

# Instrument Panel Modification

Dec 20, 2008

Busy again! When I first got the Breakaway, I didn't like that I had no boost gauge, further, as I am always running hard, I thought it would be comforting to have an EGT gauge just to make sure that I didn't melt anything down.

Original panel:



This panel was functional but I also had trouble viewing all the gauges as some were blocked by the steering wheel no matter where I positioned the wheel, fore/aft, up or down! The multi-light annunciator panel was always blocked. I had made a plastic periscope to show the lights above the wheel but it was always being knocked off when the wheel was tilted forward.

Driving position:



I modified the original panel by eliminating the warning light for “do not shift” just above the tach and speedometer. I carefully cut a hole and added the EGT gauge, I also added the turbo boost gauge where the generator hour meter had been. Figured boost was more important short term then generator hours. It was my intent to further modify the panel completely because in addition to adding more gauges, the panel, made of plastic, was starting to crack around the retaining screws and pieces of plastic were falling off.



The above layout worked for most of the past summer, but I had intent to add a trans temp gauge and was running out of options where to locate the next gauge.

I started making the replacement panel some time ago, measured the center panel and cut a pice of aluminum that would fit in place, I was not going to attempt to make one pice as a replacement for the plastic panel, I thought it wiser and easier to make three panels, how I would treat the junction of the panels was (and still is) a matter for review and further study.

I made up the new panel and also a template in case I wanted to make future panels (with or without modifications) easily without removing the existing panel. I thought at the time it may take a second try to get it right. I removed all the instruments labeling everything and taking pictures of the areas that I was sure to be confusing upon re-assembly.

The mess behind the panel:

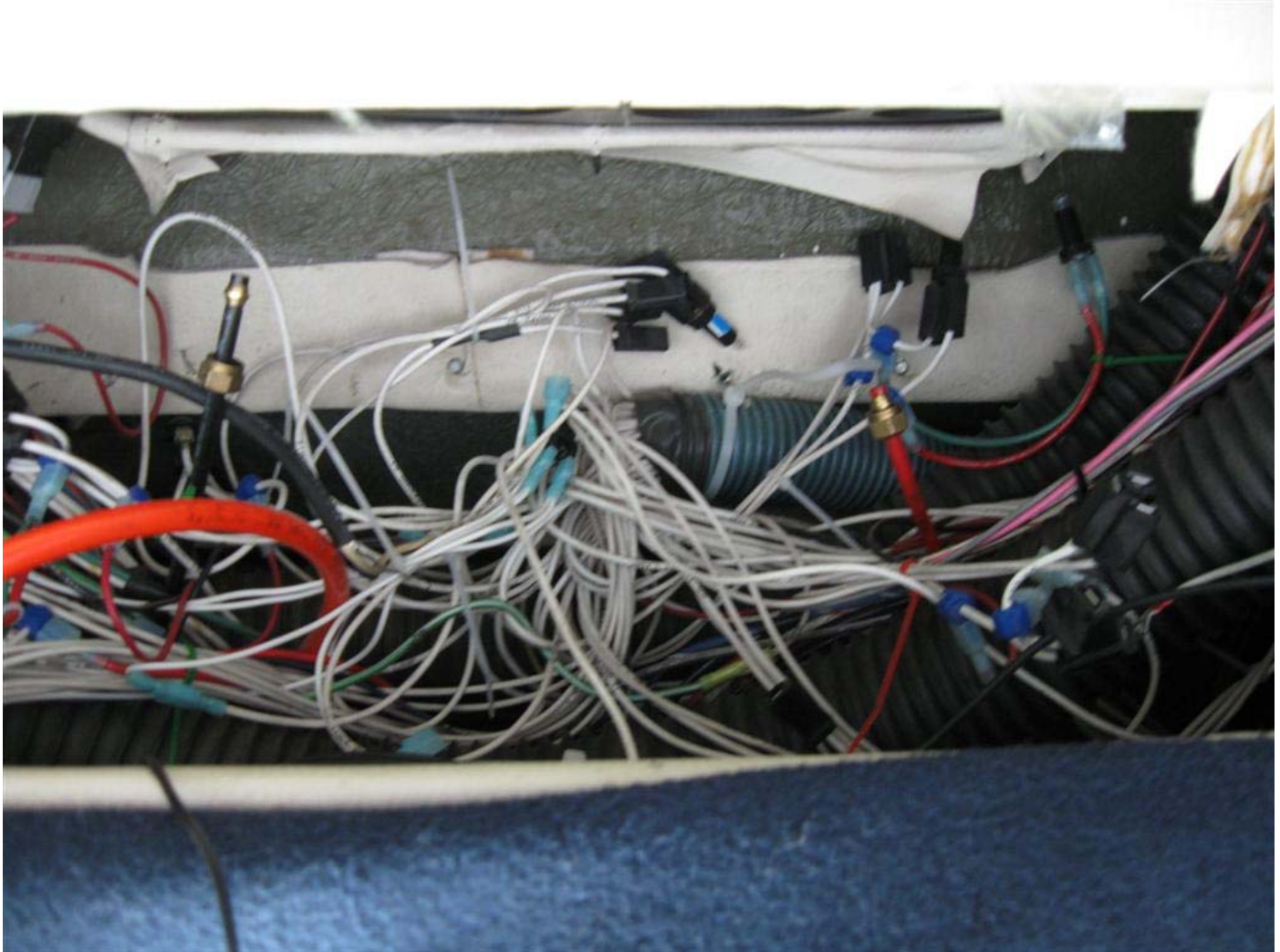


Gauges out, panel ready to be cut out:



The previous picture should show what was done to remove only the center section of the panel, I used what is called a Feinsaw with a very thin blade hoping to make a small incision that the new panel would mate to with little effort. Unfortunately this was not to be the case! No matter how quickly I got in or out, plastic would melt due to friction and caused a rather sloppy edge. My previous measurements were good so the new panel of aluminum did lay right in but the mating edges to the existing plastic panels wasn't as clean as I liked.

Panel out, getting ready to clean up the wiring mess:



Before attempting to put the new panel in, I started to clean up the wires and bundle all the wires for each gauge together, knowing that it would be impossible to get it really harnessed right but would be an improvement over what I started with.

I measured the angle between the panels and found that it was nearly 135 degrees so I made a small filler strip that would go over the junction of the panels and hide the gap between the panels, I experimented with a couple of designs but finally found one that looked acceptable. It was time to paint the panel and reassemble. I thought that I would put the center panel in and let the left/right switch panel go for this coming year and completely redo it all next winter. I wanted to relocate the ham radios a bit on the right so it would be a bigger job now than I wanted. I mounted the gauges into the new painted panel and set it in place. Wiring was straight forward as was the lighting wiring, I was generally pleased with the results---, BUT upon turning on the lights I noticed that they would not light or would go full bright or not at all.

“While I am in there” syndrome took over and I pulled the light switch out. I found the rheostat that controls the instrument lights was completely gone, areas around the rheostat should signs of excessive heat. I had noticed this issue before and picked up a replacement switch so that shouldn’t be a big deal BUT, again “while I am in there” took over again as I noticed the corner of the switch panel was completely broken and pieces fell out while I was replacing the switch, GRRRRRR---

OK, time to replace that panel! With the instrument panel out of the way it was fairly easy to remove the wiring from the backs of the switches, labeling as I went along. Looking at the panel I decided to switch some of the switch locations. I reasoned that the light switch is usually turned on once per run ( I run with main lights on at all times, day or night) so it shouldn’t get in the way of wiper switches or others that may be used occasionally during a run. I also didn’t like the wiper switches left and right to be separated by the washer switch. With the switches out the panel now was a good template to use for over all sizing and layout change was easy.



Care had to be taken and a special angle cut made where the switch detents where to hold the switches in the panel. The switches were made to mount in a thinner panel then I made (even the plastic panel had a relief cut). After final trial, the panel was painted and installation began.

A couple of minor issues popped up during assembly, I was not completely happy with the junction strip I made, it worked good with the plastic panel but now that it was aluminum (only the switch left panel was

changed, right one still left to do) the filler wasn't as good as I wanted. Then to make matters worse, I dropped a tool on the new main panel and scratched it! At that point I made the decision to continue assembly and would redo everything later when I redo the right switch panel and the junction strips. At that time I will take all three panels and have them powdercoated.

Everything went back together very well. I like the new layout and although I still have visibility issues with certain areas of the panel, the crucial gauges are in plain sight.

Finished: (for now!!)



As a side note:

I have heard reports that the instrument light dimmer is a chronic problem, fairly sure it is because the light switch is a standard issue lite truck part it was never intended to drive 25 instrument lights. Even if I subtract the gauges that I added the stock Breakaway with Spartan chassis would have 22 lights. Another project for the future will be a high current instrument light driver.

I found an unused spot in the annunciator panel so I added the “do not shift” light to that position.

The trans temp gauge does not show any temperature so that needs to be investigated, it may not be compatible with the sender that is used on this Allison trans.

By: Ed Raether