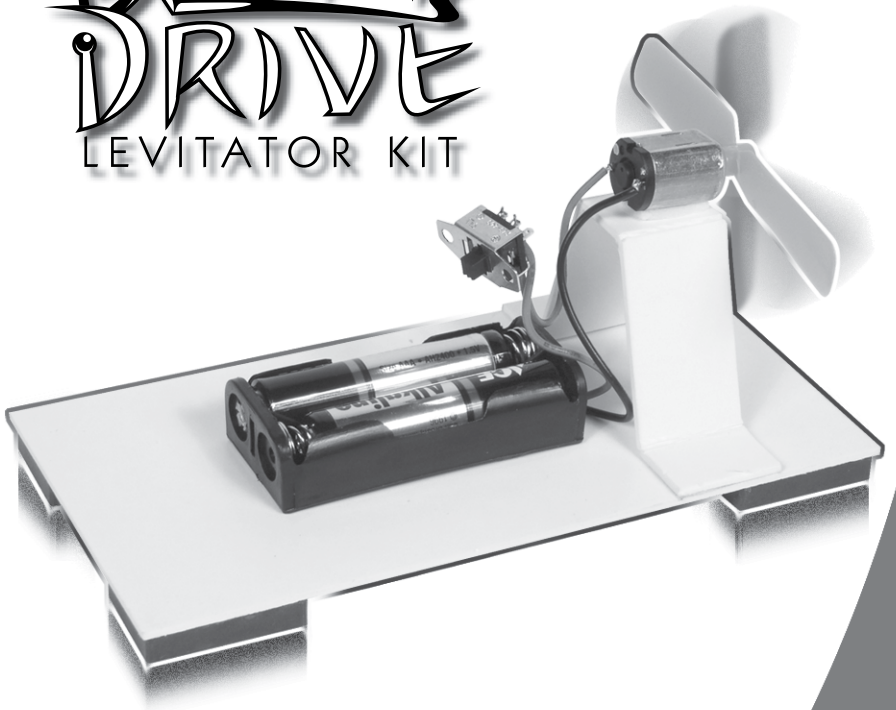
WARP DRIVE
LEVITATOR KIT



WARP DRIVE LEVITATOR KIT

Warp speed isn't just for science fiction – it aptly characterizes the speed of Pitsco's latest maglev creation, the Warp Drive Levitator. A motor drives the propeller of the maglev prop racer. Place it on the Pitsco Maglev Track, switch it on, and watch it fly!

The kit includes everything needed to build one Warp Drive Levitator: magnets, body base cards, on/off switch, motor, propeller, adhesive tabs, battery holder, and assembly instructions. Requires two AAA batteries and some soldering.

PITSCO
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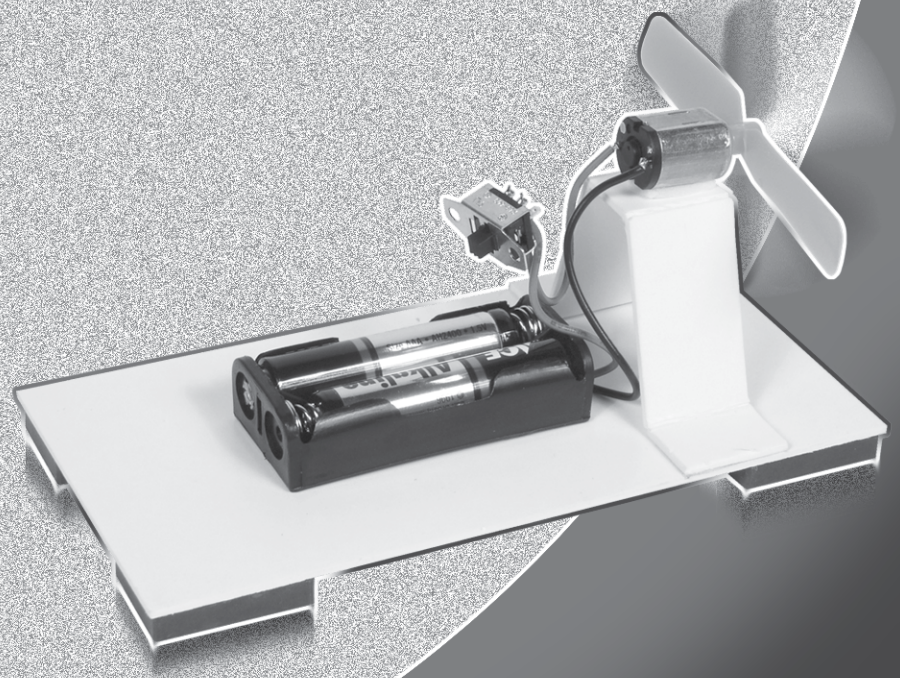
WARP DRIVE
LEVITATOR KIT



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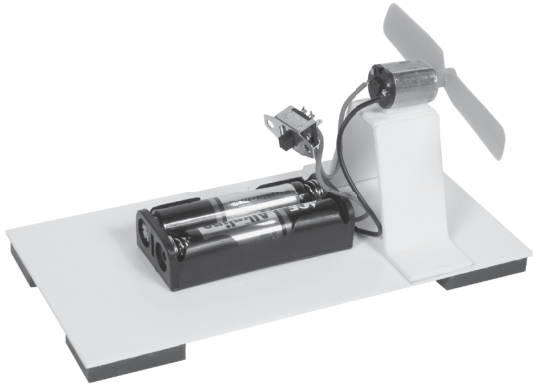
Warp Drive Levitator Kit

Many scientific concepts work together to create the magic of magnetic levitation: gravity, friction, attraction, and repulsion. Constructing the Warp Drive Levitator, however, also encourages skills such as soldering and following instructions. This is an easy-to-build kit perfect for those beginning to explore maglev vehicles and activities.

Kit Contents:



1 slide switch
1 AAA battery holder
2 body base cards
1 N-20 motor
1 propeller
4 ceramic block magnets
Double-stick tape tabs
User's Guide

Required Tools & Materials:

Soldering iron and solder
Hobby knife
Ruler
2 AAA batteries

Preparing the Chassis

1) From one of the body base cards, use the craft knife to cut out a piece that is 3/4" x 4-1/4". Draw a line across the piece a half inch from each narrow end (Figure 1). Using the hobby knife, carefully score (cut approximately halfway through the material) where the lines are drawn.

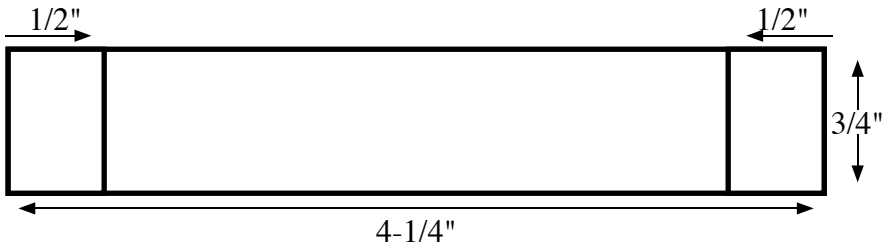
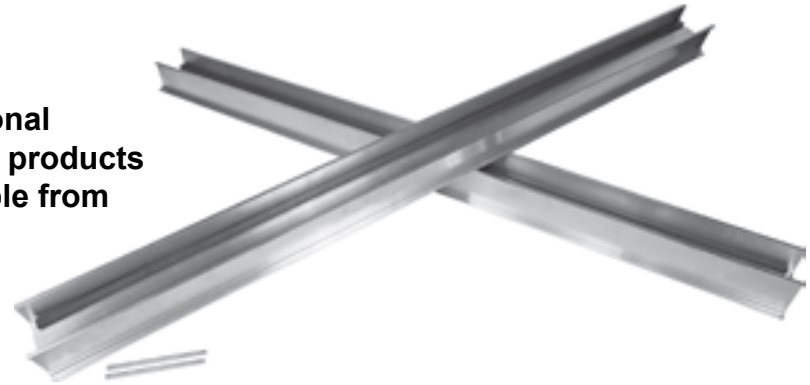


Figure 1

Additional related products available from Pitsco



PITSCO MAGLEV TRACK

Our newest Maglev Track is a great way to teach your students the technology of magnetic levitation while letting them experience science on the fast track.

For their starter car, we have included our new and improved Levitator Kit along with the track. This kit gives students a choice of two car designs, a tough base made of precut card stock, and ceramic magnets that keep the car afloat above the racing track.

The Maglev Track includes two aluminum 4' tracks that can be lined up end-to-end or placed alongside one another for races, as well as four 4' strips of magnet that act to repel your car and keep it in the air. Includes two pins to hold two track pieces together.

26000 Call for price

ADDITIONAL 4' SECTION OF TRACK

Purchase additional sections of track to make a 12-foot, 16-foot, or even longer Maglev Track. Not compatible with previous maglev tracks.

26600 Call for price

PITSCO DR. ZOON MAGLEV VIDEO

In this video, Dr. Zoon illustrates some of the scientific principles behind magnetic levitation, and he goes step-by-step through the process of building and testing a maglev vehicle. Get the uplifting facts about magnetic levitation. Closed captioned. Time: 15 minutes.
Level: Middle School-High School

57240 Call for price

MODERN MARVELS: BULLET TRAINS VIDEO

This video introduces you to the high-speed, high-tech locomotives of today's railways. These bullet trains travel more than 300 miles per hour! And although most still rely on technology more than a century old, this video looks into their possible successors – locomotives that use magnetic levitation to coast. Includes a behind-the-scenes look at the fastest trains ever made – the *Shinkansen* (the original bullet train), the *Acela*, and the *TGV* – and features interviews with high-profile leaders of the train industry. Time: 50 minutes.

58827 Call for price

Attaching the Propeller, Battery Holder, and Motor

1) Place two tape tabs on the bottom of the battery holder. Remove the paper backing from the tabs. Place the battery holder so the wireless end is one inch from the back of the chassis and is centered on it – there should be approximately 3/4" on each side of the battery holder (Figure 5).

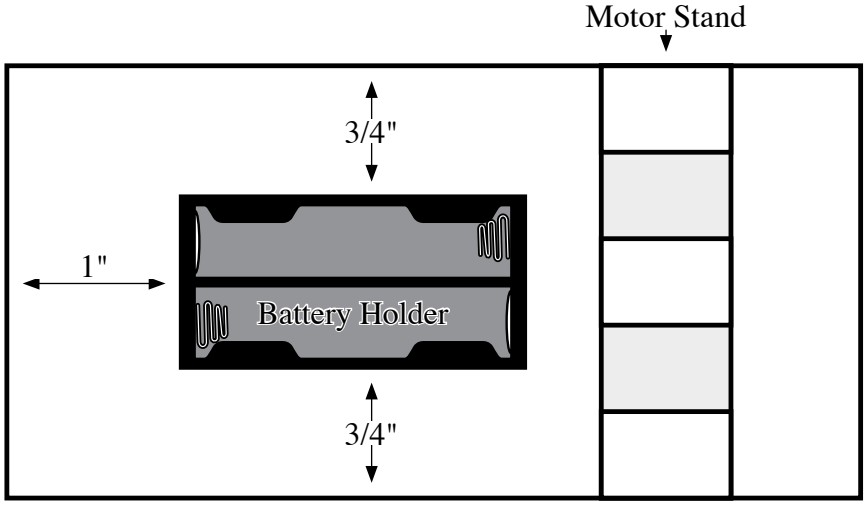


Figure 5

2) Place a tape tab on top of the motor stand as close to the front edge as possible without sticking out over the edge. Remove the paper backing. Place the motor on top of the motor stand with the propeller facing the front of the chassis and be very careful to line up the motor with the front edge of the motor stand.
3) There is no need to adhere the switch to any part of the chassis; it will hang above the battery holder.

Now place two AAA batteries into the holder, place the Warp Drive Levitator on a maglev track, and flip the switch – it really flies!

Caution: Be careful not to touch the propeller when the motor is running.

2) Flip over the piece. Measure 1-7/8" from each narrow end and draw a line across the piece (Figure 2). Again, carefully score the lines with the hobby knife. This piece will be the motor stand. Set it aside.

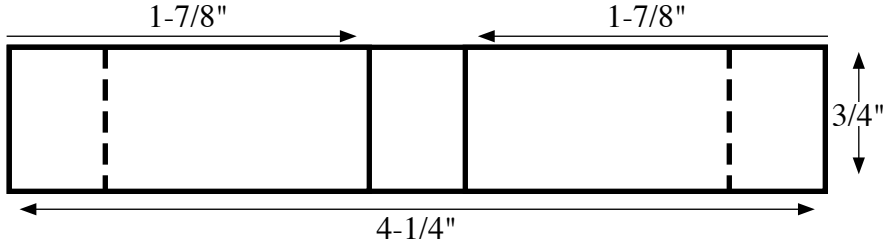


Figure 2

3) Next, you will place the magnets on the other body base card (the chassis). Before attaching a magnet, 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 not drawn to the track is the side that should face the track. Each magnet has a white dot on one side – if the white dot is on the side repelled by the track magnets, the same is true for all the magnets. Place a tape tab on top of the other side of one magnet and pull off the paper backing. Carefully adhere it to one corner of the chassis.
4) Repeat this procedure with the three remaining magnets until all four corners on one side of the chassis have a magnet. Then, turn over the chassis so the magnets are underneath the it.
5) Measure 3/4" from one end of the chassis and draw a line there. Measure another 3/4" back from that line and draw another line. Between these lines, set a tape tab on the chassis so one side of the tab is even with the plate's edge. Do this on each side of the chassis.

6) Take the motor stand piece and, with the scores closest to the middle facing up, carefully push the piece together. When bent, the scores created in Step 1 will create “feet” at each end of the motor stand. Adhere the motor stand to the chassis by setting these feet on the tape tabs (Figure 3). The end of the chassis near the motor stand is the front of the Warp Drive Levitator.

Front View of Motor Stand and Base

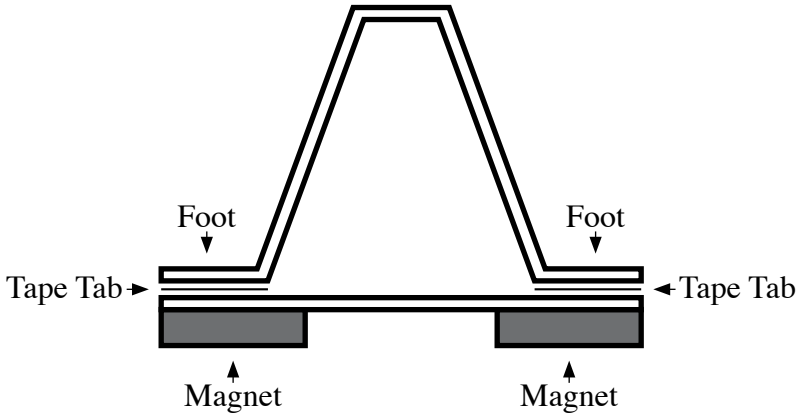


Figure 3

Connecting the Propeller, Battery Holder, and Motor

1) Locate the motor and the propeller. One side of the propeller has model numbers on it. With this side facing the motor, firmly push the propeller onto the motor shaft.
2) The battery holder has two wires attached to it: a red and a black one. Cut off all but 2-1/2 inches of each wire, and strip the end of each wire. Discard the cut-off wire. Take the red wire on the battery holder and cut it in half. Strip the ends of the extra piece of wire and set it aside. It will be used later.

3) Locate the slide switch. Take the red wire attached to the battery holder and solder it to the middle terminal on the back of the slide switch (Figure 4).

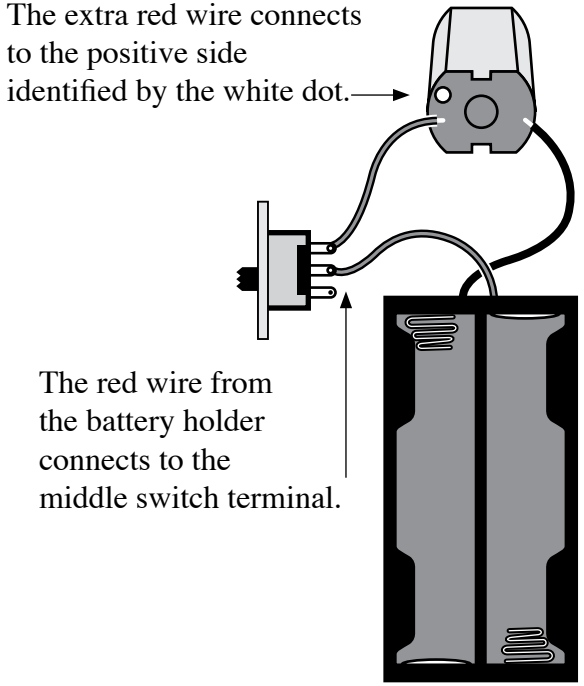


Figure 4

4) Take the piece of red wire that was set aside and solder an end to one of the empty terminals on the back of the switch. Take the other end and solder it to the motor’s wire connector on the side that has the white dot (this is the positive side).
5) Take the black wire from the battery holder and solder it directly to the remaining wire connector on the motor.