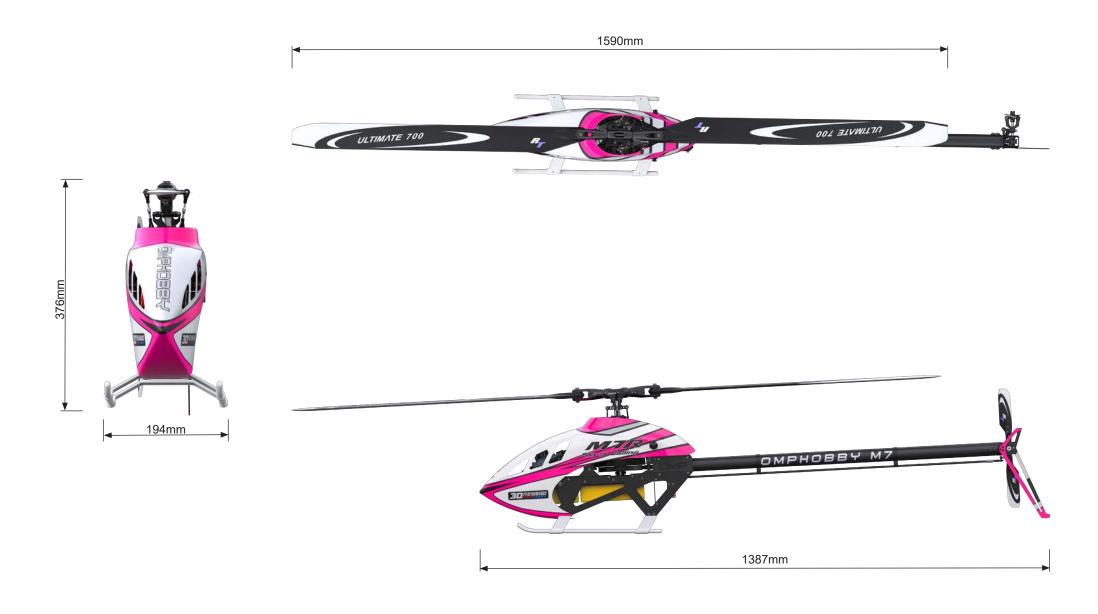
OMPHOBBY®

Instruction Manual



REVISION O









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Symbol Guide



Important Note



Assembly Requires AB Glue (Two-Part Epoxy)



Assembly Requires Grease



Middle Strength Thread Locker Required



High Strength Thread Locker Required



General Information and Limitations

OMPHOBBY M7R General Information

· Airframe Weight: 2270 ±15 g Main Blade Length: 690-716 mm · Tail Blade Length: 105-116 mm

• Battery Bay Dimensions: 355 x 69 x 68 mm (l x w x h)

 Swashplate Servo Size: 20 mm · Tail Servo Size: 20 mm · Tail Ratio: 110/22 = 5.0 Flying Weight: ~5100 - 5500 g

Gearing Options (Pinion Marked with * included in the kit)

Main Gear	Pinion	Gear Ratio
122T	11t	11.091
	12t	10.167
	13t*	9.385
	14t	8.714
	15t	8.133

Recommended Rotor Speeds and Collective Angles

Flying Style	Recommended RPM Range	Recommended Collective Pitch Range
Hovering	1300-1500 RPM	-5° ~ +12°
Low RPM 3D	1200-1400 RPM	±15°
Sport Flying	1400-1700 RPM	±14°
Aerobatics/Soft 3D	1700-2000 RPM	±14°
Hard 3D	2100-2250 RPM	±13°

Airframe Limitations

The OMPHOBBY M7R is engineered to meet the highest standards of 3D flight. Nonetheless, limitations apply to the airframe to guarantee safe operation and longevity of the model and its components. Operating the M7R outside these limitations will void any product warranty, and might endanger yourself and others. RC helicopters are not toys. Mishandling can lead to serious injury or death. The pilot assumes full responsibility for their usage of this product.

Limitations when flying 700 mm main rotor blades

- Maximum Rotor Speed: 2300 RPM (Including all in-flight transients)
- Maximum Collective Pitch below 1700 RPM: ±15°
- Maximum Collective Pitch 1700 2100 RPM: ±14°
- Maximum Collective Pitch above 2100 RPM: ±13°
- Minimum Flight RPM: 1100 RPM
- · Recommended Rotor Blades: RotorTech 700mm Ultimate

Limitations when flying 715 mm main rotor blades

- Maximum Rotor Speed: 2250 RPM (Including all in-flight transients)
- Maximum Collective Pitch below 1650 RPM: ±15°
- Maximum Collective Pitch 1650 2050 RPM: ±14°
- Maximum Collective Pitch above 2050 RPM: ±13°
- Minimum Flight RPM: 1100 RPM
- Recommended Rotor Blades: RotorTech 715mm Ultimate



Always obey the RPM limits of your rotor blades. Never fly with damaged or unbalanced rotor blades.



If using the optional 1:1 geometry, the pilot must electronically limit the helicopter to a maximum cyclic pitch deflection of 14.5° in any direction. Cyclic angles larger than 14.5° must not be used under any circumstances.



Motor Selection and Limitations

Motor Shaft

M7R only supports motor shaft of 6mm diameter, length 15 - 65 mm.

Mounting Pattern

M7R only supports motors with a M4 x Ø 30mm motor screw pattern, in all orientations.

Canopy Clearance

For fully cylindrical motors with 45xx stators, the maximum motor height is 61 mm.

For fully cylindrical motors with 50xx stators, the maximum motor height is 59 mm.

Motors with chamfered impeller designs might be able to exceed these limitations slightly, fitment in such cases must be assessed individually and cannot be guaranteed by OMPHOBBY.

Setup Data for Rotorflight 2

CCPM 120° Swashplate Type Main Rotor Direction Clockwise · Cvclic Blade Pitch Limit 14 4° Collective Blade Pitch Limit 14° CW Yaw Blade Angle Limit 44.5° CCW Yaw Blade Angle Limit 31.2° Total Blade Pitch Limit 22°-24° Swashplate Phase Angle

Motors

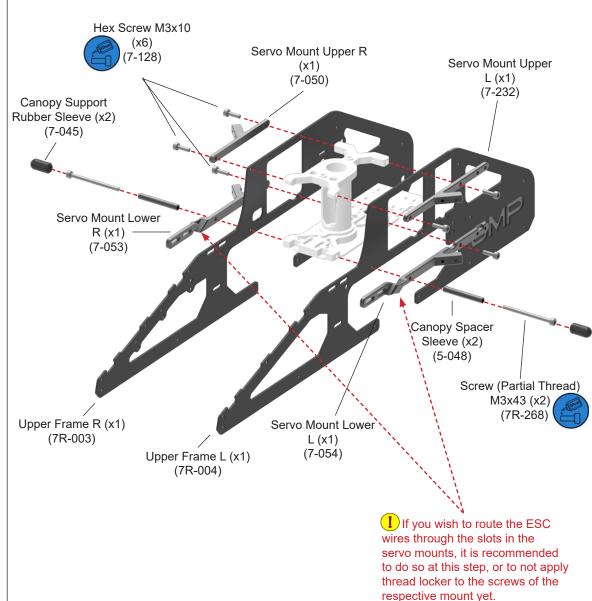
Tail Ratio [22]: [110] [13]: [122] Main Gear Ratio Main Motor Pole Count [10]

(Pole Count applicable to all SUNNYSKY motors. Check your motor specifications if using a different

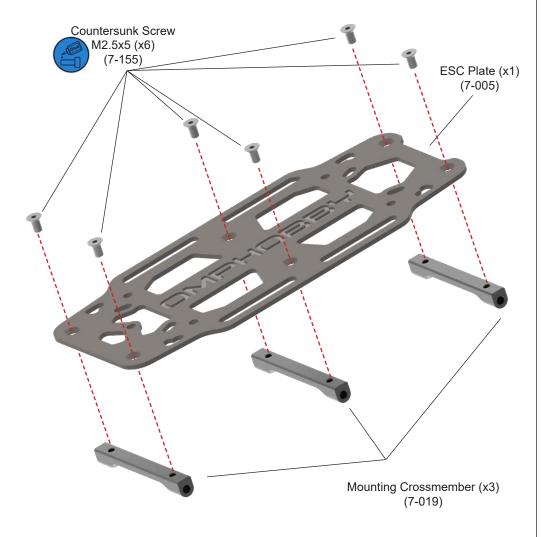
brand.)

01 Central Dome Assembly Screw M3x6 (x4) (7-126)**Upper Coaxiality** Block (x1) (7R-029) Bearing (x2) Ø15xØ24x7 (7-204)Main Shaft Cover (x1) (7-028)For easier wiring, you can already put Lower Coaxiality Block (x1) some zip ties through (7R-026) the seperator plate at this point. M3 Nyloc Nut (x2) (7-163)Countersunk Screw M2.5x5 (x5) (7-155)Separator Plate (x1) (7-009)Don't forget to install the M3 nyloc nuts in their Mounting Crossmember (x1) respective slots! (7-019)

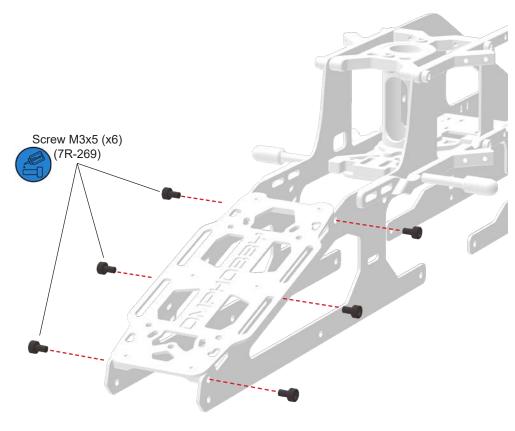
02 Upper Side Panel Assembly



01 ESC Plate Assembly

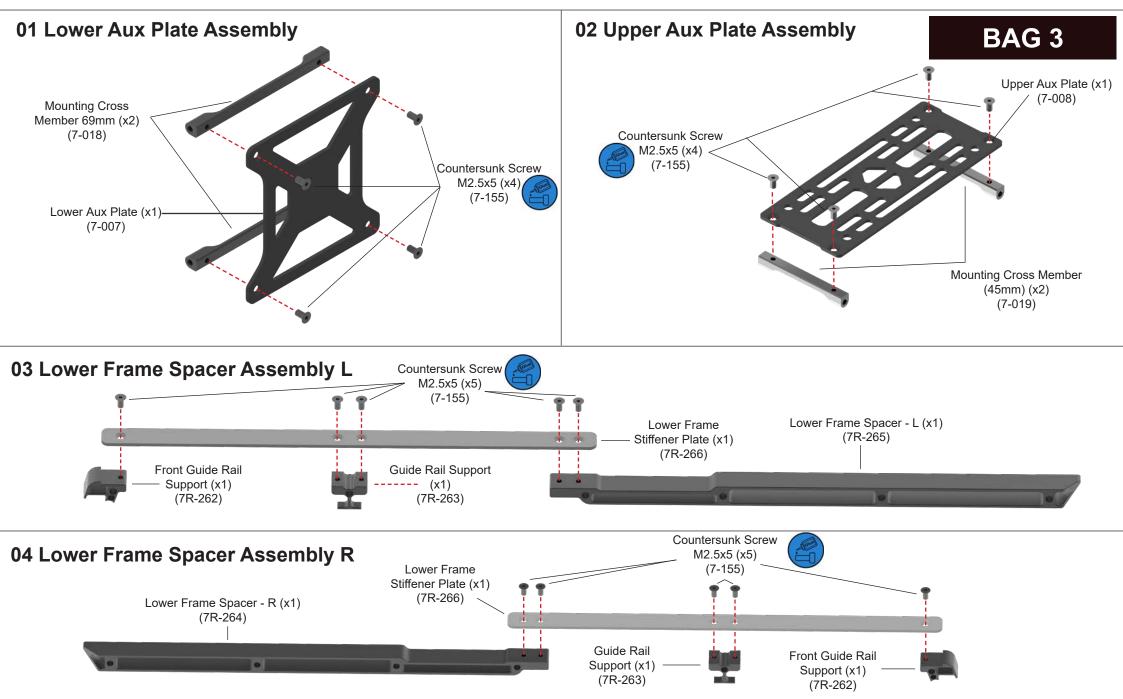


02 ESC Plate Installation





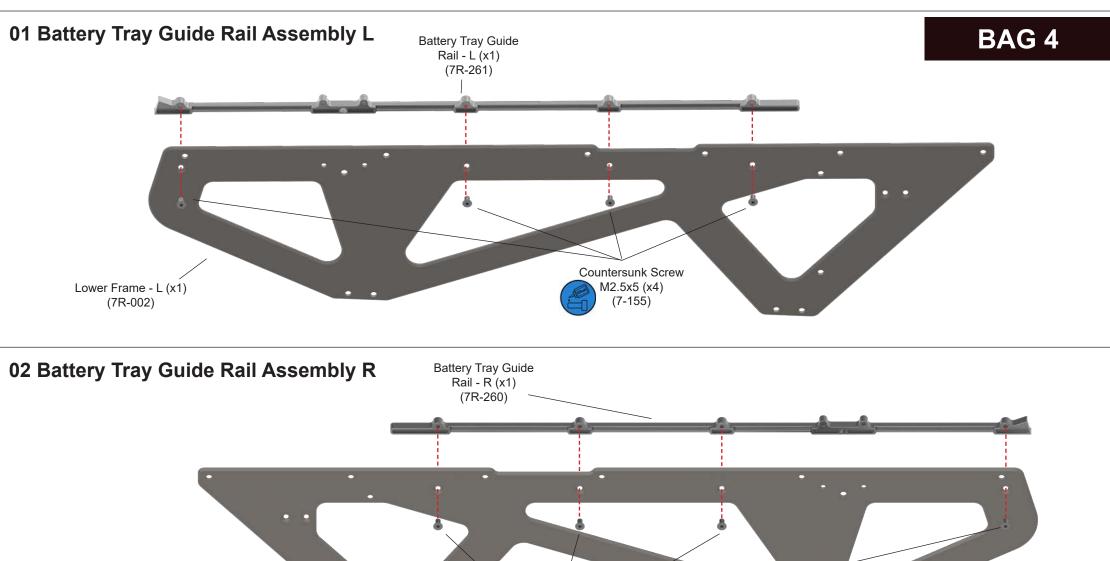
Lower Frame Components





Lower Frame - R (x1) (7R-001)

Lower Frame Components Cont.

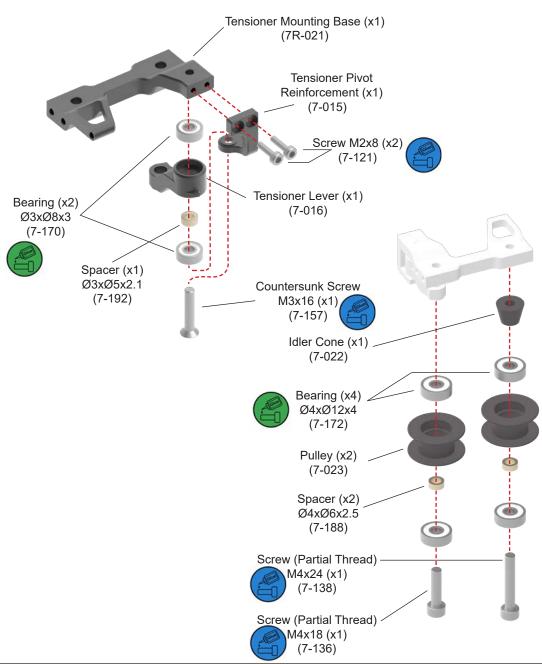


Countersunk Screw M2.5x5 (x4) (7-155)

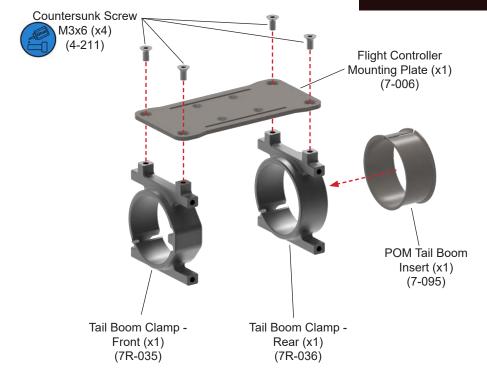


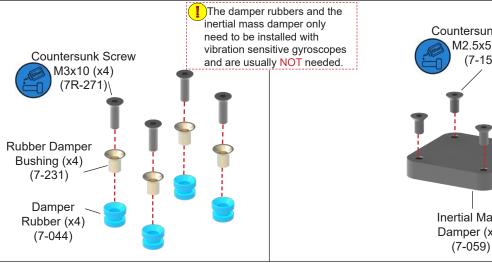
Tail Belt Tensioner and Boom Mount

01 Tensioner Idler Pulley Assembly

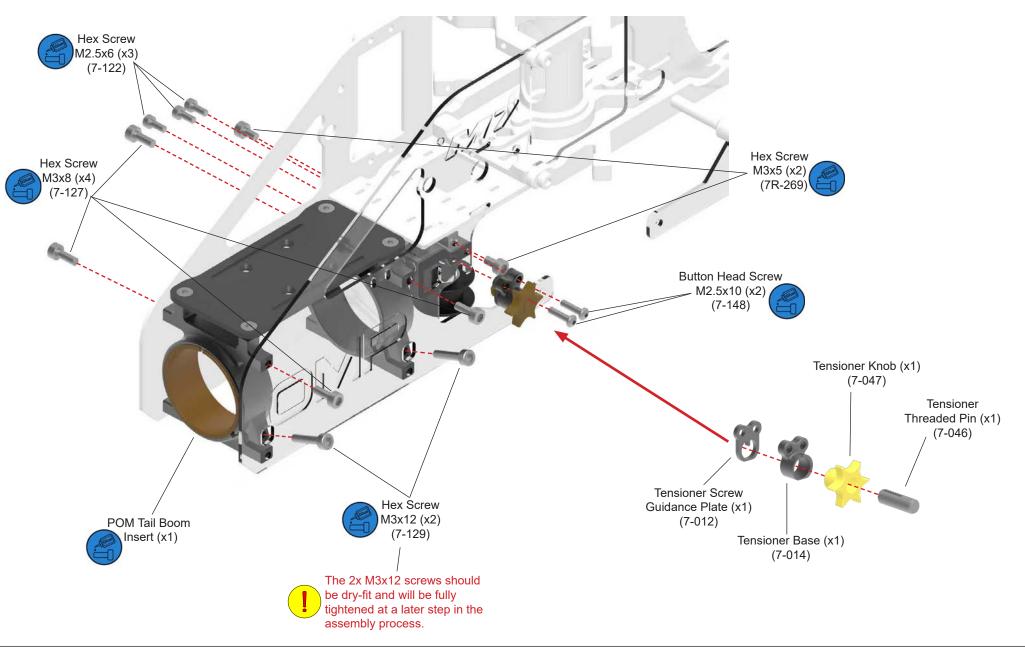


02 Boom Clamp & FC Plate Assembly

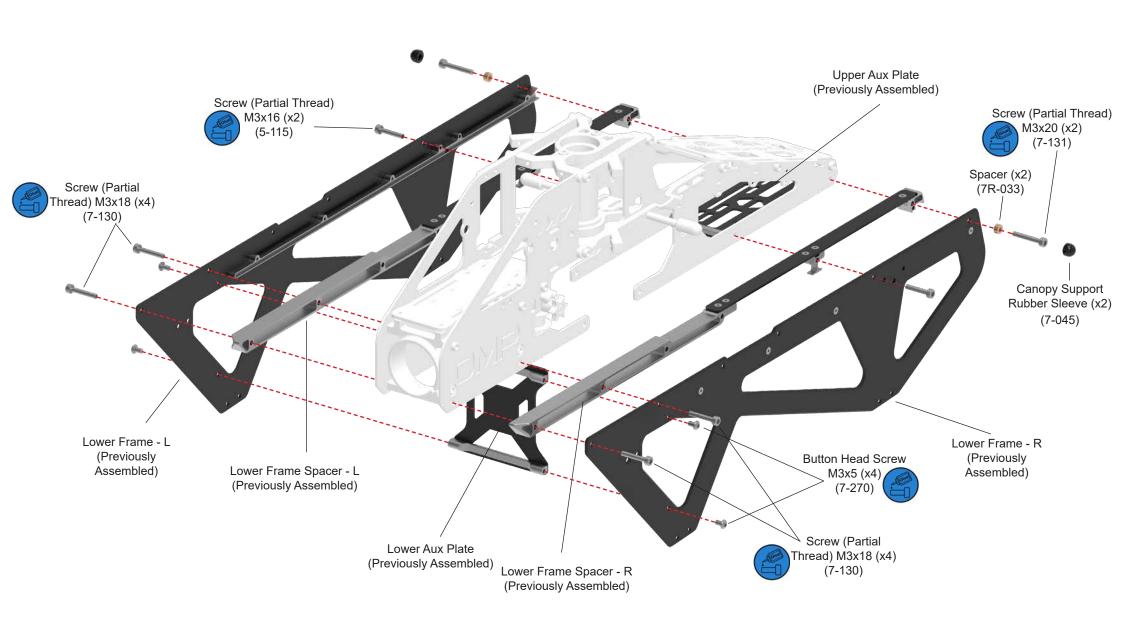




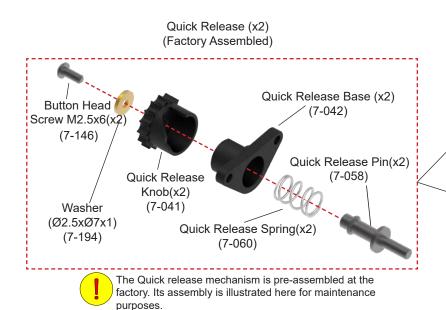
02 Tensioner and Boom Clamp Assembly

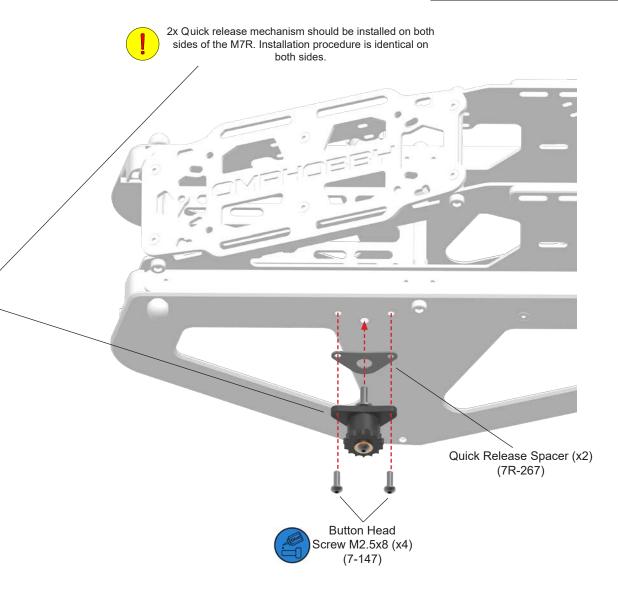


01 Lower Frame Assembly



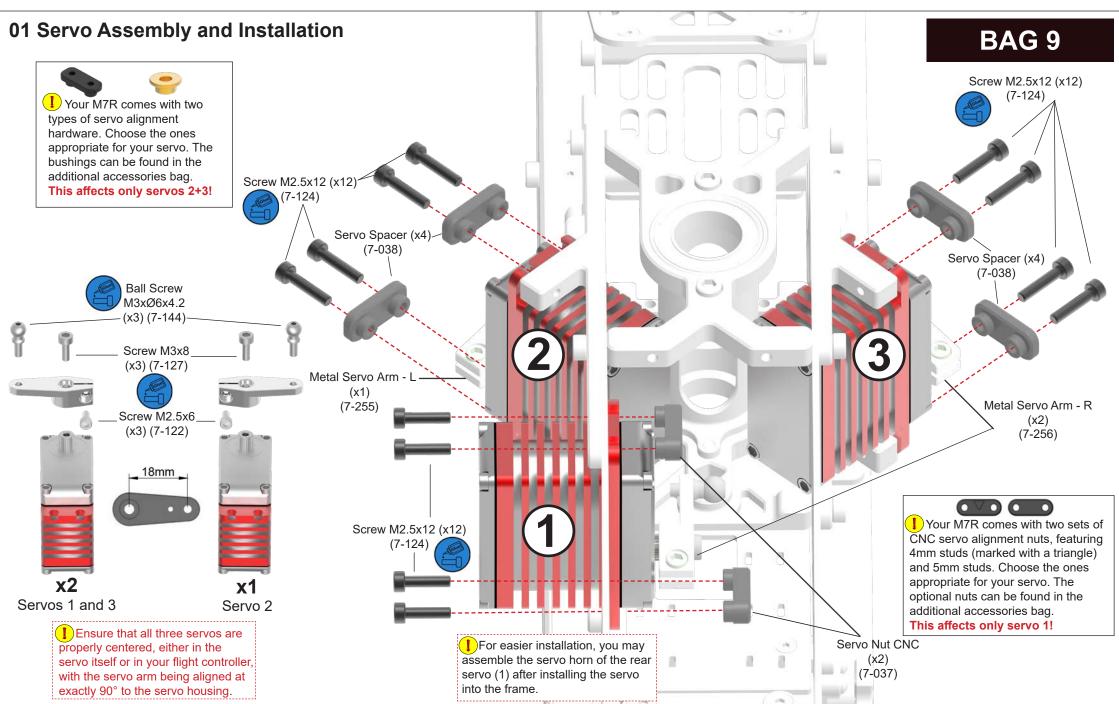
01 Battery Quick Release Assembly







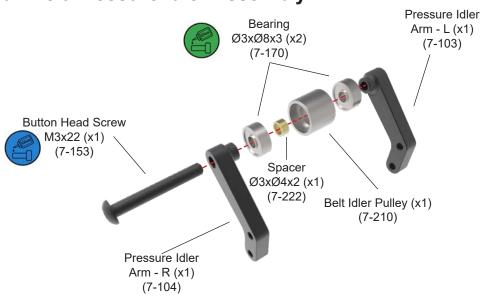
Cyclic Servo Installation

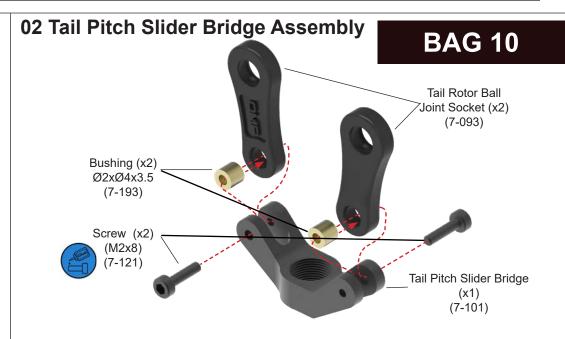




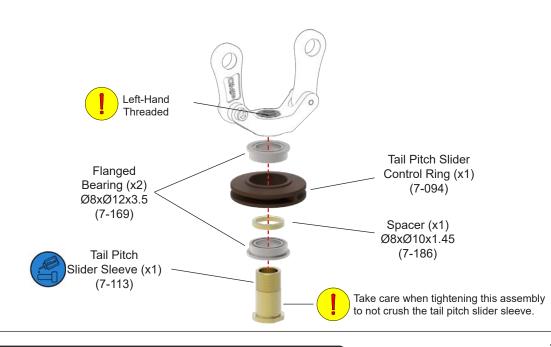
Tail Component Assembly

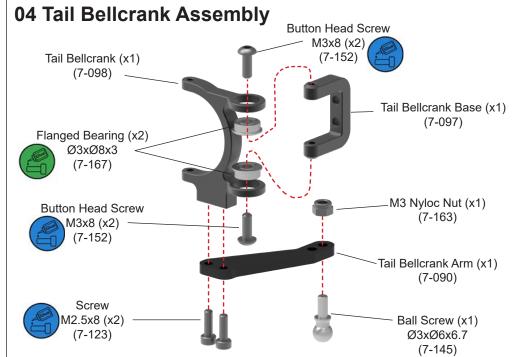
01 Tail Belt Pressure Idler Assembly Bearing



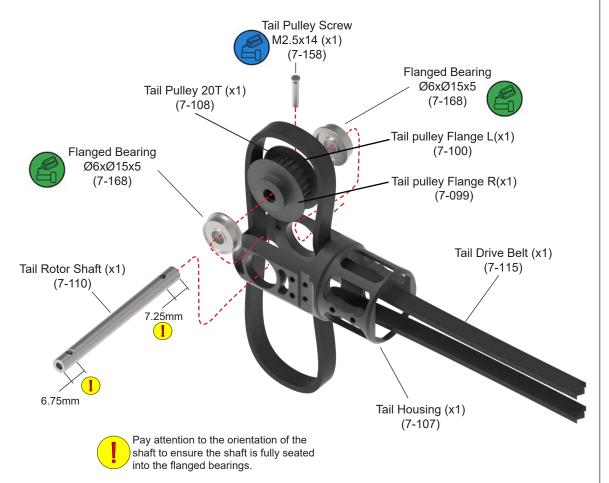


03 Tail Pitch Slider Ring Assembly

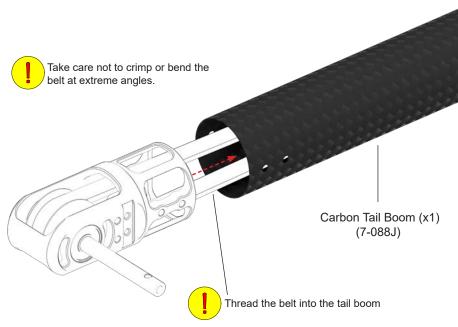




01 Tail Gearbox Assembly

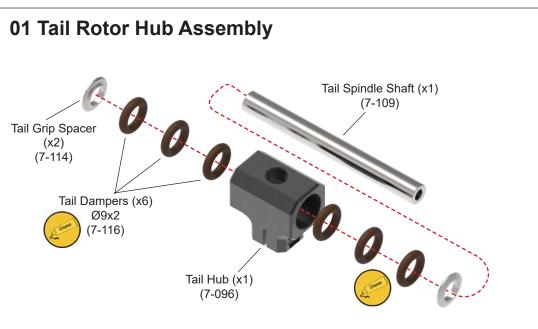


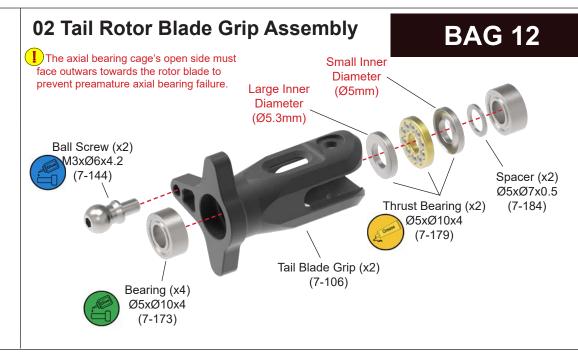
02 Tail Gearbox Installation



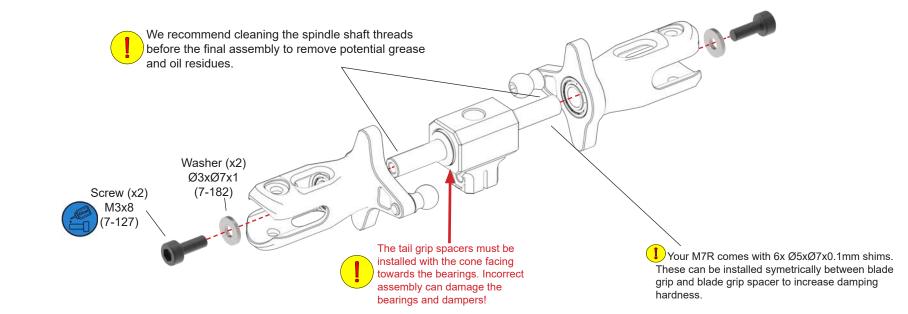


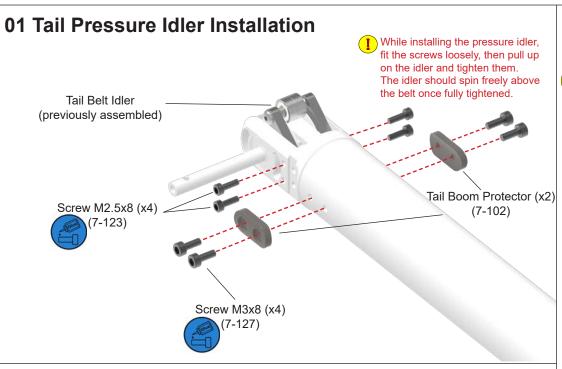
Tail Rotor Head Assembly



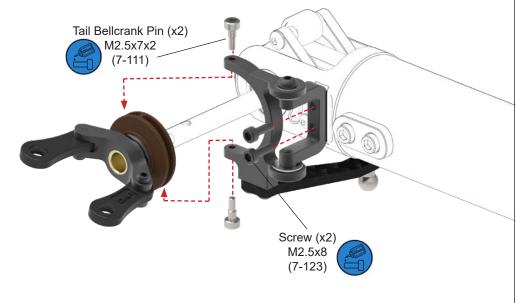


03 Tail Rotor Head Assembly

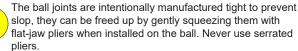


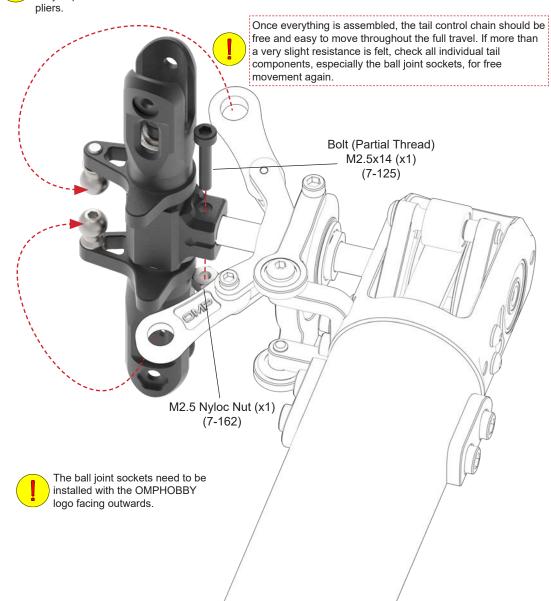


02 Tail Pitch Slider Installation



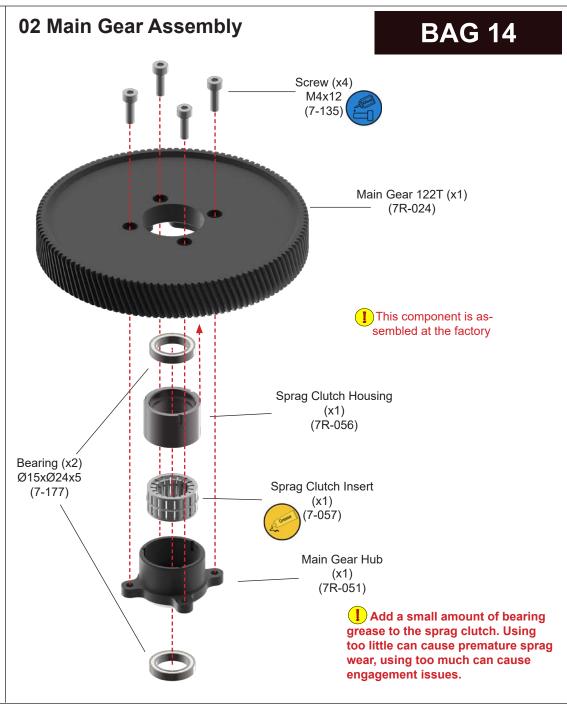
03 Tail Rotor Installation



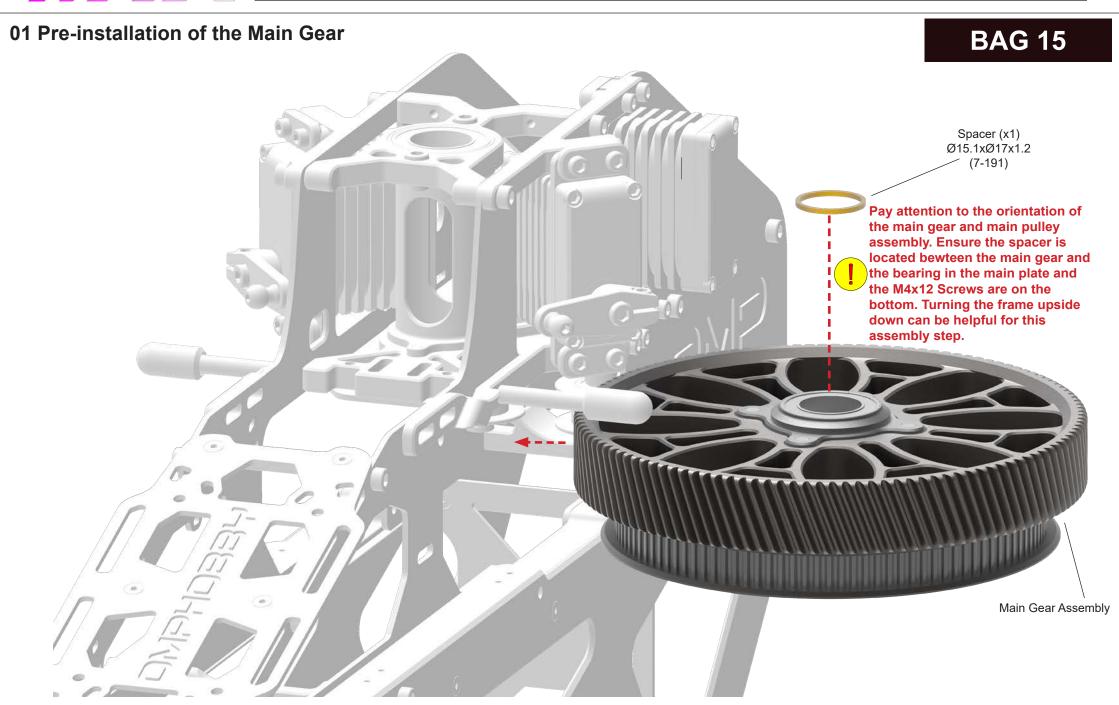




01 Main Pulley Assembly Countersunk Screw M2.5x5 (x12) (7-155) Main Pulley Flange (x2) (7-011)Main Pulley 110T (x1) (7-052)

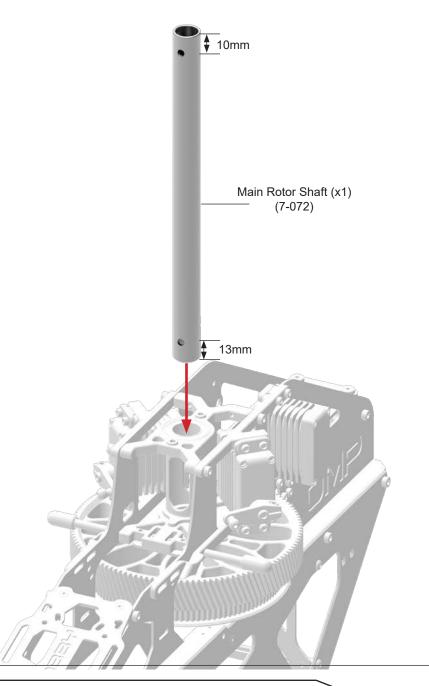


Transmission Installation

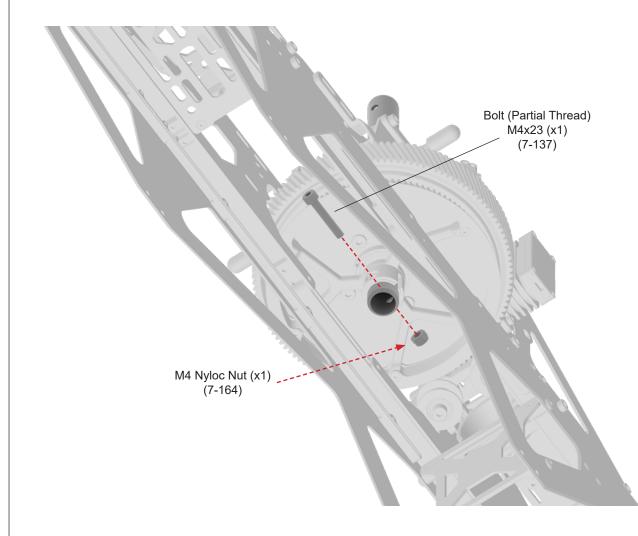




01 Main Rotor Shaft Installation





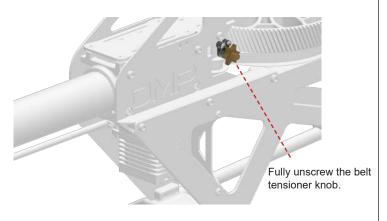


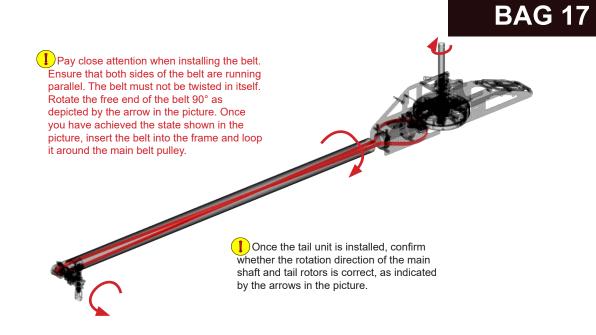


01 Attach the Tail Boom Assembly to the Frame

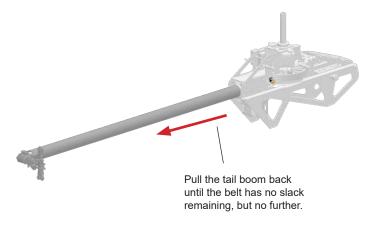
02 Belt Tensioning Procedure

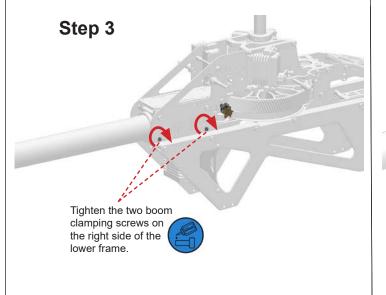
Step 1



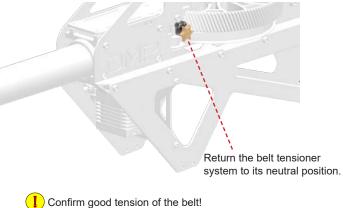


Step 2



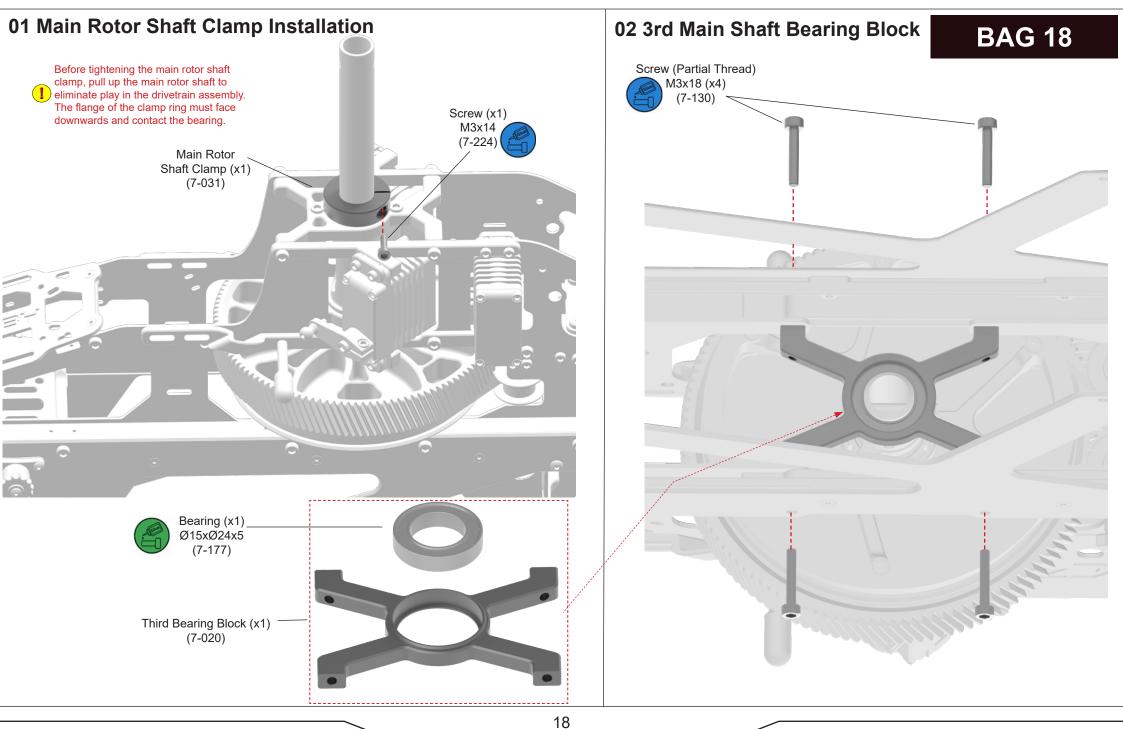


Step 4



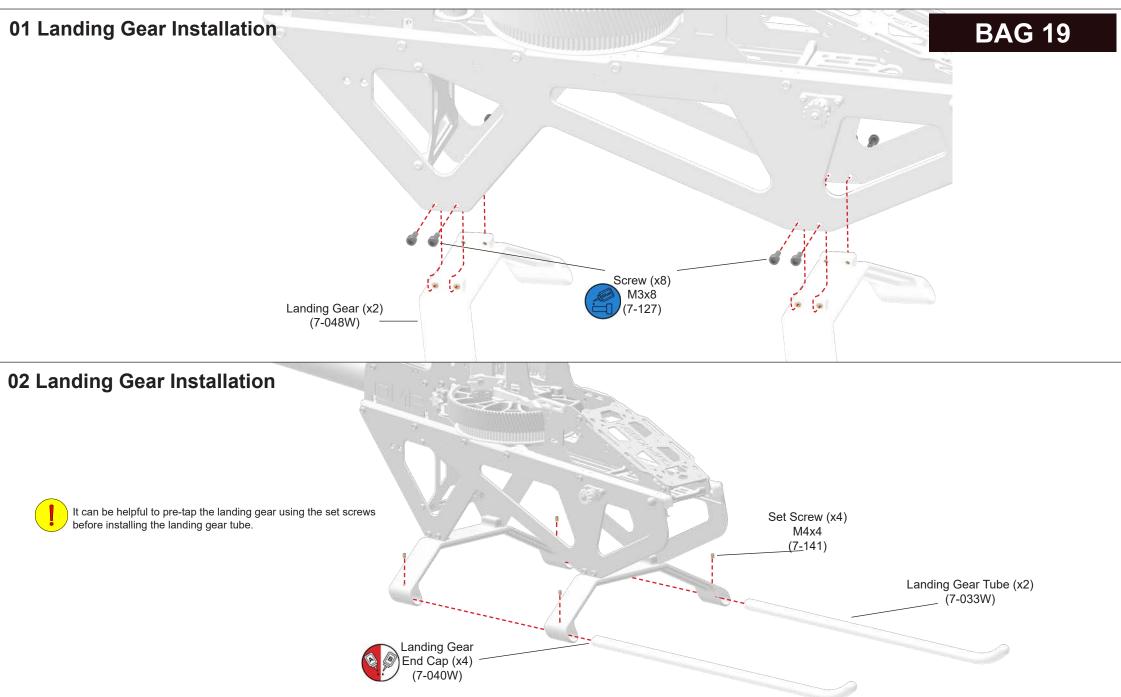


Third Bearing Block Installation

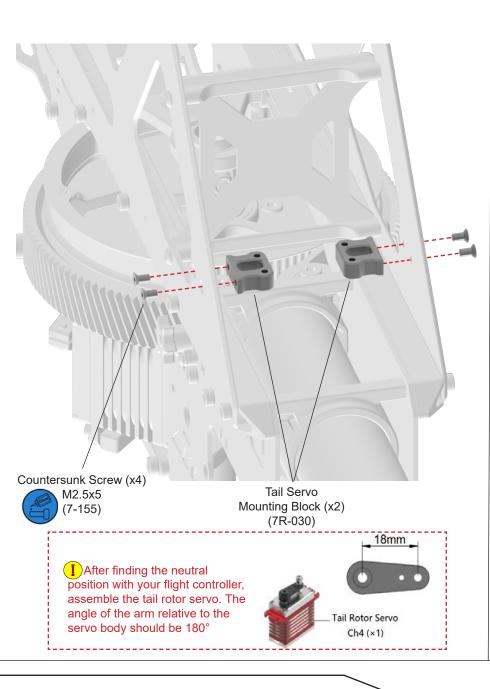




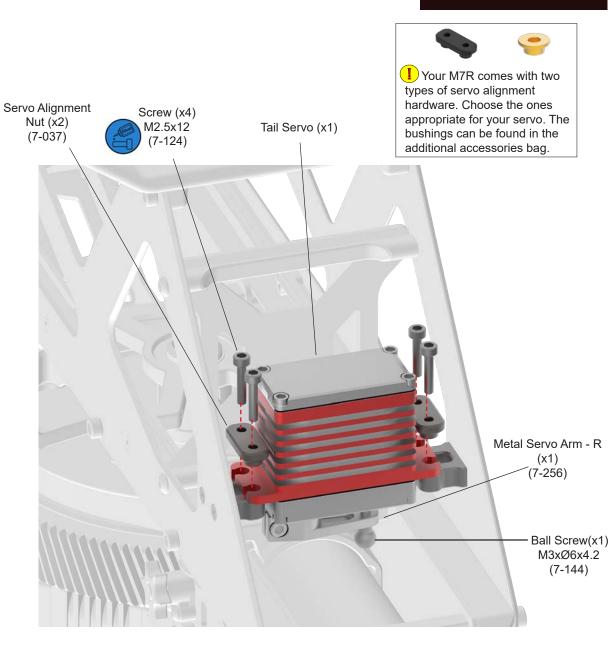
Landing Skid Installation



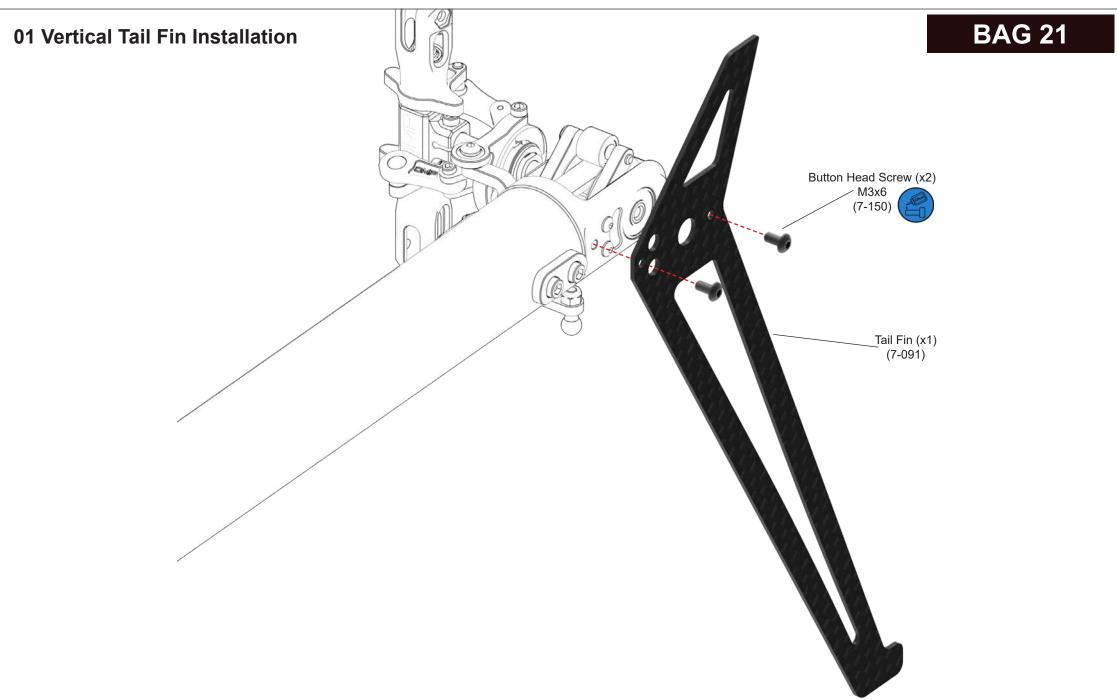
01 Tail Rotor Servo Mount Installation



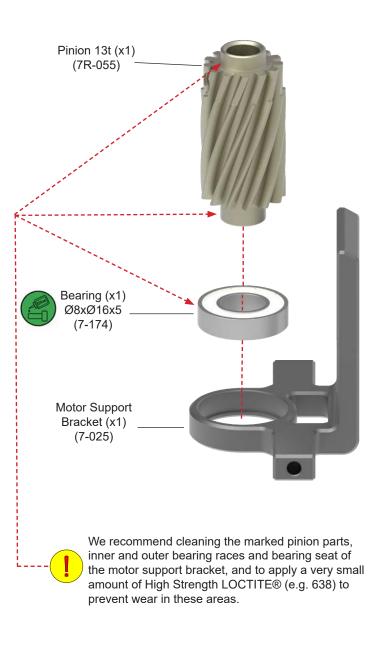
02 Tail Rotor Servo Installation



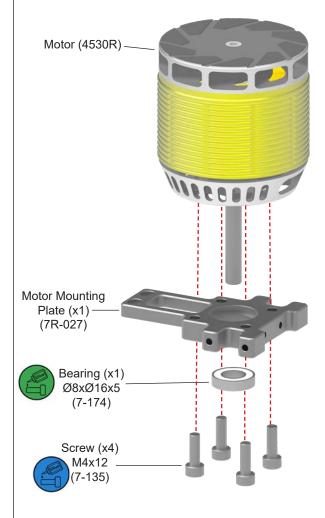




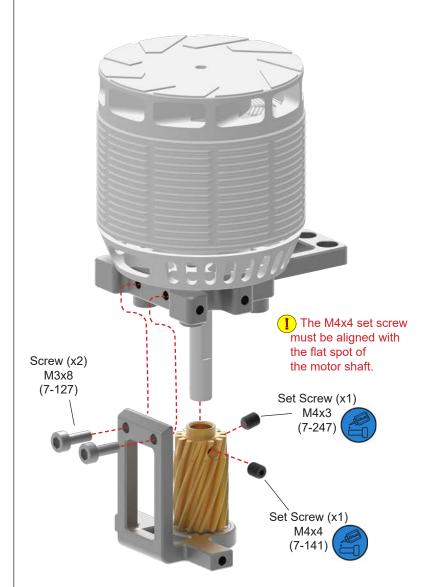
01 Counterbearing Assembly



02 Motor Installation

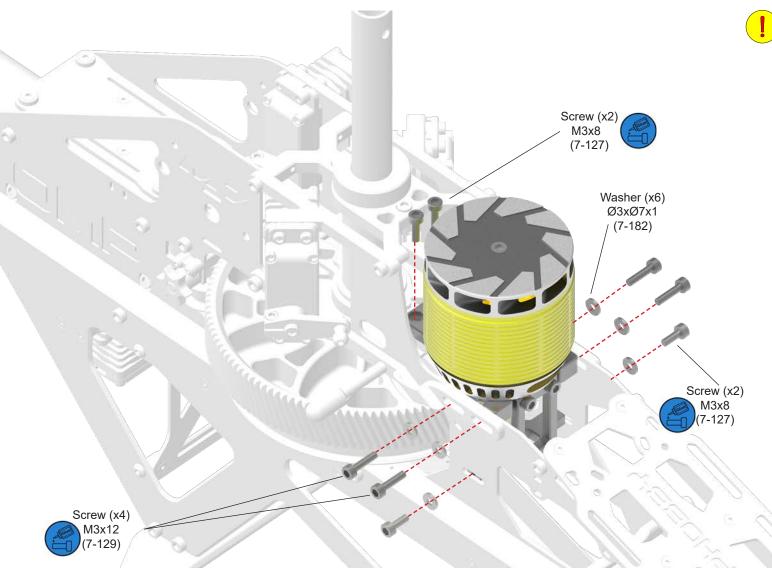


03 Motor Mount Assembly



01 Motor Mount Installation and Clamping

BAG 23

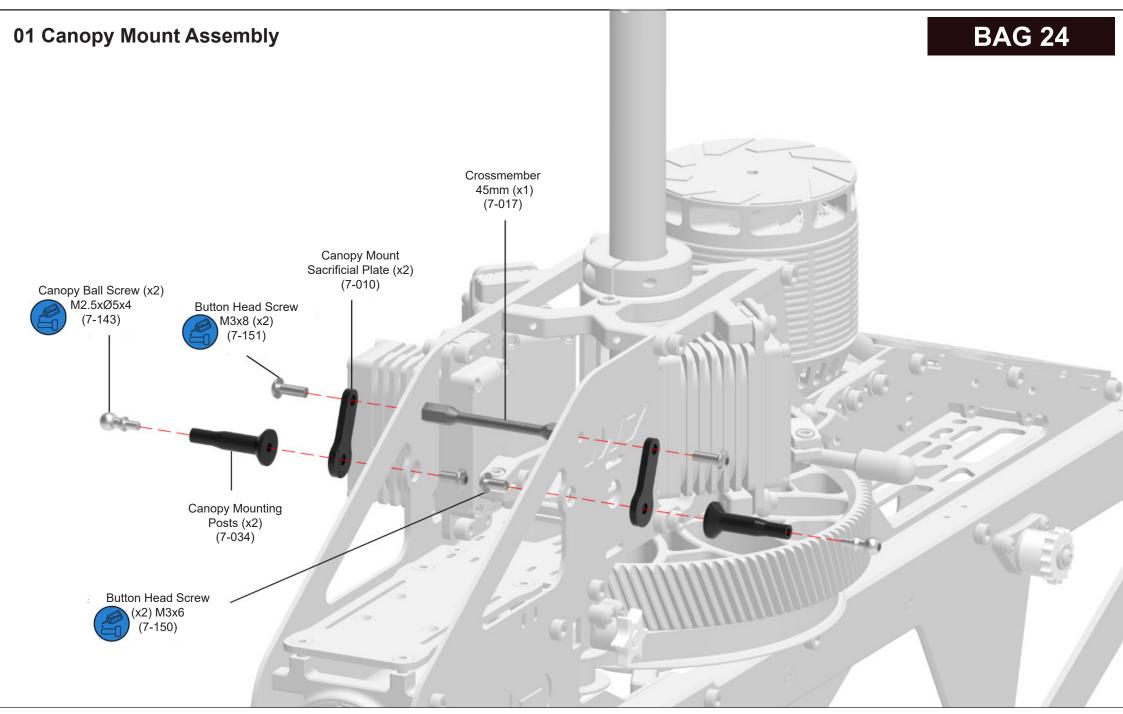


For mounting the Motor, follow these steps:

- 1) Loosely engage all screws in their threads, do not tighten them yet.
- 2) Push motor and pinion all the way backward against the main gear.
- 3) Back the motor off slightly so that the main gear has 0.05mm ~ 0.1 mm backlash.
- 4) Check the backlash in 8 points around the rotation by turning the gear 45° at a time and gently wiggling it back and forth. In the loosest spots, you should feel the backlash when moving the gear back and forth, but the gear should not visibly move. In the tightest spots, zero backlash is acceptable, as long as the gear train rotates freely and sounds smooth.
- 5) Tighten the M3x8 screws behind the motor first and verify that the mesh hasn't changed once fully tightenend. If it changed, loosen them again, adjust and tighten them again.
- 6) Tighten all remaining motor carrier screws in a crosswise pattern, starting at the top with the M3x12 screws, and ending with the M3x8 screws at the bottom.

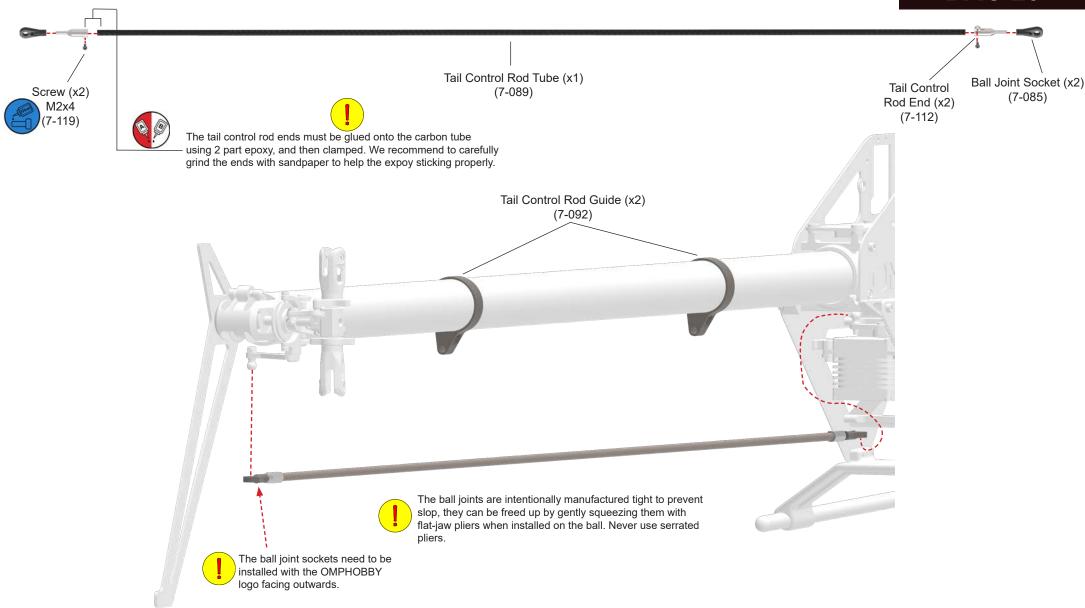


Canopy Mount Installation

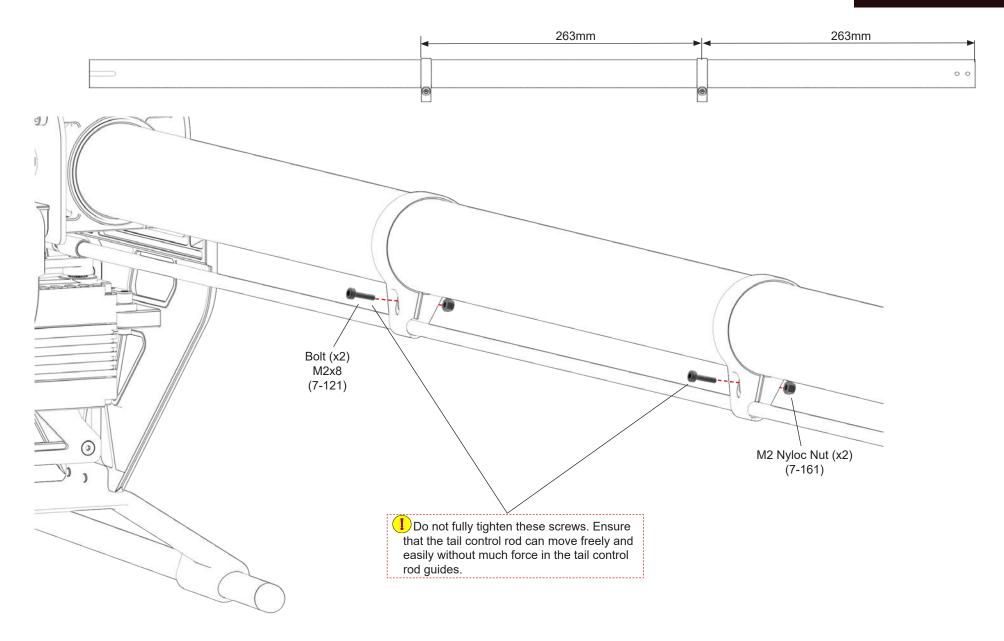




01 Tail Control Rod Assembly



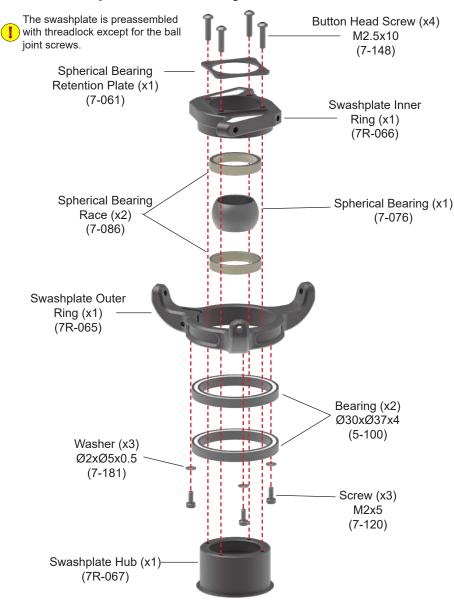
01 Tail Control Rod Guides Installation and Alignment





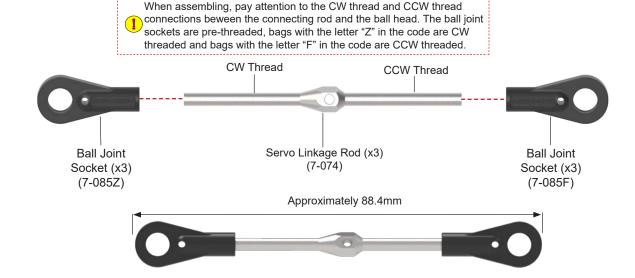
Swashplate and Linkage Assembly

01 Swashplate Assembly



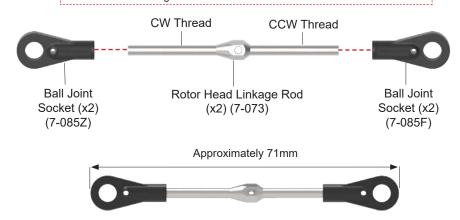
02 Servo Linkage Assembly

BAG 27

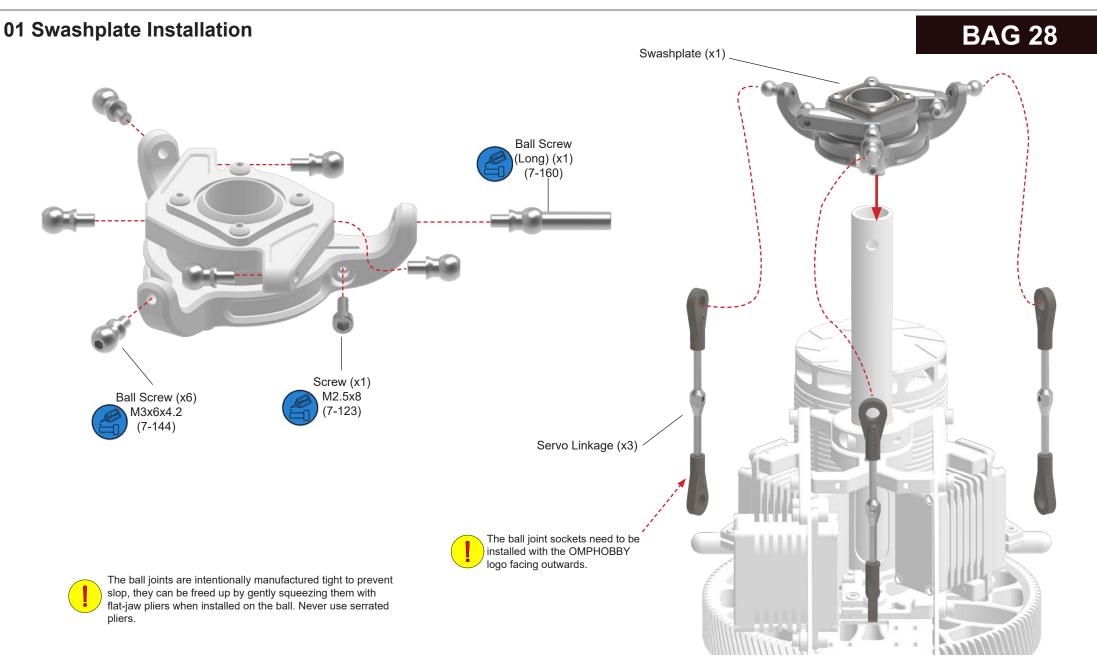


03 Rotor Head Linkage Assembly

When assembling, pay attention to the CW thread and CCW thread connections beween the connecting rod and the ball head. The ball joint sockets are pre-threaded, bags with the letter "Z" in the code are CW threaded and bags with the letter "F" in the code are CCW threaded.

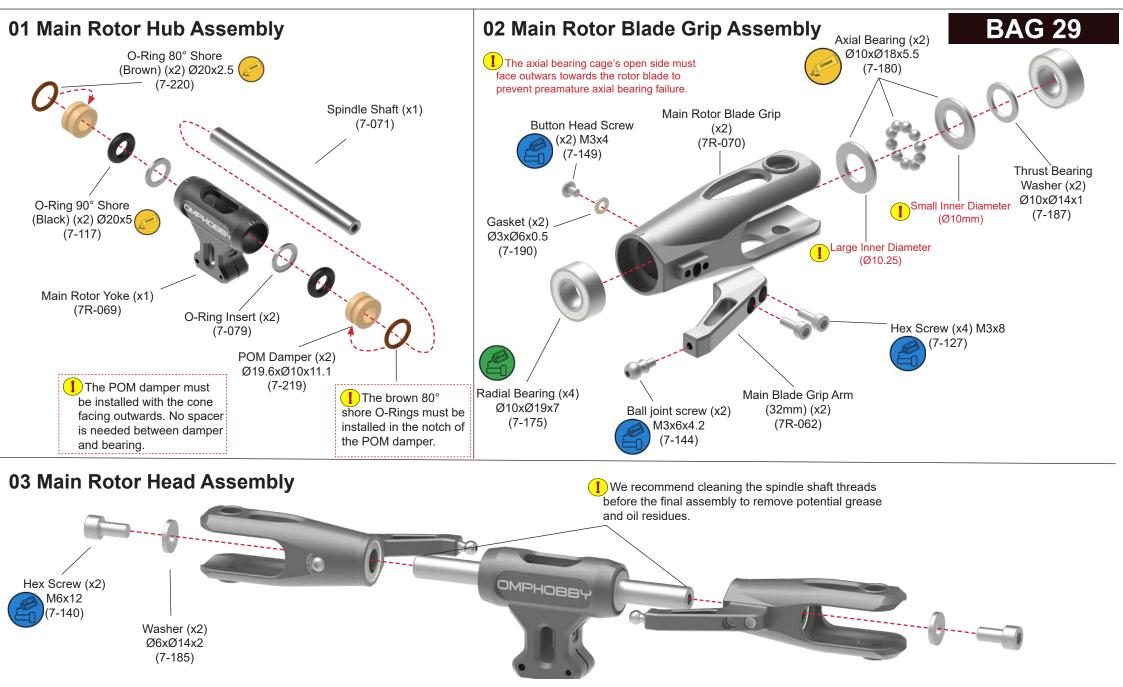


Swashplate Installation





Main Rotor Head Assembly



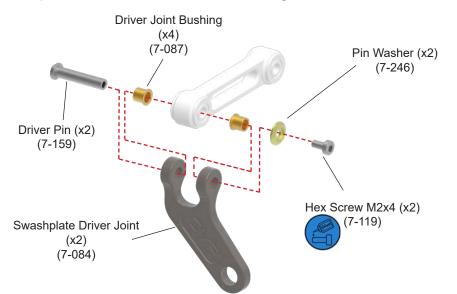


Main Rotor Head Assembly cont.

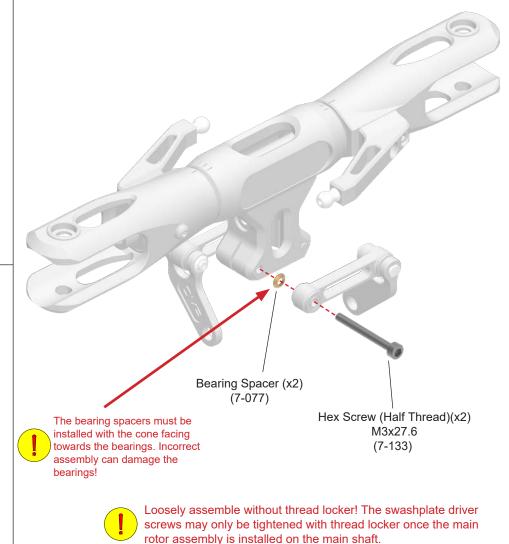
Planged Bearing Ø3xØ7x3 (x8) (7-166) Spacer (x4) Ø3xØ4.5x1.6 (7R-064)

(7-189)

02 Swashplate Driver Arm Assembly



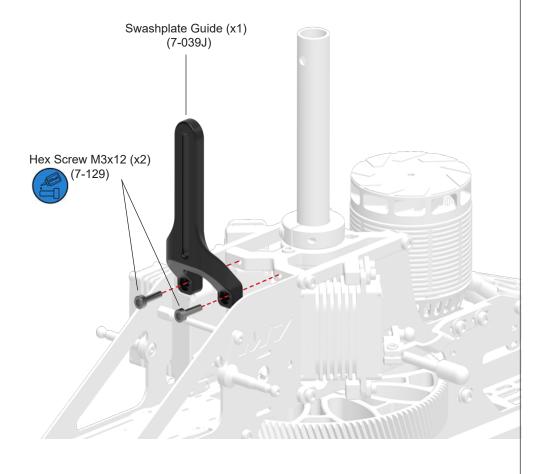




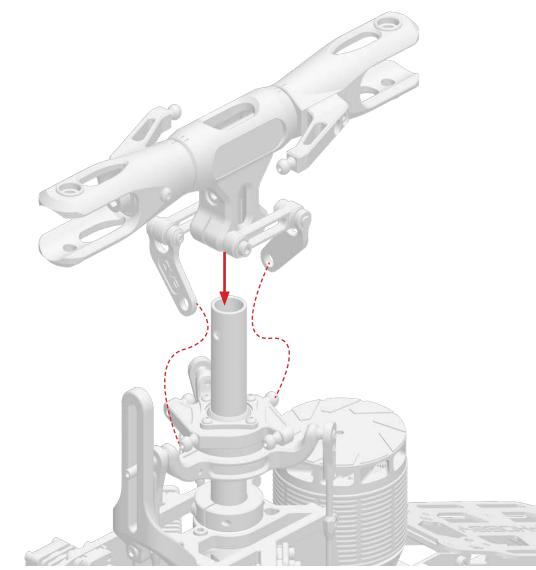


Swashplate Guide Installation

01 Swashplate Guide Installation

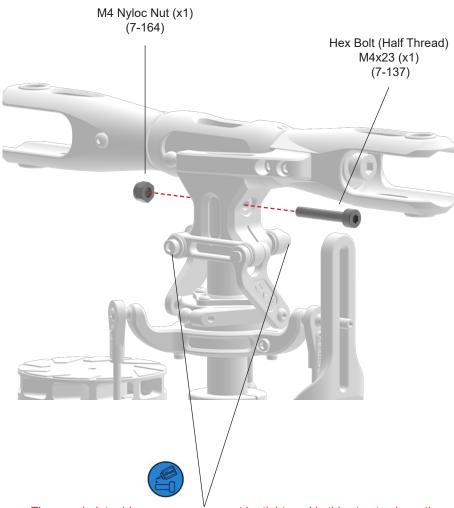


02 Main Rotor Head Installation



Main Rotor Head Installation

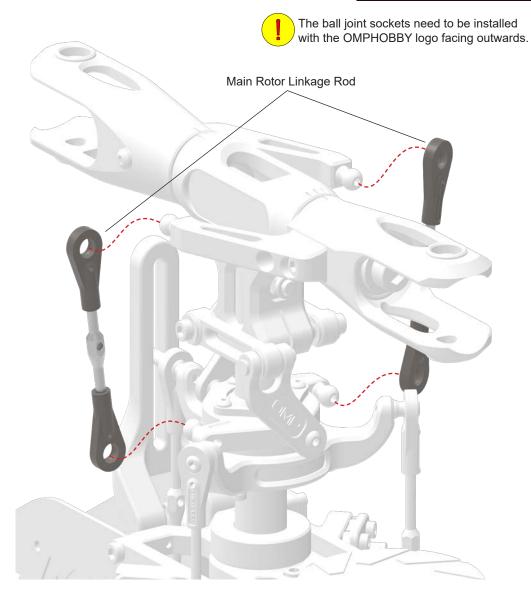
01 Main Rotor Installation



The swashplate driver arm screws must be tightened in this step to clamp the main rotor yoke onto the main shaft. To ensure proper alignent, first install the M4x23 Hex Bolt, but don't fully tighten yet, and then tighten the swashplate driver arm screws with thread locker evenly and in small steps. After that, don't forget to fully tighten the M4x23 Hex Bolt.

02 Main Rotor Linkage Installation

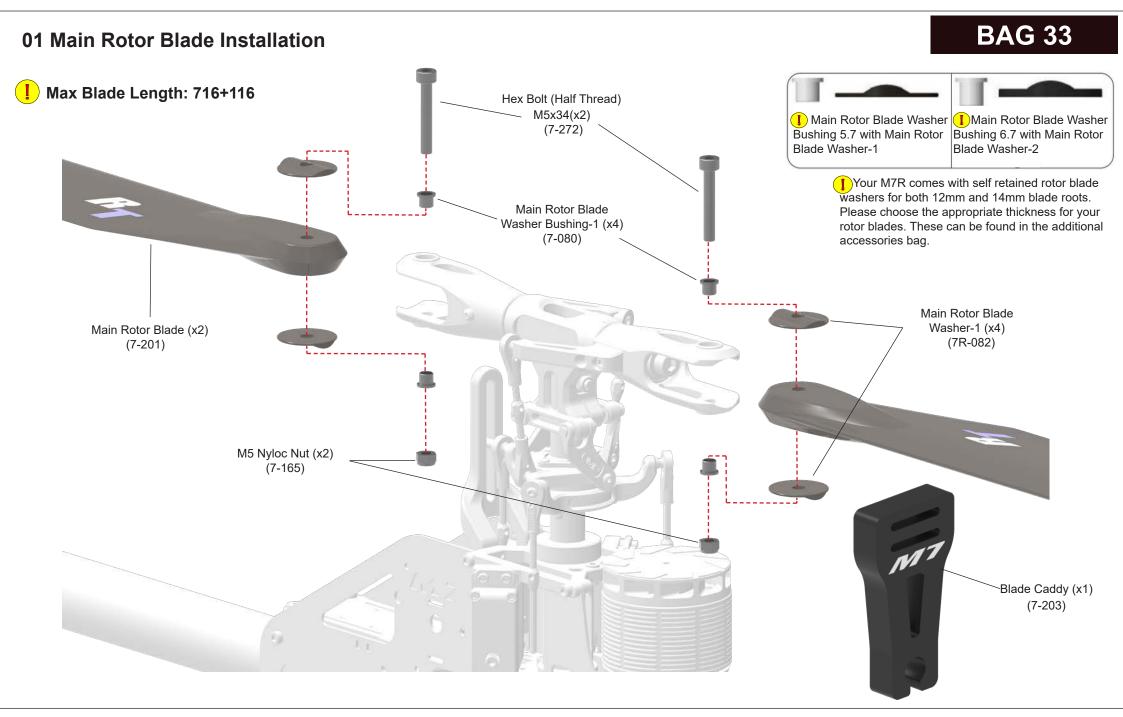
BAG 32



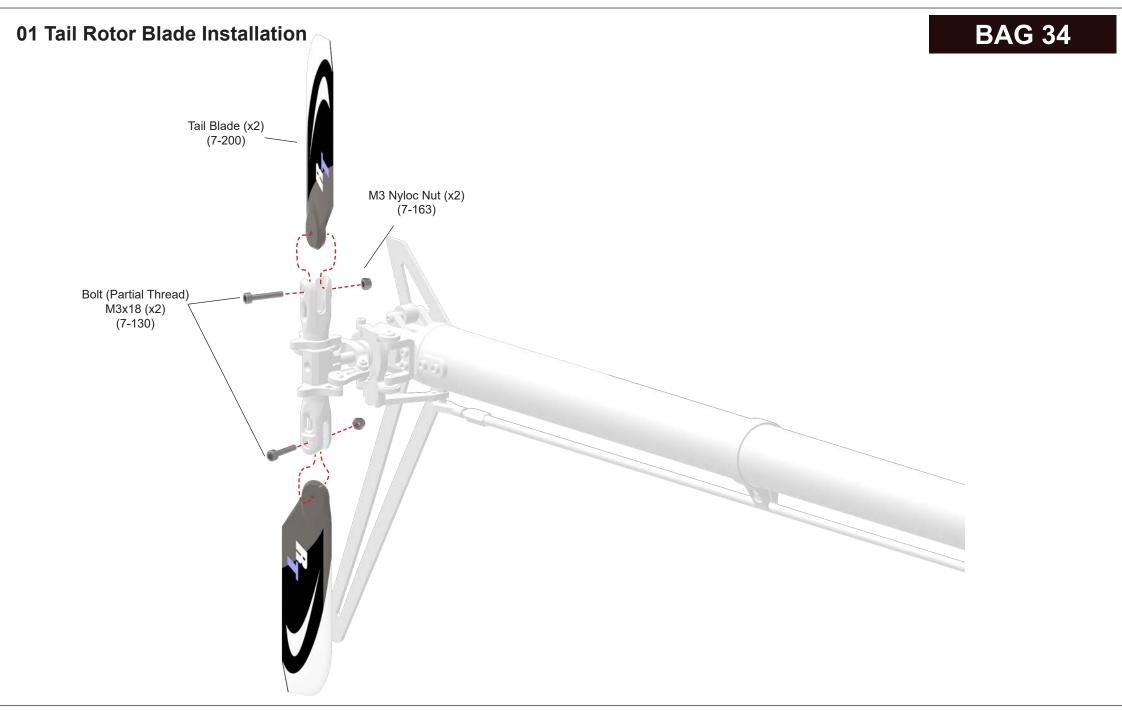


The ball joints are intentionally manufactured tight to prevent slop, they can be freed up by gently squeezing them with flat-jaw pliers when installed on the ball. Never use serrated pliers.

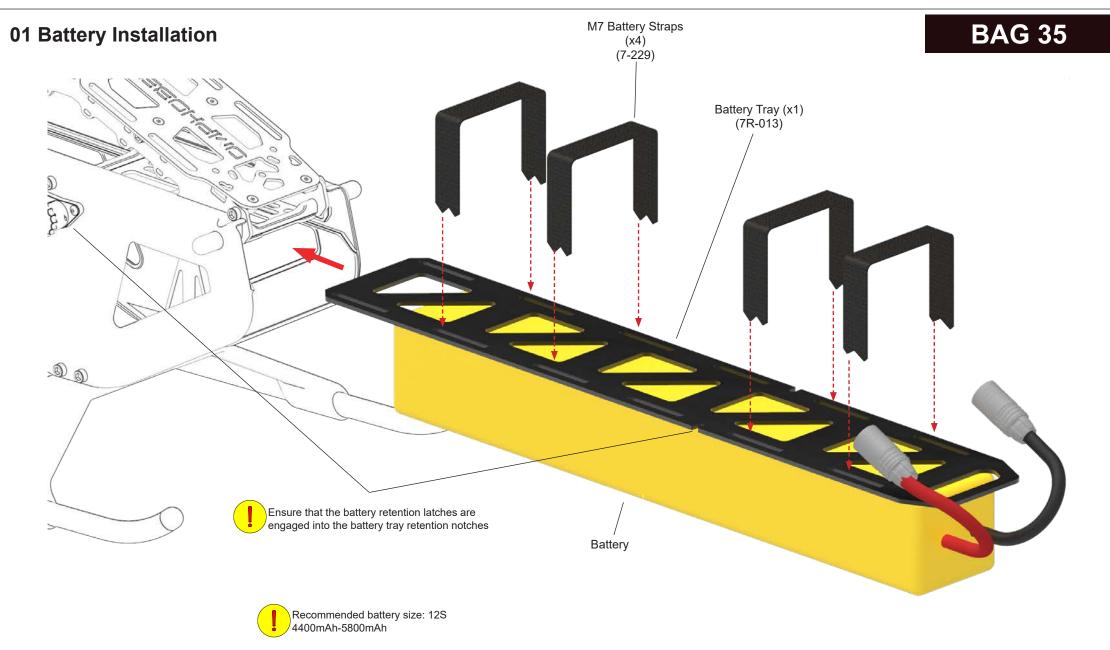
Rotor Blade Installation







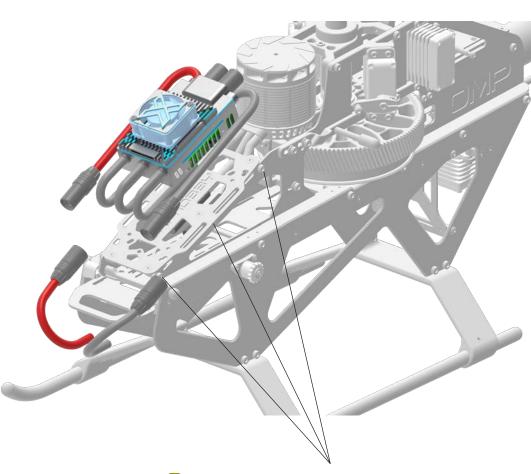






ESC and Flight Controller Installation

01 ESC Installation

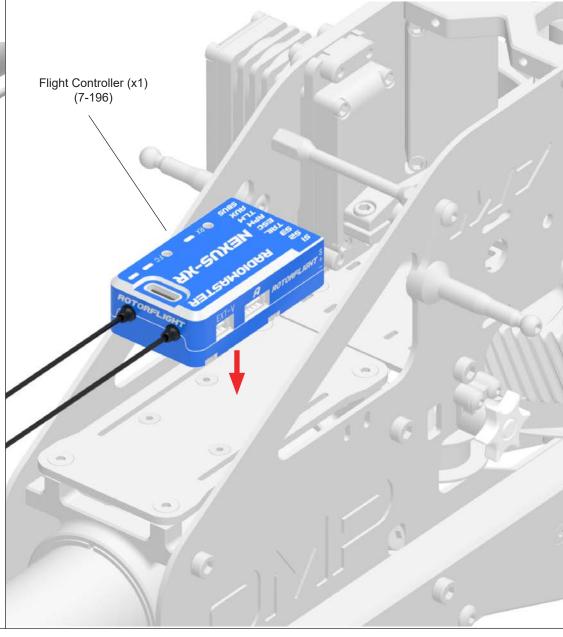


These 6 screws used to secure the ESC plate assembly to the upper frames can be removed when installing the ESC for easier installation.

!

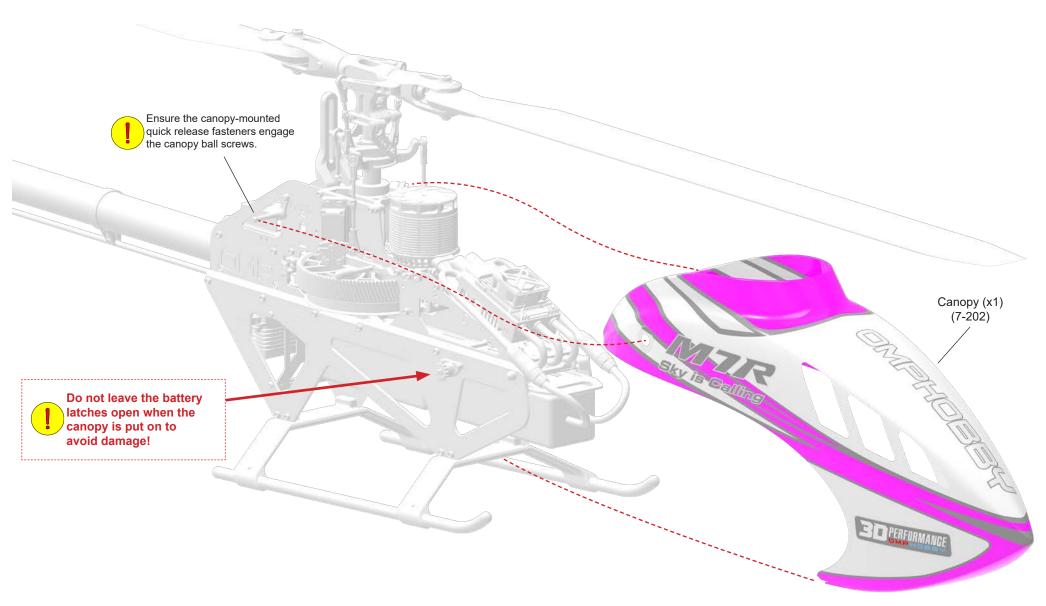
The ESC shown is an optional part. The M7R ESC plate is designed to accommodate a wide range of ESCs from various manufacturers.

02 Flight Controller Installation





01 Canopy Installation

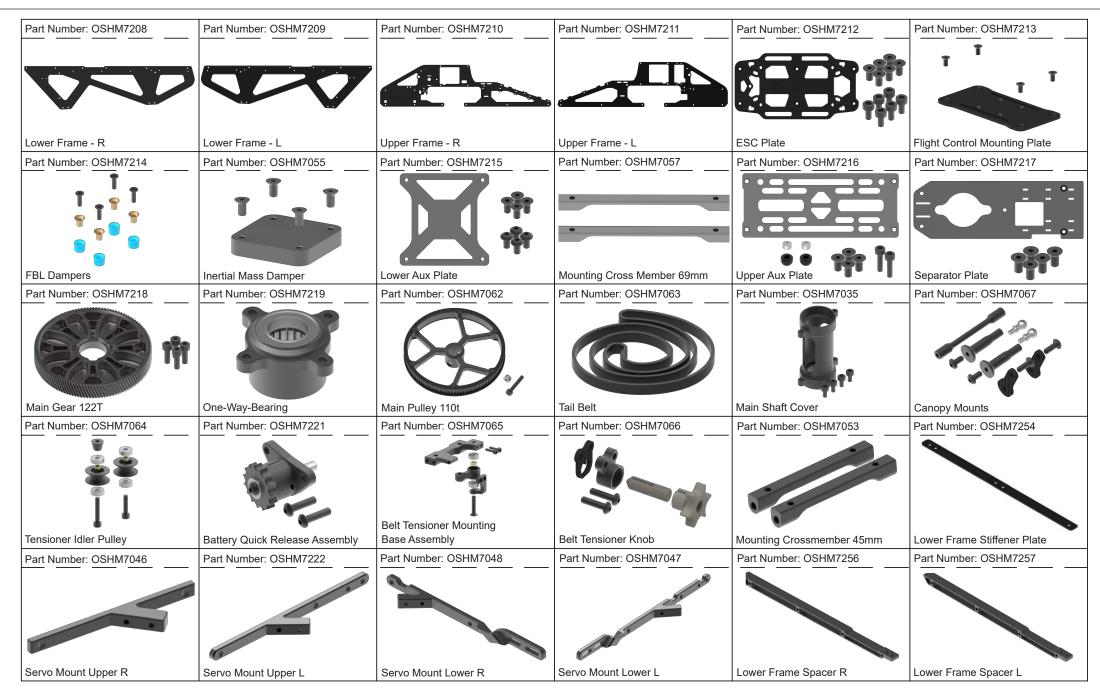




Included Additional Accessories

Item	Image	Quantity
M7R Battery Tray		1
Blade Spacer (6.7) Blade Spacer Collar		4
Servo Bushings		12
Zip Ties		4





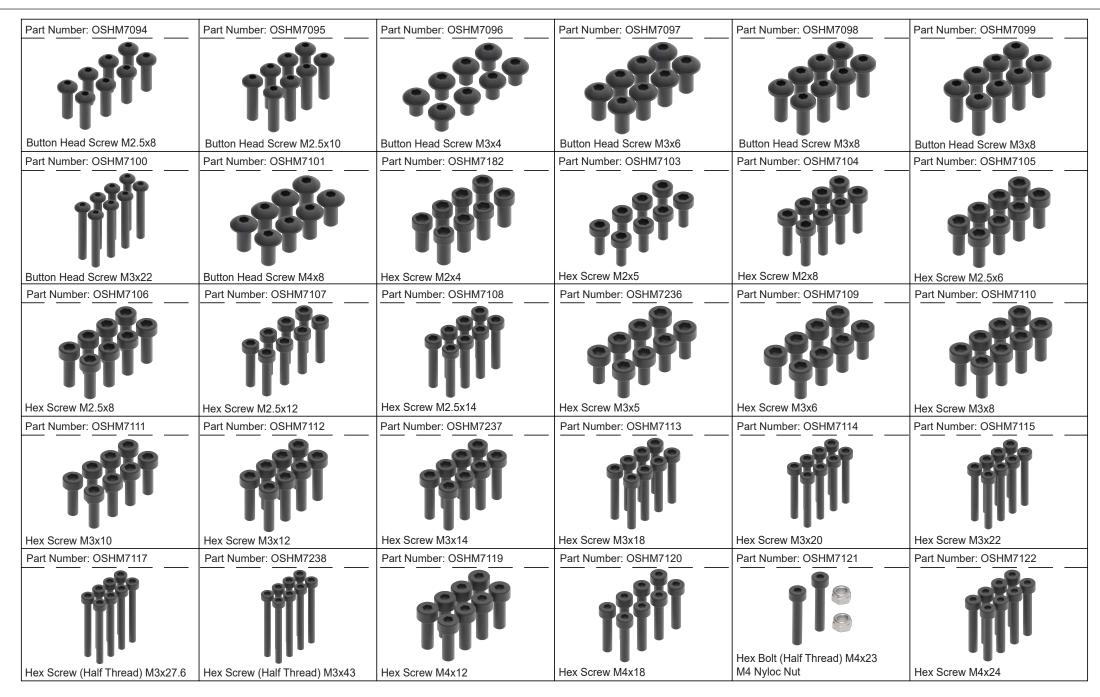




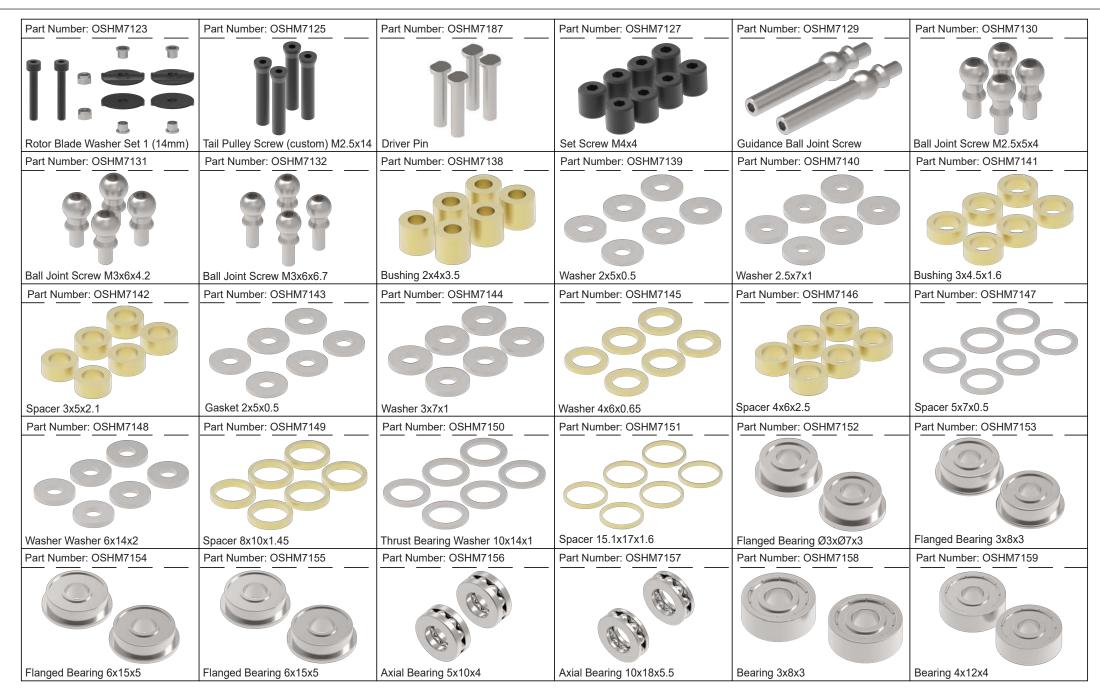




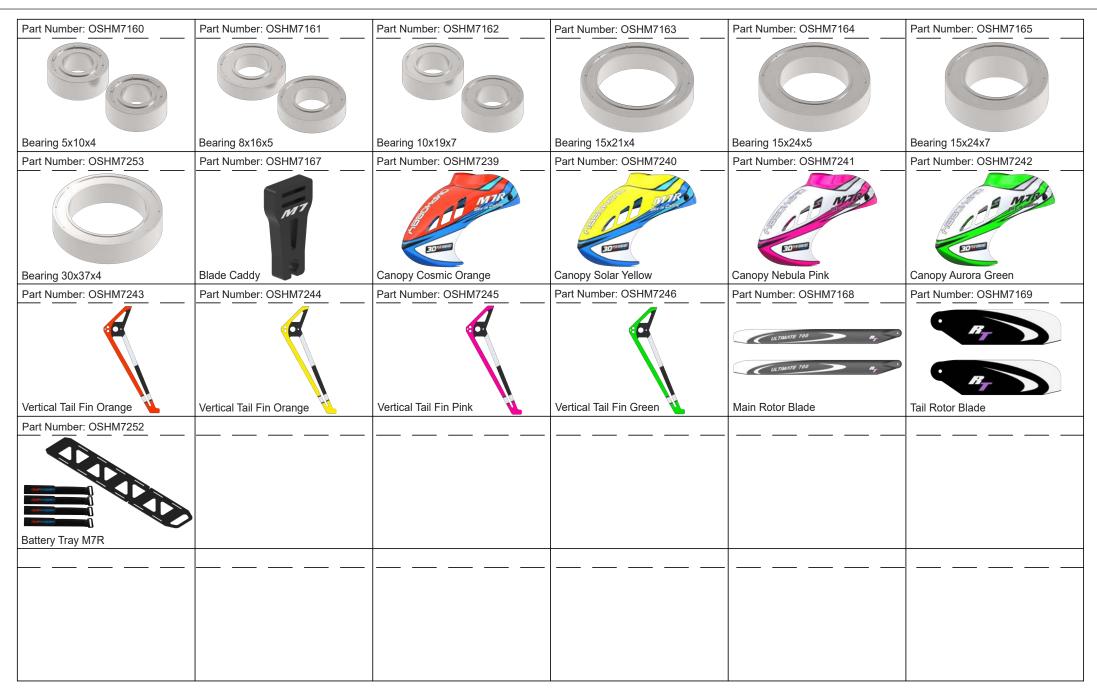
















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Furthermore, OMPHOBBY reserves the right to modify any information in this manual.

This manual is subject to change without prior notice.

You can yerify the latest version of the OMPHOBBY www.omphobby.com official website.

Carefully check your model before each flight to ensure it is airworthy.

Consider flying only in areas dedicated to the use of model helicopters.

Check and inspect the flying area to ensure it is clear of people and obstacles.

Rotor blades can rotate at very high speeds! Be aware of the danger they pose.

Always keep the model at a safe distance from other pilots and spectators.

Avoid maneuvers with trajectories towards a crowd.

Always maintain a safe distance from the model.

W W W . O M P H O B B Y . C O M