DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

H2WE
REVISION 9
FH-1100 Manufacturing Corp
1100(OH-5A)
FH-1100
November 6, 2006

TYPE CERTIFICATE DATA SHEET NO. H2WE

This data sheet which is part of Type Certificate No. H2WE prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Civil Air Regulation.

Type Certificate Holder:	FH1100 Manufacturing Corporation 6080 Industrial Boulevard Century, Florida 32535
Type Certificate Ownership Record:	Siam Hiller Holdings, Inc. 3200 Imjin Road Marina, California 93933-5101

I - HILLER MODEL 1100 (U.S. ARMY OH-5A), (Normal Category Helicopter) Approved May 22, 1964

(See Note 5 regarding modifications required for conversion of Military Models)

Engine	Allison 250-C10 (See Note 8)
Fuel	MIL-J-5624 Grade JP-4 or JP-5, Commercial Kerosene Type A, or A1, or Allison Specification EMS 64, MIL-F-46005 Type 1 C.I.T.E. Fuel

Engine Ratings

	Take-off (5 Min.)	Max. Continuous
Shaft H.P.	250	212
Gas Producer rpm	48950	47350
Output Shaft rpm	6000	6000
Measured Gas Temp.	1240°F(671°C)	1165°F(630°C)

NOTE: The above engine ratings are based on static sea level conditions. The maximum allowable torque as measured by the torque meter for below standard inlet air temperature and/or ram conditions is 240 ft. lb. (274 HP @ 100% N_2) for take-off and 204 ft. lb. (233 HP @ 100% N_2) for maximum continuous.

Engine Temperature Limits

Measured Gas Temperature take-off (5 min.)	
Max. Continuous	1280°F (693°C)
Max. Transient (not to exceed 6 Seconds)	1550°F (843°C)
Oil Inlet Temperature	-65°F to +200°F
Motor Limits & Engine Operating Speeds	Power Off (Rotor Tach): Maximum 390 rpm (106% N_R), Minimum 295 rpm (80% N_R) — Power On: Maximum 100% N_2, Minimum 96% N_2
Airspeed Limits	Configuration: Skid Gear — V_{NE} (IAS): 127 mph (110 knots)
	The above airspeed applies from S.L. to 5000 ft. Decrease V_{NE} 5.2 mph (4.5 knots) per 1000 ft. of altitude above 5000 ft. For limits with accessories installed, see the FAA Approved Rotorcraft Flight Manual.
Altitude Limits	Avoid operational areas as shown in FAA Approved Rotorcraft Flight Manual.
C.G. range (Longitudinal)	Sta. (95.5) to (101.5)
C.G. Range (Lateral)	Left of helicopter centerline, 2.5 in. Right of helicopter centerline, 2.5 in.
Maximum Weight	2530 lb.
No. of Seats	2 (60.0), 2 (86.5)
Maximum Cargo	860 lb. at 100 lb./sp. ft., Sta. (68.12) to (100.0). See loading instructions in FAA Approved Rotorcraft Flight Manual.
Fuel Capacity	Main tank 69 gallon (100.6) See NOTE 1 for unusable fuel.
Oil Capacity	Engine oil - 2.75 qt. (116) Transmission oil - 2.75 qt. (106)
Main Rotor Blade Movements	(Measured with respect to the mast)
Collective Travel	Set down stop to obtain 100% N_R at 2530 pounds gross weight and standard sea level with 11° travel.
Cyclic Travel	Lateral 6.2° + or - .25° Right and Left Longitudinal 12.0° + or - .25° Forward 8.0° + or - .25° Aft

Tail Rotor Pitch	Right	3.9° + or - .25°
	Left	+14.1° + or - .25°
Hydraulic System Pressure	900 psi nominal operating.	
Serial No. Eligible	1 and 4 through 8 when modifications specified in Hiller Report, "Model 1100 (ARMY OH-5A) Helicopter Design Changes - TIA to Type Certification", dated July 16, 1964, are incorporated, and forward engine mount assembly P/N 24-63113-1 and -3 is installed. (See NOTE 5 for eligibility of military models)	

II - Model FH-1100 (Normal Category Helicopter) Approved November 10, 1966

Engine	Allison 250-C18, see NOTE 7 for alternate engine
Fuel	MIL-J-5624 Grade JP-4 or JP-5, Commercial Kerosene Type A or A1, or Allison Specification EMS 64, MIL.F. 46005 Type 1 C.I.T.E. Fuel.

Engine Ratings

	Take-off (5 Min.)	Max. Continuous
Shaft H.P.	274	233
Gas Producer rpm	29940(97.6%)	48250(94.4%)
Output Shaft rpm	6000(100%)	6000(100%)
Measured Gas Temp.	1290°F(699°C)	1206°F(652°C)

NOTE: The above engine ratings are based on static sea level conditions. The maximum allowable installed torque as measured by the torque meter is 240 ft. lb. (274 H.P. @ 100% N_2) for takeoff and 204 ft. lb. (233 H.P. @ 100% N_2) for maximum continuous.

Engine Temperature Limits

Measured Gad Temperature take-off (5 min.)	1380°F (749°C)
Max. Continuous	1280°F (693°C)
Max. Transient (not to exceed 6 seconds)	1550°F (843°C)
Max. Starting Transient (not to exceed 1 second)	1700°F (927°C)
Oil Inlet temperature	-65°F to +225°F

Rotor Limits & Engine Operating Speeds	Power Off (Rotor Tach)	Power On
	Maximum 390 rpm (106% N_R)	Maximum 102% N_R
	Minimum 295 rpm (80% N_R)	Minimum 98% N_2

Airspeed Limits	Configuration	V_{NE} (IAS)
	Skid Gear	127 mph (110 Knots)

Altitude Limits	Avoid operational areas as shown in FAA Approved Rotorcraft Flight Manual.

C.G. Range (Longitudinal)	Sta. (95.5) to (101.5)
C.G. range (Lateral)	Left of helicopter centerline, 2.5 in. Right of helicopter centerline, 2.5 in
Maximum Weight	2750 lb.
No. of Seats	2 (55.2), 2 (89.0), 1 (86.0)
Maximum Cargo	1100 lb. at 100 lb./sq. ft., Sta. (68.12) to (100.0). See loading instruction in FAA Approved Rotorcraft Flight Manual.
Baggage Compartment Capacity	150 lb.
Fuel Capacity	Main tank 68.5 gallon (100.6). (See NOTE 1 for unusable fuel)
Oil Capacity	Engine Oil - 2.76 qt. (116) Transmission Oil - 2.6 qt. (106) (Measured with respect to the mast)
Main Rotor Blade Movements	
Collective Travel	Set down stop to obtain 102% N_R at 2750 pounds gross weight and standard sea level with 12° travel.
Cyclic Travel	Lateral 7.4° + or - .5° Right and Left Longitudinal 12.0° + or - .5° Forward 8.0° + or - .5° Aft
Tail Rotor Pitch	Right -1.5° + or - .5° Left +16.5° + or - .5°
Horizontal Stabilizer Setting	-2° + or - .5°
Hydraulic System Pressure	950 psi nominal operating.
Serial No. Eligible	9 and up.
<u>Data pertinent to All Models</u>	
Datum	100 in. Forward of Station 100 bulkhead (main rotor centerline).
Leveling means	Top face of rear seat deck.
Other Operating Limitations	FAA Approved Rotorcraft Flight Manual.

Certification Basis	CAR 6, dated December 20, 1956, including amendments 6-1 through 6-4 and Special Conditions, "Conditions Establishing Compensating Factors Providing an Equivalent Level of Safety under Civil Air Regulations, Section 6.10 for Light Turbine Powered Helicopters", dated October 2, 1962, except condition 15a. Type Certificate H2WE issued May 22, 1964. Date of application for Type Certificate November 13, 1961. FAA Exemption No. 596 issued October 18, 1966, grants exemption from FAR 6.328 to the extent necessary to permit the Type Certification of The Fairchild Hiller Model FH-1100 without the necessity of considering the jamming of a control valve or the cracking of the actuator cylinder as possible failures.
Production Basis	None. Prior to original certification of each aircraft manufactured subsequent to April 20, 1994, an FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data and a check of the flight characteristics.
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (See certification basis) must be installed in the helicopter for certification. Hiller Report 63-96, "Master Equipment List, Model 1100" and Hiller Report 66-19 "Basic Weight Equipment List", Model FH-1100, contain a list of all required equipment that must be installed as well as optional equipment installations approved by the FAA.

NOTE 1 Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions must be in each helicopter at the time of original certification and at all times thereafter (except in the case of operators having an approved weight control system). Ballast, when necessary, must be carried in accordance with Loading Instructions in the FAA Approved Rotorcraft Flight Manual. Fuel and Oil capacities as indicated are total tank capacities over and above "Trapped Fuel and Oil". The fuel tank capacity includes "Unusable" fuel of 2.5 gallons, for Model 1100 and 1.6 gallons (10.8 lbs.) for Model FH-1100 which cannot be used safely in all normal expected flight attitudes and must be included in the empty weight.

NOTE 2 The following placard must be installed in clear view of the pilot:

"This Helicopter must be operated in compliance with the operating limitations specified in the FAA Approved Rotorcraft flight Manual".

For additional placards, see the FAA Approved Flight Manual.

NOTE 3 The retirement times of critical parts are listed in the following tables. These values of retirement of service life cannot be increased without FAA Engineering approval.

COMPONENT	PART NO.	SERVICE LIFE HOURS MODEL 1100	MODEL FH-1100
Blade Assy., Main Rotor	24-53000-01 & -03	6100	--
	24-53100-01 & -02	6100	5970
	24-53100-11, -13, & -15	--	5970
Cuff Assy., Main Rotor	24-51402	18350	--
	24-51402-5 & -11	--	16350
Terminals, Main Rotor Drag Link	24-52002-7 & -9	29000	17900
Drag Link Assy., Main Rotor	24-52003	25000	13750
Bolts, Main Rotor Drag Attachment	NAS1306-16 or 24-51447-3	5570	4100
	24-51447-5	--	4100
Tension-Torsion Bar Assy., Tail Rotor	24-55106	4670	4670
Spar, Tail Boom Fin Assy.	24-62030-7	11255	--
	24-62030-43	--	11255
Housing Assy., Tail Rotor Gear Box	24-25002	14120	14120
Output Housing, Tail Rotor Gear Box	24-25023	7385	--
	24-25023-3 & -5	--	7385
Output Shaft Assy., Tail rotor Gear Box	24-25031	2800	2800
Strut, Vertical, Transmission Mount	24-28030-1 & -2	47835	47800
	24-28030-11 & -12	--	47800
Gimbel Ring, Transmission	24-28020	--	18050
Strut, Left Rear	24-28046-1	20350	20350
Transmission Mount Fitting Assy., Engine Bearer	24-61032-1 & -2	7000	7000
Isolation Link Assy., Upper Controls	24-30233-1	1263	800

COMPONENT	PART NO	SERVICE LIFE HOURS MODEL 1100	MODEL FH-100
Collective Arm Assy., Upper	24-31280-1	1722	1700
Incidence arm, Main Rotor	24-51406	1500	2700
Outer Ring Assy., Swashplate	24-34211	49250	49250
Ring Assy., Swashplate Cyclic Input	24-34205	1411	750
	24-34221	--	2960
Isolation Bracket Assy., Upper Controls	24-30200	2850	2300
	24-30200-5	--	2300
Link Assy., Collective Arm Support	24-31282-1	2850	2300
Sleeve Assy., Swashplate Support	24-34200	22450	22450
	24-34200-11	--	22450
Yoke Assy., Swashplate Drive	24-34207	12800	2800
Link Assy., Swashplate Drive	24-34209	36950	4450
Bellcrank Assy., Forward Lateral Cyclic	24-33304-1	4115	4100
Bellcrank Assy., Forward Longitudinal Cyclic	24-33305-1	4115	4100
Bendix Coupling	19E49-3E		
Diaphragm and Flange Assy., Transmission End	2489046	--	*1200
Diaphragm and Flange Assy., Transmission End	2489047	--	*1200

*One 600 hour extension allowed after compliance with Service Letter FH-1100-24-9.

Lower Housing Assy., Transmission	24-23030-7	--	3600

NOTE 4a There is not a Rotorcraft Maintenance Manual for the Model 1100 helicopter. Prior to civil airworthiness certification of the Model 1100 the applicant must prepare a rotorcraft Maintenance Manual containing all information essential for proper maintenance.

4b The Model FH-1100 helicopter(s) must be serviced, maintained in accordance with instructions specified in the Model FH-1100: Service Manual, Inspection Guide, Structural repair Manual, and Overhaul Manual or Instructions for Continued Airworthiness for type design changes or other methods, techniques and practices acceptable to the Administrator.

NOTE 5 Prior to issuance of FAA Certificate of Airworthiness for Model 1100 (Military Model OH-5A) helicopters, conformance with the approved Type Design Data must be established, including modifications for the commercial approved equivalent in accordance with Hiller Aircraft Corp. Engineering Report 64-54, "Deviation Report, Model 1100 Helicopter (Army OH-5A)".

NOTE 6 These helicopters are approved for flight in non-icing conditions only. See FAA Approved Rotorcraft Flight Manual.

NOTE 7 Model FH 1100, Serial Nos. 15, 206, 500 and subsequent, when modified to Master Drawing List (Hiller Report No. 66-13) Rev. D plus later E.O. Revisions. Once converted to the Model 250-C20B from the Model 250-C18, reverting back is not approved.

Engine	Allison Model 250-C20B	
Fuel	ASTM Type Jet B (JP-4) and ASTM Type Jet A or A-1 (JP-5). See Rotorcraft Flight Manual for Fuel Mixture and Fuel Temperature Limitations.	
Engine Limits	Torque Pressure	Output Shaft Speed
Take-off (5 min.)	100% (274 SHP)	100% (6,000 rpm)
Max. Continuous	85% (233 SHP)	100% (6,000 rpm)
	Turbine Outlet Temp.	Gas Gen. Speed N_1
Take-off (5 min.)	749°C (1380°F)	104% (53,000 rpm)
Max. Continuous	693°C (1280°F)	104% (53,000 rpm)

NOTE 8 Allison Model 250-C10 (T63-A-5) engine is installed in Army Model OH-5A helicopters.

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