FEDERAL AVIATION ADMINISTRATION

A23NM
Revision 4
BUEHN
HU-16C (UF-1)
TU-16C (UF-1T)
SA-16A (UF-1)

September 10, 1998

TYPE CERTIFICATE DATA SHEET NO. A23NM

This data sheet, which is a part of Type Certificate No. A23NM, 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

Dennis G. Buehn
2600 Graves #33
Carson City, Nevada 89706

I - Model HU-16C (UF-1) (Navy), (Restricted Category), Approved August 17, 1988
Model TU-16C (UF-1T) (Navy Trainer) (Restricted Category), Approved December 23, 1988 (See Note 12)

Engine

(2) Wright R-1820-76A, B, C or D, Single Stage, Two Speed Engines, Geared 3 to 2 Reduction Gearing

Fuel

100/130 or 100 LL Grade Aviation Fuel

Engine Limits
(Per AN 01-85-AB-1)

Power Setting	RPM	MP In. Hg.	Mixture	BHP
Take-off (30 min.)	2700	51.5	Rich	1425
Military	2700	50.5	Normal	1425
Normal Rated (Max. Cont.)	2500	46.5	Normal	1275
High Cruise	2250	37.0	Normal	950

Propellers

Hamilton Standard Matched Hubs and Propellers

Hub Designation	Applicable Propellers*
43D50-601	6601A-7 thru -9, 6621A-7, 6621B-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7
43D50-603	6601A-7 thru -9, 6601B-7, 6621A-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7
43D50-605	6621B-7
43D50-609	7001B-7, 7003B-7, 7007B-7
43D50-613	7001B-7, 7003B-7, 7007B-7
43D50-615	7007C-7
43D50-637	6601A-7 thru -9, 6621A-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7, 7007F-7
43D50-639	7007E-7, 7007F-7
43D50-641	7001C-7, 7003C-7

*Propellers must be used in matched sets on each hub

Diameter 11 feet
Pitch settings: Low (fine) 16°, High (feathered) 89°, Reverse -12°

Airspeed Limits

Maximum permissible indicated airspeeds are as follows per AN 01-85AB-1 Flight Handbook:

Smooth Air	260 Knots
Flaps 15°	175 Knots
Flaps 30°	135 Knots
Flaps 45°	115 Knots
Gear Down	130 Knots
Landing Lights Down	120 Knots
Full Aileron Deflection	175 Knots
Severe Turbulence	110-130 Knots

C. G. Range

+20.5 MAC to +28.0 MAC

Datum

See T. O. 1-1B-40 (AN 01-1B-40) Chart E with Dennis Buehn Cargo Tie-Down Appendix.

Field Take-off Weight

33,500 lbs.

Field Landing Weight

29,500 lbs.

Water Take-off & Landing

29,500 lbs.

Leveling Means

See AN-01-1B-40, Chart E

Minimum Crew

Two (Pilot and Co-Pilot)

Cargo Capacity

See T. O. 1-1B-40, Chart E

Fuel Capacity

675 gals. (2) Main Tanks
414.5 gals. (2) Float Tanks
150 or 300 gals. (2 ea.) Auxiliary Tanks

Oil Capacity

58 gals. (2) Nacelle at 29 gals. each

Settings & Ranges of Movement of Control Surfaces and Flaps

(Per 01-85AB-2, Section 1)

		Movements		Tolerances	
		Degrees	Inches	Degrees	Inches
Ailerons	Up (from Neutral)	17	6½	±1	±3/16
	Down (from Neutral)	17	6½	±1	±3/16
Elevators	Up (from streamline with stabilizer)	30	15	±1	±3/16
	Down (from streamline with stabilizer)	20	10-1/16	±1	±3/16
Rudder	Right (from streamline with fin)	20		±1	±3/16
	Left (from streamline with fin)	15		±1	±3/16
Flaps	Up (measured at	0	0	-	±3/32
	inboard end)	15	12-1/32	±3	±2-13/32
	Full	30	24-2/32	±3	±2-13/32
	Down	40	32-1/32	±3	±2-13/32

Settings & Ranges of Movement of Control Surfaces and Flaps (Continued)

(Per 01-85AB-2, Section 1)

		Movements		Tolerances	
		Degrees	Inches	Degrees	Inches
Trim Tabs					
Elevator	Up (from elevator trailing edge)	5	23/32	±1	±1/8
	Down (from elevator trailing edge)	12	1-21/32	±1	±1/8
Rudder	Right (from rudder trailing edge)	17	3-5/16	±1	±3/16
	Left (from rudder trailing edge)	25	4-27/32	±1	±3/16
Aileron	Up (from aileron trailing edge)	18	1-5/8	±1	±3/32
	Down (from aileron trailing edge)	12	1-1/16	±1	±3/32

Serial Nos. Eligible

Model HU-16C (UF-1) (Navy)

Factory Number	Bureau Number
10	124374
16	124376
19	124377
22	124378
25	124379
90	149836 (Ex 51-17)
233	131890
236	131891
239	131892
242	131893
245	131894
249	131895
252	131896
254	131897
257	131898
261	131899
264	131900
269	131902
273	131903
278	131905
281	131906
284	131907
290	131909
293	131910
296	131911
311	131916
333	131904
338	131908
367	1290* (142360)
368	1291* (142361)
369	1292* (142362)
373	137900

Serial Nos. Eligible (cont'd)

Model HU-16C (UF-1) (Navy)

Factory Number	Bureau Number
375	137902
378	137905
381	137908
382	137909
385	137912
388	137905
389	137916
396	137923
397	137924
398	137925
399	137926
400	137927
401	137928
402	137929
403	137930
405	137932
406	137933
409	141262
412	141265
414	141267
418	141271
420	141273
423	141276
424	141277
	*Previously UF-1CG (Coast Guard)

Model TU-16C (UF-1T)

305	131914
308	131915
311	131916
314	131917
320	131918

Certification Basis

Type Certificate A23NM, issued August 17, 1988, for the special purpose of carriage of cargo. Reference to Advisory Circular 21.17, dated March 14, 1982, specifies that carriage of cargo is considered a special purpose under FAR 21.25(b)(7). Date of application December 8, 1986. The modifications incorporated are considered appropriate to the special purpose operation. The criteria established in Civil Regulations Part 4b appropriate to the special purpose operation has been used to evaluate these particular changes and demonstrate that the original level of airworthiness established by the military requirements has not been reduced. A Finding of No Significant Impact (FONSI) for the modified Grumman (Navy) Model HU-16C (UF-1) aircraft has been accomplished and approved on March 21, 1988. A finding under the applicable provisions of the Noise Control Act of 1972 has also been accomplished and approved on March 21, 1988, for the modified Grumman HU-16C (UF-1) aircraft (Restricted Category- Military Surplus).

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed. In addition, NAVWEPS Flight Manual (NAVY), 01-85AB-1, revised April 8, 1965, with Dennis G. Buehn FAA Approved AFM Supplement No. 1 to NAVWEPS 01-85AB-1 with Dennis Buehn cargo tie down appendix is required.

Date of Application: December 8, 1986

Production Basis: None. Prior to original certification, an FAA representative must perform an inspection for workmanship, material, and conformity with the approved technical data. Applicable Technical Orders affecting airworthiness must be accomplished.

II Model SA-16A (UF-1) (USAF) (Restricted Category), Approved September 10, 1998 (See Note 13)

Engine: (2) Wright R-1820-76A, B, C or D, Single Stage, Two Speed Engines, Geared 3 to 2 Reduction Gearing

Fuel: 100/130 or 100 LL Grade Aviation Fuel

Engine Limits (Per AN 01-85-AB-1)

Power Setting	RPM	MP In. Hg.	Mixture	BHP
Take-off (30 min.)	2700	51.5	Rich	1425
Military	2700	50.5	Normal	1425
Normal Rated (Max. Cont.)	2500	46.5	Normal	1275
High Cruise	2250	37.0	Normal	950

Propellers: Hamilton Standard Matched Hubs and Propellers

Hub Designation	Applicable Propellers*
43D50-601	6601A-7 thru -9, 6621A-7, 6621B-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7
43D50-603	6601A-7 thru -9, 6601B-7, 6621A-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7
43D50-605	6621B-7
43D50-609	7001B-7, 7003B-7, 7007B-7
43D50-613	7001B-7, 7003B-7, 7007B-7
43D50-615	7007C-7
43D50-637	6601A-7 thru -9, 6621A-7, 6999-7 thru -9, 7005-7, 7007B, 7007B-7, 7007F-7
43D50-639	7007E-7, 7007F-7
43D50-641	7001C-7, 7003C-7

*Propellers must be used in matched sets on each hub

Diameter 11 feet
Pitch settings: Low (fine) 16°, High (feathered) 89°, Reverse -12°

Airspeed Limits: Maximum permissible indicated airspeeds are as follows per AN 01-85AB-1 Flight Handbook:

Smooth Air	260 Knots
Flaps 15°	175 Knots
Flaps 30°	135 Knots
Flaps 45°	115 Knots
Gear Down	130 Knots
Landing Lights Down	120 Knots
Full Aileron Deflection	175 Knots
Severe Turbulence	110-130 Knots

C. G. Range: +20.5 MAC to +28.0 MAC

Datum: See T. O. 1U-16 (H)A-5 (USAF) with Dennis Buehn Cargo Tie-Down Appendix.

Field Take-off Weight	33,500 lbs.
Field Landing Weight	29,500 lbs.
Water Take-off & Landing	29,500 lbs.
Leveling Means	See AN-01-1B-40, Chart E
Minimum Crew	Two (Pilot and Co-Pilot)
Cargo Capacity	See T. O. 1-1B-40, Chart E
Fuel Capacity	675 gals. (2) Main Tanks 414.5 gals. (2) Float Tanks 150 or 300 gals. (2 ea.) Auxiliary Tanks
Oil Capacity	58 gals. (2) Nacelle at 29 gals. each

Settings & Ranges of Movement of Control Surfaces and Flaps

(Per 01-85AB-2, Section 1)

		Movements		Tolerances	
		Degrees	Inches	Degrees	Inches
Ailerons	Up (from Neutral)	17	6½	±1	±3/16
	Down (from Neutral)	17	6½	±1	±3/16
Elevators	Up (from streamline with stabilizer)	30	15	±1	±3/16
	Down (from streamline with stabilizer)	20	10-1/16	±1	±3/16
Rudder	Right (from streamline with fin)	20		±1	±3/16
	Left (from streamline with fin)	15		±1	±3/16
Flaps	Up (measured at	0	0	-	±3/32
	inboard end)	15	12-1/32	±3	±2-13/32
	Full	30	24-2/32	±3	±2-13/32
	Down	40	32-1/32	±3	±2-13/32
Trim Tabs					
Elevator	Up (from elevator trailing edge)	5	23/32	±1	±1/8
	Down (from elevator trailing edge)	12	1-21/32	±1	±1/8
Rudder	Right (from rudder trailing edge)	17	3-5/16	±1	±3/16
	Left (from rudder trailing edge)	25	4-27/32	±1	±3/16
Aileron	Up (from aileron trailing edge)	18	1-5/8	±1	±3/32
	Down (from aileron trailing edge)	12	1-1/16	±1	±3/32

Serial Nos. Eligible

Model SA-16A (UF-1) (USAF)

Factory Number	Bureau Number
32	49-074

Certification Basis	Type Certificate A23NM, issued August 17, 1988, for the special purpose of carriage of cargo. Reference to Advisory Circular 21.17, dated March 14, 1982, specifies that carriage of cargo is considered a special purpose under FAR 21.25(b)(7). Date of application December 8, 1986. The modifications incorporated are considered appropriate to the special purpose operation. The criteria established in Civil Regulations Part 4b appropriate to the special purpose operation has been used to evaluate these particular changes and demonstrate that the original level of airworthiness established by the military requirements has not been reduced. A Finding of No Significant Impact (FONSI) for the modified Grumman (Navy) Model HU-16C (UF-1) aircraft has been accomplished and approved on March 21, 1988. A finding under the applicable provisions of the Noise Control Act of 1972 has also been accomplished and approved on March 21, 1988, for the modified Grumman HU-16C (UF-1) aircraft (Restricted Category- Military Surplus). These findings also apply to the Grumman (Navy Trainer) Model TU-16C (UF-1T) and to the Grumman (Air Force) Model SA-16A (UF-1) aircraft.
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed. In addition, NAVWEPS Flight Manual (USAF) T.O. 1U-16(H)A-1, revised April 8, 1965, with Dennis G. Buehn FAA Approved AFM Supplement No. 1 to NAVWEPS 1U-16(H)A-1 with Dennis Buehn cargo tie down appendix is required.
Date of Application	May 27, 1996
Production Basis	None. Prior to original certification, an FAA representative must perform an inspection for workmanship, material, and conformity with the approved technical data. Applicable Technical Orders affecting airworthiness must be accomplished.

NOTES

Note 1	Current weight and balance information, including a list of equipment in certified empty weight and loading instructions, must be in the airplane at time of original airworthiness certification and all times thereafter. Each compartment, respectively, must have a placard showing the maximum loading weight for that compartment. Cargo must be loaded on the airplane in accordance with T.O. 01-18-40, and must be secured using TSO straps or nets anchored to wedjit tie-down fasteners installed in the airplane. (See AFM Supplement No. 1 to NAVWEPS Flight Manual 01-85AB-1 with Dennis Buehn cargo tie down appendix for compartment loading chart and anchoring instructions.)
Note 2	The initial, minimum scheduled maintenance program requirements for the UH-16C and the TU-16C are contained in document DGB 16-2. This document also applies to the SA-16A. A. The airplane must satisfactorily pass an inspection for conformity with 01-85AB-2 (for Models HU-16C and TU-16C) or T.O. 1U-16(H)A-2-1 (for Model SA-16A) for possible hidden damage and for workmanship and materials used in making any repairs and/or alterations. B. The maintenance, overhaul and modification records must be reviewed for changes made by the military services that may have an effect on the airworthiness of the airplane. Modifications and changes of equipment which affect the safety or performance of the airplane must be approved by the Federal Aviation Administration. C. Conduct an inspection of the engine support structures to verify their structural integrity. D. This aircraft is not equipped or approved for operation with JATO system.

Note 2 (cont'd)	E. This aircraft is not equipped or approved for operation with APU.
	F. Engine supercharger high speed ratio (high blower) must be permanently deactivated for all operations.
	G. The modification data plate in restricted category must be installed next to manufacturer's data plate in the cockpit.
	H. Aircraft must be flight tested and FAA Form 8130-9 completed.
Note 3	Reserved.
Note 4	Carriage of hazardous materials is prohibited unless compliance is shown with applicable regulations in the Code of Federal Regulations, Title 49, Part 175.
Note 5	The following note must be placed under "exceptions" on all Export Certificates of Airworthiness for this airplane. "This airplane is type certificated in the restricted category and may not meet the applicable airworthiness code as provided by Annex 8 to the Convention of International Civil Aviation."
Note 6	Flight into known icing conditions is prohibited.
Note 7	Approved cargo nets/straps to be FAA TSO'd equipment.
Note 8	Two (2) oxygen masks providing 100% breathing capacity for both pilots, and two (2) smoke masks, are required for flight in the aircraft at all times.
Note 9	Two (2) fire extinguishers must be installed - one in the cockpit and one in the cabin are required.
Note 10	This approval applies to this airplane modified in accordance with Drawing No. DGB16-1 dated January 12, 1988, or later FAA approved revision.
Note 11	The following placard must be installed in clear view of the pilot: RESTRICTED CATEGORY This airplane must be operated as a restricted category airplane and in accordance with operating limitations stated in NAVWEPS 01-85AB-1 (Navy models) or T.O. 1U-16(H)A-1 (USAF models), Dennis G. Buehn FAA Approved AFM Supplement No. 1, and in accordance with all placards and manuals. No persons may be carried on a restricted category civil aircraft unless they are necessary for the accomplishment of the work activity directly associated with that special purpose. Ref. 91.313(d) (formerly 91.39(c)(4)).
Note 12	Navy Trainer Model UF-1T airplanes are identical to the standard Navy UF-1 airplanes except that they are equipped with additional navigation instruments and extra cabin equipment.
Note 13	USAF Model SA-16A airplanes are essentially identical to the standard Navy UF-1 airplanes.

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