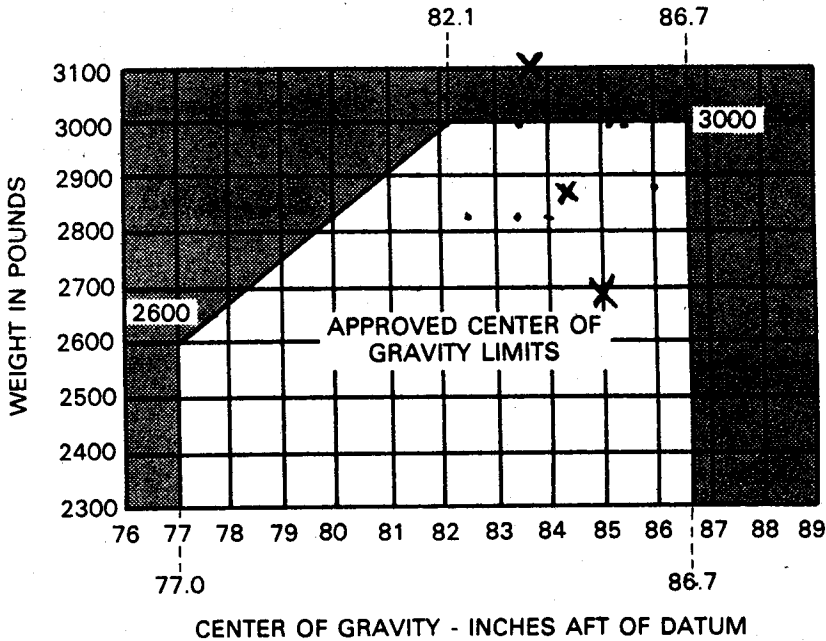


CENTER OF GRAVITY



MOMENT LIMITS vs WEIGHT

Moment limits are based on the following weight and center of gravity limit data (landing gear down).

WEIGHT CONDITION	FORWARD CG LIMIT	AFT CG LIMIT
3000 lb. (take-off or landing)	82.1	86.7
2600 lb. or less	77.0	86.7
Weight	<u>Minimum Moment</u> 100	<u>Maximum Moment</u> 100
2100	1617	1821
2110	1625	1829
2120	1632	1838
2130	1640	1847
2140	1648	1855
2150	1656	1864
2160	1663	1873
2170	1671	1881
2180	1679	1890
2190	1686	1899
2200	1694	1907
2210	1702	1916
2220	1709	1925
2230	1717	1933
2240	1725	1942
2250	1733	1951
2260	1740	1959
2270	1748	1968
2280	1756	1977
2290	1763	1985

Weight	<u>Minimum Moment</u> 100	<u>Maximum Moment</u> 100
2300	1771	1994
2310	1779	2003
2320	1786	2011
2330	1794	2020
2340	1802	2029
2350	1810	2037
2360	1817	2046
2370	1825	2055
2380	1833	2063
2390	1840	2072
2400	1848	2081
2410	1856	2089
2420	1863	2098
2430	1871	2107
2440	1879	2115
2450	1887	2124
2460	1894	2133
2470	1902	2141
2480	1910	2150
2490	1917	2159
2500	1925	2168
2510	1933	2176
2520	1940	2185
2530	1948	2194
2540	1956	2202
2550	1964	2211
2560	1971	2220
2570	1979	2228
2580	1987	2237
2590	1994	2246

MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum <u>Moment</u> 100	Maximum <u>Moment</u> 100
2600	2002	2254
2610	2013	2263
2620	2024	2272
2630	2035	2280
2640	2046	2289
2650	2057	2298
2660	2069	2306
2670	2080	2315
2680	2091	2324
2690	2102	2332
2700	2113	2341
2710	2125	2350
2720	2136	2358
2730	2147	2367
2740	2159	2376
2750	2170	2384
2760	2182	2393
2770	2193	2402
2780	2204	2410
2790	2216	2419
2800	2227	2428
2810	2239	2436
2820	2251	2445
2830	2262	2454
2840	2274	2462
2850	2285	2471
2860	2297	2480
2870	2309	2488
2880	2320	2497
2890	2332	2506

Weight	<u>Minimum</u> <u>Moment</u> 100	<u>Maximum</u> <u>Moment</u> 100
2900	2344	2514
2910	2356	2523
2920	2368	2532
2930	2379	2540
2940	2391	2549
2950	2403	2558
2960	2415	2566
2970	2427	2575
2980	2439	2584
2990	2451	2592
3000	2463	2601

COMPUTING PROCEDURE

1. Record the *Basic Empty Weight and Moment from the Basic Empty Weight and Balance form (or from the latest superseding form) under the Basic Empty Condition block. The moment must be divided by 100 to correspond to Useful Load Weights and Moments tables.
2. Record the weight and corresponding moment from the appropriate table of each of the useful load items (except fuel) to be carried in the airplane.
3. Total the weight column and moment column. The SUB-TOTAL is the Zero Fuel Condition.

4. Determine the weight and corresponding moment for the fuel loading to be used. This fuel loading includes fuel for the flight, plus that required for start, taxi, and take-off. Add the Fuel to Zero Fuel Condition to obtain the SUB-TOTAL Ramp Condition.

 5. Subtract the fuel to be used for start, taxi, and take-off to arrive at the SUB-TOTAL Take-off Condition.

 6. Subtract the weight and moment of the fuel in the incremental sequence in which it is to be used from the take-off weight and moment. The Zero Fuel Condition, the Take-Off Condition, and the Landing Condition moment must be within the minimum and maximum moments shown on the Moment Limit vs Weight table for that weight. If the total moment is less than the minimum moment allowed, useful load items must be shifted aft or forward load items reduced. If the total moment is greater than the maximum moment allowed, useful load items must be shifted forward or aft load items reduced. If the quantity or location of load items is changed, the calculations must be revised and the moments rechecked.
- * The Empty Weight for the airplane may be converted to Basic Empty Weight by adding the weight and moment for full oil. (19 lbs. and 494 lb. in.)

The following Sample Loading chart is presented to depict the sample method of computing a load. Weights used DO NOT reflect an actual airplane loading.

WEIGHT AND BALANCE LOADING FORM

DEBONAIR B33 DATE

SERIAL NO. CD-XXX REG NO. NXXX

ITEM	WEIGHT	MOM/100
1. BASIC EMPTY CONDITION	1913	1490
2. FRONT SEAT OCCUPANTS	340	288
3. REAR SEAT OCCUPANTS	340	402
4. BAGGAGE	33	46
5. CARGO		-
6. CARGO		-
7. SUB TOTAL ZERO FUEL CONDITION	2626	2226
8. FUEL LOADING (64 GAL)	384	288
9. SUB TOTAL RAMP CONDITION	3010	2514
10. *LESS FUEL FOR START, TAXI, AND TAKE-OFF	-10	-8
11. SUB TOTAL TAKE-OFF CONDITION	3000	2506
12. LESS FUEL TO DESTINATION (55 GAL)	-330	-248
13. LANDING CONDITION	2670	2258

SAMPLE

*Fuel for start, taxi and take-off is normally 10 lbs at an average mom/100 of 8.

USEFUL LOAD WEIGHTS AND MOMENTS
OCCUPANTS

WEIGHT	Front Seats		Rear Seat
	Fwd Position	Aft Position	
	ARM 85	ARM 89	ARM 118
	MOM/100	MOM/100	MOM/100
120	102	107	142
130	110	116	153
140	119	125	165
150	128	134	177
160	136	142	189
170	144	151	201
180	153	160	212
190	162	169	224
200	170	178	236

NOTE: OCCUPANT POSITIONS FOR ADJUSTABLE SEATS ARE SHOWN AT THEIR EXTREME POSITIONS. INTERMEDIATE POSITIONS WILL REQUIRE INTERPOLATION OF THE MOMENT/100 VALUES.

BAGGAGE
ARM 140

Weight	<u>Moment</u> 100	Weight	<u>Moment</u> 100
10	14	70	98
20	28	80	112
30	42	90	126
40	56	100	140
50	70	110	154
60	84	120	168

BAGGAGE (Continued)
ARM 140

Weight	<u>Moment</u> 100	Weight	<u>Moment</u> 100
130	182	210	294
140	196	220	308
150	210	230	322
160	224	240	336
170	238	250	350
180	252	260	364
190	266	270	378
200	280		

CARGO (With Rear Seat Removed)

AHEAD OF SPAR ARM 108		AFT OF SPAR ARM 135	
Weight	<u>Moment</u> 100	Weight	<u>Moment</u> 100
20	22	20	27
40	43	40	54
60	65	60	81
80	86	80	108
100	108	100	135
120	130	120	162
140	151	140	189
160	173	160	216
180	194	180	243
200	216	200	270
		220	297
		240	324
		260	351
		270	364

***USABLE FUEL**

LEADING EDGE TANKS ARM 75		
Gallons	Weight	<u>Moment</u> 100
5	30	23
10	60	45
15	90	68
20	120	90
25	150	113
30	180	135
35	210	158
40	240	180
44	264	198
50	300	225
55	330	248
60	360	270
65	390	293
70	420	315
74	444	333

***Optional Fuel System Included**

***OIL**

Quarts	Weight	<u>Moment</u> 100
10	19	5

***Included in Basic Empty Weight**