



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº ER-2010T-07

Type Certificate Holder:

**ERICKSON AIR-CRANE INCORPORATED
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UNITED STATES

ER-2010T-07
Sheet 01

ERICKSON AIR CRANE

S-64E, S-64F

28 September 2010

This data sheet, which is part of Type Certificate No. 2010T-07, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - MODEL S-64E (Transport Category Rotorcraft), approved 28 September 2010.

- ENGINE** Two Pratt & Whitney JFTD12A-4A (with Hamilton Standard Fuel Control JFC56-4), engine type certificate number EM-2010T06.
Approved by ANAC 09 September 2010.
- FUEL** Type Aviation Kerosene, Jet A or Jet A-1 or Jet B or JP-4 or JP-5 or JP-8 or JP-8+100 (conforming to Pratt & Whitney SB 2016)
- OIL** Engine: Refer to Rotorcraft Flight Manual, Erickson Air Crane Publication No SA4045-104

ENGINE LIMITS CONDITIONS	SHAFT HP	POWER TURBINE RPM	GAS GEN RPM	POWER TURB. INLET TEMP (T5)
Takeoff (5 min)	4 500	9 500 (105%N2)	16 700 (104,2%N1)	688°C
One engine inop. (30 min)	4 500	9 500 (105%N2)	16 700 (104,2%N1)	688°C
Maximum continuous	4 000	9 500 (105%N2)	16 700 (104,2%N1)	655°C
Allowable Max.overspeed	--	10 350 (114%N2)	16 700 (104,2%N1)	--
Acceleration limit (2 min)	--	--	--	688°C
Starting limit (2 sec)	--	--	--	525°C

Takeoff and maximum continuous horsepower ratings are normally obtained at a power turbine speed of 9 000 rpm (100%N2)

Total power for two-engine operation is limited to 6 600 shp for takeoff, and 5 400 shp. maximum continuous.

ROTOR LIMITS

Power Off
 Max 110% Nr (204 r.p.m.)
 Min 89% Nr (165 r.p.m.)

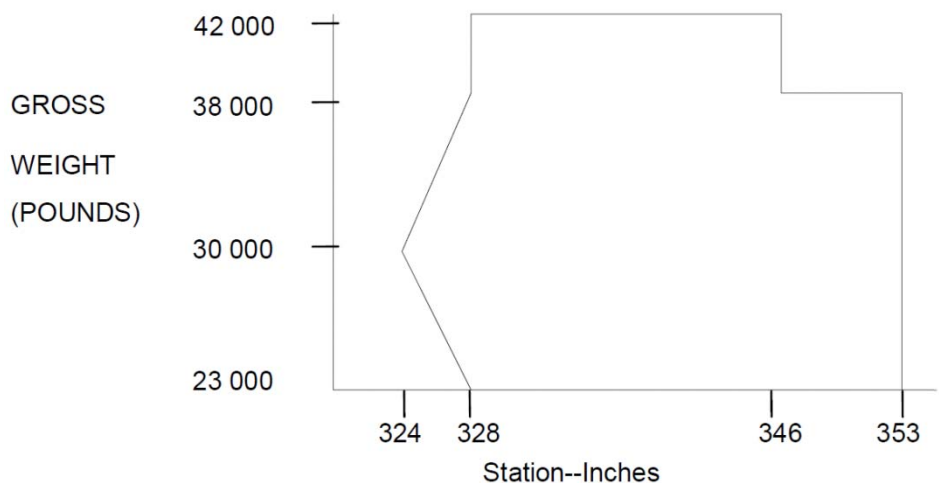
Power On
 Max 104% Nr (193 r.p.m.)
 Min 100% Nr (185 r.p.m.)

AIRSPEED LIMITS:

VNE (never exceed) 114 m.p.h. (99 knots) at 42 000 lb gross weight. For increased airspeed limits at lower gross weights and variation of VNE with altitude refer to Rotorcraft Flight Manual.

C.G. RANGE:

(+328,0) to (+353,0) at 23 000 lb
 (+324,0) to (+353,0) at 30 000 lb
 (+328,0) to (+353,0) at 38 000 lb
 (+328,0) to (+346,0) at 38 000 lb
 (+328,0) to (+346,0) at 42 000 lb

**EMPTY WEIGHT C.G. RANGE:**

None

DATUM:

336 inches forward of main rotor centroid

LEVELING MEANS:

Plumb line from top level plate inside cockpit aft door

MAXIMUM WEIGHT:

42 000 lb

NUMBER OF SEATS:

5. 2 at (+94,0), 1 at (+108,5), 1 at (+127,0), 1 at (+130,0).

MAXIMUM BAGGAGE:

500 lb at (+124,0) Two baggage compartments with a maximum allowable floor loading of 300 p.s.f. and a total allowable load of 250 lb each compartment. See NOTE 3 for information pertaining to the carriage of external loads.

FUEL CAPACITY:

1356 gal. (454 gal. at (+280,8), 454 gal. at (+397,3), 448 gal. at (+461,3))

OIL CAPACITY:

2.6 gal. (+234,0) (2 tanks 1.3 gal. each). See NOTE 1 for data on system fuel and oil.

ROTOR BLADE & CONTROL MOVEMENTS:

For rigging information, refer to Maintenance Manual.

SERIAL NUMBERS ELIGIBLE:

64002, 64003, 64015, 64017, 64018, 64019, 64033, 64034D, 64037, 64058, 64061, 64064, 64065, 64066, 64079, 64099, 64101, 641001,

64052, 64028, 64038, 64050, 64016, 64022, 64027, 64042, 64E3001, and subsequent.

CERTIFICATION BASIS: RBHA 29 corresponding to February, 1st 1965, 14 CFR 29, including Amendments 29-1 and 29-2 and Special Conditions No 29-014-SC.

The S-64E is designed and intended to be operated as an industrial flying crane. It is primarily intended to carry cargo in external load operations and the certification basis has been developed for that purpose. Special Conditions No. 29-014-SC include modifications to sections of 14 CFR 29 considered appropriate for industrial flying crane operation without external loads under RBHA 91 and for rotorcraft-load combinations meeting the requirements of Subpart D of RBHA 133.

II - MODEL S-64F (Transport Category Rotorcraft), approved 28 September 2010.

ENGINE Two Pratt & Whitney JFTD12A-5A (with Hamilton Standard Fuel Control JFC56-4), engine type certificate number EM-2010T06.
Approved by ANAC 09 September 2010.

FUEL Type Aviation Kerosene, Jet A or Jet A-1 or Jet B or JP-4 or JP-5 or JP-8 or JP-8+100 (conforming to Pratt & Whitney SB 2016)

OIL Engine: Refer to Rotorcraft Flight Manual, Erickson Air Crane Publication No SA4045-104

ENGINE LIMITS CONDITIONS	SHAFT HP	POWER TURBINE RPM	GAS GEN RPM	POWER TURB. INLET TEMP (T5)
Takeoff (5 min)	4 800	9 500 (105%N2)	16 700 (104,2%N1)	720°C
One engine inop. (30 min)	4 800	9 500 (105%N2)	16 700 (104,2%N1)	720°C
Maximum continuous	4 430	9 500 (105%N2)	16 700 (104,2%N1)	675°C
Allowable Max.overspeed	--	10 350 (114%N2)	16 700 (104,2%N1)	--
Acceleration limit (2 min)	--	--	--	720°C
Starting limit (2 sec)	--	--	--	525°C

Takeoff and maximum continuous horsepower ratings are normally obtained at a power turbine speed of 9 000 rpm (100%N2)

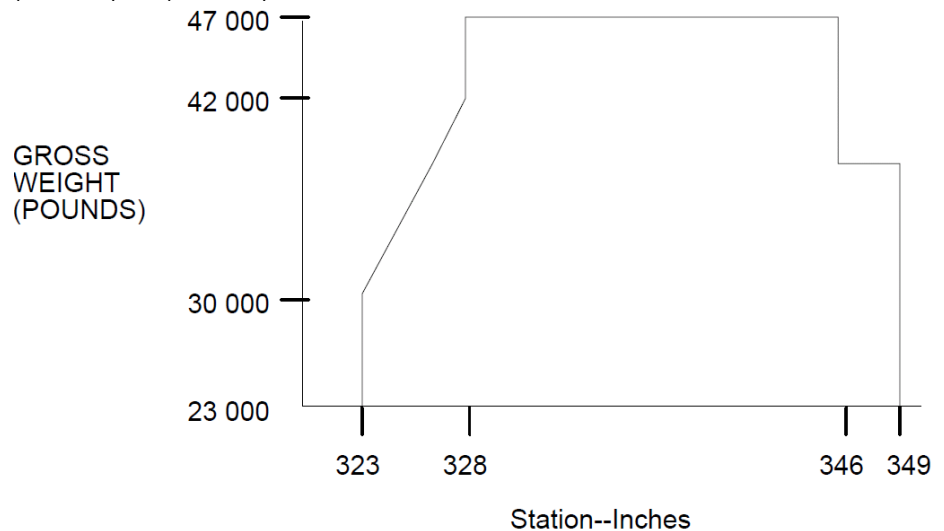
Total power for two-engine operation is limited to 7 900 shp for takeoff, and 6 600 shp. maximum continuous.

ROTOR LIMITS	Power Off	Power On
	Max 110% Nr (204 r.p.m.)	Max 104% Nr (193 r.p.m.)
	Min 95% Nr (176 r.p.m.)	Min 100% Nr (185 r.p.m.)

AIRSPEED LIMITS: VNE (never exceed) 120 m.p.h. (104 knots) at 47 000 lb gross weight.

For increased airspeed limits at lower gross weights and variation of VNE with altitude refer to Rotorcraft Flight Manual.

C.G. RANGE:
 (+323,0) to (+349,0) at 23 000 lb
 (+323,0) to (+349,0) at 30 000 lb
 (+326,4) to (+349,0) at 38 000 lb
 (+326,4) to (+346,0) at 38 000 lb
 (+328.0) to (+346.0) at 42 000 lb
 (+328.0) to (+346.0) at 47 000 lb



EMPTY WEIGHT C.G. RANGE: None

DATUM: 336 inches forward of main rotor centroid

LEVELING MEANS: Plumb line from top level plate inside cockpit aft door

MAXIMUM WEIGHT: 47 000 lb

NUMBER OF SEATS: 5. 2 at (+94,0), 1 at (+108,5), 1 at (+127,0), 1 at (+130,0).

MAXIMUM BAGGAGE: 500 lb at (+124,0) Two baggage compartments with a maximum allowable floor loading of 300 p.s.f. and a total allowable load of 250 lb each compartment.
See NOTE 3 for information pertaining to the carriage of external loads.

FUEL CAPACITY: 1356 gal. (454 gal. at (+280,8), 454 gal. at (+397,3), 448 gal. at (+461,3))

OIL CAPACITY: 2.6 gal. (+234,0) (2 tanks 1,3 gal. each). See NOTE 1 for data on system fuel and oil.

ROTOR BLADE & CONTROL MOVEMENTS: For rigging information, refer to Maintenance Manual.

SERIAL NUMBERS ELIGIBLE: 64081, 64084, 64085, 64086, 64091, 64093, 64097, 64067, 64078, 64080, 64088, 64089, 64090, 64095, 64098, 64F5001, and subsequent.

CERTIFICATION BASIS: RBHA 29 corresponding to February, 1st 1965, 14 CFR 29, including Amendments 29-1 and 29-2 and Special Conditions No 29-014-SC.

The S-64F is designed and intended to be operated as an industrial flying crane. It is primarily intended to carry cargo in external load operations and the certification basis has been developed for that purpose. Special Conditions No. 29-014-SC include modifications to sections of 14 CFR 29 considered appropriate for industrial flying crane operation without external loads under RBHA 91 and for rotorcraft-load combinations meeting the requirements of Subpart D of RBHA 133.

DATA PERTINENT TO ALL MODELS:**IMPORT ELIGIBILITY**

A Brazilian Certificate of Airworthiness may be issued on the basis of a FAA Export Certificate of Airworthiness (or a third country Export Certificate of Airworthiness, in case of used rotorcraft imported from such country), including the following statement:

"The rotorcraft covered by this certificate have been examined and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate N° 2010T-07 and in condition of safe operation".

The ANAC Report H.10-0246-0, dated 28 September 2010 or further revision, contains the Brazilian requirements for the acceptance of this rotorcraft.

NOTES:**NOTE 1****Weight and balance.**

Current weight and balance report including list of required equipment and equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each helicopter at the time of original certification. The certificated empty weight and corresponding C.G. locations must include undrainable oil of 5 lb (+234,0) and unusable fuel of 26 lb (10 lb at (+290,0), 9 lb at (+370,0), 7 lb at (+461,0)).

NOTE 2**Markings and placards.**

The following placard must be displayed in front of and in clear view of the pilot:

"THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE ANAC APPROVED ROTORCRAFT FLIGHT MANUAL."

Other placards listed in the approved flight manual must be installed in the specified locations.

In addition, all markings and placards for passenger information under normal or emergency conditions must be in Portuguese (or English and Portuguese). External markings for emergency operation of doors, normal ground operation of cargo doors and servicing operations must be in Portuguese (or bilingual). Marking and placards indicating maximum loads in cargo and baggage compartments must be also presented in Portuguese (or bilingual). A list of these placards for the rotorcraft and the respective translations acceptable to ANAC is provided in the Annex II to the report H.10-0246-0, dated 28 September 2010 or further revision.

NOTE 3

Provisions for the carriage of external loads are available in the form of structural hard points on the fuselage and main landing gear; single point hoist; and a four point load leveler suspension system. Information concerning the operating limitations with this

equipment is contained in the Rotorcraft Flight Manual.

NOTE 4 Information essential to the proper maintenance of the helicopter is contained in the manufacturer's Maintenance Manual provided with each helicopter. In addition to the maintenance manuals, the helicopters are to be serviced and maintained according to the following Service Bulletins:

Model S-64E

1. Service Bulletin 64B General-2 for component maximum recommended time between overhaul.

Model S-64F

1. Service Bulletin 64F General-2 for component maximum recommended time between overhaul.

In addition, the following Airworthiness Limitations have been established for this Rotorcraft:

Model S-64E

1. Service Bulletin 64B General-1 for component retirement times. FAA approved by the Rotorcraft Certification Office.

Model S-64F

1. Service Bulletin 64F General-1 Time Limits-Retirement Schedule. FAA approved by RCO.

2. Service Bulletin 64F General-3 Mandatory Structural Inspections. FAA approved by RCO.

NOTE 5 Prior to Airworthiness certification as a Model S-64F helicopter, either a military Model CH-54B helicopter must be inspected and modified according to Erickson Air-Crane Document No. 1097

"Master Conversion Drawing List, CH-54B to S-64F", or conforms to Erickson Air-Crane General Arrangement Drawing 6401-10015, Rev D, or later approved revision level.

NOTE 6 Prior to Airworthiness certification as Model S-64E helicopter, military Model CH-54A helicopters must be inspected and modified according to Erickson Air-Crane Document No.1077, "Modification of CH-54A to S-64E Helicopter."

NOTE 7 Both S-64E and S-64F models are also known as "Industrial Flying Crane Helicopters."

NOTE 8 STC's applicable to the Erickson Air-Crane model S-64E

The following FAA supplemental type certificates (STC's) owned by Erickson Air-Crane, applicable to the Erickson S-64E model were validated by ANAC without corresponding Brazilian CST document issuance and may be incorporated on Brazilian registered aircraft, provided the modification does not affect compliance with the Brazilian acceptance requirements (see paragraph import eligibility).

STC NUMBER	DESCRIPTION OF TYPE DESIGN CHANGE	ROTORCRAFT FLIGHT MANUAL SUPPLEMENT
SH4746NM	Use of Mobil Oil Corporation "Mobilgrease 28" synthetic grease to lubricate the main rotor head,	N/A

	swash plate and various associated linkages, in place of the previously approved grease.	
SH5102NM	Modification to disarm the external load jettison system in accordance with Erickson Air-Crane Company Master Drawing List 90FS058-D01, Rev. IR, dated 30 Nov. 1990 or later approved revision.	RFMS dated 10 Dec. 1990 or later FAA approved revision.
SH579NW	Installation of a Vickers, Inc., Hoist Pump (Yoke Type), P/N ACH60552L6 in accordance with Erickson Air-crane Company data Specification No. EAC 1000 and Photos (1) and (2) or later approved revision. Note: This hoist pump replaces Sikorsky P/N IPV093L001S.	N/A
SH606NW	Installation of Airesearch Motor Driven Fan (Part N ^o 605675-1) for the transmission cooling system in accordance with Erickson Air-Crane Company Data Specification No. EAC 5000, Rev. A, dated 26 Apr. 1996 or later approved revision. Note: This modification includes movement of the Harrison Radiator to Station 472.	RFMS dated 23 May 1986 or later FAA approved revision.
SH2907NM	Replacement of the existing combustion type cockpit heater with an engine bleed air type heater system in accordance with Erickson Air-Crane Master Drawing List No. 85FS035, Rev. A, dated 20 May 2010 or later approved revision.	RFMS dated 21 Jun. 1985 or later FAA approved revision.

NOTE 9 STC's applicable to the Erickson Air-Crane model S-64F

The following FAA supplemental type certificates (STC's) owned by Erickson Air-Crane, applicable to the Erickson S-64F model were validated by ANAC without corresponding Brazilian CHST document issuance and may be incorporated on Brazilian registered aircraft, provided the modification does not affect compliance with the Brazilian acceptance requirements (see paragraph import eligibility).

STC NUMBER	DESCRIPTION OF TYPE DESIGN CHANGE	ROTORCRAFT FLIGHT MANUAL SUPPLEMENT
SR09416RC	Installation of Avionics System in accordance with Heritage Aviation, LTD. Master Drawing List R00-14000, Rev. H, dated 24 Feb. 2010 or later approved revision. Installation of FAA STCs SR09411RC, SR09412RC, SR09413RC, SR09414RC and SR09415RC is required as a prerequisite.	RFMS R09-64000, Rev. A, dated 4 Aug. 2004 or later FAA approved revision.
SR09415RC	Installation of Engine Monitoring System and Fuel indication with multifunction displays (MFD-5200) in accordance with Heritage Aviation, LTD. Master Drawing List R00-12000, Rev. G, dated 24 Feb. 2010 or later approved revision. Installation of FAA	RFMS R09-62000, Rev. 1, dated 8 Mar. 2006 or later FAA approved

	STCs SR09411RC, SR09412RC, SR09413RC, SR09414RC and SR09416RC is required as a prerequisite.	revision.
SR09414RC	Installation of Caution Advisory Panel in accordance with Heritage Aviation, LTD. Master Drawing List R00-12001, Rev. G, dated 24 Feb. 2010 or later approved revision. Installation of FAA STCs SR09411RC, SR09412RC, SR09413RC, SR09415RC and SR09416RC is required as a prerequisite.	RFMS R09-62001, Rev. IR, dated 26 Jul. 2004 or later FAA approved revision.
SR09413RC	Installation of Automatic Flight Control System in accordance with Heritage Aviation, LTD. Master Drawing List R00-15000, Rev. H, dated 24 Feb. 2010 or later approved revision. Installation of FAA STCs SR09411RC, SR09412RC, SR09414RC, SR09415RC and SR09416RC is required as a prerequisite.	RFMS R09-65000, Rev. 3, dated 28 Mar. 2008 or later FAA approved revision.
SR09412RC	Installation of Flight Display System in accordance with Heritage Aviation, LTD. Master Drawing List R00-14001, Rev. G, dated 24 Feb. 2010 or later approved revision. Installation of FAA STCs SR09411RC, SR09413RC, SR09414RC, SR09415RC and SR09416RC is required as a prerequisite.	RFMS R09-64001, Rev. IR, dated 26 Jul. 2004 or later FAA approved revision
SR09411RC	Installation of Environmental Control System in accordance with Heritage Aviation, LTD. Master Drawing List R00-13000, Rev. H, dated 24 Feb. 2010 or later approved revision. Installation of FAA STCs SR09412RC, SR09413RC, SR09414RC, SR09415RC and SR09416RC is required as a prerequisite.	RFMS R09-63000, Rev. IR, dated 26 Jul. 2004 or later FAA approved revision.

NOTE 10 3. STC's applicable to the Erickson Air-Crane models S-64E and S-64F

The following FAA supplemental type certificates (STC's) owned by Erickson Air-Crane, applicable to the Erickson S-64E and S-64F models were validated by ANAC without corresponding Brazilian CHST document issuance and may be incorporated on Brazilian registered aircraft, provided the modification does not affect compliance with the Brazilian acceptance requirements (see paragraph import eligibility).

STC NUMBER	DESCRIPTION OF TYPE DESIGN CHANGE	ROTORCRAFT FLIGHT MANUAL SUPPLEMENT
SH4756NM	Use of Mobil Oil Corporation SHC 626 synthetic oil in the main, intermediate and tail gearboxes and tail rotor head. Note: In regards to the S-64F, an oil spectroanalysis of the gear boxes is required every 30 hours of operation, as well as, an oil spectroanalysis of each of the four sleeve/spindle assemblies on the tail rotor head every 150 hours of operation. A maximum	RFMS dated 15 Nov. 1989 for model S-64E and RFMS dated 12 Apr. 1993 for model S-64F, or later FAA approved

	increase of 24 parts per million of ferrous material is allowed between inspections.	revisions.
SR00502SE	Installation of Erickson Model 10333-101 (S-64E) or 10333-103 (S-64F) Water/Foam Cannon system in accordance with Erickson Master Drawing List 1188, Rev. L, dated 24 Feb. 2010 or later approved revision. As a prerequisite to this installation, the rotorcraft must be equipped with an Erickson Fire Fighting System per STC FAA SR00004SE and FAA approved installation of Erickson Main Transmission P/N 6435-20400-063 (S-64E) or 6435-20500-048 (S-64F) and Auxiliary Take-off Hydraulic Pump Pad No. 6435-20501-041.	RFMS dated 17 Mar. 1998 or later FAA approved revision.
SH1618NM	Installation of externally mounted ferry tanks in accordance with Erickson Air-Crane Master Drawing List 1052, Rev. D, dated 23 Aug. 2006 or later approved revision.	RFMS dated 24 Dec. 1992 (Rev. 1) for model S-64E and RFMS dated 7 Sep. 1993 for model S-64F, or later FAA approved revisions.
SR01955NY-D	Installation of a Keystone Helicopter Anti-Rotational Restraint System in accordance with Keystone Helicopter Installation Drawing List IDL00920, Rev. A, dated 27 Apr. 2005 or later approved revision.	RFMS for Erickson Air-Crane S-64E/F Anti-Rotation System, Supplement No. FM00920, Rev. – , dated 27 Apr. 2005 or later FAA approved revision.
SR00815SE	Installation of Erickson model Sea Snorkel system in accordance with Erickson Master Drawing List 1253, Rev. H, dated 24 Feb. 2010 or later approved revision. The STC FAA SR00004SE is a prerequisite to this installation.	RFMS dated 20 Oct. 2000 or later FAA approved revision.
SR00026SE	Installation of Erickson external load dynamic shock absorber system in accordance with Erickson Air-Crane Master Drawing List 1051, Rev. U, dated 24 Feb. 2010 or later approved revision.	RFMS dated 9 Mar. 2000 or later FAA approved revision.
SH5764NM	Increase in maximum ground idle speed from the existing limit of 42% N1 to 44% N1, which will make a corresponding increase in the maximum flight idle speed from 62% N1 to 64% N1 in accordance with Erickson Air-Crane S-64E Maintenance Manual No. EAC007, Rev. 28, dated 5 May 2010 and Erickson Air-Crane S-64F Maintenance Manual No. EAC006, Rev. 32, dated 17 May 2010 or later approved revisions.	RFMS dated 3 Sep. 1992 for model S-64E and RFMS dated 4 Jun. 1993 for model S-64F, or later FAA approved revisions.
SH5776NM	Installation of a tail pipe extension in accordance	N/A

	with Erickson Air-Crane Company Master Drawing List 1041, Rev. K, dated 3 Oct 2007 or later approved revision.	
SH5724NM	Use of Mobil Oil Corporation Mobilith SHC220 synthetic grease to lubricate selected components in place of the previously approved grease.	N/A
SH5653NM	Re-mounting of the turbine engines and reinforcement of the associated fuselage support structure with Erickson Detuned Engine Mounting System (DEMS), in accordance with Erickson Master Drawing List No. 1076, Rev. R, dated 24 Feb. 2010 and Erickson Air-Crane Maintenance Manual No. EAC016, IR, dated 19 July 2002 or later approved revisions.	N/A
SR00004SE	Installation of Erickson fire fighting system in accordance with Erickson Master Drawing List 1067, Rev. L, dated 28 Apr. 2010 or later approved revision. Note: The digital control system option details retained in the drawings are not yet approved. These details will be evaluated during a follow-on certification program.	RFMS dated 11 May. 2005 or later FAA approved revision.



HÉLIO TARQUÍNIO JÚNIOR

Gerente Geral Substituto, Certificação de Produto Aeronáutico
(Acting Manager, Aeronautical Product Certification)