

## Complacency

One of the major changes to occur in the world of airline training over the past few years has been the emphasis on Human Factors. Originally focusing on the pilot community, Human Factors has now spread into the training sphere of maintenance technicians. An in-depth review of an aviation incident reveals time and again that a series of human errors (known also as a chain of events) was allowed to accumulate until the accident occurred. If a maintenance error was part of the chain of events leading to the accident and if we can diffuse what affected the technician's judgement, the accident will not happen.

Throughout industry accidents generally have a 20/80 ratio. That is 20% of all accidents are caused by the machine and 80% of all accidents are caused by the human element. In attempting to understand the cause factors of an accident, and particularly in efforts to understand the chain of the events that precede an accident one word appears frequently - *complacency*. One Human Factor that can be dealt with without penalizing revenue is the insidious factor of complacency.

What, exactly, is complacency? Dictionaries describe it as being self-satisfied, a calm sense of well-being and security, self-satisfaction accompanied by unawareness of actual dangers or deficiencies. Or, "Unjustified self-satisfaction accompanied by a low awareness of the need for action or involvement", or as a psychologist would say, "A conscious or unconscious relaxation of one's usual standards in making decisions and taking action."

Someone once was asked "What is the difference between ignorance and complacency?" he responded, "I don't know and I don't care."

What causes us to become less vigilant when we do the same inspection in the wheel well for the 10th time, or when we are tasked to look for cracks on a wing strap containing 400 rivets. Psychologists explain it by saying "the subconscious or emotional mind (child ego state) creates complacency, while it should be the conscious mind/rational mind (adult ego state) who is in control to find the cracks."

Boeing studied the causes of 276 in-flight shut downs due to maintenance errors. 94% of these investigations revealed that the contributing cause was probably the tech's state of mind (emotional mind) while he was completing the task which resulted in engine overhaul component incomplete or improper installations, damage on installation, equipment not installed or Foreign Object Damage. But only 6% of the errors were created when the technician was trouble shooting which would be in the rational mind.

Complacency is an attitude - and attitudes govern the probabilities of our responding to certain incidents to a given set of circumstances. The good news is that like our other attitudes, complacency can be changed through a conscious and rational effort.

Because of the repetitive nature of a lot of aviation maintenance work, complacency is an ever present danger. When a person becomes complacent his stress level for the task decreases, and consequently, so does his performance. A greater stimulus will be required in order to obtain a response. Any type of inspection work that is repetitive and in which the probability of finding a defect is low, qualifies as a vigilant task.

## Factors

It is ironic that the major contributors to complacency are those factors that lead to relaxing one's standards, are also the very factors that generally lead to a safe and uneventful flight. They include:

**Reliable Aircraft.** Today's aircraft are so reliable that they can contribute to complacency. I do not want to sound unappreciative for the progress that has been made by designers and manufacturers during the past decades, but an excess of confidence in one's aircraft was not a problem in the early pioneer days of aviation.

**Familiar Circumstances.** Have you ever driven to work, and once arrived, were not be able to recall having driven past some prominent landmark? I believe many of us have had a similar experience. The overly familiar situation can and does apply to maintenance.

**Expectancy** With complacency can come expectancy, where the Aircraft Maintenance Technician will often see or hear what he expects to see or hear rather than what is actually occurring. If other factors such as fatigue, lack of resources and stress (from a different source) are also present then the chance of an error becomes very real.

An incident occurred on May 5, 1983 Eastern Airlines Flight 855 where the aircraft departed Miami enroute to Nassau, Bahamas with 3 new oil chip detectors installed that morning with no O rings. The two technicians completing the task expected that the detectors would have the O rings on them as they normally did and the task was so repetitive that complacency affected their judgment. An Aircraft Technician is liable to relax his vigil because he believes someone else is making or has made the decision. Anything that tends to take away or minimize the decision making process (rational mind) will increase the likelihood that complacency will set in.

## Chain Of Events

There are symptoms of complacency that we should be aware of and that should set off alarm signals. Knowing what these symptoms are will help us to respond accordingly. Some of the symptoms of complacency are:

- **Accepting Lower Standards of Performance** One of the early symptoms of complacency is simply a lowering of one's standards. An example could be not completing or following an inspection sheet for the task at hand.
- **Erosion of Desire to Remain Proficient.** The individual who does not make the effort to stay ahead in his profession is going to fall behind. It is like staying in shape physically, you don't simply get there and forget about it. The individual who loses this desire has symptoms of complacency.
- **Boredom and Inattention.** If it is a chore to come to work day after day, or if we don't feel challenged by what we do and are not motivated to meet that challenge, then look out for creeping complacency. This causes us to perform in our emotional state of mind verses the rational state mind.
- **Satisfied with the Status Quo.** Things as they exist now are perfectly satisfactory. Why change? Don't rock the boat. Don't make waves. All of these are typical of the individual who has become content with the status quo.

- **Increased Feeling of Well Being.** This is best described as the "couch potato". The individual who thinks everything is going well and doesn't realize that this feeling has slowly crept upon him. This individual is operating in the comfort zone 100% of the time. He has become too lazy to look for and recognize the risks in his lifestyle.
- **The bogus parts industry is relying on us to be complacent in our tasks and not being vigilant to the parts that are in our hands.** It takes a very alert and knowledgeable Technician to be able to identify a bogus part in their hands. Admittedly, we cannot detect all bogus parts just by looking and feeling, but we can identify quite a number of counterfeit parts if we are vigilant.
- **Neglecting personal safety items.** My first reaction is that this is not complacency - it's stupidity. How could anyone be so hasty or careless as to disregard their own life and limb by not using the personal safety gear that is available to them. If we find ourselves neglecting even the smallest item of personal safety it should be a strong clue that the signs of complacency are present. The companies we work for are spending considerable time and effort to provide a safe environment for us to work in, lets become familiar on how to use the tools to protect ourselves. I urge you to make an honest personal inventory to determine if any of the factors which can lead to complacency are present in your lifestyle.

## Safety Nets

We have defined complacency and described its factors and chain of events; we are now in a position to discuss the safety nets. The factors and chain of events we discussed earlier suggested some safety nets that may be effective.

To develop positive methods of preventing complacency we must keep ourselves **aware**. One of the first defenses is to keep your awareness level peaked, primed, and stimulated. I don't mean a once-a-year pep talk. Pep talks are short lived. There must be a long term commitment that constantly hammers away at complacency. Constantly ask yourself "Are you working with the rational mind?" Yes, we need to work with our emotional mind from time to time to be creative but we should finish the task in a rational state of mind.

## Professional Involvement

Staying abreast of our profession is an effective method of fighting complacency and prevents us from becoming stale and outdated. The mechanics who are aware of what's happening in their industry, who are knowledgeable of the latest technology, who read professional publications, who belong to professional organizations are far less likely to become complacent in maintaining an aircraft. If you are doing an inspection for the 21st time on the wings of an aircraft make yourself aware of your task and what to look for. Call up the SDR's for the aircraft model and area. Become aware of what other operators are experiencing with the same aircraft you are operating. Read the service bulletins, alerts and manufacture communiques. There is a great deal of information out there for our use as safety nets.

## Physical Fitness

Being physically fit is an excellent defense for many of life's challenges. Physical fitness results from conscious lifestyle choices including: proper nutrition, kicking the smoking habit, drinking in moderation, proper rest, maintaining proper body weight, and a regular exercise program.

Physical fitness provides the endurance to protect against fatigue induced unawareness and poor decisions.

### **Plan Ahead**

Planning ahead provides a standard with which to measure progress toward a goal. With a plan you can determine if you are indeed going in the correct direction, and is an effective countermeasure to ward off complacency.

### **Training**

Initial training, recurrent training including Human Factors training are fundamental to minimizing risk and preventing complacency. Training does far more than sharpen skills and refresh memories. Training can and should add to a mechanic's total experience by preparing him to handle routine maintenance tasks as well as emergency situations. Most companies provide their maintenance personnel with excellent technical training and yet very few companies provide any form of Human Factors Training for the very element that causes about 80% of the maintenance errors.

### **Create Challenges For Yourself**

How many snags can I find tonight? Have someone else double check your work if you find yourself doing a tedious task. A dual inspection by a co-worker is a cheap and effective safety net we all should use when we are completing the tasks on the aircraft. Ego has no place on the hangar floor.

### **Face Reality**

We all must recognize that in aircraft maintenance we have little margin for error, and mistakes can result in injury or worse. A healthy understanding of the risks we face - the people, the aircraft, the missions, and the environment - is essential to maintain the proper balance to prevent a lethal dose of complacency.

Errors or complacency can be lessened by always following the aircraft manufacture or approved aircraft inspection program checksheet.

Do not attempt to do work from memory and NEVER sign off work that you are not totally sure that you have indeed completed the task. The checksheet is a safety net and a point where we can use our rational mind to assure ourselves that we did complete the task at hand. **WE CANNOT COMPROMISE OUR STANDARDS.**

In summary, complacency is clearly a significant cause factor in accidents. It is important to recognize the cause factors and conditions, as well as the chain of events, but also to realize the safety nets that prevent complacency are under our control. By developing and implementing safety nets we can prevent, rather than have to cure, complacency.