

## ***Installation of the X10 Backup camera in my 2005 Toyota Prius***

<http://www.roperld.com/science/X10Install.pdf>

The web site for CAN-View is <http://www.hybridinterfaces.ca> . Detailed instructions for installing CAN-View are at <http://www.hybridinterfaces.ca/install.html> . Instructions for how I installed CAN-View Ver. 3 are at <http://www.roperld.com/science/CANViewInstall.pdf> .

I bought the video converter (composite video to SCART RGB: VSRGB) to attach to the video port of CAN-View (Ver. 3) recommended at <http://www.hybridinterfaces.ca/extvid.html> : <http://www.threedoubleyou.com/otherconverters.htm> for £69.99 + £5.88.



I bought the DB9 to SCART cable from <http://www.hybridinterfaces.ca> to attach the VSRGB SCART port to the video DB9 port of CAN-View. I also bought the short red power cable that enables the VSRGB box to get its 7.5 Volts power through the DB9 to SCART cable; it connects from the outer R-in audio port on the VSRGB to the power input of the VSRGB, as shown below:



The white-plugged audio cable is not used.

The VSRGB box is attached by Velcro to the top of the Nav box.. The SCART cable behind goes to the front of the Nav box to attach to the DB9 video input port on CAN-View. (I put CAN-View in front of the Nav box, attached by Velcro to the carpet, since the seat covers made putting it on top of the Nav box a close call.

The camera I used is from [http://www.x10.com/cameras/sc16a\\_s.html](http://www.x10.com/cameras/sc16a_s.html) at \$49.99 including shipping. It is color and indoor/outdoor and has a 16-foot cable, which is more than enough to install it from under the driver's seat to the hatch door.. I chose to install it inside and above the hatch tinted window on the left of the car. The hump on the hatch at that location is needed to aim the camera out the tinted window. Here is a picture of the camera before installation:



The gray video/power cable attached to the VSRGB by a square black video plug, as shown two pictures above, can be disconnected from the gray cable by unplugging the “telephone jack”, as shown below:

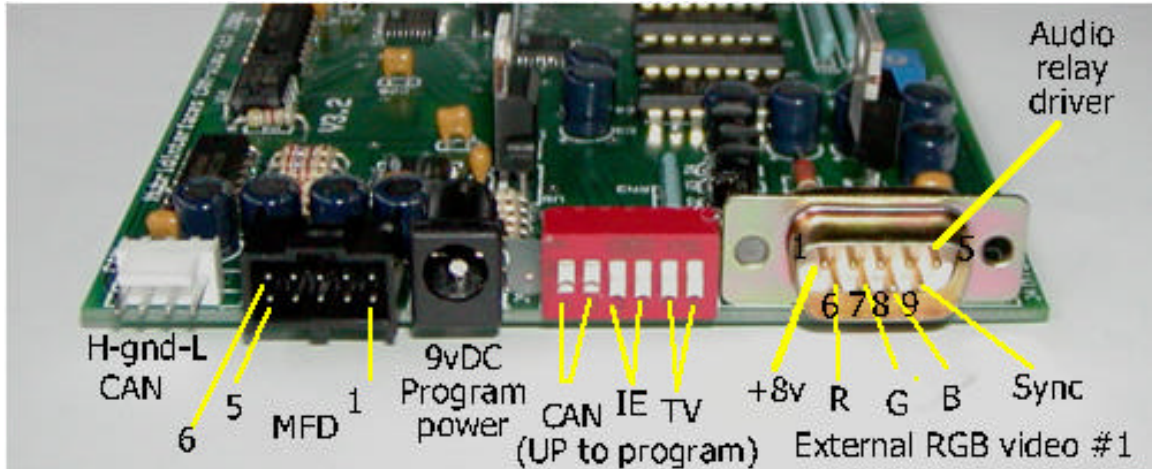


(The white audio plug shown is not used and the female power plug shown is not used.)



A male power plug at the end of a 2-foot power cable (striped cable in picture above) is used to provide the 12 Volts needed for the X10 camera. I get the power by a means of two pins on the video DB9 plug on CAN-View, only because I have the prototype of Ver. 3. I used a Radio Shack Adaptoplug with two bare wires on it and a universal female plug on the other end. Then I used a Radio Shack male C pin to plug into the universal female plug of the Adaptoplug and the female-plugged power cord of the camera.

For production Ver. 3 CAN-Views the 12 Volts can be gotten by plugging in a 2.1 mm DC female plug into the program power port as shown here:



(The port says 9 Volts, but it can go up to 18 Volts. For programming the board it is a power input port, but when in the car it puts out 12 Volts inside positive.) Then an adapter will be needed with a female 1 mm plug for the camera on one end and a female 2.1 mm plug on the other end for the CANView “program power” port.

The gray cable now needs to be threaded through the side of the car back to the hatch door.

I thought that I might install the cable myself. So I started experimenting with dismantling the molding around the inside edges of the hatch door. The molding at the top of the hatch is easy to remove and replace, as shown below:



However, the two identical (except reversed) moldings beside it are tricky. The picture below shows one removed:





The three white fasteners look straightforward until one tries to put the molding back in place. Then the three fasteners get pushed inside the frame, becoming difficult to fish out. Apparently, one should pull the three fasteners out and attach them to the molding before attempting to put the molding back in place.

After losing 4 of the 6 fasteners inside the frame, I gave up and had a local electronics firm (Scotty's of Blacksburg VA) thread the camera video/power wire from under the driver's seat to the hatch door, a 1-hour \$30 job. (The installer lost the other 2 molding fasteners inside the door frame!) (A body shop that is redoing some previous work is going to try to get the fasteners out.) I was told that the large bottom molding is fastened like the top molding, making it easy to remove and replace.

Some pictures taken after the wire threading was done are below:



This shows the CAN-View to OBD wire on the left and the camera wire coming out from under the seat.



This shows the channel at the bottom and behind the back door where the wire went up.



This shows how the wire went up into the hatch door after it went along under the ceiling cover.





This shows how the wire came out of the molding to the camera, which is attached to the molding by Velcro.

I do not know how he threaded the wire from the top of the back seat to the ceiling.

The picture below shows the backup-camera view on the MDF, including a sack placed directly behind the center of the car (The strange cross hatching are shadows of branches and leaves.):



Since the camera is on the left and pointed toward the middle, the view is an angled view and is not reversed, but it is fine for backing up.

Here is another picture of my drive way:



I not only set CAN-View to show the picture when the car is in reverse, but I also set it so that I can use the camera at other times by pressing the audio button twice on the MFD.

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