

United States of America  
Department of Transportation -- Federal Aviation Administration  
**Supplemental Type Certificate**

*Number* SA04112CH

*This certificate issued to* Appareo Systems, LLC  
1810 NDSU Research Circle North  
Fargo, ND 58102

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified herein meets the airworthiness requirements of Part 23 of the Federal Aviation Regulations.*

*Original Product - Type Certificate Number :* See attached FAA Approved Model List (AML) No. SA04112CH  
*Make :* for list of approved airplane models and applicable airworthiness regulations.  
*Model :*

*Description of Type Design Change:*  
Installation of Appareo Systems, LLC Stratus ES & Stratus ESG ADS-B transponder in accordance with the Appareo Systems Stratus ES/ESG STC Master Document List on FAA AML No. SA04112CH.

*Limitations and Conditions:*

1. The installer must determine whether this design change is compatible with previously approved modifications.
2. A copy of this certificate and AML No. SA04112CH must be maintained as part of the permanent records for the modified aircraft.
3. FAA Approved Airplane Flight Manual Supplement identified on FAA AML No. SA04112CH is a required part of this modification.
4. If the holder agrees to permit another person to use this certificate to alter the product, the holder must give the other person written evidence of that permission.

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* June 29, 2012

*Date reissued:*

*Date of issuance:* July 7, 2016

*Date amended:* April 12, 2017; September 22, 2017



*By direction of the Administrator*

*Steven L. Lardinois*

(Signature)

for Steven L. Lardinois  
Manager, Systems Section  
Chicago ACO Branch

(Title)



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Compliance & Airworthiness Division  
Aircraft Certification Service  
Chicago ACO Branch  
2300 E. Devon Avenue, Room 107  
Des Plaines, IL 60018

October 18, 2018

Mr. Vernon Miller  
Sr. Certification Specialist  
Appareo Systems, LLC  
1810 NDSU Research Circle North  
Fargo, ND 58102

Dear Mr. Miller:

This letter is in response to your application, dated August 21, 2018 with a revised application provided September 11, 2018, requesting an amendment to Approved Model List (AML) SA04112CH to add additional TCDS models to the AML.

Enclosed are the following as evidence of FAA design data approval:

1) FAA AML SA04112CH amended October 18, 2018

Instructions for Continued Airworthiness Appareo Systems Stratus ES/ESG System, Document No. 600845-000025, Rev. 2.2, dated February 20, 2018, are FAA accepted and should be incorporated into the operator's maintenance program.

When an appropriately rated repair station installs this STC, replacement or modification parts may be produced under the provisions of 14 CFR Parts 43 and 145 provided:

- a. The repair station is modifying aircraft in accordance with the drawings and specifications approved by this STC;
- b. The repair station is appropriately rated for the aircraft involved; and
- c. The repair station manual provides controls similar to those in 14 CFR § 21.303 to cover the manufacturing operations.

This option applies only when the parts manufactured by the repair station are installed on aircraft either brought to the repair station for the work or at the other locations under the repair station's direct authority. A Parts Manufacturer Approval (PMA) must be obtained for parts that are to be installed by anyone other than the repair station.


The approved data should be made available to the FAA upon request as indicated by 14 CFR §§ 21.41, and 21.49.

Minor and Major changes to type design data must be submitted with all substantiating and required descriptive data (reference §§ 21.93, 21.95, 21.97) and approved by the Chicago Aircraft Certification Office prior to aircraft installation unless another acceptable method has been approved by the FAA.

Please be aware of your responsibilities under the requirements of 14 CFR § 21.3, regarding the reporting of any failure, malfunction, or defect in any article manufactured under this approval.

If you have any questions regarding this approval, please contact Mr. Aaron Foutch at (847) 294-7124, fax (847) 294-7834, email [aaron.foutch@faa.gov](mailto:aaron.foutch@faa.gov)

Sincerely,

  
for Steven L. Lardinois  
Manager, Systems Section  
Chicago ACO Branch

1 Enclosure

FAA APPROVED MODEL LIST (AML) NO. SA04112CH

Appareo Systems LLC.

FOR

THE INSTALLATION OF APPAREO SYSTEMS STRATUS ES & STRATUS ESG ADS-B

Issue Date: July 7, 2016

ITEM	AIRCRAFT MAKE	AIRCRAFT MODEL	ORIGINAL TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	INSTALLATION INSTRUCTIONS		AFM SUPPLEMENT NUMBER/DATE	AML AMENDMENT DATE
					MASTER DOCUMENT LIST	REVISION NO. AND DATE		
1	Cessna Aircraft Company	172, 172A, 172B, 172C, 172D, 172E, 172F, 172G, 172H, 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S	3A12	14 CFR Part 23 and Amendments identified in TCDS 3A12 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 1.7, dated January 30, 2017, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 1.7, dated April 12, 2017, or later FAA approved revision	April 12, 2017
2	Piper Aircraft, Inc.	PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-181, PA-28-235, PA-28-236, PA-28-201T, PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-28S-160, PA-28S-180	2A13	14 CFR Part 23 and Amendments identified in TCDS 2A13 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 1.7, dated January 30, 2017, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 1.7, dated April 12, 2017, or later FAA approved revision	April 12, 2017
3	Mooney International Corporation	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S, M20TN, M20U, M20V	2A3	CAR 3 and Amendments identified in TCDS 2A3 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.2, dated August 28, 2017, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	September 22, 2017
4	AeroSedan, LLC	15AC, S15AC	A-802	CAR 3 and Amendments identified in TCDS A-802 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
5	Cirrus Design Corporation	SR20, SR22, SR22T	A00009CH	14 CFR Part 23 and Amendments identified in TCDS A00009CH as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018



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Issue Date: July 7, 2016

6	Diamond Aircraft Industries, Inc.	DA20-A1, DA20-C1	TA4CH	14 CFR Part 23 and Amendments identified in TCDS TA4CH as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
7	Diamond Aircraft Industries, Inc.	DA 40, DA 40 F, DA 40 NG	A47CE	14 CFR Part 23 and Amendments identified in TCDS A47CE as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
8	Piper Aircraft, Inc.	PA-16, PA-16S	1A1	CAR 3 and Amendments identified in TCDS 1A1 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
9	LAVIA ARGENTINA S.A. (LAVIASA)	PA-25, PA-25-235, PA-25-260	2A8	CAR 3 and Amendments identified in TCDS 2A8 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
10	Piper Aircraft, Inc.	PA-38-112	A18SO	14 CFR Part 23 and Amendments identified in TCDS A18SO as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
11	Piper Aircraft, Inc.	PA-30, PA-39, PA-40	A1EA	CAR 3 and Amendments identified in TCDS A1EA as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	May 23, 2018
12	Textron Aviation, Inc.	35-33, 35-A33, 35-B33, 35-C33, E33, E33A, E33C, F33, F33A, F33C, G33, H35, G36, J35, K35, M35, N35, P35, S35, V35, V35A, V35B, 36, A36, A36TC, B36TC	3A15	CAR 3 and Amendments identified in TCDS 3A15 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018

FAA APPROVED MODEL LIST (AML) NO. SA04112CH

Appareo Systems LLC.

FOR

THE INSTALLATION OF APPAREO SYSTEMS STRATUS ES & STRATUS ESG ADS-B

Issue Date: July 7, 2016

13	Textron Aviation, Inc.	35, A35, B35, C35, D35, E35, F35, G35, 35R	A-777	CAR 3 and Amendments identified in TCDS A-777 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
14	Textron Aviation, Inc.	182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182S, 182T, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, R182, T182, TR182, T182T	3A13	CAR 3, 14CFR Part 23, and Amendments identified in TCDS 3A13 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
15	Textron Aviation, Inc.	150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, A150K, 150L, A150L, 150M, A150M, 152, A152	3A19	CAR 3, 14 CFR Part 23 and Amendments identified in TCDS 3A19 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
16	Textron Aviation, Inc.	210, 210A, 210B, 210C, 210D, 210E, 210F, T210F, 210G, T210G, 210H, T210H, 210J, T210J, 210K, T210K, 210L, T210L, 210M, T210M, 210N, P210N, T210N, 210R, P210R, T210R, 210-5 (205), 210-5A (205A)	3A21	CAR 3 and Amendments identified in TCDS 3A21 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
17	Textron Aviation, Inc.	185, 185A, 185B, 185C, 185D, 185E, A185E, A185F	3A24	CAR 3, 14 CFR Part 23 and Amendments identified in TCDS 3A24 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
18	Textron Aviation, Inc.	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K	5A6	CAR 3 and Amendments identified in TCDS 5A6 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018

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Appareo Systems LLC.

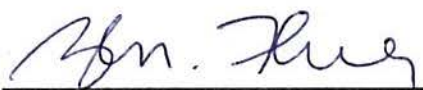
FOR

THE INSTALLATION OF APPAREO SYSTEMS STRATUS ES & STRATUS ESG ADS-B

Issue Date: July 7, 2016

19	Textron Aviation, Inc.	401, 401A, 401B, 402, 402A, 402B, 402C, 411, 411A, 414, 414A, 421, 421A, 421B, 421C, 425	A7CE	CAR 3 and Amendments identified in TCDS A7CE as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
20	Textron Aviation, Inc.	177, 177A, 177B	A13CE	14 CFR Part 23 and Amendments identified in TCDS A13CE as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
21	Textron Aviation, Inc.	120, 140	A-768	CAR 4a and Amendments identified in TCDS A-768 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018
22	Textron Aviation, Inc.	170, 170A, 170B	A-799	CAR 3 and Amendments identified in TCDS A-799 as amended by Appendix A	Appareo Systems, 606586-000054	Revision 2.3, dated February 20, 2018, or later FAA approved revision	Appareo Systems 606586-000075, Rev. 2.0, dated September 20, 2017, or later FAA approved revision	October 18, 2018

FAA Approved:



for Steven L. Lardinois  
 Manager, Systems Section  
 Chicago ACO Branch

Amended:

April 12, 2017; September 22, 2017; May 23, 2018;  
 October 18, 2018

Appareo Systems LLC.

FOR

THE INSTALLATION OF APPAREO SYSTEMS STRATUS ES &amp; STRATUS ESG ADS-B

**Appendix A: All Models**

Based on 14 CFR §§ 21.115 and 21.101, and the FAA policy for significant changes in FAA Order 8110.48, the certification basis is as follows:

- a. As determined by the Type Certificate Data Sheet (TCDS) of the aircraft for parts **not changed or not affected** by this STC.

Regulations at the amendment levels listed in Table 1 below for parts **changed or affected** by the STC since the reference date of STC application, June 29, 2012

**Table 1: Certification Basis Including Amendments.**

<b>Regulations</b>	<b>Amdt.</b>
§ 23.301 (a)(b)	23-48
§ 23.303	23-0
§ 23.305 (a)	23-45
§ 23.307 (a)	23-0
§ 23.561 (b)(3)	23-62
§ 23.601	23-0
§ 23.603	23-23
§ 23.605 (a)	23-23
§ 23.609 (a)	23-0
§ 23.613 (a)(b)	23-45
§ 23.619	23-7
§ 23.625 (a)	23-7
§ 23.771 (a)	23-14
§ 23.773 (a)(2)	23-45
§ 23.777 (a)	23-62
§ 23.853 (a)	23-62
§ 23.1301 (a)(b)(c)	23-62
§ 23.1306 (b)	23-0
§ 23.1308 (c)	23-0
§ 23.1309 (a)(1)	23-62
§ 23.1351 (a)(b)	23-49
§ 23.1357 (a)(b)(c)	23-43
§ 23.1359 (c)	23-0
§ 23.1365 (a)(b)(c)(d)	23-49
§ 23.1367 (c)(d)	23-0
§ 23.1381 (a)(b)	23-0
§ 23.1431 (a)(b)	23-62
§ 23.1501 (a)(b)	23-21
§ 23.1529	23-26
§ 23.1555 (a)	23-62