CARF-Models Rebel HOT / Rebel Classic 2m

Instruction Manual

The Rebel HOT and Rebel Classic 2m are very similar, almost identical in all features and details. So, this manual will describe the building of both of the aforementioned Rebel types, if there are specific differences we will not them especially.

The Rebels are all very highly prefabricated. There is no actual building to be done. Since it is only installation work, we kept this manual very brief and don't necessarily show what a halfway experienced modeler should know anyway. However, the brief but important specific information will be very important to be read and understood.

There are not many Sport Jets on the market today who have a similar success story as the Pirotti Rebels. When CARF Models took over the Rebel design, our philosophy was not to ride the wave of ever new designs, untested, unproven, either always the same style reinvented - or plain outright ugly just to be different.... No, we decided to go with one rock solid SportJet in various sizes, which just needed a revitalization in order to show everybody the lead once more.

The Pirotti Rebels have received a complete makeover by CARF-Models. All 4 sizes are now incredibly prefabricated and painted in the molds. All important design and engineering features have been revisited and some of them improved, not only in terms of ease of build and construction, but also strength, rigidity and performance. The results are 4 models which are there to remain in the small group industry leading Sport Jets for many more years to come.

This manual is giving a quick and easy description of the critical installation steps for **Rebel HOT** and **Rebel Classic 2m** for you to successfully integrate your Rebel and get it ready for the first flight in no time. These two versions are nearly identical in design and build so this manual will work for both of them.

Lets start with the assembly and equipment installation:

1) Wings

Test fit the Rebel HOT / Classic 2m JP-Gear into the gear mount of the wing. You can operate the gear with a 1-2 cell Lipo or 5 cell NiCd battery but here a word of caution: BE VERY CAREFUL not to burn the motors when reaching the end position. Unplug BEFORE the brass slider reaches its mechanical lock to prevent motor damage. Only with the controller connected the motors will switch off correctly and automatically by sensing the peak of current.

If necessary, use thin plywood shims on the wood mount and sand or grind the opening in the wing so that the wheel and strut fit without hitting the skin. Make sure that you manually extend the spring loaded oleos fully. If they bind a little and stop moving before they reach their end point, some white grease from a spray can will help the oleos to ease up. Don't keep the cutouts in the wing skin too tight, allow sufficient clearance of a few mm around the wheel and strut.

Finally screw the gear in with the included self tapping screws. These do represent a fully sufficient fixture of the gear in the aircraft grade Finnish birch plywood mounts and make the process super easy.

The above steps are done for you if you purchase the ARF-Plus service.

Install the flap servo from the root. Use a slightly longer screw driver to screw it in. Use ONLY the servo screws we provide in the hardware bag because our production process can only pre-drill the holes dia. 2mm. Therefore a 2.9mm self tapping screw must be used and the regular servo screws often are smaller in diameter!

Install the linkage with the all thread piece, 2 stainless spring steel clevises and counter nuts. If the hole in the flap spar for the linkage needs to be adjusted, do so carefully and only as much as necessary.

Install the aileron servo into the side mount in the wing.

The common 15 mm servos, such as a SAVOX 1260HV or a MacGregor 2810HV will fit the HOT, the common 20 mm servos such as SAVOX 1270 or MacGregor 6928 will fit the Classic 2m.

It is important to use a drop of silicone on the servo surface to avoid it to slide ever so slightly in the mount, causing inconvenient trim issues in flight.

Make up the linkage like the one of the flap.

Slide the wings on the fuselage and check that the wing tube fits correctly. Mark the holes for the gear, brake and servo wires and install one or two pairs of connectors of your choice. Solder or crimp as needed. You need a 10 pin connection per wing.

2) Stab

Install the elevator servos exactly like you did the flap servos and create the linkages.

Install the rudder servo in the fin exactly like you did the aileron servos and create the linkage.

Slide stabs on and check that the stab tube with its fixing bolts fits and matches.

3) Fuselage

First install the nose gear. Trial fit, cycle it with the separate battery as you did with the main gear. Then trim the cutout, if necessary, and permanently screw the landing gear in place using 4 of the self tapping screws included in the hardware bag.

The above is made for you if you order the ARF-Plus Service.

Install the 15 mm (HOT) or 20 mm (2m) steering servo, connect the linkages and then route the servo wire together with the gear wire backwards to the receiver position.

Install extension wires from the wings and the tail to the receiver position. Fix these wires carefully to the sides of the fuselage. If you use cable sockets with double sided foam tape installed, use a small drop of CA glue on the foam tape before you stick it against the fuselage sides, this protects them from falling off the fuselage when aging or when getting hot.

Next is to install the fuel tank and the thrust tube. glue the wooden support parts to the fuel tank and the cross brace into the fuselage and test mount the fuel tank by hooking it on its rear under the wing tube, and at its front with the 2 M3 bolts to the cross brace you glued into the fuselage.

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Plumb the fuel tank and the header tank. The fuel tank should have 2 connections, the clunk line and a vent line ending inside at the top of the fuel tank. The header tank should have 3 connetions, one for the clunk/pickup (should be in the center of the tank and NOT move) one for the connection to the main tank, ending at the top inside the fuel tank, and one for the filling, ending at the bottom inside the fuel tank. Make sure to use the included felt clunk and test that it falls from top to bottom when the tank is rotated. Connect an overflow tube to the main tank and feed it out of the fuselage on the bottom side. You can install a clean fitting or simply drill a hole in the bottom fuselage which holds the overflow tube tightly.

Mount the header tank to the diagonal surface in front of the engine bay and connect it to the main fuel tank with the clear tube. Always solder the included barbs on to the brass tubing and use some safety wire to secure the fuel tubing on the brass tube.

Next install the thrust tube, which in any case is already assembled ready to install. Just use 1-2 self tapping screws to hold the carbon bell mouth to the wood blocks attached to the vertical main engine former. The rear end sits in the foam former losely.

The above is already made for you if you order th ARF-Plus Service.

Install the engine onto the plywood mounting rails. Align the engine so that the exhaust cone is exactly in the center of the thrust tube. You might have to shim the engine with thin plywood strips.

It is recommended to connect the engine via a shut off valve to the header tank, just to avoid accidental flooding of the engine when you fuel up the tank.

Install your engine ECU, Receiver, Gyro if any, Gear controller, RC Switch and batteries. This is something we would leave to your preference and experience. Normally the Rebels can be easily balanced with the positioning of the batteries. the CG with empty main tank and full header tank should be the front edge of the wing tube. Please note: If you use any Powerbox or Receiver with a Gyro, or a separate Gyro like an iGyro or Cortex, please make sure you mount them exactly horizontally. This is not so easy at the Rebel HOT, because it does not have the level surface in front of the engine bay. On the Rebel Classic 2m there is the level surface in front of the engine bay, perfectly suited to install any Gyro.

Receiver batteries should have long enough wires to install them in the nose of the airplane. Depending on the weight of the engine used, and the size of the batteries, they might have to be moved back slightly, in the nose gear area or even behind.

Final Setup:

Center of Gravity: With empty main tank and full header tank: Front Edge of Wing Tube!

Control throws as a starting point:

Aileron 20 mm up/down Elevator 15 mm up/down Rudder 40 mm up/down Flaps 25 mm for Take Off, max deflection for Landing Elevator to Flap mix: Elevator proportional 3mm down at full Flap deflection

Both elevator and aileron are quite soft, no bad habits and no surprises. Rudder is very effective, and for windy and bumpy weather a gyro seems to make sense.

Teach the engine throttle channel as instructed by the engine manufacturer. Make sure to make a good engine test run on the ground, check the fuel system for air and fuel leaks. Check your radio and make sure the control surfaces travel the right way and and the Gyro compensations are to the correct side as well. Do not intend to take of before you have done a range check according to your radio manufacturer's advice. And cycle the gear a few times to make sure everything is working flawlessly.

Then you can attempt the first flight and we are sure you'll be totally blown away by the performance of your new Rebel!

We wish you a lot of great flights and happy landings!

Your CARF-Team



































