

INSTALL A NEW SERVO

Whether you're replacing a worn-out servo or upgrading for improved durability and performance, a servo swap is a simple job

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If you're logging wheel time on the regular, you're going to find yourself replacing a servo sooner or later (a steering servo, most likely). Sometimes they break, sometimes they just wear out, and sometimes you just want more torque and durability than your RTR's stock linkage puller has to offer. No matter why you're looking at a servo install as your next bench mission, fear not—swapping servos is easy. Here's how to do it.

1 UNPLUG THE SERVO FROM THE RECEIVER

If you've got a model with an enclosed receiver box, you'll need to open it up to access the receiver plug. Consult your vehicle's manual for details on accessing the receiver. Lost your manual? Most manufacturers have PDF manuals online. The steering servo will be the plug in the channel 1 slot (which may be labeled "CH1" or "ST"), and the throttle servo will be in the channel 2 slot ("CH2" or "TH"). Pull the plug straight up to remove it.



2 REMOVE THE SERVO HORN

You may need to first remove the servo to access the servo horn. If that's you, skip ahead to step 3. Otherwise, just remove the screw in the center of the horn, then pull it off the output shaft. If the servo horn is stuck, use a screwdriver blade to gently pry the part off the servo. If you're replacing a steering servo, you may be removing a "servo saver" instead of a horn. No worries—all the steps ahead are the same.



The screws on either side of the servo hold it in place. All the screws will likely be the same size, but if any are longer or shorter, remember where they go.

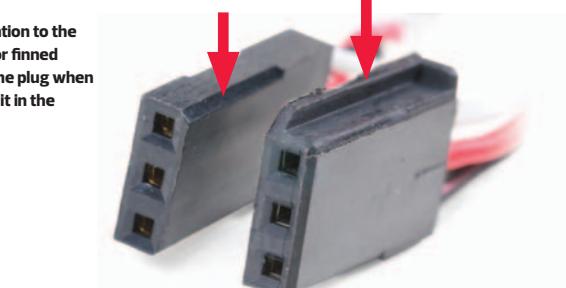
3 REMOVE THE SERVO

Most servos are held in place by four screws, two on each side of the servo, but some vehicles have one screw per side. Remove the screws to free the servo. If the screws are different lengths, make note of which screws go where.



4 PLUG IN THE NEW SERVO, AND CENTER THE OUTPUT SHAFT

Switch your transmitter on, and center the trim dial for the channel you're using ("ST" = steering, "TH" = throttle). Plug the new servo into the correct receiver port, and power up the receiver. Operate the transmitter to make sure the servo is responding. If it doesn't respond, you may have inserted the plug backward or into the wrong channel. Some plugs have a fin on one side, which makes them impossible to install backward, but others just bevel the edges on one side. You can also look at the plug wires. There will be a white wire in the middle, with red and black wires on either side. If the other plugs in the receiver have their black wires on the right, for example, plug your new servo in the same way.



Be careful not to strip the servo mounts by overtightening. Snug is all you need.

5 INSTALL THE SERVO

...or skip to step 6 if you can't access the servo-horn screw once the servo is in the car. Just reinstall the screws you removed in step 3. If your new servo is slightly larger or smaller than the original and doesn't fit quite right, you should be able to adjust the servo mounts. One or both of the screws that hold the mounts to the chassis may be slotted to accommodate different servo sizes. Loosen the screw(s), and slide the mount(s) as needed.

CHOOSING A SERVO

Unless you're replacing your servo with the same model that came with your car, you'll need to consider a few things before you buy—namely size, torque, gear type, and spline count.

SIZE Most 1/10- and 1/8-scale models use standard servos, with dimensions of approximately 40x36x20mm and mounting holes 47mm apart. Most manufacturers keep it simple and specify a servo is "standard size," or list 1/10 and 1/18 scale as applications for the servo, so you don't have to go looking up dimensions. If you're replacing a servo in a mini/micro model or a 1/5-scale car, you may have a smaller- or larger-than-standard servo. Measure your old servo and compare dimensions before you buy.

TORQUE More torque = more turning force. Even inexpensive servos can be very powerful these days, such as the Hitec HS-645MG shown here. It delivers 133 oz.-in. for less than \$35. That's enough to steer any 1/10-scale model. Lightweight vehicles, like 2WD buggies and touring cars, can get away with half as much torque, but extra torque is never a bad thing. If you've got an 1/8-scale buggy or truck, a steering servo with 150 oz.-in. of torque or more will give you the best performance.



Those ridges on the output shaft are called splines, and how many there are matters.

SPLINE COUNT The servo's output shaft (the part that turns) is splined to fit the servo horn. For the parts to fit properly, the number of splines on the horn and the servo must match. Futaba, Traxxas, and some Hitec servos have 25 splines; some Hitec servos have 24 splines; and many other brands have 23 splines. If your servo spline doesn't match the horn you want to use, check your car's manual; optional horns with different spline counts may be offered. Or you can just use one of the horns that came with your servo. Some cars have uniquely shaped horns, so a factory part must be used.

GEAR TYPE Servo gears are either plastic or metal. As you would expect, metal wins for durability, though plastic-gear servos hold up fine in most 1/10-scale models. Go metal-gear in crawlers, monster trucks, and 4WD vehicles when possible. As with torque, there's no such thing as "too much durability."

6 INSTALL THE SERVO HORN

Switch your radio system and the receiver back on if you switched them off. Press the servo horn onto the output shaft. In most cases, the horn should point straight up, but you may not be able to get it perfectly straight. No problem, we'll adjust that at the radio. Secure the servo horn using the screw supplied with the servo. If you're installing a servo saver and the supplied screw is too short, you may be able to use the screw from your old servo—but only if it has the same size and type of threads as your new servo's screw. If they're different, bring the new servo's screw and the original screw to the hobby store, and they'll help you get the right hardware.



Don't worry if the horn isn't perfectly straight—just get as close as you can. Final centering will be done at the radio.

7 REASSEMBLE THE RECEIVER BOX (IF EQUIPPED)

After you make sure the servo is operating as it should, go ahead and button the receiver box back up. If the box uses a gasket or rubber inserts for waterproofing, make sure they are properly installed. Consult your owner's manual for the specific steps required. All you have to do now is take a test drive and fine-tune the servo's center position using the steering-trim dial on the radio. ☺



Mission accomplished.