Horizon
Fuel Cell Technologies

H-racer
ASSEMBLY GUIDE

CE

Model No.: FCJJ-18

⚠ Warning

To avoid the risk of property damage, serious injury or death:

This kit should only be used by persons 12 years old and up, and only under the supervision of adults who have familiarized themselves with the safety measures described in the kit. Keep small children and animals away, as it contains small parts that could be swallowed. The fuel cell generates gases that are very easily ignited. Read the instructions before use and have them ready for reference.

Battery operation instructions:

1. The removing and inserting of batteries is to be conducted by the adults only.
When inserting the batteries make sure that you are doing so with the correct polarity (the positive end of the battery must match up with the “+” and the negative end of the battery must match up with the “-” indicated on the battery pack) and then close the battery compartment.
2. Non-rechargeable batteries are not to be recharged.
3. Different types of batteries such as rechargable, alkline and standard batteries or new and used batteries are not to be mixed and should be used separately.
4. The two spare red&black cables are not to be inserted into an AC socket.
5. Exhausted batteries are to be removed from the battery compartment.

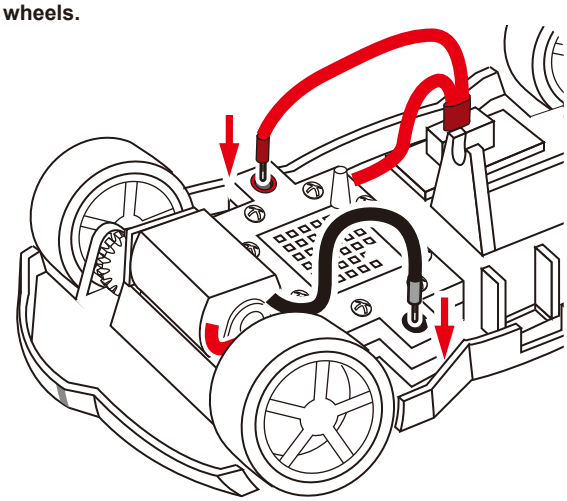
ASSEMBLY GUIDE

What do you need? ● H-Racer ● AA batteries=2 Units ● Water=25ml

1. Position the fuel cell onto the square slot located in the middle of the car chassis behind the black motor. Firmly push the front of the fuel cell into the chassis until you hear a click.

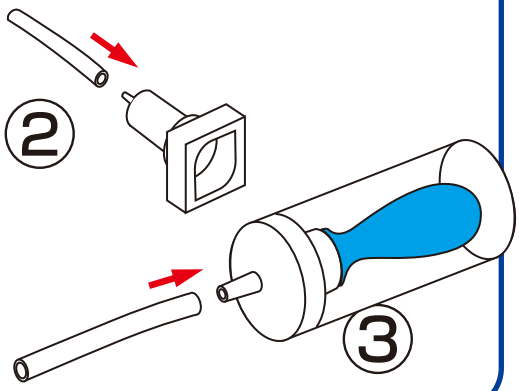
Connect the red wire of the chassis to the red jack of the fuel cell. Connect the black wire of the chassis to the black jack of the fuel cell.

※ **Warning: Make sure these connections are correct. Any other connection will destroy the operation of the car and its fuel cell power system. Also ensure the wires are not touching the wheels.**



2. Connect one of the flexible tubes to the nozzle located on the input valve.

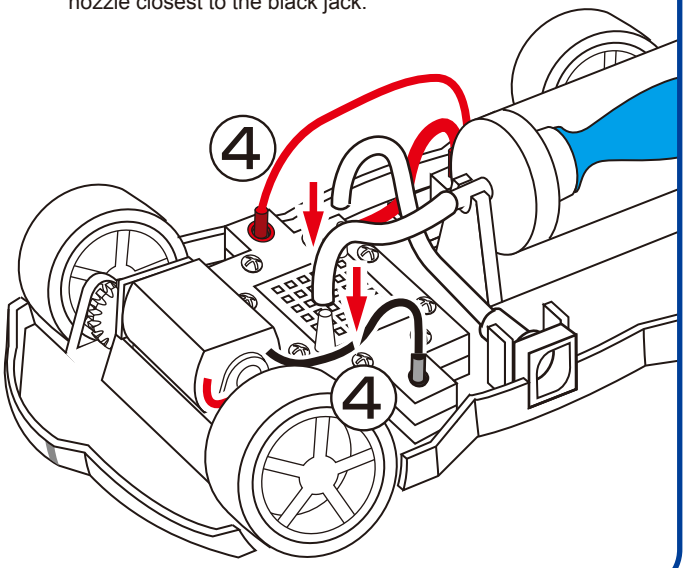
3. Connect the second flexible tube to the nozzle located on the lid of the hydrogen storage cylinder.

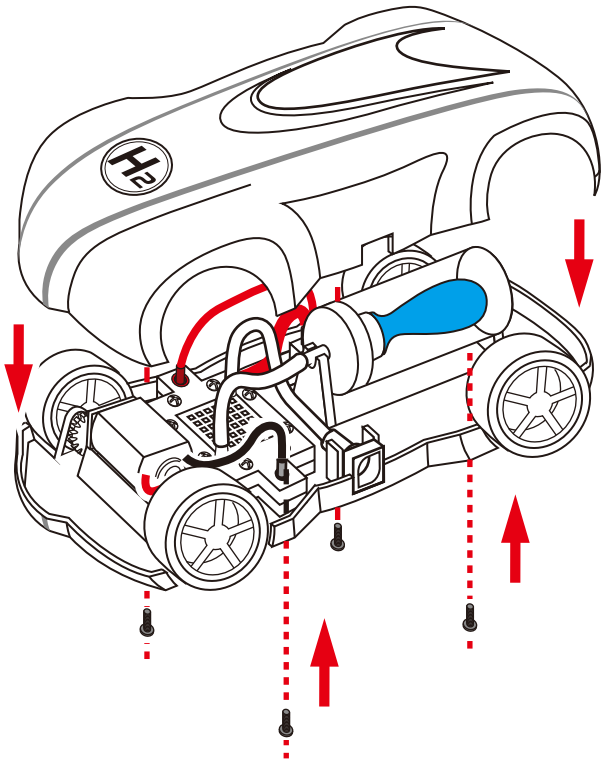


4. Slide the refueling input valve into its mount, located at the opening on the side of the chassis. Make sure that the small ridges on the outer edge of the input valve are positioned at the sides. With a downward motion, click the valve into place ensuring it is smoothly aligned with the outer surface of the chassis.

Position the hydrogen storage cylinder onto the two mounts located directly above the rectangular opening on the chassis. Once the cylinder is positioned on the two mounts, press lightly until it fits onto the structure. To avoid damage or breakage, be careful not to press the cylinder onto the mounts with too much force.

Connect the other end of refueling input valve tube to the nozzle closest to the red jack of the fuel cell. Connect the other end of the hydrogen storage cylinder's tube onto the fuel cell nozzle closest to the black jack.





5. Position the upper body of the car and place it above the chassis. Align the holes on the chassis with the holes on the car top body.

Use a screwdriver (not included) to attach the body to the chassis using the set of 4 small screws and make sure the screws are entered straight into the chassis. Do not tighten the screws until all screws are partially entered the screws until all screws are partially entered until no gaps are left between the body and the chassis.

Remove the H_2 sticker from its backing and position it on the car accordingly.

The assembly of your H-racer is now completed.

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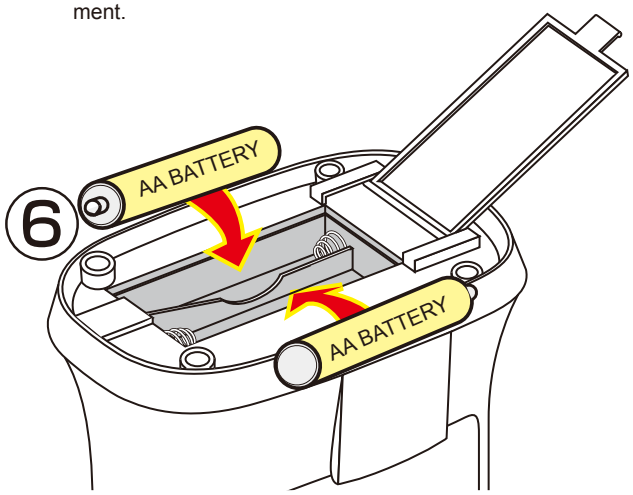
6.

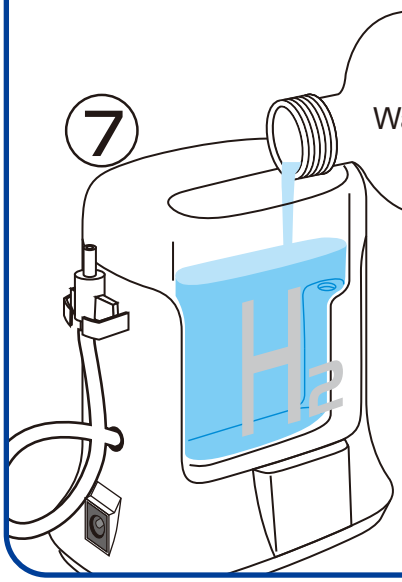
Enabling DC powered operation:
Open the battery compartment located underneath the refueling station by sliding the cover according to the arrow.

Place two 1.5V AA alkaline batteries inside the battery compartment as indicated, then close the battery compartment.



7.

Slowly pour water into the water tank opening above the refueling station until the water level reaches the top. Let the water rest in the tank for at least 5 minutes before moving on to the next step. This allows the electrolyzer time to absorb the water.



TIP: For optimal operation and longer life of the refueling station, use of distilled water is highly recommended. You can purchase distilled water from your local drugstore or pharmacy.

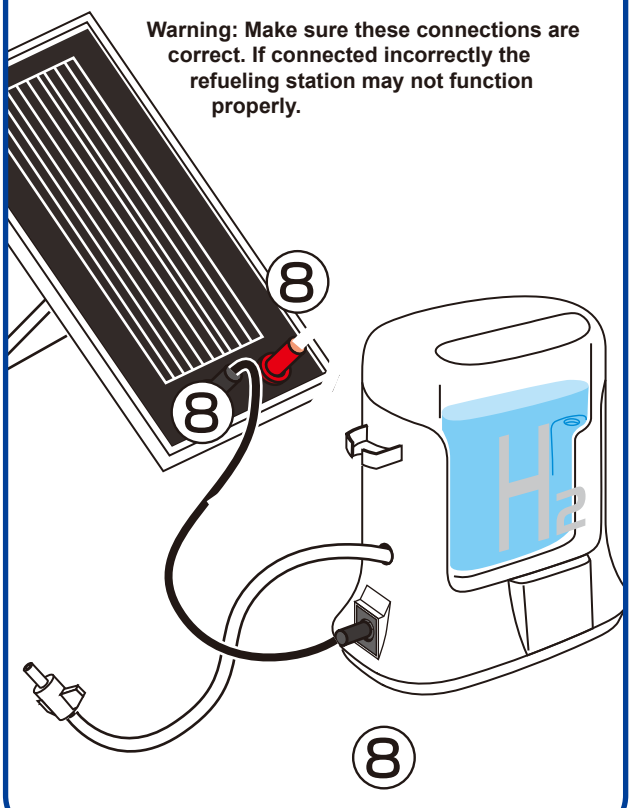
8.

Creating Renewable Hydrogen Using Power from the Sun.
Attach the back of the solar panel to its small rectangular support provided in the kit. You can decide to place the solar panel vertically or horizontally depending on how you position the support on the back of the panel. Connect the black cable to the black input jack on the solar cell, and the red cable to the red input jack on the solar cell.

Connect the other end of the cable to the input jack of the refueling station.

Place the solar panel in direct sunlight.

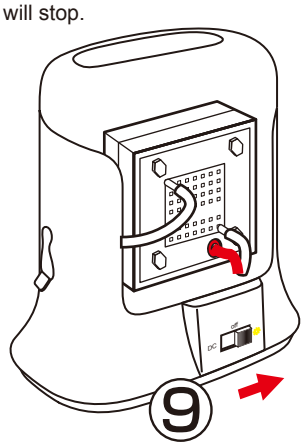
Warning: Make sure these connections are correct. If connected incorrectly the refueling station may not function properly.



9.

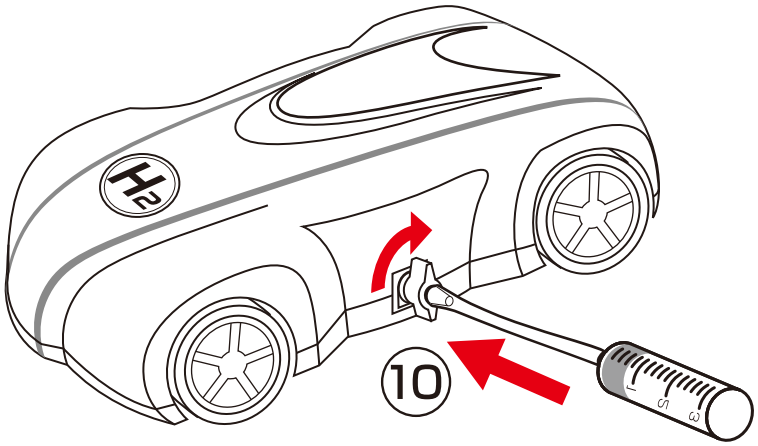
Switch the refueling station to the "☼" sign. The small blue lights will now be flashing and you are now producing hydrogen fuel using unlimited power from the sun! You can see you are producing hydrogen when small oxygen bubbles form on the right side of the water tank. Turn the switch off and the hydrogen production will stop.

If it is getting dark, or if the sun is not very powerful, or if you want to accelerate refueling time, you can at any time switch the refueling station to "DC". In this case hydrogen would be produced using the power of two AA alkaline batteries (not included) placed earlier inside the refueling station.



10.

Refueling and operation
Push all the air out of the syringe. Insert the gas purging syringe into the car's input valve turning the syringe's connector valve clockwise while gently pressing in.



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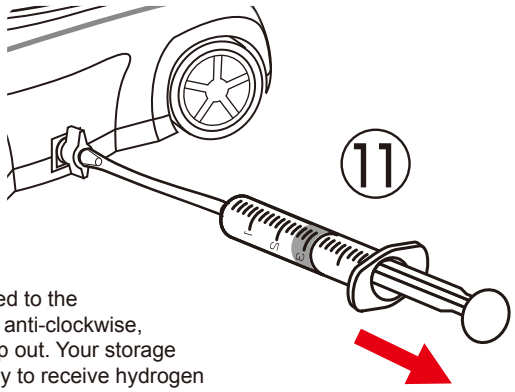
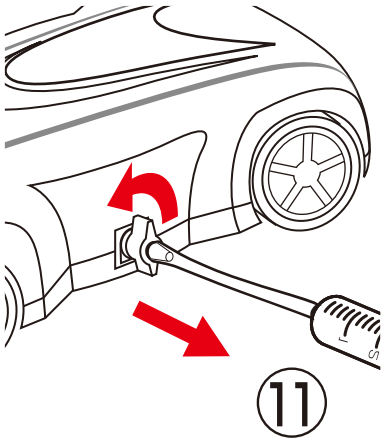
11.

To purge the complete fuel cell power system, remove all the air out of the balloon by pulling on the syringe. Stop pulling on the syringe once all the air is removed from the balloon.

Disconnect the syringe connector valve from the additional input valve attached to the refueling station by turning it anti-clockwise, allowing the connector to pop out. Your storage tank is now purged and ready to receive hydrogen from the refueling station.





12.

Connect the refueling station's output valve to the car's input valve turning clockwise while gently pressing in. Make sure the switch beneath the car's chassis is at the "off" position.

Using the solar panel, make sure it is placed in direct sunlight. It will take about 10 minutes in strong sun light for the car's tank to fill up with hydrogen using the standard solar panel included. Keep the refueling station powered until the balloon inside the hydrogen storage cylinder is full. Once the operation is complete and the balloon is full, make sure you turn the refueling station to the "off" position.

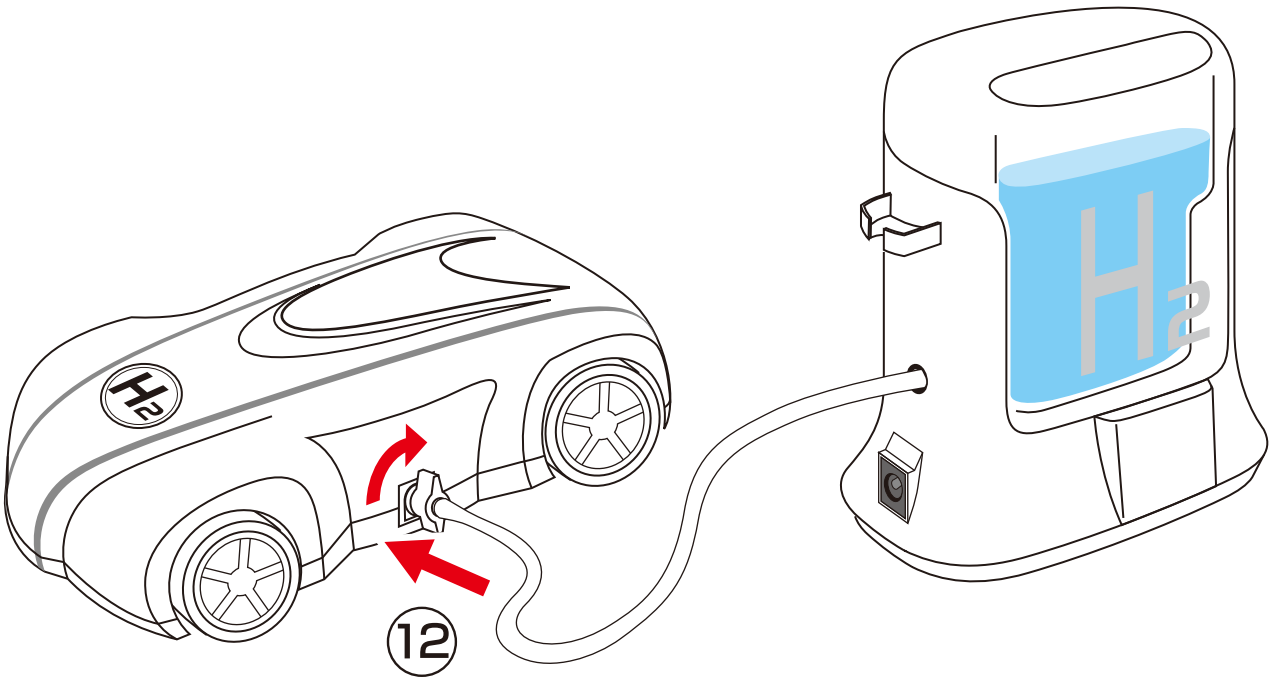
Alternative: It will take at least 1 minute for the balloon to fill with hydrogen using the "DC" power switch if the batteries are new.

TIP: After 20 minutes of continuous use, turn the Hydrogen Station off, and let it rest for at least 10 minutes before starting it again.

Warning: Continuous operation of the Hydrogen Station will damage it permanently.

The hydrogen storage tank is now full and the H-racer is ready to race! To run the car, find a smooth, flat surface free of obstacles. Turn the switch located beneath the car's chassis to the "on" position, place it on the ground and watch the car go!

It is estimated that on a full tank and after a number of warm-up runs the H-racer will run for up to 3 minutes.



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H-RACER TECHNICAL SUPPORT

1. The H-racer does not move or runs slowly:
a. Check to see if the balloon inside the car's storage tank is full, the wires are not touching the wheels and the switch underneath the car chassis is at the "on" position.
b. If the balloon is empty, you must complete refueling of the car then turn the switch to the "on" position.
c. If the hydrogen storage cylinder's inner balloon appears to be full, unwanted gases have entered your system. The H-racer only operates on pure hydrogen drawn from its storage tank. One quick fix is to use the tip of a screw driver to lightly push in the car's refueling input valve, while leaving the car switched "on". You will notice the car will start moving again. By doing this you would have removed some of the unwanted gases from the balloon inside the hydrogen storage cylinder.
d. If the wires are touching the wheels move them away so the wheels run freely.

2. The balloon inside the car's storage tank does not fill up:
a. Check the rubber seal securing the balloon inside the cylinder has not become dislodged.
b. Make sure all the tubes inside the car are well connected and that the output valve of the refueling station is well connected to the input valve of the car (press the output valve tightly into the input valve). You may want to unplug and plug the connectors once more to be sure.
c. Make sure you filled the Hydrogen Station's water tank with water (distilled water*) and wait for 5 minutes before turning it on. When it is switched on, check to see that the refueling station is releasing small bubbles on the top left hand side of the water tank.
d. If all connections are correct and bubbles are released, and the balloon still does not fill up - your H-racer refueling system is damaged due to improper use. Do not attempt to repair or fix your H-racer, contact support@horizonfuelcell.com for assistance.

3.The blue LED lights do not flash and/or no bubbles appear in the Hydrogen Station's water tank:
a. If you are using solar panels, make sure the solar panel is in direct sunlight. The standard solar cell included with the Hydrogen Station will fill the H-racer after at least 10 minutes in strong sunlight. Also, check whether the cable connections are correct.
b. If you are using the "ON" battery power option and bubbles are appearing slowly the batteries may be out of power. Please replace the alkaline batteries inside the Hydrogen Station with new alkaline batteries.
c. If the bubbles are appearing slowly or if there are no bubbles in the Hydrogen Station's water tank, first add water to the water tank filling it to the top and then position the tube connected to the syringe at the top left outlet from the tubing where the bubbles should be released. Pull the inner container of the syringe towards you. Empty the water in the syringe into the water tank. Repeat this step several times until you see the bubbles come out from the top left outlet.

***Be careful not to use the refueling station continuously. Continuous use (over 20 minutes) will damage the refueling station permanently. Turn off the refueling station immediately after the refueling of the H-racer is complete.**

6. The H-racer runs slowly and runs for a short time, but the hydrogen storage cylinder is full of hydrogen:
a. The fuel cell needs to be warmed up by adding water and short circuiting. Use the syringe to inject 0.2 ml purified water into the fuel cell. Allow this to sit for 3 minutes. Turn on the hydrogen station and connect the rubber hose without the valve to one of the nozzle of the fuel cell. Use the wire to connect the red and black jack on the fuel cell. Keep the wire connected for 2-5 minutes and then disconnect. The fuel cell will now be ready for use.
b. After you have finished using the fuel cell, it is highly recommended to place it inside the air-sealed aluminium bag provided. This will protect the fuel cell while you are not using the H-racer.


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