

2WS goes 4WS

4ws Parts You Need

Ok here's what you need off a 4WS lude:



The top is the front 4WS rack the middle is the rear steering rack aka. gearbox and the bottom is the distribution shaft running between them. You also need the bolts to mount all of it up.

You also need to get part #'s 44 and 46 from:

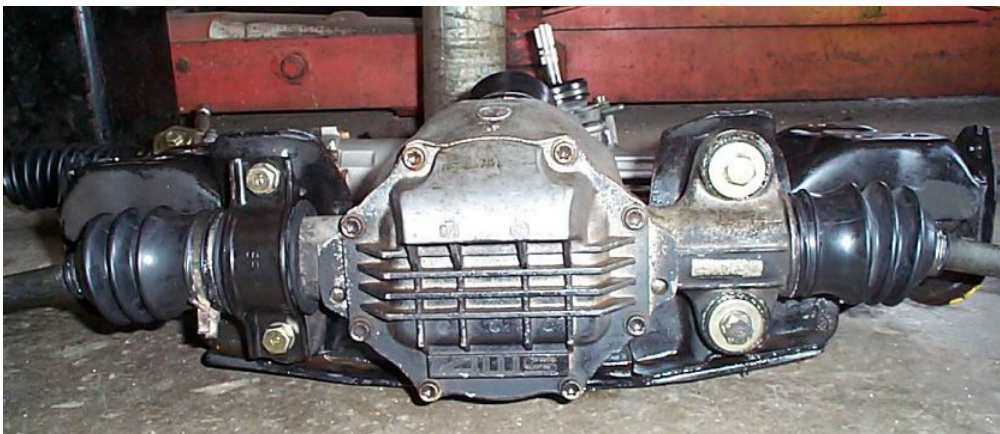
<http://www.hondaautomotiveparts.com/auto/jsp/mws/prddisplay.jsp?inputstate=5&catcgry1=Prelude&catcgry2=1989&catcgry3=2DR+2.0SI+4WS&catcgry4=KA5MT&catcgry5=P.S.+HOSES-PIPES>

You also need to get the bolts for the rear lower control arms where they bolt up to the rear rack. (They are special ones) If you 4WS system didn't come with them you can get them from:

<http://www.hondaautomotiveparts.com/auto/jsp/mws/prddisplay.jsp?inputstate=5&catcgry1=Prelude&catcgry2=1989&catcgry3=2DR+2.0SI+4WS&catcgry4=KA5MT&catcgry5=REAR+LOWER+ARM>

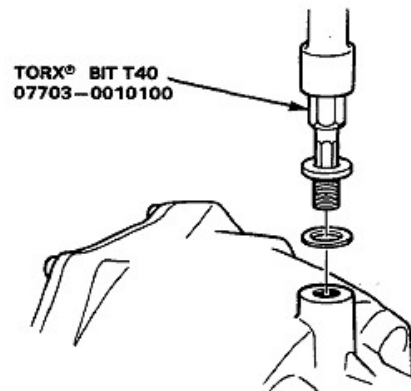
you would need 2 of: part #24 #25 and #41

Once you have the parts you need to inspect them, check the tie rod balljoint's, tie rod boots, mounting bolts, brackets, and bushings. Also inspect the joints that attach to either end of the distribution shaft. In fact I recommend at least replacing the tie rod ball joints, unless they are in near new shape.



Here's the rear rack I got, I wound up replacing the tie rod ball joints, the boots, and the bolts + bushing on the rear. Also note that you need the rack AND the part it bolts to, then that part gets bolted to the car.

Another thing you should do with the rear rack is make sure you can remove the T40 torx bolt on the bottom of it. (This is crucial for a proper alignment!) If you wind up stripping it out you can use vise grips to loosen it.



Mine was stripped out by the alignment guys and they never said anything, found out later when I realized one of the front wheels was toed-out something crazy. Had to take the rack back out then I welded a bolt head onto the stripped torx bolt:



Here is part #46 I told you to buy up there, the 2WS one only has 3 inlets. The extra hose is part #44 and runs to where the distribution shaft meets the front rack. Better explanation in the front rack install page.



Here is part #44 its the black hose running from part #46 up by the firewall, down, and into the the rack, and that's it.

2ws Parts Removal

Front rack

First you need to get 4 (or more) jack stands, and get the car completely in the air, make sure you put them in good spots, safety first.

Now take off the front wheels and use a balljoint puller to remove the tie rod balljoint's (on both sides) from the knuckles. Now get 2 19mm wrenches and look at how the tie rod balljoint is attached to the tie rod on the drivers side. Use one wrench to hold the nut, and the other to unscrew the tie rod balljoint also unscrew the nut once the balljoint is off.

Now remove the metal shield covering where the P/S lines screw in, its held on by 3 10mm bolts. Once its off you need to get something to drain P/S fluid into. Set it under where the metal lines screw in and then unhook the lines.

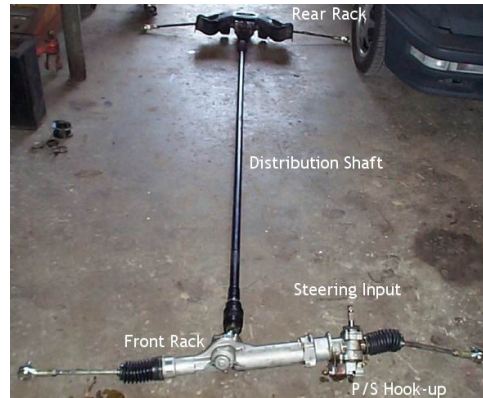
The P/S lines might be stuck from being on there for years (Some of mine were) and a standard wrench might start to round them off, if they do start to round STOP. You will need to pick up some wrenches that are called "Flare nut wrenches" they are designed to slip over the metal line then onto the nut here a pic so you know what they look like:



While they are off and draining, remove the center beam that runs from the front, under the oil pan, and under the rack. Then remove the entire downpipe. You also need to remove the front swaybar.

Now you can remove the 4 bolts holding the rack up, once they are off try and pull the bushings off to, the rack comes out easier if they are off.

Ok, your almost ready to remove the rack, open the car door put the key in and turn it till the steering lock in disengaged now turn the wheel all the way to the right. Now you need to take the 2 10mm bolts out of the joint where the steering input is:



Now you should be able to slide the joint up off the part coming from the rack. Ok now get under the car its time to get the rack out.

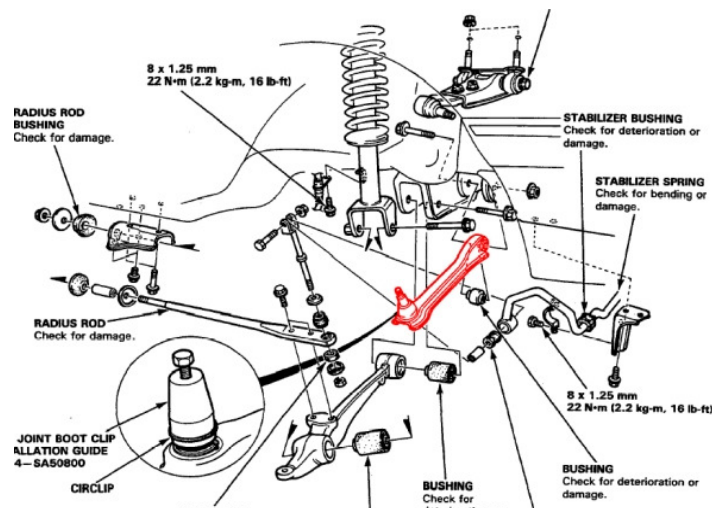
Pull the drivers side down a little till the steering input spindle clears the hole, now pull the whole rack toward the passenger side as far as you can, now pull the drivers side of the rack down and the tie rod should just barely clear part of the beam. Once drivers side is out all you need to do is pull the whole thing toward the drivers side to get the passenger tie rod out.

Rear

Take off the rear wheels.

Now you need to unbolt the rear lower arms (There are 2 on each side) from the part in the rear they bolt to. The arms that are furthest to the rear (With the small balljoint's on the ends) need to be removed, here's a pic showing the part(s):

Remember for the bigger lower arm you only need to take out the bolt holding it to the rear rack.



Take that one out completely, once the lower arms are unbolted look at the part they all attached to, thats the rear subframe. There are 4 big bolts holding it in, remove those and it will come off.

That's it for the rear

Distribution Shaft Install

Update:

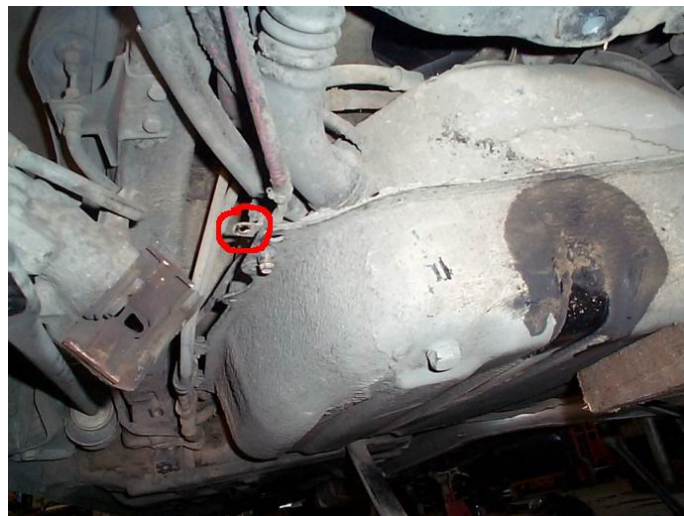
Well recently people on pp.com who have done this have found a much easier way of getting in the distribution shaft! All you need to do is remove the heat shields that sit above the exhaust (Just a few 10mm bolts) then you will be able to slide the shaft in from the front no problem. Heh kinda embarrassed I didn't think of that while doing mine! :-) Anyway's I'm going to leave the old stuff here just because. -MC

Hard way of doing it:

Get a jack and a block of wood and put it under the tank like in the pic below. Now undo the 2 straps holding the tank up.



There's a 8mm bolt holds that red line on take it out, and let the line hang.



Ok trace the fuel lines that go along the drivers side of the tank, just before they go into the cabin there's a plastic dust shield you need to remove. After that unbolt that bracket there



Ok now SLOWLY lower the jack little by little keeping a close eye on the fuel lines still attached to the tank.
Lower it as much as you can without tearing any of the lines.



Next unbolt the swaybar and slide it off to one side.

Ok now take the distribution shaft and slide it in from the rear, the side with the larger plastic boot goes in first.

(BTW that's a whiteline swaybar if your wondering why it looks different than yours)



Uh oh! Ok its kind of of stuck now. Look up above the exhaust at the center of the car, you can see where its stuck. What you need to do now is pull it down and forward from here. Next go back to the rear and shove forward again, then get back under and pull it down and forward. You will need to do this a whole bunch which is why you should try and get a friend to push from the rear while you pull down and forward. Eventually you will get it in.



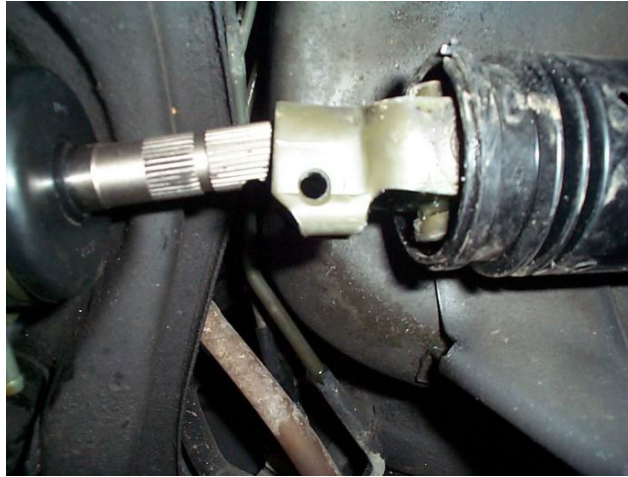
Here it is resting above the exhaust:



Here's the front of the shaft.



Once you get the shaft up there you will see that it can only go on one way. I would suggest smearing some grease on the shaft coming out of the front rack so you can slide the joint on easier.



Now all you need to do is raise the tank back up and reattach everything and your done.

Front Rack Install

Putting the 4WS rack in is kind of hard because its heavier and a little bigger than the 2WS one, but you will get it. Turn the steering input spindle all the way to the right so the drivers side boot is fully compressed, make sure the tie rod balljoint on the drivers side is also off.

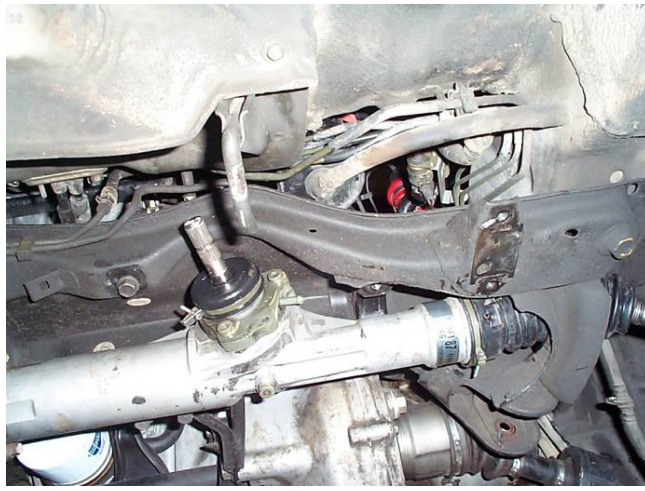
Slide the passenger side in first and push it all the way into the passenger side that it will go, then lift the drivers side tie rod and try and get it to clear the beam, you may need to mess with it a while before it will go in. You may also need to rotate the rack to get it in right.

Once its in the right way, before you attach the brackets screw in all the P/S hoses by hand because sometimes you need to move the rack around to get them to thread correctly. Don't forget to put the hose going for the drivers side boot to the passenger boot back on along with it's clips.

Now you can put the bushings and brackets on the rack and bolt it up. You can also put the tie rod balljoint back on the drivers side. Also don't forget to put the shield for the P/S lines back on.

Now center the rack by eye, by turning the spindle going to the distribution shaft then go into the car and center the wheel. Now you need to reattach the joint where the rack steering input is.

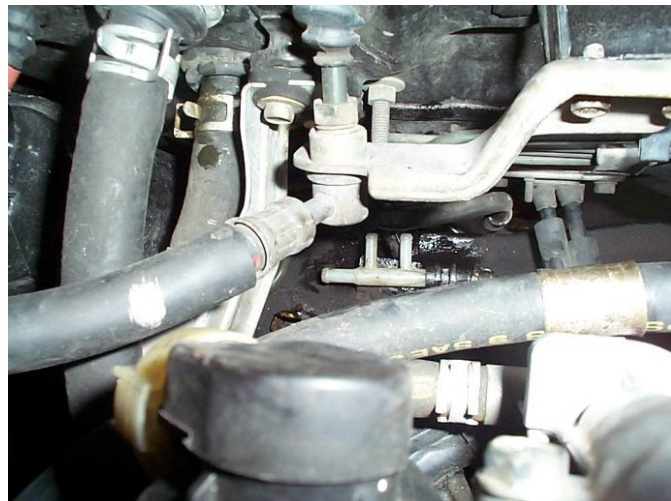




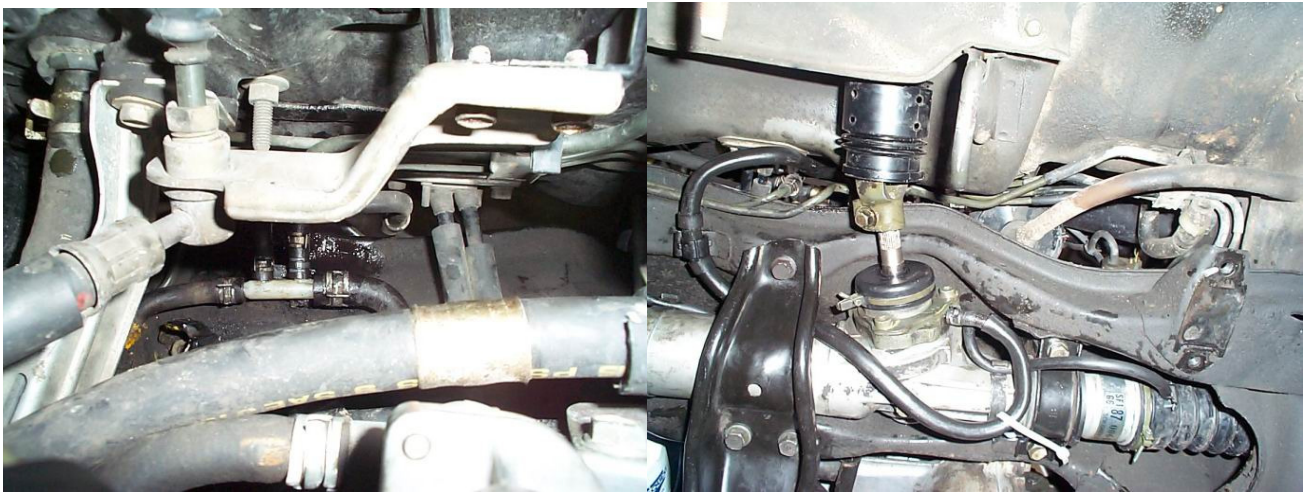
Ok, here is where part #46 I told you to get comes into play.



If you peek down right behind the rear mount you will be able to see the 2WS one, get some long pliers (longer the better) and use it to reach down and remove the hoses from it. Now you need to take the old one off (gonna be hard) and stick the 4WS one on in its place:



There are the hoses hooked to part #46 the one that doesn't have the hose clip fully on is the new hose you need to add.



Here you can see part #44 and where it plugs into. It clips into a spot on the left there but it was still hanging a little low so I used a zip tie on the right side to hold it up more. You should also attach the distribution shaft like in the pic, it will only go on one way so if its not wanting to slide on then rotate in till it does, don't force it on.

Now put the downpipe, engine center beam, and swaybar back on. Attach the tie rods to the knuckles like the 2WS rack was and put the wheels back on.

That's it for the front.

Rear Rack Install

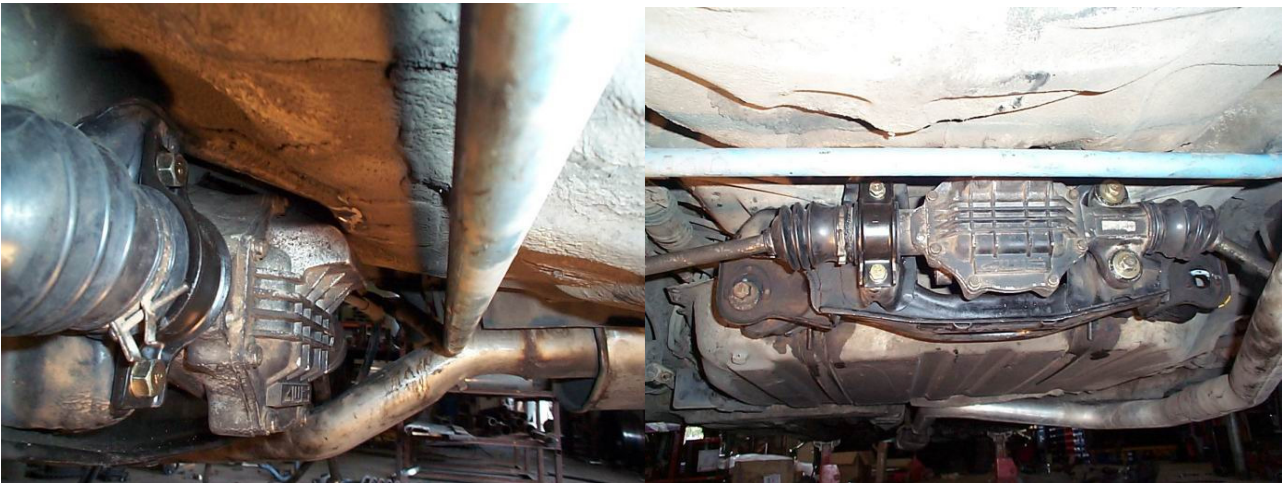
Ok here's the rear, get ready to start cutting! See that reinforcement in the center there? On the 2WS ludes it keeps the rear rack from bolting up, so it needs to be removed. My dad cut it out with a cutting wheel, I don't think it would be wise to use a torch because the gas tank is so close. Once its cut out get some rust preventative spray paint and shoot some onto the exposed metal, don't want the bottom of the trunk rusting out in a few years. :-)



Finished product:



Now you can bolt the rear rack up, since the front is roughly centered, center the rear rack by eye and try and guide the distribution shaft onto the spindle as your bolting it up. You will get it eventually.



Now you need to bolt the rear lower arms to the new rack the tie rod ball joints in the rear go into the knuckles from below unlike the front ones, **don't try and put them in from the top because you can ruin them.** Then put the rear wheels back on, your done with the rear!