

Do-It-Yourself At-Your-Own-Risk TesStudio S92 Rear View Mirror Cybertruck Power Tap Into Front Windshield Camera

The wire harness for the S92 has two sections that feed 3 conductors into the wiring of the Cybertruck. One of these has an in-line 2 amp fuse with male and female 18-pin press-and-pull connectors. The other consists of 14-pin male and female press and pull connector. We'll call the 18-pin the "A" harness and the 14-pin with the smaller connector the "B" harness.

Unravel the black sticky felt tape from the A harness from the in-line fuse back to the barrel connector that plugs into the S92 rear view mirror. Note that the color of this wire from the 2-amp fuse is red and about 20 or 22 gauge in diameter, and that it has a solder joint where it is connected to a yellow wire of similar gauge. That yellow wire is a communication cable that is used to either feed a logic state or possibly a digital signal into the S92. Unless that logic state is toggled with an input voltage on the yellow wire, the S92 will shut off after 5 seconds after you turn it on. So it is important that its logic state be toggled or your S92 will shut off after 5 seconds.

Snip harness A with wire snips just to the side of the solder joint connecting the red wire with the yellow wire. You are removing harness A from the equation. Disconnected harness A now looks like this.



Do not keep the solder joint on the side of the S92 rear view mirror because you are going to strip the yellow wire and crimp it to a crimp connector commonly called a "mirror" or "side" tap. I'll explain how to do this later in this explanation. In other words, you do not want the bulbous solder joint interfering with your wire crafting, so you are cutting it out along with harness A and the other problems associated with tapping into one of the main harnesses in the Cybertruck.

On harness B, carefully unravel the black sticky felt tape beginning at the circular plug connector that goes to the S92 rear view mirror until you've got about 4 inches of exposed red and black wires connecting the S92 to harness B. Snip the red and black wires about 4 inches or

so from where they exit the rubber/plastic sheathing enroute from the circular plug connector. Disconnected harness B should look like this.



The Yellow, Red, and Black wires should roughly be the same length as measured from where they exit the rubber/plastic sheathing that is part of the cable with the circular plug that connects to the S92. You do not want too much length that would leave them exposed without the protection of the sheathing. Probably 4-5 inches is plenty.

Note that I've decided to leave the 2-amp fuse out of my feed to the S92 rear view. You could install it, but there is very little room in the front camera housing, and besides the fuse was being used on the yellow line which is not the voltage supply to the S92 but is the line that provides a logic status to the S92 so that the S92 knows when to shut off when the Cybertruck is shut off. If you are going to separately fuse the line I would probably choose to do so at a juncture of the circular cable (after splicing the circular cable some more) that would be placed in the ceiling headliner directly above your head when you sit in your Cybertruck, but that is beyond these instructions and I did not do so.

Now you are going to make "mirror" or "side" taps of the Yellow, Red, and Black wires.

Take the smallest crimp connector you can find, for gauge 22 or gauge 20 wire. It can be an eyelet or a spade connector, like those shown below.



You are going to crimp one of these to the black wire on the circular connector and you are going to crimp both the red and yellow wires together in a separate but single crimp connector. But first, you need to snip the connector's heads to make them into "mirror" or "side" taps. You probably want to use a space connector because once you snip one side of the spade off, *voila*, you have then made it into a tap as shown below.

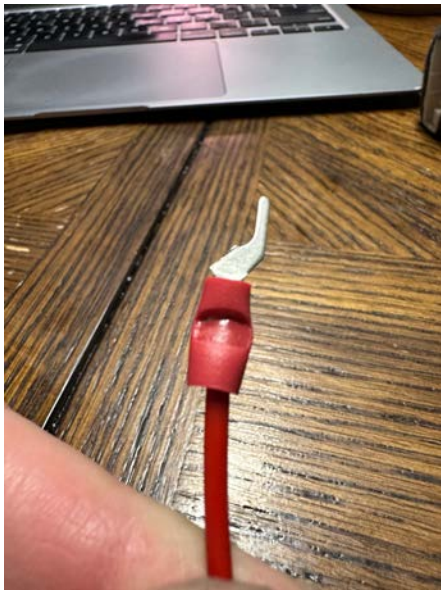


Now I will use the red line from harness A as an example, but only as an example because harness A and B are not used any further and I'm only keeping them around in case I need to re-do the power supply to the S92 for any reason.

But take your black wire that is now protruding from your circular cable that is meant to provide power to the S92. You need to use a good wire stripper and remove the black insulation from about $\frac{1}{4}$ inch of the wire. Twist the resultant exposed copper wires so that all of the wires are uniform and cohesively one conductor with no stray strands sticking out all over or which way. They must be one because you do not want any short circuit occurrences. This will be identical for the red and yellow wires. You can strip the red and yellow wires about $\frac{1}{4}$ inch now if you'd like. Twist all of the resultant exposed wire in the same direction so that you have 3 cohesive conductors.

Crimp your newly made “tap” connector onto the end of the black wire. Make another “tap” connector and then crimp BOTH the red and yellow wires into the same end of your second additional tap connector that you created.

Now remember, I’m only using the red wire from discarded harness A as an example of how a crimped tap connector should look like. Again, you will have one tap connector on the circular connector cable’s black wire and you will have a second tap connector on the circular connector cable and this second one includes BOTH the yellow and red wires. But your mirror taps should look like this. As you do this, make sure that the exposed wire is in contact with as much of the internal crimping area as possible, preferably all $\frac{1}{4}$ inch of it.



Pull and tug on your crimped connector with reasonable force to make sure that the connection is firm/tight and does not wiggle or jostle at all. It should hold firm. If not, try and try again. Most good crimping tools give a satisfying little “crunch” or “crimp” feeling when you’ve properly crimped the connector. But make sure that it is well connected.

I then like to take a small piece of electrical tape and tape over all but the tippy point of the tap connector, just to be more certain that you will not have any short circuits, like as shown below.



Now, I don't have photos of the following, so follow the regular instructions for the S92 installation. You need to remove your old sliver of a rear-view mirror that came with your truck. There is a plastic cover on the back that pops off. Then there is a torx screw going into the camera housing on the windshield that connects the metal mirror stud onto the structure of the windshield. Remove that torx-head screw. (I forget if it was a T15 or T20, but it was one of the two.). Your old rear view will come off. Do not drop or lose this torx-head screw because you need it to mount your new S92 rear view.

Once the old mirror is off, you need to put your sunvisors to each side and pull off both the headliner directly above your head and you need to remove the ceiling gear shifter (carefully!) using a prying tool or tools. I used two plastic trim prying tools, one on each side of the ceiling gear shifter and it came down, where I let it gently dangle from it's power connector.

Then remove the front camera housing. Once the rear view has been pulled off, you can get your fingers into the very front of the housing facing away from you and gently snap it downward. Inside of the camera housing you will see a white, rectangular connector with red and black wires going into it. This connector will be on the driver's side of the camera housing if the housing was still properly installed. This white connector is the 15.5 volt feed to your camera. It is snapped loosely in place with a connector that is in the side wall of the camera housing. Gently pry out the white connector.

Take the black tap connector that you made, and gently insert it into the bottom of the white connector as the connector generally has an up-and-down orientation when installed. **MAKE SURE THAT THE BLACK TAP CONNECTOR IS GOING INTO THE HOLE WITH THE BLACK CONDUCTOR.** Gently but firmly get it to slide in next to the black conductor so that there is physical contact only between the two noted electrical conductors.

Then take the red-yellow tap connector that you made, and gently insert it into the TOP of the white connector. **MAKE SURE THAT THE RED-YELLOW TAP CONNECTOR IS GOING INTO THE HOLE WITH THE RED CONDUCTOR.** Gently but firmly get it to slide in next to the red conductor so that there is physical contact only between the two noted electrical conductors.

Take tiny zip ties and zip-tie both of your tap connectors to the white connector by doubling the wires back onto the white connector and then gently but firmly zip-tying them so that your tap connectors are firmly fixed and will not unintentionally come out. Press the white connector gently to an out-of the way location within the camera housing. I zip-tied the white connector to another mounted conductor at this point so that there is not any vibration noise and so that the white connector is firmly affixed in the camera housing.

I then routed the three cables from the S92 (the circular power connector cable, the line for the front camera and the line for the rear camera) into the camera housing and out the top of the camera housing, and screwed the S92 into the metal mirror stud on the structure of the windshield.

Pop the camera housing back into place once you've routed all of your wires out the top of the camera housing. I then had difficulty getting the ceiling shifter re-installed because at this point you have four cables going up into your headliner.

I ended up using the trough of the ceiling shifter only for the power cable that you've engineered. The other three cables I stacked to the OUTSIDE on the passenger side of the ceiling shifter, laying them flat against the OUTSIDE of the ceiling shifter once they exit the camera housing. I ran them up the side of the ceiling shifter and then into the headliner above your head as shown below. There is a lot of space in that headliner for these cables, but there is limited room in the ceiling shifter trough. In the bottom of the photo you can see these same three cables coming up into the bottom of the camera housing before exiting out the top side of the camera housing where they continue on into the headliner.



The only cable you are NOT seeing is the one you've prepped with the taps. Its circular connector is in the headliner and it runs from that circular plug down through the trough of the ceiling shifter into your 15.5 volt camera feed, where you've carefully tapped into it and secured its white connector with zip ties.

You then just need to run your cables for your cameras.

My unit seems to be recording every time that it starts up, and I don't know if this is because of my installation method or if this is a safety feature. I kinda like that it begins recording at this point when Sentry Mode kicks in because I am curious to know why, and the memory card will just overwrite I believe once full. In any event, I shut off recording each time I get in the truck. But other than that possible non-problem I have not had any errors or alerts.

The sound system is working great. I really think the truck should have come with a digital rearview camera because it makes it safer and easier to navigate with down the road.