

APOGEE D10

CERTIFIED VALUES

Total Impulse: 18.30 newton-seconds
Delays: 3, 5 and 7 seconds

Propellant Type: Composite
Propellant Mass: 9.8 grams

Casing Dimensions: 18 mm × 70 mm

Certification Date: 06-Oct - 29
Contest Use Date:

Certification Type: Model Rocket

STATIC TEST DATA

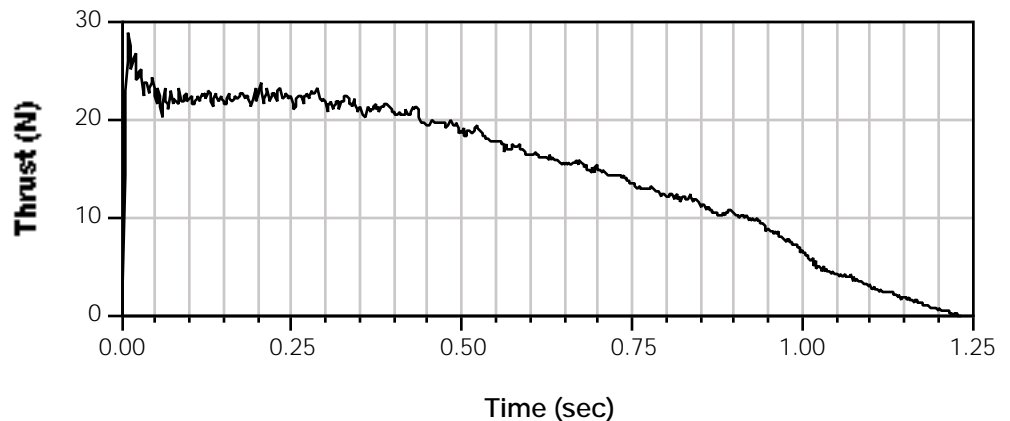
Date Tested: October 28, 2006

Total Impulse: 18.30 newton-seconds (0.60)
Peak Thrust: 29.11 newtons (3.08)
Burn Time: 1.23 seconds (0.06)
Average Thrust: 14.83 newtons

Mass After Firing: 14.1 grams

Delay Time	Average Measured Delay	Initial Mass
3	3.14	28.4 g
5	4.68	28.2 g
7	7.43	28.4 g

TYPICAL THRUST-TIME CURVE



REMARKS

				APOGEE	D10					
			ENGINE	TOTAL	MAX	AVG	BURN	DELAY	INIT	BURNT
			TYPE	IMPULSE	THRUST	THRUST	TIME	TIME	WT	WT
	AP14		D10-3	17.769	25.827	13.221	1.344	3.262	28.3	14.3
	AP15		D10-3	17.306	23.887	13.605	1.272	3.008	28.5	14.3
	AP16		D10-5	18.347	28.393	15.762	1.164	4.636	28.1	14.0
	AP17		D10-5	18.035	33.405	14.178	1.272	4.72	28.2	14.0
	AP111		D10-7	18.805	30.876	15.263	1.232	7.334	28.4	14.2
	AP112		D10-7	19.174	31.438	16.731	1.146	7.656	28.4	14.1
	AP113		D10-7	18.667	29.924	15.453	1.208	7.302	28.3	14.0
			AVG	18.30	29.11	14.89	1.23			14.13
			STD	0.60	3.08	1.17	0.06			
			STD %	3.26	10.57	7.85	5.15			
						14.830				
				DELAYS						
	ALLOWABLE									
	RANGE		INDICATED	AVG	ACTUAL	ACTUAL	ACTUAL			
1.5	TO	4.5	3	3.14	3.26	3.01			28.40	
3.5	TO	6.5	5	4.68	4.64	4.72			28.15	
5.5	TO	8.5	7	7.43	7.33	7.66	7.30		28.37	

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;; APOGEE D10 RASP.ENG FILE
; The total impulse, peak thrust, average thrust and burn time are
; the same as the averaged static test data on the NAR web site in
; the certification file. The curve drawn with these data points is as
; close to the certification curve as can be with such a limited
; number of points (32) allowed with wRASP up to v1.6.

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D10	18	70	3-5-7	0.0284	0.0098	AP
0.003	20.659					
0.009	29.110					
0.018	26.593					
0.031	23.927					
0.038	24.028					
0.051	22.389					
0.124	22.791					
0.149	22.167					
0.174	22.781					
0.187	21.855					
0.205	23.595					
0.253	22.047					
0.287	23.072					
0.306	21.433					
0.328	22.248					
0.357	20.598					
0.385	21.524					
0.414	20.598					
0.450	19.562					
0.485	19.452					
0.541	17.913					
0.597	16.575					
0.656	15.640					
0.731	14.201					
0.787	12.652					
0.860	11.003					
0.943	9.255					
0.997	6.792					
1.054	4.123					
1.115	2.477					
1.171	1.24					
1.230	0.000					

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