

FRAME 15

Here is a sample DD Form "F" with the heading filled out, using the following flight planning information.

Date - 30 Feb 68

Mission No - Liasion

Aircraft Type - OH-23D

Serial No - (of aircraft) 59-3427

Flight from Ft Wolters to Ft Hood

Home Station of Pilot - Ft Wolters

Pilot's name - E. Fudd

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)		Cross Reference RAF Form 2870 RCAF Form F, 116 O 80M 5-61 (6797)		FOR USE IN T. O. 1-1B-40 & AN 01-1B-40	
DATE 30 FEB 68	AIRCRAFT TYPE OH-23D	FROM FT. WOLTERS	HOME STATION FT. WOLTERS		
MISSION/TRIP/FLIGHT/NO. LIASION	SERIAL NO. 59-3427	TO FT. HOOD	PILOT E. Fudd		

Fuel and ammunition expended during flight will change the aircraft weight and moment, so the center of gravity for landing must also be computed. On the sample problem below, notice the weight and moment of the fuel used during flight has been subtracted, and the landing C. G. computed.

13	TAKEOFF CONDITION (Uncorrected)	2276	19082
14	CORRECTIONS (If required)		
15	TAKEOFF CONDITION (Corrected)	2276	19082
16	TAKEOFF C. G. IN IN.		83.8
17	LESS FUEL	150	1230
18	LESS AIR SUPPLY LOAD DROPPED		
19	MISC. VARIABLES		
20	ESTIMATED LANDING CONDITION	2126	17852
21	ESTIMATED LANDING C. G. IN IN.		83.9
COMPUTED BY		E. Fudd SIGNATURE	
WEIGHT AND BALANCE AUTHORITY		E. Fudd SIGNATURE	
PILOT		E. Fudd SIGNATURE	

DD FORM 1 SEPT 54 365F

C.G. FOR LANDING

$$C.G. = \frac{\text{moment}}{\text{weight}} = \frac{178520}{2126} = 83.9$$

$$\begin{array}{r}
 2126 \overline{) 178520} \\
 \underline{17008} \\
 8440 \\
 \underline{6378} \\
 20620 \\
 \underline{20034} \\
 586
 \end{array}$$

FRAME 16

Using the following flight planning information, fill out the heading of the DD Form 365"F" below.

Date - 11 Aug 68

Liasion Type Mission

Aircraft - OH-23D, Serial No - 63-3474

Flight from Ft Carson to Ft Bliss

Home station of pilot - Ft Carson

Pilot's Name - B. Bunny

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)			Cross Reference RAF Form 2870 ROAF Form F. 115 C 50M 8-51 (6797)	FOR USE IN T. O. 1-1B-40 AN 01-1B-40
DATE 11 AUG 68	AIRCRAFT TYPE OH-23D	FROM Ft Carson	HOME STATION FT Carson	
MISSION/TRIP/FLIGHT/NO. LIAISON	SERIAL NO. 63-3474	TO Ft Bliss	PILOT B. Bunny	

FOR USE IN
T.O. 1-1B-1,
AN 1-1B-2, &
TM 55-41 5-2

(USE REVERSE FOR TACTICAL MISSIONS)

NOTE:--THIS TRANSPORT CLEARANCE FORM HAS RESULTED FROM TRIPARTITE AGREEMENT AND NO FURTHER CHANGES MAY BE MADE TO IT WITHOUT PRIOR CONSIDERATION BY TRIPARTITE AUTHORITIES.

CONFIRMATION:

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)		Cross Reference BAF Form 2870 ROAF Form F. 115 C 80M 5-51 (5797)	FOR USE IN T. O. 1-1B-40 & AN 01-1B-40
DATE 11 AUG 68	AIRCRAFT TYPE OH-23D	FROM FT. CARSON	HOME STATION FT. CARSON
MISSION/TRIP/FLIGHT/NO. LIASION	SERIAL NO. 63-3474	TO FT. BLISS	PILOT B. Bunny

Which load items listed below would normally be expended during flight?

- ☐ Pilot
- ☐ Oil
- ☒ Ammunition
- ☐ Crew Chief's tool box
- ☒ Fuel
- ☒ Air-dropped cargo

As the next step, the pilot will enter the weight and moment of load items in References 1 thru 11 of the DD 365F, as shown below. The weights and moments of the various load items will be found in the loading tables of the -10 Operator's Manual, shown on next page.

Example

Weight & Moment of Basic Aircraft - (obtained from aircraft file in Maintenance Office) (DD Form 365"C") Wt. - 1827 lbs Moment - 1604.7

Oil - 12 1/2 quarts (normal loading)

Pilot Weight - 180 lbs

Cockpit Ballast - 9 lbs

Fuel - 270 lbs

} Obtain simplified moments from loading table.

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)		Cross Reference RAF Form 2870 RCAF Form F. 115 C ROM 9-31-6707		FOR USE IN T. 1-15-4 AV. 1-15-4 TV. 1-15-4	
DATE 11 AUG 68	AIRCRAFT TYPE OH-23D	FROM FT. CARSON	HOME STATION FT. CARSON		
MISSION/TRIP FLIGHT NO. LIAISON	SERIAL NO. 63-3474	TO FT. BLISS	PILOT B. Barry		
REF	ITEM	WEIGHT	MOM. 100		
1	BASIC AIRCRAFT (From Chart C)	1827	1604.7		
2	OIL (2 1/8 Gal)	23	220		
3	CREW (No. 1)	180	950		
4	CREW'S BAGGAGE				
5	STEWARDS' EQUIPMENT				
6	EMERGENCY EQUIPMENT				
7	EXTRA EQUIPMENT BALLAST	9	3.8		
8	OPERATING WEIGHT	2039			
9	TAKEOFF FUEL 48 Gal	270	2240		
10	WATER INJ. FUEL (Gal)				
11	TOTAL AIRCRAFT WEIGHT	2309	1947.5		

ADD REFS. 1, 2, 3, AND 7 TO OBTAIN OPERATING WEIGHT

ADD REFS. 8 & 9 TO OBTAIN TOTAL AIRCRAFT WEIGHT.

ADD MOMENTS TO OBTAIN TOTAL MOMENT

CONFIRMATION: Ammunition, fuel, air-dropped cargo

FRAME 32

Now you have completed a DD Form 365F, step by step, using a sample problem. You have determined that the take-off and landing C.G. are within the limits specified by the -10 Operator's Manual, and the aircraft is safe to fly.

Study the DD Form 365F on the next page, and refresh your memory as to the sequence of steps, then work the problem on the page following.

CREW TABLE			
Weight (lb)	Moment 100	Weight (lb)	Moment 100
100	53	360	191
110	58	370	196
120	64	380	201
130	69	390	207
140	74	400	212
150	80	410	217
160	85	420	223
170	90	430	228
180	95	440	233
190	101	450	239
200	106	460	244
210	111	470	249
220	117	480	254
230	122	490	260
240	127	500	265
250	133	510	270
260	138	520	276
270	143	530	281
280	148	540	286
290	154	550	292
300	159	560	297
310	164	570	302
320	170	580	307
330	175	590	313
340	180	600	318
350	186		

Crew Arm - 53 in. Use actual weight.
Allow 20 lb for parachute if used.

FUEL TABLE	
Weight (lb)	Moment 100
	48 Gal. Arm Varies
10	7
20	15
30	23
40	31
50	39
60	48
70	56
80	65
90	73
100	81
110	90
120	98
130	106
140	115
150	123
160	132
170	140
180	148
190	157
200	165
210	173
220	182
230	190
240	198
250	207
260	215
270	224
280	232
290	239

AUXILIARY FUEL	
Weight (lb)	Moment 100
244	209

STANDARD BALLAST		
Weight (lb)	Arm	Moment 100
9	42	3.8
9	318	28.6

cockpit
tail

OIL TABLE		
QUANTITY (qts)	WEIGHT (lbs)	MOMENT 100 ARM - 94 in.
10	19	18
11	21	19
12	22.5	21
12½	23	22
13	25	23
14	27	25

NOTE.—THIS TRANSPORT CLEARANCE FORM HAS RESULTED FROM TRIPARTITE AGREEMENT AND NO FURTHER CHANGES MAY BE MADE TO IT WITHOUT PRIOR CONSIDERATION BY TRIPARTITE AUTHORITIES.

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)				Cross Reference RAF Form 2870 BCAF Form F. 115 C 80M 5-81 (8797)		FGP USE IN T.O. 1-16-1 AN. 1-16-1 TM 55-4-5	
DATE ① FILL OUT HEADING		AIR CRAFT TYPE		HOME STATION			
MISSION/SHIP, FLIGHT NO.		SERIAL NO.		TO		PILOT	
LIMITATIONS				ITEM			
CONDITION	TAKEOFF	LANDING	LIMITING WING FULL	WEIGHT			
1 ALLOWABLE GROSS WEIGHT				1 BASIC AIRCRAFT (From Chart C)			
2 TOTAL AIRCRAFT WEIGHT (Ref. 1)				2 OIL (Gal.)			
3 OPERATING WEIGHT PLUS ESTIMATED LANDING FUEL WEIGHT				3 CREW (No.)			
4 OPERATING WEIGHT (Ref. 6)				4 CREW'S BAGGAGE			
5 ALLOWABLE LOAD (Ref. 12) Ltr. SMALLEST figure				5 STEWARD'S EQUIPMENT			
6 PERMISSIBLE C. G. TAKEOFF				6 EMERGENCY EQUIPMENT			
7 PERMISSIBLE C. G. LANDING				7 EXTRA EQUIPMENT			
8 LANDING FUEL WEIGHT				8 OPERATING WEIGHT			
9 FROM TO (C. G. M.A.C. or IN.)				9 TAKEOFF FUEL (Gal.)			
10 FROM TO (C. G. M.A.C. or IN.)				10 WATER INJ. FLUID (Gal.)			
11				11 TOTAL AIRCRAFT WEIGHT			
12 DISTRIBUTION OF ALLOWABLE LOAD (PAYLOAD)							
UPPER COMPARTMENTS				LOWER COMPARTMENTS			
COMPT. PASSENGERS CARGO				COMPT. PASSENGERS CARGO			
NO. WEIGHT				NO. WEIGHT			
A				B			
C				D			
E				F			
G				H			
I				J			
K				L			
M				N			
O				P			
FWD BELLY				AFT BELLY			
TOTAL FREIGHT							
TOTAL MAIL							
COMPUTER PLATE NUMBER (If used)							
1 Enter constant used.							
2 Enter values from current applicable T.O. TM							
3 Applicable to gross weight Ref. 15							
4 Applicable to gross weight Ref. 18							
5 Ref. 9 minus Ref. 17							
CORRECTIONS (Ref. 14)							
COMPT.	ITEM	CHANGES + or -	WEIGHT	INDEX OR MOM.			
5				13 TAKEOFF CONDITION (Uncorrected)			
				14 CORRECTIONS (If required)			
				15 TAKEOFF CONDITION (Corrected)			
				16 TAKEOFF C. G. IN. IN.			
				17 LESS FUEL			
				18 LESS AIR SUPPLY LOAD DROPPED			
				19 MISC. VARIABLES			
				20 ESTIMATED LANDING CONDITION			
				21 ESTIMATED LANDING C. G. IN.			
COMPUTED BY							
TOTAL WEIGHT REMOVED - C. G. -				SIGNATURE			
TOTAL WEIGHT ADDED + C. G. +				WEIGHT AND BALANCE AUTHORITY			
NET DIFFERENCE (Ref. 14)				PILOT			
				SIGNATURE			

Using the information below, and the attached loading table, fill in References 1 thru 11 on the DD Form 365F.

Flight Planning Information

Basic Aircraft - Wt - 1834 lbs Moment - 1590.4 in/lbs
100

Oil - Normal load

Pilot Weight - 160 lbs

Cockpit Ballast - 9 lbs

Fuel - 250 lbs (41 Gal)

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)				Cross Reference RAF Form 2870 ROAF Form F. 115 O 80M 5-61 (8797)		FOR USE IN T. O. 1-1B-40 AN 01-1B-40	
DATE 29 JULY 68		AIRCRAFT TYPE OH-23D		FROM FT. BLISS		HOME STATION FT. BLISS	
MISSION/TRIP/FLIGHT/NO. LIASION		SERIAL NO. 63-3747		TO FT. HOOD		PILOT E. F. Hood	

REF	ITEM	WEIGHT	INDEX OR MOM/
1	BASIC AIRCRAFT (From Chart C)	1834	1590.4
2	OIL (3 1/8 Gal.)	23	22
3	CREW (No.) 1	160	160
4	CREW'S BAGGAGE		
5	STEWARD'S EQUIPMENT		
6	EMERGENCY EQUIPMENT		
7	EXTRA EQUIPMENT	2	3.8
8	OPERATING WEIGHT	2026	
9	TAKEOFF FUEL (41 Gal.)	250	202
10	WATER INJ. FLUID (Gal.)		
11	TOTAL AIRCRAFT WEIGHT	2276	1905.2

FRAME 33

You are an Army Aviator assigned to Fort Wolters, Texas and on 13 July 1968 you will fly to Fort Hood, Texas. Using the flight planning information below, and the extracts from -10 operators manual (pages ~~42~~ ⁴⁸), following, fill out the DD Form 365F (page ~~51~~) for your flight.

Aircraft - OH-23D, Serial No 63-3994

Aircraft Basic Weight & Moment (Extracted from DD Form 365 "C")

Basic Wt - 1827 lbs, Basic Moment = 1597.8
100

Pilot Wt - 160 lbs

Normal Oil Load - 12 1/2 quarts

Cockpit Ballast - 9 lbs

Take-Off Fuel - 280 lbs

Fuel Expended During Flight - 200 lbs

CREW TABLE			
Weight (lb)	Moment 100	Weight (lb)	Moment 100
100	53	360	191
110	58	370	196
120	64	380	201
130	69	390	207
140	74	400	212
150	80	410	217
160	85	420	223
170	90	430	228
180	95	440	233
190	101	450	239
200	106	460	244
210	111	470	249
220	117	480	254
230	122	490	260
240	127	500	265
250	133	510	270
260	138	520	276
270	143	530	281
280	148	540	286
290	154	550	292
300	159	560	297
310	164	570	302
320	170	580	307
330	175	590	313
340	180	600	318
350	186		

Crew Arm - 53 in. Use actual weight.
Allow 20 lb for parachute if used.

STANDARD BALLAST		
Weight (lb)	Arm	Moment 100
9	42	3.8
9	318	28.6

cockpit
tail

FUEL TABLE	
Weight (lb)	Moment 100
	48 Gal. Arm Varies
10	7
20	15
30	23
40	31
50	39
60	48
70	56
80	65
90	73
100	81
110	90
120	98
130	106
140	115
150	123
160	132
170	140
180	148
190	157
200	165
210	173
220	182
230	190
240	198
250	207
260	215
270	224
280	232
288	239

AUXILIARY FUEL	
Weight (lb)	Moment 100
244	209

OIL TABLE		
QUANTITY (qts)	WEIGHT (lbs)	MOMENT 100 ARM - 94 in.
10	19	18
11	21	19
12	22.5	21
12½	23	22
13	25	23
14	27	25

CREW TABLE			
Weight (lb)	Moment 100	Weight (lb)	Moment 100
100	53	360	191
110	58	370	196
120	64	380	201
130	69	390	207
140	74	400	212
150	80	410	217
160	86	420	223
170	90	430	228
180	95	440	233
190	101	450	239
200	106	460	244
210	111	470	249
220	117	480	254
230	122	490	260
240	127	500	265
250	133	510	270
260	138	520	276
270	143	530	281
280	148	540	286
290	154	550	292
300	159	560	297
310	164	570	302
320	170	580	307
330	175	590	313
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70	56
80	65
90	73
100	81
110	90
120	98
130	106
140	115
150	123
160	132
170	140
180	148
190	157
200	165
210	173
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12½	23	22
13	25	23
14	27	25

CONFIRMATION:

WEIGHT AND BALANCE CLEARANCE FORM F				Cross Reference RAF Form 2870 RCAF Form F. 115 C 50M 5-51 (6797)		FOR USE IN T. O. 1-1B-40 * AN 01-1B-40	
TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)							
DATE 29 JULY 68	AIRCRAFT TYPE OH-23D	FROM FT BLISS	HOME STATION FT. BLISS				
MISSION/TRIP/FLIGHT/NO. LIASON	SERIAL NO. 63-3747	TO FT. HOOD	PILOT E. Fudd				
REF	ITEM	WEIGHT		MOM/			
1	BASIC AIRCRAFT (From Chart C)	1834	1590.4				
2	OIL (3 1/8 Gal.)	23	22.0				
3	CREW (No.) 1	160	85.0				
4	CREW'S BAGGAGE						
5	STEWARD'S EQUIPMENT						
6	EMERGENCY EQUIPMENT						
7	EXTRA EQUIPMENT (BALLAST)	9	3.8				
8	OPERATING WEIGHT						
9	TAKEOFF FUEL (41 Gal.)	250	207.0				
10	WATER INJ. FLUID (Gal.)						
11	TOTAL AIRCRAFT WEIGHT	2276	1908.2				

WEIGHT AND LOADING LIMITATIONS

CENTER OF GRAVITY LIMITATIONS TAKEOFF AND LANDING

FORWARD LIMIT	AFT LIMIT
79.5 in	84.8 in.

WEIGHT LIMITATIONS TAKEOFF AND LANDING 2750 POUNDS

CENTER OF GRAVITY TABLE													
GROSS WEIGHT	MOMENT/100						GROSS WEIGHT	MOMENT/100					
	79.5	80.0	81.0	82.0	83.0	84.8		79.5	80.0	81.0	82.0	83.0	84.8
1900	1511	1520	1539	1558	1577	1611	2330	1852	1864	1887	1911	1934	1978
1910	1518	1528	1547	1566	1585	1620	2340	1860	1872	1895	1919	1942	1984
1920	1528	1536	1555	1574	1594	1628	2350	1868	1880	1904	1927	1951	1993
1930	1534	1544	1563	1583	1602	1637	2360	1876	1888	1912	1935	1959	2001
1940	1542	1552	1571	1591	1610	1645	2370	1884	1896	1920	1943	1967	2010
1950	1550	1560	1580	1599	1619	1654	2380	1892	1904	1928	1952	1975	2018
1960	1558	1568	1588	1607	1627	1662	2390	1900	1912	1936	1960	1984	2027
1970	1566	1576	1596	1615	1635	1671	2400	1908	1920	1944	1968	1992	2035
1980	1574	1584	1604	1624	1643	1679	2410	1916	1928	1952	1976	2000	2044
1990	1582	1592	1612	1632	1652	1688	2420	1924	1936	1960	1984	2009	2052
2000	1590	1600	1620	1640	1660	1696	2430	1932	1944	1968	1993	2017	2061
2010	1598	1608	1628	1648	1668	1704	2440	1940	1952	1976	2001	2025	2069
2020	1606	1616	1636	1656	1677	1713	2450	1948	1960	1985	2009	2034	2078
2030	1614	1624	1644	1665	1685	1721	2460	1956	1968	1993	2017	2042	2086
2040	1622	1632	1652	1673	1693	1730	2470	1964	1976	2001	2025	2050	2095
2050	1630	1640	1661	1681	1702	1738	2480	1972	1984	2009	2034	2058	2103
2060	1638	1638	1669	1689	1710	1747	2490	1980	1992	2017	2042	2067	2112
2070	1646	1656	1677	1697	1716	1755	2500	1988	2000	2025	2050	2075	2120
2080	1654	1664	1685	1706	1726	1764	2510	1996	2008	2033	2058	2083	2129
2090	1662	1672	1693	1714	1735	1772	2520	2003	2016	2041	2066	2092	2137
2100	1670	1680	1701	1722	1743	1781	2530	2011	2024	2049	2075	2100	2146
2110	1678	1688	1709	1730	1751	1789	2540	2019	2032	2057	2083	2108	2154
2120	1686	1696	1717	1738	1760	1798	2550	2027	2040	2066	2091	2117	2162
2130	1694	1704	1725	1747	1768	1806	2560	2035	2048	2074	2099	2125	2171
2140	1702	1712	1733	1755	1776	1815	2570	2043	2056	2082	2107	2133	2179
2150	1709	1720	1742	1763	1785	1823	2580	2051	2064	2090	2116	2141	2188
2160	1717	1728	1750	1771	1793	1832	2590	2059	2072	2098	2124	2150	2196
2170	1725	1736	1758	1779	1801	1840	2600	2067	2080	2106	2132	2158	2205
2180	1733	1744	1766	1788	1809	1849	2610	2075	2088	2114	2140	2166	2213
2190	1741	1752	1774	1796	1818	1857	2620	2083	2096	2122	2148	2175	2222
2200	1749	1760	1782	1804	1826	1866	2630	2091	2104	2130	2156	2183	2230
2210	1757	1768	1790	1812	1834	1874	2640	2099	2112	2138	2164	2191	2239
2220	1765	1776	1798	1820	1843	1883	2650	2107	2120	2146	2173	2200	2247
2230	1773	1784	1806	1829	1851	1891	2660	2115	2128	2154	2181	2208	2256
2240	1781	1792	1814	1837	1859	1900	2670	2123	2136	2162	2189	2216	2264
2250	1789	1800	1823	1845	1868	1908	2680	2131	2144	2170	2197	2224	2273
2260	1797	1808	1831	1853	1876	1916	2690	2139	2152	2178	2206	2233	2281
2270	1805	1816	1839	1861	1884	1925	2700	2147	2160	2187	2214	2241	2290
2280	1813	1824	1847	1869	1892	1933	2710	2154	2168	2195	2222	2249	2298
2290	1821	1832	1855	1877	1900	1942	2720	2162	2176	2203	2230	2258	2307
2300	1829	1840	1863	1886	1909	1950	2730	2170	2184	2211	2239	2266	2315
2310	1836	1848	1871	1894	1917	1959	2740	2178	2192	2219	2247	2274	2324
2320	1844	1856	1879	1902	1926	1967	2750	2186	2200	2228	2255	2283	2332
							2800	2226	2240	2268	2296	2324	2374

As the next step, the pilot will fill in the "Limitations" block of the DD Form 365F". The gross weight limitations and the center of gravity limitations are obtained from -10 Operator's Manual. Study the example below, and the extract from the -10 Operator's Manual on the next page. Notice that the information is a continuation of the previous problem.

WEIGHT AND BALANCE CLEARANCE FORM F TRANSPORT (USE REVERSE FOR TACTICAL MISSIONS)				Cross Reference RAF Form 2870 RCAF Form F. 115 C DOM 6-61 (6797)		FOR USE IN T.O. 1-1B-40 AN 61-1B-40 & TM 55-493-9	
DATE 29 JULY 68		AIRCRAFT TYPE OH-23D		FROM FT. BLISS		HOME STATION FT. BLISS	
MISSION/TRIP/FLIGHT NO. LIAISON		SERIAL NO. 63-3747		TO FT. HOOD		PILOT E. Fudd	
LIMITATIONS				REF	ITEM	WEIGHT	INDEX OR MOM
CONDITION	TAKEOFF	LANDING	LIMITING WING FUEL				
ALLOWABLE GROSS WEIGHT	2750	2750		1	BASIC AIRCRAFT (From Chart C)	1834	1590.4
TOTAL AIRCRAFT WEIGHT (Ref. 1)	2276			2	OIL (3 1/8 Gal.)	23	22.0
OPERATING WEIGHT PLUS ESTIMATED LANDING FUEL WEIGHT		2126		3	CREW (No.)	160	86.0
OPERATING WEIGHT (Ref. 8)				4	CREW'S BAGGAGE		
ALLOWABLE LOAD (Ref. 12) (use SMALLEST figure)	474	624		5	STEWARD'S EQUIPMENT		
PERMISSIBLE C. G. TAKEOFF	FROM 79.5	TO 84.8 IN.		6	EMERGENCY EQUIPMENT		
PERMISSIBLE C. G. LANDING	FROM 79.5	TO 84.8 IN.		7	EXTRA EQUIPMENT (BALLAST)	9	3.8
LANDING FUEL WEIGHT				8	OPERATING WEIGHT	2026	
				9	TAKEOFF FUEL (Gal.)	250	207.0
				10	WATER INJ. FLUID (Gal.)		
				11	TOTAL AIRCRAFT WEIGHT	2276	1908.2

SUBTRACTED
AIRCRAFT CAN CARRY
474 LBS. OF CARGO OR
PASSENGERS WITHOUT
EXCEEDING GROSS WEIGHT
LIMITATIONS

100 LBS. OF
FUEL ON BOARD AT
LANDING (150 LBS. OF
FUEL EXPENDED DURING
FLIGHT)

WEIGHT AND LOADING LIMITATIONS

CENTER OF GRAVITY LIMITATIONS TAKEOFF AND LANDING

FORWARD LIMIT	AFT LIMIT
79.5 in.	84.8 in.

WEIGHT LIMITATIONS TAKEOFF AND LANDING 2750 POUNDS

CENTER OF GRAVITY TABLE															
GROSS WEIGHT		MOMENT/100						GROSS WEIGHT		MOMENT/100					
	79.5	80.0	81.0	82.0	83.0	84.8		79.5	80.0	81.0	82.0	83.0	84.8		
1900	1511	1520	1539	1558	1577	1611	2330	1852	1864	1887	1911	1934	1976		
1910	1518	1528	1547	1566	1585	1620	2340	1860	1872	1895	1919	1942	1984		
1920	1526	1536	1555	1574	1594	1628	2350	1868	1880	1904	1927	1951	1993		
1930	1534	1544	1563	1583	1602	1637	2360	1876	1888	1912	1935	1959	2001		
1940	1542	1552	1571	1591	1610	1645	2370	1884	1896	1920	1943	1967	2010		
1950	1550	1560	1580	1599	1619	1654	2380	1892	1904	1928	1952	1975	2018		
1960	1558	1568	1588	1607	1627	1662	2390	1900	1912	1936	1960	1984	2027		
1970	1566	1576	1596	1615	1635	1671	2400	1908	1920	1944	1968	1992	2035		
1980	1574	1584	1604	1624	1643	1679	2410	1916	1928	1952	1976	2000	2044		
1990	1582	1592	1612	1632	1652	1688	2420	1924	1936	1960	1984	2009	2052		
2000	1590	1600	1620	1640	1660	1696	2430	1932	1944	1968	1993	2017	2061		
2010	1598	1608	1628	1648	1668	1704	2440	1940	1952	1976	2001	2025	2069		
2020	1606	1616	1636	1656	1677	1713	2450	1948	1960	1985	2009	2034	2078		
2030	1614	1624	1644	1665	1685	1721	2460	1956	1968	1993	2017	2042	2086		
2040	1622	1632	1652	1673	1693	1730	2470	1964	1976	2001	2025	2050	2095		
2050	1630	1640	1661	1681	1702	1738	2480	1972	1984	2009	2034	2058	2103		
2060	1638	1638	1669	1689	1710	1747	2490	1980	1992	2017	2042	2067	2112		
2070	1646	1656	1677	1697	1718	1755	2500	1988	2000	2025	2050	2075	2120		
2080	1654	1664	1685	1706	1726	1764	2510	1996	2008	2033	2058	2083	2129		
2090	1662	1672	1693	1714	1735	1772	2520	2003	2016	2041	2066	2092	2137		
2100	1670	1680	1701	1722	1743	1781	2530	2011	2024	2049	2075	2100	2146		
2110	1678	1688	1709	1730	1751	1789	2540	2019	2032	2057	2083	2108	2154		
2120	1686	1696	1717	1738	1760	1798	2550	2027	2040	2066	2091	2117	2162		
2130	1694	1704	1725	1747	1768	1806	2560	2035	2048	2074	2099	2125	2171		
2140	1702	1712	1733	1755	1776	1815	2570	2043	2056	2082	2107	2133	2179		
2150	1709	1720	1742	1763	1785	1823	2580	2051	2064	2090	2116	2141	2188		
2160	1717	1728	1750	1771	1793	1832	2590	2059	2072	2098	2124	2150	2196		
2170	1725	1736	1758	1779	1801	1840	2600	2067	2080	2106	2132	2158	2205		
2180	1733	1744	1766	1788	1809	1849	2610	2075	2088	2114	2140	2166	2213		
2190	1741	1752	1774	1796	1818	1857	2620	2083	2096	2122	2148	2175	2222		
2200	1749	1760	1782	1804	1826	1866	2630	2091	2104	2130	2156	2183	2230		
2210	1757	1768	1790	1812	1834	1874	2640	2099	2112	2138	2164	2191	2239		
2220	1765	1776	1798	1820	1843	1883	2650	2107	2120	2146	2173	2200	2247		
2230	1773	1784	1806	1829	1851	1891	2660	2115	2128	2154	2181	2208	2256		
2240	1781	1792	1814	1837	1859	1900	2670	2123	2136	2162	2189	2216	2264		
2250	1789	1800	1823	1845	1868	1908	2680	2131	2144	2170	2197	2224	2273		
2260	1797	1808	1831	1853	1876	1916	2690	2139	2152	2178	2206	2233	2281		
2270	1805	1816	1839	1861	1884	1925	2700	2147	2160	2187	2214	2241	2290		
2280	1813	1824	1847	1869	1892	1933	2710	2154	2168	2195	2222	2249	2298		
2290	1821	1832	1855	1877	1900	1942	2720	2162	2176	2203	2230	2258	2307		
2300	1829	1840	1863	1886	1909	1950	2730	2170	2184	2211	2239	2266	2315		
2310	1836	1848	1871	1894	1917	1959	2740	2178	2192	2219	2247	2274	2324		
2320	1844	1856	1879	1902	1926	1967	2750	2186	2200	2228	2255	2283	2332		
							2800	2226	2240	2268	2296	2324	2374		

(USE REVERSE FOR TACTICAL MISSIONS)

$FCR = 1.15 \times 10^{-4}$
 $T_{10} = 1.15 \times 10^{-4}$
 $AN = 1.15 \times 10^{-4}$
 $TM = 5.5 \times 10^{-4}$

LIMITATIONS				REF	ITEM	WEIGHT	INDEX OR MOM.
CONDITION	TAKEOFF	LANDING	LIMITING WING FUEL				
TALLOWABLE GROSS WEIGHT	2750	2750		1	BASIC AIRCRAFT (From Chart C)	1827	1597.8
TOTAL AIRCRAFT WEIGHT (Ref. 1)	2299			2	OIL (348 Gal.)	23	22.0
OPERATING WEIGHT PLUS ESTIMATED LANDING FUEL WEIGHT	2099			3	CREW (No.)	160	85.0
OPERATING WEIGHT (Ref. 2)				4	CREW'S BAGGAGE		
				5	STEWARD'S EQUIPMENT		
				6	EMERGENCY EQUIPMENT		
				7	EXTRA EQUIPMENT (BRILLAST)	9	3.8
ALLOWABLE LOAD - Ref. 11 Use SMALLEST figure	451	659		8	OPERATING WEIGHT	2019	
PERMISSIBLE GROSS TAKEOFF	79.5			9	TAKEOFF FUEL (47.5 Gal.)	280	232.0
PERMISSIBLE GROSS LANDING	79.5			10	WATER INJ. FLUID (Gal.)		
				11	TOTAL AIRCRAFT WEIGHT	2299	1940.6

[illegible]

CONFIRMATION

CORRECTIONS Ref: 14			2299 1940.6	
COMPT	ITEM	CHANGES + or -	14	CORRECTIONS required
		WEIGHT		
			15	TAKEOFF CONDITION Corrected
			16	TAKEOFF C.G. IN [REDACTED] IN.
			17	LEGS FUEL
			18	LEGS AIR SUPPLY LEAD DROPPED
			19	WIND VARIABLES
			20	ESTIMATED LANDING CONDITION
			21	ESTIMATED LANDING C.G. IN [REDACTED] IN.
COMPUTED BY			E. Fuadd SIGNATURE	
TOTAL WEIGHT REMOVED - -			E. Fuadd SIGNATURE	
TOTAL WEIGHT ADDED + +			E. Fuadd SIGNATURE	
NET DIFFERENCE (Ref: 14)			E. Fuadd SIGNATURE	

DD FORM 365F
1 SEPT 54

NOTE.—THIS TRANSPORT CLEARANCE FORM HAS RESULTED FROM TRIPARTITE AGREEMENT AND NO FURTHER CHANGES MAY BE MADE. TO IT WITHOUT PRIOR CONSIDERATION BY TRIPARTITE AUTHORITIES.

CREW TABLE			
Weight (lb)	Moment 100	Weight (lb)	Moment 100
100	53	360	191
110	58	370	196
120	64	380	201
130	69	390	207
140	74	400	212
150	80	410	217
160	85	420	223
170	90	430	228
180	95	440	233
190	101	450	239
200	106	460	244
210	111	470	249
220	117	480	254
230	122	490	260
240	127	500	265
250	133	510	270
260	138	520	276
270	143	530	281
280	148	540	286
290	154	550	292
300	159	560	297
310	164	570	302
320	170	580	307
330	175	590	313
340	180	600	318
350	186		

Crew Arm - 53 in. Use actual weight.
Allow 20 lb for parachute if used.

STANDARD BALLAST		
Weight (lb)	Arm	Moment 100
9	42	3.8
9	318	28.6

cockpit
tail

FUEL TABLE	
Weight (lb)	Moment 100
	48 Gal. Arm Varies
10	7
20	15
30	23
40	31
50	39
60	48
70	56
80	65
90	73
100	81
110	90
120	98
130	106
140	115
150	123
160	132
170	140
180	148
190	157
200	165
210	173
220	182
230	190
240	198
250	207
260	215
270	224
280	232
288	239

AUXILIARY FUEL	
Weight (lb)	Moment 100
244	209

OIL TABLE		
QUANTITY (qts)	WEIGHT (lbs)	MOMENT 100 ARM - 94 in.
10	19	18
11	21	19
12	22.5	21
12½	23	22
13	25	23
14	27	25

STOP. RETURN TO PAGE 3

In addition to the -10 Operator's Manual, an aviator can obtain weight and balance information from AR 95-16 and TM 55-405-9.

**- 10 OPERATORS
MANUAL**

TM 55- 405-9

AR 95-16



**WEIGHT &
BALANCE PUBS**

These 3 publications will be helpful to an aviator if he is assigned additional weight and balance responsibilities in his company.

FRAME 35

If an aviator was assigned the responsibility for weight and balance computations in his unit, which of the following publications would he NOT be concerned with?

- A. ☐ TM 55-405-9
- B. ☐ -10 Operator's Manual
- C. ☐ TM 38-750
- D. ☐ AR 95-16

CONTINUE TO THE SELF EVALUATION EXERCISE

WEIGHT AND BALANCE

SELF EVALUATION TEST

1. You are an Army Aviator assigned to the 1369th Aviation Company at Fort Hood, Texas, and your platoon is equipped with OH-23D helicopters. Your platoon has been assigned the mission of supporting engineer survey parties at various field locations in the area. Because of the unusual loads that may be encountered during your mission, your C. O. has directed that a weight and balance clearance form (DD Form 365F) be filled out for all flights made by your platoon.

For your first mission, you have been directed to fly to the field location of the survey party at map coordinates XT 749393, and receive a briefing on the operational plans of the survey teams.

2. Using the attached loading table (Chart "E" extract from the "-10" Operator's Manual), and DD Form 365 "F", prepare the DD Form 365 "F" and answer the questions on the page following. Below is your flight planning information.

Aircraft - OH-23D, Serial No - 59-3423

Current Basic Wt - 1814 lbs

Current Basic Moment - 1596.9 in/lbs

Oil Load - 12 1/2 quarts

Cockpit Ballast - 9 lbs

Pilot Wt - 180 lbs

Fuel load at take-off - 280 lbs

Fuel expended during flight - 190 lbs

CREW TABLE			
Weight (lb)	Moment 100	Weight (lb)	Moment 100
100	53	360	191
110	58	370	196
120	64	380	201
130	69	390	207
140	74	400	212
150	80	410	217
160	85	420	223
170	90	430	228
180	95	440	233
190	101	450	239
200	106	460	244
210	111	470	249
220	117	480	254
230	122	490	260
240	127	500	265
250	133	510	270
260	138	520	276
270	143	530	281
280	148	540	286
290	154	550	292
300	159	560	297
310	164	570	302
320	170	580	307
330	175	590	313
340	180	600	318
350	186		

Crew Arm - 53 in. Use actual weight.
Allow 20 lb for parachute if used.

STANDARD BALLAST		
Weight (lb)	Arm	Moment 100
9	42	3.8
9	318	28.6

FUEL TABLE	
Weight (lb)	Moment 100
	48 Gal. Arm Varies
10	7
20	15
30	23
40	31
50	39
60	48
70	56
80	65
90	73
100	81
110	90
120	98
130	106
140	115
150	123
160	132
170	140
180	148
190	157
200	165
210	173
220	182
230	190
240	198
250	207
260	215
270	224
280	232
288	239

AUXILIARY FUEL	
Weight (lb)	Moment 100
244	209

OIL TABLE		
QUANTITY (qts)	WEIGHT (lbs)	MOMENT 100 ARM - 94 in.
10	19	18
11	21	19
12	22.5	21
12½	23	22
13	25	23
14	27	25

cock-pit
tail

WEIGHT AND LOADING LIMITATIONS

CENTER OF GRAVITY LIMITATIONS

TAKEOFF AND LANDING

FORWARD

AFT

LIMIT

LIMIT

79.5 in.

84.8 in.

WEIGHT LIMITATIONS

TAKEOFF AND LANDING

2750 POUNDS

CENTER OF GRAVITY TABLE

GROSS WEIGHT	MOMENT/100						GROSS WEIGHT	MOMENT/100					
	79.5	80.0	81.0	82.0	83.0	84.8		79.5	80.0	81.0	82.0	83.0	84.8
1900	1511	1520	1539	1558	1577	1611	2330	1852	1864	1887	1911	1934	1976
1910	1518	1528	1547	1566	1585	1620	2340	1860	1872	1895	1919	1942	1984
1920	1526	1536	1555	1574	1594	1628	2350	1868	1880	1904	1927	1951	1993
1930	1534	1544	1563	1583	1602	1637	2360	1876	1888	1912	1935	1959	2001
1940	1542	1552	1571	1591	1610	1645	2370	1884	1896	1920	1943	1967	2010
1950	1550	1560	1580	1599	1619	1654	2380	1892	1904	1928	1952	1975	2018
1960	1558	1568	1588	1607	1627	1662	2390	1900	1912	1936	1960	1984	2027
1970	1566	1578	1596	1615	1635	1671	2400	1908	1920	1944	1968	1992	2035
1980	1574	1584	1604	1624	1643	1679	2410	1916	1928	1952	1976	2000	2044
1990	1582	1592	1612	1632	1652	1688	2420	1924	1936	1960	1984	2009	2052
2000	1590	1600	1620	1640	1660	1696	2430	1932	1944	1968	1993	2017	2061
2010	1598	1608	1628	1648	1668	1704	2440	1940	1952	1976	2001	2025	2069
2020	1606	1616	1636	1656	1677	1713	2450	1948	1960	1985	2009	2034	2078
2030	1614	1624	1644	1665	1685	1721	2460	1956	1968	1993	2017	2042	2086
2040	1622	1632	1652	1673	1693	1730	2470	1964	1976	2001	2025	2050	2095
2050	1630	1640	1661	1681	1702	1738	2480	1972	1984	2009	2034	2058	2103
2060	1638	1638	1669	1689	1710	1747	2490	1980	1992	2017	2042	2067	2112
2070	1646	1656	1677	1697	1718	1755	2500	1988	2000	2025	2050	2075	2120
2080	1654	1664	1685	1706	1726	1764	2510	1996	2008	2033	2058	2083	2129
2090	1662	1672	1693	1714	1735	1772	2520	2003	2016	2041	2066	2092	2137
2100	1670	1680	1701	1722	1743	1781	2530	2011	2024	2049	2075	2100	2146
2110	1678	1688	1709	1730	1751	1789	2540	2019	2032	2057	2083	2108	2154
2120	1686	1696	1717	1738	1760	1798	2550	2027	2040	2066	2091	2117	2162
2130	1694	1704	1725	1747	1768	1806	2560	2035	2048	2074	2099	2125	2171
2140	1702	1712	1733	1755	1776	1815	2570	2043	2056	2082	2107	2133	2179
2150	1709	1720	1742	1763	1785	1823	2580	2051	2064	2090	2116	2141	2188
2160	1717	1728	1750	1771	1793	1832	2590	2059	2072	2098	2124	2150	2196
2170	1725	1736	1758	1779	1801	1840	2600	2067	2080	2106	2132	2158	2205
2180	1733	1744	1766	1788	1809	1849	2610	2075	2088	2114	2140	2166	2213
2190	1741	1752	1774	1796	1818	1857	2620	2083	2096	2122	2148	2175	2222
2200	1749	1760	1782	1804	1826	1866	2630	2091	2104	2130	2156	2183	2230
2210	1757	1768	1790	1812	1834	1874	2640	2099	2112	2138	2164	2191	2239
2220	1765	1776	1798	1820	1843	1883	2650	2107	2120	2146	2173	2200	2247
2230	1773	1784	1806	1829	1851	1891	2660	2115	2128	2154	2181	2208	2256
2240	1781	1792	1814	1837	1859	1900	2670	2123	2136	2162	2189	2216	2264
2250	1789	1800	1823	1845	1868	1908	2680	2131	2144	2170	2197	2224	2273
2260	1797	1808	1831	1853	1876	1916	2690	2139	2152	2178	2206	2233	2281
2270	1805	1816	1839	1861	1884	1925	2700	2147	2160	2187	2214	2241	2290
2280	1813	1824	1847	1869	1892	1933	2710	2154	2168	2195	2222	2249	2298
2290	1821	1832	1855	1877	1900	1942	2720	2162	2176	2203	2230	2258	2307
2300	1829	1840	1863	1886	1909	1950	2730	2170	2184	2211	2239	2266	2315
2310	1836	1848	1871	1894	1917	1959	2740	2178	2192	2219	2247	2274	2324
2320	1844	1856	1879	1902	1926	1967	2750	2186	2200	2228	2255	2283	2332
							2800	2226	2240	2268	2296	2324	2374

1. In what publication will the aviator find specific information on the aircraft he is flying?
- A. ☐ AR 95-16
 - B. ☐ TM 55-405-9
 - C. ☒ -10 Operator's Manual
 - D. ☐ -20 Maintenance Manual
2. If an aircraft is loaded "outside" the specified C. G. limits, what will result?
- A. ☐ Pilot fatigue
 - B. ☐ Increased engine life
 - C. ☒ Unsafe flight
 - D. ☐ A decrease in operating RPM
3. Which of the following is responsible for safe aircraft loading?
- A. ☐ The crew chief
 - B. ☐ The operations officer
 - C. ☒ The aviator
 - D. ☐ The ground crew
4. If an aircraft is loaded with the C.G. forward of specified limits, the aviator will experience
- A. ☐ a shortage of engine power.
 - B. ☐ inadequate forward cyclic control movement.
 - C. ☒ a shortage of aft cyclic movement.
 - D. ☐ insufficient left pedal travel.

5. Which of the following is a simplified moment?

A. ☐ 1814 lbs.

B. ☐ 1814 multiplied by 317.

X ✓ C. ☒ $\frac{1796.4}{100}$

D. ☒ 1796 x 100

6. A moment is defined as

A. ☐ the fulcrum divided by distance.

B. ☐ a weight accelerated by a positive force.

C. ☐ an average distance.

D. ☒ a weight multiplied by its arm.

7. The weight and balance clearance form is

A. ☐ DD Form 365C.

B. ☐ DD Form 365.

C. ☐ Chart "E".

D. ☒ DD Form 365F.

8. Center-of-gravity

A. ☐ eliminates all calculations.

B. ☒ is measured in inches from the R.D.L.

C. ☐ allows improved performance.

D. ☐ contains weight and balance loading data.

9. The formula for calculating center-of-gravity is

- A. ☐ C.G. = Weight x Arm.
- B. ☐ C.G. = forward limit minus aft limit.
- C. ☐ C.G. = Total moment multiplied by total weight.
- D. ☒ C.G. = $\frac{\text{TOTAL MOMENT}}{\text{TOTAL WEIGHT}}$

10. C.G. limits

- A. ☐ are used on take-off only.
- B. ☒ are the allowable range of C.G. movement.
- C. ☐ are used on landing only.
- D. ☐ are of no concern to the pilot.

(USE REVERSE FOR TACTICAL MISSIONS)

FOR USE IN
T. O. 1-1B-40
AN 01-1B-40

DD FORM 365F
1 SEPT 54

NOTE.—THIS TRANSPORT CLEARANCE FORM HAS RESULTED FROM TRIPARTITE AGREEMENT AND NO FURTHER CHANGES MAY BE MADE TO IT WITHOUT PRIOR CONSIDERATION BY TRIPARTITE AUTHORITIES.

ANSWERS TO SELF EVALUATION TEST

1. C
2. C
3. C
4. C
5. C
6. D
7. D
8. B
9. D
10. B

END OF TEXT

L2849 Army-Ft. Sill, Okla.

DD 365 F

-10 manual

TM 55-405-9, AR 95-16

Wgt. $\times$ Arm = Moment

$$2500 \times 20 \text{ in} = 50000 \text{ in. lb.}$$

$$CG = \frac{\text{total moment}}{\text{total wgt.}}$$

DD 365 F

1. heading
2. wgt + moment data
3. load limits
4. take-off } CG's
5. landing }

