



EstesRockets.com

COSMIC RAY™

1112

AGES
10+



Skill Level

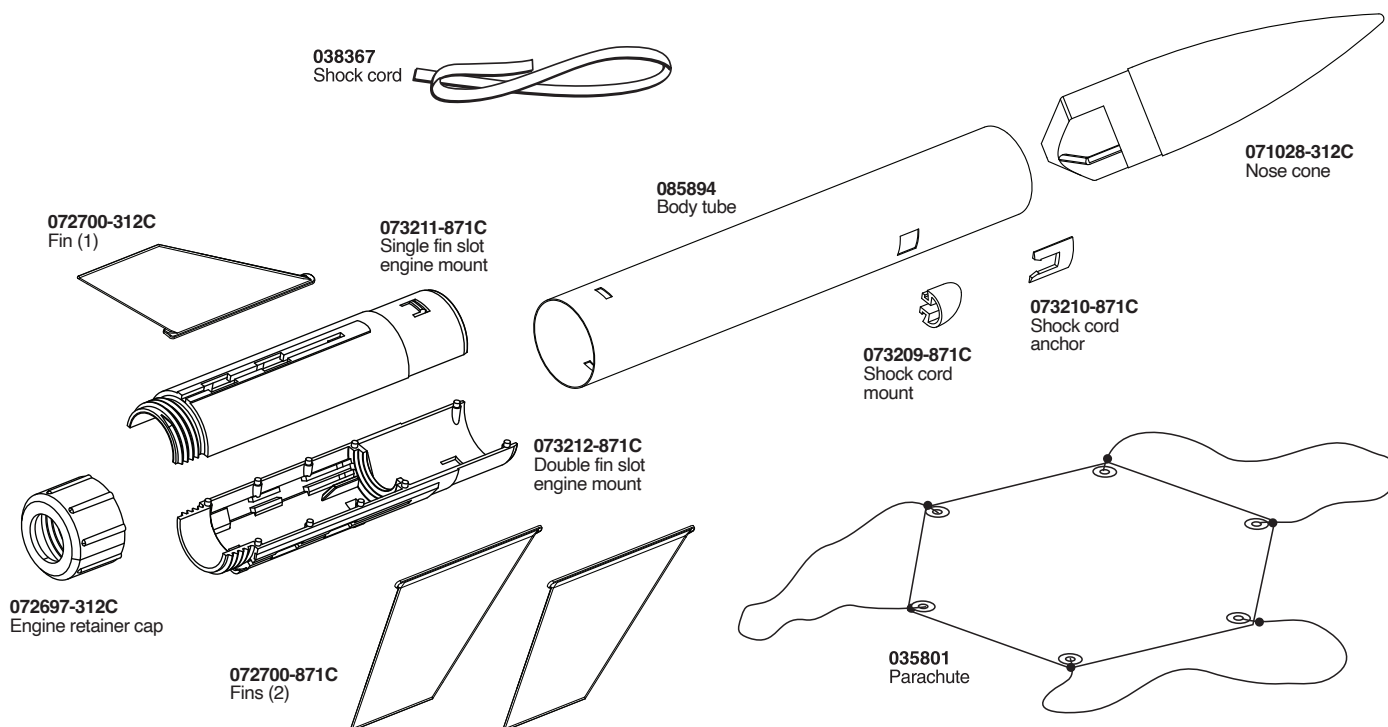
BEGINNER

MODEL ROCKET INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

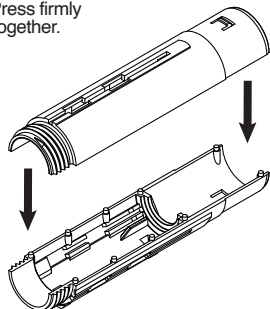
IMPORTANT: Please record date found on box and keep for future reference.

READ ALL INSTRUCTIONS. Make sure you have all parts and supplies.

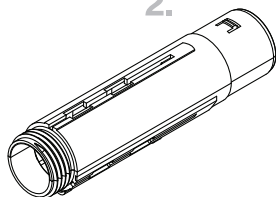


ASSEMBLE ENGINE MOUNT FIN CAN UNIT

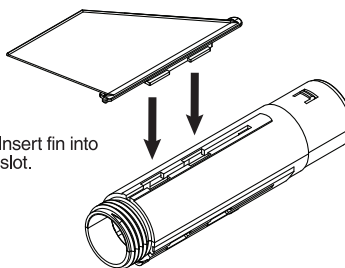
1. Press firmly together.



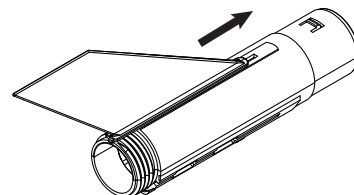
2.



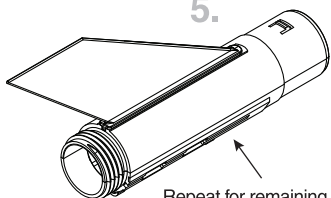
3. Insert fin into slot.



4. Slide fin forward to lock into place.

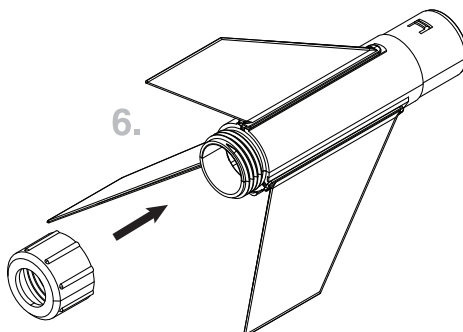


5.

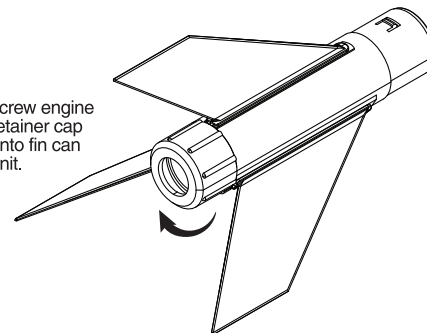


Repeat for remaining fins.

6.



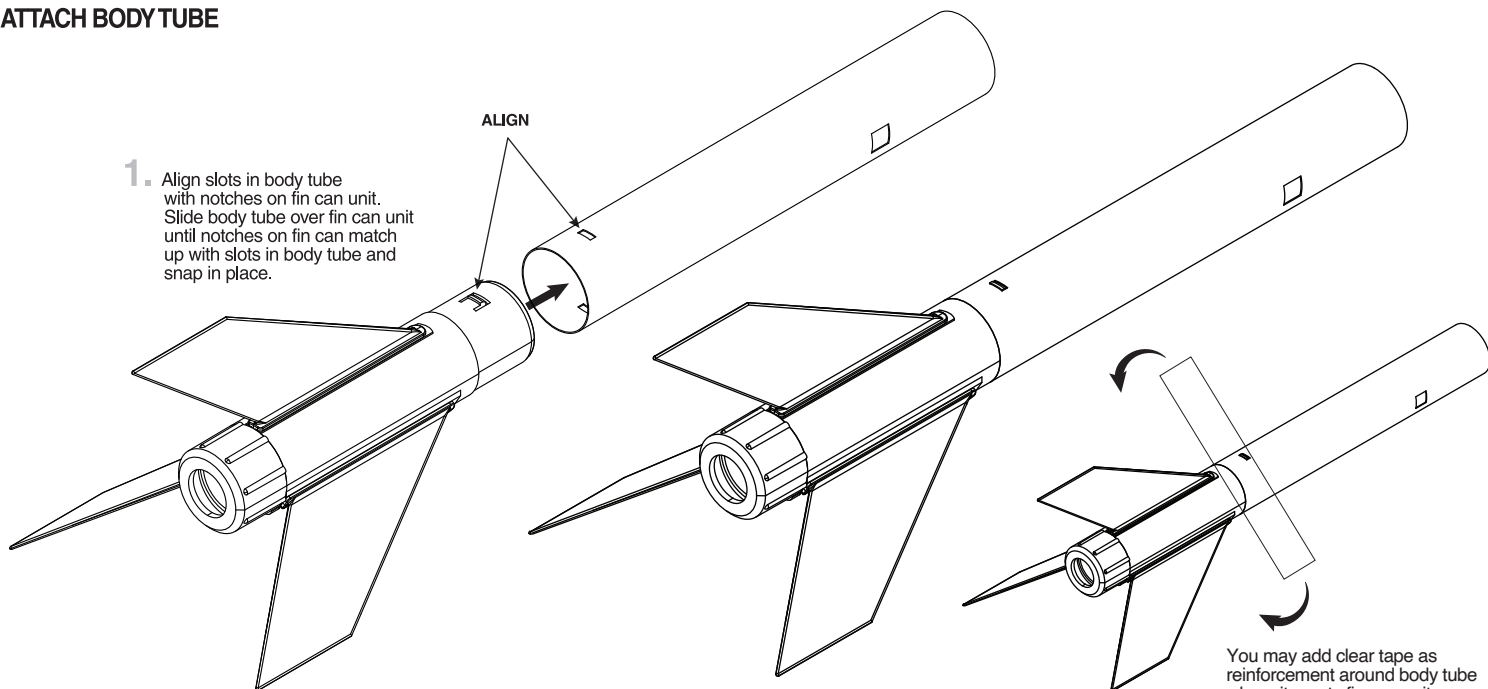
7. Screw engine retainer cap onto fin can unit.



ATTACH BODY TUBE

1. Align slots in body tube with notches on fin can unit. Slide body tube over fin can unit until notches on fin can match up with slots in body tube and snap in place.

ALIGN



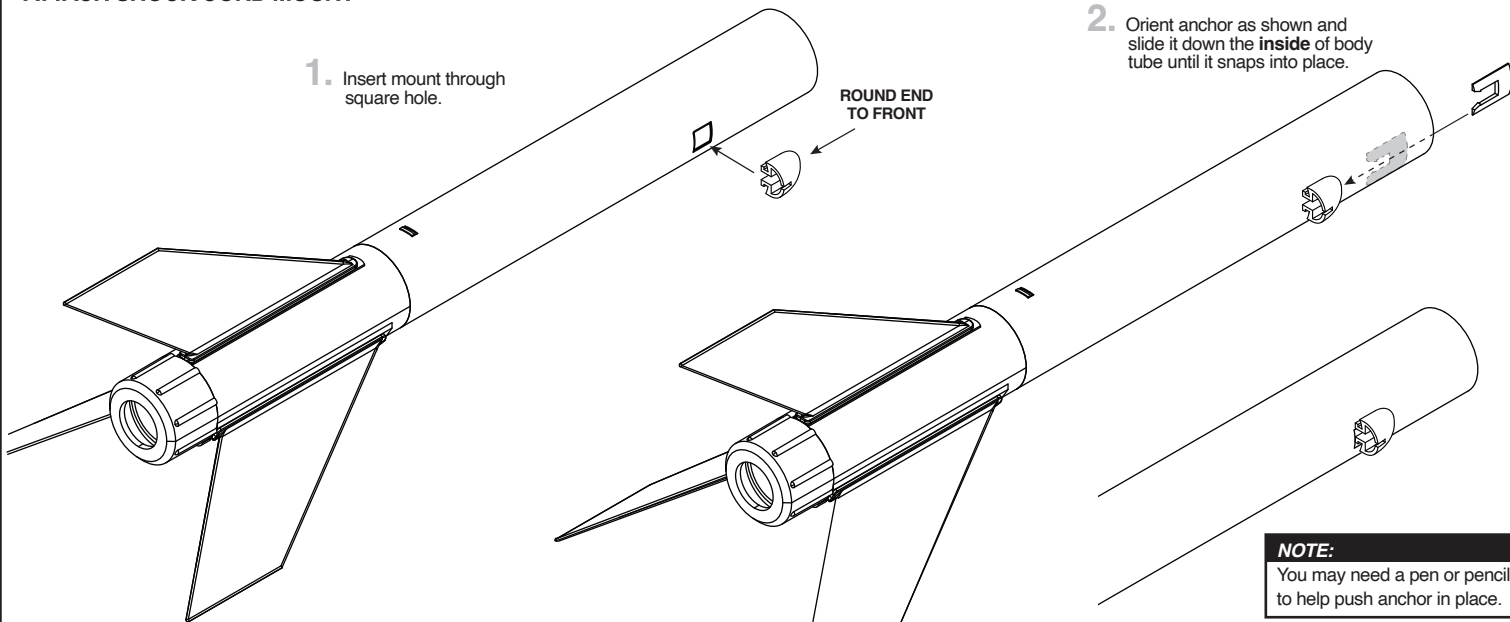
You may add clear tape as reinforcement around body tube where it meets fin can unit.

ATTACH SHOCK CORD MOUNT

1. Insert mount through square hole.

ROUND END
TO FRONT

2. Orient anchor as shown and slide it down the **inside** of body tube until it snaps into place.



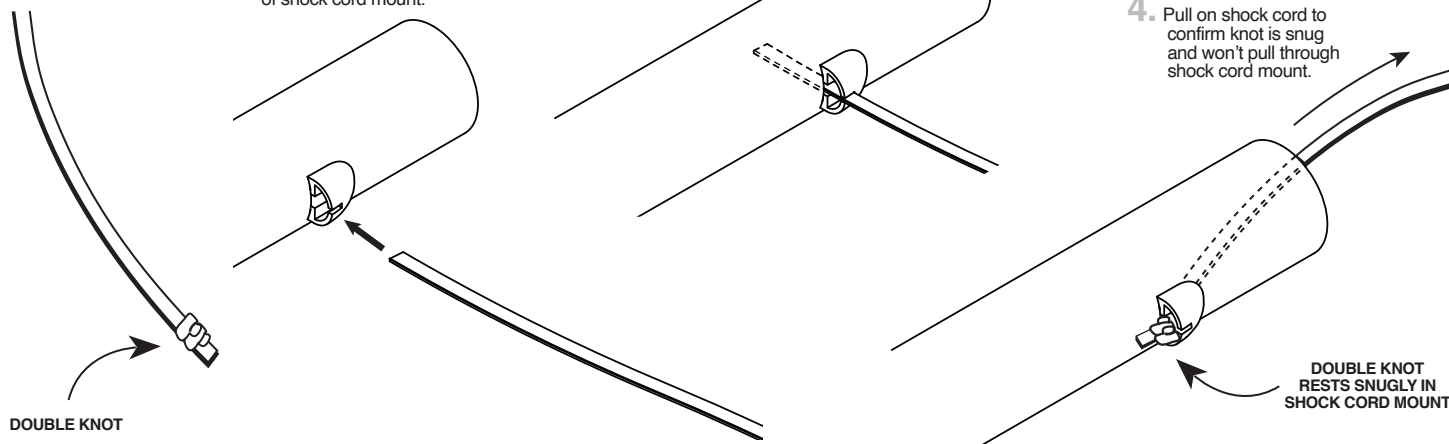
NOTE:
You may need a pen or pencil to help push anchor in place.

INSTALL SHOCK CORD

1. Tie double knot in end of shock cord.
2. Insert **unknotted** end of shock cord through opening of shock cord mount.

3.

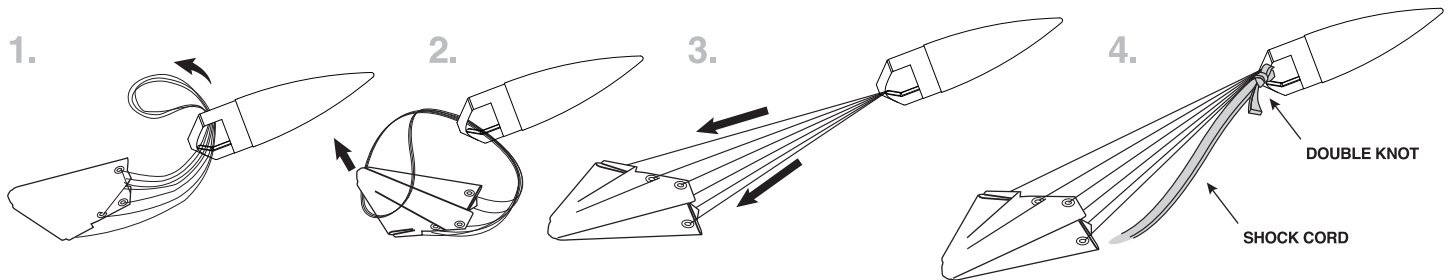
4. Pull on shock cord to confirm knot is snug and won't pull through shock cord mount.



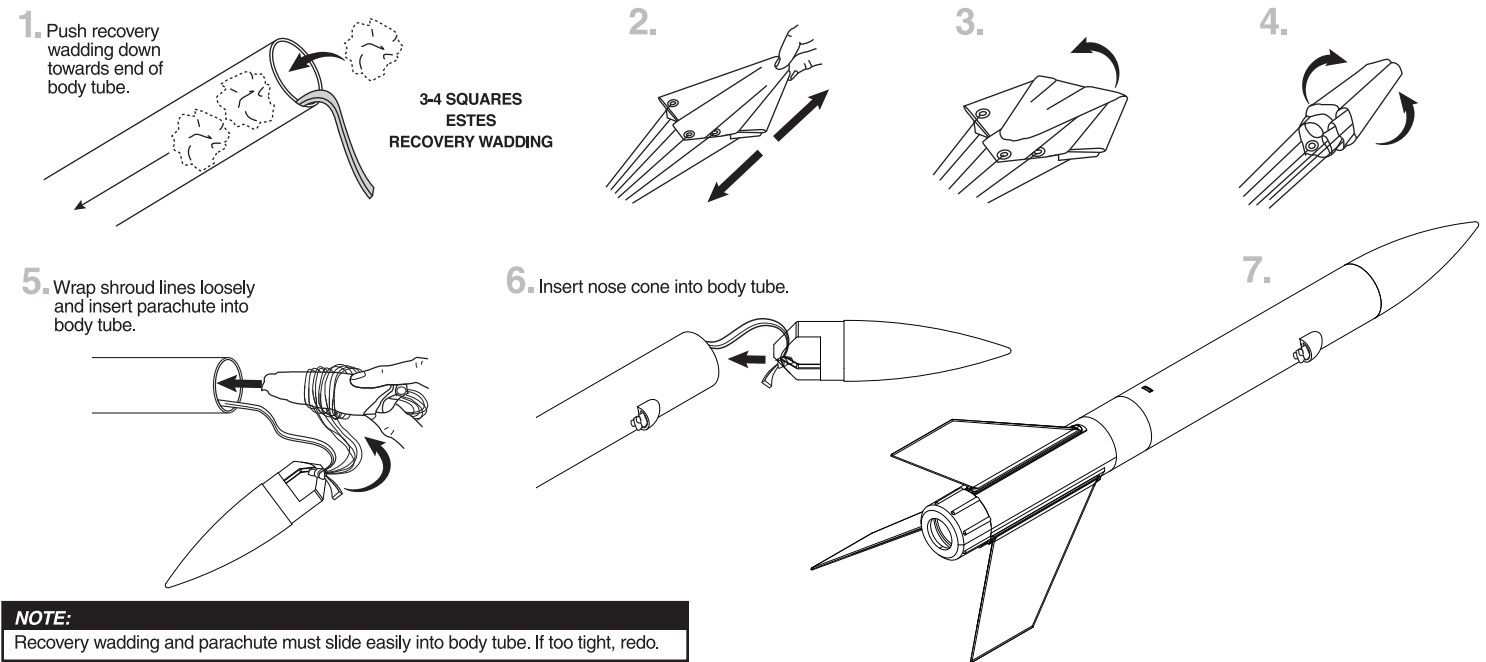
DOUBLE KNOT

DOUBLE KNOT
RESTS SNUGLY IN
SHOCK CORD MOUNT

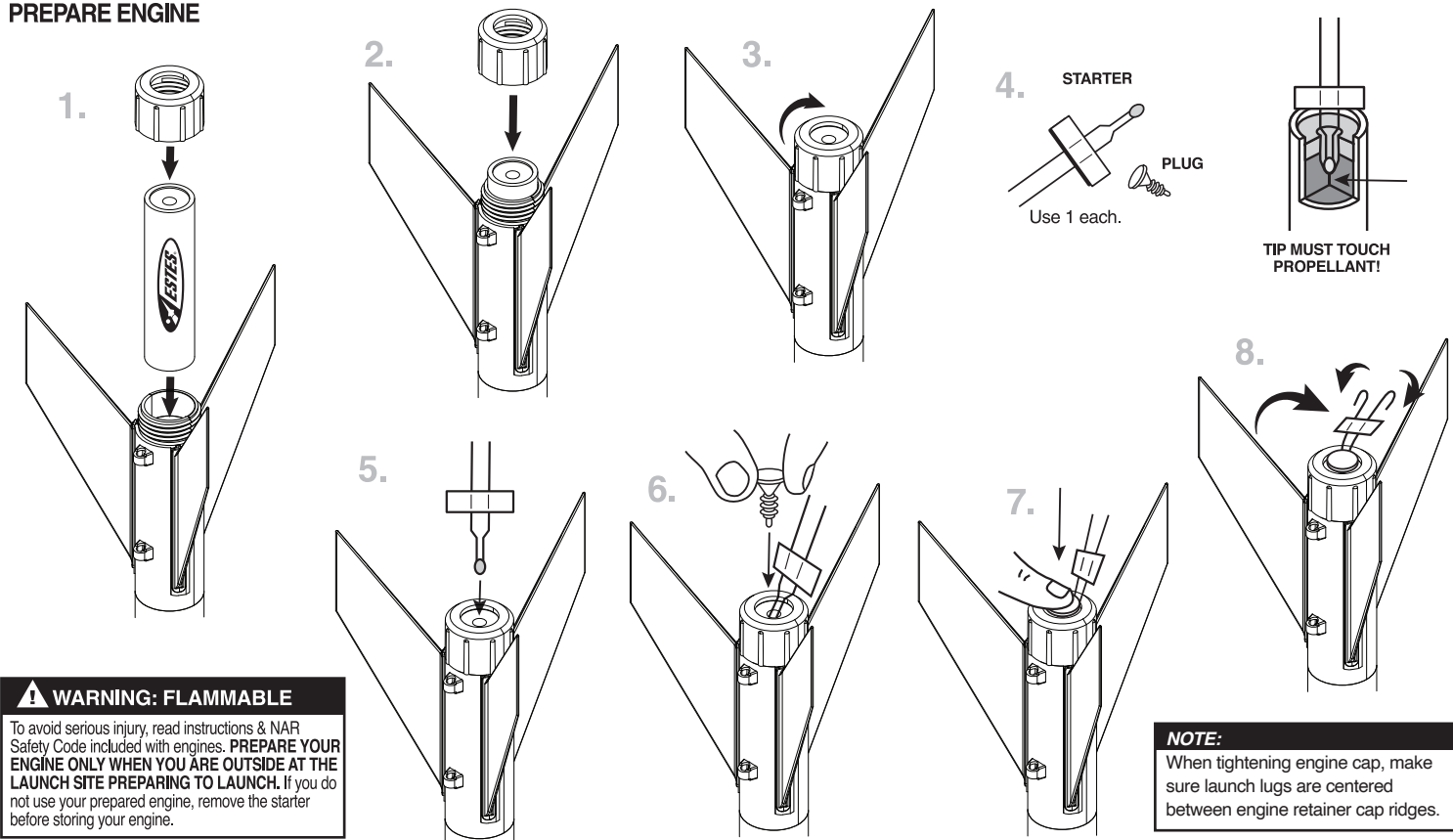
ATTACH PARACHUTE AND SHOCK CORD



PREPARE FLIGHT RECOVERY



PREPARE ENGINE



⚠ WARNING: FLAMMABLE

To avoid serious injury, read instructions & NAR Safety Code included with engines. **PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH.** If you do not use your prepared engine, remove the starter before storing your engine.

NOTE:

When tightening engine cap, make sure launch lugs are centered between engine retainer cap ridges.

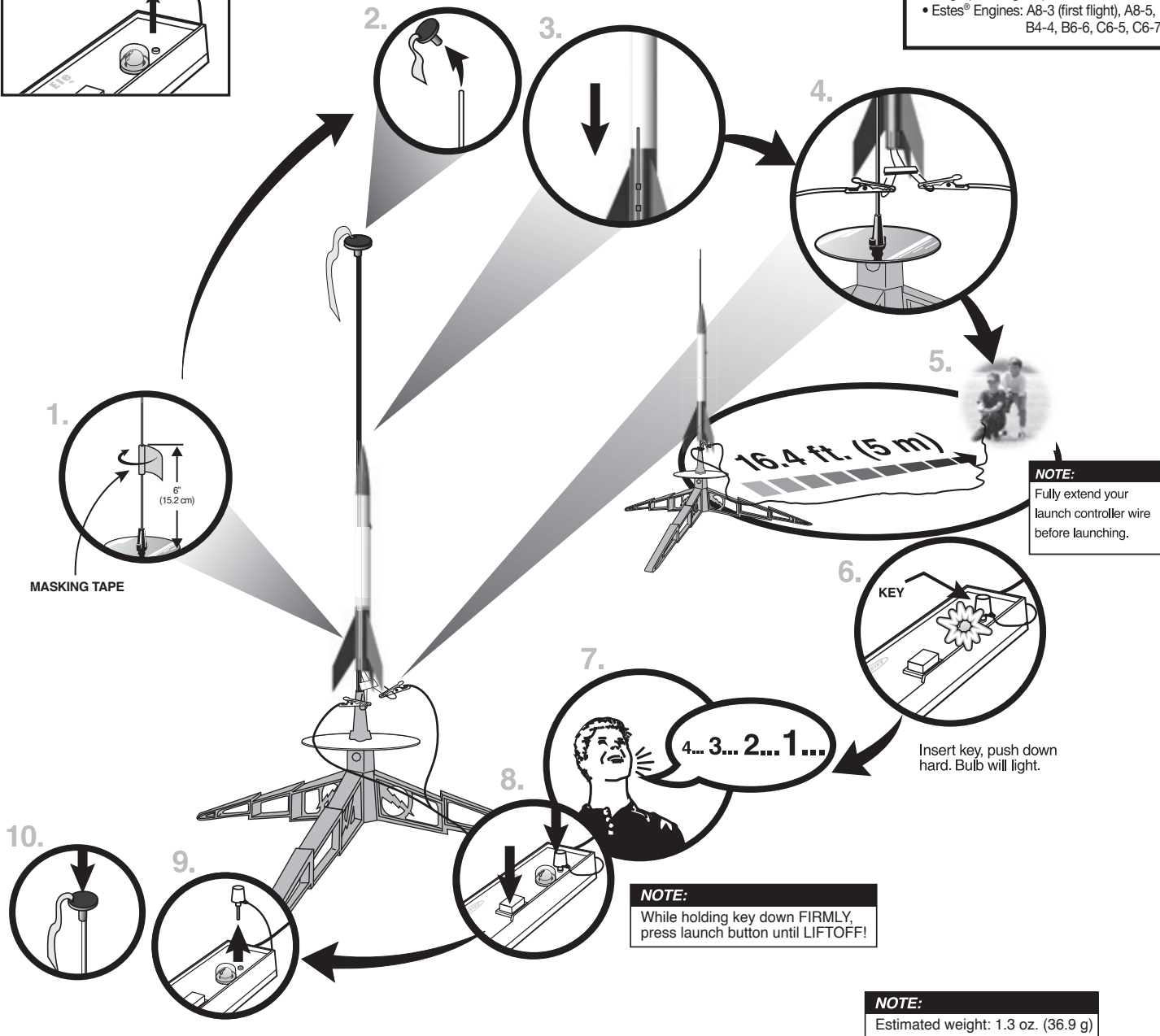
COUNTDOWN AND LAUNCH

NOTE:

Key always out until final countdown!

ESTES® LAUNCH SUPPLIES NEEDED (Sold Separately)

- Porta-Pad® II Launch Pad
- Electron Beam® Launch Controller
- Recovery Wadding
- Starters (with engines)
- Plugs (with engines)
- Estes® Engines: A8-3 (first flight), A8-5, B4-4, B6-6, C6-5, C6-7



PRECAUTIONS



NAR SAFETY CODE



NO DRY GRASS
OR WEEDS

PRE-LAUNCH CHECK For safety, never launch a damaged rocket. Check the rocket's body, nose cone and fins. Also, check the engine mount, recovery system and launch lug(s). Repair any damage before launching the rocket.

FLYING YOUR ROCKET Choose a large field (500 ft. [152 m] square) free of dry weeds and brown grass. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great. Launch only with little or no wind and good visibility. Always follow the National Association of Rocketry (NAR) SAFETY CODE (enclosed).

MISFIRES TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET! Disconnect the micro clips and remove the engine. Take the plug and starter out of the engine. A burned starter means the starter tip was not touching engine propellant. Install a new starter; be sure the tip is touching propellant inside engine. Repeat the steps under Countdown and Launch.

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PN 090004-1112 (1-24)



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LIFETIME LAUNCH PAD

2310

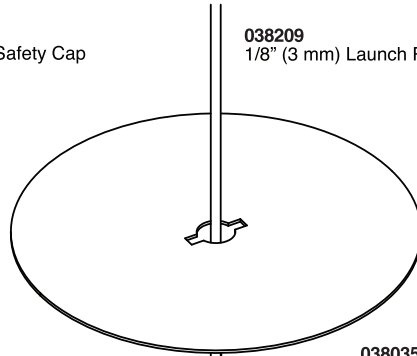
MODEL ROCKET LAUNCH PAD INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

PARTS



060033
Launch Rod Safety Cap



038209
1/8" (3 mm) Launch Rod

038203/204
3/16" (5 mm) Launch Rod

038035
Blast Deflector Plate

060031
Stand-off Stem

072310
Tiltable Launch Rod Holder

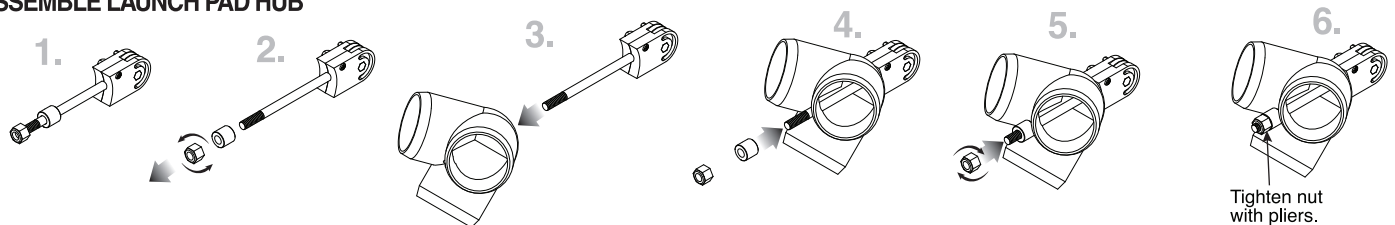
038065
Launch Rod Hub

Assembled Launch Pad

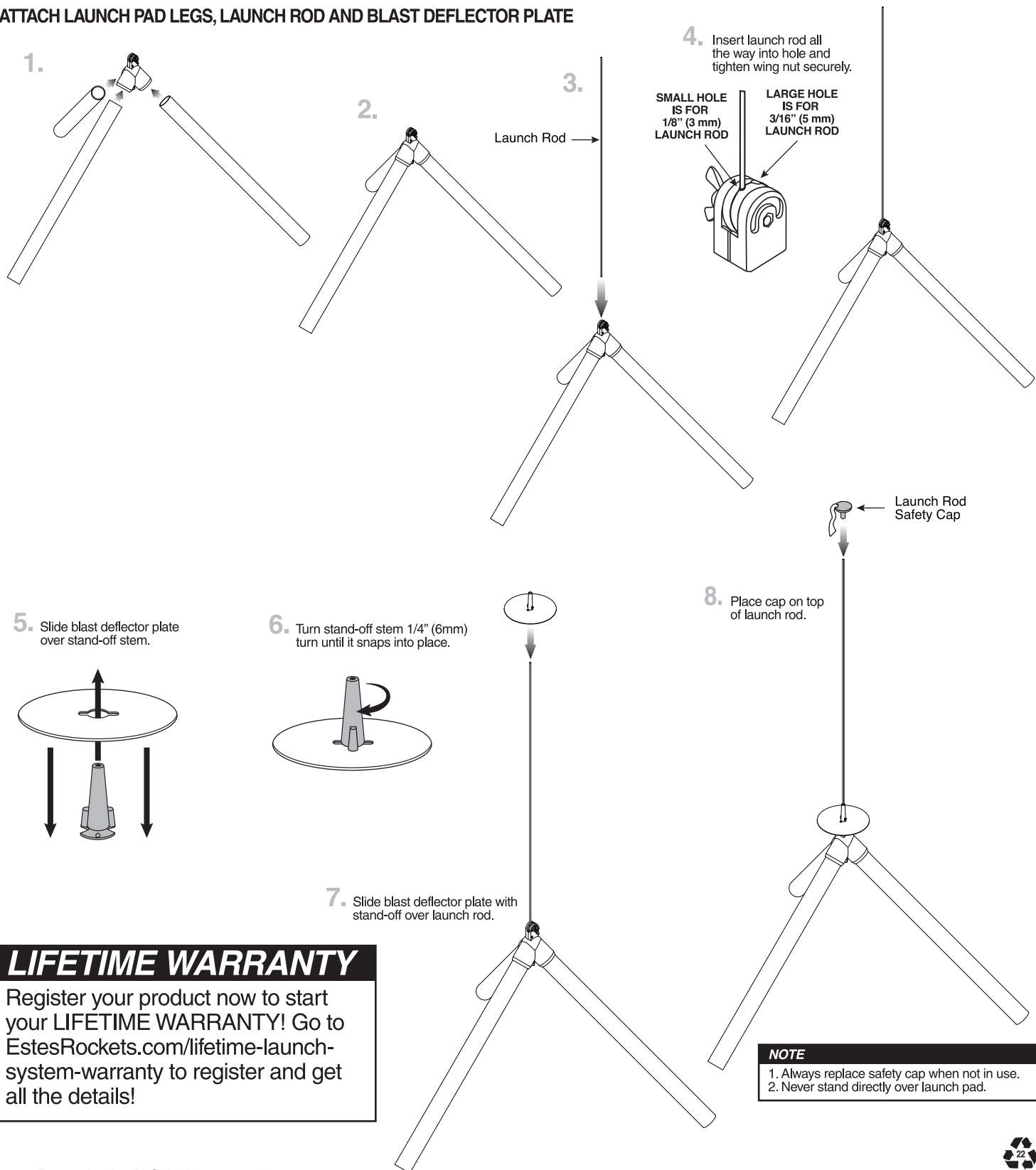


038060
Launch Pad Legs

ASSEMBLE LAUNCH PAD HUB



ATTACH LAUNCH PAD LEGS, LAUNCH ROD AND BLAST DEFLECTOR PLATE



LIFETIME WARRANTY

Register your product now to start your LIFETIME WARRANTY! Go to EstesRockets.com/lifetime-launch-system-warranty to register and get all the details!

NOTE

1. Always replace safety cap when not in use.
2. Never stand directly over launch pad.

Voyager

PRODUCT MANUAL

ON/OFF
BUTTON

LED INDICATOR
HUMIDITY PORT

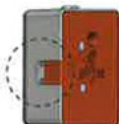
LIGHT SENSOR



INFRARED
RANGEFINDER
AXIS
ORIENTATION



ALIGN SILICONE
CASE BUTTON
WITH VOYAGER
BUTTON



MICRO USB
CHARGING
PORT

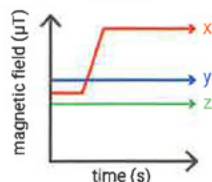
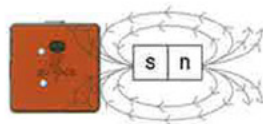
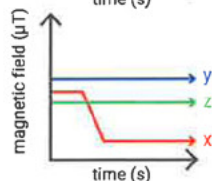
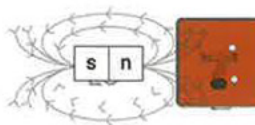
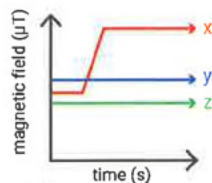
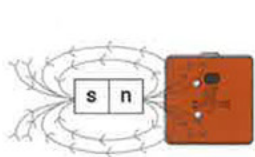


TEMPERATURE
JACK

MAGNETOMETER

MEASURE MAGNETIC FIELDS

If the direction of an axis of the magnetometer is aligned with the direction of the magnetic field, the strength of the magnetic field will increase along that axis. Can you find the north and south side of a magnet on your refrigerator?



BUTTON FUNCTIONS

Short press	Initiate Bluetooth connection
Long press	Power off

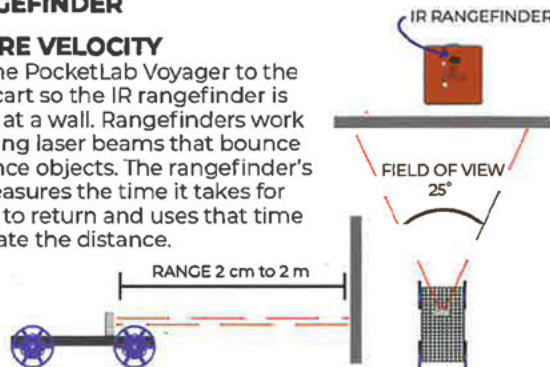
LED CODES

Fast red and green flash	Ready to connect via Bluetooth
Slow red and green flash	Disconnected from app
3 green flashes	Bluetooth connection initiated
Green flash every 5 seconds	Connected to app
Solid red	Disconnecting from app
3 red flashes every 10 seconds	Battery charging
Orange flashes	Downloading stored data to app

IR RANGEFINDER

MEASURE VELOCITY

Attach the PocketLab Voyager to the top of a cart so the IR rangefinder is pointing at a wall. Rangefinders work by emitting laser beams that bounce off distance objects. The rangefinder's clock measures the time it takes for the laser to return and uses that time to calculate the distance.



SENSOR CAPABILITIES

ACCELERATION
ANGULAR VELOCITY
MAGNETIC FIELD
POSITION - RANGEFINDER
VELOCITY - RANGEFINDER
TEMPERATURE - PROBE
TEMPERATURE - AMBIENT
BAROMETRIC PRESSURE

ALTITUDE
LIGHT INTENSITY
HUMIDITY
DEW POINT
HEAT INDEX

CHARGING THE BATTERY

To charge the battery, connect a micro USB cable to the connector on the PocketLab. Plug the USB cable into a USB charger or computer port. The LED will blink red every 10 seconds while charging and stop blinking when fully charged.

CONNECTION
Bluetooth 4.0

SIZE
3.9 x 3.9 x 1.6 cm
(1.5 x 1.5 x 0.6 in)
17 grams (0.6 oz)

BATTERY
Rechargeable Li-Poly
Connect via micro USB
240 mAh capacity

SENSOR SETTLE TIME

Give your PocketLab Voyager up to ten minutes to settle on new conditions.

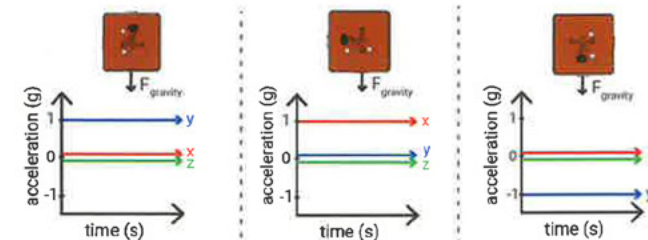
PRODUCT CARE

PocketLab Voyager is NOT waterproof. Make sure it is protected from rain.

ACCELEROMETER

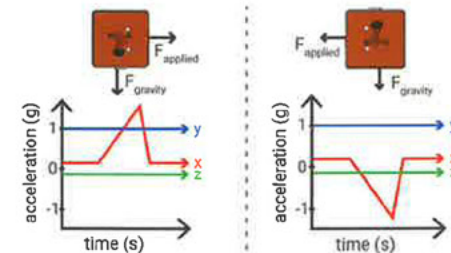
MEASURE GRAVITY

With PocketLab Voyager at rest, change its orientation with respect to Earth's gravity. How does the graph change?



MEASURE MOVEMENT

Shake PocketLab Voyager back and forth along different axes. How does the graph change?



Need Support?

Sign in to PocketLab Notebook for tutorials, knowledge base and chat support.

thepocketlab.com/notebook

Email:

thepocketlab.com/contact

Find detailed instructions and experiments.

app.thepocketlab.com/voyager

1

Turn On

Turn on your PocketLab sensor by pressing the button on the top. LED light will start blinking.

To turn off PocketLab, hold power button for three seconds until you see a solid light.

See your product manual for LED codes.

2

Connect

Stream live data from your sensor. Go to thepocketlab.com/notebook and click "Connect a PocketLab"

Computers with Chrome, Microsoft Edge

Go to thepocketlab.com/notebook

Google Play App Store

Download "PocketLab Notebook"

Apple App Store

Download "PocketLab" iOS app

3

Sign Up

Get more features in PocketLab Notebook by signing up for a free account.

thepocketlab.com/notebook

Save your data in the cloud.
Analyze data in real time.

Teachers with a free Notebook account can

- Build lessons from templates
- Customize lessons from our Lesson Library
- Manage a classroom of 35 students

Notebook Pro Subscription

Do more with a PocketLab Notebook Pro subscription, our all-in-one digital lab software built for teachers.

Use PocketLab with multiple classes and 200+ students.

Create unlimited classrooms and student accounts that also integrate seamlessly with Google Classroom.

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Let's get started.

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