DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A31NM
Revision 3
International Air Response.(IAR)
C-130A
September 7, 2021

TYPE CERTIFICATE DATA SHEET NO. A31NM

This data sheet which is a part of Type Certificate No. A31NM prescribes the conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder	International Air Response (IAR) 6250 South Taxiway Circle Mesa, Arizona 85212 Rogers Helicopters, Inc. 5508 East Aircorp Way Fresno, California 93727 transferred to International Air Response on September 7, 2021 Heavy Lift Helicopters Inc. 19378 Central Road Apple Valley, CA 92307 transferred to Rogers Helicopters, Inc., on September 2, 2021
Type Certificate Holder Record:	Hemet Valley Flying Service transferred TC A31NM to Heavy Lift Helicopters Inc. on August 6, 2002

I. Model C-130A (Restricted Category) Approved January 31, 1990

Engines	4 - Allison turboprop T-56-A9 or T-56-A9C series
Fuel	Commercial aviation turbine fuels conforming to ASTM Specification No. D 1655-59T, types Jet B, Jet A-1, Jet A, or commercial equivalents of MIL-T-5624, grade JP-4 or JP-5
Lubricating Oil	Synthetic oil conforming to Allison Specification EMS-35 or MIL-L-7808
Engine Limits	Static, Standard Day, Sea Level:

	Turbine Inlet Temperature	Torque	Oil Temp
Takeoff (5 minutes)	977°C	19,400 in lb.	100°C Max
Maximum Continuous	927°C	16,100 in lb.	85°C Max

Propeller and Propeller Limits

4 - Hamilton Standard hydromatic propellers
Hub 54H60-91
Diameter 13 ft 6 in.
2% reduction allowable for repair

Constant speed propeller, full feathering and reverse pitch

Single rotation, four blade assembly with governing speed setting 1020 rpm (13820 erpm)

Propeller assembly is complete with spinner, feathering and reversing provision, constant speed control, negative torque control, synchrophaser, and electrical ice control.

Blade Angles

Feather	92.5° ± .20° (a) (b)
Low-pitch stop (min. flt idle)	23.3° ± .50° (a)
Ground idle, beta	4.0° ± 5.5° (c)
Reverse	-7.0° ± 1.0° (b) (d)

	(a) Propeller blade angles are measured at the blade 42.875 inch station with the propeller on a test post under conditions established by the applicable Hamilton Standard Maintenance Manual. (b) Propeller blade angles are indicated on the back-up valve housing under conditions established in the USAF T.O. 1C-130A-2-11 and USAF T.O. 3-1-1. (c) 5.0° to 6.0° with valve housing P/N 714325-2 or later installed (d) -5.5° to -7.5° with valve housing P/N 714325-2 or later installed
Propeller Oil	MIL-H-5606B
Airspeed Limits (knots IAS)	V_{MO} (Maximum operating) — See T.O. 1C-130A-1 V_A (Maneuvering) — Section 5, page 5-15 V_B (Turbulent air penetration) — 65 knots above power off stall speed but not to exceed 180 knots IAS. Fig 6-1, T.O. 1C-130A-1 shows stall speeds measured as a function of gross weight. V_{FE} (Takeoff & Approach 50%) — 180 knots V_{FE} (Landing, 100%) — 145 knots V_{LO} (Landing gear operation) — 170 knots V_{LE} (Landing gear extended) — 170 knots V_{LL} Landing light extended) — 170 knots
Heated Windshield Limitations	If electric windshield heat is operative, it must be used for all flight operations. Operation without windshield heat on any or all portions of the windshield is permissible provided (1) the airplane is not flown in known icing conditions and (2) the maximum speed limit below 10,000 ft is 187 KCAS.
C.G. Range	See Fig. 5-6, USAF T.O. 1C-130A-1
Datum	Fuselage Station 94.0 W.L. 142.98, BL 0 (NAS 221 screw head on bottom of forward fuselage, 71.0” forward of centerline of nose gear strut).
MAC	164.5”, leading edge F.S. 487.4
Maximum Takeoff	124,200 lbs.
Maximum Landing Wt.	96,000 lbs. up to 124,200 lbs. See page 5-20 of T.O. 1C-130A-1.
Maximum Zero Fuel Wt.	97,000 lbs.
Leveling Means	Provisions for leveling by plumb line are installed in the cargo compartment on the leftside of approximately F.S. 637. A plumb line support bracket is located on the fuselage side panel at approximately W.L. 252, BL 64L, and a leveling plate is located on the top of the cargo door curb at approximately W.L.150, BL 64L.
Minimum Crew	3 - Pilot, Co-Pilot, and Flight Engineer
Passengers	None, limited to the flight crew and number of persons essential to operations.
Fuel Capacity	See page 1-49 of T.O. 1C-130A-1 for fuel capacity and usable fuel. See NOTE 2 for unusable fuel.
Oil Capacity	Four nacelle tanks (ARM 442.0). Capacity for each tank: 8 gallons usable, 12 gallons total. See NOTE 2 for system oil.
Cargo Capacity	See USAF T.O. 1C-130A-1 Section 5
Maximum Operating Altitude	40,000 ft.

Control Surface Movements

(See USAF T.O. 1C-130A-2-9)

Aileron	Up	25°	Down	15°
Trim tab	Up	20°	Down	20°
Elevator	Up	40°	Down	15°
Trim tab	Up	6°	Down	25°
Rudder	Left	35°	Right	35°
Trim tab	Left	25°	Right	25°
Wing Flap	Down	36°	(100%)	

Serial Numbers Eligible

Surplus military C-130A airplanes that have been found to comply with the requirements of this data sheet.

Certification Basis

The certification basis is FAR 21.25 (a) (2)

Production Basis

None - Prior to original certification of each aircraft, an FAA representative must perform an inspection for workmanship, materials, and conformity with the approved technical data. All applicable Technical Orders affecting airworthiness must be accomplished.

Equipment

The basic required equipment as prescribed in the applicable Airworthiness Regulations (see Certification Basis), must be installed in the aircraft for certification.

NOTE 1

This approval applies to:

A. Basic United States Air Force C-130A airplane with no major modifications except, as required by Hemet Valley Flying Service Drawing List HVFS-130-DL-110 Revision NC, or later FAA approved revisions.

B. Airplane certified for the special purpose of carriage of cargo with the following limitations:

1. 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 listings accessible to the pilot.

2. The following placard is to be installed in clear view of the pilot.
"RESTRICTED CATEGORY"
"This airplane must be operated as a restricted category airplane and in compliance with the operating limitations stated in USAF T.O. 1C-130A-1 section V and in the form of placards markings and manuals."

3. Carriage of hazardous materials is prohibited unless compliance is shown with the applicable regulations in the Code of Federal Regulations 49, Part 175 (see AC 21-17, pg. 2, para. 4a (3)).

NOTE 2

A. Current Weight and Balance Report including list of equipment included in certificated weight empty, and loading instructions when necessary must be in each aircraft at the time of original certification and at all times thereafter.

B. The location of the center of gravity for any gross weight configuration, determined from T.O. 1-1B-40, Handbook of Weight and Balance Data, must fall within the percent of the mean aerodynamic chord (MAC) shown on the Center of Gravity Limitations Chart (figure 5-6). For information and method of calculating the airplane center of gravity, refer to T.O. 1C-130A-9, Cargo Loading Handbook and T.O. 1-1B-40, Handbook of Weight and Balance Data.

C. The weight of the system fuel and oil as defined below, and hydraulic fluid, must be included in the airplane empty weight.

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 level flight attitude.
Unusable (includes drainable and trapped fuel):

Tank	Lbs.*	Arm
1	65	555.3
2	65	565.4
3	65	565.4
4	565.4	565.4
Left Aux.	0	
Right Aux.	0	
Trapped or line fuel	149	563.5

*This column includes 41 lbs. of fuel (trapped in lines) distributed to each tank at 5 lbs. per tank.

System Oil: The weight of oil remaining in the engine, lines, and tanks after subtracting the usable oil from the total capacity.
Total: 221 lbs., Arm 442.0.

D. Fuel Loading and Usage
1. Fuel must be loaded and used to provide compliance with the "Fuel Unbalance" limitation contained in USAF T.O. 1C-130A-1. Refer to USAF T.O. 1C-130A-1 for normal fuel management procedures.
2. Phillips fuel additive PFA-55MB may be used in concentrations not to exceed 0.15 percent by volume. No fuel system anti-icing credit is allowed.

NOTE 3 Latest revisions of the following documents are required:

A. USAF T.O. 1C-130A-1, Change 2, dated March 22, 1981, and USAF T.O. 1C-130A-1-1 must be available in the C-130A aircraft for all flight operations.
B. USAF T.O. 1C-130A-9, "Cargo Loading Handbook," and Supplement No. 1 dated April 28, 1967, must be used to load and restrain cargo.
C. USAF T.O. 1-1B-40, "Handbook of Weight and Balance Data".

NOTE 4 The aircraft must be serviced and maintained in accordance with USAF T.O. 1C-130A-2-1 through 1C-130A-2-13.

FAA airworthiness directives for all Lockheed L-382 series aircraft and Hamilton Standard 54H60 series propellers must be reviewed for applicability and complied with accordingly. Compliance with applicable Time Compliance Technical Orders for the aircraft and engines must be shown.

NOTE 5 C-130A aircraft with Aeroproducts propellers are not approved.

NOTE 6 Prior to civil airworthiness certification, Hemet Valley Flying Service must show that the following have been accomplished:
(a) Compliance with all USAF Technical Orders which affect airworthiness.
(b) Inspect all fuel tanks for sealant deterioration and repair as necessary.

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