



40 size click here!

Sassy's Geebee  
click here

## Spad Quick Hell on Rails (QHOR)

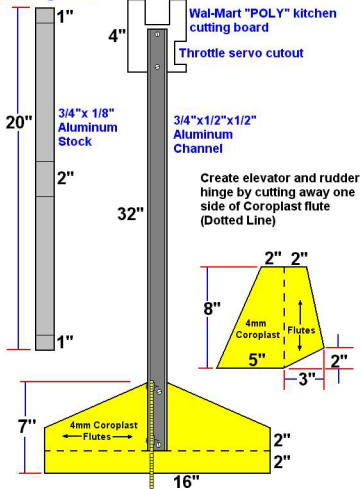
.20 - .30 Engines  
4- Channels

Presented here are several dimensional drawings and reference photos to use when building a Spad QHOR. These drawing and photos represent how I built mine, and are by no means set in stone. This airplane is wide open to modifying, experimentation and personal preferences. I would not recommend trying this airplane unless you are an experienced pilot! Items needed to complete this airplane: 4mm Coroplast, 3/4" aluminum channel, 1/8" x 3/4" aluminum stock, 3/32" tail wheel wire, wheels, 6 oz. tank, "Poly" Wal-Mart kitchen cutting board, .20-.30 sized engine, 4 channel radio, PVC scrap for control horns and back plates, Pushrods, self tapping screws for horn, tail, wing and engine mounting, 6-32 bolts and nuts for landing gear mounting, zip-ties and some coat hanger scraps.

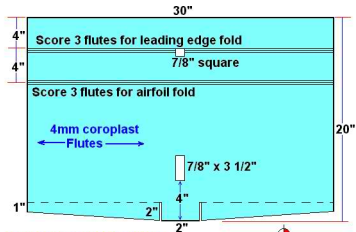


## Spad QHOR

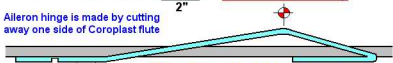
## Landing Gear



## Spad QHOR



Aileron hinge is made by cutting away one side of Coroplast flute



1/2" between top of fuselage and inside peak of airfoil fold

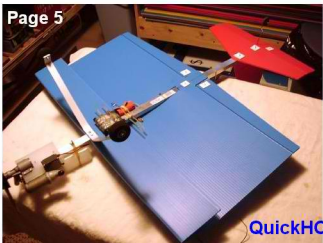
### Building Instructions

1. Cut out engine mount from Poly cutting board and mount engine and throttle servo to it. Install to end of aluminum channel with two self tapping screws
2. Cut out wing from 4mm Coroplast and slide onto fuselage. (Do not attach yet)
3. Cut out and install tail completely with along with servos, and tail wheel. From PVC gutterpipe, cut out and install all control horns and back plates. back plates are 3/4" square, and horns are 1" x 1" with a 1/2" wide base.
4. Build landing gear. Loosely zip-tie Battery and Rx in place under the wing as shown in the photos. Install a 4-40 bolt facing down, below the fuel tank and rubberband the tank in place. Loosely install aileron servo in approximate location. Lay landing gear over top of fuselage in front of wing and slide wing forward and backwards on fuselage until plane balances level at airfoil fold. Secure with bolts and landing gear at leading edge, and self tapping screw near trailing edge. Sinch down Rx and Battery zip-ties. Push servos hard into rail and secure with zip-ties. Poke a hole in a wing flute (one side only) for Rx antenna.
5. Install coat hanger scrap into wing tip as shown in picture, to hold airfoil shape at tips. A drop or two of CA or RTV or Goop will hold them in place.
6. Rig controls to your preferences and go fly!



The following pages contain (in no particular order) a series of reference photos to aid in the building of a QuickHOR. The throttle servo is mounted to the Poly engine mount with standard servo screws. I used 3/32" wire for the throttle pushrod. I used a small length of automotive fuel line and a zip-tie for an exhaust extension to keep goo off the radio equipment. I used #4 x 1/2" self tapping screws to attach the engine to the mount, and for all the control horns. I used #6 x 3/4" self tapping screws to attach the engine mount to the aluminum rail, and to attach the tail to the rail, as well as the rear wing to the rail. I used a 4-40 bolt and nylon locking nut pointed downward under the fuel tank for the tank rubberband hold down.

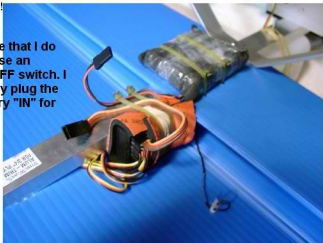


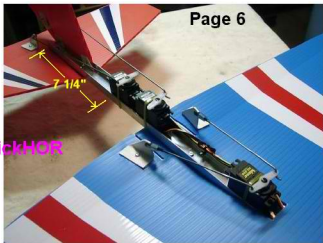


## QuickHOR

Here you can see how the battery and receiver are zip-tied in place. The battery zip-ties go through the Coroplast and up over the aluminum rail, and are what hold the lower wing piece against the aluminum rail in the center. For antenna routing, simply poke a hole in the Coroplast and run it through a flute out to the wing tip. Don't forget to use a piece of scrap servo arm for a stress point. The landing gear is attached with two 6-32 x 1/2" bolts and nylon locking nuts. The wing is held in place by the landing gear and a self tapping screw and PVC scrap back plate (as seen between the ailerons in the photo). The entire airplane **MUST** be completed to flight ready condition, and proper CG determined before securing wing position to fuselage!

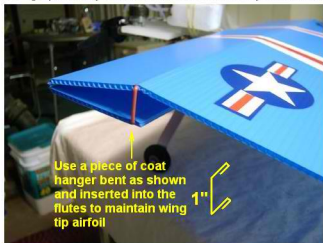
**Notice that I do not use an ON-OFF switch. I simply plug the battery "IN" for "ON"**





QuickHOR

For servo positioning I simply made sure the elevator servo lead would reach the receiver, and the rudder servo would be close enough to the rudder control horn to still use a standard hobby shop pushrod with a Z-bend at the servo arm. This logic put the elevator servo 7 1/4" from the rear edge of the aluminum rail. I put the aileron servo as far forward as comfortably possible once the wing position and proper CG were determined. The servos are extremely tight in the aluminum rail, in fact, they even spread the aluminum slightly as I pushed them in hard as far as they would go. They are further held in place with a zip-tie around the rail. I didn't use any double sided mounting tape...but if your servos are loose in the rail...you better use it!!!





When installing control horns, clean with windex and use several drops of medium CA to hold them in place while installing screws and backplates

In these photos you can see the approximate location of the rear wing attachment screw. I would also like to note that the exact positioning of this, as well as the tail attachment screws and even the control horns is not critical rocket science. I don't even use a ruler when I'm zipping this stuff together. Just make sure the screws do their job and make sure the control horns are as close as possible to the hinge without interference. Tighten the screws only enough until the Coroplast starts to pucker a little. When using PVC to hold self tapping screws, only drill a dinky little pilot hole in the back plates so that the screws have very good grip. ALSO NOTE THAT THE AILERON NEUTRAL POSITION IS PARALLEL TO THE FUSELAGE!!!

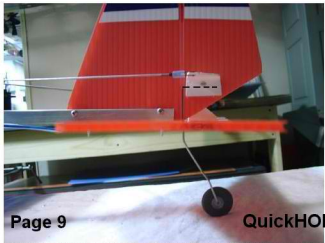




Here is a good view of the 4-40 bolt and nut used under the fuel tank for rubberband attachment. Make sure that you put some foam between the tank and the rail before you go flying! Also notice that the engine is not mounted on top of the engine mount, but rather on the bottom. This makes life MUCH easier, and the engine can be removed and installed without disturbing the muffler. I've been doing it this way on my last 4 or 5 planes, and it works GREAT! I can't believe I didn't think of this years ago, and the industry has been telling us wrong all along :) The bottom photo shows the tail mounting, just make sure that the hinges are clear of the end of the aluminum rail.



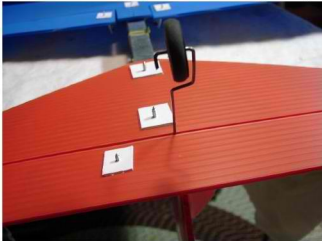




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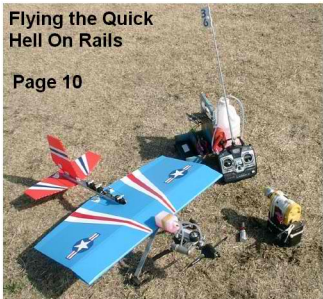
QuickHOR

I made the tail wheel from 3/32" wire. Read carefully, the order you do this is important. First install horizontal stab/elevator to airplane. Then start with a straight 7" piece of wire. Bend a 1 1/2" "L" and poke (takes a little force) into flutes of rudder (dotted line) with wire resting in rudder hinge. Install rudder control horn and back plate and tighten to trap wire inside rudder. Poke wire through elevator hinge and install vertical stab/rudder to airplane. Bend a little sweep back in the wire below the elevator (your preference, the angle will determine ground handling sensitivity). Bend the wire as shown in the bottom photo, install the tail wheel and then make the last "L" bend to retain the tail wheel. Adjust bends as necessary for straight tracking.



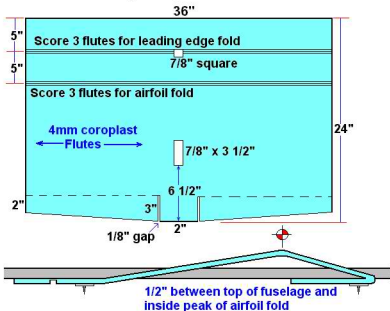
# Flying the Quick Hell On Rails

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Make sure you put some foam between the fuel tank and rail, then attach the fuel tank with three or four rubberbands. My QuickHOR uses a GP 6 ounce fuel tank, a Norvel .25 for power and a 9x4 MAS prop. I set my control surface throws as far as I could with the pushrods utilizing the furthest out holes on the servo arms. Don't ask me what the throws are because I've never measured them (read as barn doors). Make sure there is a slight amount of toe-in in the main gear to help it track straight on the take off roll. Assure the tail wheel will also track straight. Be ready! Because when the airflow is sufficient under the wing...the QuickHOR will leap into the air! Full throttle take off roll can be as little as 10 feet or less! With the elevator and rudder set straight away, and the ailerons PARALLEL to the fuselage for neutral, the QuickHOR didn't need any further trimming! If flying around with a VERY responsive conventional airplane is your style, the QuickHOR will do it. If low inverted passes is your style, it will do that to! If Hovering is more your style, no problem! Great "chase your tail" loops are possible and the QuickHOR does a great toilet bowl...and nose high low-slow pass tail touchers are awesome! Bang the sticks for some wild flat spins and maneuvers I don't have names for...and try as I may, I cannot get the QuickHOR into the dreaded "spin of death", no matter what attitude it's in, letting go of the sticks causes the QuickHOR to pop back to flight attitude and take off. The only maneuver it cannot do is knife edge flight. The bottom line is that I haven't had this much fun since I flew my first Pizza Box, only the QuickHOR covers the whole spectrum from high speed conventional flying to PBF slow flight tricks! Please follow all AMA safety guidelines and HAVE FUN!!!

## Spad QHOR40



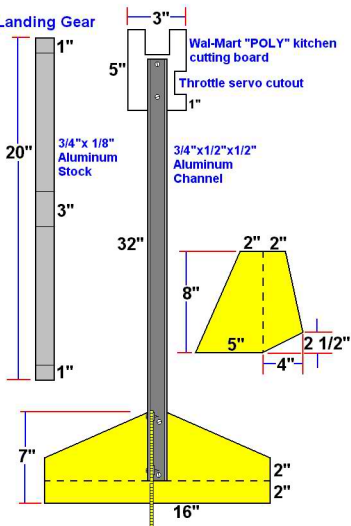
Follow the dimensions shown here for a .40 sized QHOR. Please note the engine mount is longer and the landing gear bolts directly to it. The wing is larger and I also made the ailerons and rudder wider. You may notice I put the Rx on top of the wing, that's because it's the only place that allowed all my leads to reach comfortably. I also added a screw to hold the leading edge of the wing to the fuselage.



Other than the items mentioned, and the measurements on these two pages, this airplane is built identical to the smaller QHOR.

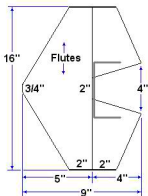
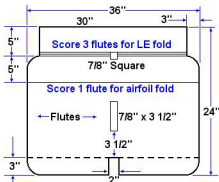
## Spad QHOR 40

## Landing Gear





# Sassy's GeeBee PQHOR



Use 3/32" music wire bent into a "U" for elevator joiner rod. Simply sharpen ends to a point and poke into flutes. Round all corners as you wish.



Sassy's GeeBee PQHOR is built on the same 32" aluminum rail as all the others presented in these plans. It uses a Mag .28 XL for power, a MAS 9 x 4 prop and a GP 6 ounce fuel tank

*Good luck and have fun!*

*Sassy*

