

# ESTES G40

## CERTIFIED VALUES

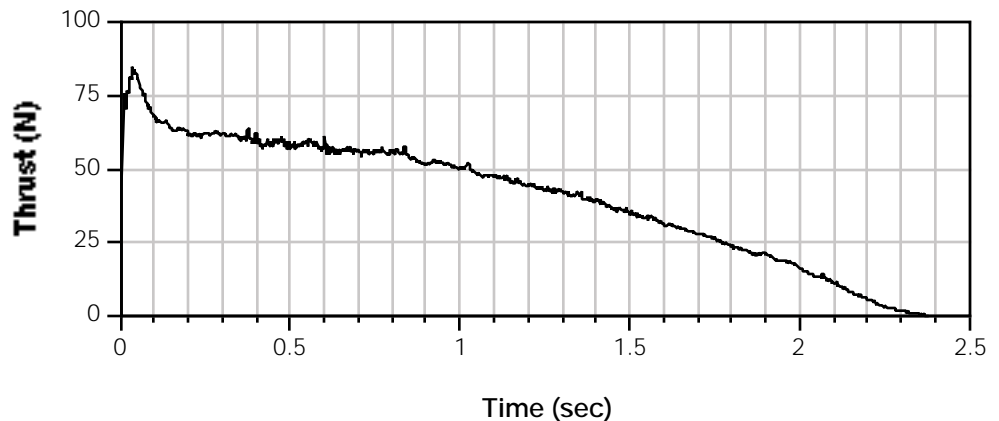
Total Impulse: 97.14 newton-seconds  
Delays: 4, 7 seconds  
Propellant Type: Composite White Lightning  
Propellant Mass: 53.8 grams  
Casing Dimensions: 29 mm × 124 mm  
Certification Date: Continuing  
Contest Use Date: Continuing  
Certification Type: Model Rocket

## STATIC TEST DATA

Date Tested: September 30, 2006  
Total Impulse: 97.14 newton-seconds ( 0.91)  
Peak Thrust: 84.51 newtons ( 16.68)  
Burn Time: 2.38 seconds ( 0.10)  
Average Thrust: 40.88 newtons  
Mass After Firing: 60.7 grams

Delay Time	Average Measured Delay	Initial Mass
4	4.26	122.6 g
7	7.07	123.4 g
10	10.86	122.6 g

## TYPICAL THRUST-TIME CURVE



## REMARKS

ESTES G40 Propellant Type: White Lightni Mass: 47.9 gr

Data Rate 1500 CPS ISP 184 SEC

Test Date 9/30/06

ENGINE TYPE	TOTAL IMPULSE	MAX THRUST	AVG THRUST	BURN TIME	DELAY TIME	INIT WT	BURNT WT
G40-4	95.17	73.16	37.68	2.53	3.06	122.3	60.8
G40-4	97.73	119.44	42.79	2.28	5.45	123.0	62.3
G40-7	97.34	84.36	41.11	2.37	7.85	123.6	61.0
G40-7	97.71	85.82	39.40	2.48	6.29	123.2	60.8

AVG	97.14	84.51	40.95	2.38	Rated Average Thru 40.89 N		
STD	0.91	16.68	1.85	0.10			
STD %	0.94	19.74	4.52	4.01			

#### DELAYS

ALLOWABLE RANGE	INDICATED	AVG	ACTUAL	ACTUAL
3 To 5.5	4	4.26	3.06	5.45
6 To 8.5	7	7.07	7.85	6.29

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; ESTES G40 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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Time (sec)	Thrust (N)
G40	29
124	4-7
0.0538	0.123
ESTES	
0.012	74.822
0.039	84.510
0.073	74.458
0.112	66.655
0.137	67.009
0.152	64.169
0.231	62.026
0.316	62.370
0.358	61.652
0.370	64.139
0.404	59.873
0.467	59.771
0.507	58.792
0.555	59.853
0.677	56.649
0.801	55.922
0.913	50.939
0.968	51.990
1.029	51.626
1.080	47.725
1.208	44.157
1.335	41.661
1.535	34.181
1.672	29.199
1.784	24.570
1.860	19.951
1.899	20.658
2.024	14.958
2.124	8.919
2.233	3.583
2.380	0.000

