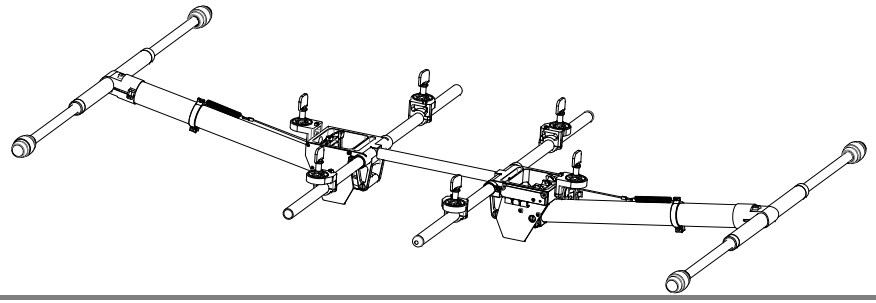
Retractable Landing Gear for Spreading Wings S800 V 1.2

2013.01.24 Revised

Introduction

The retractable landing gear is designed for the S800 frame in order to provide a better perspective in aerial-filming / photography work. By using a 2-position switch channel of the R/C transmitter, you can control the landing gear to retract remotely. The retractable landing gear will not block the view of the camera lens, making smooth shooting in all directions possible.



Disclaimer & Warning

Thank you for purchasing this DJI product. Please regularly visit the S800 web page at www.dji-innovations.com. This page is updated regularly. Any technical updates and manual corrections will be available on this web page. Due to unforeseen changes or product upgrades, the information contained in this manual is subject to change without notice.

Please strictly follow the manual to assemble and use the retractable landing gear. As DJI Innovations has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. DJI Innovations accepts no liability for damage(s) or injuries incurred directly or indirectly from the use of this product.

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Assembly & Connection

The part with the control board attached is defined as left, the other part is right. Make sure to make a distinction between the left and the right servos.

STEP1 Servo Installation *(If the servos have already been installed, please skip this step.)*

1. Define and mark two HS-7954SH servos from Hitec as left servo and right servo.
2. Connect the left servo to the **[L]** port on the control board, and the right servo to the **[R]** port.
3. Keep pressing the SET button with the aid of a small tool, and then power on. You will see the yellow LED flashes quickly, and then wait until the servos have finished their position initialization.
4. Make sure the servo arm is parallel to the servo's center line (shown in the following Fig).
5. Power off, and assemble the left and right servos to the left and the right parts of the landing gear.

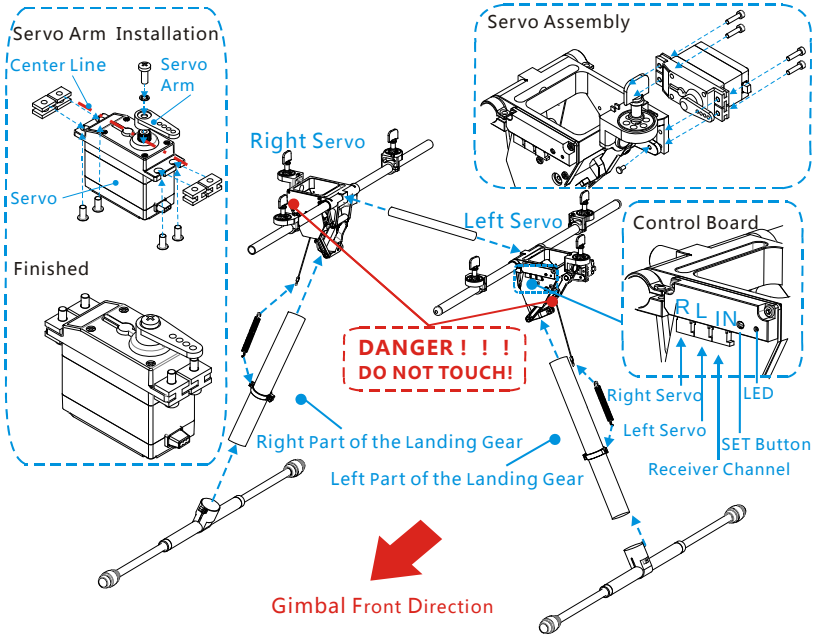
Tips: If you use your own servos, it is recommended to use dedicated programmer from Hitec to enlarge the servo travel from 120° to 150°, and then install servos by the above steps. Servos from DJI have been enlarged servo travel.

STEP2 Mechanical Assembly

1. Assemble the left and the right parts respectively, and then fix the screws at the joints with appropriate screw thread lock.
2. Connect the left and right parts with the connecting rod.
3. For safety reasons, make sure to connect the springs to both parts.
4. Assemble the battery Bracket, referring to the "S800 User Manual".

STEP3 Electrical Connections

1. Plug the cables from the servos into the correct ports on the control board. Make sure the right servo is connected to the **[R]** port, and the left servo to the **[L]** port.
2. Connect the required 2-position switch channel of the R/C receiver to the **[IN]** port.



Travel Calibration

If the Landing Gear you got has been installed with the servos, please skip this step. Otherwise, calibrate the system using the following procedure.

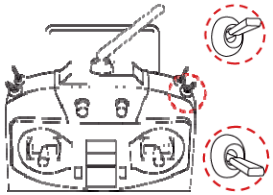
1. For safety reasons, please keep your hands away from any link mechanism to avoid injury.
2. Make sure the **[R]**, **[L]** and **[IN]** connections are correct and firmly connected.
3. Hand the Landing Gear in the air during calibration, as the landing gear will move.
4. Keep pressing the SET button using a small tool and power on. You can see the LED flashes YELLOW quickly, and then press the SET button once again. The system begins auto calibration with the indication of the LED flashing YELLOW slowly. **DO NOT** obstruct any moving part during auto calibration.
5. First the left-part is calibrated, the left link mechanism first moves up then moves down automatically. Then the right-part is calibrated, the right link mechanism first moves up then moves down automatically.
6. After calibration, both left and right parts are in the **[Lower]** position, and the LED is on solid GREEN. Then the landing gear will work normally.

Notes:

- If the LED is on solid YELLOW when calibrating, then it means that there is something wrong with the calibration, please re-do the Servo Installation of the Assembly & Connection section, since the servo arm might be installed with a wrong angle.
- Please avoid any obstruction when calibrating. If the landing gear is blocked from moving, please recalibrate the landing gear by the above steps.
- If the **[R]** and **[L]** servo cables are reversed, the travel will not be measured correctly. Please connect correctly and recalibrate the landing gear using the above steps.
- If the LED flashes slowly GREEN after power on, please re-calibrate the system using the above steps.

R/C Transmitter (TX) Setting

Select a 2-position switch channel (default setting is OK) on the TX as the control input of the landing gear, and then make sure the corresponding port of the receiver is connected to the **[IN]** port on the control board.



Retracted : Toggle the switch to this position to retract the landing gear (Fig.1)

Lower : Toggle the switch to this position to lower the Landing Gear (Fig. 2)

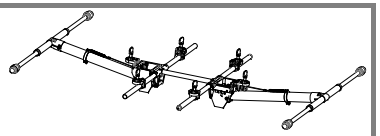


Fig. 1

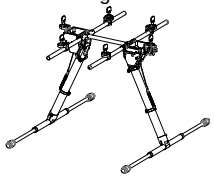


Fig. 2

Tips:

- If the switch channel on the TX has fail-safe function, set the fail-safe value to **[Lower]** position, so that the landing gear will be in **[Lower]** status when the receiver enters fail-safe, to land the aircraft safely.
- To avoid false switch triggering, you can use the slide lever or other trim as the landing gear's control switch.

Usage

The landing gear can be used by following the steps below after assembly & connection.

1. Make sure the transmitter & receiver batteries are fully charged.
2. Toggle the switch to the **[Lower]** position, and then turn on the transmitter.
3. Make sure the **[R]**, **[L]** and **[IN]** connections are correct and firmly connected.
4. Make sure the Landing Gear is at the **[Lower]** position, and then power on the system. If the green LED is on solid, then this is a normal start. If the LED will flash GREEN slowly, please re-calibrate the system according to the procedure of Travel Calibration.
5. Make sure to toggle the switch to the **[Retracted]** position only AFTER you takeoff the aircraft.
6. When the aircraft is landing, please toggle the switch to the **[Lower]** position for a safe landing.

Tips

- The system will turn off the servo power temporarily within 3 seconds after the landing gear has reached the target position.
- When powering on the system, if the TX switch is in the **[Retracted]** position, which is the unsafe signal for the landing gear, the LED will quickly flash RED. Please toggle the switch to the **[Lower]** position.
- If there is an abnormal signal or no signal input into the **[IN]** port the LED will slowly flash RED. Please check the receiver and the connections.
- If the power consumption of the servos is too large when in use, the LED will be on solid RED. If this status lasts more than 4 seconds, the landing gear will lower and the LED will flash GREEN slowly. Please re-calibrate the system.

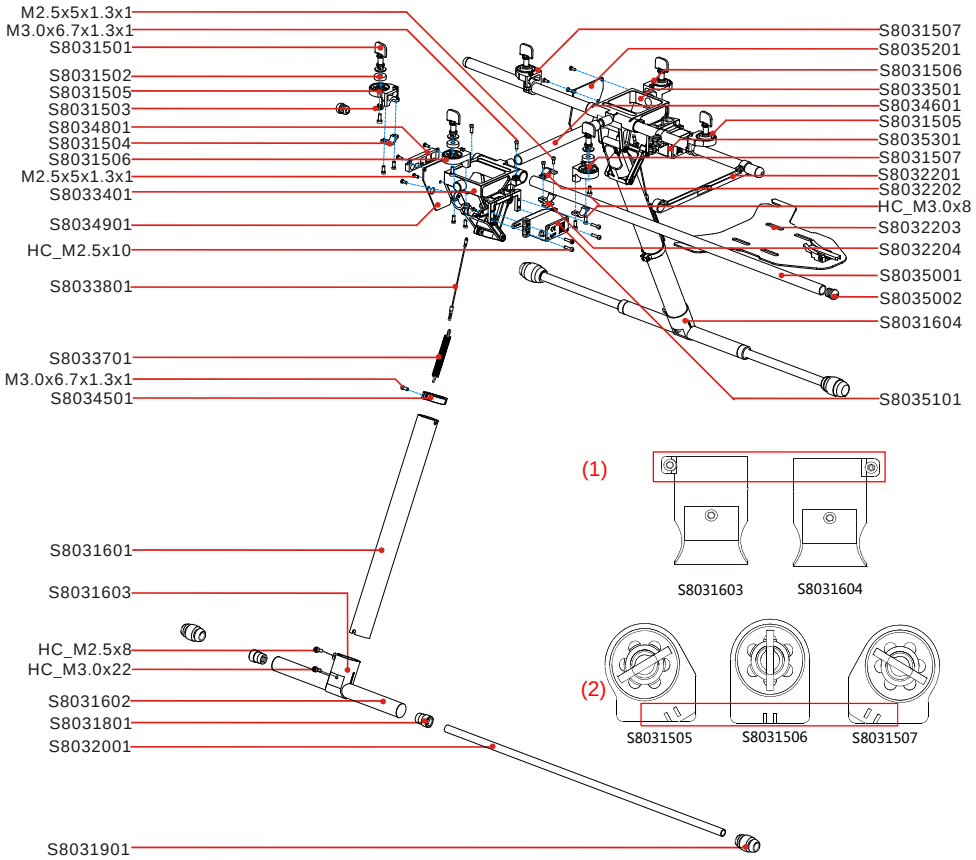
LED Indicator

System works normally	
Hasn't been calibrated	
Need re-calibration	
Wrong calibration	
Enter the calibration mode	
System is calibrating	
Motor stall	
Input signal is unsafe when power on the TX	
Input signal is abnormal	

Specifications

Parameter	Range	Parameter	Range
Working Voltage	3S~6S (LiPo)	Input Signal	PWM (High-Pulse Width 800us~2200us)
Working Current	Max 1A@6S	Output Signal	PWM(Neutral Position is 1520us) in 90Hz
Working Temperature	-20~70°C	Output Voltage	6V
Total Weight	875g	Servo Travel	150° (Minimum120°)

Spare Parts List



Note: (1) Left and right T-Frame are different; (2) Left set, middle set and right set of carbon tube bracket are different.

NO.	Name	Components
34	Retractable Module(Left)	S8033401、S8033801、M2.5X5X1.3X1、M3.0X6.7X1.3X1
35	Retractable Module(Right)	S8033501、S8033801、M2.5X5X1.3X1、M3.0X6.7X1.3X1
39	Screw Package	HC_M3X8、HC_M2.5X8、HC_M3X22、HC_M2.5X5、M2.5X5 X1.3X1、M3.0X6.7X1.3X1、M2.5X8
51	HITEC Servo(Left)	S8035101、HC_M2.5X10
53	HITEC Servo(Right)	S8035301、HC_M2.5X10
56	Spring	S8033701、S8033801、S8034501、M3.0X6.7X1.3X1
57	Control Board Module	S8034801、S8034901、S8035201、M2.5X5X1.3X1
58	H Frame	S8034601、S8035001、M3.0X6.7X1.3X1
16	T-Frame(Right)	S8031601、S8031602、S8031603
17	T-Frame(Left)	S8031601、S8031602、S8031604
18	T-Frame Nonslip Damper (4pcs)	S8031801
19	T-Frame Silicone Rubber Damper (4pcs)	S8031901
20	Bi-pod Carbon Tube	S8032001
22	Battery Tray	S8032201、S8032202、S8032203、S8032204、M2.5X5X1.3X1
23	Carbon Tube Bracket(Left Set)	S8031501、S8031502、S8031503、S8031504、S8031505、HC_M3X8
24	Carbon Tube Bracket(Middle Set)	S8031501、S8031502、S8031503、S8031504、S8031506、HC_M3X8
25	Carbon Tube Bracket(Right Set)	S8031501、S8031502、S8031503、S8031504、S8031507、HC_M3X8

Note: The parts from 16 to 20 and 22 to 25 are the same as the product of S800.