

Why Have Technician Certification and Licencing

In this article whenever I refer to technician certification I am speaking of the many trades that support any maintenance system. When I am speaking of licencing I am speaking of those individuals who have been certificated by government to inspect and certify that aviation maintenance activities have been carried out properly and in compliance with national civil aviation regulations. These are generally known as Licensed Aircraft Maintenance Engineers (LAMEs) or Inspection Authorizations (IAs) in United States territory.

Purpose

I want to alert people in aviation to the history and challenges of technician certification, maintenance inspection and supervisor certification over the last few decades. The journey to the present day system has not been without battles for and against certification and licensing. It is hard to find the information on the early proponents of it. Therefore, it is easier to recall some of the battles of the last 50 years because we have lived through it.

History

The British Aircraft Ground Engineer, the precursor to the Licensed Aircraft Maintenance Engineer was a position created by order of the United Kingdom Secretary of State for War and Air: Sir Winston Spencer Churchill, 29 April 1919. By 1936, the basic delegated responsibilities were identified in a candidate handbook issued by the Air Registration Board and consisted of:

- 1) The Inspection and certification of aircraft, aircraft parts, and raw materials; and
- 2) The inspection of workmanship used to build, maintain, repair, overhaul and modify "Civil" (meaning Civilian) Aircraft.

Steve Chamberlain from Ontario, Canada, was kind enough to send me the pamphlet article from the United Kingdom: Air Registration Board candidate pamphlet for persons seeking to become Licensed Ground Engineers (Licensed AME's) circa 1938-1940.

The British Empire including Canada quickly followed suit. Canada's first certification was in 1921 by the Air Board under military jurisdiction. In 1936 the civilian Ministry of Transport took over responsibility for airmen certification.

In the United States, home of the world's first powered flight and one of its first true maintenance technicians, Charles E. Taylor. He was the technician behind the Wright Brothers' flights. The US Aviation Institute of Maintenance has a very detailed blog on him. Everyone in aviation maintenance should take a few moments and read his life story. As such, he was the father of aviation maintenance. In those days there were no detailed instruction books or

manuals, no aviation parts manufacturers but that soon changed as the First World War drove a great expansion in both the design and manufacturing technology. This was to lead to major advances in flight operations and maintenance. The development of many flight instruments and the widespread use of electricity in controls and instruments led to the beginning of specialization of technicians, especially in the military.

Wise people in Congress and other national legislatures soon realized a legal system was needed for aviation to advance safely, economically and efficiently. This led to technician certification and licensing. A quote from the British pamphlet, "The secretary of state himself cannot be expected to examine aircraft, and therefore he must employ assistants, or he must delegate his duties to suitable persons." So begins the systems we have today.

In the US certification events were also moving along. Thanks and credit to AvStop.com magazine I found the following information. The Aeronautics Branch of the Department of Commerce began pilot certification with a license, issued on April 6, 1927. Some three months later, the branch issued the first federal aircraft mechanic license. Equally important for safety was the establishment of a system of certification for aircraft. The statement on certification of aircraft simply shows how certification became linked across many areas of aviation activity. As you all know the aircraft certification regulations and standards system included the requirements for continuing airworthiness and includes the maintenance program.

Pros and Cons of Personal Certification

Pros

Although personal certification is now a world-wide standard regulatory activity, it cannot yet be assumed that no one will again argue for its replacement, many people sincerely believed that organizations provide the best means of ensuring safety and managing certification of both people and machines. Obviously the majority of people responsible for many areas of safety disagree. Can you imagine not certifying pilots, doctors, car drivers and so on?? I cannot but there were some who thought we could rely totally on the business interests of a corporation's personnel doing the right thing and enforcing their own rules. I was only aware of one country that relied on company approvals totally.

Some who held such beliefs had little real life experience in aviation maintenance and operations. Some came from a manufacturing environment where things can really be standardized and uniform. Even there most employees had some sort of certification from trade colleges and universities if they were professional engineers. Although many of us

thought their views were somewhat simplistic they had to be addressed as some had powerful industry lobbying behind some of the discussions. In the end though most of the arguments are based on personal philosophy of how best to regulate people's standards, behaviour and to provide for safety and good workmanship. So here goes.

Cons

Some people have an aversion to government certification as they are of the opinion that the less government the better. Others argue that companies have a strong interest in ensuring both safety and workmanship from a profit and liability angle. Others think company certification or industry standard group certification. like Mil standards, can result in the same levels of performance.

Some just cannot imagine that any company management would not take the best interest of their operation into consideration as they train and manage their work force. Sometimes one heard that unionized work places and contracts take the place of the government certificates.

Others thought companies were better placed than government inspectors to decide work place discipline. The only other Con I can think of from a societal point of view is that personnel licensing is an additional financial cost to the taxpayer. From the operator's point of view, you would think this to be a Pro, as it relieves the employer of this extra responsibility, but it turns out to be seen as a Con by them because they no longer have such a captive workforce.

Pros

One thing governments generally do well is ensuring that basic standards are applied across all companies. Standard curricula can also be set up across a country's technical training system, and in fact, worldwide through ICAO. By having governmental certification of licensed personnel, the public and industry knows that a common standard has been applied.

Government licensed technicians are required to know and pass air law and regulation exams early in their career which give them a better understanding of their responsibilities; responsibilities to the public beyond their current employer. Union also knows that government licensed personnel meet a basic standard. Unions have been good supporters of certified and licensed technicians by aviation authorities. They also have heavily promoted cross country trade standards as well. For example, in the compliance world it was found that non licenced technicians sometimes did not fully understand differences such as airworthiness directives versus service bulletins and therefore did not realize that ADs were not completed.

When organizations were allowed to use non licensed personnel for aircraft certification by the regulator, personnel discipline issues regarding regulatory compliance was very difficult to achieve due to the union's need to protect their members through long grievance procedures.

As a former union president in my younger years, I know how that works when you have to defend a poorly functioning person on a safety related issue. Once licensed personnel were required this fell to the regulators who were not influenced by union legal needs.

Another point relating to law enforcement was that it is very difficult to ground an entire airline due to one individual not complying. When government licenced personnel are used the enforcement be directed to one individual. This method is much more effective than trying to shut down a major air carrier for one individual's failures.

Yes, I know companies can also be at fault. However, that can be controlled through certificate action against the overall company or a single shop in the company, for example, its NDT shop certificate.

Last but not least the government license is portable and that gave technicians satisfaction and the ability to walk away if they see something improper happening. When you hold only a company certificate that is much more difficult to do, as the next company probably won't recognize it.

Summary

One issue that needed to be dealt with over the years is the question of the standards for the trades that support the certified technicians. Most major aviation countries had set up standards for the education of such trades through quasi governmental standards or nationally agreed upon ones. Most countries did not move to certifying such trades directly. One reason was costs to the general taxpayer, another was a desire to not undermine the scope of the licensed certified technicians. Insuring that LAMES and IAs retained overall responsibility for aircraft inspection and certification was a key regulatory requirement. This avoids any accountability arguments. Approved organizations are required to ensure that all trades meet standards which they can now do.

I saw a marked difference in organizations where I worked which used the AME system for aircraft inspection and certification than those that did not. Working for one large air carrier that did not require federal licenses, only company certificates allowed at that time in Canada, there was more concern around keeping one's company document. Worker mobility was somewhat restricted and the tendency, understandably, was to go along to get along. Licensed AMEs tended to be more determined to do the work but also not to fall a foul of the regulator rather than their immediate employer. Portability gives confidence to do the right thing no matter how difficult.

Back in the 1980's the debate was put to rest in Canada by a decision I made in my role with Transport Canada; to make all aircraft certification the responsibility of Licensed AMEs. The one major country in Europe that had been relying on company approvals is now as part of EASA using a licencing system. Today around the world, this is the standard. This has proven to be a

wise move. One factor in making that decision was that I found the non AMEs knew little about the regulatory requirements, ADs, etc., which improved by requiring a licence. I do not believe any such debates took place in the United States.

A short war story to close. While sitting in my Ottawa office late one day I answered my telephone. It was an agitated AME from the West coast. Normally people would contact their local office, however, because of my many meetings and conferences there he took my invitation to call if needed. The air operator who employed him had a prop strike. He indicated that his boss was going to fire him if he checked the engines as required. I recall saying I cannot interfere directly but tell your boss we are aware of the situation and if you resign or are fired we will be asking how the engines were checked off as airworthy. He called 10 minutes or so later and said his manager now agreed to inspect the engines. It turned out both engines were damaged. The point is he wanted to do the right thing morally, legally and wanted to keep his licence clean of any infractions. He did the right thing and so then did the company but the incident again reminded me how important an independent licence is.

So my final thought would be, understand how valuable and important your certificate/license is and protect it. This can be done by being knowledgeable of any efforts to restrict it and by supporting industry associations that promote it.