(A63) 自由氣球載重平衡

最近更新日期：無；更新題號：無

原始題號:0015534 題組:1 難易度:中

(C) 1. (參照圖1)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A63_Fig1)
(A)30磅。 (B)50磅。 (C)300磅。

題目圖：

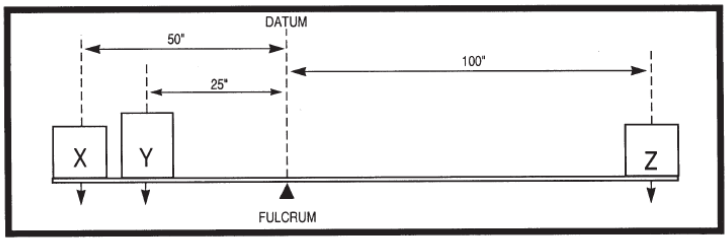


FIGURE 62.—Weight and Balance Diagram.

原始題號:0015535 題組:1 難易度:中

(A) 2. (參照圖2)500磅重量應移向何處，以使支點獲得平衡?
(如圖A63_Fig2)
(A)向左一吋。 (B)向右一吋。 (C)向右4.5吋。

題目圖：

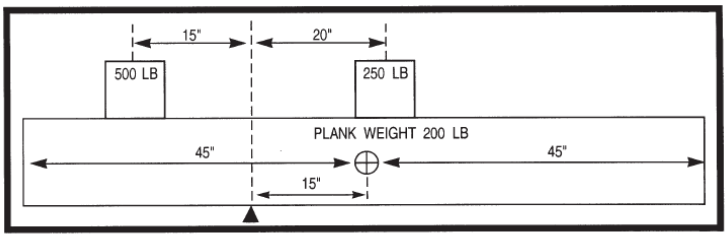


FIGURE 61.—Weight and Balance Diagram.

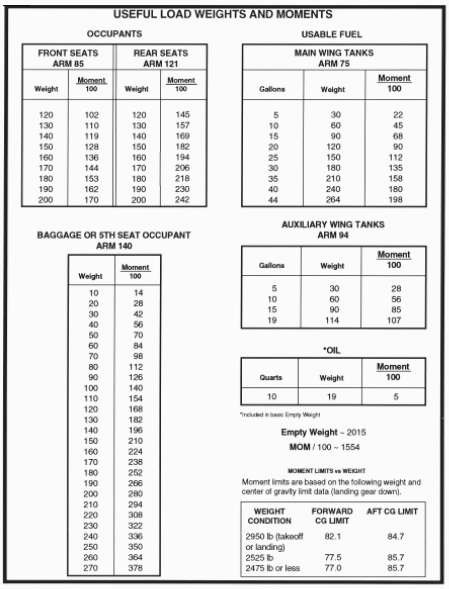
原始題號:0015536 題組:0 難易度:中

(C) 3. 若航空器載重超過最大許可載重90磅，若以漏放燃油(汽油)使航空器符合載重限制，需漏放多少油量？
(A)10加侖。 (B)12加侖。 (C)15加侖。

原始題號:0015537 題組:1 難易度:中

(B) 4. (參照圖3表33與34)決定航空器之載重與平衡是否在限制範圍內。 前座乘客：340磅，後座乘客：295磅，燃油(主翼油箱)：44加侖，行李：56磅。
(如圖A63_Fig3)
(A)超重20磅，重心超過後重心限制範圍。 (B)超重20磅，重心在限制範圍內。 (C)超重20磅，重心超過前重心限制範圍。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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 140

Weight	Moment 100
10	14
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

USABLE FUEL

MAIN WING TANKS ARM 75

Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

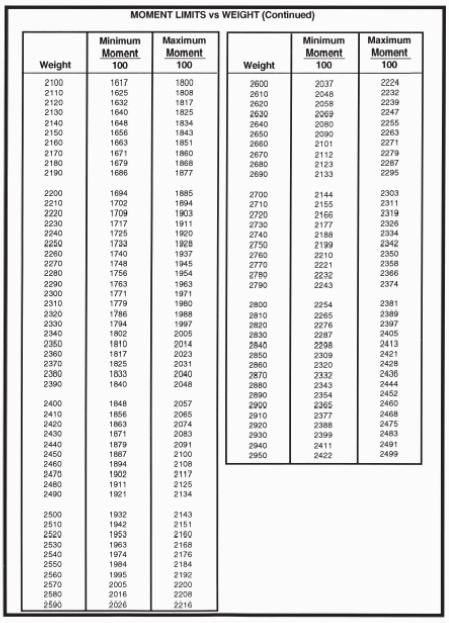
MOM / 100 ~ 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

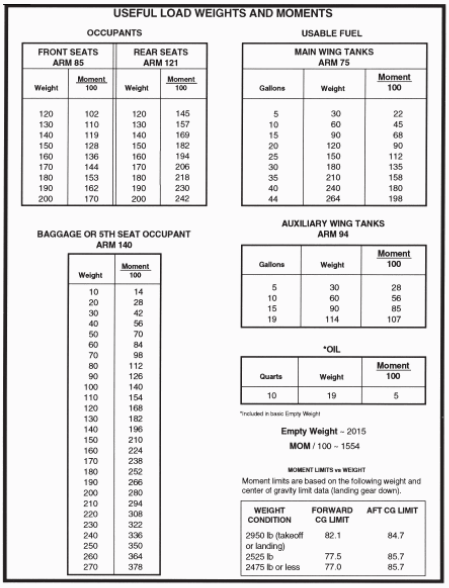
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015538 題組:2 難易度:中

(A) 5. (參照圖3表33與34)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A63_Fig3)
(A)45磅。 (B)63磅。 (C)220磅。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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 140

Weight	Moment 100
10	14
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

USABLE FUEL

MAIN WING TANKS ARM 75

Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

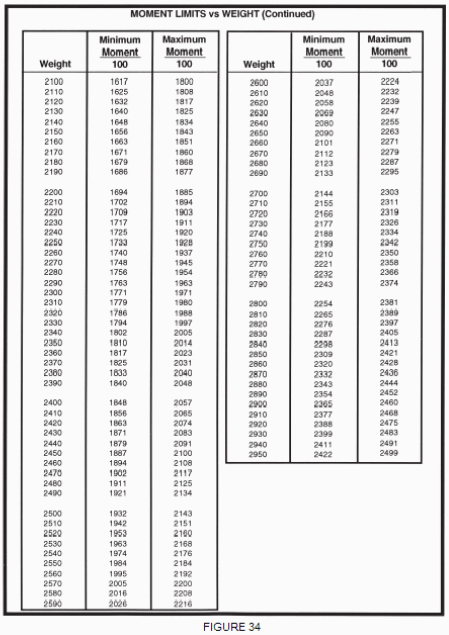
MOM / 100 ~ 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

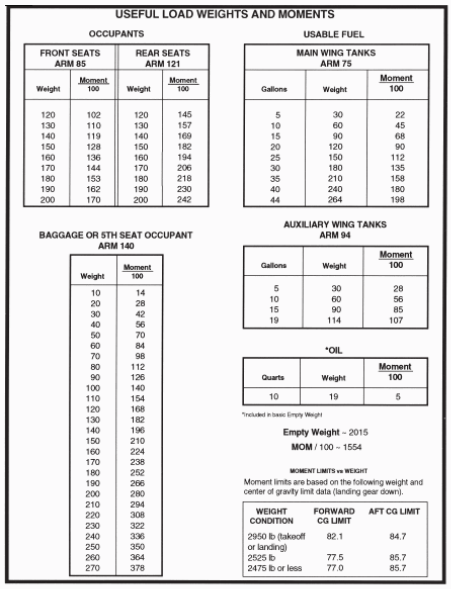
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015539 題組:3 難易度:中

(B) 6. (參照圖3表33與34)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A63_Fig3)
(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

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

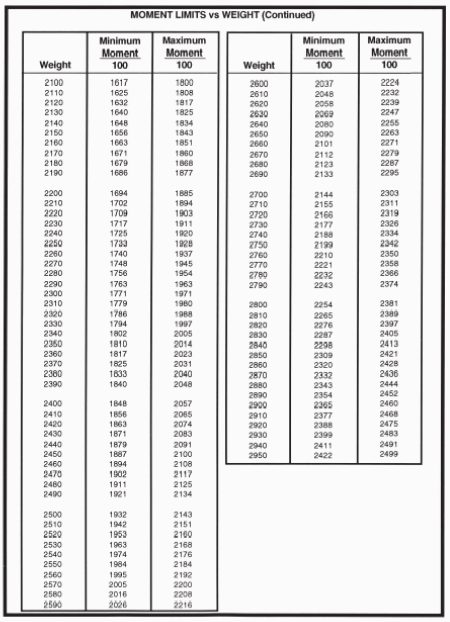
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

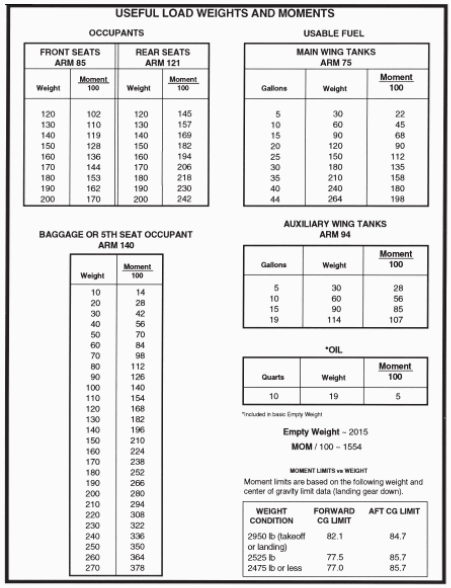
原始題號:0015540 題組:4 難易度:中

(C) 7. (參照圖3表33與34)決定航空器之載重與平衡是否在限制範圍內。 前座乘客：415磅，後座乘客：110磅，主油箱燃油：44加侖，輔助油箱：19加侖，行李：32磅。

(如圖A63_Fig3)

(A)超重19磅，重心在限制範圍內。 (B)超重19磅，重心超過前重心限制。 (C)重量在限制範圍內，重心超過限制範圍。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

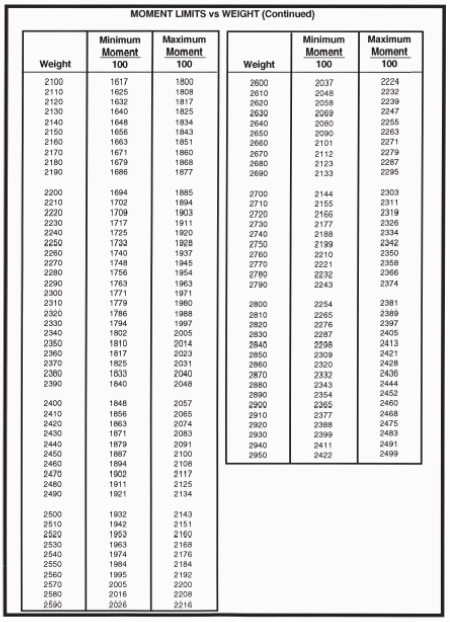
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

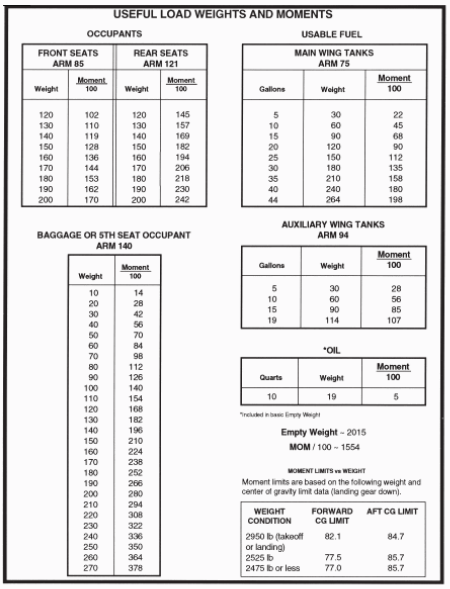
原始題號:0015541 題組:5 難易度:中

(A) 8. (參照圖3表33與34)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A63_Fig3)

(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

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

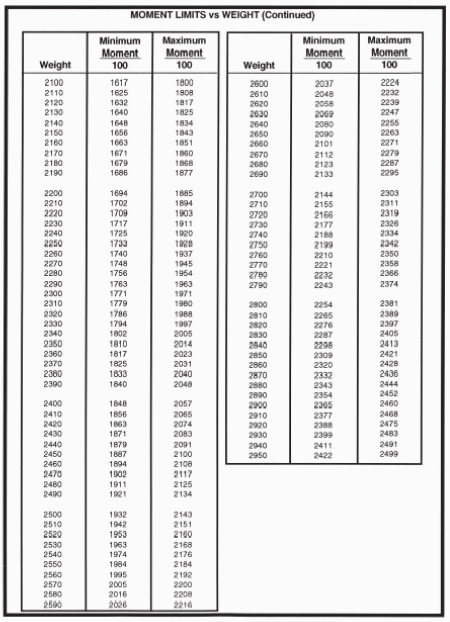
MOM / 100 ~ 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

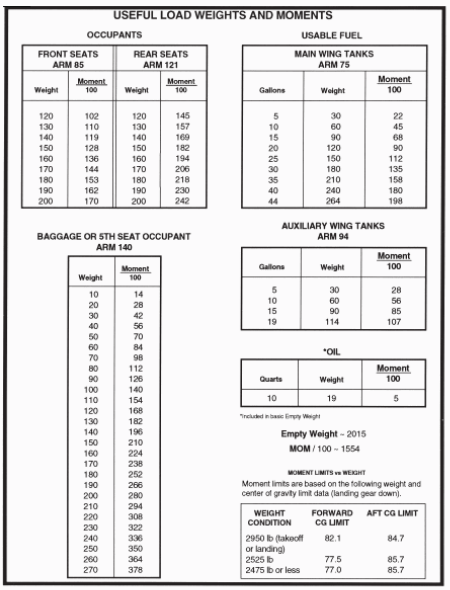
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015542 題組:6 難易度:中

(B) 9. (參照圖3表33與34)哪一個方式能調整航空器至最大起飛載重及重心限制範圍內？
前座乘客：425磅，後座乘客：300磅，主油箱：44加侖。
(如圖A63_Fig3)
(A)漏放12加侖燃油。 (B)漏放9加侖燃油。 (C)自主油箱轉移12加侖燃油至副油箱。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

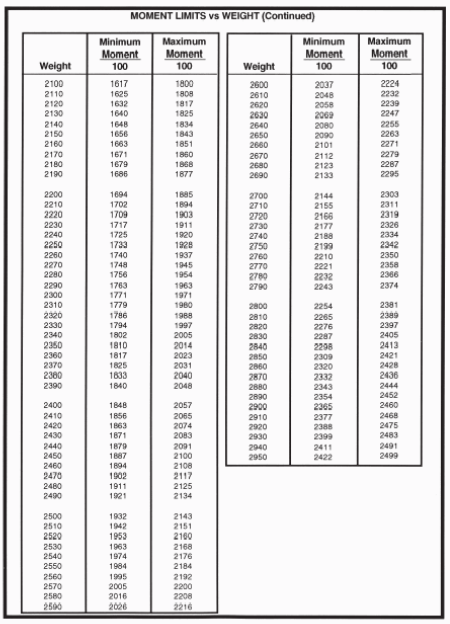
MOM / 100 ~ 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

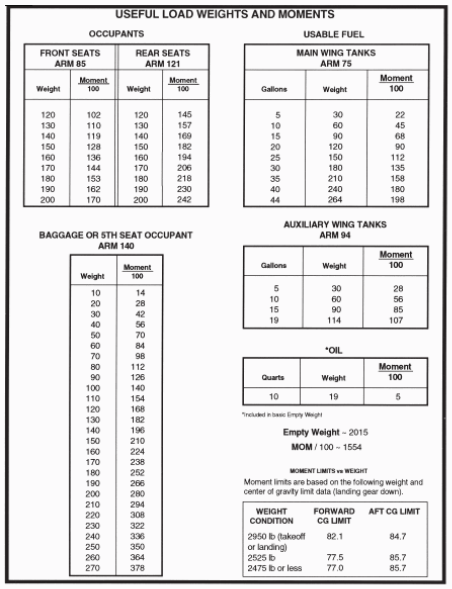
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015543 題組:7 難易度:中

(A) 10. (參照圖3表33與34)如航空器起飛時之重量為2,890磅，力距/100為2,452，則35加侖之燃油(主油箱)消耗對航空器載重與平衡影響為何？
(如圖A63_Fig3)
(A)重量減少210磅，重心超過後重心範圍限制。 (B)重量減少210磅，重心在限制範圍內。 (C)重量減少2,680磅，重心前移。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

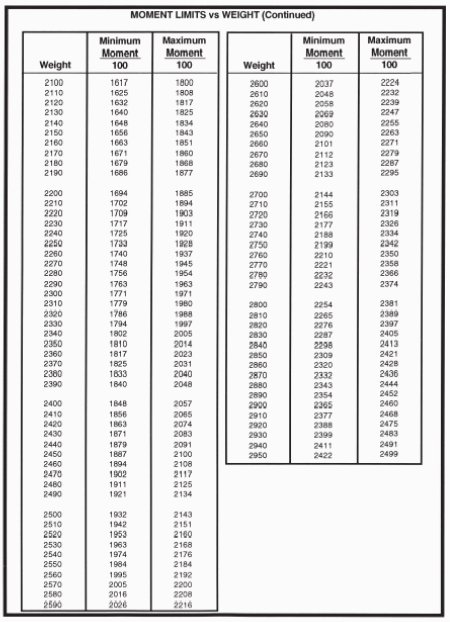
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

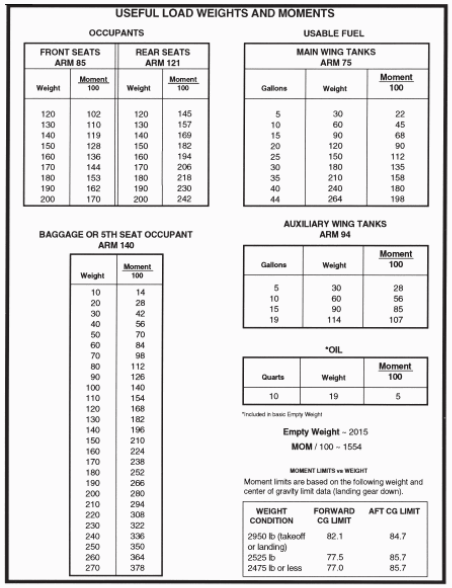
FIGURE 34

原始題號:0015544 題組:8 難易度:中

(B) 11. (參照圖3表33與34)若航空器裝載方式如下，則應採取何措施以維持航空器在重心限制範圍內? 前座乘客：411磅，後座乘客：100磅，主油箱：44加侖。(如圖A63_Fig3)

(A)加滿副油箱。 (B)在行李艙加100磅重量。 (C)自主油箱轉移10加侖燃油至副油箱。

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

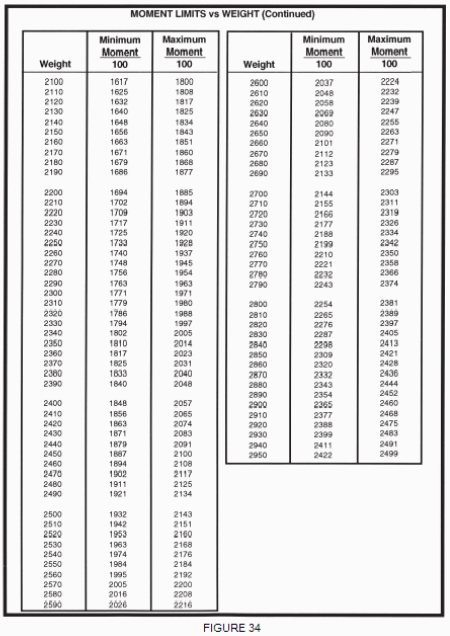
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015545 題組:1 難易度:易

(C) 12. (參照圖4)氣球總重為1,350磅，大氣溫度(OAT)為+51°F，則最大升限為(如圖A63_Fig4)

(A)5,000呎。 (B)8,000呎。 (C)10,000呎。

題目圖：

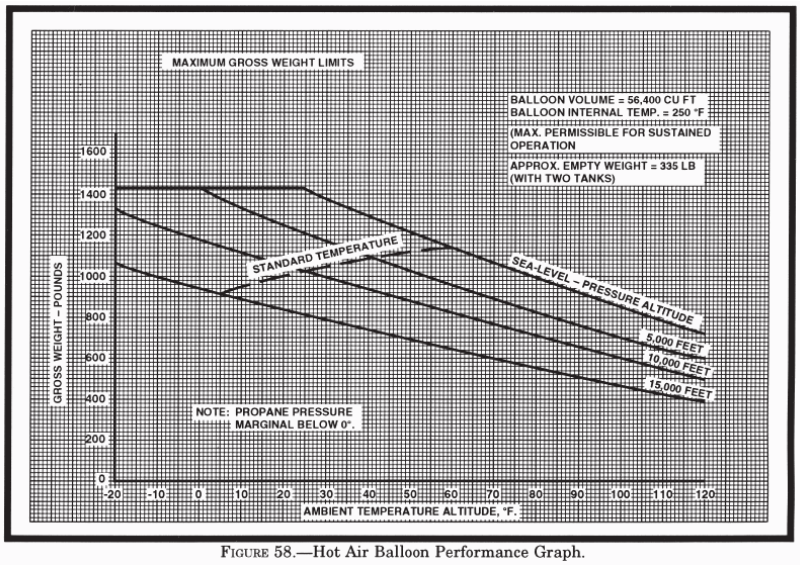


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015546 題組:2 難易度:易

(C) 13. (參照圖4)氣球總重為1,200磅，飛行員需要獲得5,000呎最大升限，達成此一性能的最大溫度應為
(如圖A63_Fig4)
(A)+37°F (B)+70°F. (C)+97°F.

題目圖：

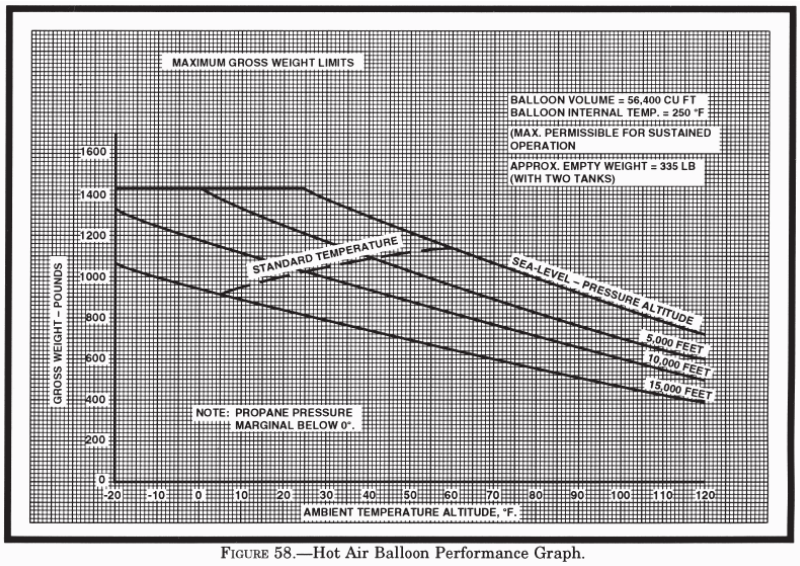


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015547 題組:0 難易度:易

(A) 14. 導致航空器超載的因素包括
(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:0015548 題組:0 難易度:易

(A) 15. 大多數航空器設計考量，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，航空器將會
(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:0015549 題組:0 難易度:易

(A) 16. 操縱航空器時，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:0015550 題組:0 難易度:易

(B) 17. 氣球籌載是由哪些組成？
(A)總淨重。 (B)乘員、貨物及燃油總重。 (C)航空器與裝備的重量。

原始題號:0015551 題組:1 難易度:易

(C) 18. (參照圖4)決定氣球在大氣溫度91°F時飛越2,500呎的最大載重為何？
(如圖A63_Fig4)
(A)420磅。 (B)465 磅。 (C)505磅。

題目圖：

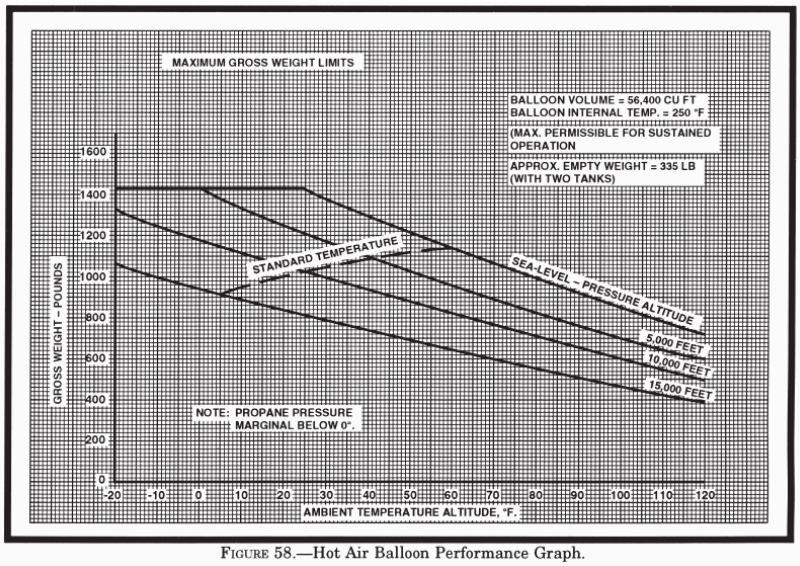


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015552 題組:2 難易度:易

(B) 19. (參照圖4)決定氣球在大氣溫度68°F、飛行高度約為1,000呎時的飛行員與乘員最大許可載重為何？起飛時有20加侖的瓦斯量。
(如圖A63_Fig4)
(A)580 磅。 (B)620 磅。 (C)720 磅。

題目圖：

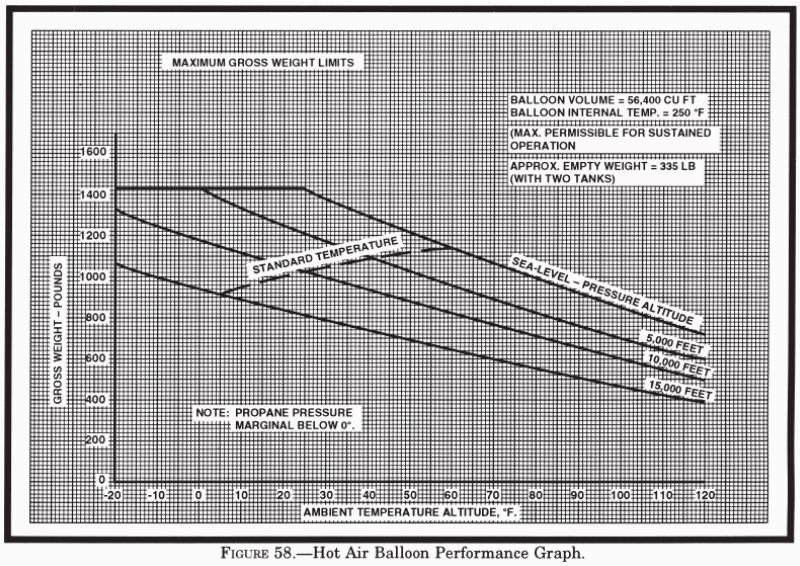


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015553 題組:3 難易度:易

(A) 20. (參照圖4)決定氣球在標準大氣溫度、飛行高度5,000呎時的飛行員與乘員最大許可載重為何？起飛時有20加侖的瓦斯量。
(如圖A63_Fig4)
(A)670 磅。 (B)760 磅。 (C)1,095磅。

題目圖：

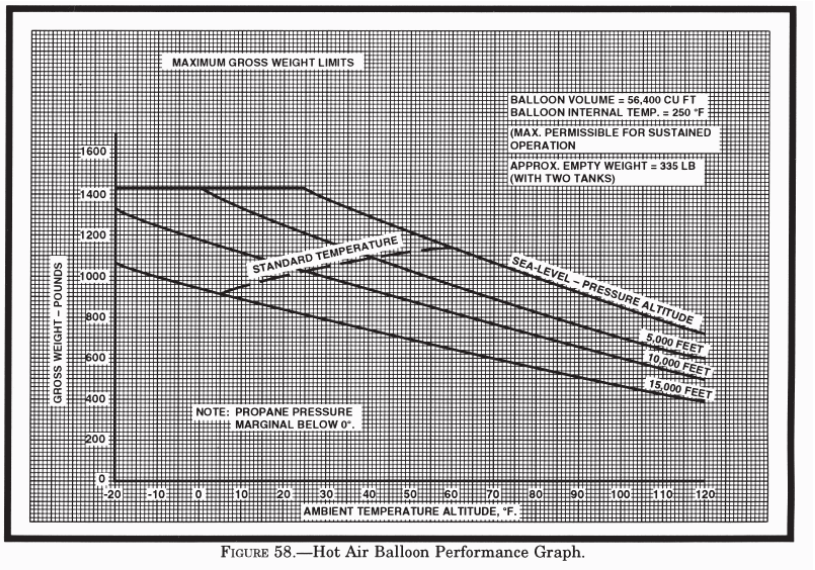


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015554 題組:0 難易度:易

(A) 21. 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:0015555 題組:0 難易度:中

(C) 22. 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:0015556 題組:0 難易度:中

(B) 23. 計算載重平衡時，如所有數值均為正值，基準線位置將位於
(A)主輪中心線。 (B)機頭，或位於飛機前方。 (C)依飛機類型而異，位於機頭中心線或尾輪。

原始題號:0015557 題組:0 難易度:中

(B) 24. 已知：基準點後45"的D重量為155磅；基準點後145"的E重量為165磅；基準點後95"的F重量為185磅。則重心位於基準點的何處?
(A)基準點後86.0"。 (B)基準點後95.99"。 (C)基準點後125.0" 。

原始題號:0015558 題組:0 難易度:中

(B) 25. 已知：基準點後17"的X重量為140磅；基準點後110"的Y重量為120磅；基準點後210"的Z重量為85磅。則重心位於基準點後的何處?
(A)89.1"。 (B)96.89"。 (C)106.9"。

原始題號:0015559 題組:0 難易度:中

(A) 26. 已知：基準點後15"的A重量為135磅；基準點後117"的B重量為205磅；基準點後195"的C重量為85磅。則重心位於基準點後的何處?
(A)100.2"。 (B)109.0"。 (C)121.7"。

原始題號:0015560 題組:0 難易度:中

(C) 27. 已知：基準點後135"的A重量為175磅；基準點後115"的B重量為135磅；基準點後85"的C重量為75磅。則重心位於基準點後的何處?
(A)91.76"。 (B)111.67"。 (C)118.24"。

原始題號:0015561 題組:0 難易度:中

(A) 28. 已知：總重4,137磅；重心位於67.8站；燃油消耗13.7GPH ；燃油重心68.0站。經過1小時30分飛行後，重心將位於____站
(A)67.79。 (B)68.79。 (C)70.78。

原始題號:0015562 題組:0 難易度:中

(A) 29. 已知航空器在停機坪時的重量為3,650磅，重心為94.0，大約需將180站多少磅行李向前移至40站，以便使重心移至92.0?
(A)52.14磅。 (B)62.24磅。 (C)78.14磅。

原始題號:0015564 題組:0 難易度:中

(B) 30. 已知：總重3,037磅；重心位於68.8站；燃油消耗12.7GPH ；燃油重心68.0站。經過1小時45分飛行後，重心將位於____站
(A)68.77。 (B)68.83。 (C)69.77。

原始題號:0015565 題組:1 難易度:中

(A) 31. 已知：空重(包括滑油)1,271磅；空重力距(吋-磅/1,000)102.4；正駕駛與副駕駛400磅；後座乘客140磅；貨物100磅；燃油37加侖。(參照圖5)則飛機載重是否在重心限制範圍內?
(如圖A63_Fig5)
(A)是，重量與重心均在限制範圍內。 (B)否，重量超過最大許可載重。 (C)否，重量合格，但重心超過後重心範圍限制。

題目圖：

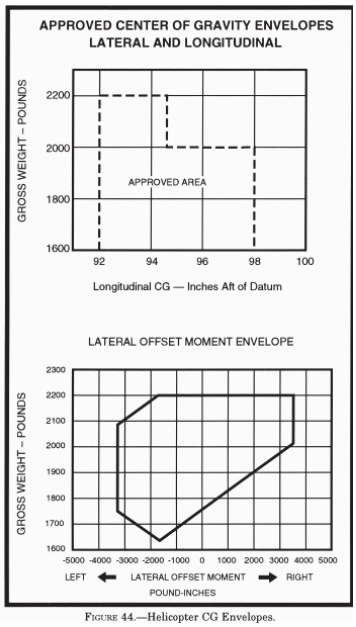


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015566 題組:2 難易度:中

(A) 32. 已知：空重(包括滑油)1,271磅；空重力距(吋-磅/1,000)102.4；正駕駛與副駕駛260磅；後座乘客120磅；貨物60磅；燃油37加侖。(參照圖5)以上述狀況所列，則重心應位於
(如圖A63_Fig5)
(A)重心包線範圍內。 (B)重心包線的前重心限制內。 (C)重心包線的陰影區範圍內。

題目圖：

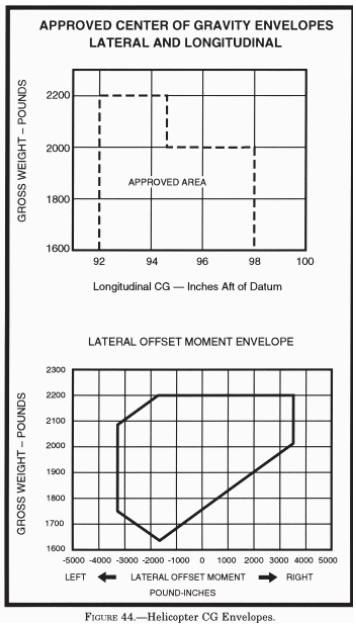


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015567 題組:3 難易度:中

(A) 33. 已知：空重(包括滑油)1,271磅；空重力距(吋-磅/1,000)102.4；正駕駛與副駕駛360磅；貨物340磅；燃油37加侖。(參照圖5)在飛行中消耗30加侖燃油後，重心是否仍在限制範圍內?
(如圖A63_Fig5)
(A)是，重心仍在範圍內。 (B)否，重心將位於後重心限制範圍後方。 (C)是，重心將在重心包線的陰影區範圍內。

題目圖：

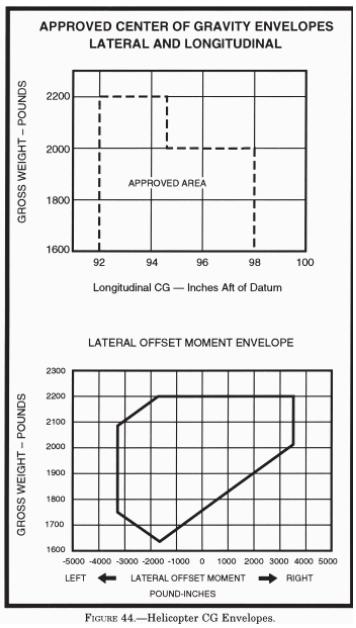


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015568 題組:0 難易度:中

(C) 34. 航空器CG可由下列哪一種方式決定?
(A)總力臂除以總力距。 (B)總力臂乘以總重。 (C)總力距除以總重。

原始題號:0015569 題組:0 難易度:中

(B) 35. 航空器CG可由_____方式決定。
(A)總力臂除以總力距。 (B)總力距除以總重。 (C)總力臂乘以總重。

原始題號:0015534 題組:1 難易度:中

(C) 36. (Refer to Figure 1.) 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A63_Fig1)
(A)30 pounds. (B)50pounds. (C)300 pounds.

題目圖：

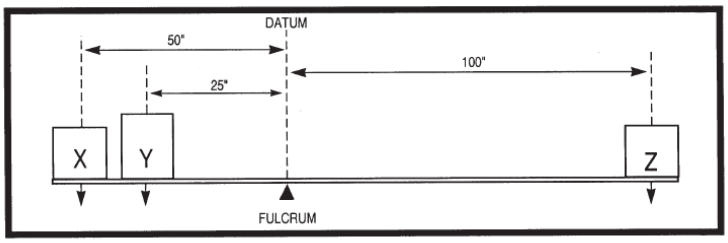


FIGURE 62.—Weight and Balance Diagram.

原始題號:0015535 題組:1 難易度:中

(A) 37. (Refer to Figure 2.) How should the 500-pound weight be shifted to balance the plank on the fulcrum?(如圖A63_Fig2)
(A)1 inch to the left. (B)1 inch to the right. (C)4.5 inches to the right.

題目圖：

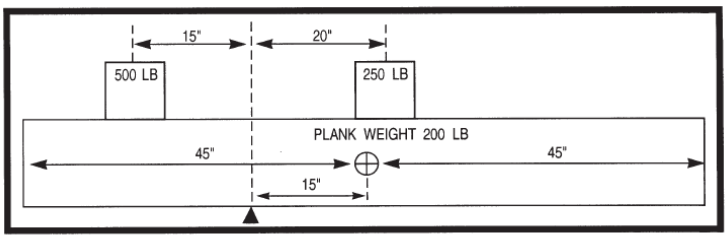


FIGURE 61.—Weight and Balance Diagram.

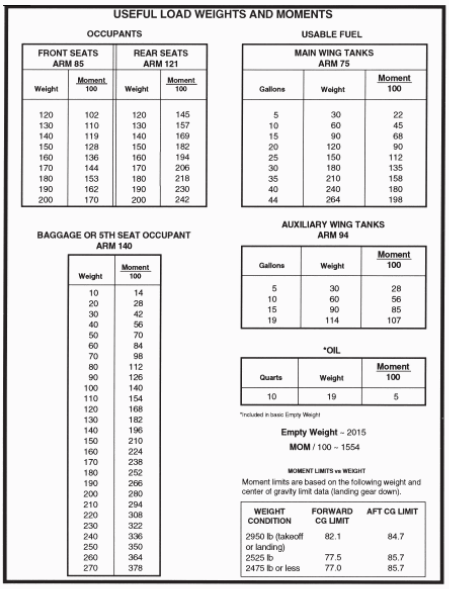
原始題號:0015536 題組:0 難易度:中

(C) 38. 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.

原始題號:0015537 題組:1 難易度:中

(B) 39. (Refer to Table 33 and 34 of Figure 3.) Determine if the airplane weight and balance is within limits. Front seat occupants-340 lb, Rear seat occupants-295 lb, Fuel (main wing tanks)-44 gal, Baggage-56 lb(如圖A63_Fig3)
(A)20 pounds overweight, CG aft of aft limits. (B)20 pounds overweight, CG within limits. (C)20 pounds overweight, CG forward of forward limits.

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

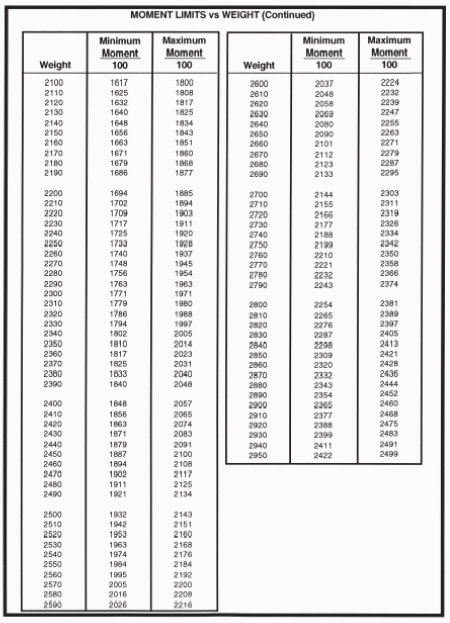
MOM / 100 ~ 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

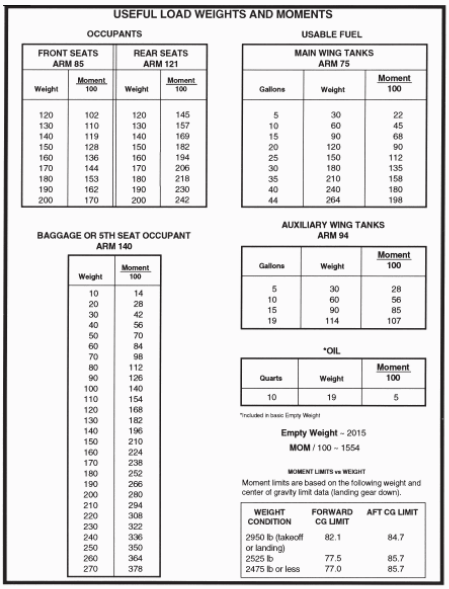
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015538 題組:2 難易度:中

(A) 40. (Refer to Table 33 and 34 of Figure 3.) 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, Feul: 35 gal(如圖A63_Fig3)
(A)45 pounds. (B)63 pounds. (C)220 pounds.

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

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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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
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15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight ~ 2015

MOM / 100 ~ 1554

MOMENT LIMITS vs WEIGHT

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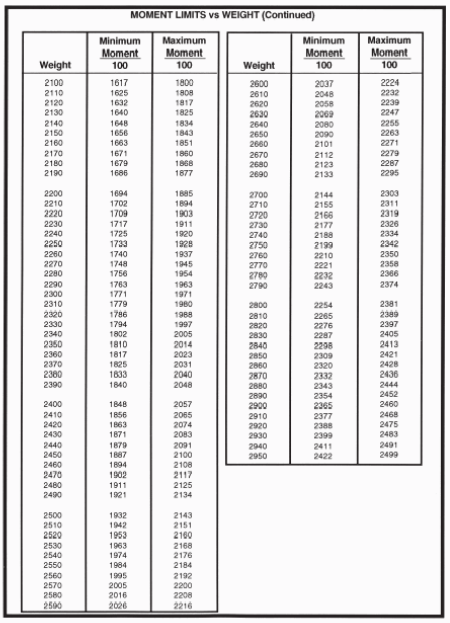
FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

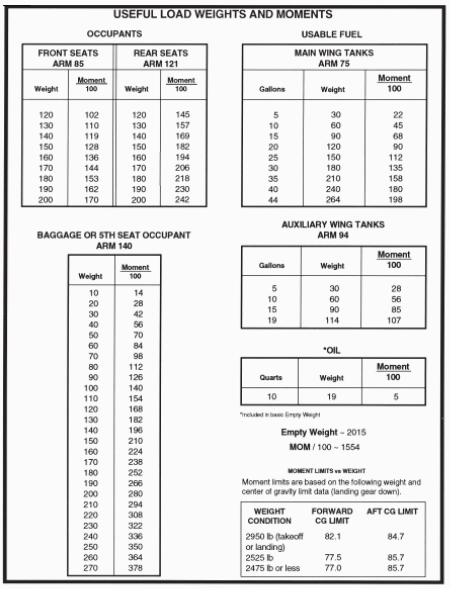
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015539 題組:3 難易度:中

(B) 41. (Refer to Table 33 and 34 of Figure 3.) 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A63_Fig3)
(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 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

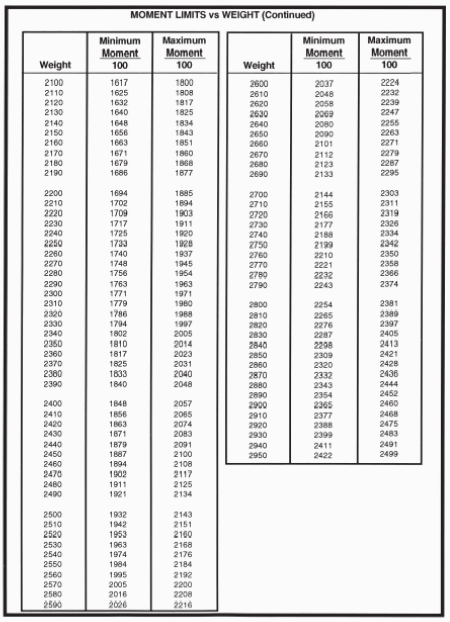
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

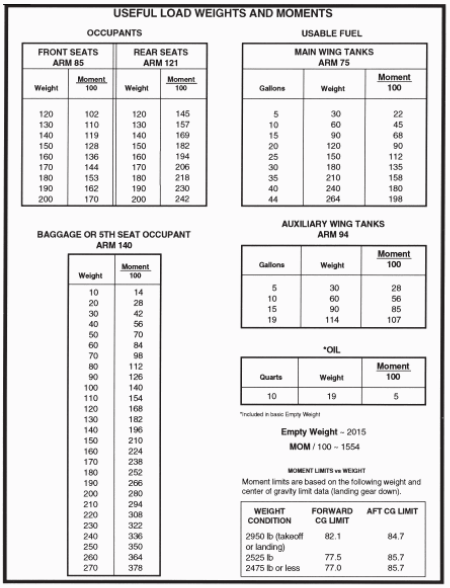
FIGURE 34

原始題號:0015540 題組:4 難易度:中

(C) 42. (Refer to Table 33 and 34 of Figure 3.) 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A63_Fig3)

(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 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

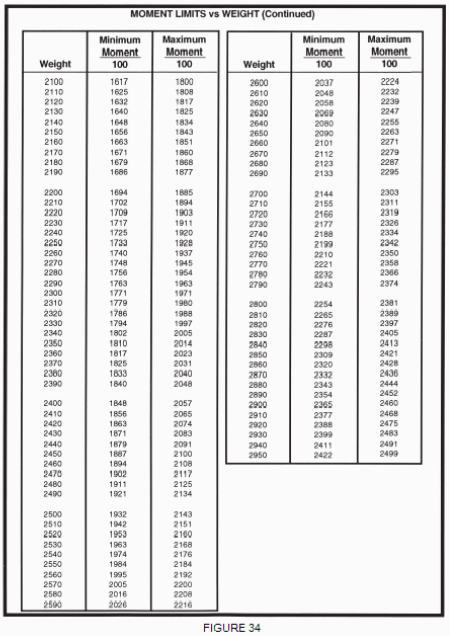
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

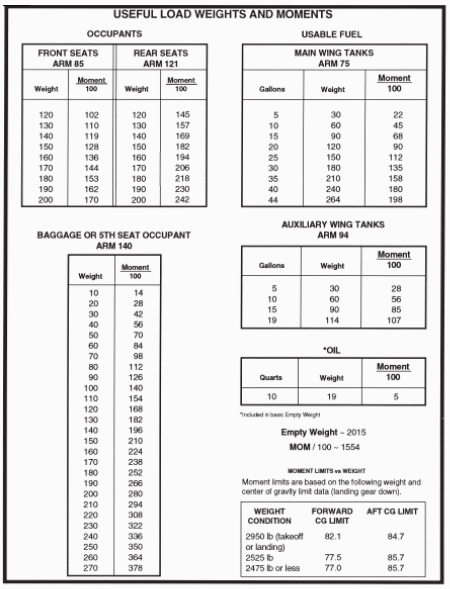
FIGURE 34

原始題號:0015541 題組:5 難易度:中

(A) 43. (Refer to Table 33 and 34 of Figure 3.) 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A63_Fig3)

(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

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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 140

Weight	Moment 100
10	14
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

USABLE FUEL

MAIN WING TANKS ARM 75

Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

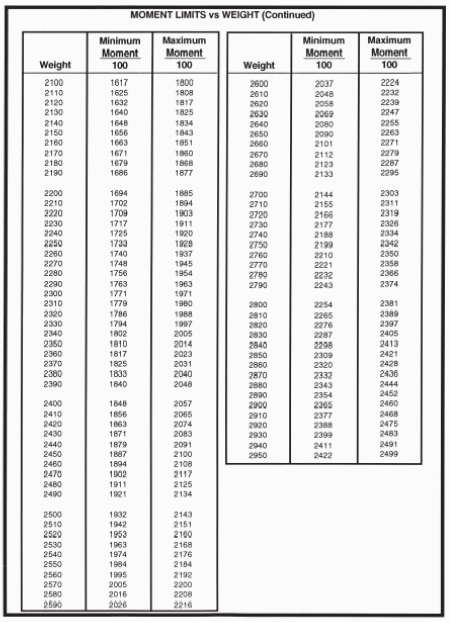
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

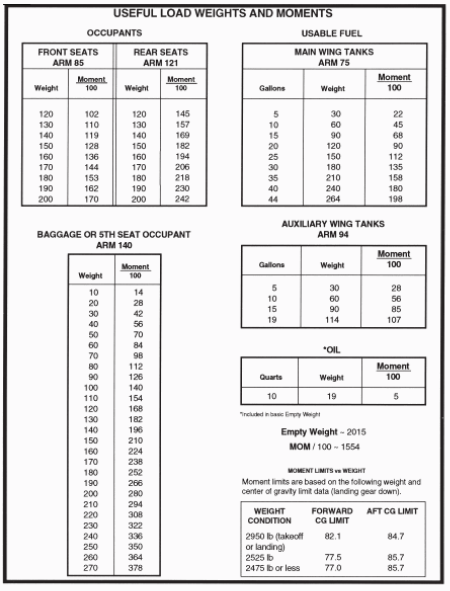
FIGURE 34

原始題號:0015542 題組:6 難易度:中

(B) 44. (Refer to Table 33 and 34 of Figure 3.) 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A63_Fig3)

(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

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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 140

Weight	Moment 100
10	14
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

USABLE FUEL

MAIN WING TANKS ARM 75

Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

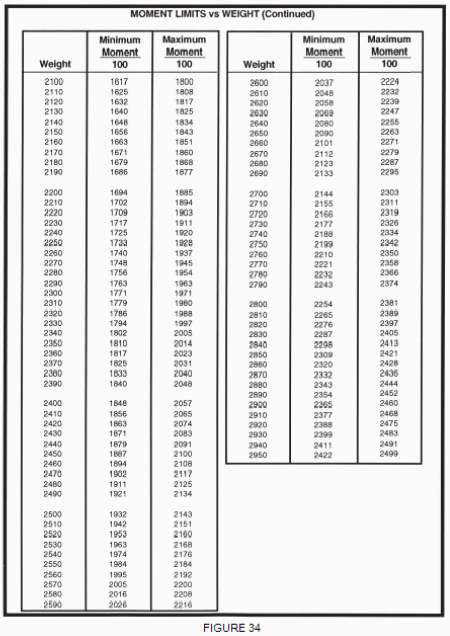
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

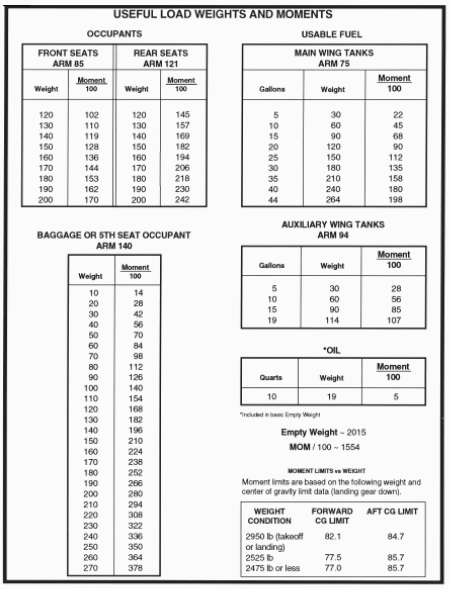
FIGURE 34

原始題號:0015543 題組:7 難易度:中

(A) 45. (Refer to Table 33 and 34 of Figure 3.) 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A63_Fig3)

(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

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

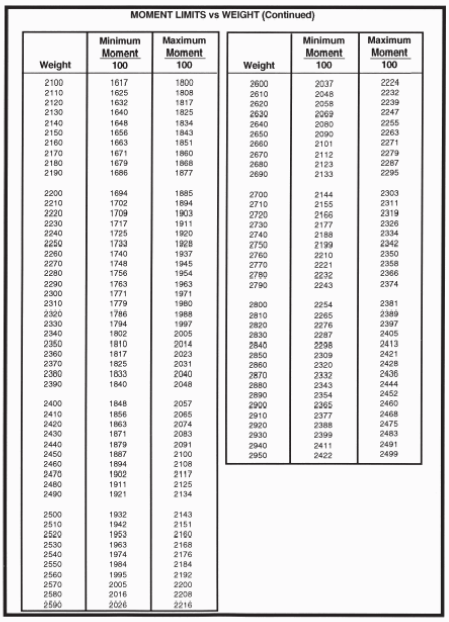
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

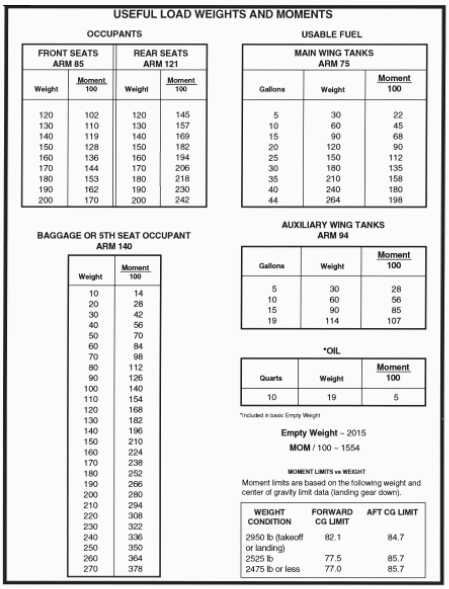
Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015544 題組:8 難易度:中

(B) 46. (Refer to Table 33 and 34 of Figure 3.) With the airplane loaded as follows what action can be taken to balance the airplane? Front seat occupants-411 lb, Rear seat occupants-100 lb, Fuel main tanks-44 gal(如圖A63_Fig3)
(A)Fill the auxiliary wing tanks. (B)Add a 100-pound weight to the baggage compartment. (C)Transfer 10 gallons of fuel from the main tanks to the auxiliary tanks.

題目圖：



USEFUL LOAD WEIGHTS AND MOMENTS

OCCUPANTS

FRONT SEATS ARM 85		REAR SEATS ARM 121	
Weight	Moment 100	Weight	Moment 100
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

USABLE FUEL

MAIN WING TANKS ARM 75		
Gallons	Weight	Moment 100
5	30	22
10	60	45
15	90	68
20	120	90
25	150	112
30	180	135
35	210	158
40	240	180
44	264	198

BAGGAGE OR 5TH SEAT OCCUPANT ARM 140

Weight	Moment 100
10	14
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

AUXILIARY WING TANKS ARM 94

Gallons	Weight	Moment 100
5	30	28
10	60	56
15	90	85
19	114	107

*OIL

Quarts	Weight	Moment 100
10	19	5

*Included in basic Empty Weight

Empty Weight - 2015

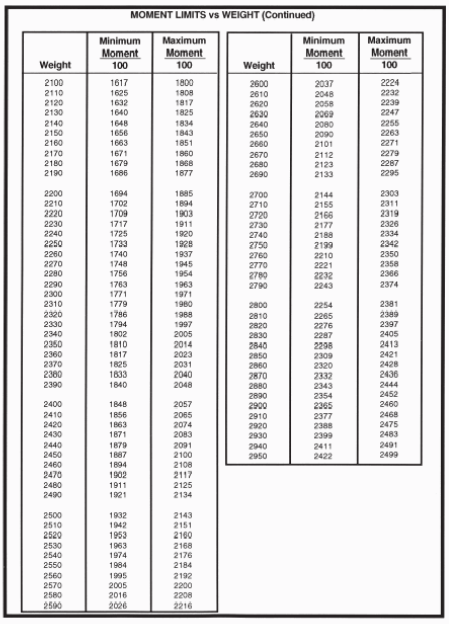
MOM / 100 - 1554

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
2950 lb (takeoff or landing)	82.1	84.7
2525 lb	77.5	85.7
2475 lb or less	77.0	85.7

FIGURE 33



MOMENT LIMITS vs WEIGHT (Continued)

Weight	Minimum Moment 100	Maximum Moment 100
2100	1617	1800
2110	1625	1808
2120	1632	1817
2130	1640	1825
2140	1648	1834
2150	1656	1843
2160	1663	1851
2170	1671	1860
2180	1679	1868
2190	1686	1877
2200	1694	1885
2210	1702	1894
2220	1709	1903
2230	1717	1911
2240	1725	1920
2250	1733	1928
2260	1740	1937
2270	1748	1945
2280	1756	1954
2290	1763	1963
2300	1771	1971
2310	1779	1980
2320	1786	1988
2330	1794	1997
2340	1802	2005
2350	1810	2014
2360	1817	2023
2370	1825	2031
2380	1833	2040
2390	1840	2048
2400	1848	2057
2410	1856	2065
2420	1863	2074
2430	1871	2083
2440	1879	2091
2450	1887	2100
2460	1894	2108
2470	1902	2117
2480	1911	2125
2490	1921	2134
2500	1932	2143
2510	1942	2151
2520	1953	2160
2530	1963	2168
2540	1974	2176
2550	1984	2184
2560	1995	2192
2570	2005	2200
2580	2016	2208
2590	2026	2216

Weight	Minimum Moment 100	Maximum Moment 100
2600	2037	2224
2610	2048	2232
2620	2058	2239
2630	2069	2247
2640	2080	2255
2650	2090	2263
2660	2101	2271
2670	2112	2279
2680	2123	2287
2690	2133	2295
2700	2144	2303
2710	2155	2311
2720	2166	2319
2730	2177	2326
2740	2188	2334
2750	2199	2342
2760	2210	2350
2770	2221	2358
2780	2232	2366
2790	2243	2374
2800	2254	2381
2810	2265	2389
2820	2276	2397
2830	2287	2405
2840	2298	2413
2850	2309	2421
2860	2320	2428
2870	2332	2436
2880	2343	2444
2890	2354	2452
2900	2365	2460
2910	2377	2468
2920	2388	2475
2930	2399	2483
2940	2411	2491
2950	2422	2499

FIGURE 34

原始題號:0015545 題組:1 難易度:易

(C) 47. (Refer to Figure 4.) The gross weight of the balloon is 1,350 pounds and the outside air temperature (OAT) is +51°F. The maximum height would be(如圖A63_Fig4)
(A)5,000 feet. (B)8,000 feet. (C)10,000 feet.

題目圖：

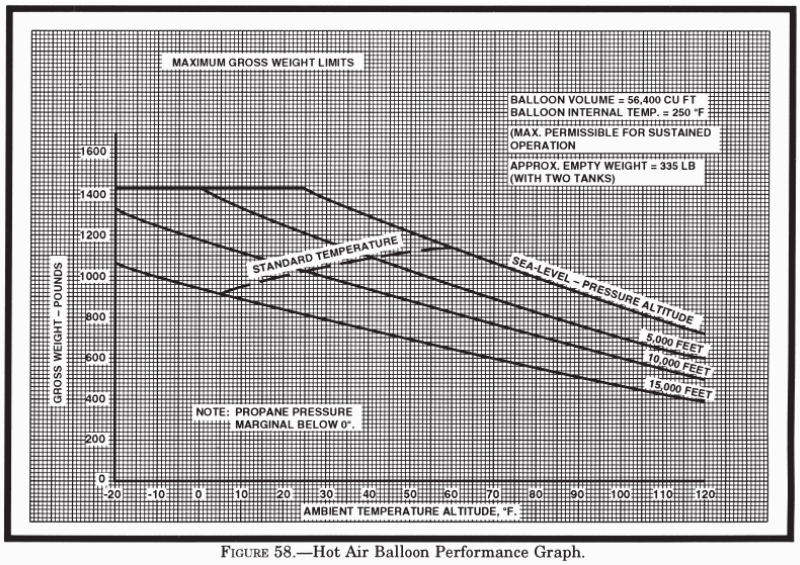


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015546 題組:2 難易度:易

(C) 48. (Refer to Figure 4.) The gross weight of the balloon is 1,200 pounds and the maximum height the pilot needs to attain is 5,000 feet. The maximum temperature to achieve this performance is(如圖A63_Fig4)
(A)+37°F (B)+70°F. (C)+97°F.

題目圖：

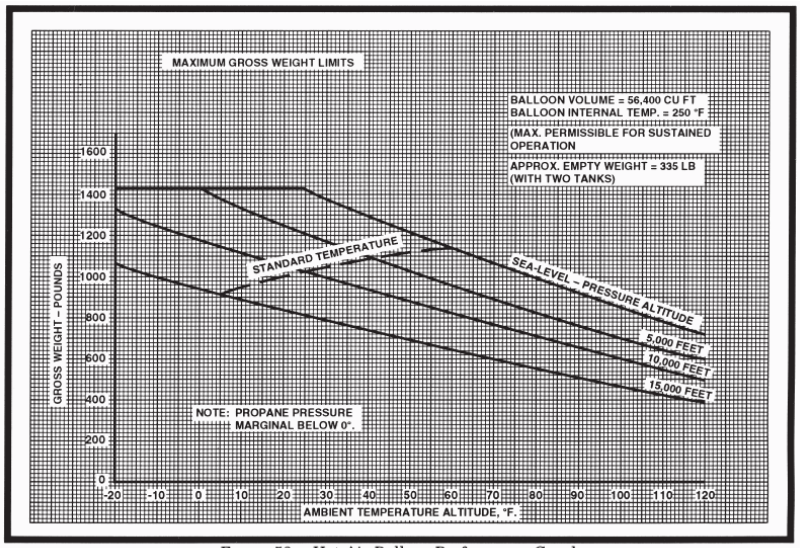


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015547 題組:0 難易度:易

(A) 49. 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:0015548 題組:0 難易度:易

(A) 50. Most aircraft are so designed that if all seats are occupied, all baggage allowed by the baggage compartment structure is carried, and all the feul tanks are full, the aircraft will be
(A)grossly overloaded. (B)under maximum gross weight. (C)at maximum gross weight.

原始題號:0015549 題組:0 難易度:易

(A) 51. 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:0015550 題組:0 難易度:易

(B) 52. What constitutes the payload of a balloon?
(A)Total gross weight. (B)Total weight of passengers, cargo, and fuel. (C)Weight of the aircraft and equipment.

原始題號:0015551 題組:1 難易度:易

(C) 53. (Refer to Figure 4.) Determine the maximum payload for a balloon flying at 2,500 feet at an ambient temperature of 91°F.(如圖A63_Fig4)
(A)420 pounds. (B)465 pounds. (C)505 pounds.

題目圖：

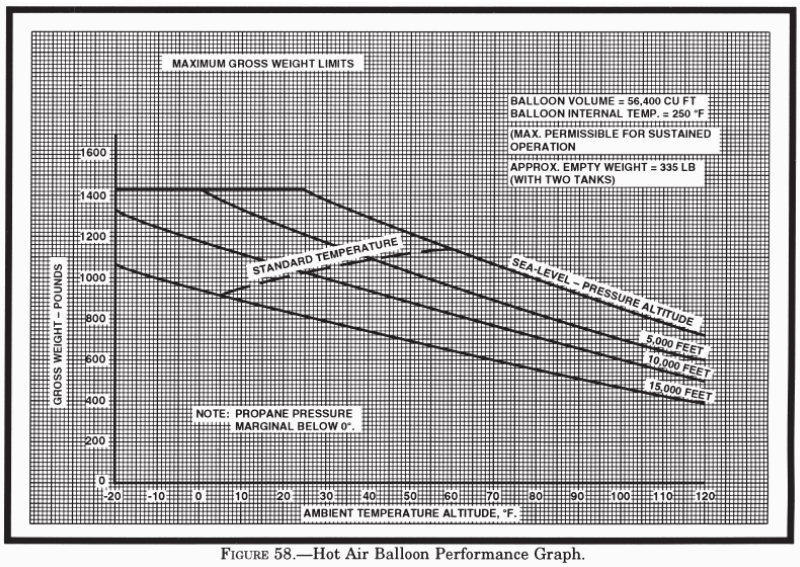


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015552 題組:2 難易度:易

(B) 54. (Refer to Figure 4.) Determine the maximum weight allowable for pilot and passenger for a flight at approximately 1,000 feet with a temperature of 68 °F. Launch with 20 gallons of propane.(如圖A63_Fig4)
(A)580 pounds. (B)620 pounds. (C)720 pounds.

題目圖：

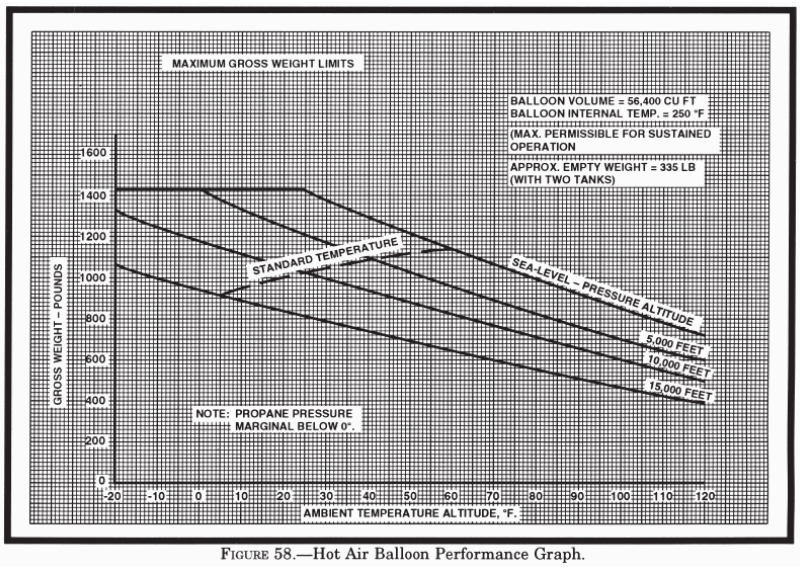


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015553 題組:3 難易度:易

(A) 55. (Refer to Figure 4.) What is the maximum weight allowed for pilot and passengers for a flight at 5,000 feet with a standard temperature? Launch with 20 gallons of propane.(如圖A63_Fig4)
(A)670 pounds. (B)760 pounds. (C)1,095 pounds.

題目圖：

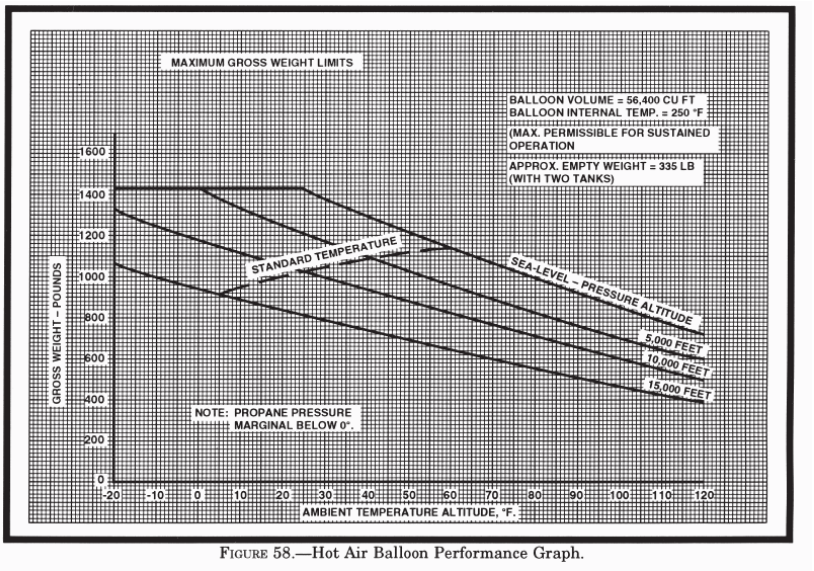


FIGURE 58.—Hot Air Balloon Performance Graph.

原始題號:0015554 題組:0 難易度:易

(A) 56. 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:0015555 題組:0 難易度:中

(C) 57. 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:0015556 題組:0 難易度:中

(B) 58. If all index units are positive when computing weight and balance, the location of the datum would be at the
(A)centerline of the main wheels. (B)nose, or out in front of the airplane. (C)centerline of the nose or tailwheel, depending on the type of airplane.

原始題號:0015557 題組:0 難易度:中

(B) 59. GIVEN: Weight"D"… 155 lb at 45" aft of datum; Weight"E"… 165 lb at 145" aft of datum; Weight"F"… 95 lb at 185" aft of datum. Based on this information, where would the CG be located?
(A)86.0" aft of datum. (B)95.99" aft of datum. (C)125.0" aft of datum.

原始題號:0015558 題組:0 難易度:中

(B) 60. GIVEN: Weight"X"… 140 lb at 17" aft of datum; Weight"Y"… 120 lb at 110" aft of datum; Weight"Z"… 85 lb at 210" aft of datum. Based on this information, the CG be located how far aft of datum?
(A)89.1". (B)96.89". (C)106.9".

原始題號:0015559 題組:0 難易度:中

(A) 61. GIVEN: Weight"A"… 135 lb at 15" aft of datum; Weight"B"…205 lb at 117" aft of datum; Weight"C"… 85 lb at 195" aft of datum. Based on this information, the CG be located how far aft of datum?
(A)100.2". (B)109.0". (C)121.7".

原始題號:0015560 題組:0 難易度:中

(C) 62. GIVEN: Weight"A"… 175 lb at 135" aft of datum; Weight"B"…135 lb at 115" aft of datum; Weight"C"…75 lb at 85" aft of datum. The CG for the combined weights would be located how far aft of datum?
(A)91.76". (B)111.67". (C)118.24".

原始題號:0015561 題組:0 難易度:中

(A) 63. GIVEN: Total weight… 4,137 lb; CG location… Station 67.8; Fuel consumption… 13.7 GPH; Fuel CG… Station 68.0. After 1 hour 30 minutes of flight time, the CG would be located at station
(A)67.79. (B)68.79. (C)70.78.

原始題號:0015562 題組:0 難易度:中

(A) 64. Given an aircraft loaded with a ramp weight of 3,650 pounds and having a CG of 94.0, approximately how much baggage would have to be moved from the rear baggage area at station 180 to the forward baggage area at station 40 in order to move the CG to 92.0?
(A)52.14 pounds. (B)62.24 pounds. (C)78.14 pounds.

原始題號:0015564 題組:0 難易度:中

(B) 65. GIVEN: Total weight… 3,037 lb; CG location… Station 68.8; Fuel consumption… 12.7 GPH; Fuel CG… Station 68.0. After 1 hour 45 minutes of flight time, the CG would be located at Station
(A)68.77. (B)68.83. (C)69.77.

原始題號:0015565 題組:1 難易度:中

(A) 66. GIVEN: Empty weight (oil is includeed)…1,271 lb; Empty weight moment (in-lb/1,000)…102.4; Pilot & copilot…400 lb; Rear Seat passenger…140 lb; Cargo…100 lb; Fuel…37 gal. (Refer to figure 5.) Is the airplane loaded within limits?(如圖A63_Fig5)
(A)Yes, the weight and CG are within limits. (B)No, the weight exceeds the maximum allowable. (C)No, the weight is acceptable, but the CG is aft of the aft limits.

題目圖：

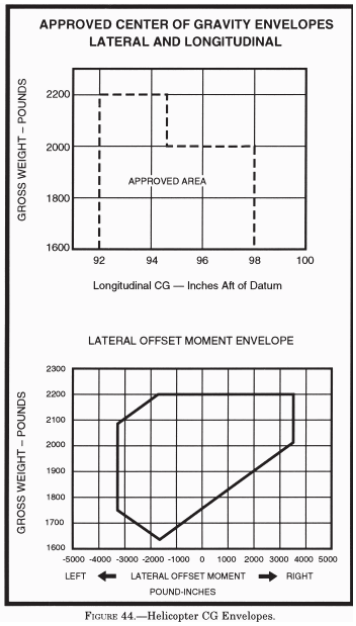


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015566 題組:2 難易度:中

(A) 67. GIVEN: Empty weight (oil is includeed)…1,271 lb; Empty weight moment (in-lb/1,000)…102.4; Pilot & copilot…260 lb; Rear Seat passenger…120 lb; Cargo… 60 lb; Fuel… 37 gal. (Refer to figure 5.) Under the conditions listed above the CG is determined to be located(如圖A63_Fig5)
(A)within the CG envelope. (B)on the forward limit of the CG envelope. (C)within the shaded area of the CG envelope.

題目圖：

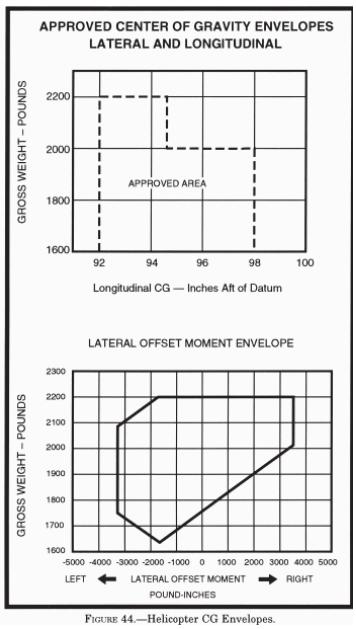


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015567 題組:3 難易度:中

(A) 68. GIVEN: Empty weight (oil is includeed)…1,271 lb; Empty weight moment (in-lb/1,000)…102.04; Pilot & copilot…360 lb; Cargo… 340 lb; Fuel… 37 gal. (Refer to figure 5.) Will the CG remain within limits after 30 gallons of fuel have been used in flight?(如圖A63_Fig5)
(A)Yes, the CG will remain within limits. (B)No, the CG will be located aft of the aft CG limit. (C)Yes, but the CG will be located in the shaded area of the CG envelope.

題目圖：

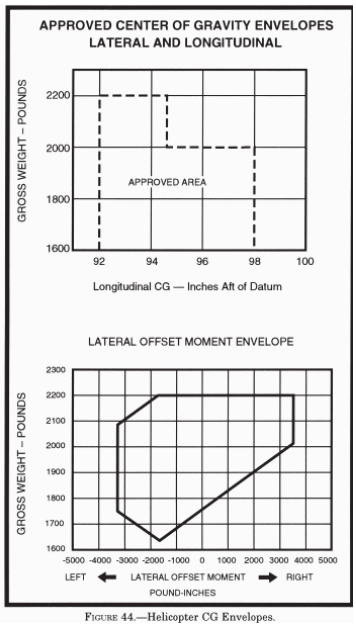


FIGURE 44.—Helicopter CG Envelopes.

原始題號:0015568 題組:0 難易度:中

(C) 69. The CG of an aircraft can be determined by wihich of the following methods? (A)Dividing total arms by total moments. (B)Multiplying total arms by total weight. (C)Dividing total moments by total weight.

原始題號:0015569 題組:0 難易度:中

(B) 70. The CG of an aircraft can be determined by (A)dividing total arms by total moments. (B)dividing total moments by total weight. (C)multiplying total arms by total weight.