGEN GENERATOR INSTALLATIONS

No.	Comment	Requested Change	Disposition
	Commenter: Air Transport Association		
1		On page three under Policy change the word “standards” to “concepts.”	The ARC was asked to recommend standards, which it did. No change was made to this policy statement.
2		On page four add the sentence “and has the proper AMOC for relief from the requirements of AD 2011-04-09” after “Our proposed rulemaking will include text stating that COG installations approved between the issuance of this policy statement and the adoption of a final rule that mandates a secure COG installation will be excluded from any retrofit requirement.”	The FAA agrees that the need for an AMOC to AD 2011-04-09 should be made more prominent. However, the discussion in the policy is focused on the standards for COG approval, so the additional sentence would not be in context. This policy statement was revised to include a discussion of AD 2011-04-09.
		On page six add the following note above Conclusion “NOTE: Any installation of COGs into aircraft lavatories under the provision of this Policy Statement must have an AMOC granted by the Manager, Transport Standards, ANM-110 for relief from the requirements of AD 2011-04-09.”	The FAA agrees that the need for an AMOC to AD 2011-04-09 should be made more prominent. A discussion of AD 2011-04-09 was added to this policy statement.

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	<p>Commenter: Chris Witkowski, Director, Air Safety, Health and Security Department (ASHSD) Association of Flight Attendants-CWA, AFL-CIO (AFA)</p>		
1	<p>The proposed policy statement is of significant interest to flight attendants, who are trained and stand ready to respond to protect the traveling public and the safety of flight during cabin decompression emergencies on commercial transport airplanes. Lavatory supplemental oxygen systems in nearly all U.S. commercial airplanes have now been inoperative for the approximately eight months since publication of AD 2011-04-09. A lack of supplemental oxygen presents a hazard that could compromise the health of crewmembers and thereby jeopardize flight safety. During this time, it is fortunate that no rapid decompressions have occurred during high altitude cruise and endangered the health of crewmembers or passengers occupying affected lavatories. However, AFA is concerned that this period of good fortune will not extend indefinitely.</p> <p>To ensure rapid restoration of supplemental oxygen capability to lavatories and to afford some minimal protection for the health of crewmembers and the safety of the public during rapid decompression incidents, AFA recommends that the FAA require (possibly through publication of a new airworthiness directive or special federal aviation regulation, or SFAR) airlines affected by AD 2011-04-09 to install, in all affected lavatories, equipment that incorporates compressed oxygen gas cylinders. We recognize, as stated in the proposed policy statement, that “[c]urrently, no stored gaseous oxygen drop-in replacements are available.”</p>	<p>In parallel with this policy statement, the FAA require (through publication of a new airworthiness directive or special federal aviation regulation, or SFAR) airlines affected by AD 2011-04-09 to install, in all affected lavatories, equipment that incorporates compressed oxygen gas cylinders.</p>	<p>The FAA understands and shares AFA’s interest in restoring oxygen to lavatories as soon as possible. SFAR 111 permits installation of oxygen in the lavatory, even if the oxygen supply does not fully comply with existing standards. The FAA also agrees that installing stored gas oxygen would mitigate the security concerns and would not be affected by AD-2011-04-09. However, such action would be costly and require operator resources that might otherwise be used to find a permanent solution. Given the actual risks involved, the FAA cannot justify mandating an interim measure, in addition to a final retrofit requirement. However, operators are currently free to install such interim measures using the provisions of SFAR 111.</p>

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	<p>Clearly, compressed gas cylinders do not produce the extended durations of oxygen output available from similarly-sized COGs. However, it is AFA’s position that some supplemental oxygen in lavatories is infinitely preferable to having none, which is unfortunately the situation today for most of the U.S. fleet. We fear that choosing not to install systems based on compressed oxygen cylinders will require delays of two, four years or even longer for final design, test, certification, manufacture and fleet-wide installation of acceptable COG retrofit packages (i.e., ones that incorporate adequate tamper protections or are relocated outside lavatories.) Such delays, in our view, are too steep a price simply to ensure that supplemental oxygen is delivered for time durations consistent with existing regulation.</p> <p>Compressed gas cylinder systems are proven technology. Furthermore, and in contrast to COGs, supplemental oxygen systems utilizing compressed gas cylinders lack the “hazard ... which, if not corrected, could jeopardize flight safety” referred to in AD 2011-04-09. Therefore, no sophisticated tamper resistance or evidence systems (with associated crewmember training) will be required. For these reasons the design, test and manufacture of compressed oxygen system designs should proceed quickly. Such systems should also allow for efficient retrofit with a key goal that final installation in the airplane lavatory be accomplished during an overnight stopover in order that airlines minimize costly airplane downtime.</p>		

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2	<p>The ARC final report noted in the draft policy statement would appear to provide important information the public and stakeholders will need in order to understand fully the “additional certification criteria” in the Policy section</p>	<p>Recommend uploading to the FAA website, with suitable redactions to protect privacy and security, the ARC final report. The corresponding internet link (URL) could be inserted as a footnote following the sentence “The ARC has completed its work and submitted a report to the FAA” at the end of p. 2 of the draft policy statement.</p>	<p>The FAA will make a version of the ARC report available once formal rulemaking begins.</p> <p>No change was made to this policy statement.</p>
3	<p>If the FAA chooses not to require that airlines use compressed gas systems for quickly restoring supplemental oxygen to lavatories, AFA recommends that the second paragraph on p. 5 of the policy statement be changed into the two paragraphs (with footnote) shown to the right. [Note that this footnote would be labeled 4 if the link to the ARC report is added as footnote 3 to the end of p. 2, as recommended in the previous comment.]</p>	<p>Another conclusion of the ARC was that the most expeditious method of restoring oxygen to lavatories might be to switch to a different oxygen system, specifically, locally stored compressed gaseous oxygen. This is primarily due to the ramifications of needing an active tamper-evident system for retrofit, which is likely to involve a lengthy design, certification and installation process. On the other hand, compressed oxygen cylinder systems may be obtained off the shelf for some airplane lavatories, or designed relatively quickly for others and may even be installed during routine overnight maintenance stops. However, Although the quantity and duration of the oxygen supply necessary for most airplane routes has resulted in COGs being perceived as the optimal method for supplying oxygen—, this perception may no longer be the case due to their security vulnerability.</p> <p>Currently, no stored gaseous oxygen drop-in replacements are available that meet quantity and duration requirements for all potential flight operations. However, the FAA is aware that the current lack of any supplemental oxygen in lavatories presents a hazard that could potentially compromise the health of</p>	<p>As noted above, using the provisions of SFAR 111, operators are free to propose an interim solution that does not fully comply with the oxygen supply requirements. The suggestion that such interim measures might justify a longer compliance time for the final solution has merit and the FAA would entertain such a proposal. However, given the numerous variables involved in the type of interim solution, its effectiveness, and the compliance time such a solution warrants, incorporating such a provision into the rule itself is more complicated. The FAA will consider such action as rulemaking is developed.</p> <p>This policy statement has been revised to include a statement that interim solutions are acceptable while SFAR 111 is in effect.</p>

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		<p>crewmembers, and thereby jeopardize flight safety, as well as the health of the traveling public. Therefore, some operators may consider installing, on an interim basis⁴ and in the compartment in which a chemical oxygen generator is installed or had been installed in all lavatories of some or all of their airplanes affected by AD 2011-04-09, hardware consisting of two oxygen masks with associated tubing and a compressed oxygen cylinder with attached flow regulator that is of approximately the same size and shape as the chemical oxygen generator that was part of the original system design.</p> <p>⁴ An interim, compressed oxygen system that is approved for installation prior to issuance of a final rule and that does not meet the current certification requirements for quantity and duration must be replaced with equipment that meets the requirements of the final rule within a date, to be determined by the Administrator, that is at least X years after the installation deadline of the final rule. This would allow airlines the flexibility to choose a two-step path to regulatory compliance for all or parts of their fleets, and ensure that at least some supplemental oxygen is available in all airplane lavatories as rapidly as possible.</p>	

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Commenter: Portia White for Transport Workers Union			
1	<p>We recommend that these installations be made mandatory, due to the great risk present when there is no supplementary oxygen available in aircraft lavatories at all.</p> <p>Either a COG meeting the certification criteria in this policy which would not need retrofitting, or a temporary installation of compressed oxygen, should be required on all aircraft.</p>	<p>Determine a reasonable compliance date for all carriers to create and carry out an installation plan for their entire fleet.</p>	<p>The FAA intends to publish rulemaking that will have a clear compliance date. In order to meet the compliance date, operators will have to develop a schedule and detailed compliance plans.</p> <p>No change was made to this policy statement.</p>
2	<p>We recommend that compressed oxygen tanks be considered as an alternative to installing COGs that meet the policy's certification criteria, especially as a means to quickly equip aircraft with some form of supplementary oxygen while the FAA completes its rulemaking for permanent installation of COGs.</p> <p>This will likely require promulgation of another rule or policy, but as this technology already exists and in most cases could be installed where lavatory COGs once were, may be able to be expedited.</p>	<p>Include in this policy that compressed oxygen may be used as a temporary alternative, and refer to the rule or policy governing those installations.</p>	<p>The regulations do not stipulate the type of oxygen supply. The requirements only prescribe the dosage and availability of oxygen. So, stored gas is an acceptable approach. Regarding the use of a temporary installation, operators are free to do this under the provisions of SFAR 111.</p> <p>This policy statement has been revised to include a statement that interim solutions are acceptable while SFAR 111 is in effect.</p>

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Commenter: United Steel Workers			
1	As proposed, the policy puts the public and crews at risk in the event of a decompression, because it does not require compliance with the relevant oxygen requirements.		<p>A policy statement is not the appropriate means for creating legally binding requirements. . This policy statement provides criteria for approving COG installations in lavatories, and asserts the FAA’s goal of restoring oxygen as soon as possible. The FAA intends to initiate rulemaking to mandate requirements that address this issue.</p> <p>No change was made to this policy statement.</p>
2	The conditions required to meet the policy will take too long to fulfill.		<p>The criteria proposed in this policy statement can be met now. The time it takes to actually develop engineering and manufacture parts, and then carry out a retrofit will take longer. However, the guidance provided in this policy statement will be effective upon publication.</p>
3	Some oxygen using stored gas should be provided for lavatories, even if it does not fully comply with the oxygen quantity requirements to reduce the risks to occupants in the event of a decompression.		<p>Stored gas is an acceptable approach. Operators are free to install this type of system under the provisions of SFAR 111.</p> <p>This policy statement has been revised to include a statement that interim solutions are acceptable while SFAR 111 is in effect.</p>

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Commenter: Boeing Commercial Airplanes			
1	<p>The text states: <i>"... Although additional rulemaking is expected, the policy below is being issued to encourage operators to install acceptable oxygen installations using COGs or an alternative approach as early as possible, without waiting for a final rulemaking action."</i></p> <p>No means of compliance are possible due to the fact that no rule exists yet by which to find compliance.</p>	<p>This statement clearly makes the requirements of the policy statement a <u>voluntary</u> action by manufacturers (OEMs), operators, and STC holders. We question what FAA's expectation of compliance is.</p>	<p>The FAA is making criteria available so operators can get approval for oxygen supply installations in lavatories. This approval will not replace rulemaking, but does provide operators with an option in advance of rulemaking, so they will not have to comply with a retrofit requirement at a later date.</p>
2	<p>The text states: <i>"... The criteria outlined in this policy statement, when used, would eliminate the need for further action."</i></p> <p>Without knowing what requirements might be included in the upcoming new rule, any design change (or other action) that an operator would make to comply with the proposed policy might later require changes or updating to be compliant with the new rule.</p>	<p>We question both the intent and applicability of the statement that <u>no further action</u> would be required. We recommend that this statement be clarified.</p>	<p>Page 5 of this policy statement includes the following text: <i>"...that COG installations approved between the issuance of this policy statement and the adoption of a final rule that mandates a secure COG installation will be excluded from any retrofit requirement."</i></p> <p>This text addresses the comment so no change was needed to this policy statement.</p>

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3	<p>The text states: <i>“... The FAA has reviewed the ARC recommendations and believes they are sufficiently mature that we can begin approving oxygen installations in advance of rulemaking. ...”</i> While we understand that this statement may be appropriate at this time, we note that it could change as new designs or other compliance means are developed.</p>	<p>It would be beneficial if FAA would clarify this statement to indicate if acceptable means found today in advance of rulemaking would be “grandfathered in” once the new rule is issued (which might contain different requirements).</p>	<p>Page 5 of this policy statement includes the following text: <i>“...that COG installations approved between the issuance of this policy statement and the adoption of a final rule that mandates a secure COG installation will be excluded from any retrofit requirement.”</i> This text addresses the comment so no change was made to this policy statement.</p>
4	<p>The text states: <i>“(4) A combination of approaches captured in paragraphs (1), (2), or (3) of above that the Administrator finds acceptable to provide a secure installation.”</i> Without a rule with which to find compliance, individual FAA offices will have little to work with in evaluating whether a design is “acceptable to the Administrator.”</p>	<p>We consider this guidance too general for industry to develop design solutions that might meet with the “Administrator’s approval.”</p>	<p>The FAA agrees that this policy statement only provides general guidance, and that the details will require individual assessment and approval. However, this is typical of new standards and the FAA is committed to supporting all such requests for approval. No change was made to this policy statement.</p>
5	<p>The text states: <i>“Operators that follow the guidance in this policy statement and have COG installations approved by the FAA will not be subject to related retrofit requirements that are later adopted through rulemaking. ...”</i> If the upcoming rule contains requirements different from or more specific than this policy statement, all parties that are affected would have to comply with those requirements. If pre-rule designs are approved and accepted, then there will a mixed compliance basis in the fleet, which could lead to confusion in the future when trying to determine what designs are truly compliant with the final rule.</p>	<p>We question whether Industry can depend on this statement with any level of confidence. We request assurance that it will be taken into consideration in all future rulemaking activities concerning lavatory oxygen generators.</p>	<p>By making this commitment in formal policy, the FAA is providing assurance that industry can rely on it. Should the situation change, another formal notice and comment process would have to take place. The FAA has no intention to deviate from this position. No change was made to this policy statement.</p>

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6	<p>The text states: <i>"... This applies to individual airplanes and the installation design itself, so, an approved design could be used on airplanes after the effective date of a final rule. ..."</i></p> <p>There is the likelihood that the same model of aircraft could be compliant with one agency, but not with another. We urge FAA to consider harmonizing this policy and future rule with their non-U.S. counterparts.</p>	<p>This statement is appreciated, but we consider that it may prove problematic for other regulatory authorities if/when they release their own version of this security policy or rule.</p>	<p>Other regulatory authorities will have to work within their own regulatory systems, irrespective of the FAA's actions. The FAA is keeping its international counterparts apprised of its intentions so they can plan accordingly.</p> <p>No change was made to this policy statement.</p>

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7	<p>The text states: <i>“The ARC identified that design solutions that might be appropriate for new installations may not be feasible for retrofit installations. In terms of COG installations, it is likely that in a large number of cases, tamper-resistance alone will not be feasible as a retrofit measure. An active tamper-evident system is expected to be the most costly and complex aspect of a modified COG installation for retrofit. A tamper-evident system is also likely to require additional crew training.”</i></p> <p>While this statement is from the ARC recommendations, we are not certain of the FAA’s intent in including it at this point in the policy. We are not sure what guidance the FAA is trying to provide.</p>	<p>We suggest that FAA clarify the intent of including this information. Are these criteria that the FAA intends to apply to determining compliant designs?</p>	<p>This information is included to make the public aware of the different considerations that go with different solutions. The FAA does not prefer a particular approach but in the interests of broader awareness includes a discussion of the ramifications of different approaches.</p> <p>No change was made to this policy statement.</p>
8	<p>The text states: <i>“There have been recent developments in oxygen system technologies that support new airplane programs. Applicants with these new airplane programs have assessed the dosage of oxygen required by § 25.1443 (based on tracheal partial pressure) and proposed oxygen system test methods that measure actual oxygen saturation levels in the blood. The test methods include human subject testing in an altitude chamber to substantiate performance of the oxygen system under consideration. The FAA has determined that test methods which measure blood oxygen saturation levels may be used to demonstrate that a new proposed oxygen system using the guidance in this policy statement provides an equivalent level of safety to § 25.1443. Using this approach can reduce the total quantity of oxygen required, which in turn can reduce the size of the supply source. A smaller supply source with features necessary to address the security concern may be able to fit into the existing space. ...”</i></p> <p>This information provides what we consider very detailed information about how Boeing certified the</p>	<p>Boeing requests that this text be deleted.</p>	<p>This discussion is generic in nature and is less descriptive than the already published equivalent level of safety memorandum that exists for the Boeing 787 airplane. Boeing concurred with the equivalent level of safety memorandum prior to its issuance.</p> <p>No change was made to this policy statement.</p>

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	<p>Model 787 passenger oxygen system. Some of this information is proprietary to Boeing and should not have been shared through a FAA Policy Statement. This allows other competing manufacturers to know the process that FAA approved Boeing to use for certification</p>		
9	<p>The text states: <i>“This policy discusses compliance methods that should be applied to type certificate, amended type certificate, supplemental type certificate, and amended supplemental type certification programs.”</i></p> <p>If taken literally, this statement could adversely impact current production deliveries of new customer introductions, and modification programs, causing immediate impacts.</p>	<p>We request that this statement be fully clarified as to its effect on current airplane programs.</p>	<p>Following the guidance in this policy statement is not mandatory. The intent of this policy statement is to provide criteria for obtaining an AMOC to AD 2011-04-09 so operators can install oxygen systems. This policy statement provides criteria for approving COG installations in lavatories; therefore, it should apply to any new installation approvals. Since AD 2011-04-09 continues to apply, there should not be any conflicts with applying the guidance in this policy statement to new installations.</p> <p>This sentence was clarified in the policy statement.</p>
10	<p>The text states: <i>“... The compliance methods apply to those programs with an application date that is on or after the effective date of the final policy. If the date of application precedes the effective date of the final policy, the applicability of AD 2011-04-09 must be taken into account to determine if previously acceptable methods of compliance can be used.</i></p> <p>We find this statement somewhat confusing. The current AD 2011-04-09 is the official rule of record at this time. We question whether a policy statement can “override” a rule. Using this policy statement to require that the COG be re-installed back into aircraft would immediately put those aircraft in non-compliance with the AD.</p>	<p>We request that FAA clarify this statement and provide insight as to how it intends to enforce compliance.</p>	<p>This policy statement does not contain any requirements and does not take precedence over AD 2011-04-09. The rulemaking that follows this policy statement will contain provisions to accept approvals granted during the period noted, without requiring new compliance findings.</p> <p>This sentence was clarified in the policy statement.</p>

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	Commenter: United Airlines		
1	<p>"United Airlines appreciates the FAA issuing their Policy Statement PS-ANM-25-04 and the opportunity for operators to comment on it and any future rulemaking. As a follow up to AD 2011-04-09 and the Lavatory Oxygen ARC Final Report (03 Aug 2011), we understand the need to restore lavatory oxygen systems in a timely manner and not wait for a final rule to be released. However, United is very concerned by a proposed AD and compliance period contained within the ARC report, which we regard as unrealistic.</p>		<p>The FAA has no plans for another AD. The ARC report contains a minority recommendation, and is included for completeness to reflect all positions of the ARC membership. This recommendation is not reflected in the policy statement, and will be considered as the FAA goes forward with rulemaking, with the opportunity for public comment.</p> <p>No change was made to this policy statement.</p>
2	<p>The second concern we have is with the immense certification process involved. The information for The design and operations performance for each lavatory oxygen system is held by the Type Certificate holder and thus any STC efforts by the operator (or subcontractor) would undoubtedly involve Boeing and / or Airbus. We are currently unaware of either the airframer or lavatory manufacturer's efforts. Ideally we would like a lavatory oxygen system retrofit be very much the same, if not identical, to those being offered during aircraft / lavatory production.</p>	<p>In advance of the final rule release, United suggests the FAA hold a follow-on meeting (similar to the ARC meeting) to facilitate discussions between operators, airframers, lavatory and oxygen system manufacturers. This meeting would then likely spur subsequent industry meetings with, or without, FAA participation."</p>	<p>The FAA agrees that the certification process will likely be significant, and this needs to be considered as part of the overall strategy to restore oxygen to the lavatories. An industry meeting may be useful and the FAA will consider if it would be appropriate to participate in such a meeting.</p> <p>This comment is outside the scope of this policy statement.</p>