

"Do Not Duplicate" and the Institutional Locksmith

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Before proceeding further, I want to make it clear that this document does not reflect the policies or opinions of any organization that I am affiliated with.

Institutions across the nation are stamping "Do Not Duplicate" or "Do Not Copy" on keys that are part of their proprietary key control system, with what they believe, and I personally believe, to be good reasons to do so. It is my position that locksmiths and keymakers should respect the intent of such stamping, rather than being misled as to its intentions when it applies to proprietary key control systems.

The term "**Retail Locksmith**" will be used to refer to locksmiths who either have a retail location open to the public or operate out of their home or vehicle for the purpose of providing locksmithing services to the general public. Some may also act as de facto Institutional Locksmiths under a service agreement or contract, and others may specialize heavily in master key systems.

The terms "**proprietary key control**" or "**proprietary key system**" as used herein refers to master key system maintained by the institution, with key assignment records, key tracking and return, an aggressively enforced key assignment policy, and using either Institutional Locksmiths or Retail Locksmiths under contract to service it. It may or may not use restricted or high security keys.

The term "**temporary keyholder**" as used herein refers to a number of people who may be issued a key for their use while that use is necessary within the requirements of the institution, but who do not own the key. Some may be outside vendors or contractors who only have permission to use the key for a day or less. Others may be students or adjunct faculty, or their equivalents in other institutions that have the use of the key for a year or less.

The term "**unmonitored key**" refers to a key that is no longer controlled within the system with its possession monitored by the institution. This can be a lost key or a duplicate of a key that the institution does not realize exists. In either case, it is "**in the wild**" and no longer subject to the protections imposed by the institution for the benefit of its keyholders.

You might wonder about the wisdom of stamping "**Do Not Duplicate**" on a key when it has no legal basis to prevent an outside keymaker or Retail Locksmith from duplicating it for whoever presents it to them. Even ALOA's (Associated Locksmiths of America) policy implies that it may be fraudulent and misleading to stamp it on a key.

Here is an excerpt related to it from the newest version of the **ALOA Technical Standards Model Policy (v. 2.1)**: (the old standard is more stringent and is in **footnote 1**)

7. Do Not Duplicate Keys: Orders for keys stamped "**Do Not Duplicate**" or similar wording will be handled in the same manner as any unrestricted key (see 8). ALOA members should inform the consumer that the use of keys stamped "Do Not Duplicate", or similar wording, is not effective security, and further that the use of such words is deceptive because it provides a false sense of security. Consumers who desire effective security should purchase a patented key control system rather than rely on a "Do Not Duplicate" marking. This does not apply to keys protected by law.

As you can see by the reference to section 8, there is more to it than that, but that is the portion this document primarily addresses.

So if ALOA considers such stamping to be deceptive because it provides a false sense of security, why do it?

With or without the **"Do Not Duplicate"** stamp, most professional Locksmiths and many keymakers can recognize the keys for a local institution and many already refuse to copy such keys. When it appears on a non-residential key blank, such as a Sargent LC or a Best H, and the key is identified using the Standard Key Coding system, such as AA6 or a hand stamped blind code, the key is almost obviously part of a professional master key system, and many Locksmiths choose not to jeopardize such a system. If we were talking about stamping DND on a five pin Schlage Classic C, a Kwikset, or any typically residential hardware key, on the other hand, most might tend to ignore it, assuming that it is not for a proprietary key control system.

Many retail store keymakers, however, are not very knowledgeable about the keys they cut, but can be instructed not to copy keys marked **"Do Not Duplicate"** by their employers, and many employers are willing to make this a policy and to enforce it in the interest of public institutions with whom they do or hope to do business.

ALOA is made up primarily of Retail Locksmiths who do not understand Institutional Locksmithing or its complexities and irregularities. Many of them have absolutely no idea of the power that can be exerted by those of authority within the institution upon those within the institution or performing outside duties for the institution.

That power is one of the main reasons the keys are stamped **"Do Not Duplicate"**. While it may not be currently binding on the third party keymakers and Retail Locksmiths, it is enforceable within the policies of the institution. In fact, depending on the key policy of the institution, just an attempt to have a key duplicated outside the institution might have severe penalties if discovered. Some institutions have even threatened loss of tenure for faculty attempting to obtain unauthorized duplicates.

Why such a fuss over something as simple as a single key? Institutions generally attempt to provide proprietary key control. They issue keys to individuals who need them in the course of their requirements within the institution, and they track the return of such keys. When keys are lost or not properly returned when they should be, they typically re-key the affected areas. The person issued the key is not the owner of the key, only the temporary keyholder, and is subject to the rules imposed by its owner, which they agree to, usually in writing, when they accept the key.

Still, to an outsider the rules must seem arbitrary and overly strict. Keyholders often, though not always, must bear the costs associated with re-keying when a key has been lost. To them it must seem as though the institution was merely trying to find another way to get money out of them. Many Retail Locksmiths might even agree with them.

Contractors find it less convenient to sign a key out daily or weekly, and see the benefit of making copies for all their workers so they can send any of them to the site. It is much more convenient for them to have a coffee can of keys, labeled with paper tags as to where they go (institution and area), in each vehicle. This could be financially tempting to the Retail Locksmiths and keymakers. It could translate into a lot of keys to be duplicated each year.

It is probable that neither the contractor nor the keymaker understands why the institution must be so strict.

Institutions have a higher responsibility for their master key systems. As Institutional Locksmiths or master keying specialists are aware, proprietary key control systems exist to protect the persons and property associated with the institution. Without them, the institution would be vulnerable to risks to life or severe property losses, as well as loss of information obtained by research for the Department Of Defense and major corporations.

Still, how much harm can a single key cause? The truth is that a single unmonitored key can destroy a proprietary key system entirely when in the wrong hands.

In September of 1958, a master keying specialist and professional locksmith named James Dayton, Jr. brought to the attention of the locksmithing industry a method of decoding a master key system from a single working key, using as few as six to ten key blanks in most cases.

This method, referred to by master keying specialists as the Dayton Method, has been a highly confidential technique among master keying specialists and professional Institutional Locksmiths ever since that time. Key assignment policies were designed to prevent a key becoming unmonitored, in which case it would be subject to the method. By re-keying affected areas promptly when keys are lost, the method is foiled except from within, and penalties were put into place to discourage anyone within from attempting the method even though it was unlikely they would be aware of it.

Recently this became even more of an issue when a current University of Pennsylvania professor, working for AT&T at the time, who had the method explained to him went public with it, posting the method on the Internet and sharing it with approximately 2,000 attendees at a hacker/cracker/amateur lock picker's convention. It was also added to a publicly available page of a "security information site". Perhaps even more disconcerting, he is now teaching it to his students at the University.

That makes institutional key assignment policies even more important, as are additional steps to deter the method from being tried by people who find it on the internet or at such a convention or worse yet, are taught it in their college computer class.

Stamping "**Do Not Duplicate**" or "**Do Not Copy**" on a key accomplishes several things. It puts the keymaker or locksmith on notice that there might be something special about this key. It, most importantly, also reminds the keyholder every day of the agreement they made when assigned the key. It thus reduces the chances of a key becoming unmonitored, and is one step in the defense against the Dayton Method.

Is it absolute protection against duplication? No. The markings can be ground off or covered with tape, in which case the keyway may be the only clue that this is likely to be a key that is part of a proprietary key control system. Of course, this may arouse the suspicion of the person being asked to duplicate the key, and ALOA's Technical Standards provides a suggestion to reject the key if "the Service Technician suspects some wrongful intent".

Even the use of patented or high security key systems cannot promise absolute protection. Blank making equipment and other Locksmiths who are also using or selling the same keyway both open up the possibility of duplication even with these. Yet they are one more step in protecting the institution and its valuable assets, both human and material, against the risk of a key in the wrong hands. It should be obvious to all that the use of patented key systems or high security locks are an excellent idea and will increase the level of security provided. Also, some manufacturers take steps to minimize the likelihood of another locksmith on the same keyway using that to facilitate his making a duplicate for another system by serializing the blanks. This further extends the protection.

However, the protection offered by restricted blanks is limited. Most can only provide protection for the life of the patent, after which they become "unrestricted keys". Seventeen to twenty years seems like a long time to most people, but to an institution it is but the twinkling of an eye, and most patent protected keys are already several years closer to the expiration date than that.

Most Institutional Locksmith shops could barely, with the full crew working on it every spare minute, convert all the locks and issue all the new keys in fifteen years while still fulfilling all their other duties. Many areas would still be waiting when those patents expire. There is no way around that simple fact. At that time they will be considered unrestricted keys.

Most medium and large sized institutions would be more likely to update additional areas to restricted or high security keys if they felt the locksmithing community would at least make an attempt to respect their needs beyond the patent expiration. As it is, they often see it as a futile step that will be a waste of money in such a short while.

Converting a large institution's systems is not a minor undertaking financially either. Many Retail Locksmiths believe that the institutions are simply "too cheap" to provide restricted or high security key systems.

Using universities as an example, medium sized institutions often spend \$110,000 to \$130,000 a year on locking hardware, not including doors and frames and hinges and card access. It is not uncommon for them to have over a million dollars invested in SFIC cores for the residence halls alone, and about 2/3 of that in fraternities and sororities, as well as heavy duty grade one locks to accept them on each and every one of those doors, and fire exit hardware on all the hallway and stairwell doors.

Most medium sized universities have over 8,000 academic and athletic area locks as well, that are on multiplex systems for the most part, using a wide variety of non-residential keyways. As they renovate the buildings, they typically update the locks, and cylinders or cores. But many of the buildings in institutions are historic and will not take any new cylinders or cores that are available because they are using cylinders that there are NO replacements available for and which would be unbelievably expensive to machine for such a limited market. Also, many of the institution's buildings are typically not scheduled for renovations for many years, despite the fact that they spend millions on renovations and updates every year.

And believe it or not, updating the classroom teaching materials and the lab equipment and the boilers is often a higher priority than the locks. Often the existing look and feel of the building is associated with alumni donations (especially where an alum has donated the original locks), while the updates to the lab equipment and classroom teaching materials is tied to grants and other donations, which make up a large part of the university's funding. Surprisingly, tuition is typically only a small portion of the funding.

When (not if) a student is raped or killed or biological hazards are stolen or thousands of dollars of high tech classroom equipment is stolen, the Retail Locksmiths who have duplicated the institution's keys, even restricted keys, will not be taken to court by the persons who suffered the loss. This would be true even if it could be shown that the Dayton Method was used on an unmonitored key that the institution did not know about because the keyholder obtained a duplicate in violation of the key policies. It is the institution who will be sued, and then once the settlement or court awarded amount is paid, there will be a lot less to spend on security.

Institutions of all kinds are not cheap or greedy and do care about security, but every institution has finite resources that have to be distributed.

Ever have a tool you really KNEW you needed...not just wanted, but you could not afford to buy it? Every business faces that. When you see a budget like that of a medium sized university, it is sometimes hard to see that, but it is true nonetheless.

Institutions typically spend a great deal of time on maintaining key assignment records, often on computer, as well as maintaining locks and keys and re-keying areas. Many have excellent key policies in place to reduce the risks of violation by the Dayton method, and have many separate master key systems in place, so that if one is cracked, the damage can be limited and they can respond by re-keying the affected areas.

A well-written and strongly enforced key assignment policy is also a valuable step in increasing the level of security.

Under most university key assignment policies, residence halls, sorority and fraternity keys are typically inventoried regularly. If the student promptly reports a lost key and indicates the cost of re-keying is a problem, they will often re-key the locks for free. Otherwise the student is typically charged a fee from \$25 to \$100 (based on the institutions and whether they use a Mainstream locksmith under contract, which is more expensive due to travel time), for re-keying, even for garden apartments with five lock cylinders.

There is therefore no legitimate reason for them to obtain a duplicate elsewhere.

On the other hand, if the institution catches them with a duplicated key, they are subject to disciplinary action that almost certainly means removal from the campus residential areas, and could mean removal from the university. If they are REALLY lucky, they COULD merely have to have the locks re-keyed but it costs them an intentional student damage rate, which is typically double to triple the standard rate to cover the fact that the institution must retire the combination due to their direct intentional action. If they "get away with it" all year long, the year-end inspection and inventory will usually catch it and subject them to additional fees or fines.

So anyone duplicating the key for them, in addition to putting the rest of the students at risk, is certainly not doing them any favors.

Education of the keyholders about risks and policies is very important. University students, for example, rarely realize the risks around them until an incident occurs. Given the option, they would probably treat keys like power bars and caffeine. If you run out of them, you just need to get more. And by this overly naïve approach to life, they could easily put their fellow students at risk as well as themselves and their surroundings. Keymakers and Retail Locksmiths would probably be doing them more of a service to point that out instead of "warning them that the 'Do Not Duplicate' stamp is false security".

The **"Do Not Duplicate"** stamping and the use of less common keyways, possibly even patent protected or high security keys, helps them to protect themselves. It is not deceptive or misleading. Each provides one real level of protection.

Would there be more protection if it were indeed illegal to duplicate keys with a special proprietary key marking? Absolutely. But even that is not absolute protection. Unfortunately nothing is absolute protection. We get increased protection by adding layers of security, and each layer provides some protection.

Instead of asking if institutions should have the right to stamp their keys, **"Do Not Duplicate"** or **"Do Not Copy"**, a better question might be "Why are Retail Locksmiths in general so very adamant about their right to duplicate any and every key presented to them and so defensive about the **"Do Not Duplicate?"**

One excuse often heard is that they are afraid their competition will stamp every key with the **"Do Not Duplicate"** stamp in an attempt to put them out of business. That seems like a rather obscure threat. Besides, their competition could ALREADY have done this, using the keys that it is currently illegal to duplicate, if they were going to do so.

Another is that it gives them an opportunity to "sell up", offering products with more security. However, in the case of proprietary Institutional keys, the person they would be duplicating the key for cannot purchase additional locks in most cases, because they are only keyholders, not the owners or managers. If the institution has either Institutional Locksmiths or Retail Locksmiths acting as de facto Institutional Locksmiths under contract, Retail Locksmiths probably won't have the opportunity to "sell up" no matter what they do. Some may think this is unfair, but it is usually just "sour grapes".

Another is that Retail Locksmiths, like most entrepreneurs, are independent by nature, and do not like rules that tell them what to do or make their work more complicated. They also like the image of being capable of doing anything lock and key related. Turning away customers on behalf of an institution who is, in essence, a competitor of theirs, even though only for its own locks and keys, does not easily fit with those traits.

The ALOA Technical Standards document gave them one excuse by stating that it was "not effective security, and further that the use of such words is deceptive because it provides a false sense of security". As stated earlier in this document, it is not a false sense of security. It is both a notice to keymakers and a warning to the keyholders who are not the owners of the keys, and is usually enforceable within the institution.

The ALOA Technical Standard also states "Consumers who desire effective security should purchase a patented key control system rather than rely on a Do Not Duplicate marking". However, it is not the owners of the key that they would be warning, only temporary keyholders (students, part time wage workers, outside contractors, employees, etc.), and as suggested earlier in this document, while restricted or high security keys are definitely a plus and an additional level of security, they do not solve all the issues.

Warning the third party temporary keyholders because the Retail Locksmith believes the institution should use better locks and keys is like telling all the workers in a store that their boss chose to use his birthday for the combination of the safe even though he knew it was not the best idea. Or worse yet, it is like telling anyone who asks what that combination is because if he wanted it protected he would have picked a more secure combination. The ethics involved is virtually identical.

In fairness, however, the ALOA document does prohibit them from duplicating keys that are protected by law. Unfortunately, most locksmiths and keymakers do not currently know which keys are actually protected by law against duplication, which apparently includes state institutions, including state universities, in a handful of states. Further, many state locksmith licensing laws totally avoid the issue, providing no guidelines for either the institutions or the licensed Locksmiths.

Therefore, the first step in making it illegal to duplicate keys with a special proprietary key marking is to define the ownership of proprietary keys as belonging to the institution and being managed by their Institutional Locksmith shop (or contracted Retail Locksmith with a minimum one year contract to act as de facto Institutional Locksmith) and their Key Assignment personnel within the guidelines set by the institution.

The next is to provide penalties under the law for a person who is a keyholder, and thus not the owner of a key, who attempts to get such a key duplicated in violation of the institution's policies.

Next, there must be a clearly defined mark that shows a key is part of a proprietary key system. ALOA is entirely correct in the fact that the **"Do Not Duplicate"** and **"Do Not Copy"** stamps have been around too long to be truly effective and have more than occasionally been misused as well, invalidating their value as the primary mark to define proprietary keys. A new mark must be defined and must be publicized to every place that duplicates or creates keys.

Finally, there must be penalties for any locksmith or keymaker or other individual acting in either those capacities, regardless of skills, employment or training, who either stamps that symbol on a non-proprietary key or duplicates a key bearing the mark. Signage at each key cutting station should be mandated, with penalties for non-compliance with the posting regulations.

Of course, the law must also provide enforcement. To whom should complaints or appeals be directed? Will it be enforced by consumer affairs or by your friendly neighborhood policeman and our all too wise judges? What will the penalties be?

All of these steps would have to be addressed by any legislation attempting to regulate the duplication of proprietary keys. The ALOA **"Do Not Duplicate"** guidelines only apply to ALOA members, and have little enforcement capability other than potential penalties regarding membership and possibly certification. Of course, they are reaching a population of Locksmiths that has traditionally prided itself on professionalism.

While not duplicating proprietary keys is a professional approach that should be accepted by all locksmiths, there is, without legislation, no protection against even patented or high security keys being duplicated by a skilled locksmith, let alone unrestricted Institutional keyways with or without the **"Do Not Duplicate"** stamp.

Yet the future of our institutions relies on protection against the Dayton Method. An unmonitored key in our universities puts our nation's most valuable assets, the students who will be the future of the country and the corporate or defense research on which the future of our world might depend, at risk. An unmonitored key in our hospitals leaves us at risk from terrorists, drug addicts, and simple epidemics. An unmonitored key in our nation's detention centers could free dangerous individuals to assault their guards and put all of us at risk of higher crime statistics.

It is vital that proprietary keys be recognized and protected, not just by law but also by the policies of our locksmiths and keymakers. A law can only punish those who are caught violating it. Policies that protect our institutions and are set by forward thinking locksmiths show the locksmiths to be proactive and security minded, and don't usually require punishment. In fact, maybe they deserve a pat on the back or recognition from local institutions.

Footnote 1: This text is from ALOA TECHNICAL STANDARDS MODEL POLICY -version 1.3, 3/13/93

7. RESTRICTED KEY POLICY: Orders for keys by code, restricted keys, and those marked "DO NOT DUPLICATE" will only be honored when accompanied by a request on an authorized form or company letterhead, signed by an authorized representative of the requesting company, ordering the specific number of duplicates required as well as designating the agent authorized to receive the duplicates on behalf of the ordering company. The agent will produce positive ID and sign for the keys.