

## **Appendix 1 – BACK UP CAMERA INSTALLATION BMW 5-series (E39)**

Warning: Installing the camera involves some minor electrical work, please be sure to follow instructions or damage could occur to the camera or the video module. If you do not feel comfortable with installing the system yourself don't hesitate having a professional installing the system. NAV-TV Corp. would not be held responsible for any damages that may occur due to installation errors. NAV-TV Corp. does however guaranty the camera to be in working condition for a period of six (6) months from date of purchase.

### **Operation:**

The Back-up camera setup works in conjunction with the OEM Video Module only.

Under normal wiring conditions, the camera is energized from the reverse light wire. The power consumption of the camera is about 100mA, about the same as a small light bulb.

The Front monitor will switch to the camera when the key is in position II and the shifter is in REVERSE. The switching takes over ANY mode: Navigation, Radio, OBC, TV and it even wakes-up the screen if "MONITOR OFF" was selected previously.

### **Installation:**

Required tools:

- Small wire strippers or cutters
- electrical tape
- a "SNAKE" such as a coat-hanger or fiberglass rod

Soldering the wires is highly recommended. There is no electrical connection better than soldered wires – and it is heat, vibration and moisture resistant. Use only electronic grade solder with flux core. Use a solder iron between 15W and 40W. after soldering the wires make sure to carefully tape each wire with a commercial-grade electrical tape such as 3M.

An alternative method for connecting wires is known as the "SNAP IT" way, using high quality nylon wire taps made by 3M. when using this method, please be sure that the wires are aligned and that the tap pinches through both wires evenly. If one tap does not work right dispose of it and use a new one. Close the cover after squeezing the tap and make sure the connection is firm.

## 1. Running Wires from the left license plate light to the Video Module:

That would probably be the most difficult part of the installation. It seems that the best place to mount the camera is right next to the left license plate light, but you can mount it anywhere you want – it's up to your imagination and ingenuity.

Remove the left license plate light and the plastic trim that covers the inner side of the trunk. Don't forget that there is one hidden Phillips screw under a small cover in the pull-down handle.

Run the coaxial (video) cable and the power wire

Wires going through the grommet



Remove the left license plate light



run wires from the right (battery) compartment to the left (Video Module)

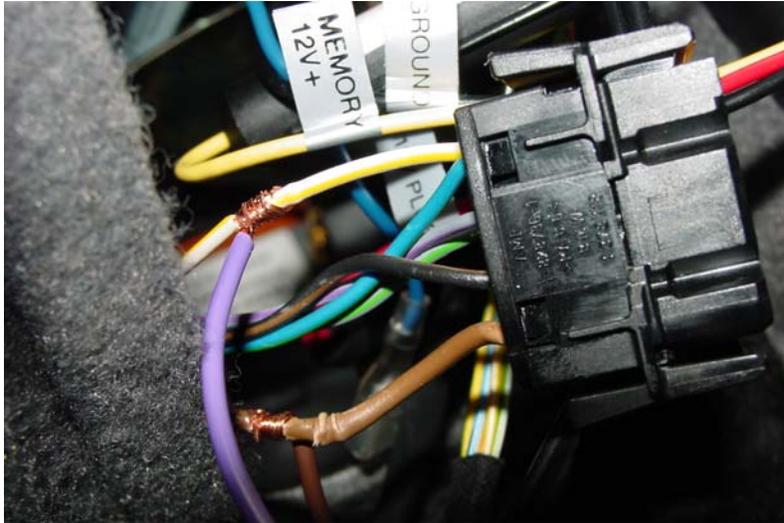


## 2. Connecting the relay and video coaxial cable.

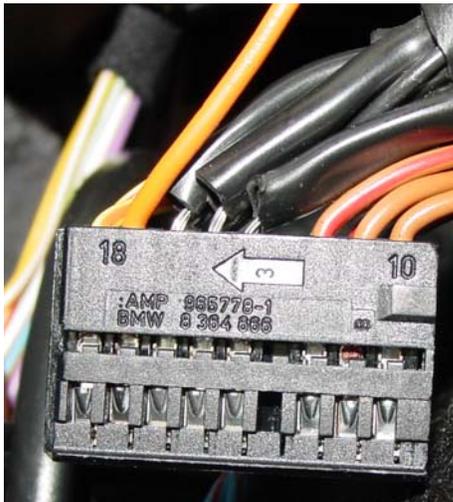
Once you have the wires by the video module, you are ready to make all the electrical connections.

Connect the BLUE relay wire to the WHITE/YELLOW wire on the left tail light plug. (REVERSE LIGHT)

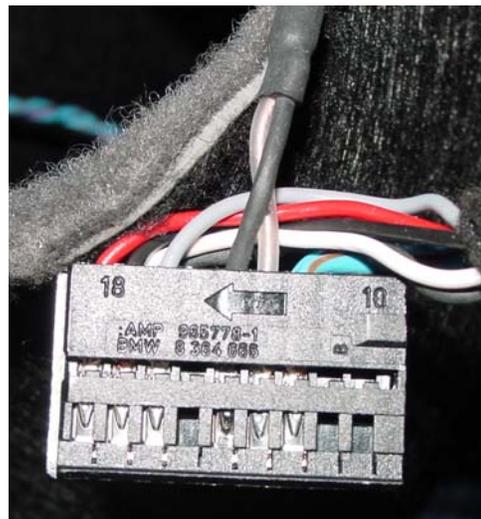
Connect the BROWN relay wire to the BROWN wire on the left tail light plug. (GROUND)



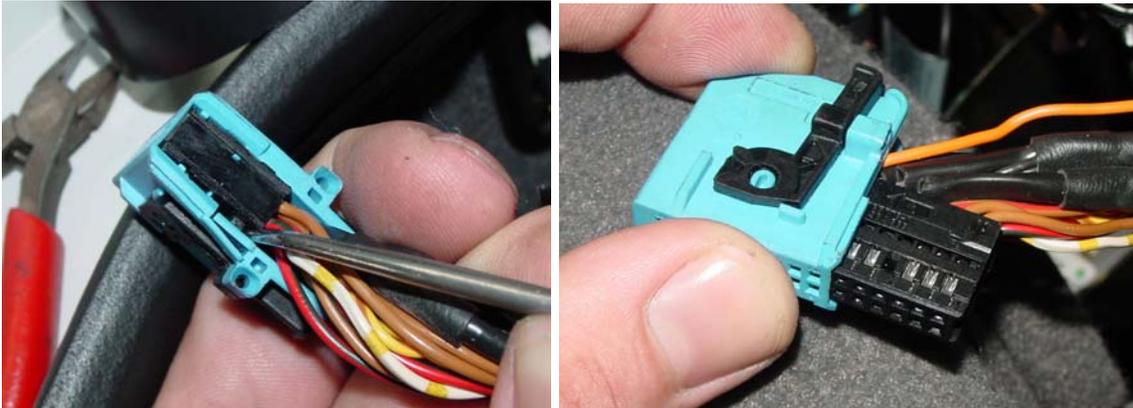
Insert the orange wire into cavity #17 on the WHITE plug



Insert the coaxial (video) wire into cavity #13 (clear) and #14 (black) on the BLUE plug that came with the car's harness



Tip: to open the plugs, stick a small flathead screwdriver in the latch, hold the plug cover with one hand and pull the wires with the other hand:



You can now connect all the plugs back to their sockets and test the system. With the emergency brake on, turn the key to position II and engage reverse gear, A back-up camera picture should appear now on the monitor. I would recommend using Velcro when installing the camera – it is light enough to be held by the Velcro, and the Velcro gives you the room to adjust the camera to your exact needs – higher, lower, left or right.



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