



Full Size Cylinder Service

Introduction

Everest is the name given to a growing family of patented products being introduced by Schlage Lock. Everest products are distinguished by the patented undercut groove milled into the right side of the key blade.

The first product in this family was the small format interchangeable core (SFIC) introduced to retrofit 7-pin Best® style IC products. A different service manual is devoted to that product. See next issue of TCL.

The information, printed in this issue, covers the "full size" Schlage Everest cylinder, available in mortise, rim, key-in-knob/lever versions as well as Schlage's 23-030 full size interchangeable core.

Except for the keyway and special pin which checks for the lip on the side of the key section, Everest full size cylinders are virtually identical to Schlage Classic™ cylinders which have been around since 1935. Classic refers to all the older keyways and corresponding cylinders.

You get the benefits of the new patent without the need to invest in new pin kits, key machines or additional service

equipment. However, Everest-D Series restricted keys cannot be cut on a key biting punch.

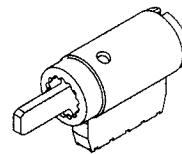
Larger Key Bow



Undercut Groove Keyway and Everest Logo on Plug Face



Hole in Cylinder Shell Where Check Pin Locks into Place



Key Control

Since the late 1960's patents on key have been used primarily to prevent unauthorized key duplication. Schlage's new Everest-D Series keyways are no exception but the Everest-C Series open keyways are a major departure from this tradition.

Open Keyways

U.S. utility patent 5,715,717 against unauthorized manufacture and distribution protects Schlage Everest-C Keyways. However, they are sold where the end-user wants fast and easy key duplication **without any formalities**. They are considered "open" keyways, which can be stocked and sold by locksmiths. The purpose of these keyways is to guarantee the end-user genuine Schlage quality replacement keys and increase locksmiths repeat business

user. The difference between the Everest-C and the Everest-D is just the keyway. Key cutting and other servicing are identical, and are covered in this issue. However, Everest-D Series restricted keys cannot be cut on a key pitting punch.

Everest-D Keyways Restricted

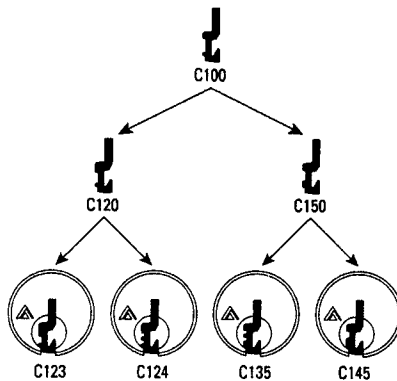
(not pictured for security purposes)

The keyway for each restricted Everest-D Series job is selected by Schlage Lock and registered to the end-user. Everest restricted key blanks, cut keys, cylinders and plugs are drop shipped directly to the end-user or a location specifically authorized by the end-user. This creates positive key control by preventing access to keys and cores without the end-user's permission.

Everest-C Keyways

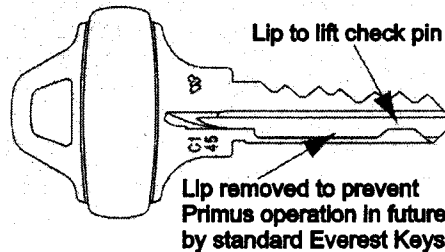
Open

(not restricted)



Restricted Keyways

For end-users that want restricted keys with patent protection, Schlage will offer its Everest-D Series keyways. These are protected by the same patent and require a letter of authorization from the end-

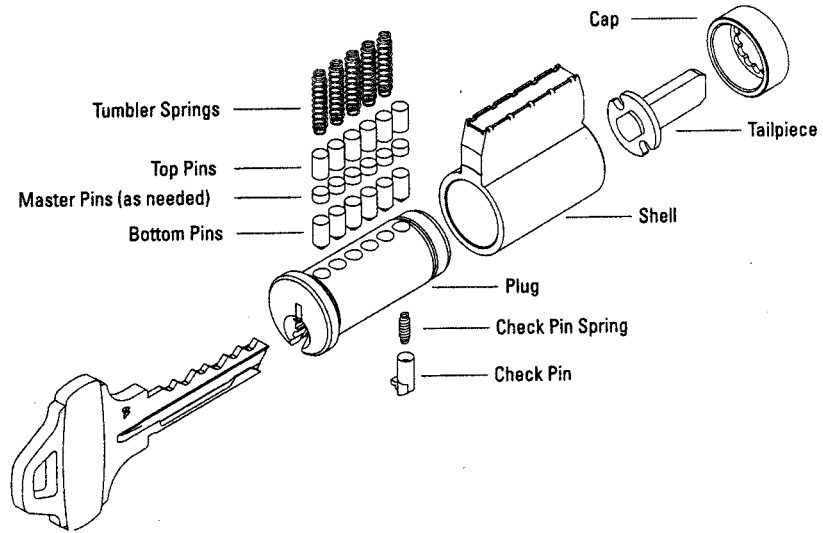


Primus™ Integration

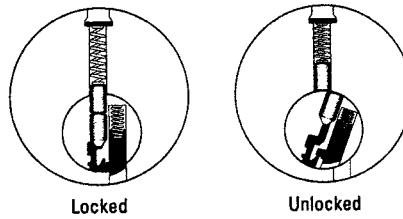
Primus cylinders will be available with Everest™ keyways in the future. The Primus Everest keys will be downward compatible with the cylinders covered in this issue. A portion of the undercut groove's lip is milled away on non-Primus Everest keys to prevent them from operating a Primus cylinder in the future.



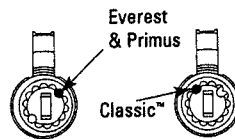
Mechanical Overview



Cross Section



Key-in-knob type cylinders use Primus® tailpieces because of the location of the cap pin.

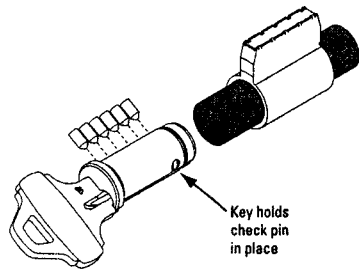


These instructions assume that the reader already has basic experience pinning conventional cylinders.

The only thing different about Everest™ cylinders is the check pin and spring, which go in the special chamber on the bottom of the plug toward the back. If you are using a key to remove the plug, the key will hold these parts in place.

Rekeying When You Have the Old Key (no master keying)

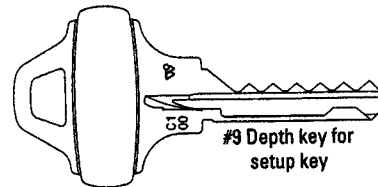
1. Remove the cam, tailpiece or other



type of plug retainer.

2. Insert the old key and turn it slightly in either direction. Push the plug out gently with a follower.
3. While the key is still in the plug to hold the check pin in place, discard the old pins.
4. Hold the check pin in position with your finger or thumb. Remove the old key and insert the new key.
5. The new key will hold the check pin in

- place while you install the bottom pins and put the plug back into the shell.
6. Reinstall the cam, tailpiece, etc. and



you're finished.

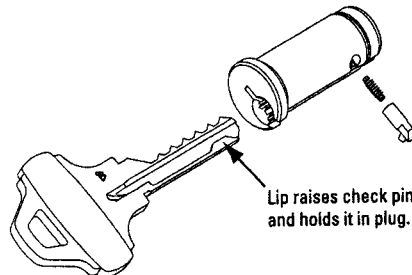
Master Keying

The master keying capacity of full size Everest™ cylinders are identical to that of Schlage Classic™ cylinders: 4,096 theoretical changes per keyway using two step progression. The MACS is 7.

When master keying Everest cylinders, Schlage recommends using a setup key to reinstall the loaded plug.

You can make a setup key by cutting a 9 depth in all positions of a key blank. If you remove the steeples between the cuts, the setup key can also hold the check pin in place when removing the plug of a cylinder you had to shim open.

1. Insert any operating key and turn it slightly in either direction. Push the plug out gently with a plug follower.
2. While the old key is still in the plug, discard the old pins.
3. Hold the check pin in position with your finger or thumb. Remove the old key and insert the setup key. If you are certain that the cylinder was not master keyed when you started. Skip to step 5.



4. Clear the cylinder of any remaining master pins. This is extremely important. If master pins remain in the shell, you may experience the following problems:
 - A key cannot be inserted or removed.
 - One or more springs will get crushed and cause a future lockout.
 - Additional keys will operate the cylinder.

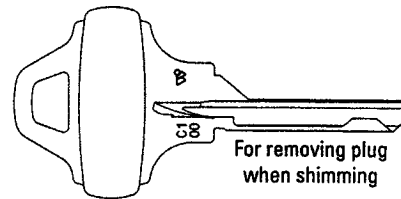
Slowly back the follower out of the shell. Replace any weak or damaged springs. Load the proper size top pins based on the plug total (bottom + any master pins). A plug follower with a groove will help you guide each spring and top pin into its chamber as you push the follower in from the back of the shell. Special tools to make this process easier are available from a variety of locksmith supply companies.

5. Install the new bottom and master pins in the plug.
6. Orient the plug so it is turned slightly with respect to the shell. Gently push the plug into the shell, pushing the follower out.
7. Test all keys for smooth operation. Reinstall the cam, tailpiece, etc. and you're finished.

Rekeying When You Have No Keys

When no key is available you can use standard locksmithing techniques to shim the cylinder open, however, the check pin must be taken into account. Follow these steps:

1. Using a pick or key blank, shim the six pins as usual. After the last pin is neutralized, the plug still cannot rotate or slide out because the check pin is still engaged.
2. Leaving the shim in place, insert a setup key with no steeples between the cuts. This unlocks the check pin and will also keep it from springing out of the plug in step 4.
3. Use the setup key to turn the plug slightly in either direction and remove the shim.

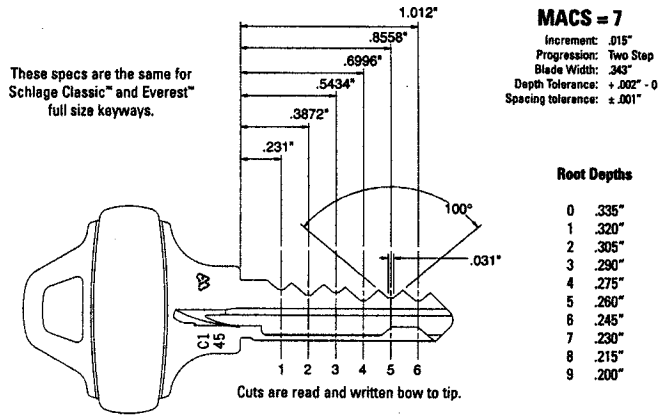


4. Push the plug out gently with a plug follower.
5. While the setup key is still in the plug, discard the old pins. If you are certain that the cylinder was not master keyed when you started, skip to step 7.
6. Clear the cylinder of any remaining master pins. This is extremely important. If master pins remain in the shell, you may experience the following problems:
 - A key cannot be inserted or removed.
 - One or more springs will get crushed and cause a future lockout.
 - Additional keys will operate the cylinder.

Slowly back the follower out of the shell. Replace any weak or damaged springs. Load the proper size top pins based on the plug total (bottom + any master pins). A plug follower with a groove will help you guide each spring and top pin into its chamber as you push the follower in from the back of the shell. Special tools to make this process easier are available from a variety of locksmith supply companies.

7. If you are master keying, leave the setup key in the plug. Otherwise, hold the check pin in position with your finger or thumb while you remove the setup key and insert the new operating key.
8. Install the new pins in the plug.
9. Orient the plug so it is turned slightly with respect to the shell. Gently push the plug into the shell, pushing the follower out.
10. Test all keys for smooth operation. Reinstall the cam, tailpiece, etc. and you're finished.

Key Bitting Specifications

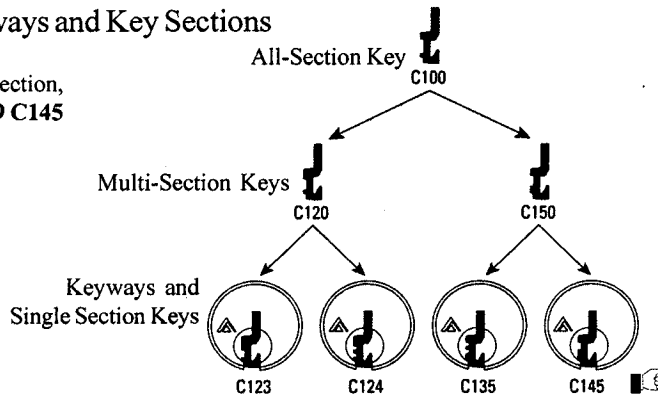


Pins & Springs

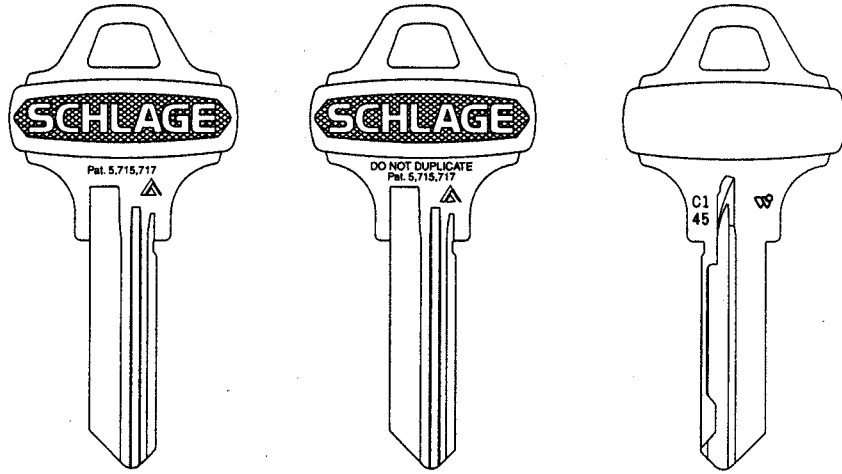
Bottom Pins			Master Pins			Top Pins			
Size	Length	Part No.	Size	Length	Part No.	Size	Length	Part No.	Application
0	.165"	34-200	2	.030"	34-302	1	.235"	34-101	Plug total = 0, 1, 2, 3
1	.120"	34-201	3	.045"	34-303	2	.200"	34-102	Plug total = 4, 5, 6
2	.195"	34-202	4	.060"	34-304	3	.165"	34-103	Plug total = 7, 8, 9
3	.210"	34-203	5	.075"	34-305				
4	.225"	34-204	6	.090"	34-306				
5	.240"	34-205	7	.105"	34-307				
6	.255"	34-206	8	.120"	34-308				
7	.270"	34-207	9	.135"	34-309				
8	.285"	34-208							
9	.300"	34-209							
Other Pins and Springs									
								Description	Part No.
								Tumbler spring	C503-113
								Check pin	34-007
								Check pin spring	C603-951
								Cap pin	C503-116
								Cap pin spring	C503-115

Everest-C Open Keyways and Key Sections

* Specify key section, e.g. 35-009 C145



Everest™ Operating Key Blanks

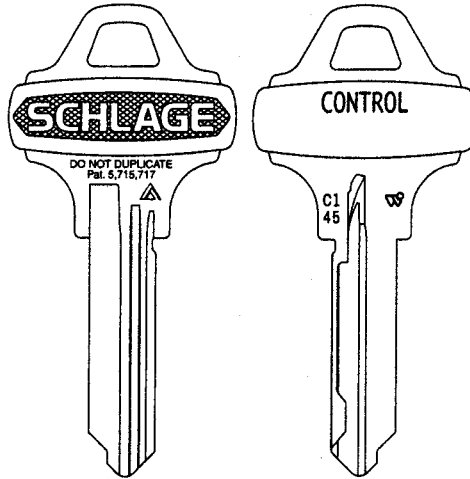


35-009*
Standard for Everest-C
Open Key Sections

35-002*
Optional for Everest-C
Standard for Everest-D

Back View

Everest Control Key Blanks



35-003*
For 23-030 Full Size Interchangeable Core





Cylinder Questions & Answers

Terminology Questions

Q. Isn't *Everest* the name of the restricted keyway SFIC (Best® style) cores made by Schlage?

A. Everest is the name of an entire family of patented key cylinders being introduced by Schlage. Everest refers to all Schlage cylinders whose keys have the special undercut groove on the right side of the key section. Schlage introduced the SFIC first, the full size cylinder will soon be available, and Everest Primus® will be next.

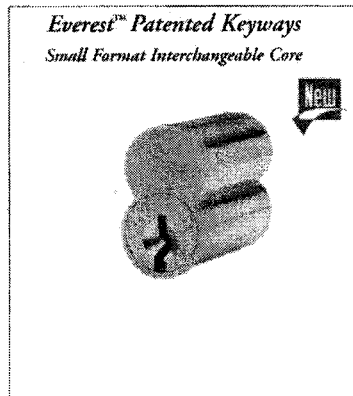
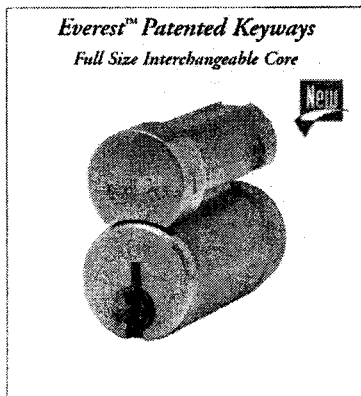
Q. What does *full size* mean?

A. With Schlage's recent venture into cores and locksets compatible with Best and its clones, we coined the term *small format interchangeable core* and its abbreviation SFIC because these cores and components are smaller than the main industry standard. In order to differentiate Schlage's

traditional cylinders with the industry's typical 1/2" diameter plugs, we needed another name. *Large* tends to make people think of something larger than normal, like mogul cylinders for prison locks, so we settled on *full size*. This is especially helpful to differentiate between Schlage's *full size* interchangeable core and its new *small format* core products.

Q. What is meant by Schlage *Classic*™ keyways and cylinders?

A. Schlage needs a category name to differentiate all the older keyways and cylinders from the new Everest ones. *Classic* refer to cylinders and keys of all four of our old keyway families: Observe (C,E,F, etc.), Reverse, Numbered ("Paracentric") and Quad.



Terminology Questions

Q. I thought patented keys were sold for key control. What does Schlage mean by open patented keys?

A. Even though the same patent as the Everest restricted keys covers the Everest-C Series key blanks, they are sold openly through all Schlage commercial distributors. Locksmiths can stock them and cut them for customers just as they have always done with Schlage C and E keys. However, these blanks will not generally be available to hardware stores, D-I-Y and mall key stands.

Q. If there is no key control with Everest open keyways, why do they exist?

A. Everest open keyways offer 5 principal benefits to the commercial end-user:

1. Keys are 15% thicker for extra strength.
2. The key bow is 25% larger for easier handling and stamping codes.
3. Keys cannot be duplicated at most hardware stores and retail outlets.
4. The patents guarantee the owner genuine Schlage quality for all keys.
5. After 65 years of use, the field is saturated with C, E and the other common Classic keyways. It is time to start developing key systems on new keyways to reduce the change of keys from one system operating somewhere in another system.

Q. Is Everest™ designed to replace Primus?

A. No, Primus® continues to be Schlage's top of the line high security cylinder. It is the only product, which can offer geographical exclusivity through its patented secondary locking mechanism and side combination on the key. Primus is currently available with Classic™

keyways. It will be available with Everest keyways in the future. Without geographical exclusivity, Everest –D restricted keyway cylinders offer a mid-price point between conventional cylinders and Primus with only a modest up-charge over standard Schlage Cylinders. Key blanks plugs and cylinders are tightly controlled. They are not shipped without proper authorization from the end-user. Everest cylinders with open keyways are designed for end-users who want sturdy high quality keys with fast local duplication by any local locksmith with no formalities. These cylinders are priced the same as Schlage Classic cylinders.

Q. I am trying to select a patented system to stop unauthorized key duplication and there are many brands to choose from. What makes Schlage better?

A. There are three strong answers to this question:

1. Quality. Schlage is widely recognized as North America's top quality lock and cylinder manufacturer.
2. Patent life. The Everest utility patents 5,715,717 and 5,809,816 are new and have a long life ahead of them to protect our restricted keys from unauthorized manufacture and distribution. Key blanks plugs and cylinders are tightly controlled. They are not shipped without proper authorization from the end-user.



3. One-stop shopping. To use most brands of patented key control products you must buy the cylinders from one source and the lock from another. Schlage provides a total package of locksets and cylinders for your security needs. You can even retrofit cylinders to incorporate other brands of locksets to your Schlage key system.

Q. If I have no geographical exclusivity with Everest restricted keyways, how do I know some other end-user won't be duplicating keys for my institution?

A. There are several logical obstacles to prevent this situation from occurring:

1. Probability. It is unlikely that a dishonest employee in Office A

will manage to stumble upon the locksmith for University B where the same keyway happens to be used.

2. Ethics. The locksmith for University B is mindful of key control. Why would he cut one of his own restricted blanks for someone at another facility?
3. Facility Code. All restricted key blanks will be stamped with the registered end-user's facility code as an additional deterrent. Even if two end-users are assigned the same keyway, their blanks will be factory marked to identify the source of the key.

Other Questions

Q. Does Schlage's transition to Everest cylinders increase the price of locks and cylinders?

A. There is no upcharge for locks or cylinders with Everest-C Series keyways. They are priced the same as the C keyway! There is a modest upcharge for the stronger Everest key blanks with the larger bow, and there is an upcharge for Everest *restricted* keyway products when the end-user needs the added security of patented key control.

Q. Do I have to change my computer and inventory system for new product numbers to order and stock Everest™?

A. The only new numbers for Everest full size products are for keys, cylinder plugs and shells. Complete cylinders as well as locksets will keep the same product numbers you are already using. The keyway will be the differentiating factor. For example: 20-013 C145 (Everest) vs. 20-013C (Classic)

Q. What is the difference between Everest-C and Everest-D keyways?

A. Everest-C is the name of the open family of full size Everest keyways. Everest-D is the name of the restricted family of full size keyways. Everest-B is the name of the restricted family of SFIC keyways.

Q. Can a very large end-user get an exclusive keyway or geographic protection of an Everest keyway?

No. Everest cylinders with restricted keyways are designed for end-users who need strong key control and who realize there is little risk if another end-user happens to have the same keyway in the same area. Whenever a higher degree of exclusivity is required, the end-user needs Primus® cylinders with their patented secondary locking mechanism. At press time, Primus cylinders are available with Classic keyways. Primus cylinders with Everest keyways will be available in the future.

Key Machine and Service Questions

- Q. Can I use my existing blue punch to cut Everest keys?**
- A. The open Everest-C keys can be cut on existing blue punches designed for Schlage obverse keys, however, a new top jaw is required for most machines. They can also be cut on standard rotary cutter key machines. The restricted Everest-D keys are not punchable and must be cut on a rotary cutter key machine. The restricted Everest-B keys for SFIC can be cut on Schlage's 40-071 special blue punch, and can also be cut on rotary cutter machines.
- Q. Do I need a new pin kit or special tools to service full size Everest cylinders?**
- A. No. The Everest-C and Everest-D Series full size cylinders use the same pins, and keys are cut to the same dimensions as Schlage Classic keys. The check pin and its spring can be ordered separately in multiples of 100.
- Q. How complicated is it to rekey a full size Everest Cylinder?**
- A. It's extremely easy! Nevertheless, Schlage provides a service manual where you will find pictures and step-by-step instructions. A copy is printed in this issue. The key holds the check pin and its spring in place while you remove and install the plug. If you are master keying, Schlage suggest that you make a *setup key* by cutting a key to a #9 depth in all positions on your code machine. This key is a reusable tool, which will hold the check pin and its spring in place while loading the bottom and master pins into plug and install the plug into the shell.

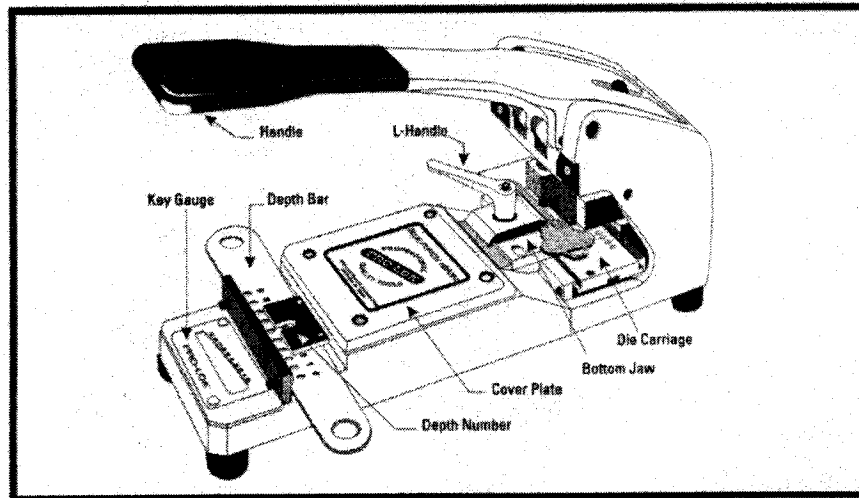
Master Keying Questions.

- Q. Can I tie Everest™ SFIC and full size cylinders into the same key system?**
- A. No. Everest SFIC and Everest FSIC cylinders are not broached the same.
- Q. What's the difference between full size Everest and Classic™ cylinders in terms of keying capacity?**
- A. The capacity per keyway is identical because Everest keyways use the same pins and bitting specs as Classic keyways.
- Q. Can I expand Everest master key systems by using additional keyways in a multiple hierarchy?**
- A. Yes. There are four open keyways in the Everest-C open multiplex system at launch, with six others to be added later. There are ten keyways in the Everest-D Series restricted multiplex system.
- Q. Can I specify a particular keyway on a master keyed order?**
- A. *You will be able to request a particular keyway in the Everest-C family, however, not in the Everest-D restricted keyway family.*

* * * * *

For more information regarding Everest, contact:
Ingersoll-Rand Architectural Hardware
1076 Lakeshore Road, East, Mississauga, Ontario, L5E 1E4
Phone: 905 278-6128
Fax: 905 278-1413
Or visit the Schlage Web Page @
www.schlage.com

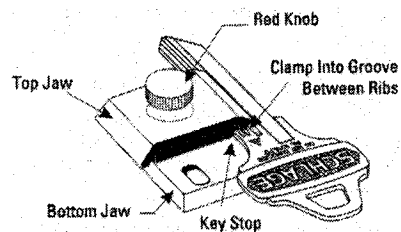
Cutting Everest Keys on the Blue Punch



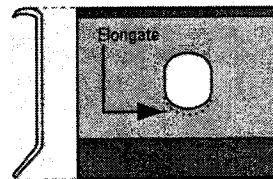
The original version of this popular key machine was developed in the mid-1970's. Pro-Lok is the most recent in the succession of companies, which have manufactured the machine. Even if you have what appears to be the original Schlage punch 40-126, it was made by one of the earlier companies. The basic principles are the same for all versions of the machine however there are minor differences in the vise jaws which affect the machine's ability to cut Schlage's new Everest -C keys.

"45" in the designation, such as C145. Even the first generation solid steel jaws were produced before Everest keys existed and must be replaced.

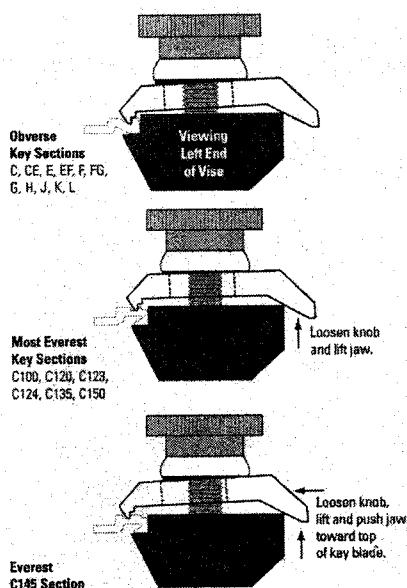
You may be able to alter your old style jaw by elongating the hole slightly, so it can travel far enough to engage in C145's groove. However, this solution should only be a temporary measure until you install the upgrade package with the properly shaped top jaw.



Machines made before July 1999 were not designed to hold Schlage Everest keys. Most of these machines have a thin top vise jaw made of stamped steel. Some will hold Everest keys, except those with



In the close-up illustration of the vise, notice the difference positions of the top jaw required engaging the grooves and seating the different shapes of Schlage key sections properly.



Not only must the top jaw engage in different places up and down the side of the various key sections, but the lever or knob screw must be tightened or loosened substantially to allow this enough travel in the top jaw and to accommodate the difference in thickness between Classic and Everest key sections, and the angles at which the jaw sits.

Upgrading to New Top Jaw

Upgrade Package-A&S 40-074

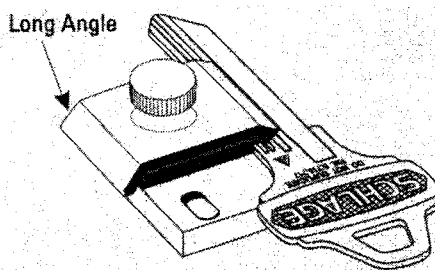
You can obtain a package containing a newly designed top jaw, red knob, spring, finishing washer and regular washer from your Schlage or Pro-Lok distributor. Note that changing the top vise jaw has no effect on the accuracy of the machine. If your machine exhibits mechanical problems or cannot cut keys accurately,

please contact your Pro-Lok distributor to arrange for your machine to be rebuilt.

Upgrading Machines Which Have a Red Knob

Installation on these machines is easy and the procedure is straightforward. Just unscrew the old knob, remove the old top jaw and install the new pieces. The only thing, which needs explanation, is the orientation of the new vise jaw because it is not symmetrical.

Install the jaw so the end with the longer angled portion is toward you. The end with the shorter angle has a lip to engage in the groove of the key section.



The Black Lever – Advantages and Disadvantages

Pro-Lok changes the red knob to a black clutching lever in 1998, before Everest keys existed.

The lever can only swing about 180° before hitting the body of the machine. If you use your Blue Punch to cut one type of Schlage key section, you can set the lever's travel for fast secure clamping every time.



Unfortunately the black lever doesn't allow the top jaw to travel from its lowest position for Obverse keys to an intermediate position for clamping most of the Everest-C keys, on up to the highest position required for C-145.



If you are a commercial locksmith and need to cut a variety of Schlage key sections daily, you may find the continuous lever adjustment cumbersome. On most machines, the lever must be specifically adjusted for each of the three clamping positions.

The cap screw inside the clutching lever is spring loaded. Lift the lever against spring pressure to disengage it from the screw. While disengaged, you should be able to swing the lever to the left or right without turning the screw. Use this procedure to back the screw out for Everest keys or to tighten the screw for Obverse keys.

The original red knob is much more versatile. Simply tighten it down on the Obverse key sections or loosen it enough to let the top jaw move up to grab into the high groove or C-145 – or anything in between.



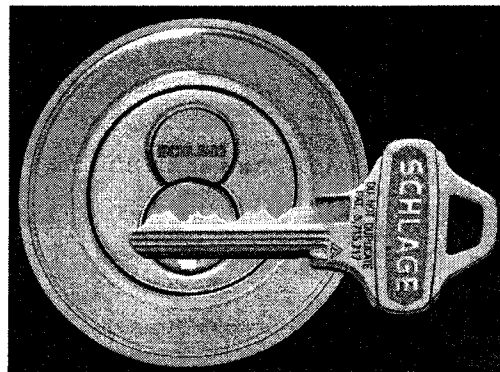
Upgrading Machines Which Have a Black Lever

Swing the lever as far to the right as it will go. Lift up against spring pressure to disengage it from the screw. Swing it back as far to the left as it will go and let it down to engage the screw. Repeat this process as many times as necessary to unscrew the screw completely and remove the lever. A 3mm hex wrench may be helpful. Remove the lever, spring, washer and top jaw.

Install the new jaw so that the end with the longer angled portion is toward you. The end with the shorter angle engages the groove in the key milling.

You must now decide whether to use the red knob from your conversion pack or reinstall the black lever. To help your decision, read the section under the heading *The Black lever – Advantages and Disadvantages* above. The red knob simply screws into place.

To install the black lever, it may be easier to use the 3mm hex wrench to start the screw and then reverse the process you used to remove the lever. To adjust the lever's final position and rotation, you will need to clamp a sample key or key blank of the key section you plan to cut most frequently.



Tips for Cutting Everest Keys

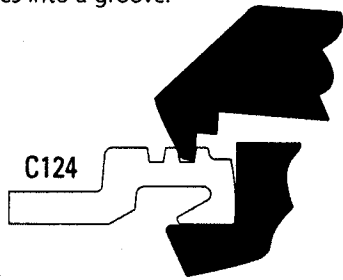
After you have cut several keys of each section the procedure will be automatic, however, for the first few keys please observe these details:

1. Push the die carriage all the way to the right *before* you insert a key blank. If you clamp an Everest key before moving the carriage, its large bow may prevent the carriage from

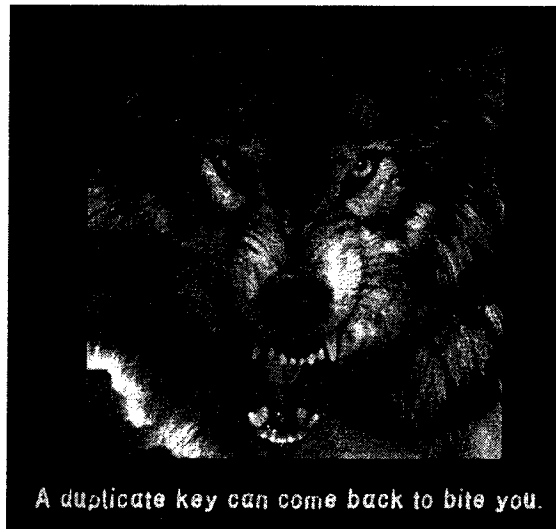
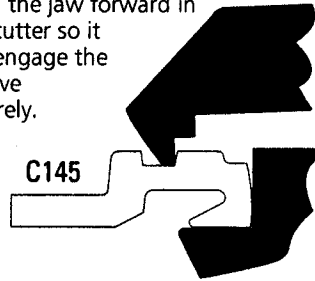
traveling far enough to let you make the first cut in the right position. You will begin in cut position #2 and miscut the key.

2. Closely observe the proper engagement of the top jaw into the key section. If the jaw clamps on the surface of a rib or into the very bottom relief in an Everest key, you may miscut the key because the jaw isn't able to square it up in the vise.

C124 and C135 have tiny grooves. Be sure jaw engages into a groove.



The position of C145's groove requires you to loosen the knob and push the jaw forward in the cutter so it will engage the groove securely.



A duplicate key can come back to bite you.

