

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.

TROUBLESHOOTING

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

- 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 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 (5m) 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 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.

ESTES FULL 90 DAY WARRANTY

Your Estes #1876 Hydrogen Fuel Rocket system is warranted against defects in materials or workmanship for a period of 90 days from the date of original purchase. Should this Estes product, because of a manufacturing mistake, malfunction or prove to be defective within 90 days from the date of purchase, it will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage to persons or property caused by the use, abuse, misuse or failure to comply with operating instructions of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

For repair or replacement under this warranty, please contact our Customer Service Department at 1-800-525-7561 for return authorization & instructions **BEFORE** sending any part or product. Any non-authorized return may be refused.



HYDROGEN FUEL ROCKET

www.estesrockets.com

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

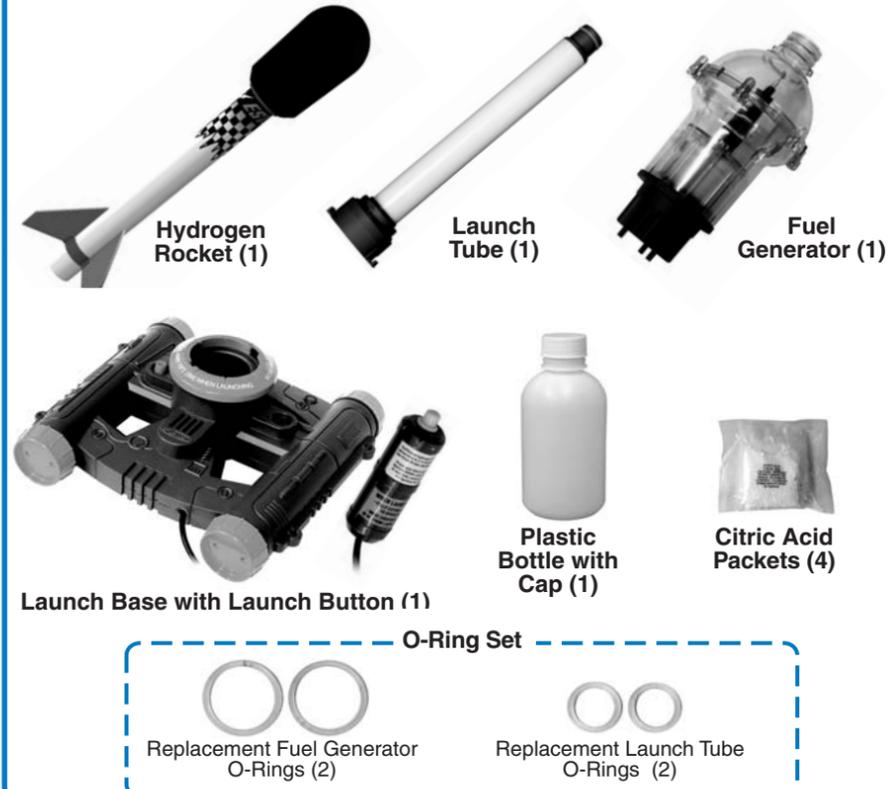
Estes Industries • 1295 H Street • Penrose, CO 81240

Printed in China.

1876

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

Item#	Description
60724	Citric Acid Packets (4)
60732	Plastic Bottle w/ Cap
61543	Launch Tube
61544	Fuel Generator
61545	Launch Base & Launch Button
61546	Hydrogen Rocket
61548	O-Ring Set (2 ea)

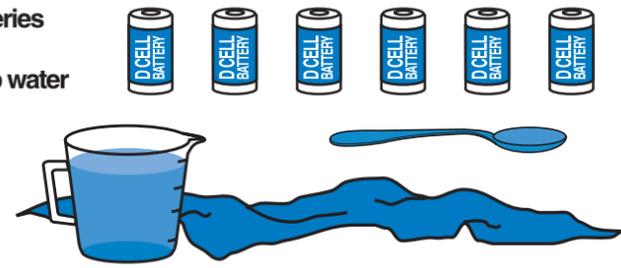
BATTERY SAFETY

- 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

By passing an electric current from six D batteries in the Launch Base through a solution of tap water and citric acid crystals in the Fuel Generator, the water solution breaks into hydrogen and oxygen gases that bubble upward in the generator. This process is called electrolysis. The hydrogen and oxygen gases collect in the upper chamber of the Fuel Generator until there is enough to launch. When the Launch Button is pressed, a special igniter in the generator heats up to ignite the hydrogen gas collected in the upper chamber. The expanding gases from the ignition of the hydrogen thrusts the rocket into orbit. After ignition, the hydrogen combines with the oxygen again 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

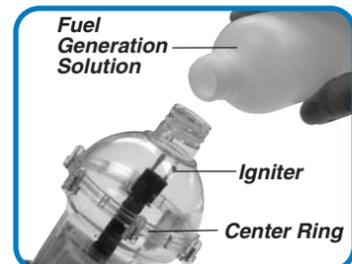
1. Unscrew the two Battery Compartment Caps. Pull out the battery trays. Insert three 'D' alkaline batteries into each tray following the polarity markings (+ & - signs) in the trays. Then slide each tray back into the Launch Base and screw on the caps.



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.

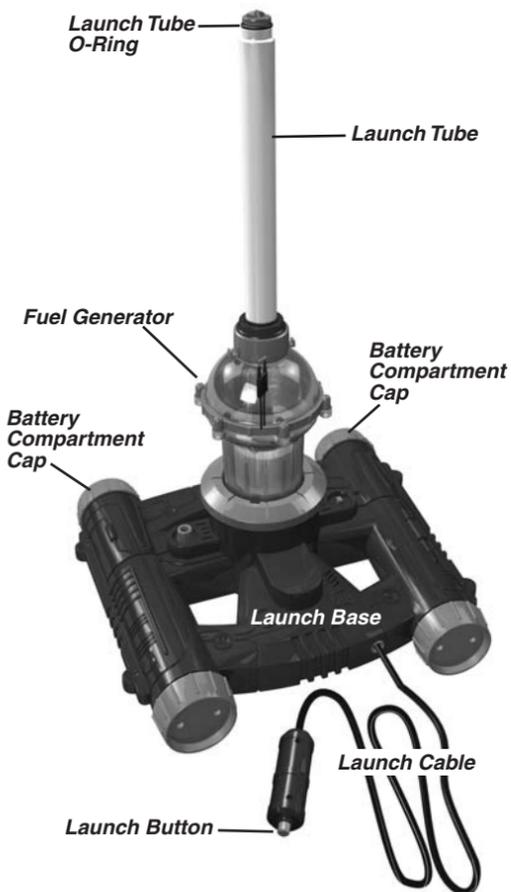


NOTE: If Igniter gets wet, allow unit to sit for 15 minutes to allow Igniter to dry.

4. Insert the Fuel Generator into the Launch Base aligning the tabs of the generator with the slots in the base and twist *clockwise* 90° to lock 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

- 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.
- 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).

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. Make sure Launch Tube O-Ring is in place. Slide Hydrogen Rocket all the way down on Launch Tube.

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 "Launch Tone" sounds, however performance will be reduced.
2. Reset switch to "OFF" then "ON" after each launch.

3. When "Launch Tone" is heard, 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.

