

**RAGE RC**  
RESIST THE ORDINARY

**LOCKHEED ELECTRA**

Officially Licensed by

**LOCKHEED MARTIN**



## Instruction Manual



**AMAZING SCALE DETAIL WITH FUNCTIONING RETRACTS AND FLAPS**

### Specifications

<b>Wingspan:</b>	27 in. (686mm)
<b>Length:</b>	19 1/4 in. (489mm)
<b>Flying Weight:</b>	4.7 oz. (133g)
<b>Battery:</b>	750mAh 1S 3.7V LiPo
<b>Motors:</b>	2-Dual Brushed w/Gearbox
<b>On-Board Electronics:</b>	5-in-1 Board (Receiver/2 servos/ESC/PASS system)
<b>Additional Servos:</b>	2 (Ailerons and Retracts/Flaps)
<b>Wing Area:</b>	119 sq. in. (7.67 sq dm.)
<b>Transmitter:</b>	8-Channel 2.4GHz Computer Tx with LCD screen
<b>Charger:</b>	500mA USB Charger Charger

# Table of Contents

<b>Specifications</b>	<b>1</b>
<b>Table of Contents</b>	<b>2</b>
<b>General Precautions</b>	<b>2</b>
<b>Electra Story</b>	<b>3</b>
<b>Safety Precautions</b>	<b>3</b>
<b>Electra RTF Contents</b>	<b>4</b>
<b>FCC Information</b>	<b>4</b>
<b>LiPo Battery Warning</b>	<b>4</b>
<b>Electra Assembly</b>	<b>5</b>
<b>Transmitter Details (RTF Version only)</b>	<b>5</b>
<b>Charging LiPo Battery</b>	<b>6</b>
<b>Battery Install and Low Voltage Warning</b>	<b>6</b>
<b>Center of Gravity</b>	<b>6</b>
<b>Prop Replacement</b>	<b>6</b>
<b>Control Movements</b>	<b>7</b>
<b>Control Movement (cont.)</b>	<b>8</b>
<b>Retract/Flap Operation</b>	<b>8</b>
<b>Pilot Assist Stability Software (PASS)</b>	<b>9</b>
<b>First Flight</b>	<b>10</b>
<b>Binding</b>	<b>10</b>
<b>Arming the Motors</b>	<b>11</b>
<b>Calibration</b>	<b>11</b>
<b>Additional Flight Software Information</b>	<b>12</b>
<b>Additional RTF Radio Information</b>	<b>12</b>
<b>Set Up for Ready for Transmitter (RTF) Versions</b>	<b>13</b>
<b>Parts List</b>	<b>14</b>
<b>Limited Warranty</b>	<b>15</b>

## General Precautions

- Never operate your model if the transmitter battery voltage is too low.
- Always operate your model in an open area away from obstacles, people, vehicles, buildings, etc.
- Carefully follow the directions and warnings for this and any optional support equipment. (chargers, rechargeable batteries, etc.).
- Keep all chemicals, small parts and all electronic components out of the reach of children.
- Moisture causes damage to electronic components. Avoid water exposure to all electronic components, parts, etc. not specifically designed and protected for use in water.

# Electra Story

When commercial aviation was getting off the ground in the 1930's Lockheed Aircraft Corporation developed the Lockheed Electra Model 10 to compete with the Boeing 247 and Douglas DC-2. The Electra name comes from a star in the Pleiades star cluster of the Taurus constellation. The Electra was Lockheed's first all-metal and twin-engine airplane and was designed by Lloyd Stearman and Hall Hibbard. The prototype made its maiden flight on February 23, 1934, and eventually built a total of 149 Electra's. In addition to commercial use, Electra's also became popular as private planes for royalty throughout both Asia and Europe. Probably the most famous use of the Electra was the highly modified Model 10E flown by Amelia Earhart, who in July of 1937 disappeared in her Electra during an attempted around-the-world-flight.

The Rage RC Lockheed Electra is an ultra-micro sized model of the classic 1930's Model 10 design with an accurate color scheme, factory-applied graphics, and other scale details like rivets and a preinstalled working LED set with transmitter-controlled landing lights. Realistic functioning retracts, flaps and rudders (2), and a steerable tailwheel add to the nostalgic experience of flying the Electra. For convenience the battery is installed in a magnetic compartment at the nose of the aircraft that securely holds it in place and allows for quick replacement. All connections and electronic components also have easy access when the wing is removed from the fuselage. The Lockheed Electra features a semi-scale airfoil wing design that along with the lightweight airframe (4.6oz.) combine for smooth, stable flight performance for sport and experienced pilots. When flying assistance is needed, the PASS (Pilot Assist Stability Software) system is there to help. The PASS system is controlled by a convenient 3-position transmitter switch, allowing for in-flight selection between Full Assist, Partial Assist, and No Assist (system off). When the system is engaged in either setting, if you ever become disoriented or lose control, simply releasing the control sticks will return the aircraft to straight and level flight.

The Lockheed Electra Model 10 is available as an RTF (Ready-to-Fly) so everything needed to fly is included in the box. The Electra is also available in 2 different RFT (Ready-for-Transmitter) versions that are ready to connect with popular brand transmitters already on the market. With the RTF version, the 8-channel, 2.4GHz computer transmitter features an LCD screen and Hall Effect gimbals for smooth control. Plus, the 750mAh high-capacity battery and 500mA USB charger combine to provide 8-minute flight times and convenient charging. Even the 4 AA batteries to power the transmitter (RTF version only) are included, so all you need to do is load the batteries, make the electronic connections and attach the wing, and you can be making your maiden flight on this highly detailed, historic airplane within minutes of opening the box!

## Safety Precautions

Failure to use this product in the intended manner as described in the following instruction can result in damage and/or personal injury. A Radio Controlled (RC) airplane/helicopter/quadcopter is not a toy! If misused, it can cause serious bodily harm and damage to property.

Keep items that could become entangled away from the propeller, including loose clothing, tools, etc. Be especially sure to keep your hands, face and other parts of your body away from the propeller.

As the user of this product, you are solely and wholly responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

This model is controlled by a radio signal that is subject to possible interference from a variety of sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance from objects and people in all directions around your model as this will help to avoid collisions and/or injury.

## FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**Caution:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

The associated regulatory agencies of the following countries recognize the noted certifications for this product as authorized for sale and use: USA, UK, AU

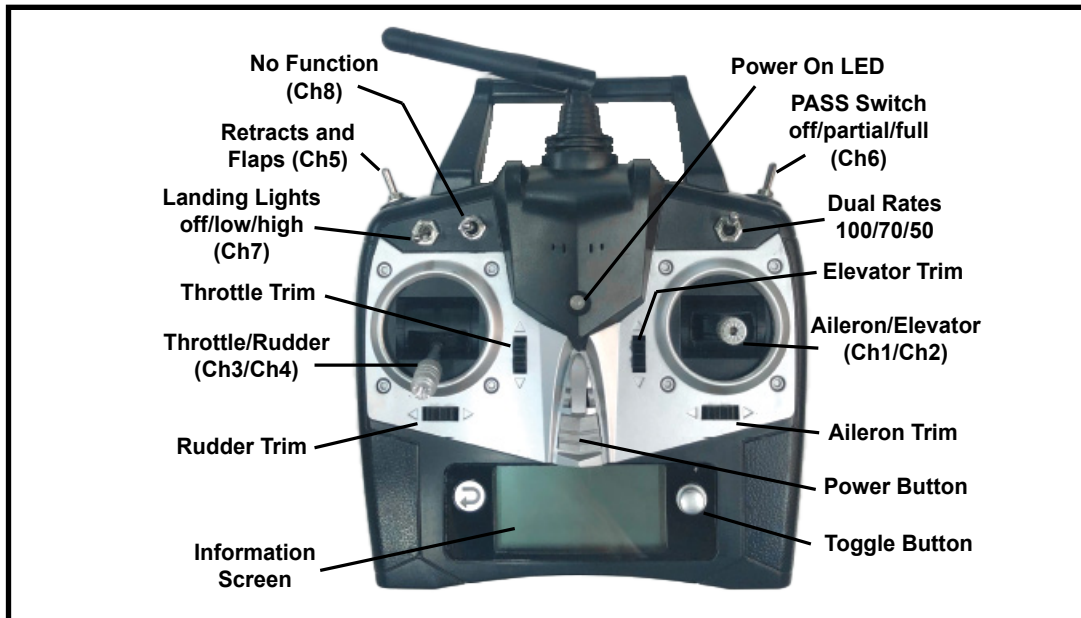
## LiPo Battery Warning

**IMPORTANT NOTE:** *Lithium Polymer batteries are significantly more volatile than the alkaline, NiCd or NiMH batteries also used in RC applications. All instructions and warnings must be followed exactly to prevent property damage and/or personal injury as mishandling of LiPo batteries can result in fire. By handling, charging or using the included LiPo battery you assume all risks associated with LiPo batteries. If you do not agree with these conditions please return the complete product in new, unused condition to the place of purchase immediately.*

## Electra RTF Contents



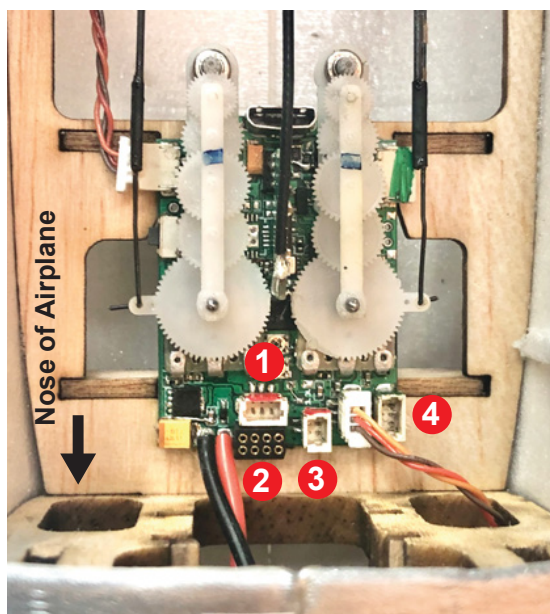
## Transmitter Details (RTF Version only)



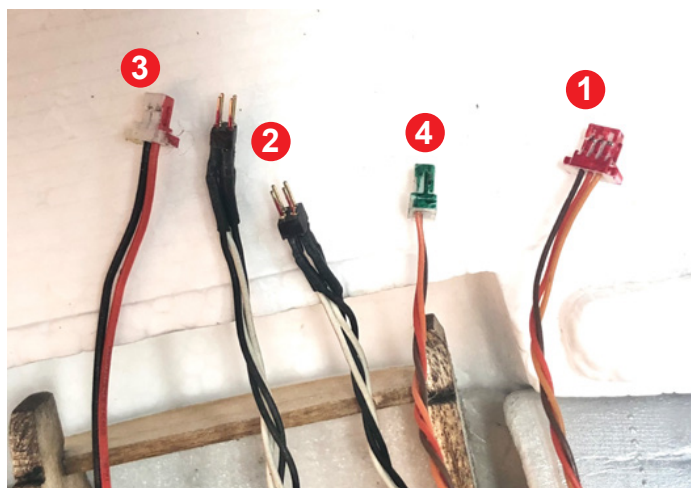
*PLEASE NOTE: Install the 4 supplied AA batteries into the battery compartment located on the back of the transmitter under the battery hatch cover. Make sure that the batteries are installed with correct polarity per the diagram inside the battery compartment.*

## Electra Assembly

The Electra comes partially assembled. The wing must be installed on the fuselage and the electrical connections made by plugging the components into the receiver control board, as shown below. **Important note - make sure all connections are made correctly or damage to the board could result!**



- 1** Ailerons. Plug into socket with the red marked side to the rear of the aircraft.
- 2** Motors. Plug both 4 pin plugs into socket with the red marked pins to the rear of the aircraft.
- 3** Navigation Lights. Plug into socket with the red marked side to the rear of the aircraft.
- 4** Landing Gear and Flaps. Plug into socket with the green marked side to the rear of the aircraft.

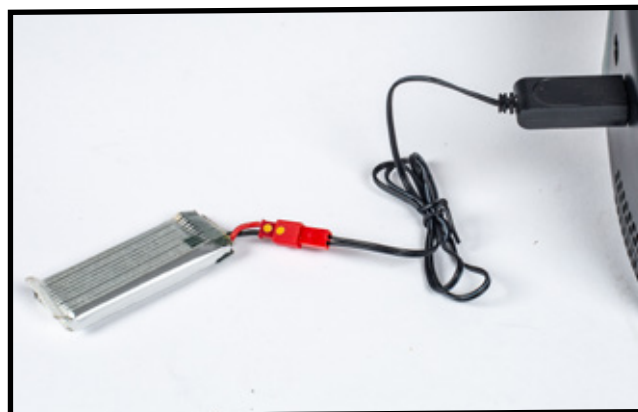




## Charging LiPo Battery



Plug the battery into the USB charge cord. Make sure that the polarity is correct by matching the red dot on the battery to the red dot on the connector.



Plug the charger into a suitable 5V USB port. When the charge is complete, the red LED on the charger will light.

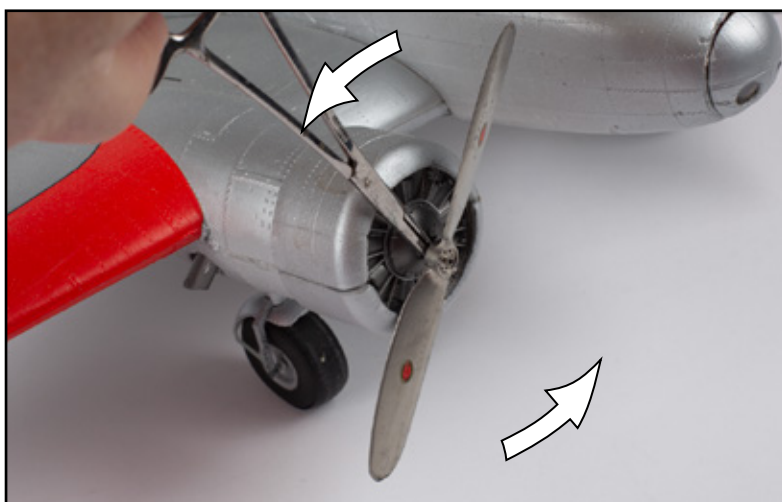
## Battery Install and Low Voltage Warning



The nose of the fuselage is held in place by magnets. Remove the nose by gently grasping the sides and pulling forward. Once nose is removed, plug the charged flight battery into the lead, being careful to align the red dots to ensure correct polarity. Slide the battery into the aircraft with the battery lead facing the rear of the aircraft. The battery will be held firmly in place in the battery box.

When the flight battery goes below 3.2V, the motor may begin to sputter, the red and green navigation lights will flash, and you will hear a warning sound from the transmitter letting you know that you should land the airplane as soon as possible (RTF version only). With the RTF version, you can also monitor the battery voltage by telemetry on the transmitter's LCD screen. See page 11 of this manual for a link to download the instructions.

## Prop Replacement



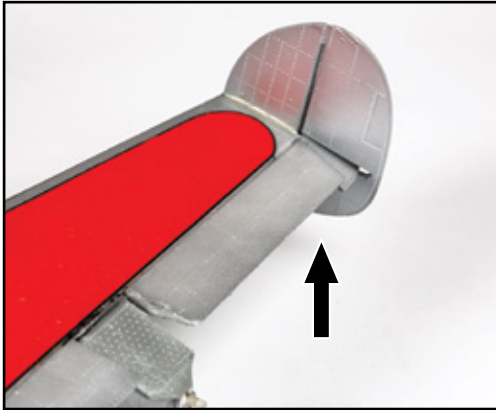
Grasp the motor shaft just behind the prop. A pair of thin needle nose pliers or a straight hemostat work well for this step. To remove the prop, turn it in the direction of normal rotation (see diagram). Reverse this process to install the new prop.

## Center of Gravity

With the supplied battery installed in the battery box, the Electra's CG will automatically be in the correct location. If a different battery is used or repairs have been made to the airframe, the CG should be rechecked and weight adjusted to achieve the proper CG.

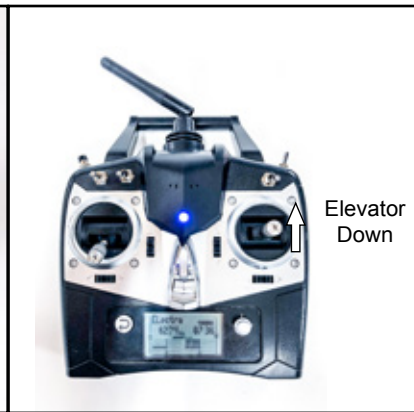
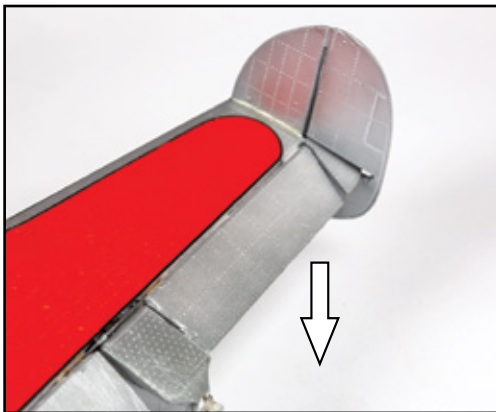
# Control Movements

With both the transmitter and the aircraft powered on, check the movement of the control surfaces.

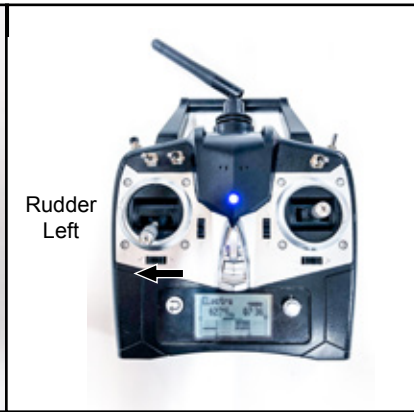
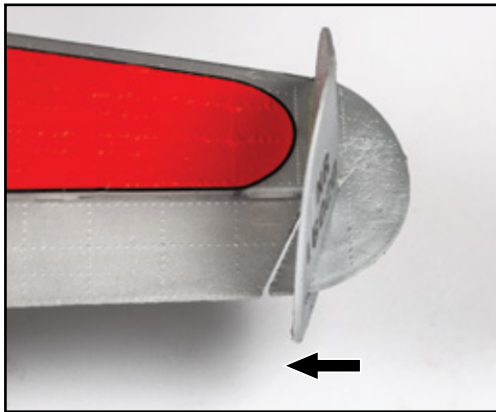


**The PASS switch on the upper right of the transmitter should be in the OFF (toward back of transmitter) for these tests.**

When the elevator stick is moved toward the bottom of the transmitter both elevators should move up. When in flight this will raise the nose.

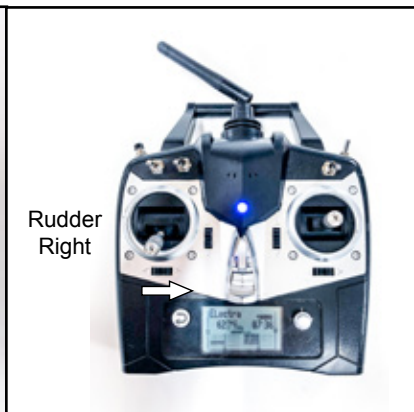
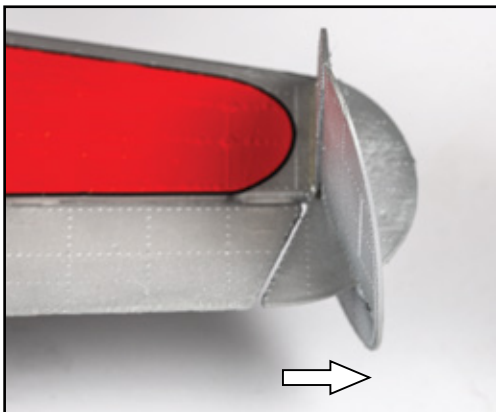


When the elevator stick is moved toward the top of the transmitter both elevators should move down. When in flight this will lower the nose.



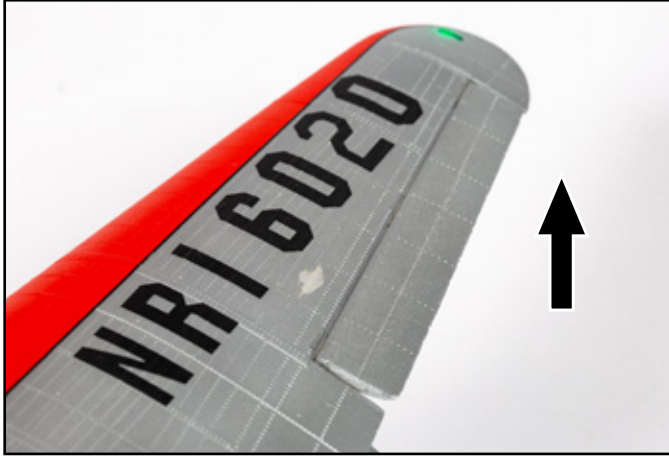
**PLEASE NOTE: The throttle/rudder stick must be raised a few clicks from bottom position in order to activate the rudder operation. The throttle stick at the fully off position is reserved for arming and disarming of the motors as shown on page 11.**

When the rudder stick is moved to the left of the transmitter both rudders should move left. When in flight this will yaw the tail to the right (the nose of the aircraft will move to the left).

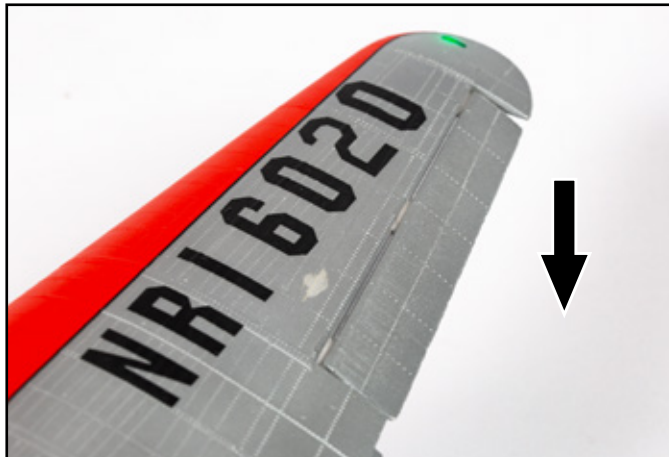


When the rudder stick is moved to the right of the transmitter both rudders should move right. When in flight this will yaw the tail to the left (the nose of the aircraft will move to the right).

## Control Movement (cont.)



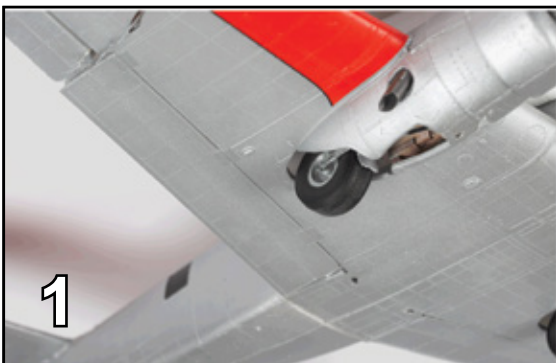
When the aileron stick is moved to the right of the transmitter the right aileron should move up and the left one move down. This will roll the wing to the right.



When the aileron stick is moved to the left of the transmitter the left aileron should move up and the right one move down. This will roll the wing to the left.

## Retract/Flap Operation

To lower the landing gear and deploy the flaps, flip the switch on the upper left of the transmitter toward the back. The flaps are linked to the retracts and will deploy at a scale-like speed when the landing gear is lowered. When the landing gear and flaps are lowered the drag will increase. Due to the increased drag, when landing it will be necessary to maintain some power with throttle all the way to touch down.





## Pilot Assist Stability Software (PASS)

PASS (Pilot Assist Stability Software) is incorporated into your Electra. It allows the pilot to tailor the response of the airplane to his abilities. As your piloting skills grow the capabilities of the Electra grow with you.

**Important Note:** For the PASS system to perform properly the aircraft must be allowed to initialize when powered up. Transmitter on first, then plug in the flight battery to aircraft that is in a fuselage level, wings level position (landing gear up and resting on a level surface). After a delay of several seconds you can lower the landing gear and set the plane on the ground ready for take off. Before flight the PASS system should be checked by switching between No Assist and Partial Assist to see if the controls move to any extreme positions.



### **Full Assist** (Switch toward pilot)

In this mode, the amount of roll, rate of climb, and rate of dive are limited. Self leveling is also engaged. The reduced roll, climb and dive angles are to aid the newer pilot in not overcontrolling the aircraft. If at any time the airplane feels out of control, simply let go of the sticks and the model will return to normal flight.



### **Partial Assist** (Switch center position)

This mode allows for increased pilot input. There are no angle limits for roll, climb, or dive, so the aircraft can be rolled to inverted flight and also complete loops. Self-leveling is still engaged, so if the airplane ever feels out of control, just release the sticks and it will return to level flight.



### **No Assist** (Switch away from pilot)

In this mode all electronic stability control is turned off. The full range of aerobatic flight, including rolls, loops and inverted flight are possible. If while first attempting these advanced maneuvers you become disoriented simply switch to Full Assist to automatically level the aircraft and regain control.

# First Flight

Before your first flight, perform a preflight check to ensure that the controls are moving in the correct direction. An experienced pilot can make their maiden flight with the PASS system initially in the OFF position, and after reaching a medium altitude can switch PASS to the Partial Assist position to confirm that it is performing properly. If the airplane is not maintaining a proper attitude, immediately switch back to No Assist and land the plane, as calibration may be needed (see page 11). Less experienced pilots should consider using the PASS system for take-off. The ideal flying site should be at least the size of a ball field with no obstacles and not near an airport. Face the model with its nose pointing into the wind. It's important to slowly and smoothly increase the throttle as the aircraft takes off. Then, raise the landing gear and flaps at a comfortable altitude. Gently pull back on the elevator stick to climb and initiate a coordinated turn to keep the aircraft within easy visual distance. Full throttle is not suggested and a throttle setting of 1/2 to 2/3 throttle is best for this airplane. The Electra must be flown with coordinated control of both rudder and ailerons to make a smooth turn. Using ailerons alone will not be sufficient. The Electra has enough power to perform loops, but attempting rolls is not recommended. The PASS system helps to smooth out the flight of the Electra, particularly when flying in some wind. Note that FULL assist with the PASS system significantly limits the bank angle of the wings, so if the flying area is not large enough, you may need to switch to Partial Assist or No Assist. When ready to land, lower the gear and flaps and make your approach with the nose of the airplane pointed into the wind. Reduce the throttle to descend maintaining a minimum amount of throttle until touchdown.

## Binding

Binding is the process of connecting the receiver in the aircraft to the transmitter used to control the aircraft. This process is very similar across the three versions of the Electra. This process is only required once. In the case of the RTF version, this process should not be required as the model comes with the radio pre-bound to the included transmitter. Instructions for this version are included should you ever need to rebind your RTF version.

### Factory Transmitter Version

- Connect the flight battery
- Press the bind button on the main control board
- The blue LED will switch from slow flashing to quick flashing
- Navigate to the bind menu on your factory transmitter and complete bind process

### Futaba Transmitter Version

- Connect the flight battery
- Press the bind button on the main control board
- The blue LED will switch from slow flashing to solid
- Select SFHSS protocol on the Futaba Tx

### S-type Transmitter Version

- Connect the flight battery
- Press the bind button on the main control board
- The Blue LED will switch from off to quick flashing
- Follow the usual binding process with your transmitter

## Arming the Motors

When the transmitter and airplane are powered on, the aircraft binds automatically. All functions are then active, except the throttle. To arm the motors, you will need to make sure that the Dual Rates switch (shown on page 5 of the manual) is set at 100%, or all the way up. Then move the throttle stick on the transmitter to the bottom and right. The LED on the rear of the fuselage will change from blinking to steady and the motors will be armed. To disarm the motors move the throttle stick on the transmitter to the bottom left. The LED on the rear of the fuselage will change from steady to blinking and the motors will be disarmed.

**Important Note:** As mentioned above, to arm the motors the rudder channel DR switch MUST be set at 100%

Arm  

Disarm  

## Calibration

The PASS system used in the Electra is pre-calibrated from the factory. Recalibration is only necessary if the aircraft does not respond correctly (pitches up or down) when the PASS switch is activated. With the aircraft sitting on a level surface with the main landing gear retracted and a "wings level" attitude, follow the steps below to recalibrate the PASS system:

### Gyro calibration

- Method 1 - Turn on the transmitter, connect the airplane battery and keep the plane level and steady. When the white light turns off, calibration is complete.
- Method 2 - Turn on the transmitter, connect the airplane battery and keep the plane level and steady. Adjust all the D/R to 100%, disarm the motor, the white light will turn off. Keep the Left stick to the bottom and left and the Right stick to the bottom and center for 3 seconds, the white light will flash, calibration is complete.

Calibrate Gyro  

### Accelerometer calibration

- Turn on the transmitter, elevate the nose of the airplane slightly. Connect the airplane battery and keep the plane steady. Adjust all the D/R to 100%, disarm the motor, the white light will turn off. Keep the Left stick at the top and left and the Right stick at the bottom and center for 3 seconds, the white light will flash, calibration is complete.

Calibrate Acc  

## Additional RTF Radio Information

The RTF version of the Electra includes a versatile transmitter with a LCD computer screen. All of the functions and settings for the Electra are pre-programmed at the factory and ready for use without the need for further programming by customers. The operating system used for the RTF transmitter is referred to as OpenTx. If you need a more in depth understanding of the transmitter and its capabilities, you can download a complete manual at: <http://rcdiy.ca/>. This website is a great resource with additional information about your transmitter, including an explanation on how it can also be used to fly other RC aircraft.

The operations listed below are not available in the online manual:

- To get to Model MENU: Press and hold the Toggle button to the right
- To get to Radio MENU: Press and hold the Toggle button to the left
- To get to the Telemetry Screen: Press and hold the Return button

## Additional Flight Software Information

The control system in the Lockheed Electra 10 has been pre-programmed at the factory to match the flying characteristics of other current Rage RC aircraft and the PASS (Pilot Assist Stability Software) system using betafight software. There should be no need to change the software to get the most enjoyment and performance from your Lockheed Electra. However, if advanced pilots choose to make individual adjustments to the software to fit their flying preferences, the configurator can be found at:

<https://github.com/betaflight/betaflight-configurator/releases/tag/10.9.0>.

Please note that Rage RC will NOT be responsible for any changes made to software from the factory settings!

***Important Note: This information regarding changing software is only for advanced modelers that want to increase their understanding of the OpenTx operation system used in the RTF Electra Tx and the betafight software. This information is NOT required to successfully operate your Electra model as all necessary programming has been pre-installed and configured by the factory.***



# Set Up for Ready for Transmitter (RFT) Versions

The following information is provided as an aid for setting up your S-type or Futaba transmitter for use with the Electra.

## For S-type transmitters:

- Channels 1-4, servos normal (not reversed) and rates at 100%
- Channel 5, servo normal (not reversed), rate at 100% on a 2-position switch for retract and flap control. The servo speed should be reduced for this channel for scale operation.
- Channel 6, servo normal (not reversed), rate at 100% on 3-position switch for PASS
- Channel 7, servo normal (not reversed) rate at 100% for landing lights

## For Futaba transmitters:

- Channels 1-4, servos normal (not reversed) and rates at 100%
- On Futaba T6J, T8J, T10J Channel 5, servo normal (not reversed), rate at 100% on a 2-position switch for retract and flap control. The servo speed should be reduced for this channel for scale operation.
- On Futaba T14SG, T16SZ, T16IZ, T18MZ, T32MZ Channel 5, servo normal (not reversed), rate at 130% on a 2-position switch for retract and flap control. The servo speed should be reduced for this channel for scale operation.
- Channel 6, servo normal (not reversed), rate at 100% on 3-position switch for PASS
- Channel 7, servo normal (not reversed) rate at 100% for landing lights

# Parts List

See your local hobby shop or place of purchase first. If unavailable, parts can be ordered direct at [www.ragerc.com](http://www.ragerc.com) or call 1-800-860-3709 M-F 8:00-4:00PM Mountain Time

## Parts List

<b>Part Number</b>	<b>Description</b>
<b>RGRA1400</b>	Lockheed Electra Micro RTF Airplane
<b>RGRA1401</b>	Lockheed Electra RFS (w/o tx)
<b>RGRA1402</b>	Lockheed Electra RFF (w/o tx)
<b>RGRA1420</b>	Fuselage w/ LED Control System; Electra
<b>RGRA1421</b>	Main Wing w/ Motors and Electronics; Electra
<b>RGRA1422</b>	Motor w/ Gearbox; Electra
<b>RGRA1423</b>	Aileron Servo; Electra
<b>RGRA1424</b>	Landing Gear Servo; Electra
<b>RGRA1425</b>	Landing Gear Assembly; Electra
<b>RGRA1426</b>	Tail Assembly; Electra
<b>RGRA1427</b>	3.7V 750mAh 35C LiPo Battery w/JST; Electra
<b>RGRA1428</b>	500mA 1S USB Charger w/ JST; Electra
<b>RGRA1429</b>	7-Ch Factory Version RX Module w/PASS; Electra
<b>RGRA1430</b>	Micro Scale Propeller (2); Electra
<b>RGRA1431</b>	Prop Shaft w/ Gear; Electra
<b>RGRA1432</b>	Pushrod Set; Electra
<b>RGRA1433</b>	Decal Set; Electra
<b>RGRA1434</b>	8-Channel Computer TX , Mode 2
<b>RGRA1436</b>	7-Ch Futaba RX Module w/PASS; Electra
<b>RGRA1437</b>	7-Ch S-type RX Module w/PASS; Electra

## Limited Warranty

Warranty Period: Rage R/C warrants that the Electra 10 ("Product") will be free from original factory defects in materials and workmanship upon purchase ("Warranty Period").

What is Not Covered - This warranty is not transferable and does not cover (a) cosmetic damage, (b) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (c) modification to any part of the Product, (d) attempted service by anyone other than a Rage R/C authorized service center, or (e) Product not purchased from an authorized Rage R/C dealer.

OTHER THAN THE EXPRESS WARRANTY ABOVE, RAGE R/C MAKES NO OTHER WARRANTY OR REPRESENTATION, AND THEREFORE DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND SUITABILITY FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Purchaser's Remedy - Rage R/C's sole obligation and purchaser's sole and exclusive remedy shall be that Rage R/C will, at its option, either (a) service, or (b) replace, any Product determined by Rage R/C to be defective. Rage R/C reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Rage R/C. Proof of Purchase is required for all warranty claims.

SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability - RAGE R/C SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF RAGE R/C HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Further, in no event shall the liability of Rage R/C exceed the individual price of the Product on which liability is asserted. As Rage R/C has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you, as the purchaser or user, are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

Law - These terms are governed by Utah law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Rage R/C reserves the right to change or modify this warranty at any time without notice.

Rage R/C, an exclusive brand of:

HRP Distributing, Inc.  
2034 South 3850 West  
Salt Lake City, Utah 84104

© HRP Distributing, Inc.  
Printed in China



© 2023 HRP Distributing, Inc.