



## INSTRUCTION MANUAL SUPPLEMENT for Kyosho Concept 30 SR-X Kit

Please refer to this Instruction Manual Supplement when assembling your Concept 30 SR-X. Each number in this supplement corresponds to the numbered building step in the Kyosho instruction book.

1. The set screw used in this step should be a 3 x 5mm, not 4 x 5mm as indicated in the illustration. Use a drop of thread lock on the set screw. On all the plastic ball ends used throughout the SR-X, notice the KYOSHO logo. This logo should always face away from the ball that the ends are being snapped onto. Before insertion of the stabilizer bar, you may mark the center or file a flat spot for the set screw to lock into. The center of the stabilizer bar is 190mm inward.
2. The 6 x 12mm bearings do require grease, but do not apply the grease until after the stabilizer bar has been balanced in Step 3.
3. For balancing the stabilizer bar after it is completely assembled, you may shift the weight by adjusting the position of the stabilizer blades. Screw the stabilizer blades in or out, one turn at a time, keeping them as even as possible. If one end of the stabilizer bar is heavy, turn its stabilizer blade inward one turn—then turn the stabilizer blade of the light end outward one turn. If many turns are required, double check the center of the stabilizer bar itself. It is important that each stabilizer blade is “zeroed” with the hiller control lever and that each stabilizer blade is parallel to the other. Make sure the stabilizer blades are facing the correct direction.
4. See the note about assembly of the thrust bearings. Each thrust bearing contains three pieces: the inner “race,” the bearing, and the outer “race.” Notice that there is a large ID (inside diameter) race and a small ID race. The large ID race goes on the feathering shaft (in the rotor grip) first. The thrust collar faces inward, toward the rotor head. The direction of the arrow in the illustration shows the direction of assembly and points towards the rotor head. Liberally grease the thrust bearing assembly. This area should be disassembled, cleaned and greased after about every two gallons of fuel. Use a heavy grade of grease. Automotive wheel bearing grease is acceptable. The flapping dampers should be liberally greased inside and out as well.
5. For future repairs or disassembly, you may drill a  $\frac{1}{8}$ ” hole in the center of the rotor head top (B) to allow access to the 3 x 5mm set screw with a hex wrench. For removal of the stabilizer bar, disassembly of the rotor head is not necessary. Drill the hole from the inside out.
6. The total length of the 59mm adjustable rods (also named hiller control rods) must be the same. Remember, the KYOSHO logo faces outward.
7. Lightly oil the roller pins inside the No. 48 main gear housing. Do not over tighten the 3 x 18mm bolt. Just tighten it enough so that the nut is snug. Over tightening may distort the one way shaft.
8. If in the future there is a crash, and its forces cause the 2 x 8mm RT/H screws to pull out of the plastic, longer 2mm RT/H screws may be purchased. KYOE7325 contains ten pcs. metal ball and 2 x 10mm screws. This may allow you to continue use of the aileron lever or elevator lever instead of purchasing new ones.
9. No further notes required.
10. For installing the clutch, the Heli-Max Concept 30/60 clutch tool is very helpful. It allows safe, easy installation and removal of the clutch without damaging the engine's crankshaft or other internal parts. You'll find that removing the clutch always seems to require more force than it did to install. The Heli-Max clutch tool is helpful here, too.  
If you did not purchase the clutch tool, you will have to find a way to lock the crankshaft of the engine while you tighten the clutch. You can use a piston lock (illustrated—available from Heli-Max HMXR4862) or remove the backplate of the engine and insert a wooden or plastic dowel (tooth brush handle) and trap it between the connecting rod and the crankshaft counter balance. Whatever you do, DO NOT stick anything in the exhaust port of your engine. Many times modelers do this and unknowingly make a slight dent on the piston or cylinder liner—then the parts are ruined before the engine is ever started.

Now that the crankshaft is locked, you may install the clutch. The cooling fan may be carefully used as a tool to tighten the clutch. Apply ONE DROP of thread lock to the crankshaft. Wrap the cooling fan in a rag so you don't hurt your hands and so you don't break off any plastic cooling fins. In order of preference, here's the type of glue we recommend for installing the clutch liner:

Best:	J.B. Weld
Very Good:	Overnight epoxy
Acceptable:	5 min. epoxy
Won't take much abuse:	Thick, slow setting super glue
Not recommended:	Thin, quick setting super glue

Most field problems are related to the clutch liners coming loose from a crash, minor tip over, or hot start (engine momentarily started at high throttle—we all do it). If you roughen the brass ring in the clutch drum with sandpaper and glue the liner in with J.B. Weld, you'll reduce your frustrations by 90%.

To glue in the liner, mate the two ends and put a fold (or gentle bend if possible) in the liner—like a kind of heart shape. Install the clutch drum (adhesive on both parts). “Snap” out the heart shape. Wipe away excess glue that oozes out. If the liner is installed properly and all the extra glue is cleaned, no need to let it cure. Just don't go out and start your engine immediately. You may proceed with the next step.

11. For some engines, a little clearing away of the plastic shroud might be necessary to allow the carburetor to fit. If this is the case, a sanding drum or No. 1 knife will work.
12. Although measurements are given, it is especially important that the No. 115 internal fuel pick-up line is not so long that the No. 110 “klunk” touches the opposite side of the tank. If this occurs, it can become stuck in a position above the fuel level and the engine will no longer draw fuel. If the line seems to be too long, cut it as required. The Kyosho fuel line in the tank does the job well—it is thin and flexible, so it can “klunk” with the level of the fuel. However, after a few months you should remove the fuel line from the tank and inspect it. The Kyosho fuel line can deteriorate and cause fuel pickup problems in the future. To slow this process, never leave fuel in the tank except while flying or during preparation. Always empty the tank after a day's flight. For replacement, readily available R/C model silicone fuel line may be substituted. GPMQ4131 is the order number for Great Planes 3' of fuel line.
13. Refrain from using excess thread lock. No oil is used on any of the gears. For future repair and maintenance reference, it is easiest to remove the engine from the mount rather than removing the engine mount (with engine) from the main frames. A long handle, ball end hex wrench is handy to quickly remove the engine screws once they are first loosened with a regular “L-type” hex wrench.
14. The Kyosho or Heli-Max quiet muffler is highly recommended. It fits on either the O.S. .32 SX-H or the O.S. .32 F-H and the Irvine .36H. Heli-Max offers the same muffler to fit the SuperTigre, Part No. HMXE3005. The part number for the Kyosho muffler for the O.S. and Irvine is KYOE5085. The Heli-Max muffler for the O.S. and the Irvine is HMXE3000.
15. Tighten the tail rotor blades in the grips just enough to give some resistance. The blades should be able to support their own weight but not be too tight so they cannot pivot. This will help keep them from becoming nicked or broken if they contact the grass or ground while spinning.
16. Notice that the threads on the No. 91 slide bushing are reverse. Turn counter clockwise to tighten. Do not over tighten into the tail pitch yoke.
17. To keep the guides from rotating during flight, wrap one layer of cellophane tape around the tail boom in the location of the guides. Slide each guide over the tape.
18. No lubrication is required on the gears. LIBERALLY grease the inside of the tail drive pipe and wire. Be sure the 4X5mm set screw keys into the flat spot on the tail drive wire. Thread lock is important here, but again, don't use too much.
19. Avoid over tightening the 2 x 12mm screw that holds the No. 85 Tail Pitch Lever. If too tight, the lever will not actuate.
20. Use thread lock on the 3 x 4mm set screw.
21. No further notes required.
22. Install the rubber grommets in the servos (provided by the radio manufacturer), but do not use the brass eyelets. Avoid over tightening the servo holders. Just a LITTLE squeeze on the rubber grommets is all that is required.

23. When it comes to the radio installation, neatness counts and will pay off when you're out in the field learning to fly. With some modelers, much time is wasted fiddling with servo connector wires, push rods, battery packs and receivers coming out of place, etc. Take the time now to do a nice, neat radio installation, and you'll eliminate all the hassle at the flying field.

Here are some pointers:

The receiver on/off switch is not very sensitive to vibration, so you may use thin servo mounting tape. The best we've found is the Great Planes servo tape, GPMQ4442. To be sure the servo tape will stick well (again, avoiding hassles at the flying field), wipe the plastic parts to be bonded with denatured alcohol or similar solvent that will not harm plastic.

Use two layers of thick servo mounting tape (supplied) to mount the gyro. Be sure the gyro does not contact any part of the frame. Operation of the gyro can become intermittent because of vibration.

24. The "Neutral" message is pointing to the right stick in the illustration. However, for Mode II applications, the left stick is the collective pitch. The right stick is elevator. In the United States Mode II is prevalent, while in Japan Mode I is more widely used.

Sometimes the holes on the servo arms or wheels for the Z-bends must be slightly enlarged. You can do this with the No. 11 blade. Enlarge both sides of the hole (top and bottom) just a little. If you require more servo travel, you may install the servo push rod further away from the center on the servo arm. Here is where the ATVs of a computer radio are used. You can precisely tell each servo how far to travel right and left in order to match the amount of travel the control (pitch slider in this step) will accept.

The drawing tells you to adjust the servo push rods so that they are at 90 degrees to the servo. To do this, the servo must be in a neutral position. Neutral position can be attained only when the transmitter and receiver are turned on. Then place the servo arm on the servo in the neutral position.

25. To properly set up the throttle, move the throttle/collective pitch stick full down with the trim full down. Then the carburetor barrel should be fully closed (the carb arm as far forward as it will go). Don't let the servo try to pull the carb arm further than it can travel. Make adjustments. With the throttle lever fully advanced, the carburetor barrel should be fully open. Again, make sure there is no binding.

Now that the throttle will be fully closed when the stick is pulled all the way down, for starting the engine advance only the trim tab on the transmitter. This will allow the carb to open just enough to start the engine at an idle without engaging the clutch (and turning the rotor blades).

26. Again, do not be confused by the illustration. For Mode II the left stick actuates collective pitch and revolution mixing. To neutralize the rudder servo, the collective pitch stick must be neutral to center the tail rotor servo because of the tail revolution mixing. Make sure that the transmitter input is correct. When you move the rudder stick (the left stick) to the right (to make the nose of the helicopter turn right), the servo wheel should turn clockwise (and pull the push rod).

27. No further notes required.

28. No further notes required.

29. It is important that each hiller control rod is the same length. You may make them just slightly too long so they apply some down pressure on the swash plate. In any case, do not make the hiller control rods so short that they try to pull the swashplate apart.

30. No further notes required.

31. The bodies on all Kyosho helicopters are blow molded from polypropylene. That means the bodies are very durable and require little preparation, but they do not accept paint. There are a couple of automotive polypropylene primers available that prepare the plastic so paint will adhere.

Assuming you will forego the painting task, the best way to make your Concept 30 SR-X look good is to do a neat job of cutting out the body and windshield. This is where a little modeling skill helps. First, remove the shaded area (window and side openings). Start with a BRAND NEW No. 11 knife and No. 11 blade. Slowly guide the blade at the corners of the material you wish to remove and the material you wish to keep. The key is to use good lighting so you can see what you are doing and work SLOWLY. After you remove the major piece, you can trim any remaining areas. Then, the plastic is much easier to trim.

32. The Kyosho Lexan Scissors are handy for cutting out the windshield. Before placing it on the body and installing the sticker trim, first fit the windshield by trial and error. After it looks like the windshield will fit properly, drill the four holes where indicated right into the windshield. Then fit the windshield to the body. Once in place, mark the location of one of the top holes, remove the windshield, and drill the hole in the body. Replace the windshield and install a screw. Now mark and drill the hole for the other top screw. Mark the two bottom holes on the body, remove the windshield, drill the holes, and then reinstall the windshield with all four screws. If you're satisfied with the installation of the windshield, you may remove it and apply the windshield trim.

33. The best way to make the body look its best is to properly place the decals. First, cut out all the decals. Then mix a solution of warm water and liquid dish washing soap. Mix about one teaspoon of soap to one quart of water. Lightly stir the solution.

Let's start with the tail fin decals. Remove a decal from its backing, dip it right into the water/soap solution, and place on the part. The soap/water solution allows you to slide the decal around on the part until it is exactly where you want it. Now, with a folded paper towel, begin squeezing out the water from underneath the sticker. Eventually, press harder and harder. You may make a better squeegee out of soft balsa wood.

With this process you can have perfect, even placement of the decal without any air bubbles underneath. Continue with the rest of the fins and the body. To be extra sure the decals hold, you may CAREFULLY heat them with a hobby covering heat gun. A hot hair dryer may work, too. A little heat helps to remove any wrinkles that may develop immediately or over time on the stickers on the nose of the body or other areas where they are forced to go around compound curves.

34. When installing the body, always look for wires, cables, and pushrods that might be sticking out. Be sure the body does not interfere with the on/off switch!

35. The rotor blade covers No. 186 & 187 must be bonded directly to the bare wood of the blades. Slow-curing super glue is acceptable, but overnight epoxy is best (30 min. or 40 min. epoxy).

36. Balancing the blades is important. Kyosho offers a blade balancer, KYOE6000.

37. Do not tighten the blades so much that they are locked down. You don't want them flapping around either. Just snug the bolts down a little. During storage, repairs and transportation, it is recommended that you remove the rotor blades. Once blade tracking is achieved, you should mark which blade goes into which blade grip.

38. No further notes required.

39. Once more, the diagram shown here (and on page 20) illustrates a system set up on Mode I. The easiest thing to do would be to change the numbers next to the transmitter diagram: cross out the 1 and make it a 6, cross out the 6 and make it a 1, cross out the 2 and make it a 5, and finally, cross out the 5 and make it a 2. To confirm: 6 is low pitch, 5 is high pitch, 2 is swashplate forward, 1 is swashplate backward. Below step 39 is a diagram of the recommended throttle and collective pitch curves. Advanced fliers will have their own preferences, but beginners may use this chart for initial set up.

Now your Concept 30 SR-X is ready for flight. Carefully study all the information on the following pages. There are plenty of instructions to get you on your way to the beginning stages of hovering and forward flight. Remember, any expert who you have seen doing amazing aerobatics, loops, rolls, hovering inverted and autorotations, was at one time a beginner, too. He is just like you!

If you're an experienced flier, we're sure you'll enjoy the smooth flight characteristics, overall ease of repair or maintenance, and generally trouble-free operation of the Concept 30 SR-X. Keep a look out for upcoming issues of the Concept Connection for Kyosho's latest releases of hot accessories.