Revision #	Date	Detail of changes
1	4-9-2009	Original
2	8-15-2012	Addition revision page and document number.
		CG limits Changed.
		Landing Gear DATA added for LSA wide track gear

Performing a weight and Balance

Items Required: 2 scales for up to 400 lbs on the mains, A 300 lb scale on the nose, level, Plumb-bob, carpenters square, measuring device, 2 pieces of 2*6 that are 10" long, several 12" square scraps of ply wood. 6" long 1*1 for wheel chocks.

1. **NOTE:** *Aircraft should be in the following condition for weighing.*

A. Fuel completely drained to unusable fuel or empty tanks.
B. All Items installed including; Items FWF for engine operation, Cowlings, inspection covers, Interior, wheel pants if applicable, installed.

2. Place a scale under each wheel.
3. Start with the 10" long 2*6s under each main wheel, this will get it close to level.
4. Use a short level placed on the pilot side Canopy sill at 43" aft of the datum. This is the level from nose to tail.
5. Place a level on the top of the spar box to level the wings.
6. If further leveling is needed place plywood shims under the wheels until level.
7. Use the 1*1s for chocks so your lightning won't fall off the scales.
8. The weight and balance table below will help you to log the data for your aircraft.
9. After weighing the aircraft, put the shims used back on the scales where theses were used. Record this as tare weight and subtract it from the total weight to get the actual weight on the scales.
10. With the aircraft off of the scales, Drop a plumb bob from the datum to the floor on centerline.
11. Measure to the nose axel and main axle to find the Arm for each weight recorded.

Initial weight and Balance Table For EXP landing Gear

Position	Total Weight	Shim Weight	Actual Weight	Arm	Moment
Nose Wheel	200	1	199	-14.75	-2935.25
Left Main	299	4	295	42.25	12463.75
Right Main	305	4	301	42.25	12717.75
		Empty Weight	795	**Total Moment**	22245.75
			Empty C.G.	27.98	

Aircraft Type	EXP GEAR
N number	**N12345**
Serial #	#000
Datam	Firewall
Level Point	Cockpit top rail longitudinaly, and Across the cock pit
Forward Limit	29.00"
Aft Limit	35.00"

Initial W+B

	Weight	ARM	Moment
Front	227	-14.75	-3348.25
Left	298	42.25	12590.5
Right	307	42.25	12970.75
total	832		22213
CG		26.6983173	

Baggage capacity to 50 lbs

Empty Aircraft: Unuseabl fuel and operation fluids

	Weight		Moment in/lbs
Empty Weight	832		22213
Center of Gravity		26.6983173	

Forward CG With 150 pound pilot and 6 gallons on board

	Weight		Moment in/lbs
Empty Weight	832	26.6983173	22213
Pilot	150	44.1	6615
Fuel	36	37.4	1346.4
Baggage	0	69.76	0
Total	1018		30174.4
Center of Gravity		29.6408644	

Most Aft CG at Gross Weight

	Weight	Arm	Moment in/lbs
Empty Weight	832	26.6983173	22213
Pilot and pass	400	44.1	17640
Baggage	50	69.76	3488
Fuel	180	37.4	6732
Total	1462		50073
Center of Gravity		34.249658	

Aircraft Type	LSA GEAR
N number	**N12345**
Serial #	#000
Date:	3/1/2012
Datam	Firewall
Level Point	Cockpit top rail longitudinaly, and Across the cock pit
Forward Limit	29.00"
Aft Limit	35.00"

Initial W+B

	Weight	ARM	Moment
Front	197	-14.5	-2856.5
Left	319	40	12760
Right	325	40	13000
total	841		22903.5
CG		27.2336504	

Baggage capacity to 50 lbs

Empty Aircraft: Unuseabl fuel and operation fluids

Empty Weight	**Weight**		**Moment in/lbs**
Center of Gravity	841		22903.5
		27.2336504	

Forward CG With 100 pound pilot and 6 gallons on board

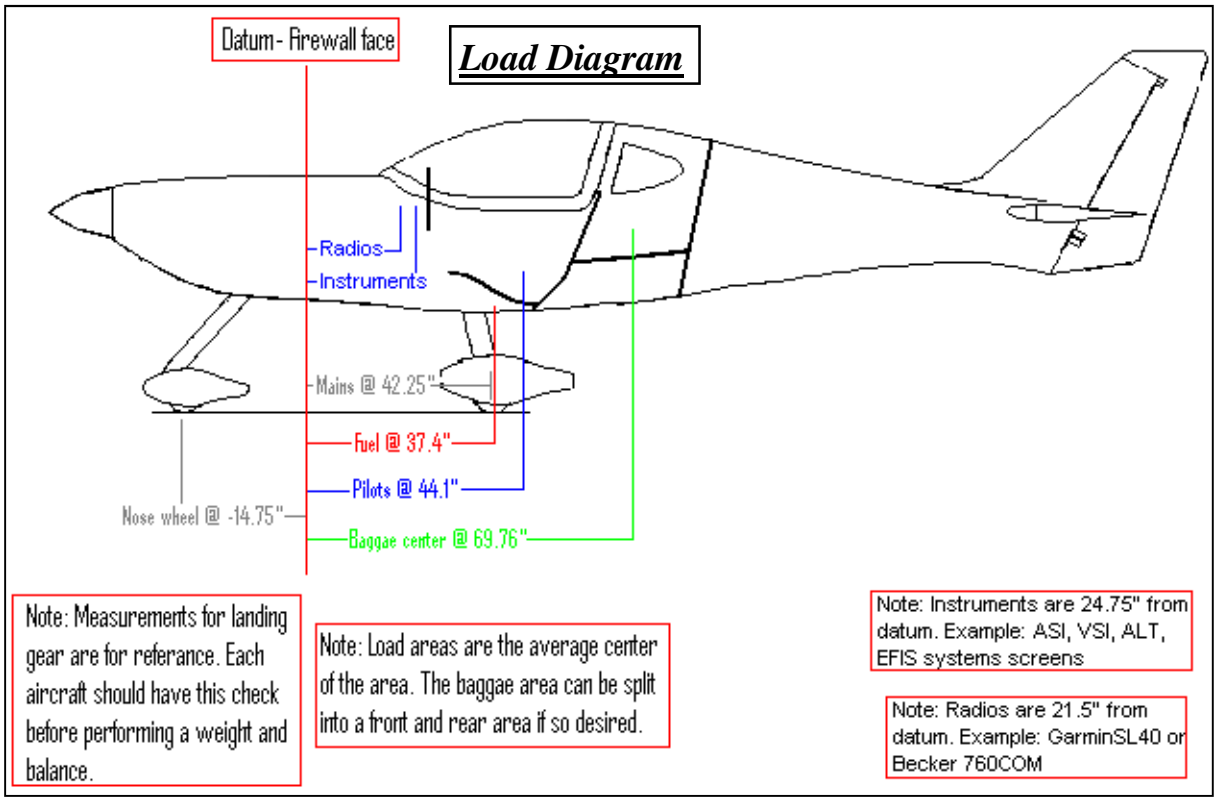
	Weight		**Moment in/lbs**
Empty Weight	841	27.2336504	22903.5
Pilot	150	44.1	6615
Fuel	36	37.4	1346.4
Baggage	0	69.76	0
Total	1027		30864.9
Center of Gravity		30.0534567	

Most Aft CG at Gross Weight

	Weight	**Arm**	**Moment in/lbs**
Empty Weight	841	27.2336504	22903.5
Pilot and pass	400	44.1	17640
Baggage	50	69.76	3488
Fuel	180	37.4	6732
Total	1471		50763.5
Center of Gravity		34.5095173	

12. Use the spread sheet on the previous page as a reference to complete the weight and balance on the aircraft.
13. It is good to know the most extreme conditions for the aircraft with forward CG and most Aft CG.
14. The load diagram below is to be used as a reference only. When performing any equipment changes to your lightning always measure the areas being changed to have an accurate weight and balance.

NOTE: IT is important to know which landing gear you have, EXP standard or Wide track LSA. They main axle positions are different by several inches and are critical!!!!
EXP MAIN GEAR: Typical aft of Firewall is 42.25”
LSA WIDE TRACK MAIN GEAR: Typical Aft of firewall is 40”



NOTE for CG Limits: *The limits Set in this manual are for the EAB Experimental kit. The landing gear type EXP or LSA wide track have no effect on the limits.*
The forward limit of 29” is flying limit, it is possible for your aircraft to be ahead of this empty.
FOR SLSA: *Owners please use your POH as the only source of information for*