The Locksmith Guide™ to: Interchangeable Core Cylinder Service

Here are a few pages from the Book. This should give you a sample of the text.

The **Table of Contents** shows the Chapter Titles for the information contained in this book.

SFIC is Small Format Interchangeable Core

LFIC is Large Format Interchangeable Core

Chapters cover Cylinder Design, Master Key System Design and Development, and Specific Service instructions and techniques.

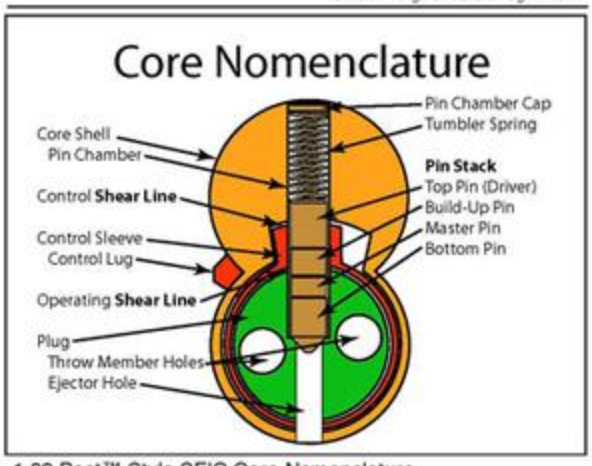
Scan & Print Extras are full page "Blank Forms," which compliment the text and allow the reader to apply the methods and techniques found in each Chapter.

Chapter **Page**

Preface ..... vii-viii
Contents ix
Introduction 1

The Interchangeable Core Cylinder

1 Best™ style SFIC Cylinder 3
2 SFIC Master Key Systems 25
3 SFIC Tools and Methods 41
4 SFIC Custom Key Shims 57
5 SFIC Service, Backing into a System 67
6 Corbin Master Ring Cylinder Service 79
7 Corbin Russwin LFIC Cylinder 103
8 Corbin Russwin LFIC Master Systems 119
9 Corbin Russwin LFIC Cylinder Service 139
10 Sargent LFIC Cylinder Construction 151
11 Sargent Master Systems 169
12 Sargent Cylinder Service 195
13 Schlage LFIC Cylinder Construction 211
14 Schlage LFIC Master Systems 229
15 Schlage LFIC Cylinder Service 245
16 *Scan & Print Extras* 259



1.02 Best™ Style SFIC Core Nomenclature.

interaction.

• The **Core Shell** forms the outer cylinder case. It surrounds all of the other components. It contains the upper Pin Chamber.

• The **Control Sleeve** rotates, in a "restricted" motion, within the Core Shell. Left rotation of the Control Sleeve is "stopped" by the shoulder in the Core Shell. At this position, the pin chambers of the Control Sleeve and the Core Shell are aligned. The key can be removed from the plug "only when the Control Lug is extended. The control Sleeve is free to move about 15° to the right (clockwise) when the Pin Stack is solved at the Control Shear Line. Right rotation is limited by the Core Shell. The key will be retained, when the Control Sleeve is "out of position" (away from the "key pull" position).

• The **Control Shear Line** is between the top of the Control Sleeve and the Core Shell.

• The **Operating Shear Line** is between the plug and the inside of the Control Sleeve. When the Pin Stack is

Page seven finds an illustration of the Best™ style I/C (SFIC) Cylinder. Here, the cylinder is being described in detail, to give the reader an understanding of the component parts of a cylinder and their interaction.

This is a Pinning Matrix for the Best™ style SFIC cylinder. Every "pinning combination" used in this system can be found on this chart. When properly completed, there will be no need to "figure out" each Pin-Stack, when combinating a cylinder into this system.

The blank "Matrix Chart" is repeated in the "Scan & Print" section of the book. Blank charts can be printed by the reader to service nearly any system. You are free to print as many charts as you need. They are, however, ©copyright protected. Print all you need, but do not publish or distribute them.

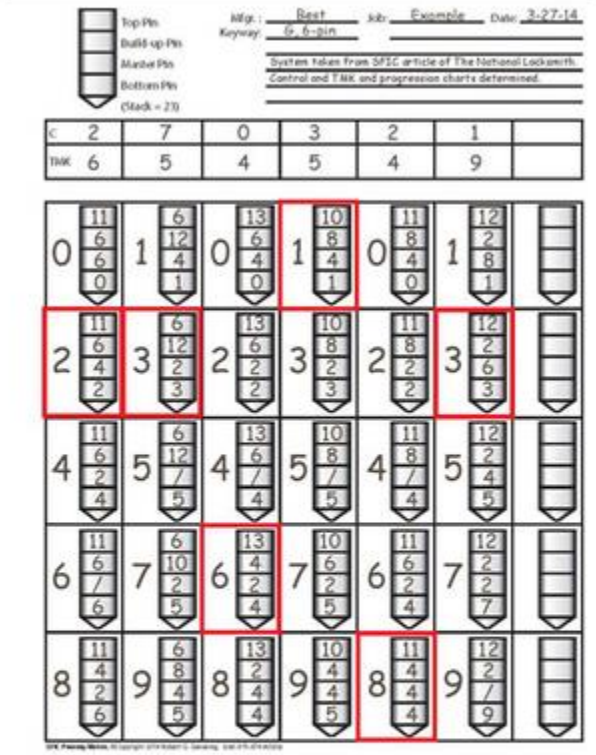


Figure 3.07.ai

contain all of the pin combinations that will be used in our system, when it is properly completed.

Figure 3.07 shows our pinning chart completed. Every "pin stack" found in our system can be found on this chart. The "AA01" key is bitted; 2 – 3 – 6 – 1 – 8 – 3. These blocks

Find the "pin lengths" in the tables and enter the bitting to the right of each pin measurement.

Figure 5.08 shows the "Un-combinating Chart" completed.

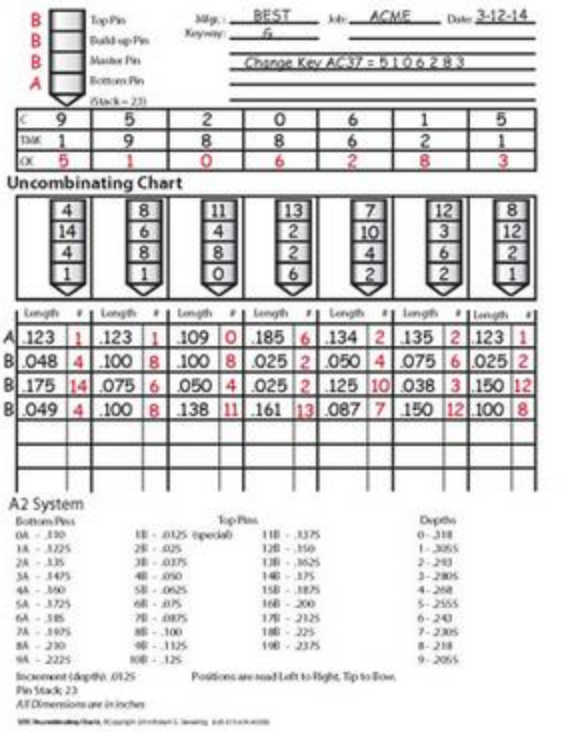


Figure 5.08. The Completed Un-Combinating Chart

The bittings have been entered in "grey."

This is an "Un-combinating Chart" for the Best™ A2 system. The chart organizes the pin lengths as you measure the various pin-stacks of a cylinder. The measurements are decoded, using the "pin-length" charts at the bottom of the page, to fill out the Pin-Stack graphic representations. With this information, The Control Key and TMK Key bittings are being found. We only had a Change Key and the cylinder. After completing this form we can "know with certainty," the bitting of the Control and TMK keys.

This form is repeated in the "Scan & Print" section. Print as many of these forms as you need.

"Un-combinating" forms are included for the Corbin® Master-Ring, Corbin Russwin® (Pre System 70 and System 70 conventions), Sargent and Schlage® cylinders.

Every cylinder covered in the book will have a complete explanation of the various "pin-stacks," and how they operate with the Change, TMK and Control Keys. A thorough understanding of every pin, and its function in the pin stack is assured.

Here, we are studying the various pins required to service the Corbin Master-Ring cylinder. The "Name" and "Function" of each pin in the stack is determined by its position in the "Pin-Stack." There are "two" shear-lines" in this cylinder. Each has a function in the proper operation of the cylinder.
The advantages of the Master-Ring cylinder are fullly explained in this chapter, along with the correct method of combinating the cylinder. The Corbin Master-Ring cylinder is the paramount "Large Master System" choice. It is also the father of all two shear-line cylinders that follow.

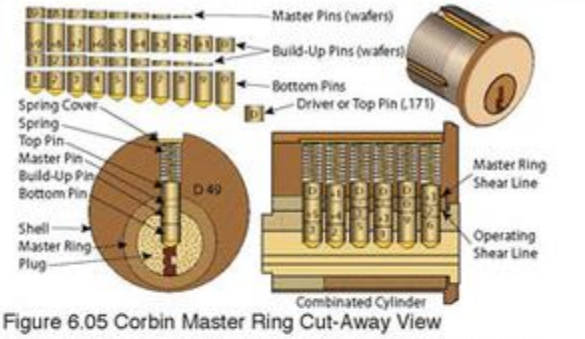


Figure 6.05 Corbin Master Ring Cut-Away View

labeled to indicate their function in the keying scheme.

- The Bottom Pin length is determined by the cut depth of its' position on the "Change Key" (Operating Key). The bottom pin will solve the cylinder at the Operating Shear Line.
- The Build-Up Pin increases the pin stack height to allow the cylinder to be solved by a "Master Key," at the Master Ring Shear Line.
- The Master Pin increases the pin stack height to allow the cylinder to be solved by a second "Master Key," at the Master Ring Shear Line.
- The Top Pin or Driver increases the pin stack height to a level that insures that the top shear line (Master Ring Shear Line) will be blocked when "no key" is in the cylinder. In most cases, the driver length will be .171". The cylinders surveyed found some positions combinated by longer drivers.

Figure 6.05 also shows the full compliment of combinating pins used in these cylinders.

- There are ten bottom pin lengths. Bottom Pins are numbered from one (1) to zero (0). The number one bottom pin is for the shallowest cut depth. The number zero bottom pin is for the deepest cut depth. The zero (0) pin length is interpreted "ten" (10)

Keys and Control Key. If we have a number of cylinders, we should be able to find the TMK, Sub Masters and some Change Key bittings.

The TMK (Top Master Key) will (should) allow us to open any door in the facility. The Control Key will allow us to remove cylinders for service. Some doors may be found "off the system" (not master keyed). The Control Key will most usually remove any cylinder in the system. It is the most important key in the system, as it bypasses all mastering

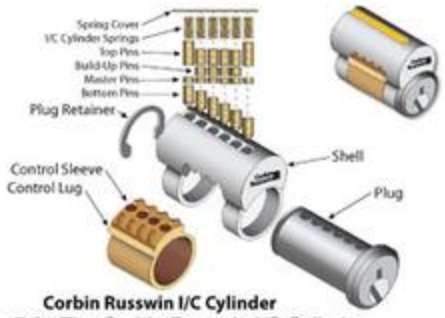


Figure 7.01 The Corbin Russwin I/C Cylinder

The Corbin Russwin I/C Cylinder you see in *Figure 6.01* was introduced in 1971. Its Patent is attributed to Walter Surko. U.S. Patent number 3,667,264 was issued June 6, 1972. It is comprised of three major components. They are the Plug, Shell and Control Sleeve. This cylinder will have a .509" diameter Plug. This cylinder is commonly combinated to "System 70" specifications. If you are "backing into" an existing system, it is imperative that you accurately measure and decode the combinating pins and keys to determine the system being used. Research has found "eleven" different bitting specifications for the Corbin Russwin I/C cylinders. Each variation is determined by the keyway, Key class and System (70 or Pre-70). Consult

The Corbin Russwin I/C (LFIC) cylinder is broken down, to identify and explain each component. These cylinders can be a "pleasure" to service, if you understand the system and know a few tricks for servicing them. Master Key System Development and keying techniques are covered in the text.

The Sargent I/C (LFIC) cylinder is broken down, to identify and explain each component. These cylinders can be a "pleasure" to service, if you understand the system and know a few tricks for servicing them. Master Key System Development and keying techniques are covered in the text. "Forbidden" combinations are "called out" and explained, in detail. Keying System design "specific to the Sargent cylinder" is explained, so that you will be able to easily write a system for these cylinders.

No "computer aided" system design software is needed. You only need the understanding contained in the Chapter on developing a Master system for the Sargent I/C cylinder. Special Keying techniques are also covered in the Sargent Service Chapter.

any door in a facility. The Control Key should allow us to remove cylinders for service. Some doors may be found "off the system" (not master keyed). The Control Key will usually remove any cylinder in the system. It is the most important key in the system, as it bypasses all mastering. The Sargent system allows us to easily create Sub-Control Keys. We could have a Control Key for each of the Sub-Master groups, and a Grand-Control Key that would remove any cylinder in the system.

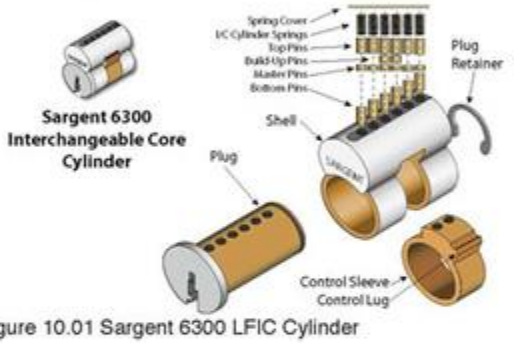


Figure 10.01 Sargent 6300 LFIC Cylinder

The Sargent 6300 I/C (LFIC) Cylinder you see in *Figure 10.01* was introduced in 1978. There is a High Security 6300 "Signature Line" cylinder, which incorporates a "sidebar" feature into the plug, but the pinning we will find in our cylinder is exactly the same. The Signature cylinder is only mentioned in comparison to the Standard 6300.

The cylinder is comprised of three major components. They are the Plug, Shell and Control Sleeve. This cylinder will have a .509" diameter Plug. The cylinder is commonly combinated to "Sargent" specifications. If you are "backing into" an existing system, it is imperative that you accurately measure and decode the combinating pins and keys to determine the keying.

in the illustration. With a bit of practice, you will abandon writing out the pinning, and simply work from the bitting portion of this illustration. As before, "It becomes "second nature" with practice.

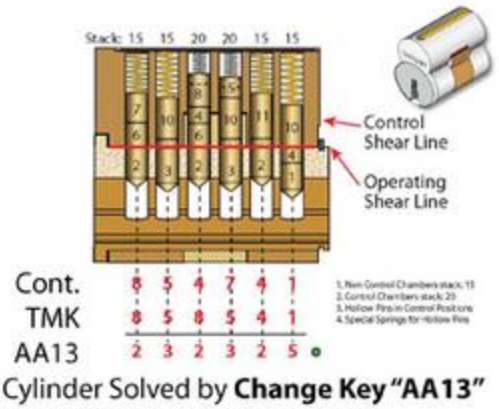


Figure 11.14 Solved by Change Key "AA13"

Figure 11.14 shows the cylinder "Solved by the Change Key." The Change Key bitting is 2 – 3 – 2 – 3 – 2 – 5. The pins in bitting positions, from Bow to Tip, are read: **2 – 3 – 2 – 3 – 2 – (1 + 4 = 5)**, to solve the cylinder at the Operating Shear Line with the Change Key. This is a Sargent configuration, so we are reading the bitting and the pins from left to right, and from Bow to Top. Study the illustration to confirm the bittings and pins used in each position.

The Sargent I/C (LFIC) cylinder is cut-away, to explain the action of the pin stacks. Separate illustrations show the cylinder being "solved" by the Change Key, TMK Key, and Control key. Each explanation expands on the previous material, to give the reader a complete understanding of "why" the cylinder is "keyed" the way it is.

Here, a Schlage I/C (LFIC) cylinder is "solved" by a zero bit Control Key. The key is laid on the drawing, to illustrate the action of the "key-tip" with the Control-Lug mechanism.

Illustrations in this book are accurately "scaled" from the cylinder.

These keys are zero-bitted blanks. The Control Key is a 7-pin blank. It is pre-cut to a #6 depth in the seventh position. This is the Control Cut. The Control key blade is only available from Schlage, at this time.

Figure 13.04 Control & Operating Keys

Figure 13.05 shows a cut-away view of the cylinder, solved to retract the Control-Lug. All of the zero (#0) bottom-pins have been lifted to

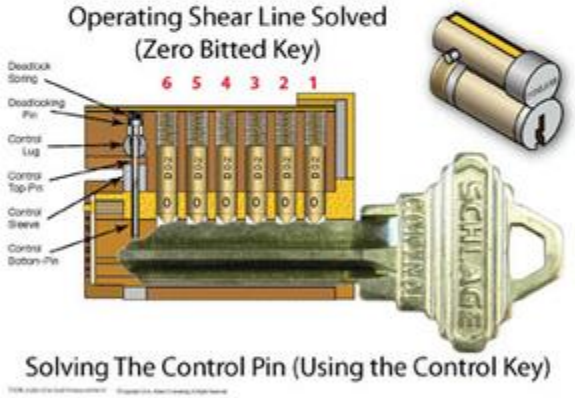


Figure 13.05 Cylinder Solved to retract the Control Lug

solve the operating shear-line. The tip cut in the key has lifted the Control Bottom Pin above the shear line between the Control Sleeve and the Plug. This locks the Control Sleeve to the Plug. The Control Bottom Pin has lifted the Control Top Pin to raise the Deadlock Pin out of the Control

ready for "re-keying." We slid the follower back far enough to "drop" the "Front Four" pin chambers. The system is configured to place the "Sub-Master" bittings in positions five (5) and six (6). Most re-keying will not move the cylinder out of its "sub-master" group or location. Simply choose a new Change Key bitting and recombinate only the necessary positions of the cylinder. By eliminating the necessity of removing the rear pin chamber drivers, we will not need to separate the Control sleeve from the cylinder and re-install it. We also will not need to drop and reload the pins in positions five (5) and six (6). This simplifies and speeds the recombinating process.

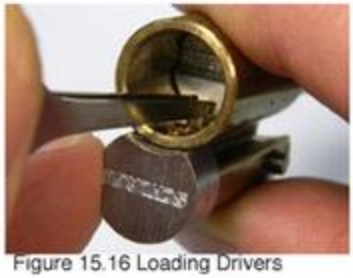


Figure 15.16 Loading Drivers

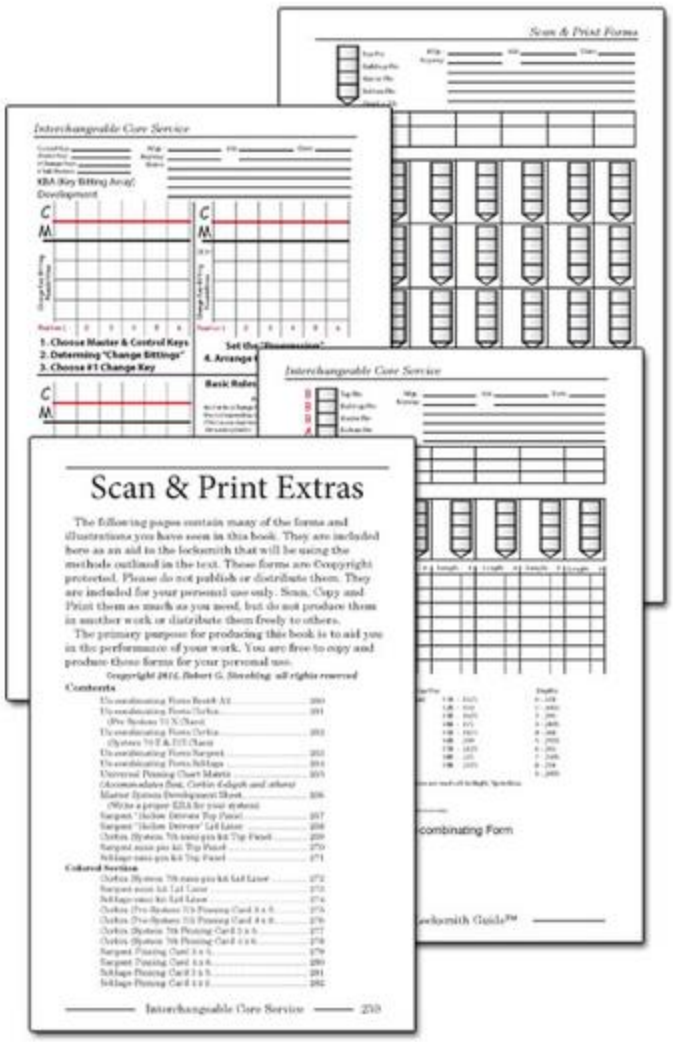
Load the drivers in the front positions, as you see in *Figure 15.16.*

Figure 15.17 Press the Pin down

Lock the Top Pin in position with the plug follower, as before, and press the pin down, as you see in *Figure 15.17.* Change the drivers to suite the pin stacks in the front four positions of the cylinder. Change the Bottom and Master Pins in the front four positions of the plug, without emptying the pins from positions five and six.

Service of the Schlage I/C (LFIC) cylinder is illustrated in clear "step-by-step" fashion. Pinning technique and professional methods are shown, with explanation of the "easiest and fastest" methods. If the "system" is carefully developed, servicing these cylinders can be fast and easy. Proper system design is described in Schlage Master Key System Development.

The "Scan & Print Extras" section of the book contains all of the forms and keying charts found in the book. It allows the reader to reproduce "blank forms" to service all of the listed cylinders. This section of the book is included, so that you can "use" the information gained in the text to decode (Un-combinate) your cylinders and service them in a professional manner.



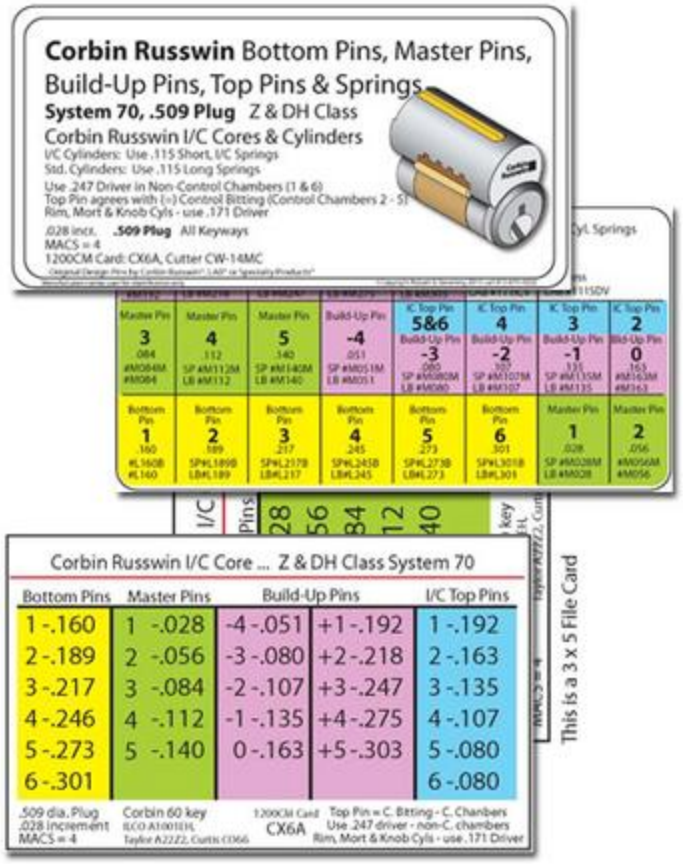


Figure 16.17 Corbin System 70 Pinning Card 3 x 5

The last portion of the Scan & Print section is in "full color." Here you will find Pinning cards, to use with your "Universal Pin Kit" and "Lid-Liners" for mini pin kits to service the various systems. The "Top Panel" illustrations are the reverse side of the Lid-Liners. They label the pin kits and give attention to special information necessary to properly combinate the indicated cylinders.

Color coded blocks in the Lid-Liner identify the; Bottom Pins, Master Pins, Build-Up Pins and Top Pins. Manufacturers part numbers make ordering replacement pins easy. A "dedicated" pin kit is a luxury you can afford. Build the kits you use.