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TP-150-032 MANUAL

Assembly, Operation, and Maintenance

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Legal Information

Accurate content is of the utmost importance to the authors of this document. If you find an error or see an item that needs more clarification report it to www.superdroidrobots.com

SuperDroid Robots Inc. is incorporated in Wake County, NC USA SuperDroid Robots also does business as Team Half-Life SuperDroid Robots is a registered trademark of Team Half-Life. Prior to purchasing review our Terms (https://www.superdroidrobots.com/terms.htm)

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- 3. Agreements shall be construed in accordance with the laws of the State of North Carolina, and the rights and obligations created hereby shall be governed by the laws of North Carolina.
- 4. In the event a dispute or controversy arises, such dispute or controversy (including claims of default) shall be brought in the courts of Wake County, North Carolina and the plaintiff hereby agrees to this choice of venue.

The following section contains a list of non-warrantable items. Any procedure covered in this section will void the coverage warranty of the robot, or robots, you have purchased.

- a. Removal of the lid, or access to the interior of the robot is considered abuse and neglect and as such will void warranty; Unless otherwise instructed by SuperDroid Robots.
- b. Using the robot for purposes that it is not intended, or in any situation that could cause damage outside of the normal wear and tear of the robot, will not be covered under warranty and be seen as neglect of the robot system.
- c. Improper maintenance and overall disregard to the upkeep of the robot can harm, and/or cause severe damage to the robot, leading to malfunctions and/or destruction of the functionality of the robot.
- d. Located throughout the entirety of this document are other warranty voidable perimeters displayed by RED text Any of which will again cause an immediate void of the warranty and disqualify repairs of the robot.

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<u> User's Manual - Safety Guide</u>

Thank you for purchasing this product

WARNING - Before using, read this manual to ensure correct usage and operation. After reading, store in a safe place for future reference. Incorrect handling of this robot could possibly result in personal injury or physical damage. The manufacturer assumes no responsibility for any damage caused by mishandling that is beyond normal usage defined in these manuals of this product.

NOTE - The information in this manual is subject to change without notice.

- The manufacturer assumes no responsibility for any errors that may appear in this manual.
- The reproduction, transmission or use of this document or contents is not permitted without express written authority.

About The Symbols

Various symbols are used in this manual and on the product itself to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meanings of these symbols are described below. It is important that you read these descriptions thoroughly and fully understand the content.



This indicates information that, if ignored, could result possibly in personal injury or physical damage due to incorrect handling.

Typical Symbols



This symbol indicates an additional warning (including caution). The content will be clearly indicated in an illustration or nearby.



This symbol indicates a prohibited action. The content will be clearly indicated in an illustration or nearby.

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Safety Precautions



Do not operate the robot if it isn't working properly.

If you notice something unusual when operating the robot, immediately stop operating it and turn the unit off. Contact our technicians at info@sdrobots.com and explain the issue.



Be careful when operating around children and animals

Children and animals may not understand that the robot has moving parts. Exercise caution and remain aware of your surroundings.

Do not expose to liquid or insert foreign objects

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- Do not place the robot near water (ex. flooded area, bathroom etc.).
- Do not expose the robot to rain/moisture. Do not submerge the robot.
- Do not place containers of liquid such as water on or around the robot.
- Do not insert any foreign objects into the robot. Please.
- Avoid placing the robot into a container/bag/case that contains objects besides it's own components.

Do not disassemble the robot.

The robot contains moving and electric components. Modification and/or disassembly of the robot could result in personal injury.

Do not drop, throw, or otherwise cause an impact to the robot

The robot contains moving components, wiring, and electrical systems. If the robot is dropped or otherwise receives an impact, internal components could be damaged.



If the robot is dropped or otherwise falls and is damaged, turn it off immediately.

Do not operate the robot while under the influence of alcohol or drugs



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Unpacking

Some packages may require a two-person lift.

- 1. Start with a clean open area that will allow the parts to be spread out before beginning work.
- 2. Make sure that all parts are included in the packaging before starting to assemble.

If there are any missing components, please send us an email at info@sdrobots.com. Be sure to include an order number, and a well-defined list of any missing parts.

Mechanical Assembly



May cause physical harm due to pinching. Wear appropriate protective gear during assembly.

Required Tools

- Phillips head screwdriver
- Crescent wrench
- Power Drill
- Allen wrench set
- Liquid thread lock

Motor Mount (see fig. 1a)

- 1. Motors are mounted with four Phillips head M3 x 8 screws. Apply a drop of liquid thread locker to screws before installing.
- 2. Orient the motors so that the labels on the motor are easy to read when the motor is installed. Loosely tighten the screws into place.
- 3. When the motor is close to being fully seated, tighten each screw evenly in a star pattern so that the motor tightens down flush with the inside wall of the chassis.

fig. 1a

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Mechanical Assembly (Continued)

Hub Mount (see fig. 2a)

Wheel hubs are mounted to the D shaped shaft of each motor. Hubs have a tapped hole on the side for a socket head screw.

Apply liquid thread lock to the screw and install into hub. Slide the hub onto the motor shaft and tighten down the screw onto the flat part of the motor shaft.

Screw the set screws into the flat side of the motor shaft until snug.



fig. 2a

Wheel Mount (see fig. 3a)

The inside portion of the wheel rim has a hex shaped pocket that slides onto the hub. Slide each wheel onto a hub and install the wheel retainer screw with liquid thread lock.





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Mechanical Assembly (Continued) Battery Mount (see fig. 4a)

- 1. There are multiple options for batteries and battery brackets.
- 2. Slide the battery into the battery bracket and place the items on the chassis in a position that suits the needs of the operator.
- 3. This could be on the top or bottom side of the robot. If batteries are larger than

the thickness of the robot, mount the battery on the top side of the chassis. Mark and drill two holes for mounting the bracket, then secure with appropriate hardware.

Controller Mount (see fig. 5a)

- 1. There are multiple options for motor controllers.
- 2. Place the motor controller onto the desired location of the chassis. Mark and drill the holes for mounting the controller, then secure with appropriate hardware.

Switch Mount (see fig. 6a)

- 1. There are multiple options for mounting a switch. Some switches come with brackets, and others do not.
- 2. Select the desired location for mounting the power switch. If a bracket was not purchased, then a hole will have to be drilled into the back side of the chassis for mounting and easy access.



fig. 4a



then secure with appropriate fig. 5a

3. Mark and drill out the holes, then mount the power switch with the appropriate hardware.



Fuse Mount (see fig. 7a)

There are multiple options for fuses. A wired in blade fuse will not require mounting. Any fuse housing that will require placement selection, will also need the marking and drilling of holes. Then the housing can be mounted with the appropriate hardware.



fig. 7a

Additional Equipment (see fig. 8a)

If additional items have been purchased there may already be mounting holes for chassis parts. Stand offs and upper decks will come with mounting holes and hardware.

Other items like routers and cameras may need selection placement, new holes, and mounting hardware that either comes with the item, or will have to be purchased separately.



fig. 8a

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Electrical Assembly



Electric Shock Hazard – Assembly of electrical components may cause physical harm due to electric shock.



Burn Hazard – Assembly of electrical components may cause physical harm due to the high heat required to solder and seal wiring.

NOTE - Due to the custom nature of each order, all robots will require different sizes and lengths of wire to accomplish a successful assembly of the robot.

Please see the item page for your motor controller to view the listed schematic.

Schematics

For additional support on wiring, soldering, and crimping, please visit our support pages.

Electric Motor Hookup Support

Electric Power Hookup Support

Soldering Tips

Crimping Wires

Set Up



May cause physical harm due to pinching.

1. Place the robot chassis on blocks so that the wheels can rotate freely.

2. Power on the robot.

3. Power on the RC controller and wait about 10 seconds for the signal to connect.

NOTE - If the controller joysticks are moved before the signal connects it will cause the robot to move out of control. Take care not to touch the joysticks until after the robot connects to the controller.

4. After waiting 10 seconds, try moving the joysticks to get a feel for how the robot responds to the controls.

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Operation

After testing the robot on blocks, set the robot on the ground and begin to drive.

Additional Equipment

Additional equipment may have been ordered with the robot. If so, a detailed description of how to operate the robot with these modifications will be provided.

Training

After operation of the robot up off the ground, only control the robot so that the operator can always have eyes on the system.

Spend significant amounts of time attempting to accomplish small tasks. This will help operator to learn how the robot responds to input from controls.

Shutting Down

Turn off the robot, then turn of the RC controller.

Charging



Electric Shock Hazard – Assembly of electrical components may cause physical harm due to electric shock.

NOTE - In order to charge system components, turn all equipment off.

Robot

Robot will have a specific battery that has been selected through the ordering process. Ensure that a matching charger is used with the right current rating. Using the wrong charger could result in hazardous conditions and may cause injury.

Controller

RC controllers typically come with AA batteries. If the system controller has a rechargeable battery, make sure that the matching charger is used. Using the wrong charger could result in hazardous conditions and may cause injury.

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<u>Maintenance</u>



WARNING Use caution when dealing with any moving component or equipment. If parts move during maintenance, individual may experience injury due to pinching.

Keep robotic system dry. Light bursts of air are safe to use in order to clear out the chassis of dust and minor debris. If necessary, use a damp cloth to wipe down chassis and wheels. Be sure to dry any moisture immediately.

Periodically conduct a visual inspection of the electrical components on the robot. Ensure there are no exposed wires, blown fuses, or corrosion.

Storage



Corrosion Hazard - Storing your equipment for extended periods of time, without being checked on biweekly, is NOT ADVISED. Moisture in the air, and prolonged exposure to extreme temperatures will damage the robotic system components.

- All equipment should be parked, shut down, fully charged, and boxed up when not in use.
- Keep equipment in a climate-controlled storage facility that is cool and dry.
- Fully charge equipment every two weeks.
- Conduct a functions check of equipment every month.

Common Problems & Solutions

Note - The smooth and successful operation of this robotic system requires a lot of time and training. Take care of your new robot, so that it will take care of you. Treat it the same way you treat any other important piece of equipment. This system is NOT INDESTRUCTABLE.

Equipment will not power up

This is likely due to a battery issue. Components may have been left on, or not fully charged before putting into storage. Charge the system. Leave the system to charge for six to eight hours. Try operating the robot. If there are still issues with batteries not taking a charge, one or more batteries is dead, and will have to be replaced.

The Fuse may have blown. Check fuses to see if they need to be replaced.



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Common Problems & Solutions (Continued)

Equipment will not connect wirelessly

There are many situations where there may be interference with the radio signals that control the robot. Examples: near a cell phone tower, did not start up robot near the controller, controller too close to the robot, low battery, and have more than one robot on in the same area.

Try to correct any of these and reconnect to the robot by restarting the power to the robot and controller.

Broken or Missing parts

In the event there are any broken or missing parts stop using the robot. Inspect the components to determine if the robot absolutely requires these parts to function. Some parts can be broken, and the robot will still function in order to complete a mission. Other parts are critical to the function of the robot and require repair or replacement.

If it is unknown as to whether the robot will function properly, stop using the robot and contact SuperDroid Robots Inc. by telephone or e-mail.

Support

Videos http://youtube.com/SDRRobots

Blog & Forum http://www.sdrobots.com

Customer Support http://www.superdroidrobots.com/shop/contactus.aspx SUPERDROIDROBOTS.COM



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