

How to remove and replace the alternator on an NA SW20

by Ian Morrison

I'd been warned that replacing an sw20 alternator was a difficult job.

I was told, that on the turbo models anyway, you would need to remove the rear suspension x-member, and exhaust pipe to get the alternator out from below, quite a big deal.

But, on my car, which is an NA, I found none of this was necessary, and I got it out fairly easily from the top, up past the end of the intake manifold.

For anyone considering tackling this job, I wouldn't rate it as being very difficult.

No special tools are needed, except for a few sockets, etc and the means to jack up the car safely to work safely underneath.

Anyone looking for a replacement alternator should be aware that there are some differences, depending on which sw20 model you have.

My car is a 1990 NA and has a Denso 80-amp alternator, (Toyota part no. 27060-74170) with a round 3-wire connector. The later model NA alternator, (Toyota part no. 27060-74420) has an oval connector. The early turbo models have a 90-amp alternator with different mounting hole centers, and will not fit the NA bracket.

To start the job, first thing to do is to disconnect the negative cable from the battery.

If you have cruise control fitted, it will need to be moved aside.

To do this, remove the engine bay side top cover panel for better access to the cruise unit, remove the cover, and then the 3 holding bolts. You can disconnect the activating cable by undoing the one nut, just enough to get it out of the bracket, so you can easily replace it in the same position when re-assembling it. Leave the large cable attached but disconnect the two smaller wires and move the cruise control out of the way.

You'll also need to undo the two bolts and remove the small cruise control lower support bracket on the rear bulkhead.

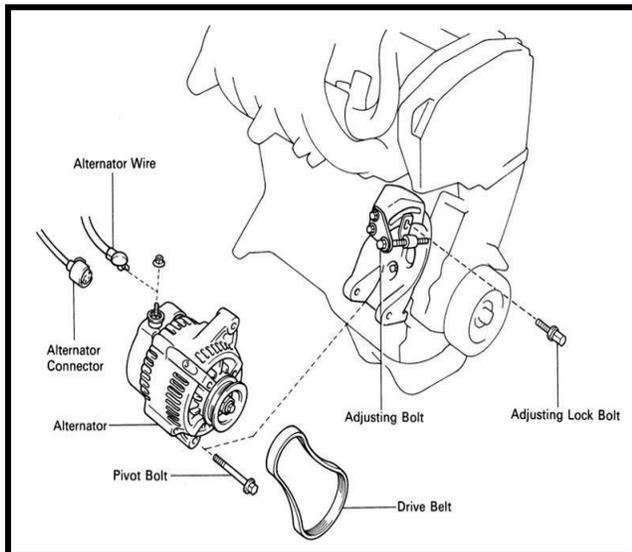
Then remove the small bracket holding the diagnostic socket and connectors and move it and the attached wires and tube out of the way.



You should now have clear access to the alternator, the components of which are shown in the diagram.

Reach down and loosen the belt-adjusting bolt. Then remove the adjusting lock bolt. I also undid the two small bolts and removed the adjusting bolt and holding bracket assy, to make more room.

The belt adjusting mechanism is shown in the picture.



You will need to disconnect the wires from the alternator. Fold back the rubber boot, undo the nut and remove the main alternator wire.

Because you can't see it, removing the 3-wire connector plug may be difficult, so it might be better to do this after you've taken the alternator out of its mounting bracket.

At this point you will need to jack up the car and remove the driver's side rear wheel.

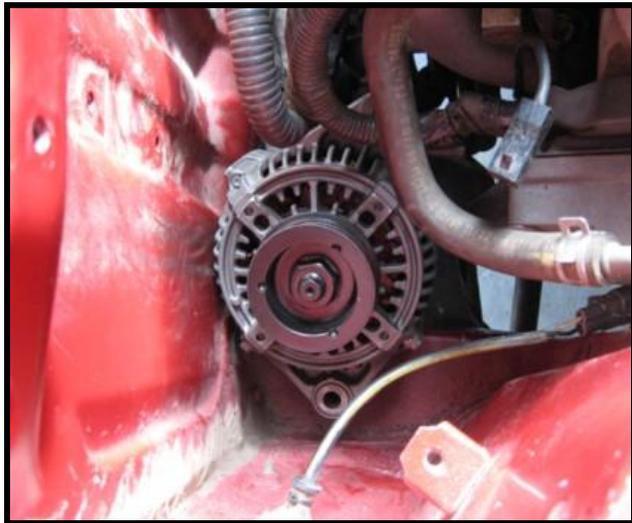
Important!! If you're doing this job at home, jacking is best done on a level concrete floor. Make sure the front wheels are chocked, and don't trust a jack alone to support the car, as they can easily fail. Always use secure jack support stands, before doing any work underneath.

Under the car, remove the rear section of the plastic cover to allow access, and loosen the alternator bottom pivot bolt. This will allow you to rotate the alternator to get enough slack to remove the drive belt and tuck it up out of the way.

Now remove the pivot bolt, and take the alternator out of the mounting bracket. You could use something like a tyre lever to get it free.

Then turn the alternator over so that the pulley faces downwards, resting on the rear crossmember.

Now, working from the top of the car and looking down, the 3-wire connector plug should now be visible, making it easier to remove. In the picture of the alternator socket shown with the plug removed, you can see a lug on the outside of the socket, which is engaged by a locking tab on the side of the plug when it's inserted. Disengage the tab and remove the plug. Then turn the unit over, as shown



in the next picture, so you can grip the pulley and lift the alternator out past the corner of the intake manifold.

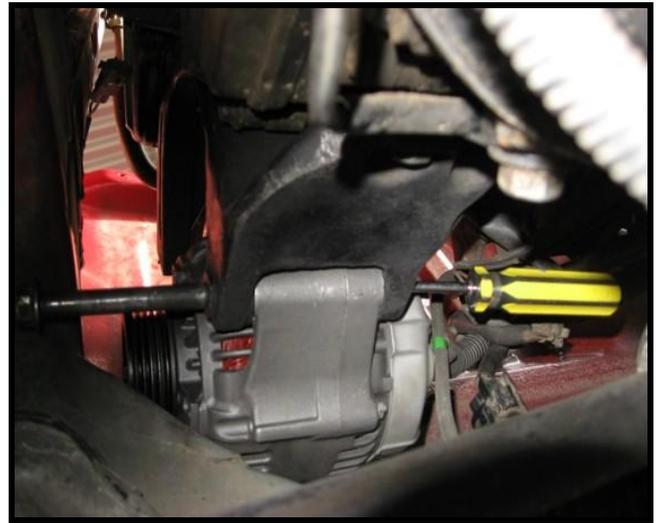
When you're ready to replace the alternator just reverse the procedure. Lower it in from the top till it rests on the cross member.

Then, working back under the car, you should be able to maneuver it into position and slide it into the bracket. You may find it heavy to lift and a tight fit, but grasp the alternator and rotate it up and down and wriggle it sideways to get it started. Keep going until it's in far enough to get a screwdriver in to help locate and center it, so you can fit the pivot bolt.

When the pivot bolt is in, don't completely tighten it yet.

Rotate the alternator in the bracket to get some slack, and re-fit the drive belt over the pulleys.

Now working from the top of the engine bay, re-connect the alternator wire and the 3-wire connector plug.



Then refit the belt tensioning mechanism, and tighten the belt to the correct tension. The handbook says 10-15mm deflection with 10kg pressure at the mid point between the pulleys. Then, back under the car recheck the belt tension and tighten the pivot bolt, and then you can replace the underneath plastic cover.

You're now ready to replace the cruise control assembly in the reverse order to its removal. Refit its mounting bracket, cable, two wires and cover. Then replace the bracket with the diagnostic socket etc.

Make one final check to make sure everything is plugged in, and secure. Refit the rear wheel, lower the car, torque the wheel nuts, and refit the engine bay side top cover.

Finally reconnect the battery cable and you're done.
