



Locating Steering Wheel Control Wire in Vehicles

Pacific Accessory Corporation

There are four different types of Steering Wheel Control signals the SWI-X will interface to.

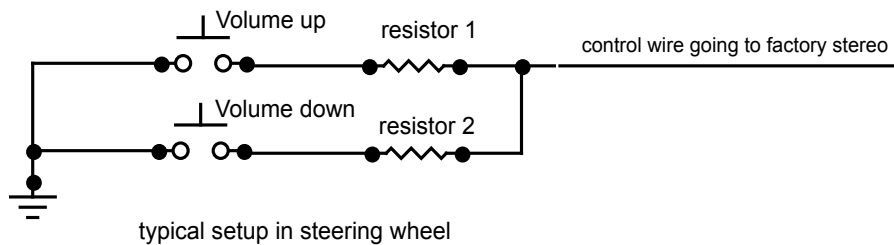
1. Negative Control wire.
2. Positive Control wire.
3. 5-volt data Control wire.
4. 12-volt data Control wire.

Locating Negative Control Wire and SWI-X programmed for version 3, 8, or 9.

1. Using an ohm meter, attach one test lead to ground and the other to the suspected wire. Make sure that the SWI-X or the factory radio is not connected to this wire while testing.

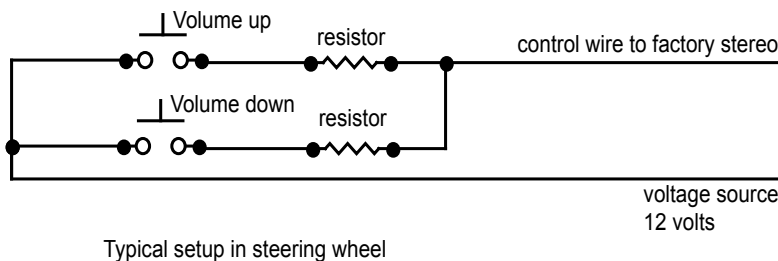
Version 3: The meter should read greater than 2700 ohms or infinite. When each button is pressed, the meter should read a different resistance between 0 - 2300 ohms. **Version 8:** The meter should read greater than 17k ohms or infinite. When each button is pressed, the meter should read a different resistance between 0 - 15k ohms. **Version 9:** The meter should read greater than 26k ohms or infinite. When each button is pressed, the meter should read a different resistance between 0 - 23k ohms.

2. In some vehicles like Chrysler, Dodge and Jeep, you will need to find the wire in the steering wheel column. Using a voltmeter, attach one test lead to ground and the other to the suspected wire. The meter should read close to or up to maximum 5 volts. When each button is pressed, the meter should read a different voltage. Cut this wire and test for resistance using step 1 above.



Locating Positive Control Wire and SWI-X programmed for Version 1, 2 or 4.

1. Using a volt meter in DC range, attach one test lead to ground and the other to the suspected wire. Make sure that the SWI-X or the factory radio is not connected to this wire while testing. The meter should read 0 volts. When each button is pressed, the meter should read close to ignition voltage or in some cars, approximately 5 volts. Do not connect the SWI-X to wires that do not go to 0 volts when the buttons are not pressed. Connecting the SWI-X straight to 12 volt will damage it. The resistance range has to be in between 1k to 20k ohms. Do not connect the SWI-X to anything less than 1k or the unit will be damaged. In some newer vehicles like GM, the steering wheel button control wire goes to the BCM. You will have to tap into this wire. You will also have to cut the SWI-X brown loop wire.

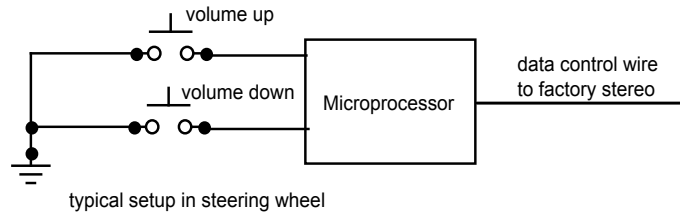


Locating 5 volt data control wire and SWI-X programmed for versioni 6 or 7.

1. Using a voltmeter in DC range, attach one test lead to ground and the other to the suspected wire. Make sure that the SWI-X or the factory radio is not connected to this wire while testing. The meter should read approximately 5 volts. When each button is pressed and held, the voltage should decrease slightly.

Locating 12 volt data control wire and SWI-X programmed for version 5 and 10.

1. Using a voltmeter in DC range, attach one test lead to ground and the other to the suspected wire. Make sure that the SWI-X or the factory radio is not connected to this wire while testing. The meter should read approximately 12 volts. When each button is pressed and held, the voltage should decrease slightly.



Formula

$$1/N = 0.0004347 - (1/A)$$

A = highest resistance measured from steering wheel button.

Take 1 and divide by A. Take that number and subtract it from 0.0004347, which will give you N.

Resistor Value = 1/N

Take that number and divide it into 1, which will be the value needed to wire in parallel with the SWI-X's white wire.

Notes:

1. Some vehicles supply power to the steering wheel controls from the factory radio. You will need to make note of which wires have power when the ignition is on. When replacing the factory radio with an aftermarket stereo, you will need to supply power to the wire going to the steering wheel.
2. In some vehicles, the factory radio supplies ground to the buttons. You will need to use an ohm meter to test for the two wires and ground one wire and connect the remaining wire to the SWI-X.
3. Some vehicles like the 2000 and up BMW, there is constant data communication on the steering wheel wire not related to the steering wheel buttons. This data triggers the SWI-X with false data during programming. You will have to get the wire at the steering wheel column and cut the wire to isolate it from the rest of the vehicle. In some cases, you can try to program the SWI-X in the accessory position and not in the run position.