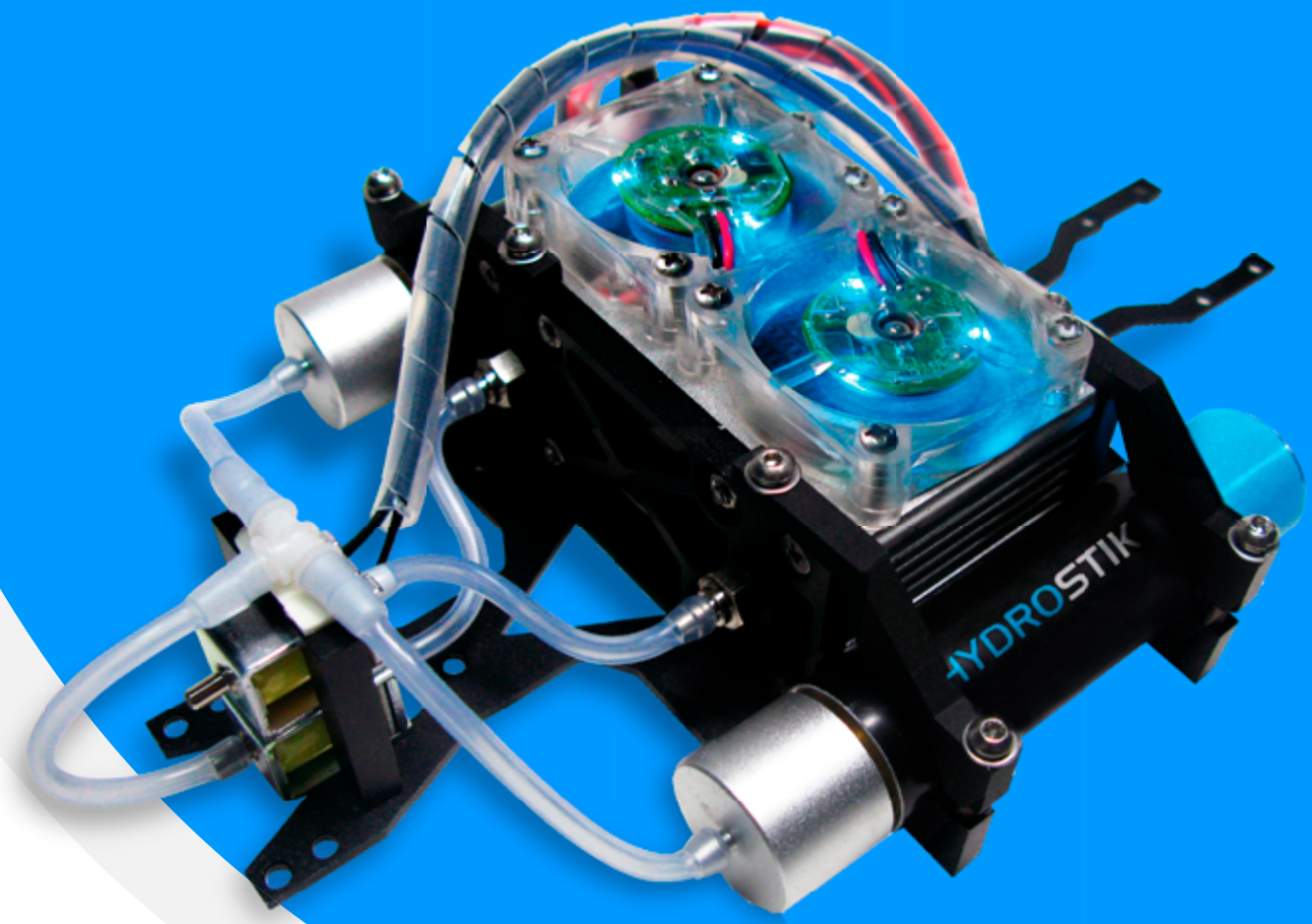

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AGE

STEAM EDUCATION
H2 GRAND PRIX PRO

ASSEMBLY GUIDE

H-CELL 2 .0

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STEAM EDUCATION

H2 GRAND PRIX PRO

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H2 GRAND PRIX SERIES

H-CELL 2.0
21st century power system for 1/10 RC hobby racing.

Developed for H2 Grand Prix Series.

STEAM EDUCATION

H2 GRAND PRIX PRO

SAFETY INFORMATION

PLEASE READ BEFORE PROCEEDING TO ASSEMBLY AND STARTING THE H-CELL

FOLLOW THE INSTRUCTIONS OUTLINED BELOW TO FULLY ENJOY OPERATING YOUR 30W HYDROGEN FUEL CELL

Never touch any rotating parts as your finger, hair, clothes etc. may get caught leading to serious injury.

When not in use, always disconnect and remove the battery and hydrogen cartridges (HYDROSTIK, HYDROSTIK PRO).

Never a use different hydrogen source than HYDROSTIK or HYDROSTIK PRO.

Do not disassemble the battery, the fuel cell, the hydrogen cartridges or cut the cables.

Make sure you recharge the battery and fuel cell correctly, please follow the instructions in the assembly guide.

Immediately turn off the fuel cell if it gets wet, as it may cause a short circuit.

Do not tamper, disassemble or puncture the hydrogen cartridges.

Keep the assembled fuel cell, battery and/or hydrogen cartridges away from fire, open flame, or heat source.

After use, the battery retains heat, wait until it cools down before recharging. Please dispose of the battery responsibly. Never put battery into fire.

Make sure you recharge the battery and fuel cell correctly, please follow the instructions in the assembly guide.

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UNBOXING

H-CELL 2.0

BEFORE YOU START, PLEASE CHECK THAT YOUR PACKAGE IS UNDAMAGED AND CONTAINS ALL THE LISTED COMPONENTS.

THE H-CELL 2.0 PACKAGE CONTAINS:

A. FUEL CELL
B. HYDROGEN CARTRIDGES
C. PRESSURE REGULATORS
D. FUEL CELL CONTROL UNIT
E. TUBING AND FASTENERS
F. PRESSURE SWITCH

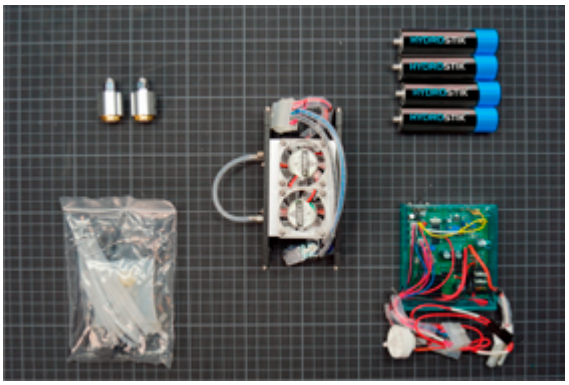
DO NOT CONTINUE TO ASSEMBLY IF YOU FIND ANY OF THESE PARTS MISSING AND CONTACT US IMMEDIATELLY.
LATER COMPLAINTS WILL NOT BE TAKEN INTO ACCOUNT.

STEAM EDUCATION

ASSEMBLY

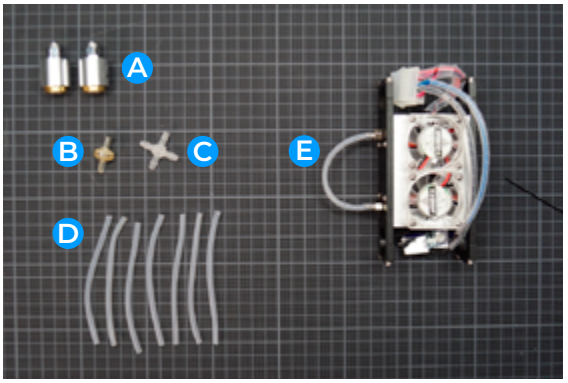
STEP BY STEP ACTION

TUBING CONNECTIONS



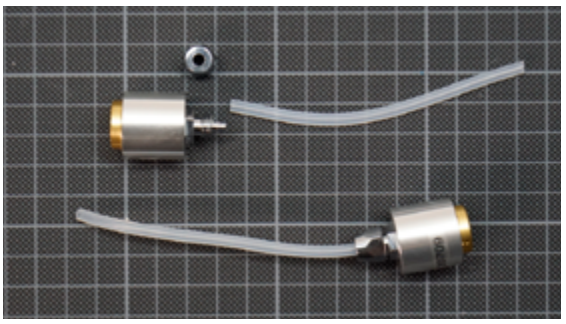
1. Place everything on the table.

2. Open your tubing bag.



3. Prepare 7 silicon tubes (D), filter (B), four-port connector (C). You will also need two pressure regulators (A).

Do not disconnect the silicon tubing from the fuel cell yet (E).



4. Connect 2 silicon tubes to the pressure regulators.

Note: When attaching the silicon tubing to the pressure regulators, do not tighten them too firm. You might rupture the silicon tubing.

ASSEMBLY

STEP BY STEP ACTION

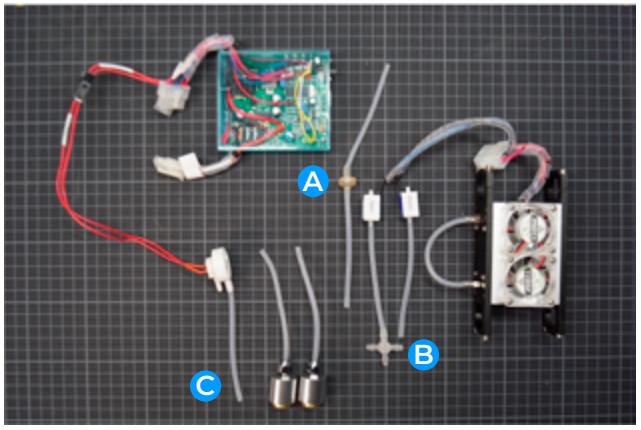
TUBING CONNECTIONS

5. Connect other silicon tubes accordingly:

- two on both ends of the filter (A)

- one on metal end of both solenoid valves inlet and outlet (B)

- one to the bottom inlet of the white pressure switch (C)

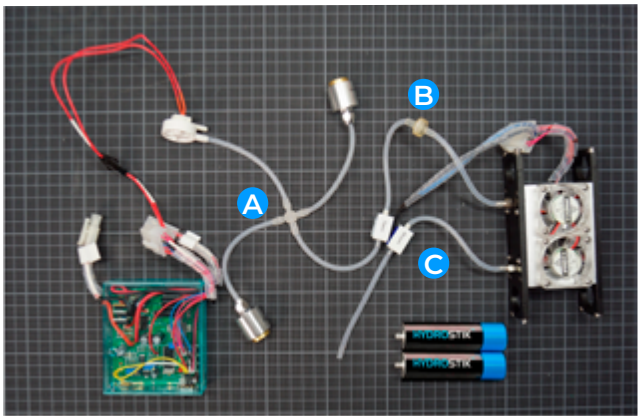


6. Finish all the tubing connection accordingly:

- connect the four port connector (A) with the following:
  two pressure regulators,
  white pressure switch
  inlet valve (metal side)

- disconnect the tube from the fuel cell and connect it to the output valve (metal side) (C)

- connect the „filter section“ between input valve and fuel cell (B)



Note: make sure that the you always connect the solenoid valves according to the flow of the gas, this is the correct position of the valve: metal side – in, plastic side – out

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ASSEMBLY

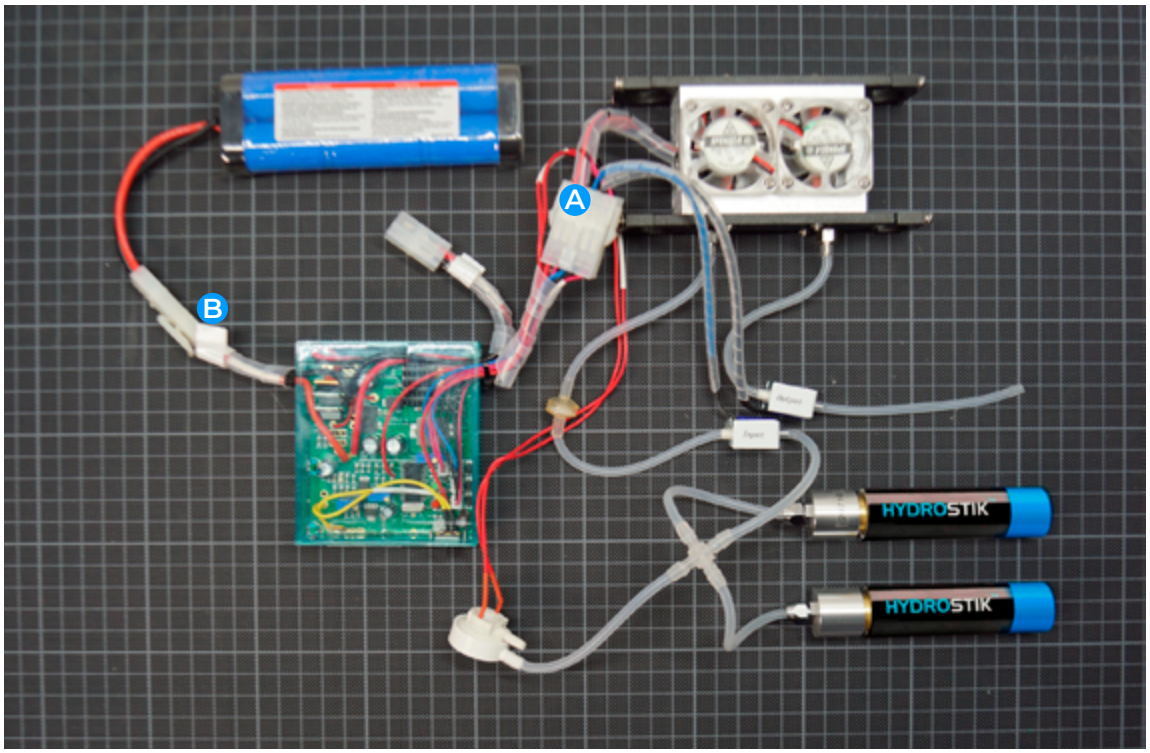
STEP BY STEP ACTION

ELECTRONICS

6. Connect the controller box with the fuel cell (A)

7. Connect the controller box to the charged battery (B)

8. Your H-Cell 2.0 is assembled and ready for test!



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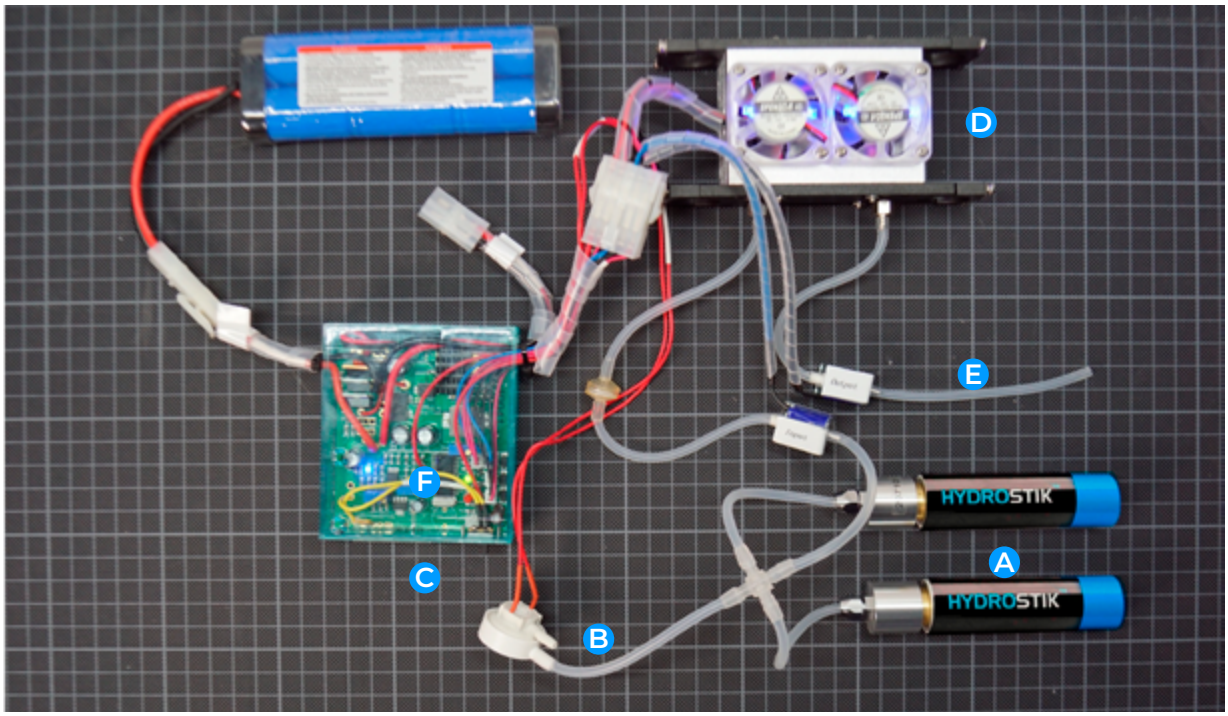
TEST YOUR FUEL CELL

STEP BY STEP ACTION

1. Connect full Hydrostiks and tighten them firmly into the regulators (A)
2. You should hear a „click“ sound from the pressure switch (B)
3. Turn ON the fuel cell controller (C)
4. The fuel cell should start running and the fuel cell fans turn blue (D)
5. To make sure that the fuel cell works properly let it work for at least 30 seconds, you should pay attention to three actions:

    - fuel cell fans light blue (D)
    - output valve is purging every 10 seconds (E)
    - green LED light turn on (F)

If YES, your fuel cell is working properly!
If NO, check again all your connections and repeat full test procedure (see troubleshooting)



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OPERATION OF H-CELL 2.0

UNDERSTANDING THE LED INDICATORS IN THE FUEL CELL CONTROL UNIT, WILL HELP YOU TO UNDERSTAND THE FUEL CELL OPERATION AND CONTROL DURING THE RACE.

As stated earlier, the fuel cell works properly if, the fuel cell fans light blue, the output valve is purging every 10 seconds and the green LED light stays on. You might experience different situations with the LED control indicator, which are all described in the following table

GREEN LED	RED LED	STATUS	SOLUTION
OFF	OFF	The system is OFF	Turn ON the switch.
ON	OFF	Normal operation	
FLASHING	OFF	The hydrogen pressure is low	Be ready to change hydrogen cartridges, or the fuel cell is cut off automatically.
OFF	ON	Fuel cell stack voltage ≤8.4 V	Change the hydrogen cartridges immediately. And turn on the fuel cell again.
FLASHING	ON	Fuel cell stack temperature ≥ 65°C	Tturn off the system and cool down the fuel cell.
FLASHING	FLASHING	Battery voltage is below ≤6 V	Turn off the fuel cell. Change the battery immediately.

ADDITIONAL RECOMMENDATIONS (PLEASE READ CAREFULLY):

1. The electronic valves have input and output connections. Hydrogen cartridges should only be connected to the input valve. If connected differently, the system will not function properly.
2. To avoid failure of the control box which can be caused by battery power leakage, please disconnect the battery from the control box after use.
3. To avoid damage to the fuel cell, disconnect the hydrogen cartridges from the pressure regulators when not in use.
4. If the fuel cell has not been used for a long time, please operate the fuel cell system first for 3 minutes before running the car.
5. Store the fuel cell unit assembly in a ziplock plastic or air-tight box during storage to keep its cells hydrated.

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TROUBLESHOOTING

FULL TEST PROCEDURE, STEP BY STEP ACTION

1. Make sure you have charged Hydrostiks and batteries.

2. Check all silicon tubing connections:

. two Hydrostiks, pressure switch, input valve (metal side) connected via four-port connector

- input valve (plastic side) to fuel cell
- fuel cell to output valve (metal side)
- output valve (plastic side) to air

3. Check all electrical connections:

- pressure switch to FCCU
- FCCU to fuel cell
- FCCU to battery

4. Screw in both Hydrostiks at once:

- Check for „pop“ sound as the system is pressurized

5. Turn on the fuel cell

- Normal operation is, when the fuel cell fans light blue, and the solenoid valves are purging every 10 seconds

Repeating this procedure after the assembly usually helps in majority of cases. However, if your fuel cell is still not working, you might check the other problems that we‘ve experienced or contact us at: support@h2gp.com

TROUBLESHOOTING

After turning on the control box switch, the red light in the control box flashes,
while the green light disappears. This indicates the battery is drained and needs to be charged.

1) Charge the battery.
2) Check the battery connection to the fuel cell system and reconnect it again.

After turning on the control box switch, the red light in the control box flashes, while the green light is on.
This is a warning indicator that the battery voltage is low. It will be drained if you keep on using it.

1) Charge the battery.
2) If it is already a newly charged battery, please change to a new one as it may be dead.

When you turn on the controller box switch, the red light goes on, and the green light goes off.
It shows the fuel cell voltage is low, but the battery voltage still meet the running requirement.

1) HYDROSTIK cartridge is empty, use fully charged HYDROSTIK.
2) Check the connection between the cartridge and the pressure regulator (B).
3) Check all the tubing connections.
4) Change the fuel cell.

Note: When you encounter such problems, first be sure to turn off the electronic control box (E) switch before attempting to resolve them

4. The green LED light flashes and then the system stopped automatically.

1) Refill the metal hydride cartridge to the rated capacity.

5. During operation, the red light inside the control box turns on and the green light turns off.
This is a warning sign that the fuel cell voltage is low.

1) HYDROSTIK is empty, use fully charged HYDROSTIK.
2) Check the connection between the HYDROSTIK and the pressure regulator.
3) Check all the tubing connection.

6. During operation, the red light inside the electronic control box turns on and the green light flashes.

1) Please run the load (e.g. RC car) within the temperature of 5-40°C.
2) The fuel cell was destroyed – you must use a new fuel cell.

7. When you turn on the electronic controller box switch, no light turn on.

1) Check all the electrical connections.

TIME FOR HYDROGEN EDUCATION

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