

## **Adding the Garmin GVN-53 upgradeable navigation, with option for XM radio with real time traffic and weather to an XK8/R**

Unlike most GPS units available today, the GVN-53 is designed to be installed in a vehicle and use an existing automobile video screen adapted to receive composite video. It is controlled with an RF wireless remote control that has an integral 'pencil eraser' type mouse. It is a full featured, map upgradeable navigation computer. A particularly attractive feature it's integration with XM radio traffic and weather functions. For example, when a traffic backup nearby is detected, it will automatically interrupt the program to announce it, and you can see the location on the video map.



The Garmin GVN-53 manual can be found on the Garmin website.  
The Garmin installation instructions are in this file:



GVN-53 Installation  
Instructions

### *Installation notes for the Garmin GVN-53*

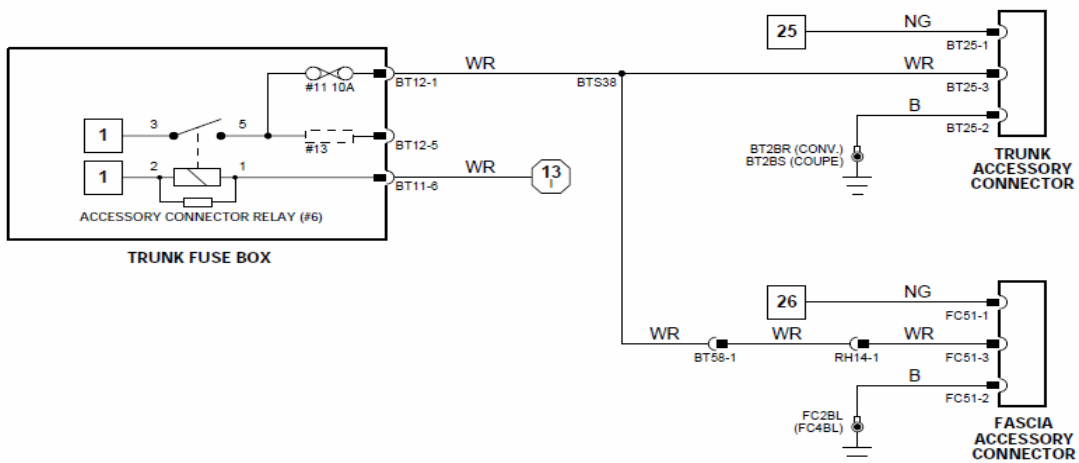
#### Materials list-

- Garmin GVN-53
- SPST automotive relay (if needed, see text)
- 10A fuse automotive blade fuse (if needed, see text)
- 10K ohm, ¼ watt resistor
- Kuda matching leather mount (optional)
- Heat shrink tubing (assorted sizes, but plenty of 3/8"-->3/16")
- Electronics grade solder (Eutectic)
- Electrical tape (I prefer fabric friction tape, it helps cushion potential rattles)
- Self adhesive Velcro (Industrial grade from Home Depot recommended)
- Plenty of ty-wraps (assorted sizes, but mostly 3"-4")

I chose to mount the Garmin in the trunk, next to the battery, and on the fuse box lid. This allows for easy access to the SD card slot for map upgrades, and reduces the cables that need to run to the front of the vehicle to a single composite video feed (assuming the RGB video adapter is mounted in front). It also fits nicely under that battery compartment trunk cover without interference.

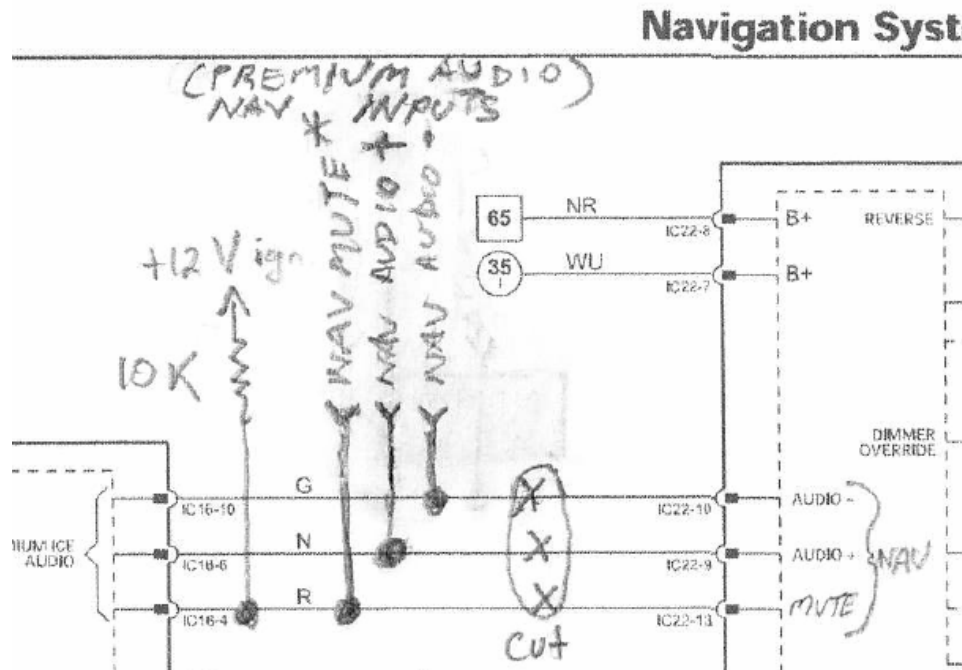


A convenient source of power in the trunk is the trunk accessory connector, which is an unused three pin connector adjacent to the battery which provides Ignition switch power, battery +12v and ground. Be sure to check whether trunk fuse box relay number 6 and fuse number 11 are present...you may need to add them. The relay is a standard automotive single pole type available from any auto parts store.



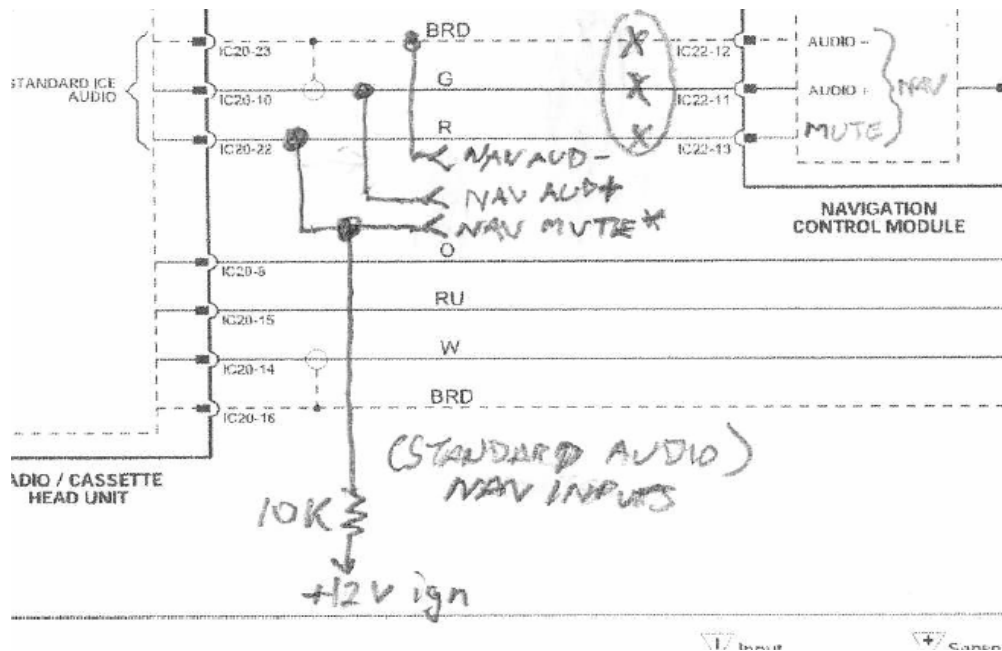
For navigation audio, you will need to disconnect the factory navigation audio and mute signals, and wire in the equivalents from the GVN-53. This will allow the navigation

audio to behave just like the factory system and interrupt current programming with navigation messages, and allow you to control the navigation volume and mute from the headunit if desired. There are three wires that need to be cut. These are shown below for a system with **premium audio**. On the left is the power amp, on the right is the factory nav. control module. Cut the three wires shown on the front-most connector of the power amp (IC16 pins 4-red, 6-brown and 10-green) leaving at least a couple of inches of wire at the power amp connector to splice to. Tape up the cut end of the harness going to the nav. control module to keep them out of trouble.



If you are NOT going with the XM option, simply hook one audio channel's (R or L, doesn't matter) into the audio + and - navigation inputs. You can cut off the RCA connector, or use a breakout cable. Connect the blue mute wire from on GVN-53 to the nav. mute input. Note also that to function correctly with the Jaguar power amp, the mute connection MUST be pulled to +12v through a 10K ohm resistor. This is because the output are 'open drain' or 'open collector' in engineering parlance...meaning they do not drive current when active (+12v in our case) and the current must be sourced by the resistor. It is an oversight in the Garmin documentation that this is not explained. It is designed this way to allow more than one device to share the mute line if desired.

**Standard audio** is similar as shown below, with the headunit on the left and the nav. control unit on the right (Note that I believe this is correct, but I have not tested with standard audio):



Note that with standard audio, you cut the connections at the nav control module IC22 connector (pins 11, 12 and 13). If you are making connections in the trunk you make the connection for the GVN-53 into the harness going to the headunit from the nav control module.

Although the remote can be handheld, I chose to mount mine with self adhesive Velcro on a Kuda mount with matching leather (see [http://www.kudausa.com/kuda\\_mount\\_and\\_holder\\_for\\_jaguar\\_xk\\_97-06-16-174.html](http://www.kudausa.com/kuda_mount_and_holder_for_jaguar_xk_97-06-16-174.html)).



Once everything is plugged together, follow the instruction in the manual to select 'MUTE on 'High'. Also adjust the video for the most favorable screen position for the video. There may be some minor unavoidable cut off on the image due to the rounded corners of the Jag screen.

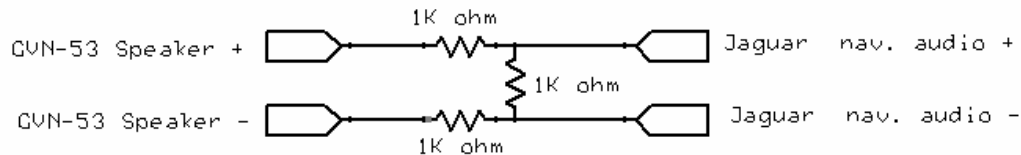
Installation notes for the Garmin GVN-30 (XM radio.traffic/weather) option

The Garmin GXM-30 manual can be found on the Garmin website.

Additional Materials list-

- Garmin GXM-30 XM receiver/antenna
- PIE ALP AI-AUX
- PAC LD-10 preamp
- Qty 3, 1K, ¼ Watt resistors -or- commercial line level adapter

If you intend to use the XM radio option with the GXM--30, I suggest you reserve the stereo line level inputs for the XM auxiliary audio inputs (more on this to follow below). In this case you can use the GVN-53 +/-speaker outputs through a line level converter to drive the nav. audio inputs. You can buy an inexpensive commercial line level converter, but the following simple resistor configuration will also suffice (this is what I used):



When using the XM radio option with the GXM-30 receiver/antenna, you need to add the stereo inputs from the GVN-53 to the Jaguar factory Alpine audio system. This can be accomplished with the PIE ALP AI-AUX adapter. This unit detects an audio signal and automatically switches the detected signal in to the Alipne AI-NET audio stream. With premium audio it overrides the AM/FM radio. With standard audio it overrides the CD changer. It plugs directly into the AI-NET connectors (round plugs and sockets). With premium audio it plugs between the power amp and the navigation controller. With standard audio it plugs between the head unit and the CD changer. The PIE ALP AI-AUX has short cables and will need to mount behind the audio/DVD module assembly. Mount it with Velcro or wrap it in foam weatherstrip to prevent rattles. Refer to the JTIS for removal instructions for the audio/DVD assembly.

It is best to use the PIE AI-AUX with a preamp, such as the PAC LD-10, since the ALP-AI-AUX needs a fairly robust signal to trigger, and may not otherwise trigger on soft music. To set this up properly, play some soft music on the XM Radio with the GVN-53 volume levels set to max. Then adjust the LD-10 level controls until the audio just start to clip (distort). This is your setting for the LD-10. Then back off the volume on the GVN-53 until the clipping is gone (probably one or two levels). This should be your default setting for the GVN-53. If you still get clipping with some program material, you can back off the GVN-53 volume further until the clipping resolves. You should be able to use your Jaguar headunit volume now as the primary volume control. The LD-10 can be mounted next to the GVN-53 on the trunk fuse box for easy access to the level controls.

**IMPORTANT:**

There is currently a bug in the GVN-53 only when used with the GXM-30 that causes the mute line to activate whenever the XM 'PLAY' button is pressed. This has the effect of allowing the XM radio to erroneously play from the navigation input. Garmin has told me their engineers are working on this problem, and hopefully will have a software upgrade soon (the GVN-53 version at this writing is 2.3). In the meantime, there is a simple workaround that solves the problem and is not too terribly inconvenient:

**For Premium audio cars only:**

\*Before using AM/FM or XM radio, turn the navigation volume on the Jaguar headunit to 'mute voice guidance' (see the instructions in the XK series navigation handbook).

\*Before using the CD changer, turn the navigation volume on the Jaguar headunit to the desired navigation volume level, and make sure the XM radio is set to STOP.

This nav. volume setting only needs to be changed when switching between CD and AM/FM/XM.

**For Standard audio cars only:**

\*Before using CD changer, turn the navigation volume on the Jaguar headunit to 'mute voice guidance' (see the instructions in the XK series navigation handbook).

\*Before using the AM/FM or XM radio, turn the navigation volume on the Jaguar headunit to the desired navigation volume level, and make sure the XM radio is set to 'STOP'.

This nav. volume setting only needs to be changed when switching between CD and AM/FM/XM.

The navigation antenna and the XM antenna can be mounted under the carpet in the convertible stowage compartment (adjacent to the factory navigation antenna) in the convertible. I have a convertible and reception is good here.

It appears that the factory navigation antenna is in the rear parcel shelf area in the coupe as far as I can tell from JTIS. Being interior to the car (with a metal top) may degrade reception relative to the convertible, but seems to be most desirable from an aesthetic point of view. If it works for the factory equipment, I assume it will be acceptable to use this area in the coupe for the navigation and XM antennas – but I have not tested this.