

CARE AND STORAGE

You may wish to keep your launch system assembled with the solution remaining in the Fuel Generator for future launches. If so, be sure that the Power Switch is "off" and the rocket is removed from the Launch Tube. If you do not plan on launching for a couple of days, we recommend that you disassemble and store your Hydrogen Fuel Rocket System as follows:

1. Turn the Power Switch "OFF".
2. Slide the Rocket off the Launch Tube.
3. Twist, unlock and remove the Launch Tube.
4. Twist, unlock and remove the Fuel Generator, being careful not to spill the solution.
5. Carefully pour the solution back into the plastic storage bottle and then cap the bottle. Remember the solution may have a brown color but it is still good to use. **Do Not Discard Solution.**
6. Rinse Fuel Generation Assembly out with tap water. Let air dry.
7. For extended storage, remove the batteries from the Launch Base.

MISFIRES

- Check that the Power Switch is turned 'ON' and Red LED is lit.
- Check that the Launch Base is level on the ground and not tilted.
- Make sure that the Launch Cable is pulled straight and away from the Launch Base.
- Make sure igniter in Fuel Generator is dry and not soaked with solution.
- Make sure new D batteries are installed.

TROUBLESHOOTING

No fuel being generated (can't see any bubbles):

- Generator not twisted far enough when assembled. See IMPORTANT on Page 2.
- Power Switch not 'ON'.
- Batteries low and need replacement.
- No solution in Fuel Generator.
- Generator not reset after launch.
- Generator sat idle for 6 minutes or longer and shut down.

Rocket will not launch:

- Power Switch not 'ON'.
- Fuel Generation time not long enough.
- Solution not allowed to soak into generator long enough.
- Launch Cable not held taut enough to activate Safety Switch.
- Launch Button not held down long enough.
- Igniter in Fuel Generator wet with solution.
- Rocket not all the way down on Launch Tube.
- Small O- Ring on top of Launch Tube missing or not seated properly.
- Rocket Body and/or Fuel Generator cracked or broken.
- Rocket not launched before "Launch Tone" stops.

If you see damage to any area of the fuel generating system, launch assembly or rocket, do NOT attempt to generate hydrogen fuel or launch rocket. Call the Estes® Customer Service Center at 1-800-525-7561 ext. 216 for assistance or replacement parts.

Hydrogen Rocket Performance

The chemical reaction taking place in the combustion chamber of your Hydrogen Rocket Launch Base creates water vapor. This water vapor will show itself as condensation or water droplets formed on the inside of the combustion chamber. If it is hot and humid outside while operating your H2 Rocket, enough water vapor can accumulate to reduce the launch height of your rocket.

If you see water droplets forming in the combustion chamber and notice a reduced launch height of your rocket, we recommend the following:

- Lift the launch base between each generation cycle and swirl the unit a few times until the water droplets are washed from the chamber walls.
- Remove the launcher assembly and gently blow into the chamber to circulate the humid air.
- Reattach the launcher assembly.
- You can prepare your Hydrogen Rocket Set for another exciting launch sequence.

Caution: Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the device and receiver.
- Consult Estes for help.

HYDROGEN ROCKET SAFETY CODE

To prevent the possibility of severe injury to you and others or damage to your HF launcher and rocket:

1. Never place or allow anyone else to place any part of his/her body over the launch tube.
2. Never launch when anyone is within 15 feet (5 m) of the launcher.
3. Never launch your rocket so that people or animals are in its flight path.
4. Always launch outside in a large open space like a sports field or playground away from power lines, trees, buildings and busy roads.
5. Launch only when there is little or no wind and good visibility.
6. Never launch any item or rocket except rockets designed specifically for the HF launch system. An HF rocket must have a special recovery system designed to return the rocket safely so that it may be used again.
7. Never attempt to catch a descending rocket. Keep everyone clear of the rocket's descent path.
8. Never attempt to retrieve a rocket from a power line or other dangerous place
9. Never attempt to alter the HF launcher or HF rocket in any way.
10. Never use any material or liquid in the HF launcher other than water and the crystals in the ratio provided.
11. In case of misfire stop pressing the launch button, release tension on the launch cable and wait 60 seconds before allowing anyone to approach the launcher. Flip the power switch to "OFF", while examining your rocket and launcher. Never place or allow anyone to place any part of his/her body over the launch tube.



HYDROGEN FUEL ROCKET WITH LIGHTS AND SOUND

www.estesrockets.com

RECOMMENDED FOR AGES 10 AND UP WITH ADULT SUPERVISION FOR THOSE UNDER 12

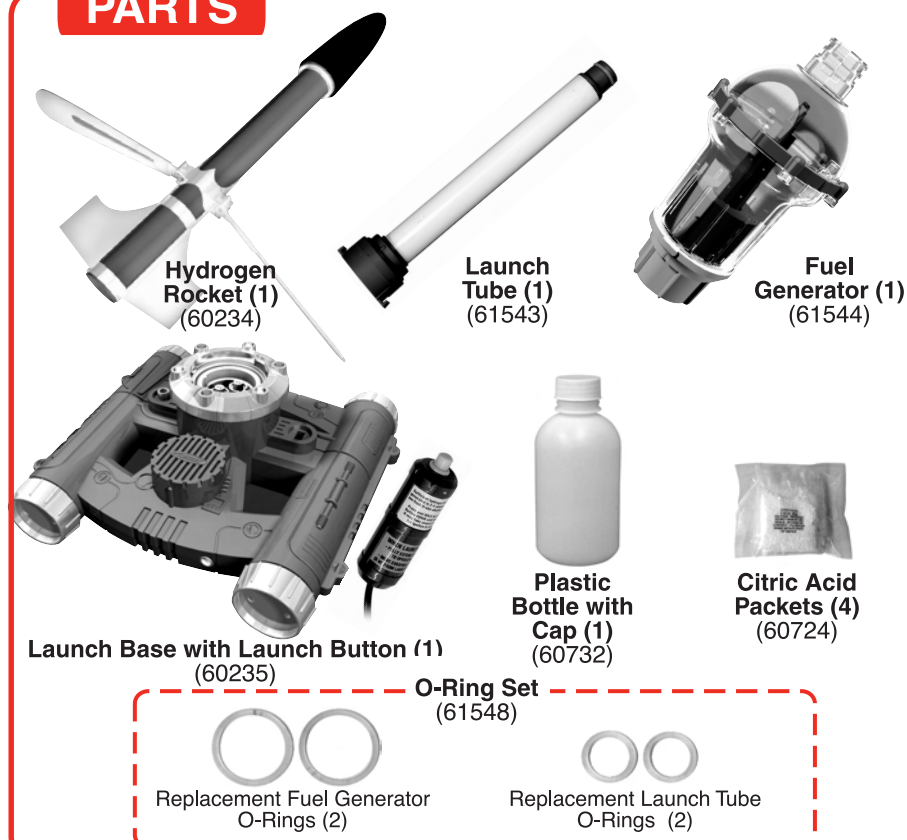
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Printed in China.

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KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE. KEEP THE PACKAGE TRAY AND BOX FOR STORAGE.

PARTS



REPLACEMENT PARTS

Order 2 ways:

1. On line at:
www.estesrockets.com
2. Call Toll Free:
1-800-525-7561 Mon-Fri
8:00am-4:00pm, Mountain Time

WARNING

This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

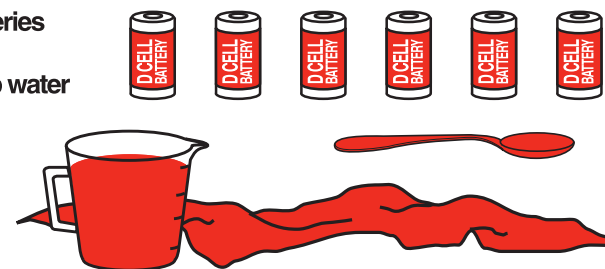
BATTERY SAFETY

- Insert batteries into unit in the correct polarity.
- Do not use rechargeable batteries in the unit.
- Do not mix alkaline, standard (carbon - zinc) or rechargeable batteries.
- Do not mix old and new batteries.
- Remove old or dead batteries from unit.
- If Launch Base will be stored for long periods, remove batteries.
- Never recharge non-rechargeable batteries.
- Only batteries of the same or equivalent type recommended are to be used.

SUPPLIES

In addition to the parts shown above, you will also need the following items (not supplied):

- 6 D-Size alkaline batteries
- 8 Ounces (240 ml) tap water
- 1 Measuring Cup
- 1 Spoon
- 1 Paper Towel or Rag



CAUTION

This product uses citric acid crystals to assist in the generation of hydrogen fuel. Citric acid is found in everyday food products. Short-term exposure to citric acid can irritate eyes, skin and your respiratory tract so handle with care. Exposure would be like getting lemon juice in a cut or in your eye. If your skin or eyes come in contact with the crystals, flush with plenty of water for several minutes. If you ingest the crystals, rinse your mouth with plenty of water.

ASSEMBLY TIP

Read all instructions before assembling. Make sure you have all parts and supplies.

HOW IT WORKS

When you turn the Launch Base switch 'ON', electric current energizes the water solution in the Fuel Generator, breaking up the solution into Hydrogen and Oxygen gases. This process is called electrolysis and the gases collect in the upper part of the Fuel Generator. At the same time, the lights around the Launch Base begin to sequence with generation time, a few lights at the beginning and then all lights are lit when generation is complete. You will also hear interesting facts about Hydrogen during fuel generation. When hydrogen fuel generation is complete, the Launch Base will then tell you that it is time to launch. Launches are done by simply pressing the Launch Button which ignites the Hydrogen gas in the Fuel Generator, thrusting the rocket into orbit! Upon ignition, the Hydrogen gas combines with the Oxygen gas in the generator and turns back into water.

READ AND FOLLOW THE INSTRUCTIONS AND HYDROGEN ROCKET SAFETY CODE BEFORE USING.

PREPARING THE FUEL GENERATION SOLUTION

1. Pour 8 oz. (240 ml) of tap water into a measuring cup.
2. Pour one (1) packet of citric acid crystals into the measuring cup.
3. Stir solution with spoon until crystals dissolve.
4. Carefully, pour solution into the plastic bottle, then cap bottle.



NOTE: After a while, the solution will change to a light brown color. This is normal and the solution can be used over again to generate 100's of launches! When not in use, pour solution back in bottle and save.

CAUTION

If you come in contact with the solution, rinse immediately with water.

LAUNCHER ASSEMBLY

1 Unscrew the two Battery Compartment Caps. Pull out the battery trays. Insert three 'D' alkaline batteries into each tray following the polarity markings (+ & - signs) in the trays. Then slide each tray back into the Launch Base and screw on the caps.

2 Tilting the Fuel Generator to the side, slowly add plain tap water to fill the generator half full. Swirl the water inside the generator for 2-3 minutes to wet the generator material in the Fuel Generator. **Pour out the water** and replace it with the Fuel Generating Solution as outlined in Step 3.

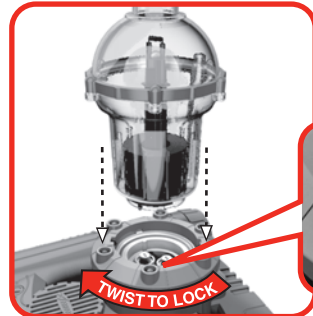
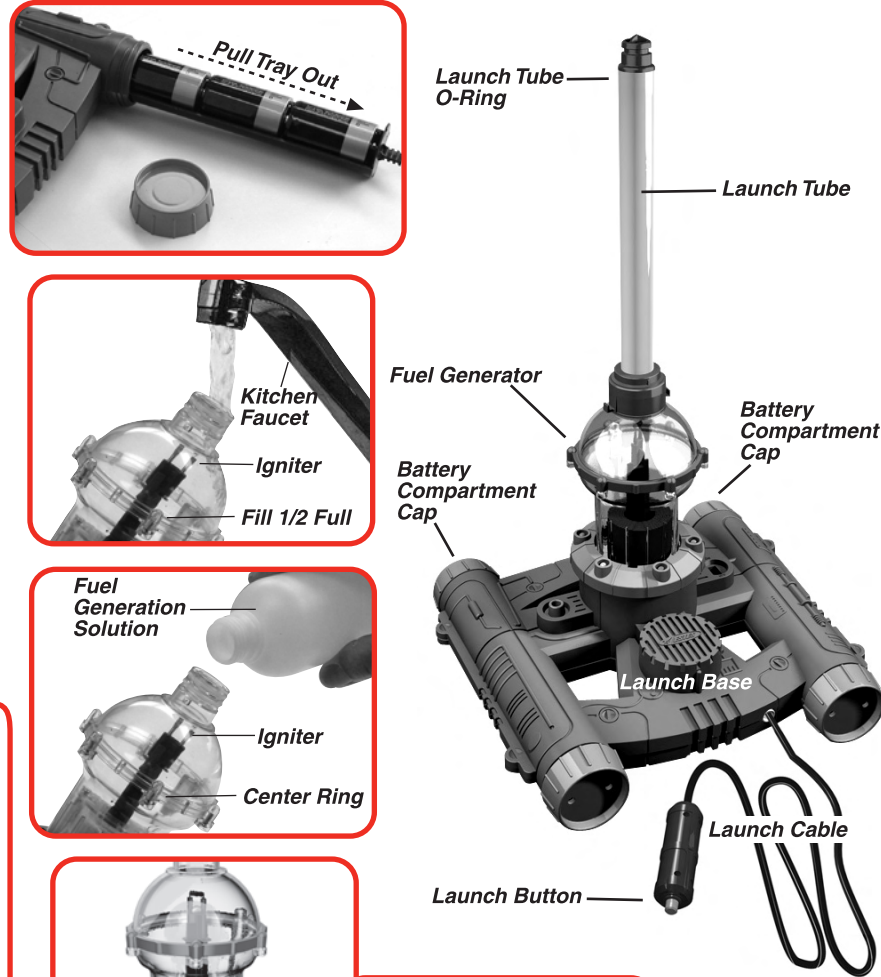
3 Tilting the generator to the side, slowly pour solution from the bottle into the Fuel Generator. Avoid pouring it on the Igniter (thin wire coil) inside the generator. Fill to the Center Ring of generator. **DO NOT** overfill and cover the Igniter. Wipe off any spilled solution with a paper towel or rag.

NOTE: If Igniter gets wet, allow unit to sit for 15 minutes to allow Igniter to dry.

IMPORTANT: In order for the Hydrogen Fuel Generator to perform properly, it must be securely attached to the Electronic Command Center base. To accomplish this, make sure that after inserting the Fuel Generator into the Electronic Command Center base you twist the Fuel Generation module until the arrows on the Fuel Generator and Electronic Command Center are exactly lined up. It is possible to think that complete contact is made due to the rotational contacts that are molded into the Electronic Command Center base. Failure to align the arrows will result in the Fuel Generator not making adequate contact with the Electronic Command Center and an inoperative Fuel Generator.

4 Insert the Fuel Generator into the Launch Base aligning the tabs of the generator with the slots in the base and twist *clockwise* until the points of the arrowheads align and the generator "locks" in place.

5 Attach the Launch Tube to the top of the generator again, aligning the tabs in the Launch Tube with the Slots in the generator and twist *clockwise* 90° to lock in place.



IMPORTANT NOTE: The Fuel Generation Solution needs time to fully penetrate the generator for maximum hydrogen fuel generation. Allow the unit to sit for 15 minutes before using! Not doing so will greatly affect the amount of hydrogen produced resulting in poor rocket performance.

LAUNCHING YOUR ROCKET

- Place the Launch System on **LEVEL** surfaces only.
- Keep all spectators **15 FEET (5 m)** away from Launch System at all times.
- Launch only in temperatures between 50° F (10° C) to 100° F (38° C).

- Read and follow the Hydrogen Rocket Safety Code.
- Launch only in large open fields away from power lines, trees and buildings.
- Launch only in little or no wind and good visibility.

CAUTION

To prevent damage to the Fuel Generator, only operate the unit between temperatures of 50° F (10° C) and 100° F (38° C).

WARNING

To prevent the possibility of severe injury, never place or allow anyone else to place any part of his/her body over the launch tube.

IMPORTANT

1. Be sure the small O-Ring is in place at the top of the Launch Tube before using.
2. The system will completely shut off when the "Launch Tone" stops. If you have not launched the rocket before "Launch Tone" stops, follow these steps:
 1. Turn switch off.
 2. Remove rocket and launch tube to allow hydrogen gas to escape from fuel generator.
 3. Replace launch tube and rocket.
 4. Turn switch "ON" to restart fuel generation.
 5. Follow remaining launch steps.

1 Fold the rotor blades down along the rocket body and slide rocket over the launch tube. Align the rocket so the rotor blades are held closed by the 'tabs' at the launch tube base as shown below.

2 Turn switch 'ON' to begin fuel generation (red LED will light). A "Launch Tone" will sound when fuel generation is complete (approx. 3-4 minutes).

Notes:

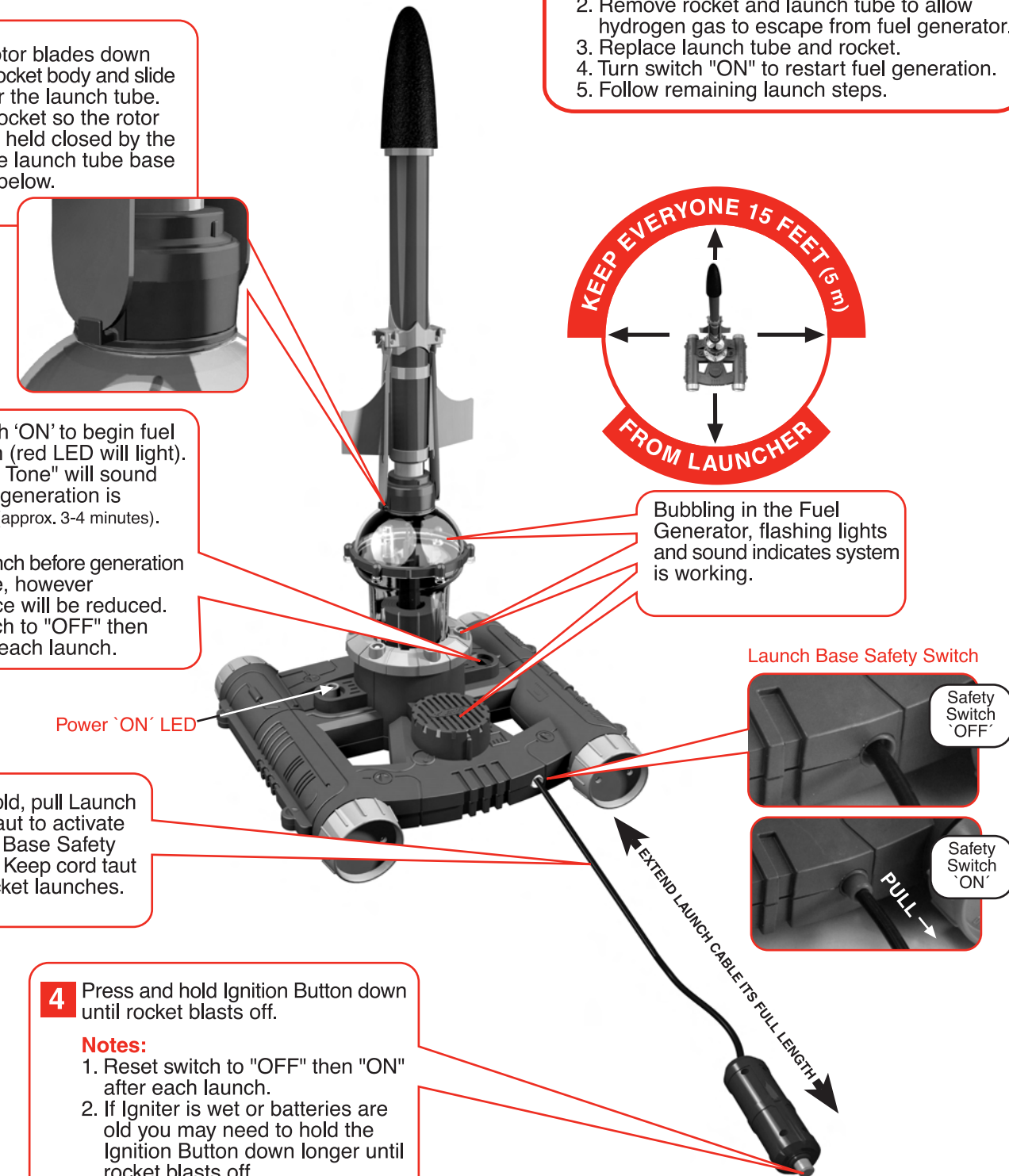
1. You can launch before generation is complete, however performance will be reduced.
2. Reset switch to "OFF" then "ON" after each launch.

3 When told, pull Launch Cable taut to activate Launch Base Safety Switch. Keep cord taut until rocket launches.

4 Press and hold Ignition Button down until rocket blasts off.

Notes:

1. Reset switch to "OFF" then "ON" after each launch.
2. If Igniter is wet or batteries are old you may need to hold the Ignition Button down longer until rocket blasts off.



Bubbling in the Fuel Generator, flashing lights and sound indicates system is working.