



US Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
11/30/2007

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N87567	Serial No. 129	
	Make Republic	Model RC3	Series
2. Owner	Name (As shown on registration certificate) Ostronik, KC		Address (As shown on registration certificate) Address P.O. Box 371101
			City Key Largo State FL Zip 33037 Country USA

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	AIRFRAME	_____	(As described in Item 1 above)	_____
<input type="checkbox"/>	<input type="checkbox"/>	POWERPLANT			
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER			
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency		C. Certificate No. 37365627
Name Poules, Alexander		<input checked="" type="checkbox"/> U. S. Certificated Mechanic	Manufacturer	
Address 200 Woody Hill Road		<input type="checkbox"/> Foreign Certificated Mechanic		
City Hope Valley State RI		<input type="checkbox"/> Certificated Repair Station		
Zip 02832 Country USA		<input type="checkbox"/> Certificated Maintenance Organization		

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>	Signature/Date of Authorized Individual <i>Alexander P. U.</i> 10-08-2014
--	---

7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is Approved Rejected

BY	FAA Fit, Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	Repair Station	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)

Certificate or Designation No. 37365627	Signature/Date of Authorized Individual <i>Alexander P. U.</i> 10-08-2014
---	---

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N87567

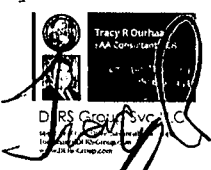
Nationality and Registration Mark

10-08-2014

Date

One time major alteration to install Electroair EIS-2-kit
6 cylinder electronic ignition system. See attached
FAA Form 8110-3 dated 13 September 2014 for details. END.

Additional Sheets Are Attached

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION			DATE
STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			13 September 2014
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
MAKE Sky Enterprises, Inc.	MODEL NO. RC-3	TYPE (Airplane, Radio, Helicopter, etc.) Airplane	NAME OF APPLICANT KC Ostronik
LIST OF DATA			
IDENTIFICATION	TITLE		
SEABEEALT-IGN, Rev. IR, Dated 24 MAR. 2014 ***END DATA***	<p>Document Title - "Alteration to install Electroair EIS-2-kit 6 cylinder electronic ignition system in lieu of battery ignition system on Republic RC-3 S/N 129".</p> <p>Notes: What the DER is approving: "This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." "This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair." What the DER cannot approve: "The approval of Instructions for continued airworthiness is retained by the FAA. However, the ICA has been reviewed by the DER and it appears to satisfy the requirements. The ICA mimics those previously approved ICA for an identical installation on a different serial numbered RC-3 Aircraft. Rules excluded: None Rules cited by Applicant and Not DER findings: 23.1529 [Instructions for Continued Airworthiness, Amdt.23-26], 33.4 [Instructions for Continued Airworthiness, Amdt.33-9]. Compliance with additional regulations not listed here may be required.</p> <p>***END DATA***</p>		
PURPOSE OF DATA			
This is in support of a one-time Major Alteration to the RC-3 Seabee S/N 129 aircraft for the installation of an Electronic Ignition installation.			
APPLICABLE REQUIREMENTS (List specific sections)			
14 CFR §§ 23.601 [General. Amdt. 23-0], 23.603 (b) [Materials and workmanship, Amdt. 23-23], 23.611 [Accessibility [provisions.], Amdt. 23-48], 23.901(a) [Installation, Amdt. 23.53], 23.1145 (a) [ignition Switches, Amdt. 23-43], 23.1165 (b) [Engine Ignition System, Amdt. 23-43], 23.1301 [Function and installation, Amdt. 23-61], 23.1365 [Electric cables and equipment, Amdt.23-49], 23.1367 [Switches Amdt.23-0].			
CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered. None have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations.			
<input type="checkbox"/> Recommend approval of these data* <input checked="" type="checkbox"/> Approve these data**			
(We) Therefore			
SIGNATURE (S) OF DESIGNATED ENGINEERING REPRESENTATIVE (S)	DESIGNATION NUMBERS (S)	CLASSIFICATION (S)	
Tracy R. Ourhaan  <p>Digitally signed by Tracy R. Ourhaan cn=com.apple.idms.appleid.prd.48796944434b6b7749944541526c355774594c4672413d3d DN: cn=com.apple.idms.appleid.prd.48796944434b6b7749944541526c355774594c4672413d3d Date:2014.09.13 14:45:23 -06'00'</p>	DERT-833513-CE	POWERPLANT - B ENGINES - E	

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION STATEMENT OF COMPLIANCE WITH AIRWORTHINESS STANDARDS			DATE 13 September 2014
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
MAKE	MODEL NO.	TYPE (Airplane, Radio, Helicopter, etc.)	NAME OF APPLICANT
Sky Enterprises, Inc.	RC-3	Airplane	KC Ostronik
LIST OF DATA			
IDENTIFICATION	TITLE		
SEABEEALT-IGN, Rev. IR, Dated 24 MAR. 2014 ***END DATA***	<p>Document Title - "Alteration to install Electroair EIS-2-kit 6 cylinder electronic ignition system in lieu of battery ignition system on Republic RC-3 S/N 129".</p> <p>Notes: What the DER is approving: "This approval is for engineering design data only. It indicates the data listed above demonstrates compliance only with the regulations specified by paragraph and subparagraph listed below as "Applicable Requirements." "This form does not constitute FAA approval of all the engineering data necessary for substantiation of compliance to necessary requirements for the entire alteration/repair." What the DER cannot approve: "The approval of Instructions for continued airworthiness is retained by the FAA. However, the ICA has been reviewed by the DER and it appears to satisfy the requirements. The ICA mimics those previously approved ICA for an identical installation on a different serial numbered RC-3 Aircraft. Rules excluded: None Rules cited by Applicant and Not DER findings: 23.1529 [Instructions for Continued Airworthiness, Amdt.23-26], 33.4 [Instructions for Continued Airworthiness, Amdt.33-9]. Compliance with additional regulations not listed here may be required.</p> <p>***END***</p>		
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CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered. <u>None</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations.			
<input type="checkbox"/> Recommend approval of these data* <input checked="" type="checkbox"/> Approve these data**			
(We) Therefore			
SIGNATURE (S) OF DESIGNATED ENGINEERING REPRESENTATIVE (S)	DESIGNATION NUMBERS (S)	CLASSIFICATION (S)	
Tracy R. Ourhaan	DETR-833513-CE	POWERPLANT - B ENGINES - E	

KC Ostronik Owner
SKY ENTERPRISES, INC. (REPUBLIC)
MODEL: RC-3
SERIAL NUMBER: 129
FAA REGISTRATION: N87657



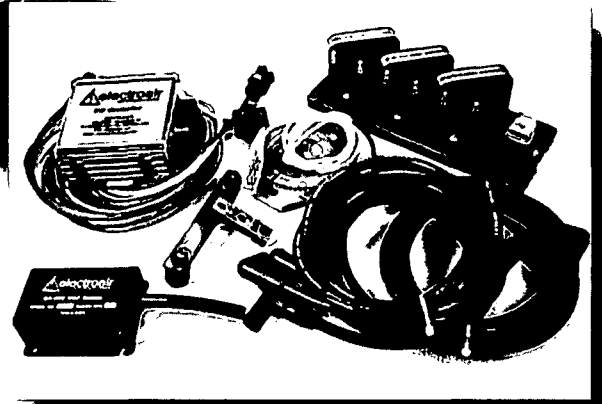
DERS Group Svc LLC

Alteration to install
Electroair EIS-2-kit 6
cylinder electronic
ignition system in lieu
of battery ignition
system on Republic
RC-3 S/N 129

DOCUMENT NO.: SEABEEALT-IGN

REVISION: IR

March 27, 2014



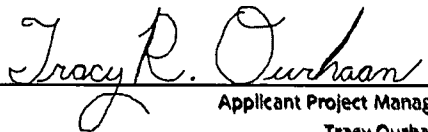
KC Ostronik owner of the aircraft proposes a one-time alteration to Republic RC-3 aircraft for Electroair EIS-2-kit 6 cylinder electronic ignition system in lieu of Franklin distributor ignition system.

The designs and data shown and described in this document contain certain features which have been developed by owner of the aircraft KC Ostronik and shall not be disclosed outside the immediate recipient, or be duplicated, used or disclosed in whole or in part for any purpose other than that for which it is submitted. All use, sales, and reproduction rights are the property of KC Ostronik and the disclosure herein does not imply transfer or relinquishment of these rights.

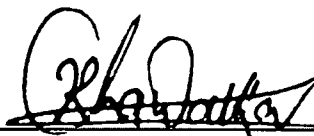
RC-3-Electroair EIS-2-kit 6 cylinder
electronic ignition system

RECORD OF REVISIONS / SIGNATURES

REVISION	DATE	PURPOSE	APPROVAL BY
Original	03/27/2014	Initial Release	JMG



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FAA Consultant DER, Chart B & E
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1 INTRODUCTION

1.1 General:

This Compliance Summary Report document provides the description for an one-time alteration to a Republic RC-3 aircraft. This document includes alteration description, purpose, proposed certification basis, compliance finding, safety assessment and compliance demonstration.

1.2 Scope

The Republic RC-3 aircraft is an amphibious aircraft powered with a 6 cylinder horizontally opposed 215 hp 6A8-215-B9F engine. The Type Certified Republic RC-3 aircraft equipped with the ignition system consists of one Model S6LN-31 Scintilla magneto and one Model 1AM-4001 Electric Auto-Lite distributor and 12 volt coil. Mr. KC Ostronik owner of the aircraft proposes this one time alteration for removal of original Franklin battery ignition system and installing Electroair's EIS-2-kit Electronic Ignition kit. Installing the EIS-2-kit Electronic Ignition kit improves the ignition and efficiency.

The proposed alteration has been previously FAA approved with FORM 337 dated 27 May 2011 for Republic RC-3 S/N 862. Please refer to the APPENDIX A for the copy of approved FORM 337 and corresponding technical data. The applicant has chosen to follow same approved data for this alteration.

Mr. KC Ostronik has contracted DERS Group Svc LLC. (DERS Group) located at 144 Grays Creek Drive, Savannah, Georgia 31410, to act as its agent and manage this certification project and provide the FAA with all necessary documentation in support of this alteration.

This is a one time alteration is only applicable to the below specified aircraft serial number:

1.2.1 Table 1 – Applicability

AIRCRAFT MAKE	AIRCRAFT MODEL	AIRCRAFT S/N
Sky Enterprises, Inc.	RC -3 Seabee	129

2 DESIGN REPORT:

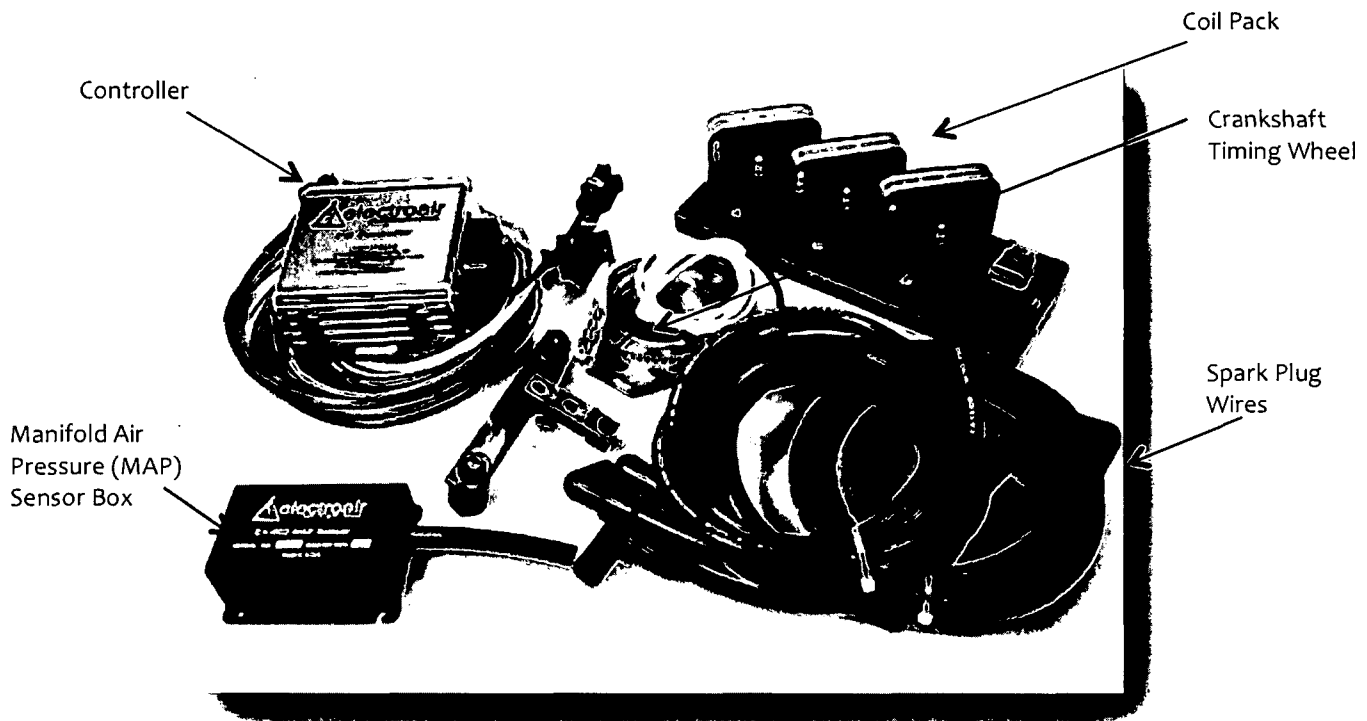
2.1 RC-3 Ignition System

The ignition system of type certified Republic RC-3 Seabee aircraft equipped with Franklin 6A8-215-B9F engine consists of one Model S6LN-31 Scintilla magneto and one Model 1AM-4001 Electric Auto-Lite distributor and 12 volt coil. The distributor is mounted on the adapter on the right side of the propeller shaft housing, and the ignition coil is mounted on two bosses provided on the housing just above the distributor. The magneto is mounted on the pad on the left side of the propeller shaft housing. The distributor furnishes ignition for the exhaust-side spark plugs and the magneto furnishes ignition for the intake-side spark plug.

The proposed alteration has been previously FAA approved for the same model aircraft i.e. RC-3 but for S/N 862. The alteration for the RC-3 S/N 862 had been approved with FAA FORM 337 dated on May 27, 2011.

The applicant has decided to follow RC-3 S/N 862 approved technical data in exact similar way for the proposed alteration without any deviation.

The alteration proposed in this document consists of replacing the original Franklin battery ignition system from the engine right side, installing the Electroair EIS-2-kit 6 cylinder electronic ignition system. Electroair Inc., is the supplier of the system. The kit consists of Coil Pack, Controller, Crankshaft Timing Wheel, MAP Sensor, and spark plug wires as shown below.



This ignition system is a direct fire ignition system and does not use a distributor and fires directly from the coil pack to the spark plug.

RC-3-Electroair EIS-2-kit 6 cylinder electronic ignition system

6

Similar Electroair electronic ignition system was installed on another RC-3 with Aircraft Serial Number 862 and was FAA approved with FAA form 337, dated on May 27, 2011. The RC-3 Aircraft Serial Number 129, i.e. considered under this alteration is proposed to have similar installation and similar associated system and its installation. Hence, once the RC-3 Aircraft Serial Number 129, is modified the alteration is exactly similar to the previously approved.

Please refer to APPENDIX A for the copies of FAA approved Form 337 and related approved document, for RC-3 with Aircraft Serial Number 862.

Electroair Inc., provides an installation Manual EA-008 which is supplied with this document. The installation Manual has all detailed information related to this system.

2.2 Design Similarity

The proposed alteration has been previously FAA approved for the same model aircraft i.e. RC-3 but for S/N 862. The alteration for the RC-3 S/N 862 had been approved with FAA FORM 337 dated on May 27, 2011.

The applicant has decided to follow RC-3 S/N 862 approved technical data in exact similar way for the proposed alteration without any deviation.

3 INSTALLATION INSTRUCTIONS

Section II of the installation manual EA-008 lists each component and their requirements for the installation of this system. Refer to Section II of EA-008. Refer to the instruction and information applicable only to 6-cylinder engine.

Following are the KEY installation instructions for the EIS-2-kit electronic ignition system,

1. Remove battery ignition system from engine's right side. But, the original magneto system remains intact.
2. Install the timing hosing in place of original distributor location, for timing the coil pack.
3. Adjust the original aircraft spark plugs to 0.030"– 0.035 as recommended by the installation manual.
4. Mount the controller to the aft side of aft cabin bulkhead using standard hardware.
5. Mount the coil packs to the right side of propeller shaft housing.
6. Wire the controller to the bus through a 2-amp circuit breaker.
7. Wire coil packs to the bus through a 10-amp circuit breaker.

The wire harnesses' are fabricated and supplied by Electroair.

However, refer to Section III for the instruction and information applicable only to 6-cylinder engine of the installation manual EA-008 that describes the detailed steps, information required for the installation of the system and each of its components.

4 REGULATORY

4.1 Original Certification Basis

The Original Type Certification Basis are listed under:

- Aircraft – CAR 03 effective 13 November 1945, A-769 Rev. 15 - TCDS Sky Enterprises, Inc.
- Engine – CAR 13, E-242 Rev. 6 - TCDS Franklin Sp. z.o.o.

4.2 Determination of Significance

This alteration to the engine is considered to be ‘Major Alteration’, as this alteration is not listed in the engine specifications issued by the FAA. And, it is decided to use the current regulations for this alteration compliance demonstration, hence further classification of alteration as Significant or Non-significant has not been performed.

4.3 Proposed Certification Basis

Applicable Part 23 and Part 33 regulations at current amendment levels as dated on 27 March, 2014.

4.4 Compliance Checklist

Below are the rules governing the compliance applicable to this alteration.

4.4.1 Table 2 – Compliance Checklist

14 CFR	AMDT.	DESCRIPTION
23.601	Orgi	General
23.603 (b)	23-23	Materials and workmanship
23.611	23-48	Accessibility [provisions.]
23.901(a)	23-53	Installation
23.1145 (a)	23-43	Ignition Switches
23.1165 (b)	23-62	Engine Ignition Switches
23.1301	23-62	Function and installation
23.1365	23-49	Electric cables and equipment
23.1367	Orig.	Switches
23.1529	23-26	Instructions for Continued Airworthiness

4.5 Method Of Compliance

The alteration proposed in this document has been previously FAA approved for the RC-3 Seabee with aircraft serial number 862, refer APPENDIX A. The components, system and installation for this alteration are exactly similar to previously approved alteration.

Please refer to APPENDIX A for the copies of FAA approved Form 337 and corresponding technical data for RC-3 with Serial Number 862. And as per FAA **ORDER 8900.1** Volume 4, Chapter 9, Section 1, “FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), is acceptable data that may be used for developing

approved data for subsequent alterations when the specified data has been previously approved as a one-time alteration or repair.”

So, it has been decided to demonstrate the compliance with the applicable regulations utilizing the Similarity (SI) approach with the previously certified aircraft and system, which is a FAA acceptable Means of Compliance per FAA AC 21-40A.

Similarity approach has been carefully chosen after assessing the aircraft, wiring and system installation differences that can adversely affect the system susceptibility, between the two installations (one is previously approved and other is proposed). After the assessment it has been concluded there is no difference between two installations as this installation has been done according to the technical data of previously approved installation.

4.6 Compliance Demonstration

This section demonstrates the compliance with each of applicable rule.

4.6.1 Sec. 23.601 Design and Construction: General

The suitability of each questionable design detail and part having an important bearing on safety in operations, must be established by tests.

Amdt. Orig., Eff. 02/01/65

4.6.1.1 Evidence

The suitability of installation of Electroair electronic ignition system installation on RC-3 aircraft has been demonstrated by previously installed similar system on same model aircraft i.e. RC-3 S/N 862. There has been no evidence of any operational unsafe events due to this system installation. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.601.

4.6.2 23.603 (b) Design and Construction: Materials and workmanship

- [(a) The suitability and durability of materials used for parts, the failure of which could adversely affect safety, must--
- (1) Be established by experience or tests;
 - (2) Meet approved specifications that ensure their having the strength and other properties assumed in the design data; [and
 - (3) Take into account the effects of environmental conditions, such as temperature and humidity, expected in service.]
- (b) Workmanship must be of a high standard.

Amdt. 23-23, Eff. 12/01/78

4.6.2.1 Evidence

Installation procedures and the Instructions for Continued Airworthiness provided in manual EA-008 not only ensure that the system is installed correctly using the highest standard of workmanship, but it allows the operator to continue providing the safest levels of operation during the system's life. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.603(b).

4.6.3 Sec. 23.611 Design and Construction: Accessibility [provisions].

[For each part that requires maintenance, inspection, or other servicing, appropriate means must be incorporated into the aircraft design to allow such servicing to be accomplished.]

Amdt. 23-48, Eff. 03/11/96

4.6.3.1 Evidence

Installation of the controller and coils on the firewall ensures that easy access required during maintenance, inspection, or other servicing. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.611.

4.6.4 Sec. 23.901 (a) Powerplant: Installation

(a) For the purpose of this part, the airplane powerplant installation includes each component that--

(1) Is necessary for propulsion; and

(2) Affects the safety of the major propulsive units.

(b) Each powerplant installation must be constructed and arranged to--

(1) Ensure safe operation to the maximum altitude for which approval is requested.

(2) Be accessible for necessary inspections and maintenance.

(c) Engine cowls and nacelles must be easily removable or openable by the pilot to provide adequate access to and exposure of the engine compartment for preflight checks.

(d) Each turbine engine installation must be constructed and arranged to--

(1) Result in carcass vibration characteristics that do not exceed those established during the type certification of the engine.

[(2) Ensure that the capability of the installed engine to withstand the ingestion of rain, hail, ice, and birds into the engine inlet is not less than the capability established for the engine itself under Sec. 23.903(a)(2).]

(e) The installation must comply with--

(1) The instructions provided under the engine type certificate and the propeller type certificate.

(2) The applicable provisions of this subpart.

(f) Each auxiliary power unit installation must meet the applicable portions of this part.

Amdt. 23-53, Eff. 04/30/98

4.6.4.1 Evidence

4.6.5 Installation of the Electroair electronic ignition system is required per this rule and positively affects the safety of the powerplant. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.901.

4.6.6 Sec. 23.1145 (a) Powerplant: Ignition Switches

a) Ignition switches must control [and shut off] each ignition circuit on each engine.

(b) There must be means to quickly shut off all ignition on multiengine airplanes by the groupings of switches or by a master ignition control.

(c) Each group of ignition switches, except ignition switches for turbine engines for which continuous ignition is not required, and each master ignition control must have a means to prevent its inadvertent operation.

Amdt. 23-43, Eff. 05/10/93

4.6.6.1 Evidence

The installation of EIS toggle switch per manual EA-008 ensures that its controls the ignition therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.1145(a).

4.6.7 Sec. 23.1165 (b) Powerplant: Engine Ignition System

(a) Each battery ignition system must be supplemented by a generator that is automatically available as an alternate source of electrical energy to allow continued engine operation if any battery becomes depleted.

(b) The capacity of batteries and generators must be large enough to meet the simultaneous demands of the engine

ignition system and the greatest demands of any electrical system components that draw from the same source.

(c) The design of the engine ignition system must account for--

- (1) The condition of an inoperative generator;
- (2) The condition of a completely depleted battery with the generator running at its normal operating speed; and
- (3) The condition of a completely depleted battery with the generator operating at idling speed, if there is only one battery.

(d) There must be means to warn appropriate crewmembers if malfunctioning of any part of the electrical system is causing the continuous discharge of any battery used for engine ignition.

(e) Each turbine engine ignition system must be independent of any electrical circuit that is not used for assisting, controlling, or analyzing the operation of that system.

(f) In addition, for commuter category airplanes, each turbine engine ignition system must be an essential electrical load.

Amdt. 23-62, Eff. 01/31/12

4.6.7.1 Evidence

The previously approved document demonstrate by electric load analysis that electric load does not exceed 80% of total capacity. Also the previous installation of Electroair electronic ignition system on same model aircraft i.e. RC-3 S/N 862 has been no evidence of any operational unsafe events due to this system installation. Therefore, it is concluded that the electric fuel pump installation on RC-3 S/N 129 is in compliance with § 23.1165(b).

4.6.8 Sec. 23.1301 Equipment: Function and installation.

Each item of installed equipment must--

- (a) Be of a kind and design appropriate to its intended function;
- (b) Be labeled as to its identification, function, or operating limitations, or any applicable combination of these factors; and
- (c) Be installed according to limitations specified for that equipment.

Amdt. 23-62, Eff. 01/31/12

4.6.8.1 Evidence

The installation of Electroair electronic ignition system on RC-3 aircraft has been demonstrated by previously installed similar system on same model aircraft i.e. RC-3 S/N 862 that the system does its intended function and there has been no evidence of any operational unsafe events due to this system installation. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.1301.

4.6.9 Sec. 23.1365 Equipment: Electric cables and equipment.

(a) Each electric connecting cable must be of adequate capacity.

[(b) Any equipment that is associated with any electrical cable installation and that would overheat in the event of circuit overload or fault must be flame resistant. That equipment and the electrical cables must not emit dangerous quantities of toxic fumes.]

(c) Main power cables (including generator cables) in the fuselage must be designed to allow a reasonable degree of deformation and stretching without failure and must--

- (1) Be separated from flammable fluid lines; or
- (2) Be shrouded by means of electrically insulated flexible conduit, or equivalent, which is in addition to the normal cable insulation.

[(d) Means of identification must be provided for electrical cables, terminals, and connectors.

(e) Electrical cables must be installed such that the risk of mechanical damage and/or damage caused by fluids vapors, or sources of heat, is minimized.

(f) Where a cable cannot be protected by a circuit protection device or other overload protection, it must not cause a fire hazard under fault conditions.]

Amdt. 23-49, Eff. 03/11/96

4.6.9.1 Evidence

The manual EA-008 provides the guidance for the wire section and mentions that is recommended to use 8mm or larger spiral core wire with a resistance of 300 ohms or greater per foot, because spiral core wires works best with this charging method and extremely high charge from ignition coil. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.1365.

4.6.10 Sec. 23.1367 Equipment: Switches

Each switch must be--

- (a) Able to carry its rated current;
- (b) Constructed with enough distance or insulating material between current carrying parts and the housing so that vibration in flight will not cause shorting;
- (c) Accessible to appropriate flight crewmembers; and
- (d) Labeled as to operation and the circuit controlled.

Amdt. Orig., Eff. 02/01/65

4.6.10.1 Evidence

The toggle and key switch setup instructions have been provided in EA-008 and ensures compliance with § 23.1367.

4.6.11 Sec. 23.1529 Operating Limitations and Information: Instructions for Continued Airworthiness

The applicant must prepare Instructions for Continued Airworthiness in accordance with Appendix G to this Part that are acceptable to the Administrator. The instructions may be incomplete at type certification if a program exists to ensure their completion prior to delivery of the first airplane or issuance of a standard certificate of airworthiness, whichever occurs later.

Amdt. 23-26, Eff. 10/14/80

4.6.11.1 Evidence

The Section 4.7 provides the Instructions for Continued Airworthiness for the installed system. Therefore, it is concluded that the Electroair electronic ignition system installation on RC-3 S/N 129 is in compliance with § 23.1529.

4.7 Instructions for Continued Airworthiness (ICA)

Servicing Information: Pump is located in the baggage compartment.

Maintenance Instructions: 100 hour/annually per maintenance manual supplement for inspection. The Maintenance Manual Supplement is supplied with this report.

Recommended Overhaul Limits: No additional overhaul time limits.

Airworthiness Limitations Section: No additional airworthiness limitations.

List of Special Limits: N/A

Special Inspection Requirements: N/A

Application of Protective Treatment: N/A

4.8 AIRPLANE FLIGHT MANUAL SUPPLEMENT (AFMS)

The AFMS is supplied with this report.

5 SAFETY ASSESSMENT

5.1 Introduction

This section provides a qualitative safety assessment related to the installation of Electroair electronic ignition system and investigates in reference to failure conditions, their classification, probability and their effects, and overall system safety level.

5.2 System Description

The system considered under this safety assessment is ignition system, with newly installed Electroair EIS-2-kit electronic ignition system. Installing the EIS-2-kit Electronic Ignition kit improves the ignition and efficiency. There have been no changes to the other existing aircraft system for the installation of this system.

5.3 Functional hazard assessment (FHA)

This section provides a systematic, comprehensive examination of the altered ignition system functions to identify potential minor, major, hazardous, and catastrophic failure conditions that may arise as a result of a malfunction or a failure to function.

The severity is a quantitative measure of the worst possible degree of personal injury, property damage, or system damage, which can result from a failure mode. The possible severity categories defined in FAA Advisory Circular AC 25.1309-1E are provided in Table 3.

5.3.1 Table 3 – Severity Class and Description

SEVERITY CLASS	SEVERITY DESCRIPTION
Catastrophic	Failure condition, which prevents continued safe flight and landing, and for which no effective action is realistically possible.
Hazardous	Failure condition which causes a large reduction in safety margins or functional capacity, very high increase in workload or physical stress for the crew or discomfort to occupants.
Major	Failure condition, which causes a significant reduction in safety margins or functional capabilities and a significant increase in crew workload or in, conditions impairing crew efficiency or discomfort to occupants.
Minor	Failure condition which does not significantly reduce aircraft safety and/or involve crew actions that are well within their capabilities. Minor failure conditions may include for example, a slight reduction in safety margins or functional capabilities, a slight increase in crew workload, such as a routine flight plan change or some inconvenience to occupants.
No Safety Effect	Failure conditions that would have no effect on safety (that is, failure conditions that would not affect the operational capability of the airplane or increase crew workload).

Below are the failure conditions that have been identified related to the alteration.

5.4 Safety Assessment

5.4.1 Table 4 – Failure Condition

Failure Condition Hazard Description	Failure Condition Cause	Classification Of Failure Condition	Occurrence
Loss of the EIS-2-kit ignition system	<ul style="list-style-type: none"> Malfunction of any of the ignition system component 	Catastrophic	Extremely Improbable

The extremely improbable occurrence of the EIS-2-kit ignition system failure can be justified from previously installed same ignition system in same model aircraft. There were no safety concerns from the previous installed same system. Rather it improves the ignition and efficiency.

5.4.2 Table 5 – Failure Effects

Failure Condition Hazard Description	Effect
Loss of the EIS-2-kit ignition system	Loss of the ignition system can cause in-flight shut down of the engine.

5.5 Conclusion – Criticality Determination

The removal of the battery ignition system and subsequent installation of EIS-2-kit ignition system does not interface the operation of any other system nor impose any limitations on any aircraft. Previous experience of same alteration justifies the extremely improbable occurrence of the EIS-2-kit ignition system failure, as new unsafe event were observed. This failure condition occurrence can be considered equivalent to the previous ignition system as it was before the alteration.

The safety assessment provided in this section shows that the failure condition is extremely improbable. So, this alteration does not have any adverse effect on the previously established safety level. Hence the altered aircraft maintains the same level of safety as the original design. Therefore, it is concluded that the electric fuel pump installation on RC-3 S/N 129 is in compliance with § 23.1309.

5.6 Airworthiness Directive Search Report

SEARCH PARAMETER

Component Name	Electroair
Component P/N	CA65628-800E

Search http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet

SEARCH RESULTS A search of both Component Name and PP/N returned 0 (zero) AD.

Search results are listed on the following pages (attached). Only important pages of each of the ADs are shown.

AD Query Completed April 28, 2014 by Jayant R Ghawalkar, Certification Engineer, DERS Group Svc LLC.

Airworthiness Directives 4/28/14, 8:28 AM

Search:

[Search Help](#)

Search Results

[Top](#)
[Previous](#)
[Next](#)
[Print View](#)

No Documents Found

- ▼ Airworthiness Directives
 - Emergency ADs (Last 30 days)
 - New ADs (Last 60 days)
 - ▼ Current ADs
 - By Make
 - By Appliance
 - By Number
 - By Product
 - ▼ Historical ADs
 - By Superscature/Revision
 - AD Biweekly
 - AD Index
 - [Related Links](#)
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 Readers & Viewers: [Adobe Reader](#) | [MS Word Viewer](#) | [MS PowerPoint Viewer](#) | [MS Excel Viewer](#) | [Information about Zip files](#)

5.6.1 AD Summary

The search dated on 24 March 2014 for the 'CA65628-800E' identified 0 AD as shown in the image. Therefore, no further action is required.

5.7 Service Difficulties Summary Report

The Aircraft Make for the RC-3 aircraft is Sky Enterprises, Inc., as per the TCDS A-769 shown below.

SEARCH SITE: <http://av-info.faa.gov/SDRX/Query.aspx>

SDR Query Completed April 28, 2014 by Jayant R Ghawalkar, Certification Engineer, DERS Group Svc LLC.

RC-3-Electroair EIS-2-kit 6 cylinder electronic ignition system

FEDERAL AVIATION AGENCY

A-769

Revision 15
STOL
(REPUBLIC)
RC-3

November 20, 1992

AIRCRAFT SPECIFICATION NO. A-769

Type Certificate Holder Sky Enterprises, Inc.
 Tacoma Narrows Airport
 1302 26th Avenue NW
 Gig Harbor, Washington

I - Model RC-3 4 PCAmM (Normal Category), 2 PCAmM (Utility Category), Approved October 15, 1947
 (See NOTES 4, 5 and 6 for flying boat versions).

Engine	Franklin 6A8-215-B8F
Fuel	80 min. octane aviation gasoline
Engine limits	For all operations, 2500 rpm (215 hp)

For the above search site, 'Sky Enterprise, Inc.' is not listed on the FAA website, as the aircraft make, shown below.

Run Query
Clear Query Criteria
Return to the Main Menu

Query Criteria (Note: Recently submitted SDR's are not available until the next submission.)

Operator Control #

Operator Designator

Difficulty Date: From To (mm/dd/yyyy)

JASC (ATA) Code

Aircraft Make SKYLRK

Engine Make

Propeller Make

Part Name

Part Number

Problem Description

Aircraft Manufacturer Lookup

Search Text:

SKRSKY - SIKORSKY AIRCRAFT

SKYLEA - SKYLEADER JIHLAVAN/SIMVISION CZ


SKYLRK - SKYLARK AIRCRAFT CORP

'Sky Enterprise, Inc.' NOT identified

So, it was unable to identify any Service Difficulties Summary Report for RC-3.

RC-3-Electroair EIS-2-kit 6 cylinder electronic ignition system

APPENDIX A: FAA APPROVED DATA - RC-3 S/N 862

 <p>US Department of Transportation Federal Aviation Administration</p>		<p>MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)</p>		<p>Form Approved OMB No. 2120-0020 2/28/2011</p>	<p>Electronic Tracking Number</p>
<p>INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))</p>					
1. Aircraft	Nationality and Registration Mark N6589K		Serial No. 862		
	Make Republic		Model RC-3	Series	
2. Owner	Name (As shown on registration certificate) Alexander Poules		Address (As shown on registration certificate) Address 200 Woody Hill Rd.		
			City Hope Valley	State RI	Zip 02832
<p>3. For FAA Use Only</p> <p>"The technical data identified herein has been found to comply with applicable airworthiness requirements and is hereby approved for use only on the above described aircraft, subject to conformity inspection by a person authorized in FAR 43.7"</p> <p style="text-align: right;"><i>Sanjiv</i> 5-24-2011 FSDO EA61</p>					
4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
<input type="checkbox"/>	<input type="checkbox"/>	AIRFRAME		(As described in Item 1 above)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	POWERPLANT	Franklin	6A8-215-B9F	23576
<input type="checkbox"/>	<input type="checkbox"/>	PROPELLER	Type		
<input type="checkbox"/>	<input type="checkbox"/>	APPLIANCE	Manufacturer		
6. Conformity Statement					
A. Agency's Name and Address			B. Kind of Agency		
Name Alexander Poules			<input checked="" type="checkbox"/> U. S. Certified Mechanic		
Address 2 Woody Hill Rd.			Foreign Certified Mechanic		
City Hope Valley State RI			C. Certificate No.		
Zip 02832 Country USA			Certificated Repair Station		
			Certificated Maintenance Organization		
			37365627		
D. I certify that the repair and/or alteration made to the unit(s) identified in Item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.					
Extended range fuel per 14 CFR Part 43 App. B <input type="checkbox"/>		Signature/Date of Authorized Individual <i>Alex P L 5-27-11</i>			
7. Approval for Return to Service					
Pursuant to the authority given persons specified below, the unit identified in Item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected					
BY	FAA Fil. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport	
	FAA Designee	Repair Station	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)	
Certificate or Designation No. 37365627		Signature/Date of Authorized Individual <i>Alex P L 5-27-11</i>			

FAA Form 337 (10-06)

RC-3-Electroair EIS-2-kit 6 cylinder electronic ignition system

APPENDIX A: FAA APPROVED DATA – RC-3 S/N 862 (CONTINUED)

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

N6589K

05-27-11

8. Description of Work Accomplished

Nationality and Registration Mark Date

Removed:

The original Franklin battery ignition system from the engine's right side. The original magneto system remains intact.

Installed:

Electroair EIS-2-kit electronic ignition system. Installation manual EA-008, no revision number.
Electroair, Inc.
Ph. 248-666-3002

The kit consists of an EIS controller, 6 cylinder coil pack, timing housing, and spark plug wires. The direct fire system does not use a distributor and fires directly from the coil pack to the spark plug. The timing housing was installed in the original distributor location for timing the coil packs. The original aircraft spark plugs were used and re-gapped to .030" -.035" as recommended by the installation manual. The EIS-2 controller advances timing from 0 degrees at start to the original 32 degrees before top dead center above 400 RPM and up to operating speed.

The EIS controller was mounted to the aft side of the aft cabin bulkhead using standard hardware. The coil packs were mounted to the right side of the popeller shaft housing. The controller was wired to the bus through a 2 amp circuit breaker. The coil packs were wired to the bus through a 10 amp circuit breaker. The wiring harnesses were fabricated and supplied by Electroair. All work was done in accordance with the above referenced installation manual. AC 43.13-1B chapter 11 sections 3 through 13, 15, 17, and AC43.13-2B Chapter 1 was also used as a reference.

An electrical load analysis was done and was found not to exceed 80% of total capacity. The weight and balance and equipment list were updated to show the change. A copy of the EA-008 installation manual was attached to the maintenance manual.

Instructions for Continue Airworthiness:

1. Introduction: This document identifies the instructions for continued airworthiness for the modification of the above aircraft with an Electroair EIS-2-kit electronic ignition system. Instructions for continued airworthiness are found in the Electroair installation manual P/N EA-008.
2. Description: The Electroair EIS-2-kit electronic ignition system is a battery type system that replaces the original battery ignition system, utilizing the original distributor drive for the timing pick-up.
3. Control, operation information: A supplement was added to the aircraft flight manual and operators checklist.
4. Servicing information: To be accomplished as per the Electroair EA-008 installation manual.
5. Maintenance Instructions: System shall be inspected during routine 100 hour inspections, as applicable. The system shall be inspected for security and condition of components and wiring.
6. Troubleshooting information: Special troubleshooting instructions are found in the EA-008 Installation Instructions.
8. Diagrams: Not Applicable.
9. Special inspection requirements: Not Applicable.
10. Application of protective treatments: Not Applicable.
11. Data: Not Applicable.
12. List of special tools: Not Applicable.
13. For commuter category aircraft: Not Applicable.
14. Overhaul limits: No additional overhaul time limitations.
15. Airworthy Limitation Section: Not Applicable.
16. Revision: This ICA may be revised by submitting a letter with a copy of the revised FAA 337 form and ICA. The FAA accepts the change by signing block 3 of the revised FAA 337 form. Once revised, a maintenance record entry will be made identifying the revision, and date of the 337 form.

end

[] Additional Sheets Are Attached

APPENDIX B: FLIGHT MANUAL SUPPLEMENT



DERS Group Svc LLC

AIRPLANE FLIGHT MANUAL SUPPLEMENT

DOCUMENT: SEABEEALT-IGN

REVISION: IR

March 27, 2014

AIRPLANE FLIGHT MANUAL SUPPLEMENT

This Aircraft Flight Manual Supplement (AFMS) must be attached to the FAA approved Aircraft Flight Manual when this aircraft is modified by the Electronic Ignition System Installation. The information provided in this manual, supplement or supersedes the information of the basic Airplane Flight Manual to the operator, only in areas listed.

For all other information not listed in this document consult the basic FAA approved Airplane Flight Manual.



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Savannah, Georgia 31410
Phone: 818-620-8444
Fax: 912-898-0015
E-Mail: Tourhaan@DERS-Group.com
Web: www.DERS-Group.com



SECTION 1

General

The Electronic Direct Fire Ignition (EIS) System differs from standard magneto system in one very significant way: TIMING. In a magneto timing is permanently set; the EIS adjust the timing (or spark advance) based on RPM and Manifold Air Pressure. This ability to adjust the spark advance allows the EIS's computer to automatically determine the optimum timing setting, which produces the most power with least fuel.

SECTION 2

Limitations

No Change.

SECTION 3

Emergency Procedures

No Change.

SECTION 4

Normal Procedure

Change operating procedure as follow.

Toggle switch installation:

Start-up:

1. Turn Master switch ON.
2. Turn EIS – ON at the toggle switch.
3. Start engine normally.

Shut-down:

1. Follow engine shut down procedure.
2. Turn EIS – OFF at the toggle switch.
3. Finish shut down procedure and turn OFF master switch.