DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

4A27
Revision 12
CV Nevada, LLC
22
22M

November 15, 2013

TYPE CERTIFICATE DATA SHEET NO. 4A27

This data sheet which is a part of type certificate No. 4A27 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Civil Air Regulations.

Type Certificate Holder

CV Nevada, LLC
5840 West Craig Road, #120-262
Las Vegas, Nevada 89130

Type Certificate Holder Record

AeroXin Industries, Inc.
5840 West Craig Road, #120-262
Las Vegas, Nevada 89130

D & R Nevada, LLC
5840 West Craig Road, #120-262
Las Vegas, Nevada 89130

Lost Bird Aviation Historical Society & Museum
3172 North Rainbow Blvd.
Las Vegas, Nevada 89108

Tracor Flight Systems, Inc.
1326 Fight Line, Hanger 75
Mojave, California 93501-1665

General Dynamics Corporation
P.O. Box 1950
San Diego, California 92112

I - Model 22 (Transport Aircraft), approved May 1, 1960 (See NOTE 4 for explanation of model identification)

Engines

4 General Electric Turbojet CJ805-3 or CJ805-3A (See NOTE 6 for explanation of -3A installation requirements). The fuel and engine limit data are applicable to both the -3 and -3A engines except as noted below. Intermixing of the -3 and -3A engines on the same aircraft is not permitted.

Fuel

Kerosene, JP-4 and JP-5 type fuels conforming to G.E. Specification D50TF2-S2. See NOTE 7 regarding use of Phillips anti-icing additive PFA 55MB.

Engine limits

Static thrust, S.L., standard day:

Takeoff (5 min.)	11,200 lb.
Maximum Continuous	9,800 lb.

Maximum permissible engine rotor operation speed:

CJ805-3 and -3A	7684 r.p.m. (103%)

Maximum permissible temperatures

(1) Turbine exhaust gas temperatures:

Takeoff (5 min.)	632°C.	1170°F.
Maximum Continuous	560°C.	1040°F.
Maximum Transient		
Takeoff	Refer to Section 8, Figure 2, of G.E. Operating Instructions GEI 67826 for the -3 engine and GEI 67891 for the -3A engine.	
Starting	Refer to Section 8, Figure 1, of G.E. Operating Instructions GEI 67826 for the -3 engine and GEI 67891 for the -3A engine.	

(2) Oil temperature, scavenge 149°C. 300°F.

Maximum permissible compressor air bleed, percentage of total engine airflow:

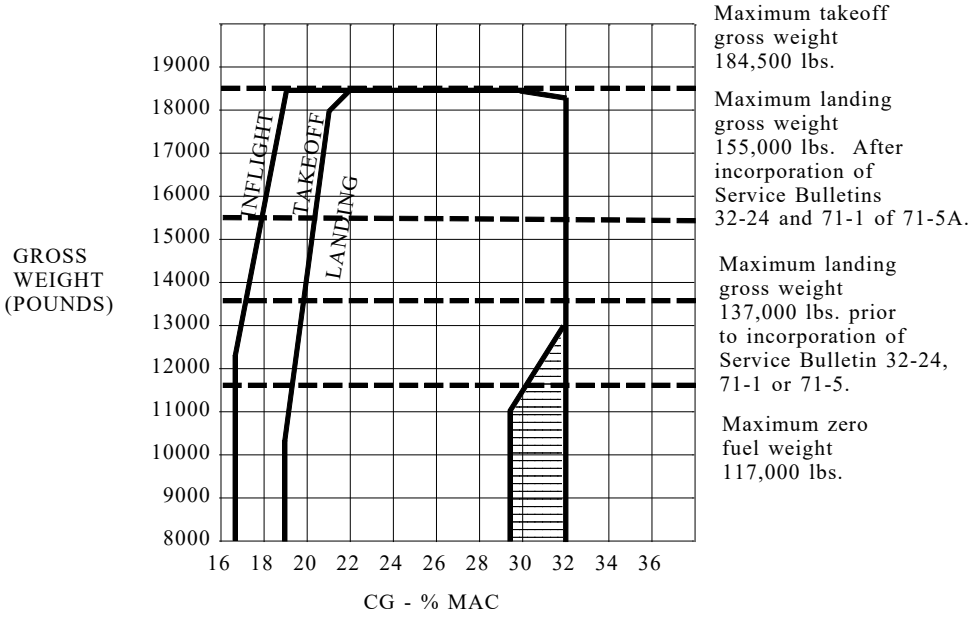
Idle to 6340 r.p.m. (85%)	10%
6714 r.p.m. (90%) to maximum speed	5%

(Linear variation between 6340 and 6714 r.p.m.)

Airspeed limits (IAS) (M_i)

Vmo	(Maximum Operating)	373K @ S.L. 393K @ 23,000 ft.
Mmo	(Maximum Operating above 23,000 ft.)	M = .884
Vne	(Never Exceed)	398K
Mne	(Never Exceed)	M = .884
Va	(Maneuvering) (For maneuvering speeds and buffet envelope refer to FAA Approved Airplane Flight Manual Certificate Limitation 1-30)	
Vfe	(Flaps Down 0 to 20°)	244K M = .60
	(Flaps Down 20 to 30°)	234K M = .56
	(Flaps Down 30 to 40°)	268K M = .70
	(Flaps Down 40 to 50°)	194K M = .400
Vlo	(Landing Gear Operation)	
	(Main Landing Gear as a Speedbrake)	373K M = .884
	(Nose Landing Gear Extension)	318K M = .825
	(Landing Gear Retraction Speed)	268K M = .70
Vle	(Landing Gear Extension)	318K M = .825
V	(Landing Gear Door Operation Limitation) If the landing gear door unlocked warning light illuminates during gear retracted flight operations. Airspeed must be reduced to:	320K M = .83
V	(Landing Light Extension)	289K
V	(Fuel Jettison Speed)	Vmo Mmo
V	(Inboard Spoilers when used for Longitudinal Control)	244K M = .60
Vmca	(minimum Control Speed) (One engine inoperative), sea level, standard day, 127,000 lb. gross weight	127K
$Vmca_2$	(Minimum Control Speed, two engines inoperative), standard day, sea level	161K
V	(Maximum Speed for Autopilot Operation)	Vmo Mmo

C.G. range — Landing Gear Extended or Retracted (3).



(1) Takeoff prohibited within shaded area
(2) The aft C.G. limitations shown in the above chart for the gross weight range from 80,000 to 130,000 pounds applies to takeoff only. For airborne or landing conditions the aft C.G. limitation is 32% MAC FS849.1.
(3) Nose gear retraction moment is -33,122 in.-lb.

Maximum weights

Ramp weight	185,000 lbs. (1)
Takeoff weight	184,500 lbs. (1)
Landing weight	137,000 lbs. (2)
(Fuel dump valves required for operation in excess of maximum landing weight.) (See NOTE 1(f))	
Zero fuel weight	117,000 lbs.
Three engine ferry	145,000 lbs.

(1) All weight in excess of 117,000 lbs. must consist of fuel. All weight in excess of 137,000 lbs. must consist of jettisonable fuel.
(2) Airplanes modified in accordance with General Dynamics Service Bulletin No. 32-24 and No. 71-1 or 71-5A are approved for 155,000 lbs. maximum landing weight. All weight in excess of 155,000 lbs. must consist of jettisonable fuel.

Maximum passengers

110

Fuel capacity

Airplane Serial Nos. 00-1 through 00-20:

	Total Refuel (1)	Usable	Arm
*2 outboard main tanks (#1 & #4)	16695 lb. ea.	16534 lb. ea.	FS-924.4
2 inboard main tanks (#1 & #3)	20671 lb. ea.	20510 lb. ea.	FS-770.5

Airplane Serial Nos. 00-21 and up or airplanes incorporating Convair Service Bulletin 28-3A:

	Total Refuel (1)	Usable	Arm
*2 outboard main tanks (#1 & #4)	16695 lb. ea.	16534 lb. ea.	FS-924.4

2 inboard main tanks (#2 & #3)	21021 lb. ea.	20860 lb. ea.	FS-770.5

(1) "Total Refuel Capacity" consists of Unusable (drainable and undrainable quantities) and Usable Fuel. See NOTE 1 for the disposition of these fuel weights.

* Includes replenish tank fuel as each tank system consists of one main and one replenish tank.

Fuel weights are based on 7.0 lb. per U.S. Gallon.

Maximum allowable fuel weight when refueling with high density type fuels is 75,432 lb. See NOTE 1(e) for loading limitations.

Serial Nos. eligible (00-) 1 through 15, 17 through 36, 38 through 42, 50, 51, 52, 62 through 65

II - Model 22M (Transport Aircraft), approved July 24, 1961

Engines: 4 General Electric Turbojet CJ805-3B

Fuel: Kerosene, JP-4 and JP-5 type fuels conforming to G.E. Specification D50TF2-S2. See NOTE 7 regarding use of Phillips Anti-icing Additive PFA 55MB.

Engine limits:

Static thrust, S.L., standard day:

Takeoff (5 min.)	11,650 lb.
Maximum Continuous	9,800 lb.

Maximum permissible engine rotor operating speeds:

Normal Operation	7,684 r.p.m. (103%)

Maximum permissible temperatures:

(1) Turbine exhaust gas temperatures:		
Takeoff (5 min.)	632°C.	1170°F.
Maximum Continuous	582°C.	1080°F.
Maximum Transient		
Starting	Refer to FAA Approved G.E. Operating Instructions GEI 67849,Section 8, Figure 1.	
Takeoff	Refer to FAA Approved G.E. Operating Instructions GEI 67849, Section 8, Figure 2	
(2) Oil temperature, scavenge	149°C.	300°F.

Maximum permissible compressor air bleed, percentage of total engine airflow:

Idle to 6340 r.p.m. (85%)	10%
6714 r.p.m. (90%) to maximum speed	5%

(Linear variation between 6340 and 6714 r.p.m.)

Airspeed limits (IAS) (M_i)

Vmo (Normal Operating)	374K at S.L. 394K at 23,000 ft.
Mmo (Above 23,000 ft.)	M = .884
Vne (Never Exceed)	399K
Mne (Never Exceed)	M = .884

Va (Maneuvering)
(For maneuvering speeds and buffet envelope refer to FAA Approved Airplane Flight Manual Certificate Limitation 1-33)

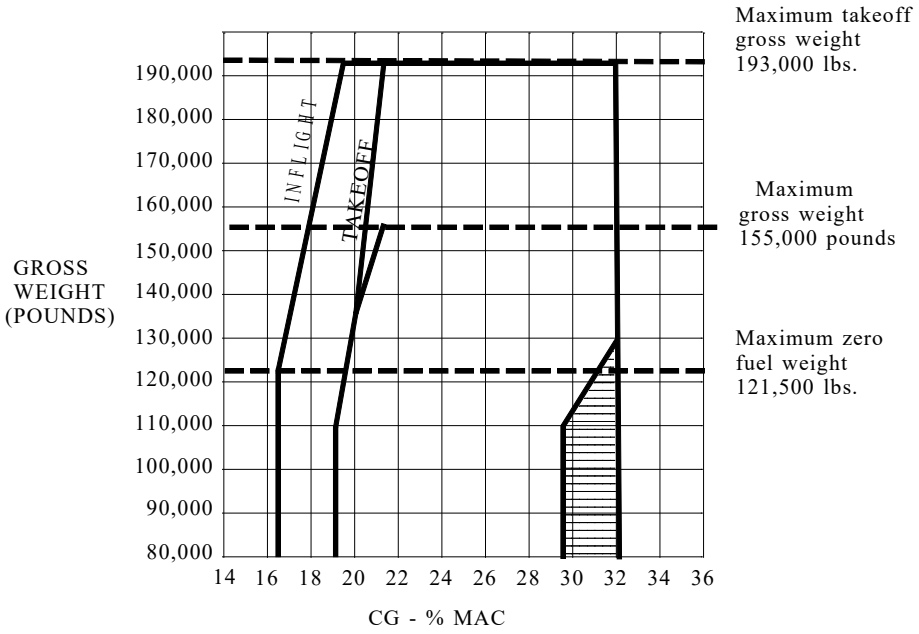
Vfe (Flaps extended 22°)244K M = 0.60
(Flaps extended 33°)234K M = 0.56
(Flaps extended 44°)214K M = 0.48
(Flaps extended 55°)194K M = 0.40

NOTE: Design speed for 22° deflection is also design speed for

leading edge slats at all extensions.

Vlo	(Main L.G. as a Speedbrake)	374K M = 0.884
	(Nose L. G. Extension)	319K M = 0.827
	(L. G. Retraction Speed)	269K M = 0.70
Vle	(Landing Gear Extension)	319K M = 0.827
V	(L. G. Door Operation Limitation) If the L.G. door unlocked warning lights illuminate during gear retracted flight operations. Airspeed must be reduced to:	319K M = 0.827
V	(Landing Light Extension)	289K
V	(Fuel Jettison Speed)	Vmo Mmo
V	(Inboard Spoilers when used for Longitudinal Control)	244K M = .60
Vmca	(Minimum Control Speed, one engine inoperative, sea level, standard day, gross weight 130,000 lb.)	115K
$Vmca_2$	(Minimum Control Speed, two engines inoperative, standard day, sea level	143K
V	(Maximum Speed for Autopilot Operation)	Vmo Mmo
Sperry AP at max. servo torque (low airspeed torque)		250K

C.G. range



(1) Takeoff prohibited within shaded area
(2) The aft C.G. limitations shown in the above chart for the gross weight range from 80,000 to 130,000 pounds applies to takeoff only. For airborne or landing conditions the aft C.G. limitation is 32% MAC.
(3) Retraction of the landing gear moves the C.G. forward approximately 0.08% of the MAC.

Maximum weights

Ramp weight	193,500 lb.
Takeoff weight	193,000 lb.
Landing weight	155,000 lb.
(Fuel dump valves required for operation	

in excess of maximum landing weight)
Zero fuel weight 121,500 lb.
(All weight in excess of 121,500 lb. must consist of fuel. All weight in excess of 155,000 lb. must consist of jettisonable fuel.)
Three engine ferry 155,000 lbs.

Maximum passengers 124

Fuel capacity

	Total Refuel (1)	Usable	Arm
*2 outboard main tanks (#1 & #4)	16695 lb. ea.	16534 lb. ea.	FS-924.4
2 inboard main tanks (#2 & #3)	21021 lb. ea.	20860 lb. ea.	FS-770.5
Center section tank	13118 lb.	12978 lb.	FS-770.5

NOTE: The Model 22M aircraft may incorporate either a complete auxiliary fuel system consisting of three inter-connected fuel tight bladder type cells and related plumbing installed in the aircraft wing center section or incorporate provisions only for installing the system.

(1) "Total Refuel" capacity consists of Unusable (drainable and undrainable quantities) and Usable Fuel. See NOTE 1 for the disposition of these fuel weights.
*Includes replenish tank fuel as each tank system consists of one main and one replenish tank.
Fuel weights are based on 7.0 lb. per U.S. gal.

Structural limits permit use of fuel with densities ranging up to 7.0 lb./gal. (See NOTE 1(e) for loading limitations.)

Serial Nos. eligible (00-) 37, 43 through 49, 53 through 61

Data Pertinent to All Models

Datum 100 in. fwd. of nose (Nose is Fuselage Station 100)

MAC 227.3 in. (L.E. of MAC +776.4 in.)

Leveling means Provisions for lateral and longitudinal leveling are installed in the left main wheel well. The lateral leveling lugs are installed on the fwd. bulkhead stiffener along Water Line 10.0. The longitudinal leveling lugs are located on the stiffeners of the center line web along Water Line 20.0.

Minimum crew For all flights: Pilot, Copilot and Flight Engineer. (See NOTE 3.)

Maximum baggage

Compartment	Station	Capacity (lb.)	Maximum Loading (1) lb./ft^2	lb. /in.	C.G. (in.)
Fwd. belly	375- 603	8960	100	39.3	+489
Aft. belly	1002-1230	8300	100	39.3	+1111

(1) Rear compartment limited to densities of 20 lb./ft.^{3} or less. Higher density items must be loaded in compartment where tie-down rights are provided.

Oil capacity Engine Oil

		Arm Inboard	Arm Outboard
Total Capacity	42.4 lb. ea.	FS678.0	FS864.0
Usable Oil	23.5 lb. ea.		
Tank System Including Unusable Oil	8.9 lb. ea.		
Engine System Oil	10.0 lb. ea.		

NOTE: The total oil tank capacity is equal to the sum of the "usable" and "tank system including unusable oil" (4.20 gal. at 7.7 lb./gal. each tank).

Constant Speed Drive and Thrust Reverser (Common Supply)

		Arm	
		Inboard	Outboard
Total Capacity	22.3 lb. ea.		
Usable Oil	8.0 lb. ea.	FS667.0	FS853.0
Reverser Reserve	3.3 lb. ea.		
Tank System Oil	1.9 lb. ea.		
CSD System Oil	4.5 lb. ea.		
Reverser System Oil	4.6 lb. ea.		

NOTE: The total oil tank capacity is equal to the sum of the usable, and tank system and reverser reserve oil (1.72 gal. at 7.7 lb./gal., ea. tank).

Maximum operating altitude

41,000 ft.

Other operating limitations

See FAA Approved Airplane Flight Manual.

Control surface movements

The airplane must be rigged in accordance with the following FAA Approved Data:

Drawings 22- refer to Model 22, Drawings 30- refer to Model 22M

(a) Convair Dwg. 22-40052 "Operational Data - Rudder," 30-40052 "Operational Data - Rudder"
(b) Convair Dwg. 22-40056 "Operational Data - Rudder Trim," 30-40056 "Operational Data - Rudder Trim"
(c) Convair Dwg. 22-40053, "Operational Data - Elevator"
(d) Convair Dwg. 22-40066, "Operational Data - Horizontal Stabilizer"
(e) Convair Dwg. 22-40054, "Operational Data - Aileron and Spoilers"
(f) Convair Dwg. 22-40067, "Operational Data - Aileron Trim Tab"
(g) Convair Dwg. 22-40055, "Operational Data - Flaps"
(h) Convair Dwg. 22-40057, "Operational Data - Power Plant"
(i) Convair Dwg. 22-40060, "Operational Data - Landing Gear"
(j) Convair Dwg. 22-40061, "Operational Data - Nose Wheel Steering"
(k) Convair Dwg. 22-40062, "Operational Data - Brakes"
(l) Convair Dwg. 22-40063, "Operational Data - Emergency Landing Gear"
(m) Convair Dwg. 22-40051, "Operational Data - Leading Edge Flaps and Slats"

Certification basis

CAR 4b dated December 31, 1953; Amendments 4b-1, 4b-2, 4b-3, 4b-4, 4b-5, 4b-6, 4b-7, 4b-9, 4b-10 thereto, SR-422B and the special condition contained in Attachment "A" of FAA letter to Convair dated November 19, 1957.

Type Certificate No. 4A27 issued May 1, 1960.
Application for Type Certificate dated March 15, 1956

Compliance with the following optional requirements has been established:

Ditching Provisions only 4b.361
Ice Protection Provisions 4b.640

Production basis

Production Certificate No. 605

Required equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. Convair Report ZM-22- 062, "Master Equipment List, Model 22," contains a list of all required equipment that must be installed as well as optional equipment installations approved by FAA.

Service information

Convair Report CS-59-022, "Convair 880 Structural Repair Manual" and CS 61-041, "Convair Structural Repair Manual for the Model 22M" is FAA Approved. Service

Bulletins and other service information, when FAA approved, will carry a statement to that effect.

NOTE 1. (a) Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions must be in each aircraft at the time of original certification and at all times thereafter except in the case of operators having an approved weight control system. Convair Report ZW-22-021- and ZW-22-029-, "Convair Weight and Balance Report," are applicable to Models 22 and 22M, respectively.

(b) The airplane must be loaded so that the C.G. is within the specified limits at all times, with the effects of fuel use, gear retraction and crew and passenger movement being considered. See "C.G. Range" for restrictions on center of gravity limits for takeoff at gross weights below 130,000 lb.

(c) The weight of system fuel and oil as defined below and hydraulic fluid, all of which must be included in the airplane empty weight, is listed in Convair Report ZM-22-062, "Master Equipment List, Model 22.

System Fuel: The weight of all fuel required to fill all lines and tanks up to the zero fuel point on the fuel gages in the most critical flight altitude. This includes the unusable tank fuel as defined by CAR 4b.416.

System Oil Including Usable: The weight of oil remaining in the engine, constant speed drive, thrust reverser, tanks and lines after subtracting the usable and reverser reserve oil from the total capacity. These values are noted under "Oil Capacity" and must be added to the empty weight of the airplane.

(d) The "Unusable" fuel is the amount of fuel in the tanks which is unavailable to the engines under critical flight conditions as defined by CAR 4b.416 and may be obtained by taking the difference between "total refuel" and "usable" tank capacities shown under "Fuel Capacity." This "unusable" fuel is included in System Fuel as indicated in 1(c) above.

(e) Fuel loading and usable procedures are dictated by structural design and to maintain airplane C.G. within approved limits. Refer to Convair Report ZW-22-021- or ZW-22- 029-, the specific airplane weight and balance reports, for loading, takeoff and landing fuel distribution limitations.

(f) Fuel Jettison: Fuel jettisoning must be available for operation of the airplane in excess of the maximum landing weight. Refer to FAA Approved Airplane Flight manual for limitations to be observed during fuel jettison operation. The unjettisonable fuel must be included in the airplane landing weight, and the amount of usable fuel remaining in the tanks after complete jettisoning is as follows:

All Airplanes:
Outboard tanks (1 & 4) 3125 lb. ea.
Inboard tanks (2 & 3) 2825 lb. ea.

Weights are based on 7.0 lb. per U.S. Gallon.

NOTE 2. Reserved.

NOTE 3. All replacement seats (crew, passenger and lounge), although they may comply with TSO-C39, must also be demonstrated to comply with CAR 4b.358(c). Other installations, such as berths, buffets, compartments or items of mass which could create a hazard to the safety of passengers and crew must also be demonstrated to meet the same requirements.

NOTE 4. The 22-1 and 22-2 are versions of the basic Model 22, the certification basis for which is Type Certificate No. 4A27. These dash numbers were selected by Convair primarily for contractual and clerical purposes and should not be considered to define different models of airplanes. One version may be converted to another by incorporating pertinent required equipment and complete conformity with corresponding approved drawings.

It should be noted that the identification plate in the cockpit identifies the specific airplane version and that different Airplane Flight Manuals, primarily the result of different autopilot installations, air conditioning system, and electrical system, are applicable. Accordingly, when converting from one version to another, the identification plate must be suitably revised. The Flight Manual pertinent to the new version must also be installed.

NOTE 5. Air Turbine Starter Ground Carts. Limitations on the use of ground bleed air sources used for starting the CJ805-3 engines have been established and are noted under the recommendation section on Page 13 of Convair Report ZK-22004. "Failure Analysis of the Model 22 Engine Starting System.

NOTE 6. (a) The G.E. CJ805-3A engine is a modified -3 engine and is eligible in Model 22-1 and -2 versions when Convair Service Bulletin 71-5 dated September 12, 1961, is satisfactorily accomplished. Supplement C to the FAA Approved Airplane Flight Manuals CS 59-019 and CS 59-061 for the Model 22-1 and 22-2 versions, respectively, is required as part of this installation.

(b) The G.E. CJ805-3A engine may be operated at derated takeoff power in the Model 22 airplane in accordance with the Certificate Limitations and Airplane Performance contained in Supplement D to General Dynamics/Convair Report CS 59-061 or an FAA approved equivalent.

NOTE 7. Phillips anti-icing fuel additive PFA 55MB may be used at a maximum concentration of 0.15% by volume. No fuel system anti-icing credit is allowed.

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