DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A19NM
Revision 1
Hawkins & Powers
C-118A
March 20, 1987

TYPE CERTIFICATE DATA SHEET NO. A19NM

This data sheet which is part of Type Certificate A19NM prescribes the conditions under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder: Hawkins & Powers Aviation, Inc.
P. O. Box 391
Greybull, Wyoming 82426

I. Model Hawkins & Powers Aviation C-118A (Restricted Category) Approved June 12, 1986

Engines

4 Pratt & Whitney R-2800-52W (.45:1 propeller reduction gearing)

Fuel

Aviation Gasoline: Grade 115/145, Alternate fuel grade 100/130. See USAF T.O. 1C-118A-1 for use of alternate fuel.

Engine Limits

Low Blower (7.29:1)

Maximum Wet Power:	5 minutes Fuel grade 115/145 Sea level, 2500 BHP @ 2800 RPM 62.0 in Hg MAP
Maximum Dry Power:	5 minutes Fuel grade 115/145 Sea level, 2300 BHP @ 2800 RPM 63.0 in Hg MAP
Maximum Continuous:	Fuel grade 115/145 Sea level 1900BHP @ 2600 RPM 51.5 in Hg MAP

See T.O. 1C-118A-1 for complete engine power and performance data.
(ADI Fluid shall be a mixture of 50% Methanol Alcohol and 50% water.)

Propellers

4 Hamilton Standard Model 43E60-6895B-8
Maximum Diameter 13’ 5 5/16”
Minimum Diameter 13’ 1 9/16”
No further tolerance permitted

Pitch Settings at 42” sta.:	Reverse	-8 deg.
	Minimum Low	+30 deg.
	Feathered	+96 deg. (appr.)

Propeller Governors

4 Hamilton Standard 5U18-140

Propeller Spinners

4 Hamilton Standard 511784 with Douglas cowling interliners

Airspeed Limits

V_{NO}	(Normal Operating)	246 KIAS (1)
V_{NE}	(Never Exceed)	329 KIAS (2)
V_A	(Maneuvering)	183 KIAS
V_{FE}	(Flaps down 0 to 30)	170 KIAS
V_{FE}	(Flaps down 30 to 50)	150 KIAS
V_{LO}	(Landing gear operation)	170 KIAS
V_{LE}	(Landing gear extended)	170 KIAS

(1) Sea level to 17,000 ft. Above 17,000 ft. reduce speed 5 KIAS per 1000 ft.
(2) Sea level to 12,000 ft. Above 12,000 ft. reduce speed 5 KIAS per 1000 ft.

C.G. Range

Landing gear retraction moment - 220,000 in. lbs. (Moves the C.G. forward)

Gross Wt.	Land Gear Extended (1)		Land Gear Retracted (2)	
Up to and including	Fwd %MAC	Aft %MAC	Fwd %MAC	Aft %MAC
83,200 lbs	-	-	9.0	33.0
85,600 lbs	11.0	33.0	-	-
102,200 lbs	14.1	33.0	-	-
103,000 lbs	14.6	33.0	13.0	33.0
107,000 lbs	16.9	33.0	13.8	33.0

(1) Applies for take-off and landing
(2) Applies for enroute operation
(3) Straight line variation in forward C.G. between weights shown

Maximum Weights

Take-off weight: 107,000 lbs.
Landing Weight: 88,200 lbs.
Zero wing fuel weight: 83,200 lbs.
(All weight in the airplane above this value must be in usable fuel, usable nacelle oil, and ADI fluid.) See NOTE 1

Minimum Crew

Pilot, Co-pilot, Flight Engineer and number of persons essential to perform the special purpose operation.

Passengers

None

Fuel Capacity

5386 Gal. (usable)	Total Each Tank (Ground Attitude)	(Usable Each Tank)	Arm (usable)
2 outer wing tanks (#1 and #4 main)	700.3 gal. ea.	695 gal. ea.	+460.0
2 inboard inner (#2 and #3 main)	722.6 gal. ea.	713 gal. ea.	+450.8
2 outboard inner wing tanks (#1 and #4 alt.)	531.0 gal. ea.	523 gal. ea.	+448.9
2 inner wing fuel tanks (#2 and #3 alt.)	773.7 gal. ea.	762 gal. ea.	+467.9

Oil Capacity (usable)

35 gallons in each nacelle (+349.0) and (+379.0)
26 gallons in wing fillet (+565.0)
50% oil, 50% fuel (6.77 lb/gal.)
All wing fillet oil must be included in airplane empty weight. See NOTE 1

Serial Numbers Eligible

44661 and 44662

Datum

63 inches aft of nose (Station 0)

MAC

163.6 inches, L.E. of MAC (395.2)

Leveling Means	Bracket at Sta. 387.4 (below floor), leveling lugs at Sta. 4 and 19.3 (nose wheel well), and leveling lugs on the left-hand side of cargo compartment Sta. 720.3 and 736.6	
Control Surface Travels	Aileron:	9 7/32" ± 1/2" up from neutral at the inboard end of the aileron. 8 1/4" ± 1/4" down from neutral at the inboard end of the aileron.
	Aileron Tab:	Up 2 11/16" ± 3/32" from neutral Down 2 11/16" ± 3/32" from neutral
	Rudder:	17 5/8" ± 7/16" left or right from points in line on bottom corner of rudder and on tail section.
	Rudder Tab:	3 1/4" ± 1/4" to the right and 3 1/6" to the right of points in line on the top corner of the tab and on bottom corner of upper trailing edge of rudder.
	Elevator:	11 9/16" ± 3/8" down from neutral 19" ± 3/8" up from neutral
	Elevator trim tab:	9/16" ± 1/16" up from faired position 1 5/8" ± 1/16" down from faired position See T.O. 1C-118A-2 for complete rigging data.
Maximum Operating Altitude	25,000 ft.	
Certification Basis	Restricted Category, FAR 21.25 (a) (2), (b) (1) (2) (3) and (7), dated December 12, 1985, amendment 21-1 through 21-58.	
Production Basis	None - Prior to original airworthiness certification of each aircraft, a FAA representative must perform an inspection for workmanship, materials, and conformity with the approved technical data, and assure that the applicant has conducted a satisfactory flight test.	
Equipment	The basic required equipment as prescribed in the applicable Airworthiness Regulations (See Certification Basis), must be installed in the aircraft for certification. In addition, a FAA approved Airplane Flight Manual Supplement is required in addition to operating limitations specified in Section V of USAF T.O. 1C-118A-1.	

NOTE 1

A. Current weight and balance report and loading instructions for Hawkins & Powers C-118A aircraft must agree with Section V of USAF T.O. 1C-118A-1 and USAF T.O. 1-1B-40 through Change 6 with Hawkins & Powers Amendment No. 1.

(1) Fuel dump valves must be installed for operation of the airplane at weights in excess of the maximum landing weight. Refer to T.O. 1C-118A-1 for dumping limitations, cautionary measures and for the amount of fuel remaining after dumping.

B. All system and unusable fuel and oil, all wing fillet oil, and hydraulic fluid must be included in the airplane empty weight.

System Fuel	56.2 gal.	337 lb.	(466.0)
System Oil	55.0 gal.	413 lb.	(326.0)
Wing Fillet System Oil	3.1 gal.	21 lb.	(472.0)
Hydraulic Fluid			
Skydrol		138 lb	(340.5)
Mineral Oil		111 lb.	(340.5)

NOTE 2

A. This approval applies to USAF (McDonnell Douglas) C-118A aircraft with modification as described in data per Hawkins & Powers Aviation, Inc. FAA approved Drawing List HPA-118-DL1 dated April 9, 1986, or later FAA approved revision thereto.

B. Airplane certified for the special purpose of mineral exploration, agriculture, forest and wildlife conservation and carriage of cargo.
   (1) Operation over densely populated areas is prohibited.
   (2) In addition to the operating limitations in this data sheet, area, economic, passenger and other appropriate operating limitations in accordance with FAR 21.25 shall be shown on placards or listing accessible to the pilot.

   (3) The following placard must be displayed in front of and in clear view of the pilot:
   "This airplane must be operated as a restricted category airplane in compliance with the operating limitations stated in the form of placards, markings, and manuals."

   (4) Carriage of Hazardous Materials is prohibited unless compliance is shown with the applicable regulations in the Code of Federal Regulation 49, Part 175.

C. FAA Airworthiness Directives for all McDonnell Douglas DC-6 and C-118 Series aircraft and Pratt & Whitney Engines (R-2800-52W) Series must be reviewed for applicability and complied with accordingly.

NOTE 3

The aircraft must be serviced and maintained in accordance with USAF Technical Order 1C-118A-2.

NOTE 4

All cargo loading must be secured with tie downs provided since there are no retaining net or crash bulkhead provisions.

NOTE 5

The military autopilot may not meet the criteria of the Civil Air Regulations and autopilot limitations in the military flight manual are not acceptable for civil use. The autopilot must be removed or suitably disabled and placarded inoperative.

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