Walkera 60 CNC Metal Rotor Head Upgrade
Assembly Instruction

This is a manual for building the CNC Head assembly for the Walkera DF59/60 Heli.
Items needed for this build;

- **2 x 1.5 hex wrench**
- **2.0 hex wrench**
- **Precision Screw driver Set**
- **CA (Loctite)**
- **non silicone Grease**
- **Loctite RED/Green**

The Metal rotor Head is shipped unassembled. all parts are with the bag complete head with Replacement shaft for the Walkera Dragonfly 60.

Walkera DF60 Head Assembly

Head Assembly

Main Rotor Blade Grip Assembly

• Dis-assemble blade grips using 2 x 1.5 Allen wrench

• Parts as seen on fig 1.a (Blade grip, Hex Screw , Washer, inner bearing, outer bearing, tapered washer, Rubber O-ring, feathering shaft. Head holder)

• Clean all parts with alcohol and assemble back in the correct manner

• Add a thin film of non silicone grease on the feathering shaft and the rubber O-ring (fig 2.a)

• Insert the rotor head Pin on the Main Rotor head assembly (fig 2.b)

• Screw back The main rotor head cap make sure to add loctite on the screw thread before screwing in the cap (fig 2.c)

• Screw back the red Lock ring on the Rotor head pin. Don't forget to put some red Loctite on the thread

• Push the feathering shaft thru the rubber O-ring. Make sure the shaft is filmed with a thin coat of grease to prevent damage on the rubber O – ring (fig 2.e)

• Add some loctite on the hex screw before screwing in thru the feathering shaft (fig 2.f)

• Using 2 x 1.5 allen wrench tighten the screw on both blade grips. Make sure that this is tight and packed to prevent play on the blade grips and possible popping out during use.

Walkera DF60 Head Assembly

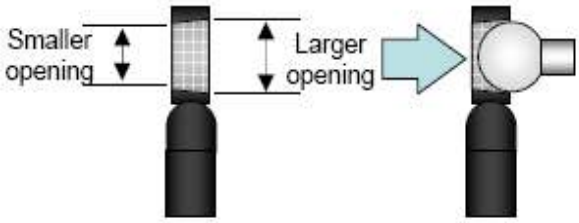


• Unscrew all ball links on the head assembly and add red loctite on the threads. This are really not tightened when it arrives from the factory my ball links was loose and if it was not check should have filed during flight.

• Clean all ball parts with alcohol and put some red loctite on the links thread then assemble back in the

Ball Links grips

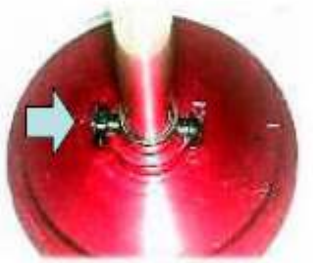




• The Ball links included with this Head are all one way links, Note this links only go to the ball one way. If you notice the hole on the links have different diameter. The larger side hole diameter must be facing the ball when snapping. Doing it the other way around will damage the plastic link and may come loose during flights. In adjusting the links make sure to make one full turn 360° since the links cannot be plugged it at 180° no half turn allowed.

Main Shaft assembly

• The new CNC head comes with a main shaft. The original DF60 main shaft will not fit the new head There is a difference in the hole locations and length of the original shaft with the new shaft.

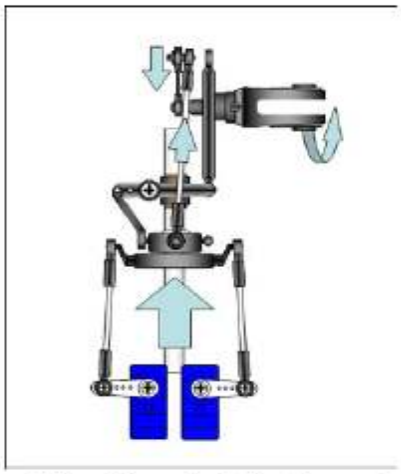
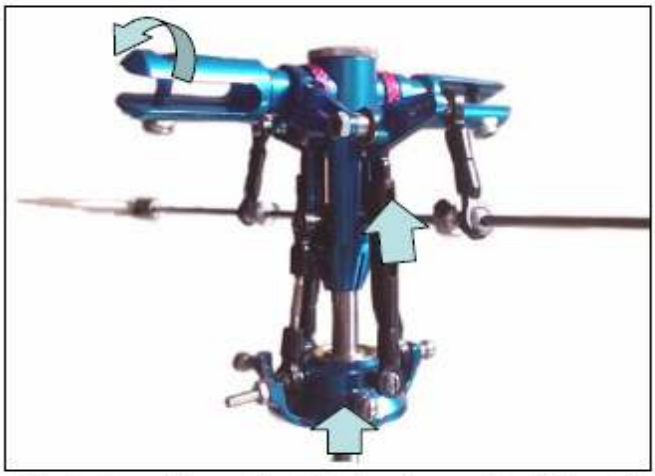



• To install the new shaft remove the pin connecting the shaft with the main gear. Be very careful in removing the pin. Do not use too much force of hammering down the pin. Too much force will damage the one way bearing inside the red metal plate. Either use a vise to gently pop out the pin or just tap it lightly with a small philips screw driver with the same diameter as the pin. Once remove the shaft will slide out and can be replaced with the new shaft.

Walkera DF60 Head Assembly

Settings:


• The New DF60 CNC head differs from the Original head mixing, As the swashplate goes up the blade pitch is negative and as it goes down it becomes positive pitch. This is because the swashplate is directly liked to the blade grips unlike the original Walkera head this passes thru another mixing arm at the top located at the Flybar area.

•Because of the different mixing there should also be a Fix on the Electronics on the WK – 0701 TX dipswitches to accept new Swash plate collective mixing. Please follow this table below for the New Head to work on the New CNC head

Channel	On / Off	Channel	On / Off
1	ON	7	ON
2	ON	8	ON
3	OFF	9	OFF
4	ON	10	OFF
5	OFF	11	OFF
6	OFF	12	OFF

NOTE: The Aileron and Pitch servo must also be interchange on the RX this is the no 2 pin and no 6 pin just interchange the J pin location on the two servos ang the mixing will now work correctly

Build Quality

The new Walkera CNC head as reflected on its price tag is one of the cheapest Alum heads on the market, But this is easily seen on the finish and make of the head. Compared to the align heads the Walkera head has its flaws in the quality of make. The Actual finish of the head assembly is not far worst that I have seen but it still remains to be on the lower side. The Blue anodize finish does give it good looks and also hides the machining marks found on the swashplate arms. Since this is being sold already built with the flybar already attached the settings on it is quite good the distances of the links on the swash and on the flybars are all within micrometers in deviation. The only thing missing on this head is the quality of fixing the ball links and the screws in place. I got the head with the ball links not tightened and can easily fall off during flights if not taken into consideration. Before actual use it is better to unscrew all the parts and fit them with loctite to assure that no future loose screws may be encountered. The new mixing design on the head seems to be promising but with more small links on the flybar and the blades holders this seems to be the first place to encounter problems.

Flight Characteristics

As tested on normal hovering. There is only a minimal difference in response with the original plastic head, The easiest way to see it is that it is smoother and with better response to collective inputs. Binding on the links was also eliminated and the servos have better response with less friction. Normal Flight also has the same response better collective and faster responses from the servo.

But this is not a recommended upgrade for beginners for the cyclic responses can surely draw back on the ability to learn hovering due to its quick response on the stick inputs. Although very handy for those doing sport flying and 3D.

Overall conclusion

Since this is the first CNC head that walkera is manufacturing there is still a lot of room for improvement. The quality and finish must be improved to be able to compete with existing manufacturers on the market. It can be recommended as a good replacement for the existing plastic head on the DF59/60 with its price tag it is an investment that will provide better response on the heli.

The looks is another aspect that is sure to capture the eyes of the flyers but this upgrade will not make the heli perform any better than it is with the stock plastic head it will only I can say accurately translate the required inputs to collective responses at a faster phase with minimal slack and binding.

For an experience pilot he will be impressed on the predictability of movement and quick responses on compared to the plastic head.

To upgrade to this head it is a matter of personal choice and dependent on the users ability to maximize the capability the new CNC head has to offer.

RATING	
Performance	★★★
Durability	★★★
Build Quality	★★
Value for Money	★★★★
Overall Performance	★★★