

JR XP9303 Programming Guide for the Hangar 9 1.50 Size P-51

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This guide will assist in the programming necessary to set up the 1.50 Size Hangar 9 P-51 Mustang, though the information could be used on many other scale type models with some modifications where necessary. To start with, plug your servos into the correct channels. Below is a listing of what servo to plug into each channel. You will need a 9-channel receiver to use the setup described below. Additional Y-harnesses or matchboxes will be required if using a receiver with less than 9 channels for the gear, flaps and/or elevator.

- Ch. 1 Throttle
- Ch. 2 Right and Left Aileron w/ Y-Harness or Matchbox (to be consistent with use of initial 1st caps)
- Ch. 3 Right Elevator
- Ch. 4 Rudder
- Ch. 5 Right Gear
- Ch. 6 Right Flap (Listed as Aux 1 on Receiver)
- Ch. 7 Left Flap (Listed as Aux 2 on Receiver)
- Ch. 8 Left Elevator
- Ch. 9 Left Gear

System Set Up Mode

To begin setting up the transmitter, press and hold the ENT key, turn the 9303 on, then release the ENT key.

Model Selection

Press down on the roller with Model Sel highlighted, and select the model you want the P-51 on by pressing the rolling selector and scrolling through the models. Select the model you want to use by pressing the roller.

Model Reset

Now press the LIST key and scroll through with the roller until you get to MDL Reset. Press down on the roller to enter model reset. Press the CLR key, then the bottom key to answer yes.

Model Type Selection

Press the LIST key, scroll with the roller to get to Type SEL and enter type selection by pressing down on the roller. Scroll with the roller until ACRO is highlighted, and press the roller to select ACRO, and then press LIST.

Model Name

Press the LIST key, scroll with the roller to get to MDL Name, and enter the model name function by pressing down on the roller. Move the arrow to select which character to edit, press down on the roller to bring up the character options, roll to select the character desired, then press the roller again. Repeat until you have named the model as desired. Be sure to use a name that describes the model such that you can be confident that you will select the correct model at the field.

Modulation Selection

Set the modulation as needed to match your receiver by scrolling with the roller to select MODULAT, pressing down on the roller, pressing down on the roller again, select SPCM or PPM with the roller, then pressing the roller again. Press LIST to return to the system menu.

Device Select Set Up

Now scroll with the roller until Device SEL is highlighted and press down on the roller to enter device select. Scroll with the roller until INH is highlighted under where it says FLIGHT MODE. This is where you can activate flight modes for the aircraft. By using flight modes, you can set up the model such that all of your dual rates are on one switch. You can also deploy flaps, landing gear, and other functions all through one switch. If you would like to use flight modes, press down on the roller, highlight FLAP SW with the roller, then press down on the roller. By moving the roller to the right, you can set trims to COM where you will have the same trims for all flight modes, or to FM where you will have a new set of trims for each flight mode. These are optional, set them as desired. By again moving the roller to the right, it will highlight SW next to D/R, here you can set this to SW so that the dual rates are on individual switches, or to FM where the rates will be on the flight mode switch. Here again, this is an option, and can be set as desired.

Scroll with the roller until AUX4 is highlighted on the upper right hand corner of the screen. Press down on the roller, and rotate the roller until gear switch is highlighted, then press down on the roller to select it. This will set up the aux 4 channel to be the second gear channel. Now move the roller to the right until ON is highlighted in the FLAP column. Unless you want to be able to adjust the flaps by using the flap trim lever, press the roller to make this say OFF. Scroll to the right to get to the bottom row in the gear column, and this should say ACT. Then scroll to the right one line to the FLAP column so that it is highlighted. This should say SYS, if it says INH or ACT, press the roller until this says SYS. Move the roller to the right one position at a time, and press the roller at the aux 2 and aux 3 channels and make them say INH by pressing down on the roller until it says INH. The aux 4 will remain set at ACT. On the bottom row of the screen it should read from left to right: OUT ACT SYS. INH INH ACT

Wing Type Set Up

Now press the LIST key, scroll with the roller to the right to highlight Wing TYPE and press down on the roller to enter the wing type function. Move the roller until INH is highlighted under ELEV. Press down on the roller, rotate the roller to highlight AUX3, and then press down on the roller to select it.

Then scroll with the roller to the right until INH is highlighted under FLAP. Press down on the roller; roll the roller to highlight AUX2, and then press down on the roller to select it. This completes the system set up mode; press the ENT key to exit the system mode.

Function Mode

Next we will set up the function mode of the transmitter. Press the LIST key to enter the function list. After completing each step below, press the LIST key to get back to the function list.

Dual Rates and Expo

Scroll with the roller until you get to the D/R & EXP option, and press the roller to enter the function. Set your Dual Rates and Expo as you desire. Always use a positive value for expo, as a negative value will make the control response more sensitive around center and could cause you to over-control the plane and crash. There are control surface throws listed on page 61 of the P-51 manual; use these throws as a starting point and adjust as desired. 25% expo on aileron and elevator, and 15% expo on the rudder would be a good place to start. If you activated flight modes in the Device Select function, you can have up to 3 different rates and expo values for elevator, aileron, and rudder.

Servo Reversing

Scroll with the roller until you get to the REV.SW option, and press the roller to enter the function. Set your servo reversing correctly so that each surface goes the correct direction. If the flaps go up with the flap switch in the down or LAND position, reverse the direction of channel 6 (FLAP) and/or channel 7 (AUX2). If you want to reverse the direction of the gear switch, reverse the gear channels (channel 5 and 9) and this will reverse the switch function.

Sub Trims

Scroll with the roller until you get to the sub trim option and press the roller to select the sub trim function. Set the sub trims as required leveling the control surfaces. Try to keep these as close to zero as possible. Using too much sub trim can result in running out of travel on the servos, and the possibility of over-driving the servos.

Travel Adjustment

Scroll with the roller until you get to the travel adjustment option, and press the roller to enter the function. Set the travel adjustments such that you get the control movements required.

Throttle Curve

Scroll with the roller until you get to the THRO CURV option, and press the roller to enter the function. Using this function, you can set up your throttle curve so that each click of throttle will increase the power evenly throughout the throttle range. To adjust the curve, scroll with the roller until you get to the point desired to alter, press down on the roller to select it, and with the roller, increase or decrease the value as desired. After the point is set, press the roller again to set the value. Lowering the value at

any given point will slow the response, raising the point will speed up the response. Set this as needed with the engine running, and alter as desired after flying the model. You can also have multiple throttle curves if desired. To do this, scroll with the roller until SW SELECT is highlighted, select the switch or flight mode to have the function on, put the switch chosen in the 'ON' position, and you will have a second curve available. If using flight modes, the 2 throttle curves can be assigned to any of the flight modes. Expo can also be added to the curve to smooth it if desired. To add expo to the curve, scroll with the roller to highlight OFF under EXP, and press down on the roller.

Flap System

Scroll through the menu until FLAP SYS is highlighted, and press the roller to select this function. Scroll with the roller until INH is highlighted under AUTO LAND. Here you can set up the flaps and any elevator compensation to be removed with throttle, so on a missed approach for landing or on take off, as you power up, the flaps will be removed once you get past a pre-set throttle position. If you elect to use this option, press down on the roller to activate it, then scroll with the roller to select THRO under the word ACT. By pressing down on the roller, and then rotating the roller, you can select the throttle position for the flaps to be removed. This throttle position must be set high enough so that the model will be at a high enough speed to not stall when the flaps are reduced or removed.

Scroll with the roller until MID is highlighted next to ELEV. Press down on the roller, then rotate the roller to make the elevator go down 3/16" in the MID switch position, then press the roller down again. Scroll with the roller until LAND is highlighted next to ELEV. Press down on the roller, then rotate the roller to make the elevator go down 3/8" in the LAND switch position, and then press the roller down again. You will adjust these percentages as necessary after flying the model to prevent the nose from pitching up when the flaps are deployed.

Scroll with the roller to highlight NORM next to FLAP. Center the flap servos with the switch in this position, with the switch all the way up. This is done so that you will not run out of travel for the flaps. If you adjust the Norm position for the flaps, it will be necessary to re-center the flap servos once again. You will set the NORM, MID, and LAND positions as needed to get the throw amounts required as listed on page 61 of the P-51 manual.

If flight modes were activated in Device Select, on the right-hand side of the screen, FM0, FM1, and FM2 will appear on the screen. Here you can select the flap system to be integrated into the flight modes, so that your flaps will be moved with your flight modes. To change the setting, scroll with the roller until the flight mode you wish to set is highlighted, press down on the roller, select which position you want the flight mode to be (Norm, Mid, Land) by scrolling with the roller, and then press down on the roller. Each position (Norm, Mid, Land) can be independently assigned to the flight mode of your choice.

The word Delay will appear on the right-hand side of the screen. With the delay function in the flap system, you can slow the flap servos and elevator compensation so that when the flaps are deployed, the flaps and elevator will slowly move into position. This reduces the chances of the plane "jumping" up or down when flaps are deployed or retracted, and it will smooth the transition from flaps to no flaps and vice versa. To set this, scroll with the roller until Delay is highlighted on the screen, then press down on

the roller. Rotate the roller to select the time of delay to slow the servos movement. Set this as desired. Then press down on the roller when complete.

Servo Speed

Scroll with the roller until SRV.Speed is highlighted, and press down on the roller to enter this function. In this function you can adjust the speed of response of each of the 9 channels. It is recommended to leave channels 1–4, as well as channels 7 and 8 set at NORM as these are the primary flight control channels, and should be left at maximum speed to avoid slow responding controls. This function can be used to adjust both flaps to deploy at the same speed if there are variations in the servo speeds, and can be used to further slow the flap servos if the Delay option in the flap system is not used or a further delay is desired on the flaps. With most mechanical retract servos; it will not be possible to adjust the gear speed. If using a system that allows the gear speed to be adjusted, you can do this here. To adjust the speed of a channel, scroll with the roller to select the channel and direction of movement you wish to adjust, press on the roller to select it, then rotate the roller to adjust the value. Press down on the roller when the desired value is set.

Timer

Scroll with the roller until TIMER is highlighted, and press down on the roller to enter this function. In this function you can activate a flight timer, by scrolling with the roller until INH is highlighted and pressing down on the roller. There are 2 options available, one is a down timer which will count down a pre-set time period and beep at the end of the time to let you know to land. The other option is a stopwatch, which will count the amount of time since the timer key was pressed. Select the option desired. If the down timer is selected, you can set the length of time by highlighting the time and pressing down on the roller, setting the time with the roller, then pressing down on the roller to select the time. The timer will be on the trainer button and/or the lower left key beside the screen.