

# Heli-Max®



Officially Licensed Product

# EC145



## ***Instruction Manual***

### ***NOTICE***

- The instruction manual, warranties and other associated documentation are subject to change without notice. Hobbico assumes no responsibility for inadvertent errors to this manual.
- Heli-Max products are to be used by ages 14 and over.

Thank you for purchasing the Heli-Max EC145 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.

### ***Full Scale EC145 Information and Specifications***

The Eurocopter EC145 is a light utility helicopter manufactured by Eurocopter. It is a twin-engine aircraft that can carry up to nine passengers along with the addition of two crew members. The helicopter is marketed for passenger transport, corporate transport, emergency medical services (EMS), search and rescue, parapublic and utility roles.

The EC145 features a large cabin space and other improvements over previous designs that include an increased maximum take-off weight and increased range, achieved with improved rotor blades made of composite materials. These are combined with a hingeless rotor system with a monolithic titanium hub, and are powered by two Turboméca Arriel 1E2 turboshaft engines. The cabin can seat eight or nine passengers and has a level floor throughout with access from both sides and the rear of the helicopter. The all-glass cockpit consists of a Thales Avionics MEGHAS Flight Control Display System with active matrix liquid crystal displays.

The EMS/casualty evacuation arrangement can carry up to two stretchered patients with three medical staff. The helicopter can be fitted with emergency floats, rescue hoist, search light, load hook and specialist equipment for other operational requirements.

**Crew:** 1 or 2 (pilots)

**Capacity:** 9 passengers

**Length:** 13.03 m (42 ft 9 in)

**Rotor diameter:** 11.0 m (36 ft)

**Height:** 3.45 m (11 ft 4 in)

**Disc area:** 95 m<sup>2</sup> (1,018 ft<sup>2</sup>)

**Empty weight:** 1,792 kg (3,951 lb)

**Loaded weight:** 3,585 kg (7,903 lb)

**Useful load:** 1,793 kg (3,953 lb)

**Max. takeoff weight:** 3,585 kg (7,903 lb)

**Powerplant:** 2 × Turbomeca Arriel 1E2 turboshafts, 550 kW (take-off power) (738 shp) each

**Never exceed speed:** 268 km/h (145 kt, 167 mph)

**Cruise speed:** 246 km/h (133 kn, 153 mph)

**Range:** 680 km (370 nmi, 426 mi)

**Ferry range:** 855 km (461 nmi, 530 mi)

**Service ceiling:** 5,240 m (17,200 ft)

For the latest technical updates or manual corrections to the EC145 visit the Heli-Max website at [www.helimax-rc.com](http://www.helimax-rc.com). Open the “Helicopters” link, and then select the EC145 helicopter. If there is any new technical information, changes or important updates to this model, a “tech notice” box will appear on the page. Click the “tech notice” box to learn more.



**When you see this symbol, please pay special attention and heed all warnings regarding the information within.**



**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 rotating plane of the blades whenever the battery is connected. Keep 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 away from the rotors. The spinning blades of a model helicopter can cause serious injury. When choosing a flying site for your EC145, 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 distance from the helicopter.
- Your EC145 should not be considered a toy. Because of its performance capabilities, the EC145, if not operated correctly, could cause injury to you or spectators and damage to property.
- Do not alter or modify the model. Doing so may result in an unsafe or un-flyable model.
- When and if repairs are necessary, you must correctly install all components so that the model operates properly 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 LiPo batteries. Through the use of the included LiPo battery you have assumed all risk and responsibility regarding a LiPo battery and its use.

## ***Battery Warnings***

- ALWAYS unplug your battery from either the charger or helicopter after use. NEVER store your helicopter with the battery plugged into it.
- Do not attempt to charge your battery if it becomes swollen or hot.
- It's best to store your batteries charged and at room temperature. Storing a fully discharged battery may cause irreversible damage to the battery
- Never disassemble, puncture or modify the battery pack in any way.
- Never allow the battery temperature to exceed 150° F [65° C].
- If your battery begins to swell or “puff” during charge/discharge or becomes damaged in any way, stop using it and contact Hobby Services at 217-398-0007 to learn the proper way to dispose of it.
- Keep track of your batteries at all times.

## ***Charge Warnings***

- Only use the included charger with the included LiPo battery. Do not attempt to use the provided charger with NiCd, NiMH or batteries with other chemistries.
- Do not leave the charger unattended while in use and always charge your batteries on a fire-resistant surface.
- Disconnect the battery and remove input power from the charger immediately if either becomes hot!
- Do not allow water or other foreign objects to enter the charger. Keep the charger away from moisture and do not submerge in water. Do not block the air intake holes of the charger; this could cause the charger to overheat.
- Please keep all electronic components out of the reach of children!



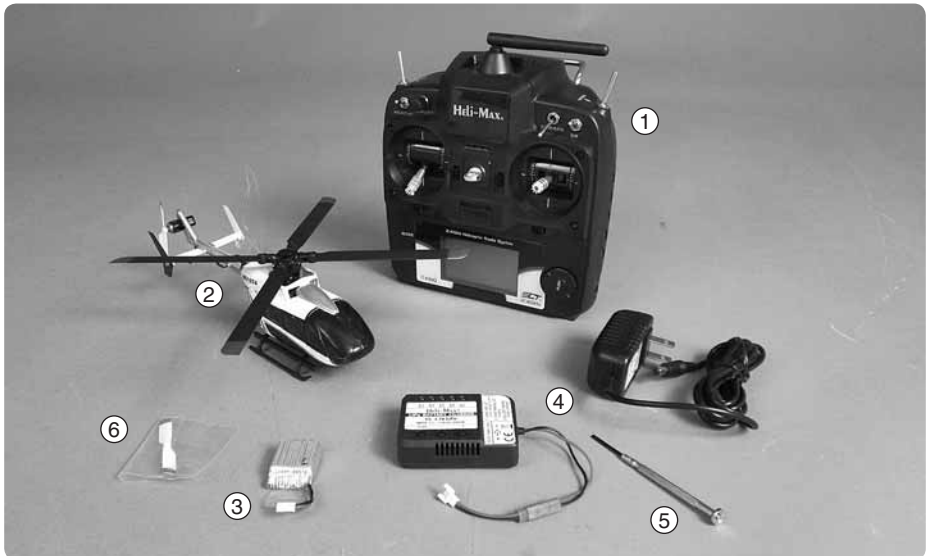
**Heli-Max** guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Heli-Max's liability exceed the original cost of the purchased kit.** Further, Heli-Max 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, **Hobby Services** 217-398-0007  
send the defective part or 3002 N. Apollo Dr., Suite 1  
item to Hobby Services Champaign, IL 61822  
at this address. USA

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.

## Heli-Max® **KIT CONTENTS**



1. Heli-Max TX 610 Transmitter and Manual (not included in HMXE0853)
2. EC145 Helicopter
3. 600 mAh LiPo Flight Battery
4. Adjustable LiPo Battery Charger with Wall Adaptor
5. Screwdriver
6. Extra Tail Blade

**Required:** 8 AA batteries

**General**

**Management:** Collective Pitch, 120 degree CCPM, TAGS control

**Motors:** Brushless main motor, brushed tail motor

**Empty Weight:** 71.3 g (2.51 oz)

**Weight RTF:** 85.5 g (3.01 oz)

**Rotor Diameter:** 245 mm (9.64")

**Blade Length:** 105 mm (4.13")

**Tail Rotor Diameter:** 55 mm (2.16")

**Overall Length:** 305 mm (12.0")

**Height:** 75 mm (2.95")

**Width:** 60 mm (2.36")

**Motor**

**Motor:** 1412 Brushless

**Diameter:** 14.5 mm

**Length:** 13.6 mm

**Weight:** 6.9 g

**Voltage:** 3.7 V

**No Load Current:** 0.7 amp

**KV:** 14,750

**Controller**

**Max Current:** 10 amp (5min)

**Slow Start Function:** Yes

**Thermal Protection:** 90°C~120°C

**Soft Cutoff:** Yes



- 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.
- 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 damaged, replace the blades before flying the model again.
- The motor controller has a soft cut function that will reduce the power output to protect the flight battery. Toward the end of a flight you will notice a slight power reduction. Land the model immediately. The flight time of the EC145 can be as long as 6 minutes (Standard Hover) but this will vary depending on your flying style.
- After a crash you must inspect all plastic parts on the helicopter for damage before attempting to fly the model again.
- Always unplug your battery from the helicopter after use.

## Transmitter (RTF model)

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

### Important Transmitter Functions



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 is intended for autorotation landings off power descent to landing; this maneuver is really not realistic 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.



The UP-1 function is enabled and ready to use. The **UP-1 Switch** (UP-1/GEAR) function is used for aerobatics. 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 if you get confused flying, 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!

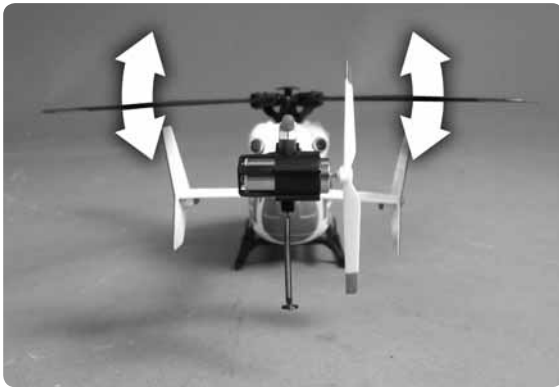
## Stick Controls



## Throttle/Collective (Pitch)



## Tail (Rudder)



## Left and Right Cyclic (Aileron)





### Forward and Back Cyclic (Elevator)

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 for the Heli-Max EC145 are listed here.

Below are the factory default parameters (Model Memory 8) for your EC145 Helicopter.

<b>EC-145/Heli-Max 610</b>	<b>AILE 1</b>	<b>ELEV 2</b>	<b>THRO 3</b>	<b>RUDD 4</b>	<b>GYRO 5</b>	<b>PITC 6</b>
<b>Parameter (PARA)</b>	<b>HELI</b>					
<b>Reverse (REVR)</b>	N	N	N	N	N	N
<b>Dual Rates (D/R)</b>	100/80	100/80		100/80		
<b>Exponential (EXPO)</b>	-10	-10		0		
<b>Normal Throttle (N-TH)</b>	0	50	75	85	100	
<b>Normal Pitch (N-PI)</b>	45	50	55	62	70	
<b>Idle Up Throttle (I-TH)</b>			DIAL			
<b>Idle Up Pitch (I-PI)</b>	30	42	52	60	70	
<b>Throttle Hold (HOLD)</b>	ON 0					
<b>Gyro Mixing (GYRO)</b>	75 switch down			25 switch up		
<b>Swashplate Type (SWSH)</b>	90 deg					

### **Install Batteries In The Transmitter**

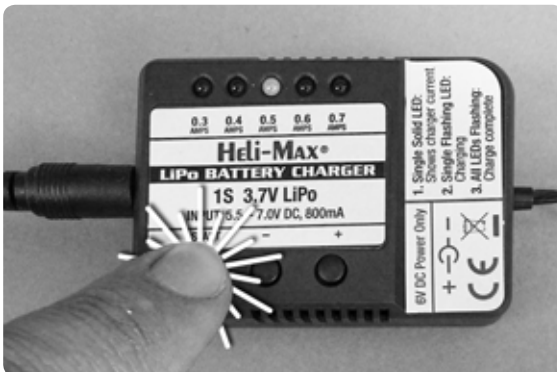


Remove the battery cover from the back of the transmitter and install eight “AA” batteries into the transmitter. Double-check the polarity of each battery before replacing the battery cover.

### **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 flight battery. It is now ready to use.

**NOTE:** Your battery charger ranges from 0.3 AMPS to 0.7 AMPS in 0.1 AMP increments. The higher the value, the faster the battery will charge. We recommend charging on the 0.6 AMP setting (Default).

### ***Turn the Transmitter On***

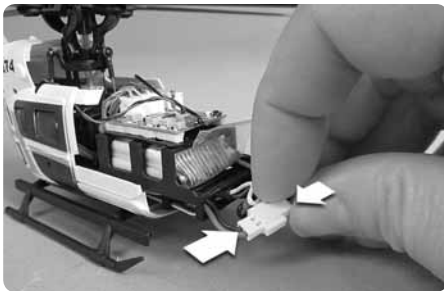
Verify that the **HOLD/FLAP** and **UP-1/GEAR** functions are off, and slide the power switch up to turn the transmitter on. If the transmitter is turned on with the HOLD/FLAP, UP-1/GEAR or throttle stick forward, the screen will show “3D” or “T-H” and a warning will sound. Turn the HOLD/FLAP and UP-1/GEAR functions off and/or move the throttle stick to the low position 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 incredible Heli-Max TAGS™ system controls all flight center trims.

### ***Install the Flight Battery***



1. Slide the front portion of the canopy forward to expose the battery compartment.

2. Slide the battery into the helicopter. Make sure the battery is slid all the way to the front of the battery tray.



3. With the helicopter placed on a flat surface, plug the battery in, taking care not to bump or move the helicopter.



4. Reinstall the front canopy by aligning the guide slots and slipping it into place.



Once the flight battery has been connected, always handle the helicopter as if it has full power available. The helicopter must remain still for the gyro to initialize properly. This process is instantaneous after the helicopter is held still. Turn off the HOLD/FLAP switch and the helicopter is ready to go. Now is a good time to turn on the HOLD/FLAP switch until you are ready to start flying.

To learn more about flying your EC145, skip forward to the “Flying Your EC145” portion of the manual.



Your EC145 uses the Tactic SLT™ protocol. This means, with the simple addition of the Tactic Anylink™ to your favorite transmitter, you can enjoy your Heli-Max EC145 with a familiar transmitter. After the purchase of your Anylink, make sure to fully read the instructions so you understand how to properly and safely use the Anylink system.

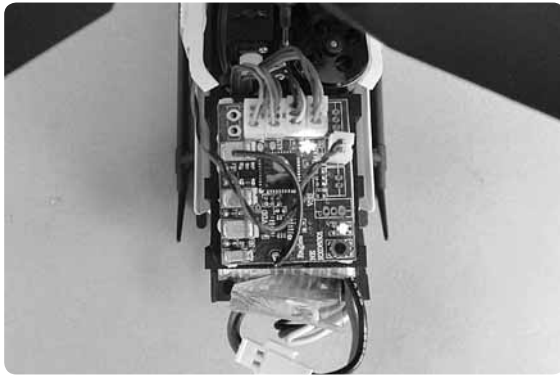


When using the Anylink you must make sure to follow the proper mapping procedure for your radio brand. Failing to do so could cause an un-safe condition. How to map your transmitter, as well as a list of compatible transmitters is included with your Anylink. You can find this and more information on the Tactic website. [www.tacticrc.com](http://www.tacticrc.com)



The Tx-R version of the EC145 requires you to link your transmitter to the helicopter. When using a Tactic SLT transmitter or Anylink, one must follow the procedure below to complete the task. If you need to link or re-link for any reason, here is the proper procedure to do so.

1. Turn on the transmitter, making sure all the switches are in the back position and the throttle is down.
2. Remove the canopy from the helicopter and locate the small black button near the front of the PC board.
3. Place the transmitter in close proximity to the helicopter (1 to 2 feet away).
4. Plug a fully charged the battery into the helicopter.
5. Press and hold the Link button for 3 seconds or until the LED remains on.



6. Monitor the flashing LED. When it stays on “no flashing” your transmitter is now linked to the helicopter. **Note:** There is a second LED in the center of the PCB. When your transmitter is linked and the helicopter held still, this LED will flicker letting you know your TAGS stabilization system is working and ready.

## ***Here are some Transmitter setup guidelines to help you get started.***

FUTABA: You will find that regardless of the Futaba system you choose, the basic setup is the same. This includes the Futaba 6EX, 7C, T6J, TJ8 as well as others. We have listed the setup of a Futaba T6J transmitter. It’s also worth noting that even though the EC145 uses 120 degree CCPM (cyclic-collective-pitch-mixing), with the Heli-Max TAGS system you must select the 90 degree swash arrangement. In a Futaba system this is called H-1 or 1-S under swash type.

The setups listed will get you going and might suite your flying style. If not please feel free to make adjustments to suite your flying style.

### **Here is the setup for the Futaba 6J.**

<b>EC-145/Futaba TJ6</b>	<b>AILE 1</b>	<b>ELEV 2</b>	<b>THRO 3</b>	<b>RUDD 4</b>	<b>GYRO 5</b>	<b>PITC 6</b>
<b>Parameter (PARA)</b>	<b>HELI</b>					
<b>Reverse (REVR)</b>	N	N	R	N	N	N
<b>Dual Rates (D/R)</b>	100/80	100/80		140/100		
<b>Exponential (EXPO)</b>	-10	-10		0		
<b>Normal Throttle (N-TH)</b>	0	40	70	85	100	
<b>Normal Pitch (N-PI)</b>	41	51	55	63	75	
<b>Idle Up Throttle (I-TH)</b>	100	95	90	95	100	
<b>Idle Up Pitch (I-PI)</b>	35	50	60	65	75	
<b>Throttle Hold (HOLD)</b>	<b>ON 0</b>					
<b>Gyro Mixing (GYRO)</b>	ON	SW A	+60	+55		
<b>Swash Ring</b>	<b>90</b>					
<b>Swashplate Type (SWSH)</b>	<b>H-1</b>					
<b>Timer (TIMR)</b>	<b>5 min</b>					

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

<b>EC-145/Spektrum DX6i</b>	<b>AILE 1</b>	<b>ELEV 2</b>	<b>THRO 3</b>	<b>RUDD 4</b>	<b>GYRO 5</b>	<b>PITC 6</b>
Type	HELI					
Reverse	R	R	N	R	N	N
Dual Rates (D/R)	100/80	100/80		100/100		
Exponential (EXPO)	POS 10	POS 10		0		
Travel Adjustment	100%	100%	100%	100%	100%	100%
Norm Throttle	0	50	75	85	100	
Norm Pitch	42	50	56	66	77	
Stunt Throttle	100	95	90	95	100	
Stunt Pitch	35	45	56	66	77	
Throttle Hold	ON 0					
Hold Pitch	NULL					
Gyro Mixing	75 switch down			75 switch up		
Swashplate Type	90 deg					
Timer	5 min					

Spektrum is a registered trademark of Horizon Hobby, Inc.

This is a good setup for the Tactic 650.

<b>EC-145/Tactic 650</b>	<b>AILE 1</b>	<b>ELEV 2</b>	<b>THRO 3</b>	<b>RUDD 4</b>	<b>GYRO 5</b>	<b>PITC 6</b>
Type	HELI					
Servo Set	Servo Rev	N	N	R	N	N
	Travel	100	100	125	100	100
	Sub Trim	0	0	0	0	0
Dual Rate	100/80	100/80		100/100		
Expo	-20	-20		0		
TH Cut	Factory					
TH Hold	Factory					
TH Curve Normal	0	NULL	NULL	NULL	100	
TH Curve UP-1	100	NULL	NULL	NULL	100	
PI Curve Normal	-30	NULL	0	NULL	+68	
PI Curve UP-1	-68	NULL	NULL	NULL	+68	EXPO ON
Gyro	+75 switch up			+60 switch down		
Throttle Mix	NULL					
Rev Mix	NULL					
Swash Ring	110					
Program Mix	NULL					
Timer	5 min					

## **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 in the grass.

Turn off the hold switch and very slowly add power and observe the model. During "spool up," it is important to note that the torque of the main blades can cause the helicopter to rotate slightly clockwise. This is normal.

Your EC145 has the incredible Heli-Max TAGS system. The TAGS system takes care of all center trim functions of the transmitter. Having said this you do not need, or want, to move or adjust the trim buttons during flight. If you notice any slight flight drifting, give it some time. After the helicopter's swash and servo links "break-in," the drift will diminish.

## **Hovering**

Once the helicopter is in the air, simply try to keep the helicopter in one spot. This will take some practice. Remember that even a light breeze will have an effect on the stability of the helicopter, so please take your time, be patient and wait for a calm day.

## **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. Remember to unplug the battery from the helicopter after your flight is complete.

Once you are comfortable with hovering in one place, start working on orientations. This means hovering the helicopter in all positions, nose to the right, nose to the left and the nose pointing at you (nose-in). Getting good at this fundamental discipline will allow you to progress much faster in some of the more advanced flying 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 you will want to 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.

### ***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.

### ***Chandelles***

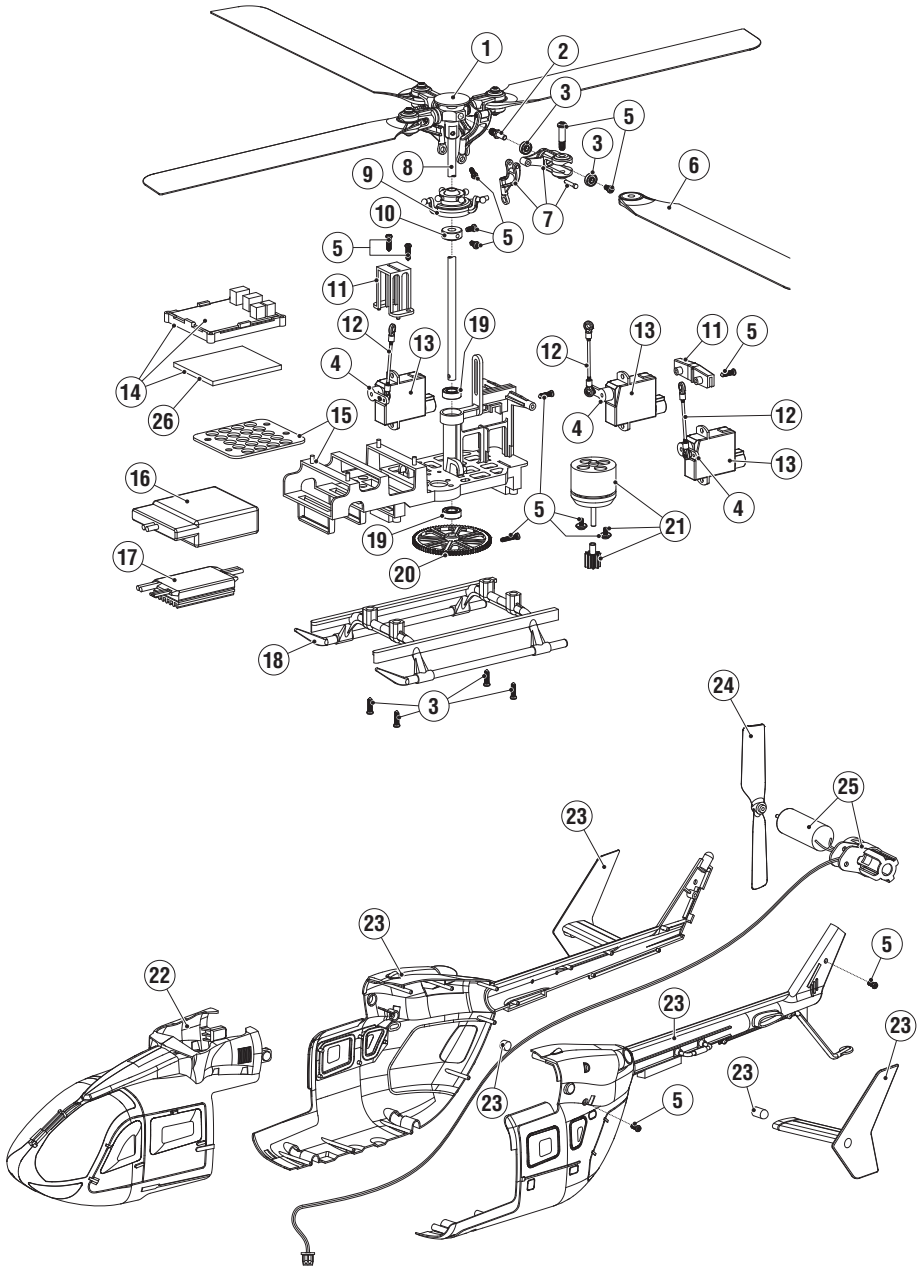
Your first step is chandelles. Fly straight across in front of you and pull up to a 45° angle. Now at the top, when the helicopter slows down to a stop, apply left or right tail rotor to bring the nose around 180° and continue back down the 45° angle. As you progress with the maneuver you can pull a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





**Parts List in Key Number Order**

<b>Key #</b>	<b>Stock No.</b>	<b>Description</b>
1	HMXE2225	Rotor Head Set
2	HMXE2232	Feathering Shaft Set
3	HMXE2229	681 Bearing Set
4	HMXE2118	Servo Arm Set
5	HMXE2231	Screw Set
6	HMXE2226	Main Blade Set
7	HMXE2233	Pitch Lever Set
8	HMXE2107	Main Shaft Set
9	HMXE2234	Swashplate
10	HMXE2109	Main Shaft Collar Set
11	HMXE2237	Servo Frame Set
12	HMXE2111	Servo Link Set
13	HMXM2057	Servo 1.9G
14	HMXM2051	TAGS 3-in-1 Control Board Control Board Mount Adhesive Tape
15	HMXE2235	Main Frame
16	HMXP1014	LiPo 1S 3.7V 600mAh Battery
17	HMXM2043	10A ESC
18	HMXE2236	Landing Skid
19	HMXE2230	682 Bearing Set
20	HMXE2227	Main Gear Set
21	HMXG8040	Main Motor w/pinion
22	HMXE2238	Front Fuselage
23	HMXE2239	Rear Fuselage Set
24	HMXE2228	Tail Rotor Blade
25	HMXG8041	Tail Motor
26	HMXE2121	Adhesive Tape
	HMXE2123	Battery Plug Adapter
	HMXE2185	Servo Ball Link Studs
	HMXJ2025	Transmitter 2.4G
	HMXP2022	Battery Charger



# Heli-Max®

**Manufactured by:**

Shanghai Nine Eagles Electronic Technology Co., LTD

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