

GROB 103A APPROVED FLIGHT MANUAL (excerpt)

General. This extract does not substitute for the actual A.F.M. The material presented in this section "A" is only a training aid or memory jogger. Each pilot is required by F.A.R.'s to be knowledgeable of the contents of the Approved Flight Manual for each aircraft flown.

1. Permitted Operating Conditions:

VFR-Day,

Simple Aerobatics - Loops, Stall Turns, Lazy Eights, Chandelles and Spins.

* Aerobatics - Aileron Roll, Half-roll, Immelmann, Split-S, Inverted Flight.

* **Club rules restrict intentional aerobatic flight.**

Aerobatic flight requires proper training and additional aircraft instrumentation and equipment.

2. Minimum Equipment:

Parachute or 3" thick back cushion for each occupant.

Loading and flight limit placards in the front and back cockpits.

Approved Flight Manual.

F.A.R. mandated instruments and restraining harnesses.

3. Maximum Speeds:

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Calm Air S.L.-6500' msl-isa	= 135 kts ias
Rough Air	= 98 kts ias
Maneuvering Speed	= 98 kts ias
Max Aero Tow Speed	= 92 kts ias
Minimum Landing Speed at Max Landing Weight	= 51 kts ias
Maximum Speed with Air Brakes Extended	= 135 kts ias

Note: Maximum permissible airspeed (red line) in calm air is reduced above 6500' msl. The reduction is approximately 2 KTS per 1000'. For example, the actual calm air maximum operating speed at 10,000' msl is 128 kts ias. ($3.5 \times 2 = 7$) At 15,000' msl the speed is 118 kts ias. It is recommended that each club member commit to memory the *Silverado Soaring 3-2 OPERATIONS MANUAL* Rev: 9/21/2010

applicable maximum operating speed for such members normal operating altitudes and subsequently not exceed that speed if at all possible.

4. Weight Limits:

For Aircraft N250AR (7S) Maximum Flight Weight	= 1279 lbs.
Empty Weight	= 924.5 lbs.
Useful Load	= 354 lbs.
Maximum Baggage	= 22 lbs.

For Aircraft N125CC (CC): Maximum Flight Weight	= 1279 lbs.
Empty Weight	= 891 lbs.
Useful Load	= 388 lbs. Maximum
Baggage	= 22 lbs.

5. Center of Gravity Position:

The approved range of the center of gravity during flight is from 10.24" to 18.11" behind the

datum. The datum is the leading edge of the wing at the root.

Loading placards for each cockpit are as follows:

Minimum Load In Front Seat = 154 lbs. Maximum Load In Front Seat = 242 lbs. Maximum Load In Rear Seat = 242 lbs. Maximum Load Baggage Compartment. = 22 lbs.

a. High Empty Weight Note: Due to the high empty weight of N250AR, use of maximum seat weights in both seats is not possible due to maximum gross weight limitations. Additionally, if an actual weight and balance calculation is done based on current actual aircraft weight and center of gravity, the minimum front seat weight set forth above may be reduced, provided the AFT center of gravity limit is not exceeded. In the absence of a weight and balance calculation, the minimum front seat weight set forth above is controlling and trim weights may be necessary depending on the weight of the front seat occupant. (The red and the yellow parachutes weigh 16.5 lbs. each; the blue parachute weighs 14 lbs.) Each trim weight weighs 12.3 lbs. and, if used, must be installed properly on the suspension shafts located below the left thigh support of the front seat.

b. The cg position example calculation:

- Cg position = (sum of the negative and positive moments about the datum line) divided by the actual gross flying weight.
- Sample calculation:
- Suppose that a particular single seat glider shows the following on it's weighing record:
- Empty Weight = 570 lbs
- Empty Weight cg is 24.09 inches aft of the datum line.
- Then, according to the flight manual for this
the pilot position is 20 inches forward of the datum line, and the trim weight holder is 46.1 inches forward of the datum line. The glider carries no baggage (if it did we would need the distance aft of the datum line to the baggage holder). The only payload weights are the pilot plus parachute, which is 185 lbs, and a 10 lb trim weight. The cg position for this sample glider is then,
Silverado Soaring Rev: 9/21/2010 OPERATIONS MANUAL 3-3
- Cg position = (570 lb x 24.09 in – 185 lb x 20 in – 10 lb x 46.1 in) divided by (570 lb + 185 lb + 10 lb) = (9,570.3 in-lb) divided by (765 lb),
- Cg position = 12.51 inches aft of the datum line.
- The above calculated cg position would then compared to the allowable cg position range specified in the flight manual, and it must be within the allowable range.

6. Tow Hooks and Weak Links:

Minimum Tow-Rope Length = 130 ft.

Maximum Tow Rope (Weak Link) Strength = 1660 lbs.

7. Tire Pressures:

Main Wheel 35-40 psi

Nose & Tail Wheel 35 psi

8. Crosswind Limit:

Maximum Crosswind Component For Take-Off or Landing = 11 kts

9. Performance: Wings Level

	Solo	Dual
Minimum Sink Speed	44 kias	46 kias
Best L/D Speed	53 kias	57 kias

Note: As bank is increased, these speeds must be increased proportionately a few knots to maintain the best available performance. Additionally, stall speed increases with bank angle so more speed is needed to maintain safe margins. Try adding 5 knots in a 30° bank; 10 knots in a 45° bank.

10. Stall Recovery:

- (a) Opposite rudder to stop the rotation.
- (b) Elevator control to neutral.
- (c) Smoothly recover from the resulting dive.