

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

H7EA
Revision No. 3
Aircrane
(H-37B) CH-37B
(HR2S-1) CH-37C
September 5, 2003

TYPE CERTIFICATE DATA SHEET NO. H7EA

This data sheet which is a part of type certificate no. H7EA prescribes 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: Aircrane Inc.
1420 Phoenixville Pike
West Chester, PA. 19380

Type Certificate History: Keystone Helicopter Corporation
1420 Phoenixville Pike.
West Chester, PA. 19380

I - Model CH-37B (H-37B) (Restricted Category), approved 8 March 1972

Engines 2 Pratt and Whitney R-2800-54 (See note 9 regarding eligible spark plugs)

Fuel 115/145 - 100/130 minimum grade AV gas

Engine Limits

	<u>115/145</u>	<u>HP</u>	<u>RPM</u>	<u>MP</u>	<u>ALT</u>
(1) Maximum Continuous	1900	2600	50.5	S.L.	
(2) Maximum Continuous	1900	2600	49.0	4000 ft.	
(3) Takeoff (5 Min.)	2100	2700	57.5	S.L.	
(4) Takeoff (5 Min.)	2100	2700	56.2	2000 ft.	

(Straight line manifold pressure variation with altitudes shown)

	<u>100/130</u>	<u>HP</u>	<u>RPM</u>	<u>MP</u>	<u>ALT</u>
(1) Maximum Continuous	1800	2600	48.0	S.L.	
(2) Maximum Continuous	1800	2600	45.6	6000 ft.	
(3) Takeoff (5 Min.)	1950	2600	54.5	S.L.	
(4) Takeoff (5 Min.)	1950	2600	53.0	2000 ft.	

(Straight line manifold pressure variation with altitudes shown)

Rotor Limits Maximum 215 r.p.m.
Minimum 164 r.p.m.

Airspeed Limit Vne (Never exceed) 120 knot IAS

C.G. Range (+228.0) to (+245.1)

Maximum Weight 31,000 lb

Minimum Crew 2 (pilot, co-pilot)

Page No.	1	2	3	4	5	6
Rev No.	3	3	3	3	3	3

Fuel Capacity	Left Main 201 gal. total (199 gal. usable)
	Right Main 201 gal. total (199 gal. usable)
	(1) Auxiliary 150 gal. total ea. (148 gal. usable)
	(2) Auxiliary 300 gal. total ea. (297 gal. usable)
	<u>Total Usable Fuel:</u>
	(1) Without Auxiliary Tanks 398 gal.
	(2) With 2 ea. - 150 gal. Aux tanks 694 gal.
	(3) With 2 ea. - 300 gal. Aux tanks 992 gal.
Engine Oil Capacity	60 gal. Total (See note 10 for approved oil)
	30 gal. Right
	30 gal. Left
Rotor Blade and Control Movements	For rigging information, refer to Department of the Army Manual TM55-1520-203-20, "Organizational Maintenance Manual, CH-37B Helicopter", including changes Nos. 1 through 11, dated July 1965.
Other Operating Limitations	Department of the Army TM55-1520-203-10 "Operator's Manual Model CH-37B Helicopter" dated June, 1965, with Changes 1 through 4.
	Flight hours are counted from takeoff to landing.
	The helicopters approved under this type certificate are done so under the concept of limited exposure associated with escape from inadvertent ice encounters, and are prohibited against flight into known icing. The helicopters must be re-evaluated if certification to the General Ice Protection Airworthiness Regulations is requested.
Serial Nos. Eligible	CH-37B (H-37B) Serial Nos 54-0994, 54-0996, 54-0997, 54-0998, 54-9999, 54-1000, 55-0616, 55-0623, 55-0636, 55-0641, 55-0647, 55-0650, 57-1646, 57-1651, 57-1652, 57-1653, 57-1657, 57-1658, 57-1659, 57-1660, 58-0983, 58-0984, 58-0985, 58-0987, 58-0989, 58-0990, 58-0991, 58-0992, 58-0999, 58-1000, 58-1002, 58-1004

II - Model CH-37C (HR2S-1) (Restricted Category), approved 8 March 1972

Engines	2 Pratt and Whitney R-2800-54 (See note 9 regarding eligible spark plugs)				
Fuel	115/145 - 100/130 minimum grade AV gas				
Engine Limits	<u>115/145</u>	<u>HP</u>	<u>RPM</u>	<u>MP</u>	<u>ALT</u>
	(1) Maximum Continuous	1725	2600	46.0	S.L.
	(2) Maximum Continuous	1725	2600	43.0	8000 ft.
	(3) Takeoff (5 Min.)	2100	2700	57.5	S.L.
	(4) Takeoff (5 Min.)	2100	2700	56.2	2000 ft.
	(Straight line manifold pressure variation with altitudes shown)				
	<u>100/130</u>	<u>HP</u>	<u>RPM</u>	<u>MP</u>	<u>ALT</u>
	(1) Maximum Continuous	1725	2600	46.0	S.L.
	(2) Maximum Continuous	1725	2600	43.0	8000 ft.
	(3) Takeoff (5 Min.)	1950	2600	54.5	S.L.
	(4) Takeoff (5 Min.)	1950	2600	53.0	4000 ft.
	(Straight line manifold pressure variation with altitudes shown)				
Rotor Limits	Maximum 215 r.p.m.				
	Minimum 164 r.p.m.				
Airspeed Limits	Vne (Never exceed) 80 knots IAS (14°, 21.5 inch chord blades)				
	Vne (Never exceed) 120 knots IAS (8°, 23.65 inch chord blades)				

C.G. Range	(+228.0) to (+245.1)
Maximum Weight	31,000 lb.
Minimum Crew	2 (pilot, co-pilot)
Fuel Capacity	<p>Left Main 203 gal. total (198 gal. usable)</p> <p>Right Main 203 gal. total (198 gal. usable)</p> <p>(1) Auxiliary 150 gal. total ea. (144 gal. usable)</p> <p>(2) Auxiliary 300 gal. total ea. (292 gal. usable)</p> <p><u>Total Usable Fuel:</u></p> <p>(1) Without Auxiliary Tanks 396 gal.</p> <p>(2) With 2 ea. - 150 gal. Aux tanks 684 gal.</p> <p>(3) With 2 ea. - 300 gal. Aux tanks 980 gal.</p>
Engine Oil Capacity	<p>Total volume each engine 20 gal. (See note 10 for approved oils)</p> <p>Fill each engine 13.3 gal.</p> <p>For extended flights fill each engine 17 gal.</p> <p>(See table (4) NAVWEPS 01-230-HKA-2-1)</p>
Rotor Blade and Control Movements	<p>For rigging information, refer to NAVWEPS 01-230HKA-22</p> <p>"Handbook Maintenance Instructions Navy Model HR2S-1 Helicopter" dated 1 November 1960. Rev. 15 February 1972</p>
Other Operating Limitations	<p>U.S. Navy NAVWEPS 01-230HKA-1 "Flight Handbook Navy Model HR2S-1 Helicopter" dated 15 March 1961.</p> <p>Flight hours are counted from takeoff to landing.</p> <p>The helicopters approved under this type certificate are done so under the concept of limited exposure associated with escape from inadvertent ice encounters, and are prohibited against flight into known icing. The helicopters must be re-evaluated if certification to the General Ice Protection Airworthiness Regulations is requested.</p>
Serial Nos. Eligible	CH-37C (HR2S-1) Serial Nos 141605, 141607, 141610, 141614, 145857, 145860, 145861, 145869, 145870, 145872, 145873, 145875..
<u>Data Pertinent to Both Models</u>	
Datum	Station 0
Leveling Means	Plum line from intercostal inside cabin, AFT of cargo door
Certification Basis:	<p>Federal Aviation Regulations FAR 21.25(a)(2) dated February 1, 1965 including Amendments 21-1 through 21-36, effective February 1, 1965. Type Certificate No. H7EA issued March 8, 1972 for special purpose of:</p> <p>(1) External Cargo Operations under FAR 21.25(b)(7).</p> <p>Note: In accordance with FAR 36.1(a)(4), compliance with the noise requirements was not shown. Therefore aircraft certified under this type certificate are only eligible for external load operations excepted by FAR 36.1(a)(4) and defined under FAR 137.</p> <p>Any alteration to the helicopter for Special Purpose not identified above require further FAA approval and in addition may require noise and/or flight testing.</p>

General Note: Any subsequent modifications to the helicopters type certified under this Type Certificate are to have the certification basis for that modification established under 14 CFR 21.101 published June 7, 2000 which became effective June 10, 2003. Otherwise non-significant modifications are to meet the requirements of Civil Aeronautics Manual (CAM) 7, Amendment 7, dated May 3, 1962 and 14 CFR 29.1529, Instructions for Continued Airworthiness, Amendment 20, effective September 11, 1980.

Date of application:

April 1, 1971.

Production Basis

None. No helicopter may be produced under this approval.(See Note 4). Prior to adding serial numbers to this Type Certificate, each candidate helicopter must undergo a conformity inspection. The conformity inspection will be conducted in accordance with a Type Inspection Authorization, Part 1, or request for conformity that will include as a minimum the inspections contained in the FAA Rotorcraft Directorate Restricted Category conformity document dated September 25, 2001.

Equipment

The basic equipment as prescribed in the applicable airworthiness regulations (see certification basis) must be installed in or on each helicopter for certification.

NOTE 1. A current weight and balance report containing a list of the equipment included in the certificated empty weight, and loading instructions when necessary, must be in each helicopter at the time of original airworthiness certification and at all times thereafter. Refer to Department of the Army Technical Manual TM55-1520-203-10 "Operators Manual, Army Model CH-37B Helicopter" dated June 1965, including Changes 1 through 4 and to NAVWEPS 01-230HKA-1 "Flight Handbook, Navy Model CH-37C (HR2S-1)".

NOTE 2. The following placard must be prominently displayed in the cockpit in full view of the pilots:
"This rotorcraft must be operated in accordance with the restricted category operating limitations of FAR 91.39."

NOTE 3. Service life limited parts must be retired in accordance with the replacement schedule shown in Army Manual TM55-1520-203-20 for the Army Model CH-37B (H-37B) and Navy Handbook NAVWEPS 01-230-HKA-7 for the Navy Model CH-37C (HR2S-1). Inserted in the above will be additional replacement times entitled "Sikorsky Aircraft Engineering Recommended and Customer Approved Component Overhaul Intervals and Replacement Times". The Army Approved Times, consisting of Part I (Rev. J dated 1/31/64), six pages, are applicable to the Army CH-37B (H-37B) and the Navy Approved Times, consisting of Part II (Rev. J dated 1/31/64), five pages, are applicable to the Navy CH-37C (HR2S-1).

NOTE 4: In addition to the standard helicopter requirements, the following additional data and/or helicopter configuration requirements must be met for each individual Aircrane Inc., helicopter upon application for an original Special Airworthiness Certificate.

- (a) A completed Application for Airworthiness Certificate, FAA Form 8130-6 that has correctly identified the type certificate holder's helicopter and its intended special purpose(s).
- (b) Written confirmation from the certifying office that the affected serial number has been added to Aircrane Inc., Type Certificate.
- (c) The application for airworthiness certification and the helicopter's registration certification match the information on Aircrane, Inc. data plate.
- (d) The condition and limitations specified in Aircrane Inc. Type Certificate Data Sheet H7EA dated September 5, 2003, or later FAA approved revisions are met.
- (e) Each helicopter must be inspected by FAA representatives or authorized designees to determine the following:
 - (1) Conformance to the requirements of this Type Certificate Data Sheet.
 - (2) In a condition of safe operation.
- (a) The maintenance, overhaul and modification records of each helicopter must be reviewed for changes made by the military that may affect the airworthiness of the aircraft. Modifications and changes of equipment, which affect the safety or performance of the helicopter must be approved by FAA.

NOTE 5. The CH-37B (H-37B) Helicopter must be serviced and maintained in compliance with the following Department of Army Technical Manuals:

TM55-1520-203PMD Preventive Maintenance Daily Inspection Checklist, dated 23 July 1968.
 TM55-1520-203PMI Preventive Maintenance Intermediate Inspection Checklist, dated 22 July 1968,
 Changes 1 and 2.
 TM55-1520-203PMP Preventive Maintenance Periodic Inspection Checklist, dated 23 July 1968,
 Changes 1, 2, and 3.
 TM55-1520-203-20 Organizational Maintenance Manual, dated July 1965, with changes 1 through 11.
 TM55-1520-203-20P Organizational Maintenance, Repair Parts & Special Tools List, dated July 1969.
 TM55-1520-203-35 DS, GS, and Depot Maintenance Manual, dated July 1965 with changes 1 through 6.
 TM55-1520-203-35P-1, -2, DS, GS, and Depot Maintenance, Repair Parts & Special Tools, dated July 1969.
 TM55-1520-203-35-P-3 DS, GS, and Depot Maintenance, Repair Parts & Special Tools List, dated July 1969.

NOTE 6. The CH-37C helicopter must be serviced and maintained in compliance with the following Department of the Navy Technical Manuals:

NAVWEPS 01-230HKA-2-1	General Information	2/15/62
NAVWEPS 01-230HKA-2-2	Airframe Group	2/15/62
NAVWEPS 01-230HKA-2-3	Power Plant Systems	2/15/62
NAVWEPS 01-230HKA-2-4	Transmission System	2/15/62
NAVWEPS 01-230HKA-2-5	Rotor Activating Mechanisms	2/15/62
NAVWEPS 01-230HKA-2-6	Hydraulic & Pneumatic Systems	2/15/62
NAVWEPS 01-230HKA-2-7	Utility Systems	2/15/62
NAVWEPS 01-230HKA-2-8	Instruments	1/10/61
NAVWEPS 01-230HKA-2-9	Stabilization Equipment	2/15/62
NAVWEPS 01-230HKA-2-12	Electrical Systems	2/15/62
NAVWEPS 01-230HKA-2-13	Wiring Data	2/15/62
NAVWEPS 01-230HKA-3	Structural Repair	1/5/61
NAVWEPS 01-230HKA-4	Illustrated Parts Breakdown	2/15/62
NAVWEPS 01-230HKA-6	Daily and Preflight Inspections	3/1/63
NAVWEPS 01-230HKA-7	Intermediate and Major Inspections	3/15/66

NOTE 7 Modification to these rotorcraft or special equipment will be necessary. Reference FAR 21.25 (a) (2) prior to civil airworthiness certification for special purpose of carriage of external loads and for any other FAA approved special purpose operation.

NOTE 8. Prior to civil airworthiness certification, compliance with the following must be accomplished:

(A) CH-37B (H-37B) Models

<u>Technical Bulletins (TB)</u>	<u>Modification Work Orders (MWO)</u>
TB55-1520-203-10/1	MWO55-1520-203-34/4
TB55-1520-203-10/2	MWO55-1520-203-34/5
TB55-1520-203-20/1	MWO55-1520-203-34/6
TB55-1520-203-20/2	MWO55-1520-203-34/7
TB55-1520-203-20/3	MWO55-1520-203-34/11
TB55-1520-203-30/1	MWO55-1520-203-34/12
TB55-1520-203-30/2	MWO55-1520-203-34/14
TB55-1520-203-34/1	MWO55-1520-203-34/16
TB55-1520-203-34/2	MWO55-1520-203-40/3
TB55-1520-203-34/3	MWO55-1680-200-20/1
TB55-1520-203-40/1	MWO55-2925-200-30/1
TB55-1615-251-30/1	

(B) CH-37C (HR2S-1) Models

- (1) BUWEPS Airframe Bulletins Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.
- (2) BUAER Aircraft Service Changes Nos. 8, 9, 10, 12, 13, 14, 18, 19, 20, 21B, 22, 23, 26, 29, 33, 35, 35B, 36, 39, 40, 41, 41A, 41B, 41C, 43, 44B, 45A, 46, 46A, 48, 49, 49A, 51, 54, 57, 58, 59, 60, 60A, 60B, & 61.

(C) CH-37B (H-37B) and CH-37C (HR2S-1) Models

- (1) Engine Bulletins (R-2800-54) - Navy Nos. 534, 560, 579, 596, 605, 605 AM-1, 614 AM-1, & 615
- (2) Pratt and Whitney Bulletins Nos. 1278 Rev B, 1301 Rev D, 1490 Rev B, 1524 Rev B, 1567 Rev B, and Suppl. 1, 1625, 1732 Rev A.

NOTE 9: Optional Airplane Inc. Technical Bulletin A, B, C, and D may be incorporated on either the CH-37B or CH-37C Helicopter.

NOTE 10: For eligible spark plugs refer to Pratt and Whitney Service Bulletin No. 1175 Revision F or Subsequent.

NOTE 11: For approved oils refer to Pratt and Whitney Service Bulletin No. 1183 Revision E or Subsequent.

NOTE 12: This helicopter is prohibited from carrying cargo for compensation or hire. Carriage of cargo is limited to such cargo that is incidental to the helicopter owners/operator's business, which is other than air transportation.

NOTE 13: A restricted category helicopter may not be operated in a foreign country without the express written approval of that country.

NOTE 14: This helicopter has not been shown to meet the requirements of the applicable comprehensive and detailed Airworthiness Code as provided by Annex 8, to the Convention of the International Civil Aviation Organization.

NOTE 15: Helicopters that do not have documentation showing they were surplus from an Armed Force of the United States are not eligible for certification under this type certificate. Engines and appliances that do not have documentation showing they were surplus from an Armed Force of the United States are not eligible for installation on a helicopter under this type certificate. Helicopter(s), engine(s), and appliances that have records indicating time-in-service by a foreign military or a foreign government will be presumed to be ineligible for certification or installation under this type certificate. This presumption may be overcome by the applicant substantiating to the satisfaction of the FAA through documentation, tests, computations, evaluations, analysis or other means or methods that the helicopter, engines or appliance during its time-in-service by the foreign military or foreign government, was maintained to an extent and in a manner equal to that of an Armed Forces of the United States.

NOTE 16: No person may be carried in this helicopter during flight unless that person is essential to the purpose of flight.

NOTE 17: Any alteration to the type design of this aircraft may require Instructions for Continued Airworthiness. If so, these instructions must be submitted and accepted by the FAA Fort Worth Aircraft Evaluation Group (FTW-AEG), prior to approval for return to service.

NOTE 18: Carriage of hazardous materials is prohibited unless compliance is shown with applicable regulations in Code of Federal Regulations Title 49, Part 175.

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