



2007

Field Setup

Overview:

The Challenge field can loosely be compared to an obstacle course on a mat. The “obstacles” are called mission models, and the mat is called the field mat. Some of the models are secured to the mat using 3M Dual Lock fastening material. The mat must be on a smooth, hard, flat surface, and it must be surrounded by border walls to contain all the action.

Requirements:

This step first requires that you...

- have read and followed the instructions under "Surface & Borders" so you now have an official framework on which to stage your field.
- have read and followed the instructions on the CD that came with your Field Setup Kit so you now have the LEGO mission models built.
- have the field mat and the Dual Lock fastening material that came in your Field Setup Kit.

Field Mat Placement:

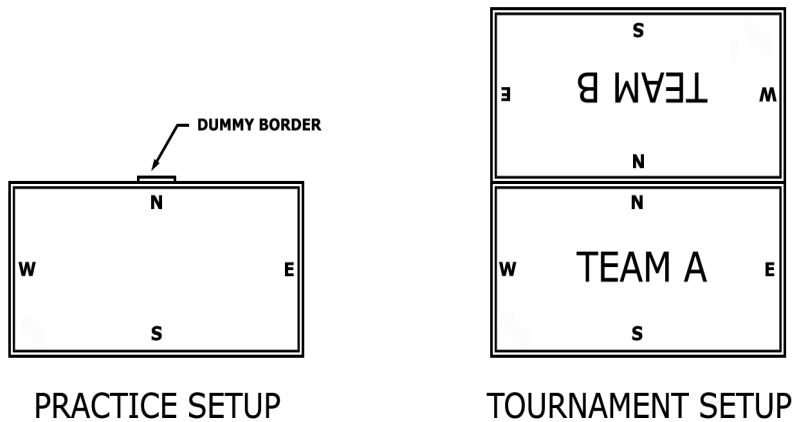
Step 1: Vacuum the surface on which you'll be staging the mat. Even the tiniest particle under the mat can give the robot trouble. After vacuuming, run your hand over the surface and sand or file down any protruding imperfections you find. Then vacuum again.

Step 2: See the sketch labeled Table/Mat Orientation. Never unroll the mat in an area where it could pick up particles. On the vacuumed surface unroll the mat and position it so the image is up and BASE (the area with logos) is at the south center of your surface (the south edge should be one you have easiest access to).

Step 3: Slide and align the mat so there is no gap between the southeast corner's edges of the mat and the corresponding southeast border walls. Gaps are expected and acceptable at the north and west edges.

Step 4: With help from another person, pull the mat at opposite ends, then massage out any waviness from west to east and re-check the requirement of Step 3. It is expected that some waviness will persist, but that should relax over time. Some teams use a hair dryer to speed the relaxation of the waviness.

Table/Mat Orientation



Using Dual Lock: The Mission Models can be taken off the field mat for transport and storage. Some are loose, but others are secured with a re-usable fastening material from 3M called Dual Lock, which comes with the LEGO bricks in your Mission Model Set. Dual Lock is designed to stick or “lock” to itself when two faces of it are pressed together, but you can unlock it too.

When a model’s placement requires Dual Lock, the model’s location mark on the mat will contain boxes with X in them. For each X box, apply a piece of Dual Lock, adhesive side down, to the mat. Square pieces will need to be cut in half for the rectangular boxes. Next, press (lock) a like-sized piece of Dual Lock, adhesive side up, onto to the ones you just finished sticking to the mat.

Tip: Since the second piece of each Dual Lock pair would rather stick to you than lock to its partner, press the second piece onto the first using the wax paper the Dual Lock was supplied on instead of your bare finger, then peel away the paper.

Finally, for each Dual Locked model, line the model up exactly over its location, being sure that all labeled features are facing as labeled. Carefully lower the model and press it down onto the Dual Lock. Try to press down on the lowest solid structure of each model instead of crushing the whole model. This application process for the Dual Lock is only needed once—later, the models can simply be locked onto the mat or unlocked.

Model Details:

Oil Platform: Place Dual Lock and point the Oil Platform as shown on the mat, so that its Oil Barrels would release from west to east. Setup is with the south yellow arm up, and the north yellow arm’s long end pointing north. Place three Oil Barrels (two white ones, and a red version between them) lying down on the black release ramp. The studs on each barrel may point north or south (variable). Resistance against the up/down movement of the south yellow arm is normal and variable.

House: Place Dual Lock and point the House as shown on the mat. Place the girl near the east end of her black walkway, and keep the door opened 90 degrees.

Truck: (No Dual Lock) Place and point the Truck as shown on the mat, with its wheels on the short lines and between the long lines. Place three of the red version of the Oil Barrel lying down on the floor in the bed of the truck, with two behind the cab and one between the wheel wells. The studs on each barrel may point toward front or rear (variable). Barrels must not be connected to each other.

Solar Powered Satellite: See the sketch labeled Table/Mat Orientation. At a tournament, a single Solar Power Satellite model is shared by Team A and Team B at the absolute center of a tournament setup. In other words, the model is centered east/west, then centered half on Team A's north border, and half on Team B's north border. If your practice table doesn't have another table next to it, you need to nail some scrap border wood to the outside of your north border wall to form the Dummy Border seen in the sketch. Setup is with both blue solar arrays and the white-dished pointer all pointing up.

Power Plant: Place Dual Lock and point the Power Plant as shown on the mat.

Uranium: (No Dual Lock) Place the two Uranium models and one red version of this model as shown on the mat, with their loops vertical upright and in line with the small black orientation lines.

Corn: (No Dual Lock) Place the two Corn models and one red version of this model as shown on the mat, with their loops vertical upright and in line with the small black orientation lines.

Railroad and Rail Car: Place Dual Lock and point the Railroad track as shown on the mat. Perfect closure of the Dual Lock is not possible for this model, but a good connection at the west edges of each pair is sufficient. Fill the Rail Car with twenty pieces of black coal and eight pieces of the red version of the coal.

Roof Solar Panel, Hydrogen Car, Power Lines, Dam and Flood, Five White Oil Barrels, Four Trees, and Two Wind Turbines: (No Dual Lock) Setup is with these models in BASE and/or completely in the white area of the parking lot.

Field Maintenance:

Border Walls: Remove any obvious splinters, and cover any obvious holes.

Field Mat: Make sure the mat rests evenly at the bottom of the south and east border walls. Avoid cleaning the mat with anything that will leave a residue. Any residue, sticky or slippery, will affect the robot's performance compared to a new mat. (Many tournaments use new mats). Use a vacuum and/or a damp cloth for dust and debris, above and below the mat. When moving the mat for transport and storage, be sure not to let the material bend into a sharp kink point, which could affect the robot's movement. Many consistent

repetitions of rubbing on the same areas of your practice mat should be expected to cause wear in the image, but such wear is unlikely at a tournament. Tournaments using new mats should unroll the mats as far in advance of the tournament day as possible. For control of extreme curl at the east or west edges of the mat, tape is allowed, with a maximum of $\frac{1}{4}$ " (6 mm) overlap. Do not use tape under the mat.

Mission Models: Keep the models in original condition by straightening and tightening solid connections often. Ensure that spinning axles spin freely by checking for end-to-end play and replacing any that are bent.