

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

TYPE CERTIFICATE DATA SHEET Nº EA-8701

Type Certificate Holder:

MOONEY AIRCRAFT CORPORATION

Mooney Aircraft Corporation
Louis Schreiner Field
Kerrville, Texas 78028
USA

EA-8701
Sheet 01

MOONEY

M20J
M20K
M20M
M20R

March 1998

This data sheet, which is part of Type Certificate No. 8701, 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 M20J, (Normal Category), approved March 24, 1987.

ENGINE Textron - Lycoming, IO-360-A1B6D or IO-360-A3B6D or IO-360-A3B6 (Bendix fuel injector model RSA 5AD1 P/N 2524054). See NOTE 06 and NOTE 12.

FUEL 100 LL or 100/130 octane min. grade aviation gasoline.

ENGINE LIMITS For all operations, 2700 rpm 200 hp.

AIRSPEED LIMITS(CAS)		
	Maneuvering	135 mph (117 kt)
	Never exceed	200 mph (174 kt)
	Never exceed *	225 mph (195 kt)
	Flaps extended	
	full flaps	125 mph (109 kt)
	15° flap ****	145 mph (126 kt)
	L. G. retraction	110 mph (96 kt)
	L. G. retraction **	120 mph (104 kt)
	L. G. extension	120 mph (104 kt)
	L. G. extension ***	150 mph (130 kt)
	L. G. extension ****	159 mph (138 kt)
	L. G. extended	120 mph (104 kt)
	L. G. extended ***	150 mph (130 kt)
	L. G. extended ****	186 mph (162 kt)
	Max. structural cruising	175 mph (152 kt)
	Max. structural cruising *	200 mph (174 kt)

* S/N's 24-0171 and on and 24-0002 thru 24-0170 if S. B. M20-198 is complied with

** S/N's 24-0084, 24-0378 thru 24-TBA

*** S/N's 24 0084, 24-0378 thru 24-2999, 24-3079 thru 24-TBA and previous S/N's if S. B. M20-209 is complied with

**** S/N 24-3000 thru 24-3078

C. G. RANGE Airplanes 1243.96 kg (2740 lb) gross weight (S/N 24-0001 thru 24-3200, (L. G. extended) 24-3202 thru 24-3217):
+ 1143mm (+ 45.0 in) to + 1273mm (+ 50.1 in) at 1243.96 kg (2740 lb)
+ 1062mm (+ 41.8 in) to + 1273mm (+ 50.1 in) at 1121.38 kg (2470 lb)

+ 1041mm (+ 41.0 in) to + 1273mm (+ 50.1 in) at 1021.5 kg (2250 lb) or less.

Straight line variation between points given. Retraction moment 709 kg.cm (615 in. lb).

Airplanes 1316.6 kg (2900lb) gross weight (S/N 24-3201, 24-3218 thru 24-TBA and 24-1686 thru 24-3200, 24-3202 thru 24-3217 when c/w MAC Dwg. n° 940071 and insertion of applicable AFM Supplement.

+ 1143mm (+ 45.0 in) to + 1273mm (+ 50.1 in) at 1316.6 kg (2900 lb)

+ 1112mm (+ 43.8 in) to + 1273mm (+ 50.1 in) at 1243.96 kg (2740 lb)

+ 1062mm (+ 41.8 in) to + 1273mm (+ 50.1 in) at 1121.38 kg (2470 lb)

+ 1041mm (+ 41.0 in) to + 1273mm (+ 50.1 in) at 1021.5 kg (2250 lb) or less.

Straight line variation between points given. Retraction moment 709 kg.cm (615 in lb).

EMPTY WEIGHT C. G. RANGE

None

MAXIMUM WEIGHT

1243.96 kg (2740 lb) - S/N 24-0001 thru 24-3200, 24-3202 thru 24-3217.
1316.6 kg (2900 lb) - S/N 24-3201, 24-3218 and on and S/N 24-168 thru 24-3200, 24-3202 thru 24-217 when c/w MAC dwg. n° 940071 and insertion of applicable AFM supplement into appropriate AFM.

No. OF SEATS

4: 2 at + 864.0mm (+34.0 in) to + 991.0mm (+ 39.0 in) and
2 at + 1796mm (+70.7 in).

MAXIMUM BAGGAGE

54.48 kg (120 lb) at + 2426mm(+ 95,5 in), 4.54 kg (10 lb) at + 3023.0mm (+119.0 in)

FUEL CAPACITY

242,24 l (+64 gal) - Two integral tanks in wings at + 1229.0mm (+48.4 in). See NOTE 1 for data on unusable fuel.

OIL CAPACITY

7.57 l (2 gal) at - 292.0mm (-11.5 in)

MAXIMUM OPERATING ALTITUDE

See NOTE 11.

CONTROL SURFACE MOVEMENTS: S/N 24-0002 thru 24-1037

Wing flaps	Take-off	Down 15° ± 1°
	Landing	Down 33° +/-2°
Aileron	Up 12.5° to 17°	Down 8° ± 1°
Aileron static position		Down 0° to 2°
Elevator	Up 22° ± 2°	Down 22° + 0°/-2°
Rudder	Left 23° to 24°	Right 23° to 24°
Stabilizer (L.E.)	Up 0.5° to 1°	Down 5° to 5.75°

S/N 24-1038 and on

Wing flaps	Take off	Down 15° ± 1°
	Landing	Down 33° + 0°/-2°
Aileron	Up 12.5° to 14.5°	Down 8° ± 1°
Aileron Static position		Down 0° to 2°
Elevator	Up 22° ± 2°	Down 22° ± 2°
Rudder	Left 23° to 24°	Right 23° to 24°
Stabilizer (L.E.)	Up 0.5° to 1°	Down 5.25° to 5.75°

ELEVATOR TRIM ASSIST.

S/N 24-0002 and Up

With Stabilizer set at 3° negative setting to thrust line adjust trim assist bungees 740188 for an elevator position of 19° ± 1° at the zero spring travel position of the bungees.

This rigging to be obtained before installation of the 740171 extension springs).

LEVELING MEANS

Edge of skin splice over aft fuselage radio access panel for S/N 24-0002 thru 24-0090 (excluding 24-0084).
Leveling screws located above the tailcone access door for S/N 24-0084, 24-0091 and on.

S/N's ELIGIBLE

S/N 24-0002 and Up.

REQUIRED EQUIPMENT

In addition to the basic equipment specified in CAR 3 the following equipment must be installed:
1(a) (1) or 1(a) (2), 1(b), 1(c) or 2(a) (1), 2(b) (1), 1(c), 2(b) (1) and 1(c), 101(a), (b) or (c), 102(a), 103(a) 104(a) or (b), 201(a), 202(a), 205(a), 206(a), 301(a) and 303(a), 301(b) and 303(b), 302(a) or (b) or (c), 601(a) (b), 602 (a) or (b) or (c) or (d) or (e).

Propeller and Propeller Accessories**Weight (kg/lb)****FuselageStation (mm/in)**

1- McCauley constant speed propeller installations

- (a) (1) Propeller McCauley B2D34C212 hub ,
78CDA-4 blades(see NOTES 4 and 8)

22.473/49.5

-902/-35.5

Pitch setting at 762mm (30.0 in) station:

- S/N 24-0002 thru 24-0083, 24-0085 thru 24-0170

Low $14^{\circ} \pm 0.2^{\circ}$

High $27.5^{\circ} \pm 0.2^{\circ}$

- S/N 24-0171 thru 24-0377, 24-0002

thru 24-0083, 24-0085 thru 24-0170

if S.B M20-198 is complied with

Low $14^{\circ} \pm 0.2^{\circ}$

High $29.5^{\circ} \pm 0.5^{\circ}$

- (a) (2) Propeller McCauley, B2D34C214 hub

90DHB - 16E blades or - 16EP blades

22.473/49.5

-902/-35.5

(see NOTES 5 and 8)

Pitch setting at 762mm (30.0 in) station

- S/N 24-0378 and on

Low $13.9^{\circ} \pm 0.2^{\circ}$

High $33.0^{\circ} \pm 0.5^{\circ}$

Diameter: Max. 1880mm (74 in)

Min: 1854mm (73 in)

No further reduction permitted

No reduction permitted when equipped with de - ice boots.

- (b) Spinner assy, Mooney 680031-505

2.179/4.8

-889/-35.0

- (c) Propeller governor McCauley C290D5F/T17

1.248/2.75

-36/-1.4

2 - Hartzell constant speed propeller installation

- (a) (1) Propeller, Hartzell HC-C2YK-1BF hub,

blades F7666A 3Q

24.629/54.25

-902/-35.5

- S/N 24-1038 and ON

Pitch settings at 762mm (30 in) station

Low $14.1^{\circ} \pm 0.1^{\circ}$

High 29.3° to 31.3°

Diameter: 1854mm/73.0 in

No reduction permitted

- (b) (1) Mooney Spinner assy 680031-507

2.179/4.8

-835/-35.0

(S/N 24-1038 and On)

Engine accessories (Fuel & Oil Syst.)101 - Fuel pumps

- (a) One, engine driven, P/N AC6440296 or
6441234

0.726/1.6

+165/+6.5

- (b) One, electric Dukes 4140-00-19A or

1499-00-19 or (alternate)

0.867/1.91

+165/+6.5

Weldon P/N 8163A

1.089/2.4

+165/+6.5

- (c) One, electric, Weldon P/N 8163B for

S/N 24-3000 and on

1.089/2.4

+165/+6.5

102 <u>Oil radiator</u>		
(a) Stewart-Warner, 8432F1 or 8432L	1.089/2.4	-96/-3.8
103 <u>Induction air filter</u>		
(a) Donaldson P13-0234 or Bracket BA6210 or Air Maze 125997 - 010	0.454/1	-647/-25.5
104 <u>Starters</u>		
(a) Prestolite MZ5206 or MZ4218 or MZ4222 (S/N 24-0001 thru 24-2999)	8.081/17.8	-584/-23.0
(b) Prestolite MHB-4016 (S/N 24-3000 and on)	8.081/17.8	-584/-23.0

Landing Gear

201 - • Two main wheel/brake assy 6.00-6		
(a) Cleveland wheel/brake assy wheel model No. 40-86/ brake assy No. 30-56A	8.626/19	see NOTE 3
Optional: Cleveland 40-86E, 3056-D or McCauley D-30670-9, -10, -11, -12.		
202 - • Two main wheel, 6 ply rating tires		
(a) 6.00-6 type III w/ regular tubes	7.718/17	see NOTE 3
205 - • One nose Wheel 5.00-5		
(a) Goodyear model 40-87	1.18/2.6	see NOTE 3
206 - • One nose wheel 6 ply rating tire		
(a) 5.00-5 type III w/regular tube	3.178/7	see NOTE 3

Electrical Equipment

301 - <u>Alternators</u>		
(a) Alternator 60A, Prestolite ALY8420 or ALY8403, ALY6420 or ALY8420M (S/N 24-0001 thru 24-2999)	4.676/10.3	-622/-24.5
(b) Alternator 70A Prestolite ALU6421-LS (S/N 24-3000 and on)	4.676/10.3	-622/-24.5
302 - <u>Batteries</u>		
(a) Auto-lite, R-35 or Prestolite R-35 or Gill 6-GCAB-11 or PS6-11 or Rebat R-37 (S/N 24-0001 thru 24-2999)	12.258/27	+2814/+110.8
(b) Gill G-242 (S/N 24-3000 thru 24-3200, 24-3202 thru 24-3217)	12.258/27	+2814/+110.8
(c) Gill G-243(S/N 24-3201, 24-3218 and on)	13.393/29.5	+2814/+110.8
303 - <u>Voltage Regulators</u>		
(a) OECO 20082* or Electrodelta VR 414* or VR415 or VR 415D or Mooney 800270-505 (S/N 24-0001 thru 24-2999)	0.635/1.4 0.272; 0.6	+51/+2.0 +51/+2.0
(*) Use 800331-721 Adapter when OECO or VR 414 is replaced by VR 415 or VR 515D or 800270-505 regulators.		
(b) Precise Flight DGR-2 or Eledrodelta VR 802 or 800290-501 (S/N 24-3000 and on)	0.272/0.6 0.136/0.3	+51/+2.0 +51/+2.0

Miscellaneous

601 - <u>Warning Systems</u>		
(a) Gear warning indicator Mallory SC 628P	0.454/1	-63/-2.5
(b) Stall warning indicator Mallory SC 628	0.454/1	+1270/+50.0
602 - <u>Vacuum pumps</u>		
(a) Airborne 200CC (24-0001 thru 24-2999) or	1.589/3.5	-127/-5.0
(b) Airborne 211CC (24-0001 thru 24-2999)	1.135/2.5	-127/-5.0
(c) Airborne 241CC-17 (alternate S/N 24-3000 and on)	1.543/3.4	-127/-5.0
(d) Airborne 241CC (alternate all counter clockwise applications 24-0001 thru 24-2999) or	1543/3.4	-127/-5.0

(e) Sigma Tek IU128-003 and IU128-005
(alternate applications) 24-0001 thru 24-2999 1.543/3.4 -127/-5.0

Approved Airplane Flight Manual

Pilot's Operating Handbook and CTA approved Airplane Flight Manual No. 3203, dated February 12, 1995.

SPECIFICATIONS PERTINENT TO MODEL

DATUM	127.0mm (5.0 in) aft of the centerline of the nose gear support bolts (fuselage station 0.00). The leading edge of the wing at the wing station 1505mm (59.25 in) is 838.2mm (33.00 in) aft of fuselage station 0.00.
CERTIFICATION BASIS	CAR 3, effective November 1, 1949 as amended to May 18, 1954 with para. 3.74 of Amendment 3-13; para.3-109, 3-112, 3-115, 3-118 and 3-120 of CAR 3 effective May 15, 1956 as amended to October 1, 1959. In lieu of corresponding CAR 3 paragraphs where applicable-FAR 23, effective February 1, 1965; para. 23-29 as amended to March 1, 1978; para. 23.1441 thru 23.1449 as amended to June 17, 1970.
ADDITIONAL REQUIREMENTS	Brazilian Special Requirements set forth in CTA Report H.10-088-02, November 26, 1986 or in its approved revisions.
IMPORT ELEGIBILITY	A Brazilian Airworthiness Certificate may be issued on the basis of a FAA Export Certificate of Airworthiness, or a third country Export Certificate of 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 Brazilian Type Certificate no. 8701 and in condition of safe operation". The CTA Report H.10-0880-2, dated 26 November 86 or latest revisions, contains the Brazilian requirements for the acceptance of these airplanes. The differences of the Brazilian airplanes in relation to the basic FAA type design are summarized below: 1. Brazilian approved AFM; 2. Portuguese markings and placards; 3. One ELT (RBHA 91 requirements); 4. One HF communication system (RBHA 91 requirements); and 5. One ADF system (RBHA 91 requirements).

II - Model M20K Normal category, Approved March 24, 1987

ENGINES	Teledyne Continental Motors TSI0-360-GB1, - GB3, - GB4 (S/N) 25-0001 thru 25-0780). TSI0-360-LB1 (S/N 25-0781 thru 25-0889) see NOTE 9. TSI0-360-MB () (S/N 25-1000 and Up)
FUEL	100LL or 100/130 octane min. grade aviation gasoline
ENGINE LIMITS	For all operations 2700 rpm, 40.0 in Hg MP (210 hp); for the - MB (), 36 in Hg MP.
AIRSPEED LIMITS (CAS)	25-0001 thru 25-0889 25-1000 and Up
	Maneuvering 135mph/117kt
	Never exceed 225mph/195kt
	Flaps extended 125mph/109kt
	L.G. retraction 120mph/104/kt
	L.G. extension 150mph/130kt 160mph/139kt
	L. G. extended 150mph/130kt 190mph/165kt
	Max. structural cruising 200mph/174kt

C.G. RANGE (LG extended)	+ 1105 (+43.5 in) to +1252mm (+49.3 in) at 1,316.6 kg (2900lb) +1031mm (+40.6 in) to +1252mm (+49.3 in) at 1,071.44 kg (2360 lb) (Straight line variation between points given) Retraction moment 709.2 kg.cm (615 in. lb)
EMPTY WEIGHT C.G. RANGE	None
MAX. WEIGHT	1,316.6 kg (2900 lb)
No. OF SEATS	4: 2 at + 864mm (+34.0 in) to + 991mm (+39.0 in) and 2 at + 1796mm (+70.7 in)
MAX. BAGGAGE	54.48 kg (120lb) at + 2426mm (+95.5 in) and 4.54 kg (10lb) at + 3023mm (+119.0 in)
FUEL CAPACITY	272.52 l (72.0 gal) - S/N 25-0001 thru 25-0446 286.14 l (75.6 gal) usable - S/N 25-0447 and on. Two integral tanks in wings at + 1234mm (+48.59 in). See NOTE 1 for data on unusable fuel.
OIL CAPACITY	7.57 l (2 gal) at - 564mm (-22.19 in)
MAX. OPERATING ALTITUDE	24.000ft for S/N 25-0001 thru 25-0999 28.000ft for S/N 25-1000 and on See NOTE 11

CONTROL SURFACE MOVIMENTS:

Wing flaps	Take off	Down 10° ±1°
	Landing	Down 33°+0°/-2°
Aileron	Up 12.5° to 14.5°	Down 8° ± 1°
Aileron static position		Down 0° to 2°
Elevator	Up 22° + 0°/-2°	Down 22° + 0°/-2°
Rudder	Left 23° to 24°	Right 23° to 24°
Stabilizer (L.E.)	Up 3.8° to 4.2°	Down 6.5° to 7°

ELEVATOR TRIM ASSIST. With stabilizer set at maximum positive setting and elevators full down, adjust turnbuckle for 6.356 kg (14.0lb) to 7.264 kg (16.0lb) on tensiometer. Tensiometer reading 9.08 kg (20lb) maximum permissible. Check for positive clearance between cable end and pulley sheave.

LEVELING MEANS Edge of skin splice over aft fuselage radio access panel. (S/N 25-0002 thru 25-0246).
Leveling screws located above the tailcone access door (S/N 25-0247 and on).

SERIAL NO.'S ELIGIBLE S/N 25-0001 and Up

REQUIRED EQUIPMENT S/N 25-0001 thru 25-0999
In addition to the required basic equipment specified in CAR 3, the following items of equipment must be installed:
1(a) (1) or 1(a) (2) (b) (c) or 2 (a) (b) (c), 101(a) 103(a), 104(a), 201(a) 202(a), 205(a), 206(a), 301(a) and 303 (a), 302(a),601 (a), (b), 602 (a) or (b), (c).
S/N 25-1000 and on
1(a) (2) (b) (c) or 2 (a) (b),(c), 101 (b), 103 (b), (104) (b), 201(a), 202(a), 205(a), 206(a), 301(b) and 303(b), 302(b), 601(a), (b), 602(a) or (b) or (c).

<u>Propeller and Propeller Accessories</u>	<u>Weight (kg/lb)</u>	<u>FuselageStation (mm/in)</u>
1- McCauley constant speed propeller installation		
(a) (1) McCauley 2A34C216 hub/90DHB-16E blades	25.060/55.2	-1151/-45.32
Pitch settings at 762 mm (30in) station:		
Low 14.7° ± 0.2°		
High 33.0° ± 0.5°		

Diameter: 1880mm(74 in) no reduction permitted.		
S/N 25-0001 thru 25-0999		
(a) (2) McCauley 2A 34C221 hub/90DHC-16E or 90 DHC-16EP blades	25.060/55.2	-1151/-45.32
Pitch settings at 762mm (30in) station:		
Low 14.7° ± 0.2°		
High 38.0° ± 0.5°		
Diameter: 1880mm(74 in)		
No. reduction permitted,		
(S/N 25-1000 and on and S/N 25-0001 thru 25-0999 providing S.I. M20-75 has been complied with).		
(b) Spinner assy, Mooney 680032-501	2.179/4.8	-1151/-45.32
(c) Propeller governor, McCauley C290D3F/T()	1.248/2.75	-815/-32.10
2. Hartzell constant speed propeller installation		
(a) Propeller hub/blades assy		
Hartzell hub BHC - J2YF-1BF/blades F8459A-11Q	24.516/54	-1151/-45.32
Pitch settings at 762mm (30 in) station		
Low 14.7° ± 0.1°		
High 30.0° to 32.0° (see NOTE 10)		
Diameter: 1854mm(73.0 in)		
No reduction permitted (S/N 25-0001 and on)		
(b) Spinner assy, Hartzell A2295 (S/N 25-001 and on)	2.043/4.5	-1151/-45.32
(c) Propeller governor McCauley C290D3F/T()	1.248/2.75	-815/-32.10

Engines and engines accessories (Fuel & Oil Syst.)

101. Fuel pumps		
(a) One electric, Dukes 4140-00-19A or 1499-00-19 or Weldon 10054A (S/N 25-0001 thru 25-0999)	0.862/1.9 1.225/2.7	+165/+6.5 +167/+6.5
(b) Weldon 10054B (S/N 25-1000 and on)	1.225/2.7	+165/+6.5
103. Induction air filter		
(a) Donaldson P13-6287 or Airmaze 125685-004	0.454/1	-355/-14.0
(b) Airmaze ED04011 00736 (S/N 25-1000 and on)	0.227/0.5	-607/-23.92
104. Starters		
(a) Teledyne Continental Motors 634592 (same as Prestolite MCL 6501 or 6462381)	8.217/18.1	-231/-9.1
(b) TCM 646275 (S/N 25-0001 and ON)	8.217/18.1	-231/-9.1

Landing Gear

201. Two main wheel/brake assy 6.00-6		
(a) * Cleveland wheel assy model No. 40-86/ Brake assy No. 30-56A	8.626/19	See NOTE 3
* Optional - Cleveland 40-86E, 30-56 D or McCauley D-30670-9,-10,-11,-12		
202. Two main wheel 6 ply rating tires		
(a) 6.00-6 Type III w / regular tubes	7.718/17	See NOTE 3
205. One nose wheel 5.00-05		
(a) * * Cleveland Model 40-87	1.180/2.6	See NOTE 3
* * Optional: - McCauley D-305000		
206. One nose wheel 6 ply rating tire		
(a) 5.00-5 Type III W / regular tube	3.178/7	See NOTE 3

Electrical Equipment

301. Alternators / Generators		
(a) Alternator 70A, TCM 643008 (Same as Prestolite ALX-9425 A or ALX-9425B) See NOTE 7	5.311/11.7	-175/-6.9
(b) 70 A TCM 646719	5.311/11.7	-175/-6.9
Optional 70A TCM 649172	4.676/10.3	-140/-5.5
(c) Optional 10A, Generator Eletro-Mech EM 8012	2.633/5.8	-128/-5.04

302. Batteries

- | | | |
|--|-------------|--------------|
| (a) Auto-Lite R-35 or Prestolite R-35 or
Gill 6-GCAB-11 or PS6-11 or Rebat
R-37 (S/N 25-0001 thru 25-0999) | 12.258/27 | +2814/+110.8 |
| (b) Gill G-242 (S/N 25-1000 thru 25-1196) | 12.258/27 | +2814/+110.8 |
| (c) Gill G-243 (S/N 25-1197 and on) | 13.393/29.5 | +2814/+110.8 |

303. Voltage Regulator

- | | | |
|--|------------------------|----------------------|
| (a) OEKO 20082* or
Eletrodelta VR414* or VR415 or VR415D
or 800270-505 | 0.635/1.4
0.272/0.6 | +51/+2.0
+51/+2.0 |
| (b) Precise Flight DGR-2 or Eletrodelta
VR802 (1 or 2 ea) or 800270-503
(S/N 25-1000 and on) | 0.272/0.6 | +51/+2.0 |
- * Use 800331-721 adapter when OEKO
or VR414 is replaced by VR415, VR415D or 800270-505 regulator.

Miscellaneous**601. Warning Systems**

- | | | |
|---|---------|-------------|
| (a) Gear warning indicator Mallory SC628P | 0.454/1 | -64/-2.5 |
| (b) Stall warning indicator Mallory SC628 | 0.454/1 | +1270/+50.0 |

602. Vacuum pumps

- | | | |
|---|-----------|----------|
| (a) *** Airborne 200CC | 1.589/3.5 | -96/-3.8 |
| (b) *** Airborne 211CC | 1.135/2.5 | -96/-3.8 |
| (c) Sigma-Tek 1U128-003 and 1U128-005
(Alternate for all applications) | 1.543/3.4 | -96/-3.8 |
| *** Airborne 241CC (alternate all
counter clockwise applications) | 1.543/3.4 | -96/-3.8 |
| *** Airborne 242CW-10 (alternate all
clockwise applications) | 1.543/3.4 | -96/-3.8 |

Approved Airplane Flight Manual

Pilot's Operating Handbook and CTA approved Airplane Flight Manual
No. 1236(B), dated December 8, 1989.

SPECIFICATIONS PERTINENT TO MODEL

DATUM 127.0mm(5.0 in) aft of the centerline of the nose gear support bolts
(fuselage station 0.00).
The Leading Edge of the wing at wing station 1505mm (59.25 in) is
838mm (33.0 in) aft of fuselage station 0.00.

CERTIFICATION BASIS CAR 3 effective November 1, 1949 as amended to May 18, 1954 with para.
3.74 of Amendment 3-13; para. 3.109, 3.112, 3.115, 3.118, 3.120 and
3.441 of CAR 3 effective may 15, 1956 as amended to October 1,
1959. In lieu of corresponding CAR paragraphs, where applicable,
FAR 23 effective February 1, 1965; para. 23.29 as amended to march 1,
1978; para. 23.33, 23.901 thru 23.953, 23.955 thru 23.963, 23.967
thru 23.1063 as amended to September 14, 1969 para. 23.1091 thru
23.1105 as amended to February 1, 1977 para. 23.1121 thru 23.1193,
23.1351 thru 23.1401, 23.1527, 23.1553 as amended to September 14,
1969; para. 23.1441 thru 23.1449 as amended to June 17, 1970.
FAR 36, effective September 20, 1976.

ADDITIONAL REQUIREMENTS Requirements set forth in CTA Report H.10-088-02 dated November 26,
1986 or in its approved revisions

IMPORT ELEGIBILITY A Brazilian Airworthiness Certificate may be issued on the basis of a FAA
Export Certificate of Airworthiness or a third country Export Certificate of
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

Brazilian Type Certificate no. 8701 and in condition of safe operation".
The CTA Report H.10.0880-2, dated 26 November 86 or lasted revisions,
contains the Brazilian requirements for the acceptance of these airplanes.
The differences of the Brazilian airplanes in relation to the basic FAA type
design are summarized below:

1. Brazilian approved AFM;
2. Portuguese markings and placards;
3. One ELT (RBHA 91 requirements)
4. One HF communication system (RBHA 91 requirements); and
5. One ADF system (RBHA 91 requirements).

III - Model M20M, (normal Category) Approved November 26, 1991

ENGINE	Textron-Lycoming TIO-540-AF1A Textron-Lycoming TIO-540-AF1B standard for 27-0211 thru 27-TBA Optional for 27-0001 thru 27-0210.														
FUEL	100 LL or 100 min. grade aviation gasoline														
ENGINE LIMITS	For all operations 2575 rpm, 38.0 in Hg MP (270 hp)														
AIRSPEED LIMITS (CAS)	<table border="0"> <tr> <td>Maneuvering</td> <td>141 mph (123kt)</td> </tr> <tr> <td>Never exceed</td> <td>225 mph (195kt)</td> </tr> <tr> <td>Flaps extended</td> <td>125 mph (109kt)</td> </tr> <tr> <td>L.G. retraction</td> <td>120 mph (104kt)</td> </tr> <tr> <td>L.G. extension</td> <td>160 mph (139kt)</td> </tr> <tr> <td>L.G. extended</td> <td>190 mph (165kt)</td> </tr> <tr> <td>Max. structural cruising</td> <td>200 mph (174kt)</td> </tr> </table>	Maneuvering	141 mph (123kt)	Never exceed	225 mph (195kt)	Flaps extended	125 mph (109kt)	L.G. retraction	120 mph (104kt)	L.G. extension	160 mph (139kt)	L.G. extended	190 mph (165kt)	Max. structural cruising	200 mph (174kt)
Maneuvering	141 mph (123kt)														
Never exceed	225 mph (195kt)														
Flaps extended	125 mph (109kt)														
L.G. retraction	120 mph (104kt)														
L.G. extension	160 mph (139kt)														
L.G. extended	190 mph (165kt)														
Max. structural cruising	200 mph (174kt)														
C.G. RANGE (L.G. extended)	<p>S/N 27-0001 thru 27-0052: 1452.8 kg (3200lb) C.G. limits: +1143mm (+45.0 in) to + 1295mm (+51.0 in) at 1452.8 kg (3200lb) +1092mm (+43.0 in) to +1295mm (+51.0 in) at 1362 kg (3000 lb) +1041mm (+41.0 in) to + 1295mm (+51.0 in) at 1103.22 kg (2430lb) or less. Straight line variation between points given. Retraction moment 709.2 kg. cm (615 in. lb)</p> <p>S/N 27-0053 and on and S/N 27-0001 thru 27-0052 that have complied With Mooney S.B. M20-248: 1529.1 kg (3368lb) C. G. limits: +1168mm (+46.0 in) to + 1295mm (+51.0 in) at 1529.1 kg (3368lb) +1118mm (+44.0 in) + 1295mm (+51.0 in) at 1.498 kg (3.300lb) +1041mm (41.0 in) to + 1295mm (+51.0 in) at 1103.22 kg (2430lb) or less. Straight line variation between points given. Retraction moment 709.2 kg. cm (615 in lb)</p>														
EMPTY WEIGHT C. G. RANGE	None														
MAX. WEIGHT	1452.8 kg (3200lb) S/N 27-0001 thru 27-0052 1529.1 kg (3368lb) takeoff and 1452.8 kg (3200lb) landing for S/N 27-0053 and on and those aircraft S/N 27-0001 thru 27-0052 that have complied with Mooney S.B. M20-248.														
NO. OF SEATS	4: 2 at + 864 mm (+ 34.0 in) to + 991mm (+39.0), 2 at +1796 mm (+70,7 in)														
MAX. BAGGAGE	54.48 kg (120lb) at + 2578mm (+101.5 in) and 4.54 kg (10 lb) at + 3200mm (+126.0 in)														
FUEL CAPACITY	336.8 l (89gal) Two integral tanks in wings at + 1250mm (+49.23 in). See NOTE 1 for data on unusable fuel.														

OIL CAPACITY 9.46 l (10qt) at-629mm (-24.76 in)

MAX. OPERATING ALTITUDE 25.000 ft (See NOTE 11)

CONTROL SURFACE MOVEMENTS

Wing flaps	Take off	Down 10° ±1°
	Landing	Down 33°+0°/-2°
Aileron	Up 12.5° to 14.5°	Down 8° ± 1°
Aileron static position		Down 0° to 2°
Elevator	Up 22° + 0°/-2°	Down 22° + 0°/-2°
Rudder	Left 23° to 24°	Right 23° to 24°
Stabilizer (L.E.)	Up 3.8° to 4.2°	Down 6.5° to 7°

ELEVATOR TRIM ASSIST With stabilizer set at maximum positive setting and elevators full down, adjust turn buckle for a 6.356 kg (14.0lb) to 7.264 kg (16.0 lb) tensionmeter reading on cable.
Check for positive clearance between cable end and pulley sheave.
Tensionmeter reading 9.08 kg (20 lb) maximum permissible.

LEVELING MEANS Leveling screws located above the tailcone access door on left side.

SERIAL NO. ELIGIBLE S/N 27-0001 and Up

REQUIRED EQUIPMENT In addition to the required basic equipment specified in CAR 3 the following items of equipment must be installed:
1(a), (b) or (c), (d), 101 (a) (b), 102 (a), 103 (a) or (b), 104 (a), 201 (a), 202 (a), 205 (a), 206 (a), 301 (a), 302 (a), 303 (a), 601 (a), 602 (a), (b) or (c).

<u>Propeller and Propeller Accessories</u>	<u>Weight (kg/lb)</u>	<u>FuselageStation (mm/in)</u>
1. McCauley constant speed propeller installation		
(a) McCauley B3D32C417 Hub/Blades 82NRD-7	34.05/75.0	-1257/-49.5
Pitch settings at 762mm(30 in)blade station:		
Low 15.1° ± 0.2°		
High 43.0° ± 0.5°		
Diameter: 1905mm (75.0 in)		
No reduction permitted		
(b) Spinner assy McCauley D-6204	2.179/4.81	-1295/-51.0
(c) Spinner assy McCauley D-6204-1	2.179/4.81	-1295/-51.0
(d) Propeller governor McCauley C290D3 () T27	1.452/3.2	-909/-35.80
(e) Propeller de-icing boots, McCauley 690003-501 (S/N 27-0001 and on)	4.086/9	-1257/-49.5
<u>Engines and Engine Accessories (Fuel & Oil Systems)</u>		
101. Fuel Pumps		
(a) Electric Weldon A10051-D	0.862/1.9	+165/+6.5
(b) Engine driven Lear Siegler RG 17980J	0.908/2.0	-76/-3.0
102. Oil Radiator		
(a) Stewart Warner 10614R	3.405/7.5	-812/-32.0
103. Induction air filter		
(a) Air Maze ED04028 or		
(b) Donaldson P5242257	0.454/1	-914/-36.0
104. Starter		
(a) Starter, geared, Textron-Lycoming 31B21064	8.172/18	-902/-35.5
<u>Landing Gear</u>		
201. Two main wheel/brake assy 6.00-6		
(a) * Cleveland wheel assy model No. 40-86/Brake assy n° 30-56A	8.626/19.0	see NOTE 3

* Optional-Cleveland 40-86E, 30-56D or McCauley D-30670-9,-10,-11,-12.		
202. Two main wheel 6 ply rating tires		
(a) 6.00-6 Type III w/regular tubes	7.718/17	see NOTE 3
205. One nose wheel 5.00-5		
(a) * Cleveland model 40-87	1.180/2.6	see NOTE 3
* Optional: -McCauley D-305000		
206. One nose wheel 6 ply rating tire		
(a) 5.00-5 Type III w/regular tube	3.178/7	see NOTE 3

Electrical Equipment

301. Alternators		
(a) Alternator ES 4009 # 1	4.199/9.25	-1130/-44.5
Optional Alternator ES 4009 # 2	4.199/9.25	-1176/-46.3
302. Batteries		
(a) Two, Gill (Teledyne) G-243	13.393/29.5 (ea)	+3708/+146
303 Voltage regulators		
(a) Precise Flight DGR-2 or Electrodelta VR 802 (2reqd) or 800270-503 (1reqd.)	0.272/0.6 (ea) 0.281/0.62	+413/+16.25 +413/+16.25

Miscellaneous

601. Systems		
(a) Stall/Gear warning IAI, P/N 950D-0309-000	0.494/1.1	+107/+4.24
(b) Oxygen installation 870029-513	20.203/44.5	+3479/+137
602. Vacuum Pumps		
(a) Airbone 241CC-15	1.543/3.4	-231/-9.11
(b) Airborne 28C214 CW	1.543/3.4	-231/-9.11
(c) Sigma Tec 1U128-006 (alternate)	1.543/3.4	-231/-9.11

Approved Airplane Flight Manual

Pilot's Operating Handbook and CTA approved Airplane Flight manual
No. 3203, dated February 12,1995.

SPECIFICATIONS PERTINENT TO MODEL

DATUM	330 mm (13 inches) aft of the centerline of the nose gear support bolts (fuselage station 0.00). The leading edge of the wing, at wing station 1505mm (59.25 in), is 838mm (33 inches) aft of fuselage station 0.00.
CERTIFICATION BASIS	<u>Model M20M CAR 3</u> effective November 1, 1949, as amended to May 18, 1954, paragraph 3.74 as amended to August 25, 1955; paragraphs 3.109,3.112, 3.115, 3.118, 3.120, and 34.441 of CAR 3 effective May 15, 1956, as amended to October 1, 1959. In lieu of corresponding CAR 3 paragraphs, where applicable FAR 23. effective February 1,1965; paragraph 23.29 as amended to March 1, 1978, paragraph 23.33, as amended to September 14, 1969; paragraphs 23.901 thru 23.953, 23.955 thru 23.963, 23.967 thru 23.1063, as amended to September 14, 1969; paragraphs 23.1091 thru 23.1105, as amended to February 1, 1977; paragraphs 23.1121 thru 23.1193, 23.1351 thru 23.1399 as amended September 14, 1969; paragraphs 23.1401 as amended to August 11, 1971; paragraphs 23.1441 thru 23.1449 as amended to June 17,1970, paragraph 23.1521 as amended to December 1, 1978; paragraph 23.1525; paragraph 23.1527, as amended to September 14,1969; paragraph 23.1545, 23.1549, 23.1553 as amended to December 1, 1978; paragraph 23.1557, as amended to December 20, 1973; paragraph 23.1559 as amended to March 1, 1978; paragraph 23.1563 as amended to September 14, 1969; paragraph 23.1583 as amended to December 1, 1978; FAR 36, effective September 20, 1976, as amended to December 22, 1988.

ADDITIONAL REQUIREMENTS	Requirements set forth in CTA Report H.10-0882-01 dated 19 January 1998 or in its approved revisions.
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IMPORT ELIGIBILITY

A Brazilian Airworthiness Certificate may be issued on the basis of a FAA Export Certificate of Airworthiness or a third country Export certificate of 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 Brazilian Type Certificate no. 8701 and in condition of safe operation". The CTA Report

H.10.0882-01, dated 19 January 98 or latest revisions, contains the Brazilian requirements for the acceptance of these airplanes. The differences of the Brazilian airplanes in relation to the basic FAA type design are summarized below:

1. Brazilian approved AFM;
2. Portuguese markings and placards;
3. One ELT (RBHA 91 requirements)
4. One HF communication system (RBHA 91 requirements); and
5. ADF system (RBHA 91 requirements).

PLACARDS

All markings and placards for passenger information, external markings for emergency, load limits in cargo/baggage compartments must be presented in Portuguese or bilingual in accordance with Annex 1 to CTA Report H.10-088-02.

IV - Model M20R, (Normal Category), approved on February 10, 1998**ENGINE**

Teledyne Continental motors IO-550-G(5)
(6) configuration is same as (5) configuration and may be used when dry pad adapter is required.

FUEL

100 LL or 100 min-grade aviation gasoline

ENGINE LIMITS

For all operations 2500rpm, 280 hp.

AIRSPPEED LIMITS (CAS)

Maneuvering	141mph (123knots)
Never exceed	225mph (195knots)
Flaps extended	125mph (109knots)
L.G. retraction	120mph (104knots)
L.G. extension	160mph (139knots)
L.G. extended	190mph (165knots)
Max. structural cruising	200mph (174knots)

C. G. RANGE

(L.G. extended)

S/N 29-0001 and on:
+1168mm(+46,0 in) to + 1295mm(+51.0 in) at 1529 kg (3368lb)
+1117mm(+44.0 in) to + 1295mm (+51.0 in) at 1498.2 kg (3300lb)
+ 1041mm (+41.0 in) to + 1295mm (+51.0 in) at 1103.22 kg (2430lb) or less

**EMPTY WEIGHT C.G. RANGE
MAXIMUM WEIGHT**

None
For S/N 29-0001 and on:
Takeoff-1529 kg (3368kbf)
Landing-1452.8 kg (3200lb)

NO. OF SEATS

in)

4:2 at +864mm (+34.0 in) to +991mm (+39.0 in), 2 at + 1796mm (+70,7

MAXIMUM BAGGAGE

54.48 kg (120lb) at + 2578mm (+101.5 in) and 4.54 kg (10lb) at + 3200mm (+126.0 in)

FUEL CAPACITY

(usable)

336.9 l (89gal) - Two integral tanks in wings at + 1250mm (49.23 in)
See NOTE 1 for data on unusable fuel.

OIL CAPACITY

7.5 l (8qt) at-629mm (-24.76 in)

MAX. OPERATING ALTITUDE

See N/OTE 11

CONTROL SURFACE MOVEMENTS

Wing flaps	Take off	Down 10° ±1°
	Landing	Down 33°+0°/-2°
Aileron	Up 12.5° to 14.5°	Down 8° ± 1°
Aileron static position		Down 0° to 2°
Elevator	Up 22° + 0°/-2°	Down 22° + 0°/-2°
Rudder	Left 23° to 24°	Right 23° to 24°
Stabilizer (L.E.)	Up 3.8° to 4.2°	Down 6.5° to 7°

ELEVATOR TRIM ASSIST

With stabilizer set at maximum positive setting and elevators full down, adjust turnbuckle for a 6.356 kg (14.0lb) to 7.264 kg (16.0 lb) tensiometer reading on cable.

Max. tensiometer reading permissible 9.08 kg (20lb).

Check for positive clearance between cable end and pulley sheave.

LEVELING MEANS

Leveling screws located above the tail cone access door on left side

SERIAL NO. ELIGIBLE

S/N 29-0001 and Up

REQUIRED EQUIPMENT

In addition to the pertinent required basic equipment specified in CAR 3, the following items of equipment must be installed: 1(a), (b) or (c) or (d), 101 (a), (b), 102 (a), 103(a) or (b), 104 (a), 201(a), 202(a), 205(a), 206(a), 301 (a), 302(a), 303(a), 601(a), 602(a) or (d) and (b) or (c).

Propeller and Propeller Accessories

1. McCauley constant speed propeller installation

(a) McCauley 3A32C418 Hub/Blades
82NRC-9

Weight (kg/lb)**FuselageStation (mm/in)**

32.597/71.8

-1257/-49.5

Pitch settings at 762mm (30 in) blade station:

Low 16.1° ± 0.2°

High 40.0° ± 0.5°

Diameter: 1854mm (73.0 in).

12.7mm (0.5 in) reduction permitted

(b) Spinner assy McCauley

D-7192 (painted)

2.179/4.8

-1295/-51

(c) Spinner assy McCauley

D-7192-1 (polished)

2.179/4.8

-1295/-51

(d) Propeller governor Mooney

660115-511

1452/3.2

-968/-38.13

(e) Propeller de-icing boots

McCauley 690003-501

(S/N 29.0001 and on)

4.086/9

-1257/-49.5

Engines and Engine Accessories (Fuel & Oil Syst.)

101. Fuel pumps

(a) Electric, Weldon A8152B

0.862/1.9

+165/+6.5

(b) Engine driven, TCM 649364-4A1

0/908/2.0

-252/-9.95

102. Oil radiator

(a) TCM 637132

3.541/7.8

-311/-12.24

103. Induction air filter

(a) Air- Maze ED04028 or

(b) Donaldson P5242257

0,454/1

-914/-36.0

104. Starter

(a) Starter geared, TCM 646275

6.583/14.5

-231/-9.11

Landing Gear

201. Two, main wheel/brake assy 6.00-6

(a) Cleveland, wheel assy model n° 40-86
and brake assy n° 30-56A

8.626/19.0

See NOTE 3

Optional: Cleveland 40-86E, 30-56D

or McCauley D-30670-9,-10,-11,-12		
202. Two, main wheel 6 ply rating tires		
(a) 6.00-6 Type III W/regular tubes	7.718/17	See NOTE 3
205. One nose wheel 5.00-5		
(a) Cleveland model 40-87	1.180/2.6	See NOTE 3
Optional: McCauley D-305000		
206- One nose wheel 6 ply rating tire		
(a) 5.00-5 Type III w/regular tube	3.178/7	See NOTE 3

Electrical Equipment

301. Alternator		
(a) Alternator, TCM 649304 (100A)	7.945/17.5	-966/-38.05
302. Batteries		
(a) Gill (Teledyne) G-243 (2reqd.)	(ea) 13.393/29.5	+3708/+146.0
303. Voltage Regulators		
(a) MAC 800270-501 (alternator)	0.136/0.3	+413/+16.25
(b) MAC 800270-523 (Low boost pump)	0.113/0.25	+413/+16.25

Miscellaneous

601. Systems		
(a) Stall/Gear Warning IAI 950D-0309-000	0.499/1.1	+108/+4.24
(b) Oxygen installation 870029-513	20.679/45.55	+3480/+137
602. Vacuum pumps		
(a) Airborne 242Cw	1.543/3.4	-231/-9.11
(b) Airborne 28C214Cw (Clutch driven)	1.543/3.4	-231/-9.11
(c) Sigma Tec 1U128-006 (alternate)	1.543/3.4	-231/-9.11
(d) Airborne 241CC-15	1.543/3.4	-231/-9.11

Approved Airplane Flight Manual

Pilot's Operating Handbook and CTA approved Airplane Flight Manual No. 3.600, dated March 12, 1996

SPECIFICATIONS PERTINENT TO MODEL

DATUM 330 mm (13 inches) aft of the centerline of the nose gear support bolts (fuselage station 0.00)
The leading edge of the wing at wing station 1505mm (59.25 in) is 838mm (33.00 in) aft of fuselage station 0.00.

CERTIFICATION BASIS Model M20R CAR 3 effective November 1, 1949, as amended to May 18, 1954, paragraph 3.74 as amended to August 25, 1955; paragraphs 3.109, 3.112, 3.115, 3.118, 3.120, and 34.441 of CAR 3 effective May 15, 1956, as amended to October 1, 1959. In lieu of corresponding CAR 3 paragraph, where applicable-FAR 23, effective February 1, 1965; paragraph 23.29 as amended to March 1, 1978, paragraph 23.33, as amended to September 14, 1969; paragraphs 23.901 through 23.953, 23.955 through 23.963, 23.967 through 23.1063, as amended to September 14, 1969; paragraphs 23.1091 through 23.1105, as amended to February 1, 1977; paragraphs 23.1121 through 23.1193, 23.1351 through 23.1399 as amended to September 14, 1969; paragraphs 23.1401 as amended to August 11, 1971; paragraphs 23.1441 through 23.1449 as amended to June 17, 1970, paragraph 23.1521 as amended to December 1, 1978; paragraph 23.1525; paragraph 23.1527, as amended to September 14, 1969; paragraph 23.1545, 23.1549, 23.1553 as amended to December 1, 1978; paragraph 23.1557, as amended to December 20, 1973; paragraph 23.1559 as amended to March 1, 1978; paragraph 23.1563 as amended to September 14, 1969; paragraph 23.1583 as amended to December 1, 1978; FAR 36, effective September 20, 1976, as amended to December 22, 1988.

ADDITIONAL REQUIREMENTS Requirements set forth in CTA Report H.10-0883-01, dated 19 January 1198 or in its approved revisions.

IMPORT ELIGIBILITY

A Brazilian Airworthiness Certificate may be issued on the basis of a FAA Export Certificate of Airworthiness or a third country Export certificate of 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 Brazilian Type Certificate no. 8701 and in condition of safe operation". The CTA Report H.10.0883-01, dated 19 January 98 or latest revisions, contains the Brazilian requirements for the acceptance of these airplanes. The differences of the Brazilian airplanes in relation to the basic FAA type design are summarized below:

1. Brazilian approved AFM;
2. Portuguese markings and placards;
3. One ELT (RBHA 91 requirements)
4. One HF communication system (RBHA 91 requirements); and
5. One ADF system (RBHA 91 requirements).

PLACARDS

All markings and placards for passenger information, external markings for emergency, load limits in cargo/baggage compartments must be presented in Portuguese or bilingual in accordance with Annex 1 to CTA Report H.10-088-02.

NOTES - Applicable to all Models, except as noted

NOTE 1: Current weight balance report, including list of equipment included in certificate empty weight and loading instructions when necessary, must be in each aircraft 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). The certificated empty weight and the corresponding center of gravity location must include unusable fuel (not included in fuel capacity) as follows: 6.81kg (15 lb) at + 1229mm (+ 48,4 in) for the M20J; 21.792 kg (48.0lb) at + 1234mm (+48.59 in); for the M20K (S/N 25-0001 thru 25-0446); 8.172 kg (18.0 lb) at + 123mm (+48.59 in) for the M20K (S/N 25-0447 and on; 16.344 kgf (36lbf) at + 1250mm (+49.23 in) for the M20M S/N 27-0001 and on and M20R S/N 29-0001 and on.

NOTE 2: Placards:

a. The following placards must be displayed in front of and in clear view of the pilot.

(1) M20J - (S/N 24-0002 THROUGH 24-0083 AND 24-0085 THROUGH 24-0377)

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. MAXIMUM SPEED WITH LANDING GEAR EXTENDED, 104 KIAS. MAXIMUM SPEED TO RETRACT GEAR, 96 KIAS. MAXIMUM SPEED TO EXTEND GEAR, 104 KIAS. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR - FLAPS UP + 3.8, - 1.5; FLAPS DOWN + 2.0."

(2) M20J & M20K - (S/N 24-0084, 24-0378 THRU 24-2999, 24-3079 THRU 24-TBA, 25-0001 THRU 25-0999)

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. MAXIMUM SPEED WITH LANDING GEAR EXTENDED, 132 KIAS. MAXIMUM SPEED TO RETRACT GEAR, 104 KIAS. MAXIMUM SPEED TO EXTENDED GEAR, 132 KIAS. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR- FLAPS UP + 3.8, -15; FLAPS DOWN + 2.0, -0."

(3) M20J - (S/N 24-3000 THRU 24-TBA); M20K - (S/N 25-1000 THRU 25-TBA)

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS, AND MANUALS. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. MAXIMUM SPEED WITH LANDING GEAR EXTENDED, 165 KIAS. MAXIMUM SPEED TO RETRACT GEAR, 107 KIAS. MAXIMUM SPEED TO EXTEND GEAR, 140 KIAS. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR - FLAPS UP + 3.8, -1.5; FLAPS DOWN + 2.0 -0."

-
- (4) M20M - (S/N 27-0001 THRU 27-0052 if SB M20-248 has not been complied with)
“THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE NORMAL CATEGORY. THIS AIRPLANE IS CERTIFIED FOR DAY AND NIGHT VFR/IFR OPERATION WHEN THE REQUIRED EQUIPMENT IS INSTALLED AND OPERATIONAL. FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL. MANEUVERING SPEED (3200 LBS.), 123 KIAS; (2400LBS.), 106 KIAS.
- (5) M20M - (S/N 27-0001 thru 27-0052 if SB M20-248 has been complied with and S/N 27-0053 and ON)
“THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE NORMAL CATEGORY. THIS AIRPLANE IS CERTIFIED FOR DAY AND NIGHT VFR/IFR OPERATION WHEN THE REQUIRED EQUIPMENT IS INSTALLED AND OPERATIONAL. FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL. MANEUVERING SPEED (3368 LBS.), 127 KIAS; (2600 LBS.),111 KIAS.
- (6) M20R - (S/N 29-0001 AND ON)
“THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE NORMAL CATEGORY. THIS AIRPLANE IS CERTIFIED FOR DAY AND NIGHT VFR/IFR OPERATION WHEN THE REQUIRED EQUIPMENT IS INSTALLED AND OPERATIONAL. FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL. MANEUVERING SPEED (3368 LBS.) 127 KIAS; (2232 LBS.) 103 KIAS.
- b. On storm window: Early M20M & M20R aircraft - OPTIONAL “DO NOT OPEN ABOVE 129 KIAS”
- c. On baggage compartment: “PESO MAX. NO BAGGAGEIRO 54 kg. VEJA INSTRUÇÕES PARA CARREGAMENTO NO MANUAL DE VÔO.”
- d. M20J,M20K, M20M, M20R (on hat rack) “PESO MAX. NESTE COMPARTIMENTO 4.5 kg. COLOQUE SOMENTE OBJETOS MACIOS. VEJA INSTRUÇÕES PARA CARREGAMENTO NO MANUAL DE VÔO.”
- e. M20J - On instrument panel (right side):
(1) When McCauley Model B2D34C212/78CDA-4 propeller is installed. “AVOID CONTINUOUS OPERATON BETWEEN 1600 AND 1950 RPM WITH SETTING BELLOW 15” Hg. MANIFOLD PRESSURE.”
(2) When McCauley Model B2D34C214/90DHB-16E or 16-EP propeller is installed. “AVOID CONTINUOUS OPERARION BETWEEN 1500 AND 1950 RPM WITH POWER SETTINGS BELOW 15”Hg. MANIFOLD PRESSURE.”
- f. On rear seat bottom beneath cushion. (Eff. 24-1214 & UP - M20J, 25-0613 & UP - M20K, 27-0001 & up - M20M, 29-0001 & UP - M20R).
CUIDADO: “NÃO EXCEDA 77 kg SOBRE OS ENCOSTOS DOS ASSENTOS. VEJA INSTRUÇÕES PARA CARREGAMENTO NO MANUAL DE VÔO. AMARRE A CARGA COM OS CINTOS DE SEGURANÇA”
- g. On M20J (24-30000 through 24-3078) above flap switch:
“FLAP EXTENSION SPEED MAXIMUM, 15°, 132 KIAS; FULL, 115 KIAS.
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- NOTE 3:** See aircraft weight and balance data for wheel locations.
- NOTE 4:** Engine tachometer is to be marked with a YELLOW arc between 1600 and 1950 rpm indicating a caution range against continuous operation in this speed range with manifold pressure below 15" Hg.
- NOTE 5:** Engine tachometer is to be marked with a YELLOW arc between 1500 and 1950 rpm indicating a caution range against continuous operation in this speed range with manifold pressure below 15" Hg.
- NOTE 6:** A Textron-Lycoming 10-360-A1B6D engine can be converted to a Textron-Lycoming 10-360-A3B6D engine by complying with Mooney Aircraft Corporation Service Bulletin No. M20-206.
- NOTE 7:** Model M20K gearing limits alternator output to 60 amperes (S/N 25-0001 thru 25-0999).
- NOTE 8:** McCauley Model B2D34C214/90DHB-16E or 16EP propeller may be used on aircraft S/N 24-0002 thru 24-0377 when Mooney Service Bulletin # M20-214 has been incorporated.
- NOTE 9:** A TSI0-360-GB series engine may be replaced with a TSI0-360-LB-1 engine by complying with Mooney Aircraft Corporation Service Bulletin No. M20-228.
- NOTE 10:** High pitch setting at 30 in. station for Hartzell BHC-J2YF-1BF (Hub S/N 134 & ON) is $36.5^{\circ} \pm 1.0^{\circ}$ when installed on M20K S/N 25-1000 & On.
- NOTE 11:** Operating altitude limitations are established in the applicable Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. The Mooney Oxygen System Installation is an approved oxygen installation on the M20J and M20K per Mooney Drawing 870007-501, -505, -507, -509; and on the M20M and M20R per Mooney Drawing 870029-513.
- NOTE 12:** The dash number following the injector setting number indicates manufacturing revision level of the injector and does not change or dictate the setting of the injector.

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