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PHOTOS Sean Klingelhofer/
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TOOLS NEEDED

Phillips head screw driver
Flat-blade screwdriver
7mm sockets
1/4" Ratchet
Super glue
Side cutters
Wire stripper (or equivalent)
Soldering iron (optional)
Drill
Drillbits
Paint pen



DIY CUSTOM TACHOMETER INTEGRATION

GET STACKED

Aftermarket tachometers have been around for decades but in our market segment we've seen a paradigm shift away from the monster-tachs of days gone by to newer, lighter, more precise units. The aim is to have an extremely accurate reading of your engine's RPM to ensure you're shifting right when you should be. When it comes to tachometers, STACK is in a realm all by itself; their units are simply the Rolexes of tachometers.

Operating on a digital quartz movement, the ST200 Clubman Tachometer has zero needle waver and is maintenance free with guaranteed accuracy for life. The casing is sealed aluminum with shatter resistant glass. With supplied manual, hardware and optional shift light you're getting a hell of a lot of technology for your money. I could go on and on about how great this unit is but since I'm limited on space, I can't cover everything here – be sure to checkout STACK's website for more info!

One feature I can elaborate a little more on is how the unit's small profile

and 80mm diameter allow for some pretty sick custom mounting-like fitting it inside your stock gauge cluster for a sleeper look. Every time we've featured a car with a custom mounted tach you guys blast us with emails asking how or where you can get one – well I'm about to show you exactly how to do it yourself. I'm even going to take it one step further and show you how to make the unit fully plug and play with no wires to run and fish out later.

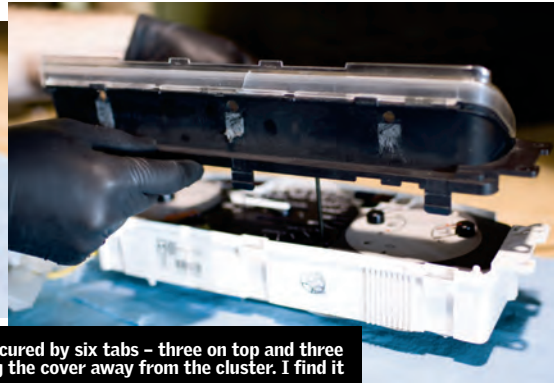
I'm a firm believer in doing things the right way and not cutting corners; you could say I'm a bit anal about it. The good thing is I've already done the legwork for you so now all you have to do is copy it and make some slight alterations, depending on your application. To save space I'm going to skip gauge cluster removal – if you can't figure out how to take your cluster out this install is probably too complex for you and you're probably better off paying a shop to do it for you. But don't be afraid to try it yourself; it's actually not as complex as you might think and it's quite rewarding knowing you did it yourself!



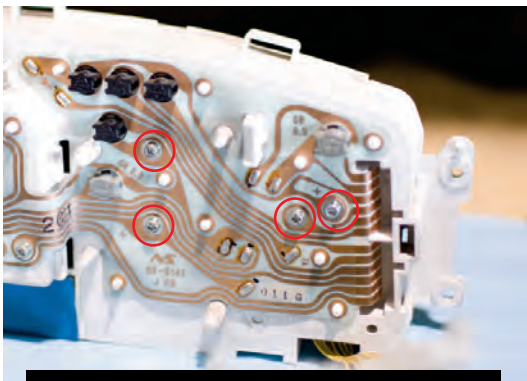
1 Here's a look at the EG Civic cluster I'll be working on and the STACK ST200. Ignore the white box and wires at the bottom of the cluster – unless you also have a JDM unit with door indicators this piece shouldn't be on your cluster anyway.



2 The first thing you'll need to do is pull the rubber plug off the end of the trip odometer so we can remove the front cover. These can be a little stubborn sometimes but just keep pulling and twisting and it will come off eventually.



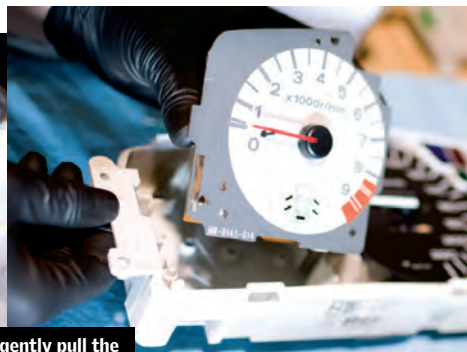
3 Next pull off the front cover; on the EG cluster it's secured by six tabs – three on top and three on bottom. Just press the tabs in while gently pulling the cover away from the cluster. I find it easier to remove the top first then the bottom.



4 With the cover off we can move to the back of the cluster. You'll need to remove the four Phillips head screws holding the stock tach in place. Later I'll show you how we are going to wire the STACK unit into these very same spots on the circuit board to operate the unit.



5 Once the four screws are removed, gently pull the OEM tach out of the cluster and set it aside.



6 Next we will remove the bulbs so we can peel back the stamped circuit board. Turn the bulbs counter clockwise and pull them out. We'll be reinstalling these later so don't lose them!



7 With the bulbs out, gently start peeling back the stamped circuit board. Be very careful not to tear the circuit board while removing it. The board can be a bit difficult to remove around the tabs that hold it in; just be patient and make sure to apply even pressure with both hands while removing. We only need to be concerned with removing the side that contains the tach since that is where we will be drilling.



8 Next we'll need to pry the clear portion of the cover off the backing. Be extremely careful to work slowly so you don't crack the cover. The idea is to break all the small glued areas without damaging the screen. Fortunately for me the previous owner of this cluster already performed this task when they installed the faux-carbon overlay.



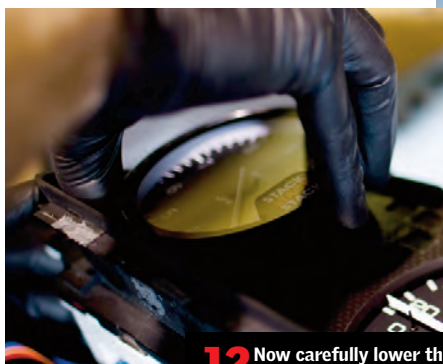
9 With the circuit board peeled back flip the cluster back over so we can see the front and reinstall the back portion of the cover. We'll need this in place so we can mock up our tach fitment.



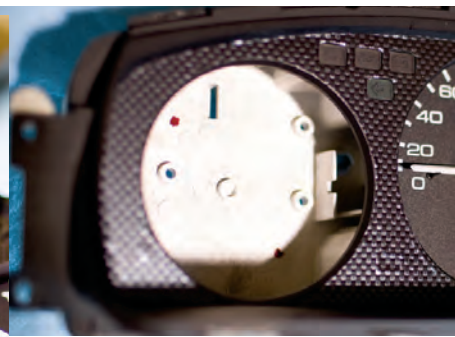
10 Feed the wires from the tach through the hole in the bottom corner – if your gauge cluster doesn't have a hole here, drill one. We'll need the wires routed so that they don't interfere with the placement of the unit.



11 With the wires routed, we'll need to mark the tach posts using a paint pen. Be sure to be thorough with your paint coverage since the idea is to leave two dots on the plastic where the posts will go through the cluster.



12 Now carefully lower the tach into your desired position. Make sure you don't move the tach around as you want two clean dots like I have in the second picture.



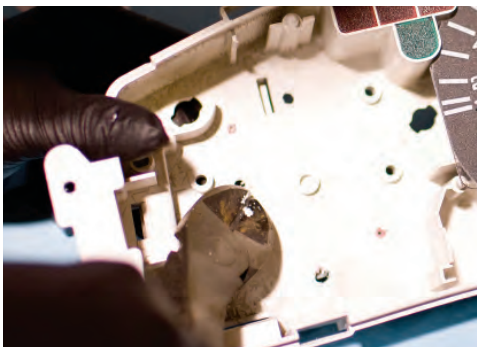
13 Now pull the tach back out and remove the cover so you can drill your spots. Make sure the circuit board is out of the way before you start drilling! I used a very small drill bit to start the holes since I wasn't sure if the placement would clear the circuit board or not. It's a good idea for you to do the same since there is some guess-and-check involved in this install.



14 Once the holes are drilled move back to the back side of the cluster and realign the circuit board. Check where the holes come through and make sure they aren't directly below any metal portions of your circuit board - if they are you're going to have to move the mounting points until they're clear. As you can see in the second picture I'm pointing to where the upper hole lined up, it was right on the circuit and I had to relocate my holes. Once I found the right position I used a larger bit to open them up all the way.



15 As you can see I had to clock my holes a little bit clockwise to clear the circuit board but in doing so I found a location where I didn't have to pierce any portion of circuit board. You may have to drill your board but just make sure you aren't going through any metal portion and you're in the clear. Next I cut away some sections of plastic that were interfering with the tach's body.



16 I continued to remove three of the protruding pegs where I am going to run hardware so that the bolt heads aren't limiting the mounting depth.



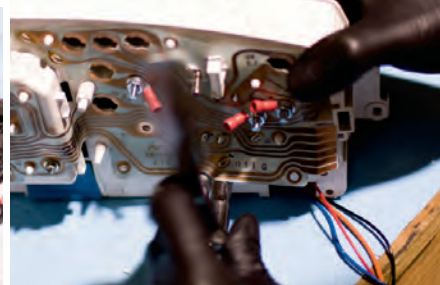
17 Here is the hardware that is going to be used to connect the tach wiring directly into the circuit board. You can pick these up at most any hardware store: (3) 4mmX7 nuts, (3) 4mmX7 bolts and (3) 4mm washers.



18 Since I won't have access to the bolt heads once the tach is in, I mounted the supplied eye connectors before installing the tach. I installed three connectors, one for 12v switched power, one for ground and one for the Ignitor signal that drives the tach. Honda makes the power and ground easy by marking them right on the circuit board with a (+) for power and a (-) for ground. To figure out which terminal is for the Ignitor signal make sure to check the factory service manual for your vehicle like I did.

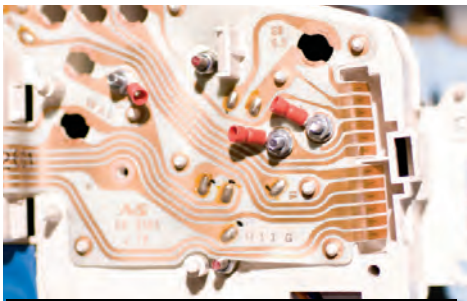


19 Now that the terminals are installed we can throw the cover backing on and mount the tach.



20 With the tach in place use the supplied washers and 7mm lock nuts to secure the tach to the cluster. I had to leave the lower corner of the circuit board disconnected to secure the lower stud, but the top stud went right through an already existing hole - score! (That's what she said.)





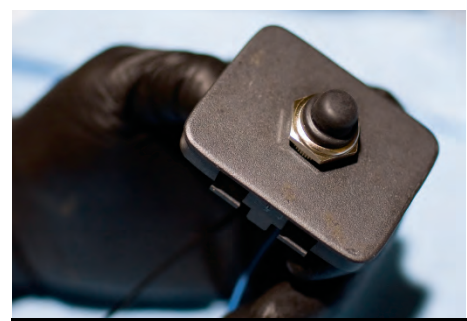
21 Here's a look at the back side of the cluster with all the hardware in. Starting at the center top position and going clockwise we have the upper tach stud, positive terminal, Ignitor terminal, bottom stud and ground terminal. Now it's time to connect the wires to the eye connectors.



23 Now insert the stripped wires into their corresponding connectors. As per STACK's supplied instruction manual we know that the orange wire goes to the Ignitor signal. Then the red wire goes to positive and the black to negative (duh). Since the terminals were already secured to the cluster, I couldn't fit the crimping tool I have in there so I just used a dull set of side cutters. If you decide to use side cutters just be careful not to over do it and cut through the connector!



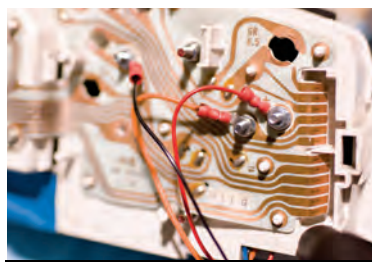
27 Now it's time to take care of that pesky blue wire we have left over. This is for the supplied switch that allows you to configure the tach and display peak RPM. I decided to add a spade connector between the cluster side and switch side to make installation/removal an easier process.



30 Last but not least you'll need to decide where you want to install your switch. I decided to use the vacant plate on the left side of the EG dash under the dimmer switch. I removed the plate for drilling and installation because it's a lot easier to work on a table than crawling around inside a car.



22 Cut the wires to a reasonable length and strip the ends. We'll only be cutting the orange, red and black wires for now. Using an appropriate wire stripper (whatever you've got laying around can make due), strip the ends of the wires that will be going into the connectors.



24 Here's a look at all the wires mated to the connectors. Make sure to do a quick pull test to insure that they are properly secured.



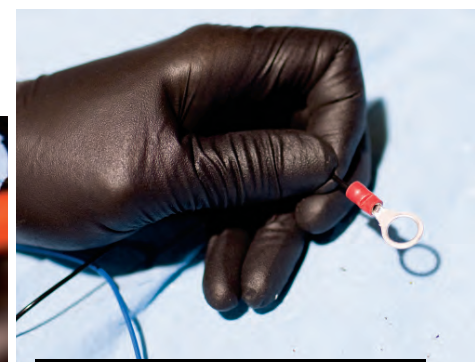
25 When we flip the cluster back over we get a glimpse of the progress we've made. Looks pretty dope huh!? Well we're not done yet but we're on the home stretch!



28 On one side of the switch we have the blue wire coming from the tach and on the other I used some of the left over black wire for the ground side. I decided to solder them in but you can use the supplied spade connectors for this.



26 Once everything is installed and you're positive you don't need to make any further adjustments we can glue the clear screen back onto the cover. Using super glue, place a couple dots along the areas where the screen was originally attached and firmly hold the cover in place as it dries. Don't forget to reinstall the cluster bulbs.



29 On the other end of the black wire I installed the supplied large eye connector for the ground.

SOURCE: STACK, 888.867.5183,
www.stackltd.com

31 Just like the removal process I'm going to skip the actual cluster install - it's just the reverse order of installation anyway. You'll also need to connect the blue wire and find a suitable ground mounting location for the button. I used a vacant hole on the dash frame but anywhere that you can get to bare metal will work. With the cluster plugged in I followed the supplied instruction manual's procedure to set the tach. Hold the button in and turn the key to the ON position but do not start the car. When the needle comes back to a rest at 0 you will press the button one time for each cylinder - in my case I pressed the button four times for the four cylinder engine. The pointer will point to the corresponding number on the dial (in my case 4) to verify your selection. Once you have the cylinders dialed in let off the button for three seconds and it's party time! Holy hell it actually works! Great success! Unfortunately the CX motor in the install car doesn't rev very high so I can't show you how awesome the tach looks while sweeping but I can assure it's kick-ass!

Hopefully this helps you guys, if you liked this article be sure to let us know as I plan to do more of these in the future! 🙌

