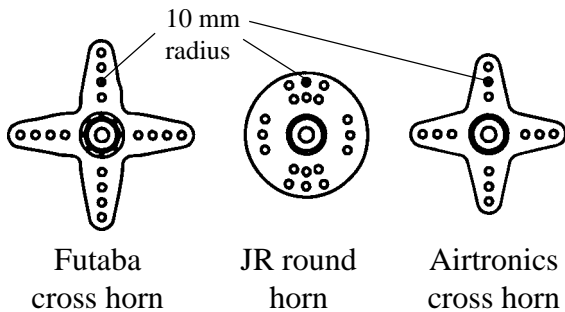


Servo Setup & Adjustments

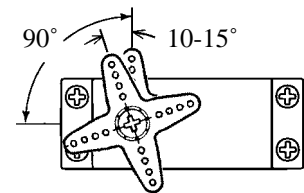
In the steps 37 through 42 over the next few pages the pushrod hardware will be mounted to the servos horns and ultimately the pushrods themselves. Each step is well described but lets take a few moments to cover a few basic points on setting up individual servos. By this time the radio will have been charged overnight. Recheck that all the servo trims are centered. Each radio manufacturer makes servo horns in different shapes: round, in a cross and sometimes a star, each giving a selection of hole patterns to choose from.



Choosing the correct servo horn only involves whether the particular arm or wheel has the correct hole at the recommended distance measured from servo center to hole center, off by 1/2mm is ok. When using cross horns, many times the remaining arms need to be trimmed off to avoid binding on another servo like throttle and collective. When two pushrods need to be on the same horn but each at an angle, the round wheels are best suited. For wheels that are not predrilled for offsets, measure and drill your own holes. Remember to originally set the wheels or arms centered on the servo.

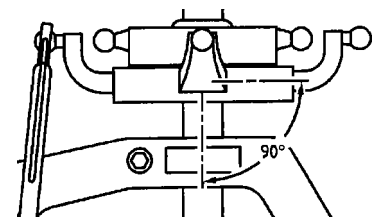
What we are looking for is equal travel both in the left and right rotation of the servo, this becomes complicated by pushrods attaching to the servo at an angle. To correct this we recommend an angle for the hole location. For elevator and collective, we suggest 10-15 degrees to allow for this "linear" geometry to be set up. A range is given to make it easier for you to just choose an available angle, if this is not possible, simply lift the servo horn off the servo and press into place one "notch" back (counter-clockwise).

We strive to have all the control surfaces setup linearly, this means that as the control stick is moved an equal distance from center that the servo will move a corresponding equal amount of travel. Although this is not clear now, this will become very clear when adjusting the throttle and collective servos movements, commonly called the throttle and pitch curves. At this time it is worth mentioning the danger of the ATV function, Adjustable Travel Volume has solved many setup problems while at the same time has created new ones. Most commonly used for throttle to easily keep the servo from binding, the thing to remember is to keep the upper and lower values should have the same. If the final values are different by more that 10 points then a mistake was made in setting the mechanical limits. Time to go back and recheck.



Servo horn shown offset one notch back on the output shaft.

The goal in the end after all the servos are mounted is to have the swashplate sit level or at 90 degrees to the main shaft and have the swashplate move equally fore, aft and side to side. The swashplate will also travel up and down as the collective servo is moved, it is important that in the upper position the washout hub does not contact the rotor head block while at the same time the swashplate remains above the top of the frames to avoid cyclic interference.



Don't use the pitch gauge until you have installed all the servo horns and pushrods. Pitch settings usually are the last step in completing the basic setup for the helicopter just prior to making the first test flights.

After installing the aileron and elevator pushrods, the swashplate should sit level.