

ESTES D12

CERTIFIED VALUES

Total Impulse: 17.00 newton-seconds
Delays: 0, 3, 5, 7 seconds

Propellant Type: Black Powder
Propellant Mass: 21.1 grams

Casing Dimensions: 24 mm × 70 mm

Certification Date: Continuing
Contest Use Date: Continuing

Certification Type: Model Rocket

STATIC TEST DATA

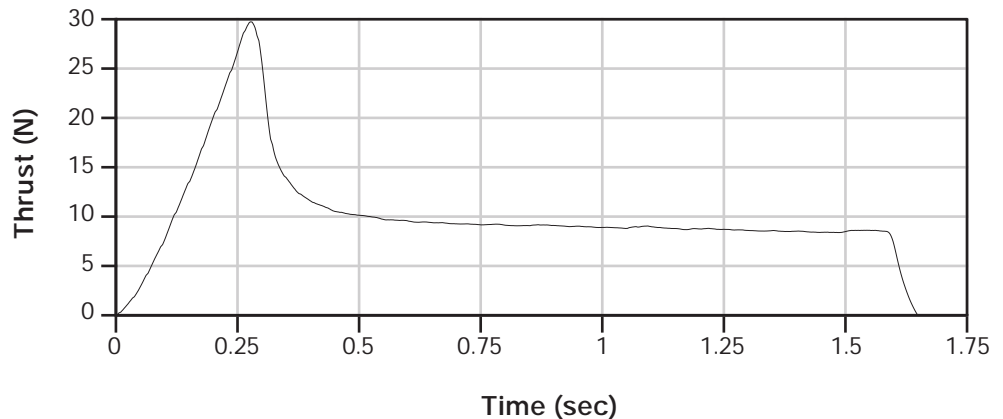
Date Tested: 94-September-17

Total Impulse: 16.84 newton-seconds (σ 0.53)
Peak Thrust: 29.73 newtons (σ 4.59)
Burn Time: 1.65 seconds (σ 0.30)
Average Thrust: 10.21 newtons

Mass After Firing: 16.0 grams

Delay Time	Average Measured Delay	Initial Mass	Mfg Recommended Max Liftoff Weight
0	0.00	39.2 g	396.2 g
3	2.39	41.4 g	396.2 g
5	4.25	45.2 g	283.0 g
7	5.75	44.9 g	226.4 g

TYPICAL THRUST-TIME CURVE



REMARKS

; Estes D12 RASP.ENG file made from NAR published data
; File produced October 3, 2000
; 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.

D12 24 70 0-3-5-7 .0211 .0426 E
0.049 2.569
0.116 9.369
0.184 17.275
0.237 24.258
0.282 29.730
0.297 27.010
0.311 22.589
0.322 17.990
0.348 14.126
0.386 12.099
0.442 10.808
0.546 9.876
0.718 9.306
0.879 9.105
1.066 8.901
1.257 8.698
1.436 8.310
1.590 8.294
1.612 4.613
1.650 0.000

