

## (A83) 滑翔機載重平衡

最近更新日期：無；更新題號：無

原始題號:0015974 題組:1 難易度:中

- (A) 1. (參照圖1) 航空器落地後，前座乘客(180磅)離機，後座乘客(204磅)則移至前座位置。若乘客移動前的航空器總重為2,690磅，力距/100為2,260，對航空器重心有何影響?" (如圖A83\_Fig1)
- (A)重心前移約3吋。(B)重量改變，但重心不影響。(C)重心前移約0.1吋。

題目圖：

USEFUL LOAD WEIGHTS AND MOMENTS						MOMENT LIMITS vs WEIGHT (Continued)									
OCCUPANTS				USABLE FUEL											
FRONT SEATS ARM 85		REAR SEATS ARM 151		MAIN WING TANKS ARM 75		Minimum Moment 100		Maximum Moment 100		Minimum Moment 100		Maximum Moment 100			
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Moment 100	Weight	Moment 100	Weight	Moment 100	Weight	Moment 100	Weight	Moment 100	
120	102	120	148	5	30	22	2110	1617	1800	2600	2537	2524	2620	2558	
130	110	130	157	10	60	45	2120	1625	1810	2610	2548	2535	2630	2569	
140	119	140	169	15	90	68	2130	1633	1820	2620	2558	2546	2640	2580	
150	128	150	182	20	120	99	2140	1641	1830	2630	2569	2557	2650	2591	
160	136	160	194	25	150	112	2150	1649	1840	2640	2580	2568	2660	2602	
170	144	170	206	30	180	135	2160	1657	1850	2650	2591	2579	2670	2613	
180	153	180	218	35	210	158	2170	1665	1860	2660	2602	2590	2680	2624	
190	162	190	230	40	240	180	2180	1673	1870	2670	2613	2601	2690	2635	
200	170	200	242	45	264	198	2190	1681	1880	2680	2624	2612	2700	2646	
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180						AUXILIARY WING TANKS ARM 94		Minimum Moment 100		Maximum Moment 100		Minimum Moment 100		Maximum Moment 100	
Weight	Moment 100	Gallons	Weight	Weight	Moment 100	Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100	Maximum Moment 100	Maximum Moment 100
10	14	5	30	28	26	2200	1697	1890	2700	2144	2303	2210	2155	2319	2389
20	28	10	60	56	52	2210	1705	1900	2710	2155	2314	2221	2166	2330	2400
30	42	15	90	85	78	2220	1713	1910	2720	2166	2325	2232	2177	2341	2411
40	56	20	120	112	104	2230	1721	1920	2730	2177	2336	2243	2188	2352	2422
50	70	25	150	139	130	2240	1729	1930	2740	2188	2347	2254	2199	2363	2433
60	84	30	180	166	156	2250	1737	1940	2750	2199	2358	2265	2210	2374	2444
70	98	35	210	193	182	2260	1745	1950	2760	2210	2369	2276	2221	2385	2455
80	112	40	240	220	208	2270	1753	1960	2770	2221	2380	2287	2232	2396	2466
90	126	45	264	248	234	2280	1761	1970	2780	2232	2391	2298	2243	2407	2477
100	140	50	288	276	260	2290	1769	1980	2790	2243	2402	2309	2254	2418	2488
110	154	55	312	304	286	2300	1777	1990	2800	2254	2413	2320	2265	2429	2499
120	168	60	336	332	312	2310	1785	2000	2810	2265	2424	2331	2276	2440	2510
130	182	65	360	360	338	2320	1793	2010	2820	2276	2435	2342	2287	2451	2521
140	196	70	384	388	364	2330	1801	2020	2830	2287	2446	2353	2298	2462	2532
150	210	75	408	416	390	2340	1809	2030	2840	2298	2457	2364	2309	2473	2543
160	224	80	432	444	416	2350	1817	2040	2850	2309	2468	2375	2320	2484	2554
170	238	85	456	472	442	2360	1825	2050	2860	2320	2479	2386	2331	2495	2565
180	252	90	480	500	468	2370	1833	2060	2870	2331	2490	2397	2342	2506	2576
190	266	95	504	528	494	2380	1841	2070	2880	2342	2501	2408	2353	2517	2587
200	280	100	528	556	520	2390	1849	2080	2890	2353	2512	2419	2364	2528	2598
210	294	105	552	584	546	2400	1857	2090	2900	2364	2523	2430	2375	2539	2609
220	308	110	576	612	572	2410	1865	2100	2910	2375	2534	2441	2386	2550	2620
230	322	115	600	640	598	2420	1873	2110	2920	2386	2545	2452	2397	2561	2631
240	336	120	624	668	624	2430	1881	2120	2930	2397	2556	2463	2408	2572	2642
250	350	125	648	696	650	2440	1889	2130	2940	2408	2567	2474	2419	2583	2653
260	364	130	672	724	676	2450	1897	2140	2950	2419	2578	2485	2430	2594	2664
270	378	135	696	752	702	2460	1905	2150	2960	2430	2589	2496	2441	2605	2675
Empty Weight - 2015						MOMENT LIMITS vs WEIGHT		Minimum Moment 100		Maximum Moment 100		Minimum Moment 100		Maximum Moment 100	
MOM / 100 - 1554						Weight		Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100
Moment limits are based on the following weight and center of gravity limit data (landing gear down):						2500		1932	2143	2500	1932	2143	2500	1932	2143
WEIGHT CONDITION FORWARD AFT CG LIMIT						2510		1943	2154	2510	1943	2154	2510	1943	2154
2000 lb (takeoff) 82.1 84.7						2520		1954	2165	2520	1954	2165	2520	1954	2165
or landing 77.5 85.7						2530		1964	2176	2530	1964	2176	2530	1964	2176
2475 lb or less 77.0 85.7						2540		1975	2187	2540	1975	2187	2540	1975	2187
						2550		1986	2198	2550	1986	2198	2550	1986	2198
						2560		1997	2209	2560	1997	2209	2560	1997	2209
						2570		2008	2220	2570	2008	2220	2570	2008	2220
						2580		2019	2231	2580	2019	2231	2580	2019	2231
						2590		2030	2242	2590	2030	2242	2590	2030	2242
						2600		2041	2253	2600	2041	2253	2600	2041	2253
						2610		2052	2264	2610	2052	2264	2610	2052	2264
						2620		2063	2275	2620	2063	2275	2620	2063	2275
						2630		2074	2286	2630	2074	2286	2630	2074	2286
						2640		2085	2297	2640	2085	2297	2640	2085	2297
						2650		2096	2308	2650	2096	2308	2650	2096	2308
						2660		2107	2319	2660	2107	2319	2660	2107	2319
						2670		2118	2330	2670	2118	2330	2670	2118	2330
						2680		2129	2341	2680	2129	2341	2680	2129	2341
						2690		2140	2352	2690	2140	2352	2690	2140	2352
						2700		2151	2363	2700	2151	2363	2700	2151	2363
						2710		2162	2374	2710	2162	2374	2710	2162	2374
						2720		2173	2385	2720	2173	2385	2720	2173	2385
						2730		2184	2396	2730	2184	2396	2730	2184	2396
						2740		2195	2407	2740	2195	2407	2740	2195	2407
						2750		2206	2418	2750	2206	2418	2750	2206	2418
						2760		2217	2429	2760	2217	2429	2760	2217	2429
						2770		2228	2440	2770	2228	2440	2770	2228	2440
						2780		2239	2451	2780	2239	2451	2780	2239	2451
						2790		2250	2462	2790	2250	2462	2790	2250	2462
						2800		2261	2473	2800	2261	2473	2800	2261	2473
						2810		2272	2484	2810	2272	2484	2810	2272	2484
						2820		2283	2495	2820	2283	2495	2820	2283	2495
						2830		2294	2506	2830	2294	2506	2830	2294	2506
						2840		2305	2517	2840	2305	2517	2840	2305	2517
						2850		2316	2528	2850	2316	2528	2850	2316	2528
						2860		2327	2539	2860	2327	2539	2860	2327	2539
						2870		2338	2550	2870	2338	2550	2870	2338	2550
						2880		2349	2561	2880	2349	2561	2880	2349	2561
						2890		2360	2572	2890	2360	2572	2890	2360	2572
						2900		2371	2583	2900	2371	2583	2900	2371	2583
						2910		2382	2594	2910	2382	2594	2910	2382	2594
						2920		2393	2605	2920	2393	2605	2920	2393	2605
						2930		2404	2616	2930	2404	2616	2930	2404	2616
						2940		2415	2627	2940	2415	2627	2940	2415	2627
						2950		2426	2638	2950	2426	2638	2950	2426	2638
						2960		2437	2649	2960	2437	2649	2960	2437	2649
						2970		2448	2660	2970	2448	2660	2970	2448	2660
						2980		2459	2671	2980	2459	2671	2980	2459	2671
						2990		2470	2682	2990	2470	2682	2990	2470	2682
						3000		2481	2693	3000	2481	2693	3000	2481	2693
						3010		2492	2704	3010	2492	2704	3010	2492	2704
						3020		2503	2715	3020	2503	2715	3020	2503	2715
						3030		2514	2726	3030	2514	2726	3030	2514	2726
						3040		2525	2737	3040	2525	2737	3040	2525	2737
						3050		2536	2748	3050	2536	2748	3050	2536	2748
						3060		2547	2759	3060	2547	2759	3060	2547	2759
						3070		2558	2770	3070	2558	2770	3070	2558	2770
						3080		2569	2781	3080	2569	2781	3080	2569	2781
						3090		2580	2792	3090	2580	2792	3090	2580	2792
						3100		2591	2803	3100	2591	2803	3100	2591	2803
						3110		2602	2814	3110	2602	2814	3110	2602	2814
						3120		2613	2825	3120	2613	2825	3120	2613	2825
						3130		2624	2836	3130	2624	2836	3130	2624	2836
						3140		2635	2847	3140	2635	2847	3140	2635	2847
						3150		2646	2858	3150	2646	2858	3150	2646	2858
						3160		2657	2869	3160	2657	2869	3160	2657	2869
						3170		2668	2880	3170	2668	2880	3170	2668	2880
						3180		2679	289						

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USEFUL LOAD WEIGHTS AND MOMENTS						MOMENT LIMITS vs WEIGHT (Continued)							
OCCUPANTS				USABLE FUEL		Minimum Moment		Maximum Moment		Minimum Moment		Maximum Moment	
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75		Weight		Weight		Weight		Weight	
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	100	100	100	100	100	100	100	100
120	102	120	145	5	30	22	2110	1625	1810	2710	2135	2304	2304
130	110	130	157	10	60	45	2120	1632	1817	2720	2143	2312	2312
140	119	140	169	15	90	68	2130	1640	1825	2730	2151	2320	2320
150	128	150	180	20	120	90	2140	1648	1833	2740	2160	2328	2328
160	136	160	194	25	150	112	2150	1656	1841	2750	2168	2336	2336
170	144	170	206	30	180	135	2160	1664	1849	2760	2176	2344	2344
180	153	180	218	35	210	158	2170	1672	1857	2770	2184	2352	2352
190	162	190	230	40	240	180	2180	1680	1865	2780	2192	2360	2360
200	170	200	242	44	264	198	2190	1688	1873	2790	2200	2368	2368
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180				AUXILIARY WING TANKS ARM 84		2200		1696	1885	2700	2133	2393	2393
						2210		1702	1892	2710	2145	2401	2401
						2220		1709	1903	2720	2156	2409	2409
						2230		1717	1911	2730	2167	2417	2417
						2240		1725	1920	2740	2178	2425	2425
						2250		1732	1929	2750	2189	2433	2433
						2260		1740	1937	2760	2199	2441	2441
						2270		1748	1946	2770	2210	2449	2449
						2280		1756	1954	2780	2221	2457	2457
						2290		1763	1963	2790	2232	2465	2465
						2300		1771	1971	2800	2243	2473	2473
						2310		1779	1980	2800	2254	2481	2481
						2320		1786	1988	2810	2265	2489	2489
						2330		1794	1997	2820	2276	2497	2497
						2340		1802	2005	2830	2287	2505	2505
						2350		1810	2014	2840	2298	2513	2513
						2360		1817	2023	2850	2309	2521	2521
						2370		1825	2031	2860	2320	2529	2529
						2380		1833	2040	2870	2332	2537	2537
						2390		1840	2048	2880	2343	2545	2545
						2400		1848	2057	2890	2354	2553	2553
						2410		1856	2065	2900	2365	2561	2561
						2420		1863	2074	2900	2376	2569	2569
						2430		1871	2083	2910	2387	2577	2577
						2440		1879	2091	2920	2398	2585	2585
						2450		1887	2100	2930	2409	2593	2593
						2460		1894	2109	2940	2420	2601	2601
						2470		1902	2117	2950	2431	2609	2609
						2480		1910	2126	2960	2442	2617	2617
						2490		1917	2134	2970	2453	2625	2625
						2500		1925	2143	2980	2464	2633	2633
						2510		1932	2151	2990	2475	2641	2641
						2520		1940	2160	3000	2486	2649	2649
						2530		1947	2169	3010	2497	2657	2657
						2540		1954	2178	3020	2508	2665	2665
						2550		1962	2187	3030	2519	2673	2673
						2560		1969	2197	3040	2530	2681	2681
						2570		1976	2206	3050	2541	2689	2689
						2580		1984	2216	3060	2552	2697	2697
						2590		1991	2225	3070	2563	2705	2705

FIGURE 33—Airplane Weight and Balance Tables.

FIGURE 33—Airplane Weight and Balance Tables.					
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75	
Weight	Moment 100	Weight	Moment 100	Gallons	Weight
120	102	120	145	5	30
130	110	130	157	10	60
140	119	140	169	15	90
150	128	150	180	20	120
160	136	160	194	25	150
170	144	170	206	30	180
180	153	180	218	35	210
190	162	190	230	40	240
200	170	200	242	44	264
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180					
Weight	Moment 100	Weight	Moment 100	Gallons	Weight
10	14	10	14	5	30
20	28	20	28	10	60
30	42	30	42	15	90
40	56	40	56	19	114
50	70	50	70	*OIL	
60	84	60	84	Quarts	Weight
70	98	70	98	10	10
80	112	80	112	15	15
90	126	90	126	Empty Weight - 2015	
100	140	100	140	MOM - 100 - 1554	
110	154	110	154	Moment limits are based on the following weight and center of gravity limit data (landing gear down)	
120	168	120	168	WEIGHT FORWARD CG LIMIT AFT CG LIMIT	
130	182	130	182	CONDITION	CG LIMIT
140	196	140	196	2000 lb (default)	82.1
150	210	150	210	or landing	84.7
160	224	160	224	2000 lb	77.5
170	238	170	238	2475 lb or less	77.0
180	252	180	252	Empty Weight - 2015	
190	266	190	266	MOM - 100 - 1554	
200	280	200	280	Moment limits are based on the following weight and center of gravity limit data (landing gear down)	
210	294	210	294	WEIGHT FORWARD CG LIMIT AFT CG LIMIT	
220	308	220	308	CONDITION	CG LIMIT
230	322	230	322	2000 lb (default)	82.1
240	336	240	336	or landing	84.7
250	350	250	350	2000 lb	77.5
260	364	260	364	2475 lb or less	77.0
270	378	270	378	Empty Weight - 2015	
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180					
Weight	Moment 100	Weight	Moment 100	Gallons	Weight
10	14	10	14	5	30
20	28	20	28	10	60
30	42	30	42	15	90
40	56	40	56	19	114
50	70	50	70	*OIL	
60	84	60	84	Quarts	Weight
70	98	70	98	10	10
80	112	80	112	15	15
90	126	90	126	Empty Weight - 2015	
100	140	100	140	MOM - 100 - 1554	
110	154	110	154	Moment limits are based on the following weight and center of gravity limit data (landing gear down)	
120	168	120	168	WEIGHT FORWARD CG LIMIT AFT CG LIMIT	
130	182	130	182	CONDITION	CG LIMIT
140	196	140	196	2000 lb (default)	82.1
150	210	150	210	or landing	84.7
160	224	160	224	2000 lb	77.5
170	238	170	238	2475 lb or less	77.0
180	252	180	252	Empty Weight - 2015	
190	266	190	266	MOM - 100 - 1554	
200	280	200	280	Moment limits are based on the following weight and center of gravity limit data (landing gear down)	
210	294	210	294	WEIGHT FORWARD CG LIMIT AFT CG LIMIT	
220	308	220	308	CONDITION	CG LIMIT
230	322	230	322	2000 lb (default)	82.1
240	336	240	336	or landing	84.7
250	350	250	350	2000 lb	77.5
260	364	260	364	2475 lb or less	77.0
270	378	270	378	Empty Weight - 2015	

FIGURE 33—Airplane Weight and Balance Tables.

原始題號:0015979 題組:6 難易度:中

- (A) 6. (參照圖1) 當航空器載重情形如下時，最大行李載重量為何？前座乘客：387磅，後座乘客：293磅，燃油：35加侖。  
(如圖A83\_Fig1)  
(A)45磅。(B)63磅。(C)220磅。

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

# MOMENT LIMITS vs WEIGHT (Continued)

OCCUPANTS				USABLE FUEL			
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75			
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Moment 100	
120	102	120	145	5	30	22	
130	110	130	157	10	60	45	
140	119	140	169	15	90	68	
150	128	150	182	20	120	90	
160	136	160	194	25	150	112	
170	144	170	206	30	180	135	
180	153	180	218	35	210	158	
190	162	190	230	40	240	180	
200	170	200	242	44	264	199	
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180				AUXILIARY WING TANKS ARM 84			
Weight	Moment 100			Gallons	Weight	Moment 100	
10	14			5	30	28	
20	28			10	60	56	
30	42			15	90	85	
40	56			19	114	107	
50	70						
60	84						
70	98						
80	112						
90	126						
100	140						
110	154						
120	168						
130	182						
140	196						
150	210						
160	224						
170	238						
180	252						
190	266						
200	280						
210	294						
220	308						
230	322						
240	336						
250	350						
260	364						
270	378						

Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100	Maximum Moment 100
2110	1617	1800	2600	2037	2204
2120	1632	1810	2610	2049	2216
2130	1647	1817	2620	2061	2228
2140	1662	1824	2630	2073	2240
2150	1677	1831	2640	2085	2252
2160	1692	1838	2650	2097	2264
2170	1707	1845	2660	2109	2276
2180	1722	1852	2670	2121	2288
2190	1737	1859	2680	2133	2299
2200	1752	1866	2690	2145	2311
2210	1767	1873	2700	2157	2323
2220	1782	1880	2710	2169	2335
2230	1797	1887	2720	2181	2347
2240	1812	1894	2730	2193	2359
2250	1827	1901	2740	2205	2371
2260	1842	1908	2750	2217	2383
2270	1857	1915	2760	2229	2395
2280	1872	1922	2770	2241	2407
2290	1887	1929	2780	2253	2419
2300	1902	1936	2790	2265	2431
2310	1917	1943	2800	2277	2443
2320	1932	1950	2810	2289	2455
2330	1947	1957	2820	2301	2467
2340	1962	1964	2830	2313	2479
2350	1977	1971	2840	2325	2491
2360	1992	1978	2850	2337	2503
2370	2007	1985	2860	2349	2515
2380	2022	1992	2870	2361	2527
2390	2037	1999	2880	2373	2539
2400	2052	2006	2890	2385	2551
2410	2067	2013	2900	2397	2563
2420	2082	2020	2910	2409	2575
2430	2097	2027	2920	2421	2587
2440	2112	2034	2930	2433	2599
2450	2127	2041	2940	2445	2611
2460	2142	2048	2950	2457	2623
2470	2157	2055	2960	2469	2635
2480	2172	2062	2970	2481	2647
2490	2187	2069	2980	2493	2659
2500	2202	2076	2990	2505	2671
2510	2217	2083	3000	2517	2683
2520	2232	2090	3010	2529	2695
2530	2247	2097	3020	2541	2707
2540	2262	2104	3030	2553	2719
2550	2277	2111	3040	2565	2731
2560	2292	2118	3050	2577	2743
2570	2307	2125	3060	2589	2755
2580	2322	2132	3070	2601	2767
2590	2337	2139	3080	2613	2779
2600	2352	2146	3090	2625	2791
2610	2367	2153	3100	2637	2803
2620	2382	2160	3110	2649	2815
2630	2397	2167	3120	2661	2827
2640	2412	2174	3130	2673	2839
2650	2427	2181	3140	2685	2851
2660	2442	2188	3150	2697	2863
2670	2457	2195	3160	2709	2875
2680	2472	2202	3170	2721	2887
2690	2487	2209	3180	2733	2899
2700	2502	2216	3190	2745	2911
2710	2517	2223	3200	2757	2923
2720	2532	2230	3210	2769	2935
2730	2547	2237	3220	2781	2947
2740	2562	2244	3230	2793	2959
2750	2577	2251	3240	2805	2971
2760	2592	2258	3250	2817	2983
2770	2607	2265	3260	2829	2995
2780	2622	2272	3270	2841	3007
2790	2637	2279	3280	2853	3019
2800	2652	2286	3290	2865	3031
2810	2667	2293	3300	2877	3043
2820	2682	2300	3310	2889	3055
2830	2697	2307	3320	2901	3067
2840	2712	2314	3330	2913	3079
2850	2727	2321	3340	2925	3091
2860	2742	2328	3350	2937	3103
2870	2757	2335	3360	2949	3115
2880	2772	2342	3370	2961	3127
2890	2787	2349	3380	2973	3139
2900	2802	2356	3390	2985	3151
2910	2817	2363	3400	2997	3163
2920	2832	2370	3410	3009	3175
2930	2847	2377	3420	3021	3187
2940	2862	2384	3430	3033	3199
2950	2877	2391	3440	3045	3211
2960	2892	2398	3450	3057	3223
2970	2907	2405	3460	3069	3235
2980	2922	2412	3470	3081	3247
2990	2937	2419	3480	3093	3259
3000	2952	2426	3490	3105	3271
3010	2967	2433	3500	3117	3283
3020	2982	2440	3510	3129	3295
3030	2997	2447	3520	3141	3307
3040	3012	2454	3530	3153	3319
3050	3027	2461	3540	3165	3331
3060	3042	2468	3550	3177	3343
3070	3057	2475	3560	3189	3355
3080	3072	2482	3570	3201	3367
3090	3087	2489	3580	3213	3379
3100	3102	2496	3590	3225	3391
3110	3117	2503	3600	3237	3403
3120	3132	2510	3610	3249	3415
3130	3147	2517	3620	3261	3427
3140	3162	2524	3630	3273	3439
3150	3177	2531	3640	3285	3451
3160	3192	2538	3650	3297	3463
3170	3207	2545	3660	3309	3475
3180	3222	2552	3670	3321	3487
3190	3237	2559	3680	3333	3499
3200	3252	2566	3690	3345	3511
3210	3267	2573	3700	3357	3523
3220	3282	2580	3710	3369	3535
3230	3297	2587	3720	3381	3547
3240	3312	2594	3730	3393	3559
3250	3327	2601	3740	3405	3571
3260	3342	2608	3750	3417	3583
3270	3357	2615	3760	3429	3595
3280	3372	2622	3770	3441	3607
3290	3387	2629	3780	3453	3619
3300	3402	2636	3790	3465	3631
3310	3417	2643	3800	3477	3643
3320	3432	2650	3810	3489	3655
3330	3447	2657	3820	3501	3667
3340	3462	2664	3830	3513	3679
3350	3477	2671	3840	3525	3691
3360	3492	2678	3850	3537	3703
3370	3507	2685	3860	3549	3715
3380	3522	2692	3870	3561	3727
3390	3537	2699	3880	3573	3739
3400	3552	2706	3890	3585	3751
3410	3567	2713	3900	3597	3763
3420	3582	2720	3910	3609	3775
3430	3597	2727	3920	3621	3787
3440	3612	2734	3930	3633	3799
3450	3627	2741	3940	3645	3811
3460	3642	2748	3950	3657	3823
3470	3657	2755	3960	3669	3835
3480	3672	2762	3970	3681	3847
3490	3687	2769	3980	3693	3859
3500	3702	2776	3990	3705	3871
3510	3717	2783	4000	3717	3883
3520	3732	2790	4010	3729	3895
3530	3747	2797	4020	3741	3907
3540	3762	2804	4030	3753	3919
3550	3777	2811	4040	3765	3931
3560	3792	2818	4050	3777	3943
3570	3807	2825	4060	3789	3955
3580	3822	2832	4070	3801	3967
3590	3837	2839	4080	3813	3979
3600	3852	2846	4090	3825	3991
3610	3867	2853	4100	3837	4003
3620	3882	2860	4110	3849	4015
3630	3897	2867	4120	3861	4027
3640	3912	2874	4130	3873	4039
3650	3927	2881	4140	3885	4051
3660	3942	2888	4150	3897	4063
3670	3957	2895	4160	3909	4075
3680	3972	2902	4170	3921	4087
3690	3987	2909	4180	3933	4099
3700	4002	2916	4190	3945	4111
3710	4017	2923	4200	3957	4123
3720	4032	2930	4210	3969	4135
3730	4047	2937	4220	3981	4147
3740	4062	2944	4230	3993	4159
3750	4077	2951	4240	4005	4171
3760	4092	2958	4250	4017	4183
3770	4107	2965	4260	4029	4195
3780	4122	2972			

FIGURE 33—Airplane Weight and Balance Tables.

MOMENT LIMITS vs WEIGHT (Continued)					
Minimum Moment 100			Maximum Moment 100		
Weight	Minimum Moment 100	Maximum Moment 100	Weight	Minimum Moment 100	Maximum Moment 100
2100	1817	1800	2600	2037	2024
2110	1825	1809	2610	2048	2039
2120	1832	1817	2620	2058	2049
2130	1840	1825	2630	2068	2059
2140	1848	1834	2640	2078	2069
2150	1856	1843	2650	2088	2079
2160	1863	1851	2660	2098	2089
2170	1871	1860	2670	2107	2099
2180	1879	1868	2680	2117	2109
2190	1888	1877	2690	2126	2119
2200	1894	1885	2700	2144	2130
2210	1902	1894	2710	2155	2141
2220	1910	1902	2720	2166	2151
2230	1917	1911	2730	2177	2162
2240	1925	1919	2740	2188	2172
2250	1932	1928	2750	2199	2183
2260	1940	1937	2760	2210	2193
2270	1948	1945	2770	2221	2204
2280	1956	1954	2780	2232	2214
2290	1963	1963	2790	2243	2224
2300	1971	1971	2800	2254	2234
2310	1979	1980	2810	2265	2245
2320	1987	1988	2820	2276	2255
2330	1995	1997	2830	2287	2265
2340	2002	2005	2840	2298	2276
2350	2010	2014	2850	2309	2286
2360	2017	2023	2860	2320	2296
2370	2025	2031	2870	2332	2306
2380	2033	2040	2880	2343	2316
2390	2041	2048	2890	2354	2326
2400	2048	2057	2900	2365	2336
2410	2056	2065	2910	2377	2346
2420	2063	2074	2920	2388	2356
2430	2071	2083	2930	2399	2366
2440	2079	2091	2940	2411	2376
2450	2087	2100	2950	2422	2386
2460	2095	2108			
2470	2102	2117			
2480	2110	2125			
2490	2117	2134			
2500	2125	2143			
2510	2132	2151			
2520	2140	2163			
2530	2148	2168			
2540	2156	2178			
2550	2164	2184			
2560	2172	2190			
2570	2180	2200			
2580	2188	2208			
2590	2196	2216			

FIGURE 34—Approximate Weight and Balance Tables

FIGURE 34—Airplane Weight and Balance Tables.

原始題號:0015980 題組:7 難易度:中

- (B) 7. (參照圖1) 計算載重與平衡，並決定航空器之重心與重量是否在限制範圍內。前座乘客：350磅，後座乘客：325磅，行李：27磅，燃油：35加侖。  
(如圖A83\_Fig1)  
(A)重心81.7，超過前重心限制。(B)重心83.4，在重心範圍內。(C)重心84.1，在重心範圍內。

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS				USABLE FUEL			
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75			
Weight	Minimum Moment 100	Weight	Minimum Moment 100	Gallons	Weight	Moment	100
120	102	120	145	5	30	22	
130	110	130	157	10	60	45	
140	119	140	169	15	90	68	
150	128	150	182	20	120	90	
160	136	160	194	25	150	112	
170	144	170	206	30	180	135	
180	153	180	218	35	210	158	
190	162	190	230	40	240	180	
200	170	200	242	44	264	199	

BAGGAGE OR 8TH SEAT OCCUPANT ARM 180				AUXILIARY WING TANKS ARM 84			
Weight	Minimum Moment 100	Gallons	Weight	Moment	100		
10	14	5	30	28			
20	28	10	60	56			
30	42	15	90	85			
40	56	19	114	107			
50	70	*OIL					
60	84						
70	98						
80	112						
90	126						
100	140						
110	154						
120	168						
130	182						
140	196						
150	210						
160	224						
170	238						
180	252						
190	266						
200	280						
210	294						
220	308						
230	322						
240	336						
250	350						
260	364						
270	378						

FIGURE 33—Airplane Weight and Balance Tables.

MOMENT LIMITS BY WEIGHT (Continued)											
Minimum Moment		Maximum Moment		Minimum Moment		Maximum Moment					
Weight	100	Weight	100	Weight	100	Weight	100				
2100	1817	1800	2600	2037	2234						
2110	1825	1809	2810	2049	2250						
2120	1833	1817	2820	2059	2266						
2130	1840	1835	2830	2069	2282						
2140	1848	1844	2840	2079	2298						
2150	1855	1843	2850	2089	2314						
2160	1863	1853	2860	2099	2330						
2170	1871	1860	2870	2112	2347						
2180	1879	1868	2880	2123	2363						
2190	1888	1877	2890	2133	2379						
2200	1894	1884	2900	2144	2395						
2210	1902	1889	2910	2155	2411						
2220	1909	1894	2920	2165	2427						
2230	1917	1901	2930	2176	2443						
2240	1924	1907	2940	2187	2459						
2250	1931	1913	2950	2197	2475						
2260	1938	1919	2960	2208	2491						
2270	1945	1927	2970	2217	2508						
2280	1952	1934	2980	2228	2524						
2290	1959	1943	2990	2237	2540						
2300	1967	1950	3000	2248	2556						
2310	1974	1957	3010	2258	2572						
2320	1982	1965	3020	2268	2588						
2330	1989	1972	3030	2279	2604						
2340	1996	1980	3040	2289	2620						
2350	2003	1987	3050	2299	2636						
2360	2010	1994	3060	2310	2652						
2370	2017	2001	3070	2320	2668						
2380	2024	2008	3080	2331	2684						
2390	2031	2015	3090	2341	2700						
2400	2038	2022	3100	2352	2716						
2410	2044	2029	3110	2362	2732						
2420	2051	2036	3120	2373	2748						
2430	2057	2043	3130	2383	2764						
2440	2064	2050	3140	2394	2780						
2450	2070	2057	3150	2404	2796						
2460	2077	2064	3160	2415	2812						
2470	2083	2071	3170	2425	2828						
2480	2090	2078	3180	2436	2844						
2490	2096	2085	3190	2446	2860						
2500	2102	2092	3200	2457	2876						
2510	2109	2100	3210	2467	2892						
2520	2115	2107	3220	2478	2908						
2530	2122	2114	3230	2488	2924						
2540	2128	2121	3240	2499	2940						
2550	2135	2128	3250	2509	2956						
2560	2141	2135	3260	2520	2972						
2570	2148	2142	3270	2530	2988						
2580	2154	2149	3280	2541	3004						
2590	2161	2156	3290	2551	3020						
2600	2167	2163	3300	2562	3036						

FIGURE 34—Airplane Weight and Balance Tables.

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

## OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75			
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Moment 100	
120	102	120	145	5	30	22	
130	110	130	157	10	60	45	
140	119	140	169	15	90	68	
150	128	150	182	20	120	90	
160	136	160	194	25	150	112	
170	144	170	206	30	180	135	
180	153	180	218	35	210	158	
190	162	190	230	40	240	180	
200	170	200	242	45	270	198	

## AUXILIARY WING TANKS ARM 84

BAGGAGE OR 8TH SEAT OCCUPANT ARM 160				Gallons	Weight	Moment 100									
Weight	Moment 100			5	30	28									
20	28			10	60	56									
30	42			15	90	85									
40	56			20	120	114									
50	70			*OIL											
60	84			Quarts	Weight	Moment 100									
70	98			10	10	5									
80	112			Empty Weight - 2015											
90	126			Wing - 100 - 1054											
100	140			Weight - 100 - 1054											
110	154			CG LIMIT											
120	168			CG LIMIT											
130	182			CG LIMIT											
140	196			CG LIMIT											
150	210			CG LIMIT											
160	224			CG LIMIT											
170	238			CG LIMIT											
180	252			CG LIMIT											
190	266			CG LIMIT											
200	280			CG LIMIT											
210	294			CG LIMIT											
220	308			CG LIMIT											
230	322			CG LIMIT											
240	336			CG LIMIT											
250	350			CG LIMIT											
260	364			CG LIMIT											
270	378			CG LIMIT											

## MOMENT LIMITS IN WEIGHT

Weight limits are based on the following weight and center of gravity limit data (loading gear only)

Weight	Forward	Aft CG Limit
200	102.1	84.7
250	102.1	84.7
300	102.1	84.7
350	102.1	84.7
400	102.1	84.7
450	102.1	84.7
500	102.1	84.7
550	102.1	84.7
600	102.1	84.7
650	102.1	84.7
700	102.1	84.7

## MOMENT LIMITS BY WEIGHT (Continued)

Minimum Weight	Minimum Moment 100	Maximum Moment 100	Minimum Weight	Minimum Moment 100	Maximum Moment 100
2100	1817	1850	2800	2037	2024
2110	1825	1859	2810	2048	2030
2120	1832	1867	2820	2059	2036
2130	1840	1875	2830	2069	2047
2140	1848	1883	2840	2079	2053
2150	1856	1893	2850	2089	2060
2160	1864	1901	2860	2099	2067
2170	1871	1909	2870	2109	2073
2180	1879	1918	2880	2119	2079
2190	1887	1927	2890	2129	2086
2200	1894	1935	2900	2139	2093
2210	1902	1944	2910	2149	2100
2220	1910	1952	2920	2159	2107
2230	1917	1960	2930	2169	2114
2240	1925	1968	2940	2179	2121
2250	1933	1976	2950	2189	2128
2260	1940	1984	2960	2199	2135
2270	1948	1992	2970	2209	2142
2280	1956	2000	2980	2219	2149
2290	1964	2008	2990	2229	2156
2300	1972	2016	3000	2239	2163
2310	1980	2024	3010	2249	2170
2320	1988	2032	3020	2259	2177
2330	1996	2040	3030	2269	2184
2340	2004	2048	3040	2279	2191
2350	2012	2056	3050	2289	2198
2360	2020	2064	3060	2299	2205
2370	2028	2072	3070	2309	2212
2380	2036	2080	3080	2319	2219
2390	2044	2088	3090	2329	2226
2400	2052	2096	3100	2339	2233
2410	2060	2104	3110	2349	2240
2420	2068	2112	3120	2359	2247
2430	2076	2120	3130	2369	2254
2440	2084	2128	3140	2379	2261
2450	2092	2136	3150	2389	2268
2460	2100	2144	3160	2399	2275
2470	2108	2152	3170	2409	2282
2480	2116	2160	3180	2419	2289
2490	2124	2168	3190	2429	2296
2500	2132	2176	3200	2439	2303
2510	2140	2184	3210	2449	2310
2520	2148	2192	3220	2459	2317
2530	2156	2200	3230	2469	2324
2540	2164	2208	3240	2479	2331
2550	2172	2216	3250	2489	2338
2560	2180	2224	3260	2499	2345
2570	2188	2232	3270	2509	2352
2580	2196	2240	3280	2519	2359
2590	2204	2248	3290	2529	2366
2600	2212	2256	3300	2539	2373
2610	2220	2264	3310	2549	2380
2620	2228	2272	3320	2559	2387
2630	2236	2280	3330	2569	2394
2640	2244	2288	3340	2579	2401
2650	2252	2296	3350	2589	2408
2660	2260	2304	3360	2599	2415
2670	2268	2312	3370	2609	2422
2680	2276	2320	3380	2619	2429
2690	2284	2328	3390	2629	2436
2700	2292	2336	3400	2639	2443
2710	2300	2344	3410	2649	2450
2720	2308	2352	3420	2659	2457
2730	2316	2360	3430	2669	2464
2740	2324	2368	3440	2679	2471
2750	2332	2376	3450	2689	2478
2760	2340	2384	3460	2699	2485
2770	2348	2392	3470	2709	2492
2780	2356	2400	3480	2719	2499
2790	2364	2408	3490	2729	2506
2800	2372	2416	3500	2739	2513
2810	2380	2424	3510	2749	2520
2820	2388	2432	3520	2759	2527
2830	2396	2440	3530	2769	2534
2840	2404	2448	3540	2779	2541
2850	2412	2456	3550	2789	2548
2860	2420	2464	3560	2799	2555
2870	2428	2472	3570	2809	2562
2880	2436	2480	3580	2819	2569
2890	2444	2488	3590	2829	2576
2900	2452	2496	3600	2839	2583
2910	2460	2504	3610	2849	2590
2920	2468	2512	3620	2859	2597
2930	2476	2520	3630	2869	2604
2940	2484	2528	3640	2879	2611
2950	2492	2536	3650	2889	2618
2960	2500	2544	3660	2899	2625
2970	2508	2552	3670	2909	2632
2980	2516	2560	3680	2919	2639
2990	2524	2568	3690	2929	2646
3000	2532	2576	3700	2939	2653

FIGURE 33—Airplane Weight and Balance Tables

FIGURE 33—Airplane Weight and Balance Tables.

原始題號:0015982 題組:1 難易度:中

- (C) 9. (參照圖2)依下列狀況決定重心：空重：610磅，力臂：96.47，飛行員(前座)：150磅，乘客(後座)：180磅，無線電與電瓶：10磅，力臂：23.20。則重心位於\_\_\_\_站。  
(如圖A83\_Fig2)  
(A)33.20。 (B)59.55。 (C)83.26。

題目圖：

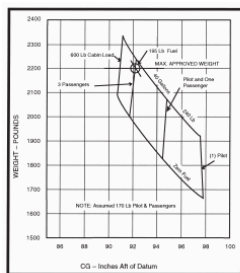


FIGURE 42—Helicopter Weight and Balance Graph.

原始題號:0015983 題組:2 難易度:中

- (A) 10. (參照圖2)依下列狀況決定重心：空重：612磅，力臂：96.47；飛行員(前座)：170磅；乘客(後座)：160磅；無線電與電瓶：10磅，力臂：23.20；配重：20磅，力臂：14.75。則重心位於\_\_\_\_站。  
(如圖A83\_Fig2)  
(A)81.23。 (B)82.63。 (C)83.26。

題目圖：

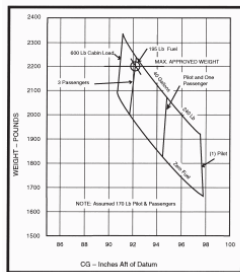
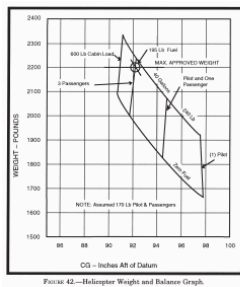


FIGURE 42—Helicopter Weight and Balance Graph.

原始題號:0015984 題組:3 難易度:中

- (A) 11. (參照圖2)依下列狀況決定重心：空重：605磅，力臂：96.47；飛行員(前座)：150磅；乘客(後座)：130磅；無線電與電瓶：10磅，力臂：23.20；配重：40磅，力臂：14.75。則重心位於\_\_\_\_站。  
(如圖A83\_Fig2)  
(A)80.10。 (B)82.99。 (C)83.67。

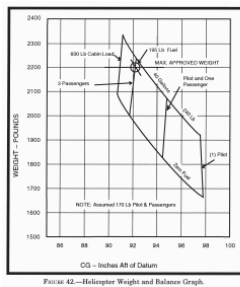
題目圖：



原始題號:0015985 題組:4 難易度:中

- (B) 12. (參照圖2)依下列狀況決定重心：空重：605磅，力臂：96.47；飛行員(前座)：150磅；乘客(後座)：130磅；無線電與電瓶：10磅，力臂：23.20；配重：40磅，力臂：14.75。則重心位於\_\_\_\_站。  
(如圖滑翔翼載重平衡\_Fig2)  
(A)-6.43。 (B)+16.43。 (C)+27.38。

題目圖：



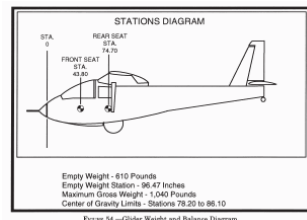
原始題號:0015986 題組:1 難易度:中

- ( ) 13. (參照圖2)以下列狀況決定CG：基本重量(包括滑油)… 830磅；基本重量力距(1,000/吋-磅)… 104.8；飛行員重量… 175磅；乘客重量… 160磅；燃油… 19.2加侖。則CG應位於  
(A)在CG限制。 (B)在CG包線範圍內。 (C)超出CG前限制範圍前方。

原始題號:0015987 題組:1 難易度:中

- (C) 14. (參照圖4)正駕駛(前座)160磅；乘客(後座)185磅。計算滑翔機的載重與平衡，並決定其重心是否在限制範圍內。  
(如圖A83\_Fig4)  
(A)重心在基準點後71.65吋，超出前限制範圍。 (B)重心在基準點後79.67吋，在限制範圍內。 (C)重心在基準點後83.43吋，在限制範圍內。

題目圖：

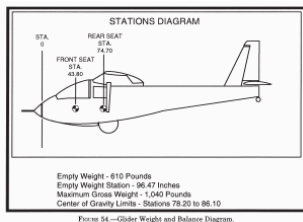


原始題號:0015988 題組:2 難易度:中

- (C) 15. (參照圖4)計算滑翔機的載重與平衡，決定重心是否於範圍內。 飛行員(前座):160磅，乘客(後座):185磅  
(如圖A83\_Fig4)  
(A)CG在基準點後71.65吋-超超前重心限制。 (B)CG在基準點後79.67吋-在限制範圍內。  
(C)CG在基準點後83.43吋-在限制範圍內。



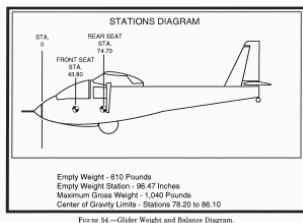
題目圖：



原始題號:0015989 題組:3 難易度:中

- (B) 16. (參照圖4)若無線電與氧氣裝備重35磅，放置43.8站位，CG有何影響？ 滑翔機重945磅，增加裝備前的力臂為78,000.2吋-磅。"
- (如圖A83\_Fig4)
- (A)CG前移0.79吋-超超前重心限制。(B)CG後移1.38吋-超超後重心限制。(C)CG前移0.79吋-超超前重心限制。

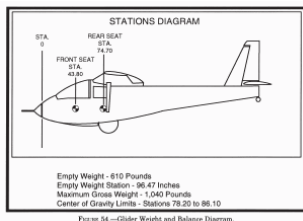
題目圖：



原始題號:0015990 題組:4 難易度:中

- (B) 17. (參照圖4)如飛行員與乘客重量皆為215磅，滑翔機重心為何？
- (如圖A83\_Fig4)
- (A)CG在基準點後74.69吋-超超前重心限制。(B)CG在基準點後81.08吋-在限制範圍內。(C)CG在基準點後81.08吋-超過最大載重。

題目圖：



原始題號:0015991 題組:1 難易度:中

- (A) 18. (參照圖5)500磅重量應移向何處，以使支點獲得平衡？
- (如圖A83\_Fig5)
- (A)向左一呎。(B)向右一呎。(C)向右4.5呎。

題目圖：

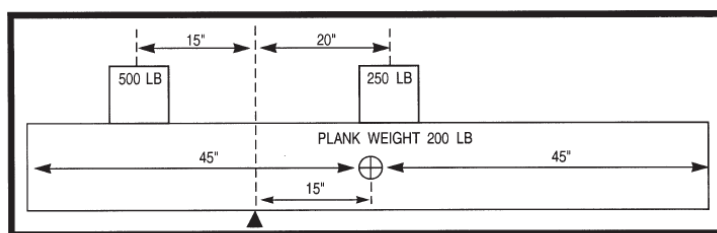


FIGURE 61.—Weight and Balance Diagram.

原始題號:0015992 題組:1 難易度:中

- (C) 19. (參照圖6)若50磅置於X點，100磅置於Z點，在Y點需放置多少重量，以獲得平衡？
- (如圖A83\_Fig6)
- (A)30磅。(B)50磅。(C)300磅。

題目圖：

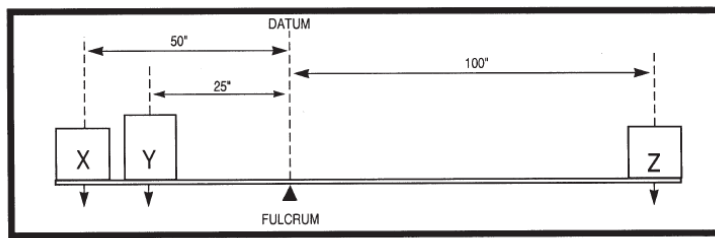


FIGURE 62.—Weight and Balance Diagram.

原始題號:0015993 題組:0 難易度:易

(A) 20. 導致飛機超載的因素包括

(A)爬升率降低，結構負載過量，及縮短航程。(B)增加升限，增加爬升角，及增加詢航空速。(C)減低起飛空速，增加操作性能，及縮短起飛距離。

原始題號:0015994 題組:0 難易度:易

(A) 21. 大多數飛機設計考量，即使在所有座位坐滿，行李艙擺滿所有行李，且所有油箱為滿油量時，飛機將會

(A)顯然超重。(B)低於最大起飛總重。(C)達最大起飛總重。

原始題號:0015995 題組:0 難易度:易

(A) 22. 操縱飛機時，機長負責使用

(A)最新的載重平衡數據。(B)製造廠商的載重平衡數據。(C)近期的載重平衡數據。

原始題號:0015996 題組:0 難易度:易

(A) 23. 哪些項次包括在航空器空重中？

(A)不可用之燃油與無法漏放之滑油。(B)只有機身，發動機，及選用裝備。(C)全油箱及引擎滑油容量。

原始題號:0015997 題組:0 難易度:中

(C) 24. 航空器總重超過最大許可載重110磅，若需漏放燃油(汽油)以使航空器重量在限制範圍內，應漏放多少燃油？

(A)15.7加侖。(B)16.2加侖。(C)18.4加侖。

原始題號:0015998 題組:0 難易度:中

(C) 25. 若航空器總重超過最大許可載重90磅，且需漏放燃油(汽油)以使航空器重量在限制範圍內，應漏放多少燃油？

(A)10加侖。(B)12加侖。(C)15加侖。

原始題號:0015974 題組:1 難易度:中

(A) 26. (Refer to Figures 1.) Upon landing, the front passenger (180 pounds) departs the airplane. A rear passenger (204 pounds) moves to the front passenger position. What effect does this have on the CG if the airplane weighted 2,690 pounds and the MOM/100 was 2,260 just prior to the passenger transfer?"(如圖A83\_Fig1)

(A)The CG moves forward approximately 3 inches. (B)"The weight changes, but the CG is not affected." (C)The CG moves forward approximately 0.1 inch.

題目圖：

USEFUL LOAD WEIGHTS AND MOMENTS											
OCCUPANTS				USABLE FUEL							
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75				AUXILIARY WING TANKS ARM 84			
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Moment		Gallons	Weight	Moment	
120	102	120	145	5	30	22		5	30	28	
130	110	130	157	10	60	45		10	60	56	
140	119	140	169	15	90	68		15	90	85	
150	128	150	182	20	120	90		19	114	107	
160	136	160	194	25	150	112					
170	144	170	206	30	180	135					
180	153	180	218	35	210	158					
190	162	190	230	40	240	180					
200	170	200	242	44	264	198					
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180				Empty Weight - 2015							
Weight	Moment 100			MOM / 100 = 1554							
10	14			Moment limits are based on the following weight and center of gravity limit data (landing gear down)							
20	28										
30	42										
40	56										
50	70										
60	84										
70	98										
80	112										
90	126										
100	140										
110	154										
120	168										
130	182										
140	196										
150	210										
160	224										
170	238										
180	252										
190	266										
200	280										
210	294										
220	308										
230	322										
240	336										
250	350										
260	364										
270	378										

FIGURE 33—Airplane Weight and Balance Tables

原始題號:0015975 題組:2 難易度:中

- ( B ) 27. (Refer to Figures 1.) Which action can adjust the weight to maximum gross weight and the CG within limits for takeoff? Front seat occupants-425 lb, Rear seat occupants-300 lb, Fuel main tanks-44 gal"(如圖A83\_Fig1)
- (A)Drain 12 gallons of fuel. (B)Drain 9 gallons of fuel. (C)Transfer 12 gallons of fuel from the main tanks to the auxiliary tanks.

題目圖：

USEFUL LOAD WEIGHTS AND MOMENTS											
OCCUPANTS				USABLE FUEL							
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75				AUXILIARY WING TANKS ARM 84			
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Moment		Gallons	Weight	Moment	
120	102	120	145	5	30	22		5	30	28	
130	110	130	157	10	60	45		10	60	56	
140	119	140	169	15	90	68		15	90	85	
150	128	150	182	20	120	90		19	114	107	
160	136	160	194	25	150	112					
170	144	170	206	30	180	135					
180	153	180	218	35	210	158					
190	162	190	230	40	240	180					
200	170	200	242	44	264	198					
BAGGAGE OR 8TH SEAT OCCUPANT ARM 180				Empty Weight - 2015							
Weight	Moment 100			MOM / 100 = 1554							
10	14			Moment limits are based on the following weight and center of gravity limit data (landing gear down)							
20	28										
30	42										
40	56										
50	70										
60	84										
70	98										
80	112										
90	126										
100	140										
110	154										
120	168										
130	182										
140	196										
150	210										
160	224										
170	238										
180	252										
190	266										
200	280										
210	294										
220	308										
230	322										
240	336										
250	350										
260	364										
270	378										

FIGURE 33—Airplane Weight and Balance Tables

原始題號:0015976 題組:3 難易度:中

- ( A ) 28. (Refer to Figures 1.) What effect does a 35-gallon fuel burn (main tanks) have on the weight and balance if the airplane weighted 2,890 pounds and the MOM/100 was 2,452 at takeoff?"(如圖A83\_Fig1)
- (A)Weight is reduced by 210 pounds and the CG is aft of limits. (B)Weight is reduced by 210 pounds and the CG is unaffected. (C)"Weight is reduced by 2,680 pounds and the CG moves forward."



題目圖：

USEFUL LOAD WEIGHTS AND MOMENTS											
OCCUPANTS				USABLE FUEL				MOMENT LIMITS vs WEIGHT (Continued)			
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75				Minimum Moment 100		Maximum Moment 100	
Weight	Moment 100	Weight	Moment 100	Gallons	Weight	Weight	Moment 100	Weight	Minimum Moment 100	Maximum Moment 100	Maximum Moment 100
120	102	120	145	5	30	22		1817	1802	2037	2224
130	110	130	157	10	60	45		2110	1825	2048	2239
140	119	140	169	15	90	68		2120	1832	2057	2249
150	128	150	182	20	120	90		2130	1840	2065	2258
160	136	160	194	25	150	112		2140	1848	2073	2267
170	144	170	206	30	180	135		2150	1856	2080	2275
180	153	180	218	35	210	158		2160	1863	2088	2283
190	162	190	230	40	240	180		2170	1871	2095	2291
200	170	200	242	44	264	198		2180	1879	2102	2299
								2190	1886	2109	2306
								2200	1894	2116	2313
								2210	1902	2123	2320
								2220	1910	2130	2327
								2230	1917	2137	2334
								2240	1925	2144	2341
								2250	1932	2151	2348
								2260	1940	2158	2355
								2270	1947	2165	2362
								2280	1955	2172	2369
								2290	1962	2179	2376
								2300	1970	2186	2383
								2310	1977	2193	2390
								2320	1985	2200	2397
								2330	1992	2207	2404
								2340	2000	2214	2411
								2350	2007	2221	2418
								2360	2015	2228	2425
								2370	2022	2235	2432
								2380	2030	2242	2439
								2390	2037	2249	2446
								2400	2045	2256	2453
								2410	2052	2263	2460
								2420	2060	2270	2467
								2430	2067	2277	2474
								2440	2075	2284	2481
								2450	2082	2291	2488
								2460	2090	2298	2495
								2470	2097	2305	2502
								2480	2105	2312	2509
								2490	2112	2319	2516
								2500	2120	2326	2523
								2510	2127	2333	2530
								2520	2135	2340	2537
								2530	2142	2347	2544
								2540	2150	2354	2551
								2550	2157	2361	2558
								2560	2165	2368	2565
								2570	2172	2375	2572
								2580	2180	2382	2579
								2590	2187	2389	2586
								2600	2195	2396	2593
								2610	2202	2403	2600
								2620	2210	2410	2607
								2630	2217	2417	2614
								2640	2225	2424	2621
								2650	2232	2431	2628
								2660	2240	2438	2635
								2670	2247	2445	2642
								2680	2255	2452	2649
								2690	2262	2459	2656
								2700	2270	2466	2663
								2710	2277	2473	2670
								2720	2285	2480	2677
								2730	2292	2487	2684
								2740	2300	2494	2691
								2750	2307	2501	2698
								2760	2315	2508	2705
								2770	2322	2515	2712
								2780	2330	2522	2719
								2790	2337	2529	2726
								2800	2345	2536	2733
								2810	2352	2543	2740
								2820	2360	2550	2747
								2830	2367	2557	2754
								2840	2375	2564	2761
								2850	2382	2571	2768
								2860	2390	2578	2775
								2870	2397	2585	2782
								2880	2405	2592	2789
								2890	2412	2599	2796
								2900	2420	2606	2803
								2910	2427	2613	2810
								2920	2435	2620	2817
								2930	2442	2627	2824
								2940	2450	2634	2831
								2950	2457	2641	2838
								2960	2465	2648	2845
								2970	2472	2655	2852
								2980	2480	2662	2859
								2990	2487	2669	2866
								3000	2495	2676	2873
								3010	2502	2683	2880
								3020	2510	2690	2887
								3030	2517	2697	2894
								3040	2525	2704	2901
								3050	2532	2711	2908
								3060	2540	2718	2915
								3070	2547	2725	2922
								3080	2555	2732	2929
								3090	2562	2739	2936
								3100	2570	2746	2943
								3110	2577	2753	2950
								3120	2585	2760	2957
								3130	2592	2767	2964
								3140	2600	2774	2971
								3150	2607	2781	2978
								3160	2615	2788	2985
								3170	2622	2795	2992
								3180	2630	2802	2999
								3190	2637	2809	3006
								3200	2645	2816	3013
								3210	2652	2823	3020
								3220	2660	2830	3027
								3230	2667	2837	3034
								3240	2675	2844	3041
								3250	2682	2851	3048
								3260	2690	2858	3055
								3270	2697	2865	3062
								3280	2705	2872	3069
								3290	2712	2879	3076
								3300	2720	2886	3083
								3310	2727	2893	3090
								3320	2735	2900	3097
								3330	2742	2907	3104
								3340	2750	2914	3111
								3350	2757	2921	3118
								3360	2765	2928	3125
								3370	2772	2935	3132
								3380	2780	2942	3139
								3390	2787	2949	3146
								3400	2795	2956	3153
								3410	2802	2963	3160
								3420	2810	2970	3167
								3430	2817	2977	3174
								3440	2825	2984	3181
								3450	2832	2991	3188
								3460	2840	2998	3195
								3470	2847	3005	3202
								3480	2855	3012	3209
								3490	2862	3019	3216
								3500	2870	3026	3223
								3510	2877	3033	3230
								3520	2885	3040	3237
								3530	2892	3047	3244
								3540	2900	3054	3251
								3550	2907	3061	3258
								3560	2915	3068	3265
								3570	2922	3075	3272
								3580	2930	3082	3279
								3590	2937	3089	3286
								3600	2945	3096	3293
								3610	2952	3103	3300
								3620	2960	3110	3307
								3630	2967	3117	3314
								3640	2975	3124	3321
								3650	2982	3131	3328
								3660	2990	3138	3335
								3670			

AUXILIARY WING TANKS ARM 94			
Gallons	Weight	Weight	Moment 100
5	30	28	
10	60	56	
15	90	84	
20	120	112	107
*OL			
Gallons	Weight	Weight	Moment 100
10	190		

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS				USABLE FUEL			
FRONT SEATS ARM 85		REAR SEATS ARM 121		MAIN WING TANKS ARM 75			
Weight	Moment	Weight	Moment	Gallons	Weight	Moment	
120	102	170	145	5	30	22	
100	110	130	157	10	60	45	
80	118	100	166	15	90	68	
120	128	150	182	20	120	90	
130	136	160	190	25	150	112	
170	144	170	198	30	180	135	
160	153	180	216	35	210	158	
160	162	190	234	40	240	180	
200	170	200	242	44	264	198	

BAGGAGE OR SEAT OCCUPANT ARM 140				AUXILIARY WING TANKS ARM 84			
Weight	Moment	Weight	Moment	Gallons	Weight	Moment	
10	14	5	30	28			
20	28	10	60	56			
30	42	20	90	112			
40	56	30	126	168			
50	70	40	168	224			
60	84	50	210	280			
70	98	60	252	336			
80	112	70	294	392			
90	126	80	336	448			
100	140	90	378	504			
110	154	100	420	560			
120	168	110	462	616			
130	182	120	504	672			
140	196	130	546	728			
150	210	140	588	784			
160	224	150	630	840			
170	238	160	672	896			
180	252	170	714	952			
190	266	180	756	1008			
200	280	190	798	1064			
210	294	200	840	1120			
220	308	210	882	1176			
230	322	220	924	1232			
240	336	230	966	1288			
250	350	240	1008	1344			
260	364	250	1050	1400			
270	378	260	1092	1456			

Empty Weight - 2015 MOM 110 - 1554				MOMENT LIMITS - WEIGHT			
Wt	CG	Wt	CG	Wt	CG	Wt	CG
10	10	5	30	28			
20	20	10	60	56			
30	30	20	90	112			
40	40	30	120	168			
50	50	40	150	224			
60	60	50	180	280			
70	70	60	210	336			
80	80	70	240	392			
90	90	80	270	448			
100	100	90	300	504			
110	110	100	330	560			
120	120	110	360	616			
130	130	120	390	672			
140	140	130	420	728			
150	150	140	450	784			
160	160	150	480	840			
170	170	160	510	896			
180	180	170	540	952			
190	190	180	570	1008			
200	200	190	600	1064			
210	210	200	630	1120			
220	220	210	660	1176			
230	230	22					

MOMENT LIMITS vs WEIGHT (Continued)							
Minimum Moment		Maximum Moment		Minimum Moment		Maximum Moment	
Weight	150	Weight	150	Weight	150	Weight	150
2110	1417	1800	1155	2710	2133	3224	2524
2110	1425	1808	1160	2810	2248	3248	2520
2110	1432	1817	1165	2910	2364	3272	2516
2140	1445	1848	1180	3010	2480	3296	2512
2150	1460	1863	1190	3050	2500	3300	2503
2150	1463	1863	1191	3100	2550	3324	2501
2170	1471	1881	1200	3150	2600	3348	2497
2180	1478	1898	1208	3200	2650	3372	2494
2190	1486	1917	1218	3250	2700	3396	2490
2200	1494	1935	1225	3300	2750	3420	2487
2210	1502	1954	1235	3350	2800	3444	2483
2220	1510	1973	1245	3400	2850	3468	2479
2230	1517	1993	1255	3450	2900	3492	2475
2240	1525	2013	1265	3500	2950	3516	2471
2250	1533	2033	1275	3550	3000	3540	2467
2260	1541	2053	1285	3600	3050	3564	2463
2270	1549	2073	1295	3650	3100	3588	2459
2280	1557	2093	1305	3700	3150	3612	2455
2290	1565	2113	1315	3750	3200	3636	2451
2300	1573	2133	1325	3800	3250	3660	2447
2310	1581	2153	1335	3850	3300	3684	2443
2320	1589	2173	1345	3900	3350	3708	2439
2330	1597	2193	1355	3950	3400	3732	2435
2340	1605	2213	1365	4000	3450	3756	2431
2350	1613	2233	1375	4050	3500	3780	2427
2360	1621	2253	1385	4100	3550	3804	2423
2370	1629	2273	1395	4150	3600	3828	2419
2380	1637	2293	1405	4200	3650	3852	2415
2390	1645	2313	1415	4250	3700	3876	2411
2400	1653	2333	1425	4300	3750	3900	2407
2410	1661	2353	1435	4350	3800	3924	2403
2420	1669	2373	1445	4400	3850	3948	2399
2430	1677	2393	1455	4450	3900	3972	2395
2440	1685	2413	1465	4500	3950	4000	2391
2450	1693	2433	1475	4550	4000	4024	2387
2460	1701	2453	1485	4600	4050	4050	2383
2470	1709	2473	1495	4650	4100	4074	2379
2480	1717	2493	1505	4700	4150	4100	2375
2490	1725	2513	1515	4750	4200	4124	2371
2500	1733	2533	1525	4800	4250	4150	2367
2510	1741	2553	1535	4850	4300	4174	2363
2520	1749	2573	1545	4900	4350	4200	2359
2530	1757	2593	1555	4950	4400	4224	2355
2540	1765	2613	1565	5000	4450	4250	2351
2550	1773	2633	1575	5050	4500	4274	2347
2560	1781	2653	1585	5100	4550	4300	2343
2570	1789	2673	1595	5150	4600	4324	2339
2580	1797	2693	1605	5200	4650	4350	2335
2590	1805	2713	1615	5250	4700	4374	2331
2600	1813	2733	1625	5300	4750	4400	2327
2610	1821	2753	1635	5350	4800	4424	2323
2620	1829	2773	1645	5400	4850	4450	2319
2630	1837	2793	1655	5450	4900	4474	2315
2640	1845	2813	1665	5500	4950	4500	2311
2650	1853	2833	1675	5550	5000	4524	2307
2660	1861	2853	1685	5600	5050	4550	2303
2670	1869	2873	1695	5650	5100	4574	2299
2680	1877	2893	1705	5700	5150	4600	2295
2690	1885	2913	1715	5750	5200	4624	2291
2700	1893	2933	1725	5800	5250	4650	2287
2710	1901	2953	1735	5850	5300	4674	2283
2720	1909	2973	1745	5900	5350	4700	2279
2730	1917	2993	1755	5950	5400	4724	2275
2740	1925	3013	1765	6000	5450	4750	2271
2750	1933	3033	1775	6050	5500	4774	2267
2760	1941	3053	1785	6100	5550	4800	2263
2770	1949	3073	1795	6150	5600	4824	2259
2780	1957	3093	1805	6200	5650	4850	2255
2790	1965	3113	1815	6250	5700	4874	2251
2800	1973	3133	1825	6300	5750	4900	2247
2810	1981	3153	1835	6350	5800	4924	2243
2820	1989	3173	1845	6400	5850	4950	2239
2830	1997	3193	1855	6450	5900	4974	2235
2840	2005	3213	1865	6500	5950	5000	2231
2850	2013	3233	1875	6550	6000	5024	2227
2860	2021	3253	1885	6600	6050	5050	2223
2870	2029	3273	1895	6650	6100	5074	2219
2880	2037	3293	1905	6700	6150	5100	2215
2890	2045	3313	1915	6750	6200	5124	2211
2900	2053	3333	1925	6800	6250	5150	2207
2910	2061	3353	1935	6850	6300	5174	2203
2920	2069	3373	1945	6900	6350	5200	2199
2930	2077	3393	1955	6950	6400	5224	2195
2940	2085	3413	1965	7000	6450	5250	2191
2950	2093	3433	1975	7050	6500	5274	2187
2960	2101	3453	1985	7100	6550	5300	2183
2970	2109	3473	1995	7150	6600	5324	2179
2980	2117	3493	2005	7200	6650	5350	2175
2990	2125	3513	2015	7250	6700	5374	2171
3000	2133	3533	2025	7300	6750	5400	2167
3010	2141	3553	2035	7350	6800	5424	2163
3020	2149	3573	2045	7400	6850	5450	2159
3030	2157	3593	2055	7450	6900	5474	2155
3040	2165	3613	2065	7500	6950	5500	2151
3050	2173	3633	2075	7550	7000	5524	2147
3060	2181	3653	2085	7600	7050	5550	2143
3070	2189	3673	2095	7650	7100	5574	2139
3080	2197	3693	2105	7700	7150	5600	2135
3090	2205	3713	2115	7750	7200	5624	2131
3100	2213	3733	2125	7800	7250	5650	2127
3110	2221	3753	2135	7850	7300	5674	2123
3120	2229	3773	2145	7900	7350	5700	2119
3130	2237	3793	2155	7950	7400	5724	2115
3140	2245	3813	2165	8000	7450	5750	2111
3150	2253	3833	2175	8050	7500	5774	2107
3160	2261	3853	2185	8100	7550	5800	2103
3170	2269	3873	2195	8150	7600	5824	2099
3180	22						

FIGURE 34.—Airplane Weight and Balance Tables

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(A) 31. (Refer to Figures 1.) What is the maximum amount of baggage that can be carried when the airplane is loaded as follows? Front seat occupants: 387 lb, Rear seat occupants: 293 lb, Fuel: 35 gal" (如圖A83\_Fig1)

(A) 45 pounds. (B) 63 pounds. (C) 220 pounds.

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

## OCCUPANTS

FRONT SEATS ARM 85			REAR SEATS ARM 121		
Weight	Moment		Weight	Moment	
120	102	120	145	150	145
130	110	130	157	160	157
140	118	140	169	170	169
150	126	150	181	180	181
160	134	160	193	190	193
170	144	170	206	200	206
180	152	180	218	210	218
190	160	190	230	220	230
200	170	200	242	230	242

## BAGGAGE ON SEAT BEAT OCCUPANT ARM 80

Weight	Moment	
1	0	1
2	0	2
4	0	4
6	0	6
8	0	8
10	0	10
12	0	12
14	0	14
16	0	16
18	0	18
20	0	20
22	0	22
24	0	24
26	0	26
28	0	28
30	0	30
32	0	32
34	0	34
36	0	36
38	0	38
40	0	40
42	0	42
44	0	44
46	0	46
48	0	48
50	0	50
52	0	52
54	0	54
56	0	56
58	0	58
60	0	60
62	0	62
64	0	64
66	0	66
68	0	68
70	0	70
72	0	72
74	0	74
76	0	76
78	0	78
80	0	80
82	0	82
84	0	84
86	0	86
88	0	88
90	0	90
92	0	92
94	0	94
96	0	96
98	0	98
100	0	100
102	0	102
104	0	104
106	0	106
108	0	108
110	0	110
112	0	112
114	0	114
116	0	116
118	0	118
120	0	120
122	0	122
124	0	124
126	0	126
128	0	128
130	0	130
132	0	132
134	0	134
136	0	136
138	0	138
140	0	140
142	0	142
144	0	144
146	0	146
148	0	148
150	0	150
152	0	152
154	0	154
156	0	156
158	0	158
160	0	160
162	0	162
164	0	164
166	0	166
168	0	168
170	0	170
172	0	172
174	0	174
176	0	176
178	0	178
180	0	180
182	0	182
184	0	184
186	0	186
188	0	188
190	0	190
192	0	192
194	0	194
196	0	196
198	0	198
200	0	200
202	0	202
204	0	204
206	0	206
208	0	208
210	0	210
212	0	212
214	0	214
216	0	216
218	0	218
220	0	220
222	0	222
224	0	224
226	0	226
228	0	228
230	0	230
232	0	232
234	0	234
236	0	236

## USABLE FUEL

### MAIN WING TANKS

Galons	Weight	Moment
5	30	22
10	60	45
15	90	67
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
45	270	203

### AUXILIARY WING TANKS

Galons	Weight	Moment
5	30	29
10	60	56
15	90	83
19	114	107

"OL		
Galons	Weight	Moment
10	10	8

### Empty Weight - 2015

MOM 100 - 1554

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
2950 (5.0)	82.1	84.7
3000 (5.3)	82.1	84.7
3050 (5.6)	82.1	84.7
3100 (5.9)	82.1	84.7
3150 (6.2)	82.1	84.7
3200 (6.5)	82.1	84.7
3250 (6.8)	82.1	84.7
3300 (7.1)	82.1	84.7
3350 (7.4)	82.1	84.7
3400 (7.7)	82.1	84.7
3450 (8.0)	82.1	84.7
3500 (8.3)	82.1	84.7
3550 (8.6)	82.1	84.7
3600 (8.9)	82.1	84.7
3650 (9.2)	82.1	84.7
3700 (9.5)	82.1	84.7
3750 (9.8)	82.1	84.7
3800 (10.1)	82.1	84.7
3850 (10.4)	82.1	84.7
3900 (10.7)	82.1	84.7
3950 (11.0)	82.1	84.7
4000 (11.3)	82.1	84.7
4050 (11.6)	82.1	84.7
4100 (11.9)	82.1	84.7
4150 (12.2)	82.1	84.7
4200 (12.5)	82.1	84.7
4250 (12.8)	82.1	84.7
4300 (13.1)	82.1	84.7
4350 (13.4)	82.1	84.7
4400 (13.7)	82.1	84.7
4450 (14.0)	82.1	84.7
4500 (14.3)	82.1	84.7
4550 (14.6)	82.1	84.7
4600 (14.9)	82.1	84.7
4650 (15.2)	82.1	84.7
4700 (15.5)	82.1	84.7
4750 (15.8)	82.1	84.7
4800 (16.1)	82.1	84.7
4850 (16.4)	82.1	84.7
4900 (16.7)	82.1	84.7
4950 (17.0)	82.1	84.7
5000 (17.3)	82.1	84.7
5050 (17.6)	82.1	84.7
5100 (17.9)	82.1	84.7
5150 (18.2)	82.1	84.7
5200 (18.5)	82.1	84.7
5250 (18.8)	82.1	84.7
5300 (19.1)	82.1	84.7
5350 (19.4)	82.1	84.7
5400 (19.7)	82.1	84.7
5450 (20.0)	82.1	84.7
5500 (20.3)	82.1	84.7
5550 (20.6)	82.1	84.7
5600 (20.9)	82.1	84.7
5650 (21.2)	82.1	84.7
5700 (21.5)	82.1	84.7
5750 (21.8)	82.1	84.7
5800 (22.1)	82.1	84.7
5850 (22.4)	82.1	84.7
5900 (22.7)	82.1	84.7
5950 (23.0)	82.1	84.7
6000 (23.3)	82.1	84.7
6050 (23.6)	82.1	84.7
6100 (23.9)	82.1	84.7
6150 (24.2)	82.1	84.7
6200 (24.5)	82.1	84.7
6250 (24.8)	82.1	84.7
6300 (25.1)	82.1	84.7
6350 (25.4)	82.1	84.7
6400 (25.7)	82.1	84.7
6450 (26.0)	82.1	84.7
6500 (26.3)	82.1	84.7
6550 (26.6)	82.1	84.7
6600 (26.9)	82.1	84.7
6650 (27.2)	82.1	84.7
6700 (27.5)	82.1	84.7
6750 (27.8)	82.1	84.7
6800 (28.1)	82.1	84.7
6850 (28.4)	82.1	84.7
6900 (28.7)	82.1	84.7
6950 (29.0)	82.1	84.7
7000 (29.3)	82.1	84.7
7050 (29.6)	82.1	84.7
7100 (29.9)	82.1	84.7
7150 (30.2)	82.1	84.7
7200 (30.5)	82.1	84.7
7250 (30.8)	82.1	84.7
7300 (31.1)	82.1	84.7
7350 (31.4)	82.1	84.7
7400 (31.7)	82.1	84.7
7450 (32.0)	82.1	84.7
7500 (32.3)	82.1	84.7
7550 (32.6)	82.1	84.7
7600 (32.9)	82.1	84.7
7650 (33.2)	82.1	84.7
7700 (33.5)	82.1	84.7
7750 (33.8)	82.1	84.7
7800 (34.1)	82.1	84.7
7850 (34.4)	82.1	84.7
7900 (34.7)	82.1	84.7
7950 (35.0)	82.1	84.7
8000 (35.3)	82.1	84.7
8050 (35.6)	82.1	84.7
8100 (35.9)	82.1	84.7
8150 (36.2)	82.1	84.7
8200 (36.5)	82.1	84.7
8250 (36.8)	82.1	84.7
8300 (37.1)	82.1	84.7
8350 (37.4)	82.1	84.7
8400 (37.7)	82.1	84.7
8450 (38.0)	82.1	84.7
8500 (38.3)	82.1	84.7
8550 (38.6)	82.1	84.7
8600 (38.9)	82.1	84.7
8650 (39.2)	82.1	84.7
8700 (39.5)	82.1	84.7
8750 (39.8)	82.1	84.7
8800 (40.1)	82.1	84.7
8850 (40.4)	82.1	84.7
8900 (40.7)	82.1	84.7
8950 (41.0)	82.1	84.7
9000 (41.3)	82.1	84.7
9050 (41.6)	82.1	84.7
9100 (41.9)	82.1	84.7
9150 (42.2)	82.1	84.7
9200 (42.5)	82.1	84.7
9250 (42.8)	82.1	84.7
9300 (43.1)	82.1	84.7
9350 (43.4)	82.1	84.7
9400 (43.7)	82.1	84.7
9450 (44.0)	82.1	84.7
9500 (44.3)	82.1	84.7
9550 (44.6)	82.1	84.7
9600 (44.9)	82.1	84.7
9650 (45.2)	82.1	84.7
9700 (45.5)	82.1	84.7
9750 (45.8)	82.1	84.7
9800 (46.1)	82.1	84.7
9850 (46.4)	82.1	84.7
9900 (46.7)	82.1	84.7
9950 (47.0)	82.1	84.7
10000 (47.3)	82.1	84.7

# MOMENT LIMITS vs WEIGHT (Continued)

Minimum Moment			Maximum Moment			Minimum Moment			Maximum Moment		
Weight	Moment		Weight	Moment		Weight	Moment		Weight	Moment	
2100	1617	1800	2600	2027	2324	2110	1615	1800	2610	2048	2320
2110	1621	1808	2610	2031	2332	2120	1625	1812	2620	2058	2328
2120	1625	1816	2620	2035	2340	2130	1635	1820	2630	2068	2336
2130	1630	1824	2630	2039	2348	2140	1645	1828	2640	2078	2344
2140	1640	1832	2640	2043	2356	2150	1655	1836	2650	2088	2352
2150	1650	1840	2650	2047	2364	2160	1665	1844	2660	2098	2360
2160	1660	1848	2660	2051	2372	2170	1675	1852	2670	2108	2368
2170	1670	1856	2670	2055	2380	2180	1685	1860	2680	2118	2376
2180	1680	1864	2680	2059	2388	2190	1695	1868	2690	2128	2384
2190	1690	1872	2690	2063	2396	2200	1705	1876	2700	2138	2392
2200	1700	1880	2700	2067	2404	2210	1715	1884	2710	2148	2400
2210	1710	1888	2710	2071	2412	2220	1725	1892	2720	2158	2408
2220	1720	1896	2720	2075	2420	2230	1735	1900	2730	2168	2416
2230	1730	1904	2730	2079	2428	2240	1745	1908	2740	2178	2424
2240	1740	1912	2740	2083	2436	2250	1755	1916	2750	2188	2432
2250	1750	1920	2750	2087	2444	2260	1765	1924	2760	2198	2440
2260	1760	1928	2760	2091	2452	2270	1775	1932	2770	2208	2448
2270	1770	1936	2770	2095	2460	2280	1785	1940	2780	2218	2456
2280	1780	1944	2780	2099	2468	2290	1795	1948	2790	2228	246

Figure 24. A. *Chrysomelids* and B. *Chrysomelids* and C. *Chrysomelids*

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( B ) <sup>32</sup> (Refer to Figures 1.) Calculate the weight and balance and determine if the CG and the weight of the airplane are within limits. Front seat occupants-350 lb, Rear seat occupants-325 lb, Baggage-27 lb, Fuel-35 gal"(如圖A83\_Fig1)

(A)"CG 81.7, out of limits forward." (B)"CG 83.4, within limits." (C)"CG 84.1, within limits."

題目圖：

USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment	Weight	Moment
120	102	120	145
130	110	130	157
140	119	140	169
150	128	150	182
160	138	160	194
170	144	170	206
180	154	180	219
190	162	190	230
200	170	200	242

BAGGAGE ON SEAT OUTFIT OCCUPANT  
ARM 80

Weight	Moment
14	11
20	28
30	42
40	56
50	69
60	84
70	98
80	112
90	125
100	140
110	154
120	168
130	182
140	196
150	210
160	224
170	238
180	252
190	266
200	280
210	294
220	308
230	321
240	336
250	350
260	364
270	378

USABLE FUEL

MAIN WING TANKS

Gallons	Weight	Moment
5	30	22
10	60	45
15	90	67
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
45	270	202

AUXILIARY WING TANKS  
ARM 84

Gallons	Weight	Moment
5	30	29
10	60	56
15	90	83
19	114	107

"OL

Gallons	Weight	Moment
10	10	5

Moment limits vs Weight

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

WEIGHT CONDITION	CG LIMIT FORWARD	AFT CG LIMIT
2500 L (Battling)	82.1	84.7
2500 L (No Battling)	77.5	88.7
2500 L (No Battling)	77.0	89.7

MOMENT LIMITS vs WEIGHT (Continued)

Minimum Moment			Maximum Moment		
100			100		
Weight	Moment		Weight	Moment	
2100	1617	1800	2650	2537	2524
2110	1625	1800	2810	2448	2520
2120	1632	1800	2960	2358	2516
2130	1640	1800	3110	2268	2512
2140	1648	1824	3260	2169	2508
2150	1656	1824	3410	2070	2504
2160	1663	1851	3560	1971	2501
2170	1671	1851	3710	1872	2497
2180	1679	1880	3860	1773	2493
2190	1687	1880	4010	1674	2489
2200	1694	1885	2700	2144	2525
2210	1702	1885	2710	2155	2511
2220	1710	1911	2720	2166	2507
2230	1718	1911	2730	2177	2503
2240	1725	1938	2740	2188	2500
2250	1733	1938	2750	2199	2496
2260	1740	1937	2760	2210	2492
2270	1748	1964	2770	2221	2488
2280	1756	1964	2780	2232	2484
2290	1763	1963	2790	2243	2480
2300	1771	1971	2800	2254	2481
2310	1779	1980	2810	2265	2489
2320	1786	1980	2820	2276	2487
2330	1794	1980	2830	2287	2483
2340	1802	2007	2840	2298	2479
2350	1810	2007	2850	2309	2475
2360	1817	2033	2860	2320	2471
2370	1825	2031	2870	2330	2468
2380	1833	2058	2880	2341	2464
2390	1840	2058	2890	2352	2460
2400	1848	2057	2900	2363	2456
2410	1856	2084	2910	2374	2452
2420	1864	2084	2920	2385	2448
2430	1871	2110	2930	2396	2444
2440	1879	2110	2940	2411	2440
2450	1887	2136	2950	2422	2436
2460	1895	2136	2960	2433	2432
2470	1902	2162			
2480	1911	2134			
2490	1922	2143			
2500	1932	2153			
2510	1943	2160			
2520	1953	2168			
2530	1964	2174			
2540	1974	2181			
2550	1984	2188			
2560	1994	2195			
2570	2005	2202			
2580	2016	2209			
2590	2026	2216			

Source: 1. Analysis, Weights and Balance Manual

2216

原始題號:0015981 題組:8 難易度:中

- (C) 33. (Refer to Figures 1.) Determine if the airplane weight and balance is within limits. Front seat occupants-415 lb, Rear seat occupants-110 lb, Fuel main tanks-44 gal, Fuel aux. tanks-19 gal, Baggage-32 lb"(如圖A83\_Fig1)
- (A)"19 pounds overweight, CG within limits." (B)"19 pounds overweight, CG out of limits forward." (C)"Weight within limits, CG out of limits."

題目圖：

# USEFUL LOAD WEIGHTS AND MOMENTS

## OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment	Weight	Moment
120	102	120	145
130	110	130	157
140	119	140	169
150	128	150	182
160	136	160	194
170	144	170	206
180	153	180	218
190	162	190	230
200	170	200	242

## BAGGAGE OR 5TH SEAT OCCUPANT ARM 180

Weight	Moment
10	18
20	36
30	54
40	72
50	90
60	108
70	126
80	144
90	162
100	180
110	198
120	216
130	234
140	252
150	270
160	288
170	306
180	324
190	342
200	360
210	378
220	396
230	414
240	432
250	450
260	468
270	486
280	504
290	522
300	540
310	558
320	576
330	594
340	612
350	630
360	648
370	666
380	684
390	702
400	720
410	738
420	756
430	774
440	792
450	810
460	828
470	846
480	864
490	882
500	900
510	918
520	936
530	954
540	972
550	990
560	1008
570	1026
580	1044
590	1062
600	1080
610	1098
620	1116
630	1134
640	1152
650	1170
660	1188
670	1206
680	1224
690	1242
700	1260
710	1278
720	1296
730	1314
740	1332
750	1350
760	1368
770	1386
780	1404
790	1422
800	1440
810	1458
820	1476
830	1494
840	1512
850	1530
860	1548
870	1566
880	1584
890	1602
900	1620
910	1638
920	1656
930	1674
940	1692
950	1710
960	1728
970	1746
980	1764
990	1782
1000	1800

FIGURE 33—Airplane Weight and Balance Tables.

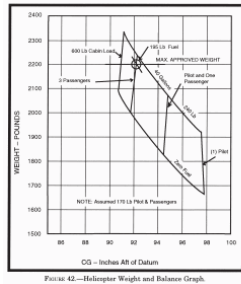
# MOMENT LIMITS vs WEIGHT (Continued)

Minimum Moment		Maximum Moment		Minimum Moment		Maximum Moment	
Weight	100	Weight	100	Weight	100	Weight	100
2100	1617	1800	2690	2037	2024		
2110	1621	1808	2810	2048	2038		
2120	1625	1817	2832	2061	2050		
2130	1630	1825	2856	2080	2068		
2140	1635	1834	2880	2104	2089		
2150	1640	1843	2904	2128	2110		
2160	1645	1851	2928	2151	2131		
2170	1650	1860	2952	2175	2152		
2180	1655	1868	2976	2199	2173		
2190	1660	1877	3000	2223	2194		
2200	1664	1885	2708	2188	2209		
2210	1668	1894	2716	2195	2211		
2220	1672	1902	2724	2202	2213		
2230	1676	1910	2732	2209	2215		
2240	1680	1918	2740	2216	2217		
2250	1684	1926	2748	2223	2219		
2260	1688	1934	2756	2230	2221		
2270	1692	1942	2764	2237	2223		
2280	1696	1950	2772	2244	2225		
2290	1700	1958	2780	2251	2227		
2300	1704	1966	2788	2258	2229		
2310	1708	1974	2796	2265	2231		
2320	1712	1982	2804	2272	2233		
2330	1716	1990	2812	2279	2235		
2340	1720	1998	2820	2286	2237		
2350	1724	2006	2828	2293	2239		
2360	1728	2014	2836	2300	2241		
2370	1732	2021	2844	2307	2243		
2380	1736	2029	2852	2314	2245		
2390	1740	2037	2860	2321	2247		
2400	1744	2045	2868	2328	2249		
2410	1748	2053	2876	2335	2251		
2420	1752	2061	2884	2342	2253		
2430	1756	2069	2892	2349	2255		
2440	1760	2077	2900	2356	2257		
2450	1764	2085	2908	2363	2259		
2460	1768	2093	2916	2370	2261		
2470	1772	2101	2924	2377	2263		
2480	1776	2109	2932	2384	2265		
2490	1780	2117	2940	2391	2267		
2500	1784	2125	2948	2398	2269		
2510	1788	2133	2956	2405	2271		
2520	1792	2141	2964	2412	2273		
2530	1796	2149	2972	2419	2275		
2540	1800	2157	2980	2426	2277		
2550	1804	2165	2988	2433	2279		
2560	1808	2173	2996	2440	2281		
2570	1812	2181	3004	2447	2283		
2580	1816	2189	3012	2454	2285		
2590	1820	2197	3020	2461	2287		
2600	1824	2205	3028	2468	2289		
2610	1828	2213	3036	2475	2291		
2620	1832	2221	3044	2482	2293		
2630	1836	2229	3052	2489	2295		
2640	1840	2237	3060	2496	2297		
2650	1844	2245	3068	2503	2299		
2660	1848	2253	3076	2510	2301		
2670	1852	2261	3084	2517	2303		
2680	1856	2269	3092	2524	2305		
2690	1860	2277	3100	2531	2307		
2700	1864	2285	3108	2538	2309		
2710	1868	2293	3116	2545	2311		
2720	1872	2301	3124	2552	2313		
2730	1876	2309	3132	2559	2315		
2740	1880	2317	3140	2566	2317		
2750	1884	2325	3148	2573	2319		
2760	1888	2333	3156	2580	2321		
2770	1892	2341	3164	2587	2323		
2780	1896	2349	3172	2594	2325		
2790	1900	2357	3180	2601	2327		
2800	1904	2365	3188	2608	2329		
2810	1908	2373	3196	2615	2331		
2820	1912	2381	3204	2622	2333		
2830	1916	2389	3212	2629	2335		
2840	1920	2397	3220	2636	2337		
2850	1924	2405	3228	2643	2339		
2860	1928	2413	3236	2650	2341		
2870	1932	2421	3244	2657	2343		
2880	1936	2429	3252	2664	2345		
2890	1940	2437	3260	2671	2347		
2900	1944	2445	3268	2678	2349		
2910	1948	2453	3276	2685	2351		
2920	1952	2461	3284	2692	2353		
2930	1956	2469	3292	2699	2355		
2940	1960	2477	3300	2706	2357		
2950	1964	2485	3308	2713	2359		
2960	1968	2493	3316	2720	2361		
2970	1972	2501	3324	2727	2363		
2980	1976	2509	3332	2734	2365		
2990	1980	2517	3340	2741	2367		
3000	1984	2525	3348	2748	2369		

FIGURE 34—Airplane Weight and Balance Tables.

- (A) 36. (Refer to figure 2) Determine the center of gravity under these conditions: Empty weight 605, ARM 96.47; Pilot (fwd seat) 150; Passenger (aft seat) 130; Radio & batteries 20, ARM 23.20; Ballast 40, ARM 14.75. The center of gravity is located at station" (如圖A83\_Fig2)  
(A) 80.10. (B) 82.99. (C) 83.67.

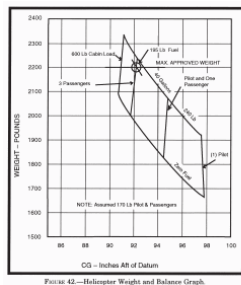
題目圖：



原始題號:0015985 題組:4 難易度:中

- (B) 37. (Refer to figure 2) Determine the center of gravity under these conditions: Empty weight 605, ARM 96.47; Pilot (fwd seat) 150; Passenger (aft seat) 130; Radio & batteries 20, ARM 23.20; Ballast 40, ARM 14.75. The center of gravity is located at station" (如圖滑翔翼載重平衡\_Fig2)  
(A) -6.43. (B) +16.43. (C) +27.38.

題目圖：



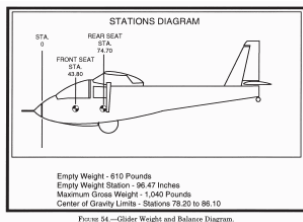
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- ( ) 38. (Refer to figure 2.) Determine the CG under these conditions: Basic weight (oil is included) ... 830 lb; Basic weight moment (1,000/in-lb) ... 104.8; Pilot weight ... 175 lb; Passenger weight ... 160 lb; Fuel ... 19.2 gal. The CG would be located"  
(A) at the CG limit. (B) within the CG envelope. (C) forward of the forward CG limit.

原始題號:0015987 題組:1 難易度:中

- (C) 39. (Refer to figure 4.) Calculate the weight and balance of the glider, and determine if the CG is within limits. Pilot (fwd seat) 160 lb; Passenger (aft seat) 185 lb." (如圖A83\_Fig4)  
(A) CG 71.65 inches aft of datum - out of limits forward. (B) CG 79.67 inches aft of datum - within limits. (C) CG 83.43 inches aft of datum - within limits.

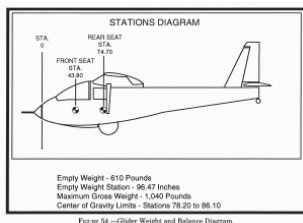
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- (C) 40. (Refer to Figure 4.) Calculate the weight and balance of the glider, and determine if the CG within limits. Pilot (fwd seat)-160 lb, Passenger (aft seat)-185 lb" (如圖A83\_Fig4)
- (A)CG 71.65 inches aft of datum - out of limits forward. (B)CG 79.67 inches aft of datum - within limits. (C)CG 83.43 inches aft of datum - within limits.

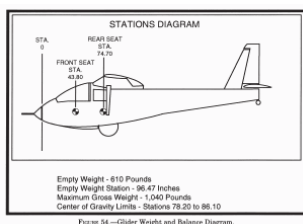
題目圖：



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- (B) 41. (Refer to Figure 4.) How is the CG affected if radio and oxygen equipment weighing 35 pounds is added at station 43.8? The glider weights 945 pounds with a moment of 78,000.2 pound-inches prior to adding the equipment." (如圖A83\_Fig4)
- (A)CG shifts forward 0.79 inch - out of limits forward. (B)CG shifts aft 1.38 inches - out of limits aft. (C)CG shifts forward 0.79 inch - out of limits forward.

題目圖：

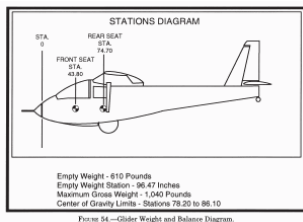


原始題號:0015990 題組:4 難易度:中

- (B) 42. (Refer to Figure 4.) What is the CG of the glider if the pilot and passenger each weight 215 pounds?(如圖A83\_Fig4)
- (A)74.69 inches aft of datum - out of limits forward. (B)81.08 inches aft of datum - within limits. (C)81.08 inches aft of datum - over maximum gross weight.



題目圖：



原始題號:0015991 題組:1 難易度:中

- (A) 43. (Refer to Figure 5.) How should the 500-pound weight be shifted to balance the plank on the fulcrum?(如圖A83\_Fig5)  
 (A)1 inch to the left. (B)1 inch to the right. (C)4.5 inches to the right.

題目圖：

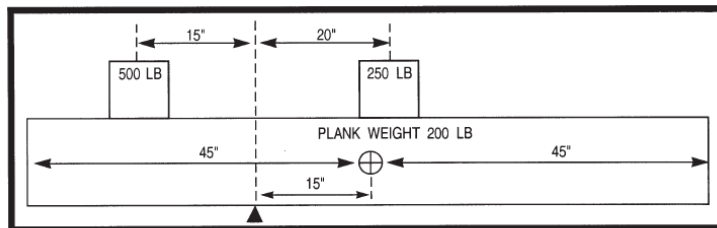


FIGURE 61.—Weight and Balance Diagram.

原始題號:0015992 題組:1 難易度:中

- (C) 44. (Refer to Figure 6.) If 50 pounds of weight is located at point X and 100 pounds at point Z, how much weight must be located at point Y to balance the plank?"(如圖A83\_Fig6)  
 (A)30 pounds. (B)50pounds. (C)300 pounds.

題目圖：

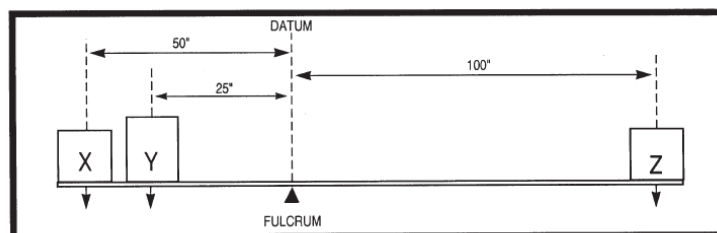


FIGURE 62.—Weight and Balance Diagram.

原始題號:0015993 題組:0 難易度:易

- (A) 45. Problems caused by overloading an aircraft include  
 (A)"reduced climb rate, excessive structural loads, and shortened cruising range." (B)"increased service ceiling, increased angle of climb, and increased cruising speed." (C)"slower takeoff speed, increased maneuverability, and shorter takeoff roll."

原始題號:0015994 題組:0 難易度:易

- (A) 46. "Most aircraft are so designed that if all seats are occupied, all baggage allowed by the baggage compartment structure is carried, and all the fuel tanks are full, the aircraft will be"  
 (A)grossly overloaded. (B)under maximum gross weight. (C)at maximum gross weight.

原始題號:0015995 題組:0 難易度:易

- ( A ) 47. "When operating an aircraft, the pilot-in-command is responsible for using"  
(A)the most current weight and balance data. (B)weight and balance data from the factory. (C)recent weight and balance data.

原始題號:0015996 題組:0 難易度:易

- ( A ) 48. Which items are included in the empty weight of an aircraft?  
(A)Unusable fuel and undrainable oil. (B)"Only the airframe, powerplant, and optional equipment." (C)Full fuel tanks and engine oil to capacity.

原始題號:0015997 題組:0 難易度:中

- ( C ) 49. "An aircraft is loaded 110 pounds over maximum certificated gross weight. If fuel (gasoline) is drained to bring the aircraft weight within limits, how much fuel should be drained?"  
(A)15.7 gallons. (B)16.2 gallons. (C)18.4 gallons.

原始題號:0015998 題組:0 難易度:中

- ( C ) 50. "If an aircraft is loaded 90 pounds over maximum certificated gross weight and fuel (gasoline) is drained to bring the aircraft weight within limits, how much fuel should be drained?"  
(A)10 gallons. (B)12 gallons. (C)15 gallons.