Inspecting, Cleaning, or Replacement of the Front Power Bus

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Background

The positive battery cable on the XJ-S runs from the battery in the boot to a terminal post on the left side of the firewall. From there a cable, called the Post Cable in the parts book (C 44183), runs to another firewall post in the same position on the right side of the car. In this write-up I call that cross-over cable the *Front Power bus,* or simply the *bus,* as that seems more descriptive to me.

A quick look at the schematics in the Repair Operations Manual (ROM) shows that the starter cable connects to the right post, as does the starter related things like the relay. All the power for the ignition and lighting is tapped off the left post. It looks like the only things that don't come from these posts are the fuel pump and EFI system.

Although it really doesn't come up in this project you should be aware that these terminal posts are double sided. That is, they pass through the firewall, presenting power terminals in the cabin behind the dash. There have been reports of breaking them off, perhaps with over-zealous tightening, causing much grief. If that happens, you will probably have to remove the dash to replace the post, turning this very simple job into a major project.

Clearly, it's important that these posts and the front power bus be kept clean and in good shape. There has been one report on the Jag Lovers XJ-S mail list of problems in this area. Mike90 reported that the bus was severely corroded at the left post on a 1990 convertible he was resurrecting after an under-dash fire. The nuts holding the cables to the posts were also loose on that side, and the rubber cover was missing. It was not clear what caused the fire or the corrosion, but Mike does hold the bus problem responsible for several electrical problems he had been having with the car.

After reading Mike's story I decided to be sure my front power bus was in good shape. It turned out the bus itself was in good shape, but the nuts were not as tight as one would have liked. In this write-up I tell how to remove the bus and clean up the terminals.

Removal

Obviously, the first thing you need to do is to disconnect the battery. Otherwise, you are in for some major fireworks when your wrench touches something.

The bus is in a rather difficult place to get at, running along the top of the firewall in a trough formed by a molded fiberboard insulation panel. Figure 1 shows it in place where it attaches to the left terminal post. This photo was taken, from the right side of the car, after the cleanup job. Before it was cleaned it was hard to even know it was there amongst the jumble of other pipes, hoses and wires in the area.

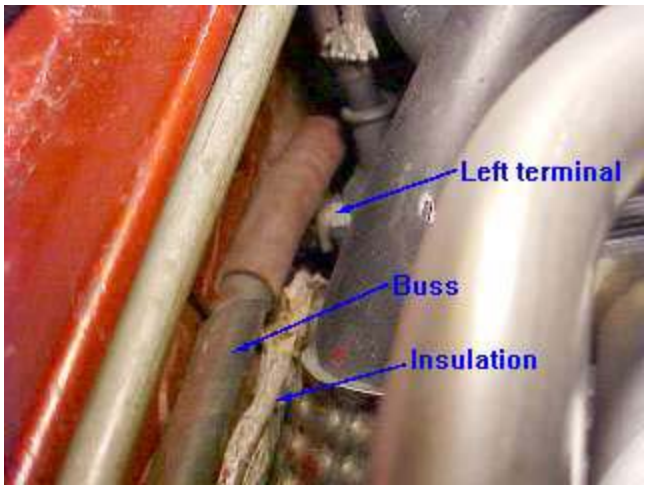

Figure 1 Front bus on firewall, left end

The major difficulty in the job is getting at the terminal posts. It helps to remove a couple things that are in the way. I detached the wing brace at the fire wall and the rubber boot that fits to the cowl drain on the left side. The right wing brace did not have to be moved. This allowed reasonably good access.

Be aware that the nuts on the terminal posts are of the same odd size used on the battery cables in the boot. No wrench of either English or metric size will fit them, so you might want to locate an appropriate tool before you begin. A special "battery" pliers sold (expensively!) in most auto parts stores would probably be best, but a small adjustable wrench worked for me. I made the last couple of turns with my fingertips in order to keep the nuts and washers from tumbling down into the abyss.

Another problem, at least on my car, is the molded fiberboard insulation panel on the firewall. I had to whittle it away a bit to get the cables off the terminal post.

Figure 2 shows the left post after the bus has been removed.

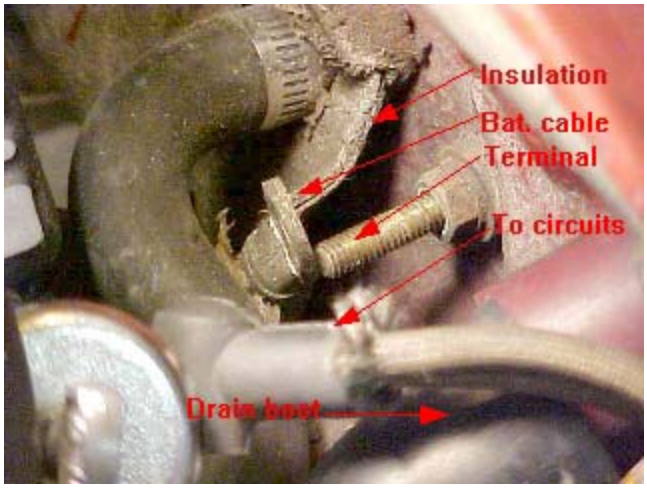

Figure 2 Left terminal post

The right post can be reached with removal of only the cowl drain boot. The heater hose can be pushed out of the way as needed. As with the left side, the insulation panel had to be cut away to get the cables off the post. Figure 3 shows the area after the bus has been removed. On this side the rubber boot that is supposed to cover the post is attached to the starter cable. Mine was rotted and broke off while removing the cable from the post. So far, I've not found a replacement. I suspect I will have to buy a new starter cable to get

one. Not shown in the photo is the wire going to the starter relay which is on the post as well as the starter cable.

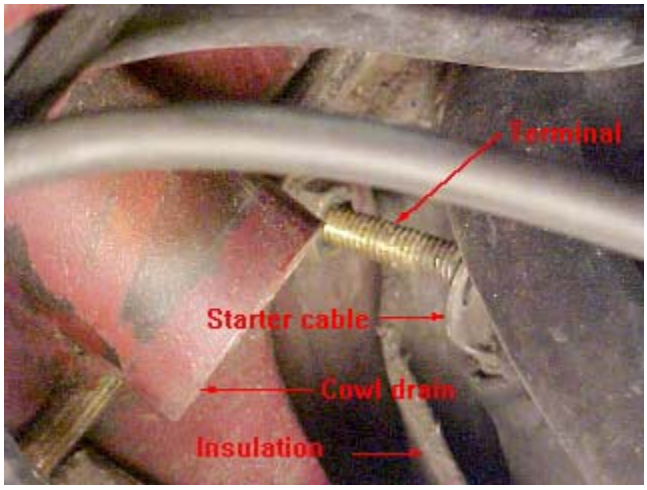

Figure 3 Right terminal post

There are actually three nuts on each post. The outer one holds the cables that are tapping power off the post, while the inner one fastens the bus to the post. Once the latter has been removed on both sides the bus can be freed from the posts and maneuvered out of the trough in which it rests against the firewall. It is shown on my workbench in Figure 4, before cleanup.
The third nut, the one that you can see in the photos, holds the terminal post to the firewall. *Do not remove or loosen this nut.*

Figure 4 Front power bus

I scrubbed the entire cable with a spray-on electronics solvent and brushed with a soft wire brush. I was surprised to see that it was really in very good shape, as can be seen in a close-up of one end, Figure 5. I also used a digital volt-ohm meter to measure the resistance from end to end; it was as close to zero as my meter could measure

Figure 5 Cable end after cleanup

Reinstallation

Before reinstalling the bus I cleaned the terminal posts and fastening nuts with solvent and a wire brush. It is then just a matter of reversing the steps taken in the removal. I offer two important cautions, however. One is to tie threads to the nuts and washers so if you should accidentally drop on it can be recovered. The other is being very careful in tightening the nuts. They obviously must be tight enough to make good electrical contact and not loosen, but you do not want to risk twisting off the post.

After tightening the nuts, slip the boots back over the posts. Then reattach the cowl drains, wing brace, and anything else you may have removed, and reconnect the battery. You can now forget about this job for another few decades.