



DOWN AND LOCKED

The Best in R/C Landing Gear

- GOLD SERIES 120 -

INSTALLATION MANUAL





Thank you for purchasing our high quality retract system!

We hope you will soon be experiencing the joy of flicking the retract switch with confidence and then start your landing approach knowing there's a solid undercarriage to land on.

SPECIFICATIONS:

Operating voltage input: 5V - 12,4V

For use on Aircraft weighing : 6 - 12 Kg
(12-25Lbs)

Gear retraction speed: 9,2 Seconds / 90°.

Note this will remain constant regardless of your input Voltage as our ACE controller includes voltage regulation and will supply constant 6,6V to the retracts at all times.

There is a Regular sized 120, Compact 120 and Jet 120 version available in the Gold series with retraction angles ranging from 85°-105°.

This instructions works universally with all of the Gold series.

Nosewheel units can be either a regular mount or a flat mount.

WARNING :

To experience the joys of reliable retracts fully, this product needs to be properly installed according to the instructions, also using common sense for adjustments to suit your particular model if needed.

Failure to do so can result in injury.

Although the worst damage you can get yourself into, while installing a set of retracts or operating it when your plane is stationary, is a pinched/bruised finger, it is important to remember that a model plane can inflict serious damage, injury and death.

The larger the plane is, the larger the damage when it goes out of control, which is why you want to do a proper install and also want solid reliable undercarriage to ensure your plane is controllable during take offs and landings.

Our larger retracts 120 (Gold Series) and 180 + 240 Size (Platinum Series) are not supplied with struts and a full range of suspension struts is available to suit your specific model needs.

INSTALLATION PROCESS :

First familiarize yourself with the electronics and connections before installing the mechanisms.



A. Plug the connector from each gear into the slots marked Gear on the ACE controller.

Note correct polarity of the plugs, incorrect connections will not damage the ACE unit but the retract units will not work at all until correctly installed. Install the ACE controller in an area where it will not be exposed to any fuel, oil or moisture.

The ACE Power system incorporates its own voltage regulation, which secures your receiver from any power surges and protect your receiver.

Please note that the 120 system will use very little power if you have short struts, when using them in regular sized 120 aircrafts. They will have enough power available from the regular receiver systems in those conditions.

When you are using longer struts and heavier scale wheels, rather use power from the higher voltage motor battery system or directly from the receiver battery, to drive the retracts, as receivers have limited power capacity.

The jumper can be removed and used for inserting power direct from another system. This can also easily be achieved by inserting a Y-lead into the battery and plug the one end into the Aux port.

Note: Should you use the Aux power system, both should be on and connected before the gear will operate.

B. Connect the supplied male to male JR type wire from the Receiver retract channel to the Rec port on the ACE controller, making sure the signal wire is closest towards the Down and Locked logo.

Note: There is an "Aux Battery" port next to the Receiver port with a jumper inserted to bridge the top 2 connectors. The jumper must be removed to use the port for an auxiliary battery.

C. Also note the LED's in the controller will light up as soon as it has power and will be showing you in what mode the controller is in:

1. Solid Red - Wheels up and locked
2. Flashing Red - Wheels being retracted
3. Solid Green - Wheels down and locked
4. Flashing Green - Wheels being extended

When you switch the plane on, the controller will still be in the position it was switched off last time, however your wheels will not react until you have aligned the gear switch position with the controller position.

So if your gear is out, but the switch on the radio is in, you will first need to switch the gear switch to the out position and from there the controller will start to react to the radio signal again.

When the retract switch position is opposite to the indicated action by the controller, use the reversing function on your radio to correct it so gear down on the radio switch will activate the green LED's on the controller.

TOOLS NEEDED TO INSTALL:

1. Drill or Dremel tool.
2. Screwdriver
3. Sharpie
4. Threadlock
5. Hex wrenches - 2,5mm, 2mm

INSTALLING THE MECHANISMS

Note we do not supply Hex wrenches because the grub screws used in our products are stainless steel and it is best to use the high quality hardened steel Hex drivers, available from model shops, to enable you to torque the grub screws properly and not have stripped heads or drivers.

Do not use ball type hex drivers on the strut screws, only on wheel collars if needed. Apply threadlock to all the retaining screws and fasten them properly.

Tip: To determine the correct places where the flats to secure the grub screws need to be made, you can slightly tighten the

screws and move/turn the shaft or strut slightly.

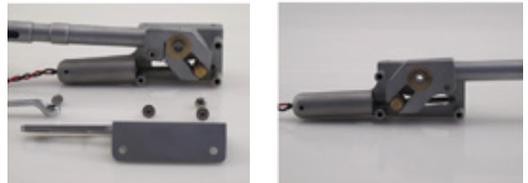
This action will leave slight markings where the grub screw comes into contact with the strut and can be used as the markings where the flats need to be grinded.

Also note our wheelshafts are made from Stainless Steel and will require more effort to cut than other manufacturer's struts, as stainless steel is much tougher and higher quality.

Only the regular Gold series can also be reversed to work similarly to the Jet versions.

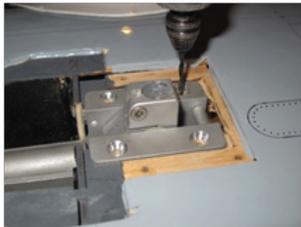
This is done by removing the one sidepanel and reversing the trunnion as per the included pictures.

It is imperative that you also reverse the motor polarity if you convert one or all of your set to work inverted.

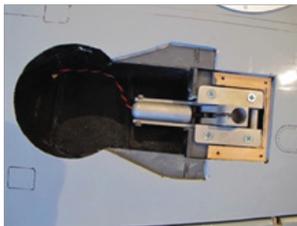


Note: First install the main wheels ending with the nosegear in order to ensure the correct attitude for the plane on its wheels by adjusting the nosegear strut length as needed.

1. Ensure the retract can go freely into the space provided in the plane and you can have the retract mounting surface matched to a secure mounting area with the ability to handle forces resulting from a hard landing. Mark the 4 mounting holes for each retract unit and drill the correct sized holes 5/32" (2,2mm) to match the size of your mounting bolts.



We suggest you use countersunk screws, which can be either self-tapping into the wood or retained by a nut on the backend. Do not fasten the screws yet! Gold 120 retracts are sold without struts, which should be purchased separately to suit your individual model size, and type.



Down and locked manufacture a multitude of strut types and lengths in different sizes. We have the struts you need! Down and Locked struts provide you with many extra features which will not only enhance your

safety, flying and landing experience, but also your model scale detail and functionality.

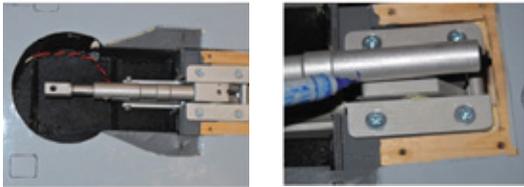
SPECIAL FEATURERS:

1. Made from real Aircraft Aluminum with Stainless wheel axles for the ultimate weight and strength combination.
 2. Available in natural Aluminum or white finish.
 3. Different strut suspension settings for your specific model weight, so the gear can absorb a hard landing instead of your plane.
 4. Softer nose gear struts for better scale appearance and functionality of keeping the nose on the ground properly.
 5. All our Main gear Struts come gear door and brake-line ready with pre-machined mounting surfaces for our unique brake line holders and gear door brackets.
 6. Dual stabilization mechanism to ensure a solid and secure strut to keep your plane straight during landings and Take off's.
 7. Only D & L has the perfect sized strut for the wheels you need also. We make our struts to work with many wheel sizes in 1/4" increments.
2. Insert the wheel struts into the trunnion and first determine the correct length that will be needed for the axle hole to be at the center of the wheel well.

Note: Down and locked suspension struts for the 120Gold comes in many different lengths to suit your needs, alternatively, you can also use Robert 1/2" which will need to be cut to the required length.

If you need to shorten the struts, always cut the top part off, furthest from the wheel axle.

Measure 16mm (5/8") from the trunnion end to determine the cutoff point needed and cut the excess piece off if needed.



3. Slide the wheel onto the axle and make sure it has a secure fit. If the wheel hole is too small, drill it out to the correct size.

If the wheel hole is too big, you can get a piece of brass tubing that slide over the axle and drill the hole in the wheel (if needed) to secure a good fit with the tubing.

Secure the wheel collars if needed to space the wheel away from making contact with the strut, which can happen on some wheel designs where the tire is wider than the rim.

Use thread-lock on the setscrews. If needed cut off any protruding piece of the shaft that

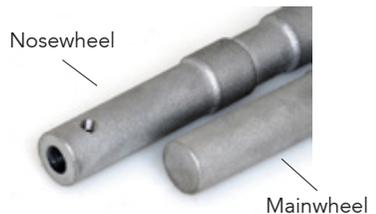
might not fit into the depth of the wheel well.



4. Insert the retract unit into the wing and fasten the mounting screws ensuring the wheel does not make contact with any of the wheel well sides.



Ensure to use main gear struts, which are easily identified because they are solid on the top and has no hole for the steering pin like the nosewheel does.



5. Please note the Nosewheel struts comes standard with soft spring strength and Mains are medium.

A Conversion kit is available to convert to your individual plane weight according to the included table:

Airplane Weight:	Airplane Weight:
4.5-6kg / 10-13Lbs	Use Light Struts for Nosewheel and Mains
6-8Kg / 13-17Lbs	Use medium Struts for Main and Light for Nosewheel
8-12Kg / 17-25Lbs	Use Heavy Struts for Main and Light for Nosewheel

6. If your plane is heavier or lighter than the medium range, you will need the optional spring conversion set and convert the mains to a softer or harder spring.

- a) Remove the guide retaining screw as indicated.
- b) Remove the knee mechanism retaining screw.



- c) Pull the strut out, and remove the spring. Replace the spring with the 0,8mm spring for light and a 1mm spring for heavy.
- d) Insert the strut and replace and fasten

the mechanism and retaining screw using threadlocker.



7. Test the units for correct and clear operation, making sure the retract struts or wheels does not come into contact with the plane structure during the retraction cycle and there are no obstructions in the wheel wells.

Leave the wheels out and assemble your plane to enable you to determine the appropriate nosewheel strut length.

8. Nosewheel installation: First insert the nosewheel strut into the retract mechanism. **Repeat step 1** again to mount the nosewheel unit.

Repeat Step 4 but also determine the correct length for the nosewheel strut to ensure your plane stands level on the ground.

Nose too high and it will be airborne prematurely and nose too low and you will need lots of elevator input to rotate of the ground.

9. Ensure to connect the nose gear steering pushrod clevis to the steering arm on the nose gear and adjust the

length so the pushrod is centered and the steering is neutral to ensure your plane will taxi in a straight line.

There are both a Lefthand and Righthand steering rod included in the 3 gear set.

ENJOY YOUR FLYING AND YOU WILL SOON BE EXPERIENCING WHAT "LANDING WITH CONFIDENCE" IS ALL ABOUT WHEN YOU FLICK THE RETRACT SWITCH BEFORE LANDING!

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DOWN AND LOCKED
The Best in R/C Landing Gear

WARRANTY:

Your retract system is guaranteed for a period of 2 years against any manufacturing defects in materials or workmanship at the date of purchase by the first owner. Repairs or replacement of defective parts will be provided free of charge and returned to the customer. This service can only be provided after the customer has returned the defective product and the proof of purchase for inspection and testing to Down and Locked or it's regional agents in other countries.

This warranty will be extended to 5 years for any unused product returned with a defect in original packaging and which have never been installed in a model before.

Note: This warranty will not cover cosmetic damages and also will not cover any damages due to accidents, misuse, abuse, negligence or modification of any part of the product.

The warranty is also limited to the product only and will not extend to damages resulting from improper installation and use of our product, as we have no control over those once our product leaves the factory. Down and locked will not be liable for indirect or consequential damages or commercial loss in any way that's connected with the product.