Lack of Awareness

When I think of Lack of Awareness, I can think of two incidents that come to mind and I am sure you can think of others. One incident involved carpet installation in a Twin Otter, which involved a metal strip being laid in a joint and fastened with machine screws. An air drill was used to pre-drill the floor. You guessed it; the screws went through the floor board and into the fuel tank bladder in the belly of the aircraft. The second incident, which was more serious, involved a technician who was removing a pin on a Metro gear brace. When he finally was able to knock out the pin with a bigger hammer, he was thrown back clear of the aircraft still sitting on his coaster stool as the wing came crashing down onto the floor. What an ugly picture! Both incidents were a result of fatigue and lack of awareness. Flight crews refer to awareness as the perception of the conditions that affect an aircraft and its flight crew during a period of time in flight. The same applies to awareness in the maintenance department as we make decisions daily that affect the airworthiness of the aircraft and our safety. If we are not totally aware of our actions and consequences, we set ourselves up for error. It is not easy to be aware of all the consequences of our maintenance actions, particularly when one makes modifications and unscheduled repairs on an aircraft. All areas of safety are to be taken into consideration and we must maintain the awareness of what is occurring around us as well as awareness of the consequences of our actions.

Incidents that do occur usually occur to AMTs/AMEs who often are very knowledgeable, but fail to recognize the possible consequences of what may normally be a good maintenance practice. Like the old saying goes "sometimes we cannot see the forest for the trees". We can be caught up in a distraction or other human factors like pressure and easily lose sight of our real goal-- to maintain and provide an airworthy aircraft.

A fable was written about putting a frog in a pot of cold water where he is quite comfortable. As heat is applied, the frog will not notice the difference, and is eventually cooked without knowing that the water ever became hot. How many of us have fallen into the same trap over the years? We keep hoping things will get better and they never do. As an inspector I have audited quite a number of AMEs who were in this predicament.

Awareness of what direction our careers are taking is important, but so is an awareness of our day to day job. We hear of stories of aluminum and magnesium parts being put in degrease tanks and disappearing. Wrong fluids are put in de-ice, compressor wash, hydraulic and fuel tanks. In some cases complacency was a factor, but awareness of our actions and our surroundings was also a factor. We all hear of drill bits being run through wire bundles, intake scoops being mounted on the side of the fuselage in front of static ports and a lot of people getting hurt and killed in wheel wells and with splitting wheel rims because of a lack of awareness.

An accident is the result of a chain of events that culminate into an accident. Being aware that an incident is seldom one overpowering cause, but rather a number of contributing factors is in itself a way to increase awareness. If we maintain our vigilance, that is, work with a heightened sense of awareness, then we should be able to pick up on an error chain and bring the chain of events to a halt - without an incident occurring.

What can we do about maintaining our awareness level throughout our careers and in our day to day job? We can rely on our experience and training. Experience is practical knowledge, skill or
practice derived from directly observing or completing a task or activity. Experience creates a mental file that helps establish how one interprets and responds to conditions and events. Use your experience to maintain a constant state of awareness.

Decisions technicians make are based upon their experience and are saved in their memory bank to help them in the future to select the most appropriate solution. Our mental file allows us to solve problems more quickly and accurately which leads to more time to devote to attention and detail. Training enhances our ability to make decisions by creating an awareness. Without training, experience cannot be complete and vice versa. One simple definition of experience is recognizing a mistake when you are doing it again.

Awareness is enhanced by technical skills. If a technician is comfortable with his or her tools and equipment, then the task will be completed in a timely manner, with quality and pride in mind. If we maintain proficiency with our tools and test equipment we can accomplish the task with far fewer distractions.

Health and attitude go a long way when it comes to being vigilant. Accurate perception and interpretation of the environment and events around us are directly related to the physical and emotional condition of the technician. Our vigilance deteriorates dramatically as fatigue effects our body physically. Attitude has a strong influence on awareness and safety, which cannot be achieved without dedication and positive effort. Maintaining a positive attitude is the result of hard work and a strict sense of professionalism.

The very fact that you are reading this article is a case in point. It is evidence of a professional attitude. Certainly at this very moment, other things are competing for your attention, yet you continue to read this article. Why? Perhaps it is because you believe that you might learn something that will make you a better technician. In aviation, a professional attitude is every technician’s personal commitment to safety and awareness.

We have to keep our level of awareness and vigilance high to:

- Understand today’s aircraft which are becoming more complex
- Avoid complacency
- Deal with the pressures of new aircraft being introduced
- Cope with changing skills and experience levels amongst ourselves
- Ensure we work together as a harmonized team

As a team, the awareness of each other’s unique blend of personalities, attitudes and shared responsibilities is key to creating synergy. The perceptions of each member of the group are also unique further contributing to different levels of awareness across the team. Training can help us understand ourselves. Knowing how our character effects our judgment is where awareness has to start.

Human factor training will also give us the awareness of how to prevent the chain of events from accumulating to a point of an incident. We have to take into consideration all the human factors that effect our judgment. We must ensure that we have solid safety nets in our work habits to counteract the things that can go wrong. The court of law is no place to explain why it is that you did not realize the impact of your actions or your lack of knowing what was occurring around you.
As we can see by some of the errors mentioned and other error that we know of personally, one of our roles as technicians is to maintain a constant level of awareness and vigilance. Error chains are being formed around us even as we are reading this article. As AMEs / AMT’s, we have to fulfill our role in this industry by staying knowledgeable, learning from our experience, maintaining technical competence, staying healthy, and most of all approaching our job with the right attitude.