



WK-0702

Users Manual

7-CH DIGITAL PROPORTIONAL TRANSMITTER



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1.0 Foreword

The WK-0702, which is a compact and powerful 7-channel digital proportional transmitter, can automatically control over transmission frequency points due to the advantage of frequency synthesizer based on Phase-Locked Loop (PLL) technology. It is possible to free switch among 6 frequency points without the trouble of altering crystal oscillator. The WK-0702 is of such functions as throttle curve, PIT adjustment, rudder mixing and so on, and all the trim adjustments are scaled in fine increment. The more featured characteristics include screen flashing when powered on, LED indication of function status, and electric means of adjusting gyro sensitivity instead of mechanic means. The WK-0702 is an optimal transmitter for the hobbyist.

2.0 Control Identification and Location

Antenna

Exponential / PIT limit /
Gyro sensitivity knob

Gear switch

Elevator trim

Left stick

Power SW

Rudder trim



Status LED

Power indicator

Rudder mixing /
Throttle curve /
PIT knob

Flight mode switch

Right stick

Throttle trim

Aileron trim

2.1 LED indication

The screen flashing indication, when your WK-0702 is powered on, is multi-color alternant flashing. The electricity volume indication is gradually becoming light from red to green.

Electricity volume indication: green on - full electricity; green off and yellow and red on - short of electricity and please flying back your aircraft; only red on - seriously short of electricity and stopping flight immediately.

When LED is in purple indicates the No. 10, 11, 12 DIP switches (on the reverse side of your WK-0702) are staying at LOCK position.

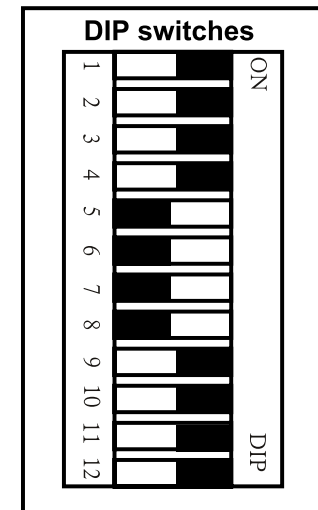
When LED is in light blue means the No. 10 DIP switch stays at ON position and No. 11, 12 at LOCK position, and the PIT parameter is adjustable during this period.

When LED is in orange means the No. 11 stays at ON position and No. 10, 12 at LOCK position, and the throttle curve /exponential function are adjustable during this period.

When LED is in dark blue means the No. 12 is at ON position and No. 10, 11 at LOCK position, and the gyro sensitivity/ rudder mixing are adjustable during this period.

DIP Switch Assignment

- | | |
|-------------|---|
| 1. Elevator | 7. Rudder Mixing |
| 2. Aileron | 8. Normal / CCPM |
| 3. Throttle | 9. Elevator function in CCPM mode |
| 4. Rudder | 10. PIT lock |
| 5. Gear | 11. Throttle curve / Exponential adjustment |
| 6. PIT | 12. Gyro sensitivity / Rudder mixing adjustment |



3.0 Backboard Identification

DIP switches

Carrying handle

Frequency point button

RF module

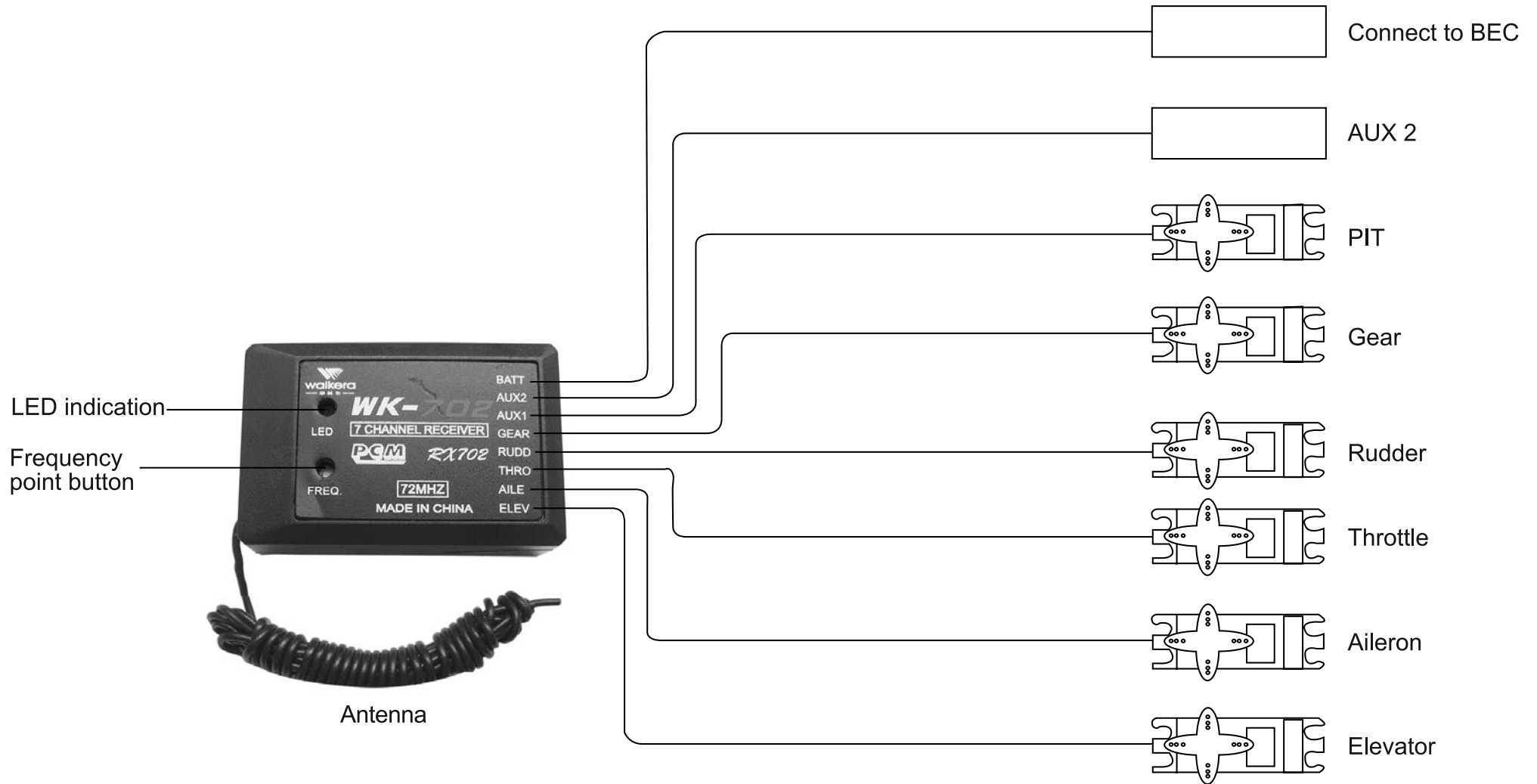
Charge jack

Battery case

DIP switch assignment



4.0 Receiver Connection:



5.0 WK - 0702 Control Identification

MODE I

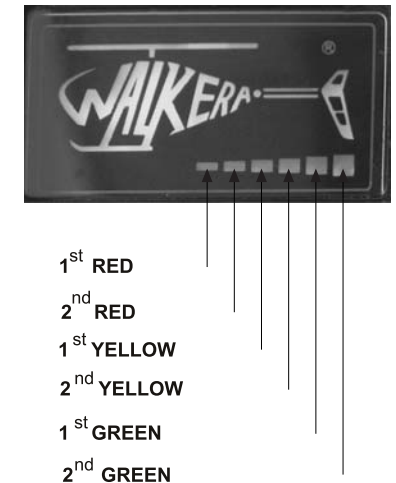
1. **Left stick / Rudder.** It controls your helicopter forward, backward, left, and right. Push up to fly your helicopter forward, pull down to fly backward, push leftward to fly left, and push rightward to fly right.
2. **Right stick / Throttle.** It controls your helicopter ascending, descending, left moving and right moving. Push up to ascend your helicopter; pull down to descend, push leftward to move your helicopter left, and push rightward to move right.

MODE II

1. **Left stick / Throttle.** It controls your helicopter ascending, descending, left, and right. Push up to ascend your helicopter, pull down to descend, push leftward to fly left, and push rightward to fly right.
 2. **Right stick / Rudder.** It controls your helicopter forward, backward, left moving and right moving. Push up to fly your helicopter forward, pull down to fly backward, push leftward to move your helicopter left, and push rightward to move right.
-
3. **Throttle trim.** The throttle trim controls your helicopter to ascend and descend. Push up the trim to ascend, and pull down to descend.
 4. **Aileron trim.** The aileron trim controls your helicopter leftward and rightward. Push the trim left and fly left, and push the trim rightward and fly right.
 5. **Elevator trim.** It controls and modifies your helicopter forward and backward. Push up to fly forward, and pull down to fly backward.
 6. **Rudder trim.** The trim controls and modifies your helicopter leftward and rightward. Move the trim left to fly leftward, and move right to fly rightward.
 7. **Gear switch.** Convert the gear switch to fold or release the skid landing system. Switching the switch up is ON, and switching the switch down is OFF.
 8. **Flight mode switch.** Convert the flight mode. Switching up is the normal flight mode, and switching down is the inverted flight mode.
 9. **Exponential / PIT limit / Gyro sensitivity knob.** Under the help of DIP switches, all the functions can be switchable.

- 10. Rudder mixing / Throttle curve / PIT knob.** Under the help of DIP switches, the knob can experience rudder mixing adjustment, throttle curve adjustment, and PIT adjustment.
- 11. Indicator.** Show the battery volume of the transmitter. Green LED on means the electricity is full; Green LED off means the electricity is not enough; Yellow LED off means the electricity is seriously short and the circuit will be automatically protected, and the flight is forbidden.
- 12. Frequency point indication:** when pressing and holding the frequency point button on the reverse of your WK-0702, the lighting LED indicates the current frequency point which you are using; when releasing the frequency point button, the lighting LED will return to the electricity indication. When continuously pressing twice the frequency point button, the lighting LED of electricity indication will turn into that of frequency point selection indication; then when pressing every once the frequency point button, the lighting LED will sequentially and cyclically move down to select the frequency point; when the required LED lighting, stop pressing the button at once, and then the LED will return to the electricity indication. The corresponding frequency points which LED stands for are shown below:

LED location		1 st RED	2 nd RED	1 st YELLOW	2 nd YELLOW	1 st GREEN	2 nd GREEN
Frequency points	72MHz	72.790	72.810	72.830	72.850	72.870	72.890
	40MHz	40.605	40.625	40.645	40.665	40.685	40.705
	36MHz	36.040	36.060	36.080	36.100	36.120	36.140
	35MHz	35.040	35.060	35.080	35.100	35.120	35.140



- 13. Status LED.** LED flashes when turning on the transmitter; Light blue indicates to adjust PIT limit and PIT parameters; Orange indicates to adjust servo exponential and throttle curve; Dark blue indicates to adjust gyro sensitivity and rudder mixing parameters.

6.0 Receiver Channel Assignment

1. **ELEV:** Elevator, connect to elevator servo.
2. **AILE:** Aileron, connect to aileron servo .
3. **THRO:** Throttle, connect to speed controller .
4. **RUDD:** Rudder, connect to rudder servo.
5. **GEAR:** Gear, connet to gear servo.
6. **AUX1:** Pitch / Aux 1, connect to pitch servo.
7. **AUX2:** Aux 2.

7.0 Transmitter Function

7.1 CCPM / NOR Selection

If your helicopter is using CCPM mode, put the No.8 DIP switch on the reverse side of the transmitter to the ON position. If your helicopter is using NOR mode, put the No.8 DIP switch to the OFF position.

7.2 Reverse Adjustment

In order to fit various servos, your WK-0702 is equipped with servo reverse functions. These reverse switches are located at the first 7 of 12 DIP switches on the reverse side of your WK-0702, and shown as top right. Please refer to page 4.

Channel No.	Reverse Function	ON Position	OFF Position
1	Elevator	Reverse	NORMAL
2	Aileron	Reverse	NORMAL
3	Throttle	Reverse	NORMAL
4	Rudder	Reverse	NORMAL
5	Gear	Reverse	NORMAL
6	PIT	Reverse	NORMAL
7	Rudder Mixing	Reverse	NORMAL

7.3 PIT Lock and Adjustment

The WK- 0702 provides the PIT and PIT limit adjustment functions and can lock the adjusted parameters as below:

- A. Put the No.10 DIP switch in the ON position and the status LED becomes light blue. Put the No.11 and 12 DIP swtiches in the OFF position. Circumrotate the V1, V2, which are individually marked on the top left and right knobs, to the 0 position.
- B. Tuning V1 to the “+” end increases the PIT value and tuning V2 to the “-” end decreases the PIT value.

- C. Tuning V2 to the “+” end increases the PIT limit value and tuning V2 to the “-” end decreases the PIT limit value.
- D. After the adjustment is finished, put the No.10 DIP switch to the OFF position and lock the adjusted PIT parameters.

7.4 Gyro Sensitivity and Rudder Mixing Adjustment

- A. Put the No.12 DIP switch on the ON position, and the No.10 & 11 DIP switches on the OFF position. Circumrotate the V1, V2 on the top left and right knobs respectively to the 0 position.
- B. V1 provides the function of rudder mixing adjustment. Adjust the rudder mixing value to 40% when V1 is at 0 position; Tuning V1 to the “+” end increases the rudder mixing value and the maximum value is 80%. Tuning V1 to the “-” end decreases the rudder mixing value and its minimum value is 0%.
- C. Tune V2 to the 0 position and the gyro sensitivity is 0. Tuning to the “-” end is the gyro NOR sensitivity, the maximum value is 100 % and the gyro is in the NOR mode; tuning to the “+” end is the lock mode, the maximum value is 100 % , and the gyro is in the lock mode. The gyro sensitivity in hovering flight is at 70-80 % and for aerobatic flight is at 60-70 % . Gyro lock mode in flight is recommended.

7.5 Throttle Curve and Servo Exponential Function

Put the No.11 DIP switch on the ON position and No.10 & 12 on the OFF position. Circumrotate V1 and V2 to the 0 position.

7.5 1 Normal Throttle Curve Adjustment

Switch the 3D inverted flight switch to the normal flight mode. Tune V1 to the “+” end and move the throttle curve upward. the maximum range is 80% upward; tune V1 to the “-” end and move the throttle curve downward and the maximum range is 40% downward. Tune V1 to 0, the curve is linear (Fig. 1).

7.5 2 Inverted Flight Throttle Curve Adjustment

Switch the 3D inverted flight switch to the 3D inverted flight mode. When tune V1 to 0 position, the curve is V-shape and the throttle center is at 60%. Tune V1 to the “+” end, and the curve moves up and its maximum range is 80%; tune V1 to the “-” end, the curve moves down and its minimum range is 40% (Fig. 2).

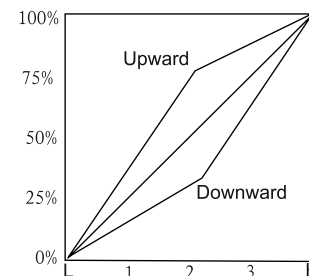


Fig. 1

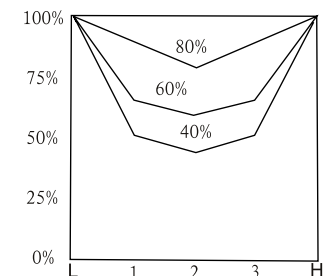


Fig. 2

7.5 3 Servo Exponential Function

When tune V2 to 0 position, the curve is linear (Fig. 3); When tune V2 to the “+” end, the servo curve will be changed in the form of exponential (Fig. 4). When tune V2 to the “-” end, the servo curve will be changed in the form of negative exponential (Fig. 5).

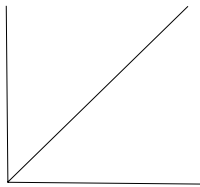


Fig. 3

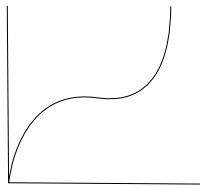


Fig. 4

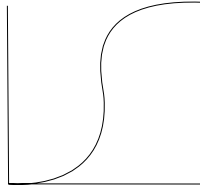


Fig. 5

7.5.4 3D Inverted Flight

The WK-0702 offers two flight modes: normal and 3D aerobatic. If put the flight mode switch to N position, the flight mode is normal; if put the flight model switch to 1 position, the flight mode is aerobatic. If the flight mode switch is at 1 position when turning on the transmitter, the LED will flash and there is no signal to be transmitted, and the system will automatically enter the protection status; if the flight mode switch is put to the N position, the protection status will be removed.

8.0 Frequency selection

8.1 Frequency Selection

There are total 6 frequency points to be selected in your WK-0702. When you select the frequency points, the 6 electricity LED lights in your WK-0702 stand independently for different frequency points shown as below (refer to page 7):

LED location		1 st RED	2 nd RED	1 st YELLOW	2 nd YELLOW	1 st GREEN	2 nd GREEN
Frequency points	72HMz	72.790	72.810	72.830	72.850	72.870	72.890
	40HMz	40.605	40.625	40.645	40.665	40.685	40.705
	36HMz	36.040	36.060	36.080	36.100	36.120	36.140
	35HMz	35.040	35.060	35.080	35.100	35.120	35.140

The method for frequency point selection: when pressing the frequency point button on the reverse of your WK-0702, the lighted LED indicates the current frequency point you are using, and when releasing the button, the LED will return to electricity indication. When continuously pressing twice the frequency point selection button on the reverse of your WK-0702, the lighting LED of electricity indication will turn into that of frequency selection indication. When pressing every once frequency selection button, the lighting LED will sequentially and cyclically move down to select frequency point; when the required LED lighting, immediately stop pressing the button and the LED will return to electricity indication. The frequency point transmitted is the very point required.

8.2 Receiver Frequency Setup

After the transmission frequency selected, power on your WK-0702, and then power on your receiver. If the LED in receiver is lighting without flashing, the frequency points respectively from your WK-0702 and the receiver are linked up, and you can inspect the functions by testing the servos' movement. If the red LED in receiver is flashing, the frequency points failed to be linked up, and you can modify via pressing the frequency point button in receiver under the help of a small screwdriver until the flashed red LED turns into lighting red LED. You should repeat the above steps when you re-select the frequency point. **Notice:** as far as possible away from other radio equipment, especially on the same frequency, in order not to interfere, when you are selecting a frequency point. Never selecting frequency point during your aircraft which is flying, otherwise unexpected accidents may happen.

9.0 Transmitter Specification

Encoder	7-channel micro computer system
Modulation	PCM
Output Power	<100Mw
Current Drain	200mA
Power Source	12x8 NiCad (9.6V 600 mAh) or 1.5Vx8 AA dry batteries
Output Pulse	1050 – 1850 Ms (1450 Neutral)

10.0 Receiver Specification:

Type	7-Channel PCM
Sensitivity	0.5 μ V (minimal)
Selectivity	8KZ/50db
Frequency Interval	20KZ
Weight	19g
Dimension	42.5 $\times$ 28 $\times$ 15.5mm

Antenna Length ----- 1m

Receiver Battery----- 4.8V 1100mAh

11.0 Control Stick Adjustment

The length and tension of the control stick are adjustable.

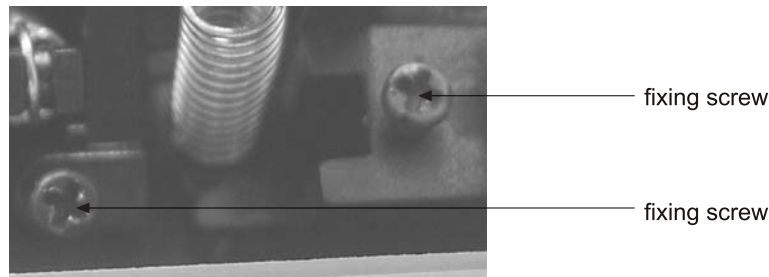
11.1 Control Stick Length Adjustment

To adjust the stick length, use the 1.5mm Allen Wrench to unlock the set screw, and then turn the wrench clockwise or counterclockwise to adjust the stick length. After the stick length has been adjusted to suit your flying style, tighten the set screw.

11.2 Stick Tension Adjustment

Take out the battery and unscrew the fixing screws on the reverse of your WK-0702, and remove the cover. **Notice:** don't break the cables inside! Use screwdriver to adjust the tension of stick and screws to an appropriate extent (Fig. 6). CW adjustment tightens and CCW adjustment loosens.

Fig. 6



12.0 Neck Strap Usage

There is a Hook on the face of the WK-0702 transmitter. The neck strap can be hooked on the eyelet. The Hook located at the center is helpful to getting the optimal balance of the transmitter.

13.0 Radio Frequency

Both of WK-0702 and receiver utilize manually controlled PLL (phase-locked loop) to select the frequency points and save your crystal oscillators. There are total 6 frequency points to be selected. **Notice:** never use the same frequency radio equipments with other hobbyists in the same ground.

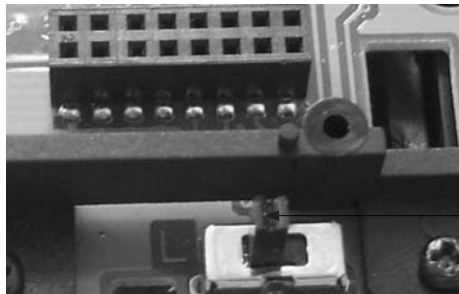
14.0 Method for Throttle Model Change

Take out the battery pack and RF module, unscrew these 4 fixing screws on the reverse of your WK-0702, and then remove its cover. **Notice:** don't break any cables inside!

Fig. 7



Fig. 8



diverter switch

4. When mounting the receiver antenna, please make sure that the main rotor and tail rotor blades or the propellers cannot entangle it.
5. Transmitter Battery Mounting: Please note the polarities when inserting the plugs.

15.0 Installation Requirement

It is important to correctly mount your radio system in your model. Below are some advices on how to install your WALKERA equipment.

1. Installations of rubber grommets and copper sleeve to isolate the vibration are musts. The mounting screws cannot be over-tightened. Otherwise, the rubber grommets will be distorted and decrease the vibration absorption effect.
2. When mounting the servos, please make sure they can freely move over their whole travel ranges and ensure the control linkages don't touch or impede the movement of the servos.
3. Install various switches far away from the engine tuned pipe and far away from the high vibration area, and ensure all the switches move freely over their whole ranges.



The specifications of the R/C Product may be altered without notice.