COMANDO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL

TYPE CERTIFICATE DATA SHEET Nº EA-9705

Type Certificate Holder:

CESSNA AIRCRAFT CO.
P.O. Box 7704
Wichita, Kansas 67277
USA

EA-9705-01
Sheet 01

CESSNA

172R, 172S

June 2002

This data sheet, which is part of Type Certificate No. 9705, 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 172R, Skyhawk (Normal and Utility Category), approved 18 June 1998.

ENGINE Lycoming IO-360-L2A, rated 160 hp

FUEL 100/100LL minimum grade aviation gasoline

ENGINE LIMITS For all operations, 2 400 rpm.

PROPELLER McCauley Model IC235/LFA7570
Spinner: Drawing No. 0550236

PROPELLER LIMITS Static rpm at full throttle: not over 2 165; not under 2 065.
No additional tolerance permitted
Diameter: not over 190.5 cm (75 in); not under 188 cm (74 in).

AIRSPEED LIMITS (CAS)

Never exceed (V_{NE}):	160 kt (163 kias)
Maneuvering (V_A):	97 kt (99 kias)
Max. structural cruise (V_{NO}):	126 kt (129 kias)
Flaps extended (V_{FE})	84 kt (85 kias)

C. G. RANGE Normal Category:
(1) Aft Limits
120 cm (47.3 in) aft of datum at 1 111 kg (2 450 lb) or less.
(2) Forward Limits
Linear variation from 102 cm (40.0 in) aft of datum at 1111 kg (2 450 lb) to 88.9 cm (35.0 in) aft of datum at 884.5 kg (1 950 lb); 88.9 cm (35.0 in) aft of datum at 884.5 kg (1 950 lb) or less.

C. G. RANGE (Cont.)

Utility Category

(1) Aft Limits
103 cm (40.5 in) aft of datum at 953 kg (2 100 lb) or less.

(2) Forward Limits
Linear variation from 92.7 cm (36.5 in) aft of datum at 953 kg (2 100 lb) at 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb); 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb) or less.

EMPTY WEIGHT C. G. RANGE

None

MAXIMUM WEIGHT

	Normal Category	Utility Category
Maximum Ramp	1 114 kg (2 457 lb)	956 kg (2 107 lb)
Maximum Takeoff and Landing	1 111 kg (2 450 lb)	953 kg (2 100 lb)

MAXIMUM BAGGAGE

54.4 kg (120 lb) at 241 cm (95.0 in) aft of datum.

OIL CAPACITY

7.6 liters (2.0 US gal) at 33.3 cm (13.1 in) forward of datum.
6.6 liters (3.5 quarts) usable.

S/N'S ELIGIBLE

17280001 and on

II - <u>Model 172S, Skyhawk (Normal and Utility Category)</u>, approved 06 June 2002.

ENGINE

Lycoming IO-360-L2A, rated 180 hp

FUEL

100/100LL minimum grade aviation gasoline

ENGINE LIMITS

For all operations, 2 700 rpm.

PROPELLER

McCauley Model 1A170E/JHA7660
Spinner: Drawing No. 0550236

PROPELLER LIMITS

Static rpm at full throttle: not over 2 400; not under 2 300
No additional tolerance permitted.
Diameter: not over 193.0 cm (76 in); not under 190.5 cm (75 in).

AIRSPEED LIMITS (CAS)

Never exceed (V_{NE}):	160 kt (163 kias)
Maneuvering (V_A):	102 kt (105 kias)
Max. structural cruise (V_{NO}):	126 kt (129 kias)
Flaps extended (V_{FE})	84 kt (85 kias)

C. G. RANGE

Normal Category:
(1) Aft Limits
120 cm (47.3 in) aft of datum at 1 157 kg (2 550 lb) or less.
(2) Forward Limits
Linear variation from 104 cm (41.0 in) aft of datum at 1157 kg (2 550 lb) to 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb); 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb) or less.
Utility Category
(1) Aft Limits
103 cm (40.5 in) aft of datum at 998 kg (2 200 lb) or less.
(2) Forward Limits
Linear variation from 95.3 cm (37.5 in) aft of datum at 998 kg (2 200 lb) to 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb); 88.9 cm (35.0 in) aft of datum at 885 kg (1 950 lb) or less.

EMPTY WEIGHT C. G. RANGE

None

MAXIMUM WEIGHT

	Normal Category	Utility Category
Maximum Ramp	1 160 kg (2 558 lb)	1 002 kg (2 208 lb)
Maximum Takeoff and Landing	1 157 kg (2 550 lb)	998 kg (2 200 lb)

MAXIMUM BAGGAGE

54.4 kg (120 lb) at 208 cm (82.0 in) to 274 cm (108.0 in) aft of datum.
22.7 kg (50 lb) at 274 cm (108.0 in) to 361 cm (142.0 in) aft of datum.
Max. combined weight capacity for baggage area is 54.4 kg (120 lb)

OIL CAPACITY

15 liters (8.0 quarts) at 33.3 cm (13.1 in) forward of datum.
5.7 liters (3.0 quarts) usable.

S/N'S ELIGIBLE

172S80001 and on

DATA PERTINENT TO ALL MODELS

DATUM

Lower portion of front face of firewall.

LEVELING MEANS

Left side of tailcone at 274.3 cm (108.0 in) and 360.7 cm (142.0 in) aft of datum.

MEAN AERODYNAMIC CHORD

149 cm (58.8 in); leading edge of MAC 65.8 cm (25.9 in) aft of datum.

NUMBER OF SEATS

4 [2 at 86.4 to 116.8 cm (34.0 to 46.0 in) aft of datum
2 at 185.4 cm (73.0 in) aft of datum].

FUEL CAPACITY

212 liters (56 US gal) total; 201 liters (53 US gal) usable. Two 106 liters (28 US gal) tanks in wings at 121.9 cm (48.0 in) aft of datum. See Note 1 for data on usable fuel.

CONTROL SURFACE MOVEMENTS:

Elevator*:	Up 28° +1°, -0°	Down 23° +1°, -0°
Elevator tab:	Up 22° +1°, -0°	Down 19° +1°, -0°
Rudder:		
(measured parallel to W.L.):	Right 16° 10' ±1°	Left 16° 10' ±1°
(measured perpendicular to hinge)	Right 17° 44' ±1°	Left 17° 44' ±1°
Aileron:	Up 20° ±1°	Down 15° ±1°
Wing flaps - Takeoff:	0° -10°	
- Landing:	0° -30° +0°/-2°	

* Neutral position is with bottom of balance area flush with bottom of stabilizer.

IMPORT ELIGIBILITY

A Brazilian Certificate of Airworthiness may be issued on the basis of 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. 9705 and in condition of safe operation".

The CTA Reports H.10-0839-01 (172R), dated 17 June 1998, and H.10-0831-00 (172S), dated 10 June 2002, or further respective revisions, contain the Brazilian requirements for the acceptance of these airplanes. (See note 4)

CERTIFICATION BASIS

RBHA 23, corresponding to FAA FAR Part 23 effective 01 February 1965, as amended by 23-1 through 23-6, except as follows:

- 23.423; 23.611; 23.619; 23.623; 23.689; 23.775; 23.871; 23.1323; and 23.1563 as amended by Amendment 23-7;
- 23.807 and 23.1524 as amended by Amendment 23-10;
- 23.507; 23.771; 23.853(a),(b) and (c); and 23.1365 as amended by Amendment 23-14;
- 23.951 as amended by Amendment 23-15;
- 23.607; 23.675; 23.685; 23.733; 23.787; 23.1309 and 23.1322 as amended by Amendment 23-17;
- 23.1301 as amended by Amendment 23-20;
- 23.1353; and 23.1559 as amended by Amendment 23-21;
- 23.603; 23.605; 23.613; 23.1329 and 23.1545 as amended by Amendment 23-23;
- 23.441 and 23.1549 as amended by Amendment 23-28;
- 23.779 and 23.781 as amended by Amendment 23-33;

CERTIFICATION BASIS (Cont.)

- 23.1; 23.51 and 23.561 as amended by Amendment 23-34;
- 23.301; 23.331; 23.351; 23.427; 23.677; 23.701; 23.735; and 23.831 as amended by Amendment 23-42;
- 23.961; 23.1093; 23.1143(g); 23.1147(b); 23.1303; 23.1357; 23.1361 and 23.1385 as amended by Amendment 23-43
- 23.562(a), 23.562(b)2, 23.562(c)1, 23.562(c)2, 23.562(c)3, and 23.562(c)4 as amended by Amendment 23-44; and
- 23.33; 23.53; 23.305; 23.321; 23.485; 23.621; 23.655 and 23.731 as amended by Amendment 23-45.

RBHA 36, corresponding to FAR 36 dated 01 December 1969, as amended by Amendments 36-1 through 36-21.

Equivalent Safety Items:

- Induction System Icing Protection: RBHA/FAR 23.1093; refer to FAA letter dated 03 May 1996 (172R) and 01 May 1998 (172S).
- Throttle Control: RBHA/FAR 23.1143(g); refer to FAA letter dated 22 March 1996 (172R) and 01 May 1998 (172S).
- Mixture Control: RBHA/FAR 23.1147(b); refer to FAA letter dated 22 March 1996 (172R) and 01 May 1998 (172S).

PRODUCTION CERTIFICATION

Production Certificate No. PC-4, issued 28 March 1997, applies to 172R airplane model serial numbers 17280014, 17280015, 17280017, 17280021 through 17280029, and 17280031 and on. Airplane serial numbers not listed were produced under Type Certificate only.

REQUIRED EQUIPMENT

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

NOTES:

NOTE 1: Weight and balance. The certificated empty weight and corresponding center of gravity location must include unusable fuel of 8.2 kg (18 lb) at 117 cm (46.0 in) aft of datum, and full oil of 6.8 kg (15.0 lb) at 33.3 cm (13.1 in) forward of datum.

NOTE 2: AFM, Markings and placards. Pilot's Operating Handbook and FAA Approved Brazilian Airplane Flight Manual (POH/AFM): POH/AFM No.172RPHBR00 original issue, dated 01 September 1997 (or later approved revision), applicable to Model 172R; and POH/AFM No. 172SPHBR00 dated 15 May 1999 (or later approved revision), applicable to Model 172S.

The airplane must be operated according to the appropriate POH/AFM. All required placards are included in Section 2 of the POH/AFM and in the Annex 2 of the reports No. H.10-0839-XX "Brazilian Requirements for the Acceptance of the Model 172R" and No. H.10-0831-XX "Brazilian Requirements for the Acceptance of the Model 172S".

NOTE 3: Continuing Airworthiness. See Maintenance Manual, Chapter 5 "Time Limits/ Maintenance Checks" for inspections, mandatory retirement life information, and others requirements for continued airworthiness.

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 approved by FAA, on behalf of CTA, is required.
2. Markings and placards in the Portuguese language (see note 2), including the following additional placards requested by CTA:
   - Cessna placard No. 0505087-XX (Kinds of approved operation in Brazil); and
   - Cessna placard No. 0505043-3 only installed in the cargo compartment door (auxiliary passenger seat not approved).
   - Placard close to fuel quantity indicator (applicable to model 172R only).
3. An emergency locator transmitter (ELT) must be installed.
4. An altimeter with baroscale setting in millibars must be installed.

These modifications are referred in the Cessna drawing No. 0501140 "Certification Provisions-Brazil".

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