

**Twin Engine
Large Agricultural Restricted Category Airplane
Certification Basis Proposal
AT-2002 Project
December, 2003**

The FAA is seeking public comment on this proposal. The FAA has published in the Federal Register a notice of availability and request for public comments on this subject. Send all comments on this proposed Aircraft Certification Policy notice to: Federal Aviation Administration, Aircraft Certification Service, Aircraft Engineering Division, Room 815, 800 Independence Avenue SW, Washington, DC 20591, ATTN: Steve Flanagan, AIR-110. Or, deliver comments to: Federal Aviation Administration, Room 815, 800 Independence Avenue SW, Washington DC 20591. You may electronically submit comments on this proposal to the following Internet address: 9-awa-avr-air-policycomments@faa.gov. Please include the words "Large Agricultural Restricted Category Airplane Certification Basis Proposal" in the subject line of your E-mail message. To help us to assemble and collectively respond to public comments, please include a text message version of your comments if your submittal is a PDF file.

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INTRODUCTION

Air Tractor, Inc. manufactures restricted category agricultural airplanes designed for agricultural and forest and wildlife conservation (firefighting) operations. These aircraft are certificated under Title 14, Code of Federal Regulations (CFR) §§21.25(b)(1) and (2), respectively.

The National Agricultural Aircraft Association (NAAA) is a trade organization that represents manufacturers and operators of agricultural aircraft. A member of NAAA, Air Tractor, Inc. petitioned the FAA to revise Part 23 to establish airworthiness standards for the certification of restricted category agricultural aircraft. The NAAA petition to revise Part 23 proposed that the weight limits in existing §23.3 would not apply for agricultural aircraft receiving a restricted category type certificate. The FAA rejected the NAAA petition, because the FAA does not believe that aircraft weight limits are inconsequential in both Part 23 and Part 25 airworthiness standards.

Air Tractor, Inc. compared Part 23 and Part 25 airworthiness standards, with a preliminary technical evaluation of the two different sets of requirements. Air Tractor, Inc. requested the FAA to review the comparison and decide which requirements are authorized for a certification basis for a proposed large agricultural restricted category aircraft. The FAA agreed to this review and intends for this certification basis proposal to be a starting point for any new restricted category type certificate project for a large agricultural aircraft based on existing small airplane design experience. The FAA believes that the proposal would be appropriate for an unpressurized airplane weighing

greater than 19,000 pounds and less than 60,000 pounds, with a maximum speed less than 260 knots, and airplane wing span and fuselage length no larger than the dimensions of the early Douglas DC-3 series airplane (95 foot wing span and 65 foot fuselage length). The FAA developed this certification basis proposal using the restricted category type certification policy in FAA Order 8110.4B, Type Certification. The policy in paragraph 6-1.b.(3) states: “Any reduction in safety from that defined by the appropriate airworthiness standards must be based on requirements found inappropriate for the special purpose operation; modified requirements, which are not entirely appropriate; or an operating environment less stringent than that envisaged by the appropriate standards.” In many of the standards reviewed, the last of the three items above is the rationale for permitting the use of Part 23 in lieu of Part 25 airworthiness standards.

Since the development of this certification basis proposal required a comparison of Part 23 and Part 25, the proposal documents the results of this comparison. The proposal lists each of the subparts specified in the airplane airworthiness standards. A general statement addresses the subpart for this proposal. A table documents the comparison of the individual rules within the subpart. The first column of the table lists each rule paragraph by its number and title. In the second column of the table, the rule that was judged acceptable for the certification basis proposal is listed. In the third column of the table, the Order 8110.4B policy basis that justifies the use of the rule for this large agricultural restricted category airplane is stated. The fourth column of the table identifies guidance material providing methods of compliance (MOC) that pertain to the selected requirement.

The FAA reviewed the comparison, and proposes the following as an acceptable certification basis.

Certification basis: Restricted Category Part 21.25(a)(1) type certificate issued for the special purpose operations of agricultural (§21.25(b)(1)) and forest and wildlife conservation (§21.25(b)(2))

Note: §21.25(a)(1) makes reference to applicable noise requirements of Part 36. §36.1(a)(2) excludes from noise standards aircraft used for agricultural aircraft operations or for dispersing fire fighting materials. Part 36 Subpart B requirements only apply to Transport Category Large Airplanes, or jet airplanes regardless of the category in which they are certificated. For this airplane FAA will develop a Noise Control Act Finding and prepare a Finding of No Significant Impact (FONSI) in accordance with FAA Orders 1050.1D and 8110.4B.

Reference Date of Applicable Airworthiness Standards: December 29, 2000;
airworthiness standards for review: Part 23 to Amendment 23-54, effective 12/13/2000;
Part 25 to Amendment 25-100, effective 12/13/2000

SUBPART A – GENERAL

Neither Part 25 nor Part 23 airworthiness standards as a whole are adequate for this large agricultural restricted category airplane. The aircraft is Restricted Category, making the category definitions of §23.1(a) Applicability and §23.3, Airplane categories,

inappropriate for the special purpose operation. Changes to this airplane’s restricted category type certificate will show compliance to this certification basis. Section 23.2, Special retroactive requirements, is waived for restricted category aircraft that do not carry passengers. Section 23.3(b) covers the crew member shoulder harness functionality requirement of §23.3(b) addressed by §23.785(e).

SUBPART B – FLIGHT

Part 25 requirements are needed to address the range of center of gravity limit variation possible for a large aircraft. The general controllability and maneuverability methods of compliance for large aircraft are to be used with longitudinal stability ground handling characteristics. Otherwise, Part 23 normal category requirements are proposed as acceptable criteria. The commuter category Subpart B requirements satisfy International Civil Aviation Organization (ICAO) Annex 8 requirements. These requirements are designed to provide a guaranteed minimum safety level for aircraft engaged in international transport of passengers, freight, or mail.

We accept that restricted category aircraft that conduct special purpose operations (no carriage of passengers or air cargo) over sparsely populated areas permit a reduced level of safety for the aircraft and flight crew. This provides no significant impact upon the general public. The general public’s protection is provided by the regulatory operating limitations prohibiting carrying passengers, and operations at a busy passenger airport.

Rule Section, and Title Description	14 CFR Part 25 or 23 Sections and Language	Rationale for Part & Sections of 25/23 decision	Permissible MOC
21, Proof of compliance	23.21(a), (b)	25.21(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
21, Proof of compliance	25.21(c)	25.21 (c): Requirements are waived for an operating environment less stringent than that envisaged by the standards	Part 23.21 does not address altitude as a variable affecting flight characteristics. Altitude effects will not be a consideration as the airplane will have a maximum altitude limitation to 12,500 ft.
21, Proof of compliance	25.21(d), (e)	25.21 (d), (e): Requirements are waived for an operating environment less stringent than that envisaged by the standards	No power operated flight control assist system is proposed for the aircraft.
23, Load distribution limits	23.23(a), (b)	25.23(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the	Compliance may be shown by reference to AC 23-8A

		standards	
25, Weight limits	23.25	25.25(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the standards	Maximum zero fuel weight (MZFW) loading condition is likely to be a critical load case for wing maneuver loads. The load case will be addressed in Part 23.343(c). For flight operations, the MZFW operating condition will not be used in agricultural operations, so Part 25.25(a) requirements are not needed to address this loading condition
27, Center of gravity limits	Waived	25.27: Requirements are waived for an operating environment less stringent than that envisaged by the standards	The purpose of this requirement is to examine if “actual” (=extreme) c.g. limits lie beyond the range explored in the certification program. The relatively limited range of c.g. travel for the AT-20 justifies waiving this requirement
29, Empty weight and corresponding center of gravity	23.29(a), (b)	25.29(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
31, Removable ballast	23.31	25.31: Requirements are modified because they are not entirely appropriate for the special purpose operations	Compliance may be shown by reference to AC 23-8A
33, Propeller and speed pitch limits	23.33(a), (b), (c), (d)	25.33(a), (b), (c): Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
101, General (Performance)	23.45(d)	For multi-engine AT-20, single engine performance as well as performance information for other configurations will be required as Weight	Compliance may be shown by reference to AC 23-8A; AC21.25-1 Appendix 1 is not applicable on this project with respect to this requirement

		Altitude Temperature (WAT) limited information based on an accurate airplane installed power data base.	
101, General (Performance)	23.45(a), (b), (c), (d), (e), (f), (g)	25.101: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
103, Stalling speed	23.49(a), (b), (c), (d)	25.103: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A. Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is not permitted for the AT-20 project
105, Takeoff	23.45(g); 23.1587(d)	25.105: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
107, Takeoff speeds	23.51(a), (b); 23.53(a), (b)	25.107: Requirements are modified from §25.107 requirements which are not entirely appropriate (V_R , V_{MU})	Compliance may be shown by reference to AC 23-8A
107, Takeoff speeds	23.53(b)(2)	25.107: Requirements are modified from §25.107 requirements which are not entirely appropriate (V_R , V_{MU})	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project
109, Accelerate-stop distance	Waived	25.109: Requirements are waived for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
111, Takeoff path	Waived	25.111: Requirements are waived for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
113, Takeoff distance	Waived	25.113: Requirements	Compliance may be

and takeoff run		are waived for an operating environment less stringent than that envisaged by the standards	shown by reference to AC 23-8A
115, Takeoff flight path	Waived	25.115: Requirements are waived for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
117, Climb: general	23.63(a), (c); 23.65(b); 23.66; 23.67(b); 23.69; 23.77(b)	25.117: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
117, Climb: general	23.65(b)	25.117: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance to the reduced climb gradient as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable
119, Landing climb: All-[engines]-operating	23.77(b)	25.119: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
121, Climb: one-engine-inoperative	23.67(b)	25.121: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
(23.67(b)) Single engine climb	Compliance with the one-engine inoperative performance requirements must be accomplished at maximum weight minus fluids that can be jettisoned (see 25.143(b))	25.121: Requirements are modified for the special purpose operation	
123, En route flight paths	23.69; 23.1587(d)(8)	25.123(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-8A
125, Landing	23.73(b); 23.75; 23.77(b); 23.153; 23.1587(a)(5)	25.125: Requirements are modified for an operating environment	Compliance may be shown by reference to AC 23-8A

		less stringent than that envisaged by the standards	
	23.75(a), (g)	23.75: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
143, General (Controllability and maneuverability)	23.141; 25.143 ; 23.153; 23.155; 23.157 (*23.143 stick control forces are to be permitted)	25.143 : Requirements (methods of compliance) are necessary to address large aircraft characteristics	Compliance may be shown by reference to AC 25-7A paragraph 20
143(b)	Add to 25.143(b) list a new item (4) Conditions normally encountered in the sudden failure of any engine during emergency hopper dump	25.143: Requirements are modified for the special purpose operation	Emergency hopper dump effects on controllability as stated in the December 1, 1997 FAA policy memorandum on agricultural aircraft should be addressed in the AT-20 project.
	23.155	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project	Compliance may be shown by reference to AC 23-8A
145, Longitudinal control	23.145	25.145: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
147, Directional and lateral control	23.147	25.147(a), (c), (e): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
149, Minimum control speed	23.149	25.149: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
161, Trim	23.161(a), (b), (c), (d)	25.161: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
171, Stability	23.171	25.171: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.171	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project	
173, Static longitudinal stability	23.173	25.173: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
175, Demonstration of static longitudinal stability	23.175	25.175: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.175	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project	
177, Static lateral directional stability	23.177	25.177: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.177	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project	
181, Dynamic stability	23.181	25.181: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
201, Stall demonstration	23.201	25.201: Requirements are modified for an operating environment	

		less stringent than that envisaged by the standards	
203, Stall characteristics	23.203	25.203: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
207, Stall warning	23.207; 23.691	25.207: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
221, Spinning	Waived	Part 25 requirements do not specify a requirement. Part 23 does not impose the requirement for multi-engine airplanes.	
231, Longitudinal stability and control (Ground and Water Handling Characteristics)	25.231	Part 23 requirements do not specify a minimum performance capability for tail wheel aircraft. §25.231(a)(2) specifies a minimum performance capability that is deemed appropriate for large aircraft.	
233, Directional stability and control	23.233	25.233: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
235, Taxiing condition	23.233	25.235: Requirements are modified from §25.235 requirements that are not entirely appropriate (no reference to unpaved runways)	
237, Wind velocities	Waived	25.237: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
251, Vibration and buffeting	23.251	25.251: Requirements are modified for an operating environment less stringent than that envisaged by the standards	

	23.251	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project	
253, High speed characteristics	Waived	25.253: Requirements are waived for an operating environment less stringent than that envisaged by the standards	Configuration and low speed of aircraft and use of V_{NE} not V_{MO} basis for overspeed protection limits
255, Out-of-trim characteristics	§25.255(a), (c), (f) structure design case required for elevator/horizontal stabilizer out-of-trim load condition (refer to 23.331 and 23.421); §25.255(b), (d), (e) Waived for flight test requirement	25.255: Flight test demonstration requirements are waived for an operating environment less stringent than that envisaged by the standards	Needed to address primary structural loads accounting for typical large-aircraft trim systems.

SUBPART C – STRUCTURE

For the increased aircraft size and weight under consideration, then, except where indicated, Part 25 flight maneuver requirements are considered necessary for the evaluation of load and load distributions. In particular, many of the arbitrary lateral and direction maneuver load conditions found in Part 23 are replaced by more rational criteria from Part 25, appropriate to aircraft size and presumed operational usage. The maximum maneuvering load factors specified by §23.337 are retained for low aircraft gross weight, although the FAA finds that reduced design load factors are warranted at higher gross weights, and in §23.337(b) introduces a scheduled reduction of load factor with increasing weight appropriate to the intended restricted category use.

Also, for the reduced stiffness-to-mass ratios usually associated with larger aircraft and the consequent reduction in primary modal frequencies, it will normally be necessary to address the effects of rate of load application on both flight gust and landing impact events, unless it can be shown that the design has characteristics which render dynamic load amplification improbable. For a restricted category airplane of this size, the FAA does not require a full consideration of dynamic gusts according to §25.341. However, in showing compliance with §25.305(c) it is likely that the applicant will elect to adopt one or both of §25.341(a) and §25.341(b) in lieu of developing an alternative rational flexible-body dynamic analysis of loads. Dynamic gust analysis under §25.305(c) is supplementary to the basic rigid body analyses defined in §23.341 for wing and fuselage, §23.425 for horizontal stabilizer; and §23.443 for vertical stabilizer. Also, dynamic effects on landing loads should be addressed under §23.479(d).

In view of the larger structural deformations anticipated for increased aircraft size, §25.305(b) is required to account for the effects of structural deformation on load distributions.

Rule Section, Description	FAR 25 or 23; and Language	Rationale for 25/23 decision	Permissible MOC
301, Loads	23.301	25.301: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to draft AC 23-xx-28 Airframe Guide For Certification of Part 23 Airplanes
303, Factor of safety	23.303	25.303: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to draft AC 23-xx-28 Airframe Guide For Certification of Part 23 Airplanes
305, Strength and deformation	25.305	23.305 is inadequate because it does not require consideration of transient stresses produced by dynamic loads on flexible structures. Part 25.303 is needed to address this, as well as address	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures, with dynamic gust loads addressed using one or more of the methods described in 25.341

		internal load redistribution at above limit load levels.	
307, Proof of structure	23.307	25.307: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to draft AC 23-xx-28 Airframe Guide For Certification of Part 23 Airplanes
321, General (Flight Loads)	23.321	25.321: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to draft AC 23-xx-28 Airframe Guide For Certification of Part 23 Airplanes
331, Symmetric maneuvering conditions	23.331 plus develop rational analysis to address empennage loads and load distribution for out of trim conditions	25.331: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Elevator and horizontal tail structure analysis needs to consider mistrim for large airplane with significant power and weight change effects, and/or trim by way of movable stabilizer
333, Flight (maneuvering) envelope	23.333, except maneuver envelope to include limit maneuvering load factor as defined below; also, airplane stiffness to determine if part 25 Appendix G continuous turbulence power spectral density (PSD) airplane gust analysis is to be used for dynamic analysis of aircraft response to gust loads	25.333: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
335, Design airspeeds	23.335	25.335: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
335(a)	§23.335(a) permits establishment of two different V_C speeds, depending upon full or empty hopper	25.335: Requirements are modified for the special purpose operation	
337, Limit maneuvering load factors	25.337(a); 23.337(b), (c) in lieu of 25.337(c), (d). Following in lieu of 25.337(b): Alternative envelope limits:	23.337, except requires rational consideration of maneuver pitching velocity per 25.337(a), and provides for reduced load factor at increased	Alternative is a compromise between large airplane inertia effects and intended mission maneuver envelope

	N need not be $> +4.4g$ N must not be $< +3.3g$	gross weight by adoption of 25.337(b), suitably modified for intended use.	
341, Gust (and turbulence) loads	23.341 for static analysis. Consider also dynamic effects of vertical gust (see 25.305(c))	The 25.341 requirement for consideration of both discrete and continuous dynamic gust is modified for an operating envelope less stringent than envisioned by the standards.	25.341(a) or 25.341(b) are normally acceptable for aircraft whose size and operating envelope might result in dynamic load amplification.
343, Design fuel and oil loads	23.343	25.343: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
345, High lift devices	23.345(a), (b), (c), (d); also, 25.349(c) and (d)	25.345(a), (b): Requirements are modified for an operating environment less stringent than that envisaged by the standards. §25.349(c) requirements are appropriate if high lift devices are not restricted to use only during takeoff or landing, because part 23 requirements do not address en route use of flaps. §25.345(d) requirements provide flap design criteria that are appropriate for aircraft having a maximum takeoff weight that is significantly greater than the maximum landing weight.	
347, Unsymmetrical flight conditions	25.349	23.347 referenced requirements are empirical and their applicability to a large airplane is in question. FAA does not know if Part 23 requirements will result in conservative load conditions. §25.349 load cases are rational, based on control surface	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures

		deflections	
349, Rolling conditions	25.349	23.349 requirements are empirical and their applicability to a large airplane is in question. FAA does not know if Part 23 requirements will result in conservative load conditions. §25.349 load cases are rational, based on control surface deflections.	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
351, Yaw maneuver conditions	25.351	23.351 (and referenced 23.441 through 23.445) requirements are empirical and their applicability to a large airplane is in question. FAA does not know if Part 23 requirements will result in conservative load conditions. §25.351 load cases are rational, based on control surface deflections, and develop loads based on airplane rather than component analysis.	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
361, Engine torque	23.361	25.345: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
363, Side load on engine mount	23.363	25.363 requirements are modified for an operating environment less stringent than that envisaged by the standards	
367, Unsymmetrical loads due to engine failure	23.367	25.367: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
371, Gyroscopic loads	25.371	23.371: Requirements are inadequate because the empirical criteria are based on lower power engines and smaller size aircraft than proposed for this project. 25.371 methodology is	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures

		appropriate because of this. Per the original Notice of Proposed Rule Making (NPRM) for this rule, the rule addresses the light weight and long overhang characteristics of typical turboprop installations. The empirical relations in Part 23.371(a)(2) are based on small airplane empennage load criteria. Absent a comparison from the applicant of the loads under Part 23 and Part 25, the FAA has no basis for saying that Part 23 loads are necessarily conservative load cases.	
373, Speed control devices	23.373	25.373 requirements are modified for an operating environment less stringent than that envisaged by the standards	
391, Control surface loads	23.391	25.391 requirements are modified for an operating environment less stringent than that envisaged by the standards	
393, Loads parallel to hinge line	23.393	25.393 requirements are modified for an operating environment less stringent than that envisaged by the standards	
395, Control system	23.395	25.395: Requirements are modified for an operating environment less stringent than that envisaged by the standards (Use the 25.397(c) pilot forces in lieu of 23.397(b) values)	
397, Control system loads	25.397	23.397: Requirements are inadequate because the airplane weight is significantly greater than the range for which the rule's empirical relationship is based. §25.397 pilot effort loads are higher	
399, Dual control	23.399	25.399: Requirements	

system		are modified for an operating environment less stringent than that envisaged by the standards (Use the 25.397(c) pilot forces in lieu of 23.397(b) values)	
405, Secondary control systems	23.405	25.405: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
407, Trim tab effects	25.407	23.407: Requirements are inadequate because the §25.407(b) trim tab loading condition is appropriate for this airplane.	
409, Tabs	25.409	23.409: Requirements are inadequate because the §25.409(a)& (b) tab loading conditions are appropriate for this airplane.	
415 Ground gust conditions	25.415	23.415: Requirements are inadequate because they are empirically based on smaller size surfaces with lighter control forces (ref: §23.397). §25.415 addresses these concerns	
421, Balancing loads	23.421	Use because 23.331 is used in lieu of 25.331	
	25.255(a), (c), (f) (refer to 23.331)	Use as structure design load case to assure that elevator/horizontal stabilizer design considers range of out-of-trim load cases	
423, Maneuvering loads	23.423	23.423 is required since the alternate requirements of 25.331(c) (pitch maneuver) are insufficient to address the anticipated usage.	
425, Gust loads (horizontal surface other than main wing)	23.425 for static analysis. Consider also dynamic effects of vertical gust (see 25.305(c))	The 25.341 requirement for consideration of both discrete and continuous dynamic gust is modified for an operating envelope less stringent than	25.341(a) or 25.341(b) are normally acceptable for aircraft whose size and operating envelope might result in dynamic amplification.

		envisioned by the standards	
427, Unsymmetrical (horizontal stabilizer) loads	23.427	The additional requirements of 25.427 are not warranted for the operating envelope envisioned, and the asymmetric loading requirement of 23.427 remains appropriate for the intended use.	
441, Maneuvering loads (vertical surfaces)	25.351	23.351 (and referenced 23.441 through 23.445): Requirements are empirical and their applicability to a large airplane is in question. FAA does not know if Part 23 requirements will result in conservative load conditions.	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
443 Gust loads (vertical surfaces)	23.443 for static analysis. Consider also dynamic effects of lateral gust (see 25.305(c))	The 25.341 requirement for consideration of both discrete and continuous dynamic gust is modified for an operating envelope less stringent than envisioned by the standards	25.341(a) or 25.341(b) are normally acceptable for aircraft whose size and operating envelope might result in dynamic load amplification.
445 Outboard fins or winglets	23.445	25.445: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
455, Ailerons	25.349	23.349 and 23.455: Requirements are empirical and their applicability to a large airplane is in question. FAA does not know if Part 23 requirements will result in conservative load conditions.	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
457, Wing flaps	23.345(d)	25.457: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
459, Special devices	23.459	25.459: Requirements are modified for an	

		operating environment less stringent than that envisaged by the standards	
471, General (Ground Loads)	23.471	25.471: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
473, Ground load conditions and assumptions	23.473	25.473: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
473(c)(1)	§23.473(c)(1) is to be accomplished with the hopper contents jettisoned	23.473: Requirements are modified for the special purpose operation	
477 Landing gear arrangement	23.477	25.473: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
479, Level landing conditions	23.479	25.479: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
481, Tail down landing conditions	23.481	25.481: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
483, One-wheel landing conditions	23.483	25.483: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
485, Side load conditions	25.485	The difference between Part 23/CAR 3 and Part 25/CAR 4b criteria extends back to the 1950's. It is not related to high speed taxi and airport ground handling operations. It is based on airplane landing cases with lateral drift. Unless the applicant	

		provides data showing that the Part 23 regulation is conservative, FAA expects compliance with §25.485	
487, Rebound landing condition	25.487	There are no corresponding Part 23 requirements	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
489, Ground handling conditions	25.489	There are no corresponding Part 23 requirements	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
491, Taxi, takeoff and landing roll	25.491	There are no corresponding Part 23 requirements	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
493, Braked roll conditions	23.493	25.493: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
495, Turning	25.495	There are no airplane level corresponding Part 23 requirements. The Part 25/CAR 4b requirements extend back to the 1950's. Part 25 requirements are needed to address airplane inertia load cases.	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures
497, Tail-wheel yawing	23.497	25.497: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
503, Pivoting	25.503	There are no corresponding Part 23 requirements.	
507, Reversed braking	Waived	25.507: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
509, Towing loads	23.509	25.509: Requirements are modified for an operating environment	

		less stringent than that envisaged by the standards	
511, Ground loads: unsymmetrical loads on multiple wheel units	23.511	25.511: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
519, Jacking and tie-down provisions	23.507	25.519: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
561, General (Emergency landing conditions)	23.561	25.561: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
562, Emergency landing dynamic conditions	Modified	25.562: Requirements are modified for an operating environment less stringent than that envisaged by the standards (No carriage of passengers permitted in restricted category operations.)	
	<p>In lieu of compliance with §23.562, the following is proposed as acceptable airworthiness standards for a large restricted category airplane:</p> <ol style="list-style-type: none"> (1) Dynamic testing of seat to vertical load case of §23.562(b)(1); (2) Static testing of seat to forward 25g longitudinal load case; (3) Placement of the chemical hoppers may not be immediately above or behind the cockpit; (4) The airplane must not have protruding knobs, handles, or other rigid structures forward 	<p>The ACE-100 memorandum of September 14, 1992 declared that §23.562 was an inappropriate airworthiness standard for the agricultural special purpose operation. This was based on a comparison of agricultural and general aviation fatal accident statistics. The size, mass, and configuration (no lower deck cargo compartment) of the AT-20 makes invalid the applicability of the data base which justified that policy. The proposed criteria are largely based on crashworthiness requirements that were proposed to the FAA in</p>	<p>Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is not permitted for the AT-20 project</p>

	<p>of the pilot or crew member and within the head strike envelope of the pilot or crew member when restrained by the lap belt and shoulder harness;</p> <p>(5) Seat belt and shoulder harness with a combined rating of at least 5000 pounds installed in both pilot and crew member cockpits;</p> <p>(6) Cockpits for crew members must be located aft of the pilot's cockpit unless the crew member has at least equal protection from the hazards of an emergency landing as the pilot;</p> <p>(7) Flight manual or other provisions that require the pilot and crew member to wear approved Department of Transportation or Mil-Spec protective headgear;</p> <p>(8) Cockpit structure that will not collapse when subject to a 25g forward inertia load factor.</p>	<p>a petition for rulemaking submitted by the National Agricultural Aviation Association (NAAA). The exception to this is the proposed requirement for a dynamic test for the vertical load case in §23.562(b)(1). FAA believes that the 15g downward inertia load case in the NAAA proposal does not adequately address occupant survivability for the particular crash scenario.</p>	
563, Structural ditching provisions	Waived	25.563: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
571, Damage tolerance and fatigue evaluation of structure	23.572(a)(3); 23.573(b); (analyses supported by test evidence); 23.575	25.571: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
581, Lightning protection	23.867	25.581: Requirements are modified for an	

		operating environment less stringent than that envisaged by the standards	

SUBPART D – DESIGN AND CONSTRUCTION

Part 25 requirements are necessary for larger control surfaces, their hinges, and their cable systems. Otherwise, Part 23 requirements are acceptable.

Rule Section, Description	FAR 25 or 23; and Language	Rationale for 25/23 decision	Permissible MOC
601, General	23.601	25.601: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-17 Systems and Equipment Guide for Certification of Part 23 Airplanes
603, Materials and workmanship	23.603	25.603: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
605, Fabrication methods	23.605	25.605: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
607, Fasteners	23.607	25.607: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
609, Protection of structure	23.609	25.609: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
611, Accessibility provisions	23.611	25.611: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
613, Material strength properties and design values	23.613	25.613: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
619, Special factors	23.619	25.619: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
621, Casting factors	23.621	25.621: Requirements	

		are modified for an operating environment less stringent than that envisaged by the standards	
623, Bearing factors	23.623	25.623: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
625, Fitting factors	23.625	25.625: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
627, Fatigue strength	23.627	25.571: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
629, Flutter	23.629	25.629: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.629(f)	In lieu of compliance with the fail-safe flutter requirements of §23.629(f)(2), the airplane must have irreversible tabs in accordance with AC23.629-1A. Also, the primary and secondary control systems must be designed to a minimum factor of safety of 4.	
631, Bird strike damage	Waived	25.631: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
641, Proof of strength (Wings)	25.305	23.303 is inadequate because it does not require consideration of transient stresses produced by dynamic loads on flexible structures. Part 25.303	Compliance may be shown by reference to AC 25-21 Certification of Transport Airplane Structures

		is needed to address this, as well as address internal load redistribution at above limit load levels.	
651, Proof of strength (Control systems)	23.651(a), (b); 25.651(b)	Part 23: Requirement does not address the special factors listed in §25.651(b). These factors are appropriate for the larger control surfaces used on this airplane	Compliance may be shown by reference to AC 25-22 Certification of Transport Airplane Mechanical Systems
655, Installation	23.655	25.655: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
657, Hinges	25.657	Part 23: Requirements do not address hinge strength and rigidity for loads parallel to the hinge line	Compliance may be shown by reference to AC 25-22 Certification of Transport Airplane Mechanical Systems
671, General (Control systems)	23.671	25.671: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
672, Stability augmentation and automatic and power-operated systems	23.672	25.672: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
673, Primary flight controls	23.673	No corresponding Part 25 requirement	
675, Stops	23.675	25.675 requirements are modified for an operating environment less stringent than that envisaged by the standards	
677, Trim systems	23.677	25.677: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.677(b)	In lieu of compliance with the fail-safe primary flight control system requirements of §23.677(b), the primary	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement

		and secondary control systems must be designed to a minimum factor of safety of 4.	
679, Control system locks	23.679	25.679: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
681, Limit load static tests	23.681	25.681: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
683, Operation tests	23.683	25.683: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
685, Control system details	23.685	25.685: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
687, Spring devices	23.687	25.687: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
689, Cable systems	25.689	Part 23: Requirements do not address chain and sprocket guard provisions	Compliance may be shown by reference to AC 25-22 Certification of Transport Airplane Mechanical Systems
691, Artificial stall barrier system	23.691	Use because 23.201 is used in lieu of 25.201	
693, Joints	23.693	25.693: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
697, Lift and drag devices, controls	23.697	25.697: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
699 Lift and drag device indicator	23.699	25.699: Requirements are modified for an	

		operating environment less stringent than that envisaged by the standards	
701, Flap interconnection	23.701	25.701: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
703, Takeoff warning system	Waived	25.703: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
721, General (Landing gear)	Waived	25.721: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
723, Shock absorption tests	23.723	25.723: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
725, Limit drop tests	23.725	25.725: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
726 Ground load dynamic tests	23.726	Use because 23.479 through 23.483 is used in lieu of 25.479 through 25.483	
727 Reserve energy absorption drop test	23.727	25.727: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
731, Wheels	23.731	25.731: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
733, Tires	23.733	25.733: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
735, Brakes	23.735	25.735: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
745, Nose/tail wheel steering	23.745	Use because 23.233 used in lieu of 25.233	
771, Pilot compartment	23.771	25.771: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
773, Pilot compartment view	23.773	25.773: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
775, Windshields and windows	23.775(a), (e)	25.775: Requirements are modified for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
777, Cockpit controls	23.777	25.777: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
779, Motion and effect of cockpit controls	23.779	25.779: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
781 Cockpit control knob shape	23.781(a)	25.781: Requirements are modified for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
783, Doors	23.783(c)	25.783: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
785, Seats, berths, litters, safety belts and shoulder harnesses	23.785	25.785: Requirements are modified for an operating environment less stringent than that	

		envisaged by the standards	
787, Stowage compartments	23.787(a), (c)	25.787: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
789, Retention of items of mass in passenger and crew compartments and galleys	23.561(b)	25.789: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
807, Emergency exits	23.807(a), (b), (c)	25.807: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
809, Emergency exit arrangement	Waived	25.809: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
810, Emergency egress assist means and escape routes	Waived	25.810: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
811, Emergency exit marking	23.811(a)	25.811: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
831, Ventilation	23.831(a)	25.831: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
833, Combustion heating systems	23.859	25.833: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
851 Fire extinguishers	23.851(a), (c)	25.851: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
853 Passenger and crew compartment interiors	23.853(a)	25.853: Requirements are modified for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
855 Cargo and baggage compartment fire protection	23.855(a), (b)	25.855: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
857 Cargo compartment classification	Waived	The requirement is inappropriate for the special purpose operation	
858 Cargo or baggage compartment smoke or fire detection systems	Waived	25.858: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
859 Combustion heater fire protection system	23.859	25.859: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
863, Flammable fluid fire protection	23.863	25.863: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
865, Fire protection of flight controls, engine mounts, and other flight structure	23.865	25.865: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
25.867, Fire protection: Other components	Waived	25.867: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
23.867, Electrical bonding and protection against lightning and static electricity	23.867	25.581: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
869, Fire protection: Systems	Waived	25.869: Requirements are modified for an	

		operating environment less stringent than that envisaged by the standards	
871, Leveling means	23.871	25.871: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
875, Reinforcement near propellers	Waived	25.871: Requirements are waived for an operating environment less stringent than that envisaged by the standards	

SUBPART E – POWERPLANT

The crash fuel spillage provisions of Part 25.963(d) were identified as necessary for this airplane. Otherwise, Part 23 requirements are acceptable standards for this restricted category airplane.

Rule Section, Description	FAR 25 or 23; and Language	Rationale for 25/23 decision	Permissible MOC
901, Installation (General – Powerplant)	23.901	25.901: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC 23-16 Powerplant Guide for Certification of Part 23 Airplanes
	23.901(d)(2)	23.901: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Reference to the December 1, 1997 FAA policy memorandum on agricultural aircraft concerning this requirement is permitted for the AT-20 project
903, Engines	23.903	25.903: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
904, Automatic takeoff thrust control system (ATTCS)	23.904	25.904: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
905, Propellers	23.905	25.905: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
907, Propeller vibration	23.907	25.907: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
925, Propeller clearance	23.925	25.925: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
933, Reversing systems	23.933(b)	25.933: Requirements are modified for an operating environment less stringent than that	

		envisaged by the standards	
937, Turbopropeller-drag limiting systems	23.937	25.937: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
939, Turbine engine operating characteristics	23.939(a), (c)	25.939: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
941, Inlet, engine, and exhaust compatibility	Waived	25.941: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
943, Negative acceleration	23.943	25.943: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
945, Thrust or power augmentation system	Waived	25.943: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
951, General (Fuel system)	23.951	25.951: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
952, Fuel system analysis and test	23.955(a)	25.952: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
953, Fuel system independence	23.953	25.953: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
954, Fuel system lightning protection	In lieu of compliance with this regulation, a limitation in the Airplane Flight Manual (AFM) prohibiting	25.954: Requirements are modified for an operating environment less stringent than that envisaged by the	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for

	operation of the airplane in and around thunderstorms will be acceptable.	standards	agricultural aircraft is acceptable.
955 Fuel flow	23.955	25.955: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
957, Flow between interconnected tanks	23.957	25.957: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
959, Unusable fuel supply	23.959	25.959: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
961, Fuel system hot weather operation	23.961	25.961: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
963, Fuel tanks: General	23.963(a), (b), (c), (d), (e); 25.963(d)	Part 23 does not address fuel spillage in crash conditions	
963(a)	Add requirement that fuel tanks must withstand loads associated with emergency jettison of hopper contents	Part 23.963(a): Requirements modified for the special purpose operation	
965, Fuel tank tests	23.965	25.965: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
967, Fuel tank installation	23.967	25.965: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
969, Fuel tank expansion space	23.969	25.969: Requirements are modified for an operating environment less stringent than that envisaged by the standards	

971, Fuel tank sump	23.971	25.971: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
973, Fuel tank filler connection	23.973	25.973: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
975, Fuel tank vents and carburetor vapor vents	23.975	25.975: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
977, Fuel tank outlet	23.977	25.977: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
979, Pressure fueling systems	23.979	25.979: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
981, Fuel tank temperature	Waived	25.981: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
991, Fuel pumps	23.991	25.991: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
993, Fuel system lines and fittings	23.993	25.993: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
994, Fuel system components	23.994	25.994: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
995, Fuel valves and	23.995	25.995: Requirements	

controls		are modified for an operating environment less stringent than that envisaged by the standards	
997, Fuel strainer or filter	23.997	25.997: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
999, Fuel system drains	23.999	25.999: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1001, Fuel jettisoning system	23.1001	25.1001: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1011, Oil system	23.1011	25.1011: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1013, Oil tanks	23.1013	25.1013: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1015, Oil tank tests	23.1015	25.1015: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1017, Oil lines and fittings	23.1017	25.1017: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1019, Oil strainer or filter	23.1019	25.1019: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1021, Oil system drains	23.1021	25.1021: Requirements are modified for an	

		operating environment less stringent than that envisaged by the standards	
1023, Oil radiators	23.1023	25.1023: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1025, Oil valves	23.1189	25.1189: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1027, Propeller feathering system	23.1027	25.1027: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1041, General (Cooling)	23.1041	25.1041: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1043, Cooling tests	23.1043	25.1043: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable.
1045, Cooling test procedures for turbine engine powered airplanes	23.1045	25.1045: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1091, Air induction system	23.1091	25.1091: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1093, Induction system icing protection	In lieu of compliance with this requirement the AT-20 Airplane Flight Manual (AFM) limitation will prohibit flight in visible moisture below 40 ⁰ F.	25.1093: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable.
1103, Induction system	23.1103	25.1103: Requirements	

ducts		are modified for an operating environment less stringent than that envisaged by the standards	
1105, Induction system screens	23.1105	25.1105: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
23.1107, Induction system filters	23.1107	25.1107: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
25.1107 Inter-coolers and after-coolers	Waived	25.1107: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1111, Turbine engine bleed air system	23.1111	25.1103(d): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1121, General (Exhaust system)	23.1121	25.1121: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1123, Exhaust system	23.1123	25.1123: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1141, Powerplant controls: General	23.1141	25.1141: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.1141(e)	For turbine engine powered airplanes, no single failure or malfunction in any powerplant control system may cause the failure of any	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable.

		powerplant function necessary for safety.	
1142 Auxiliary power unit controls	23.1142	25.1142: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1143 Engine controls	23.1143	25.1143: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1145 Ignition switches	23.1145	25.1145: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1147 Mixture controls	23.1147	25.1147: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1149 Propeller speed and pitch controls	23.1149	25.1149: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1153 Propeller feathering controls	23.1153	25.1153: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1155, Reverse thrust and propeller pitch settings below the flight regime	23.1155	25.1155: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1163, Powerplant accessories	23.1163	25.1163: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.1163(a)(1)	Each engine mount accessory must be acceptable for mounting on the engine involved and use the proper	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for

		provision on the engines for mounting.	agricultural aircraft is acceptable.
1165, Engine ignition systems	23.1165	25.1165: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1167, Accessory gearboxes	Waived	25.1167: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1181, Designated fire zones; regions included	23.1181	25.1181: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1182, Nacelle areas behind firewalls	23.1182	25.1182: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1183, Lines, fittings and components	23.1183	25.1183: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1185, Flammable fluids	23.1183	25.1185: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1187, Drainage and ventilation of fire zones	Waived	25.1187: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1189, Shutoff means	23.1189	25.1189: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1191, Firewalls	23.1191	25.1191: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
1193, Cowling and nacelle	23.1193	25.1193: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1195, Fire extinguishing systems	23.1195(b)	25.1195: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1197, Fire extinguishing agents	Waived	25.1197: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1199, Extinguishing agent containers	Waived	25.1197: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1201, Fire extinguishing system materials	Waived	25.1201: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1203, Fire detector system	23.1203	25.1203: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1207, Compliance	Waived	25.1207: Requirements are waived for an operating environment less stringent than that envisaged by the standards	

SUBPART F – EQUIPMENT

Part 23 requirements are considered acceptable for this restricted category airplane.

Rule Section, Description	FAR 25 or 23; and Language	Rationale for 25/23 decision	Permissible MOC
1301, Function and installation (General –	23.1301	25.1301: Requirements are modified for an	

Equipment)		operating environment less stringent than that envisaged by the standards	
1303, Flight and navigation instruments	23.1303	25.1303: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.1303(e)	Waived - 23.1303(e): Requirements are waived for an operating environment less stringent than that envisaged by the standards (low speed high drag turbine powered airplane)	Compliance to this requirement as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable.
1305, Powerplant instruments	23.1305	25.1305: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1307, Miscellaneous equipment	23.1307	25.1307: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1309, Equipment, systems, and installations	23.1309	25.1309: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1311, Electronic display instrument systems	23.1311	25.1309, 25.1333: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1316, System lightning protection	Waived	25.1316: Requirements are waived for an operating environment less stringent than that envisaged by the standards	Note: If seeking IFR Operations approval, must address lightning protection of systems under Part 23.1309
1321, Arrangement and visibility	23.1321	25.1321: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
	23.1321(d) & (e)	23.1321: Requirements are modified for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
1322, Warning, caution, and advisory lights	23.1322	25.1322: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1323, Airspeed indicating system	23.1323	25.1323: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1325, Static pressure system	23.1325	25.1325: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.1325(b)(2)(ii) & (b)(3)	23.1325: Requirements are waived for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
1327, Magnetic direction indicator	23.1327	25.1327: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1329, Automatic pilot system	23.1329	25.1329: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1331, Instruments using a power source	23.1331	25.1331: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1335, Flight director systems	23.1335	25.1335: Requirements are modified for an operating environment less stringent than that envisaged by the standards	

1337, Powerplant instruments installation	23.1337	25.1337: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1351, General (Electrical systems and equipment)	23.1351	25.1351: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1353, Electrical equipment and installations	23.1353	25.1353(c): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1355, Distribution system	23.1365	25.1355: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1357, Circuit protective devices	23.1357	25.1357: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1359, Electrical system fire protection	23.1359	25.869: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1361, Master switch arrangement	23.1361	25.1351(b)(5): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1365, Electrical cables and equipment	23.1365	25.1351(a): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1367, Switches	23.1367	25.1301, 25.1351(a): Requirements are modified for an operating environment	

		less stringent than that envisaged by the standards	
1381, Instrument lights	23.1381	25.1381: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1383, Taxi and landing lights	23.1383	25.1383: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1385, Position light system installation	23.1385	25.1385: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1387, Position light system dihedral angles	23.1387	25.1387: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1389, Position light distribution and intensities	23.1389	25.1389: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1391, Minimum intensities in the horizontal plane of position lights	23.1391	25.1391: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1393, Minimum intensities in any vertical plane of position lights	23.1393	25.1393: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1395, Maximum intensities in overlapping beams of position lights	23.1395	25.1395: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1397, Color specifications	23.1397	25.1397: Requirements are modified for an operating environment less stringent than that	

		envisaged by the standards	
1401, Anticollision light system	23.1401	25.1401: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1411, General (Safety equipment)	23.1411	25.1411: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1419, Ice protection	Waived	25.1419: Requirements are modified for an operating environment less stringent than that envisaged by the standards	In lieu of compliance with this regulation, an Airplane Flight Manual (AFM) limitation will prohibit flight in visible moisture below 40 ⁰ F.
1431, Electronic equipment	23.1431	25.1431: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1433, Vacuum systems	Waived	25.1433: Requirements are waived for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement.
1435, Hydraulic systems	23.1435	25.1435: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1437, Accessories for multiengine airplanes	23.1437	25.901(c): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1438, Pressurization and pneumatic systems	23.1438	25.1438: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1461, Equipment containing high energy rotors	23.1461	25.1461: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
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SUBPART G – OPERATING LIMITATIONS AND INFORMATION

Part 25 requirements are needed to identify the speed at which emergency jettison of hopper contents are done. Also, an appropriate rough air operation speed is needed. The Part 25 requirement permits establishing an airplane limitation based on any engine type certificate limitations. Otherwise, Part 23 requirements are acceptable for the airplane.

Rule Section, Description	FAR 25 or 23; and Language	Rationale for 25/23 decision	Permissible MOC
1501, General	23.1501	25.1501: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1503 Airspeed limitations: General	25.1503	There is no corresponding Part 23 requirement. The requirement addresses a need for an appropriate airspeed for jettison of hopper contents	
1505, Airspeed limitations	23.1505(a), (b)	25.1505: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
	23.1505(c)	Waived - 23.1505(c): Requirements are waived for an operating environment less stringent than that envisaged by the standards (low speed high drag turbine powered airplane)	
1507, Operating maneuver speed	23.1507	25.1507: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1511, Flap extended speed	23.1511	25.1511: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1513, Minimum control speed	23.1513	25.1513: Requirements are modified for an operating environment less stringent than that envisaged by the	

		standards	
1517, Rough air speed, V_{RA}	23.1585(a)(3)	25.1517: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1519, Weight, center of gravity, and weight distribution	23.1519	25.1519: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1521, Powerplant limitations	25.1521	The Part 25 requirement permits establishing an airplane limitation based on engine type certificate limitations. The Part 23 requirement does not address this.	
1522, Auxiliary power unit limitations	23.1522	25.1522: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1523, Minimum flight crew	23.1523	25.1523: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1525, Kinds of operation	23.1525	25.1525: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1527, Maximum operating altitude	23.1527	25.1527: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1529, Instructions for Continued Airworthiness	23.1529	25.1529: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1531, Maneuvering flight load factors	Waived	25.1531: Requirements are waived for an operating environment less stringent than that envisaged by the	

		standards	
1533, Additional operating limitations	Waived	25.1533: Requirements are waived for an operating environment less stringent than that envisaged by the standards	
1541, General (Markings and placards)	23.1541	25.1541: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1543, Instrument markings: General	23.1543	25.1543: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1545, Airspeed indicator	23.1545	25.1545: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1547, Magnetic direction indicator	23.1547	25.1547: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1549, Powerplant and auxiliary power unit instruments	23.1549	25.1549: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1551, Oil quantity indicator	23.1551	25.1551: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1553, Fuel quantity indicator	23.1553	25.1553: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1555, Control markings	23.1555	25.1555: Requirements are modified for an operating environment less stringent than that envisaged by the standards	

1557, Miscellaneous markings and placards	23.1557	25.1557: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1559, Operating limitations placard	23.1559	25.1541(a)(2): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1561, Safety equipment	23.1561	25.1561: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1563, Airspeed placards	23.1563	25.1563: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1567, Flight maneuver placard	23.1567(a)	25.1541(a)(2): Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1581, General (Airplane Flight Manual and approved manual material)	23.1581	25.1581: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC23-8A.
	23.1581(e)	23.1581(e): Requirements are waived for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
1583, Operating limitations	23.1583	25.1583: Requirements are modified for an operating environment less stringent than that envisaged by the standards	Compliance may be shown by reference to AC23-8A.
	23.1583(c)	The airplane is not to be operated above its maximum certified gross weight.	Compliance to this requirement as defined in the December 1, 1997 FAA policy

			memorandum for agricultural aircraft is acceptable.
	23.1583 (g), (j)	25.1583(d): 25.1305: Requirements are waived for an operating environment less stringent than that envisaged by the standards	AC21.25-1 Appendix 1 is applicable on this project with respect to this requirement
1585, Operating procedures	23.1585	25.1585: Requirements are modified for an operating environment less stringent than that envisaged by the standards	
1587, Performance information	23.1587	For multi-engine AT-20, single engine performance as well as performance information for other configurations will be required as Weight Altitude Temperature (WAT) limited information based on an accurate airplane installed power data base.	Compliance to the performance information requirements as defined in the December 1, 1997 FAA policy memorandum for agricultural aircraft is acceptable
1589, Loading information	23.1589	25.1583(c): Requirements are modified for an operating environment less stringent than that envisaged by the standards	