

News from the Hill

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Patents, Trademarks, Copyrights and Trade Secrets

A repair station typically has a lot of assets. There is tooling. There is diagnostic equipment. Good will is an important asset that is often considered at the time the repair station is sold. But many repair stations forget about the importance of their intellectual property.

There are four major types of protected intellectual property (although there are more than four sets of law protecting this sort of property). The four major types of intellectual property described in this article are patents, trademarks, copyrights and trade secrets. This month's article is part one of the series, and will address patents (including a brief look at when a repair station could unknowingly violate the patent laws).

Typical examples of intellectual property in our industry may be found in repair manuals, DER-approved installations, and manufacturer's blueprints, just to name a few. Many inventions in our industry are (or have been) protected by patents, from jet engine designs to GPS receivers. The extent to which property rights belong to each of these depends on the particular facts. There are several reasons why analysis of the facts surrounding intellectual property may be important to a repair station. A few examples are:

(1) You may be asked to pay a fee (such as a licensing fee) for the privilege of using someone else's data or other valuable intellectual property (it is a good idea to confirm that they really own something before you agree to pay for it!).

(2) You may have data or other valuable intellectual property that someone else wants to use (and you should be compensated for it if you possess it).

(3) You may want to use data or other intellectual property that belongs to another (you should know when you are not allowed to use someone else's intellectual property).

Because so many people forget about the importance of intellectual property until it is too late, it is common to become confused about the exact scope of the intellectual property laws. There is a simple, four-part program for addressing intellectual property concerns in any business:

(1) Know the law that applies to your intellectual property;

(2) Have a system for protecting your intellectual property;

(3) Use your system to adequately control your intellectual property; and,

(4) Understand your competitors rights and have a policy for respecting their proprietary rights.

Knowing the law that applies to your intellectual property may seem like the most complicated element of the four; however a clear understanding of the basics of intellectual property is available to any person, and can help pave the way toward a system that protects your property, as well as the property of others. The easiest way to think of intellectual property is to break it down into the four basic categories and analyze each one in turn.

Summary of the Laws

All intellectual property has to do with ideas. Most of the protections do not protect the pure form of the idea, though, but rather they protect some manifestation of the idea. Patents protect inventions, which may be thought of as the application of an idea. Trademarks protect the name you use to identify your product. Copyrights protect the specific way in which an idea is manifested, such as text in a book or the music on a compact disk. Finally, trade secret law protects a wide range of ideas, so long as the idea remains secret.

Patents

The first of the four categories is patents. Historically, patents were monopolies granted by the govern-

ment. The Venetian government, for example, granted 10-year monopolies to inventors of silkmaking devices in the 1200s. Patents limited who else could use the application of an idea.

In the early days of patents in England, the Queen would grant patents to her friends for entire lines of business. In one 17th century legal case, the Queen of England had granted to someone the patent for producing and marketing playing cards. Ultimately, the English Courts found that this patent was illegal. They held that the granting of a patent for this line of business was simply unfair, because of the adverse affect on the existing merchants who already sold playing cards. The court also accused the patent-holder of fraud, on the grounds that the Queen cannot make a mistake, so the only way the Queen could have issued an improper patent was through fraud on the part of the applicant. Ultimately, the law of monopolies arose in the early 17th century as a consequence of the misuse of patents. This raises an important idea in the development of modern patent law: monopolies granted by patents must be fair.

Modern day patents are granted in far more narrow circumstances. Generally they are granted only for inventions. The term "inventions" may include processes and ornamental designs.

Patent law in the U.S. is based on a federal statute, the Patent Act. States are prohibited from granting protection similar to that provided by the Patent Act, so there is no comparable state law granting patents in the United States.

In order to be patentable, an invention must meet three criteria: it must be novel; it must be non-obvious; and it must be useful.

Novelty

To meet the novelty requirement,

the invention must not have been known or used by others in this country before the applicant invented it, and it also must not have been patented or described in a printed publication in the United States or a foreign country before the applicant invented it. The policy behind the novelty requirement is that a patent is issued in exchange for the inventor's disclosure to the public of the details of his invention. If the inventor's work is not novel, the inventor is not adding to the public knowledge, so the so-called inventor should not be granted a patent.

In 1992 Garmin patented the invention of an electronic direction finder that used a GPS receiver and directional and omnidirectional antennas to calculate a compass bearing. This was a novel invention at the time. It was useful because it provided directional information, in much the same way that "magnetism sensing devices" had done in the past. Ten years later, Garmin found itself patenting their moving map technology, which was described as "a method and device for displaying animated navigation information." Again, this was clearly novel, and it was useful insofar as it permitted better ways to represent the GPS user's location.

Utility

Meeting the utility requirement is easy for most inventions. An invention is useful if it can be applied to some beneficial use in society; however unrealized mental conceptions are not patentable. This protects against pure idea patents. The government does not want to issue patents for pure ideas, because that could prevent innovation.

An example of an unpatentable 'pure' idea would be the idea of using particles generated through high-energy physics in order to convey information. This is a very good idea but it is

not patentable because we do not yet have an application that uses this idea for a useful purpose. A patentable invention based on this idea might be a transponder that uses the principles of high-energy physics to generate its own fusion power while at the same time generating particles that could serve as the medium for transmitting information. I suspect that this invention is still quite far down the road. My idea for this new leap in transponder technology is novel, but it is not yet useful because I do not have a workable design—thus it is not patentable. Obviously, part of the reason that the very idea is not patentable is so that no one can block the use of this idea in new inventions in the near future.

Processes that produce something that was not there before can be patented as well. The process of curing rubber would be one good example. Another good example would be the processes for deriving location from GPS signals (which was patented in the 1970s).

Nonobviousness

To meet the nonobviousness requirement, the invention must be sufficiently different from existing technology and knowledge so that, at the time the invention was made, the invention as a whole would not have been obvious to a person having ordinary skill in that field. The policy behind this requirement is that patents should only be granted for real advances, not for mere technical tinkering or modifications of existing inventions. Another key aspect of the nonobviousness requirement is that nature is obvious. Laws of nature and natural phenomena are all considered obvious. This means that things like mathematics will often be considered obvious and therefore unpatentable. This becomes important to software,

Continued on following page

NEWS FROM THE HILL

Continued from page 27

because new algorithms, to the extent they are comparable to mathematical formulas, are not patentable.

It can be difficult to obtain a patent. Even if the invention or process meets the requirements of novelty, utility, and nonobviousness, a patent will not be granted if the invention was patented or described in a printed publication in the United States or a foreign country more than one year before the application date, or if the invention was in public use or on sale in the U.S. for more than one year before the application date.

What Good is a Patent?

A patent is usually issued for 20 years from the application date. During this 20 year period, the patent-holder has exclusive rights to that invention. A patent owner has the right to exclude others from making, using, or selling the patented invention or design in the United States during the term of the patent. Anyone who makes, uses, or sells a patented invention or design within the United States during the term of the patent without permission from the patent owner is an infringer—even if he or she did not copy the patented invention or design or even know about it. Parallel development is not a defense to infringement (although it may affect damages in a lawsuit).

Limitations on the Exclusive Rights

There are two major limitations on the patent owner's exclusive rights: functionally equivalency and validity.

A patent owner can exclude others from making, using or selling products or using processes that do substantially the same work as the patented invention in substantially the same manner. However, a patent does not

protect the patent owner from competition from functionally equivalent products or processes that work in different ways. Thus, if Garmin has a patent on moving map technology that is limited to frame-based animation, Garmin cannot use this patent to prevent another company from marketing a technology that achieves the same results using a much different process to achieve the animation. Often, the alternative method for achieving the same results may, itself, be patentable.

The validity of an issued patent is subject to challenge in an infringement proceeding. Defendants in infringement suits usually raise the defense of patent invalidity, asserting that the invention covered by the patent was not novel or nonobvious. It is not unusual for a patent infringement suit to result in a determination that the U.S. Patent and Trademark Office made a mistake in granting the patent. To prevent later claims of invalidity, the Patent and Trademark Office attempts to weed out and reject patent applications that appear to be invalid.

Why is this Important?

Patents are important to the avionics community for several reasons.

From an economic policy point of view, the ability to protect a novel invention guarantees that manufacturers will have a 20-year opportunity to profit from their new avionics inventions, which encourages more invention.

From a compliance point of view, it is important to note that one may not make, offer for sale, or sell any patented invention without the permission of the patent-holder. The permission to sell a patented product is inherent in the purchase of the product—e.g. an owner may sell his transponder that he purchased from the patent-holder without any additional permission from the patent-holder. A third party

may be forbidden from creating a new article, though, that reproduces the patent or is derivative of the patent. This can be important to the work done by a repair station when the repair station is working on a patented item during the period of the patent. A repair station should be careful to make sure that it does not alter or refurbish the patented article (during the course of repair) so as to create a wholly new article.

An example would be an alteration that takes a patented mode-C transponder and turns it into a mode-S transponder. The original transponder is clearly different from the subsequent transponder. It serves a different function (form, fit and function can be good indicators of whether a significant alteration is made under the terms of patent law). Repair stations planning to make significant modifications to avionics should first determine whether a patent or other intellectual property right may be infringed through such modification (generally, FAA inspectors and DERs are unable to provide this sort of information).

On the other hand, a service bulletin from the article's manufacturer that explains how to perform a modification may usually be treated as written permission to effect the described change, and will usually not represent a violation of the manufacturer's intellectual property rights.

Next month, we will continue with our intellectual property series with a review of the copyright laws and how they can affect maintenance manuals used by repair stations. **q**