

DISPERSANT AIRCRAFT CAPABILITY FORM

PLATFORM

**BEECHCRAFT
KING AIR 90A (BE-90A)**

Operator: Dynamic Aviation, Inc.
OSRO: Marine Spill Response Corp.



Photo compliments of the Marine Spill Response Corporation

DATA SOURCE LEGEND

- 1. (Black):** Indicates the data are based on documented field trials or is a fixed design value
- 2. (Blue):** Indicates the data are based on limited field observations or operator's stated practice or stated value (little or no documentation)
- 3. (Red):** Indicates the data are based on reasonable calculations or performance of comparable systems

		Unit	U.S. Regulatory Calculation Values	Data Source 1-2-3	Range	Reference(s)
AIRCRAFT PARAMETERS						
1	Swath Width	feet	75	1	60-85	Dynamic Aviation Group, Inc. spray test May 06
	a. Application (gallons per acre)	gpa	5	1	1-10	Dynamic Aviation Group, Inc. spray test May 06
	b. Altitude	feet	75	1	50-100	Dynamic Aviation Group, Inc. spray test May 06
	c. Application Speed	knots	150	1	130-175	Dynamic Aviation Group, Inc. spray test May 06
	d. Pump Rate (gallons per minute)	gpm	85	1	20-180	Dynamic Aviation Group, Inc. static spray test 12/06
	e. Boom Pressure (pounds/square inch)	psi	55	1	20-60	Dynamic Aviation Group, Inc. static spray test 12/06
2	Transit Speed at Altitude From Base to Staging Airport	knots feet	185 20,000	1	150-200 12-20,000	Dynamic Aviation Group, Inc. field test Nov-06
3	Transit Speed at Altitude Staging Airport to/from spill	knots feet	185 1,500	1	150-200 1,500	Dynamic Aviation Group, Inc. field test Nov 06

4	Dispersant Spraying Reposition Speed	knots	150	1	130-185	Dynamic Aviation Group, Inc. field test Nov 06
5	Time to Fully Load Dispersant Tank	min	10	1	10-20	Dynamic Aviation Group, Inc. timed exercise
6	Time to Fully Load Fuel Tanks	min	12	1	10-30	Dynamic Aviation Group, Inc. operator exercise
7	Load Dispersant & Fuel simultaneously (Yes/No)	-----	YES	1	YES	Dynamic Aviation Group, operator See Other Comments below *5-*6
8	Time to Make U-turn (Turn 180 degrees)	min	1.00	1	1.0-3.0	Dynamic Aviation Group, Inc. operator measured exercise flight paths
9*	Dispersant Payload Maximum	gal	425	1	0-425	Dynamic Aviation Group, Inc. operator
10	Fuel with maximum dispersant payload	lbs	895	1	895	Dynamic Aviation Group, Inc. operator
11	Approach Distance for spraying	nm	.75	1	0.3-1.5	Dynamic Aviation Group, Inc. operator measured exercise paths Nov 06
12	Departure Distance for spraying	nm	.75	1	0.3-1.5	Dynamic Aviation Group, Inc. operator measured exercise paths Nov 06
13	Taxi Time Take-Off	min	3	2	3-15	Dynamic Aviation Group, Inc. operator
14	Taxi Time Landing	min	3	2	3-15	Dynamic Aviation Group, Inc. operator
15	On-site Check-In/Safety Time	min	10	2	5-15	Dynamic Aviation Group, Inc. operator
CASCADE PARAMETERS*						
16	Take-off with * Maximum Payload and Maximum Take-off Weight (assume no wind and VFR fuel reserve)					
	a. Maximum Flight Time	hours	1.2	2	1.2	Dynamic Aviation Group, Inc. operator
	b. Maximum Flight Range	nm	222	2	192-240	Dynamic Aviation Group, Inc. operator
	c. Optimal Altitude	feet	20,000	2	20,000	Dynamic Aviation Group, Inc. operator
	d. True Air Speed	knots	185	2	160-200	Dynamic Aviation Group, Inc. operator
	e. Fuel Consumption	lbs/hour	500	2	500-520	Dynamic Aviation Group, Inc. operator
17	Take-Off with * Maximum Fuel and No Payload (assume no wind and VFR fuel reserve)					
	a. Maximum Flight Time	hours	4.3	2	4.3	Dynamic Aviation Group, Inc. operator
	b. Maximum Flight Range	nm	796	2	688-860	Dynamic Aviation Group, Inc. operator
	c. Optimal Altitude	feet	20,000	2	20,000	Dynamic Aviation Group, Inc. operator
	d. True Air Speed	knots	185	2	160-200	Dynamic Aviation Group, Inc. operator
	e. Fuel Consumption	lbs/hour	500	2	500-520	Dynamic Aviation Group, Inc. operator
18	Staging area briefing	min	45	2	30-60	Exercise observation

AIRPORT PARAMETERS						
19	Runway length - Minimum (For take-off at maximum gross weight assuming sea level, 90° F, no wind using a balanced field concept, i.e., go, no go speed)	feet	4,200	2	4,200	Dynamic Aviation Group, Inc. operator
20	Runway weight restrictions for maximum aircraft weight	lbs	11,220	1	11,220	Dynamic Aviation Group, Inc. operator. Aircraft maximum weight
OTHER COMMENTS						
5*- 6*	The time to load dispersants and fuel are stand alone times independent of each other. If item 7 indicates that fuel and dispersants can be loaded simultaneously, then the longer of fuel or dispersant load time is used in the capability calculations. If item 7 indicates fuel and dispersants can NOT be loaded simultaneously, then the times are added together to calculate the aircrafts capability. To load simultaneously depends upon the airport, aircraft, and support crew. The loading times depend upon the loading system i.e., 5,000 tank truck, 55 gallon drums or other means and the pumping system used. The time shown in items 5 and 6 is for loading from a tank truck which is standing by ready to commence loading when the aircraft comes to a stop in the loading area, i.e. the fastest loading time possible.					
9*	Maximum payload depends upon the weight of the dispersant per gallon. The calculations provided are for the heaviest dispersant, Corexit 9527, weighing 8.5 lbs/gallon. For this aircraft the payload can be reduced from 425 gallons and the fuel increased to extend the range of the aircraft. A loading chart for the aircraft is provided to the template as an attachment.					
*	Cascade Parameters: The aircraft's calculated capability when cascading uses the same fuel loading and taxi times for dispersant operations as listed in items 6, 13 and 14.					
16 *	Calculations are based on empty weight plus crew of 6,768 pounds and gross take-off weight of 11,220 pounds and using Visual Flight Rules requiring a 30 minute fuel reserve. Payload, endurance and range depend upon the weight of the dispersant per gallon. The calculations provided are for the heaviest dispersant, Corexit 9527, weighing 8.5 lbs/gallon. Increased range may be obtained by increasing fuel and decreasing dispersant to the maximum fuel load for the aircraft of 2479 lbs. Flight hours for the aircraft can be estimated for planning purposes from the loading chart attached to this template, which also includes calculations for Corexit 9500. Pilots of the aircraft will determine payloads versus fuel loading based on the specific aircraft being used, the temperature, humidity, airport altitude, weather conditions enroute, etc.					
17 *	The aircraft with a maximum fuel load of 370 gallons (2479 lbs) can carry a payload of 1955 lbs of dispersant and retain the same range and speeds as for no payload.					

BEECHCRAFT KING AIR (BE-90A)

LOADING CHART

Fuel Loaded before Engine Starts*		Dispersant			Aircraft Gross Weight At Takeoff	Endurance to Reserve	
Gallons	LBS	Corexit 9500 (7.9 #/g) Gallons	Corexit 9527 (8.5 #/g) Gallons	LBS	LBS	VFR 30 min reserve	IFR 45 min reserve
370	2479	160	149	1264	10,456	4.32	4.07
370	2479	170	158	1343	10,535	4.32	4.07
370	2479	180	167	1422	10,614	4.32	4.07
370	2479	190	177	1501	10,693	4.32	4.07
370	2479	200	186	1580	10,772	4.32	4.07
370	2479	210	195	1659	10,851	4.32	4.07
370	2479	220	204	1738	10,930	4.32	4.07
370	2479	230	214	1817	11,009	4.32	4.07
370	2479	240	223	1896	11,088	4.32	4.07
370	2479	250	232	1975	11,167	4.32	4.07
370	2479	257	239	2028	11,220	4.32	4.07
366	2453	260	242	2054	11,220	4.27	4.02
354	2374	270	251	2133	11,220	4.11	3.86
343	2295	280	260	2212	11,220	3.96	3.71
331	2216	290	270	2291	11,220	3.80	3.55
319	2137	300	279	2370	11,220	3.64	3.39
307	2058	310	288	2449	11,220	3.49	3.24
295	1979	320	297	2528	11,220	3.33	3.08
284	1900	330	307	2607	11,220	3.17	2.92
272	1821	340	316	2686	11,220	3.01	2.76
260	1742	350	325	2765	11,220	2.86	2.61
248	1663	360	335	2844	11,220	2.70	2.45
236	1584	370	344	2923	11,220	2.54	2.29
225	1505	380	353	3002	11,220	2.39	2.14
213	1426	390	362	3081	11,220	2.23	1.98
201	1347	400	372	3160	11,220	2.07	1.82
189	1268	410	381	3239	11,220	1.92	1.67
177	1189	420	390	3318	11,220	1.76	1.51
172	1150	425	395	3358	11,220	1.68	1.43
165	1108	-----	400	3400	11,220	1.60	1.35
153	1022	-----	410	3485	11,220	1.43	1.18
140	937	-----	420	3570	11,220	1.26	1.01
134	895	-----	425	3613	11,220	1.17	.92

* Estimated that aircraft will use 55 pounds of fuel for run-up to taking off so that at takeoff aircraft will have 55 pounds less fuel than shown here. At 6.7 pounds of fuel per gallon this equates to 8.2 gallons of fuel. The flight times are based on the aircraft using 502 lbs of fuel per hour of the fuel available at takeoff.