FEDERAL AVIATION AGENCY

A1GL
KAL-AERO
(Douglas)
AD-4N

February 1, 1978

TYPE CERTIFICATE DATA SHEET NO. A1GL

This data sheet which is a part of type certificate No. A1GL prescribes conditions and limitations under which the product was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder — Kal-Aero, Inc.
5605 Portage Road
Kalamazoo, Michigan 49002

I. Douglas Model AD-4N (Restricted Category) approved January 13, 1978

Engine — Wright Cyclone R3350-26WA

Fuel* — 115/145 Minimum grade aviation gasoline

Engine limits*

Low Impeller Ratio	HP	RPM	MP in HG	ALT. FT.
Takeoff (five min.)	2700	2900	56.0	sea level
Maximum continuous	2300	2600	48.0	sea level
Maximum continuous	2300	2600	46.5	6000
High Impeller Ratio				
Takeoff (five min.)	2100	2900	52.0	12,000 ft.
Takeoff (five min.)	2100	2900	51.5	14,000 ft.
Maximum continuous	1900	2600	47.5	14,000 ft.
Maximum continuous	1900	2600	46.5	16,000 ft.

Straight line variation between points given.

*Fuel grade 100/130 is also available at lower power ratings and limitations. Refer to Military Pilot's Handbook No. AN 01-40ALD-1 for operation with 100/130 grade fuel.

Propeller and Propeller Limits — Aeroproducts, constant speed, four-bladed propeller with one of the following blade and hub assemblies.

Hub Model No.	Blade No.
A642-G8	M20A-162-0
A642-G8-1	M20A2-162-0
A642-G802	
A642-G803	
A642-G804	
A642-G805	

Pitch settings at the 42 in. station:

Low	27.5 degrees
High	67.5 degrees

Diameter

Maximum	162 1/8 in.
Minimum	161 3/4 in.

Airspeed limits	Vne (never exceed) 350 KIAS Target System Limits: Maximum speed - "In & Locked Position" - 130 KIAS Maximum speed - To initiate reel out - 110 KIAS Maximum speed - During reel out - 125 KIAS Maximum speed - Reel in - 100 KIAS Maximum speed - Target full out - 350 KIAS
C.G. range	125 in. fwd. to 140 in. aft Retraction of landing gear, MOMENT = + 197,000 in. lbs. For additional loading data see Chart E of Military Weight and Balance Handbook AN 01-1B-40
Datum	Vertical centerline of propeller hub
Leveling means	Plum bob, slotted bracket and two calibrated plates in the cockpit
Maximum weight	takeoff 25,000 lbs. landing 21,000 lbs.
No. of seats	3 (1 at +123.0 and 2 at +235.0)

Fuel capacity

Main fuselage tank	380 gal.	2280 lbs.	(+159.6)
Right hand external auxiliary	150 gal.	900 lbs.	(+132.8)
or	300 gal.	1800 lbs.	(+132.8)
Left hand external auxiliary	150 gal.	900 lbs.	(+132.8)
or	300 gal.	1800 lbs.	(+132.8)

Right and left external auxiliary tanks must be used in pairs

Oil capacity	36 gal. (+86.7)

Control surface movements

Wing flaps		Down 40° ± 2°
Aileron tab	Up 15° + 2°/-1°	Down 15° + 2°/-1°
Aileron	Up 17° ± 1/2°	Down 13° ± 1/2°
Elevator	Up 25° ± 1/2°	Down 15° ± 1/2°
Rudder tab	Up 10° ± 1°	Down 10° ± 1°
Rudder	Up 25° ± 1/2°	Down 25° ± 1/2°
Horizontal Stabilizer	Up 6° ± 1/8°	Down 4° ± 1/8°

Other Operating Limitations	Military Pilot's Handbook No. AN-01-40ALD-1 dated February 15, 1954, as revised through Interim Revision No. 2 dated May 14, 1956. In addition, FAA Approved Airplane Flight Manual Supplement dated January 13, 1978, is required for operation with ARES target tow system.
Serial Nos. eligible	All USN serial nos.
Certification basis	FAR 21.25(a)(2) Application for Type Certificate dated October 21, 1977. Type Certificate No. A1GL issued January 13, 1978, for the special purpose of aerial target towing.
Production basis	None (See NOTE 4)
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, equipment necessary for the special purpose must be installed.

NOTE 1. Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions when necessary, must be in each aircraft at the time of original airworthiness certification and at all times thereafter.

NOTE 2. The following placards must be prominently displayed in the cockpit in full view of the pilot:
Airspeed Limits:
Vne (Never exceed) - 350 KIAS

Target System Limits:

Maximum speed - "In and Locked Position"	- 130 KIAS
Maximum speed - To initiate reel out	- 110 KIAS
Maximum speed - During reel out	- 125 KIAS
Maximum speed - Reel in	- 100 KIAS
Maximum speed - Target full out	- 350 KIAS

"This airplane must be operated in accordance with the Military Pilot's Handbook AN- 01-40ALD-1, FAA Approved Flight Manual Supplement and the restricted category operating limitations of FAR 91.39."

NOTE 3. Prior to civil airworthiness certification, the following must be accomplished:

(a) Modification in accordance with the following drawings
1) Prototype Development Associates Drawing No. LCRM-5
2) Kal-Aero Drawing No. KA1
3) Kal-Aero Drawing No. KA2
4) Kal-Aero Drawing No. KA3

(b) The provisions of the following Douglas Aircraft Service Changes:
AD576, AD586, AD593, AD595, AD631, AD666, AD686, AD688A

(c) The provision of the following Douglas Aircraft Service Bulletins:
AD425, AD497, AD499

NOTE 4. Prior to original certification of each aircraft, an FAA representative must inspect the condition of the aircraft and its historical records, as well as determining conformity with approved technical data. A check of flight characteristics should also be performed.

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