Mag Sailer Car

User Guide

PITSCO EDUCATION

60074 V0113

WARNING! This product contains (a) small magnet(s). Swallowed magnets can stick together across intestines, causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.

Cautionary and Warning Statements

- This kit is designed and intended for educational purposes only.
- Use only under the direct supervision of an adult who has read and understood the instructions provided in this user guide.
- Read warnings on packaging and in manual carefully.
- Always exercise caution when using sharp tools.

Materials Included

- Precut chassis (card stock)
- 2 sail masts (dowels)
- 4 magnets
- 4 adhesive tabs
- 6 O-rings

Items Required (not included)

- Maglev Track or Maglev Track II
- Magnetic Pole Identifier (optional)
- Low-velocity fan or hair dryer
- Copy or construction paper
- White correction fluid or a white pencil or pen (optional)
- Scissors
- Hole punch
- Cool-melt glue gun and glue

Building the Sailer

1. First, determine which side of the magnets is repelled by your track's magnetic strip. To do this, hold one of the magnets above the track – the side of the magnet that is drawn to the track should face away from the track (Figure 1).
2. Use correction fluid or a white pen/pencil to mark the side that repels the track (Figure 2). Then stack the magnets together; mark the rest of the magnets on the same pole as the first magnet. **Note:** If using a Magnetic Pole Identifier, follow its instructions to determine the poles of the track and car magnets. Place the magnets on the car to repel it from the track.
3. Attach the magnets in each of the four corners on one side of the chassis with the adhesive tabs (Figure 3). Make sure the attraction side of each magnet is facing the chassis with the repelling side facing away from it.
4. Hold the chassis over the track. The track's magnets should repel the magnets on the chassis (Figure 4). If any of the four magnets are attracted to the track, remove the magnet from the chassis, flip it over, and reattach it on the other side so it repels the strip. Now, the chassis should float (levitate) over the track. Remove from the track.

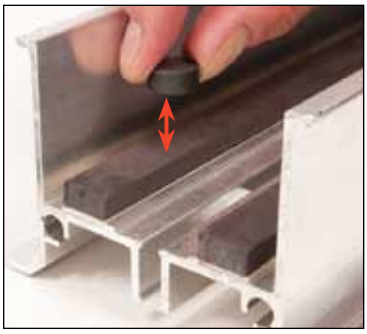


Figure 1

Figure 2

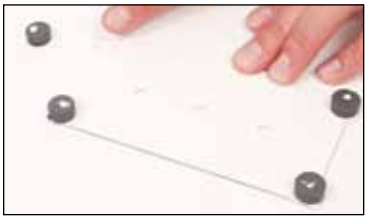


Figure 3

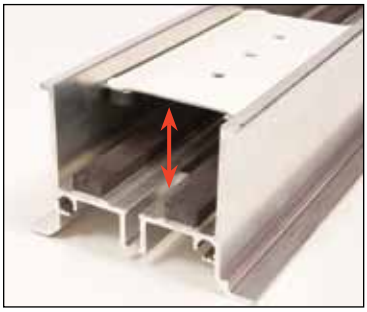


Figure 4

Figure 5

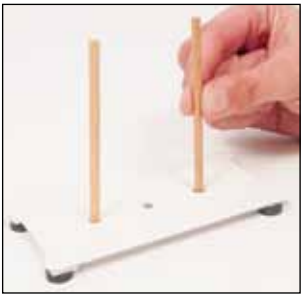


Figure 6

5. Determine whether you want one or two sails. If one, place a sail mast (dowel) in the center hole of the chassis (Figure 5). If two, place a sail mast in each of the two side holes (Figure 6).
6. Push each mast out the other side no more than 1/8" (3.17 mm). Cool-melt glue the mast(s) in place on the underside of the chassis (Figure 7).
7. Cut out the sail pattern below. This is a good size for a single sail. If using two sails, consider trimming this down as two large sails may cause the car to tip when the air source is added.
8. Lay the sail pattern over the copy or construction paper and trace around it (Figure 8). Cut out the sail and use a hole punch to make a hole at the top and bottom as shown on the pattern.
9. Place an O-ring over a sail mast and push it down so it's about 1" (2.54 cm) above the chassis. Thread a mast through the hole at the narrow end of the sail. Then, thread the mast through the hole at the wide end. Place an O-ring on top of the sail and push it down a bit so the sail has a bend to catch the air (Figure 9). Repeat if using two sails.

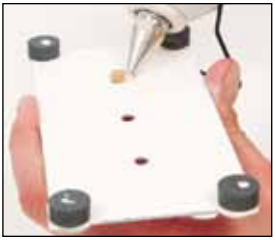


Figure 7

Figure 8

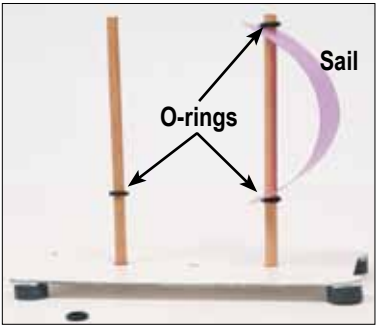
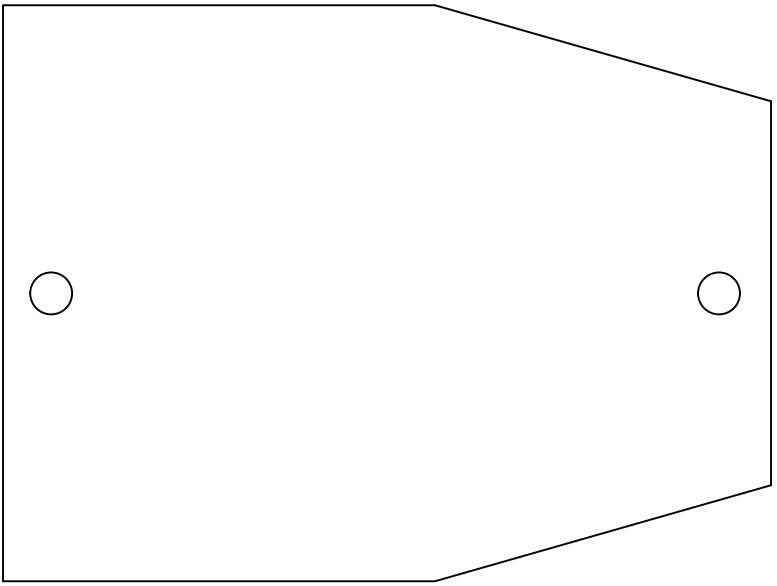


Figure 9

Sail Pattern



Running the Sailer

1. Make sure your track is placed on a level surface and the fan or blow dryer is plugged in where the air movement will easily reach the track.
2. Place the car on one end of the track (Figure 10). Turn on the air source and direct it onto the track. If needed, turn the sail(s) to catch the breeze. The car should glide down the track.
   Note: If the car tips over when the air is turned on, you either need to turn the source to a lower setting or adjust the sails. First try angling the sails to catch the wind differently. If this doesn't work, try reducing the size of the sails.

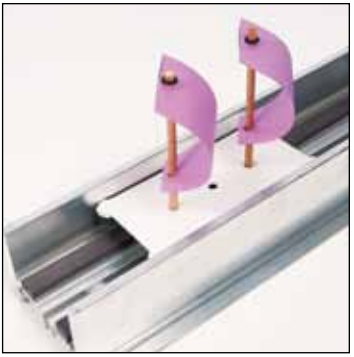


Figure 10

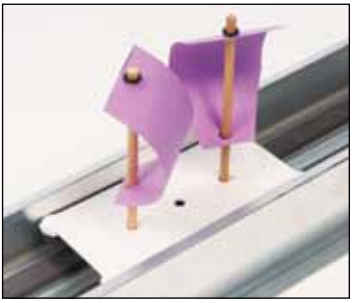


Figure 11

Experimenting with Sails

- Compare the performance of a car with one sail against a car with two.
- On two-sail cars, try angling the sails in different directions (Figure 11). How does it perform compared to when the sails face the same direction?

PITSCO
EDUCATION

P.O. Box 1708 • Pittsburg, KS 66762
www.pitsco.com
Toll-Free Orders 800-835-0686