Heli-Max®

AXE™ 100 CP

Ready-to-Fly Electric Flybarless Helicopter

Instruction Manual

NOTICE

The instruction manual, warranties and other associated documentation are subject to change without notice. Hobbico assumes no responsibility for inadvertent errors in this manual.

Heli-Max products are to be used by ages 14 and over.

HMXE0820 HMXE0821

INTRODUCTION

Thank you for purchasing the Heli-Max AXE 100 CP Helicopter. We are certain you will get many hours of enjoyment out of this model. If you should have any questions or concerns please feel free to contact us at: **helihotline@hobbico.com.**

For the latest technical updates or manual corrections to the AXE 100 CP visit the Heli-Max web site at **www.helimax-rc.com**. Open the "Helicopters" link, and then select the AXE 100 CP. If there is new technical information or changes to this model a "tech notice" box will appear in the upper left corner of the page.

SAFETY PRECAUTIONS

Failure to follow these safety precautions may result in injury to yourself and others.

- Keep your face and body as well as all spectators away from the plane of rotation of the rotors whenever the battery is connected. Keep these items away from the rotors: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets into the rotors. The spinning blades of a model helicopter can cause serious injury. When choosing a flying site for your AXE 100 CP, stay clear of buildings, trees and power lines. AVOID flying in or near crowded areas. DO NOT fly close to people or pets. Maintain a safe pilot-to-helicopter distance while flying.

- Your AXE 100 CP should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size helicopter. Because of its performance capabilities, the AXE 100 CP, if not operated correctly, could possibly cause injury to you or spectators and damage to property.

- Do not alter or modify the model, as doing so may result in an unsafe or un-flyable model.

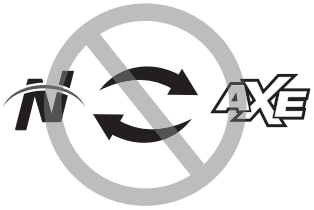
- When and if repairing you must correctly install all components so that the model operates correctly on the ground and in the air. Please check the operation of the model before every flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check linkages or other connectors often and replace them if they show any signs of wear or fatigue.

Battery warnings and usage guidelines: Please read and understand the following regarding the usage of Li-Po batteries.

Through the use of the included Li-Po battery you have assumed all risk and responsibility regarding a Li-Po battery and its use.

If your battery begins to swell or “puff” during charge or discharge, stop using it and discard. Call or contact Hobby Services 217-398-0007 to learn the proper way to safely discard your Li-Po cells.

- Only use the included charger with the included battery.
- Do not attempt to use included charger with NiCd or NiMH battery packs.
- If the battery should become damaged, discard it.
- Do not leave the charger unattended while charging.
- Disconnect the battery and remove input power from the charger immediately if either becomes hot! However, it is normal for the charger to get warm.
- Never allow the battery temperature to exceed 150° F [65° C].
- Never disassemble or modify pack wiring in any way or puncture cells.
- Do not allow water, moisture or foreign objects into the charger.
- Do not block the air intake holes, which could cause the charger to overheat.
- Do not place the charger or any battery on a flammable surface or near a combustible material while in use.
- Never charge inside a vehicle.
- Always disconnect the battery from the charger and the power supply from the charger when not in use.
- Do not attempt to charge a battery if it is swollen or hot.
- It’s best to store your batteries at room temperature
- ALWAYS KEEP OUT OF REACH OF CHILDREN.



NOTE: Heli-Max AXE battery packs are not cross compatible with Heli-Max NOVUS brand products.

WARRANTY

Heli-Max guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Heli-Max's liability exceed the original cost of the purchased kit.** Further, Heli-Max reserves the right to change or modify this warranty without notice. In that Heli-Max has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user assembled product, the user accepts all resulting liability. **If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.**

To make a warranty claim, send the defective part or item to Hobby Services at this address.

Hobby Services
3002 N. Apollo Dr., Suite 1
Champaign, IL 61822
USA

217-398-0007

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

CONTENTS

Required: 8 AA batteries

OPERATIONAL WARNINGS

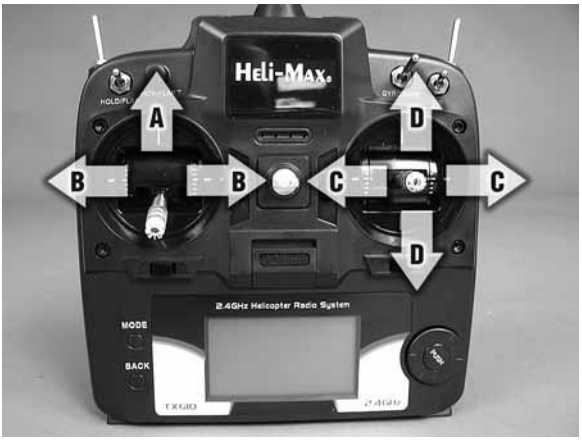
- Please allow a 10 minute cool down period after each flight so the motor controller and motor can cool down. Failure to do so may cause loss of control due to the controller overheating and shutting down.
- Please inspect the main rotor blades and blade screws before each flight for nicks or loose components. If any damage is found or if the blades have been crashed, please replace the blades before flying the model again.
- The ESC does have a soft cut function that will reduce the power output to protect the flight battery. Toward the end of a flight, if you notice a slight power reduction, land the model immediately and recharge the battery. The flight time of the AXE 100 CP can be as long as 6 minutes but this will vary depending on your flying style.

CAUTION! After a crash you must inspect all plastic parts on the helicopter for damage before flying the model again.

TRANSMITTER

Please read the transmitter manual included with your helicopter to learn more about how to use and adjust your TX610.

TRANSMITTER FUNCTIONS AND SWITCHES



The Throttle Hold Switch (HOLD/FLAP) is used to disable the power output of the motor but has no effect on the other controls. The Throttle Hold Function was originally intended for autorotation landings (off power descent to landing); this maneuver is really not possible with a motor driven tail.

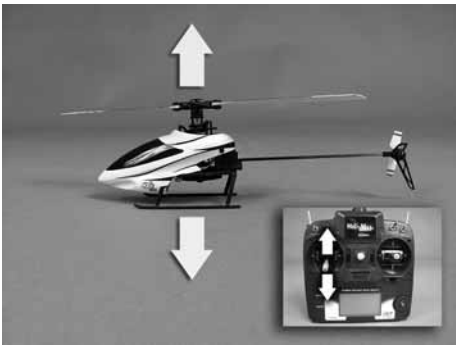
In addition to autorotation the throttle hold function can be used as a safety switch while handling the model since it disables power to the motor. Turn the transmitter on and set the Throttle Hold Switch to the on

position. Now you can safely connect the flight battery without having to worry about inadvertently moving the throttle stick. Once you place the model on the ground, verify that the idle up switch is off and the throttle stick has been moved to its lowest position, then simply turn the throttle hold off. The model is now ready to fly. Another use for the throttle hold function is to disable the motor before a crash without having to drop the collective stick (possibly forcing the model into the ground). Disabling the motor before a crash can prevent a lot of damage.

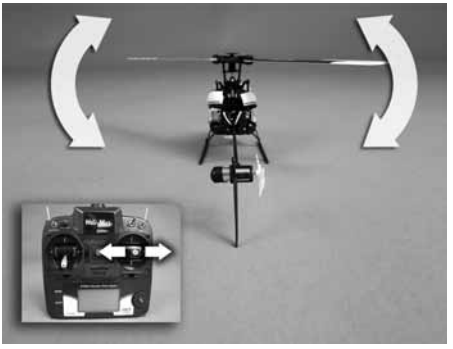
The UP-1 function is enabled and ready to use. The UP-1 switch (UP-1/GEAR) function is used for aerobatics and 3D flight. If you are a beginner to aerobatics remember this switch sets the motor speed (see your TX610 manual for details) while still allowing positive and negative pitch control. This means pulling the throttle stick back WILL NOT decrease the power to the motor but rather add power. Hence it's a good idea to learn to use the Throttle Hold Switch when you feel a crash is imminent!

STICK CONTROLS

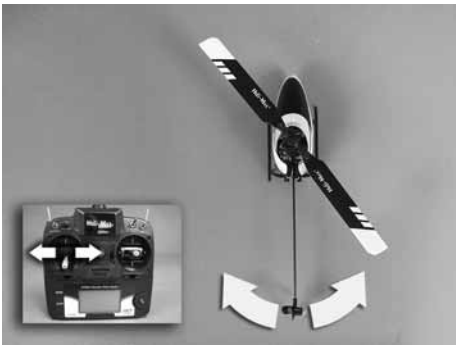
Throttle/Collective



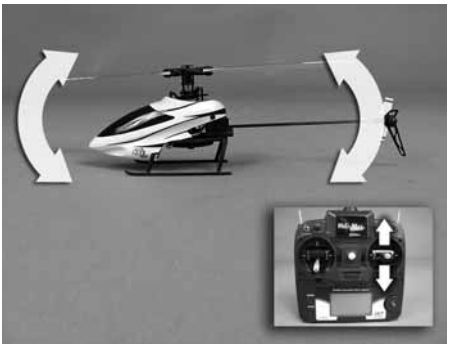
Left and right cyclic



Tail (rudder)



Forward and back cyclic



It's also important to know that your TX610 transmitter is capable of a system reset. (See how this is done in the TX610 Manual) If you decide to do a system reset, the factory setup numbers to the Heli-Max AXE 100 CP are listed here.

Below are the factory setup parameters for your AXE 100 CP Helicopter.

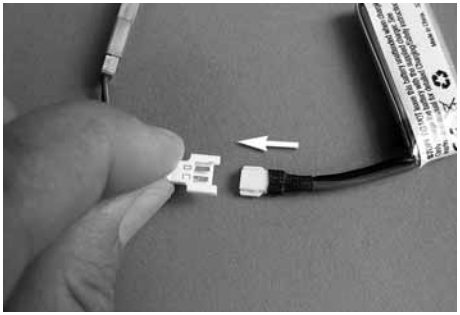
TX610	1	2	3	4	5	6
Servo Reverse	NOR	NOR	REV	NOR	NOR	NOR
Dual Rates	80/100	80/100		80/100		
Exponential	-20	-20		0		
Sub Trims	0	0		0		
Normal Throttle	0	45	75	92	100	
Normal Pitch	40	45	55	70	75	
UP-1 Throttle	DIAL					
UP-1 PITCH	30	42	55	65	75	
Gyro	35 NON HH 75 HH					
Swashplate Type	90deg					

INSTALL BATTERIES IN THE TRANSMITTER

Remove the battery cover from the back of the transmitter and install eight “AA” batteries into the transmitter. Double-check the polarity of each battery before replacing the battery cover.

CHARGE THE FLIGHT BATTERY

Plug the wall power supply into any 110V standard outlet. Plug the remaining 4mm plug into the side of the charger box. The center front panel LED will light letting you know the charger has power.



Plug the helicopter's power battery into the open connector of the charger. The charger will beep twice letting you know the battery is connected. At this point you can select a slower or faster charge rate by pressing the + or – buttons located on the face of the charger. While the LED is illuminated you will need to press the charge button. You will hear 3 beeps and the charge cycle will begin.

When charging is complete, all the LEDs will flash and you will hear a steady set of beeps coming from the unit.

Unplug the battery. It is now ready to use.

NOTE: Your AXE 100 CP battery charger ranges from .3AMPS to .7AMPS in .1 amp increments. The higher this value, the faster the battery will charge. We recommend not charging the battery over 2.2C or .5AMPS (Default).

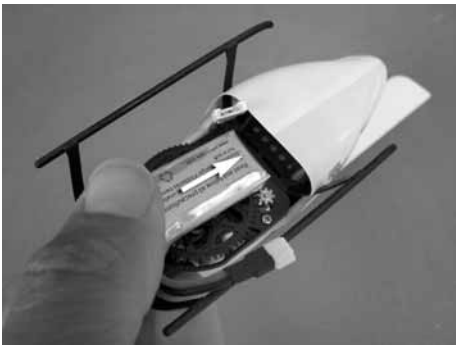
TURN THE TRANSMITTER ON

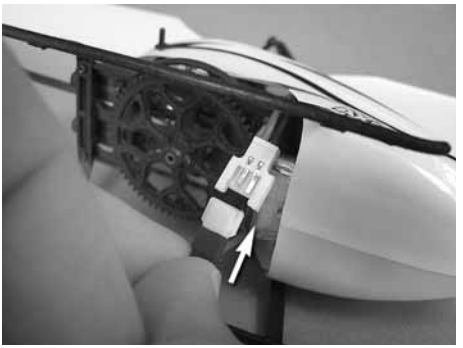
Verify that the HOLD/FLAP and UP-1/GEAR functions are off and slide the power switch up to turn the transmitter on. If the transmitter is turned on with the HOLD/FLAP or UP-1/GEAR function switched on, the screen will show "3D" or "T-H" and a warning will sound. Please turn the HOLD/FLAP and UP-1/GEAR functions off to continue. Now is a good time to make sure the electronic trim buttons on the transmitter are centered. We do not need to use them as the precision Heli-Max TAGS system controls all flight center trims.

INSTALL THE FLIGHT BATTERY

Slide the battery into the helicopter. Make sure the battery is slid all the way to the front of the battery tray. Take extra care in making sure the wires don't come in contact with any of the moving parts.

Warning! Once the flight battery has been connected, the helicopter will have full power available. Now is a good time to turn on the HOLD/FLAP switch. With the helicopter sitting still on a flat surface, connect the flight battery to the ESC. The helicopter must remain still for the gyro to initialize properly. This process takes approximately 5 seconds or so. Turn off the HOLD/FLAP switch. The helicopter is ready to go.





Heli-Max®

FLYING YOUR AXE100 CP

Takeoff: During your first flights it is important to have light winds. Also, if you are flying from grass, place a rubber mat or pad down on the grass so the small rotating parts don't get hung up on the grass.

Slowly add power and observe the model. The AXE100 CP has the incredible Heli-Max TAGS system. The TAGS system takes care of all the center trim function the transmitter might have. Having said this, you do not need or want to move the trim buttons during flight.

Hovering: Once the helicopter is in the air simply try to keep the helicopter in one spot. This will take some practice, remember, and wind has a big effect on the stability of the helicopter. Please take your time.

Landing: Level the helicopter into a steady hover and slowly decrease power until the helicopter settles onto the ground. You might notice as the helicopter is ready to touch down it moves around a little. This is normal as the helicopter enters ground effect.

BASIC MANEUVERS

Once you are comfortable with hovering at different orientations and landing, it's time to move on to more advanced maneuvers.

Slow Pirouettes: Add a small amount of tail rotor (left or right) and try rotating the helicopter slightly sideways and see if you can hold it there. If you become uncomfortable, bring the tail back towards you. Once you are comfortable, try moving the helicopter to the side and turning back. Then fly back to the other side in straight lines. You can try rotating the helicopter around 360°, which is called a pirouette. The helicopter can drift during this maneuver so make certain you have plenty of room when you first start practicing.

Nose-In Hovering: After pirouettes it's time to move onto nose-in hovering. The best bet is to wait for a calm day. Take off and climb to 15 feet, practice half pirouettes from tail-in to nose-in hovering, and try to lengthen the delay between transitions. This will allow you to practice nose-in and still give you a chance to get out of trouble. As you improve you'll remain nose-in for longer periods of time.

Forward Flight: Now it's time to work into basic forward flight. Just take the basic hovering maneuvers listed above and slowly fly out farther and faster and always bring the helicopter back after one pass. Practice controlled slow flight in close as well. The more time you spend practicing here, the easier things will be later on.

AEROBATICS

So you are getting comfortable in fast forward flight? Well, now it's time to slowly progress into aerobatics. Your AXE 100 CP is more than capable of full aerobatic performance. Once you are in forward flight start using the idle up switch (UP-1) which raises the rotor RPM for aerobatics and allows the AXE 100 CP to fly inverted.

Chandelles: Your first step is chandelles. Fly straight across in front of you and pull up to a 45° angle. Now at the top, when the helicopter slows down to a stop, apply left or right tail rotor to bring the nose around 180° and continue back down the 45° angle. As you progress with the maneuver you can pull a greater angle than 45°, but 90° would be considered a stall turn.

Loops: Once you become comfortable with the chandelles and stall turns it's time to move onto the loop. The key to the loop is to enter with plenty of speed.

Start pulling aft cyclic to enter the loop and as the model transitions to inverted at the top of the loop pull back on the throttle (towards negative (–) collective). This will help maintain altitude. As the model returns back to vertical add some positive (+) collective to maintain the speed. One of the most common mistakes made on loops is using too much negative (–) collective at the top.

Flips: Be certain to start with plenty of altitude. From an upright hover slowly add in full forward cyclic. As the model approaches vertical, bring the collective stick back to center. Now, as the model continues to inverted, you will need to start adding in negative (–) collective (or pull the collective stick back towards yourself). As the model transitions back to vertical, again bring the collective stick back to the middle and start adding in positive (+) collective as the model returns back to upright. It's simply a matter of timing. The most important thing is, do not throw the sticks around. This can cause the head speed to drop and may cause the tail to drift.

Inverted Hovering: Keep in mind flying a helicopter inverted is difficult but with practice it can be learned. One of the main problems is 3 out of 4 of the controls are reversed (forward/aft cyclic, collective and tail rotor). You have to mentally reverse these while flying. It will take some practice. Take the loop you learned above and just hold the inverted portion for short periods of time. As you become accustomed to the reversed controls, you will extend the time inverted. Also, make sure you have plenty of altitude for recovery if needed.

Your AXE CP 100 uses the SLT protocol. This means that with the simple addition of the Tactic Anylink,™ you can enjoy your Heli-Max AXE 100 CP with nearly any transmitter.

Here is a set of setup guidelines to help you get started.

FUTABA: You will find that regardless of the Futaba system you chose the basic setup is the same. This includes the Futaba 6EX, 7C, T6J, TJ8 as well as others. Here we have listed out the setup of a Futaba T6J transmitter below. It's also worth noting that even though the AXE 100 CP uses 120 deg CCPM (Cyclic-collective-pitch-mixing) that with the Heli-Max TAGS system you must select always the 90 deg swash arrangement. In a Futaba system this is called H-1 or 1-S under swash-plate type.

Futaba TJ6	1	2	3	4	5	6
Parameter (PARA)	HELI					
Reverse (REVR)	N	N	R	N	N	N
Dual Rates (D/R)	100/80	100/80		140/100		
Exponential (EXPO)	-10	-10		0		
Normal Throttle (N-TH)	0	25	50	75	100	
Normal Pitch (N-PI)	42	50	56	66	78	
Idle Up Throttle (I-TH)	100	95	90	95	100	
Idle Up Pitch (I-PI)	35	45	56	66	78	
Throttle Hold (HOLD)	ON 0%					
Revolution Mixing (REVO)	GY			INH		
Gyro Mixing (GYRO)	ON	SW A	Pos 55	Pos 55		
Swash to Throttle Mixing (SW-T)	INH					
Swash Ring (RING)	INH					
Swashplate Type (SWSH)	H-1					
Throttle and Pitch Delay (DELY)	INH					
Hovering Pitch (HOVP)	INH					
Timer (TIMR)	4min					

We have also included a basic setup for Spektrum® users as well.

Spektrum DX6i	1	2	3	4	5	6
Parameter (PARA)	HELI					
Reverse (REVR)	N	N	R	N	N	N
Dual Rates (D/R)	100/80	100/80		100/100		
Exponential (EXPO)	Pos 15	Pos 15		0		
Travel Adjustment	100%	100%	100%	100%	100%	100%
Normal Throttle (N-TH)	0	25	50	75	100	
Normal Pitch (N-PI)	42	50	56	66	78	
Idle Up Throttle (I-TH)	100	95	90	95	100	
Idle Up Pitch (I-PI)	35	45	56	66	78	
Throttle Hold (HOLD)	ON 0%					
Gyro Mixing (GYRO)	ON	SW A	60	60		
Swashplate Type (SWSH)	H-1					
Timer (TIMR)	4min					

LINKING

1. Turn on the transmitter, making sure all the switches are in the back position.
2. Remove the canopy from the helicopter and locate the small black button on the corner of the PC board.
3. Place the transmitter in close proximity to the helicopter (1 to 2 feet away).
4. Press and hold the button for 3 seconds. Then remove pressure.
5. Monitor the flashing LED, when it stays on with no flashing your transmitter is now bound to the helicopter. Note: This could take several seconds.

MAINTENANCE

We will describe a few simple repairs that you can do to your helicopter. We will list them as removing with the understanding that to reassemble one just follows each step again from the bottom up. NOTE: it's a good idea to keep a magnet handy to help secure the small screws. You can also use this magnet to "magnetize" your screwdriver; just rub the end of the screwdriver on the magnet for a few seconds. This will be needed to keep the screws in place on the tip of the screwdriver. TIP: We use a small piece of paper over the magnet to help see the screws.

REMOVING THE CANOPY

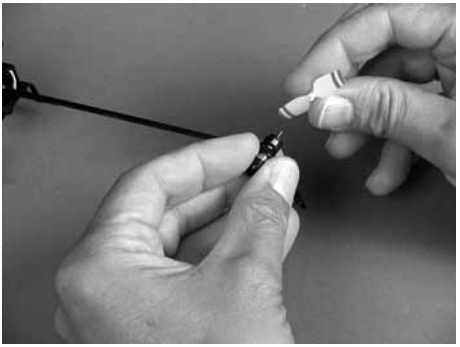
Slowly and carefully pull the back edges of the canopy outward sliding the rubber grommets off the pegs. Then slide the canopy forward.

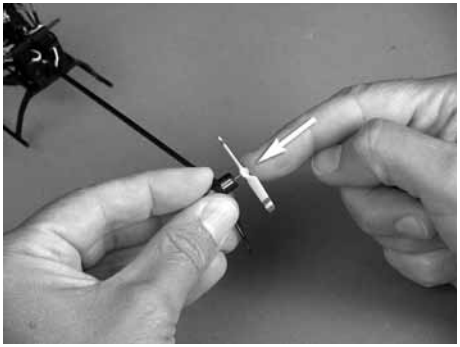
REMOVING THE MAIN BLADES

Using the provided screwdriver, remove the main blade screw from the blade grip. Slide the blade out of the grip.

REMOVING THE TAIL BLADE

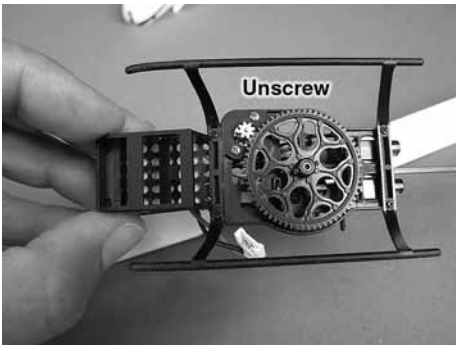
Hold the motor firmly and pry the tail blade off using your fingernail or small flat blade screwdriver. Use your finger to press the new blade in place. NOTE: Do not force the blade tight against the motor.





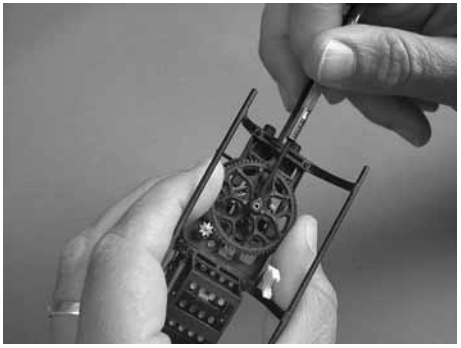
REMOVING THE LANDING GEAR

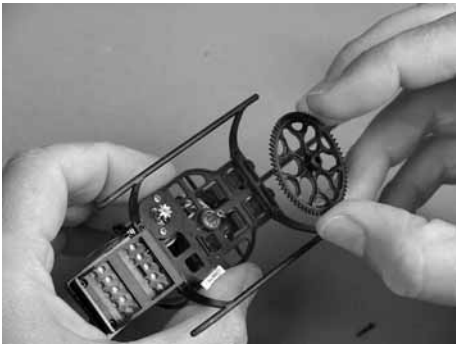
A total of 6 screws hold the battery tray/landing gear in place. Using the supplied screwdriver remove the 6 screws.

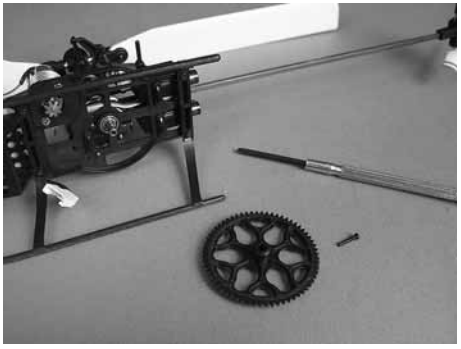


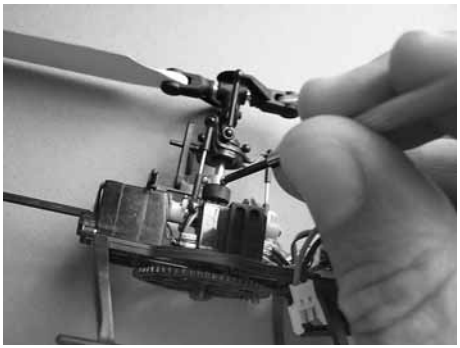
REMOVING THE MAIN GEAR

Using the supplied screwdriver remove the screw that holds the main gear in place. Slide the main gear away.









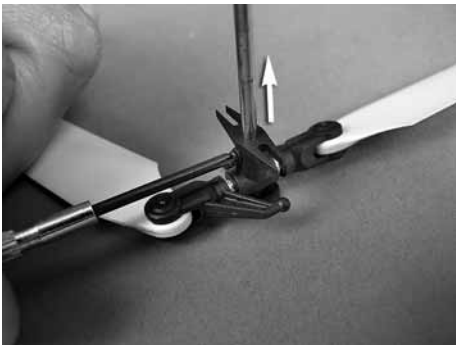
REMOVING THE MAIN SHAFT

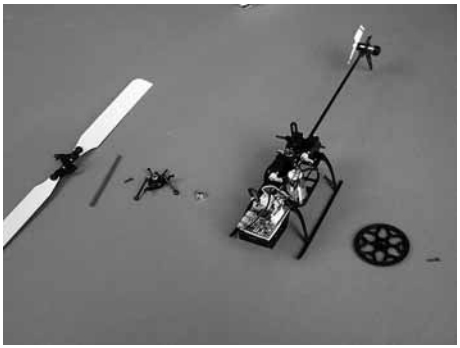
Remove the main gear. (Page 16) Loosen the two screws on the lock collar.

Remove the ball links that attach the servo pushrods to the swashplate.

Remove the links from the blade grips.

Slide the main shaft and head from the helicopter and remove the screw from the head block and slide the main shaft away.

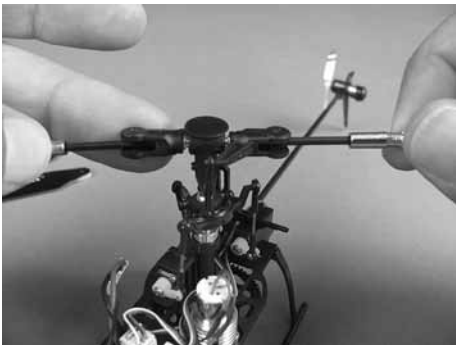


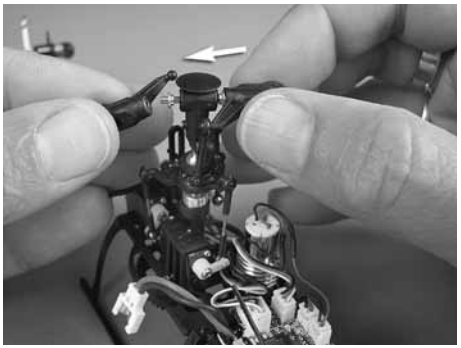


REMOVING THE FEATHERING SHAFT

NOTE: You will have to provide a second small Phillips screwdriver for this step.

Remove the blades from the blade grips. (Page 15) Place a screw driver in the end of each blade grip and engage the screws.

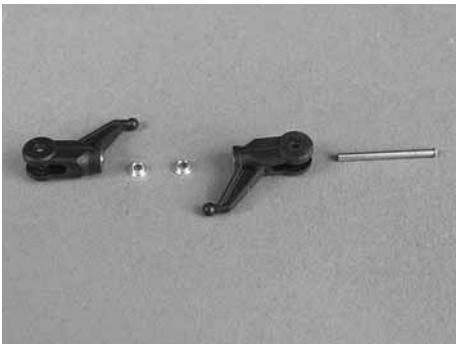




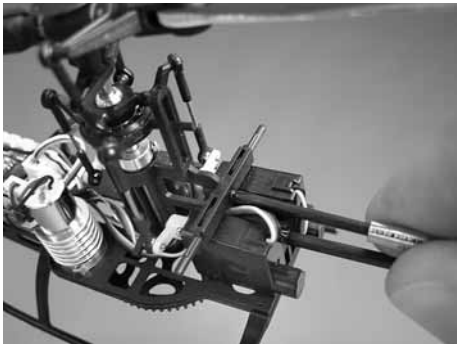
Unscrew the screws and one of the two will remove.

Slide the blade grips off being very careful to not lose any parts.

Note the direction of the silver spacer washers.



REPLACING AN AFT SERVO



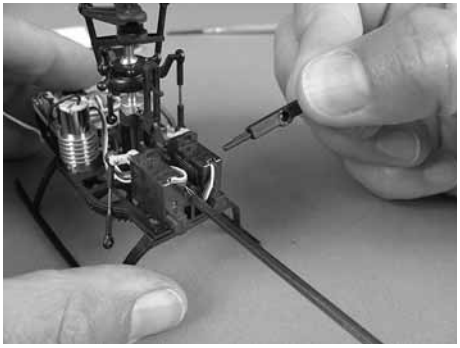
Remove the canopy.

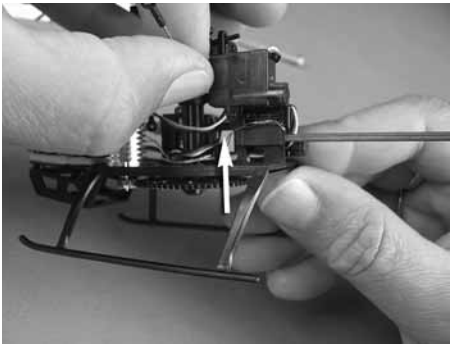
Remove the link from the swashplate.

Unscrew the screw from the attachment bar.

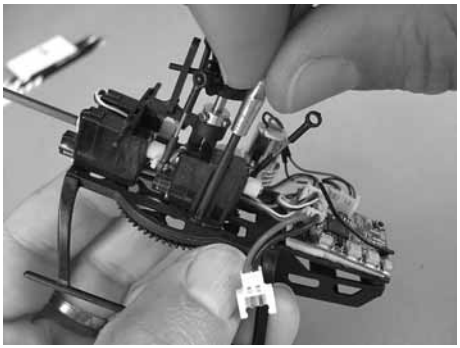
Carefully slide off the servo tabs.

Snake the wire out of the loom and unplug the servo.





REPLACING THE FORWARD SERVO



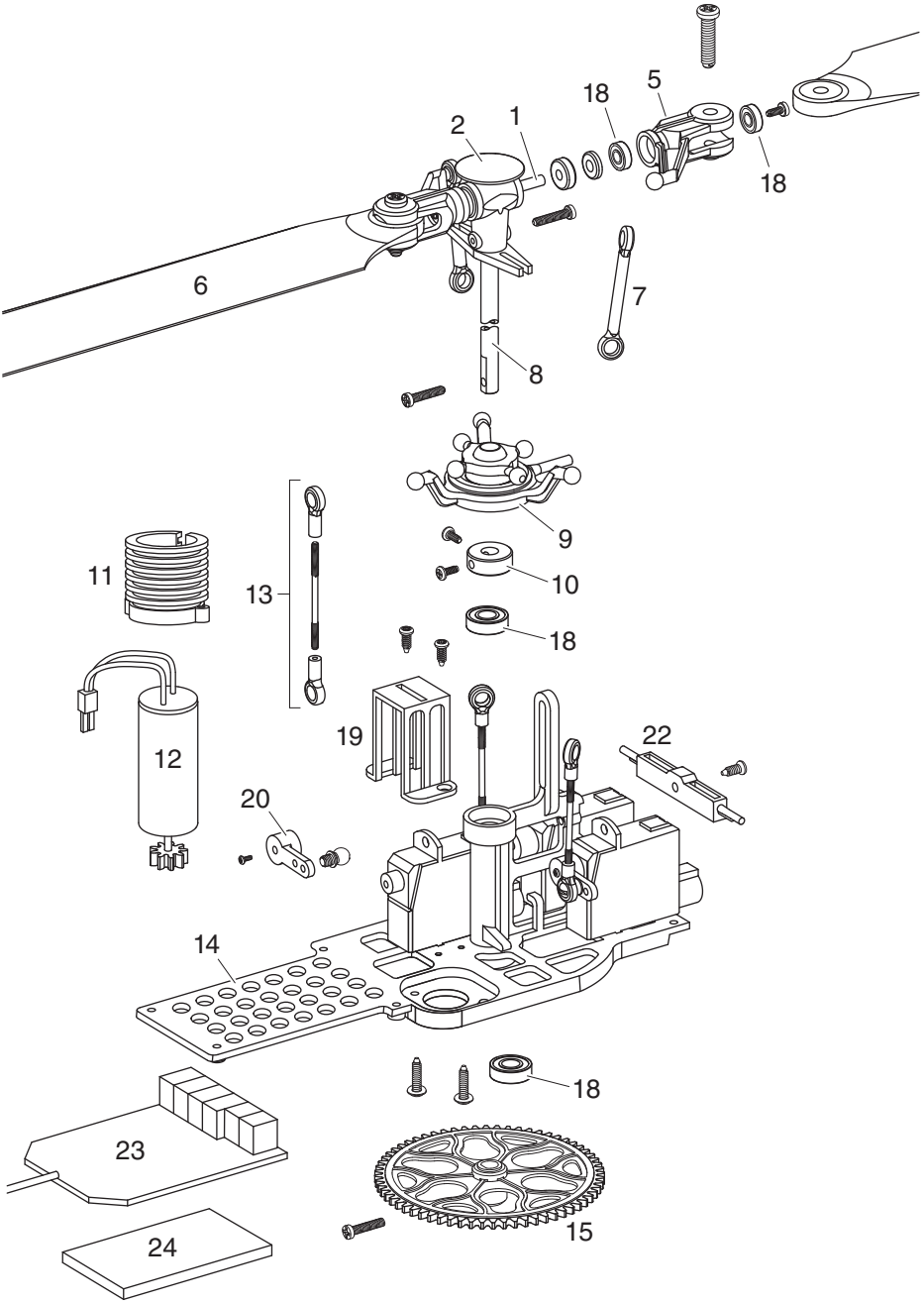
Remove the canopy.

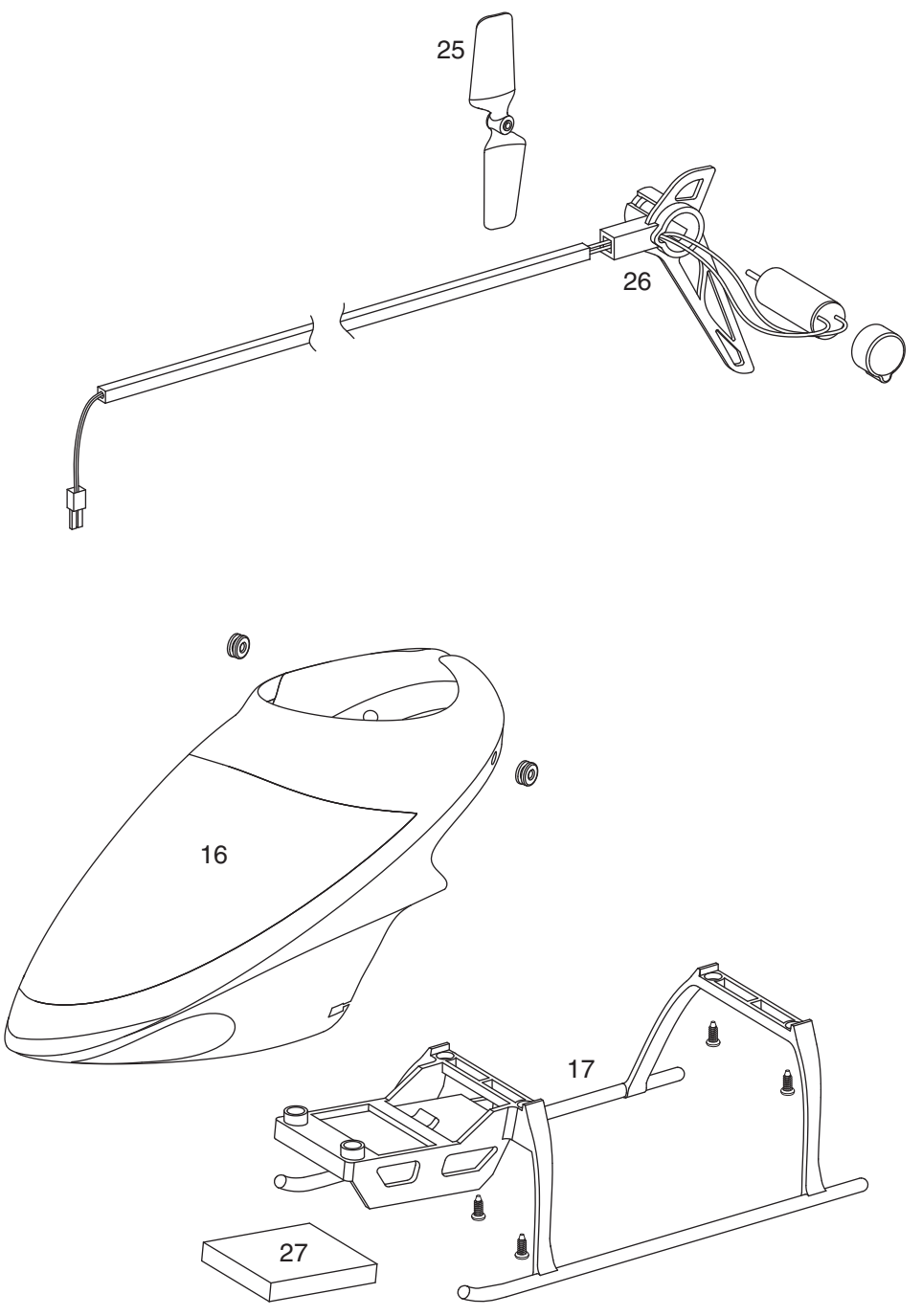
Remove the link from the swashplate.

Unscrew the two screws from each side of the servo mount.

Snake the wire out of the loom and unplug the servo.

EXPLODED VIEW

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KEY NO.	NUMBER	PART
1	HMXE2100	Feathering Shaft
2	HMXE2101	Rotor Head
3	HMXE2102	Rotor Head Rubber Dampers
4	HMXE2103	Rotor Head Blade Grip Spacers
5	HMXE2104	Blade Grips
6	HMXE2105	Rotor Blades Axe 100 CP, Axe 100 FP, MD530
7	HMXE2106	Rotor Head Linkages
8	HMXE2107	Main Shaft
9	HMXE2108	Swashplate Assembly
10	HMXE2109	Main Shaft Collar Axe 100 CP, Axe 100 FP, MD530
11	HMXE2110	Motor Mount
12	HMXG8004	Main Motor with Pinion Gear
13	HMXE2111	Servo Linkages
14	HMXE2112	Main Frame
15	HMXE2113	Main Gear
16	HMXE2114	Canopy
17	HMXE2115	Landing Skids
18	HMXE2116	Bearing Set
19	HMXE2117	Elevator Servo Mount
20	HMXE2118	Servo Arms with Ball Links
21	HMXE2119	Screw Set
22	HMXE2120	Canopy Servo Mount
23	HMXM2036	T.A.G.S. Gyro and Control Board Axe 100 CP, FP, MD530
24	HMXE2121	Control Board Mounting Tape
25	HMXE2122	Tail Rotor Blade
26	HMXG8027	Tail Motor with Tail Boom Assembly
27	HMXP1008	1S 200mAh LiPo
28	HMXM2037	1.9g Digital Servo
29	HMXJ2025	610 SLT 2.4GHz 6-Channel 10 Model Transmitter
30	HMXE2123	Battery Plug Adaptor with JST Plug
31	HMXP2022	A/C Variable Rate Charger
	HMXE2124	Assembled Rotor Head with Blade Grips

CE 1588 

This product contains a lithium-polymer battery. Must be recycled or disposed of properly.

Included radio system not fully compliant with French regulations.