

**MANUAL** Mars Runner Art.no. 71700

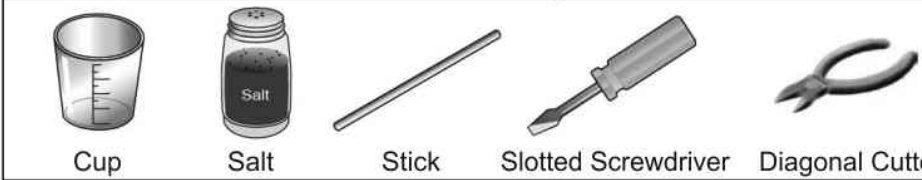
This is a concept of environmentally friendly fuel cell vehicle. A great chance for children to learn about this new energy, see how amazing it is to just add salt water to have the Mars Runner go. FC module includes 3 parts, the Magnesium metal sheet is a consumable item, one sheet can make the Mars Runner run for about 3 hours continuously. Kit includes 3 Magnesium metal sheets. All materials used in this kit are environmentally safe and clean, no toxic substances or disposal concerns.








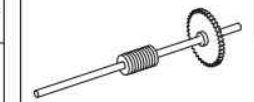
**ATTENTION**


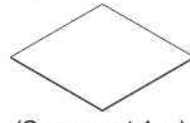


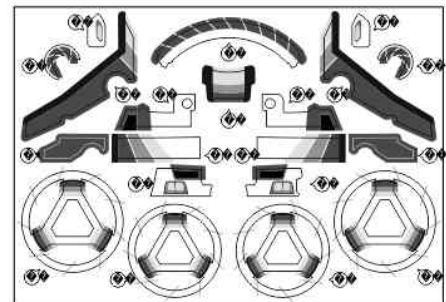
Not suitable for children under 3 years! - Contains small parts! Keep the address of the company.

**Tools You May Need**

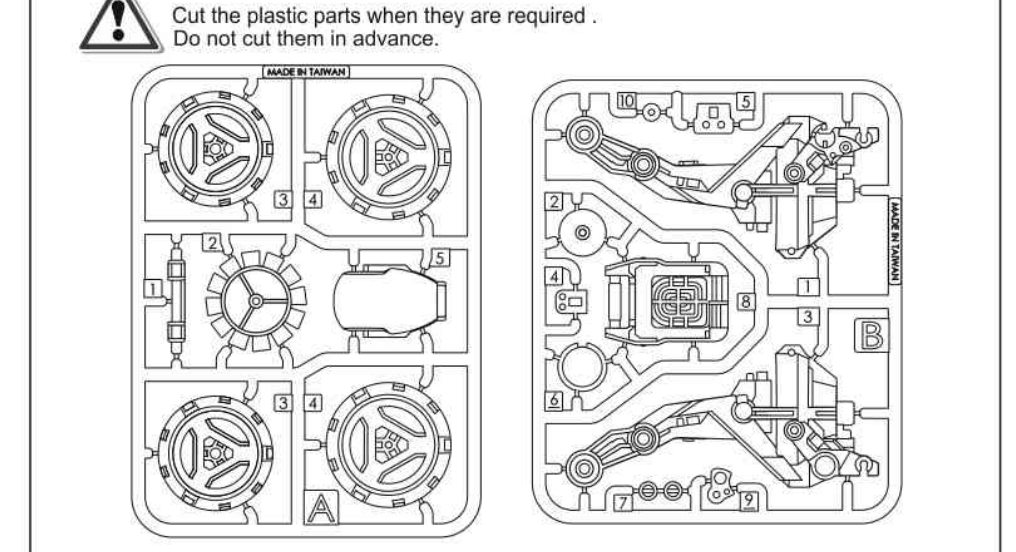


**Mechanical Parts List**

<b>P1 Motor With Connectors</b>	<b>P2 Pinion Gear (Yellow)</b>	<b>P3 Gear(Orange)</b>
		
QTY: 1	QTY: 1	QTY: 1
<b>P4 Round Shaft</b>	<b>P5 Pinion Gear (White)</b>	<b>P6 Gear With Shaft</b>
		
QTY: 2	QTY: 1	QTY: 1

<b>P7 Air Cathode(Black)</b>	<b>P8 Nonwoven Fabric</b>	<b>P9 Magnesium Sheet</b>
		
QTY: 1	QTY: 1 (Spare part:1pc)	QTY: 1 (Spare parts:2pcs)
<b>P10 Plastic dropper</b>	<b>P11 Sticker</b>	
		
QTY: 1	QTY: 1	QTY: 1

**Plastic Parts**



**Mechanical Assembly**

Ensure the connectors are fully inserted at a 90° angle. Any other angle is incorrect.

01: Connect Black and Red wires to connector A1. Ensure the connectors are fully inserted.

02: Attach B9 to B1.

03: Attach B10 to B1.

04: Attach P3 to B10.

05: Rotate 180°.

06: Attach A1 to B1.

07: Use a screwdriver to help place P1 wires into the gaps on the edge of B1 as illustrated.

08: Attach motor and gears to the chassis.

09: Attach A2 and P4 to the gear train. Side View shows A2 and B2.

10: Attach B3 to the chassis. Top View shows B3 and B5.

11: Attach B6 to the chassis.

12: Attach B4 and B5 to the chassis.

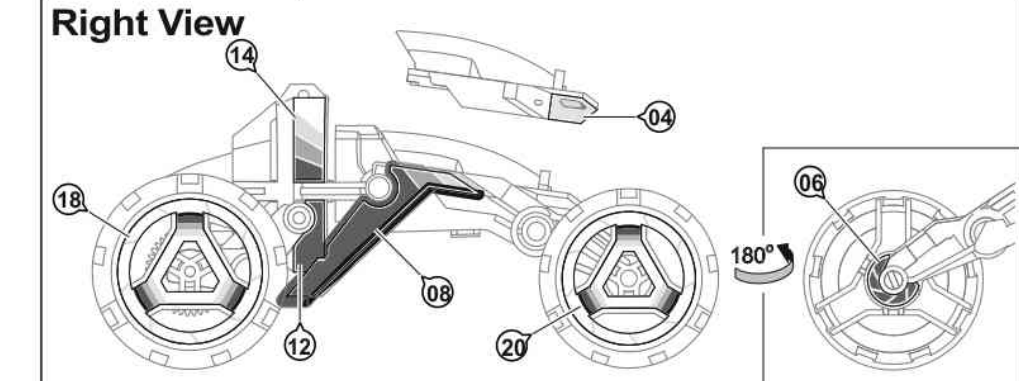
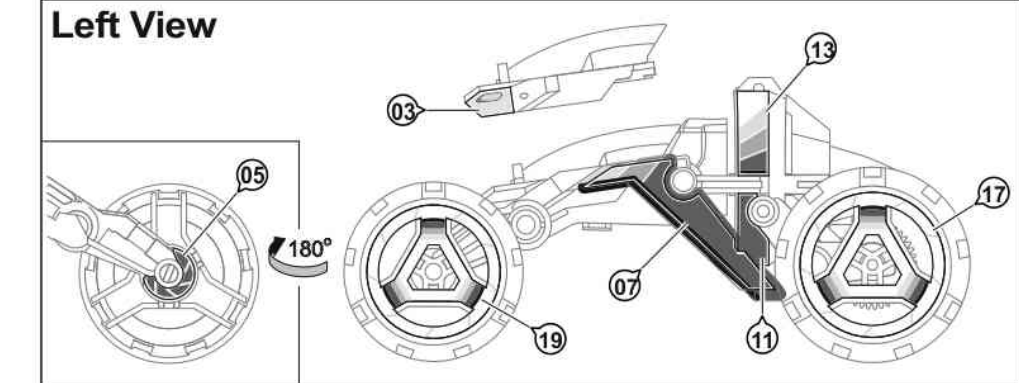
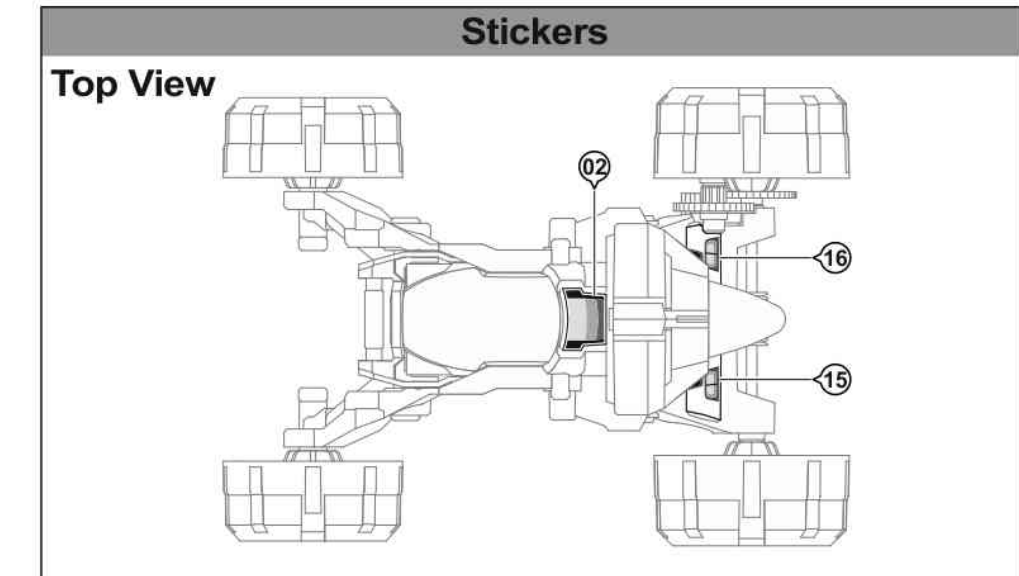
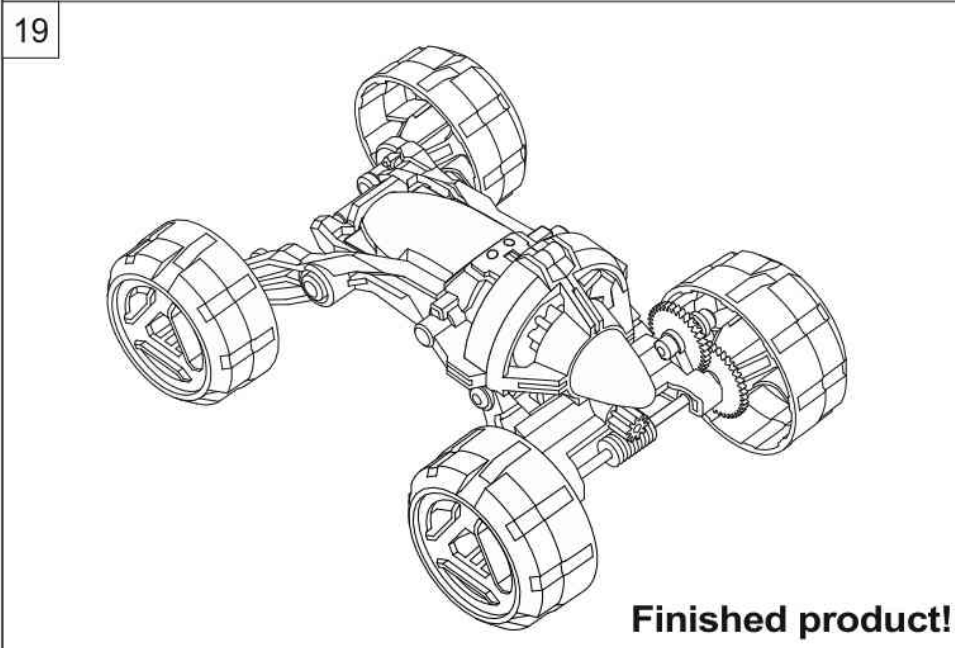
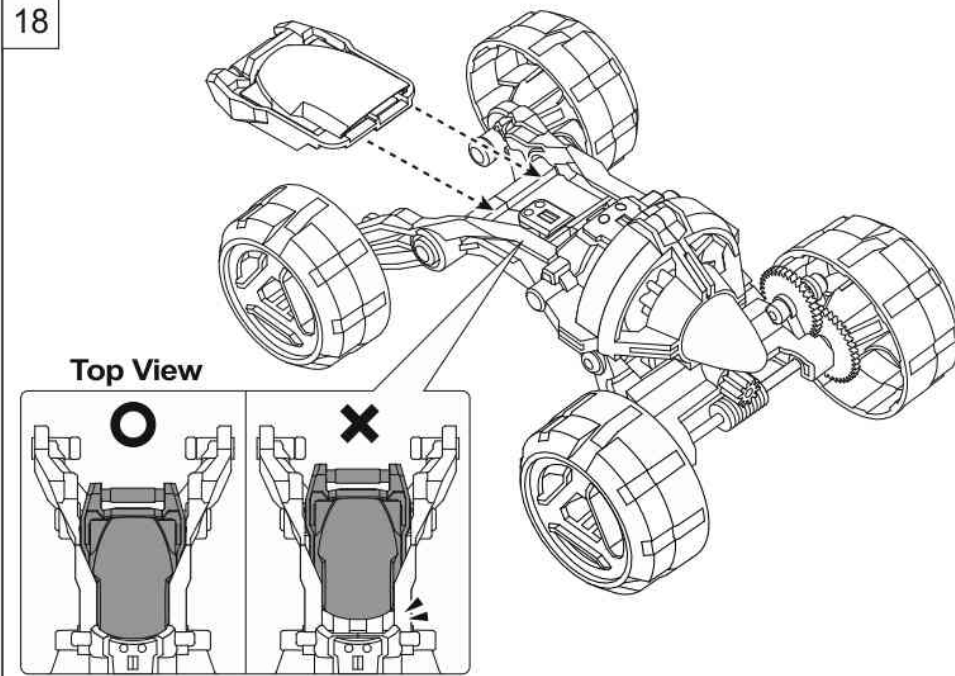
13: Attach A3 and B7 to the chassis. Top View shows A3 and B6.

14: Rear View showing A4 and P6.

15: Attach A4 to the chassis. Click sound indicated.

16: Attach P7 (Air Cathode), P8 (Nonwoven Fabric), and P9 (Magnesium Sheet) to the chassis. Black Side Up.

17: Top View showing A5 and B8. Click sound indicated.



**How It Works**

- The salt water will be exhausted after a period time (about 20 minutes). The Mars Runner will begin to get slower or stop. Add few more salt water drops to start it again (as below fig. 6).
- Each Magnesium sheet can work for 3 hours continuously, then becomes fragmented. Replace the sheet with a new one to energize The Mars Runner. The kit includes 3 refills.
- All materials used in this kit are environmentally safe and clean, no toxic substances or disposal concerns.

**! Please pay full attention to the below mentioned before use!**

1 How to make salt water solution: Add salt to tap water or distilled water at ratio of **1(salt) : 5(water)**. Any percentage ratio from 20% to 99% salt water is workable although the 20% will be the most efficient.

Water + Salt + Water

2 How to fill the Mars Runner with salt water:

a. Remove FC module

b. Remove cover and magnesium sheet

c. Add salt water on nonwoven fabric

d. Reassemble cover and magnesium sheet

e. Insert FC module

f. Run the Mars Runner now

3 Remove FC module to stop the Mars Runner as shown below:

4 It is necessary to clean FC module every time when not in use, gently rinse air cathode under tap water, don't hand rub the surface to ensure the quality of air

5 Flush below parts and hand rub the surface, make sure no salt residue. Dry all parts separately. (**Important:** If salt is residual on the magnesium sheet, it will shorten it's life .)

6 When the Mars Runner starts getting slow or stops, reapply a few drops into the position as shown below. Please do not drop into the polarity of connectors to avoid oxidization. (**Important:** If the fabric is totally dry, disassemble FC module and add salt water as per figure 2 c, or it will take few minutes to have the fabric wet completely.)

**Trouble Shooting**

**Check below steps if the Mars Runner doesn't move after adding salt water.**

- Make sure motor and shaft are installed smoothly without any barriers. (Ref: STEP 3, STEP 15)
- Make sure FC module is inserted entirely. (Ref: STEP 18)
- Replace a new magnesium sheet if it is eroded as shown below.

(New) (Need to replace)

- Make sure FC module placed in correct sequence and position: air cathode → nonwoven fabric → magnesium sheet. (Ref: STEP 16)
- Make sure air cathode black side face up. (Ref: STEP 16)
- Nonwoven fabric is also used to isolate air cathode and magnesium sheet, make sure the 2 parts do not come into contact each other or it may cause short circuit. (Ref: STEP 16)
- Salt water will easily cause oxidization, scratch oxide from the battery connectors and also magnesium sheet by slotted screwdriver before reuse. See below figures:

P9 Magnesium Sheet Scratch Here

P1 Connector Scratch Here

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