



## Model Rocket Engines

### ENGINE CODING FOR QUICK-N-EASY IDENTIFICATION

#### 1. Label color indicates recommended use of the engine.

- a. Green ..... Single Stage rockets
  - b. Purple ..... Upper Stage or Single Stage, if used in very light rockets
  - c. Red ..... \*Booster and intermediate stages of multi-stage rockets
  - d. Blue ..... \*Special plugged engines for R/C gliders
- \*These contain no delay or ejection charge.

#### 2. Code designation stamped on the engine gives useful and important information on its performance capabilities.

- a. This portion indicates total impulse or total power produced by the engine.
- b. This portion shows the engine's average thrust in Newtons and helps you choose the proper engine for your rocket's flight.
- c. This number gives you the delay in seconds between burnout and ejection charge. It lets you choose the engine with the delay time you want for any flight.



### TOTAL IMPULSE CLASSIFICATION

Code	Pound-Seconds	Newton-Seconds
1/2A	0.14 - 0.28	0.625 - 1.25
A	0.28 - 0.56	1.26 - 2.50
B	0.56 - 1.12	2.51 - 5.00
C	1.12 - 2.24	5.01 - 10.00
D	2.24 - 5.00	10.01 - 20.00

### HOW HIGH WILL YOUR ROCKET GO?

The chart below shows the approximate altitudes that can be achieved with single stage rockets.

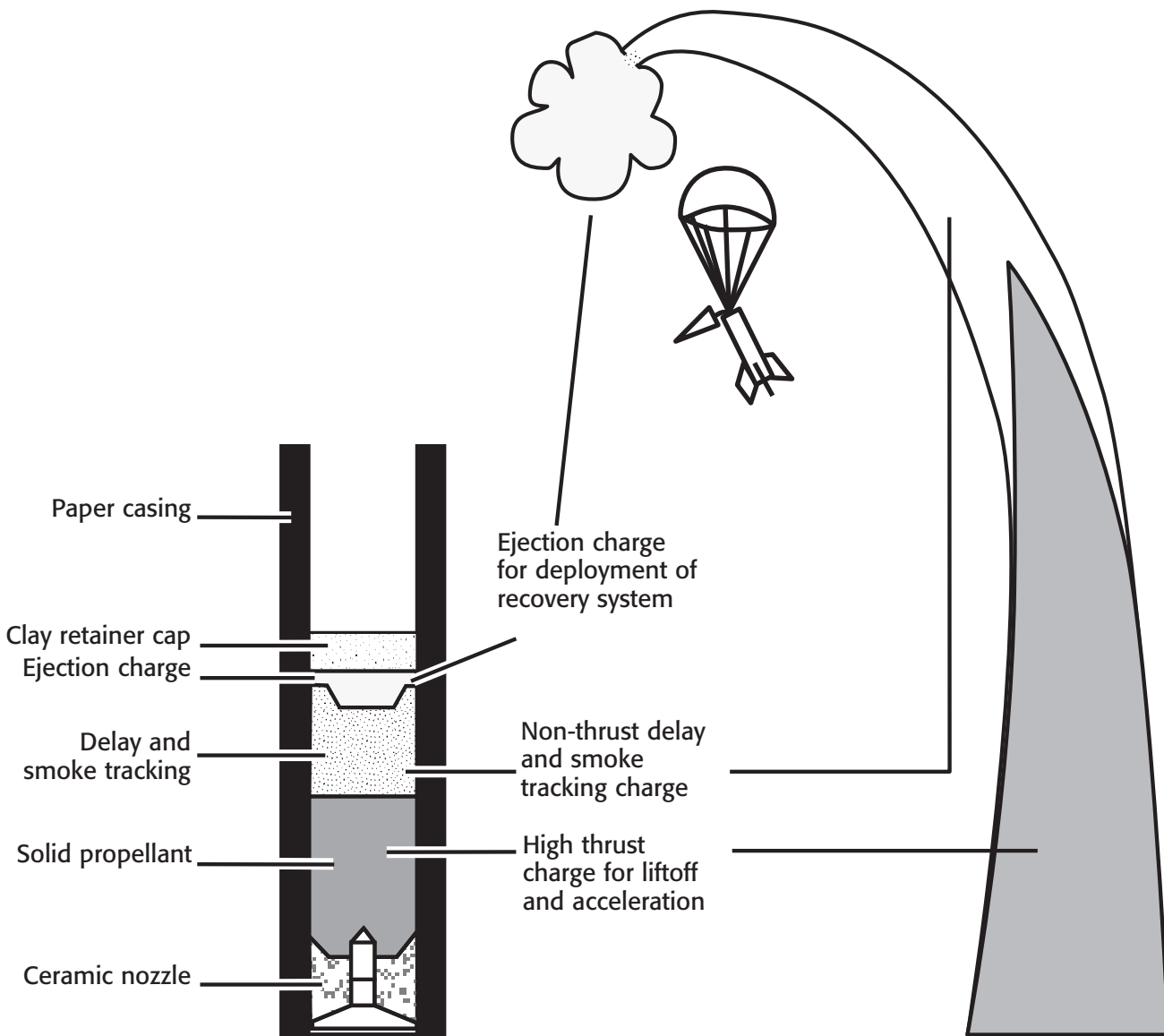
Engine Size	Altitude Range depending on rocket size and weight	Approximate Altitude in a typical 1 oz. model
1/2A6-2	100' to 400'	190'
A8-3	200' to 650'	450'
B6-4	300' to 1000'	750'
C6-5	350' to 1500'	1000'

(Some high performance rockets will reach higher altitudes than shown above.)



## Model Rocket Engine Functions

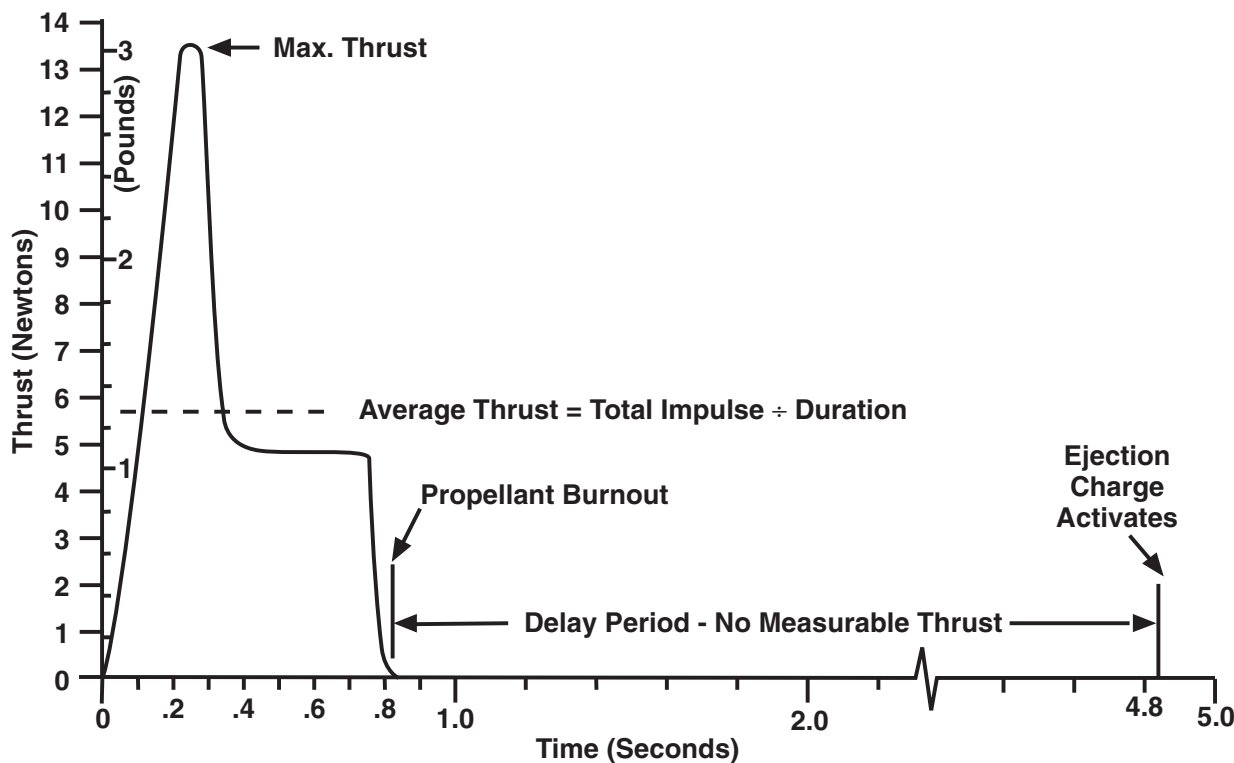
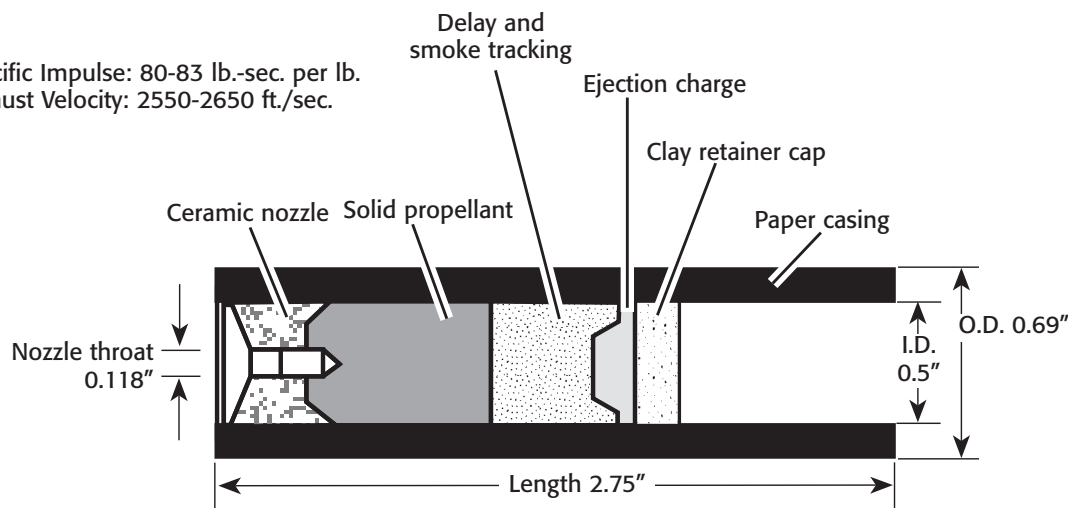
Graphic explanation of a rocket engine's construction and functions





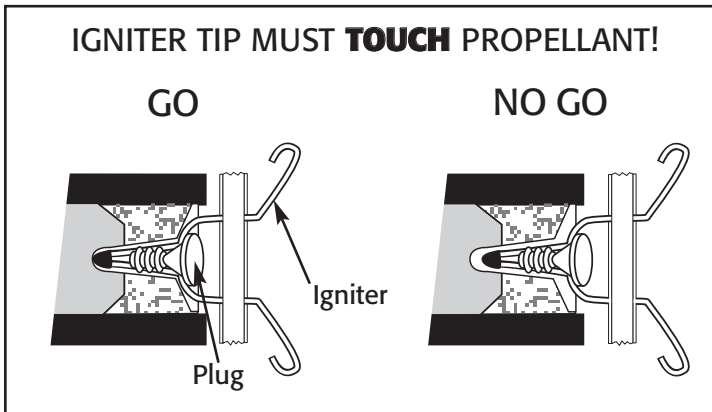
## Typical Time/Thrust Curve B6-4 Model Rocket Engine

Specific Impulse: 80-83 lb.-sec. per lb.  
Exhaust Velocity: 2550-2650 ft./sec.





## Igniter Installation



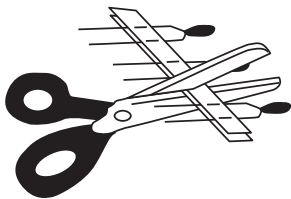
About 90% of all problems with engine ignition are caused by the igniter not being properly and securely held in place in the engine.

The igniter must **touch** the propellant at the moment the igniter is heated for ignition.

Attach micro-clips to igniter leads as close as possible to nozzle.

### MODEL ROCKET IGNITER INSTALLATION

Always use electrical model rocket igniters with a model rocket launch controller.



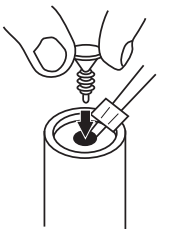
1. Cut tape separating igniters. Do not remove tape.



2. Separate plug from strip of plugs.



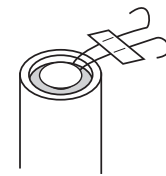
3. Insert igniter into engine. Igniter must touch propellant.



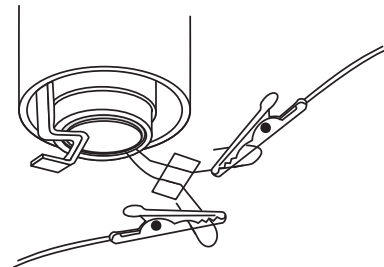
4. Insert plug into engine nozzle.



5. Push plug firmly into engine.



6. Bend igniter wires.



7. Attach one micro-clip to each lead of igniter. Clips must not touch each other or blast deflector and igniter leads must not cross.