

L-5 WEIGHT and BALANCE CALCULATOR

Compiled by Italo Battioli

*The **L-5 Balance Chart** was designed to simplify calculating weight and balance for the Stinson L-5. It was created from the data listed in Aircraft Specification No. A-764, Revision 2, dated 10/26/51. The chart is similar to graphical calculators used by the airlines and provides a quick means of accurately determining the C.G. of a loaded aircraft.*

INSTRUCTIONS FOR USE

1. Obtain the Basic Empty Weight (BEW) and Total Moment from the most recent weight and balance report for your aircraft. Divide the Moment by 1,000 and mark the result on the upper MOMENT index scale. The BEW is defined as the weight of the empty aircraft (including all fixed equipment) plus oil and un-drainable fuel.

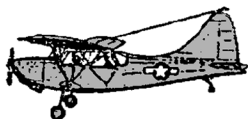
Caution! The *Reference Datum* is located 72" ahead of the wing leading edge. For the L-5 Balance Chart to function properly, all *Moments* must be calculated from this point. Some owners may find that the *Total Moment* on their aircraft weight and balance report was calculated using the leading edge of the wing as the reference datum. This will be apparent if the *Empty Weight Moment* listed for your L-5 is approximately 190,000 (or higher). In this case, the *Empty Weight Moment* must be recalculated by adding 72" the *Arm* of each item in your weight and balance report.

2. Enter the individual weights in the WEIGHT column and write the sum in the GROSS WEIGHT box.
3. From the index mark you made on the MOMENT scale in Step 1, drop a line vertically to the FRONT SEAT scale.
4. Moving to the right, count one division on the scale for each 20 pounds of pilot weight and make a new index mark. (Each increment of pitch equals 20 lbs., so a 200 lb. pilot would displace your index mark 10 spaces to the right.)
5. Drop vertically to the REAR SEAT scale, again moving your index mark one increment to the right for every 20 lbs. of passenger weight (pitch=20). If there is no rear seat passenger, go straight down to the FUEL scale.
6. On the FUEL scale, move your index point one increment to the right *for every 2 U.S. gallons* aboard the aircraft.
7. Repeat the process on both CARGO scales, noting that the pitch equals 20 lbs. per increment for weight placed on the forward platform but only 10 lbs. per increment for weight placed on the rear platform.
8. From the index mark you made in Step 7, descend vertically through the lower MOMENT scale to the horizontal line corresponding to the GROSS WEIGHT calculated in Step 2. This gives you the Center of Gravity (C.G.) TAKEOFF WEIGHT.
9. For the LANDING WEIGHT C.G. repeat Steps 1-8, substituting the estimated landing fuel quantity for the takeoff fuel total. This can be determined by preparing a flight plan and calculating flight time and fuel burn from forecast winds.

ADDITIONAL NOTES:

1. The C.G. must fall within the envelope defined by the unshaded area of the chart. If the calculated C.G. falls outside this region a load rearrangement and/or a reduction in weight is required.
3. Only ambulance models (L-5B through L-5G) employ front and rear cargo platforms.
4. This chart cannot be employed if a litter patient is being carried.
5. The maximum allowable takeoff weight for all models is 2250 pounds.
6. The forward CG limit of **20.5% MAC** listed in the L-5 Weight and Balance Handbook (T.O. No. 01-50DB-5) was marginal, so the CAA changed it to **22.8% MAC** when "civilianizing" the Sentinel in 1946. This is a more conservative limit that doesn't create any control problems for the naturally nose-heavy L-5.
7. The **18.95% MAC** forward C.G. limit (dashed line) has been included on the chart to accommodate airplanes equipped with the optional (and rare) oversize trim tab - Stinson part No. 76-22169.

DISCLAIMER: *This graphic weight and balance calculator is presented by SOPA for PLANNING PURPOSES ONLY!
It is not an FAA approved substitute for performing mathematical weight and balance calculations.*



L-5

BALANCE CHART

A/C N°
PILOT
DATE

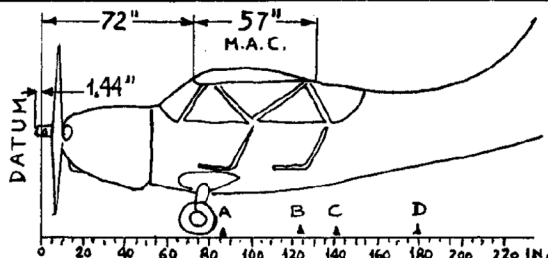
WEIGHT LIMITATIONS

L-5B,C,E,G ALL	FRONT SEAT	200 LBS.
	REAR SEAT	200 LBS.
	CARGO - FRONT PL.	200 LBS.
	CARGO - FRONT PL.	150 LBS. WHEN CARRYING CARGO ON REAR PL.
	CARGO - REAR PL.	50 LBS.

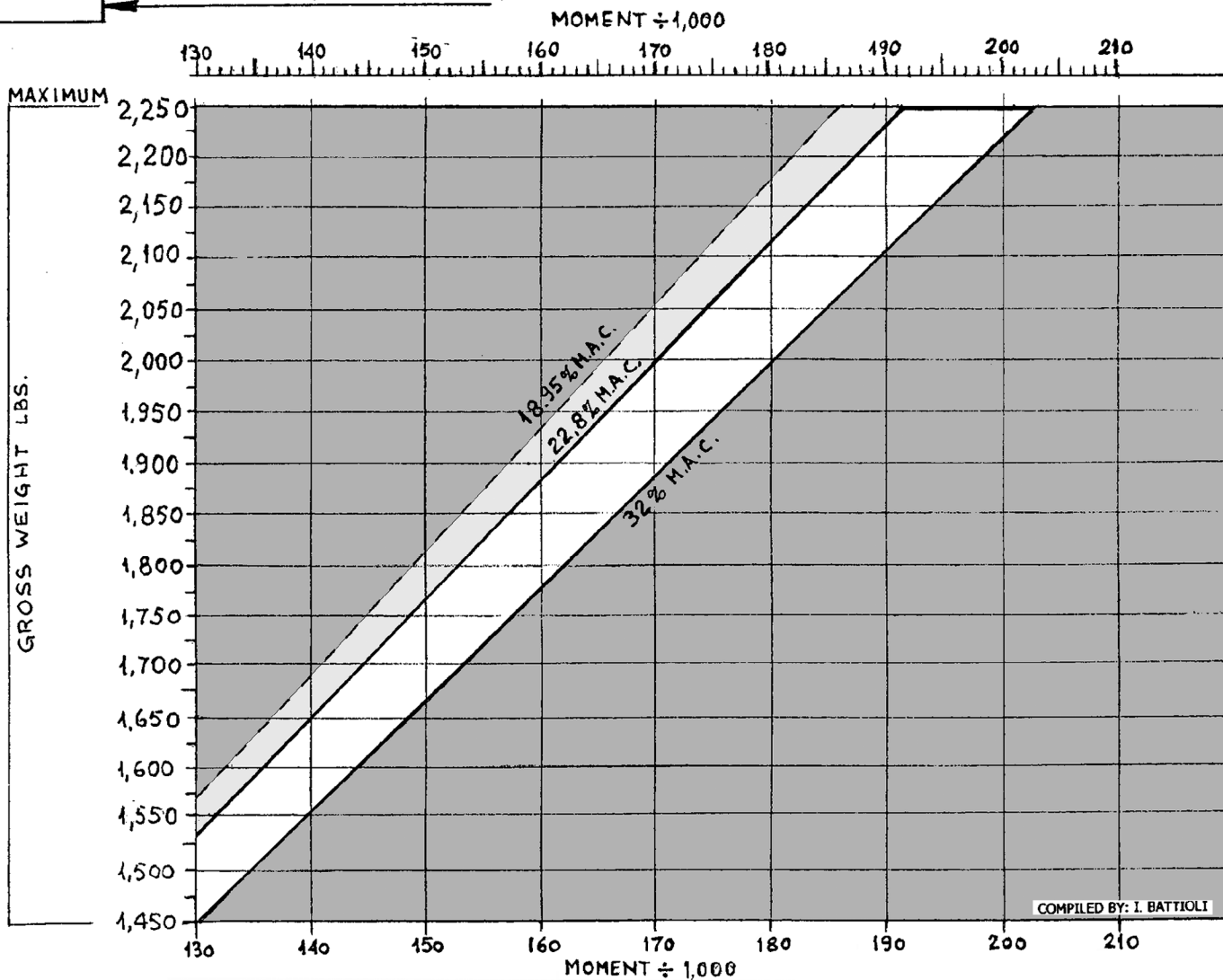
CENTER OF GRAVITY LIMITATIONS

FRONT (STANDARD TRIM TAB): 22.8% M.A.C.
FRONT (LARGER TRIM TAB): 18.95% M.A.C.
AFT : 32.0 % M.A.C.

A - FRONT SEAT
B - REAR SEAT OR FRONT CARGO PLATFORM
C - LITTER PATIENT
D - REAR CARGO PLATFORM (L-5B,C,E,G)



WEIGHT LBS.	MOMENT ÷ 1,000																				
	130	140	150	160	170	180	190	200	210												
	BASIC EMPTY WEIGHT																				
FRONT SEAT																					PITCH 20 lb.
REAR SEAT																					PITCH 20 lb.
FUEL GALS.																					PITCH 2 GAL.
CARGO FRONT PL.																					PITCH 20 lb.
CARGO REAR PL.																					PITCH 10 lb.
	GROSS WEIGHT (Do not exceed 2250 lbs.)																				
	MOMENT ÷ 1,000																				



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NOTICE: This is not an approved device and may not be substituted for approved methods of determining the center of gravity.