

United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SA6088NM

This Certificate issued to Kelowna Flightcraft Ltd.
4401 Saint George Drive
Oklahoma City, Oklahoma 73120

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part *4b of the Civil Air Regulations.
*(See Page 7 of this STC for the Certification Basis)

Original Product Type Certificate Number: 6A6

Make: General Dynamics/Convair

Model: 340/440

Description of Type Design Change: Conversion of the 6A6 Type Certificated Aircraft into a Model CV 5800 by installation of Allison 501-D22G Engines per STC SA4-1100, Hamilton Standard Propellers per STC SA1825NM and lengthening the fuselage 14 ft. 3.0 inches with all design changes in accordance with Model CV 5800 FAA Sealed Master Drawing List KF580-00000002, Revision No. 44, dated August 4, 1995, or later FAA approved revisions. The Kelowna Flightcraft FAA Approved Airplane Flight Manual Document No. CV 5800, dated December 14, 1993, or later FAA approved revision is required.

Limitations and Conditions: The limitations and conditions are outlined on pages 3 to 12 of this STC.

Applicable to: Model 340, 440, C131E, C131F
Propellers – Hamilton Standard 54H60-164

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: July 12, 1984

Date reissued: December 14, 1993;
March 2, 2009

Date of issuance: December 14, 1993

Date amended: August 18, 1995



By direction of the Administrator

(Signature)

Manager, Airframe Branch
Los Angeles Aircraft Certification Office

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Limitations and Conditions:

1. General Dynamics/Convair 340 or 440 (C131E/C131F) as modified by this STC (CV 5800 configuration) – See Note 6.

Engines	Two Allison 501-D22G	
Fuel	Allison Specification EMS-64 (kerosene), ASTM-D-1655 Jet A, Jet A-1 or Jet B, or MIL-T-5624 Grade JP-4. See Note 3 concerning additives, intermixing of fuels and emergency use of aviation gasoline.	
Engine ratings	Takeoff (5 min.)	
	Equivalent shaft horsepower	4,593
	Shaft horsepower	4,300
	Jet thrust (lbs)	734
	Maximum continuous	
	Equivalent shaft horsepower	4,232
	Shaft horsepower	3,950
	Jet thrust (lbs)	703

The above ratings are based on static sea level conditions, dry air, 15°C, 29.92 in. Hg, no external accessory loads, and no air bleed.

Engine limits

Power	As measured by the torquemeter at maximum rpm:	
	Takeoff	4,300 shp.
	Maximum continuous	3,950 shp.
RPM	13,820 rpm. for all operations (which corresponds to 1,020 propeller rpm).	
Turbine inlet temperature	Takeoff (5 min.)	1077°C
	Maximum continuous	1010°C
	Transient (5 sec.)	1175°C
Oil grade	Allison Specification EMS-53	
Oil inlet temperature	Maximum	
	At or below flight idle	100°C
	Above flight idle for 5 min.	100°C
	All other operations	85°C
	Minimum	-40°C

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Propeller and
propeller
limits

Two Hamilton Standard 54H60-164/A7121 B-2 installed in accordance with
STC SA1825NM

The Hamilton Standard Propeller Model No. 54H60-164 is identical to the
Hamilton Standard Propeller Model No. 54H60-77 except for the flight idle
(mechanical low pitch stop) which for the 54H60-164 is set at $16.5^\circ \pm 0.5^\circ$.
Refer to the STC SA1825NM for all other installation limitations.

Electrical Systems

Maximum load for take-off, climb, approach, and landing.

Two Engine Operation (Each Engine)

AC - 5 KVA
DC - 110 AMPS (29 percent)

Single Engine Operation

AC - 10 KVA
DC - 215 AMPS (57 percent)

Other Pertinent Data

Airspeed limits

Maximum operating (V_{MO})

Sea level 278 knots (320 mph) IAS

10,000 Ft. 280 knots (322 mph) IAS

Reduce V_{MO} 5 knots per 1,000 ft. above 10,000 ft.

$M_{MO} = 0.506$

Maneuvering (V_A) and gust penetration (V_B)

- See FAA Approved Airplane Flight Manual

Flaps extended (V_{FE})

5° 214 knots (246 mph) IAS

10° 199 knots (229 mph) IAS

15° 187 knots (215 mph) IAS

20° 172 knots (198 mph) IAS

25° 165 knots (190 mph) IAS

30° to 33° 157 knots (181 mph) IAS

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Landing gear retraction
 146 knots (167 mph) IAS (^VLO)
 Landing gear extension
 173 knots (200 mph) IAS (^VLE)
 Landing light extension, retraction, and
 extended 200 knots (230 mph) IAS

C.G. Range

	<u>Gross Wt. (lbs.)</u>	<u>Forward % MAC Sta</u>	<u>Aft % MAC Sta</u>
Landing gear retracted	39,500 or less	8.5 455.6	35 485.9
	63,000	20.5 469.3	35 485.9
Landing gear extended	39,500 or less	13.0 460.8	34 484.8
	63,000	23.3 472.5	34 484.8

Straight line variation between points given.

Datum Same as shown on Aircraft Specification 6A6.

MAC Same as shown on Aircraft Specification 6A6 (114.3 inches).

LE of MAC STA. 445.9

Leveling means Same as shown on Aircraft Specification 6A6.

Maximum weight

Takeoff	63,000 lbs.
Landing	58,000 lbs.
Zero Fuel	55,000 lbs.

All weight in excess of zero fuel must consist of fuel and oil.

Minimum crew Same as shown on Aircraft Specification 6A6 (pilot + copilot).

Maximum baggage Same as shown on Aircraft Specification 6A6.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Fuel capacity 1730 U. S. Gallons (6549 Liters), (one 865 U. S. Gallon (3274.5 Liter) tank in each wing at Sta. 492), or
* 2032 U. S. Gallons (7692 Liters) (see STC SA4-1242), or
* 2058 U. S. Gallons (7790 Liters) (see STC SA4-1114), or
* 2908 U. S. Gallons (11008 Liters) (see STC SA4-1249)
* See Note 4
(See Note 1 for system fuel)

Oil capacity 16.8 U. S. Gallons (63.6 Liters), at Sta. 364.6 (see Note 1 for system oil). Total oil including system oil equals 130 lb (59.0 kg).

Maximum operating altitude 25,000 feet

Control surface movements Same as shown on Aircraft Specification 6A6.

Serial numbers eligible 2 and up

Applicability/
Limitation

1. This STC is a "no passenger and no cargo STC". To obtain the passenger or cargo configurations, subsequent FAA approved STCs must be installed.
2. The approval of this change in type design is limited to the Basic 340/440 commercial airplanes and the C131E and C131F military versions based on the approved Master Drawing List KF 580-00000002 Rev. 44. Additional military models of the Basic 340/440 will become eligible when subsequent FAA approved Master Drawing Lists incorporating the new designs are submitted.

This change in type design assumes the basic airplanes are otherwise unmodified. This approval should not be extended to other airplanes of these models on which other previously approved modifications are incorporated unless it is determined that the interrelationship between this change and any of those previously approved modifications will introduce no adverse effect upon the airworthiness of those airplanes.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Certification basis	Part 4b of the Civil Air Regulations effective July 20, 1950, with Amendments 4b-1, 4b-3, and 4b-5 thereto Special Civil Air Regulation No. SR-422B, Special Civil Air Regulation No. SR-423, FAR No. 34, FAR No. 36, and Special Condition No. 25-ANM-57 for HIRF and Lightning. The military to commercial substantiation of the C-131F per GDC-272-0/80-1283 must be accomplished.
Production basis	None. Before an airplane modified in accordance with the provisions of this Supplemental Type Certificate is returned to service, a check of flight characteristics must be accomplished by a representative of the FAA.
Export eligibility	Airplanes modified in accordance with this Supplemental Type Certificate are eligible for issuance of Export Certificates of Airworthiness under the policies and procedures specified in Chapter 5 of Order 8130.2B, "Airworthiness Certification of Aircraft and Related Approvals".
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations must be installed in the airplane for certification. See Page 10. An FAA Approved Airplane Flight Manual for the CV 5800 must be installed in the aircraft.

NOTES

Note 1. A current weight and balance report, including a list of equipment included in the certificate weight empty and, when necessary, loading instructions, must be in each airplane at the time of return to service after modification and at all times thereafter except in the case of operators having an approved weight control system.

The certificated empty weight and corresponding center of gravity locations must include the following:

- (a) System oil - 86.8 lb (39.4 kg) at Sta. 356
- (b) System fuel - 57.6 lb (26.1 kg) at Sta. 486*

* Applies to basic 1730 U. S. Gallons (6549 Liters) capacity configuration. See appropriate fuel tank modification STC for data on other tank configurations.

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Note 2.

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

“This airplane shall be operated in compliance with the Operating Limitations specified in the FAA Approved Airplane Flight Manual”.

Note 3.

(a) Aviation gasoline, MIL-G-5572 Grade 115/145 or lower, is approved for limited emergency use. The use of Grade 80/87 (now Grade 80) gasoline is limited to the amount required to operate the engine for 1,000 hours during any overhaul period. The use of grades higher than 80/87 is limited to the amount required to operate the engine for 100 hours during any overhaul period. The average fuel consumption rate may be used to convert the allowable engine operating time to an equivalent gallonage to facilitate record keeping. Gasoline containing tricresyl phosphate, boron, or similar additives shall not be used.

(b) All approved fuels may be used separately or mixed in any proportion without adversely affecting engine operation or power output. No fuel control adjustment or system purging is required when switching fuel types.

(c) Anti-icing additives conforming to MIL-F-27686 may be used in fuels in amounts not to exceed 0.15% by volume.

(d) Shell ASA-3 antistatic additive may be used in a concentration providing no more than 300 conductivity units, which is equivalent to one ppm.

(e) Biocidal fuel additive, Biobor JF, may be used periodically in concentrations that do not exceed 270 ppm. Use of fuel with this additive is limited to one fueling within each engine inspection period specified in the 501-D22 Engine Maintenance Manual.

Note 4.

A placard must be installed at or near refueling ports to indicate fuel quantity in both U. S. Gallons and Liters for each of the following:

STC SA4-1242-	2032 U.S. Gallons (7692 Liters)
STC SA4-1114-	2058 U. S. Gallons (7790 Liters)
STC SA4-1249-	2908 U. S. Gallons (11008 Liters)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Note 5. In flight use of an auxiliary power unit not installed per this STC is prohibited.

Note 6. Airplanes modified in accordance with this Supplemental Type Certificate are frequently referred to unofficially as CV 5800; however, for official record purposes, these airplanes retain their original Model 340 or 440 identity.

II - Equipment: The basic required equipment as described by applicable Airworthiness Regulations must be installed.

Description of Major Components

		<u>Weight</u>	<u>ARM</u>
<u>1</u>	<u>Propellers</u>		
	(2) Hamilton Standard Propellers 59H60-164/A7121 B-2 including spinner	2379.8	307.42
100	<u>Engines</u>		
	(2) Allison 501-D22G	3648.0	380.52
101	(1) Hydraulic Pump		
	(a) New York Air Brake P/N 66WH 400	14.0	342.62
	(b) New York Air Brake P/N 66WA 400	14.0	342.62
	(c) New York Air Brake P/N 66WH 300	13.5	342.62
	(d) New York Air Brake P/N 66WA 300	13.5	342.62
	(e) New York Air Brake P/N 66 WAP300	13.5	342.62

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number SA6088NM

II - <u>Equipment</u> : (Cont'd)		<u>Weight</u>	<u>ARM</u>
102	(2) Starter – Air turbine		
	(a) Airesearch P/N 355760-1 Model ATS-100-113	46.4	343.52
103	(1) Cabin Compressor		
	(a) Airesearch P/N 206230	58.0	347.02
104	(2) Generator DC		
	(a) Eclipse Pioneer P/N 30E02-9-G	128.0	345.52
105	(2) Alternator		
	(a) General Electric P/N 2CM353 C1F	189.0	346.62
106	(1) Gas Turbine Compressor		
	(a) Airesearch P/N 372580 Mod. 85-90-2	209.4	304.02
<u>Landing Gear</u>			
200	(2) Main Gear Shock Strut Assemblies Menasco 528400-501 L.H. 528400-502 R.H.	523.0	503.02

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

Supplemental Type Certificate

(Continuation Sheet)

Number SA6088NM

Landing Gear: (Con'd)

		<u>Weight</u>	<u>Arm</u>
201	(4) Main Wheel Brakes Assemblies	388.0	503.02
	(a) Goodyear Wheel Assembly 9540977/9540977-1 or 9540512/9540512-1		
	(b) Brake Assy. Loral 9540976-2		
	Piston Lining 5009106		
	Amvil Lining 5009107		
	Brake Disk 9531478 (.750/938)		
	Brake Ring 5001742 Steel 5001037 Aluminum		
202	(4) Main Gear Tires (Tubeless 35 x 13 -14 Ply) (Inflation Press = 85 PSI)	356.0	504.2
203	(1) Nose Gear Shock Strut Assemblies Menasco 523500	195.5	92.0
204	(2) NLG Wheel Goodyear 9531502	33.6	95.0
205	(2) Nose Wheel Tires (Tubeless 7.5 x 14 - 8 Ply) (Inflation Pressure 63PSI)	58.0	95.0
206	(2) Anti-Skid System Hytrol MK-1E	84.0	503.0

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

United States Of America
Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate
(Continuation Sheet)

Number SA6088NM

II - Equipment: (Cont'd)		<u>Weight</u>	<u>ARM</u>
<u>Electrical Equipment</u>			
300	(2) Batteries Exide 6FH-13 (12 Volts) or equivalent	155.0	514.0
301	Navigation Honeywell E.F.I.S. EDZ-803	115.3	106.1
302	Radar Honeywell P/N 7008470	13.0	15.0
<u>Interior Equipment</u>			
401	FAA Approved Flight Manual - Model CV 5800	5.0	90.0
402	Auto Pilot - Honeywell SPZ-4500 (Installation)	69.8	259.7
<u>Fuel System</u>			
501	Fuel Jettisoning System (STC SA1174WE)	46.0	518.5

- END -

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.