TABLE OF CONTENTS

NOTE:

The empty weight, center of gravity, and equipment list for the airplane as delivered from Mooney Aircraft Corporation is contained in this section. The use of this section is valid for use with the airplane identified below when approved by Mooney Aircraft Corporation.

MOONEY - M20M

AIRCRAFT SERIAL NO. 27-0353

AIRCRAFT REGISTRATION NO. N131US

Joseph G. Adamski 1/30/06

Mooney Aircraft Corporation - Approval Signature & Date

INTRODUCTION

This section describes the procedure for calculating loaded aircraft weight and moment for various flight operations. In addition, procedures are provided for calculating the empty weight and moment of the aircraft when the removal or addition of equipment results in changes to the empty weight and center of gravity. A comprehensive list of all Mooney equipment available for this airplane is included in this section. Only those items checked (X) were installed at Mooney and are included in the empty weight-and-balance data.

The aircraft owner and/or pilot, has the responsibility of properly loading the aircraft for safe flight. Data presented in this section will enable you to carry out this responsibility and insure that your airplane is loaded to operate within the prescribed weight and center- of-gravity limitations.

At the time of delivery, Mooney Aircraft Corporation provides the empty weight and center of gravity data for the computation of individual loadings. (The empty weight and C.G. (gear extended) as delivered from the factory is tabulated on page 6-5 when this manual is supplied with the aircraft from the factory.)

FAA regulations also require that any change in the original equipment affecting the empty weight and center of gravity be recorded in the Aircraft Log Book. A convenient form for maintaining a permanent record of all such changes is provided on page 6-5. This form, if properly maintained, will enable you to determine the current weight- and-balance status of the airplane for load scheduling. The weight-and-balance data entered as your aircraft left the factory, plus the record you maintain on page 6-5, is all of the data needed to compute loading schedules.

The maximum certificated gross weight for the Textron-Lycoming powered M20M is 3368 lbs (1528 Kg) for Takeoff and 3200 pounds (1452 Kgs) for Landing. Maximum useful load is determined by subtracting the corrected aircraft empty weight from its maximum gross weight. The aircraft must be operated strictly within the limits of the Center-of-Gravity Moment Envelope shown on page 6-7.

AIRPLANE WEIGHING PROCEDURE

(A) LEVELING: Place a spirit level on the leveling screws above the tailcone left access door when leveling the aircraft longitudinally. Level the aircraft by in creasing or decreasing air pressure in the nose wheel tire.

(B) WEIGHING: To weigh the aircraft, select a level work area and:

1. Check for installation of all equipment as listed in the Weight & Balance Record Equipment List.
2. Top off both wing tanks with full fuel. Subtract usable fuel, 89.0 U.S. gals. (337 liters) @ 5.82 lb/gal(100LL)(.69 Kg/l) =518 lbs. (235 Kgs.), from total weight as weighed.

---*---

OPTIONAL METHOD - Ground aircraft and defuel tanks as follows:

a. Disconnect fuel line at fuel system union located forward of the firewall on the lower left hand side.
b. Connect a flexible line to output fitting that will reach fuel receptacle.
c. Turn fuel selector valve to tank to be drained; remove filler cap from fuel filler port.
d. Turn on fuel boost pump until tank is empty.
REPEAT STEPS C. AND D. TO DRAIN OTHER TANK.
e. Replace 3.0 gallons (11.4 liters) fuel into each tank (unusable fuel). (Use 5.82lb/gal.(.69 Kg/liter) for 100LL fuel).
f. Replace filler caps.

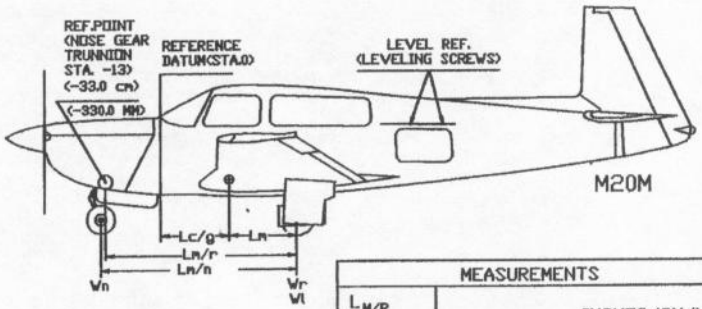
---*---

WEIGHING (con't.) . . . .

3. Fill oil tank to capacity (10 qts.).
4. Position front seats in full forward position.
5. Position flaps in full up position.
6. Position a 2000-pound (907.2 Kg.) capacity scale under each of the three wheels.
7. Level aircraft as previously described making certain nose wheel is centered.
8. Weigh the aircraft and deduct any tare from each reading.
9. Find reference point by dropping a plumb bob from center of nose gear trunion (retracting pivot axis) to the floor. Mark the point of intersection.
10. Locate center line of nose wheel axle and main wheel axles in the same manner.
11. Measure the horizontal distance from the reference point to main wheel axle center line. Measure horizontal distance from center line of nose wheel axle to center line of main wheel axles.
12. Record weights and measurements, and compute basic weight and CG as follows on next page:

NOTE:
Wing Jack Points are located at Fus. Sta. 56.658 in. (143.91 cm). Nose Jack Point is located at Fus. Sta. -5.51 in. (- 14.0 cm.). Refer to SECTION VIII, Jacking, for procedures.

M20M - WEIGHT & BALANCE CHART



MEASUREMENTS	
$L_{M/R}$	INCHES/CM/MM
$L_{M/N}$	INCHES/CM/MM

SCALE POSITION AND SYMBOL	SCALE READING	TARE	NET WEIGHT
NOSE WHEEL (W_N)			
RIGHT MAIN WHEEL (W_R)			
LEFT MAIN WHEEL (W_L)			
BASIC EMPTY WEIGHT (W_T)			(If fuel has been drained)
AS WEIGHED (W_T)			(If fuel has not been drained)

a. CG Forward of Main Wheels:

(Lbs/Kg Weight of Nose (W_N)) X (In/cm/mm Distance Between Main and Nose Wheel Axle Centers ($L_{M/N}$)) ÷ (Lbs/Kg Total weight of Aircraft (W_T)) = (In/cm/mm CG Forward of Main Wheels (L_M))

b. CG Aft of Datum (Station 0):

(In/cm/mm Distance from Center Nose Gear Trunion to Center of Main Wheel Axles (Horizontal) (L_{MR})) — (13 in/33.0 cm/330 mm Distance from Nose Gear TDrunion to Datum (CONSTANT)) — (In/cm/mm Result of Corputation Above (L_M)) = (In/cm/mm CG (FUS. STA) Distance Aft of DAtum (Empty Weight CG) ($L_{C/G}$))

If fuel has not been drained, the usable fuel must be analytically subtracted to determine the Basic Empty Wt. and CG. Use loading calculation procedure shown on page 6-6.

WEIGHT	LBS. (Kg)	C.G. IN/cm/mm	MOMENT Lb-In(Kg-cm)X(Kg-mm)/1000
As Weighed (W_T)			
Usable fuel	—	49.23 in/125 cm/1250 mm	—
Basic Empty Wt.			

OWNERS WEIGHT AND BALANCE RECORD

(ENTER BELOW ALL WEIGHT CHANGE DATA FROM AIRCRAFT LOG BOOK)

AIRPLANE MODEL - M20M	SERIAL NO. 27-0353	FAA REG. NO. N131US

DATE	DESCRIPTION OF MODIFICATION	WEIGHT CHANGE				RUNNING EMPTY WEIGHT			
		ADDED (+)		REMOVED (-)					
		WT. (LBS) (Kg)	ARM (INCHES) (cm)/(mm)	WT. (LBS) (Kg)	ARM (INCHES) (cm)/(mm)	WT. (LBS) (Kg)	MOMENT /1000	ARM (IN) (cm)/(mm)	USEFUL LOAD
01-29-06	BASIC EMPTY WEIGHT AS DELIVERED (Wt) (Includes full oil - 10 Qts. (9.5 liters)	——	——	——	——	2375	105.66	44.49	993
12/18/06	Ice Protection System					2408	107.64	44.71	960

(Mult. inches by 25.4 for mm) (Mult. inches by 2.54 for Cm) (Mult. pounds by .4536 for Kg)

PILOT'S LOADING GUIDE

LOADING CALCULATION PROCEDURE

Proper loading of the aircraft is essential for maximum flight performance and safety. This section will assist you in determining whether the aircraft loading schedule is within the approved weight and center-of-gravity limits.

To figure an actual loading problem for your aircraft, proceed as follows:

Step 1. Refer to the latest entry on page 6-5 for the current empty weight and moment.

|NOTE|

Since the engine oil is normally kept at the full level, the oil weight and moment is included in basic empty weight and is constant in calculating all loading problems.

Step 2: Note the pilot's weight and the position his seat will occupy in flight. Find this weight on the left scale of the Loading Computation Graph (page 6-6) and cross the graph horizontally to the graph for #1 and #2 seats. When this point is located, drop down to the bottom scale to find the value of the moment/1000 due to the pilot's weight and seat position.

Repeat procedure for co-pilot and enter these weights and moment/1000 values in the proper sub-columns in the Problem Form on page 6-7.

Step 3: Proceed as in Step 2 to account for the passengers in seats 3 and 4. Enter the weight and value of moment/1000 in the proper columns.

Step 4: Again proceed as in Step 2 to account for the amount of fuel carried, and enter the weight and moment/1000 values in the proper columns.

Step 5: Once more proceed as in Step 2 to account for the baggage to be carried and enter the figures in the proper columns.

Step 6: Total the weight columns. This total must be 3368 Pounds(1528 Kg) or less. Total the Moment/1000 column.

DO NOT FORGET TO SUBTRACT NEGATIVE NUMBERS.

Step 7: Refer to the Center-of-Gravity Moment Envelope (page 6-8). Locate the loaded weight of your airplane on the left scale of the graph and trace a line horizontally to the right. Locate the total moment/1000 value for your airplane on the bottom scale of the graph and trace a line vertically above this point until the horizontal line for weight is intersected. If the point of intersection is within the shaded area, your aircraft loading is acceptable. If the point of intersection falls outside the shaded area, you must rearrange the load before takeoff.

PROBLEM FORM

STEP	ITEM	SAMPLE PROBLEM WEIGHT (Kg) Lbs	SAMPLE PROBLEM MOMENT (Kg-cm /1000) lb-in /1000	YOUR PROBLEM WEIGHT (Kg) Lbs	YOUR PROBLEM MOMENT (Kg-cm /1000) lb-in /1000
1.	A/C Basic Empty Wt.(W)(from page 6-5) (Includes Full Oil) 10 Qts.(9.5 Li) @1.875lbs /Qt.(.80 Kg/Li)(Sta. -20.19)(-51.3 cm) (Oil sump assumed FULL for all flights)	(1009) 2225	(114.6) 99.46		
2.	Pilot Seat (#1) *	(77.1) 170	(7.64) (AFT POS) 6.63		
	Co-Pilot Seat (#2) *	(77.1) 170	(7.25) (2nd pos) 6.29		
3.	Left Rear Seat (#3) or Cargo Area	(77.1) 170	(14.3) 12.41		
	Right Rear Seat (#4) or Cargo Area	(77.1) 170	(14.3) 12.41		
4	Fuel (Max. Usable - 89.0 Gal/534 Lbs) (337 Li/242Kg) @ Sta 49.23(125 cm)	(164.7) 363	20.59 17.87		
5.	Baggage (Max. 120 Lbs(54.4 cm)@Sta.101.5 (257.8 cm)	(45.4) 100	11.70 10.15		
	Hat Rack (Max. 10 Lbs(4.54 Kg)@Sta. 131.0 (332.7 cm)				
6.	Loaded A/C Weight(Takeoff at Max. Weight) A/C will have to burn off 168 lbs. fuel before normal landing is accomplished.	(1528) 3368	(190.2) 165.0		
7.	Required Fuel Burn-Off 28 Gals (105.9 Li) @ 6 Lbs./Gal.	(76.2) 168	(-9.53) -8.27		
8.	MAXIMUM LANDING WEIGHT of A/C	(1452) 3200	(180.6) 156.7		

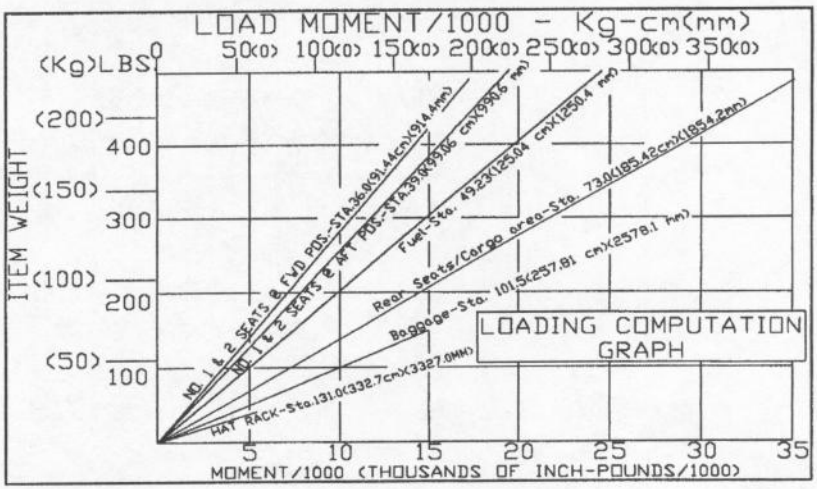
9. Refer to Center of Gravity Moment Envelope, to determine whether your A/C loading is acceptable. CAUTION-DO NOT LAND A/C WHEN OVER 3200 LBS EXCEPT IN AN EMERGENCY SITUATION.

* Obtain the moment/1000 value for each seat position (FWD, MID or AFT) from loading computation graph.

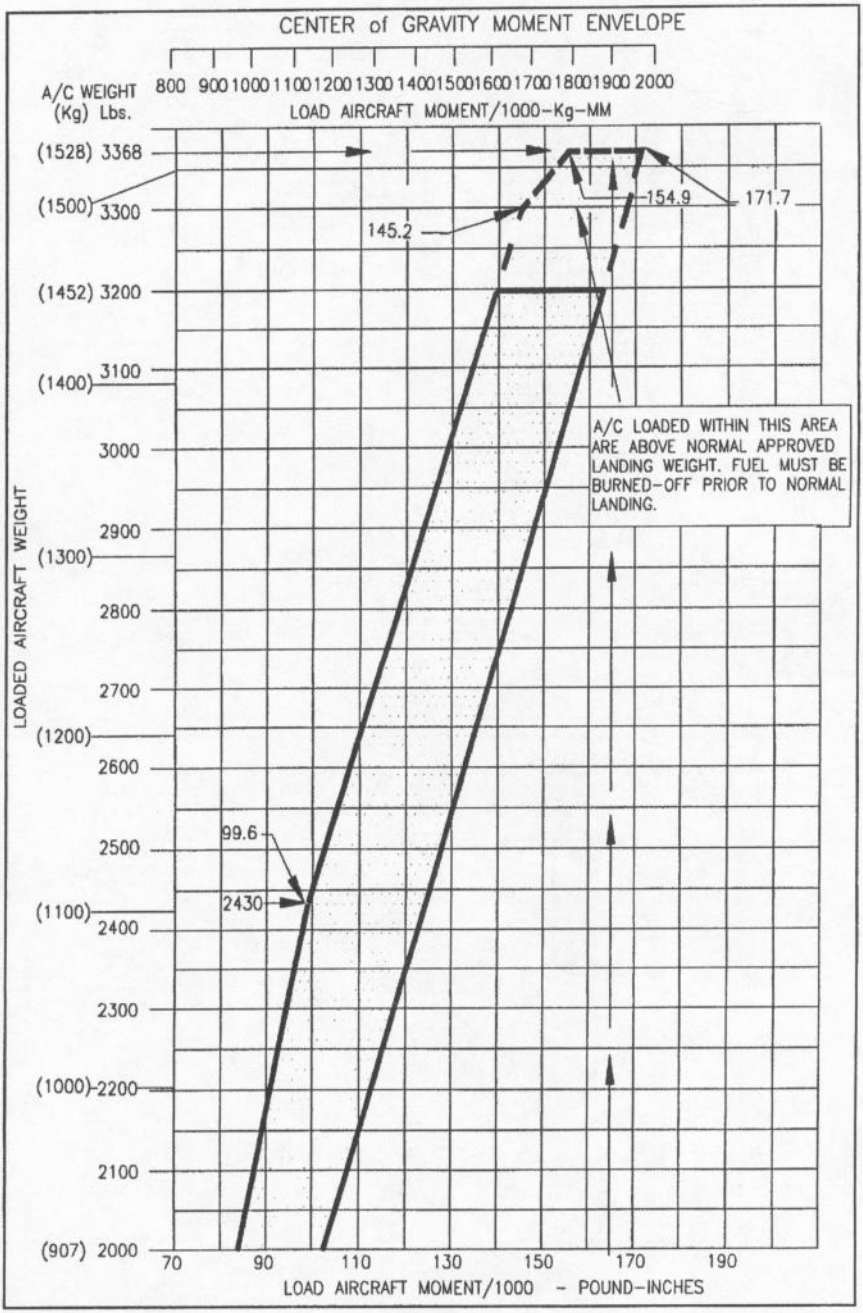
M-PRBFRM

CAUTION

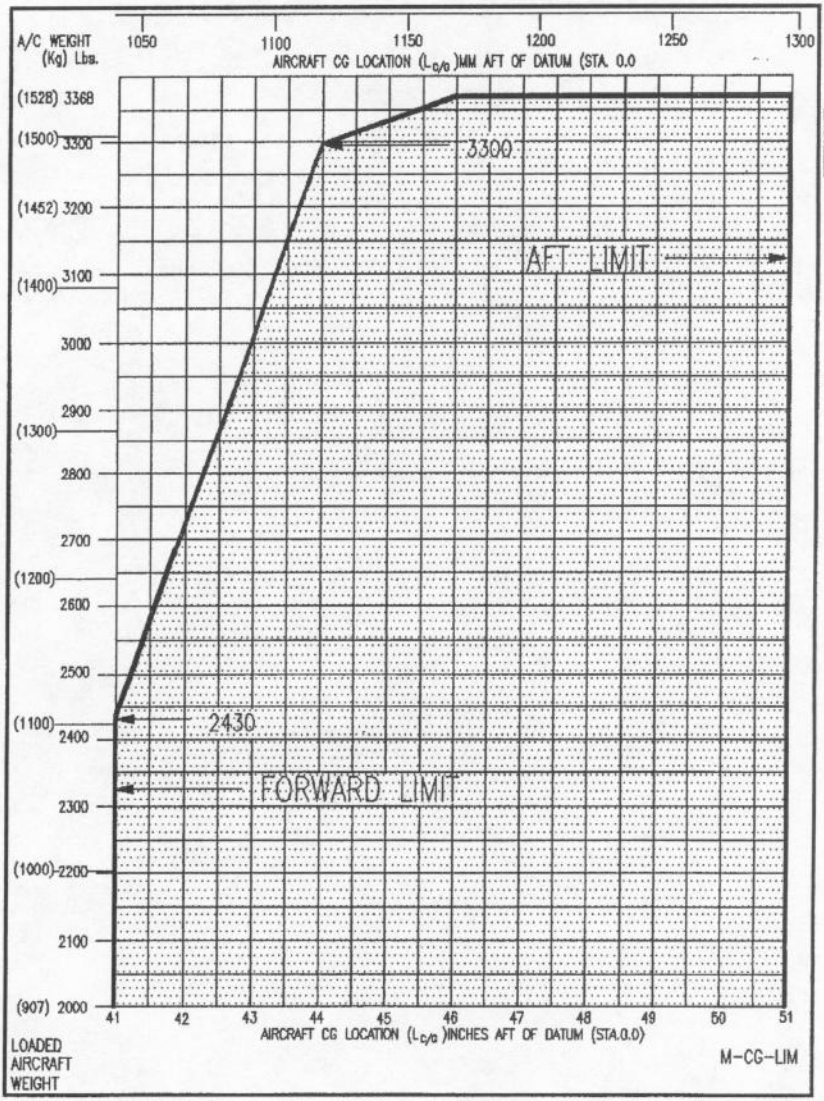
Pilot has responsibility to correctly load cargo area when seat backs are folded down. Cargo Center of Gravity location will vary with total weight loaded. Compute CG when cargo is loaded.



M20M - CENTER OF GRAVITY MOMENT ENVELOPE



M20M - CENTER OF GRAVITY LIMITS ENVELOPE



FIXED BALLAST

The M20M has provisions for a fixed ballast located in the tailcone at Fuselage Station 209.5. Some aircraft with EFIS, TKS & other systems, may require the fixed ballast to be removed in order to stay within the weight and balance center of gravity envelope.

EQUIPMENT LIST

The following equipment list is a listing of items approved at the time of publication of this manual for the Mooney M20M.

Only those items having an X in the "Mark If Installed" column and dated were installed at Mooney Aircraft Corporation at the time of manufacture.

If additional equipment is to be installed it must be done in accordance with the reference drawing or a separate FAA approval.

|NOTE|

Positive arms are distances aft of the airplane datum. Negative arms are distances forward of the airplane datum.

Asterisks (*) after the item weight and arm indicate complete assembly installations. Some major components of the assembly are listed and indented on the lines following. The summation of the major components will not necessarily equal the complete assembly installation.

AIRCRAFT TAIL NUMBER N131US
AIRCRAFT SERIAL NUMBER 27-0353

MOONEY SERVICE CENTER

WEIGHT AND BALANCE
COMPUTATION

W.O. NUMBER 1213-11-2006

RAW MEASUREMENTS AND SCALE READINGS

DATUM (Distance from N.G. Trunion to M.G. axle centerline)	**79.25**	inches
LEFT (Distance from N.G. axle to M.G. axle - LH side)	**79.25**	inches
RIGHT (Distance from N.G. axle to M.G. axle - RH side)	**79.06**	inches
NOSE WEIGHT (Nose Gear scale)	**783.00**	pounds
LEFT MAIN WEIGHT (Left Main Gear scale)	**1103.50**	pounds
RIGHT MAIN WEIGHT (Right Main Gear scale)	**1115.00**	pounds

CONVERSIONS

L(m/r)	**79.25**	inches	
L(m/n)	**79.16**	inches	Formula: (L+R)/2
W(n)	**783.00**	pounds	
W(l)	**1103.50**	pounds	
W(r)	**1115.00**	pounds	
W(t)	**3001.50**	pounds	Formula: N+L+R

COMPUTATIONS

a. CG Forward of Main Wheels

783.00 Weight of Nose (pounds) **W(n)**	x	**79.16** Distance between Main and Nose Wheel axle centers (inches) **L(m/n)**	/	**3001.50** Total Weight of aircraft (pounds) **W(t)**	=	**20.65** CG Forward of Main Wheels (inches) **L(m)**

b. CG Aft of Datum

79.25 Distance from N.G. Trunion to Main Wheel axle centerline (inches) **L(m/r)**	-	**13.00** Distance from N.G. Trunion to Datum (inches) **(CONSTANT)**	-	**20.65** CG (Result of computation above) **L(m)**	=	**45.60** CG Distance aft of Datum (EWCG) **L(c/g)**

RESULTS

		WEIGHT	x	ARM	=	MOMENT
Aircraft (no fuel)		3001.50		45.60		136.87
Full Fuel (102 gals)		-593.64		49.23		-29.22
Empty Weight w/ Unusable Fuel		2407.86		44.71		107.64
Ballast Weight (if used)	0	0.00		209.50		0.00
Corrected for ballast		2407.86		44.71		107.64

Useful Load	**960 pounds**
Corrected E.W.C.G.	**44.71 inches**
Corrected Empty Weight	**2408 pounds**
Corrected Aircraft Moment	**107.64 (pound-inches)/1000**

For ballast weight information see Mooney Drawing 350203

CRS# MPYR456X
FORM# MSC1008

REVISED 02/10/04

EQUIPMENT LIST

M-EQ-A

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg.)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	A. FIXED BALLAST								
1A	WEIGHT (-501 INSTL)	350203	(2.81)	6.2	(532.1)	209.50			
2A	WEIGHT (-503 INSTL)	350203	(6.08)	13.4	(532.1)	209.50			
3A	WEIGHT (-505 INSTL)	350203	(8.94)	19.7	(532.1)	209.50			

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

M-EQ-B1

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	B. POWERPLANT & ACCESSORIES								
1B	ENGINE-LYCOMING TIO-540-AF1A INCLUDES: STARTER, ALTERNATORS(2), OIL FILTER, OIL RADIATOR, PROP GOV. TURBOCHARGER, INTERCOOLER, NO OIL.	600423	(241)	531.80	(-62.87)	-24.75			
2B	PROPELLER-CONSTANT SPEED McCAULEY- HUB, B3D32C417 BLADES (3), 82NRD-7	680035	(34.02)	75.0	(-125.73)	-49.5	X		
3B	SPINNER INSTALLATION	680035	(7.5)	5.6	(-131.06)	-51.6	X		
4B	INDUCTION AIR FILTER	600417	(.27)	.6	(-81.3)	-32.0	X		
5B	ENGINE-LYCOMING TIO-540-AF1B INCLUDES: STARTER, ALTERNATORS(2), OIL FILTER, OIL RADIATOR, PROP GOV. TURBOCHARGER, INTERCOOLER, NO OIL.	600423	(241)	531.80	(-62.87)	-24.75	X		

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

MRS-EQ-B2

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
B.	POWERPLANT & ACCESSORIES (con't.)						

EQUIPMENT LIST

MRS-EQ-C1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	C. ELECTRICAL SYSTEM								
1C	BATTERIES 24 VOLTS (2)	800311	(13.4)	29.55	(370.8)	146.0	X		
2C	REGULATOR, VOLTAGE (2)	800311	(.27)	.6 EA	(41.28)	16.25	X		
3C	PITOT, HEATED	820252	(.52)	1.15	(106.3)	41.85	X		
4C	POWER SUPPLY, AUX. EQUIP. (12V)	800311	(.08)	.17	(49.53)	19.5			
5C	FUEL PUMP, ELECTRIC BOOST	610293	(.86)	1.9	(38.1)	15.0	X		
6C	STALL WARNING INDICATOR	800311	(.45)	1.0	(127.0)	50.0	X		
7C	GEAR WARNING INDICATOR	800311	(.45)	1.0	(49.53)	19.5	X		
8C	WING TIP STROBE LIGHT INSTL.	800311	(2.27)	5.0	(134.62)	53.0	X		
9C	TAIL STROBE LIGHT INSTL.	800311	(.68)	1.5	(578.7)	227.82	X		
10C	LANDING/TAXI LIGHTS (2 SETS)	210417	(2.7)	5.88	(105.6)	41.6	X		
11C	ACTUATOR, FLAPS	750110	(2.3)	5.1	(277.1)	109.1	X		
12C	ACTUATOR, LANDING GEAR	560260	(5.08)	11.2	(99.06)	39.0	X		

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

M-EQ-C2

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	C. ELECTRICAL SYSTEM (CON'T)						
13C							
14C							
15C	E.L.T. (ARTEX) ELT110-4	810150	(2.26) 4.98	(436.8) 172.0			
16C	E.L.T. (ARTEX) ELS-10	810150	(2.95) 6.5	(407.7) 160.5			
17C	E.L.T. (AMERI-KING) (AK-450)	810436	(1.41) 3.1	(429.0) 168.9	X		
18C							
19C							
20C							
21C							

EQUIPMENT LIST

MRS-EQ-D1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	D. WHEELS, TIRES & BRAKES								
1D	MAIN WHEEL & BRAKE DISC ASSYS (2)	520029	(6.46)*	* 14.24	(163.57)	64.4	X		
	WHEEL ASSEMBLY (2)	520029	(4.53)	10.0	(162.51)	63.98	X		
	BRAKE DISC ASSEMBLY (2)	520029	(1.92)	4.24	(153.74)	60.53			
2D	TIRES, MAIN (6 PLY RATING) 6.00 X 6 TYPE III (2)	520029	(8.2)	18.0	(162.51)	63.98	X		
3D	NOSE WHEEL ASSEMBLY (1)	540000	(1.36)	3.0	(-33.8)	-13.3	X		
4D	TIRE, NOSE (6 PLY RATING) 5.00 X 5 TYPE III (1)	540000	(2.4)	5.3	(-33.8)	-13.3	X		
5D	MASTER CYLINDER, BRAKE (2)	850109	(1.81)	4.0	(21.08)	8.3	X		
6D	VALVE, PARKING BRAKE	850109	(.27)	.6	(-3.68)	-1.45	X		
7D	DUAL PUCK BRAKE CYL. ASSY (2)	520029	2.67	5.88	(168.48)	66.53	X		
8D									
9D									

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

M-EQ-D2

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	D. WHEELS, TIRES & BRAKES (con't.)						

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

M-EQ-E1

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	E. INSTRUMENTS								
1E	GYRO HORIZON	820336	(1.33)	2.93	(44.3)	17.46			
2E	DIRECTIONAL GYRO		(1.33)	2.93	(42.7)	16.8			
3E	CLOCK, PANEL MOUNTED		(.11)	.25	(49.78)	19.6			
4E	OAT GAUGE		(.25)	.55	(46.99)	18.5			
5E	INDICATOR, VERTICAL SPEED		(.23)	.5	(44.9)	17.67			
6E	INDICATOR, TURN & SLIP/TURN COORD.		(.83)	1.84	(41.91)	16.5			
7E	ALTIMETER		(.49)	1.07	(36.0)	14.17	X		
8E	INDICATOR, AIRSPEED		(.32)	.70	(47.75)	18.8	X		
9E	TACHOMETER		(.36)	.8	(48.13)	18.95			
10E	FUEL FLOW		(.63)	1.39	(46.99)	18.48			
11E	TIT GAUGE		(.23)	.5	(44.5)	17.5			
12E	ENGINE GAUGES (DUAL CLUSTERS)	820336	(1.6)	3.5	(46.99)	18.5			

EQUIPMENT LIST

MRS-EQ-E2

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	E. INSTRUMENTS (CON'T)						
13E	ANNUNCIATOR PANEL	820336	(.58) 1.3	(44.45) 17.5	X		
14E	MAGNETIC COMPASS	130323	(.23) .5	(60.6) 23.87	X		
15E	MANIFOLD PRESSURE	820336	(.45) 1.0	(46.94) 18.48			
16E	ALTERNATE STATIC AIR SOURCE	820336	(.14) .31	(44.99) 18.5	X		
17E	IVSI	820336	(.40) .89	(96.99) 18.5			
18E	EGT 6 (6 PROBE)	880051	(.38) .84	(-53.24) -20.96			
19E	INSIGHT, GEM GRAPHIC	950258	(1.17) 2.6	(-7.62) -3.0			
20E	ELECT., ARTIFICIAL HORIZON (3 in.)	820336	(1.03) 2.3	(44.4) 17.5	X		
21E	JPI-EDM (ENGINE MONITOR)	950274	(1.41) 3.1	(-12.04) -4.7			
22E							
23E							
24E							

EQUIPMENT LIST

MRS-EQ-F1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	F. MISCELLANEOUS SYSTEMS						
1F	VACUUM SYSTEM INSTALLATION	860015	(2.58)* 5.68*	(−2.54) −1.0			
2F	VACUUM PUMP	860015	(1.54) 3.4	(−7.6) −3.0			
3F	STAND-BY VACUUM PUMP(CLUTCH)	860015	(2.45) 5.41	(−6.4) −2.5			
4F	STAND-BY VACUUM PUMP(TAILCONE)	860063	(5.44) 12.0	(280.4) 110.4			
5F							
6F							
7F							
8F							
9F							
10F							
11F							

EQUIPMENT LIST

MRS-EQ-G1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	G. CABIN ACCOMODATIONS						
1G	SUN VISORS (2)	130303	(.32) 1.0	(83.8) 33.0	X		
2G	RESTRAINT ASSY, REAR (2)	140318	(2.27) 5.0	(194.3) 76.48	X		
3G	RESTRAINT ASSY, FWD (2)	140318	(2.27) 5.0	(106.7) 42.0			
4G	SEAT BELT ASSY - REAR (2)	140262	(1.36) 3.0	(180.3) 71.0			
5G	AmSafe Inflatable Seat Restraint V23 System (2)	140345	8.61	Fwd 54.3 Aft 57.1	X		
6G							
7G							
8G							
9G							
10G							
11G							

EQUIPMENT LIST

MRS-EQ-H1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	H. AVIONICS & AUTOPILOTS						
1H	GARMIN GNS 430	810445	(2.95) 6.5	(38.23) 15.05			
2H	GARMIN GNS 530	810445	(3.83) 8.45	(38.23) 15.05			
3H	GARMIN GTX 327	810445	(.73) 1.6	(38.1) 15.0			
4H	GARMIN GMA 340	810445	(.54) 1.2	(38.1) 15.0			
5H	GARMIN GTX 330	810445	(1.91) 4.2	(38.1) 15.0			
6H	GARMIN GDL 49	810445	(1.12) 2.47	(332.7) 131.0			
7H	GI 106 A w/Glideslope	810445	(.64) 1.4	(38.1) 15.0			
8H	Garmin G1000 Avionics System	950300	83.95	82.00	X		
9H	Garmin GDL 69/69A	950300	2.83	137.80	X		
10H							
11H	KING KFC225 W/KEA 130A	830139	(15.0) 33.1	(207.4) 81.64			
12H							
13H	KING KR 87 w/KI 229	810150	(3.61) 8.0	(112.4) 44.25			
14H	KING KR 87 w/ KI 227	810150	(2.7) 5.9	(136.1) 53.6			

EQUIPMENT LIST

MRS-EQ-H2

MO.	01		
DAY	29		
YEAR	06		

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	H. AVIONICS & AUTOPILOTS						
15H	KING KN 62A	810150	(1.20) 2.6	(38.1) 15.0			
16H	S-Tec Auto Pilot System 55X	830084	16.29	70.54	X		
17H	S-Tec Electric Trim	830084	6.20	131.38	X		
18H	Reiff Engine Heater	950302	1.31/-26.58	-34.82	X		
19H							
20H							
21H							
22H							
23H							
24H							
25H							
26H							

EQUIPMENT LIST

MRS–EQ–H3

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED
	H. AVIONICS & AUTOPILOTS (CON'T)				
27H					
28H					
29H					
30H					
31H					
32H					
33H					
34H					
35H					
36H					
37H					
38H					

EQUIPMENT LIST

MRS-EQ-H4

MO.	01		
DAY	29		
YEAR	06		

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	H. AVIONICS & AUTOPILOT'S (CON'T)						
39H							
40H							
41H	BOSE HEADSET (w/INTERFACE) (2)	810150	Negligible	* *	X		
42H							
43H							
44H							
45H							
46H							
47H							
48H							
49H							
	* LOCATION WILL VARY						

EQUIPMENT LIST

MO. 01
DAY 29
YEAR 06

M-EQ-I1

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg)	WEIGHT (POUNDS)	ARM (cm)	ARM (INCHES)	MARK IF INSTALLED		
	I. AUXILIARY EQUIPMENT (FLY AWAY)								
1I	TOW BAR, FOLDING (STOWED)	010036	(1.03)	2.6	(273.1)	107.5	X		
2I	JACK POINTS (2) (STOWED)		(.07)	.1	(332.7)	131.0	X		
3I	EYE BOLT, WING TIE DOWN (2) (STOWED)		(.09)	.1	(332.7)	131.0	X		
4I	FUEL SAMPLER CUP (STOWED)		(.04)	.05	(332.7)	131.0	X		
5I	BAGGAGE TIE DOWNS (2) (STOWED)		(.04)	.16	(332.7)	131.0	X		
6I	CARGO RESTRAINT BELTS (2) (STOWED)		(.27)	1.0	(332.7)	131.0	X		
7I	PITOT COVER (STOWED)		(.03)	.3	(332.7)	131.0	X		
8I	POH/AFM No. - MOONEY		(.84)	1.5	(332.7)	131.0	X		
9I	ENGINE OPERATOR'S MANUAL-LYCOMING		(.35)	.5	(332.7)	131.0	X		
10I	ENGINE LOG BOOK		(.07)	.2	(332.7)	131.0	X		
11I	AIRFRAME LOG BOOK	010036	(.063)	.2	(332.7)	131.0	X		
12I									

EQUIPMENT LIST

MRS–EQ–J1

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED
	J. OPTIONAL EQUIPMENT				
1J	ARM REST INSTL, PILOT'S SEAT	140295	(.95) 2.1	(87.6) 34.5	X
2J	LUMBAR SUPPORT INSTL. (2)	140300	(.99) 2.18	(88.9) 35.0	
3J	ACCESS PANEL, FUEL GAUGE (2)	210099	NEGLIGIBLE DIFFERENCE		X
4J	RECOGNITION LIGHT INSTL (2)	210413	(.60) 1.32	(134.6) 53.0	X
5J	RUDDER PEDAL EXTENSION INSTL (2)	720115	(.059) .13	(38.1) 15.0	X
6J	AUX. POWER RECPT. INSTL.	800166	(1.48) 3.27	(332.7) 131.0	X
7J	AUX. POWER CABLE ADAPTER	880042	(3.43) 7.57	***	
8J	DUAL BRAKE PEDAL INSTL	950112	(1.38) 3.05	(38.1) 15.0	X
9J	STATIC DISCHARGE INSTL (STATIC WICKS)	950253	NEGLIGIBLE DIFFERENCE		X
10J	STEP ASSY & INSTL	950256	(1.25) 2.75	(274.3) 108.0	X
11J	FIRE EXTINGUISHER INSTL	130328	(1.20) 2.65	(153.7) 60.5	X
12J	STAND–BY ALTERNATOR	800379	(3.1) 6.8	(–11.89) –4.68	

*** NORMALLY STOWED IN BAGGAGE COMPARTMENT BETWEEN STA. 110 & 130.

EQUIPMENT LIST

MRS-EQ-J2

MO. 01 12
DAY 29 18
YEAR 06 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED
	J. OPTIONAL EQUIPMENT (CON'T)				
13J	ANTI-COLLISION BEACON,FLASHING (RED)	950272	(.48) 1.06	(457.2) 180.0	
14J	ANTI-COLLISION BEACON,ROTATING (RED)	950252	(.68) 1.5	(457.2) 180.0	
15J	TANIS HEATER	950209	(.78) 1.71	(-62.87) -24.75	
16J	HEADREST INSTL., REAR	140313/140323	(1.57) 3.47	(203.20) 80.0	X
17J	HEADREST INSTL., FRONT	140313/140323	(1.57) 3.47	(114.3) 45.0	X
18J					
19J	DEFROSTER BLOWER	640314	(.39) .87	(24.1) 9.5	X
20J	3 PASSENGER, REAR, BENCH SEAT	140305	NO CHANGE	NO CHANGE	
21J	TKS AIRFRAME/WINGS ONLY	690007	(16.8) 36.5	(202.3) 79.6	(NO FLUID)
22J	TKS - A/F/WINGS/PROP-KNOWN ICE	690007	(18.1) 39.8	(203.5) 80.1	(NO X FLUID)
23J	TKS-FLUID (TANKS FULL-6.0 GAL.)	690007	(25.0) 55.2	(179.6) 70.7	
24J					

EQUIPMENT LIST

MRS-EQ-J3

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	J. OPTIONAL EQUIPMENT (CON'T)						
25J	51 Gallon Capacity Extended Useable Fuel Tanks(2)	210217	----------	49.23	X		
26J							
27J	3-PAX BENCH SEAT	140305	(NO CHANGE FROM STANDARD SEAT)				
28J							
29J							
30J	Oxygen System (77.1 cu. ft.)	870029	28.56	137.00	X		
31J	AIR CONDITIONER (MINUS WTS.)	770000	(30.0) 66.1	(151.5) 59.7			
32J	WX-500	810447	(1.52) 3.34	(374.45) 147.42	X		
33J	SPEEDBRAKE 2000	950286	(4.1) 9.0	(180.3) 71.0	X		
34J	OXYGEN SYSTEM (115.7 cu. ft.)	870029	(20.2) 44.55	(347.9) 137.0			
35J	PROPELLER DE-ICE (ELECTRIC)	690003	(2.69) 5.93	(-115.6) -45.5			
36J							

EQUIPMENT LIST

MRS-EQ-J4

MO. 01
DAY 29
YEAR 06

ITEM NO.	ITEM DESCRIPTION	REF. DRAWING	WEIGHT (Kg) (POUNDS)	ARM (cm) (INCHES)	MARK IF INSTALLED		
	J. OPTIONAL EQUIPMENT (CON'T)						
37J							
38J							
39J							
40J							
41J							
42J							
43J							
44J							
45J							
46J							
47J							
48J							

U.S. Department of Transportation
Federal Aviation Administration

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No.2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed $1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make: Mooney	Model: M20M
	Serial No.: 27-0353	Nationality and Registration Mark: N131US
2. Owner	Name (As shown on registration certificate): C Hansen Trucking Inc	Address (As shown on registration certificate): 2030 S Golden State Blvd Ste 204 Fowler, CA 93625-9301

3. For FAA Use Only

4. Unit Identification				**5. Type**	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	*(As described in item 1 above)*				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type / Manufacturer				

6. Conformity Statement

A. Agency's Name and Address	B. Kind of Agency	C. Certificate No.
Mooney Airplane Company, Inc. Kerrville Municipal Airport Louis Schreiner Field Kerrville, TX 78028	[ ] U.S. Certificated Mechanic [ ] Foreign Certificated Mechanic [X] Certificated Repair Station [ ] Manufacturer	MPYR456X Limited Airframe, Limited Engine, Limited Radio, Limited Instrument, Specialized Services

D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date	Signature of Authorized Individual
12/18/06	Brian Kendrick

7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is [✓] APPROVED [ ] REJECTED

BY							Other *(Specify)*
	[ ]	FAA Flt. Standards Inspector	[ ]	Manufacturer	[ ]	Inspection Authorization	
	[ ]	FAA Designee	[X]	Repair Station	[ ]	Person Appoved by Transport Canada Airworthiness Group	

Date of Approval or Rejection	Certificate or Designation No.	Signature of Authorized Individual
12/18/06	MPYR456X	Brian Kendrick

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed AS&T TKS Ice Protection System in accordance with Mooney Airplane Company Type Design Drawing Number 690007.

Reweighed Aircraft. Revised equipment list and airplane flight manual.

********** NOTHING FOLLOWS **********

☐ Additional Sheets Are Attatched

*U.S.GPO:1994-568-012/00019