

**COMANDO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL**

TYPE CERTIFICATE DATA SHEET Nº EA-2005T05

Type Certificate Holder:

CIRRUS DESIGN CORPORATION

4515 Taylor Circle
Duluth, MN 55811
USA

EA-2005T05

Sheet 01

CIRRUS

SR20

SR22

April 2005

This data sheet, which is part of Type Certificate No. 2005T05, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - Model SR20, (Normal Category), approved 15 April 2005.

ENGINE	Teledyne Continental IO-360-ES:	EM-2005T07
ENGINE LIMITS	Maximum Takeoff:	2 700 rpm (200 hp)
	Maximum Continuous Power:	2 700 rpm (200 hp)
PROPELLER AND PROPELLER LIMITS	1. Hartzell Propeller Inc.:	EH-8811
	P/N:	BHC-J2YF-1BF/F7694
	Maximum Diameter:	193.0 cm (76 in)
	Minimum Diameter:	185.5 (73 in)
	Number of Blades:	2
	Low Pitch:	14.6° +/- 0.1°
	High Pitch:	35.0° +/- 1.0°
	NOTE: Not to be operated above 24 in of manifold pressure between 1 900 and 2 200 rpm.	
	Spinner:	Hartzell P/N A-2295(P)
	NOTE: Spinner may be painted or polished.	
	2. Hartzell Propeller Inc.:	EH-9804
	P/N:	PHC-J3YF-1MF/F7392-1
	Maximum Diameter:	188.0 cm (74 in)
	Minimum Diameter:	182.9 cm (72 in)
	Number of Blades:	3
	Low Pitch:	14.1° +/- 0.1°
	High Pitch:	35.0° +/- 1.0°
	NOTE: No operating limitations to 2 800 rpm	
	Spinner:	Hartzell P/N A-2295-1P
	3. Hartzell Propeller Inc.	EH-9804
	P/N	PHC-J3YF-1RF/F7392-1

**PROPELLER AND
PROPELLER LIMITS
(Cont.)**

Maximum Diameter:	188.0 cm (74 in)
Minimum Diameter:	182.9 cm (72 in)
Number of Blades:	3
Low Pitch:	14.1° +/- 0.1°
High Pitch:	35.0° +/- 1.0°
NOTE: No operating limitations to 2 800 rpm	
Spinner:	Hartzell P/N A-2295-1(P)
NOTE: Spinner may be painted or polished.	

AIRSPEED LIMITS

- 1- S/N 1005 thru 1147:
- | | |
|--|---------------------|
| V _{ne} Never Exceed Speed: | 371 km/h (200 kias) |
| V _{no} Maximum Structural Cruising Speed: | 306 km/h (165 kias) |
| V _o (2 900 lb) Operating Maneuvering Speed: | 250 km/h (135 kias) |
| V _o (2 600 lb) Operating Maneuvering Speed: | 233 km/h (126 kias) |
| V _o (2 200 lb) Operating Maneuvering Speed: | 215 km/h (116 kias) |
| V _{fe} Maximum Flap Extension Speed: | 185 km/h (100 kias) |
| V _{pd} Maximum Parachute Deployment Speed: | 250 km/h (135 kias) |
- 2- S/N 1148 and subsequent, and S/N 1005 thru 1147 if Cirrus Service Bulletin SB 20-01-00 is complied with:
- | | |
|---|---------------------|
| V _{ne} Never Exceed Speed: | 371 km/h (200 kias) |
| V _{no} Maximum Structural Cruising Speed: | 306 km/h (165 kias) |
| V _o (3000 lb) Operating Maneuvering Speed: | 243 km/h (131 kias) |
| V _o (2600 lb) Operating Maneuvering Speed: | 226 km/h (122 kias) |
| V _o (2300 lb) Operating Maneuvering Speed: | 211 km/h (114 kias) |
| V _{fe} Maximum Flap Extension Speed: | 185 km/h (100 kias) |
| V _{pd} Maximum Parachute Deployment Speed: | 250 km/h (135 kias) |

C. G. RANGE

- 1- S/N 1005 thru 1147:
- a) Forward Limits:
352.3 cm (138.7 in) at 957 kg (2 110 lb) with a straight line taper to 358.0 cm (141.0 in) at 1 222 kg (2 694 lb), and 363.2 cm (143.0 in) at 1 315 kg (2 900 lb).
- b) Aft Limits:
367.3 cm (144.6 in) at 957 kg (2 110 lb), with straight line taper to 374.4 cm (147.4 in) at 1 166 kg (2 570 lb), and to 363.2 cm (147.9 in) at 1 245 kg (2 745 lb), and 376.4 cm (148.2 in) at 1 315.5 kg (2 900 lb).
- 2- S/N 1148 and subsequent, and S/N 1005 thru 1147 if Cirrus Service Bulletin SB 20-01-00 is complied with:
- a) Forward Limits:
352.3 cm (138.7 in) at 957 kg (2 110 lb) with a straight line taper to 358.0 cm (141.0 in) at 1 222 kg (2 694 lb), and 366.0 cm (144.1 in) at 1 360.8 kg (3 000 lb).
- b) Aft Limits:
367.3 cm (144.6 in) at 957 kg (2 110 lb), with straight line taper to 374.4 cm (147.4 in) at 1 166 kg (2 570 lb), and to 376.2 cm (148.1 in) at 1 315 kg (2 900 lb) and 375.9 cm (148.0 in) at 1 460.8 kg (3 000 lb).

MAXIMUM WEIGHT	S/N 1005 thru 1147: Takeoff and Landing: 1 315.5 kg (2 900 lb). S/N 1148 and subsequent, and S/N 1005 thru 1147 if Cirrus Service Bulletin SB 20-01-00 is complied with: Takeoff: 1 360.8 kg (3 000 lb). Landing: 1 315.5 kg (2 900 lb). Zero Fuel: 1 315.5 kg (2 900 lb).		
MINIMUM CREW	One (1) Pilot.		
NUMBER OF SEATS	4 [2 at 364.5 cm (143.5 in) aft of datum, 2 at 457.2 cm (180 in) aft of datum].		
MAXIMUM BAGGAGE	59 kg (130 lb) at 528.3 (208 in).		
FUEL CAPACITY TOTAL	229.0 liters (60.5 gal) at 390.5 cm (153.75 in). Usable: 212.0 liters (56 gal) (See Note 1)		
OIL CAPACITY	7.6 liters (8 quarts) at 193.5 cm (76.2 in).		
MAXIMUM OPERATING ALTITUDE	With a portable oxygen system, the aircraft is limited to 17 500 ft MSL. Oxygen must be provided as required by the operating rules. Only portable oxygen systems listed in the CTA Approved Airplane Flight Manual, document number 21399-003, or later CTA approved revisions, are allowed.		
CONTROL SURFACE	Wing Flaps:	Up $0^{\circ} \pm 0.5^{\circ}$	Down 50% $16^{\circ} \pm 0.5^{\circ}$ Down 100% $32^{\circ} \pm 0.5^{\circ}$
	Aileron:	Up $12.5^{\circ} \pm 1.0^{\circ}$	Down $12.5^{\circ} \pm 1.0^{\circ}$
	Elevator:	Up $25.0^{\circ} \pm 1.0^{\circ}$	Down $15^{\circ} \pm 1.0^{\circ}$
	Elevator Trim:	Up 17.0°	Down $10.5^{\circ} \pm 1.0^{\circ}$
	Rudder:	Minimum Right $20.0^{\circ} \pm 1.0^{\circ}$	Left $20.0^{\circ} \pm 1.0^{\circ}$
ADDITIONAL LIMITATIONS	Airframe life limit: 12 000 flight hours		
DESIGN DATA	The airplane shall be manufactured in accordance with the latest FAA approved revision of "Master Drawing List", Document No. 13750, or other FAA approved data. NOTE: Document No. 12609 is the predecessor document to Document No. 13750.		
SERIAL NUMBERS ELIGIBLE	1005 and on.		

II - Model SR22, (Normal Category), approved 15 April 2005.

ENGINE	Teledyne Continental IO-550-N:	EM-9101
ENGINE LIMITS	Maximum Takeoff:	2 700 rpm (310 hp)
	Maximum Continuous Power:	2 700 rpm (310 hp)
PROPELLER AND PROPELLER LIMITS	1. Hartzell Propeller Inc.:	EH-9804
	P/Ns:	PHC-J3YF-1RF/F7694 PHC-J3YF-1RF/F7694B
	Maximum Diameter:	198.0 cm (78 in)
	Minimum Diameter:	193.0 cm (76 in)
	Number of Blades:	3
	Low Pitch:	14.1° +/- 0.1°
	High Pitch:	35.0° +/- 1.0°
	NOTE: No operating limitation to 2 700 rpm.	
	Spinner:	Hartzell P/N A-2295(P)
	NOTE: Spinner may be painted or polished.	
	2. Hartzell Propeller Inc.:	EH-9804
	P/Ns:	PHC-J3YF-1RF/F7693DF PHC-J3YF-1RF/F7693DFB
	Maximum Diameter:	198,0 cm (78 in)
	Minimum Diameter:	193,0 cm (76 in)
	Number of Blades:	3
	Low Pitch:	12.0° +/- 0.1°
	High Pitch:	40.0° +/- 1.0°
	NOTE: No operating limitations to 2 700 rpm	
	Spinner:	Hartzell P/N A-2295-1(P)
AIRSPEED LIMITS	V _{ne} Never Exceed Speed:	378.0 km/h (204 kias)
	V _{no} Maximum Structural Cruising Speed:	333.5 km/h (180 kias)
	V _O (3 400 lb) Operating Maneuvering Speed:	246.5 km/h (133 kias)
	V _O (2 900 lb) Operating Maneuvering Speed:	229.7 km/h (124 kias)
	V _O (2 400 lb) Operating Maneuvering Speed:	207.5 km/h (112 kias)
	V _{fe} Maximum Flap Extension Speed:	192.7 km/h (104 kias)
	V _{pd} Maximum Parachute Deployment Speed:	246.5 km/h (133 kias)
C. G. RANGE	1- Forward Limits:	
		350.5 cm (138.0 in) at 997.9 kg (2 200 lb) with a straight line taper to 353.3 cm (139.1 in) at 1 224.7 kg (2 700 lb), and 359.2 kg (141.4 in) at 1456.0 kg (3 210 lb) and 365.2 kg (143.8 in) at 1542.2 kg (3 400 lb).
	2- Aft Limits:	
		376.2 kg (148.1 in) at 997.9 (2 200 lb), with straight line taper to 376.2 (148.1 in) at 1542.2 kg (3 400 lb).

MAXIMUM WEIGHT	1542.2 kg (3 400 lb).		
MINIMUM CREW	One (1) Pilot		
NUMBER OF SEATS	4 [2 at 364.5 cm (143.5 in) aft of datum, 2 at 457.2 cm (180 in) aft of datum]		
MAXIMUM BAGGAGE	59 kg (130 lb) at 528.3 cm (208 in).		
FUEL CAPACITY TOTAL	318 liters (84.0 gal) at 393.5 (154.9 in). Usable: 306.6 liters (81 gal) (See Note 1)		
OIL CAPACITY	7.6 liters (8 quarts) at 195.8 cm (77.1 in).		
MAXIMUM OPERATING ALTITUDE	<p>With a portable oxygen system, the aircraft is limited to 5 334.0 m (17 500 ft) MSL.</p> <p>Oxygen must be provided as required by the operating rules. Only portable oxygen systems listed in the CTA Approved Airplane Flight Manual, document number 21400-001, or later CTA approved revisions, are allowed.</p>		
CONTROL SURFACE	Wing Flaps:	Up $0^{\circ} \pm 0.5^{\circ}$	Down 50% $16^{\circ} \pm 0.5^{\circ}$ Down 100% $32^{\circ} \pm 0.5^{\circ}$
	Aileron:	Up $12.5^{\circ} \pm 1.0^{\circ}$	Down $12.5^{\circ} \pm 1.0^{\circ}$
	Aileron Trim:	Up $6^{\circ} \pm 1.0^{\circ}$	Down $6^{\circ} \pm 1.0^{\circ}$
	Elevator:	Up $25.0^{\circ} \pm 1.0^{\circ}$	Down $15^{\circ} \pm 1.0^{\circ}$
	Elevator Trim:	Up 17.0° Minimum	Down $10.5^{\circ} \pm 1.0^{\circ}$
	Rudder:	Right $20.0^{\circ} \pm 1.0^{\circ}$	Left $20.0^{\circ} \pm 1.0^{\circ}$
ADDITIONAL LIMITATIONS	Airframe life limit: 12 000 flight hours.		
DESIGN DATA	The airplane shall be manufactured in accordance with the latest FAA approved revision of "Master Drawing List", Document No. 13750, or other FAA approved data.		
SERIAL NUMBERS ELIGIBLE	0001 and on.		
<u>DATA PERTINENT TO ALL MODELS:</u>			
DATUM	254.0 cm (100 in) in front of the forward face of firewall bulkhead		
LEVELING MEANS	Door sill and leveling points as defined in AFM		
FUEL	100/100LL minimum grade aviation gasoline		
EMPTY WEIGHT C. G. RANGE	None		

IMPORT ELIGIBILITY

A Brazilian Certificate of Airworthiness may be issued on the basis of on an FAA Export Certificate on Airworthiness (or a third country Export Certificate on Airworthiness, in case of used aircraft imported from such country), including the following statement:

“The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the CTA Type Certificate no. 2005T05 and in condition of safe operation”.

The CTA Report H.10-2150-01, dated 15 April 2005 or further revisions, contain the Brazilian requirements for the acceptance of these airplanes. (See note 4)

CERTIFICATION BASISModel SR20:

RBHA 23 corresponding to FAA FAR Part 23 effective 01 February 1965, as amended by 23-1 through 23-47, except as follows:

- RBHA/FAR 23.573, 23.575, 23.611, 23.657, 23.673 through Amendment 23-48;
- RBHA/FAR 23.783, 23.785, 23.867, 23.1303, 23.1307, 23.1309, 23.1311, 23.1321, 23.1323, 23.1329, 23.1361, 23.1383, 23.1401, 23.1431, 23.1435 through Amendment 23-49;
- RBHA/FAR 23.3, 23.25, 23.143, 23.145, 23.155, 23.1325, 23.1521, 23.1543, 23.1555, 23.1559, 23.1567, 23.1583, 23.1585, 23.1589 through Amendment 23-50;
- RBHA/FAR 23.777, 23.779, 23.901, 23.907, 23.955, 23.959, 23.963, 23.965, 23.973, 23.975, 23.1041, 23.1091, 23.1093, 23.1107, 23.1121, 23.1141, 23.1143, 23.1181, 23.1191, 23.1337 through Amendment 23-51;
- RBHA/FAR 23.1305 through Amendment 23-52;
- RBHA/FAR 36 dated 01 December 1969, as amended by current amendment as of the date of type Certification.

Model SR22:

RBHA 23, corresponding to FAA FAR Part 23 effective 01 February 1965, as amended by 23-1 through 23-53, except as follows:

- RBHA/FAR 23.301 through Amendment 47;
- RBHA/FAR 36 dated 01 December 1969, as amended by current amendment as of the date of type Certification.

NOTE: Exemption to RBHA/FAR 23.855, 23.1326, 23.1359, in accordance with FAA Issue Paper, stage 1 date 18 August 2000.

**CERTIFICATION BASIS
(Cont.)**

Equivalent Safety Items:

- Equivalent Levels Of Safety finding (ACE-96-5) made per the provisions of RBHA/FAR 23.221; Refer to FAA ELOS letter dated 10 June 1998 for models SR20, SR22;
- Equivalent Levels Of Safety finding (ACE-00-09) made per the provisions of RBHA/FAR 23.1143(g) and 23.1147(b); Refer to FAA ELOS letter dated 11 September 2000 for model SR22;
- Equivalent Levels Of Safety finding (ACE-01-01) made per the provisions of RBHA/FAR 23.1143(g) and 23.1147(b); Refer to FAA ELOS letter dated 14 February 2001 for model SR20.

Special Conditions:

- 23-ACE-88 for ballistic parachute.
- 23-134-SC for protection of systems for High Intensity Radiated Fields (HIRF).

PRODUCTION BASIS

Production Certificate 338CE issued 12 June 2000.

REQUIRED EQUIPMENT

The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the airplane for certification.

In addition to the above required equipment, the following equipment are also required:

- The latest CTA approved Revision of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL for the CIRRUS DESIGN SR20", Document No. 21399-003.
- The latest CTA approved Revision of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL for the CIRRUS DESIGN SR22", Document No. 21400-001.

NOTES:**NOTE 1** Weight and balance:

A current weight and balance report including list of equipment included in the certificated empty weight, and loading instructions when necessary must be provided for each aircraft at the time of original certification. The certificated empty weight and loading corresponding center of gravity location must include unusable fuel of 12.2 kg (27 lb) at +390.6 cm (+153.8 in) for model SR20; and unusable fuel of 8.2 kg (18 lb) at +393.5 kg (+154.9 in) for model SR22.

NOTE 2 Markings and placards:

All placards specified in the latest CTA approved revisions of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL FOR THE CIRRUS SR20", document number 21399-003 and the latest CTA approved revisions of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL FOR THE CIRRUS SR22" document number 21400-001 must be displayed in the airplane in the appropriate locations.

NOTE 3 Continuing Airworthiness:

Approved Airworthiness Limitations for inspection time limits, maintenance checks, mandatory retirement life information and other requirements for continued airworthiness, are included in Section 4 and 5 of the latest approved revision of the Airplane Maintenance Manual (AMM) Document No. 12137-001 for model SR20 and 13773-001 for model SR22.

NOTE 4 The differences of the Brazilian airplanes in relation to the basic FAA type design are summarized below:

- 1 - The Brazilian Airplane Flight Manual (CTA POH/AFM);
- 2 - Markings and placards.

NOTE 5 CTA POH/AFM:

- 1- FAA Approved Brazilian Airplane Flight Manual (CTA POH/AFM) No. 21399-0003, dated 06 April 2005 (or later approved revision), which corresponds to the FAA Approved Flight Manual No. 119343-003, dated 30 January 2005 (or later FAA approved revisions), is applicable to Model SR20. The airplane must be operated according to the appropriate FAA Approved Brazilian Airplane Flight Manual.
- 2- FAA Approved Brazilian Airplane Flight Manual (CTA POH/AFM) No. 21400-001, dated 06 April 2005 (or later approved revision), which corresponds to the FAA Approved Flight Manual No. 119343-003, dated 30 January 2005 (or later FAA approved revisions), is applicable to Model SR22. The airplane must be operated according to the appropriate FAA Approved Brazilian Airplane Flight Manual.

NOTE 6 Exterior Colors:

Exterior colors are to be limited to those specified in the latest CTA approved revisions of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL FOR THE CIRRUS SR20" Document 21399-003 and latest CTA approved revisions of the "PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL FOR THE CIRRUS SR22" document number 21400-001 and in the latest FAA approved revision of the Airplane Maintenance Manual (AMM) Document No. 12137-001 for model SR20, and 13773-001 for model SR22.

NOTE 7 Major structural repairs must be accomplished in accordance with FAA approved Cirrus Design repair methods or other methods approved by the FAA.

GERALDO CURCIO NETO Ten Cel Av
Chefe da Divisão de Certificação de Aviação Civil
(Chief, Divisão de Certificação de Aviação Civil)

LUIZ ALBERTO C. MUNARETTO Cel Av
Diretor do Instituto de Fomento e Coordenação Industrial
(Director, Instituto de Fomento e Coordenação Industrial)
