

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

3A1
Revision 14
MAC-145
MAC-125C
MAC-145A
MAC-145B
March 7, 2003

TYPE CERTIFICATE DATA SHEET NO. 3A1

Type Certificate Holder LanShe Aerospace, LLC
3100 Airman's Drive
Ft. Pierce, Florida 34946

Type Certificate Holder Record Meyers Aircraft Company transferred 3A1 to Interceptor Corporation on January 8, 1969
Interceptor Corporation transferred 3A1 to Interceptor Company on December 31, 1974
Interceptor Company transferred 3A1 to Prop-Jets Incorporated on July 1, 1977
Prop-Jets Incorporated transferred 3A1 to Nydia Meyers Trust on March 2, 1981
Nydia Meyers Trust transferred 3A1 to Ralph Haven May 8, 1981
Ralph Haven transferred 3A1 to The New Meyers Airplane Company on March 21, 1994
The New Meyers Airplane Company transferred 3A1 to Estumkeda, Ltd. (d.b.a. Micco Aircraft Co.) on January 18, 1995
Estumkeda, Ltd. transferred 3A1 to LanShe Aerospace, LLC on February 22, 2003

I - Model MAC-145, 2 PCLM, Approved November 2, 1948

Engine Continental C145-2

Fuel 80 Min. octane aviation gasoline

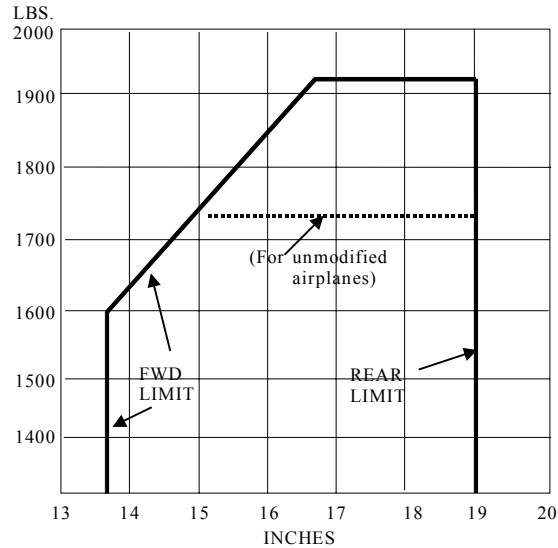
Engine limits For all operations, 2700 rpm (145 hp)

Propeller limits
(with Equipment Item 1) Static rpm at maximum permissible throttle setting:
Not over 2380, not under 2210.
No additional tolerance permitted.
Diameter: Not over 76 in., not under 71.5 in.

Airspeed limits Glide or dive 200 mph True Ind.
Level flight or climb 155 mph True Ind.
Flaps extended 95 mph True Ind.
Gear extended 110 mph True Ind.

C.G. range (+16.7) to (+19.0) at 1910 lbs. (See NOTE 4 for required modification)
(+15.0) to (+19.0) at 1735 lbs.
(+13.7) to (+19.0) at 1600 lbs. or less.
Straight line variation between points given.

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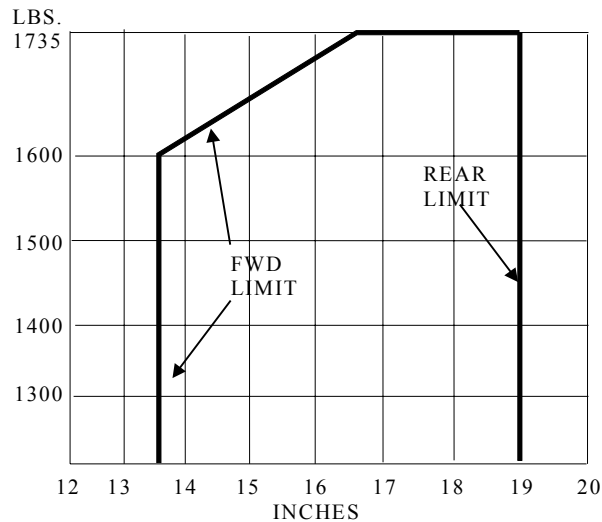


Empty weight C.G. range	(+10.5) to (+14.3). When empty weight C.G. falls within this range, computation of critical force and aft C.G. positions is unnecessary. Range is not valid for non-standard configurations.		
Datum	12 inches aft of forward face of firewall at centerline of airplane		
Leveling means	Lower door sill		
Maximum weight	1735 lbs. (1910 lbs. when modified in accordance with provisions of NOTE 4)		
No. of seats	2 (+26)		
Maximum baggage	100 lbs. (+54) (Main) 20 lbs. (+61) (Map shelf per Meyers Dwg. No. 43G027)		
Fuel capacity	32 gals. Main (+33). (See Equipment Item 107 for auxiliary fuel system)		
Oil capacity	2 gals. (-40)		
Control surface movements	Elevator -	Restricted	Up 9° Down 20°
		Unrestricted	Up 22° Down 20°
	Elevator trim tab		Up 14° Down 50°
	Ailerons		Up 22° Down 9.5°
	Rudder -	Restricted	Right 9.5° Left 9.5°
		Unrestricted	Right 21° Left 16°
	Flaps		Up 0° Down 45°
Serial Nos. eligible	203 and up		
Export eligibility	Eligible for export to all countries subject to the provisions of MOP 2-4 except as follows: (a) Canada - Landplane - eligible Skiplane - not eligible		
Required equipment	Equipment Items 1 (or 2 or 3 or 5 or 6), 101, 102, 104, 105, 106, 201, 202, 204, 301, 302, 303.		

II - Model MAC-125C, 2 PCLM

(Same as Model MAC-145 except for engine and propeller installation).

Engine	Continental C125-2	
Fuel	80 min. octane aviation gasoline	
Engine limits	For all operations,	2550 rpm (125 hp)
Airspeed limits	Glide or dive	200 mph True Ind.
	Level flight or climb	155 mph True Ind.
	Flaps extended	95 mph True Ind.
	Gear extended	110 mph True Ind.
Propeller limits	See Equipment Item 4	
C.G. range	(+16.7) to (+19.0) at 1735 lbs.	
	(+13.7) to (+19.0) at 1600 lbs.	
	Straight line variation between points given.	

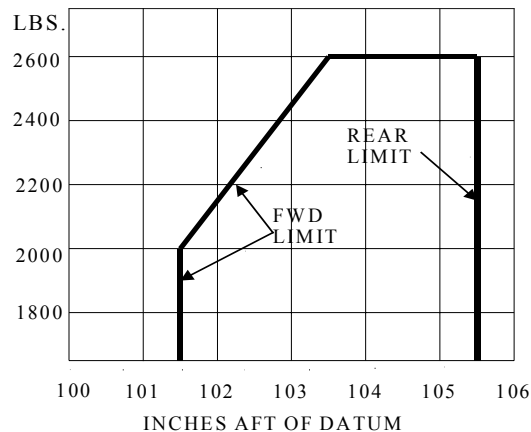


Empty weight C.G. range	(+10.6) to (+14.3). When empty weight C.G. falls within this range, computation of critical fore and aft C.G. positions is unnecessary. Range is not valid for non-standard arrangements.
Datum	12 inches aft of forward face of firewall at centerline of airplane
Leveling means	Lower door sill
Maximum weight	1735 lbs.
No. of seats	2 (+26)
Maximum baggage	50 lbs. (+41)
Fuel capacity	32 gals. Main (+33). (See Equipment Item 107 for auxiliary fuel system)

Oil capacity	2 gals. (-40)					
Control surface movements	Elevator - Restricted	Up	9°	Down	20°	
	Unrestricted	Up	22°	Down	20°	
	Elevator trim tab	Up	14°	Down	50°	
	Ailerons	Up	22°	Down	9.5°	
	Rudder - Restricted	Right	9.5°	Left	9.5°	
	Unrestricted	Right	21°	Left	16°	
	Flaps	Up	0°	Down	45°	
Serial Nos. eligible	203 and up					
Export eligibility	Eligible for export to all countries subject to the provisions of MOP 2-4 except as follows: (a) Canada - Landplane - eligible Skiplane - not eligible					
Required equipment	Equipment Items 4, 101, 102, 104, 105, 106, 201, 202, 204, 301, 302, 303.					

III - Model MAC-145A, 2 PCLM (Utility Category), Approved January 5, 2000

Engine	Textron Lycoming IO-360-C1E6	
Fuel	100/100LL minimum grade aviation gasoline	
Engine Limits	For all operations	2700 rpm (200 hp)
Propeller and Propeller Limits	McCauley B3D36C424-E/74SA-0 Avoid continuous operation below 15 inHG manifold pressure setting between 1650 and 2250 rpm when above 85 KIAS	
Airspeed Limits (IAS)	V_{NE} (Never Exceed)	180 knots
	V_C (Maximum Structural Cruising)	138 knots
	V_A (Design Maneuvering)	120 knots
	V_{FE} (Flaps Extended)	110 knots
	V_{LO} (Maximum Gear Retraction/Extension)	118 knots
	V_{LE} (Maximum Gear Extended)	128 knots
C.G. Range (Utility)	(+103.5) to (+105.5) at 2600 lbs. (+101.5) to (+105.5) at 2000 lbs. or less	



Empty Weight C.G. Range	None																														
Datum	70.0 inches forward of front cabin bulkhead																														
Leveling Means	2 screws at Station 72.7 and 83.2 at W.L. 101.3, located on left side of cabin area																														
Maximum Weight (Utility)	2600 lbs. Takeoff 2492 lbs. Landing																														
No. of Seats	2 (+114.0 Fwd. seat position, +117.8 Aft seat position)																														
Maximum Baggage	100 lbs. at (+137.5)																														
Fuel Capacity	68 gallons usable at (+117.9), 4 gallons unusable fuel at (+116.0) See NOTE 1																														
Oil Capacity	2 gallons (+30.0)																														
Control Surface Movements	<table> <tr> <td>Elevator</td> <td>Up</td> <td>28°</td> <td>Down</td> <td>20°</td> </tr> <tr> <td>Elevator Trim</td> <td>Up</td> <td>9°</td> <td>Down</td> <td>20°</td> </tr> <tr> <td>Elevator Trim*</td> <td>Up</td> <td>4°</td> <td>Down</td> <td>24°</td> </tr> <tr> <td>Ailerons</td> <td>Up</td> <td>22°</td> <td>Down</td> <td>12°</td> </tr> <tr> <td>Rudder</td> <td>Right</td> <td>22°</td> <td>Left</td> <td>22°</td> </tr> <tr> <td>Flaps</td> <td>Up</td> <td>0°</td> <td>Down</td> <td>30°</td> </tr> </table> <p>(Tolerance $\pm 2^\circ$) * Elevator Trim travel for airplanes equipped with aileron servo tabs</p>	Elevator	Up	28°	Down	20°	Elevator Trim	Up	9°	Down	20°	Elevator Trim*	Up	4°	Down	24°	Ailerons	Up	22°	Down	12°	Rudder	Right	22°	Left	22°	Flaps	Up	0°	Down	30°
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Ailerons	Up	22°	Down	12°																											
Rudder	Right	22°	Left	22°																											
Flaps	Up	0°	Down	30°																											
Maximum Operating Altitude	12,000 feet MSL																														
Serial Numbers Eligible	304 and subsequent																														

IV - Model MAC-145B, 2 PCLM (Utility Category and Acrobatic Category*), Approved October 19, 2000

*Acrobatic Category approved March 4, 2002. See NOTE 5 for Acrobatic modifications.

Engine	Textron Lycoming IO-540-T4B5												
Fuel	100/100LL minimum grade aviation gasoline												
Engine Limits	For all operations 2700 rpm (260 hp)												
Propeller and Propeller Limits	Hartzell HC-C3YR-1RF/F7693F See NOTE 3 for Acrobatic limitation.												
Airspeed Limits (IAS)	<table> <tr> <td>V_{NE} (Never Exceed)</td> <td>195 knots</td> </tr> <tr> <td>V_C (Maximum Structural Cruising)</td> <td>166 knots</td> </tr> <tr> <td>V_A (Design Maneuvering)</td> <td>121 knots</td> </tr> <tr> <td>V_{FE} (Flaps Extended)</td> <td>111 knots</td> </tr> <tr> <td>V_{LO} (Maximum Gear Retraction/Extension)</td> <td>118 knots</td> </tr> <tr> <td>V_{LE} (Maximum Gear Extended)</td> <td>128 knots</td> </tr> </table>	V _{NE} (Never Exceed)	195 knots	V _C (Maximum Structural Cruising)	166 knots	V _A (Design Maneuvering)	121 knots	V _{FE} (Flaps Extended)	111 knots	V _{LO} (Maximum Gear Retraction/Extension)	118 knots	V _{LE} (Maximum Gear Extended)	128 knots
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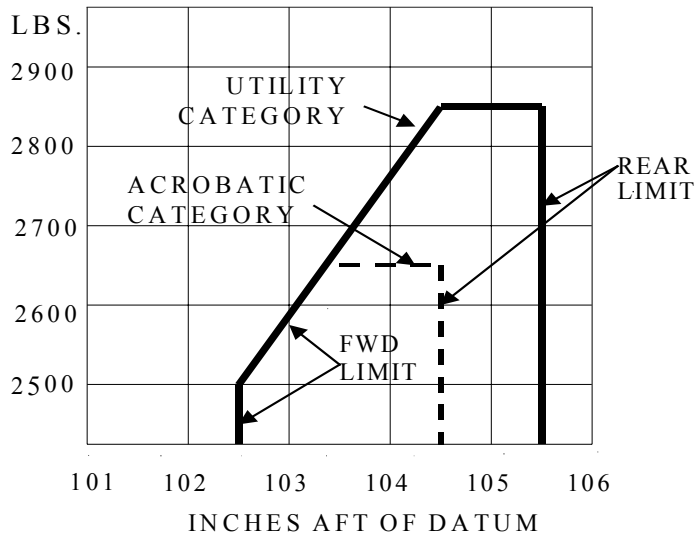
C.G. Range

Utility Category

(+103.5) to (+105.5) at 2850 lbs.
(+102.5) to (+105.5) at 2500 lbs. or less

Acrobatic Category

(+103.5) to (+104.5) at 2650 lbs.
(+102.5) to (+104.5) at 2500 lbs. or less



Empty Weight C.G. Range

None

Datum

70.0 inches forward of firewall

Leveling Means

2 screws at Station 72.7 and 83.2 at W.L. 101.3, located on left side of cabin area

Maximum Weight

	<u>Utility Category</u>	<u>Acrobatic Category</u>
Takeoff	2850 lbs.	2650 lbs.
Landing	2742 lbs.	2650 lbs.

No. of Seats

2 (+114.0 Fwd. seat position, +117.8 Aft seat position)

Maximum Baggage

Utility Category - 100 lbs. at (+137.5)

Acrobatic Category - None

Fuel Capacity
See NOTE 1

Utility Category
68 gallons usable at (+117.9), 4 gallons unusable fuel at (+116.0)

Acrobatic Category
28 gallons usable at (+119.93), 4 gallons unusable fuel at (+119.3)
(CAUTION: Utility fuel tanks must be empty for acrobatic flight.)

Oil Capacity

2 gallons (+39.6)

Control Surface Movements	Elevator	Up	28°	Down*	20°
	Elevator Trim	Up	4°	Down	24°
	Ailerons	Up	22°	Down	12°
	Rudder	Right	22°	Left	22°
	Flaps	Up	0°	Down	30°
	(Tolerance $\pm 2^\circ$)				
*For airplanes with acrobatic modification installed, Elevator Down travel is 27°.					
Maximum Operating Altitude	14,000 feet MSL				
Serial Numbers Eligible	260001 and subsequent (see NOTE 5)				

DATA PERTINENT TO ALL MODELS

Certification basis	Type Certificate No. 3A1 issued November 2, 1948 Models MAC 125C and MAC-145 - CAR 4a Models MAC-145A and MAC-145B - 14 CFR Part 23 as amended by 23-1 through 23-46 effective June 16, 1994; with the following rules at these listed amendment levels: 23.179, 23.301, 23.305, 23.321, 23.351, 23.479, 23.485, 23.603, 23.605, 23.607, 23.611, 23.613, 23.619, 23.621, 23.655, 23.675, 23.677, 23.679, 23.721, 23.723, 23.731, 23.1331, 23.1351, 23.1353, 23.1357, 23.1365, 23.1385, 23.1387, 23.1389, 23.1391, 23.1393, 23.1395, 23.1397, 23.1411, 23.1413, 23.1431 and 23.1507 effective February 1, 1965; 23.75, 23.77, 23.333, 23.337, 23.341, 23.345, 23.349, 23.361, 23.415, 23.455, 23.473, 23.572, 23.629, 23.733 and 23.1501 as amended by 23-7; 23.1587 as amended by 23-13; 23.173 as amended by 23-14; 23.335 as amended by 23-16; 23.145 and 23.1309 as amended by 23-17; 23.45, 23.175, 23.177 and 23.181 as amended by 23-21; 23.853 as amended by 23-23; 23.397, 23.561 and 23.785 as amended by 23-34; 23.371 (for acrobatic only), 23.421, 23.423, 23.425, 23.427, 23.441 and 23.443 as amended by 23-48 (Part 23, Appendix A); and 23.71 and 23.73 as amended by 23-50 with Equivalent Safety Finding to 23.1143(g) throttle and mixture control cable attachment and CAR 04a.702 in lieu of 23.65. MAC-145A - 14 CFR Part 36 as amended by 36-20. MAC-145B - 14 CFR Part 36 as amended by 36-22.
Production basis	Production Certificate Number 341CE for Models MAC-145A and MAC-145B. For Models MAC-125C and MAC-145, prior to original certification of each aircraft an FAA representative must perform a detailed inspection for workmanship, material, and conformity with the approved technical data and a check of the flight characteristics.
Equipment	The following equipment is for Models MAC-125C and MAC-145: (A plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change when that item is installed.)

MAC-125C/MAC-145 Propellers and Propeller Accessories

- Propeller - Lewis L-6FK-3-54, L-6FK-3-52, L-6FK-48 or any other fixed pitch wood propeller which is eligible for the engine power and speed and which meets the diameter and static rpm limits given under "Propeller Limits" for Model MAC-145. 15 lbs. (-59)
Eligible only with Continental C-145 engine with dampered crankshaft denoted by suffix letter "D" after engine serial number.

2. Propeller - McCauley 1A170-DM7657 or any other Model 1A170-DM propeller that meets the following limits: Static rpm at maximum permissible throttle setting: Not over 2230, not under 2110. No additional tolerance permitted. Diameter: Not over 76 in., not under 72.5 in.
Eligible on Model MAC-145 only.
McCauley propeller spinner, Meyers Dwg. #47R032 optional. 34 lbs. (-59)
3. Propeller - Hartzell ground adjustable HA12UF/8032-6 Blade pitch setting 15° at 3/4 of propeller radius or set to obtain following limits: Static rpm at maximum permissible throttle setting: Not over 2210, not under 2110. No additional tolerance permitted.
Diameter: Not over 74 in., not under 72.5 in.
Eligible on Model MAC-145 only with Continental C-145 engine dampered crankshaft denoted by suffix letter "D" after engine serial number. 22 lbs. (-59)
4. Propeller - Koppers Aeromatic F200/0074E Parts List assembly No. 4920, dated October 13, 1948. Installation and operation must be accomplished in accordance with Koppers "Installation Procedures and Operating Limitations No. 24," dated October 12, 1948. Low pitch setting 13° at 24 in. sta. Static rpm at maximum permissible throttle setting: Not over 2550, not under 2450. No additional tolerance permitted.
Diameter: Not over 74 in., not under 72.5 in.
Eligible on Model MAC-125C only. 33 lbs. (-60)
5. Propeller - Koppers Aeromatic F200H/00-74E Parts list assembly No. 4356H-1 (Includes Altitude Control 4427) 34 lbs. (-61)
Adjustment and operation must be accomplished in accordance with Koppers "Adjustment Instructions and Operating Limitations No. 45" 6 lbs. (-46)
Low pitch setting 13° at 24 in. sta.
Static rpm at maximum permissible throttle setting: Not over 2675, not under 2575.
No additional tolerance permitted.
Diameter: Not over 74 in., not under 72.5 in.
(Eligible on Model MAC-145 only with Continental C-145 engine dampered crankshaft denoted by suffix letter "D" after engine serial number).
Hampton propeller spinner Model 1-B optional.
6. Propeller - Sensenich M74DR, fixed pitch metal (Model MAC-145 only) 30 lbs. (-59)
Static rpm at maximum permissible throttle setting: Not over 2380, not under 2210.
No additional tolerance permitted.
Diameter: Not over 74 in., not under 72 in.

MAC-125C/MAC-145 Engines and Engine Accessories - Fuel and Oil System

101. Carburetor air heater and mufflers (Meyers Dwg. No. 47R003) 14 lbs. (-35)
102. Carburetor air intake and filter assy. (Continental No. A40692) 4 lbs. (-42)
103. Starter, Delco-Remy No. 1109656 (Continental No. 50309) 16 lbs. (-25)
104. Engine- driven fuel pump, AC No. 1539051 (Continental No. 40585) 2 lbs. (-52)
105. Hand fuel pump, AC No. 1539051 (Continental No. 40585) 2 lbs. (-14)
106. Cowl flaps and control (Meyers Dwg. No. 47R008) 2 lbs. (-15)
107. Auxiliary fuel system installation per Meyers Dwg. 47R004, 13 lbs. (+29)
R.H. and L.H. wing tanks, capacity 8½ gals. each
Fuel arm of auxiliary tanks (+29)
108. Electric fuel pump, Bendix Model No. 476818, replacing Item 05 (Model MAC-145 only). 2 lbs. (-14)

MAC-125C/MAC-145 Landing Gear

201.	Two main wheel-brake assemblies, 6.00-6, Type III	13 lbs.	(+8)
	(a) Goodrich (formerly Hayes) Model 600MD Wheel Assembly No. D-3-47MD Brake Assembly No. D-2-129		
	(b) Goodrich Model 601MD Wheel Assembly No. D-3-512-MD Brake Assembly No. D-2-505	14 lbs.	(+8)
202.	Two main wheel 4-ply rating tires, 6.00-6, Type III (with regular tubes)	18 lbs.	(+8)
204.	Tail wheel assembly		
	(a) Meyers Dwg. No. 44B039	12 lbs.	(+166)

MAC-125C/MAC-145 Electrical Equipment

301.	Battery - 12 volt	31 lbs.	(-15)
302.	Engine driven generator (Cont. 40435)	10 lbs.	(-25)
303.	Voltage regulatory - Delco-Remy (Cont. 40483)	2 lbs.	(-14)

MAC-125C/MAC-145 Interior Equipment

401.	Wheel control, Meyers Dwg. No. 46A040	10 lbs.	(+20)
402.	Stick control, Meyers Dwg. No. 46R001	7 lbs.	(-20)

For Models MAC-145A and MAC-145B - The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification. In addition, the following items of equipment are required:

1. FAA Approved Airplane Flight Manual for the Micco MAC-145A, Document No. F-145A-3, dated January 5, 2000, or later FAA approved revision.
2. FAA Approved Airplane Flight Manual for the Micco MAC-145B, Document No. F-145B-3, dated October 19, 2000, or later FAA approved revision.
3. FAA Approved Airplane Flight Manual Supplement for the Micco MAC-145B with Acrobatic Option, Document No. F-145B-3A, dated March 4, 2002, or later FAA approved revision.

NOTE 1 A current weight and balance report including list of equipment included in certificated weight empty, and loading instructions when necessary, must be in each aircraft at the time of original certification. The certificated empty weight and corresponding center of gravity location must include unusable fuel of 24 lbs. at (+116.0) for the MAC-145A and Utility Category MAC-145B and 24 lbs. at (+119.3) for the MAC-145B operating in Acrobatic Category.

NOTE 2 For Models MAC-125C and MAC-145, the following placards must be displayed in front of and in clear view of the pilot:

"INTENTIONAL SPINNING PROHIBITED."
 "DO NOT EXTEND FLAPS ABOVE 95 MPH."
 "DO NOT EXTEND GEAR ABOVE 110 MPH."

For Models MAC-145A and MAC-145B, all placards required in the FAA Approved Airplane Flight Manual and any applicable Airplane Flight Manual Supplement must be installed in the appropriate locations.

NOTE 3 For MAC-145A and MAC-145B, see FAA approved Airworthiness Limitations section of the Instructions for Continued Airworthiness (Section 4 of Airplane Maintenance Manual) for mandatory inspections or retirement time limits.

NOTE 4 Model MAC-145 aircraft are eligible at 1910 lbs. maximum weight when following is accomplished:
(a) Reinforcement of fuselage tail cone bulkhead No. 4 as per Meyers Dwg. No. 43R001 change C or subsequent.
(b) Install propeller equipment item (2) or (5) as noted.

NOTE 5. Model MAC-145B aircraft, S/N 260001 and subsequent, are eligible for multiple airworthiness certification in the Utility and Acrobatic Categories when modified in accordance with Micco Aircraft Acrobatic Drawing List 200005, dated March 4, 2002, or later FAA approved revision.

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