

READY TO FLY TWISTER BELL 47

LEARN TO FLY WITH A 'REAL' RC HELICOPTER!

Earth-busting flight stability!

FREE Flight theory/training guide
FREE Online instructional videos
FREE Spare main blades set



**with new Li-poly
battery & charger**



10-15 minute flights!

**factory
assembled
& ready to fly**



This model has been
TEST-FLOWN
 SUCCESSFULLY and is therefore
FLIGHT-GUARANTEED
 to ensure
MAXIMUM SUCCESS

**TEST-FLOWN &
FLIGHT-GUARANTEED!**

SPECIFICATIONS

Main rotor diameter 340 mm
 Fuselage length 365 mm
 Radio control 4 channel with 2 micro servos
 4-in-1 unit speed cont., piezo gyro, receiver, etc.
 Model weight (no battery) 179g (6.3oz)
 Flying weight 222g (7.8oz)

CONTENTS

1 Assembled helicopter
 1 4 ch 35Mhz FM transmitter
 1 "4 in 1" on-board electronics unit
 2 Micro servos
 1pr Transmitter and receiver crystals
 1 7.4V lithium polymer battery pack
 1 Lithium polymer 12V DC/DC Charger
 1 Twister Bell 47 instruction manual
 1 Lithium polymer charging/safety guide
 1 ... FREE UPPER AND LOWER MAIN ROTOR BLADES

REQUIRED

1 JP 5537867 screwdriver
 8 AA alkaline pencil batteries
 either JP 5510050 12V gel cell battery
 or JP 4460049 ULTRAPOWER power supply

FEATURES

- ☐ Factory-assembled COMPLETELY READY-TO-FLY scale RC helicopter
- ☐ Around 10-15 minutes flight time per charge
- ☐ Co-axial rotors for unbelievable stability
- ☐ One-piece '4 in 1' on-board computerised electronics unit saves weight, improves performance and simplifies use
- ☐ Transmitter with charging socket, adjustable height sticks and silky operation stick units
- ☐ Speed controller disallows high throttle starts
- ☐ Throttle Fail-safe cuts in when signal lost
- ☐ Gyro is disabled at closed throttle to prevent unexpected tail rotor starts during transport
- ☐ Ball bearing swashplate and main shaft
- ☐ Requires 8 AA alkalines, 12V DC source
- ☐ Lithium polymer battery & 12V DC Li-Po fast charger included
- ☐ Ideal for learning to fly!

DOWNLOADABLE VIDEOS

Twister Bell 47 Introduction & Flight Preparation
 Twister Bell 47 Transmitter Controls
 Twister Bell 47 Advanced Flying

'Real' RC heli flying has never been this easy!

 <http://www.jperkinsdistribution.co.uk>



IMPORTANT!
 Radio controlled model
NOT A TOY!

This high performance model
 must be assembled and operated
 according to the instructions.

May cause serious injury to persons
 or property if not used responsibly.
 Unsuitable for children under 14 years.

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VITAL SAFETY INFORMATION

☐ IF YOU HAVE NEVER FLOWN RC HELICOPTERS WE RECOMMEND YOU SEEK ADDITIONAL ADVICE FROM YOUR SUPPLIER OF RC HELICOPTERS.

☐ READ ALL INSTRUCTIONS CAREFULLY PRIOR TO USING OR FLYING. CONTACT YOUR SUPPLIER IF ANY INFORMATION IS UNCLEAR. YOU ASSUME ALL RISK AND RESPONSIBILITY WHEN USING THIS MODEL.

☐ KEEP WELL CLEAR OF ROTATING BLADES TO AVOID PERSONAL INJURY. NEVER WEAR LOOSE CLOTHING WHEN OPERATING MODEL HELICOPTERS. ALWAYS WEAR PROTECTIVE EYE WEAR WHEN OPERATING MODEL HELICOPTERS.

☐ THE TWISTER BELL 47 IS DESIGNED FOR INDOOR OR OUTDOOR USE (IN CALM CONDITIONS), HOWEVER, FLY ONLY WHERE IT IS SAFE TO DO SO. A HARD FLAT SURFACE CLEAR OF ALL OBSTACLES AND A CLEAR INDOOR SPACE OF AROUND 400 SQUARE FEET IS THE MINIMUM RECOMMENDED REQUIREMENT.

☐ DO NOT FLY NEAR CHILDREN OR ANIMALS.

CRASHES & SPARE PARTS

The Twister Bell 47 has been designed to be strong and very easy to repair, however, the helicopter is not invulnerable and most people will tip their Twister Bell 47 over or break parts during their flying career. This is quite normal. Crash damage is not covered by warranty.

All parts are available as spares from your supplier. Study the exploded view of the helicopter carefully to understand the relationship between parts and how to replace them if necessary.

J. Perkins Distribution Ltd guarantees this product is free from manufacturing or assembly defects for a period of one year from time of purchase. This does not affect your statutory rights. This warranty is not valid for any damage or consequential damage arising as a result of a crash, misuse, modification or for damage or consequential damage arising as a result of failure to observe the procedures outlined in this manual. Operation of this model is carried out entirely at the risk of the operator. Please note that, whilst every effort is made to ensure the accuracy of the material included with this product, mistakes can occur and neither J. Perkins Distribution Ltd nor it's distributors will be held liable for any loss or damage arising from the use of this model or for any loss or damage arising from omissions or inaccuracies in the associated instructions or materials included with this product.

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J Perkins Distribution Ltd, Northdown Business Park, Ashford Road, Lenham, Kent, ME17 2DL, UK..

INTRODUCTION

Thank you for buying one of the most complete, most stable, high quality scale RC helicopters available today. The co-axial rotors and ingenious design create a helicopter that for the first time ever, can be flown virtually anywhere by anyone interested in RC helicopters!

It almost hovers by itself!

The Twister Bell 47 is ready to fly and requires only 8 AA alkaline transmitter batteries, small screwdriver and a suitable 12V DC charging source. It is designed for use indoors and outdoors (in calm conditions) in an adequate and safe space. This electric helicopter is designed by expert engineers and assembled at the factory. It is very strong, with numerous innovative safety features. The Twister Bell 47 uses the highest quality drive, power and control systems.

The Twister Bell 47 demonstrates nearly unbelievable hovering stability and will guide many pilots into successful flight in the shortest possible time.

Above all, this is one of the most fun-packed models we have ever flown and we hope you will enjoy flying it as much as we have!

State-of-the-art electronics in one package

The '4-in-1' on-board electronics package includes 6 channel receiver, piezo gyro, electronic mixers and speed controllers PLUS a computer fail-safe, an LED system check, and a motor safe-start facility.

Fail-safe and safe-start

The fail-safe cuts power to the main motor in the event of transmitter failure while the safe-start only allows starting when the throttle stick is low—so there is no danger of connecting the flight battery and inadvertently sending power instantly to the motors.

Professional transmitter

The transmitter has been designed for precision helicopter flying and features high quality, adjustable stick units, convertible between Mode II (throttle left) and Mode I (throttle right).

The transmitter incorporates a 'buddy box' trainer socket, moulded ergonomic grips and a charging socket (for use with optional nicad batteries).

Spares

All spares are available through local model and hobby shops. Visit the JP web site to check on current stock availability of Twister Bell 47 spare parts, or click here.

NEW TO R/C HELICOPTERS?

Welcome to the fascinating world of RC model helicopters.

If you are new to RC model helicopters, please do not expect to be able to 'open the box and immediately 'fly around'. This model requires a commitment by the customer to spend time learning the procedures required for safe and successful operation.

To most people, this represents an interesting and usually exciting challenge.

We have included an outline of model helicopter flight theory and a Flight Training Guide written by experienced RC model helicopter pilots.

We hope this will help you.

However, this information is not designed as a definitive guide and is not a guarantee that you will achieve successful helicopter flight. Neither do we guarantee you will not break anything!

If this is not what you expected, we advise you not to buy this product.

Safety

Please be aware that rotating blades can inflict painful and possibly serious injuries to people and animals should the rotors strike a person or object! Radio controlled models themselves can reach high speed and cover great distances if control is lost and must therefore be used responsibly and with care.

The model uses crystal-controlled 35mHz FM RC equipment. To avoid interference and possible crashes, always check frequencies with other pilots before switching on.

Please observe the principles of safety as described by the British Model Flying Association at their web site:

<http://www.bmfa.org>

in their safety code which is available on-line.

Downloadable videos

A series of free downloadable videos are available from the JP web site covering aspects of the Twister Bell 47. If you are new to RC helicopters you may find the following useful:

"Twister Bell 47 Introduction & flight preparation"

"Twister Bell 47 Transmitter controls"

"Twister Bell 47 Advanced Flight Manoeuvres"

Further info

Your supplier will be pleased to advise you concerning additional sources of information if you wish to know more about RC model helicopters.

**PREPARING FOR FLIGHT****1. UNPACK YOUR TWISTER BELL 47**

- ▼ 1. Carefully remove the model and other items from the packaging.
- ▼ 2. Screw the transmitter aerial into its socket in the top of the transmitter.
- ▼ 3. Insert 8AA alkaline batteries into the transmitter battery compartment being careful to observe battery polarity.
- ▼ 4. Unwrap the receiver aerial ENTIRELY from its stowed location and leave it free to hang.

WARNING!

RC flight is achieved through low power RF transmissions and is susceptible to interference. It is important to route the receiver aerial directly away from the helicopter and away from interference hazards.

***Useful tip**..... Although the Twister Bell 47 is very strong, all model helicopters require careful handling and a delicate touch. In particular, take great care with the electrical connections to and from the '4-in-1' control unit and do not overtighten any screws.*

2. FITTING THE FLYBAR

- ▼ 1. Carefully snap fit the flybar unit into the mouldings at the top of the main shaft and retain with the single screw supplied. Do not overtighten. The flybar must be free to rock unimpeded with no friction. See pic above.
- ▼ 2. Snap the plastic flybar link into position on a main blade pitch arm as shown above.

3. CHARGING THE FLIGHT BATTERY

The Lithium polymer (Li-po) flight battery is supplied in a partially charged state. The Li-Po fast charger is designed to automatically charge the Li-Po battery in about 1 hour from a discharged state. The charger requires a 12 volt DC source.

Use either:

5510050 12 volt sealed gel cell modelling battery, or
4460049 Ultrapower 12V 10A power supply (3 PIN).

- ▼ 1. Connect the charger to your power source. The 'POWER' LED will flash red.
- ▼ 2. Connect the Li-po battery to the charger. The green LED will light and the red LED will glow solid red.
- ▼ 3. When the battery is fully charged the green LED goes out. Disconnect the battery from the charger.
- ▼ 4. Disconnect the 12V power source from the charger.

Never use other types of charger - the battery may explode! Never attempt to charge a hot battery, always let it cool down. Always disconnect the battery from the charger when not in use.

WARNING!

Dangerous if treated improperly!

Please take time to read the supplementary instructions on charging Lithium Polymer batteries.

4. FITTING THE FLIGHT BATTERY

- ▼ 1. Place the charged battery pack onto the battery holder using Velcro supplied and secure in place with rubber band supplied. Do not connect to the RC equipment yet.

5. CHECKING CENTRE OF GRAVITY

The helicopter must balance on the main shaft. This means that when the helicopter is lifted by the rotor head it hangs perfectly straight and level. It should hang neither nose down nor tail down. Adjust the position of the battery until this is so.

PREFLIGHT CHECKS

1. 4 IN 1 UNIT CHECKS



Gain Yaw trim Status LED

The 2 trimmers on the front of the '4-in-1' unit are factory adjusted and should need no adjustment. The status LED is next to the trimmers. The trimmers perform these functions:

- ▼ Gyro gain. The left trimmer (GAIN) adjusts the amount of gyro tail stabilisation from 0 to 100%. The piezo gyro automatically stabilises the tail against torque changes and gusts, making the helicopter much easier to control. 90% is usually the best setting.
- ▼ Yaw trimmer. The right trimmer (PROPORTIONAL) adjusts tail trim (centring of the tailboom).

WARNING!

This unit contains delicate electronics. If your model tips over or crashes when flying or if your Twister Bell 47 motors are physically stalled and prevented from turning, you must immediately reduce throttle to avoid damage to the speed controllers and other components.

Crash damage and motor stall damage is not covered by warranty.

2. VISUAL CHECKS

- ▼ Check that all linkages and connectors are attached and that rotating parts are free to rotate smoothly.
- ▼ Check that all linkages move freely with no binding or stiffness. Free off any linkages that show any level of tightness or binding.

3. TRANSMITTER CHECKS

Each dual axis stick unit on your transmitter controls 2 helicopter functions giving you control about all 4 axes; pitch (nose up/down), roll (roll left/right), height and yaw (nose left or right).

In the photo below, the left stick controls height (climb or descent) and yaw (left or right). The right stick operates the cyclic steering controls, which are used to pitch the helicopter nose up/nose down (for forwards or backwards flight) and to roll the helicopter left or right (for left or right sideways flight).

See pic below for Mode 2 layout.



See pic below for Mode 1 layout.



- ▼ 1. Move the throttle stick and throttle trim of your transmitter to the lowest (low throttle) position.
- ▼ 2. Centre the trim levers of the 3 other transmitter functions.
- ▼ 3. Extend the transmitter aerial fully.
- ▼ 4. Switch on the transmitter.
- ▼ 5. Check that the receiver aerial is unwrapped ENTIRELY and lay it out leading away from the helicopter.

4. POWER ON CHECKS

- ▼ 1. To power up the helicopter, you must connect the JST battery connector to the matching lead emerging from the '4-in-1' control unit.
Do this now - ensuring you are well clear of the rotors and that throttle stick and trim are in the low position.
- ▼ 2. Observe the '4-in-1' status LED. Initially, it will blink red, then blink green. After the on-board computer has completed satisfactory systems checks, it will glow green continuously.
Do not move the helicopter during this checking and calibration process.
Do not operate the throttle yet.

WARNING!

Keep hands, clothing, eyes, animals and children well clear when connecting power to this model or when flying it!

WARNING!

Do not operate this model with a collapsed or partially collapsed transmitter (or receiver) aerial. The model may suffer from interference and may endanger your personal safety! Always extend the aerials fully.

5. RANGE CHECK

- ▼ Check that the cyclic steering controls operate the cyclic servos in the helicopter without interference up to a minimum distance of 50 metres with transmitter and receiver aerials extended.

WARNING!

Do not fly at 50 metres distance or greater At distances of greater than 50 metres, it will become impossible to see your Twister Bell 47. We strongly recommend you fly no further away than 15 metres.

6. CONTROL OPERATION CHECK



- ▼ 1. The helicopter swashplate should be perfectly horizontal when viewed from the front and from the side of the helicopter. If it is not, adjust the transmitter trims until it is. See pic above.
- ▼ 2. Roll cyclic - Move the roll (aileron) stick to the left. The swashplate should tilt to the left. If it tilts the opposite way, reverse the roll (AIL) reverse switch on the front of the transmitter.
- ▼ 3. Fore and aft cyclic - Move the fore and aft (elevator) stick forward. The swashplate should tilt forward. If it tilts the opposite way, reverse the fore and aft (ELE) reverse switch on the front of the transmitter.
- ▼ 4. Throttle - Slowly push the throttle stick forward and check that the main rotors start to rotate. Then immediately throttle back.
- ▼ 5. Yaw - Tail control is achieved by altering the speed of the main rotors and can only be checked just before take off as the helicopter becomes light on its skids.

Your Twister Bell 47 is ready for flight.

After finishing flying, always disconnect the battery from the helicopter FIRST. Then switch off the transmitter. Do not switch off the transmitter first and disconnect battery second.

Always ensure that drive motors are not too hot before attempting to have another flight with your Twister Bell 47. Flying with hot motors will reduce your flight times and damage your motors.

WARNING!

You must take care and ensure the flying area is large enough and contains no obstacles (such as children, animals or furniture), which could be hit while you are flying your Twister Bell 47.

HOW DOES A HELICOPTER FLY?

A helicopter must be controlled about 4 axes simultaneously; yaw, pitch, roll and height. Your transmitter has 2 dual-axis precision stick units with two controls on each stick.

In a throttle left (mode 2) transmitter the left stick controls height (climb or descent) and tail rotor controls yaw (left or right).

The right stick operates the cyclic steering controls which are used to pitch the helicopter nose up/nose down and to roll the helicopter left or right.

The revolutionary contra-rotating system used in the Twister Bell 47 transforms helicopter flight by making control so easy that the helicopter almost flies itself!

Transmitter stick movements

Helicopters require relatively small control inputs of relatively small duration. Do not move the sticks to extreme positions. A delicate touch is required on the sticks. The sticks should be allowed to return to neutral almost immediately after a control input is made. If you watch an experienced pilot hovering his helicopter, you will see that his transmitter sticks hardly move. This is the goal you will be working towards in this guide.

Height control

A helicopter's rotating wings - the rotor blades, generate lift, in the same way that a propeller generates thrust. The lift generated by the main rotor blades increases as rotor speed rises causing the helicopter to climb. Conversely as the main rotor speed is reduced, the helicopter descends.

This method of helicopter height control is called 'fixed pitch'.

Height is managed using the throttle stick of your transmitter.

Push forward to climb, pull back to descend.

Yaw control

Yaw control is achieved by altering the speed of one main rotor relative to the other which causes a change in the torque generated by the main rotor and hence a rotation to left or right about the main rotor shaft.

When a helicopter is in the hover it can be yawed left or right.

Push the rudder stick left to yaw the nose of the helicopter to the left and push to the right to yaw the nose right.

Your Twister Bell 47 helicopter is fitted with a micro piezo gyro and electronic mixing system which automatically helps stabilise the tail making for much easier flight.

Steering control - fore and aft cyclic

When hovering, a brief forward push on the cyclic control stick will tilt the rotor disc forward causing the helicopter to move off in that direction. Pull the

stick back gently to stop it. If you pull the stick back further, you start flying backwards.

Steering control - roll cyclic

When hovering, a brief right control stick movement will roll the rotor disc to the right and the helicopter will start moving to the right. By briefly moving the stick to the left any right drift or movement will be arrested or reduced.

Mastering the hover

Both experienced model and full-size helicopter pilots in the hover will gently 'nudge' the cyclic controls automatically in order to keep their helicopter in one spot and prevent it from moving away from that spot.

A large part of the initial learning phase in helicopter flight is about mastering the cyclic controls and learning to hover. Control commands will become 'instinctive' when you have 'mastered' the hover.

**FLIGHT TRAINING GUIDE****The flying area**

The flying area should be indoors in a large room or a hall or office. In this room you should have all doors closed as any wind can affect the movement of the Twister Bell 47.

Make sure the take-off floor has a smooth surface rather than carpet which can trip up the Twister Bell 47 during ground handling.

WARNING!

You should be aware that the main rotor blades spin at a high rpm and are capable of inflicting serious damage to objects, people and animals. You must take care when you are flying and make sure there are no children or animals in the room or flying area.

In addition, make sure the flying area is large enough and contains no obstacles (such as furniture) which could be hit while you are learning to come to terms with the flight characteristics of your Twister Bell 47.

POSITIONING YOUR TWISTER BELL 47

First, double check that all the controls are working and operating correctly.

Place the model in the middle of the room.

Position yourself at least 2 metres behind the helicopter and slightly off to one side so that you are able to see the nose of the helicopter.

***Useful tip**..... Please note when flying that you must always watch the nose of the helicopter. If the nose of the helicopter yaws to the left, you must apply right tail rotor to correct this by pushing the tail rotor stick to the right.*

INCREASE THROTTLE GENTLY

Watch the nose and apply just enough throttle until the model becomes light on its skids.

***Useful tip**..... All helicopters exhibit a degree of instability when approaching take-off as friction from the ground is reduced as the helicopter gets nearer to 'unsticking' from the surface.*

Observe whether or not the helicopter is tending to move forwards or backwards.

If it tilts forward, you will need to apply rear elevator (rear cyclic) trim to correct. And vice versa if the Twister Bell 47 tends to tilt backwards towards you. Observe the helicopter about the roll axis and adjust the trims in the same way—if it tends to roll or hop to the left, apply a little right roll trim and vice versa. Adjust the trims until the Twister Bell 47 shows no detectable forward, backwards or sideways drift tendencies.

***Useful tip**..... When applying throttle, you must apply it gently and in small amounts. At this stage the Twister Bell 47 MUST STAY ON THE*

GROUND!

Too much throttle will cause the helicopter to leave the ground and you may have difficulty in bringing it under control quickly enough to avoid tipping it over.

WARNING!

Too much throttle applied too quickly will cause your helicopter to leap rapidly and uncontrollably into the air!

Never apply too much throttle too quickly.

WALKING THE HELICOPTER

The helicopter should now be trimmed and you should be in a position to start learning to 'take your Twister Bell 47 for a walk'.

These first flights should be made with the Twister Bell 47 in contact with the ground at all times.

Apply just enough power to make the helicopter light on the skids and add a few clicks of forward trim to tilt the rotor disc forwards.

Apply enough power so that the machine starts to move slowly forwards. Watch for any change of direction of the model and use the controls to correct.

At this point, you will be able to check yaw operation. Applying left yaw will tend to swing the nose to the left and right yaw will swing the nose right. Note that the on-board piezo gyro damps out any tail direction changes and so stabilizes the helicopter.

The aim now is to travel steadily and progressively across the floor.

Walk forwards following the helicopter across the floor whilst using the controls to maintain slow and accurate progress.

The 'walking technique' is the method often used to safely develop the automatic ability to apply the right control input when needed. You should practice this until you are starting to automatically input the control commands required to keep the helicopter moving gently forwards along the ground. When you feel confident, proceed to the next step...

TAKING THE FIRST 'HOP'

By now you should be making the correct control inputs automatically and be able to make smooth progress across the surface of your floor.

If you cannot, please keep practicing!

The first 'hop' is a natural 'next step' from walking your Twister Bell 47.

Whilst walking you apply a small amount of extra throttle to briefly raise the helicopter off the floor and into the air for a second. Then you should reduce throttle and settle back onto the floor.

With practice, you will find that you are able to make more and more of the correct control commands required to keep your Twister Bell 47 upright and that the hops become longer and higher. Always make sure you watch the nose of your helicopter—not the tail. The gyro will keep the tail

straight for you a lot of the time but you will have to use the yaw control to swing the nose of the helicopter straight as you make progress across the floor.

Keep practising and you will find that your flights will become longer.

Please be aware that a model helicopter in the hover—regardless of design—will never stay completely still!

A helicopter will always require some level of input to stop drift or a tendency to turn or climb. This is not a sign of something faulty with the helicopter, but is in the nature of a hovering helicopter.

By now you should be able to manage hops at a height of between 10 and 30cm with duration of 5-10 seconds per hop. Flights will become longer and easier as your co-ordination and understanding of flight develop.

HOVERING AND MANOEUVRES

As your co-ordination and anticipation improves, you should be able to reduce forward speed when making 'hops', thereby bringing your helicopter into a hover.

Practice hovering until you feel confident with the basic handling of your helicopter.

Next, you should start experimenting at rotating (yawing) the helicopter slightly to the left or right using the tail rotor (yaw) controls—but only proceed to this stage when you have mastered the hover! From the hover, yaw the model a few degrees left and then back to straight ahead—always remembering to watch the nose. Practice yawing to left and to right until you feel confident.

Next, practice crabbing your Twister Bell 47 to the right and left using cyclic controls. Proceed as follows:

From the hover, briefly 'nudge' a small amount of right roll. Your Twister Bell 47 will start a drift to the right. Put in a small amount of opposite roll to halt the drift, then a small amount of left roll to start a drift to the left. You will probably need to keep the tail straight using tail rotor whilst doing this. Always be ready to correct the drift by using opposite roll. If you get into trouble at any stage, reduce the throttle, land, change you trousers and try again.

BEYOND THE HOVER

As you become more proficient with your helicopter you will want a larger space so you can really start to fly around instead of hovering about all day.

If you do fly outside, please remember that any wind will affect the performance of your Twister Bell 47. Please keep this in mind if you do fly outdoors (in calm conditions) and don't be too surprised if, while flying your model, it suddenly climbs or drops without you making any input. This can be caused by a breeze or even a 'thermal' coming through.

A training undercarriage can be a huge help by providing your Twister Bell 47 with a wide track

and a degree of cushioning to aid stability and therefore help prevent 'tip-overs'. See the parts listing at the end of this manual. Another useful training aid is a computer flight simulator which can greatly enhance and speed up the learning process. In addition a simulator is great for teaching you "nose in". This is when the nose of the helicopter is pointing at you and where some of the controls become effectively reversed—which can catch out both experienced and novice pilots alike!

GOOD LUCK AND HAPPY FLYING!

TROUBLESHOOTING

VIBRATION

▼ Bent main shaft

The tail boom and undercarriage will vibrate if the main shaft is bent. Replace the main shaft and gear unit if you suspect a bent main shaft

▼ Flybar is bent.

Straighten or replace if badly bent.

▼ Main blades out of balance.

Check that blades are not bent or broken.

MAIN ROTOR DOES NOT TURN

▼ Check throttle stick and trim lever are in the fully down position before advancing the throttle stick.

▼ Check all electrical connectors and that the '4-in-1' receiver crystal is seated securely in the socket in the '4-in-1' unit.

▼ Check Li-po battery is charged.

▼ Check state of transmitter batteries.



SPARE PARTS AND OPTION PARTS

6600357 4-IN-1 ESC/GYRO/MIXER/RECEIVER

6600360 MICRO SERVO

6600362 MICRO SERVO GEAR SET

6600840 TRAINING UNDERCARRIAGE SET



4460049 ULTRAPOWER 12V 10A POWER SUPPLY
3-PIN



4460051 ULTRAPOWER 12V 10A POWER SUPPLY
2-PIN

5510050 12V-7AMP POWERCELL GEL BATTERY

6600290 LI-POLY PACK (2 CELL)



6600325 2 CELL 7.4V LI-PO CHARGER



6600357 4-IN-1 ESC/GYRO/MIXER/RX UNIT



6601520 MOTOR A WITH METAL PINION



6601530 MOTOR B WITH METAL PINION



6601540 PUSHROD SET



6601550 INNER MAIN SHAFT BEARINGS



6601560 OUTER MAIN SHAFT BEARINGS



6601570 CANOPY PAINTED



6601590 MAIN GEAR AND MAST SET



6601600 INNER MAIN SHAFT



6601610 UNDERCARRIAGE SET



6601620 MAIN CHASSIS



6601630 MOTOR HEAT SINK



6601640 ALLEN KEY/TIE WRAPS/TAPE



6601650 MAIN BLADES UPPER



6601660 MAIN BLADES LOWER



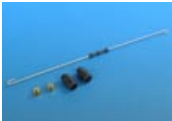
6601670 ROTOR HUB AND LINKS SET



6601680 BOLT SET



6601690 FLYBAR AND WEIGHTS SET



6601700 SWASHPLATE



6601710 TAIL BOOM SECTION COMPLETE



TWISTER BELL 47 EXPLODED VIEW

