

# JR<sup>®</sup>

## G500A

### Airplane Rate Gyro Instructions

For Airplane Use Only  
JRP6500A

#### FEATURES

- Compact integrated design for easy installation/connection
- No moving parts for a nearly unlimited service life
- New Silicone Ring Sensor for drift free operation and outstanding holding power
- Rate mode specifically designed for airplane use
- Remote dual gain control for easy setup
- Servo Travel Limiter for easy setup
- High/Standard Frame Rate selection
- Silver/chrome finish to isolate RF & dissipate heat
- Compatible with JR<sup>®</sup> and most other brands of radio systems

#### SPECIFICATIONS

|                       |                   |
|-----------------------|-------------------|
| Operating Voltage:    | 4.8V-6.0V         |
| Operating Current:    | 20mA              |
| Dimensions:           | 24.5H x 30W x 30L |
| Weight:               | 22 g              |
| Gyro Gain:            | Remote adjustable |
| Rate Mode:            | Remote on/off     |
| Servo Travel Limiter: | Manual pot        |

#### INTRODUCTION

JR's latest gyro, the G500A, utilizes a new state-of-the-art Silicone Ring Sensor for outstanding holding power and drift free operation, and is designed specifically for airplane use to control either the rudder, elevator, or aileron axis.

The G500A's compact one-piece design provides easy installation in a wide variety of models. It is important to note that the operational features of the G500A are very different from those of other gyro systems. Many current settings, including the travel volume, exponential, dual and rates must all be changed from their previous normal settings in order to achieve the desired tail rotor/response and maximum performance that the G500A has to offer.

Carefully read these instructions so you will fully understand and become comfortable with the functions and operating characteristics of the G500T prior to installation and initial test flights.

#### INSTALLATION & HOOKUP

##### Mounting the G500A Airplane Gyro

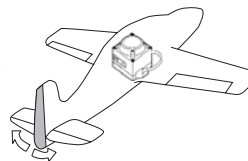
Be sure to thoroughly clean the G500A's mounting area and the aircraft's mounting location with rubbing alcohol prior to attachment.

**Note:** Never install/mount the G500A unit directly to bare wood, as it is possible for it to loosen during flight. Always seal the wood surface with paint, epoxy, or CA adhesive prior to mounting.

Refer to the following diagrams for proper gyro positioning, based on the desired control function for which the G500A is intended to be used.

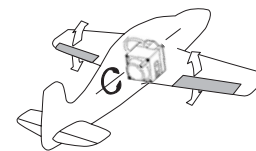
##### Rudder Channel

Mount the G500A with the label facing upward as shown in the diagram at right. Please note that the unit must be mounted so the sides of the unit are 90° to the center line of the fuselage.



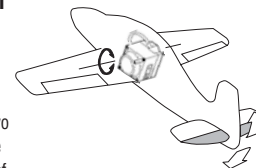
##### Aileron Channel

Mount the G500A so that the label faces either the front or back of the model as shown at right. Be sure to attach the servo mounting tape to the side of the unit opposite that of the setting switches.

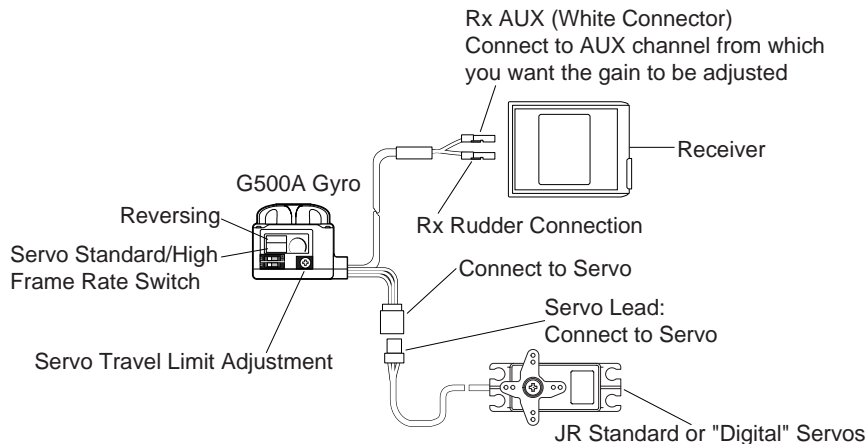


##### Elevator Channel

Mount the G500A so the label faces either the left or right side of the model as shown at right. Be sure to attach the servo mounting tape to the side of the unit opposite that of the setting switch.



#### CONNECTIONS



#### SETUP & ADJUSTMENT

##### Receiver Channel Connections

- Rudd**—Rudder Control
- Aile**—Aileron Control
- Elev**—Elevator Control

##### Radio Type Polarity Connections

Please refer to the following polarity color chart when connecting the JR G500A to a brand of radio system other than JR.

Please note that if the system is connected incorrectly, the G500A will not function, but no damage will occur to any of the radio components. After successful connection, secure the gyro to the servo connection with a small piece of tape to prevent possible disconnection during use.

| JR               | Futaba/HRC      | Airtronics Z    |
|------------------|-----------------|-----------------|
| red to red       | red to red      | red to red      |
| brown to brown   | brown to black  | brown to black  |
| orange to orange | orange to white | orange to white |

#### INITIAL TRANSMITTER SETTINGS

After some experience and flight time is gained, these values can be adjusted to suit your preference.

##### Airplane

- **Travel Adjust**  
Left Rudder 150% 150%  
Right Rudder 150% 150%
- **Dual Rates**  
Low Rate 80%  
High Rate 100%
- **Exponential Values**  
Low Rate 30% 20%  
High Rate 40% 30%
- **Gyro Gain Values**

Using Gyro Sens Function (PCM10 or 8103)  
High Rate (on) 65%–80%  
Low Rate (off) 0%–50%  
Using Travel Adjust Values  
High Rate (on) 65%–80%  
Low Rate (off) 0%

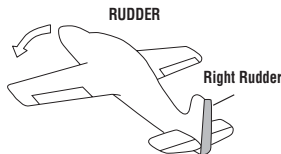
## GYRO/SERVO DIRECTION AND COMPENSATION

It is extremely important to make sure that the gyro is compensating in the desired direction prior to the first flight.

### Rudder

**Step 1:** Be sure the servo is moving in the proper direction. A right rudder command should move the rudder to the right (if you're unsure, seek help from someone more experienced). Reverse the servo direction in the transmitter if necessary.

**Step 2:** Now pick up the airplane and quickly move the nose to the left. The rudder should move to the right as shown. If it moves in the opposite direction, switch the small reverse switch located on the side of the G500A to the opposite direction.



### Aileron

**Step 1:** Be sure the servo is moving in the proper direction. A left aileron command should move the right aileron down. If you're unsure, seek help from someone more experienced. Reverse the servo direction in the transmitter if necessary.

**Step 2:** Now pick up the airplane and quickly move the right wing panel downward. The right aileron should move in the same direction (down). If it moves in the opposite direction, switch the small reverse switch located on the side of the G500A to the opposite direction.

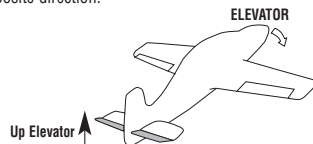


### Elevator

**Step 1:** Be sure the servo is moving in the proper direction. An up elevator command should move the elevator up. If you're

unsure, seek help from someone more experienced). Reverse the servo direction in the transmitter if necessary.

**Step 2:** Now pick up the airplane and quickly move the nose of the airplane downward. The elevator should move in the up direction. If it moves in the opposite direction, switch the small reverse switch located on the side of the G500A to the opposite direction.



**Note:** When the reversing switch on the gyro is changed, this can also reverse the direction of the servo. If the gyro reversing switch is changed, it will be necessary to reverse the direction of the servo using the transmitter's servo-reversing function and re-test.

## SERVO TRAVEL ADJUSTMENT

The G500A features a manual servo travel limiter located on the side of the gyro as shown in the diagram. This manual setting allows you to use a full 150% travel value in your radio setup for the best resolution, while being able to reduce the physical travel of the servo to remove any tail linkage binding.

The travel adjustment pot increases or decreases the travel of the servo in both directions equally.

To set the physical travel of the servo, move the servo via the transmitter stick to its extreme left/right positions while looking at the control surface of the model.

If there is visible clearance at maximum travel in each direction, increase the servo travel with the limiter pot. If binding is occurring in one or both directions, reduce the travel limit pot as needed until binding is removed.



## 3-YEAR WARRANTY COVERAGE

Your new equipment is warranted to the original purchaser against manufacturer defects in material and workmanship for 3 years from the date of purchase. During this period, Horizon Service Center will repair or replace, at our discretion, any component that is found to be factory defective at no cost to the purchaser. This warranty is limited to the original purchaser of the unit and is not transferable.

This warranty does not apply to any unit which has been improperly installed, mishandled, abused or damaged in a crash, or to any unit which has been repaired or altered by any unauthorized agencies. Under no circumstances will the buyer be entitled to consequential or incidental damages. This limited warranty gives you specific legal rights; you also have other rights which may vary from state to state.

**Note:** As with all fine electronic equipment, do not subject your unit to extreme temperatures, humidity or moisture. Do not leave it in direct sunlight for long periods of time.

## GYRO GAIN SETTINGS

The G500T features a dual remote gain adjustment that also allows for mode selection between high and low Rate modes based on the gain value selected. The recommended gain setting procedure for airplane use is such that you will be using one gain position for the actual flight gain required (ON), and the second gain position will be set to 0 so the gyro will not provide any compensation (OFF). With this setup method, it is possible to turn the gyro compensation on or off during flight. This is a helpful safety feature, in that if the gyro compensation is too high, or in the wrong direction, the pilot can turn the gyro off quickly in flight and resume control of the model. Please refer to the information below for proper gain channel/function selection and suggested starting gain values.

### Remote Gyro Gain Access Options

**JR PCM 10 Series Systems:** Connect to Aux 3 Channel

If you are using a PCM 10, 10S, 10SX, 10SxII or 10X and would like to make use of the Code 44 gyro sensitivity adjustment feature, you will need to enter code 44 and activate this function. If code 44 is not activated, the gain adjustment

would be made through the servo travel adjust function for the Aux 3 channel.

**JR XP8103 and X-378 Systems:** Connect to Aux 2 Channel

If you are using any version if the JR XP8103 or X-378 and would like to make use of the gyro sensitivity adjustment feature, you will need to enter the function mode and activate the Gyro Sens function. If Gyro Sens is not activated, then the gain adjustment would be made through the servo travel adjust function for the Aux 2 channel.

**JR XP662 Systems:** Connect to Gear Channel

The gain adjustment will be accessed through the servo travel adjust function for the gear channel.

**Note:** When using the Gyro Sens function in a PCM10 series or 8103 system, a gain value of 50% or below will turn off the sensing of the 500A. When using the travel adjust values on the desired Aux channel, one switch position will be on (high gain) and the second position will be off, regardless of the travel value selected.

## REMOTE GAIN CONTROL SETUP: AIRPLANE

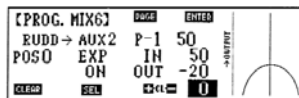


Figure 1 Position 0 "Maneuvering Mode"

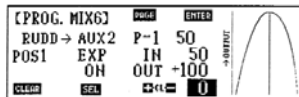


Figure 2 Position 1 "Torque Roll Mode"

### Stick Priority Mixing: JR 10SX, 10SxII, 10X

A radio that has curve-type mixing must be used in order to make the gyro function as "stick priority." This is recommended for all aerobatic flying and for all applications where a gyro is used on elevator function. Install the rudder gyro with the remote gain control plugged into the AUX 2 and the elevator's (or aileron) gyro into AUX 3. Enter Code 56, then set up a mix curve as in Figure 1 and designate channel 4 (rudder) as the master channel and AUX 2 as the slave. You'll want to set up two curves — one for flying maneuvers (Figure 1), and one for

hovers and torque rolls (Figure 2). For flying maneuvers, the top of the curve needs to be lower because less gain is needed. If the curve is too high (too much gain), the tail will oscillate, indicating that gain should be reduced. For hovering and torque rolling maneuvers you need maximum setting for more gyro authority. Program these two curves to be selected via a convenient switch (the same switch can be used for both) then, when you're ready to enter a torque roll, flip to high gain. Flip back to low gain for flying maneuvers. To program the elevator (or aileron) gyro, enter Code 57 and repeat the same process, except designate the appropriate channel as the master and AUX 3 as the slave. Then enter Code 17 and inhibit AUX 2 and AUX 3. Lastly, you'll find that the gyro creates some deadband in the stick. This is undesirable when using stick priority mixing. Enter Code 12 and reduce travel for the rudder and elevator (or aileron) until servo movement is achieved through the entire stick travel. Normally this happens at 55% to 65% travel adjustment.

**Note:** It is normal to see a slight change in neutral position when the gain is switched from low to high. This will not cause any problems in flight.

## REPAIR SERVICE INSTRUCTIONS

### Warranty Repairs

To receive warranty service you must include a legible photocopy of your original dated sales receipt to verify your proof-of-purchase date. Providing that warranty conditions have been met, your equipment will be repaired without charge.

### Normal Non-Warranty Repairs

Should your repair cost exceed 50% of the retail purchase price, you will be provided with an estimate advising you of your options.

Advise us of the payment method you prefer to use. Horizon Service Center accepts VISA or MasterCard. Please include your card number and expiration date. Mail your system to:

Horizon Service Center  
4105 Fieldstone Road  
Champaign, Illinois 61822