

Regarding the CYPRES 2 Service Bulletin, April 2008

April 04, 2011

We have been asked to provide clarification on the events that led to recalling 878 CYPRES 2 units on April 21, 2008. Perhaps this one example will help provide some insight into what Airtec deals with on a routine basis, and why sometimes there seem to be unusual delays in delivery, etc.

In Sept 2006, Airtec discovered a statistical anomaly on a single CYPRES unit during the final 2-week stress test procedure that all CYPRES are subjected to during production. As it could not be immediately determined what the issue was, we stopped production, and halted shipment of all CYPRES units, and launched a comprehensive investigation, which is our standard procedure when something like this occurs, even though there was no actual test failure, just a statistical anomaly discovered during analysis of the recorded test data.

As sometimes happens, the phenomena was impossible to reproduce on demand, with the result that it took some days to track down, because most of the time everything worked correctly. Eventually we were able to track this intermittent problem back to the pressure sensor module.

The fact that the pressure sensor was acting in this manner was in itself quite astonishing, as being one of many critical parts, we submit it to a rigorous series of testing and pre-treatment prior to ever being soldered to the circuit board. The reason we do this to every sensor we receive is because the parts received from the manufacturer, although very high quality, are not good enough without additional treatment under pressure and temperature and screening for use in, what we consider to be, a critical application. This is the reason that we sometimes reject entire batches and return them to the manufacturer, even though they actually meet the manufacturer's specifications.

But somehow this sensor was not detected throughout our screening, which indicated to us that something had changed in the manufacturing process. We contacted the manufacturer who came to our factory, and we showed the representative what we had discovered. He went back to his plant, and informed us that we were wrong, and that there was indeed no problem with his product. So, more testing with more sensors, more communication with the sensor manufacturer, and finally they agreed that we were correct, and that what we had discovered was caused by some impurities recently introduced in one of their integrated circuit silicon wafer ovens, which affected some of the chips on the perimeter of the wafer. This led to tracking down which chips could be affected, and the sensors that contained them.

During this same time period, other investigations were ongoing to see what the effect of this phenomena was with CYPRES, and what could trigger it.

The time from the initial discovery to the delivery of new sensors built from "clean" wafers was 4 weeks. This meant 4 weeks with no production, hundreds of units halted in process, and units waiting 4 weeks in the dispatch department, all of which were pulled back and the questionable sensors replaced prior to shipment as a precaution.

Because of our efforts in discovering and identifying the devices that could be affected, in December, 2006 the sensor manufacturer sent a letter to their other customers explaining essentially what Airtec had discovered.

Later we determined that the somewhat elusive phenomena was triggered by extreme high temperatures over an extended period of time, and we theorized that one possible way that it could be produced was with a rig in the trunk of a car in a hot desert environment. Thus we dispatched someone to Ayers Rock (Uluru), in the middle of Australia, in March 2007 with instrumented CYPRES units to determine the possible temperature effects in the trunk of a car.

Based on the results of the tests in Australia, it was determined that the parameters required to trigger the problem were nearly impossible to achieve in actual CYPRES use, when taking into account the insulating properties of a rig, the temperatures and times required, and the places on earth where this could occur. However, we decided that it was prudent to swap out the sensors in question during the scheduled 4-year maintenance procedure as a precaution.

Obviously we were wrong. In January 2008 an activation occurred on the ground on a 1-pin Expert unit, ironically enough in Australia. It was immediately replaced with a new unit, and once received at Airtec, testing and evaluation began to discover the facts behind this occurrence.

During this process, another activation occurred late in March 2008, this time with a 2-pin Tandem unit, and again in Australia. Again a new replacement unit was dispatched without waiting for the unit in question to be sent to Germany. A short email was sent to our dealer describing the incident by the DZO. It was reported to us that no one was injured.

After a prompt investigation of the CYPRES, we decided to issue the April 2008 CYPRES 2 Service Bulletin, which recalled 878 units, and can be found at:

http://www.cypres.cc/images/stories/storypictures/service_bulletin_april_2008_e.pdf

and

http://cypresusa.com/CYPRES_Service_Bulletin_April_2008%20e1.pdf

The result of the recall was that 468 of the 878 recalled CYPRES units were returned to Airtec in the first month, and then they basically stopped coming in. When the testing following sensor replacement was complete, the units were returned and were accompanied by a check of US \$70.00 for the repack.

Once the 4-year maintenance window was reached, we started to see more of the units on the list, with the result today that 690 of the 878 have had the sensors replaced. Oddly enough, out of the 36 CYPRES units that were originally sent to Australia, 6 still remain that have never been returned.

Since the initial recall, we decided on our own to change an additional 1300 sensors during the maintenance procedure as a precaution. This is performed at our own cost, as we simply are not confident of all of the information from the sensor manufacturer, and we want to eliminate any uncertainty. Some consider this to be unnecessary, but one of the benefits and advantages of our scheduled maintenance system is to do all that is possible to get each and every CYPRES ready for the next 4 years of use. No other AAD manufacturer can say that they take these steps.

So, the circumstances that triggered the recall are certainly unfortunate, and obviously in hindsight it is easy to now say that we should have issued a recall earlier. However, at the time we felt that we took appropriate action based on the data, and testing performed.

Hopefully this somewhat lengthy explanation gives a glimpse into the efforts it takes to produce each CYPRES, and why its track record of cutting the loop when needed, is second to none.

Best regards,

Airtec GmbH & Co. KG Safety Systems