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## UGEARS 70054

# UGEARS 70054 Wooden Horse Mechanical 3D Puzzle: Instruction Manual

Model: 70054 | Brand: UGEARS

## 1. INTRODUCTION

This manual provides detailed instructions for the assembly, operation, and maintenance of your UGEARS 70054 Wooden Horse Mechanical 3D Puzzle. This intricate model is designed to offer an engaging building experience and features a unique mechanical movement.

The UGEARS Horse Mechanoid utilizes an internal pendulum mechanism to distribute weight and transfer energy to its limbs, allowing for authentic walking motion when wound. No glue or special tools are required for assembly, as all parts are precisely laser-cut for a secure fit.

## 2. PRODUCT FEATURES

- **Mechanical Movement:** Features an inner clock mechanism and pendulum for realistic four-legged motion.
- **Material:** Constructed from high-quality, environmentally safe, laser-cut wooden pieces.
- **Assembly:** Consists of 410 parts; no glue or screws needed. Parts can be removed and reassembled if necessary.
- **Design:** Intricate design with attention to moving part joints to minimize wear.
- **Educational Value:** Offers a valuable brain-training and learning experience for individuals aged 14 and up.

## 3. SETUP AND ASSEMBLY

Assembly of the UGEARS 70054 Wooden Horse is an advanced-level task, typically requiring 8-9 hours. Follow the comprehensive instructions provided in the kit carefully. No glue or special tools are required, as parts are designed to interlock precisely.

### Important Assembly Tips:

- **Part Removal:** Gently remove pieces from the wooden sheets. If a piece is difficult to remove, do not force it; try pushing it gently from the other side or use a small tool if necessary.
- **Sanding:** The kit includes sandpaper. Use it to smooth any rough edges on the wooden pieces,

especially on moving parts and connections, to ensure smooth operation and prevent binding.

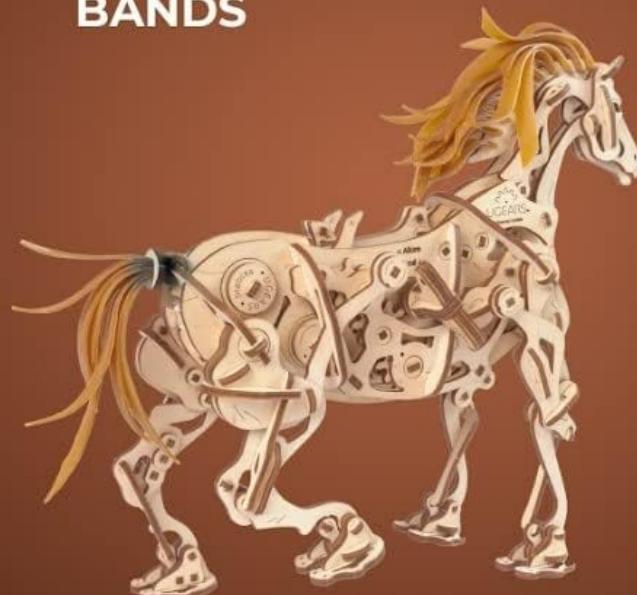
- **Waxing:** The kit also includes wax. Apply wax to all gears, axles, and moving joints as indicated in the detailed instructions. This lubrication is crucial for the model's functionality and longevity.
- **Precision:** Pay close attention to the alignment of gears and moving components. Incorrect alignment can prevent the mechanism from functioning properly.



Image: The UGEARS 70054 Wooden Horse model, highlighting its dimensions (Length 13.8 in / 350 mm, Height 11.4 in / 290 mm, Width 4.7 in / 125 mm), part count (410 parts), estimated assembly time (8-9 hours), and advanced difficulty level.

**CLAW  
MECHANISM  
TO ANIMATE  
THE LEGS**

**MANE AND TAIL  
ARE MADE OF  
FLEXIBLE RUBBER  
BANDS**



**HEART OF HORSE IS A  
PENDULUM INSTALLED  
IN THE CHEST**

Image: A detailed view of the UGEARS 70054 Wooden Horse, illustrating the internal claw mechanism responsible for animating the legs, and the flexible rubber bands forming the mane and tail. The pendulum, located in the chest, is also indicated as the heart of the horse's movement.

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Video: An official UGEARS video demonstrating the assembly process and the resulting mechanical movement of the Horse Mechanoid 3D puzzle. It showcases the intricate gears and the horse's walking action.

## 4. OPERATING INSTRUCTIONS

Once fully assembled, your UGEARS Wooden Horse is ready to move. The model operates using a winding mechanism.

- **Winding:** Locate the hand crank on the side of the horse. Gently turn the crank to wind the internal mechanism. Do not overwind.
- **Release:** After winding, release the mechanism to observe the horse's walking motion. The pendulum inside helps distribute weight and create a realistic gait.
- **Movement:** The horse will walk on its four hooves, mimicking the movement of a real horse. While it may not cover long distances, it can be rewound and set in motion repeatedly.

## 5. MAINTENANCE

Proper maintenance ensures the smooth operation and longevity of your UGEARS model.

- **Lubrication:** Regularly apply wax (provided in the kit or similar paraffin wax) to all moving parts, especially gears and axles. This reduces friction and prevents wear.
- **Cleaning:** Keep the model free from dust and debris. Use a soft, dry cloth or a small brush to clean intricate areas.
- **Storage:** Store the model in a dry environment away from direct sunlight or extreme temperature changes to prevent wood warping.

## 6. TROUBLESHOOTING

If your UGEARS Wooden Horse is not functioning as expected, consider the following common issues and solutions:

Problem	Possible Cause	Solution
Parts do not fit together easily.	Tight tolerances, rough edges.	Use the provided sandpaper to gently sand the edges of the parts until they fit smoothly. Do not force parts, as this can cause breakage.
Gears are stuck or do not turn smoothly.	Lack of lubrication, misalignment, or rough surfaces.	Ensure all gears and axles are properly waxed. Check for any misaligned parts and carefully adjust them. Sand any rough contact points.
Mechanism does not move after winding.	Incorrect assembly of internal components, especially the pendulum or main spring.	Carefully review the assembly instructions for the internal mechanism. Disassemble and reassemble the relevant sections, paying close attention to gear synchronization and pendulum placement. Ensure the rubber bands (if used as a spring) are correctly installed and not broken.
Rubber bands break easily.	Excessive tension or material fatigue.	Ensure you are not overwinding the mechanism. If bands are old or damaged, replace them with similar quality rubber bands.

## 7. SPECIFICATIONS

- **Model Number:** 70054
- **Brand:** UGEARS
- **Product Dimensions (Assembled):** 13.78 x 11.42 x 4.7 inches (35 x 29 x 12.5 cm)
- **Item Weight:** 7 ounces
- **Number of Parts:** 410
- **Estimated Assembly Time:** 8-9 hours
- **Recommended Age:** 14 years and up
- **Material:** Wood

## 8. SAFETY INFORMATION

This product contains small parts and is recommended for ages 14 and up. Adult supervision is advised for younger builders. Keep all parts out of reach of small children to prevent choking hazards. The materials used are environmentally safe and harmless.

## 9. WARRANTY AND SUPPORT

For any questions, missing parts, or support regarding your UGEARS 70054 Wooden Horse Mechanical 3D Puzzle, please contact UGEARS customer service. Refer to the packaging or the official UGEARS website for contact information.

### Related Documents - 70054

	<a href="#"><u>UGEARS Tram on Rails: Mechanical Model Assembly Instructions</u></a> Step-by-step assembly guide for the UGEARS Tram on Rails, a detailed 3D mechanical wooden puzzle model. Learn how to build this intricate engineering toy.
	<a href="#"><u>UGEARS Stagecoach 3D Wooden Mechanical Model Assembly Instructions</u></a> Comprehensive guide for assembling the UGEARS Stagecoach, a detailed 3D wooden mechanical model. Follow step-by-step instructions to build this intricate, glue-free model.
	<a href="#"><u>UGEARS Safe Mechanical Model Assembly Instructions</u></a> Step-by-step guide for assembling the UGEARS Safe mechanical model. This document provides detailed instructions, including textual descriptions of diagrams, to help users build their own intricate wooden safe. Learn how to assemble the model, set the combination lock, and operate the safe.
	<a href="#"><u>UGEARS Royal Carriage Mechanical Model Assembly Instructions</u></a> Comprehensive assembly guide for the UGEARS Royal Carriage, a detailed mechanical wooden model. Follow step-by-step instructions to build this intricate model.
	<a href="#"><u>UGEARS Timer (20 minutes) Mechanical Model Assembly Instructions</u></a> A comprehensive guide to assembling the UGEARS Timer (20 minutes) mechanical model. This document provides step-by-step instructions, troubleshooting tips, and information on the product's features, all in an accessible and SEO-optimized HTML format.
	<a href="#"><u>UGEARS Tower Windmill: 3D Mechanical Model Assembly Guide</u></a> Detailed assembly instructions for the UGEARS Tower Windmill, a 3D mechanical wooden puzzle kit. Learn how to build this intricate, self-assembling model with no glue required, perfect for STEM education and hobbyists.