RCE-500 Head Lock Gyro Insturction Manual

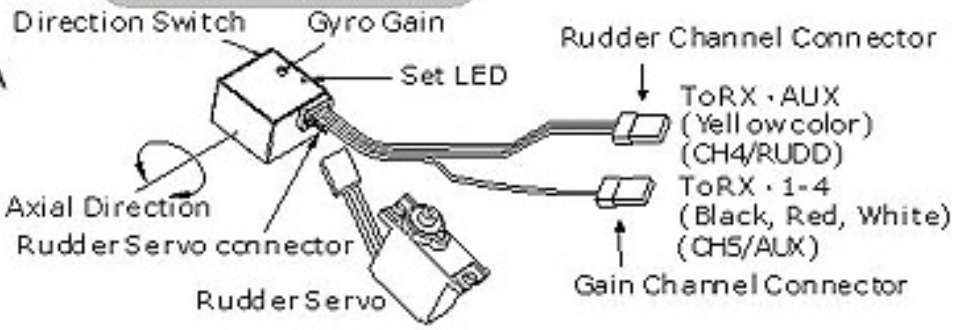
FEATURE

- Dual Mode: Headlock and Standard Rate Gyro
- Built-in Drift canceling Circuit: automatically dampens any offset effects of tail rudder due to wind and helicopter movements toproduce stable, constant tail stability
- Temperature Compensation Circuit: Is not susceptible to varying weather conditions; will provide consistent performance, even with substantial changes in climate.
- Dual Position Normal\Reverse switch for Rudder operating direction
- Dual Gain Control: Remote gain control and head-lock mode on an auxiliary channel on your transmitter
- New-Sturdy, lightweight outer case provides increased protection in a light, compact package

SPECIFICATION

- Voltage Used: DC 4.2~7V
- Power Consumption: Approx 33mA
- Operation Temp: -5℃ to +60℃
- Dimension: 23.5 x 21 x 15mm
- Weight: 12g
- Accessory: Adhesive foam x 1

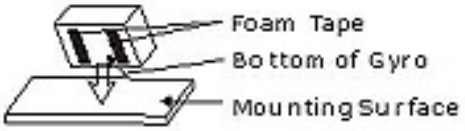
ILLUSTRATION

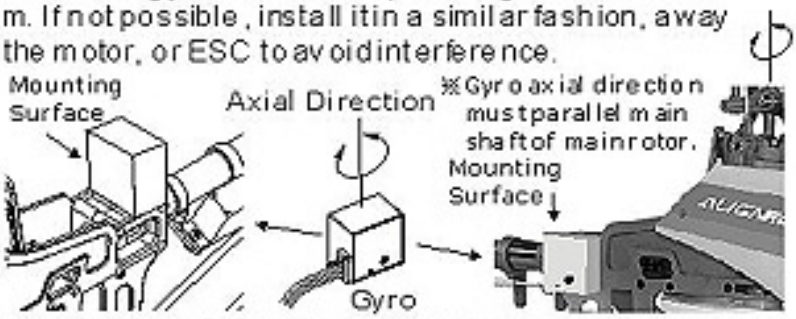


INSTALLING THE GYRO

1. Use the adhesive foam provided to attach the gyro to the chassis of the helicopter. The foam will provide a stable, vibration free mount to securely attach the gyro to the helicopter. Align recommends the gyro to be mounted as illustrated in the diagram. If not possible, install it in a similar fashion, away from any heat source or electrical source such as the motor, or ESC to avoid interference.

◎When installing the gyro, follow the steps regarding the use of adhesive foam.





A. Find a position at or near the center of mass (main shaft) of the R/C helicopter. Make sure to avoid any source of vibration, or to eliminate any vibration from the tail and rotor head.

B. Clean the mounting surface and the bottom of the gyro using alcohol, and allow to dry completely.

C. Using the two pieces of adhesive foam provided, attach one piece at each end to the mounting surface of the gyro (vertical side in this illustration), and then adhere the gyro to the mounting surface. Do not use one piece of adhesive foam that covers the whole bottom of the gyro.

IMPORTANT: Do not use double-sided tape without foam padding.

2. Follow illustration for installing the gyro to receiver and rudder servo.

Single Mode Connections:
(Only Support "headlock Mode" when single mode connection is established.)

Step 1: Connect the rudder servo to the "SERVO" connection at the gyro. An extension may be necessary.

Step 2: For ALIGN, Futaba PPM/PCM Radio Transmitter:
Connect the cable from "X - 1-4" of the gyro to the "Channel 4" of the Recevier. For JR PPM/SPCM/ZPCM Radio Transmitter: Connect the cable from "RX - 1-4" of the gyro to the "RUDD" of the Receiver.

Dual Mode Connections:

Step 1, Step 2: same as Single Mode Connections.

Step 3: For ALIGN, Futaba PPM/PCM Radio Transmitter:
Connect the cable from "RX - AUX" of the gyro to "CHANNEL 5" of the receiver.

For JR PPM/PCM Radio Transmitter:
Connect the cable from "RX - AUX" of the gyro to "AUX2" +** of the receiver.

Table of Connections :

Radio type	RX - 1-4 connect to receiver's	RX - AUX connect to receiver's
JR PPM/SPCM	"RUDD"	"AUX 2" or "AUX 3" +**
ALIGN、Futaba JR PPM/PCM	"CH4" (RUD)	"CH5"
JR ZPCM	"RUDD"	"AUX 2" +**

SETTING UP

1. Switch on your transmitter
2. Switch on your helicopter's receiver and DO NOT move the helicopter at all before the gyro initialization light is illuminated. (This can take several seconds to complete)
3. Configure these settings on your transmitter:
   - **ATS**
   - **Throttle to rudder mixing**
   - **Pitch to rudder mixing**
   - **Pilot authority mixing**
   - **Rudder to gyro mixing**
   - **Revolution mixing**
4. Set the direction switch A ↔ B on the gyro to make the tail pitch move in the right direction to Compensate for tail yaw.
5. Gain Control

   Single Mode: Adjust the gain control - → + on the gyro (by using the small screwdriver to tune the rotary switch), To obtain maximum tail performance and stability. Adjust the gain as high as possible until it begins to oscillate (wag). Reduce the gain a little bit just to eliminate the wag.

   Dual Mode: Adjust the gain control on the transmitter gyro gain channel ATV setting to obtain maximum tail Performance as described above.

PRE-FLIGHT TRIM ADJUSTMENT OF RUDDER

In order for the gyro to function properly, it is crucial to trim the gyro properly.

1. Set the rudder trim (and sub-trim if available) to neutral.
2. Identify the gyro gain switch position on your transmitter which gives the standard gain mode and Heading-lock mode. This can be done by observing the rudder servo behaviour by applying full rudder Command followed by a release. In standard gain mode, the rudder servo will rapidly return to the neutral position when the rudder stick is released. In Heading-lock mode, the rudder servo will creep in one Direction and tend to remain at its full travel limit. (Does not apply to Single Mode connection)
3. Set the rudder trim (or preferably the sub-trim) so that the creep in the rudder servo is minimized. You will find that there will still be some minor residual creeping and it will take 10-20 seconds for the servo to reach full travel.
4. Once this trim position has been found, no further adjustment should be needed. However, some slight adjustment of the tail control linkages may still be needed in order to reduce any offset effects in the standard mode. (This could only be done through flight testing).
5. Select the heading-lock mode and hover the helicopter.
6. Check for any tendency for tail to oscillate (wag). Reduce the gyro gain if wag is seen. Conversely, increase the gain if no wag is seen. (The goal is to use the highest possible gain setting without introducing tail wag).
7. Observe any trim offset in the tail and correct with the rudder trim.
8. Select the standard gain mode and repeat the exercise. In this case, any offset effects should be corrected by adjusting the tail rotor linkages.

IMPORTANT

A. If after adjusting the gyro gain with the transmitter and the tail is still hunting, slightly move the tail control link to a different position on the rudder servo arm (move toward inner hole or outer hole)

B. In order to let the gyro adapt to the temperature and humidity of the flying field, it is strongly recommended to leave the helicopter and gyro in the environment for 5-10 minutes, then turn on the switch to use them Afterwards.

RECOMMENDED RADIO TARNSMITTER SETTINGS SET INHIBIT

SET INHIBIT	TAIL ROTOR PILOT AUTHORITY MIXING SYSTEMS, REVOLUTION, GYRO SENSE, TAIL MIXING
GAIN CHANNEL	CHANNEL 5
GAIN SWITCH	CHANNEL 5
ATV VALUE (RUDDER CHANNEL)	50%(BOTH DIRECTION)
ATV VALUE (GYRO GAIN CHANNEL)	50%(BOTH STANDARD AND HEAD LOCK MODE)
RUDDER TRIM	SUB-TRIM

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