



AMA Gold Leader Club #458

Airplane Bench Building Instructions

Charlie Meyer and Joe Di Prima

It is increasingly important for all clubs who manage RC model flying sites to insure they have safety measures in place to protect their interests. Serious individual injuries can lead to lawsuits that will close a field and disband clubs. Many of the clubs have taken steps to deal with safety issues by appointing a member of the club as a representative "Safety Officer". These Officers report to the club any safety infractions and suggest procedures for correction.

Several members of our club had gotten seriously cut fingers because the airplane was not being held properly held in place while starting the engine or removing the airplane from the assembly bench or table.

It was in this context that the need for a stable and safe field bench be designed. It was a great added advantage to have the design also prove to be so convenient.

Background:

The Meroke RC Club, AMA Gold Leader club #458, with 125 members, flies at Cedar Creek Aerodrome, a Nassau County park in Wantagh, NY which is on Long Island. Over 500 permits to fly are issued every year. The Aerodrome is a very busy flying site that has been in use since the mid 1970s. Due to budget constraints, Nassau County has not been able to provide many amenities. We had a few old broken down picnic tables to rest our planes on so in 1999, club member Charlie Meyer and his brother Bob Meyer decided to form the volunteer group, "Friends of Cedar Creek Aerodrome", in order to make some improvements at the field. The team consists of club members as well as non-club members. One of their major concerns is safety at the field.

The team has been working with Nassau County Legislator David Denenberg to get some materials and to make some improvements at the field. We needed some additional benches to hold our airplanes rather than the few cumbersome picnic tables provided by the county. The picnic table seats made it difficult to get near the airplane and several people tripped with a running airplane while trying to move it out to the flight line. After collecting some donations of money from the fliers, Charlie Meyer designed and built a prototype bench. It was given immediate approval by all who used it. We decided to build five more and with some left over wood from a member's deck that he had built. Since we have two runways, six benches were not enough. We needed more. The building group The Friends Of Cedar Creek Aerodrome asked the Meroke RC Club's Board of Directors to allocate \$150 to build five more benches. After getting the money we were ready to purchase the lumber. Our club treasurer, Fred Abeles, suggested that we try to get a discount at the local lumber supplier. We wrote to our local home lumber supplier and sure enough, instead of a discount, we got a donation of enough lumber to build the five additional benches. We immediately wrote to four other suppliers in the area. We got lucky and received more donations of lumber, enough to build five more benches. The new benches at the field are always grabbed



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first. The guys love them. They are a convenient and safe design, are easily built and are inexpensive enough, even if you have to pay for all the supplies.

We have found the Safety Benches to not only be a safety item but to be extremely convenient.

Our club has monthly Fun Fly's and we use just one Safety Bench to act as a starting station. All the contestants can line up in order alongside the starting bench and as each one is called he holds his transmitter while one of our club members is designated to start all the engines. This helps keep better order and allows the flyer to mentally prepare himself for the flight.

For the Combat planes and others without landing gear we have found a removable box or milk crate can be put between the wing restraints to support the fuselage. In using them for combat each plane should have its own Safety Bench for timely starting.

Design:

The design of this bench promotes safety. With the strong 2x4 vertical wing restraints the plane can not move forward even with the engine at full throttle. However, we do not recommend running full throttle at any time without walking around to the side of the bench and hold the plane from one side. The bench provides a place to put the transmitter, starter and glow starter battery. It keeps everything in its place and away from that spinning prop. It also allows the pilot to stand behind the engine, close to the airplane, when making adjustments to the running engine. The pilot does not have to lean over the plane in order to pick it up and carry it to the runway.

You can leave that heavy field box at home and just take a small portable one to hang on one of the extensions.

The 3 legged design allows the bench to sit on uneven ground without rocking. With the front legs being set back and the single back leg being set forward it allows you to carry the bench without you hitting your feet and legs. It is light enough to easily be carried by two men in the event it has to be moved.

There is a good safe feeling when using these strong, sturdy benches. This is a great club project and can involve several members which fosters teamwork and camaraderie. The benches are inexpensive to build. The materials only cost about \$38 each in the Long Island, NY area. You can attempt to get a discount or donation from your local building suppliers. Money can be raised by donations from club members, a raffle or a donation can at the field.



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Two Safety Bench configurations:

The "**Standard Safety Bench**" can hold a very wide variety of RC airplanes; we have used them for most airplanes between the .049 size up to 1.6 and perhaps larger. I would strongly recommend any club who is entertaining building some of these benches to first try one of the standard size benches for size .If you need a larger one Charlie Meyer has also designed another variation, a larger bench called the "**1/4 Scale Safety Bench**". The lower table height allows the spinner to be just at the right height for turning over the engine. The table height being lower also makes the wing restraints longer for the high wing Cubs and Bi Planes. This larger bench can be used for all the smaller airplanes as well but you have to bend over further .Both benches use the same amount of materials and the cost is the same. Planes that are larger and heavier than 1/4 scale are better handled from the ground.



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Drawings: All dimensions are in inches.

Material for each bench: Standard or ¼ Scale.

All lumber was CCA Pressure treated for durability .We purchased it in 8' lengths for handling convenience but if you wish to minimize waste buy the longest lengths possible.

Quantity in 8 foot lengths Size

3 pieces	2x6
2 - 1/2 pieces	2x4
2 - 1/2 pieces	1x4
1/2 piece	1x6

Hardware :

1/2 lb. #8 all weather deck screws 3" long
1/8 lb. #8 all weather deck screws 2" long
T-50 staples

Scrap carpet to act as a cushion on the wing restraints.

Tools needed:

Tape Measure
Hammer
Wood Chisel
Carpenters Framing square
Pencils
7 "Circular saw
10" Power miter saw
Electric drill
7/64 drill bit
Electric screw driver
Extension cords
T-50 Staple gun
Utility knife



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Assembly: for the “Standard Safety Bench “

We built five benches at a time and made templates of all the pieces to be used for building more tables in the future. The wood for all five tables was precut.

Assemble the bench tops first. Pre-drill all screw holes with a 7/64 drill to prevent the wood from splitting. Lay the 2x6s over the two 2x4 cross braces. Note that the rear cross brace is inset the width of a 2x4 on each side. After spacing the top pieces evenly, screw in one screw on each corner of the top pieces. Square up the whole thing with the framing square and screw in the other screws on each piece. Use two screws on each end. After the top is constructed add the horizontal spine centered under the middle, long 2x6 top piece. The spine must be notched where it meets the rear cross brace. This notch does not have to be very precise. It can be cut with a skil saw and then knocked out with a hammer. Make several cuts before knocking it out. You can use a chisel if you prefer. Use six screws, spaced evenly, to fasten the spine.

The 2x4 front legs can be added now. Use two screws on each. Draw guide lines across both legs at 26” & 27 1/2”. The legs are attached 10” back from the front of the top and with the top centered between the guidelines. Make sure the 26” length is toward the bottom. Turn the table upside down and add the field box supports, 1x6x24. These should be butted against the spine and back against the leg. Use at least 7 screws on each support. The 2x4 angled side braces are added next with two screws on each end. Make sure to square the legs before screwing in the braces. The front 1x4-angled braces are now added. Screw in the bottom of the front one first then square the other leg left to right before screwing in the top screws. Repeat with the other brace.

The rear leg is attached by butting it against the spine end. Use two screws into the spine. Add the short 2x4 angled brace in the same manner. Attach the 1x4 small-angled braces on each side. Turn the table right side up. Add three more screws through the middle top piece into the rear leg and two screws on each rear corner of the top into the 2x4 angled brace that was previously installed. Attach the 1x4 topside rails on both sides. Use a piece of scrap 1x4 as a height guide. Add scrap carpet to the airplane wing restraints using 1/2”, T-50 staples or 3/4” roofing nails. The carpet protects the wing from dings while the plane is on the bench.



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Assembly for the “1/4 Scale Safety Bench”

The assembly of the 1/4 Scale Safety Bench is essentially the same except the table height is lowered by 7 inches. The rear leg will be 7 inches shorter and the length of the main top piece will therefore be 7 inches longer. Notice there are 2 cross braces part A and no part B. The longer part A's are used in both positions for the Part A and Part B on isometric, side and top view drawings.

Variations:

The center board piece “G” can be extended out in front to accommodate the front wheel on tricycle landing gear for planes with swept back wings such as Fan Jets.

For the 1/4 Scale Safety Bench, if a wider top is needed to accommodate wider landing gear, additional top pieces Part J can be added, they do not have to be full width 6 inches wide but rather can be 2 or 4 inches wide on either side. Naturally if this is done the top cross braces and the leg braces will have to be adjusted accordingly.

Wheels can be added to the front legs so that one person can move the table more easily. If wheels are added, the rear leg will have to be extended to make up the difference of the wheel height.

Brackets can be added to the front of the wing restraints to hold the transmitters.

Hooks can be added to the front edge of the bench or the box supports to hang a transmitter.

Holes can be drilled in the bench top to have a definite place to put the neck of the glow starter in each time you are finished with it. A place for everything makes it safer.

For more information:

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Meroke RC Club web site: **www.meroke.com**

Hi Flying Buddies web page: **http://communities.msn.com/HiFlyingBuddies**