DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6H1
Revision 12
SIAM HILLER
UH-12
UH-12A
(Navy THE-1,
Army H-23A)
October 28, 2014

TYPE CERTIFICATE DATA SHEET NO. 6H1

This data sheet which is a part of type certificate No. 6H1 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:	Siam Hiller Holdings, Inc. 925 M. Street Firebaugh, California 93622-2234
Type Certification Ownership Record:	Hiller Aircraft Corporation transferred to Fairchild Industries, Inc. on 10/2/1959
	Fairchild Industries, Inc. transferred to Heli-Parts, Inc. on 12/28/1972
	Heli-Parts, Inc. transferred to Hiller Aviation on 12/28/1972
	Hiller Aviation transferred to Rogerson Aircraft Corporation on 6/26/1984
	Rogerson Aircraft Corporation transferred to Hiller Helicopters, a wholly owned subsidiary of Rogerson Aircraft Corporation on 6/29/1984
	Hiller Helicopters, a wholly owned subsidiary of Rogerson Aircraft Corporation transferred to Rogerson Hiller Corporation on 11/14/1985
	Rogerson Hiller Corporation transferred to Siam Hiller Holdings, Inc. on 7/14/1994

I. Model UH-12, 3 POCLSH, Approved October 14, 1948

Engine	Aircooled Motors Franklin 6V4-178-B33
Fuel	80 min. octane aviation gasoline
Engine limits	Maximum rpm 3000 (178 hp)

I Model UH-12, 3 POCLSH, Approved October 14, 1948 (Cont'd)

Rotor limits and engine operating speeds	Power Off (Rotor Tach.) Maximum 350 rpm Minimum 294 rpm	Power On (Engine Tach.) Maximum 3000 rpm Minimum (S.L. to 6000') 2800 rpm Minimum (7500') 2900 rpm Minimum (9000') 3000 rpm
Airspeed limits	Never exceed speed-84 mph (73 knots) True Ind. (at Sea Level) (Reduce speed 2.5 mph for each 1000 ft. of altitude).	
Altitude limits	Avoid slow speed operation between 10 and 325 ft. Above ground surface (See CAA/FAA Approved Flight Manual).	
C.G. range	(81.0) to (85.5)	
Empty weight C.G. range	None	
Maximum weight	2247 lbs. (For increased weight see NOTE under Sect. II for Model UH-12A)	
No. of seats	3 (53)	
Maximum Baggage	None	
Fuel capacity	27 gals. (85) (Usable fuel 23.5 gal.). (See NOTE 1 for data on "System Fuel and Oil")	
Oil capacity	10 quarts (92) (See NOTE 1 for data on "System Fuel and Oil")	
Rotor blade movements	(Tolerances +1/2°)	
Main blades:		
Collective pitch	+10° to -1° (measured at retention plate) (Low setting is determined as the lowest setting which will preclude overspeeding in auto-rotation).	
Teetering	±8°	
Control blades:		
Neutral	9° incidence with wobble plate level.	
Cyclic pitch	+22-1/2° from neutral with main rotor normal to shaft.	
Anti-torque rotor blades:		
Flapping	+20° to -10°	
Collective pitch	+15° to -3°	
Horizontal stabilizer setting	-9° to -19° (-19° is satisfactory for all configurations and is required for certain configurations as noted under the pertinent item of equipment)	
Serial Nos. eligible	103 through 295 except 210	
Required equipment	In addition to the pertinent required basic equipment specified in CAR 6, the following items of equipment must be installed: Items 1(a), 2(a), 3(a), 101(a), 102, 103, 104, 105, 107, 108, 201(a), 202(a), 206, 207, 301, 302, 401.	

II Model UH-12A (Navy HTE-1, Army H-23A), 3 POCLSH, Approved May 8, 1950

(Model UH-12 may be converted to Model UH-12A by the addition of Items 4 and 109. Item 1(b) replaces Item 1(a) and Item 402 replaces Item 401. These changes make the UH-12 identical to the UH-12A and eligible for the UH-12A maximum weight and UH-12A approved equipment)

Engine	Aircooled Motors Franklin 6V4-178-B33 (See Items 130 and 133 for optional engines)
Fuel	80 min. octane aviation gasoline
Engine limits	Maximum rpm 3000 (178 hp)
Rotor Limits and engine operating speeds	Power Off (Rotor Tach.) Maximum 350 rpm Minimum 294 rpm Power On (Engine Tach.) Maximum 3000 rpm Minimum (S.L. to 6000') 2800 rpm Minimum (7500') 2900 rpm Minimum (9000') 3000 rpm
Airspeed limits	Never exceed speed-84 mph (73 knots) True Ind. (at Sea Level) (Reduce speed 2.5 mph for each 1000 ft. of altitude).
Altitude limits	Avoid slow speed operation between 10 and 325 ft. above ground surface (See CAA/FAA Approved Flight Manual).
C.G. range	8 Degree Hub (81.0) to (85.5) 12- 9 Degree Hub (80.1) to (84.6) (See Item 211 for C.G. range with skis installed)
Empty weight C.G. range	None
Maximum weight	2400 lb. (For increased weight see Item 212)
No. of seats	3 (53)
Maximum Baggage	None
Fuel capacity	27 gals. (85) (Usable fuel 23.5 gal.). (See NOTE 1 for data on "System Fuel and Oil").
Oil capacity	10 quarts (92) (See NOTE 1 for "System Fuel and Oil")
Rotor blade movements	(Tolerances +1/2°)
Main blades:	
Collective pitch	+10° to -1° (measured at retention plate) (Low setting is determined as the lowest setting which will preclude overspeeding in auto-rotation).
Teetering	±8°
Control blades:	
Neutral	9° incidence with wobble plate level.
Cyclic pitch	+22-1/2° from neutral with main rotor normal to shaft.

II Model UH-12A (Navy HTE-1, Army H-23A), 3 POCLSH, Approved May 8, 1950 (continued)

Anti-torque rotor blades:

Flapping	+20° to -10°
Collective pitch	+15° to -3°

Horizontal stabilizer setting: -9° to -19° (-19° is satisfactory for all configurations and is required for certain configurations as noted under the pertinent item of equipment)

Serial Nos. eligible: 103 through 295 except 210

Required equipment: In addition to the pertinent required basic equipment specified in CAR 6, the following items of equipment must be installed: Items 1(b), 2(a), 3(a), 4, 101(a), 102, 103, 104, 105, 107, 108, 109, 201(a), 202(a), 206, 207, 301, 302, 304, 402.

Specifications Pertinent to All Models

Datum: 107.25 in. fwd. of tail boom - fuselage upper face

Leveling means: Lugs on brackets on left side at Sta. 66 and Sta. 100

Certification basis: Type Certificate No. 6H1 (CAR 6)

Production basis: Production Certificate No. 423WE, Spare Parts Only

Equipment: Values in inches shown in parenthesis after each item represent horizontal arms to the center of gravity of the item measured to the rear of the datum.

A plus (+) or minus (-) sign preceding the weight of an item indicates the net weight change when that item is installed.

Rotors and Rotor Equipment

1.	2 main rotor blades		
	(a) United Helicopters Dwg. 53000-2	176 lb	(85)
	(b) United Helicopters Dwg. 53001 Each blade must have identification plate No. 53002 installed at the factory to indicate eligibility for installation on Model UH-12A.	176 lb	(85)
	(c) Parsons Dwg. 40-001-5, -4, -3, or -2 with faired leading edge assembly. (These blades may be used as alternate equipment on UH-12A helicopters.)	176 lb	(85)
2.	2 control blades		
	(a) United Helicopters Dwg. 36203	30 lb	(85)
3.	2 tail rotor blades		
	(a) United Helicopters Dwg 55008	9 lb	(327)
	(b) Hiller Dwg. 55064 (Installed per Hiller S.B. 80)	Use actual wt. ch.	
4.	Collective pitch ballast system installed in accordance with United Helicopters Dwg. 30001	+3 lb	(85)
5.	Dual collective pitch control stick installed in accordance with United Helicopters Dwg. 31222	+6 lb	(67)
6.	Collective pitch bungee United Helicopters Dwg. 30002	+1 lb	(65)

Rotors and Rotor Equipment (cont'd)

7.	Cyclic control stick shield in conformance with United Helicopters Dwg. 64040	Use actual wt. ch.
8.	Cyclic floor stick installation with isolation linkage as per Hiller Dwg. No. 33100-5. With this item installed, the horizontal stabilizer setting must be changed to -19°.	Use actual wt. ch.
9.	Modified dual twist-grip throttle installation as per Hiller Dwg. 31259	Use actual wt. ch.
10.	Revised cyclic control trim system incorporating SCHWEIN actuators as per Hiller Dwg. No. 33190	Use actual wt. ch.
11.	12-9° hub installed per Hiller Service Bulletin No. 51A (UH-12A, series 246 through 295). When this item is installed the following changes apply: (a) C.G. of Items 1, 2 and 4 is at (84.2) (b) Rotor blade movements (measured with respect to the mast) (Note - when the mast is vertical the helicopter is 1° nose up) Main Blades: Collective pitch same as Basic UH-12A Teetering Control rotor ±12°; Main rotor ±9° Wobble Plate Lateral ±7.7° to ±8.3° Longitudinal ±8.0° to ±8.5° Control Blades Neutral ±9° incidence (Rotor Hub & Wobble Plate perpendicular to mast) (c) Item 402(c) is required with this installation	Use actual wt. ch.

Engine and Engine Accessories - Fuel and Oil System

101.	Oil cooler		
	(a) Clifford E36793 with thermostatic valve DV8-U3225-V	12 lb.	(78)
	(b) Harrison Radiator Div. #AP-12AU09-01	Use actual wt. ch.	
102.	Carburetor air heater - United Helicopters Dwgs. 76100 and 76110	4 lb.	(96.5)
103.	Auxiliary fuel pump - Weldon 4013A	3 lb.	(78)
104.	Fan - United Helicopters Dwg. 74301	3 lb.	(78)
105.	Carburetor zone support bracket - United Helicopters Dwg. 76104	2 lb.	(97)
106.	Starter - Delco Remy 1109661 or equivalent	18 lb.	(78)
107.	System fuel and oil (See NOTE 1 for definition)	7 lb.	(90)
108.	Unusable fuel (See NOTE 1 for definition)	21 lb.	(85)
109.	Fuel pressure relief valve and pressure switch United Helicopters Dwg. 72200 (When Item 132 is installed, Item 109 is not required)	2 lb	(80)
110.	Long range fuel tank installation United Helicopters Dwg. 72127	Use actual wt. ch.	
111.	Engine cowling installation in accordance with U.H. Dwg. 65000	Use actual wt. ch.	
120.	Carburetor air filter, Vortex G80R (Special), installed per U.H. Dwg. 95000	13 lb	(109)
130.	Engine Aircooled Motors Franklin 6V4-200-C33 (0-335-6) or (YO-335-6) Fuel 91/96 Min. grade aviation gasoline Engine limits For all operations, Maximum rpm 3100 (200 hp)	Use actual wt. ch.	

Rotor limits and engine operating speeds	Power Off (Rotor Tach.)	Power On (Engine Tach.)
	Maximum 360	Maximum 3100 rpm
	Minimum 300	Min (S.L. to 6000') 2900 rpm (Above 6000' increase min. rpm by 25 rpm for each additional 1000' of altitude)

Engine and Engine Accessories - Fuel and Oil System (cont'd)

Approved only for UH-12A, Item 402(d) is required and Item 131 replaces Item 101. Installation to be per all following Hiller Service Bulletins:

(a) No. 33 dated June 25, 1953
(b) No. 28 dated August 5, 1953
(c) No. 35 dated January 5, 1953
(d) No. 37 dated June 25, 1953
(e) No. 18B revised April 30, 1954 (No. 18 and 18A not approved for this installation).

131. Oil Cooler - Harrison 8518115 — Use actual wt. ch.

132. Vane type main fuel pump installation per Hiller Service Bulletin No. 28 — Use actual wt. ch.

133. Engine — Aircooled Motors Franklin 6V-335-B — Use actual wt. ch.
Installed per Hiller Service Bulletin No. 70
Fuel — 91/96 Min. grade aviation gasoline
Engine Limits — For all operations, Maximum rpm 3100 (210 hp)
Rotor Limits and Engine Operating Speeds (Same as 6V4-200-C33 engine) (Approved only for UH-12A, Item 402 (g) is required and Items 131 and 134 replace Items 101 and 102)

134. Engine air intake system per Hiller Service Bulletin No. 74 — Use actual wt. ch.

135. Automatic auxiliary fuel pump system - UH-12A (Item 402(h) required) — 2 lb. (55)

Landing Gear

201. 2 Main wheel-brake assemblies, 5.00-4 Type III — 10 lb. (105.5)
(a) Goodrich Model 451M
Wheel assembly No. D-3-142M
Brake assembly No. D-2-113

202. 2 main wheel tires, 5.00-4, Type III — 10 lb. (105.5)
(a) 4 ply tires with regular tubes — 10 lb. (105.5)
(b) 6 ply tires with regular tubes — 11 lb. (105.5)

206. Nose wheel, 10 in., Type I
(a) Goodrich assembly No. B-3-41 — 3 lb. (32)

207. Nose wheel 6 ply rating tire, 10.00, Type I, Channel Tread with regular tube. — 3 lb. (32)

210. Flotation gear installed in accordance with United Helicopters Dwg. 44000. — +104 lb. (64)
With this equipment installed, Item 4 (collective pitch ballast system) must also be installed and stabilizer setting must be changed to -19°. Reduce never exceed speed to 76 mph (66 knots) True Ind. (Sea Level).
See CAA Approved Flight Manual.

211. Skis
(a) Federal A2000A installed in accordance with Kenting Aviation Limited Dwgs. 501 and 502 — Use actual wt. ch.

Approved only for Model UH-12A. When this item is installed the following changes apply:

(1) C.G. range

	@2400 lbs.	@2270 lbs.
8 degree hub	(81.0) to (82.7)	(81.0) to (85.5)
12-9 degree hub	(80.1) to (81.8)	(80.1) to (84.6)

(Straight line variation between weights shown)

(2) Horizontal stabilizer setting must be at -19°

(3) Item 402(b) is required

212. Skid type landing gear installation per Hiller Service Bulletin No. 47
(a) UH-12A at 2400 lbs. maximum weight. Item 402(e) is required) — Use actual wt. ch.
(b) UH-12A at 2500 lbs. max. weight. (Items 402 (f) and 130 or 133 are required and the horizontal stabilizer must be set at -19°) — Use actual wt. ch.

Electrical Equipment

301.	Generator - Autolite GFU-4105-12V, or equivalent	11 lb.	(88)
302.	Battery - Exide 6-TS-9F, or equivalent (See Loading Instructions in Flight Manual regarding battery location.)	27 lb.	(17) or (125.5)
303.	Lighting system installed in accordance with United Helicopters Dwg. 87000. With this equipment installed, replace placard NOTE 2(d) with placard NOTE 2(1).	Use actual wt. ch.	
304.	Voltage Regulator, Autolite VRS-4010-B, installed with Item 301 only	1 lb.	(66)
305.	Generator - 12V., 25 amp. (Delco - Remy 110/877 modified per United Helicopters Dwg. 83008)	+3.5 lb.	(88)
306.	Voltage Regulator, Delco - Remy 1118317, installed with Item 305 only	+ .5 lb.	(66)
307.	Accessories electrical harness United Helicopters Dwg. 94016-1	+1.0 lb.	(54)
308.	24 volt electrical system as per Hiller Dwg. No. 83017	Use actual wt. ch.	

Interior Equipment

401. United Helicopters Model UH-12 CAA/FAA Approved Flight Manual dated April 19, 1949, revised November 7, 1949.

402. (a) United Helicopters Model UH-12A Approved Flight Manual dated April 26, 1950, revised September 20, 1954 (Required with all configurations)
(b) UH-12A Flight Manual Revisions dated July 7, 1953 (Required with Item 211)
(c) UH-12A Flight Manual Revision dated February 20, 1957 (Required with Item 11)
(d) UH-12A Flight Manual Supplement A dated February 21, 1957 (Required with Item 130)
(e) UH-12A Flight Manual Supplement B dated February 22, 1957 (Required with Item 212(a))
(f) UH-12A Flight Manual Supplement C dated February 25, 1957 (Required with Item 212(b))
(g) UH-12A Flight Manual Revision dated January 23, 1958 (Required with Item 133)
(h) UH-12A Flight Manual Revision dated May 10, 1960 (Required with Item 135)

Miscellaneous (not listed above)

601. Cockpit enclosure canopy, installed in accordance with United Helicopters Dwg. 64030. This converts the helicopter to a 3 PCLH. — Use actual wt. ch.

602. Crop dusting and spraying equipment

(a) Crop dusting equipment, installed in accordance with United Helicopters Dwg. 93000. Items 120, 305, and 306 must also be installed. With dusting equipment installed, reduce never exceed speed to 76 mph True Ind. (Sea Level). Minimum speed while dusting, 15 mph True Ind. For additional operating limitations including requirements for eligibility for sulphur dusting, see CAA Approved Flight manual. — Use actual wt. ch.

(b) Crop spraying equipment, installed in accordance with United Helicopters Dwg. 94000. With this equipment installed, stabilizer setting must be changed to -19°. Never exceed speed is reduced to 76 mph True Ind. (Sea Level). Minimum operating speed while spraying is 15 mph TrueInd. For further operating limitations as a sprayer, see CAA Approved Flight Manual. — Use actual wt. ch.

(c) Aerosol equipment installed in accordance with United Helicopters Dwg. 94500. With this equipment installed, reduce never exceed speed to 76 mph True Ind. (Sea Level); minimum speed while fogging is 15 mph True Ind. For further limitations see CAA Approved Flight Manual. — Use actual wt. ch.

Miscellaneous (not listed above) (Cont'd)

603.	Litter installation in accordance with United Helicopters Dwg. 96100. Decrease never exceed speed to 76 mph True Ind. (Sea Level) Item 4 must also be installed.	Use actual wt. ch.
604.	Cabin heater installation in accordance with United Helicopters Dwg. 88000.	Use actual wt. ch.
605.	Flare installation in accordance with United Helicopters Dwg. 87004. This item must not be installed on helicopters equipped with the flotation gear, Item 210, due to possible interference.	Use actual wt. ch.

NOTES:

NOTE 1. Current weight and balance report including list of equipment included in certificated weight empty, and loading instructions must be in each helicopter at the time of original certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system). Ballast, when necessary, must be carried in accordance with Loading Instructions in the Approved Flight Manual.

Fuel and oil capacities as indicated are total tank capacities over and above "System Fuel and Oil". The fuel tank capacity includes "Unusable" fuel of 3.5 gallons, which cannot be used safely in all flight attitudes, and which must be included in the empty weight.

"System Fuel and Oil", which must be included in the empty weight, is that amount required to fill the fuel system and tank up to the tank outlet to the engine, plus the oil required to fill the oil cooler and lines.

NOTE 2. The following placards must be installed so as to be in full view of the pilot:

(a) "Decrease Vne 2.5 mph per 1000 ft."
(b) "Above 6000 ft. see Operating Limitations."
(c) "This helicopter to be operated in accordance with CAA/FAA Approved operating limitations."
(d) "Night and instrument flight prohibited." (Unless Item 303 is installed.)
(e) "No acrobatic maneuvers approved."
(f) "See loading instructions in Flight Manual."
(g) "Unsymmetrical loading must be to the left."
(h) "Do not stand while rotor is turning."

NOTE 2. (cont)

(i) "Avoid protracted rearward flight."
(j) On top of Battery Box: "Caution, for proper location of battery, see loading instructions, Section IV, Flight Manual."
(k) On floor where Battery goes forward: "Caution, for proper location of battery, see loading instructions, Section IV, Flight Manual."
(l) "Instrument flight prohibited." (Only when Item 303 is installed.)
(m) Above fuel quantity gauge (if auxiliary fuel tank is installed.) "Do not drain auxiliary fuel tank with main tank more than 1/4 full."
(n) On auxiliary fuel tank valve (if auxiliary fuel tank is installed) "Do not drain auxiliary fuel tank with main tank more than 1/4 full."

NOTE 3. Information essential to the proper maintenance of the rotorcraft (helicopter) including retirement times of critical parts is included in the manufacturer's maintenance instructions provided with each rotorcraft.

These values of retirement or service life cannot be increased without CAA/FAA Engineering approval.

NOTE 4. These helicopters must be serviced and maintained in conformance with instructions given by Hiller Helicopters in Items 401 and 402 and the Service and Parts Handbook.

NOTE 5. Certain part numbers used on this model helicopter may be used on other model helicopters in which their use is life limited. These part numbers are listed in TCDS 4H11, H1WE, 4H10, 6H1, and 6H2 and FAA approved Hiller Instructions for Continued Airworthiness. If a full and complete service history from manufacture forward is not available that demonstrates these parts were used only on a model helicopter for which the part is not life limited then those parts shall be life limited to the lowest number of hours given in those TCDS's or ICAs. If a full and complete service history from the manufacturer forward is available, and any operating time has occurred in a life limited model helicopter, that part shall be considered life limited at the lowest life limit listed even if transferred and used on a helicopter model for which it is not life limited. Only those parts for which a full and complete service history from manufacture forward is available and which shows only operating time on a helicopter model for which it is not life limited are considered not life limited.

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