



*Know Before You Go™*



## User's Manual

**Edition 2.7.1 March 2010**

ReconRobotics  
7620 West 78th Street  
Edina, MN 55439

Phone: 952-935-5515  
Fax: 952-935-5508  
E-mail: [support@reconrobotics.com](mailto:support@reconrobotics.com)  
[www.ReconRobotics.com](http://www.ReconRobotics.com)



This manual applies to the ReconRobotics Recon Scout Platform and Recon Scout OCU model number OCU02.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules except where waived by waiver DA 10-291. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Although this transmitter has been approved by the Federal Communications Commission, there is no guarantee that it will not receive interference.

Modification to the Recon Scout™ or OCU may cause the transmission to violate compliance with FCC Rules and may result in revocation of authorization to use the product.

ReconRobotics  
7620 W 78th Street  
Edina, MN  
55420  
(952) 935-5515 or 1-866-697-6267

## FCC Logbook

[illegible]

## FCC Logbook

©2010 ReconRobotics

The usage of the Recon Scout robot is subject to maintenance of a logbook. Please use the following sheet to record the date of operation, the start and stop times, channel information, the location of usage, a brief reason for usage and a point of contact. This logbook must be made available upon request of the Federal Communications Commission or the National Telecommunications and Information Administration. The channel information is available on Page 18 of the manual, along with the serial numbers of the units for this log. Page 20 may be photocopied, or additional pages are available from your authorized ReconRobotics dealer.

Date	Start	Stop	Location	Reason	POC

**RECON** > **ROBOTICS**

## Table of Contents

<b>FCC Guidelines</b>	<b>1</b>
<b>Recon Scout® Inventory</b>	<b>3</b>
<b>Instructions for Use:</b>	
<b>Recon Scout</b>	<b>4</b>
<b>Operator Controller Unit (OCU)</b>	<b>5</b>
<b>Chargers</b>	<b>6</b>
<b>Field Maintenance</b>	<b>7</b>
<b>Frequently Asked Questions</b>	<b>9</b>
<b>Requesting Service</b>	<b>11</b>
<b>Safety Information and Warnings</b>	<b>13</b>
<b>Warranty</b>	<b>17</b>
<b>Serial Number Information</b>	<b>18</b>
<b>FCC Logbook</b>	<b>19</b>

**RECON** > **ROBOTICS**

## FCC Guidelines

©2010 ReconRobotics

The usage of the Recon Scout robot and related equipment is subject to the following conditions:

Eligibility is limited to state and local police and firefighters eligible for licensing under Section 90.20(a)(1) of the Commission's Rules, and security personnel in critical infrastructure industries.

The Recon Scout robot may be used only during actual emergencies involving threats to safety of life, and for necessary training related to such operations. Security personnel in critical infrastructure industries may operate the Recon Scout robot only in areas that are environmentally hazardous for entry by human personnel, and for necessary training related to such operations.

Training operations are not permitted within thirty kilometers of the following Federal radiolocation sites:

Site	Coordinates (degrees-minutes-seconds)
Beale Air Force Base	39-08-10 N / 121-21-04 W
Cape Cod Air Force Station	41-45-07 N / 70-32-17 W
Clear Air Force Station	64-55-16 N / 143-05-02 W
Cavalier Air Force Station	48-43-12 N / 97-54-00 W
Eglin Air Force Base	30-43-12 N / 86-12-36 W

The Recon Scout robot will operate on a secondary basis (cannot cause interference and is not protected from interference) to all Federal users and licensed non-Federal users. **This device may not interfere with Federal stations operating in the 420-450 MHz band and must accept any interference received.**

The operation of the Recon Scout may be impacted in the vicinity of the following radar and ionospheric research sites:

Site	Coordinates (degrees-minutes-seconds)
Arecibo, Puerto Rico	18-20-37 N / 66-45-11 W
Westford, Massachusetts	42-37-24 N / 71-29-18 W
Poker Flats, Arkansas	65-07-47 N / 147-28-14 W

**RECON > ROBOTICS**

## Serial Number Information

©2010 ReconRobotics

Place Serial Number Sticker Here

It should have channel identification information on it  
E. G.  
Recon Scout 1234B567 Channel C, 436-442 MHz

All materials contained in this document are proprietary and confidential. Reproduction and duplication, without specific written permission, are strictly prohibited.

ReconRobotics, Inc.  
7620 West 78th Street  
Edina, MN 55439  
Phone: 952-935-5515  
Fax: 952-935-5508  
Email: [support@reconrobotics.com](mailto:support@reconrobotics.com)  
Website: [www.reconrobotics.com](http://www.reconrobotics.com)

**RECON > ROBOTICS**

## Warranty

©2010 ReconRobotics

All ReconRobotics products are warranted to be free from defects in materials or workmanship for one year from the date of purchase. Within this period, ReconRobotics will, at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alterations or repairs.

THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE.

IN NO EVENT SHALL RECONROBOTICS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

ReconRobotics retains the exclusive right to repair or replace the product or offer a full refund of the purchase price at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.

To obtain warranty service, an original or copy of the sales receipt is required. ReconRobotics retains the exclusive right to either repair or replace the unit with a refurbished unit or new unit at its sole discretion.

Call or e-mail ReconRobotics Technical Support Specialists to describe the problem you are experiencing and request a Return Material Authorization (RMA) tracking number. In addition to your original sales receipt, you will need to provide the unit's serial number, your return shipping address, email address, and a daytime telephone number.

Phone: 1-866-697-6267 or 952-935-5515 Extension 3  
Fax: 952-935-5508  
E-mail: support@reconrobotics.com

Once you have received the RMA number, securely package the unit and ship it (insured) to the address on the RMA form.



## FCC Guidelines

©2010 ReconRobotics

**Although this transmitter has been approved by the Federal Communications Commission, there is no guarantee that it will not receive interference.**

Operation of the Recon Scout robot by eligible entities will require a separate Commission authorization. **Licensees must maintain a log of all Recon Scout use.** The log will include date of operation, start/stop times, location of operation, frequency segment of operation, reason for use, and point of contact. Licensees must provide this log to the Federal Communications Commission or to the National Telecommunications and Information Administration upon request of either agency.

When multiple *Recon Scout* robots are available on separate frequencies, the agency deploying them must deploy a Channel C *Recon Scout* robot first, followed by a Channel A, followed by a Channel B.

**Operation of the Recon Scout robot in an unauthorized manner will subject licensees to Commission enforcement action and license revocation.**



## Recon Scout Inventory

©2010 ReconRobotics

Please inspect the inventory in this package to ensure that all materials are present.

If any of the materials are missing, please contact [support@reconrobotics.com](mailto:support@reconrobotics.com) for further assistance.

### Your *Recon Scout* Robot Kit includes:

- One (1) *Recon Scout* Robot
- One (1) *Recon Scout* Robot Charger
- One (1) *Recon Scout* Operator Control Unit (OCU)
- One (1) *Recon Scout* OCU Charger
- One (1) *Recon Scout* OCU Antenna Set comprised of:
  - One (1) Command Transmit Antenna
  - One (1) Video Receive Antenna
- One (1) Carrying Case
- One (1) User's Manual
- One (1) Spare Activation Key
- One (1) Lanyard
- One (1) Warranty Card
- One (1) Log Book

If you ordered a double *Recon Scout* Kit, it will also include:

- One (1) Additional *Recon Scout* Robot
- One (1) Additional *Recon Scout* Robot Charger



## Notes

©2010 ReconRobotics



- The following describes additional symptoms of a device that needs technical attention and should not be used:
- After a full charge, the OCU display intermittently turns ON and OFF or suddenly loses its signal.
  - The OCU or Charger have been dropped and are malfunctioning.
  - The *Recon Scout* robot, OCU or Charger become too hot to touch.
  - There is an unusual sound emitted from any of the components.
  - There is smoke emitted from any of the components.
  - There is a burning smell emitted from any of the components.
- Keep loose clothing and hair away from the *Recon Scout* robot.













**If for any reason you have questions/concerns regarding the usage/operation of the *Recon Scout* robot, discontinue use and contact the vendor from whom you purchased your *Recon Scout* Robot Kit.**

**RECON > ROBOTICS**

## Instructions for Use: *Recon Scout* Robot

A *Recon Scout* robot should have...

	<i>Throwbot</i> ™, <i>UVI</i> , <i>IR</i>	<i>XT</i> , <i>Rescue</i>
<b>Antennas</b>		
<b>Activation Pin</b>		
<b>Wheels (2)</b>		
<b>Stabilizer</b>		
<b>IR Blister</b>	 (IR Scout Only)	

If any of these items are missing, notify ReconRobotics immediately.

### Powering the *Recon Scout*

- Pulling the pin from the *Recon Scout* robot powers it on.
- Reinsertion of the pin powers the *Recon Scout* robot off.



**To prevent permanent damage to the rechargeable battery system, reinsert the activation pin when the *Recon Scout* is charging or not in use.**

**RECON > ROBOTICS**

## Instructions for Use: *Operator Control Unit (OCU)*

©2010 ReconRobotics

### Setting up the OCU

Make sure the antennas are properly inserted and sufficiently tightened in the appropriate color coordinated connectors on the OCU. Only use the provided antennas. **Modification of the antenna system or the usage of unauthorized antennas may violate your authorization to use this product.**



### Powering the OCU

Flip the power switch at the base of the controller from the **Off** to the **On** position.



The screen should light up indicating the unit is ready to use. If the *Recon Scout* robot is powered on, video from the *Recon Scout* robot should appear.



**To prevent permanent damage to the rechargeable battery system, turn the OCU off when charging or not in use.**

RECON > ROBOTICS

©2010 ReconRobotics

- By purchasing the *Recon Scout* robot kit, the buyer assumes all risks associated with lithium polymer batteries. If you do not agree with these conditions, please return the *Recon Scout* robot kit.
- Do not attempt to disassemble or modify the *Recon Scout* robot. This may cause an electric shock, a fire, or failure.
- Do not put pieces of metal, such as a paper clip, inside the *Recon Scout* robot. This may cause an electric shock, a fire, or failure.
- Do not immerse the OCU or chargers into water or liquids.
- If water or any liquid enters the inside of the OCU, immediately stop use to avoid shock, fire, or unit failure.

RECON > ROBOTICS



## Safety Information & Warnings

©2010 ReconRobotics

**Read these warnings before charging or using your Recon Scout Robot. Failure to read and follow instructions may result in fire, personal injury and/or damage to property if Recon Scout Robot or OCU is charged or used improperly.**

- To reduce the risk of electric shock, do not remove the shell of the *Recon Scout robot*, Operator Control Unit (OCU) or the chargers. No user-serviceable parts are inside. Refer servicing to qualified service personnel.
- To reduce the risk of injury or damage, keep these safety precautions in mind when setting up, using and maintaining your equipment.
- Read all safety and operating instructions before operating the *Recon Scout* robot.
- Retain the safety and operating instructions for future reference.
- Follow all operating and use instructions.
- Do not attempt to service the *Recon Scout* robot yourself. Refer all non-routine servicing to qualified service personnel. Repairs or modifications not conducted by authorized personnel may result in the voiding of warranty and/or Annual Maintenance Plans.
- Lithium Polymer batteries are volatile. Use provided *Recon Scout* robot and *Recon Scout* OCU chargers only. Failure to do so may cause fire which may result in personal injury and/or property damage.
- Considerations for Charging:
  - Always charge with the activation pin inserted in the *Recon Scout robot* and the OCU turned off.
  - Always charge in an open, fireproof location.
  - Do not leave devices on charger for more than six (6) hours.
  - Do not leave system unattended while charging.
  - Only charge the *Recon Scout robot* and OCU with chargers provided by ReconRobotics.

RECON > ROBOTICS

## Instructions for Use: Chargers

©2010 ReconRobotics

Place the chargers in a cool, ventilated (fire safe) area. Attach robot or OCU to the corresponding charger. Ensure devices are properly powered off before charging.

When the chargers are plugged into the wall, the **light turns green** to let you know there is power.

When you plug the units (OCU or *Recon Scout* robot) into the chargers, the **light turns red** to let you know the unit is charging.

When the light turns from red to green, it means the charger has entered trickle mode. Allow the robot to trickle charge for an hour or two for maximum performance.



**For safety purposes, DO NOT charge units for more than six (6) hours or leave units charging unattended. DO NOT use any chargers other than the ones that came with your Recon Scout™ or OCU.**

### OCU Charger

- The OCU Charger is in two parts: the charger unit and the electrical cord.
- Plug OCU Charger unit electrical cord into charger transformer socket on the OCU Charger.
- Plug OCU Charger unit electrical cord into AC wall socket (120-240 VAC).
- Plug the OCU Charger unit into the OCU.



### Recon Scout Robot Charger

- The activation pin must be inserted in the robot while charging.
- Plug *Recon Scout* Robot Charger unit electrical cord into AC wall socket (120-240 VAC).
- Plug *Recon Scout* Robot Charger unit electrical cord into the *Recon Scout*™.



**The Charger Units are NOT interchangeable. Plugging into the wrong charger unit could result in permanently disabling the unit.**

RECON > ROBOTICS

## Instructions for Use: *Field Maintenance*

©2010 ReconRobotics

The *Recon Scout* robot and OCU are designed to provide mission critical information in harsh or hazardous environments, but no product is indestructible. In order to ensure that the *Recon Scout* robot keeps performing as expected please follow these steps after each usage of the *Recon Scout* robot and OCU.

### *Recon Scout Robot Maintenance*

#### **Charge**

1. Re-insert activation pin before charging.
2. Do not leave on charger for more than 6 hours.
3. When plugging the *Recon Scout robot* into the charger, ensure connecting plug is not bent.

**Wheels:** If a wheel is wobbly, tighten the nut. Do not over-tighten, the wheel should spin freely.

**Stabilizing Tail:** If tail is loose, use a 1/16 Allen wrench to tighten the bolts holding on the tail. Check crimping on tail-Scout connection and weight at end of the tail.

**Antennas:** Visually inspect for scuffing or cracking. You may bend the antennas to point up from the *Recon Scout*™ to maintain performance.

### *Recon Scout IR , XT or Rescue Maintenance*

If you have a *Recon Scout IR*, *XT* or *Rescue* robot, you may also want to lightly dust off the IR Blister to ensure the light sensor stays clear.

### *Recon Scout OCU Maintenance*

#### **Charge:**

1. Turn off OCU before charging.
2. Do not leave on charger for more than 6 hours.
3. When plugging OCU into charger, ensure connecting plug is not bent.

**Antennas:** Ensure that the antennas are not bent or kinked, and that they are able to easily be inserted and removed.

#### **Charger Maintenance**

The *Recon Scout* robot charger and the charger for the *Recon Scout* OCU are not field



## Requesting Service

©2010 ReconRobotics

If you're experiencing problems with your *Recon Scout Robot* and it hasn't been covered by any of the questions in the FAQ, you can request service by calling ReconRobotics customer service at 952-935-5515 extension 3 or emailing [support@reconrobotics.com](mailto:support@reconrobotics.com).

When you contact, please have the serial number of the product that is experiencing difficulties available. Our technical staff will attempt to evaluate the problem and if necessary issue an RMA for repair. The RMA form will provide all of the information necessary on where to ship. When sending equipment in for RMA, please include the entire kit (*Recon Scout* robot, OCU, Chargers) as some problems may manifest in one device when caused by another.

If the issue is covered under warranty, repair and return ground shipment will be free of charge. If not, a quote will be generated before repairs begin.



### **The IR light is always turning on even in daylight, is my Recon Scout IR/XT/Rescue Robot broken?**

If there are dust or debris present on the IR blister, the light sensor may determine the environment has less ambient light than it really does. Ensure that the IR blister is free of dust or debris by wiping it with a soft towel.

### **The OCU screen is black, but the Recon Scout Robot can still be controlled, what is going on?**

If the screen is black, it typically means that the backlight in the LCD screen is broken. This is generally caused by dropping or other action which causes an impact to the OCU. Contact your authorized service station for repair information.

### **The Recon Scout Robot /OCU don't seem to be holding a charge, what can be done?**

First, give them a full charge. Make sure the Recon Scout robot and OCU are off (pin in the robot, switch off on the OCU). Charge them for a full six hours. If the lights on the OCU start flashing, there may be a problem with the charger or the battery. Otherwise, after six hours, perform a runtime test by turning both devices on and driving them in place. If they still do not get a full hour of runtime, contact your authorized service station for repair information.



maintainable. If either charger is damaged or malfunctioning please contact ReconRobotics or your authorized ReconRobotics vendor immediately.

### **Other Maintenance**

Please contact ReconRobotics or your authorized ReconRobotics vendor for other maintenance concerns.

### **Replacement Parts**

The following *Recon Scout* and OCU parts are available for order for field repairs. Please contact your authorized ReconRobotics vendor more information on obtaining these parts.

- *Recon Scout* Robot Spare Pin Kit (3 switch pins)
- *Recon Scout* Robot Replacement Antennas
- *Recon Scout Throwbot / UVI / IR* Robot Wheel Kit
- *Recon Scout* XT / Rescue Wheel Kit
- *Recon Scout* XT / Rescue RobotTail Kit
- *Recon Scout* Robot Replacement Charger
- *Recon Scout* OCU Antenna Kit
- *Recon Scout* OCU Replacement Charger

### **Annual Maintenance Plans**

Maintenance plans for the wear and tear of every day use of your *Recon Scout robot* may be available in your area. Please contact your authorized ReconRobotics vendor for more information.



## Frequently Asked Questions

©2010 ReconRobotics

### How long will the Recon Scout Robot run on a full charge?

The actual lifetime of a *Recon Scout* Robot will vary depending on the amount of driving and terrain the *Recon Scout* robot is crossing. On a fully charged battery, while driving full speed, the *Recon Scout* robot should be able to run for approximately 60 minutes.

### How long will the OCU run on a full charge?

The lifetime of the OCU is approximately 120 minutes.

### How many times can the Recon Scout Robot and the OCU be recharged?

The *Recon Scout* robot and OCU use Lithium Polymer batteries which are rated for 300 to 500 recharges before any degradation of capacity.

### How long does it take to recharge the OCU and Recon Scout Robot?

The recharging times for the OCU and *Recon Scout* robot are approximately one to three hours depending on usage.

### Can the Recon Scout Robot be operated in wet conditions?

Neither the *Recon Scout*<sup>TM</sup> or the *Recon Scout* Robot OCU are waterproof. If the *Recon Scout* robot is used in light rain, simply wipe the *Recon Scout* robot off and allow to dry before recharging. Submersion or prolonged usage in heavy rain of either the *Recon Scout* robot or the OCU may result in damage not covered by warranty or Annual Maintenance Plans.

### I've been using the OCU for an extended period of time and now the screen is black when I power on and I can not control the Recon Scout Robot. What could be wrong?

For safety purposes, when the battery drops below a certain voltage, the OCU deactivates itself. You will need to recharge the OCU as described in the "Instructions for Use: Chargers" section (page 6).



©2010 ReconRobotics

### I've turned the OCU on and don't have a solid video stream. What could be wrong?

"Bad" video can have several possible causes:

- The *Recon Scout* robot may be out of range.
- The *Recon Scout* robot may be low on power or off.
- The antennas may not be connected properly.
- There may be interference caused by environmental factors such as proximity to metal by either the OCU or the *Recon Scout* robot.

### The charger indicator lights do not light up when the Recon Scout Robot or OCU is connected. How do I fix this?

This is an error state in the charger indicator that can be caused by:

- Faulty power to the charger. In this case, try powering the charger from another source.
- The device may already be fully charged.
- There is a general failure in the charger. If the problem persists after changing the power supply contact ReconRobotics.

### When I throw the Recon Scout Robot, it does not drive straight when it lands. What could be wrong?

The *Recon Scout* robot now has integrated accelerometers and gyros. When the *Recon Scout* robot lands, let it sit still for a few seconds before driving. The *Recon Scout* robot will automatically recalibrate itself during this time and should resume driving as expected.

### The IR light is not turning on, is my Recon Scout IR/XT/Rescue Robot broken?

The *Recon Scout IR/XT/Rescue* robots has a light sensor to measure ambient light. If there is sufficient light, the IR LEDs will not turn on in order to conserve battery life.

