DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

2A3
Revision 47
Mooney
M20
M20A
M20B
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M20D
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July 31, 2002

AIRCRAFT SPECIFICATION NO. 2A3

Manufacturer	Mooney Airplane Company, Inc. Kerrville, Texas

I. Model M20, 4 PCLM (Normal Category); Approved August 24, 1955

Engine	Textron-Lycoming O-320 (Carburetor MA4-SP-A, Flow Setting P/N 10-3678-11)	
Fuel	80 octane minimum grade aviation gasoline	
Engine Limits	For all operations, 2700 r.p.m. (150 hp)	
Airspeed Limits	Maneuvering	130 m.p.h. (113 knots) True Ind.
	Maximum structural cruising	150 m.p.h. (130 knots) True Ind.
	Never exceed	183 m.p.h. (159 knots) True Ind.
	Flaps extended	100 m.p.h. (87 knots) True Ind.
	Landing gear extended	120 m.p.h. (104 knots) True Ind.
C.G. Range (Landing gear extended)	(+47.0) to (+49.4) at 2450 lbs. (+40.7) to (+49.4) at 1920 lbs. or less (Straight line variation between points given).	
Empty Weight C.G. Range	None	
Maximum Weight	2450 lbs.	
No. of Seats	4 (2 at +36.5 to +41.5, 2 at +68.7 for serial numbers 1001 to 1175, or 2 at +70.7 for serial numbers 1176 and up.)	
Maximum Baggage	120 lbs. (+93)	
Fuel Capacity	49 gallons (three tanks: two 17.5 gal. tanks in wings at +47.6, one 14 gal. tank in fuselage at +68). See Note 3. See NOTE 1 for data on unusable fuel.	

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I. Model M20 (cont'd)

Oil Capacity	2 gallons (-6.5)				
Control Surface Movements	Wing Flaps			Down	21½° ± 1°
	Aileron	Up	15° ± 1°	Down	9° ± ½°
	Elevator	Up	24° ± 1/2°	Down	10½° ± 1°
	Rudder	Left	18° ± ½°	Right	18° ± ½°
	Stabilizer (L.E.)	Up	1½° + 0°/-½°	Down	3½° + 0°/-½°
Serial Nos. Eligible	1001 through 1200. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations (FAR), Delegation Option Manufacturer No. SW-1 is authorized to approve design and production changes on airplane Serial Numbers 1001 through 1200.				
Leveling means	Door sill (parallel to thrust line). Spirit level is used to level.				
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), (c), (d), or (e), 101(a) and (b); 102(a) or (b), 103(a), 104(a), 201(a), 202(a), 205(a) or (b), 206(a), 301(a) and 303(a) or 301(b) and 303(b), 302(a), 401(a), 601(a).				
Datum	For M20, datum is the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.				
Certification basis	Date of application for Type Certificate April 9, 1952. Type Certificate No. 2A3 issued August 25, 1955. No exemptions.				
	Model M20, CAR 3, effective November 1, 1949, as amended to May 18,1954.				
Production basis	PC11SW				
Equipment	Approval for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer.				

Propeller and Propeller Accessories	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Hartzell HC-82XG-1B hub, 7636D blades.	60 lbs.	-29.5
Pitch setting at 28.5 in. sta.:		
Low 11.5°, High 26°		
Hartzell HC-82XL-1B Hub is replacement for HC-82XG-1B Hub.		
Diameter: Max. 76 in.		
Min. allowable for repairs 72 in.		
No further reduction permitted.		
(b) Spinner dome, Hartzell, C-888	2 lbs.	-29.5
(c) Spinner bulkhead, Hartzell, C-885	1 lb.	-25.5
(d) Propeller governor, Hamilton Standard, 1-Q-12	4 lbs.	+ 4.0
(e) Propeller governor, Woodward, 210345	3 lbs.	+ 4.0

Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, engine-driven, AC type AH, P/N 5594068	3 lbs.	+ 1.2
(b) One, electric Bendix, 476087		
(or alternate) Facet, (Balkamp) P/N 476-027	2 lbs.	+19.0
102. Oil Radiator		
(a) Harrison, 8523425	3 lbs.	-18.0
(b) Harrison, 8526250	2 lbs.	-18.0

I. Model M20 (cont'd)		Weight	F.S.
103.	Induction Air Filter		
	(a) Air Maze, 13219	1 lb.	-17.0
104.	Starters		
	(a) Delco-Remy, 1109657	17 lbs.	-18.0
105.	AuxiliaryFuel Tank		
	(a) Mooney Instl. Dwg. 6071	11 lbs.	+68.0
Landing Gear			
201.	Two, Main Wheel/Brake Assemblies, 6.00-6		
	(a) Cleveland Wheel/Brake Assy, Model No. 38500-HA/Brake Assy, C-2000H	14 lbs.	+64.5
202.	Two main wheel, 6-ply rating, tires		
	(a) 6.00-6, Type III w/ regular tubes	17 lbs.	+64.5
205.	One, Nose Wheel, 5.00-5		
	(a) Goodyear, Model L5NDB, Assy. No. 95206532	3 lbs.	-2.0
	(b) Cleveland, Model 40-33	4 lbs.	-2.0
206.	One, Nose Wheel Tire, 4-Ply Rating, tire		
	(a) 5.00-5, Type III w/ regular tube	7 lbs.	-2.0
Electrical Equipment			
301.	Generators		
	(a) 20 amp, Delco-Remy, 1101899	11 lbs.	-19.5
	(b) 35 amp, Delco-Remy, 1101900	17 lbs.	-19.5
302.	Batteries		
	(a) Reading, S-24	24 lbs.	+2.5
	(b) Reading, R-33	29 lbs.	+2.5
303.	Voltage Regulators		
	(a) 20 amp, Delco-Remy 118735B	2 lbs.	+7.0
	(b) 35 amp, Delco-Remy 1118704 or VR300-14-35 or D GR-7-H-35	2 lbs.	+7.0
Interior Equipment			
401.	FAA Approved Airplane Flight Manual		
	(a) Flight Manual, dated August 24, 1955.		
Miscellaneous			
601.	Stall Warning Indicator		
	(a) Safe-Flight, Model R	1 lb.	+28.0
602.	Vacuum Pumps (Required IFR, Optional VFR)		
	(a) Pesco, 3P-194-FA or	4.0 lbs.	0.0
	(b) Garwin. G450L	4.0 lbs.	0.0

II. Model M20A, 4 PCLM (Normal Category) Approved February 13, 1958

Engine	Textron-Lycoming O-360-A1A or AID (Carburetor MA4-5, Flow Setting P/N 10-3878, 10-3878-M or 10-4164-1).
Fuel	100LL or 91/96 octane minimum grade aviation gasoline
Engine Limits	For all operations, 2700 r.p.m. (180 hp)

Airspeed Limits

Maneuvering	130 m.p.h. (113 knots) True Ind.
Maximum structural cruising	150 m.p.h. (130 knots) True Ind.
Never exceed	183 m.p.h. (159 knots) True Ind.
Flaps extended	100 m.p.h. (87 knots) True Ind.
Landing gear extended	120 m.p.h. (104 knots) True Ind.

C.G. Range
(Landing gear extended)
(+47.0) to (+49.4) at 2450 lbs.
(+40.7) to (+49.4) at 1920 lbs. or less
(Straight line variation between points given).
Retraction moment 536 in.-lbs.

Empty Weight C.G. Range	None
Maximum Weight	2450 lbs.
No. of Seats	4 (2 at +36.5 to +41.5, 2 at +70.7)
Maximum Baggage	120 lbs. (+93)
Fuel Capacity	49 gal. Three tanks: Two 17.5 gal. tanks in wings at +47.6, one 14 gal. tank in fuselage at +68. See Note 3. See Note 1 for data on unusable fuel.
Oil Capacity	2 gal. (-7.4)

Control Surface Movements

Wing Flaps			Down	21½° ± 1°
Aileron	Up	15° ± 2°	Down	9° ± ½°
Elevator	Up	24° ± ½°	Down	10½° ± 1°
Rudder	Left	18° ± ½°	Right	18° ± ½°
Stabilizer (L.E.)	Up	1½ + 0°/-½	Down	3½° + 0°/-½°

Serial No's. Eligible	1201 through 1700 and 1700A. Under the delegation option provisions of Part 21 of the FAR, Delegation Option Manufacturer No. SW-1 is authorized to approve design and production changes on airplane Serial Numbers 1201 through 1700A.
Leveling means	Door sill (parallel to thrust line). Spirit level is used to level.
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), and (c) or (d) or 2(a), (b), and (c) or (d) or 3(a), (b), and (c) or (d) or (e) or (f) or (g) or 4(a), (b), and (c) or (d), or (e) or (f) or (g), 101(a), (b), 102(a) or (b), 103(a), 104(a), 201(a) or (b), 202(a), 205(a) or (b), 206(a), 301(a) and 303(a) or 301(b) and 303(b), 302(a), 401(a), 601(a).
Datum	For M20A, datum is the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Date of application for Type Certificate April 9, 1952. Type Certificate No.2A3 issued August 24, 1955. No exemptions. Model M20A-CAR 3, effective November 1, 1949, as amended to May 18, 1954.

II. Model M20A (cont'd)

Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. McCauley constant speed propeller installation		
(a) Propeller, McCauley 2D36C14 hub, 78KM-4 blades.	59 lbs.	-31.5
Pitch setting at 30 in. sta.:		
Low 12.7° ± 0.2°		
High 27.5° ± 0.5°		
Diameter: Maximum 74 in.		
Minimum allowable for repairs 72 in.		
No further reduction permitted.		
(b) Spinner assembly, McCauley, D-2135/2136	3 lbs.	-31.5
(c) Propeller governor, Woodward 210105	3 lbs.	+4.0
(d) Propeller governor, Woodward, 210345	3 lbs.	+4.0
2. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC92ZK-8D hub, 8447-12A blades	65 lbs.	-29.5
Pitch settings at 27.0 in. sta.:		
Low 15.4°		
High 30.1°		
Diameter: Maximum 72 in.		
Minimum allowable for repairs 70 in.		
No further reduction permitted.		
(b) Spinner assembly, Hartzell, 835-6	3 lbs.	-28.0
(c) Propeller governor, Woodward, 210105	3 lbs.	+4.0
(d) Propeller governor, Woodward, 210345	3 lbs.	+4.0
3. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell, HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades	53.75 lbs.	-30.16
See Notes 5 and 7.		
Pitch settings at 30.0 in. sta.:		
Low 13.0 ± 0° (See Note 6)		
High 29.0° ± 2°		
Diameter: Maximum 74 in.		
Minimum allowable for repairs 72.5 in.		
No further reduction permitted.		
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Woodward, 210105	3 lbs.	+ 4.0
(d) Propeller governor, Woodward, 210345	3 lbs.	+ 4.0
(e) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	+3.6
(f) Propeller governor, Edo Aire, 34828014	3 lb.	+4.0
(g) Propeller governor, McCauley, C290D5-T24	2.75 lb.	+4.0
4. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell, HC-C2YK-1B hub, 7666A-2 blades	53.75 lbs.	-30.16
See Notes 5 and 7.		
Pitch setting at 30.0 in. sta.:		
Low 13.0 ± 0° (see Note 6)		
High 29.0° ± 2°		
Diameter: Maximum 74 in.		
Minimum allowable for repairs 72.5 in.		
No further reduction permitted.		

II. Model M20A (cont'd)	Weight	F.S.
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Woodward, 210105	3 lbs.	+ 4.0
(d) Propeller governor, Woodward, 210345	3 lbs.	+ 4.0
(e) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	+3.6
(f) Propeller governor, Edo Aire, 34828014	3 lb.	+4.0
(g) Propeller governor, McCauley, C290D5/T24	2.75 lb.	+4.0
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, engine-driven, AC type AH, P/N 5594068	3 lbs.	+ 1.2
(b) One, electric Bendix, 476087		
(or alternate) Facet, (Balkamp) P/N 476-027	2 lbs.	+19.0
102. Oil Radiator		
(a) Harrison, 8523425	3 lbs.	-18.0
(b) Harrison, 8526250	2 lbs.	-18.0
103. Induction Air Filter		
(a) Air Maze, 13219	1 lb.	-17.0
104. Starters		
(a) Delco-Remy, 1109673	18 lbs.	-18.0
105. Auxiliary Fuel Tank		
(a) Mooney Installation Drawing 6071	11 lbs.	+68.0
Landing Gear		
201. Two, Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland Wheel Assy, Model No. 38500-HA/Brake Assy, C-2000H	14 lbs.	+64.5
(b) Cleveland wheel/brake Assembly Model No. 27-100/		
Brake assembly. No. 35-200	14 lbs.	+64.5
202. Two main wheel tires, 6.00-6		
(a) 6.Ply Rating, Type III w/ regular tubes	17 lbs.	+64.5
205. One, Nose Wheel, 5.00-5		
(a) Goodyear, Model L5NDB, Assy. No. 95206532	3 lbs.	-2.0
(b) Cleveland, Model 40-33	4 lbs.	-2.0
206. One, Nose Wheel Tire, 5.00-5,		
(a) 4-Ply Rating, Type III, w/regular tube	7 lbs.	-2.0
Electrical Equipment		
301. Generators		
(a) 20 amp, Delco-Remy, 1101899	11 lbs.	-19.5
(b) 35 amp, Delco-Remy, 1101900	17 lbs.	-19.5
302. Batteries		
(a) Reading, R-33	29 lbs.	+2.5
303. Voltage Regulators		
(a) 20 amp, Delco-Remy 1118735B	2 lbs.	+7.0
(b) 35 amp, Delco-Remy 1118704 or 1119224 or	2 lbs.	+7.0
50 amp, VR 300-14-50 or DGR-7-H-50	2 lbs.	+7.0

II. Model M20A (cont'd)	Weight	F.S.
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Flight Manual dated February 12, 1958		
Miscellaneous		
601. Stall Warning Indicator		
(a) Safe-Flight, Model R	1 lb.	+28.0
602. Vacuum Pumps (Required IFR, Optional VFR)		
(a) Pesco, 3P-194-FA or	4.0 lbs.	0.0
(b) Garwin, G450L	4.0 lbs.	0.0

III. Model M20B, 4 PCLM (Normal Category); Approved December 14, 1960

Engine	Textron-Lycoming O-360-A1 A or A1 D (Carburetor MA4-5, Flow Setting P/N 10-3878, 10-3878-M, or 10-4164-1).				
Fuel	100LL or 91/96 octane min. grade aviation gasoline				
Engine Limits	For all operations, 2700 r.p.m. (180 hp)				
Airspeed Limits	Maneuvering	130 m.p.h. (113 knots) True Ind.			
	Maximum structural cruising)	150 m.p.h. (130 knots) True Ind.			
	Never exceed	183 m.p.h. (159 knots) True Ind.			
	Flaps extended	100 m.p.h. (87 knots) True Ind.			
	Landing gear extended	120 m.p.h. (104 knots) True Ind.			
C.G. Range (Landing gear extended)	(+47.0) to (+50.1) at 2450 lbs. (+42.0) to (+50.1) at 2030 lbs. or less (Straight line variation between points given). Retraction moment 536 in.-lbs.				
Empty Weight C.G. Range	None				
Maximum Weight	2450 lbs.				
No. of Seats	4 (2 at +36.5 to +41.5, 2 at +70.7)				
Maximum Baggage	120 lbs. (+93.0)				
Fuel Capacity	48 gals. usable (Two integral tanks in wings at +48.43) See NOTE 1 for data on unusable fuel.				
Oil Capacity	2 gal. (-7.4)				
Control Surface Movements	Wing Flaps			Down	21½° ± 1°
	Aileron	Up	12½° to 17°	Down	8° ± ½°
	Aileron static position			Down	0° to 2°
	Elevator	Up	24° ± 1°	Down	10½° ± 1°
	Rudder	Left	18° ± 1°	Right	18° ± 1°
	Stabilizer (L.E.)	Up	1° to 2½°	Down	3½° to 4½°
Serial No's. Eligible	1701 through 1851, 1853 through 1939. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to approve design and production changes on airplane Serial Numbers 1701 through 1851, 1853 through 1939.				

III. Model M20B (cont'd)

Leveling means	Door sill (parallel to thrust line). Spirit level is used to level.
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) and (c) or 2(a), (b), and (c), or 3(a), (b) and (c), 101(a) and (b), 102(a) or (b), 103(a), 104(a), 201(a) or (b), 202(a), 205(a) or (b), 206(a), 301(a), 302(a), 303(a), 401(a), 601(a).
Datum	Datum is the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Date of application for Type Certificate April 9, 1952. Type Certificate No. 2A3 issued August 24, 1955. No exemptions. CAR 3, effective November 1, 1949, as amended to May 18, 1954.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. McCauley constant speed propeller installation		
(a) Propeller, McCauley 2D36C14 hub, 78KM-4 blades. Pitch setting at 30 in. sta.: Low 12.7° ± 0.2° High 27.5° ± 0.5° Diameter: Maximum 74 in. Minimum allowable for repairs 72 in. No further reduction permitted.	59 lbs.	-31.5
(b) Spinner assembly, McCauley, D-2135/2136	3 lbs.	-31.5
(c) Propeller governor, Woodward, 210345	3 lbs.	+ 4.0
2. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch settings at 30.0 in. sta.: Low 13.0° ± 0 (See Note 6) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lb.	-30.16
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Woodward, 210345	3 lbs.	+ 4.0
(d) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	+3.6
(e) Propeller governor, Edo Aire, 34828014	3 lb.	+4.0
(f) Propeller governor, McCauley, C290D5/T24	2.75 lb.	+4.0
3. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell, HC-C2YK-1 B hub, 7666A-2 blades See Notes 5 and 7. Pitch settings at 30.0 in. sta.: Low 13.0 ± 0° (See Note 6) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in.	53.75 lbs.	-30.16

III. Model M20B (cont'd)	Weight	F.S.
No further reduction permitted.		
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Woodward, 210345	3.0 lb.	+ 4.0
(d) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	+3.6
(e) Propeller governor, Edo Aire 34828014	3.0 lb.	+4.0
(f) Propeller governor, McCauley, C290D5/T24	2.75 lb.	+4.0
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, engine-driven, AC type AH, P/N 5594068	3 lbs.	+ 1.2
(b) One, electric Bendix, 476087		
(or alternate) Facet, (Balkamp) P/N 476-027	2 lbs.	+19.0
102. Oil Radiator		
(a) Harrison, 8523452	3 lbs.	-18.0
(b) Harrison, 8526250	2 lbs.	-18.0
103. Induction Air Filter		
(a) Air Maze, 13219	1 lb.	-17.0
104. Starters		
(a) Delco-Remy, 11096-89 or 1109519 or 1109511	17.8 lbs.	-18.0
Landing Gear		
201. Two, Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland Wheel Assy, Model No. 27-100/Brake Assy No. 35-200	14 lbs.	See Note 8.
(b) Cleveland wheel/brake Assembly Model No. 40-24/		
Brake assembly. No. 30-5	19 lbs.	+64.5
202. Two main wheel , 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	+64.5
205. One, Nose Wheel, 5.00-5		
(a) Goodyear, Model L5NDB, Assy. No. 95206532	3 lbs.	-2.0
(b) Cleveland, Model 40-33	4 lbs.	-2.0
206. One, Nose Wheel, 4-ply rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	-2.0
Electrical Equipment		
301. Generators		
(a) 50 amp, Delco-Remy, 1101915 Gen.	16.6 lbs.	-19.5
302. Batteries		
(a) Auto-Lite, R-35	27 lbs.	+2.5
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 1119224 or 1119224C or		
VR300-14-50 or DGR-7-H-50	2 lbs.	+7.0
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Flight Manual Supplement, dated July 16, 1962.		

III. Model M20B (cont'd)	Weight	F.S.
Miscellaneous		
601. Stall Warning Indicator		
(a) Safe-Flight, Model R	1 lb.	+28.0
602. Vacuum Pumps (Required IFR, Opt. VFR)		
(a) Pesco, 3P-194-FA or	4.0 lbs.	0.0
{b) Garwin, G450L	4.0 lbs.	0.0

IV. Model M20C, 4 PCLM (Normal Category); Approved October 20, 1961

Engine	Textron-Lycoming O-360-A1D or O-360-A1A (Carburetor MA4-5, Flow Setting P/N 10-3878, 10-3878-M, or 10-4164-1).
Fuel	100LL or 100/130 min. grade aviation gasoline (See Note 9)
Engine Limits	For all operations, 2700 r.p.m. (180 hp)
Airspeed Limits	(Aircraft with serial numbers to 680001) Maneuvering 132 m.p.h. (115 knots) True Ind. Never exceed 189 m.p.h. (164 knots) True Ind. Flaps extended 100 m.p.h. (87 knots) True Ind. Landing gear extended 120 m.p.h. (104 knots) True Ind. Maximum structural cruising 150 m.p.h. (130 knots) True Ind. (Aircraft with serial numbers to 680001 to 690001) Maneuvering 132 m.p.h. (115 knots) True Ind. Never exceed 189 m.p.h. (164 knots) True Ind. Flaps extended 125 m.p.h. (109 knots) True Ind. Landing gear extended 120 m.p.h. (104 knots) True Ind. Maximum structural cruising 150 m.p.h. (130 knots) True Ind. (Aircraft with serial numbers to 690001 thru 700091 and 20-0001 and up) Maneuvering 132 m.p.h. (115 knots) True Ind. Never exceed 200 m.p.h. (174 knots) True Ind. Flaps extended 125 m.p.h. (109 knots) True Ind. Landing gear extended 120 m.p.h. (104 knots) True Ind. Maximum structural cruising 175 m.p.h. (152 knots) True Ind.
C.G. Range (Landing gear extended)	(+46.5) to (+49.0) at 2575 lbs. (+42.0) to (+49.0) at 2100 lbs. or less (Straight line variation between points given). Retraction moment 588 in. -lbs.
Empty Weight C.G. Range	None
Maximum Weight	2575 lbs.
No. of Seats	4 (2 at +36.5 to +44.0, 2 at +70.0)
Maximum Baggage	120 lbs. (+93.0), 10 lbs. (+114)
Fuel Capacity	Serial No. 1852, 1940, through 2622 - 48 gals. (Two integral tanks in wings at +48.4) Serial No. 2623 and up - 52 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.
Oil Capacity	2 gallons (-7.4)

IV. Model M20C (cont'd)

Control Surface Movements

(Aircraft with serial numbers up to 690001)

Wing Flaps		T.O. Position	Down	15° ± 1°
		Landing	Down	33° + 0°, -2°
Aileron	Up	12½° to 17°	Down	8° ± 1°
Aileron static position			Down	0° to 2°
Elevator	Up	24° ± 1°	Down	10½° ± 1°
Rudder	Left	23° to 24°	Right	23° to 24°
Stabilizer (L.E.)	Up	1 to 2½°	Down	4½° + 5°

Elevator Trim Assist Unit

With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist unit (740044) for elevator up angle of 19° ± ½° at the zero spring travel position.

(Aircraft with serial numbers 690001-700091, 20-0001 and up)

Wing Flaps		T.O. Position	Down	15° ± 1°
		Landing	Down	33° + 0°, -2°
Aileron	Up	12½° to 17°	Down	8° ± 1°
Aileron static position			Down	0° to 2°
Elevator	Up	22° ± 2°	Down	22° ± 2°
Stabilizer (L.E.)	Up	½° to 1°	Down	5¼° to 5¾°
Rudder	Left	23° to 24°	Right	23° to 24°

Elevator Trim Assist Unit

With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist bungees (740188) for elevator position of 10° ± 1° at the zero spring travel position of the bungees.

Leveling means

Edge of skin splice over aft fuselage radio access panel. Spirit level is used to level.

Serial No's. Eligible

Serial No. 1852, 1940-3466, 670001-670123, 670125-670134, 670136-670149, 680001-680077, 680079-680099, 680101-680198, 690001-690096, 690098, 700001-700052, 700055-700089, 700091, 20-0001 thru 20-1258. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to issue Airworthiness Certificates for Airplane Serial Numbers 2920, 2938, 2959, 2960, through 690022.

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), and (c) or (d) or (e) or 2(a), (b) and (c), or (d) or 3(a), (b) and (c), or (d), or (e), 101(a) or (c) and (b) or (d), 102(a) or (b), 103(a), 104(a) or (b), 201(a) or (b) or (c), 202(a), 205(a) or (b) or (c), 206(a), 301(a) and 303(a) or 301(b) and 303(b) or 301(c) and 303(c), 302(a), 401(a) or (b) or (c) or (d) or (e) or (f), 601(a) or (b) or (c) and (d). See Note 13.

Datum

For M20C, datum is the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.0 inches aft of fuselage station 0.00.

Certification basis

Date of application for Type Certificate April 9, 1952. Type Certificate No. 2A3 issued August 24, 1955. No exemptions.

Model M20C. CAR 3, effective November 1, 1949, as amended to May 18, 1954.

Production basis

None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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

Approval for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer.

IV. Model M20C (cont'd)

Propeller and Propeller Accessories	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 13.0 ± 0° See Note 6. High 29.0° ± 2° Diameter: Max. 74 in. Min. allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-30.16
(b) Spinner assembly, Hartzell, 835-20 (835-33 for S/N 69-0001 & ON)	3.25 lbs.	-29.18
(c) Propeller governor Hartzell D-1 -4 or D-1 -6 or H-1 or H-1 L	4.5 lb.	+3.6
(d) Propeller governor, Edo Aire 34828014	3.0 lbs.	+3.6
(e) Propeller governor, McCauley, C 290D5/T24	2.75 lbs.	+3.6
2. McCauley constant speed propeller installation		
(a) Propeller, McCauley, 2D34C53-A hub, 74E-0 blades Pitch settings at 30.0 in. sta.: Low 12.7° ± 2° High 27.5° ± 0.5° Diameter: Max. 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	49.25 lbs.	-30.31
(b) Spinner dome, McCauley, D-2808, D-3148 bulkhead and fillet assembly	3.28 lbs.	-29.18
(c) Propeller governor, Woodward 210452	3.0 lbs.	+4.0
(d) Propeller governor, EDO Aire, 34828014	3.0 lbs.	-3.6
3. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 B hub 7666A-2 blades See Notes 5 and 7. Pitch settings at 30.0 in. sta.: Low 13.0° ± 0° (See Note 6.) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-30.16
(b) Spinner assy, Hartzell, 835-20 (835-33 for S/N 69-0001 & ON)	3.25 lbs.	-29.18
(c) Propeller governor, McCauley, C290D5/T24	2.75 lbs.	+3.6
(d) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lbs.	+3.6
(e) Propeller governor, Edo Aire, 34828014	3.0 lbs.	+3.6
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, engine-driven, AC type AH, P/N 5594068	3 lbs.	+ 1.2
(b) One, electric Bendix, 476087 (or alternate) Facet, (Balkamp) P/N 476-027	2 lbs.	+19.0
(c) One, engine-driven, AC type AH P/N GP5623467+A, 5656880, 6440152, 6440174, 6441271, or 6440295	1.5 lbs.	+1.2
(d) One, electric, Dukes, 4140-00-21A or 1499-00-21 or (alternate) Weldon, P/N 8164A	1.91 lb.	-1.5

IV. Model M20C (cont'd)	Weight	F.S.
102. Oil Radiator		
(a) Harrison, 8526250	2 lbs.	-18.0
(b) Stewart-Warner, Model #8406-E1 or 8406J	2.8 lbs.	-18.0
103. Induction Air Filter		
(a) Air Maze, 13219	1 lb.	-17.0
104. Starters		
(a) Delco-Remy, 11096-89 or 1109519 or 1109511	17.8 lbs.	-18.0
(b) Prestolite, MZ4206 or MZ24218 or MZ4222	17.8 lbs.	-18.0
Landing Gear		
201. Two, Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland Wheel Assembly, Model No. 27-100/ Brake Assembly No. 35-200	14 lbs.	See Note 8.
(b) Cleveland Wheel Assembly Model No. 40-24/ Brake Assembly No. 30-5	19 lbs.	See Note 8.
(c) *Cleveland, Wheel/Brake Assembly Wheel Assembly No. 40-86,/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III with regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Goodyear Model L5NDB, Assy. No. 95206532	3 lbs.	See Note 8
(b) Cleveland Model 40-33	4 lbs.	See Note 8
(c) Cleveland Model 40-87	2.6 lbs.	See Note 8
206. One, Nose Wheel, 4-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Generators and Alternators		
(a) Generator, 50 amp, Delco-Remy, 1101915	16.6 lbs.	-19.5
(b) Alternator, 60 amp, Prestolite, ALY 8420, ALY 8403, ALY 6420 or ALY 8420M	10.3 lbs.	-19.5
(c) Alternator, 70 amp, Prestolite ALX 8403	10.3 lbs.	-19.5
302. Batteries		
(a) Auto-Lite, R-35 or Prestolite, R-35 or Gill, 6-GCAB-11 or PS6-11 or Rebat, R-37	27 lbs.	+2.5
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 1119224 or 1119224C or VR300-14-50 or DGR-7-H-50	2 lbs.	+7.0
(b) OECO, 20082*	1.4 lbs.	+7.0
or Electrodelta VR 414*	0.6 lbs.	+7.0
or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+7.0
**Use 800331-721 Adapter when Oeco or VR414 is replaced by VR415, VR415D or 800270-505 regulator.*		
Interior Equipment		
401. FAA Approved Airplane Flight Manual		

IV. Model M20C (cont'd)

(a) Flight Manual, dated October 20, 1961, required for S/N 1852, 1940 through 2622.
(b) Flight Manual dated August 21, 1970, for S/N 700005 and on. M20C S/N 20-0001 thru 20-0009.
(c) Flight Manual dated January 1974, for S/N 20-0010 through 20-1146. See Note 2.
(d) Flight Manual dated December 1974, for S/N 20-1147 through 20-1172. See Note 2.
(e) Flight Manual dated August 1975, for S/N 20-1173 through 20-1185. See Note 2.
(f) Flight Manual dated October 1975, for S/N 20-1186 through 20-1218. See Note 2. Superseded by (g).
(g) Pilot's Operating Handbook dated October 15, 1977, for S/N 20-1240 and on (replaces (f) for S/N 20-1186 and on.)

Miscellaneous		Weight	F.S.
601.	Warning Systems		
	(a) Stall Warning Indicator, Safe-Flight, Model R	1 lb.	+28.0
	(b) Dual warning indicator, Safe-Flight, Model 283	2 lbs.	+ 2.5
	(c) Gear warning indicator, Mallory, SC 628 P	1 lb.	+50.0
	(d) Stall warning indicator, Mallory, SC 628	1 lb.	+50.0
602.	Vacuum Pumps (Required IFR, Optional VFR)		
	(a) Airborne, 113A1, or	4.0 lbs.	0.0
	(b) Airborne, 113A5, or	4.0 lbs.	0.0
	(c) Airborne, 200CC, or	3.5 lbs.	0.0
	(d) Airborne, 211CC	2.5 lbs.	0.0

V. Model M20D, 4 PCLM (Normal Category); Approved October 15, 1962

Engine	Textron-Lycoming O-360-A1D or 0-360-A2D (Carburetor MA4-5, Flow Setting P/N 10-3878, 10-3878-M, or 10-4164).	
Fuel	100LL or 91/96 octane min. grade aviation gasoline	
Engine Limits	For all operations, 2700 r.p.m. (180 hp)	
Airspeed Limits	Maneuvering	132 m.p.h. (115 knots) True Ind.
	Never exceed	189 m.p.h. (164 knots) True Ind.
	Flaps extended	100 m.p.h. (87 knots) True Ind.
	Maximum structural cruising	147 m.p.h. (128 knots) True Ind.
C.G. Range (Fixed gear)	(+46.5) to (+49.0) at 2575 lbs. (+42.0) to (+49.0) at 2100 lbs. or less (See Note 4) (Straight line variation between points given).	
Empty Weight C.G. Range	None	
Maximum Weight	2575 lbs. or 2500 lbs. with Item 3 installed.	
No. of Seats	4 (2 at +36.5 to +44.0, 2 at +70.7)	
Maximum Baggage	120 lbs. (+93.0)	
Fuel Capacity	Serial No. 1, 101-200 - 48 gals. (Two integral tanks in wings at +48.4) Serial No. 201 and up - 52 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.	
Oil Capacity	2 gal. (-7.4)	

V. Model M20D (cont'd)

Control Surface Movements

Wing Flaps	Landing		Down	33° + 0°, -2°
Aileron	Up	12½° to 17°	Down	8° ± 1°
Aileron	Static Position		Down	0° to 2°
Elevator	Up	24° ± 1°	Down	10½° ± 1°
Rudder	Left	23° to 24°	Right	23° to 24°
Stabilizer (L.E.)	Up	1° to 2½°	Down	4½° to 5°

Elevator Trim Assist Unit — With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist unit 740044 for elevator up angle of 12° ± ½° at the zero spring travel position. The elevator up angle changes to 19° ± ½° when conversion to retractable gear in accordance with Mooney Drawing 950082 is accomplished.

Leveling means — Edge of skin splice over aft fuselage radio access panel. Spirit level is used to level.

Serial No's. Eligible — Serial No. 1, 101 through 260. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to issue Airworthiness Certificates for Airplane Serial Nos. 256 thru 260; and approve design and production changes on Airplane Serial Numbers 1, 101 through 260.

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), and (c) or (d) or (e) or 2(a), (b), (c) or 3(a), (b), (c) and (d) or 4(a) (b), and (c), or (d) or (e), 101(a) or (c) and (b), 102(a), 103(a), 104(a) or (b), 201(a) or (b), 202(a), 205(a) or (b) or (c), 206(a), 301(a), 302(a), 303(a), 401(a), or (b), 601(a). See Note 13.

Specifications Pertinent to Model

Datum — For M20D, datum is the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.

Certification basis — Date of application for Type Certificate April 9, 1952.
Type Certificate No. 2A3 issued August 24, 1955. No exemptions.
Model M20D CAR 3 effective November 1, 1949, as amended to May 18, 1954.

Production basis — None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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 — Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 13.0° ± 0° (See Note 6.) High 29.0° ± 2° Diameter: Maximum 74 in. Min. allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-30.16
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1 L	4.5 lbs.	+ 3.6
(d) Propeller governor, Edo Aire 34828014	3.0 lbs.	+ 3.6
(e) Propeller governor, McCauley, C290D5/T24	2.75 lb.	+ 3.6

V. Model M20D (cont'd)

2.	McCauley constant speed propeller installation		
	(a) Propeller, McCauley 2D34C53-A hub, 74E-0 blades	49.25 lbs.	-30.31
	Pitch setting at 30.0 in. sta.:		
	Low 12.7° ± 2°		
	High 27.5° ± 0.5°		
	Diameter: Maximum 74 in.		
	Minimum allowable for repairs 72.5 in.		
	No further reduction permitted.		
	(b) Spinner dome,		
	McCauley D-2808, D-3148 bulkhead and fillet assembly	3.28 lbs.	-29.18
	(c) Propeller governor, Woodward, 210452	3.0 lbs.	+ 4.0
3.	McCauley fixed pitch propeller installation		
	(a) Propeller, McCauley, 10172/MFA hub, 7460 blades	33.2 lbs.	-27.9
	Diameter: Maximum 74 in.		
	Minimum allowable for repairs 72.5 in.		
	No further reduction permitted.		
	Static RPM: Max. 2460./Min. 2360		
	No additional tolerance permitted.		
	(b) Spinner assembly, McCauley, D-3337		-29.18
	(c) Spinner assembly, McCauley, D-3338		-25.5
	(d) Front plate assembly, McCauley, D-3353	3.5 lbs.	-27.9
4.	Hartzell constant speed propeller installation		
	(a) Propeller, Hartzell, HC-C2YK-1B hub, 7666A-2 blades	53.75 lbs.	-30.16
	See NOTES 5 and 7.		
	Pitch setting at 30.0 in. sta.:		
	Low 13.0° ± 0° (See Note 6.)		
	High 29.0° ± 2°		
	Diameter: Maximum 74 in.		
	Minimum allowable for repairs 72.5 in.		
	No further reduction permitted.		
	(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
	(c) Propeller governor, McCauley, C290D5/T24	2.75 lbs.	+ 3.6
	(d) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	+3.6
	(e) Propeller governor, Edo Aire, 34828014	3 lb.	+4.0

Engines and Engine Accessories (Fuel and Oil System)

101.	Fuel Pumps		
	(a) One, electric Bendix, 476087		
	(or alternate) Facet, (Balkamp) P/N 476-027	2 lbs.	+19.0
	(b) One, engine driven, AC type AH,		
	P/N GP5623467+A, 5656880, 6440152, 6440174,		
	6441271, or 6440295	1.5 lbs.	+1.2
	(c) One, electric, Dukes, 4140-00-21A or 1499-00-21		
	(or alternate) Weldon, P/N 8164A	1.91 lbs.	-1.5
102.	Oil Radiator		
	(a) Harrison, 8526250	2 lbs.	-18.0
103.	Induction Air Filter		
	(a) Air Maze, 13219	1 lb.	-17.0
104.	Starters		
	(a) Delco-Remy, 11096-89 or 1109519 or 1109511	17.8 lbs.	-18.0
	(b) Prestolite, MZ4206 or MZ4218 or MZ4222	17.8 lbs.	-18.0

V. Model M20D (cont'd)	Weight	F.S.
Landing Gear		
201. Two main wheel/brake assemblies, 6.00-6		
(a) Cleveland, wheel assembly Model No. 27-100/ Brake assembly, No. 35-200	14 lbs.	See Note 8.
(b) Cleveland, wheel assembly Model No. 40-24/ Brake assembly, No. 30-5	19 lbs.	See Note 8.
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III, w/regular tubes	17 lbs.	See Note 8.
205. One nose wheel, 5.00-5		
(a) Goodyear, Model L5NDB, assembly no. 95206532	3 lbs.	See Note 8.
(b) Cleveland, Model 40-33	4 lbs.	See Note 8.
(c) Cleveland, Model 40-87	2.6 lbs.	See Note 8.
206. One nose wheel, 4-ply rating, tire		
(a) 5.00-5, Type III w/regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Generators		
(a) 50 amp, Delco-Remy, 1101915	16.6 lbs.	-19.5
302. Batteries		
(a) Auto-Lite R-35	27 lbs.	+ 2.5
or Prestolite R-35		
or Gill 6-GCAB-11		
or PS6-11		
or Rebat R-37		
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 111922I or 1119224C or VR300-14-50 or DGR-7-H-50	2 lbs.	+7.0
If 940019 alternator retrofit kit is installed		
(b) OECO, 20082*	1.4 lbs.	+7.0
or Electrodelta VR 414*	0.6 lbs.	+7.0
or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+7.0
**Use 800331 - 721 adapter when Oeco or VR 414 is replaced by VR 415, VR415D or 800270-505 regulator.*		
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Flight Manual, dated October 15, 1962, required for S/N 1 and 101 through 200.		
(b) Flight Manual Supplement, dated May 14, 1963. See Note 4.		
Miscellaneous		
601. Warning systems		
(a) Stall warning indicator Safe-Flight, Model R	1 lb.	+28.0
602. Vacuum Pumps (Required IFR, Optional VFR)		
(a) Airborne, 113A1 or	4.0 lbs.	0.0
(b) Airborne, 113A5 or	4.0 lbs.	0.0
(c) Airborne, 200 cc or	3.5 lbs.	0.0
(d) Airborne, 211 cc	2.5 lbs.	0.0

VI. Model M20E, 4 PCLM (Normal Category); Approved September 4, 1963

Engine	IO-360-A1A (fuel injector, Model RSA-5AD1, P/N 2524054-1) See Note 20.
Fuel	100LL or 100/130 octane minimum grade aviation gasoline
Engine Limits	For all operations, 2700 r.p.m. (200 hp)

Airspeed Limits

(Aircraft with Serial Numbers to 690001)

Maneuvering	132 m.p.h. (115 knots) True Ind.
Never exceed	189 m.p.h. (164 knots) True Ind.
Flaps extended	100 m.p.h. (87 knots) True Ind.
Landing gear extended	120 m.p.h. (104 knots) True Ind.
Maximum structural cruising	150 m.p.h. (130 knots) True Ind.

(Aircraft with serial numbers to 690001-700061 and 21-0001 and up)

Maneuvering	132 m.p.h. (115 knots) True Ind.
Never exceed	200 m.p.h. (174 knots) True Ind.
Flaps extended	125 m.p.h. (109 knots) True Ind.
Landing gear extended	120 m.p.h. (104 knots) True Ind.
Maximum structural cruising	175 m.p.h. (152 knots) True Ind.

C.G. Range
(Landing gear extended)

(+46.5) to (+49.0) at 2575 lbs.
(+42.0) to (+49.0) at 2100 lbs. or less
(Straight line variation between points given).
Retraction moment 588 in. -lb.

Empty Weight C.G. Range	None
Maximum Weight	2575 lbs.
No. of Seats	4 (2 at +36.5 to +44.0, 2 at +70.7)
Maximum Baggage	120 lbs. (+93.0), 10 lbs. (+114)
Fuel Capacity	52 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.
Oil Capacity	2 gal. (-6.5)

Control Surface Movements

(Aircraft with serial numbers up to 690001)

Wing Flaps	T.O. Position		Down	15° ± 1°
	Landing		Down	33° + 0°, - 2°
Aileron	Up	12½° to 17°	Down	8° ± 1°
Aileron static position			Down	0° to 2°
Elevator	Up	24° ± 1°	Down	10½° ± 1°
Rudder	Left	23° to 24°	Right	23° to 24°
Stabilizer (L.E.)	Up	1° to 2½°	Down	4½° to 5°

Elevator Trim Assist Unit

With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist unit 740044 for elevator up angle of 19° ± ½° at the zero spring travel position.

(Aircraft with serial numbers up to 690001-700061, 21-0001 thru 21-1180)

Wing Flaps	T.O. Position		Down	15° ± 1°
		Landing	Down	33° + 0° / -2°
Aileron	Up	12½° to 17°	Down	8° ± 1°
Aileron static position			Down	0° to 2°
Elevator	Up	22° ± 2°	Down	22° ± 2°
Stabilizer (L.E.)	Up	½° to 1°	Down	5¼° to 5¾°
Rudder	Left	23° to 24°	Right	23° to 24°

VI. Model M20E (cont'd)

Elevator Trim Assist Unit	With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist bungees (740188) for elevator position of 10° ± 1° at the zero spring travel position of the bungees.
Leveling means	Edge of skin splice over aft fuselage radio access panel. Spirit level is used to level.
Serial No's. Eligible	Serial No. 101-400, 470-1217, 1219, 1221, 1223-1308, 670001-670062, 690001-690073, 700001-700039, 700041-700043, 700045-700052, 700055, 700056, 700060, 700061, 21-0001 thru 21-1180. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to issue Airworthiness Certificates for Airplane Serial Numbers 460, 607, 622, 625 through 690029.
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 (d) or (e) and (c) or (f) or (g), or 2(a), (b) or (d) or (e) and (c) or (f) or (g) or (h), 101(a), (b), 102(a), 103(a), 104(a) or (b), 201(a) or (b) or (c), 202(a), 205(a) or (b) or (c), 206(a), 301(a) and 303(a) or 301(b) and 303(b) or 301(c) and 303(b), 302(a), 401(b) or (c) or (d) or (e), 601(a) or (b) or (c) and (d). See Note 13.

Specifications Pertinent to Model

Datum	For M20E, datum is the centerline of the nose gear support bolts and is fuselage station 0.0. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Date of application for Type Certificate April 9, 1952. Type Certificate No. 2A3 basis issued August 24, 1955. No exemptions. Model M20E, CAR 3, effective November 1, 1949, as amended to May 18, 1954.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories with Fuselage - Station Locations	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 14.0° ± 0° (See Note 6) High 29.0° ± 2 Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-30.16
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-29.18
(c) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.50 lbs.	+ 3.6
(d) Spinner assembly, Mooney, 680014-000	3.6 lbs.	-29.18
(e) Spinner assembly, Mooney, 680014-501	3.6 lbs.	-29.18
(f) Propeller governor, Edo Aire, 34828014	3.0 lbs.	+ 3.6
(g) Propeller governor, McCauley, C290D5/T24	2.75 lbs.	+ 3.6

VI. Model M20E (cont'd)	Weight	F.S. (IN)
2. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1B hub, 7666A-2 blades See Notes 5 and 7. Pitch settings at 30.0 in. sta.: Low 14.0° ± 0° (See Note 6.) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-30.16
(b) Spinner assembly, Hartzell 835-20	3.25 lbs.	-29.18
(c) Spinner assembly, Hartzell, 835-33	3.25 lbs.	-29.18
(d) Spinner assembly, Hartzell, 835-33P	3.25 lbs.	-29.18
(e) Propeller governor, McCauley, C290D5/T24	2.75 lbs.	+3.6
(f) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb	+3.6
(g) Propeller governor, Edo Aire, 34828014	3.0 lb	+3.6
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, electric, Dukes, 4140-00-19A	1.91 lb.	-1.5
(b) One, engine-driven AC 5656696A, 6440160, GP5656999, Type JJ, 6440296, or 6441234	1.6 lbs.	+1.2
102. Oil Radiator		
(a) Stewart-Warner, P/N 8432A or 8432E or 8432F or or 8432F1 or 8432L (S/N 200 and up)	2.4 lbs.	-18.0
103. Induction Air Filter		
(a) Donaldson, P10-4065 or P11-3576	1.2 lb.	-19.5
104. Starters		
(a) Delco-Remy, 11096-89 or 1109519 or 1109511	17.8 lbs.	-18.0
(b) Prestolite, MZ4206 or MZ4218 or MZ4222	17.8 lbs.	-18.0
Landing Gear		
201. Two Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland, wheel assembly, Model No. 27-100/Brake Assembly No. 35-200	14 lbs.	See Note 8.
(b) Cleveland, wheel assembly, Model No. 40-24/ Brake Assembly No. 30-5	19 lbs.	See Note 8.
(c) *Cleveland, wheel assembly, Model No. 40-86/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Goodyear Model L5NDB, Assy. No. 95206532	3 lbs.	See Note 8
(b) Cleveland Model 40-33	4 lbs.	See Note 8
(c) Cleveland Model 40-87	2.6lbs.	See Note 8
206. One, Nose Wheel, 4-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.

VI. Model M20E (cont'd)	Weight	F.S. (in.)
Electrical Equipment		
301. Generators and Alternators		
(a) Generator, 50 amp, Delco-Remy, 1101915	16.6 lbs.	-19.5
(b) Alternator, 60 amp, Prestolite, ALY-8420	10.3 lbs.	-19.5
(c) Alternator, 70 amp, Prestolite, ALX-8403	10.3 lbs.	-19.5
302. Batteries		
(a) Auto-Lite, R-35 or Prestolite, R-35 or Gill, 6-GCAB-11 or PS6-11, or Rebat, R-37	27 lbs.	+105.8
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 1119224 or 1119224C or VR300-14-50 or DGR-7-H-50	2 lbs.	+7.0
If 940019 alternator retrofit kit is installed.		
(b) OECO, 20082*	1.4 lbs.	+7.0
or Electrodelta VR 414*	0.6 lbs.	+7.0
or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+7.0
**Use 800331-721 adapter when OECO or VR414 is replaced by VR415, VR415D or 800270-505 regulator.*		
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Flight Manual dated September 3, 1963, for S/N 101 through 1308.		
(b) Flight Manual dated August 21, 1970, for S/N 700028 and ON. S/N 21-0001 thru 21-0023 (Aerostar).		
(c) Flight Manual dated January 1974, for S/N 21-0024 through 21-1160. See Note 2.		
(d) Flight Manual dated December 1974, for S/N 21-1161 through 21-1180. See Note 2.		
Miscellaneous	Weight	F.S. (IN)
601. Warning Systems		
(a) Stall warning indicator, Safe-Flight, Model R	1 lb.	+28.0
(b) Dual warning indicator, Safe-Flight, Model 283	2 lbs.	+2.5
(c) Gear warning indicator, Mallory, SC 628P	1 lb.	+50.0
(d) Stall warning indicator, Mallory, SC 628.	1 lb.	+50.0
602. Vacuum Pumps (Required. IFR, Optional VFR)		
(a) Airborne, 113A1 or	4.0 lbs.	0.0
(b) Airborne, 113A5 or	4.0 lbs.	0.0
(c) Airborne, 200CC or	3.5 lbs.	0.0
(d) Airborne, 211CC	2.5 lbs.	0.0

VII. Model M20F, 4 PCLM (Normal Category); Approved July 25, 1965

Engine	Textron-Lycoming IO-360-A1A (Bendix fuel injector, Model RSA-5AD1, P/N 2524054-1) See Note 20.	
Fuel	100LL or 100/130 octane min. grade aviation gasoline	
Engine Limits	For all operations, 2700 r.p.m. (200 hp)	
Airspeed Limits	Maneuvering	135 m.p.h. (117 knots) True Ind.
	Never exceed	200 m.p.h. (174 knots) True Ind.
	Flaps extended	105 m.p.h. (91 knots) True Ind.
	(All aircraft to S/N 680001)	
	Flaps extended	125 m.p.h. (109 knots) True Ind.
	(S/N 680001-700072 and 22-0001 and on)	
	Landing gear extended	120 m.p.h. (104 knots) True Ind.
	Maximum structural cruising	175 m.p.h. (152 knots) True Ind.

VII. Model M20F (cont'd)

C.G. Range (Landing gear extended)	(+45.0) to (+50.1) at 2740 lbs. (+41.8) to (+50.1) at 2470 lbs. (+41.0) to (+50.1) at 2250 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lbs.
Empty Weight C.G. Range	None
Maximum Weight	2740 lbs.
No. of Seats	4 (2 at +31.5 to +39.0, 2 at +70.7 to 75.2)
Maximum Baggage	120 lbs. (+95.5), 10 lbs. (+119.0)
Fuel Capacity	64 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.
Oil Capacity	2 gal. (-11.5)

Control Surface Movements

Wing Flaps		T.O. Position	Down	15° ± 1°
		Landing	Down	33° + 0° / -2°
Aileron	Up	12½° to 17°	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	½° + 1°	Down	5¼° to 5¾°

Elevator Trim Assist Unit	(for Aircraft with Serial Nos. to 680001): With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist unit 740128 for elevator up angle of 5° +/– 1° at the zero spring travel position.
Elevator Trim Assist Unit	(for Aircraft with Serial Nos. 680001 and up): With stabilizer set at 3° negative setting to the thrust line, adjust trim assist bungees 740188 for 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. Spirit level is used to level.
Serial No's. Eligible	Serial No. 660002-660004, 670001-670363, 670365-670385, 670387-670482, 670484-670539, 680001-680206, 690003-690090, 690092, 700001-700061, 700063-700066, 700070-700072, 22-0001 thru 22-1439. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to issue Airworthiness Certificates on Airplane Serial Numbers 660002 through 690035.
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) and (c) or (d) or (e), or 2(a), (b) or (c), (d) or (e) or (f), 101(a), (b), 102(a), 103(a), 104(a), 201(a), 202(a), 205(a), 206(a), 301(a), and 303(a) or 301(b), and 303(b) or 303(c) and 303(d), 302(a), 401(a) or (b) or (c) or (d) or (e) or (f), 601(a) or (b) and (c). See Note 13.
Datum	For M20F, datum is 5.00 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station +59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Model M20F CAR 3 effective November 1, 1949, as amended to May 18, 1954, with paragraphs 3.109, 3.112, 3.115, 3.118, and 3.120 of CAR 3 effective May 15, 1956, as amended to October 1, 1959.

VII. Model M20F (cont'd)

Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 14.0° ± 0° (See Note 6) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-35.16
(b) Spinner assembly, Mooney, 680014-501	3.6 lbs.	-34.18
(c) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.50 lbs.	-1.4
(d) Propeller governor, Edo Aire, 34828014	3.0 lbs.	-1.4
(e) Propeller governor, McCauley, C290D5/T24	2.75 lb.	-1.4
2. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1B hub, 7666A-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 14.0 ± 0° (see Note 6) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-35.16
(b) Spinner assembly, Hartzell 835-33	3.25 lbs.	-34.18
(c) Spinner assembly, Hartzell, 835-33P	3.25 lbs.	-34.18
(d) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	-1.4
(e) Propeller governor, Edo Aire, 34828014	3 lb.	+1.4
(f) Propeller governor, McCauley, C290D5/T24	2.75 lbs.	-1.4

Engines and Engine Accessories (Fuel and Oil System)

101.	Fuel Pumps		
	(a) One, electric, Dukes, 4140-00-19A	1.91 lb.	-1.5
	(b) One, engine-driven P/N AC 5656696A, 6440160, GP5656999, Type JJ, 6440296, or 6441234	1.6 lbs.	-3.8
102.	Oil Radiator		
	(a) Stewart-Warner, P/N 8432A or 8432E or 8432F or or 8432F1 or 8432L	2.4 lbs.	-23.0
103.	Induction Air Filter		
	(a) Donaldson, P10-4065 or P11-3576	1.2 lb.	-24.5
104.	Starters		
	(a) Prestolite, MZ4206 or MZ4218 or MZ4222	17.8 lbs.	-23.0

VII. Model M20F (cont'd)	Weight	F.S.
Landing Gear		
201. Two Main Wheel/Brake Assemblies, 6.00-6		
(a) *Cleveland wheel assembly, Model No. 40-86/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Cleveland Model 40-87	2.6 lbs.	See Note 8.
206. One, Nose Wheel, 6-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Generators and Alternators		
(a) Generator, 50 amp, Delco-Remy, 1101915	16.6 lbs.	-24.5
(b) Alternator, 60 amp, Prestolite, ALY-8420 or (alternate) ALY8403, ALY6420 or ALY8420M	10.3 lbs.	-24.5
(c) Alternator, 70 amp, Prestolite, ALX-8403	10.3 lbs.	-24.5
302. Batteries		
(a) Auto-Lite, R-35 or Prestolite, R-35 or Gill, 6-GCAB-11 or PS6-11, or Rebat, R-37	27 lbs.	+110.8
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 1119224 or 1119224C or VR300-14-50 or DGR-7-H-50	2 lbs.	+2.0
If 940019 alternator retrofit kit is installed.		
(b) OECO, 20082*	1.4 lbs.	+7.0
or Electrodelta VR 414*	0.6 lbs.	+7.0
or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+7.0
**Use 800331-721 adapter when OECO or VR414 is replaced by VR415, VR415D or 800270-505 regulator.*		
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Flight Manual dated August 21, 1970, for S/N 700035 and ON, S/N 22-0001 through 22-0012 (Aerostar). See Note 2.		
(b) Flight Manual dated November 17, 1969, for S/N 700005 and ON. See Note 2.		
(c) Flight Manual dated January 1974, for S/N 22-0013 through 22-1178. See Note 2.		
(d) Flight Manual dated December 1974, for S/N 21-1179 through 22-1272. See Note 2.		
(e) Flight Manual dated August 1975, for S/N 22-1273 through 22-1305. See Note 2.		
(f) Flight Manual dated October 1975 for S/N 22-1306 through 22-1438. See Note 2.		
Miscellaneous		
601. Warning Systems		
(a) Dual warning indicator, Safe-Flight, Model 283	2 lbs.	-2.5
(b) Gear warning indicator, Mallory, SC 628P	1 lb.	-2.5
(c) Stall warning indicator, Mallory, SC 628.	1 lb.	+50.0
602. Vacuum Pumps (Required IFR, Optional VFR)		
(a) Airborne, 113A1 or	4.0 lbs.	-5.0
(b) Airborne, 113A5 or	4.0 lbs.	-5.0
(c) Airborne, 200CC or	3.5 lbs.	-5.0
(d) Airborne, 211CC	2.5 lbs.	-5.0

VIII. Model M20G, 4 PCLM (Normal Category); Approved November 13, 1967

Engine	Textron-Lycoming O-360-A1D (Carburetor MA 4-5, Flow Setting P/N 10-3878-M, or 10-4164-1)				
Fuel	100LL or 100/130 octane min. grade aviation gasoline				
Engine Limits	For all operations, 2700 r.p.m. (180 hp)				
Airspeed Limits	Maneuvering		135 m.p.h. (117 knots) True Ind.		
	Never exceed		200 m.p.h. (174 knots) True Ind.		
	Flaps extended		125 m.p.h. (109 knots) True Ind.		
	Landing gear extended		120 m.p.h. (104 knots) True Ind.		
	Maximum structural cruising		175 m.p.h. (152 knots) True Ind.		
C.G. Range (Landing gear extended)	(+42.5) to (+50.1) at 2525 lbs. (+41.8) to (+50.1) at 2470 lbs. (+40.5) to (+50.1) at 2113 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lb.				
Empty Weight C.G. Range	None				
Maximum Weight	2525 lbs.				
No. of Seats	4 (2 at +31.5 to +39.0, 2 at +70.7 to +75.2)				
Maximum Baggage	120 lbs. (+95.5), 10 lbs. (+119)				
Fuel Capacity	52 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.				
Oil Capacity	2 gal. (-11.5)				
Control Surface Movements	Wing Flaps		T.O. Position	Down	15° ±1°
			Landing	Down	33° + 0°/ -2°
	Aileron	Up	12½° to 17°	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	½° to 1°	Down	5¼° to 5 ¾°
Elevator Trim Assist Unit	(for Aircraft with Serial Nos. to 680001): With stabilizer set at 3½° negative setting to the thrust line, adjust trim assist unit 740128 for elevator up angle of 5° +/- 1° at the zero spring travel position.				
Elevator Trim Assist Unit	(for Aircraft with Serial Nos. 680001 and up): With stabilizer set at 3° negative setting to the thrust line, adjust trim assist bungees 740188 for 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. Spirit level is used to level.				
Serial No's. Eligible	Serial No. 680001 thru 680164, 690001 thru 690020, 700001 thru 700006. Under the delegation option provisions of Part 21 of the Federal Aviation Regulations, Delegation Option Manufacturer No. SW-1 is authorized to issue Airworthiness Certificates on Airplane Serial Numbers 680001 thru 690009.				

VIII. Model M20G (cont'd)

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) (c) or (d) or (e), or 2(a) (b) (c), or 3(a) (b) (c) or (d) or (e), 101(a) or (c) and (b), 102(a) or (b), 103(a), 104(a) or (b), 201(a), 202(a), 205(a), 206(a), 301(a) and 303(a) or 301(b) or (c) and 303(b), 302(a), 401(a), 601(a) or (b) and (c). See Note 13.
Datum	For M20G, datum is 5.00 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Date of application for Type Certificate April 9, 1952. Type Certificate No. 2A3 issued August 24, 1955. No exemptions. Model M20G CAR 3, effective November 1, 1949, as amended to May 18, 1954.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell HC-C2YK-1 or HC-C2YR-1 hub, 7666-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 13.0° ± 0° (See Note 6) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-35.16
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-34.18
(c) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.50 lbs.	-1.4
(d) Propeller governor, Edo Aire 34828014	3.0 lbs.	-1.4
(e) McCauley governor, C290D5/T24	2.75 lbs.	-1.4
2. McCauley constant speed propeller installation		
(a) Propeller, McCauley, 2D34C53-A hub, 74E-0 blades Pitch setting at 30.0 in. sta.: Low 12.7° ± 2° High 27.50° ± 0.5° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	49.25 lbs.	-35.31
(b) Spinner dome, McCauley, D-2808, bulkhead & fillet assembly, D-3148	3.28 lbs.	-34.18
(c) Propeller governor, Woodward, 210452	3.0 lbs.	-1.0
3. Hartzell constant speed propeller installation		
(a) Propeller, Hartzell, HC-C2YK-1B hub, 7666A-2 blades See Notes 5 and 7. Pitch setting at 30.0 in. sta.: Low 13° ± 0° (See Note 6.) High 29.0° ± 2° Diameter: Maximum 74 in. Minimum allowable for repairs 72.5 in. No further reduction permitted.	53.75 lbs.	-35.16
(b) Spinner assembly, Hartzell, 835-20	3.25 lbs.	-34.18

VIII. Model M20G (cont'd)	Weight	F.S. (IN)
(c) Propeller governor, Hartzell, D-1-4 or D-1-6 or H-1 or H-1L	4.5 lb.	-1.4
(d) Propeller governor, Edo Aire, 34828014	3.0 lb.	-1.4
(e) Propeller governor, McCauley, C290D5/T24	2.75 lb.	-1.4
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, electric, Bendix 476087 (or alternate) Facet, (Balkamp) P/N 476-027	2.0 lbs.	+14.0
(b) One, engine-driven AC type AH, P/N GP5623467 + A, 5656880, 6440152, 6440174, 6441271, or 6440295	1.5 lbs.	-3.8
(c) One, electric, Dukes, 4140-00-21A or 1499-00-21 (or alternate) Weldon, P/N 8164A	1.91 lb.	+6.5
102. Oil Radiator		
(b) Harrison, 8526250	2 lbs.	-23.0
(a) Stewart-Warner, Model #8406-E1 or 8406J	2.8 lbs.	-23.0
103. Induction Air Filter		
(a) Air Maze, 13219	1 lb.	-22.0
104. Starters		
(a) Delco-Remy, 11096-89 or 1109519 or 1109511	17.8 lbs.	-23.0
(b) Prestolite, MZ4206 or MZ4218 or MZ4222	17.8 lbs.	-23.0
Landing Gear		
201. Two Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland Wheel Assembly, Model No. 40-86/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D.*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Cleveland, Model 40-87	2.6 lbs.	See Note 8.
206. One, Nose Wheel, 6-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Generators and Alternators		
(a) Generator, 50 amp, Delco-Remy, 1101915	16.6 lbs.	-24.5
(b) Alternator, 60 amp, Prestolite, ALY8420, ALY8403, ALY6420 or ALY8420M	10.3 lbs.	-24.5
(c) Alternator, 70 amp, Prestolite, ALX8403	10.3 lbs.	-24.5
302. Batteries		
(a) Auto-Lite, R-35 or Prestolite, R-35 or Gill, 6-GCAB-11 or PS6-11, or Rebat, R-37	27 lbs.	+2.5
303. Voltage Regulators		
(a) 50 amp, Delco-Remy 1119224 or 1119224C or VR300-14-50 or DGR-7-H-50	2 lbs.	+2.0
(b) OECO, 20082*	1.4 lbs.	+2.0
or Electrodelta VR 414*	0.6 lbs.	+7.0

VIII. Model M20G (cont'd)	Weight	F.S. (IN)
or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+7.0

**Use 800331-721 adapter when OECO or VR 414 is replaced by VR415, VR415D or 800270-505 regulator.*

Interior Equipment

401. FAA Approved Airplane Flight Manual
(a) Flight Manual dated November 17, 1969, for S/N 700005 and ON. See Note 2.

Miscellaneous	Weight	F.S. (IN)
601. Warning Systems		
(a) Dual warning indicator, Safe-Flight, Model 283	2 lbs.	-2.5
(b) Gear warning indicator, Mallory, SC 628P	1 lb.	-2.5
(c) Stall warning indicator, Mallory, SC 628	1 lb.	+50.0
602. Vacuum Pumps (Required IFR, Optional VFR)		
(a) Airborne, 113A1 or	4.0 lbs.	-5.0
(b) Airborne, 113A5 or	4.0 lbs.	-5.0
(c) Airborne, 200CC or	3.5 lbs.	-5.0
(d) Airborne, 211CC	2.5 lbs.	-5.0

IX. Model M20J, 4 PCLM (Normal Category); Approved September 27, 1976

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 12 and Note 20.

Fuel: 100LL or 100/130 octane minimum grade aviation gasoline

Engine Limits: For all operations, 2700 r.p.m. (200 hp)

Airspeed Limits		
	Maneuvering	136 m.p.h. (118 knots) IAS
	Never exceed	200 m.p.h. (174 knots) IAS
	*Never exceed	225 m.p.h. (195 knots) IAS
	Flaps extended (full flaps)	127 m.p.h. (110 knots) IAS
	****(15° flaps)	145 m.p.h. (126 knots) IAS
	Landing gear retraction	110 m.p.h. (96 knots) IAS
	** " " "	123 m.p.h. (107 knots) IAS
	Landing gear extension	120 m.p.h. (104 knots) IAS
	*** " " "	152 m.p.h. (132 knots) IAS
	**** " " "	159 m.p.h. (138 knots) IAS
	Landing gear extended	120 m.p.h. (104 knots) IAS
	*** " " "	152 m.p.h. (132 knots) IAS
	**** " " "	186 m.p.h. (162 knots) IAS
	Maximum structural cruising	175 m.p.h. (152 knots) IAS
	* " " "	200 m.p.h. (174 knots) IAS

** Serial No's. 24-0171 and on, (and 24-0002 through 24-00170 if S.B. M20-198 is complied with).*
*** Serial No's. 24-0084, 24-0378 thru 24-TBA.*
**** Serial No's. 24-0084, 24-0378 thru 24-2999, 24-3079 thru 24-TBA (and previous S/N's if SB M20-209 is complied ith).*
***** Serial No. 24-3000 thru 24-3078.*

S/N 24-0001 thru 24-3200, 24-3202 thru 24-3217 -- 2740 lbs. gross weight.

C.G. Range	
	(+45.0) to (+50.1) at 2740 lbs.
(Landing gear extended)	(+41.8) to (+50.1) at 2470 lbs.
	(+41.0) to (+50.1) at 2250 lbs. or less
	(Straight line variation between points given).
	Retraction moment 615 in. -lbs.

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. No. 940071 and insertion of applicable AFM supplement - 2900 lbs. gross weight.

IX. Model M20J (cont'd)

C.G. Range (Landing gear extended)	(+45.0) to (+50.1) at 2900 lbs. (+43.8) to (+50.1) at 2740 lbs. (+41.8) to (+50.1) at 2470 lbs. (+41.0) to (+50.1) at 2250 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lbs.
Empty Weight C.G. Range	None
Maximum Weight	2740 lbs. - S/ N 24-0001 thru 24-3200, 24-3202 thru 24-3217) 2900 lbs. - S/N 24-3201, 24-3218 and ON and S/N 24-1686 thru 24-3200, 24-3202 thru 24-3217 when c/w MAC dwg. No. 940071 and insertion of applicable AFM Supplement into the appropriate AFM.
No. of Seats	4 (2 at +34.0 to +39.0, 2 at +70.7)
Maximum Baggage	120 lbs. (+95.5), 10 lbs. (+119)
Fuel Capacity	64 gals. (Two integral tanks in wings at +48.4) See NOTE 1 for data on unusable fuel.
Oil Capacity	2 gal. (-11.5)
Maximum Operating Altitude	See Note 19
Control Surface Movements	(Aircraft with Serial Numbers 24-0002 thru 24-1037)

Wing Flaps		T.O. Position	Down	15° +/- 1°
		Landing	Down	33° + 0°/-2°
Aileron	Up	12½° to 17°	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	½° to 1°	Down	5¼° to 5 ¾°

Elevator Trim Assist Unit	With stabilizer set at 3° negative setting to the thrust line, adjust trim assist bungees 740188 for an elevator position of 19° +/- 1° at the zero spring position of the bungees. (This rigging to be obtained before installation of the 740171 extension springs).

(Aircraft with serial numbers 24-1038 and up)

Wing Flaps		T.O. Position	Down	15° +/- 1°
		Landing	Down	33° + 0°/-2°
Aileron	Up	12½° to 14½°	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	½° to 1°	Down	5¼° to 5 ¾°

Elevator Trim Assist Unit	With stabilizer set at 3° negative setting to the thrust line, adjust trim assist bungees 740188 for an elevator position of 9° ± 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. Spirit level is used to level. Serial No. 24-0002 thru 24-0090 (excluding 24-0084). Leveling screws located above the tailcone access door. Spirit level is used to level S/N 24-0084, S/N 24-0091, and on.
Serial numbers eligible	Serial No. 24-0002 and up.

IX. Model M20J (cont'd)

Export eligibility	See Note 14.
Required equipment	In addition to the pertinent 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)(1), 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), 401(a) or (b) or (c) or (d) or (e) or (f) or (g) or (h) or (i) or (j) or (k) or (l) or (m), 601(a), (b) or (c), 602(a) or (b) or (c) or (d) or (e).

Specifications Pertinent to Model

Datum	For M20J, datum is 5.00 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Model M20J CAR 3, effective November 1, 1949, as amended to May 18, 1954, with paragraph 3.74 of Amendment 3-13 dated August 25, 1955; with paragraphs 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; paragraph 23.29 as amended to March 1, 1978, paragraphs 23.45 through 23.77 as amended to February 17,1987, paragraphs 23.1441 through 23.1449, as amended to June 17, 1970; FAR 36, effective September 20, 1976.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1. McCauley constant speed propeller installation		
(a) (1) Propeller, McCauley, B2D34C212 hub, 78CDA-4 blades (See Notes 10, 16) Pitch setting at 30.0 in. sta.: (S/N 24-0002 thru 24-0083, 24-0085 thru 24-0170) Low 14° ± 0. 2° High 27.5° ± 0.2° (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° ± 0. 2° High 29.5° ± 0.5°	49.5 lbs.	-35.5
(a) (2) Propeller, McCauley, B2D34C214 hub, 90DHB-16E blades or -16EP blades (See Notes 11, 16) Pitch setting @ 30.0 in. Sta. (S/N 24-0378 & on) Low 13.9° ± 0. 2° High 33.0° ± 0.5° Diameter: Maximum 74 in. Minimum allowable for repairs 73 in. No further reduction permitted. No reduction permitted when equipped with deice boots.	49.5 lbs.	-35.5
(b) Spinner assembly, Mooney, 680031-505	4.8 lbs.	-35.0
(c) Propeller governor, McCauley, C290D5F/T17	2.75 lbs.	-1.40
2. Hartzell constant speed propeller installation		
(a) (1) Propeller, Hartzell HC-C2YK-1BF hub, F7666A-3Q blades	54.25 lbs.	-35.5

IX. Model M20J (cont'd)	Weight	F.S.
Pitch setting at 30.0 in. sta.: Low 14.1° ± .1° High 29.3° to 31.3° Diameter: 73.0 in. No further reduction permitted. (S/N 24-1038 and ON)		
(b) (1) Mooney Spinner assembly, 680031-507 (S/N 24-1038 and ON)	4.8 lbs.	-35.0
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, engine driven, P/N AC 6440296 or 6441234	1.6 lb.	+6.5
(b) One, electric, Dukes, 4140-00-19A, 1499-00-19	1.91 lbs.	+6.5
(or alternate) Weldon, P/N 8163A	2.4 lbs.	+6.5
(c) Weldon, P/N 8163B (S/N 24-3000 and ON)	2.4 lbs.	+6.5
102. Oil Radiator		
(a) Stewart-Warner, 8432F1 or 8432L	2.4 lbs.	-3.8
103. Induction Air Filter		
(a) Donaldson, P13-0234 or Bracket, BA6210 or Air Maze, 125997-010	1 lb.	-25.5
104. Starters		
(a) Prestoline, MZ5206 or MZ4218 or MZ4222 (S/N 24-0001 thru 24-2999)	17.8 lbs.	-23.0
(b) Prestolite, MHB-4016 (S/N 24-3000 and ON)	17.8 lbs.	-23.0
Landing Gear		
201. Two Main Wheel/Brake Assemblies, 6.00-6		
(a) Cleveland Wheel /Brake Assembly, *Wheel, Model No. 40-86/Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D.*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Goodyear, Model 40-87	2.6 lbs.	See Note 8.
206. One, Nose Wheel, 6-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Alternators		
(a) Alternator, 60 amp, Prestolite, ALY8420, ALY8403, ALY6420 or ALY8420M (S/N 24-0001 thru 24-2999)	10.3 lbs.	-24.5
(b) Alternator, 70 amp, Prestolite, ALU6421-LS (S/N 24-3000 and on)	10.3 lbs.	-24.5
302. Batteries		
(a) Auto-Lite, R-35 or Prestolite, R-35 or Gill, 6-GCAB-11 or PS6-11, or Rebat, R-37 (24-0001 thru 24-2999)	27 lbs.	+110.8
(b) Gill, G-242 (S/N 24-3000 thru 24-3200, 24-3202 thru 24-3217)	27 lbs.	+110.8
(c) Gill, G-243 (S/N 24-3201, 24-3218 and thru 24-TBA)	29.5 lbs.	+110.8
(d) Concorde, RG24-11M, or -15 (S/N 24-3201, 24-3218 and thru 24-TBA)	26.5 lb.	+110.8

Model M20J (cont'd)		Weight	F.S.
303.	Voltage Regulators		
	(a) OECO, 20082*	1.4 lbs.	+2.0
	or Electrodelta VR 414*		
	or Electrodelta VR 415 or VR 415D or Mooney 800270-505	0.6 lbs.	+2.0
	(S/N 24-0001 thru 24-2999)	1.3 lb.	
	**Use 800331-721 adapter when OECO or VR 414 is replaced by VR415, VR415D or 800270-505 regulator.*		
	(b) Precise Flight, DGR-2, or Electrodelta, VR 802		
	(S/N 24-3000 and ON)	0.6 lbs.	+2.0
	or 800270-501	0.3 lb.	+2.0

Interior Equipment

401. FAA Approved Airplane Flight Manual

(a) Pilot's Operating Handbook and FAA Approved Airplane Flight Manual dated September 27, 1976, for 24-0002 through 24-0083 and 24-0085 through 24-0377. See Note 2.

(b) Pilot's Operating Handbook dated November 15, 1977, for S/N 24-0084, 24-0378 thru 24-0763. See Note 2.

(c) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 12-28-78, S/N 24-0764 thru 24-1037. See Note 2.

(d) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated August 29, 1980, for S/N 24-1038 thru 24-1213. See Note 2.

(e) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 9/4/81 for S/N 24-1214 thru 24-1417. See Note 2.

(f) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 9/6/83 for S/N 24-1418 thru 24-1499.

(g) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 10/12/84 for S/N 24-1500 thru 24-2999 (#1231). Excludes M20J Advanced Trainer, see (j) below.

(h) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 6/2/86 for S/N 24-3000 thru 24-3078.

(i) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 11-22-88, for S/N 24-3079 thru 24-3153.

(j) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 8-89 for S/N 24-1686-14 thru 24-2999. (ATS's only)

(k) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 3-90 for S/N 24-3154 thru 24-3217, excluding S/N 24-3201.

(l) Pilot's Operating Handbook and FAA approved Airplane Flight Manual, dated 7-91, for 24-3201. 24-3218 thru 24-3373.

(m) Pilots Operating Handbook and FAA approved Airplane Flight Manual, dated 1-96 for S/N 24-3374 thru 24-TBA.

Miscellaneous

601.	Warning Systems		
	(a) Gear warning indicator, Mallory, SC 628P	1 lb.	-2.5
	(b) Stall warning indicator, Mallory, SC 628	1 lb.	+50.0
	(c) Stall/Gear Warning indicator, IAI, 950D-0309-000	1.1 lb.	+ 4.24
602.	Vacuum pumps		
	(a) **Airborne, 200CC (24-0001 thru 24-2999) or	3.5 lb.	-5.0
	(b) **Airborne, 211CC (24-0001 thru 24-2999)	2.5 lbs.	-5.0
	(c) Airborne, 241CC-17 (alternate) S/N 24-3000 and ON.	3.4 lbs.	-5.0
	(d) **Airborne, 241CC (alternate - all counter clockwise applications) (24-0001 thru 24-2999) or	3.4 lbs.	-5.0
	(e) **Sigma Tek, IU128-003 and IU128-005 or -006 (alternate - all applications) (24-0001 thru 24-2999)	3.4 lbs.	-5.0

X. Model M20K, 4 PCLM (Normal Category); Approved November 16, 1978

Engine — Teledyne Continental Motors TSIO-360-GB1, -GB3, -GB4 (S/N 25-0001 thru 25-0780);
TSIO-360-LB1 (S/N 25-0781 thru 25-0889). See Note 17.
TSIO-360-MB1 (S/N 25-1000 and 25-1999).
TSIO-360-MB2 (S/N 25-2000 thru 25-2012) See NOTE 21.

X. Model M20K (cont'd)

TSIO-360-SB2 (S/N 25-2000 thru 25-TBA) See NOTE 21.

Fuel: 100LL or 100/130 octane minimum grade aviation gasoline

Engine Limits: For all operations, 2700 r.p.m., 40.0 in. MP (210 HP); except -MB-(1) & (2), 36.0 in. MP. & -SB2, 2,600 RPM, 39.0 in. Hg. MP (220 HP).

Airspeed Limits

	S/N 25-0001 thru -0889	25-1000 and Up
Maneuvering	135 m.p.h. (117 kts) IAS	123 KIAS
Never exceed	225 m.p.h. (195 kts) IAS	195 KIAS
Flaps extended	125 m.p.h. (109 kts) IAS	109 KIAS
Landing gear retraction	122 m.p.h. (106 kts) IAS	106 KIAS
Landing gear extension	150 m.p.h. (130 kts) IAS	140 KIAS
Landing gear extended	150 m.p.h. (130 kts) IAS	165 KIAS
Maximum structural cruising	200 m.p.h. (174 kts) IAS	174 KIAS

C.G. Range
Landing gear extended) (+43.5) to (+49.3) at 2900 lbs.
(+40.6) to (+49.3) at 2360 lbs. or less
(Straight line variation between points given).
Retraction moment + 615 in. -lb.

Empty Weight C.G. Range: None

Maximum Weight: 2900 lbs. (S/N 25-0001 thru 25-2012) (See NOTE 21)
3130 lbs. (S/N 25-2000 thru 25-TBA) (See NOTE 21)

No. of Seats: 4 (2 at +34.0 to +39.0, 2 at +70.7)

Maximum Baggage: 120 lbs. (+95.5), 10 lbs. (+119)

Fuel Capacity: 72.0 gal. (S/N 25-0001 thru 25-0446); 75.6 gal. usable) (S/N 25-0447 and on).
(Two integral tanks in wings at +48.59) See NOTE 1 for data on unusable fuel.

Oil Capacity: 2 gal. (-22.19)

Maximum Operating Altitude: 24,000 feet for S/N 25-0001 thru 25-0999
28,000 feet for S/N 25-1000 thru 25-1999. (See NOTE 19.)
25,000 feet for S/N 25-2000 thru 25-TBA. (See NOTE 19.)

Control Surface Movements

Wing Flaps			T.O. Position	Down	10° ± 1°
			Landing	Down	33° + 0°/-2°
Aileron	Up	12½° to 14½°		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 7.0°

Elevator Trim Assist: With stabilizer set at maximum positive setting and elevators full down. Adjust turnbuckle for 14.0 to 16.0 lb. on tensionmeter, tensionmeter reading 20 lbs. maximum permissible. Check for positive clearance between cable end and pulley sheave.

Leveling means: Edge of skin splice over aft fuselage radio access panel. Spirit level is used to level. (Serial No. 25-0002 thru 25-0246)
Leveling screws located above the tailcone access door. Spirit level is used to level. (Serial No. 25-0247 and on)

X. Model M20K (cont'd) Weight F.S. (in.)

Serial No's. Eligible	Serial No. 25-0001 and up.
Export Eligibility	See Note 14.
Required equipment	Serial No. 25-0001 thru 25-0999. In addition to the pertinent 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), 401(a) or (b) or (c) or (d) or (e), 601(a) (b), 602(a) or (b), (c). Serial No. 25-1000 thru 25-1999. In addition to the pertinent required basic equipment specified in CAR 3, the following items of equipment must be installed: 1(a) (2) (b) (c) or 2(a) (b), 101(b), 103(b), 104(b), 201(a), 202(a), 205(a), 206(a), 301(b) and 303(b), 302(b), & (c), 401(f) or (g) or (h), 601(a) (b) or (c), 602(a) or (b) or (c). S/N 25-2000 and ON. In addition to the pertinent required basic equipment specified in CAR 3, the following items of equipment must be installed: 1(a)(2)(b)(c) or 2(a)(b), 101(b), 103(b), 104(b), 201(a), 202(a), 205(a), 206(a), 301(b) and 303(b), 302(b) or (c), 401(i) or (j), 601(a)(b) or (c), 602(a) or (b) or (c).
Datum	For M20K, datum is 5.00 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The leading edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Model M20K (Serial Number 25-0001 through 25-2012) See Note 21. CAR 3, effective November 1, 1949, as amended to May 18, 1954, with paragraph 3.74 of Amendment 3-13 dated August 25, 1955; CAR 3 effective May 15, 1956, as amended to October 1, 1959, paragraphs 3.109, 3.112, 3.115, 3.118, 3.120, and 3.441; in lieu of corresponding CAR 3 paragraphs, where applicable --FAR 23, effective February 1, 1965; as amended to September 14, 1969, paragraph 23.33,23.901 through 23.953, 23.955 through 23.963, 23.967 through 23.1047, 23.1121 through 23.1193, 23.1351 through 23.1401, 23.1527, 23.1553, as amended to June 17, 1970, paragraphs 23.1441 through 23.1449; as amended to February 1, 1977; paragraphs 23.1091 through 23.1105; as amended March 1, 1978, paragraph 23.29; FAR 36, effective September 20, 1976. Model M20K (Serial Number 25-2013 and on) See Note 21. CAR 3, effective November 1, 1949, as amended to May 18, 1954, with paragraph 3.74 of Amendment 3-13; CAR 3 effective May 15, 1956, as amended to October 1, 1959, paragraphs 3.109, 3.112, 3.115, 3.118, 3.120, and 3.441; in lieu of corresponding CAR 3 paragraphs, where applicable-- FAR 23, effective February 1, 1965; paragraphs 23.33, 23.901 through 23.953, 23.955 through 23.963, 23.967 through 23.1047, 23.1121 through 23.1193, 23.1351 through 23.1401, 23.1527, 23.1553, of amendment 23-7; paragraphs 23.1441 through 23.1449 of amendment 23-9; paragraphs 23.1091 through 23.1105 of amendment 23-17; paragraph 23.1301 of amendment 23-20; paragraph 23.29 of amendment 23-21; paragraph 23.1529 of amendment 23-26, paragraphs 23.45 through 23.77 of amendment 23-34; paragraph 23.1587 of amendment 23-45; paragraphs 23.1323 and 23.1325 of amendment 23-42; FAR 36, latest amendment at time of certification.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

X. Model M20K (cont'd)

Propeller and Propeller Accessories - Fuselage Station Location	Weight	F.S.
1. McCauley constant speed propeller installation		
(a) (1) Propeller, McCauley, 2A34C216, 90DHB-16E blades Pitch setting at 30.0 in. sta.: Low 14.7° ± 0. 2° High 33.0° ± 0.5° Diameter 74.0 in. No reduction permitted. (S/N 25-0001 thru 25-0999)	55.2 lbs.	-45.32
(a) (2) Propeller, McCauley, 2A34C221 hub, 90DHC-16E or 90DHC-16EP blades Pitch settings at 30 in. sta.: Low 14.7° ± 0.2° High 38.0° ± 0.5° Diameter: 74 in. No reduction permitted. (S/N 25-1000 thru 25-2008) or (S/N 25-0001 thru 25-0999 providing S.I. M20-75 has been complied with)	55.2 lbs.	-45.32
(b) Spinner assembly, Mooney, 680032-501	4.8 lbs.	-45.32
(c) Propeller governor, McCauley, C290D3F/T20	2.75 lbs.	-32.10
2. Hartzell constant speed propeller installation		
(a) Propeller hub blades assembly Hartzell, hub BHC-J2YF-1BF, blades F8459A-11Q Pitch settings at 30.0 in. sta.: Low 14.7° ± 0.1° High 30.0° to 32° (See Note 18.) Diameter: 73.0 in. No reduction permitted. (S/N 25-0001 thru 25-1999)	54.00 lbs.	-45.32
(b) Spinner assembly, Hartzell, A2295 (S/N 25-0001 thru 25-1999)	4.5 lbs.	-45.32
(c) Propeller Governor, McCauley, C290D3F/T()	2.75 lbs.	-32.10
Engines and Engine Accessories (Fuel and Oil System)		
101. Fuel Pumps		
(a) One, electric, Dukes, 4140-00-19A, or 1499-00-19	1.91 lbs.	+6.5
or Weldon, 10054A (S/N 25-0001 thru 25-0999)	2.7 lbs.	+6.5
(b) Weldon, 10054B (S/N 25-1000 and on)	2.7 lbs.	+6.5
103. Induction Air Filter		
(a) Donaldson, P13-6287 or Airmaze, 125685-004	1 lb.	-14.0
(b) Airmaze, ED04011 00736 (S/N 25-1000 and on)	.5 lb.	-23.92
104. Starters		
(a) Teledyne Continental Motors, 634592 (same as Prestolite, MCL 6501 or 646238)	18.1 lbs.	-9.1
(b) TCM, 646275 (S/N 25-0001 and on)	18.1 lbs.	-9.1
Landing Gear		
201. Two Main Wheel/Brake Assemblies, 6.00-6		
(a) *Cleveland Wheel Assembly, Model No. 40-86/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D.*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.

X. Model M20K (cont'd)	Weight	F.S.
205. One, Nose Wheel, 5.00-5		
(a) Cleveland, Model 40-87	2.6 lbs.	See Note 8.
206. One, Nose Wheel, 6-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Alternators/Generators		
(a) Alternator, 70 amp, TCM, 643008 (12V) (Same as Prestolite, ALX-9425A or ALX-9425B) See Note 15. (Opt.) 80 amp, TCM, 649281 (12V)	11.7 lbs.	-6.9
(b) 70 amp, TCM, 646719 (24V)	11.7 lbs.	-6.9
(Opt.) 70 amp, TCM, 649280 (24V)		
(Opt.) 70 amp, TCM, 649172 (24V)	10.3 lbs.	-5.5
(c) Optional 10 Amp, Generator Electro-Mech, EM8012	5.8 lbs.	-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)	27 lbs.	+110.8
(b) Gill G242 (S/N 25-1000 thru 25-1196)	27 lbs.	+110.8
(c) Gill, G-243 (S/N 25-1197 and ON)	29.5 lbs.	+110.8
(d) Concorde, RG24-11M, or -15 (S/N 24-3201, 24-3218 and thru 24-TBA)	26.5 lb.	+110.8
303. Voltage Regulators		
(a) OECO, 20082*	1.4 lbs.	+2.0
or Electrodelta VR414* or VR415 or VR415D or Mooney 800270-505	0.6 lbs.	+2.0
(b) Precise Flight, DGR-2, or Electrodelta, VR 802 (1 or 2 ea.) or 800270-503 (S/N 25-1000 and ON)	0.6 lbs.	+2.0

**Use 800331-721 Adapter when Oeco or VR414 is replaced by VR415, VR415D or 800270-505 regulator.*

Interior Equipment

401. FAA Approved Airplane Flight Manual
- (a) Pilot's Operating Handbook dated November 16, 1978, for S/N 25-0001 thru 25-0446. See Note 2.
- (b) Pilot's Operating Handbook dated August 29, 1980, for S/N 25-0447 thru 25-0612. See Note 2.
- (c) Pilot's Operating Handbook dated September 4, 1981 for S/N 25-0613 thru 25-0780. See Note 2.
- (d) Pilot's Operating Handbook dated September 6, 1983, for S/N 25-0781 thru 25-0841.
- (e) Pilot's Operating Handbook dated October 12, 1984, for S/N 25-0842 thru 25-0889.
- (f) Pilot's Operating Handbook dated December 16, 1985, for S/N 25-1000 thru 25-1066.
- (g) Pilot's Operating Handbook dated September 18, 1986, for S/N 25-1067 thru 25-1224.
- (h) Pilot's Operating Handbook dated March 1990 for S/N 25-1225 thru 25-1999.
- (i) Pilot's Operating Handbook, dated 4/97 for S/N 25-2000 thru 25-2012 (See NOTE 21)
- (j) Pilot's Operating Handbook, dated 7/97 for S/N 25-2000 thru 25-TBA(See NOTE 21)

Miscellaneous

601. Warning Systems		
(a) Gear warning indicator, Mallory, SC 628P	1 lb.	-2.5
(b) Stall warning indicator, Mallory, SC 628	1 lb.	+50.0
(c) Stall/Gear Warning indicator, IAI, 950D-0309-000	1.1 lb.	+ 4.24
602. Vacuum pumps		
(a) ***Airborne, 200CC or	3.5 lb.	-3.8
(b) ***Airborne, 211CC	2.5 lbs.	-3.8

X. Model M20K (cont'd)

	Weight	F.S.
(c) Sigma-TEK, 1U128-003 and 1U128-005 (alternate for all applications)	3.4 lbs.	-3.8
***Airborne, 241CC (alternate all counter-clockwise applications)	3.4 lbs.	-3.8
***Airborne, 242CW-10 (alternate all clockwise applications)	3.4 lbs.	-3.8
(d) ***Airborne, 241CC-15 (alternate all clockwise applications)	3.4 lbs.	-3.8
(e) ***Airborne, 242CW (alternate all clockwise applications)	3.4 lbs.	-3.8
(f) Sigma-TEK, 1U128-006 (Alt)	3.4 lbs.	-3.8

XI. Model M20L, 4 PCLM (Normal Category); Approved February 25, 1988

Engine	Porsche PFM 3200 N03				
Fuel	100 LL min-grade aviation gasoline				
Engine Limits	For all operations, 2343 RPM (217 HP)				
Airspeed Limits	Maneuvering	135 m.p.h. (117 knots) IAS			
	Never exceed	225 m.p.h. (195 knots) IAS			
	Flaps extended	127 m.p.h. (110 knots) IAS			
	Landing gear retraction	120 m.p.h. (106 knots) IAS			
	Landing gear extension	150 m.p.h. (129 knots) IAS			
	Landing gear extended	150 m.p.h. (129 knots) IAS			
	Maximum structural cruising	200 m.p.h. (174 knots) IAS			
C.G. Range (Landing gear extended)	(+43.5) to (+49.3) at 2900 lbs. (+41.0) to (+49.3) at 2430 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lb.				
Empty Weight C.G. Range	None				
Maximum Weight	2900 lbs.				
No. of Seats	4 (2 at +34.0 to +39.0, 2 at +70.0)				
Maximum Baggage	120 lbs. (+101.0), 10 lbs. (+125.0)				
Fuel Capacity (usable)	60.5 gallons (Two integral tanks in wings at +48.43) See NOTE 1 for data on unusable fuel.				
Oil Capacity	13.5 qt. total; 7 qt. in oil tank				
Maximum Operating Altitude	N/A				
Control Surface Movements	Wing Flaps		T.O. Position	Down	10° ± 1°
			Landing	Down	33° + 0°/-2°
	Aileron	Up	12½° to 14½°	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 7.0°
Elevator trim assist	With stabilizer set at maximum positive setting and elevators full Down, adjust turnbuckle for a 14.0 to 16.0 lbs. tensionmeter reading on cable, tensionmeter reading (20 lb. max. permissible.) Check for positive clearance between cable end and pulley end and pulley sheave.				

XI. Model M20L (cont'd)

Leveling means	Leveling screws located above the tailcone access door. Spirit level is used to level.
Serial No's. Eligible	Serial No. 26-0001 and up.
Required equipment	Serial No. 26-0001 thru 26-TBA. In addition to the pertinent required basic equipment specified in CAR 3, the following items of equipment must be installed: 1(a) (b) (c), 101(a), 102(a), 103(a), 104(a), 106(a), 201(a), 202(a), 205(a), 206(a), 301(a), 302(a), 303(a), 304(a) (b), 401(a), 601(a).
Datum	For M20L, datum is 13 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing at wing station 59.25 is 33.00 inches aft of fuselage station 0.00.
Certification basis	Model M20L CAR 3, effective November 1, 1949, as amended to May 18, 1954, with paragraph 3.74 of Amendment 3-13 dated August 25, 1955; paragraphs 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 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; paragraph 23.853(d), as amended to December 20, 1973; 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 23.1401 as amended to September 14, 1969; paragraphs 23.1441 through 23.1449, as amended to June 17, 1970, paragraphs 23.1527, 23.1553, as amended to September 14, 1969, paragraph 23.1557, as amended to December 20, 1973; FAR 36, effective September 20, 1976. Exemption No. 4753 dated February 13, 1987, and 4753A dated June 9, 1987, granted an exemption from 23.991(a)(1).
Special conditions	No. 23-ACE-35 effective November 11, 1987, established requirements for single power control lever, protection of electronic ignition system from lightning and unwanted effects of radio frequency (RF) energy.
Production basis	None. Prior to original certification of each aricraft manufactured subsequent to March 7, 1969, 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	Approved for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories - Fuselage Station Location	Weight	F.S.
1. Hartzell constant speed propeller installation		
(a) Hartzell, BHC-J2YF-1C hub, blades B7421 Pitch setting at 30.0 in. sta.: Low 15.3° ± .1° High 40° ± 1° Diameter: 74.0 in. No reduction permitted.	43.2 lbs.	-51.50
(b) Spinner assembly, Hartzell, D5413	4.5 lbs.	-51.50
(c) Propeller governor, Woodward, A210778	2.8 lbs.	-12.48

Engines and Engine Accessories (Fuel and Oil System)

101.	Fuel Pumps		
	(a) 933.620.001.00 (3 required main and emergency)	2.2 lbs.	+17.62
	933.620.00 (boost) (1 required)	2.2 lbs.	+19.25

XI. Model M20L (cont'd)	Weight	F.S.
102. Oil Radiator		
(a) Mooney, 620058-501 or Lori, L8600805	5.8 lbs. (dry)	-39.08
103. Induction Air Filter		
(a) 933.110.141.01	.78 lb.	-10.97
104. Starter		
(a) 933.604.001.00	8 lbs.	-40.1
106. Fuel filter		
(a) 933.110.380.01	.88 lbs.	-.81
Landing Gear		
201. Two Main Wheel/Brake Assemblies		
(a) *Cleveland Wheel Assembly, Model No. 40-86/ Brake Assembly No. 30-56A	19 lbs.	See Note 8.
**Optional - Cleveland, 40-86E, 30-56D*		
202. Two main wheel, 6-ply rating, tires		
(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205. One, Nose Wheel, 5.00-5		
(a) Cleveland, wheel assembly, Model 40-87	2.6 lbs.	See Note 8.
206. One, Nose Wheel, 6-Ply Rating tire		
(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Alternators		
(a) 70 amp, Porsche, 933.603.004.00 (2 required)	13.672 lbs. 13.672 lbs.	-12.80(left) -10.60(right)
302. Batteries		
(a) Gill, (Teledyne) G243 (2 required)	29.5 lbs. (ea.)	+146.0
(b) Concorde, RG24-11M or -15 (2 required)	26.5 lbs.	+146.0
303. Voltage Regulators		
(a) Overvoltage control (2 required) Electrodelta. OS-400	0.4 lbs.	+16.25
304. Ignition boxes and coils		
(a) Ignition box, 933.602.007.07 (2 required)	3.09 lbs. (ea.)	+64.99
(b) Coil, 933.602.005.02 or 933.602.005.01 (2 required)	2.205 lbs. (ea.)	-3.62
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Pilot's Operating Handbook dated 2/88 for S/N 26-0001 thru 26-0041.		

XI. Model M20L (cont'd)

Miscellaneous	Weight	F.S. (in)
601. Warning Systems		
(a) Stall/gear warning, IAI-950D-0309-000	1.1 lb.	+4.24

XII. Model M20M, 4 PCLM (Normal Category); Approved June 28, 1989

Engine	Textron-Lycoming TIO-540-AF1A Textron-Lycoming, TIO-540-AF1B (OPT. 27-0001 THRU 27-0210) Standard 27-0211 Thru 27-TBA				
Fuel	100 LL or 100 octane min-grade aviation gasoline				
Engine Limits	For all operations, 2575 r.p.m., 38.0 in. MP (270 HP)				
Airspeed Limits	Maneuvering	146 m.p.h. (127 knots) IAS			
	Never exceed	225 m.p.h. (195 knots) IAS			
	Flaps extended	127 m.p.h. (110 knots) IAS			
	Landing gear retraction	122 m.p.h. (106 knots) IAS			
	Landing gear extension	161 m.p.h. (140 knots) IAS			
	Landing gear extended	190 m.p.h. (165 knots) IAS			
	Maximum structural cruising	200 m.p.h. (174 knots) IAS			
C.G. Range (Landing gear extended) S/N 27-0001 thru 27-0052	3200 lb. C.G. limits (+45.0) to (+51.0) at 3200 lbs. (+43.0) to (+51.0) at 3000 lbs. (+41.0) to (+51.0) at 2430 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lbs.				
C.G. Range (Landing gear extended) S/N 27-0053 and on, and aircraft S/N 27-0001 thru 27-0052 that have complied with Mooney S/B M20-248.	3368 lb. C.G. limits (+46.0) to (+51.0) at 3368 lbs. (+44.0) to (+51.0) at 3300 lbs. (+41.0) to (+51.0) at 2430 lbs. or less (Straight line variation between points given). Retraction moment 615 in. -lbs.				
Empty Weight C.G. Range	None				
Maximum Weight	3200 lbs. S/N 27-0001 thru S/N 27-0052. 3200 lbs. Landing, 3368 lbs. takeoff for S/N 27-0053 and on, and those aircraft S/N 27-0001 thru 27-0052 that have complied with Mooney Service Bulletin M20-248.				
No. of Seats	4 (2 at +34.0 to +39.0, 2 at +70.7)				
Maximum Baggage	120 lbs. (+101.5), 10 lbs. (+126)				
Fuel Capacity (usable)	89 U.S. gallons (Two integral tanks in wings at +49.23) See NOTE 1 for data on unusable fuel.				
Oil Capacity	10 qt. (at -24.76 in.)				
Maximum Operating Altitude	25,000 ft. See Note 19.				
Control Surface Movements	Wing Flaps		T.O. Position	Down	10° ± 1°
			Landing	Down	33° + 0°/-2°
	Aileron	Up	12½° to 14½°	Down	8° ± 1°
	Aileron static position			Down	0° to 2°

XII. Model M20M (cont'd)

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 7.0°

Elevator trim assist — With stabilizer set at maximum positive setting and elevators Full down. Adjust turn buckle for a 14.0 to 16.0 lb. tensionmeter reading on cable. Check for positive clearance between cable end and pulley sheave.

Leveling means — Leveling screws located above the tailcone access door on left side. Spirit level is to be placed on screws for level.

Serial No's. Eligible — Serial No. 27-0001 and up.

Export Eligibility — See Note 14.

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), (d), or (f), 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), 401(a) or (b) or (c), 601(a), 602(a), (b) or (c).

Datum — For M20M, datum is 13 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00.
The Leading Edge of the wing, at wing station 59.25, is 33.00 inches aft of fuselage station 0.00.

Certification basis — Model M20 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 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 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, paragraphs 23.1521 as amended to December 1, 1978; paragraph 23.1525; paragraph 23.1527, as amended to September 14, 1969; paragraphs 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.

Production basis — 27-0001 thru 27-0273: Prior to original certification of each aircraft manufactured subsequent to March 7, 1969, 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. PC11SW: 27-0274 thru 27-0316; PC13SW: 27-0317 and subsequent.

Equipment — Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories	Weight	F.S.
1 McCauley constant speed propeller installation		
(a) McCauley, B3D32C417 hub blades 82 NRD-7 Pitch setting at 30.0 in. blade station: Low 15.1° ± 0.2° High 43.0° ± 0.5° Diameter: 75.0 in.	75.0 lbs.	-49.5

XII. Model M20M (con't)

	No reduction permitted.		
(b)	Spinner assembly, McCauley D-6204	4.8 lbs.	-51.00
(c)	Spinner assembly, McCauley D-6204-1	4.8 lbs.	-51.00
(d)	Propeller governor, McCauley C290D( )/T27	3.2 lbs.	-35.80
(e)	Propeller de-icing boots, McCauley 690003-501 (S/N 27-0001 and on)	9 lbs.	-49.50
(f)	Propeller governor, McCauley DC 290D(x)/T(x)	3.2 lbs.	-35.80

Engines and Engine Accessories (Fuel and Oil System)

101.	Fuel Pumps		
	(a) Electric, Weldon, A10051-D	1.9 lbs.	+6.50
	(b) Engine driven, Lear-Siegler, RG17980J	2.0 lb.	-3.00
102.	Oil Radiator		
	(a) Stewart-Warner, 10614R	7.5 lbs.	-32.0
103.	Induction Air Filter		
	(a) Air-Maze, ED04028 or		
	(b) Donaldson, P5242257	1 lb.	-36.0
104.	Starter		
	(a) Starter, geared, Textron-Lycoming, 31 B21064	18 lbs.	-35.5

Landing Gear

201.	Two Main Wheel/Brake Assemblies, 6.00-6		
	(a) *Cleveland Wheel Assembly, Wheel, Model No. 40-86/Brake Assembly No. 30-56A	19 lbs.	See Note 8.
	**Optional - Cleveland, 40-86E, 30-56D*		
	(b) Cleveland wheel assembly, model 40-90A, Brake Assembly No. 30-652 (27-0117 thru 27-0116)		
202.	Two main wheel, 6-ply rating, tires		
	(a) 6.00-6, Type III w/ regular tubes	17 lbs.	See Note 8.
205.	One, Nose Wheel, 5.00-5		
	(a) Cleveland, wheel assembly, Model 40-87	2.6 lbs.	See Note 8.
206.	One, Nose Wheel, 6-Ply Rating tire		
	(a) 5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.

Electrical Equipment

301.	Alternators		
	(a) Alternator, ES 4009 (alternator #1)	9.25 lb.	-44.5
	ES 4009 (alternator #2) (optional)	9.25 lb.	-46.3
302.	Batteries		
	(a) Gill, (Teledyne) G-243 (2 required)	29.5 lbs. ea.	+146.0
	(b) concorde, RG24-11M or -15 (2 req'd.)	26.5 lb. ea.	+146.0
303.	Voltage Regulators		
	(a) Precise Flight, DGR-2 or		
	Electrodelta, VR802 (2 required)	0.6 lbs. ea.	+16.25
	or 800270-503 (1 Reed)	0.62 lb.	+16.25

XII. Model M20M (cont'd)

Interior Equipment

401. FAA Approved Airplane Flight Manual
- (a) Pilot's Operating Handbook dated 6/89 for S/N 27-0001 thru 27-0052.
- (b) Pilot's Operating Handbook dated 3/90 for S/N 27-0053 thru 27-0107.
- (c) Cleveland, Wheel Assembly, Model No. 40-90A Brake Assembly No. 30-652 (S/N 27-0117 thru S/N 27-TBA
- (d) Pilot's Operating Handbook dated 7/91 for S/N 27-0108 thru 27-TBA.

Miscellaneous		Weight	F.S.
601.	Warning Systems		
	(a) Stall/gear warning, IAI, -950D-0309-000	1.1 lb.	+4.24
	(b) Oxygen installation, 870029-513	44.55 lb.	+137.0
602.	Vacuum pumps		
	(a) Airborne, 241CC-15	3.4 lb.	-3.00
	(b) Airborne, 28C214 CW (Clutch Driven)	3.4 lb.	-2.50
	(c) Sigma Tec, 1U128-006 (Alternate)	3.4 lb.	-3.00
	(d) Mooney, 940104-505	12.4 lb.	+110.4

XIII. Model M20R, 4PCLM (Normal Category), approved June 30, 1994

Engine — Teledyne Continental Motors, IO-550-G(5); -G(6)*; or -G(7)

*(6) configuration is same as (5) configuration, and may be used, when dry pad adapter is required.

Fuel — 100LL or 100 minimum grade aviation gasoline

Engine limits — For all operations, 2500 rpm (280 hp)

Airspeed limits

Maneuvering	146 mph (127 knots) IAS
Never exceed	225 mph (195 knots) IAS
Flaps extended	127 mph (110 knots) IAS
L.G. retraction	122 mph (106 knots) IAS
L.G. extension	161 mph (140 knots) IAS
L.G. extended	190 mph (165 knots) IAS
Maximum structural cruising	200 mph (174 knots) IAS

C.G. range — (+46.0) to (+51.0) at 3368 lbs.
(L.G. extended) — (+44.0) to (+51.0) at 3300 lbs.
S/N 29-0001 and on — (+41.0) to (+51.0) at 2430 lbs. or less

Empty weight C.G. range — None

Maximum weight — 3200 lbs. landing, 3368 lbs. takeoff for S/N 29-0001 and on

Number of seats — 4 (2 at +34.0) to +39.0, 2 at +70.7)

Maximum baggage — 120 lbs. (+101.5), 10 lbs. (+126.0)

Fuel capacity (usable) — 89 U.S. gallons (two integral tanks in wings at +49.23). See Note 1 for data on unusable fuel.

Oil capacity — 8 quarts (-24.76 in.)

Maximum operating altitude — See Note 19

Control surface movements

Wing flaps		T.O. position	Down	10° ± 1°
		Landing	Down	33° +0 / -2°
Aileron	Up	12½° to 14½°	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 7.0°

XIII. Model M20R (cont'd)

Elevator trim assist	With stabilizer set at maximum positive setting and elevators Full down. Adjust turn buckle for a 14.0 to 16.0 lb. tensionmeter reading on cable, tensionmeter reading (20 lb. maximum permissible). Check for positive clearance between cable end and pulley sheave.
Leveling means	Leveling screws located above the tailcone access door on left side. Spirit level is to be placed on screws for level.
Serial numbers eligible	Serial No. 29-0001 and up
Export eligibility	See Note 14.
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) (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), 401(a), 601(a), 602(a) or (d) and (b) or (c).
Datum	For M20R, datum is 13 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00. The Leading Edge of the wing, at wing station 59.25, is 33.00 inches 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 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 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; paragraphs 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.
Production basis	29-0007 thru 29-0190: Prior to original certification of each aircraft manufactured subsequent to March 7, 1969, 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. PC11SW: 29-0191 thru 29-0279; PC13SW: 29-0280 and subsequent.
Equipment	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories - Fuselage Station Location	Weight	F.S.
1. McCauley constant speed propeller installation		
(a) McCauley, 3A32C418-G Hub/Blades ( )-82 NRC-9 Pitch setting at 30.0 in. blade station: Low 16.1° ± 0.2° High 40.0° ± 0.5° Diameter: 73.0 in. - -½ in. reduction permitted.	71.8 lbs.	-49.5
(b) Spinner assembly, McCauley D-7192 (painted)	4.8 lbs.	-51.00
(c) Spinner assembly, McCauley D-7192-1 (polished)	4.8 lbs.	-51.00
(d) Propeller governor, Mooney 660115-511	3.2 lbs.	-38.13
(e) Propeller De-Icing Boots, McCauley, 690005-501 (S/N 29-0199, excluding 29-0183)	9.0 lbs.	-38.13

XIII. Model M20R (cont'd)

		Weight	F.S. (in.)
2.	McCauley constant speed 241 propeller installation		
(a)	McCauley, 2A34C241-G hub, blades 82PGC-6	65 lbs.	-49.5
	Pitch setting at 30.0 in. blade station:		
	Low 20.0° ± .5°		
	High 37.5° ± .5°		
	Diameter: 76.0 in. + 0, -.5		
(b)	Spinner assembly, McCauley D-7579-2 (painted)	4.8 lbs.	-51.00
(c)	Spinner assembly, McCauley D-7579-1 (polished)	4.8 lbs.	-51.00
(d)	Propeller governor, Mooney 660115-511	3.2 lbs.	-38.13
(e)	Propeller De-Icing Boots, McCauley, 690005-501 (S/N 29-0001 thru 29-0199, excluding 29-0183)	9.0 lbs.	-49.5
	Propeller de-icing boots, McCauley, 690003-501 (S/N 29-0001 thru 29-0199, excluding 29-0183)	9.0 lbs.	-38.13
Engines and Engine Accessories (Fuel and Oil System)			
101.	Fuel Pumps		
(a)	Electric, Weldon, A8152B	1.9 lbs.	+6.50
(b)	Engine driven, TCM, 649364-4A1	2.0 lb.	-9.95
102.	Oil Radiator		
(a)	TCM, 649479 or	7.8 lbs.	-12.24
(b)	TCM, 654585A1	7.8 lbs.	-12.24
103.	Induction Air Filter		
(a)	Air-Maze, ED04028 or		
(b)	Donaldson, P5242257	1 lb.	-36.0
104.	Starters		
(a)	Starter, geared, TCM, 646275	14.5 lbs.	-9.11
Landing Gear			
201.	Two Main Wheel/Brake Assemblies, 6.00-6		
(a)	*Cleveland Wheel Assembly, Wheel, Model No. 40-86/Brake Assembly No. 30-56A	19 lbs.	See Note 8.
	**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	17 lbs.	See Note 8.
205.	One, Nose Wheel, 5.00-5		
(a)	*Cleveland, wheel assembly, Model 40-87	2.6 lbs.	See Note 8.
	***Optional - McCauley D-305000*		
206.	One, Nose Wheel, 6-Ply Rating tire		
(a)	5.00-5, Type III w/ regular tube	7 lbs.	See Note 8.
Electrical Equipment			
301.	Alternator		
(a)	Alternator, TCM, 649304 (100 amp) (Alternator Assy. -649305 includes Hub, etc.)	17.5 lb.	-38.05
302.	Batteries		
(a)	Gill, (Teledyne) G-243 (2 required)	29.5 lb. (ea.)	+146.0
(b)	Concorde, RG24-11M or -15 (2 required)	26.5 lb. (Ea.)	+146.0
303.	Voltage Regulators		
(a)	MAC, 800270-501 (alternator)	0.3 lb. ea.	+16.25
(b)	MAC, 800270-523 (low boost pump)	0.25 lbs.	+16.25

XIII. Model M20R (cont'd)

Interior Equipment

401. FAA Approved Airplane Flight Manual
(a) Pilot's Operating Handbook dated 6/94 for S/N 29-0001 thru 29-0199, excluding 29-0183.
(b) Pilot's Operating Handbook, dated 11/99 for S/N 29-0183, 29-0200 thru 29-TBA

Miscellaneous

	Systems	Weight	F.S.
601.			
	(a) Stall/Gear Warn, IAI-950D-0309-000	1.1 lb.	+4.24
	(b) Oxygen installation, 870029-513	44.55 lbs.	+137.0
602.	Vacuum pumps		
	(a) Airborne, 242CW	3.4 lbs.	-9.11
	(b) Airborne, 28C214 CW	3.4 lbs.	+110.40
	(c) Sigma Tec, 1U128-006 [Alternate for (a), (d), (e)]	3.4 lbs.	-9.11
	(d) Airborne, 212CW	3.4 lbs.	+110.40
	(e) Airborne, 216CW	3.4 lbs.	-110.40
	(f) Mooney, 940104-505 [Alternate for (b), (d), (e)]	12.4 lbs.	+110.40

XIX. Model M20S, 4PCLM (Normal Category), February 7, 1999

Engine	Teledyne Continental Motors, IO-550-G(6)	
Fuel	100 LL or 100 min-grade aviation gasoline	
Engine Limits	For all operations, 2400 RPM, (244 HP)	
Airspeed Limits	Maneuvering	143 mph (124 knots) IAS
	Never exceed	225 mph (195 knots) IAS
	Flaps extended	127 mph (110 knots) IAS
	L.G. retraction	122 mph (106 knots) IAS
	L.G. extension	161 mph (140 knots) IAS
	L.G. extended	190 mph (165 knots) IAS
	Max. structural cruising	200 mph (174 knots) IAS
C.G. Range		(+45.0) to (+51.0) at 3200 lbs.
(L.G. Extended)		(+43.0) to (+51.0) at 3200 lbs.
S/N 30-0001 and ON		(+41.0) to (+51.0) at 2430 lbs. or less
Empty Weight C.G. Range	None	
Maximum Weight	3200 lbs. Landing/Takeoff - S/N 30-0001 thru 30-TBA	
Number of seats	4 (2 - at +34.0 to +39.0, 2 - at +70.7)	
Maximum baggage	120 lbs. (+101.5), 10 lbs. (+126.0)	
Fuel capacity (Usable)	75 U.S. gallons (Two integral tanks in wings at +49.23). See Note 1 for data on unusable fuel.	
Oil Capacity	8 quarts (-24.76 in.)	
Maximum Operating Altitude	N/A - Service Ceiling is approximately 21,000 ft.	

XIII. Model M20S (cont'd)

Control Surface Movements:

Wing flaps	T.O. position	Down 10° ± 1°
	Landing	Down 33° +0 / -2°
Aileron	Up 12½° to 14½°	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 7.0°

Elevator trim assist: With stabilizer set at maximum positive setting and elevators Full down. Adjust turn buckle for a 14.0 to 16.0 lb. tensionmeter reading on cable, tension=meter reading (20 lb. maximum permissable). Check for positive clearance between cable end and pulley sheave.

Leveling means: Leveling screws located above the tailcone access door on left side. Spirit level is to be placed on screws for level.

Serial Numbers Eligible: Serial No. 30-0001 and up

Export Eligibility: See Note 14.

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), (d), 101(a) and (b), 102(a) or (b), 103(a) or (b), 104(a), 201(a), 202(a), 205(a), 206(a), 301(a), 302(a) or (b), 303(a) and (b), 401(a), 601(a), 602(a) or (c) or (d) and (b) or (e).

Specifications Pertinent to Model

Datum: For M20S, datum is 13 inches aft of the centerline of the nose gear support bolts and is fuselage station 0.00.
The Leading Edge of the wing, at wing station 59.25, is 33.00 inches aft of fuselage station 0.00.

Certification basis: Model M20S CAR 3, effective November 1, 1949, as amended May 18, 1954; except for paragraph 3.74 amended August 25, 1955; paragraph 3.109, .112, .115, .118, .120, and .441 of CAR 3 effective May 15, 1956, as amended October 1, 1959; and in lieu of corresponding CAR 3 paragraphs, where applicable -- FAR 23, effective February 1, 1965: Paragraph 23.29, as amended by Amdt. 23-21, dated March 1, 1978; Paragraph 23.33, dated September 14, 1969; Paragraph 23.45 through 23.77, as amended by Amdt. 23-34, dated January 15, 1987; Paragraph 23.777, as amended by Amdt. 23-7, dated September 14, 1969; Paragraph 23.901 through 23.953, 23.955 through 23.963, 23.967 through 23.1063, as amended by Amdt. 23-7, dated September 14, 1969; Paragraphs 23.1091 through 23.1105, as amended by Amdt. 23-17, dated February 1, 1977; Paragraphs 23.1121 through 23.1193, 23.1351 through 23.1399, as amended by Amdt. 23-7, dated September 14, 1969; Paragraph 23.1311, as amended by Amdt. 23.49, dated March 11, 1996; Paragraph 23.1337(b), as amended by Amdt. 23-7, dated September 14, 1969; Paragraphs 23.1401, as amended by Amdt. 23-11, dated August 11, 1971; Paragraphs 23.1441 through 23.1449, as amended by Amdt. 23-9, dated June 17,1970; Paragraph 23.1521, as amended by Amdt. 23-21, March 1, 1978; Paragraphs 23.1525 and 23.1527, as amended by Amdt. 23-7, dated September 14, 1969; Paragraph 23.1529, as amended by Amdt. 23-26, dated October 14, 1980; Paragraphs 23.1545, 23.1549, and 23.1553, as amended by Amdt. 23-23, dated December 1, 1978; Paragraph 23.1555(a), as amended by Amdt. 23-7, dated September 14, 1969; Paragraph 23.1557, as amended by Amdt. 23-14, dated December 20, 1973; Paragraph 23.1559, as amended by Amdt. 23-21, dated March 1, 1978; Paragraph 23.1563, as amended by Amdt. 23-7, dated September 14, 1969; Paragraphs 23.1581 through 23.1589, as amended by Amdt. 23-34, dated January 15, 1987; FAR 36 effective September 20, 1976, the current amendment in effect at date of certification; and Equivalent Level of Safety ref. FAR 23.32(d)(2), issued on January 28, 1999.

XIII. Model M20S (cont'd)

Production Basis	29-0157, 30-0001 thru 30-0030: Prior to original certification of each aircraft manufactured subsequent to March 7, 1969, 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. PC11SW: 30-0031 thru 30-0062; PC13SW: 30-0063 and subsequent.
Equipment	Approval for the installations of all items of equipment listed herein has been obtained by the aircraft manufacturer.

Propeller and Propeller Accessories

	Weight	F.S. (in.)
1. McCauley constant speed propeller installation		
(a) McCauley, 2A34C239 Hub/Blades 90DMC-15	69.0 lb.	-49.5
Pitch settings at 30" blade station:		
Low 19.7° ± 0.2°		
High 37.5° ± 0.5°		
Diameter - 75.0 in. - ½ Inch reduction permitted.		
(b) Spinner assy, McCauley D-7579-2 (painted)	4.8 lb.	-51.0
(c) Spinner assy, McCauley D-7579-1(polished)	4.8 lb.	-51.0
(d) Propeller governor, Mooney, 660115-523	3.2 lb.	-38.13

Engines and Engine Accessories (Fuel & Oil Systems)

	Weight	F.S.
101. Fuel Pumps		
(a) Electric, Weldon, A8152B	1.9 lbs.	+6.50
(b) Engine Driven, TCM, 649364-4A1	2.0 lb.	-9.95
102. Oil Radiator		
(a) TCM, 649479 or	7.8 lbs.	-12.24
(b) TCM, 654585A1	7.8 lbs.	-12.24
103. Induction air filter		
(a) Air-Maze, EDO4028 or		
(b) Donaldson, P5242257	1 lb.	-36.0
104. Starter		
(a) Starter, Geared, TCM, 646275	14.5 lbs.	-9.11
Landing Gear		
201. Two main wheel,brake assy, 6.00-6		
(a) Cleveland, Wheel Assembly, Model No. 40-90/ Brake Assembly No. 30-65	23.3 lbs.	See Note 8.
202. Two main wheel, 6-ply rating tires,		
(a) 6.00-6, Type III, w.regular tubes	17 lbs.	See Note 8.
205. One, nose wheel, 5.00-5		
(a) ** Cleveland, Model 40-87	2.6 lbs.	See Note 8.
** Optional-McCauley, D-305000		
206.One, nose wheel, 6-ply rating tire,		
(a) 5.00-5, Type III, w/regular tube	7 lbs.	See Note 8.
Electrical Equipment		
301. Alternator		
(a) Alternator, TCM, 649304 (100 amp)	17.5 lb.	-38.05
(Alternator Assy. - 649305 includes Hub, etc.)		

XIII. Model M20S (cont'd)

302. Batteries		
(a) Gill (Teledyne), G-243 (2 req'd)	29.5 lb. (ea.)	+146.0
(b) Concorde, RG24-11MK or -15 (2 req'd)	26.5 lb. (Ea.)	+146.0
303. Voltage Regulators		
(a) MAC, 800270-501 (Alternator)	0.3 lb. ea.	+16.25
(b) MAC, 800270-523 (Low Boost Pump)	0.25 lbs.	+16.25
Interior Equipment		
401. FAA Approved Airplane Flight Manual		
(a) Pilot's Operating Handbook dated 2/7/99 for S/N 30-0001 thru 30-TBA		
Miscellaneous	Weight	F.S.
601. Systems		
(a) Stall/Gear Warn, IAI, 950D-0309-000	1.1 lb.	+4.24
(b) Oxygen instl, 870029-513	44.55 lbs.	+137.0
602. Vacuum Pumps		
(a) Airborne, 242CW	3.4 lb.	-9.11
(b) Airborne, 28C214 CW	3.4 lb.	+110.40
(c) Sigma TEK, 1U128-006 [Alternate for (a), (d), (e)]	3.4 lb.	-9.11
(d) Airborne, 212CW	3.4 lb.	+110.40
(e) Airborne, 216CW	3.4 lb.	+110.40
(f) Mooney, 940104-505 [Alternate for (b), (d), (e)]	12.4 lb.	+110.40

NOTES APPLICABLE TO ALL MODELS

NOTE 1:
Current weight and balance report, including list of equipment included in certificated 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: 4 lbs. (+47.6) for the M20 and M20A; 3.4 lbs. (+48.4) for the M20B, M20C, M20D, M20E, and M20G; 15.0 lb. (+48.4) for the M20F and M20J; 48.0 lbs. (+48.59) for the M20K (S/N 25-0001 thru 25-0446); 18 lbs. (+48.59) for the M20K (S/N 25-0447 and ON); 36 lbs. (+48.43) for the M20L (S/N 26-0001 and ON); 36 lbs. (+49.23) for the M20M (S/N 27-0001 and ON) and M20R (S/N 29-0001 and ON) and M20S (S/N 30-0001 and ON).

NOTE 2:Placards:

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

(1) M20, M20A, M20B - "THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH FAA APPROVED FLIGHT MANUAL. NO AEROBATIC MANEUVERS INCLUDING SPINS ARE APPROVED."

(2) M20D - "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 MANEUVERING FLIGHT LOAD FACTOR: FLAPS UP +3.8, -1.5, FLAPS DOWN +2.0."

(3) M20C, M20E, M20F, M20G - "THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKING, AND MANUALS. NO AEROBATIC MANEUVERS, INCLUDING SPINS, ARE APPROVED. MAXIMUM SPEED LANDING GEAR EXTENDED, 120 MPH, MAXIMUM SPEED FOR OPERATING OF GEAR, 120 MPH. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR: FLAPS UP +3.8. -1.5; FLAPS DOWN +2.0."

(4) 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, 120 MPH. MAXIMUM SPEED TO RETRACT GEAR, 110 MPH. MAXIMUM SPEED TO EXTEND GEAR, 120 MPH. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR-FLAPS UP +3.8, -1.5; FLAPS DOWN +2.0."

(5) 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 107 KIAS. MAXIMUM SPEED TO EXTEND GEAR, 132 KIAS. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR - FLAPS UP +3.8, -1.5; DOWN +2.0, -0."

(6) M20D with retractable gear: "MAXIMUM SPEED, LANDING GEAR EXTENDED - 120 MPH; MAXIMUM SPEED FOR OPERATING OF GEAR - 120 MPH".

(7) "COWL FLAP - PULL TO OPEN - DO NOT OPEN ABOVE 150 MPH." (Not applicable for M20C S/N 680001 and ON or M20G, M20J or M20K).

(8) "RETRACT FLAPS AFTER LANDING." (hydraulic flaps only)

(9) 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; DOWN +2.0, -0."

(10) M20L - (S/N 26-0001 and ON) "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, 129 KIAS. MAXIMUM SPEED TO RETRACT GEAR, 106 KIAS. MAXIMUM SPEED TO EXTEND GEAR, 129 KIAS. MAXIMUM MANEUVERING FLIGHT LOAD FACTOR - FLAPS UP +3.8, -1.5; DOWN + 2.0, -0."

(11) 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; (2400 LBS.), 106 KIAS."

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."

(12) 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."

(13) M20S - (S/N 30-0001 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 (3200 LBS.) 123 KIAS; (2232 LBS.) 103 KIAS."

b. On storm window: "DO NOT OPEN ABOVE 132 KIAS." M20L - "DO NOT OPEN ABOVE 129 KIAS." (NOTE: Early M20M & M20R aircraft - OPTIONAL "DO NOT OPEN ABOVE 129 KIAS".

c. On baggage compartment: "WARNING: DO NOT EXCEED 120 LBS. (54.4 Kg) IN THIS COMPARTMENT. SEE AIRCRAFT LOADING SCHEDULE DATA FOR BAGGAGE COMPARTMENT ALLOWABLE."

d. M20C, M20E, M20F, M20G, M20J, M20K, M20M, M20R, M20S (on hat rack) & M20L (on hat rack door): "WARNING: DO NOT EXCEED 10 LBS. (4.5 Kg) IN THIS COMPARTMENT. USE FOR STOWAGE OF LIGHT SOFT ARTICLES ONLY. SEE AIRCRAFT LOADING SCHEDULE DATA FOR BAGGAGE COMPARTMENT ALLOWABLE."

e. M20J - On instrument panel (right side):
(1) When McCauley Model B2D34C212/78CDA-4 propeller is installed: "AVOID CONTINUOUS OPERATION BETWEEN 1600 AND 1950 RPM WITH SETTINGS BELOW 15" Hg. MANIFOLD PRESSURE."

(2) When McCauley Model B2D34C214/9ODHB-16E or -16EP propeller is installed: "AVOID CONTINUOUS OPERATION 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, 26-0001 & UP - M20L, 27-0001 & UP - M20M, 29-0001 & UP - M20R; 30-0001 & UP -- M20S):

"WARNING: DO NOT EXCEED 170 LBS. (77.1 Kg) ON THIS SEAT BACK. SEE AIRCRAFT LOADING SCHEDULE DATA FOR BAGGAGE COMPARTMENT ALLOWABLE."

g. On M20J (24-3000 through 24-3078) above flap switch:
"FLAP EXTENSION SPEED MAXIMUM, 15°, 132 KIAS; FULL, 115 KIAS."

NOTE 3: Republic 311-221-1/4D or 313-33-1/4D fuel selector valve must be modified per Mooney Dwg. 6122 (610026).

NOTE 4: Retractable landing gear kit may be installed in accordance with Mooney Dwg. 950082. Retraction moment 588 in.-lb. Item 401(b) (M20D only) required with this installation.

NOTE 5: ` Engine tachometer is to be marked with RED arc between 2000 and 2250 RPM indicating the restriction against continuous engine operating in this speed range for M20A, M20B, M20C, M20D, M20G models with Hartzell HC-C2YK-1/7666 propellers or HC-C2YK-1B/7666A-() propellers.

NOTE 6: Pitch setting at 30 in. sta. for Hartzell HC-C2YK-1/7666-2 or HC-C2YK-1B/7666A-2 when installed on M20E, M20F is:
Low 14.0° ± 0; High 29.0° ± 2°.

NOTE 7: Engine tachometer is to be marked with a RED arc between 2000 and 2350 RPM indicating the restriction against continuous engine operating in this speed range for M20E and M20F only.

NOTE 8: See aircraft weight and balance data for wheel locations.

NOTE 9: 91/96 Min. grade aviation gasoline acceptable for Model M20C aircraft, Serial Nos. 1940 through 3184.

NOTE 10: 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 11: 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 12: A Textron-Lycoming IO-360-A1B6D engine can be converted to a Textron-Lycoming IO-360-A3B6D engine by complying with Mooney Aircraft Corporation Service Bulletin No. M20-206.

NOTE 13: MOONEY OWNERS MANUALS REQUIRED

Model	Year	Serial Numbers	Date
M20C	1967	670001 - 670123, 670125 - 670134, 670136 - 670149	November 1966
	1968	680001 - 680077, 680079 - 680099, 680101 - 680198	November 1967
	1969	690001 -690096, 690098	July 1968
	1970	700001-700052, 700055-700089, 700091	February 1970
	1971	20-0001 -20-0009	February 1970
	1974	20-0010 - 20-1146	January 1974
	1974	20-1147 - 20-1172	December 1974
	1975	20-1173 - 20-1185	August 1975
	1976	20-1186 thru 20-1218	October 1975*
	1977/78	20-1219 thru 20-1258	October 1977*
M20E	1967	670001 - 670062	March 1967
	1969	690001 - 690073	July 1968
	1970	700001 - 700039, 700041 - 700043, 700045 - 700052, 700055 - 700056, 700060 - 700061	February 1970
	1971	21-0001 thru 21-0023	February 1970
	1974	21-0024 thru 21-1160	January 1974
	1975	21-1161 thru 21-1179	December 1974
	1975	21-1180 only	June 1975
M20F	1966	660002 - 660004	September 1966
	1967	670001 - 670363, 670365 - 670385, 670387 - 670482, 670484 - 670539	September 1966
	1968	680001 - 680206	July 1967
	1969	690003 - 690090, 690092	July 1968
	1970	700001 - 700062, 700063, 700066, 700070, 700072	February 1970
	1971	22-0001 thru 22-0012	February 1970
	1974	22-0013 thru 22-1178	January 1974
	1974	22-1179 thru 22-1241	December 1974
	1975	22-1242 thru 22-1272	June 1975
	1975	22-1273 thru 22-1305 except 22-1246	August 1975
	1976	22-1246, 22-1306 thru 22-1438	October 1975*

**From 1976 model year and ON "Pilot's Operating Handbooks" have replaced "Owner's Manuals" (See Item 401 for each Model aircraft.)*

Model	Year	Serial Numbers	Date
M20G	1968	680001- 680095, 680097- 680164	October 1967
	1969	690001 - 690020	October 1968
	1970	700001 - 700006	August 1969

NOTE 14: Model M20J (Serial No's. 24-0378 and ON), Model M20K (Serial No's. 25-0001 and ON), M20M (Serial No's. 27-0001 and ON) and M20R (Serial No's. 29-0001 and ON} and M20S (Serial No's. 30-0001 and ON) are eligible for export to France if in compliance with the modifications of Drawing No. 940002, "Electrical - French Modification."

NOTE 15: Model M20K gearing limits alternator output to 60 amperes (S/N 25-0001 thru 25-0999).

NOTE 16: McCauley Model B2D34C214/9ODHB-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 17: A TSI0-360-GB series engine may be replaced with a TSI0-360-LB engine by complying with Mooney Aircraft Corporation Service Bulletin No. M20-228.

NOTE 18: High pitch setting at 30 in. station for Hartzell BHC-J2YF-1BF (Hub S/N 134 & ON) is 36.5° ± 1.0° when installed on M20K S/N 25-1000 thru 25-1999.

NOTE 19: 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, M20R and M20S per Mooney Drawing 870029-513.

NOTE 20: 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.

NOTE 21: M20K S/N's 25-2000 thru 25-2012 may be retrofitted to TSIO-360-SB2 engine and gross weight increase to 3130 Lbs. when complied with M20K Gross Weight Increase Retrofit Instructions.

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