

ACE RC
TG-6000
HEADING LOCK GYRO
INSTRUCTION MANUAL

Product no. #8072

INTRODUCTION

TG-6000 is designed for mini electric R/C helicopters. Small-sized and light-weighted make it ideal and convenient for installation on your mini electric R/C helicopter. Both heading lock mode and normal mode are adopted. Also you can use a digital servo for more precise tail control.

FEATURES

- Heading lock mode and normal mode
- Remote-controlled gain
- Analog/digital servo compatible
- Delay function
- Simple wire connection for easy installation
- Small and light weight

SPECIFICATIONS

Item No.	8072
Product Name	TG-6000
Control	Digital Proportional Integration Control
Sensor	Piezoelectric Vibrating Gyroscope
Voltage	DC 4.8~6.0V
Operation Temperature	-5 ~ 50°C
Dimension (mm)	25.9 × 24.9 × 7
Weight (g)	13.5

FUNCTION

AS/DS switch ●

TG-6000 is compatible with analog servo as well as digital servo. The AS means Analog Servo while the DS means Digital Servo. Be sure to set the switch at AS position when using an analog servo, or the servo will be easily destroyed.

Gyro operating direction ●

Switch the gyro operating direction. This setting depends mostly on the helicopter, servo, and the installation position of the gyro itself. Wrong setting will result in a dangerous situation.

End point adjustment dial ●

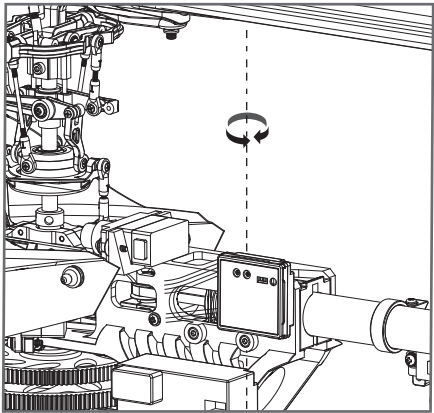
Adjusting the rudder servo traveling to the limit of mechanism and make sure that the servo traveling range is no greater than the linkage.

Delay adjustment ●

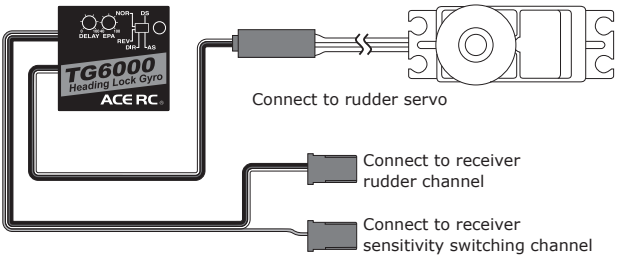
With high speed servo such as C0915, it is recommended to set the delay to "0" position. For slower servo, hunting occurs at pirouette stop. Increase the delay value until the hunting disappears. With too much delay value, the tail will easily drift and hard to control.

INSTALLATION

- Before using the double-sided foam, be sure to clean the bottom of the gyro and the fuselage where the gyro will be attached.
- Install the gyro as shown. Please note that the gyro must be erected as the sensing direction is different from others.



CONNECTION



SERVO SELECTION

TG-6000 is suitable for analog and digital rudder servo. For analog servo, set the right switch to the AS position that means Analog Servo. For digital servo, set the switch to the DS position.

High brightness LED light

Indicates the status of the TG-6000.

Off	Indicates that the power is off.
Red LED light	Heading lock mode
Green LED light	Normal mode

Rudder servo connector

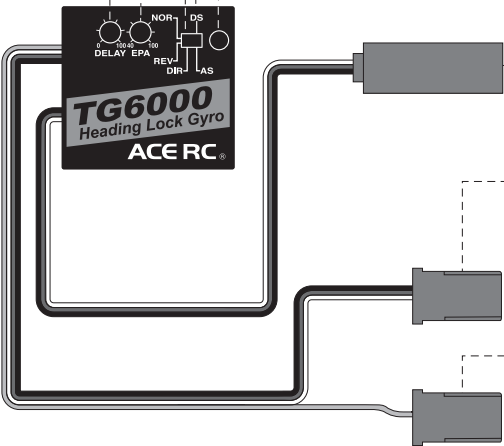
It should be connected to the rudder servo.

Rudder input connector

This connector is supposed to be connected to the rudder channel of the receiver.

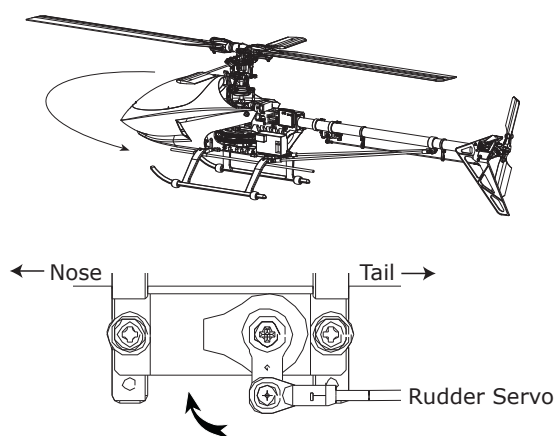
Gyro gain connector

This connector is used to adjust the gyro gain and switch between the heading lock mode and normal mode.



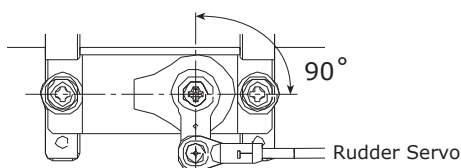
SETTING AND ADJUSTMENT

1. Set the transmitter first. The "trim" and "sub trim" of rudder should be at neutral position. Then check if the switches on the gyro are in correct position. Set the EPA dial at 70%~80% and the delay at 0% as the initial setting.
2. Suppose the gyro gain connector is connected to the CH5 of the receiver, it is recommended to adjust the "ATV" of CH5 at 80% as the initial setting.
3. Turn on the transmitter then turn on the power of gyro (shared with the receiver), do not move the helicopter at this moment.
4. The rudder servo will be set in the neutral position and the red LED will light up indicating the heading lock mode.
5. The gyro is in normal mode if the green LED lights instead of the red one. Please reverse the CH5 and repeat the step3 and step4 again. (Be sure to turn on the gyro in heading lock mode)
6. Fit the servo arm temporarily, check the gyro and servo direction:
 - a. While giving the right rudder control, the servo arm should move toward the nose of the helicopter.
 - b. While rotating the helicopter with your hand counter-clockwise, the servo arm should move toward the nose of the helicopter.

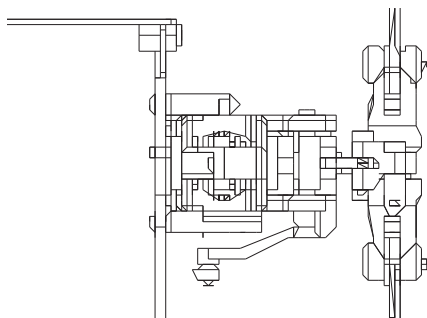


PS: Take mini Titan E325 for example. It may differ from heli to heli.

7. Reset the power and remain the helicopter still, fit the servo arm as shown. The servo arm should be perpendicular to the tail control linkage rod. If can't be, it is recommended to try another servo arm instead of adjusting the "trim" or "sub trim".



8. While the servo arm is perpendicular to the tail control rod, the tail blades pitch should be at 0 degree or a little offset to the right rudder as shown. (with clockwise rotation rotor)



9. Move the rudder stick to the left and right, adjust and check the linkage. Make sure there is no bending on both sides.
10. Make sure the EPA dial should be above 70%, or the servo arm is too long that the gyro gain can't be maximized.

FLIGHT ADJUSTMENT

■ Gyro Gain

If the steps above are correctly executed, the gyro will be in charge of the tail control under heading lock mode. Even in crosswind situation, the tail will remain the position. The gyro gain differs. The higher speed the rudder servo is, the higher the gyro gain will be. On the contrary, the tail efficiency of the helicopter itself increases when the head speed of the helicopter goes up, so the gyro gain should be reduced.

As a result, use gyro gain of 80~85% when hovering and 75~80% during aerobatics. Increase the gyro gain before the tail begins to hunt. It will reduce the life of the servo if the gain is too high.

■ Pirouette Adjustment

The pirouetting rate of the helicopter is related to the gyro gain and the rudder ATV (or D/R) setting. Increase the ATV (or D/R) will speed up the pirouetting rate. Under the same ATV (or D/R value) setting, the higher the gyro gain is, the slower the pirouetting rate will be. It is recommended to decide the gyro gain first, and then adjust the pirouetting to the rate you want. It is suggested to use the EXP function of the rudder to make the control more precise.

WARNING

Make sure every part on the helicopter is installed very well if you want the helicopter to pirouette at a very high speed, or something will be flung out such as the gyro itself due to the centrifugal force.

■ Vibration Elimination

TG-6000 uses the sensor with very high sensitivity. If there is certain amount of vibration during flight, it will diminish the performance of the gyro. So please take this issue very seriously and take the following suggestion into consideration.

1. Use the provided foam only and make it very spongy to be the damping.
2. Eliminate the source of vibration from the helicopter.

■ Trimming Elimination

1. It is recommended to reset the rudder trim when turning on the gyro.
2. After taking off, you may use the rudder trim to diminish the drift of tail.
3. Only use rudder trim during actual flying, not at setting up process.

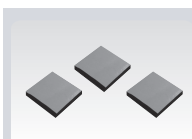
CAUTION

- Always use the provided foam to install the gyro.
- Mount the gyro so that there is no object will touch it.
- Note the installation direction of the gyro itself.
- Turn on the gyro under heading lock mode and never move the helicopter until the red LED stops flashing.
- Don't use the "trim" and "sub trim" of rudder when setting up.
- Avoid sudden changes of temperature.
- Disable the tail compensation (revolution mixing) function when using the heading lock mode.

OPTIONAL PARTS



8131
ACE RC Micro Rudder
Servo, C0915



AC2213
Spongy Foam



AQ0847
Mini Plastic Screwdriver

Manufactured by

THUNDER TIGER CORP.

<http://www.thundertiger.com>

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