

X-CELL

Stratus

Conversion Manual
#126-101A



miniature aircraft usa

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How To Follow These Instructions

These instructions are based on a photographic record of the conversion process. For best results, start at the beginning of the manual and assemble the conversion in the order dictated in the instructions.

In most cases, each step will include one or more photographs that detail the assembly. If there are multiple pictures, they are arranged chronologically in the process from top to bottom. If there are several columns, they are ordered from left to right on each row.

Revisions to this Manual

- **10/30/05 – Version 1.3 – Photo Revision for elevator bellcrank**

For the most current version of this manual, please refer to www.miniatureaircraftusa.com, visit the Stratus helicopter kit and download the conversion manual

Errata

None Noted

1. Introduction

Thank you for purchasing this Stratus conversion kit. There are two important areas that you must consider prior to beginning your Stratus Conversion. They are:

1.1. **Conversion Parts**

There are a number of parts you will need from the model you are converting. See the section Conversion Parts for more Details

1.2. **Preparation**

There are a number of areas that will require special attention. See the Preparation section for more details about these areas:

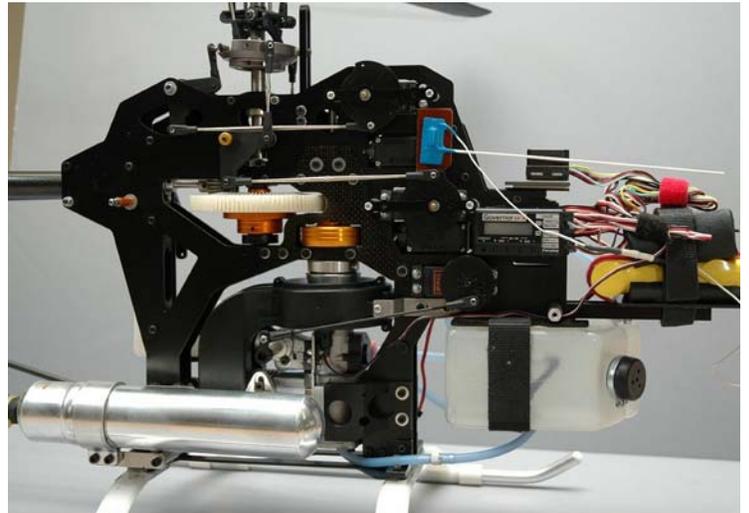
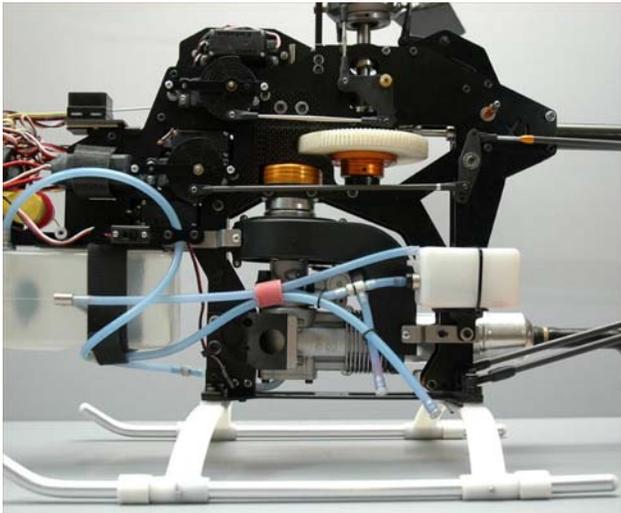
- Fan Mount – you must have the original thrust washer from your engine installed under the lower collet. See the Fan Hub paragraph in the Preparation section.
- Clutch Driver Block Bearing – if your model uses the original driver bearing block, you'll need to purchase a #122-46 block and install it. See the Clutch driver block paragraph in the Preparation section.
- Driver Uni-Ball – you may need to replace your existing uni-ball. See the Driver uni-ball paragraph in the Preparation section.
- Clutch Dampers – if you have an old style fan hub, you will need to modify it or replace it with a new style hub. For more details, see the Fan Damper paragraph in the Preparation section
- Muffler Mount – if you have a muffler that requires a rear mount, see the Muffler mount paragraph in the preparation section
- Tail Rotor Control Rod – will need to be shortened. See the Tail Rotor Control Rod paragraph in the preparation section
- Clutch – if you still have the older style small clutch, it is highly recommended that you replace it with the heavy duty clutch assembly for .91 size engines.
- YS.80 – if you intend to use an YS 80, you must purchase part #126-30 adapter
- FAI conversion – If you are converting a Tempest FAI model with the tail rotor on the right side, then order kits #1026-5, #1026-6, #1026-7 or #1026-8 depending on the gear ratio you want.

2. Pre-Conversion Information

This conversion will use the major components found in the Fury Extreme or Tempest 3D models. You may be able to convert other models as well, however you will need to purchase additional parts



This conversion will allow you to convert the Fury, Extreme or Tempest models to the Stratus format using Parts from the original model.



This is the standard format of a Fury Extreme which was used for this conversion.

3. Conversion Parts

You will need to first disassemble your existing Fury to provide the necessary components for the Conversion. In addition to the components shown, you will also need your motor/fan/muffler assembly, your complete Rotor head mixer assembly, and your complete tail boom/tail rotor assembly

The other components needed are as follows:



Also From the kit you Will need:

- complete fan shroud
- tail boom clamps
- anti-rotation guide
- main shaft
- complete constant drive
- upper and lower main bearing blocks
- clutch bell/bearing block
- left and right cyclic bellcranks and studs
- t/r bearing block and shaft
- pinion gear and collar
- t/r bellcrank and mount
- main shaft collets
- clutch/driver assembly
- all round frame spacers
- bellcrank collars
- servo bridges (3)
- servo mount bolts

The existing bolts will be replaced with new bolts that are included in the kit. Most of these are shorter to reduce the overall weight of the model.

4. Preparation

Prior to beginning the conversion, there are several areas that need to be reviewed

- Fan installation
- Clutch Driver Block
- Uni-ball
- Fan Dampers
- Muffler mount
- Tail Rotor Push Rod

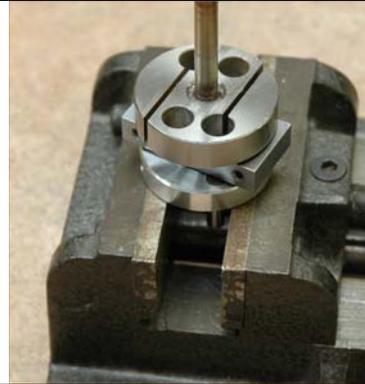
4.1. Fan Installation

<p>In some cases you may have installed your fan without using the thrust washer that came with the engine. For proper driver spacing with this conversion, you must use the thrust washer.</p> <p>The thickness of this washer must be between .038" and .039"</p> <p>If you did not install it under the lower collet when you originally installed the fan, remove the fan and collets. Then add the thrust washer below the lower collet. Re-install the fan as you normally would. Don't forget to dial indicate the cooling fan to prevent excessive engine vibration.</p>		
		

4.2. Clutch Driver Block

		<p>If you are converting a Tempest, the lower clutch Driver bearing block will be the h/d model which is Longer than the Extreme version. If you are Converting an extreme, you need to purchase and And install the lower clutch block #122-46</p> <p>This assembly is accomplished in the following steps</p>
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Using the fan tool supplied in your original kit, insert Two 4mm bolts (at least 20mm long) and nuts through the two slots in the tool so that they both protrude from the same side of the tool (see picture).

Place your existing clutch driver assembly in a vise or similar clamping device. DO NOT clamp the driver or ball firmly. The purpose of the vise is to prevent the driver assembly from rotating in the next step

The clutch was factory installed using Loctite. Before removing it, heat the center part of the clutch using a heat gun. This does not have to be excessively hot insert the modified fan tool over the clutch shaft so that the bolts fit into to holes on the clutch. Do not insert into the clutch shoe holes (with slots). Turn the clutch counter clockwise to remove it. Remove the clutch from the assembly and set to the side. Also remove the two washers found under the clutch



Now you can remove the extreme clutch block. You may need to heat the clutch driver to break the Loctite before removing the block

Clean the Loctite from the clutch driver using a mild scotch-brite pad. Do no excessively scratch. Clean with alcohol

Apply a very thin film of Green Loctite on the lower part of the clutch driver and insert the clutch driver assembly into the #122-46 Bearing block. Push the block against the drive. Be careful not to get Loctite in the bearing. The block must be installed such that the bearing retainer clip is opposite the driver

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Using the previously removed angled washer, insert the angled side of the washer downward toward the bearing

The #122-46 bearing block will include a 1mm washer. Add this on top of the flat side of the angled washer.



At this point you can reassemble the clutch onto the driver. Before threading the clutch on, place a small amount of blue Loctite on the driver threads. One side of the clutch has a small groove around the center of the clutch above the threads. This groove is installed on the top, or away from the bearing block

Thread the clutch on the driver until it is tight and Then place the assembly back in the vice/clamp (do not clamp tightly in the vise). Using the clutch tool you built in an earlier step, place the bolts through the center clutch holes (not the slotted ones) and tighten the clutch clockwise. This does not have to be overly tight. Reinstall the o-ring into the groove in the top of the clutch. This assembly is now complete.

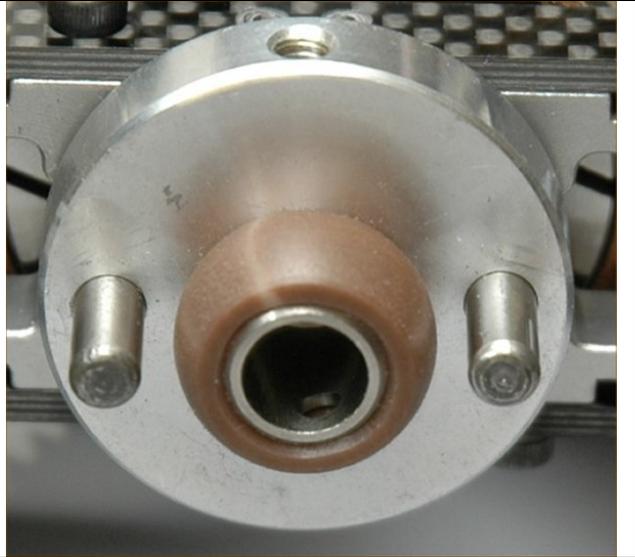
4.3. *Driver Uni-Ball*

Inspect the Delrin ball at the base of the clutch driver unit for signs of wear. Replace if needed. The replacement ball must be glued in place using a good grade epoxy type adhesive

Thoroughly clean the ball area on the base of the clutch driver with alcohol. Scratch this area and the inner surface of the Delrin ball using the tip of an Xacto knife.

Note – when assembled, the ball has a groove inside that must be oriented such that it will mate with the ridge on the base of the driver

Apply glue to both surfaces and press the ball into place. Wipe away any excess adhesive



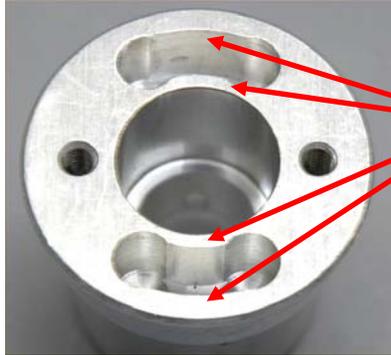
4.4. Fan Dampers

The Stratus helicopter requires that you use the latest version of the #0546-16 clutch dampers (included in the conversion) which are made of a harder material.

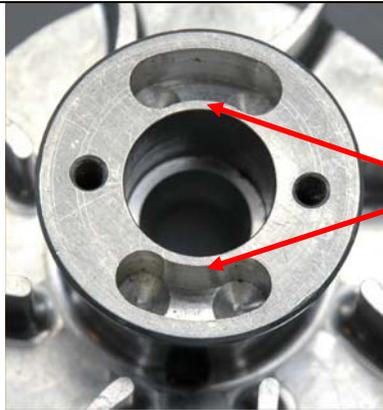
These dampers will not easily fit into the older style fan hub (pre-2002) because the damper recess in the older style is too restrictive and the harder material will not compress to insert the dampers.

Look at the photos to help determine if you have a new style or old style fan hub. The most obvious way to tell is by looking inside of the damper recesses. On the old style fan, there will be a pronounced hump on the inside of the recess. It is pictured on the left.

If you have the old style hub, you must either purchase a new cooling fan #0579-4 or modify your existing fan.



These areas are more pronounced on old style fan. This fan must be modified or replaced



More rounded on new style fan. The new harder dampers slip easily into these

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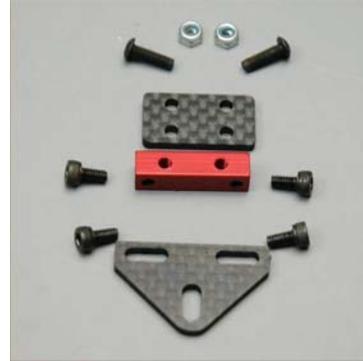
		<p>If you wish to modify your existing fan hub, follow this process</p> <p>You will need an appropriate cutting tool, we'd suggest a Dremel #9901 tungsten carbide cutter. This is a 1/8" square head cutter</p> <p>Sit the new dampers on top of each of the fan damper recesses as shown. Using an Xacto knife, etch around the inside and outside edge of the dampers, marking the hub.</p>
		<p>Now take mount the cutting tool in a Dremel tool, open up sides of the damper holes using the previous etchings as a guide as shown. In any case, the opening should at no point be larger than the two holes at each end of the recess</p>
		<p>When complete, the damper recesses will be slightly larger and the harder dampers will easily slip in.</p> <p>If you are uncomfortable making this modification, simply purchase a #0579-4 fan</p>

4.5. *Muffler Mount*

If you have the newer design Hatori muffler that mounts only to the engine, then this will mount without further issue.

If you have an older style muffler that requires a rear standoff mount, you will need to purchase the optional muffler mount #126-80 to provide a rear muffler support

The mount contents and sample mounting is shown



4.6. *Tail Rotor Push Rod*

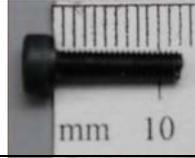
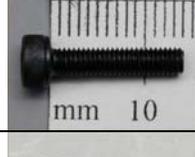
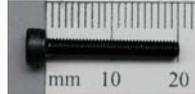
In regards to the tail rotor control rod, its length will need to be adjusted for the new frame style.

Either replace the control rod and assemble to the correct length or if you want to reuse your existing control rod, use a heat gun to heat one end of the rod until the adhesive that holds the metal insert rod softens and you can remove the rod.

Shorten this end of the t/r control rod by 1.278" or 32.5mm.

Reinsert the removed metal insert rod to the original depth using JB Weld or slow Cyanoacrylate adhesive to secure it.

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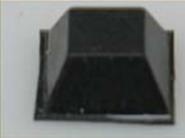
2	0063	M3 x 10 Socket head bolt	
4	0065	M3 x 12 Socket head bolt	
2	0067	M3 x 14 Socket head bolt	
4	0068	M3.5 x 15 Socket head bolt	
4	0073	M3 x 20 Socket head bolt	
4	0080	M4 x 14 Socket head bolt	



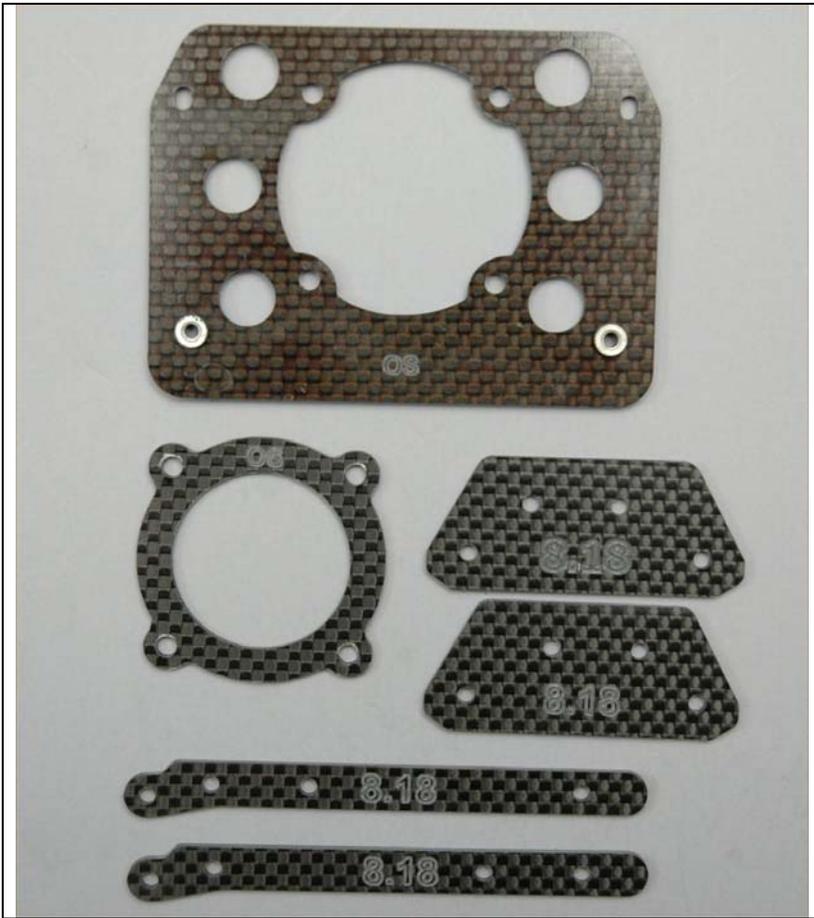
Bag 1B Complete

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Bag 1B Contents

1	115-30	Velcro – 28.5" x 5/8"	
2	122-86	Corner Blocks	
2	126-26	Ladder Supports	
1	126-20	Carbon main base plate	
1	126-21	Fuel Tank	
2	126-23	Carbon motor side mounts	
2	0546-16	Clutch dampers	
2	126-27	Rubber Bump-ons	

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Bag 3 Complete

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Bag 3 Contents

1	126-24 126-28	Main motor plate – OS Main motor plate - YS	
1	126-25 126-29	Adapter plate – OS Adapter plate - YS	
2	126-36 126-38 126-40 126-44 126-50	7.75 ratio upper clutch plate 7.91 ratio upper clutch plate 8.18 ratio upper clutch plate 8.45 ratio upper clutch plate 9.30 ratio upper clutch plate	
2	126-37 126-39 126-41 126-45 126-51	7.75 ratio lower clutch plate 7.91 ratio lower clutch plate 8.18 ratio lower clutch plate 8.45 ratio lower clutch plate 9.30 ratio lower clutch plate	

Begin by removing the crankcase rear plate bolts from your engine using an M2.5 allen wrench. You can store these in the box the engine came in as you won't need them. This kit includes bolts that will replace them.

Do not remove the engine backplate. It must remain on the engine.



These are the parts that make up the engine mount assembly

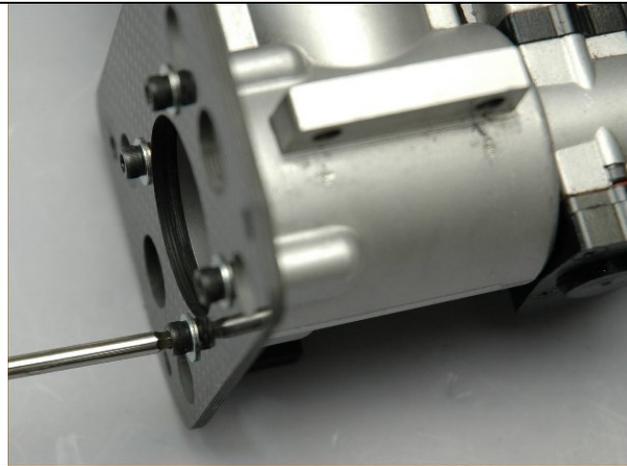
These particular plates are for the YS conversion as evidenced by the letters YS engraved on the engine back plate spacer and the engine mount plate. The OS version will have the letters OS engraved on them

If you are attaching a YS.80, you will also need #126-30 adapter plate.

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Select the #126-28 (YS) or #126-24 (OS) main base plate, #126-29 (YS) or #126-25 (OS) adapter plate, four #0068 M3.5 x 15mm bolts and four #0008 M3.5 washers

Prepare the bottom engine mount for assembly. Align the plates and engine as shown. The engine initials (YS or OS) should be facing up on both plates and should be next to each other. Slide one M3.5 washers over each of the M3.5 x 15mm bolts and then insert them from the bottom of the plate such that they pass through the engine backplate spacer. The engine will be assembled on the same side as the initials, such that the cylinder covers the initials.



Apply a small amount of blue Loctite to the exposed part of the bolts and attach the combined plates onto the engine backplate as shown.

Tighten all four bolts, tightening alternate bolts one at a time in an X pattern. The purpose of this is to more evenly tighten the plate.

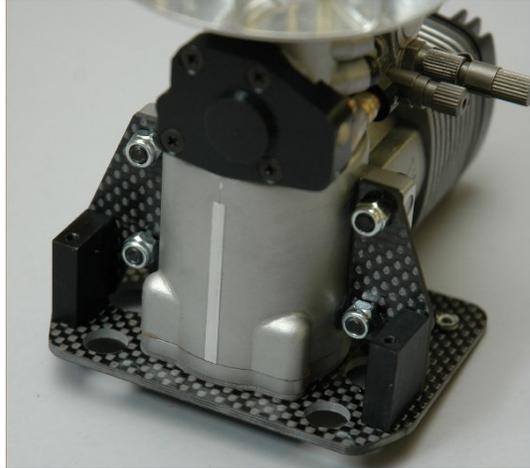
Select two #126-23 carbon motor side mounts, two #122-86 corner blocks, and two #0060-1 M3 x 6mm socket head bolts.

Assemble the two engine side mounts as shown. Assemble the flat engine mount plates to the aluminum mount blocks using 2 each M3 x 6mm bolts in each block. No washers are used. At this time only lightly tighten them. Do not fully tighten them yet or apply Loctite. The plates and blocks are not marked left or right but must be assembled as shown.

Note how the assemblies will fit on the engine mount plate and against the engine.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select four #0080 M4 x 14mm bolts and four #0021 M4 locknuts

Mount both of the assembled engine side mounts to the engine using the M4 bolts and M4 locknuts. No washers are used. At this time just snug the bolts, do not fully tighten them yet.

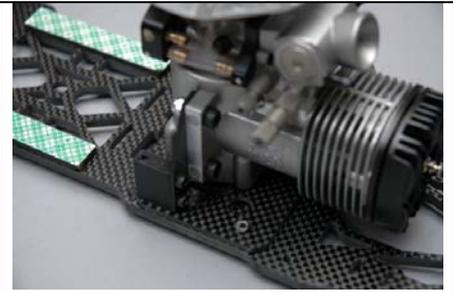
At this point in the assembly, the aluminum blocks are just sitting on the bottom plate. They will be attached in the next step

Select the #126-20 main base plate, two #0067 M3 x 14 socket head screws, two #0063 M3 x 10 socket head screw and four #0003 flat washers.

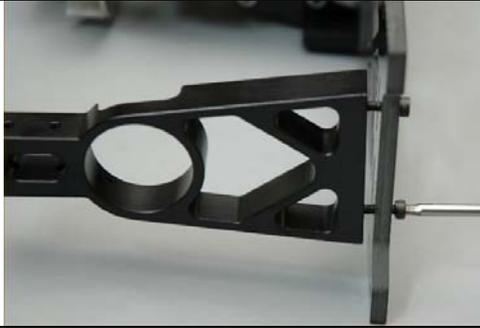
Orient the main base plate so that the recessed portion faces down (or the pre-installed two sided tape faces up).

Attach the assembled engine mount to either side of the bottom frame plate oriented as shown. The engine will be facing the front part of the plate which is noted by the square opening. The X opening in the plate is the rear of the plate.

Use 2 each M3 x 14mm bolts and flat washers through the rear slotted openings into the aluminum engine mount blocks. Use 2 each M3 x 10mm bolts and flat washers through the front slotted openings into the PEM nuts on the engine mount plate. Tighten all 4 bolts but do not use Loctite yet.



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Select two #126-26 frame ladder support, four #0065 M3 x 12mm socket head bolts and four #0009 M3 washers.

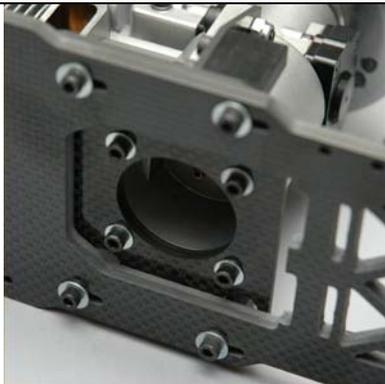
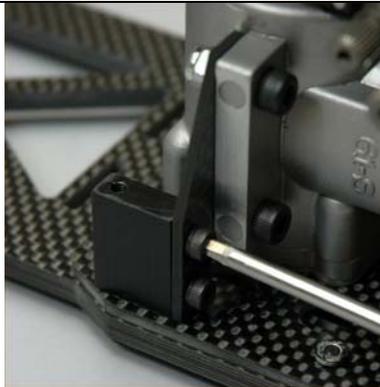
Install the frame ladder supports onto the top of the bottom plate on each end. The wide end of the ladder support installs against the bottom plate. The ladder supports can face either direction the dimensions are symmetrical. Slide a washer over each of the two M3 x 12mm bolts to attach each ladder support as shown.

At this time, lightly tighten these bolts only.



First tighten each of the four M3 bolts that attach the aluminum side engine mount blocks. When complete, remove them one at a time, apply blue Loctite and then reinstall and tighten them.

Then tighten the four M4 engine bolts and locknuts



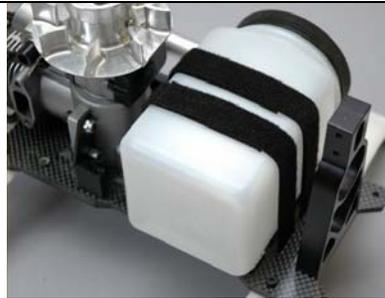
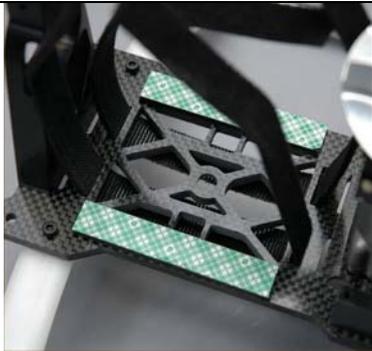
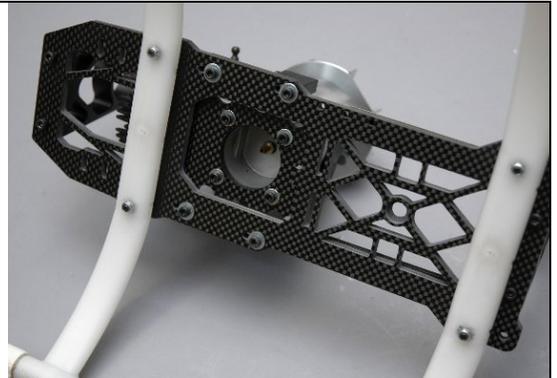
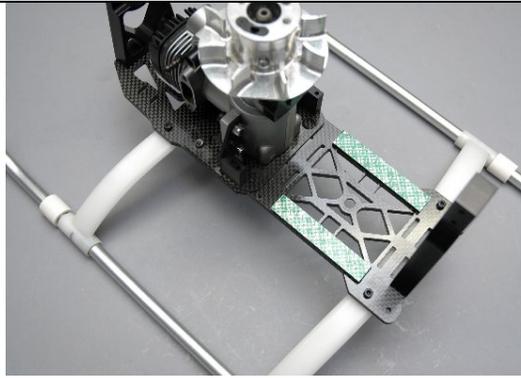
Slightly loosen the four bolts that attach the engine mount plate to the bottom plate so that the entire engine assembly can be repositioned in the slots on the bottom plate. Leave these bolts loose until the engine alignment is done in a later step

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Select four #0073 M3 x 20mm socket head bolts and four #0019 M3 locknuts

Install your existing landing gear to the bottom plate using four each M3 x 20mm bolts and M3 lock nuts. Orient the landing gear on the plate using the holes shown

It may be necessary to slightly reposition one of the struts on the aluminum skids to correctly align the struts into the frame holes.



Select the #126-21 fuel tank and #115-30 Velcro strip

Cut the 5/8" piece of Velcro into two 14" pieces. Install them into the bottom plate from below as shown to secure the fuel tank.

At this time do not remove the adhesive strip from the two pre-installed double sided tape strips that will attach to the fuel tank.

Install the fuel tank so that the removable lid faces the right side of the bottom plate and temporarily connect the Velcro strips. At this point the tank can be easily slide side to side.

Temporarily install the muffler on the motor. It is being installed at this time to finalize the tank position.

Reposition the fuel tank so that there is at least 5mm of clearance between the fuel tank and the part of the muffler that it is closest to.



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After positioning the fuel tank, use a pencil mark a spot on the top of the tank exactly between the two Velcro strips. Getting the exact side to side location correct is more important than getting the front to back position correct. Later you will install the fuel vent fitting here so you want to make sure it can clear the Velcro.

In this step, the fuel tank position bumpers will be installed

Turn the lower frame assembly over and locate the two square holes in the center outside of the bottom plate.

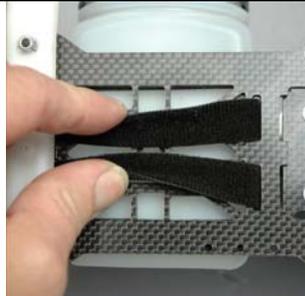
Holding the fuel tank in position, use a felt tip pin to transfer the position of these two square holes onto the fuel tank

Remove the fuel tank from the frame.

Using an Xacto knife or other sharp object, scratch the fuel tank on the inside of the two squares you have just transferred onto the tank.

Select the two #126-27 tank bumpers and remove the adhesive back from them. Apply a small amount of GOOP or similar flexible adhesive to each of the bumpers and install each onto the bottom of the fuel tank using the marked squares to locate their position as shown. Wipe the excess adhesive from around the bumpers.

Flexible adhesives usually take 24 hours to fully cure so either set this aside until it cures or be very careful not to accidentally move the bumpers



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<p>Use a ruler to measure the distance from the mark you made on the tank in the last step to the closed end of the tank. Turn the tank 90 degrees away from you and using the measurement you just made, make a new mark on the tank.</p>		
<p>The tank is 2-7/8" (73mm) side to side. The center of the tank is 36.5mm or 1-7/16". Center the marks you just made so that they are centered side to side and mark them for drilling.</p> <p>Remove the tank lid. First use a 1/8" bit and drill both holes. Then change to a 3/16" drill and re-drill the holes. By using two different drill bit sizes it prevents the plastic from being torn by drilling the hole too big in one step. Remove any tank shavings from inside the tank</p>		

		<p>Use an x-acto blade or other sharp knife to remove any flashing on the holes. Be careful not to cut or damage the tank.</p> <p>Select the fuel tank vent and push the threaded end through the hole you drilled on the top of the tank. Add the washer and nut on the outside and thread it tight. Use a 10mm wrench to tighten the vent firmly. Use a wrench or thin pliers to hold the vent inside the tank.</p> <p>Insert the fuel pickup and push the threaded end through the hole on the front of the tank</p>
		

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Use a wrench to hold the fuel pickup on the inside of the tank and thread the 90 degree fuel pickup fitting on the outside of the tank. Tighten it firmly and align the output hole towards the cap of the tank



Connect the fuel clunk to a piece of flexible fuel line. The exact length of this line will depend on where you installed the fuel pickup in the tank, however it must be long enough for the fuel clunk to fit into the corners of the tank, but not be so long that the clunk can get stuck on the middle edge of the tank.



We recommend the use of the "Fuel Magnet" clunk. If you intend to use the standard clunk, we recommend adding a header tank to your fuel system.

Test this by installing the fuel line/clunk and manually reposition the tank in all conceivable positions and visibly observe the clunk. Adjust the length until it touches the most areas of the tank without getting stuck. Push the fuel line over the fuel pickup installed in the front of the tank. Firmly thread on the cap of the tank, it is now complete.



If you are using a pressurized fuel system (YS or OS with Kline pump) fuel cap must be sealed using blue or red RTV (clear may be affected by glow fuel).



Apply the RTV around the outside lip of the fuel tank opening, and use your finger to even the adhesive and also to remove excess. Be careful to remove any adhesive that may be on the inside of the fuel tank or can get on the inside. (Loose cured RTV can get into the fuel system and plug the fuel pump or carburetor orifices).

Screw the fuel cap on firmly and remove any excess RTV around the base of the cap.

Note: You can also use GOOP to seal the fuel tank, however be aware that as a result you may damage the tank cap when you need to remove it.

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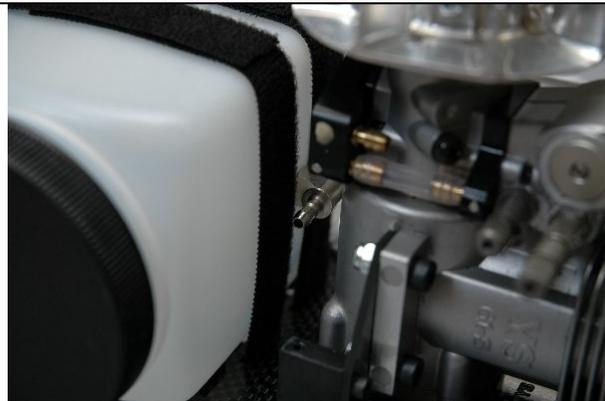
In preparation for installing the fuel tank, separate and spread the installed Velcro so that the tank can easily fit onto the bottom plate.

Remove the backing from the two sided tape so that the tank will adhere to it when pushed down.

Install the tank onto the bottom plate and the two sided tape with the fuel cap towards the right side of the bottom plate, such that the fuel vent and pickup will be in the center of the two Velcro strips.



Tighten the two Velcro strips to firmly attach the tank to the bottom plate.



This completes the tank attachment. Note the location of the fuel vent and pickup as shown

This completes the assembly of the bottom plate. Place the completed assembly to the side until later.

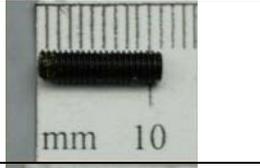
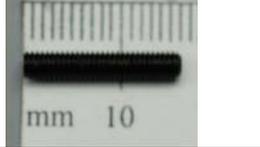
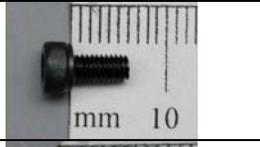
6. Left Top Frame Assembly

This section will concentrate on assembly of the left frame assembly



Bag 2A Complete

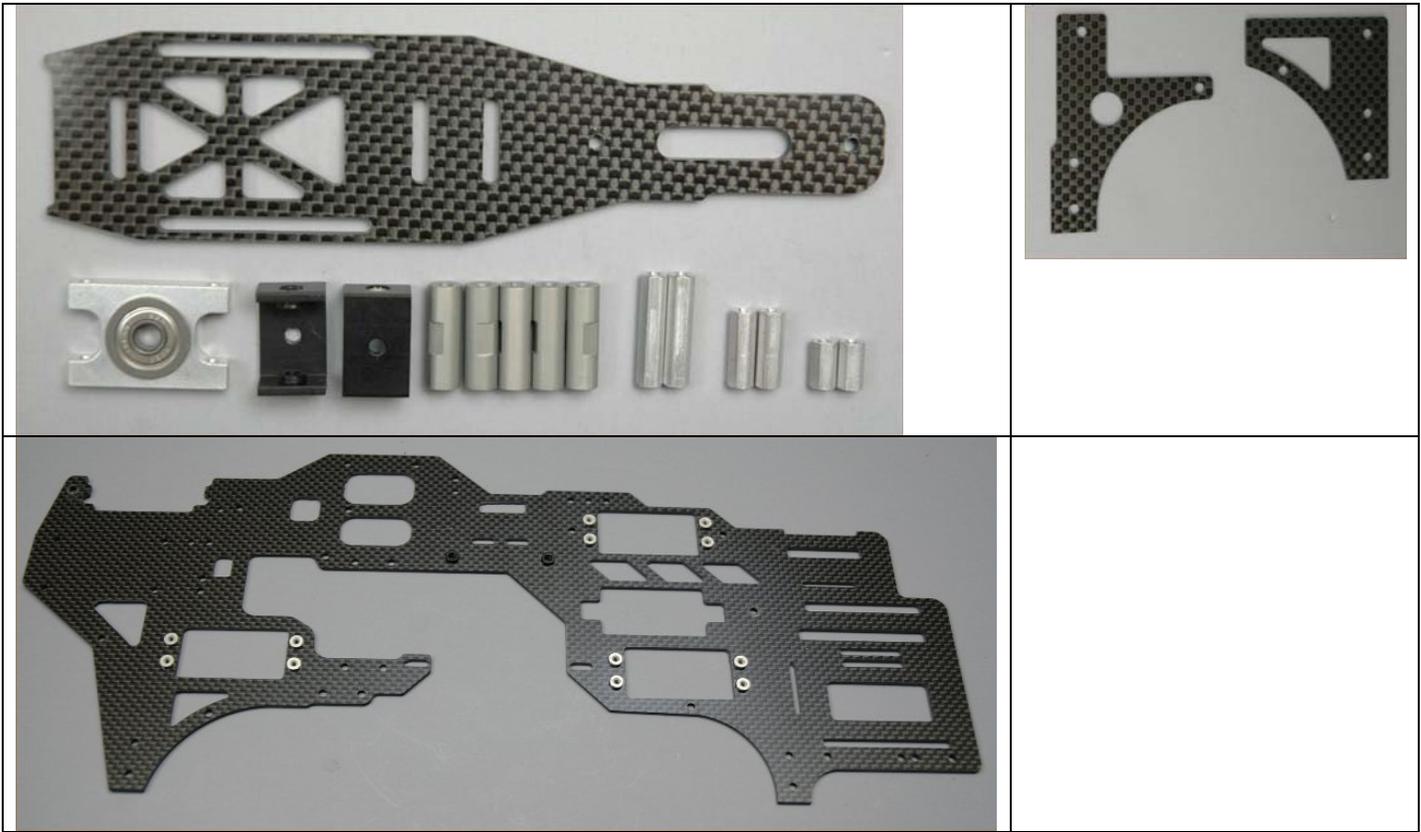
Bag 2A Contents

2	0019	M3 Locknut	
1	0053-3	M3 x 12 Socket set screw	
3	0053-5	M3 x 16 Socket set screw	
15	0060-1	M3 x 6 Socket head bolt	
14	0061	M3 x 8 Socket head bolt	
2	0063	M3 x 10 Socket head bolt	

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

1	0064-3	M3 x 6 Button head bolt	
4	0109	M3 x 8 Threaded ball	

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

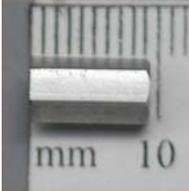
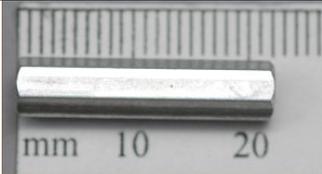


Bag 2B Complete

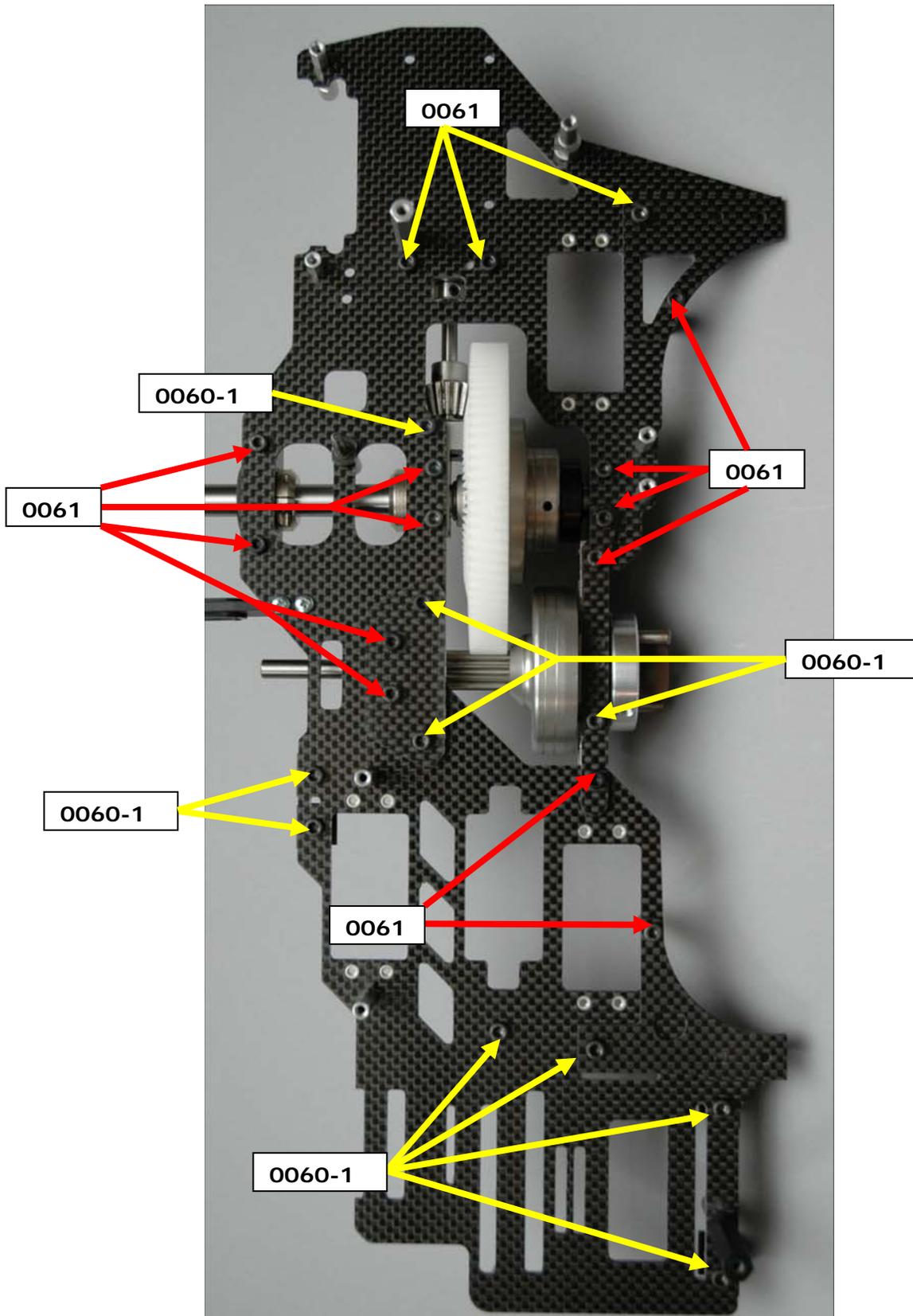
Bag 2B Contents

5	115-20	Frame Spacers	
4	125-12	Frame Channels - .50"	
1	126-56	Carbon Left Main Frame	
1	126-58	Carbon Battery Plate	

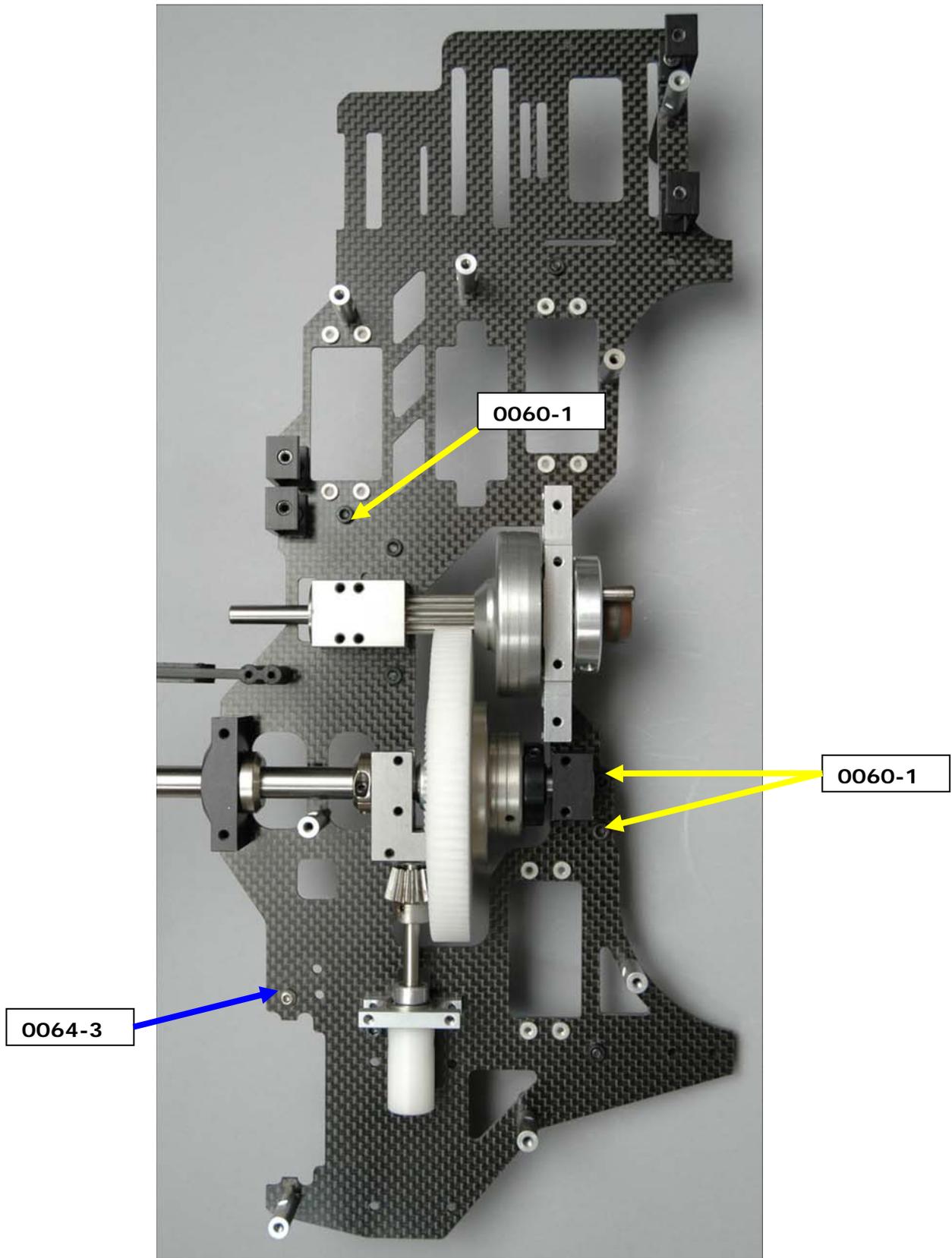
Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

1	126-61	Rear frame doubler plate	
1	126-63	Front frame doubler plate	
1	126-66	Front t/r drive bearing block	
2	126-67	9mm hex spacer	
2	126-68	15mm hex spacer	
2	126-69	22mm hex spacer	

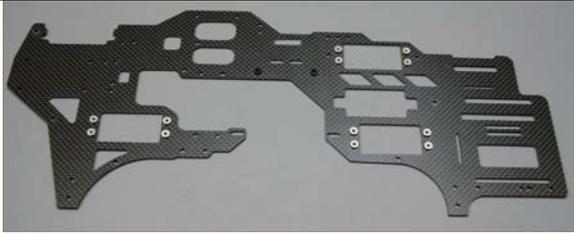
Assembled View of the Outside of the Left Frame Half



Assembled View of the Inside of the Left Frame Half



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Locate the #126-56 left frame plate. It is easy to identify because of the extended equipment tray area on the front of the frame.

You can identify the inside of the frame by the PEM nuts. The head of the PEM nuts will be on the inside of the frame and are black in color

Begin by selecting 5 each #115-20 frame spacers as shown as well as three of them from your original kit. You will need a 2.5mm allen driver and a 5.5mm open end wrench (or equivalent) tool to hold the flats on the spacers to tighten them.

Select the #126-63 front frame doubler, one #0060-1 M3 x 6mm socket head bolts, and M3 x 8mm socket head bolts.

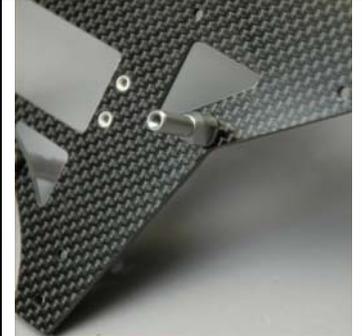
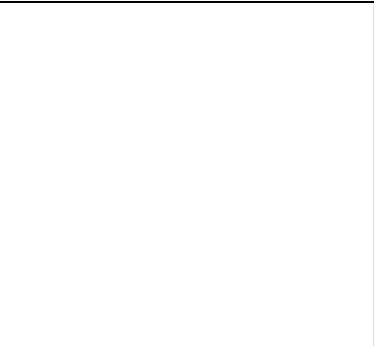
Attach the doubler plate to the outside of the front bottom part of the left frame with one #0060-1 M3 x 6mm socket head bolt in the top of the doubler threaded into the PEM nut. Apply a small amount of blue loctite to the bolt threads, but don't fully tighten yet. Now install one #0061 M3 x 8mm socket head bolt in the front of the doubler. Apply a small amount of blue Loctite to the threads of the exposed bolt and thread on a #115-20 frame spacer. Now tighten both bolts snugly.

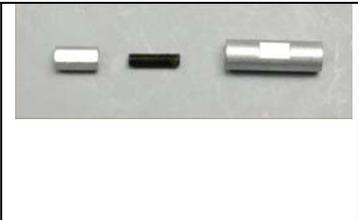
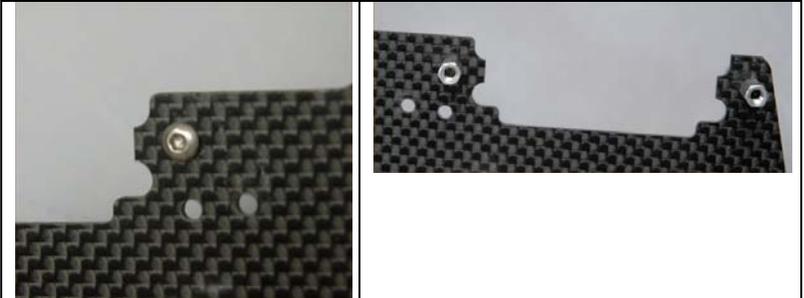
(Note – if you should desire to install the switch on the left side of your model, switch sides with the #126-63 and #126-62 front doubler plate found in bag 4B.)

Now select the #126-61 rear frame doubler and attach it to the outside of the rear bottom part of the left frame with one #0060-1 M3 x 6mm socket head bolt in the top of the doubler and one #0061 M3 x 8mm socket head bolts in the edge. Apply a small amount of blue Loctite to the threads of both bolts. Insert one bolt through the top of the doubler and thread into the PEM nut in the frame but don't fully tighten. Insert the other bolt into the doubler hole shown and thread on a #115-20 frame spacer. Now tighten both bolts snugly.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

		<p>Insert one of the #0053-5 M3 x 16 threaded studs into the rudder bellcrank mounting post from your original model as shown after applying a small amount of red Loctite to the threads on the stud. Thread it in until 1/2 of the threads are inside the post. Carefully wipe any remaining visible Loctite off of the stud threads and allow this to dry.</p>
		<p>Insert the threaded post into the mount hole on the outside face of the rear of the left frame as shown. Select another #115-20 round frame spacer, apply a small amount of blue Loctite to the exposed stud threads and then install the spacer onto the threaded stud as shown and tighten snugly</p>

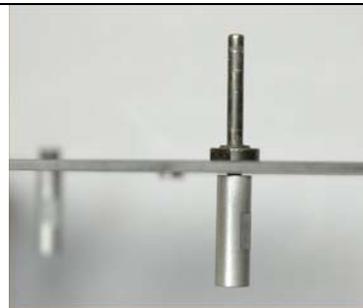
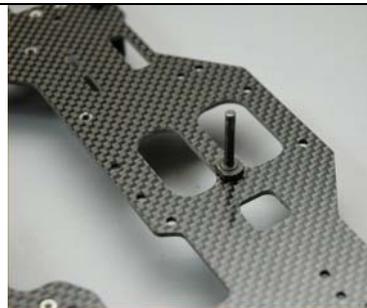
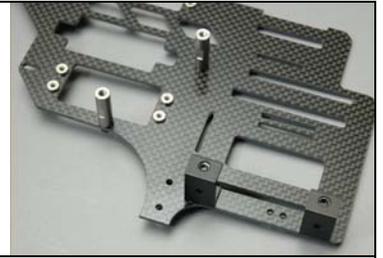
<p>Select one #0053-3 M3 x 12 threaded stud, one #115-20 round frame spacer and one #126-67 9mm hex spacer as shown. Apply a small amount of red Loctite to the threads on the stud and thread into the hex spacer until it is half way inserted (4mm). Wipe away any excess Loctite and allow this to dry. Insert the stud from the outside of the left frame elevator servo bridge hole. This is the top hole at the back of the frame. Use a 5mm nut driver and a 5.5mm wrench (or equivalent tools) and tighten snugly</p> <p>Apply a small amount of blue loctite to the threads on the #0064-3 6mm button head bolt and insert it from the inside of the left frame into the front servo bridge hole for the elevator servo. Thread a #126-67 9mm hex spacer onto the threads on the outside of the frame. Tighten snugly using a 5mm nut driver and a 2mm allen wrench or equivalent tools.</p>		
		

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select the four #125-12 frame channel spacers and four #0060-1 M3 x 6mm bolts.

Install two of the channels as shown on the inside of the left frame, at the bottom of the radio section using the M3 x 6mm socket head bolts. Lightly tighten the bolts and without using Loctite at this point.

Install the remaining two channels as shown on the inside of the left frame, at the top just above the servo opening. Apply a small amount of blue Loctite to the threads on the M3 x 6mm socket head bolts before threading them into the PEM nuts on the channels. Square the channel spacers by putting something flat across both channels and fully tighten these bolts (the gyro will mount on these channels).

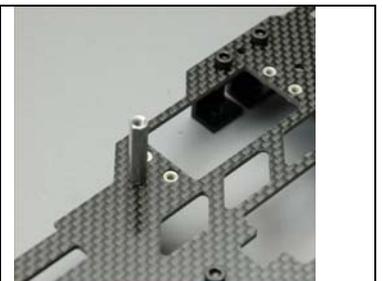


Select one of the two cyclic bellcrank studs that you removed from your existing model.

Insert it on the outside of the left frame in the hole at the center of the top of the frame as shown. Apply a small amount of blue Loctite on the stud threads and thread on one of the #115-20 round frame spacers. Use appropriate tools to fully tighten this. Orient the square part of the stud base as shown so that it does not extend into the open frame cavities.

Select one of the #126-69 22mm spacers and one #0053-5 16mm threaded studs. Apply a small amount of red Loctite on the end of the threads and thread it into the spacer until $\frac{1}{2}$ of the threads are exposed (11mm). Wipe away any excess Loctite and allow this to dry. This is the front servo bridge spacer.

Insert the assembled servo bridge spacer on the outside of the left frame into the center hole in the front of the top servo opening as shown. This hole does not have a PEM nut. Apply a small amount of blue Loctite onto the threads that now extend through the frame. Thread a #115-20 round frame spacer onto the threads on the inside of the frame and using appropriate tools fully tighten.

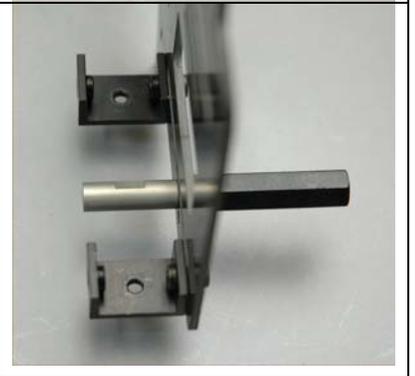
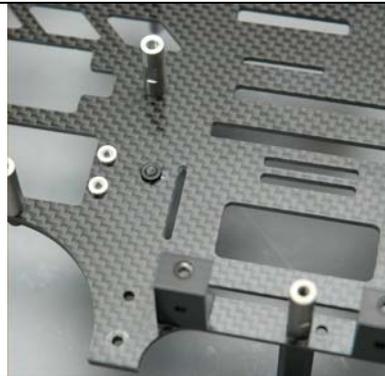


Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select one front canopy mount from your original kit and a #0053-5 M3 x 16 threaded stud. Apply red Loctite to the threads and using a 1.5mm allen driver thread the stud into the canopy mount until $\frac{1}{2}$ of it remains exposed. Wipe away any excess Loctite and allow this to dry.

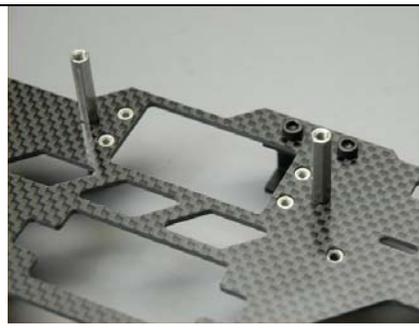


There are two canopy mount hole options in the front lower portion of the left frame. The forward hole should be used if you will install a Fury canopy and the rear hole should be used if you will install a Tempest canopy.



Insert the assembled front canopy mount through the correct hold and apply a small amount of blue Loctite to the exposed threads.

Now thread a #115-20 round frame spacer onto the threads on the inside of the frame and using appropriate tools fully tighten.



Select a #126-69 22mm spacer and a #0060-1 M3 x 6mm socket head bolt.

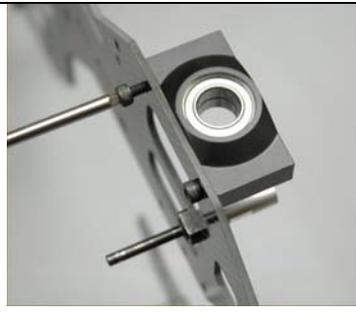
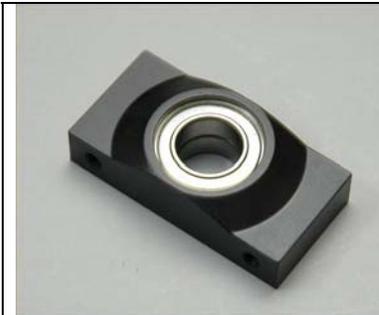
Insert the bolt from the inside of the left frame, into the center hole behind the top servo cutout. Apply a small amount of blue Loctite onto the exposed threads and thread on the spacer. Fully tighten these parts now. This is the rear servo bridge spacer

Select two of the #126-68 15mm spacers and two #0060-1 M3 x 6mm socket head bolts.

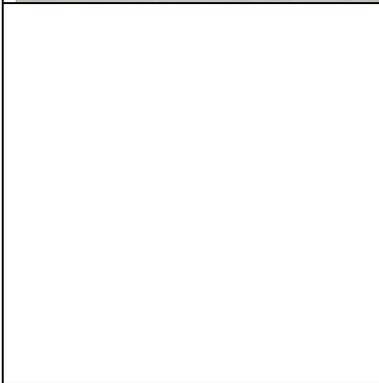
Insert the two bolts from the inside of the left frame through the two holes at the bottom of the gear drive cutout. Apply a small amount of blue Loctite to the threads and thread the fan shroud spacers onto the bolts on the outside of the frame. Fully tighten using appropriate tools. These are the mounts for the fan shroud plate.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the double bearing main shaft mounting block removed from your original model and two #0061 M3 x 8mm socket head bolts.



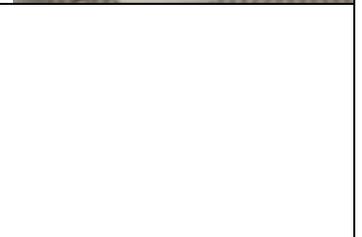
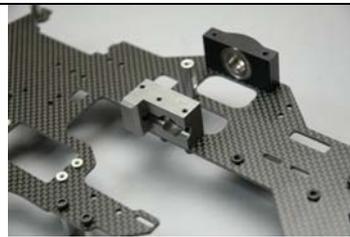
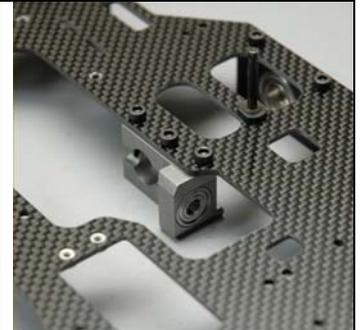
Insert the bolts from the outside of the left frame into the two holes at the top of the frame as shown

The bearing block will thread onto these two bolts. Use a 2.5mm allen to lightly snug these bolts but do not apply Loctite or fully tighten at this time.

Select two each #0061 M3 x 8mm socket head bolts and one each #0060-1 M3 x 6mm socket head bolts.

Insert the two 8mm bolts from the outside of the left frame, through the front holes for the middle mainshaft bearing block as shown. Insert one 6mm bolt from the outside of the left frame through the rear hole for the mainshaft bearing block. Do not apply Loctite at this time.

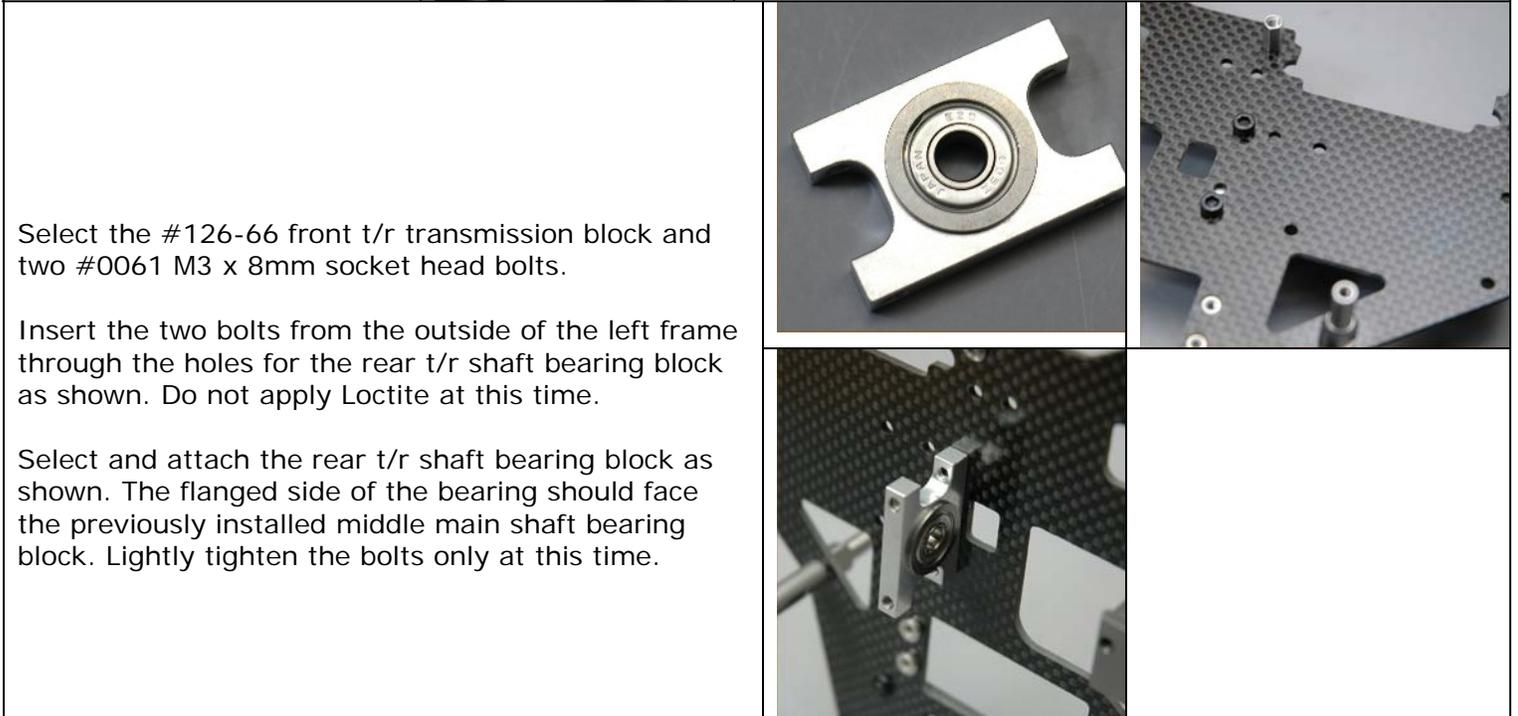
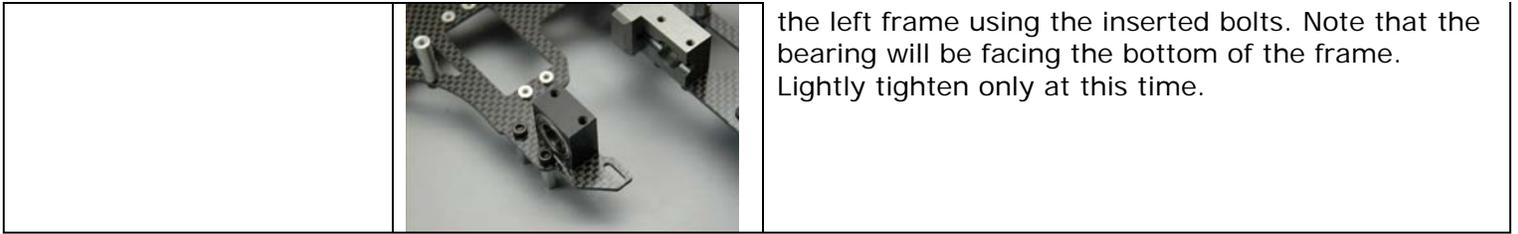
Select the middle mainshaft bearing block from your original model. Attach it to the inside of the left frame using the inserted bolts as shown. Lightly tighten only at this time



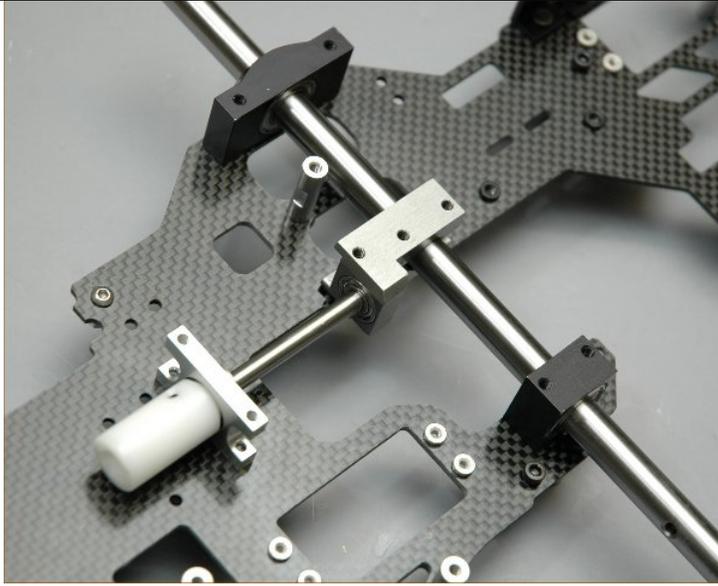
Select one #0061 M3 x 8mm socket head bolts and insert it from the outside of the left frame through the back bottom mainshaft block mount hole, which is just above the fan shroud mounts as shown. Do not apply Loctite at this time. The front bolt will be installed later.

Select the bottom mainshaft bearing block from your original model and attach it as shown to the inside of

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the mainshaft from your original model as well as the front tail rotor drive shaft.

Insert these shafts into the previously installed bearing blocks as shown.

Tighten all of the bolts on the outside of the frame that attach these blocks making sure that both shafts rotate freely. This ensures that all of the blocks are properly aligned with each other.

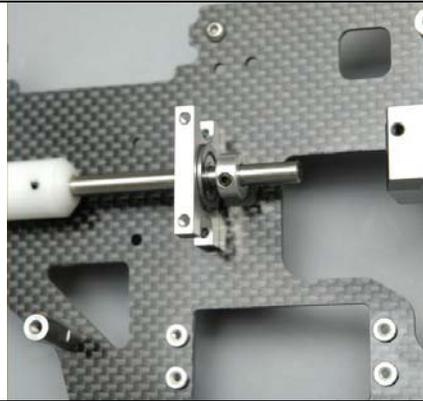
Now for each socket head bolt that mounts these four bearing blocks, follow the following procedure:

- remove one bolt at a time
- apply a small amount of blue Loctite to the threads
- Reinstall and tighten the bolt
- Do not reinstall the front bolt on the bottom bearing block. This will be installed in a later step

Do not overtighten to prevent stripping the threads in the blocks.

Remove the shafts and set to the side.

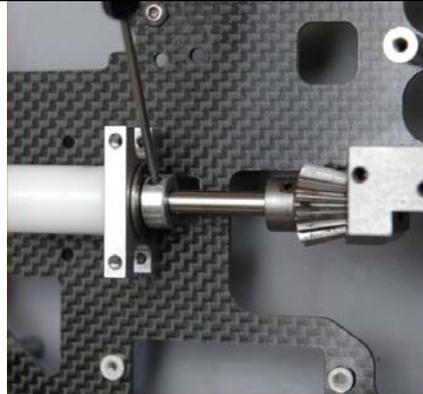
Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the front tail rotor drive shaft, shaft retaining collar and pinion gear from your original model. Remove the socket set screws in the collar and gear and set them to the side.

Insert the front tail rotor drive shaft from the rear of the t/r transmission block.

When enough of the shaft protrudes, first install the retaining collar over the shaft, followed by the pinion gear in the orientation shown



Push the t/r drive shaft until the Delrin coupler bottoms out against the bearing in the bearing block.

Slide the retaining collar against the flange side of the bearing. Select the socket set screw for the retaining collar, apply a small amount of blue Loctite to the threads and insert it into the threaded hole on the collar. Fully tighten it against the drive shaft.



Now note the position of the flat on the t/r drive shaft. Position the pinion gear such that either one of the threaded holes is directly over the flat (you can see the flat through the hole). Place a small mark on the pinion gear by this hole, so you know which one is over the flat. Select one of the socket set screws, insert it into the threaded pinion gear hole over the flat and lightly tighten the screw until it contacts the flat. Now very slightly loosen this screw until the gear can slide back and forth on the shaft, but its movement is restricted by the set screw hitting the ends of the shaft flats.

Install the remaining set screw into the other hole on the pinion gear but do not fully tighten it against the shaft. Do not use Loctite at this point. At this point, the gear should be able to move freely forward and backwards on the shaft but not be able to twist on the shaft. If the gear can move enough that the set screw can move out of the flat area of the shaft, slightly tighten the screw until the gears movement is restricted. This is to prepare the gear for proper alignment in the next step.

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



For the next steps, you will need the following parts from your original model

The mainshaft and retaining collars
The complete constant drive assembly

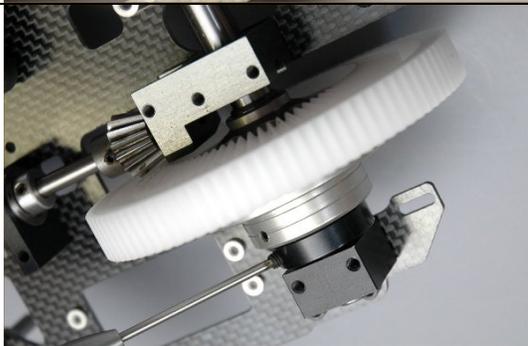
Note the position of the holes in the mainshaft. One hole is at the end of shaft and one hole is 15mm away from the hole. Insert the end of the mainshaft with the hole further away from the end downward through the upper main shaft bearing block. As soon as the shaft is past the bottom of the upper bearing block, slip one of the two retaining collars over the shaft. The bevel side of this collar should face down. Push the shaft further and insert the second collar with the bevel side facing up. Continue to push the shaft until it slightly protrudes past the bottom of the middle bearing block. Do not tighten the retainers at this time.



Assemble the constant drive assembly in the original order it was removed from your model. Place the assembly in the frame cutout between the middle and lower mainshaft bearing blocks as shown and align it with the mainshaft.

Continue to push the mainshaft through the constant drive assembly until the shaft is flush with the bottom of the bearing in the bottom mainshaft support block.

Hold the bottom of the constant drive and turn the main shaft until the holes align in the shaft, constant drive and constant drive retaining collar. Select the retaining pin and push it through the constant drive retaining collar and through the shaft. If the pin won't go fully in, remove it and turn the main shaft 180 degrees and push the pin in. Since this was already installed on this shaft, any issues with this fit would have already been resolved.



Apply a small amount of blue Loctite to the socket set screw that goes into the constant drive retaining collar and install it with a 2.5mm allen driver. Tighten at this time but do not overtighten. Just snug the set screw. Overtightening can distort the retaining collar

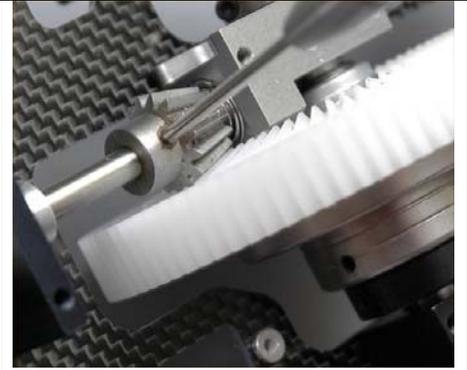
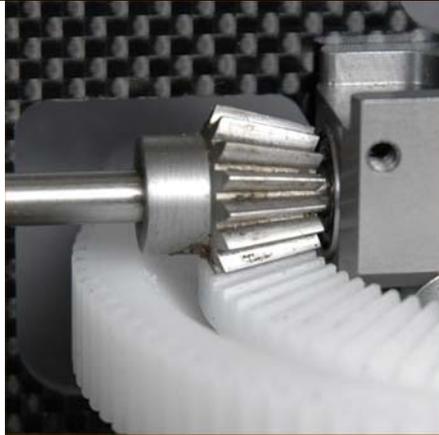
The t/r gear mesh will be set in the next step

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

With your hand, push the constant drive assembly up so that the crown gear is seated on the t/r pinion gear.

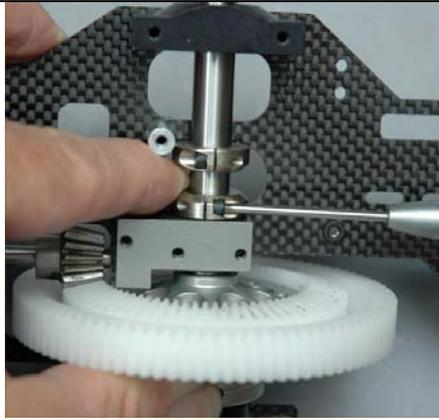
Now position the pinion gear where it just slightly extends past the inside of the crown gear. See the photo for the proper position.

Using a 2.5mm allen driver, snug the socket screw marked in an earlier step as being on the flat of the t/r shaft.



Remove the socket head bolt from the bottom main shaft retaining collar, apply a small amount of blue Loctite to the threads, and re-install it into the collar. Do not tighten yet

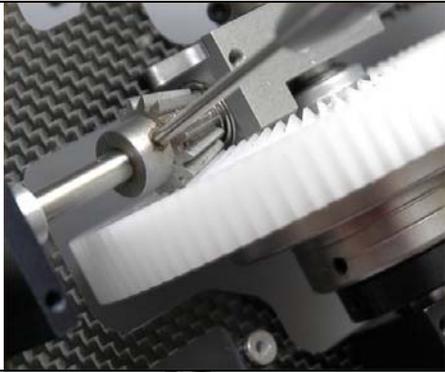
Using two fingers push the constant drive assembly/crown gear firmly up against the pinion gear while holding the lower retaining collar up against the middle mainshaft bearing. Tighten the lower retaining collar. Do not overtighten these bolts as the collar can crack. The correct way to tighten these bolts is to tighten until the socket head contacts the retaining collar and then tighten an additional ¼ turn.



Now just slightly loosen the pinion gear socket screw that you marked so that the gear can be repositioned. Move the pinion rearwards until a smooth feel is achieved when the gears are rotated with minimal backlash in the gears. Again lightly tighten the marked set screw on the pinion gear.

Now rotate the pinion gear 180 degrees. Apply a small amount of blue Loctite to the threads on this socket set screw and lightly tighten it onto the shaft. This will keep the gear from moving during the next instruction.

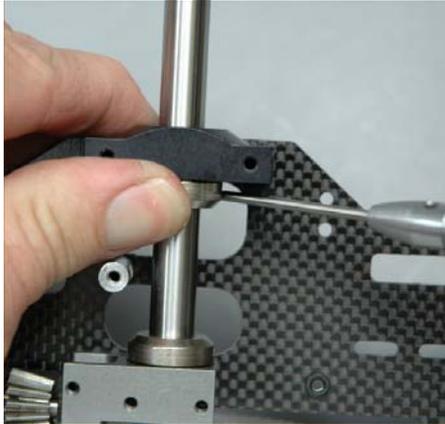
Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Now rotate the pinion gear again and remove the socket set screw that is against the t/r shaft flat. Apply a small amount of blue Loctite to the threads on this socket screw and reinstall it. Tighten against the flat on the t/r shaft. Now rotate the pinion a final time and fully tighten the remaining socket set screw

The t/r input pinion gear is now properly positioned.

Note – if your model used a brass spacer and shims to set the t/r gear mesh, you can instead reinstall them as they were originally. This will properly set the gear mesh.



Now using two fingers, push the upper retaining collar up against the bottom of the upper mainshaft bearing. Repeat the tightening process previously outlined for the lower mainshaft retainer collar

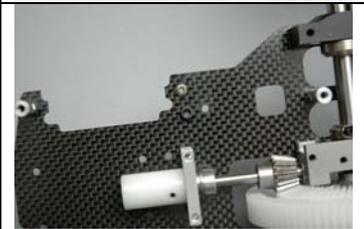
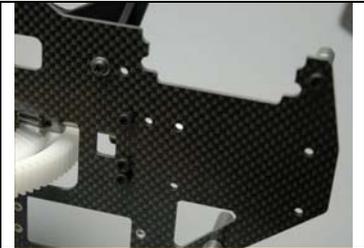
If you observe the retaining collars, there is a split where the collar tightens on the shaft. If after tightening, there is no gap in the collar, then the collar has been overtightened and has broken. If this is the case, the collar will need to be replaced as it will not hold the mainshaft properly. There should be a slight gap in the retainer split only.

For this step you will need one of the rear canopy mount from your existing model and one #0060-1 socket head bolt.

There are two different mounting positions for the rear canopy mount, one for Fury type canopies and one for Tempest type canopies and you can see in the photo there are two holes in the frame for this.

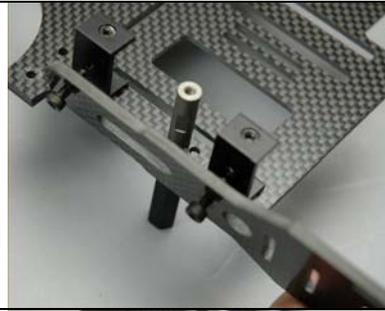
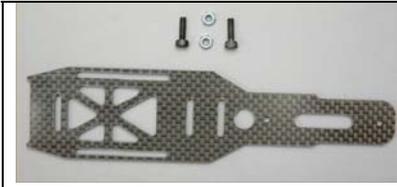
If you have a Fury canopy, use the one just forward of the tail boom mount holes (the lower hole) is for the Fury. Insert the socket head bolt from the inside of the frame, apply a small amount of blue Loctite to the threads and tighten the canopy mount onto the outside of the frame.

Use the previous procedure and the upper hole, just behind the rear bellcrank mount hole if you are mounting a Tempest canopy.



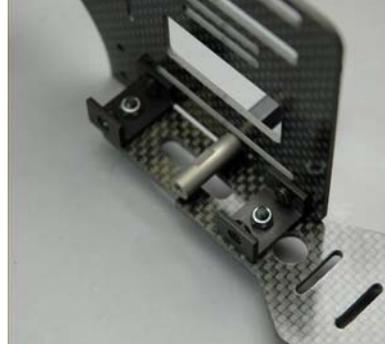
Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



This step will install the battery tray on the front of the left frame and complete its basic assembly.

Select the #126-58 battery tray, two #0063 M3 x 10 socket head bolts and two #0019 M3 locknuts.



Insert the M3 x 10 socket head bolts through the mount holes on the battery plate as shown (the battery plate does not have a top or bottom, both are the same).

Position the plate on the front of the left frame as shown so that the M3 bolts are aligned with the two previously installed front frame channels. Remember, they should not been fully tightened onto the frame at this point.

Push the bolts through the channels and then install two M3 locknuts on the exposed threads inside the channel as shown.

Hold the locknuts with an M5.5 nut driver and use an M2.5 allen driver to tighten the battery plate to the lower frame channels.

Now tighten the two #0060-1 M3 x 6mm socket head bolts that hold the two frame channels to the left frame.

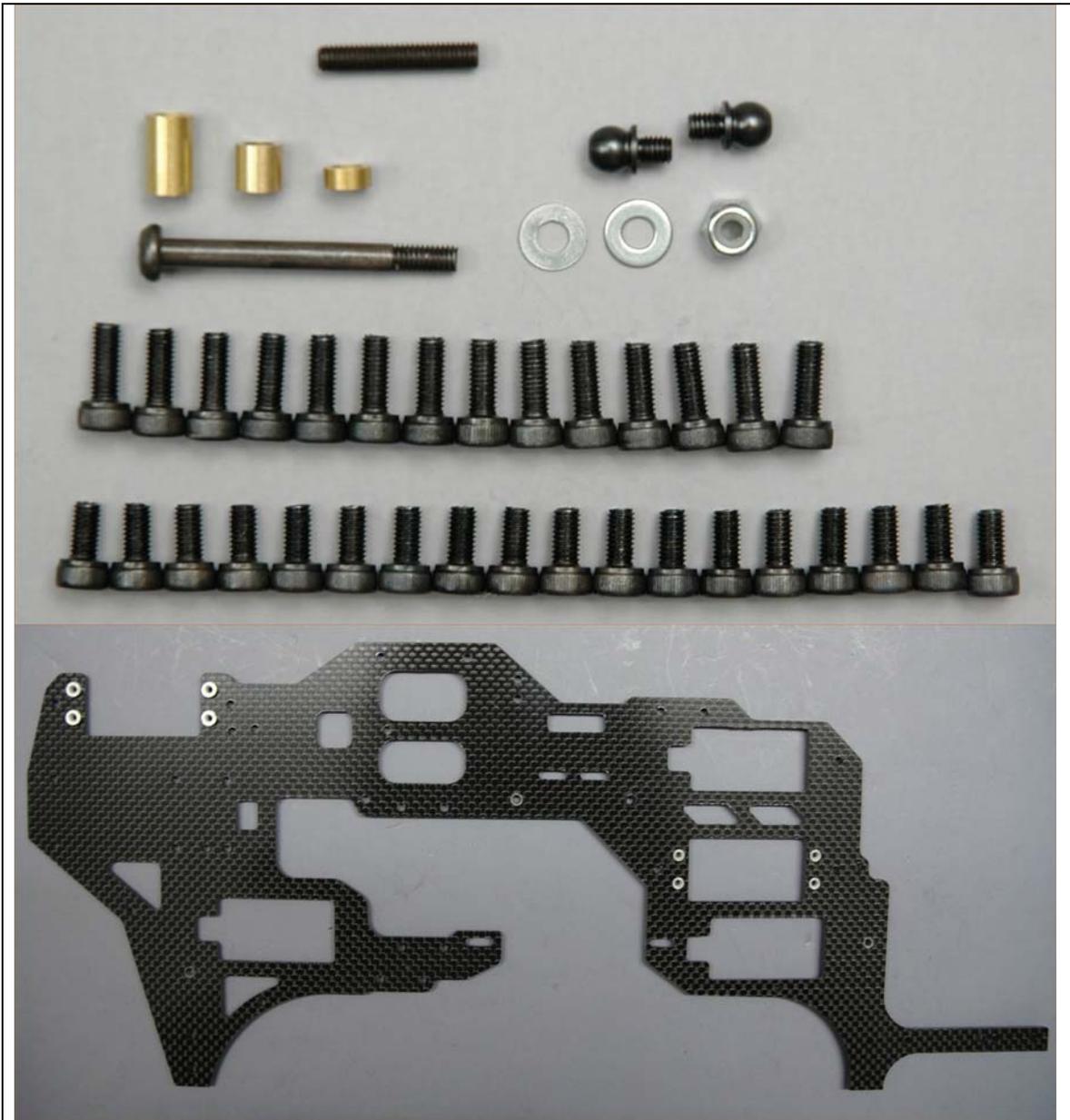
Finally, remove each of the #0060-1 bolts one at a time, apply a small amount of blue Loctite to the threads, reinstall into the frame channels and tighten firmly.

This completes the initial assembly of the left frame assembly. The first step of the next section will complete preparation for combining the frame halves.

Left and Right views of initial Left Frame Assembly



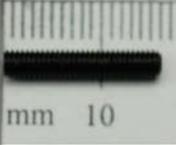
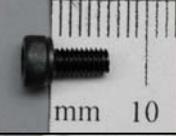
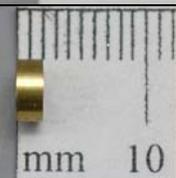
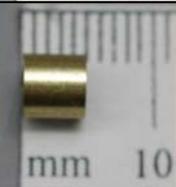
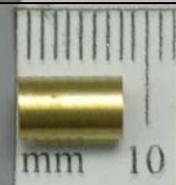
7. Right Top Frame Assembly



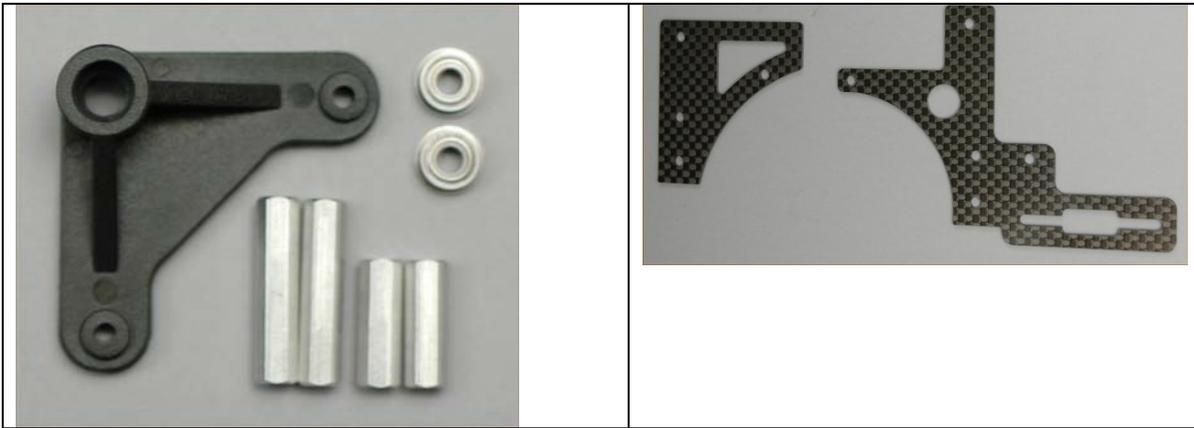
Bag 4A Complete

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Bag 4A contents

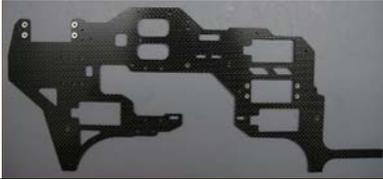
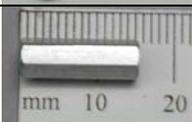
2	0009	M3 Washer Small	
1	0019	M3 Locknut	
1	0053-5	M3 x 16 Socket set screw	
18	0060-1	M3 x 6 Socket head bolt	
15	0061	M3 x 8 Socket head bolt	
1	0099	M3 x 30 Phillips head bolt	
2	0105	M3 x 4.5 Threaded ball	
1	0597-3	.187" Brass spacer	
1	122-28	.080" Brass spacer	
1	124-22	.305" Brass spacer	

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

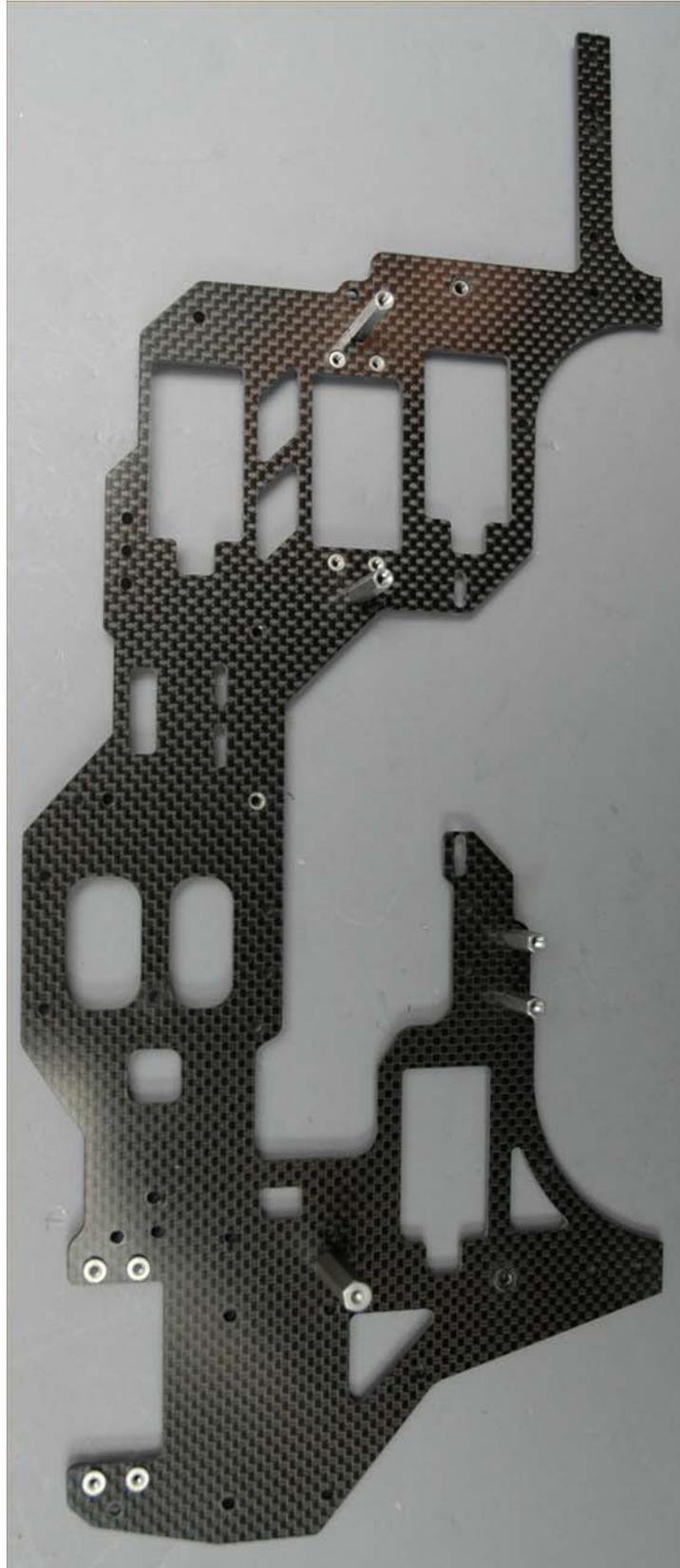


Bag 4B Complete

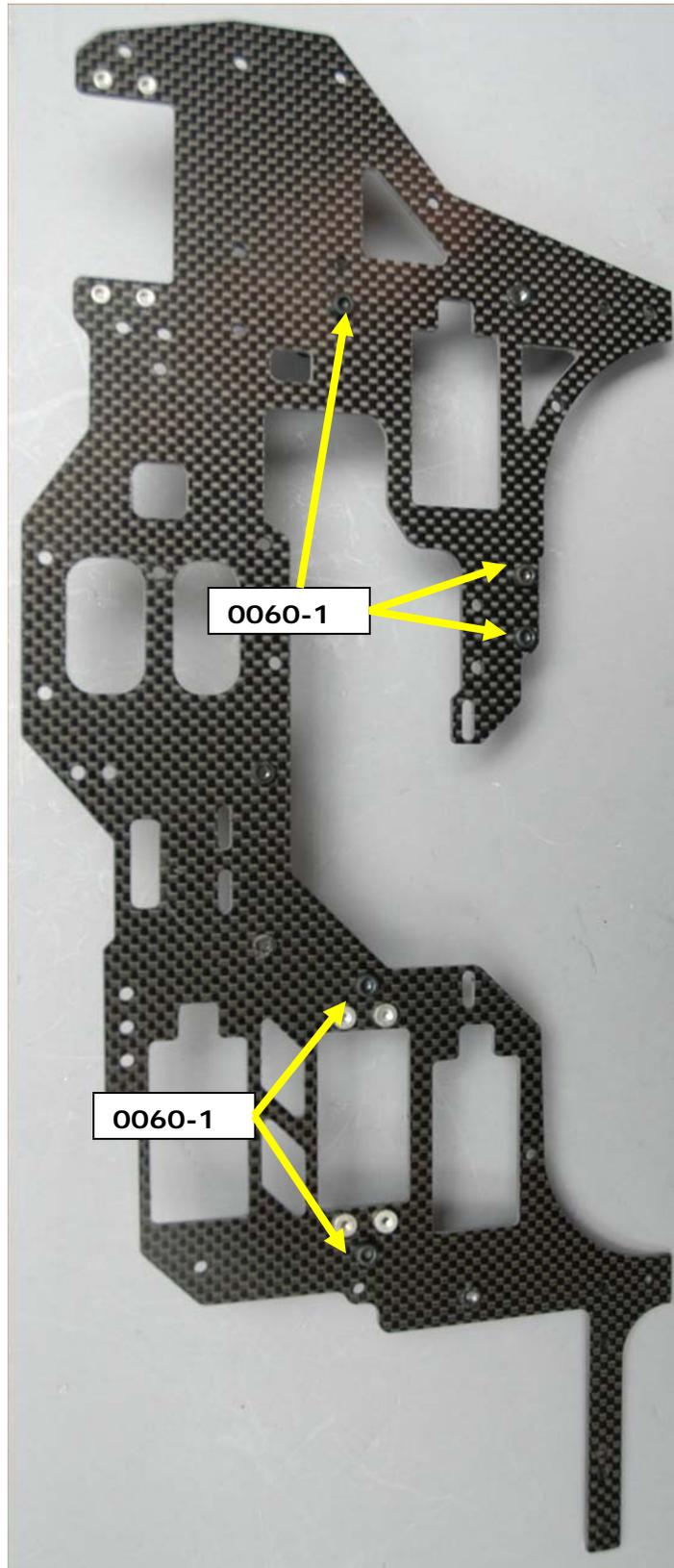
Bag 4B Contents

2	106-02	Flanged bearing	
1	126-57	Carbon right main frame	
1	126-61	Rear frame doubler plate	
1	126-62	Front frame doubler plate with switch mount	
1	126-65	Elevator bellcrank	
2	126-68	15mm hex spacer	
2	126-69	22mm hex spacer	

Assembled View of the Outside of the Right Frame Half



Assembled View of the Inside of the Right Frame Half



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select the #126-65 elevator bellcrank, and two #0105 M3 x 4.5 threaded balls. Using a 1.5 mm allen driver hold each ball and apply a small amount of slow Cyanoacrylate glue. Carefully thread the balls into the bellcrank as shown here. They will be on opposite sides of the bellcrank



Select the two #106-02 flanged bearings. Push one of the bearing into the bearing cavity on one side of the bellcrank. The flange seats against the outside of the bearing cavity. Insert the #124-22 .305" brass spacer (the longest of the three spacers) into the bellcrank opening. Now take the final bearing and push it into the remaining bearing cavity.



See the photo for the parts needed to install the elevator bellcrank onto the left frame and the installation sequence.

Slip one of the #0009 M3 washers over the #0099 M3 x 30 phillips head bolt. Now insert the bolt into the elevator bellcrank hole from the outside of the left frame. See the photo for location. Now flip the frame around and slip the #122-28 .080" brass spacer over the bolt. This is the smallest of the three spacers.

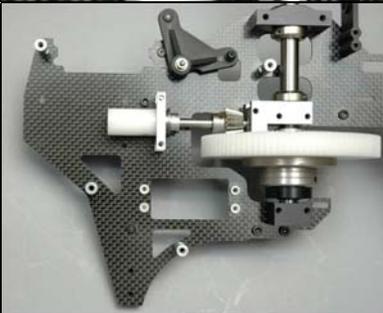


Now slip the completed bellcrank over the #0099 phillips head bolt installed earlier in the configuration shown in the photo.



Finally slip the .187" brass spacer over the protruding bolt and seat it up against the bellcrank bearing.

Set the left frame assembly to the side until the right frame is completed.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

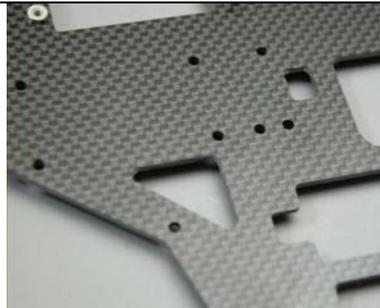


Select 2 each #126-69 22mm hex spacers and two #0060-1 M3 x 6mm socket head bolts.

See photo for exact location. Insert the 6mm socket head bolts through the correct holes from the inside of the frame. Apply a small amount of blue Loctite to the exposed threads and thread on the 22mm hex spacers on the outside of the right frame. Tighten firmly.

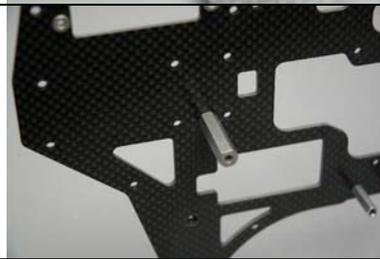
Select 2 each #126-68 15mm hex spacers and two #0060-1 M3 x 6mm socket head bolts.

See photo for exact location. Insert the 8mm socket head bolts through the correct holes from the inside of the frame. Apply a small amount of blue Loctite to the exposed threads and thread on the 15mm hex spacers on the outside of the right frame. Tighten firmly.

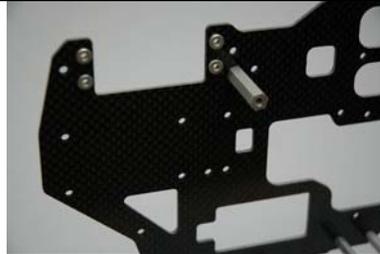


For this step you will need the remaining rear canopy mount from your existing model and one #0060-1 M3 x 6mm socket head bolt to attach it.

Just like on the left frame, there are two different mounting positions for the rear canopy mount on the right frame, one for Fury type canopies and one for Tempest type canopies and you can see in the photo there are two holes in the frame for this.

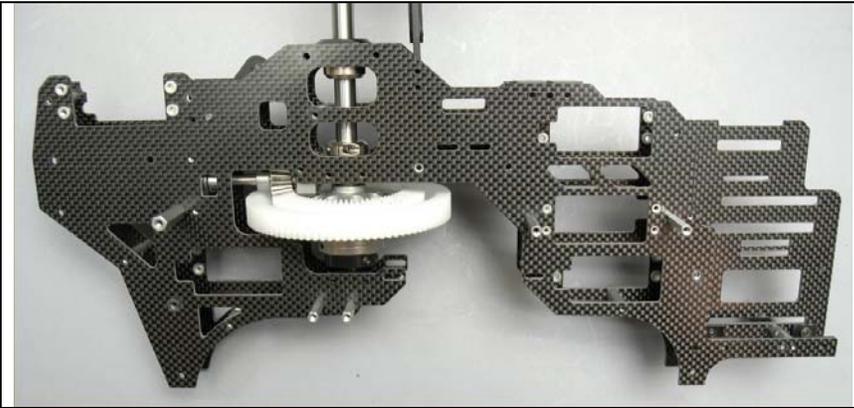


If you have a Fury canopy, use the one just forward of the tail boom mount holes (the lower hole) is for the Fury. Insert the socket head bolt from the inside of the frame, apply a small amount of blue Loctite to the threads and tighten the canopy mount onto the outside of the frame.



Use the previous procedure and the upper hole, just behind the rear bellcrank mount hole if you are mounting a Tempest canopy.

8. Left/Right Frame Assembly



Now place the previously completed left frame assembly on the work surface, with the outside of the frame facing down. Take the right frame assembly and lay on top of the left frame assembly with the outside of the right frame facing you. Use the rear bellcrank pivot bolt as the initial alignment key. See the photo for a guideline

Select one #0009 M3 washer and one #0019 M3 locknut

First place the washer over the protruding elevator pivot bolt and then thread the locknut onto the pivot. Tighten the nut only until it contacts the frame but do not fully tighten at this time.

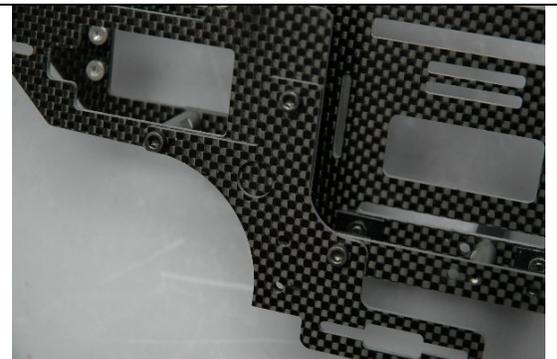


Select the #126-62 front doubler plate and lay it as shown on the outside of the right frame. Select two #0061 M3 x 8mm socket head bolts and one #0060-1 M3 x 6mm socket head bolt and insert as follows:

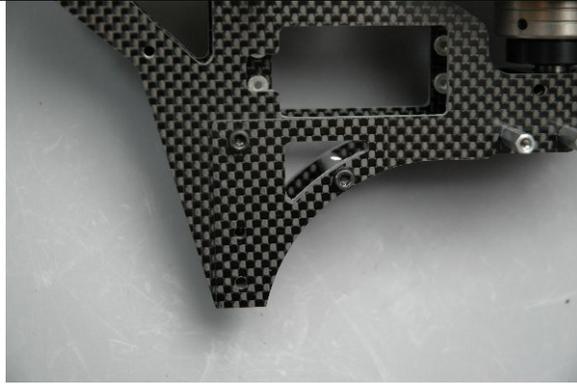
- One M3 x 8mm through the back hole of the doubler and threaded into the round frame spacer.
- One M3 x 6mm through the top hole of the doubler and threaded into the PEM nut in the frame
- One M3 x 8mm through front hole into the PEM num in the frame channel spacer

Snug all of the bolts but do not tighten fully

Note – if you should desire to install the switch on the left side of your model, switch sides with the #126-62 and #126-63 front doubler plates.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the #126-61 rear doubler plate and lay it as shown on the outside of the right frame. Select one #0061 M3 x 8mm socket head bolts and one #0060-1 M3 x 6mm socket head bolts and insert as follows:

- One M3 x 8mm through the front hole of the doubler and threaded into the round frame spacer.
- One M3 x 6mm through the top hole of the doubler and threaded into the PEM nut in the frame

Snug all of the bolts but do not tighten fully

Select one of the bellcrank studs from your original model and thread it into the center hole between the mainshaft bearings on the outside of the right frame as shown. Tighten lightly

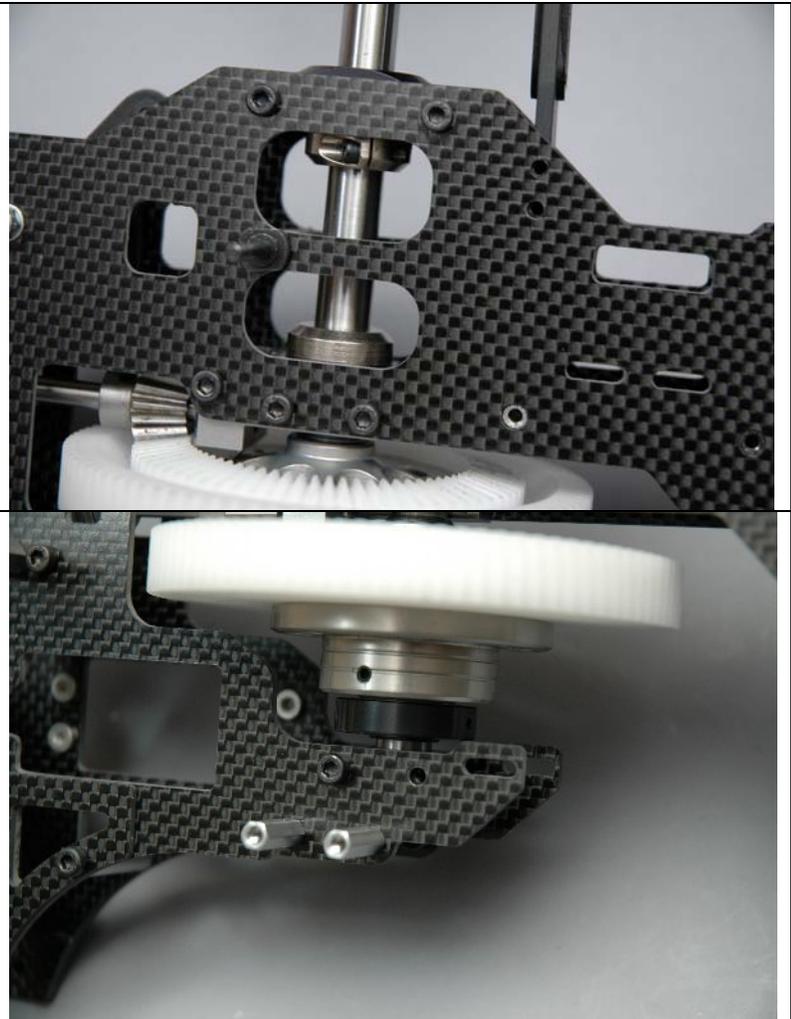
Select five each of the #0061 M3 x 8mm socket head bolts

Thread two into the upper mainshaft bearing block and tighten lightly.

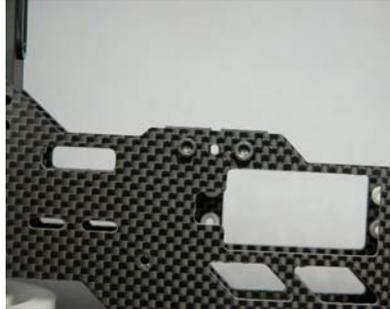
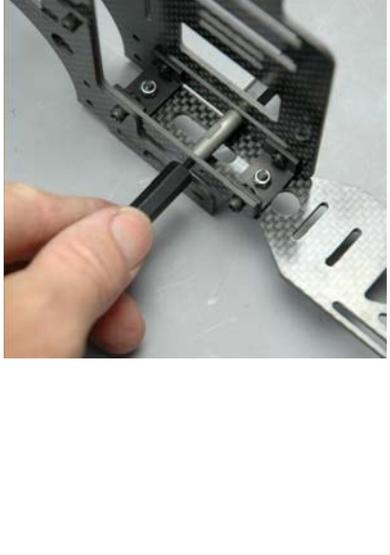
Thread two into the forward holes on the middle mainshaft bearing block and tighten lightly

Thread one into the rear hole on the bottom mainshaft bearing block and tighten lightly. The front bolt will be installed in a later step

Select one #0060-1 M3 x 6mm socket head bolt and thread it into the rear hole on the middle mainshaft bearing block. Tighten lightly.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

		<p>Select four #0060-1 M3 x 6mm socket head bolts.</p> <p>Thread two of them into the two upper frame holes into the PEM nuts on the gyro mount and tighten lightly. Thread the other two through the front upper frame holes into the round frame spacers and tighten lightly.</p>
		<p>Select two #0060-1 6mm bolts. Thread one of them into the top rear frame spacer behind the elevator servo mount and the second into the hole for the round frame spacer in the back part of the frame. See photos for position. Tighten lightly only.</p>
		<p>Select two #0061 M3 x 8mm socket head bolts and thread them into the t/r rear support bearing mount as shown. Tighten lightly only</p> <p>Select the remaining front canopy mount from your original kit and a #0053-5 M3 x 16 threaded stud. Apply red Loctite to the threads and using a 1.5mm allen driver thread the stud into the canopy mount until 1/2 of it remains exposed. Wipe away any excess Loctite and allow this to dry. Now thread the assembly into the hole for the round frame spacer in the lower front part of the frame. Tighten lightly only.</p> <p>Select one #0060-1 6mm bolt and thread into the front hole into the PEM nut in the frame channel spacer</p>

Now for each item threaded into the right frame, follow the following process:

- Remove a bolt/threaded item
- Apply a small amount of blue Loctite to the threads
- Insert the bolt/item and tighten firmly

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Finally, select the remaining two Phillips head mount screws for the anti-rotation guide from your original model.

Screw them into the anti-rotation guide

Note – if you have a CNC anti-rotation guide, you will install this using the M3 socket head screws removed from your original model

This completes the process of attaching the left and right frame halves.



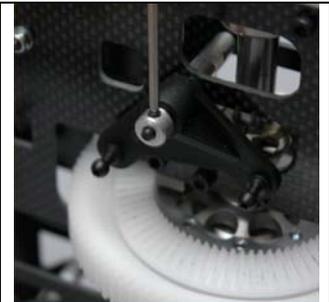
Select the two side bellcranks from your original model and remove the threaded balls. Select the four #0107 from Bag 2A. Apply a small amount of slow Cyanoacrylate glue to the threads on the ball and use a 1.5mm allen driver to insert the two threaded balls into each of the two bellcranks as shown in the photo.



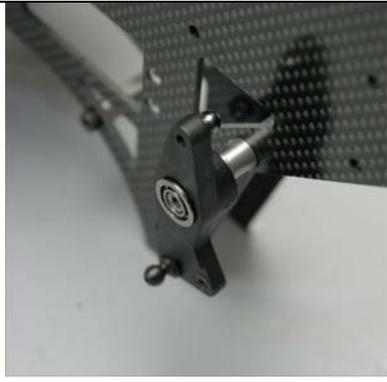
Carefully tighten so that the threaded balls seat onto the bellcrank. Do not overtighten.

Take each bellcrank previously assembled and slide each over one of the bellcrank studs previously assembled onto the left and right frame halves.

Select the retaining collars removed from your original model and slide them over the bellcrank studs. Use blue Loctite on the threads of the set screws. Tighten firmly but do not overtighten



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the t/r control bellcrank removed from your original model.

Place the bellcrank on the t/r bellcrank stud previously mounted on the outside of the left frame

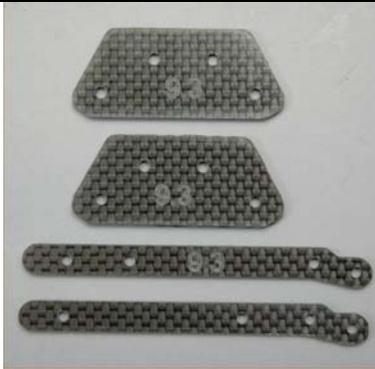


Using the M3 x 6mm bolt and washer from your original model, apply a small amount of blue Loctite to the bolt threads and insert the bolt into the bellcrank stud. Tighten firmly.

For the following steps you will need the complete clutch assembly from your original model.

You will also need the contents of bag 3, which contains the ratio plates for the particular gear ratio you have selected. There are two sets of plates, an upper and lower. The plates are labeled as left and right sides.

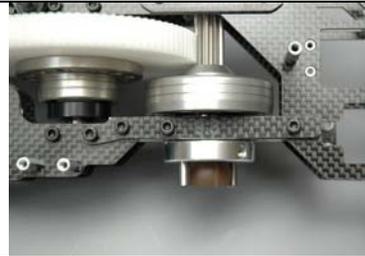
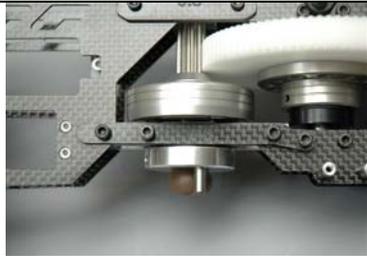
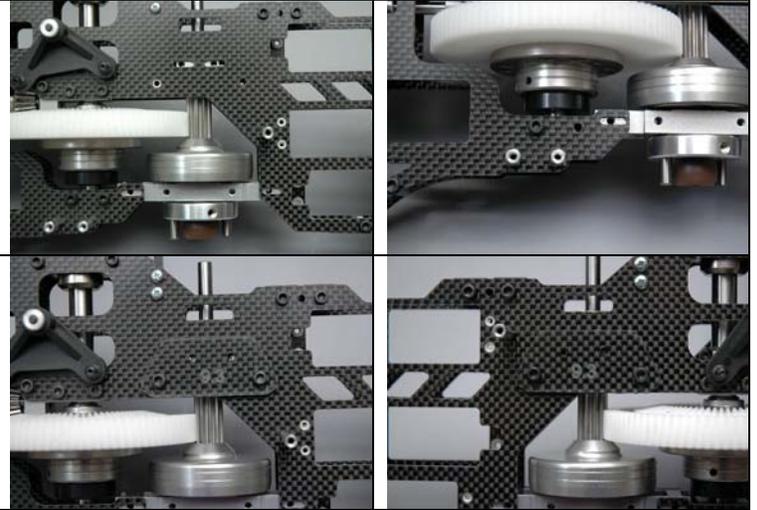
The bolts for this part of the assembly are in bags 2A and 4A



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Insert the complete clutch/driver assembly into the assembled upper main frames as shown in the photo. Align the holes on the upper and lower bearing blocks as shown.

Select the two upper clutch plates and four #0060-1 M3 x 6mm socket head bolts. Position the plates on the left and right frames as shown and using a small amount of blue Loctite on the threads, thread the bolts into the PEM mounting nuts in the frame half. Tighten all four bolts firmly. Make sure you install the marked left and right plates on the correct side.



Select six #0061 M3 x 8mm socket head bolts and install as follows:

Select one of the clutch lower plates and install over the lower clutch bearing as shown. Install #0061 bolts in the back two holes and the front hole as shown. Do not tighten. Now install a #0060-1 6mm bolt in the remaining hole but do not tighten. Repeat the procedure on the other side. Make sure you install the marked left and right plates on the correct side.

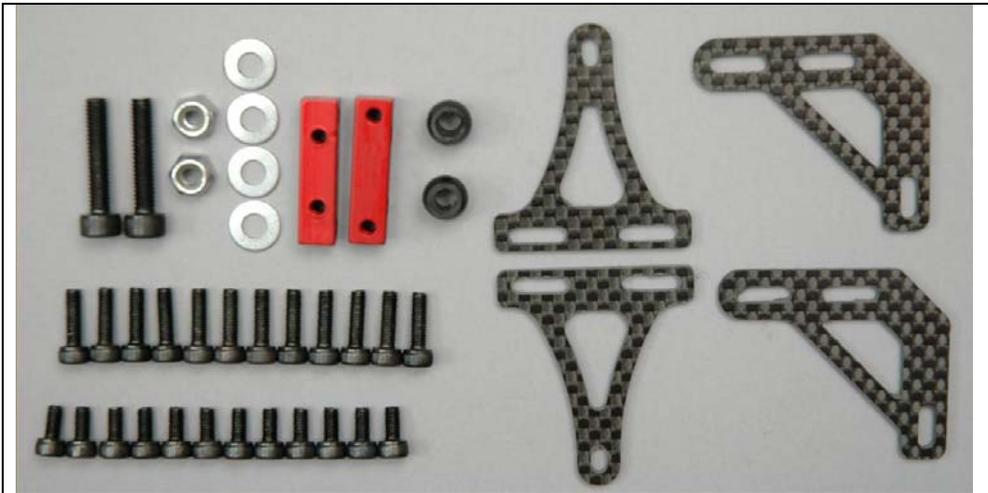
Insert two #0061 bolts into the upper clutch block on each side but do not tighten.

Now tighten all four bolts on the upper bearing block then eight bolts on the lower bearing block. Check the main gear to ensure that it rotates smoothly. If not, loosen all of the bearing block bolts and insert a small piece of paper between the gears and repeat the procedure.

When the gear moves smoothly, remove each of the bearing block bolts individually, apply a small amount of blue Loctite, reinsert it and tighten firmly.

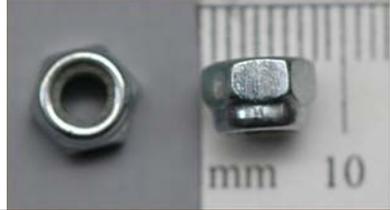
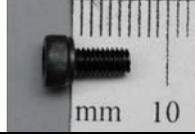
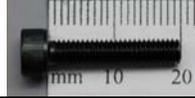


Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

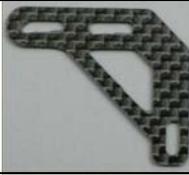


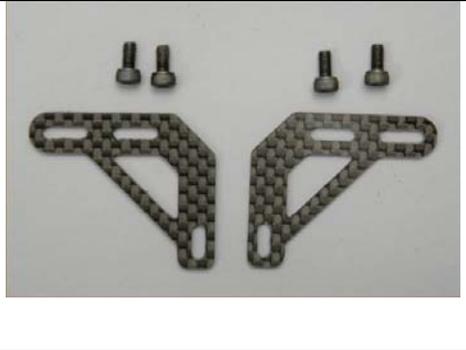
Bag 5A Complete

Bag 5A Contents

4	0004	M4 Washers	
2	0021	M4 Locknuts	
12	0060-1	M3 x 6 Socket head bolts	
12	0063	M3 x 10 Socket head bolts	
2	0087	M4 x 20 Socket head bolts	
2	0586-16	Corner blocks (red or titanium in color)	

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

2	0872-A	Boom support pivot ball	
2	126-72	Upper shroud brackets	
2	126-73	Lower shroud brackets	

		<p>Select the two #126-72 upper shroud brackets and four #0060-1 M3 x 6mm socket head bolts.</p> <p>They are identical and will be installed on both the left and right side of the frame.</p>
		<p>Install the brackets as shown on both the left and right sides onto the hex spacers installed in a previous step. Tighten the bolts just enough to align the brackets; however they should still slide freely forwards and backwards. Do not apply Loctite as this will be finalized in a later step.</p> <p>See photo for proper orientation.</p>

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

This step will install the fan shroud mount brackets onto the lower frame assembly. Select the assembled lower frame and place it in your work area.

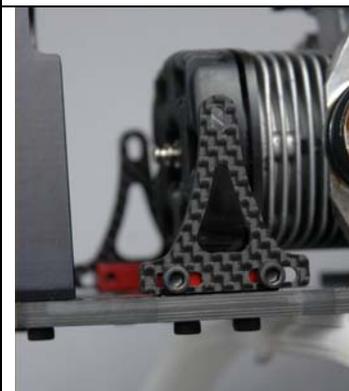
Select two #0586-16 corner blocks, two #126-73 lower fan shroud mounts, six #0060-1 M3 x 6mm socket head bolts and four #0063 M3 x 10mm socket head bolts. The lower mounts will be assembled as shown in the photo.

Insert two of the 10mm bolts through the right set of slotted holes on the bottom plate from the bottom. Tighten so that the corner block is against the bottom plate, but can move freely side to side in the slots.

Repeat this procedure on the left side of the bottom plate.

Now attach each of the lower fan shroud mounts to the corner blocks using 6mm bolts. Tighten only enough that the shroud mounts are flat against the corner block but can move fore and aft freely.

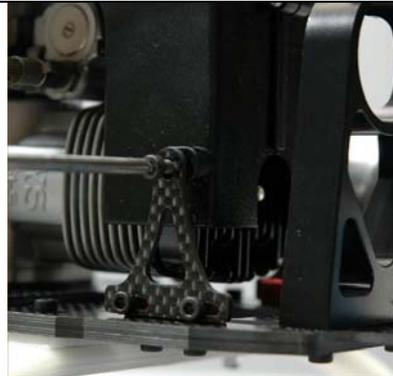
These bolts will be tightened in a later step



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select the fan shroud that you removed from the original model and place it on the assembled engine assembly as shown.

Select two #0060-1 M3 x 6mm socket head bolts and thread them into both the left and right side of the lower fan shroud and fan shroud mounts as shown. Tighten lightly. Slide the shroud side to side until the glow plug can be seen centered in the shroud cutout.



If you are not using the #0546-16 hard fan dampers, go ahead and swap them now. The old dampers are easily removed.

At this point you should be sure they will fit into the fan based on the Fan damper paragraph in the Preparation section at the front of this document



It is now time to mate the upper and lower frames. This will include pushing the clutch driver alignment ball and pins into the engine fan and dampers.

Although not necessary, you can make this easier by putting a small amount of talcum powder in the damper holes to make the pins slide easier. Do not use any petroleum lubricants as they will damage the damper

9. Upper/Lower Frame Assembly



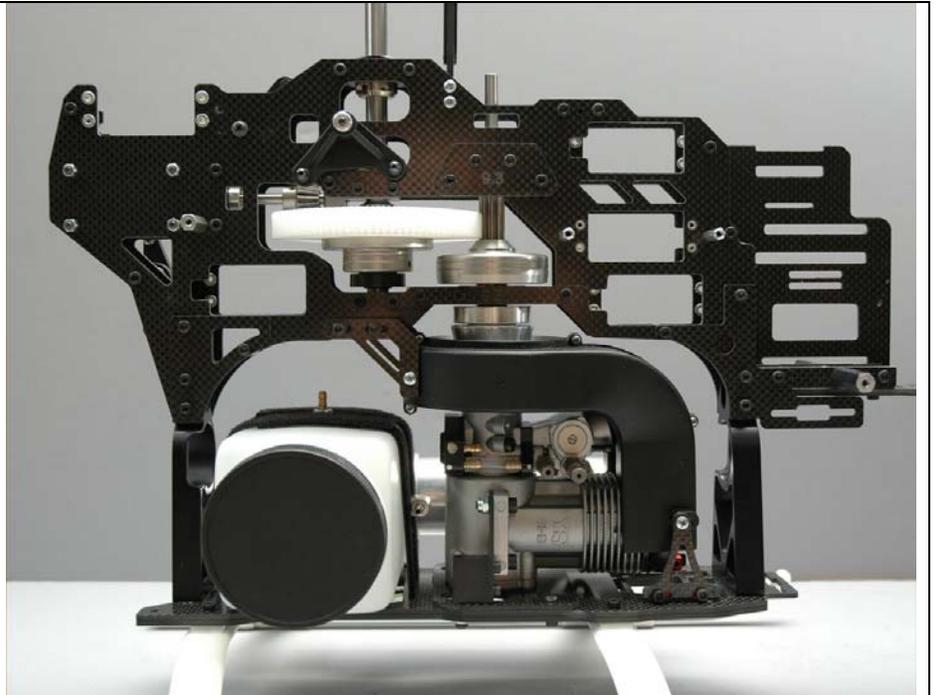
Position the upper and lower frames as shown. The bottom legs of the upper frame will slip over the tops of the frame support ladders previously installed on the lower plate.

The clutch driver ball and pins should be positioned as shown on the engine fan and dampers. The pin positions should be aligned with the frames (front and back)

Push downward on the front and back of the upper frames while gently rocking the upper frame forwards and backwards. This will seat the clutch pins into the dampers.

When the holes on the lower frame legs are aligned with the holes on the lower frame support ladders, the frame is seated.

There should be a small gap between the engine fan and the clutch driver. If not, you may have used the incorrect washer under the lower fan collet. This will need to be corrected prior to proceeding.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select eight #0063 M3 x 10 socket head bolts.

Start by inserting the lower frame mating bolts in each of the bottom four holes in the frame legs/ladders. Start at the right front frame, and then install the right rear, then the left rear, then the left front. Tighten the bolts lightly

Repeat this procedure for the upper frame mating bolts.

Now for each of these eight bolts:

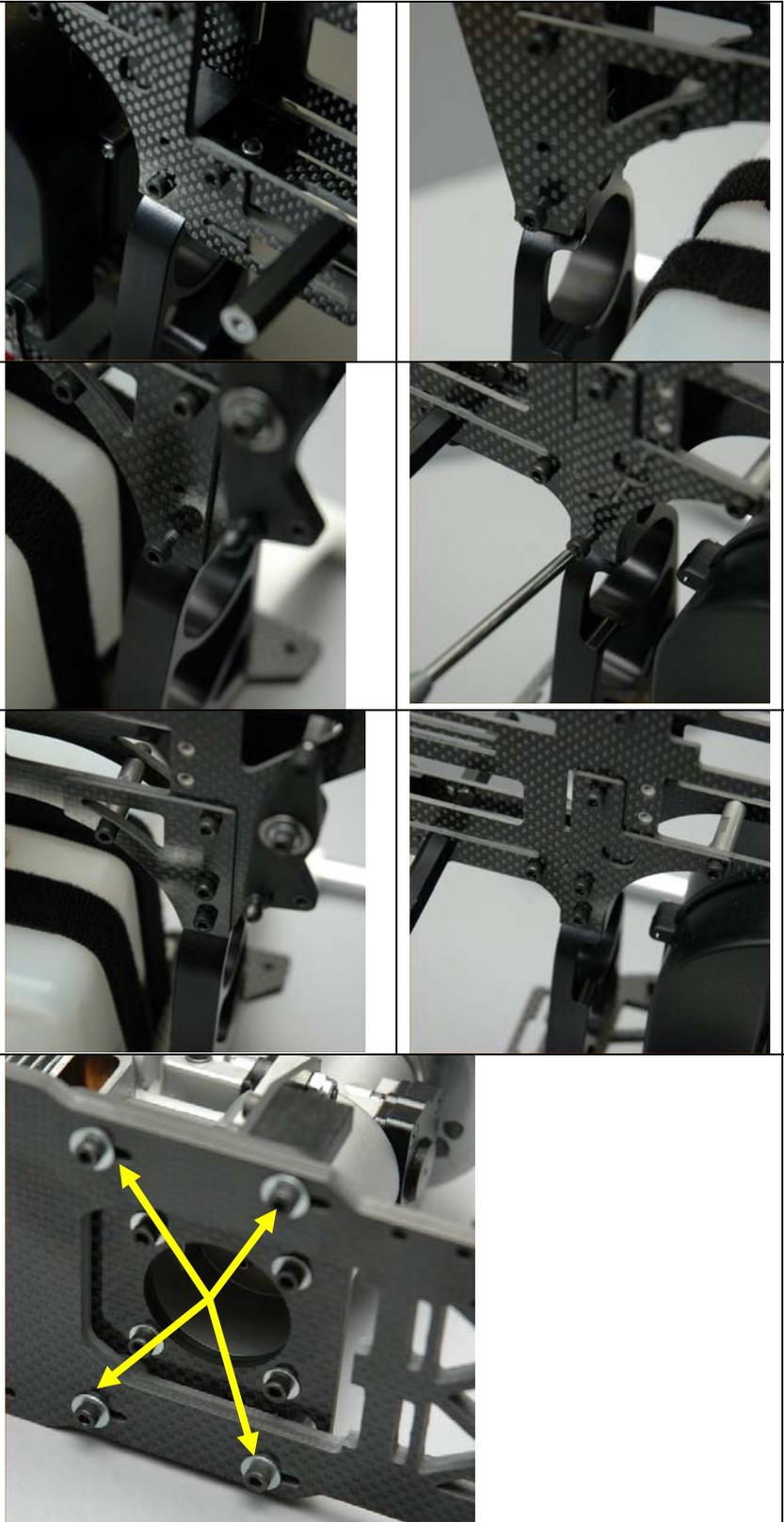
- Remove each bolt individually
- Apply a small amount of blue Loctite
- Reinsert the bolt and tighten fully

At this point, check the engine plate that mounts against the bottom main plate. The engine plate should be flat with no visible gaps anywhere. If there are gaps at the front or back of the plate, you will need to reposition the engine plate slightly. If there is gap on either side of the plate or if you cannot remove front/back gap by repositioning the motor, you will need to loosen the four #0060-1 bolts that attach the motor side plates to the motor side plate mount blocks and reposition the engine slightly. Once repositioned, make sure you reapply loctite and tighten these bolts.

When the bottom plate is properly aligned, first lightly tighten the , two #0067 M3 x 14 socket head screws and two #0063 M3 x 10 socket head screw that hold the engine bottom plate to the frame. Then for each of these four bolts:

- Remove each bolt individually
- Apply a small amount of blue Loctite
- Reinsert the bolt and tighten fully

If you need to later split the frames, as long as these four bolts remain in place and tight, engine alignment will be preserved



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select two #0060-1 M3 x 6mm bolts and insert them into the bottom tab on the upper frame shroud mounts. Tighten lightly.

You can now position the fan shroud so that it is centered on the engine and is level when viewed from the side. Make sure that the fan blades do not contact any part of the shroud and that lower part of the shroud is centered on the glow plug and cylinder.

Tighten the four bolts that hold the two upper fan shroud mounts to the upper frame

Tighten the four bolts that hold the lower fan shroud mounts to the lower corner blocks

Tighten the four bolts that hold the lower corner blocks to the bottom plate

Now for each of these twelve bolts:

- Remove each bolt individually
- Apply a small amount of blue Loctite
- Reinsert the bolt and tighten fully

Finally tighten the four bolts that attach the fan shroud to the fan shroud mounts. Be careful not to over tighten these.



Select the complete swashplate from your original model

Slip it over the main shaft as shown.

Use your fingers to slight deflect the anti-rotation guide so that the anti-rotation pin/bearing seen on the front of the swashplate in the photo can drop into the slot. The guide will snap back into position and capture the swashplate anti-rotation pin.

Note – if you are using a metal anti-rotation guide, will not be able to flex it. Instead remove the front M3 socket head bolt that retains the anti-rotation bearing to swashplate and reinstall through the guide. Don't forget to apply loctite

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select the tail boom mounts and bolts removed from your original helicopter.

Install these into the rear of the upper frame as shown. Make sure the lip in the edge of the boom mount is towards the front of the helicopter

Insert the socket head bolts from the outside of the left frame and thread on the locknuts on the outside of the right frame

Do not tighten at this time



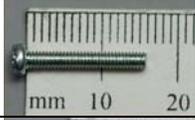
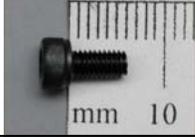
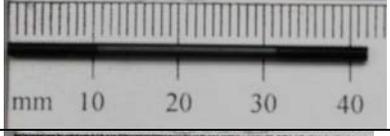
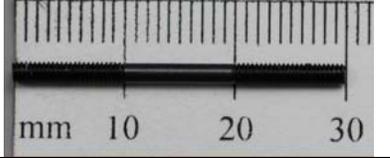
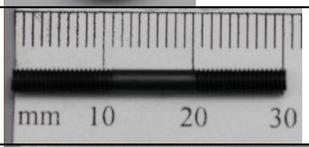
10. Control System Installation



Bag 6A Complete

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Bag 6A Contents

4	0039-2	M2.5 x 16 Phillips head bolt	
6	0060-1	M3 x 6 Socket head bolt	
6	0133	Black ball link	
6	0133-1	Grey ball link	
2	0227	M2 x 42 Threaded rod	
1	0337	M2 x 30 Threaded rod	
4	0390	Wire retainer	
2	0575-3	Servo blocks	
1	115-30	Velcro – 30" x 5/8"	
1	121-4	M3 x 30 Threaded rod	
2	122-94	M3 x 97 Threaded rod	

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



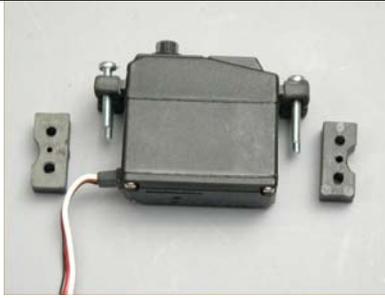
Insert the throttle servo into the frame position shown with the servo splined shaft towards the back of the model. Using the throttle servo mount bolts from your original model, apply a small amount of Loctite to the threads and tighten the servo into place. Follow your servo manufacturers instructions as to how tight these bolts should be

Repeat the procedure for the aileron, pitch and rudder servos, positioning them in the frames as shown. Use the servo mount bolts from your original model. Make sure you use blue Loctite on these bolts to prevent the servos from becoming loose.

Route throttle, aileron, and pitch servo wires through the frames toward the front radio area. It is suggested that you use a piece of Velcro to wrap these wires together to prevent them from rubbing on the frames or other components.

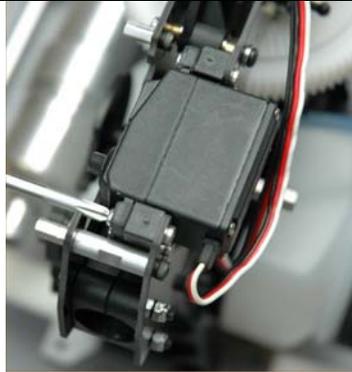
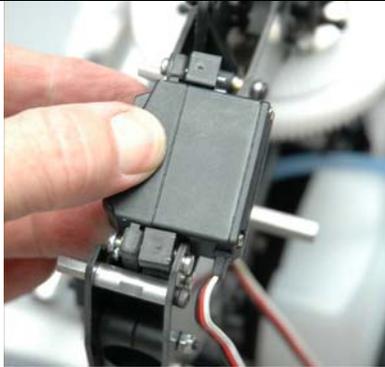


Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



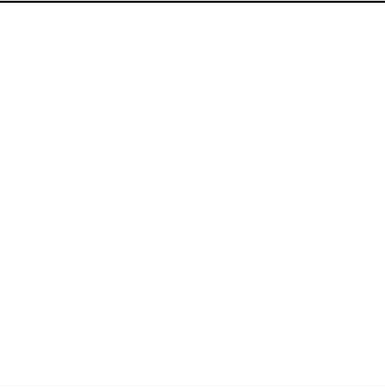
Select the elevator servo, four #0039-2 M2.5 x 16 Phillips head bolts, and two #575-3 servo blocks.

These will be assembled as shown, with the cutouts in the servo blocks facing away from the servo.

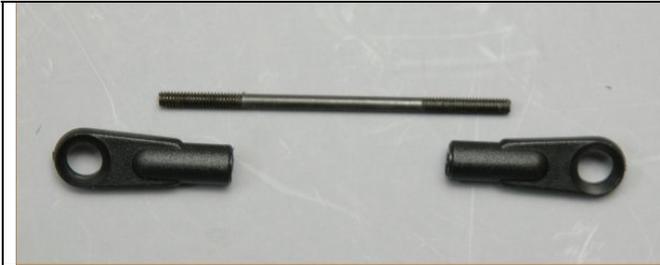


Mount the elevator servo into the rear servo cutout and thread the bolts into the PEM nuts installed into the right frame. The servo splined shaft should be towards the rear of the model as shown in the photos.

Apply blue Loctite to the servo bolts prior to assembly and tighten according to servo manufacturer's instructions.



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the #0227 M2 x 42mm threaded rod and two #0133 black ball links.



Thread the links onto both ends of the rods and tighten until the starting point for the gap between the ball links, measured at the base of the two links is 25.2mm.

Select the two front swashplate pushrods from your original model.

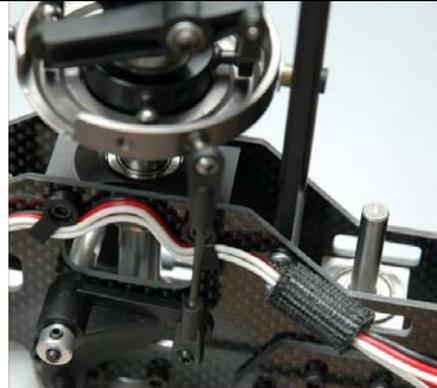
Make sure the length of the rod matches the rod just assembled. There should be 25mm between the base of the ball links

All of the control rods must be the same length.

Install each of the three control rods between the swashplate outer control balls and the control bellcranks on the upper frame.

There should be one control rod for the elevator, aileron and pitch bellcranks.

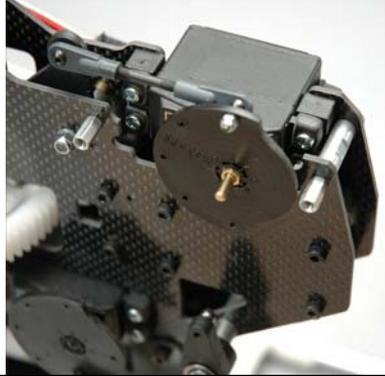
The ball links will snap onto the balls.



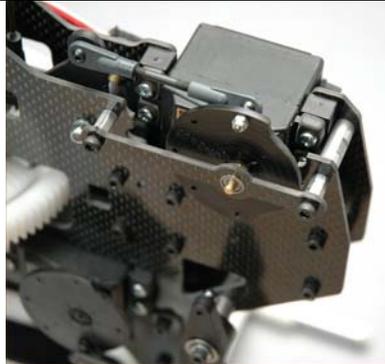
Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Assemble the elevator control rod by selecting the #121-4 M3 x 30 threaded rod and two #0133-1 grey ball links. Assemble the ball links as shown and tighten both. The typical gap between the base of the two links is 17 mm however depending on your servo you may have to slightly adjust it so that the elevator bellcrank is at 90 degrees and the elevator servo wheel is perfectly vertical.



Install the elevator servo wheel from your original model on the elevator servo as shown with the servo cutout towards the rear. Install the threaded servo stud from your original model (use Loctite if your servo has a metal output shaft). The servo wheel must be perpendicular to the servo at the center of travel and the ball on the servo wheel/arm must be on the inside.



Snap the control rod onto the ball on the servo wheel and onto the elevator bellcrank

Select one of the servo bridges from your original model and slip it over the servo stud as shown

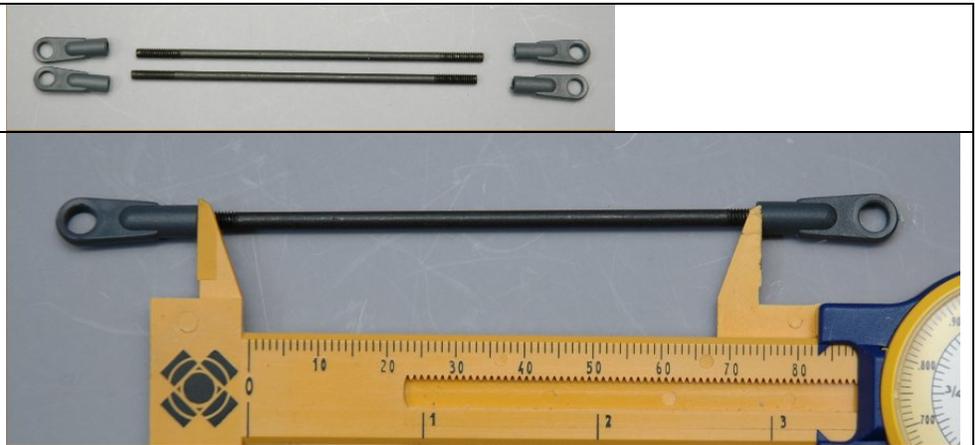
Select two #0060-1 M3 x 6mm socket head bolts, apply a small amount of blue Loctite on the threads and insert the bolts through the bridge into the servo bridge spacers. Tighten firmly.

This servo will be connected to the elevator channel on your receiver

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Select the two #122-94 M3 x 97mm threaded rods and four #0133-1 grey ball links and thread them onto the rods as shown.

The baseline length of the rod will result in there being a 83mm gap between the two ball link bases as measured from the bottom as shown however depending on your servo you may have to slightly adjust it so that the side bellcranks are at the 90 degree position when the balls on the aileron and pitch servo wheels are perfectly vertical (see photos)



Install the pitch servo wheel from your original model on the elevator servo as shown with the servo cutout towards the rear. Install the threaded servo studs from your original model (use Loctite if your servo has a metal output shaft). The servo wheel must be perpendicular to the servo at the center of travel and the ball on the servo wheel/arm must be on the inside.

Snap the control rod onto the ball on the servo wheel and onto the control bellcrank on the right frame.

Select one of the servo bridges from your original model and slip it over the servo stud as shown

Select two #0060-1 M3 x 6mm socket head bolts, apply a small amount of blue Loctite on the threads and insert the bolts through the bridge into the servo bridge spacers. Tighten firmly.

This servo will be connected to the pitch channel on your receiver

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

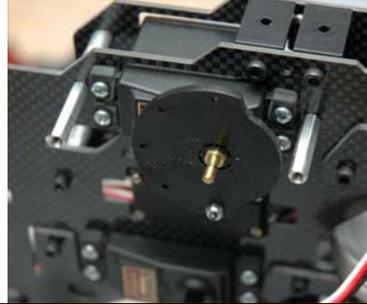
Install the aileron servo wheel from your original model on the elevator servo as shown with the servo cutout towards the rear. Install the threaded servo stud from your original model (use Loctite if your servo has a metal output shaft). The servo wheel must be perpendicular to the servo at the center of travel and the ball on the servo wheel/arm must be on the inside.

Snap the control rod onto the ball on the servo wheel and onto the control bellcrank on the left side of the frame.

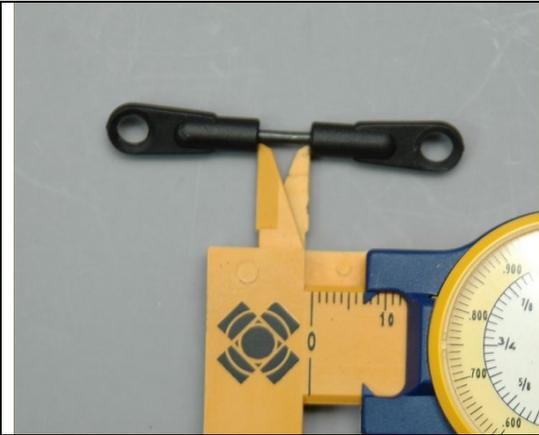
Select one of the servo bridges from your original model and slip it over the servo stud as shown

Select two #0060-1 M3 x 6mm socket head bolts, apply a small amount of blue Loctite on the threads and insert the bolts through the bridge into the servo bridge spacers. Tighten firmly.

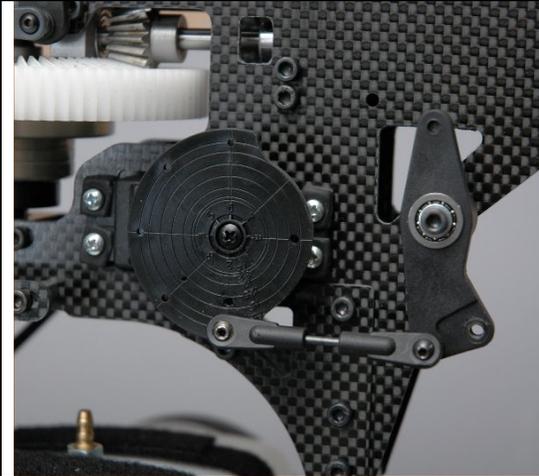
This servo will be connected to the aileron channel on your receiver



Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus



Select the #0337 M2 x 30mm threaded rod and two #0133 black ball links and install the ball links as shown. The baseline length of the rod will result in there being a 7mm gap between the two ball link bases as measured from the bottom as shown however depending on your servo you may have to slightly adjust it so that when installed the rudder bellcrank will be perfectly vertical when the rudder servo ball is perfectly vertical as shown.



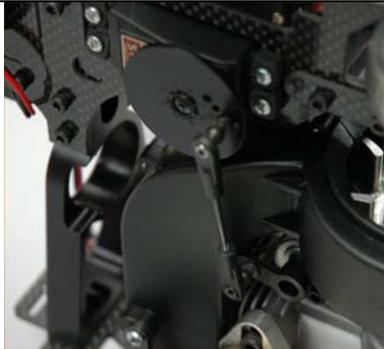
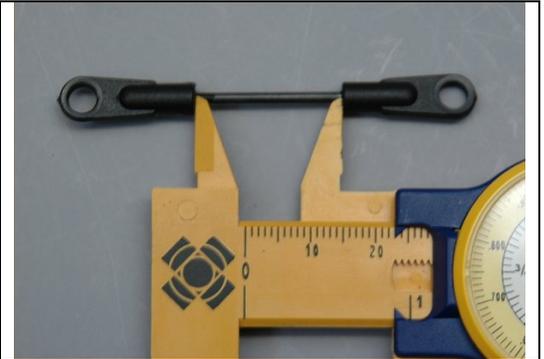
Install the servo wheel from the gyro servo on your model and make sure it is properly aligned with your rudder position at center (use Loctite if your servo has a metal output shaft). The threaded ball should be on the outside of the servo wheel.

Attach the control rod to the threaded balls on the servo wheel and the t/r bellcrank as shown.

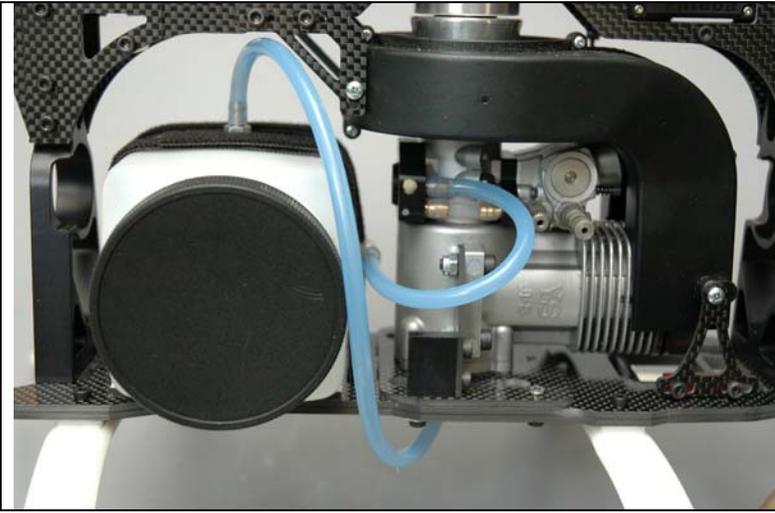
Select the remaining #0227 threaded rod and two #0133 black ball links and thread them onto the rod as shown.

The baseline length of the rod will result in there being a 23mm gap between the two ball link bases as measured from the bottom as shown however depending on your servo you may have to slightly adjust it so that you get full throttle deflection.

Mount the throttle servo wheel from your original model as shown (use Loctite if your servo has a metal output shaft). Snap this control rod onto the threaded balls on the servo wheel and on the throttle arm on the engine carburetor.



11. Final Assembly



Plumb the fuel system as you normally would. The outlet on the top of the tank should be used as either the pressure outlet from the muffler, the pressure outlet from the engine (if it uses crankcase pressure) or the fuel overflow from the carburetor if you are using a pumped system.

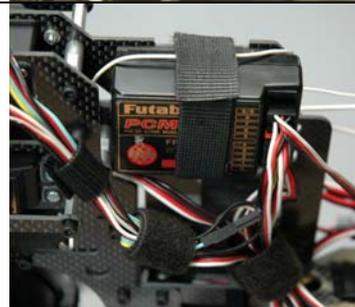
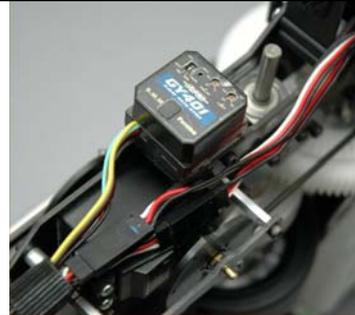
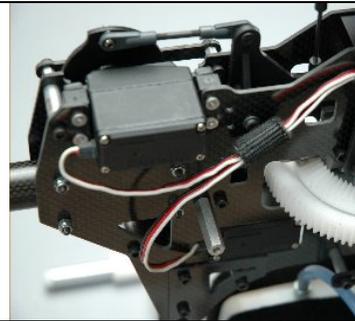
Carefully route the wires from the elevator and rudder servos. We recommend routing them along the right side of the frame. Use the four #0390 wire retainers to ensure that the wires can't get into the main gear or tail rotor drive

Mount your gyro sensor on top of the front of the frame, on top of the two frame channel spacers as shown. Use either double sided tape or the method recommended by your gyro manufacturer

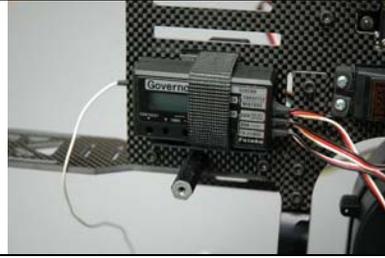
Mount your receiver on the radio section of the frame. Our research has shown that the best position for the receiver is mounted at the top of the inside of the left frame facing the right side of the model. Use one layer of double stick tape on the bottom of the receiver. Wrap the receiver with Velcro and secure to the frame. There are numerous slots and cutouts on the frame to support most of the available receiver sizes and shapes.

Carefully wrap any remaining wires. We recommend wrapping them with Velcro to prevent damaging the wires. Be careful that none of the wires rest against any frame component or anything else that could eventually rub the insulation off of the wire.

It is critical that you allow a small amount of play in the wires that plug into the receiver. If for any reason any of the components with Velcro move during violent maneuvers, it could unplug one of the receivers if you do not do this.

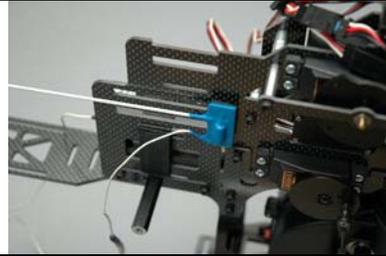


Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

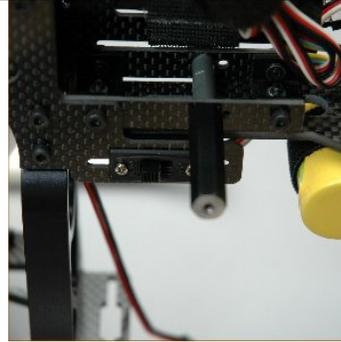


There is adequate room on the radio section of the frame to attach other accessories such as gyro amp, governor or regulator. Use double sided tape on the back of the device to stick to the frame and wrap it with Velcro tape routed through the frame openings to secure it.

If you are using a whip antenna, install it as shown on the outside of the left frame using double sided tape. If you are using a full length antenna, install it as you normally would. Be careful to ensure that the antenna wire cannot rub on any sharp frame corners or other components.



Install the battery on the top of the battery tray using the included Velcro (an optional position is on the bottom of the plate) as shown. Cut the material to length as necessary to wrap the battery both front to back and around the middle.



Install your radio switch into the switch mount in the front right frame doubler. It is recommended that you use Loctite on the screws to prevent them from loosening.



Select the washout assembly previously removed from your original model and slip it over the mainshaft.

Snap the washout ball links onto two opposing balls on the inner race of the swashplate

Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

Install the rotor head from your original model using the normal installation procedure

Connect the washout control rods to the previously installed washout mixers and the bell control rods to the remaining balls on the inner race of the swashplate



Select the two 0872-A boom support balls with 4mm holes.

Select the boom supports from your existing model.



Insert a short M3 socket head bolt into the ball on one end of the support.

Place this end over a 10mm socket or other similar shaped object.

Tap the end of the boom support with a plastic mallet as shown. The boom support ball will pop out.

Now take the 4mm boom support ball, place as shown and tap with the plastic mallet. It will pop into the boom support end.

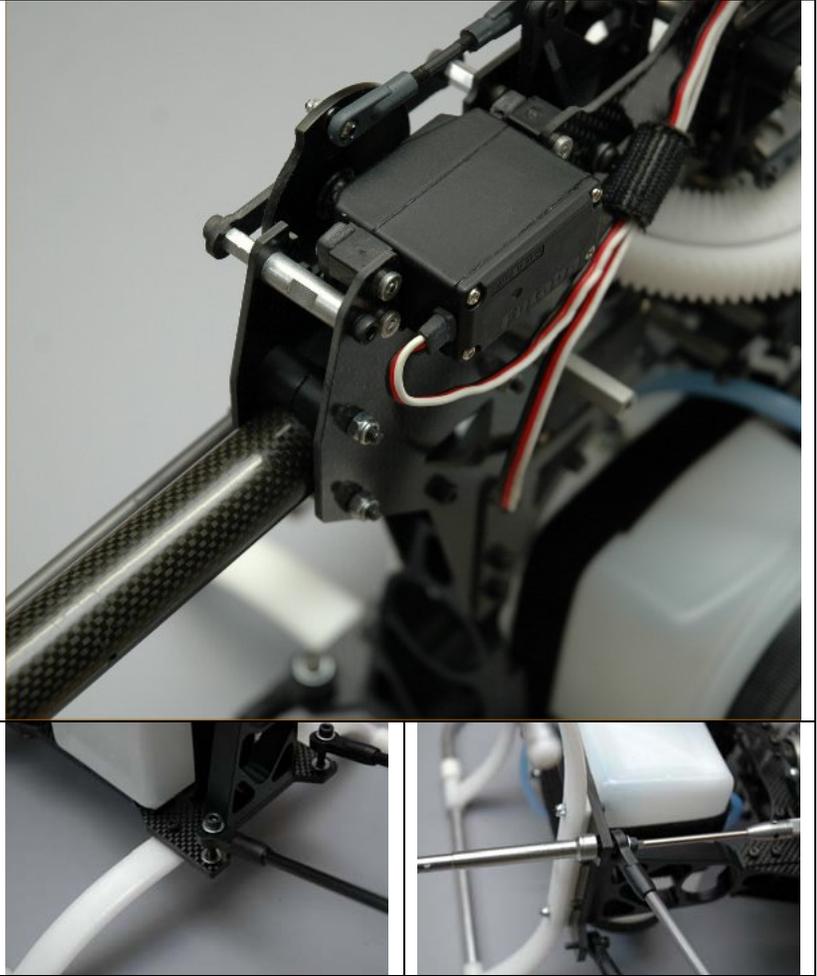


Instructions for Conversion Kits #1026-9 thru #1026-17 - XCell Stratus

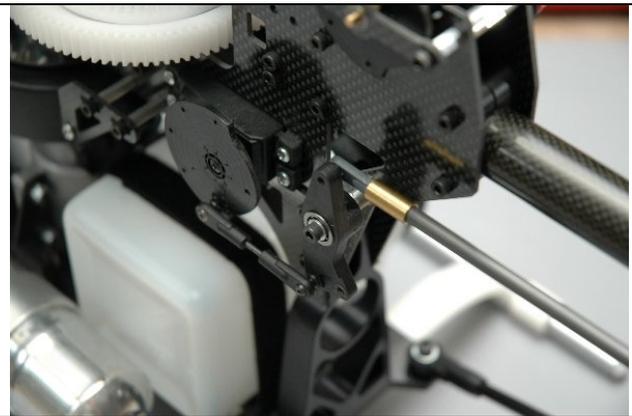
Install your complete tail boom by pushing it into the two boom mount halves. Push it in until it seats against the boom amount lips at the front of the boom mounts. You may have to slightly turn the main gear to seat the constant drive joint into the front tail rotor drive. Tighten the four tail boom bolts after checking the vertical and horizontal alignment of the tail boom.

Select two #0087 M4 x 20 socket head bolts, four #0004 M4 washers and four #0021 M4 locknuts and attach the lower boom supports to the back of the bottom frame plate. Slide one washer over each bolt before pushing the bolt down through the boom support end. Then add another washer between the boom support end and the bottom plate. Push the bolt through the bottom plate and thread a locknut on the protruding threaded bolt.

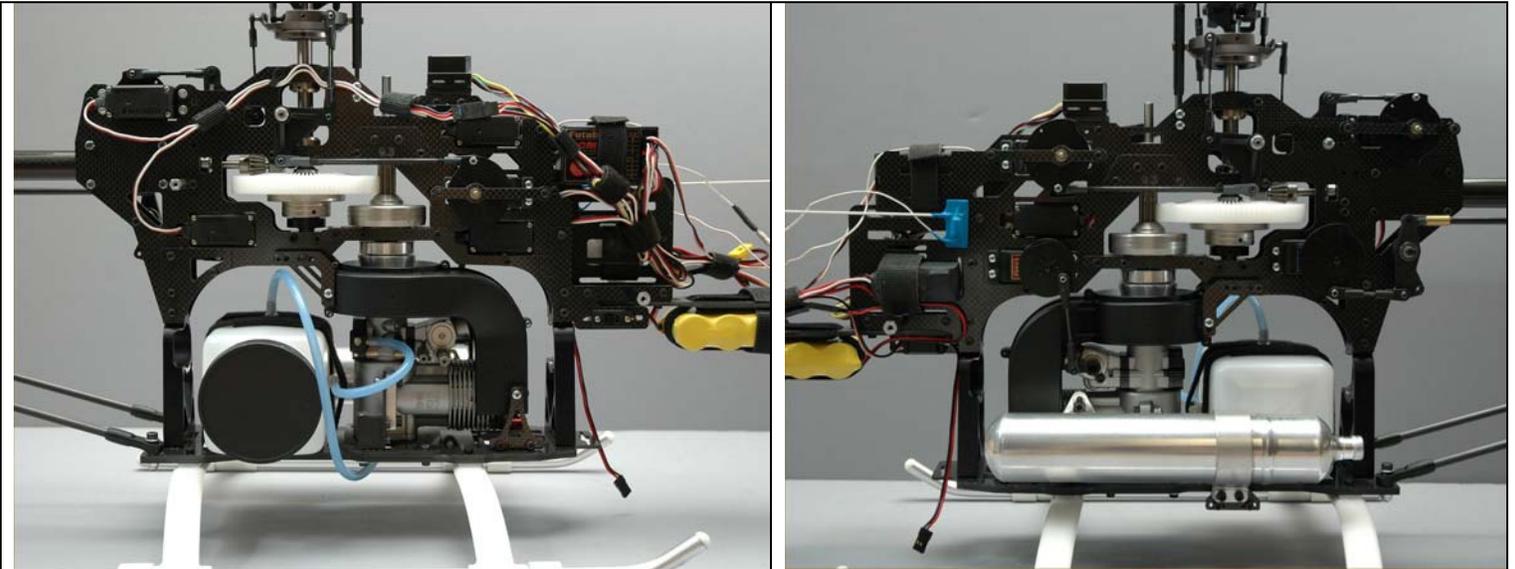
Use an M3 allen driver and a 7mm nut driver or equivalent tools to tighten the bolts.



Connect the t/r pushrod to the tail rotor bellcrank which was previously installed on the outside of the left frame



12. Completed Chassis



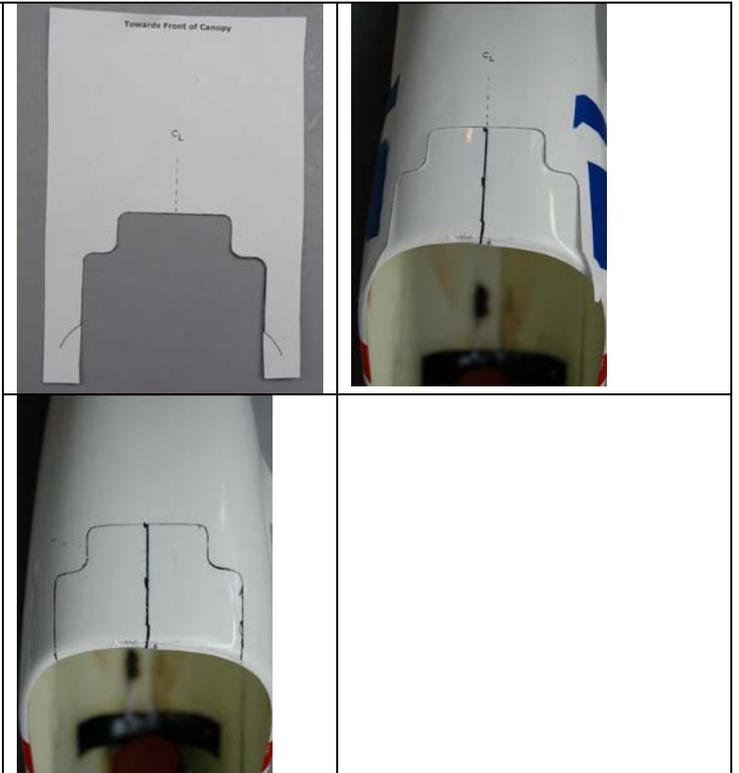
Print out the canopy cut-guide found on the last page of this guide.

Cut out the guide as indicated and tape the guide onto the back of the bottom of your canopy as shown. Using a felt tip pen, trace the cutouts onto the bottom of your canopy.

Using a Dremel tool and a cutoff wheel or grinder wheel, remove the portion of the canopy inside the marks as shown.

Depending upon the muffler you are using, it may be necessary to also make a relief on the lower left side of the canopy. Trial fit the canopy onto the completed model and mark and modify as necessary.

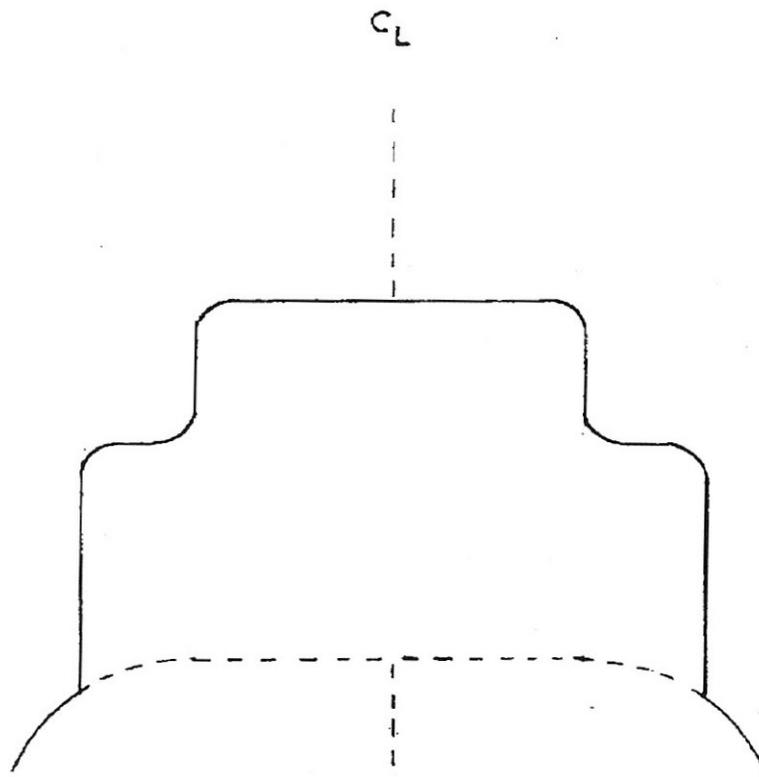
Your canopy is now ready for installation on the model



This completes the conversion for your new XCell Stratus

Canopy Cutout Drawing

Towards Front of Canopy



Towards Rear of Canopy