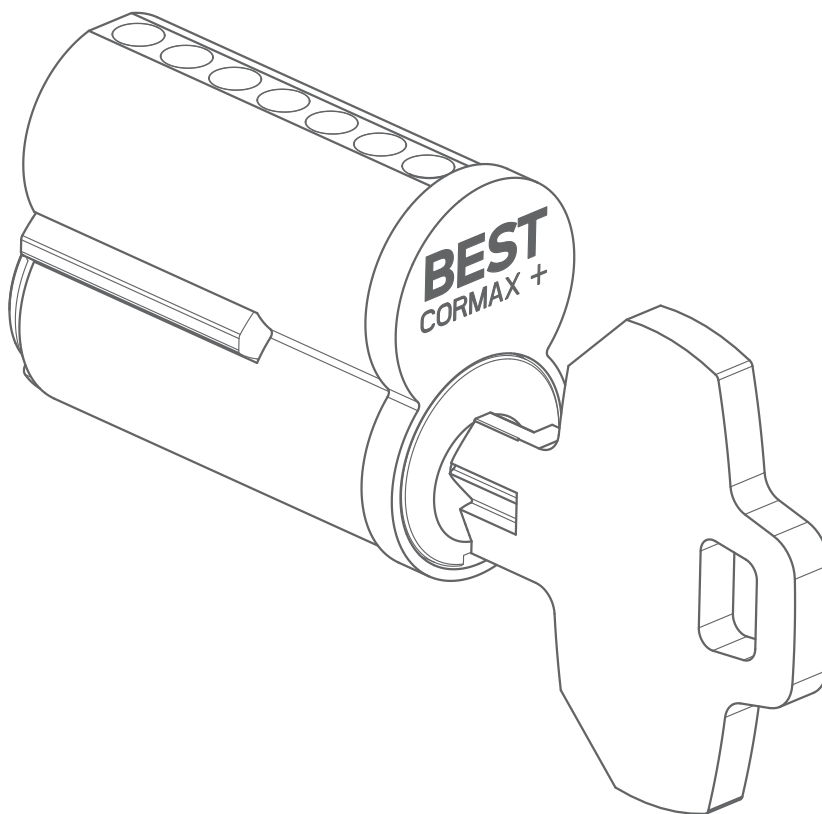


Keys and Cores

Cores C | Keys A | Cormax | Cormax+

Service Manual



T35527_D - 12/2024
Original document

EN

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1 Getting started

1.1 Introduction

The Key and Core Service Manual contains essential information to assist with the maintenance of BEST keys and cores.

1.2 Core and Key product family diagram

Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5

Certifications and standards:

BEST cores conform to ANSI/BHMA 156.5.

Key combinator

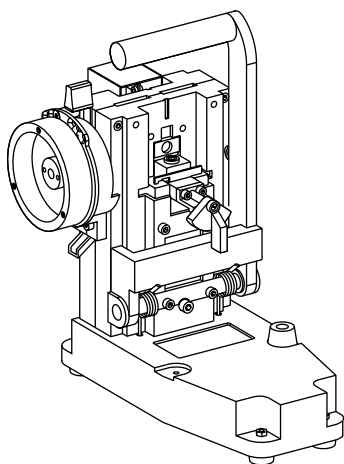


Figure 1 Key combinator

Core capping press

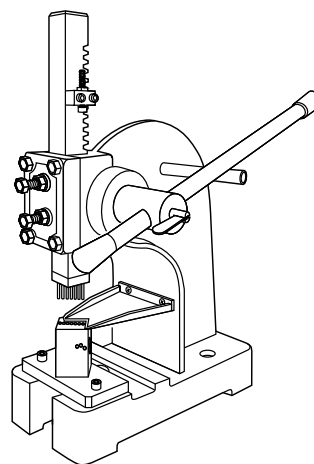


Figure 2 Core capping press

Combining kit

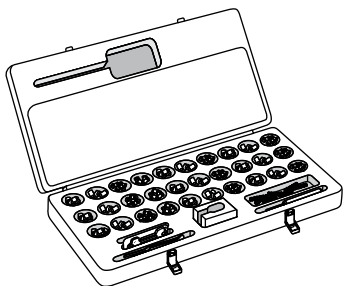


Figure 3 Combining kit

Core



Figure 4 Core

Key

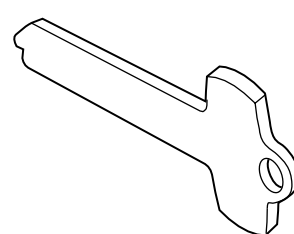


Figure 5 Key

1.3 Documentation package

Table 1

Documentation is available to help with installation, operation, and maintenance of BEST keys and cores along with associated service equipment. These documents can be ordered separately from product.

Documentation title	Doc no.
Installation Instructions for construction cores operating	T35526
Instructions for AD 4 3 2 key combinator operating	T35531
Instructions for AD 4 3 3 key combinator operating	T35529
Instructions for AD 5 0 2 micrometer key gauge key	T35530
Combinator service manual	T35532
A 2 system service manual	T35534
A 3 system service manual	T35535
A 4 system service manual	T35536

1.4 Technical support

Support services:

When a problem occurs with a BEST core or key, the first resource for help is the Key and Core Service Manual. If a satisfactory answer cannot be found, contact a local dormakaba representative.

Call technical support:

A factory-trained Certified Product Specialist (CPS) is available whenever help is required.

Before calling, please make sure the product is in the immediate vicinity, and the following information is prepared:

- what happened and what was being done when the problem occurred.
- what has been done to correct the problem.

dormakaba USA Inc. representatives provide telephone technical support for all B Series products.

To locate the nearest representative, call 1-800-392-5209 Monday through Friday, between 8:00 a.m. and 5:00 p.m. eastern standard time; or visit the web page: <https://dhwsupport.dormakaba.com/hc/en-us>.

dormakaba holds training sessions for its customers. Seminars are specifically designed for dormakaba end-users who have a registered dormakaba [BEST branded product] masterkeyed system, and registered dormakaba [BEST branded product] security equipment. If interested, contact a local dormakaba representative for details.

2 Parts

The following pages contain descriptions and figures of cores, keys, and tools for servicing them.

2.1 Overview of BEST core

Fig. 6, Fig. 7

Exploded view of 1C core

Figure 6 Standard core overview

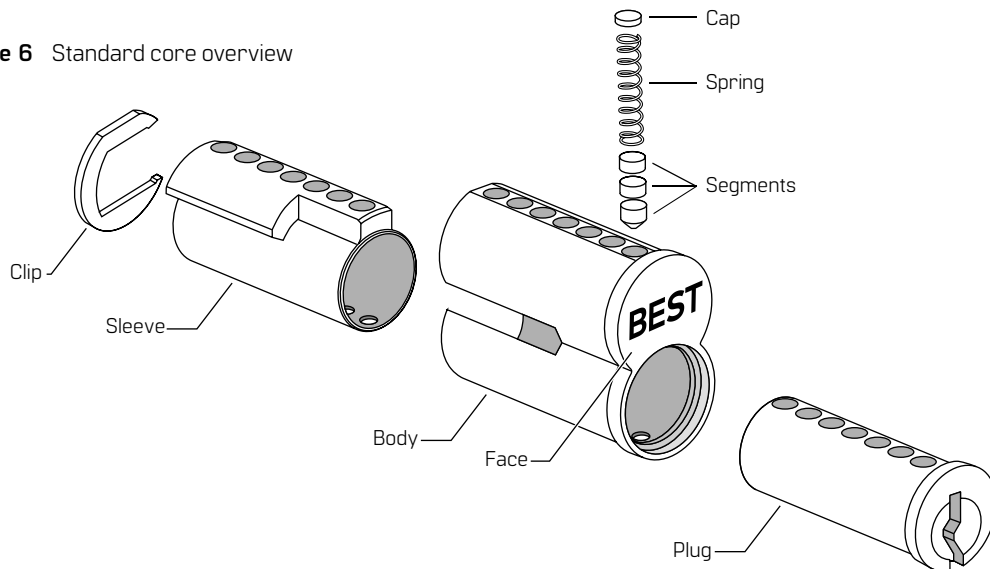
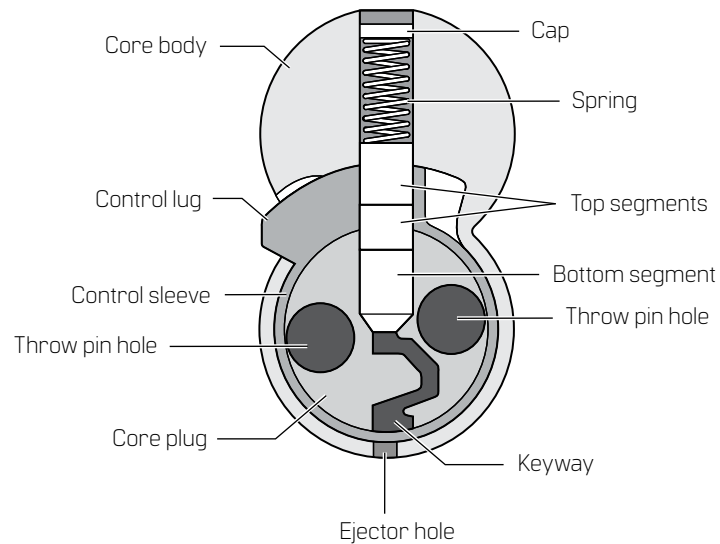


Figure 7 Cross section view of core



2.2 BEST Standard and premium cores ordering table

Table 2

Use the following table to assist with ordering a BEST standard and premium core.

Core type	Core size	Keyway	Combining code	Options	Finishes
1C – Standard	7 – 7-pin	Designate specific keyway (A, E, etc.)	1 – Uncombined	Blank – Standard	6 0 5 – Bright brass
1CP – Premium key system	6 – 6-pin [1C & 2C cores only]		2 – Combined	B – Pick & drill resistant	6 0 6 – Satin brass
1CCOBP – Plastic construction core				D – Drill resistant	6 1 2 – Satin bronze
2C – Extended plug				K – Key trap	6 1 3 – Oxidized satin, bronze, oil rubbed
3C – European				P – Pick resistant	6 2 5 – Bright chromium plated
5C – High security				S – Set screw [6C only]	6 2 6 – Satin chromium plated
6C – Core for 4S				W – Wear resistant	

2.3 BEST Cormax M series ordering table

Table 3

Use the following table to assist with ordering an M series Cormax core.

Core Type	Core Size	Keyway	Level	Combining Code	Options	Finish
1CM – CORMAX Core M series key	6 – 6-pin	MJ	1 – Non-exclusive	1 – Uncombined	B* – Pick & drill resistant [1CDM combined core only]	605 606
1CDM – CORMAX Drill resistant (M series only)	7 – 7-pin	MK		2 – Combined	K* – Key trap [1CM only]	611 612
5CM** – CORMAX for High security (M series only)		ML	3 – One digit zip code exclusive		P* – Pick resistant	613 625
6CM – CORMAX Core for 4S cylinder		MM	4 – National exclusive		T* – Key retained [6CM only]	626 690
					W* – Wear resistant	

*Indicates extra cost option; see below

**Only compatible with high security mortise cylinders

If combined, you must specify keymark and number of keys

2.4 BEST Cormax X series ordering table

Table 4

Use the following table to assist with ordering an X series Cormax core.

Core Type	Core Size	Keyway	Level	Combining Code	Options	Finish
1CX – CORMAX Core X Series	6 – 6-pin	XLX32, etc.	W – Non-exclusive	1 – Uncombined	B* – Pick & drill resistant [1CDM combined core only]	605 606
1CDX – CORMAX Drill resistant (X Series only)	7 – 7-pin		X – Two-digit zip code exclusive	2 – Combined	P* – Pick resistant	611 612
6CX – CORMAX Core for 4S			Y – One digit zip code exclusive		W* – Wear resistant	613 625
			Z – National exclusive			626 690

*Indicates extra cost option; see below

**Only compatible with high security mortise cylinders

If combined, you must specify keymark and number of keys

2.5 Cormax+ M series ordering table

Table 5

Use the following table to assist with ordering a Cormax+ M series core.

Core type	Core size	Keyway	Level	Combining Code	Options	Finishes
1 CMP —CORMAX+ core M series	6 —6-pin	PMJ	1 —Non-exclusive	1 —Uncombined		605 606 611 612
1 CDMP —CORMAX+ drill resistant (M series only)	7 —7-pin	PMK		2 —Combined	K* —Key trap [1CMP only]	613 618
5 CMP —CORMAX+ for high security (M series only)		PML	3 —One-digit zip code exclusive		P* —Pick resistant	619 622 625 626
6 CMP —CORMAX+ core for 4S cylinder		PMM	4 —One-digit zip code exclusive		T* —Key retained [6CMP only]	690
					W* —Wear resistant	

2.6 Cormax+ X series ordering table

Table 6

Use the following table to assist with ordering a Cormax+ X series core.

Core type	Core size	Keyway	Level	Combining Code	Options	Finishes
1 CXP —CORMAX + core X series	6 —6-pin	PX 1, PX 3 2, etc.	W —Non-exclusive	1 —Uncombined		605 606 611 612
1 CDXP —CORMAX + Drill resistant (X series only)	7 —7-pin		X —Two-digit zip code exclusive	2 —Combined (B Option)	P* —Pick resistant	613 618
5 CXP —CORMAX + Core for high security			Y —One digit zip code exclusive		W* —Wear resistant	619 622 625 626
6 CXP —CORMAX + Core 4S cylinder			Z —National exclusive		T* —Key retained [6CXP only]	690

*Indicates extra cost option; see below

**Only compatible with high security mortise cylinders

If combined, you must specify keymark and number of keys

2.7 Overview of BEST cores

Fig. 8, Fig. 9, Fig. 10, Fig. 11, Fig. 12, Fig. 13, Fig. 14

1 C core

Standard interchangeable core.



Figure 8 1 C core

1 CP core

Premium interchangeable core.



Figure 9 1 CP core

1 CCOBP core

Black plastic, non-keyed construction core used to secure interior doors at a construction site.

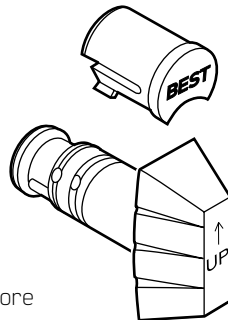


Figure 10 1 CCOBP core

2 C core

Interchangeable core used in 8L mailbox lock.



Figure 11 2 C core

3 C core

Interchangeable core used with 8E European lock adaptation.

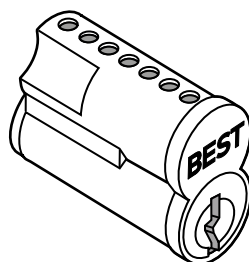


Figure 12 3 C core

5 C core

High security interchangeable core used in 1 E cylinder for mortise applications.



Figure 13 5 C core

6 C core

Interchangeable core used in 4S sliding door cylinder lock. Regardless of core finish, lost-motion assembly on back of core has a stainless steel finish.

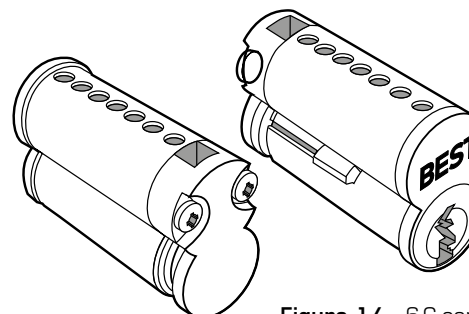


Figure 14 6 C core

NOTE: Set screw style is not shown.

2.8 Overview of Cormax and Cormax+ cores

Fig. 15, Fig. 16, Fig. 17, Fig. 18

Cormax core

BEST patented small format interchangeable core.



Figure 15 Cormax core

Cormax 5CM core

High security Cormax core used in 1 E cylinder for mortise applications.

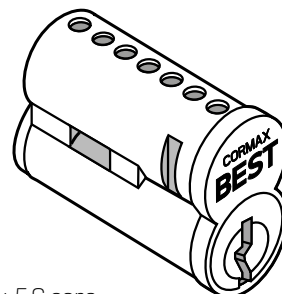


Figure 16 Cormax 5C core

Cormax+ core

BEST patented small format interchangeable core.



Figure 17 Cormax+ core

Cormax+ 5CMP & 5CXP core

High security Cormax+ core used in 1 E cylinder for mortise applications.



Figure 18 Cormax+ 5CMP & CXP core

2.9 Core options

Table 7

Option	Nomenclature	Description
Pick & drill resistant	B	Provides enhanced resistance to picking and drilling the core. Hardened ball bearings are used in throw pin holes, and hardened stainless steel segments are used as top and bottom segments in first two barrels of core. Spooled segments are used as top and bottom segments in each remaining barrel of core.
Dust cover	C	Prevents keyway from accumulating dust and dirt. Stainless steel spring-loaded dust cover is installed over keyway. For part numbers, see page 25 . NOTE: If core is housed in a cylinder, use cylinder dust cover instead of core dust cover for maximum protection.
Drill resistant	D	Provides enhanced resistance to drilling core. Hardened ball bearings are used in throw pin holes and hardened stainless steel segments are used as top and bottom segments in first two barrels of core.
Key trap	K	Eliminates a key from system by trapping it in core. This option is useful if a key has been lost, or if someone has a key and will not give it back. When key is inserted into core and is turned, key is trapped in core. Key cannot be returned vertically nor withdrawn from core. Core and trapped key must be drilled out of lock. This special core is modified at factory to match key wanting to be trapped.
Pick resistant	P	Provides enhanced resistance to picking core. Spooled segments are used as top and bottom segments in each barrel of core.
Set screw (for 6 C core only)	S	Alternate design of 6 C core used in 4 S sliding door cylinder lock. A set screw is used to hold core in lock.
Key retained (for 6 C core only)	T	Provides an extra measure of security by trapping key in core while core is unlocked. Core stays locked unless key is left in it. A sleeve without a slot is used to hold key in core.
Wear resistant	W	Provides longer life for cores in high traffic areas. Hardened stainless steel segments are used as bottom segments in each barrel of core.

2.1 0 Segments, springs, and caps

Fig. 19

Segments, springs, and caps:

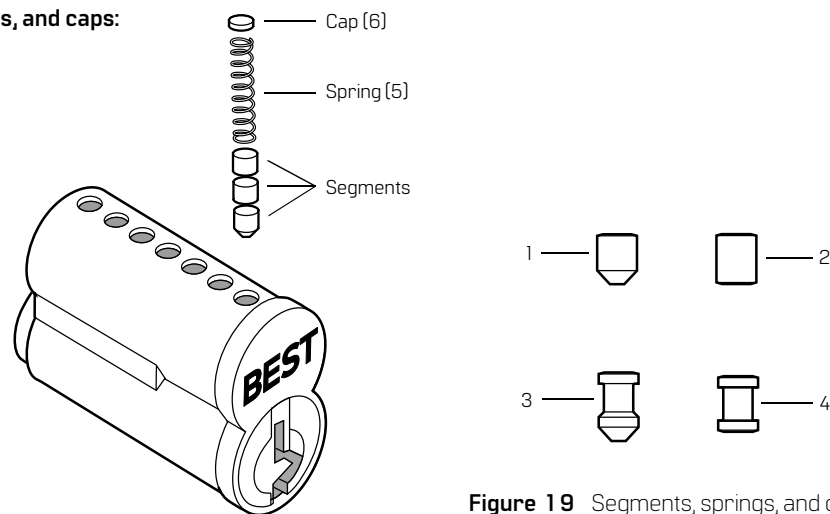


Figure 19 Segments, springs, and caps

Item	System	Nomenclature	Description
1	A2	A	Standard beveled (bottom) segment. Available in nickel silver or hardened stainless steel.
	A3	C	
	A4	E	
2	A2	B	Standard flat (top) segment. Available in brass or hardened stainless steel.
	A3	D	
	A4	F	
3	A2	A	Spooled beveled (bottom) segment. Available in nickel silver.
	A3	C	
	A4	E	
4	A2	B	Spooled flat (top) segment. Available in brass.
	A3	D	
	A4	F	
5		2 2 S	Spring (500 per package)
		2 2 S 2 0 M	Spring (20,000 per package)
6		2 1 C	Cap (500 per package)

NOTE: For more information, see A2 System Service Manual (T35534), A3 System Service Manual (T35535), and A4 System Service Manual (T35536).

2.1.1 UL application of 5C, 5CM, 5CMP, 5CXP core

Fig. 20

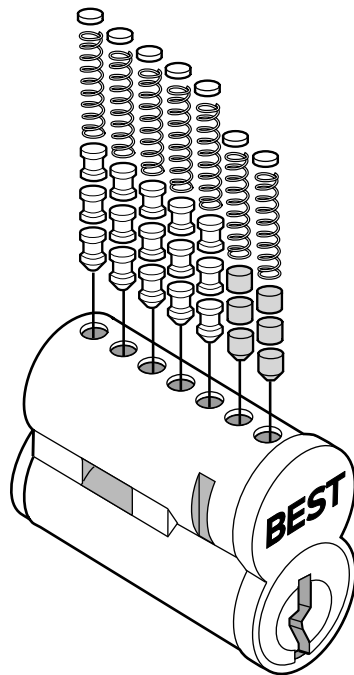
5C, 5CM, 5CMP, or 5CXP core is used in 1E7J4 and 1E7K4 high-security cylinders. They are also used in 71B, 81B, and 91B high-security padlocks.

To have 1E7J4 cylinder qualify for Underwriters Laboratories (UL) high-security rating, 5C, 5CM, 5CMP, or 5CXP core must be combined and loaded at factory. Likewise, any core that needs to be recombined and reloaded must be sent to factory. If 5C, 5CM, 5CMP, or 5CXP core is combined and loaded outside of factory, cylinder no longer qualifies for UL rating, and UL-stamped cylinder faceplate cannot be used.

1E7K4 cylinder does not have UL-stamped faceplate. You can combine and load 5C, 5CM, 5CMP, or 5CXP core to be used in a 1E7K4 cylinder.

For high-security applications, combine and load 5C, 5CM, 5CMP, or 5CXP core as you would any other core with these exceptions:

- Use hardened stainless steel segments in barrels six and seven.
 - Use spooled segments in all remaining barrels, except where 6B segments are required.
- In those cases, use standard 6B segments.



NOTE: 5C, 5CM, 5CMP, 5CXP cores used in 71B, 81B, and 91B padlocks do not need to be combined and loaded as described above to provide high-security features.

Spoiled top segment



[brass]

Standard top segment



[hardened stainless steel]

Spoiled bottom segment



[nickel silver]

Standard bottom segment



[hardened stainless steel]

Figure 20 Loading 5C core for 1E7K4 cylinder

2.1 2 Overview of BEST standard and thick key

Fig. 21, Fig. 22

Diagram of standard key

Figure 21 Standard key features

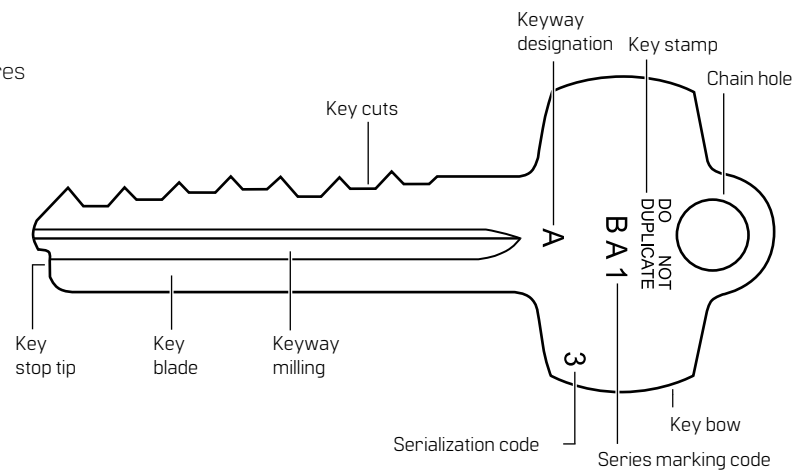
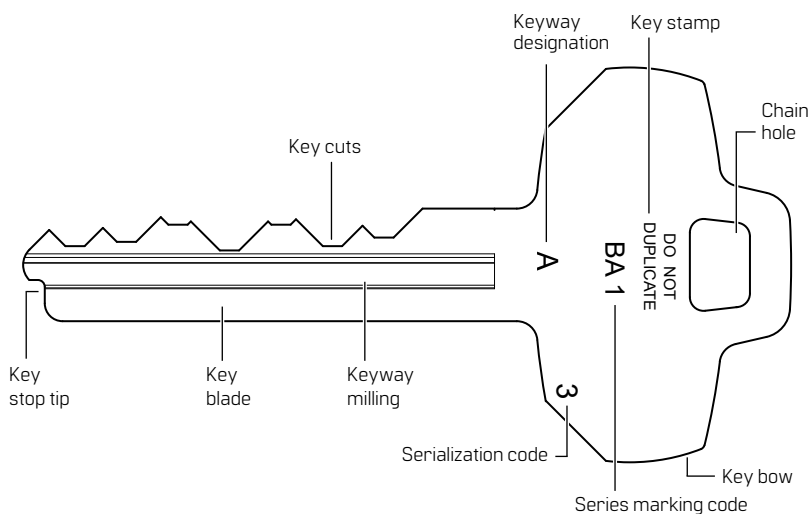


Diagram of thick key

Figure 22 Thick key features



2.1 3 BEST standard and premium keys table

Table 8

Use the following table to assist with ordering a BEST Cormax M series key.

Key shape (bow)	Key type	Keyway	Cut code	Key stamp	Options
1 A–Standard	0–Blockout blade	Designate specific keyway (A, E, etc) or multiple keyways if ordering a multi-milled key.	1 –Blank	KS654 x KS292– Standard embossing supplied if not designated.	B*–Long blade (1 A only)
1 AP–Premium	1 –Operating or blank		2 –Cut		H*–No hole (2 A only)
2 A–Large round	2 –Control			KS 1 1 2 – “US. Gov’t do not duplicate”	N*–Long nose (1 A only)
3 A–Large rectangular	3 –Master			KS657 – Premium	NKW–No keyway designation (standard on 1 AP)
4 A–Access bow	4 –Submaster				S*–Key serialization
9 A–Blockout blade	5 –Gradmaster			Specify KS#. Price for most custom design stamps available upon request.	
	9 –Extractor key				

*Indicates extra cost option; see below

If keys are cut, you must specify keymark and number of each marking.

a. You must designate a front key stamp and a back key stamp. There is no standard back key stamp for Premium key.

2.1 4 BEST Cormax M series key table

Table 9

Use the following table to assist with ordering a BEST Cormax M series key.

Key shape (bow)	Key type	Keyway	Level	Cut code	Key stamp	Options
1 AM– M series key	0–Blockout blade	MJ MK ML MM	1 –Non-exclusive	1 –Blank	KS716– 1 AM Front	B*–Long blade (1 AM series only)
2 AM–Large round	1 –Operating or blank			2 –Cut	KS800– 1 AM Back	H*–No hole (2 AM series only)
3 AM–Large rectangular	2 –Control		3 –One digit zip code exclusive			N*–Long nose (1 AM series only)
4 AM–Access bow	3 –Master		4 –National			S*–Key serialization
9 AM–Blockout blade	4 –Submaster					
	5 –Gradmaster					
	9 –Extractor key					

*Indicates extra cost option; see below

If keys are cut, you must specify keymark and number of each marking.

a. You must designate a front key stamp and a back key stamp. There is no standard back key stamp for Premium key.

b. B–Long blade available on 1 AM series only.

2.1 5 BEST Cormax X series keyway table

Table 10

Use the following table to assist with ordering a BEST Cormax X series key.

Key shape (bow)	Key type	Keyway	Level	Cut code	Key stamp	Options
1 AX– X series key	0–Blockout blade	XLX 32, etc.	W–Non-exclusive	1 –Blank	KS717– 1 AX Front	S*–Key serialization
9 AX–Blockout blade	1 –Operating or blank		X–Two-digit zip code exclusive	2 –Cut	KS699– 1 AX Back	
	2 –Control		Y–One digit zip code exclusive			
	3 –Master		Z–National			
	4 –Submaster					
	5 –Gradmaster					
	9 –Extractor key					

*Indicates extra cost option; see below

If keys are cut, you must specify keymark and number of each marking.

a. You must designate a front key stamp and a back key stamp. There is no standard back key stamp for Premium key.

2.1 6 BEST Cormax+ M series key table

Table 1 1

Use the following table to assist with ordering a BEST Cormax+ M series key.

Key shape (bow)	Key type	Keyway	Level	Cut code	Key stamp	Options
1 AMP – M series key	0 –Blockout blade	PMJ PMK PML PMM	1 –Non-exclusive	1 –Blank	KS768 – 1 AMP Front	B* –Long blade (1 AMP series only)
2 AMP –Large round	1 –Operating or blank		2 –Two-digit zip code exclusive	2 –Cut	KS800 – 1 AMP Back	H* –No hole (2 AMP series only)
3 AMP –Large rectangular	2 –Control		3 –One digit zip code exclusive			N* –Long nose (1 AMP series only)
4 AMP –Access bow	3 –Master		4 –National			S* –Key serialization
9 AMP –Blockout blade	4 –Submaster					
	5 –Gradmaster					
	9 –Extractor key					

*Indicates extra cost option; see below

If keys are cut, you must specify keymark and number of each marking.

- You must designate a front key stamp and a back key stamp. There is no standard back key stamp for Premium key.
- B–Long blade available on 1 AMP series only.

2.1 7 BEST Cormax+ X series key table

Table 1 2

Use the following table to help with ordering a BEST Cormax+ X series key.

Key shape (bow)	Key type	Keyway	Level	Cut code	Key stamp	Options
1 AXP – X series key	0 –Blockout blade	PX 1 , PX 3 2, etc.	W –Non-exclusive	1 –Blank	KS767 – 1 AXP front	S* –Key serialization
9 AXP –Blockout blade	1 –Operating or blank		X –Two-digit zip code exclusive	2 –Cut	KS699 – 1 AXP back	B* –Long blade (1 AXP series only)
	2 –Control		Y –One digit zip code exclusive			N* –Long nose (1 AXP series only)
	3 –Master		Z –National			
	4 –Submaster					
	5 –Gradmaster					
	9 –Extractor key					

*Indicates extra cost option; see below

If keys are cut, you must specify keymark and number of each marking.

- You must designate a front key stamp and a back key stamp. There is no standard back key stamp for Premium key.
- B–Long blade available on 1 AXP series only.

2.1 8 Key type descriptions

Fig. 23, Fig. 24, Fig. 25, Fig. 26, Fig. 27, Fig. 28, Fig. 29

1 A key

Standard key with standard bow.

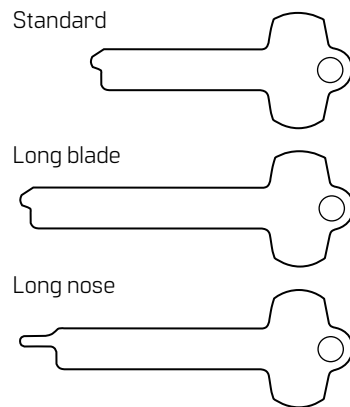


Figure 23 1 A key

1 AP key

Premium key used with 1 CP core.

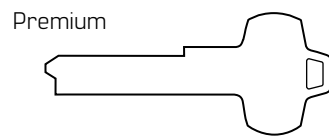


Figure 24 1 AP key

2A key

Standard key with round bow.

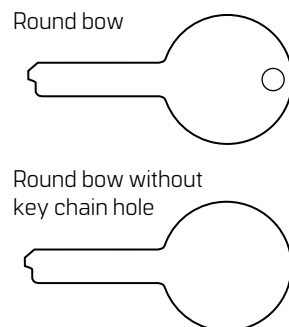


Figure 25 2A key

3A key

Standard key with a rectangular bow.

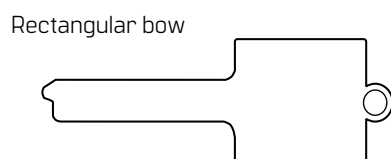


Figure 26 3A key

4A key

Standard key with large offset bow. Comes with or without a window. Used with hotel locks.

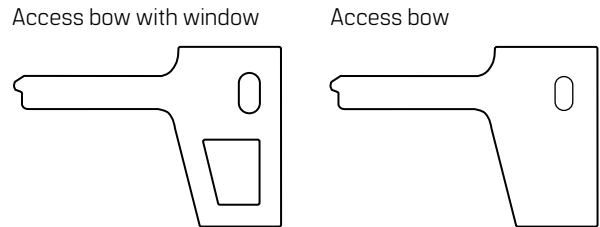
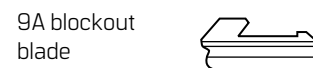


Figure 27 4A key

9A blackout blade and 9A9 blackout blade extractor

9A blackout blade slides in a keyway and blocks out other keys. 9A9 is a special tool used to remove 9A blackout blade segment.



9A blackout blade extractor key (included with 9A blade)

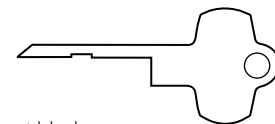


Figure 28 9A blackout blade

Thick key

Thicker key and larger bow.

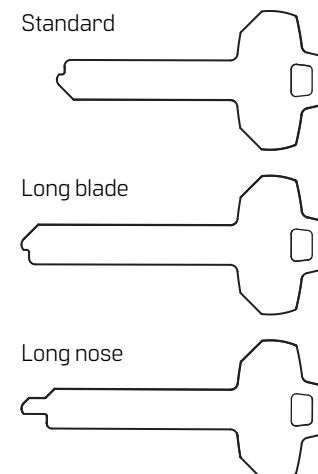


Figure 29 Thick keys

2.1 9 Key stamp options and descriptions

Fig. 30, Fig. 31, Fig. 32, Fig. 33, Fig. 34, Fig. 35, Fig. 36, Fig. 37

NOTE: Custom stamps available upon request.

KS654 key stamp

Standard front key stamp for full embossing.



Figure 30 KS654 key stamp

KS292 key stamp

Standard back key stamp for embossing.

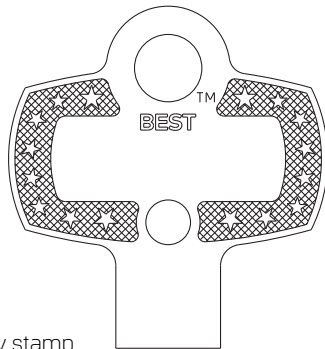


Figure 31 KS292 key stamp

KS567 key stamp

Standard front key stamp for 1 AP premium key.^a



Figure 32 KS567 key stamp

KS594 key stamp

Alternative front key stamp for 1 AP premium key.^a



Figure 33 KS594 key stamp

Cormax standard key stamp

Cormax M series key stamp.

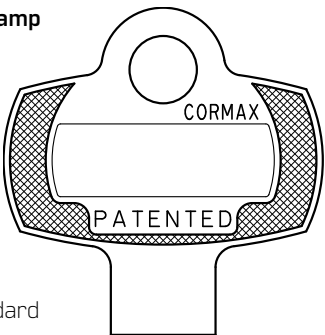


Figure 34 Cormax standard key stamp

Cormax thick key stamp

Cormax X series key stamp

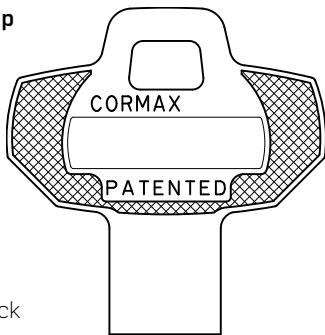


Figure 35 Cormax thick key stamp

KS768 Cormax+ standard front key stamp

Cormax+ M series key stamp.



Figure 36 Cormax+ standard key stamp

KS767 Cormax+ thick front key stamp

Cormax+ X series key stamp.



Figure 37 Cormax+ X series key stamp

a. There is no standard back key stamp for 1 AP premium key.

3 Tools

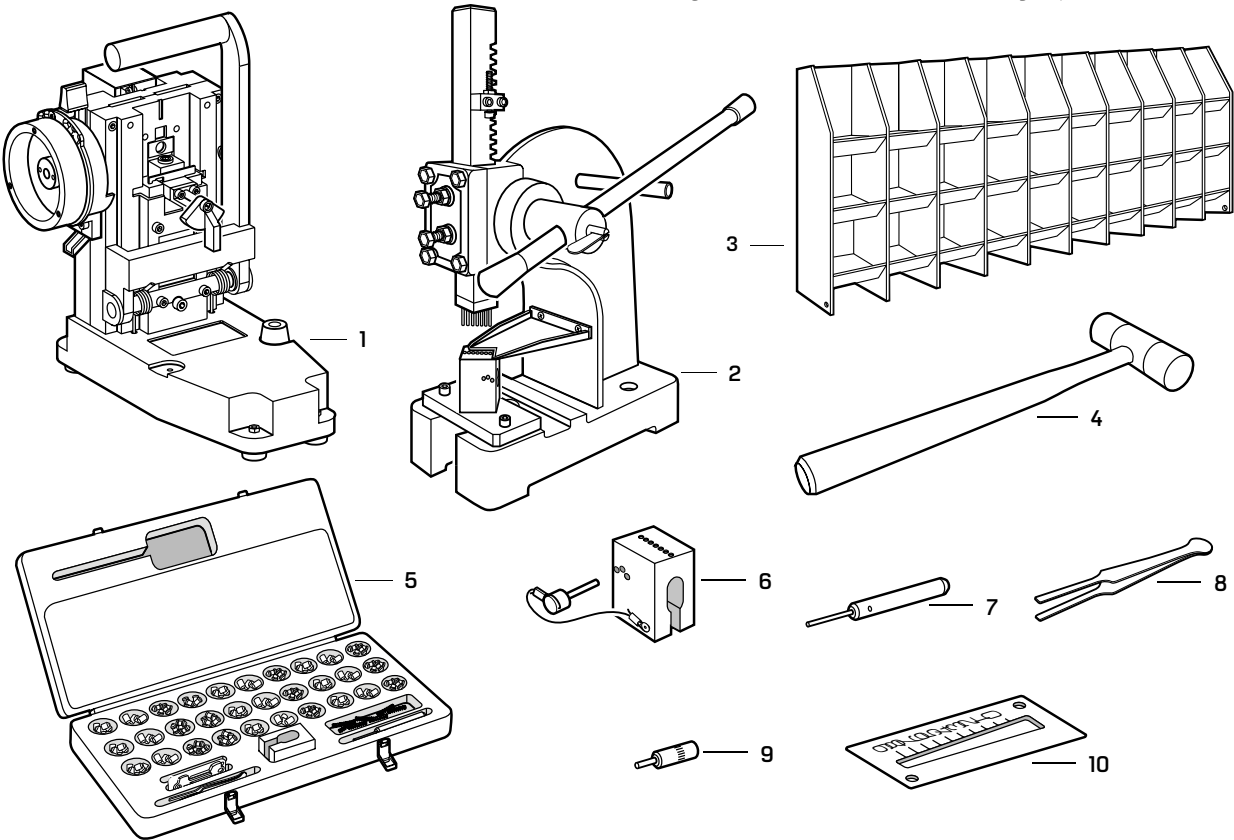
3.1 Tools for servicing cores and keys

Fig. 3 8

Item	Nomenclature	Description
1	AD 4 3 3	Key combinator ^{a,b}
2	CD 5 1 7	Core capping press
3	CD 4 3 3	Combining bin
4	DD 5 5 0	Combining hammer
not shown	DD 5 5 1	Plastic heads for combining hammer
5	CD 4 3 1	Complete combining kit ^b
6	CD 5 4 0	Capping block ^c
7	CD 5 4 8	Ejector pin ^c
8	CD 5 4 9	Tweezers ^c
9	CD 5 4 7	Hand capping pin ^c
1 0	AD 5 0 1	Key cut indicator ^{b,c}

- a. For other parts associated with key combinator, see Key Combinator Service Manual.
b. Specify A 2, A 3, or A 4 Keying System when ordering.
c. Also is included in the complete combining kit [CD 4 3 1].

Figure 38 Tools used for servicing keys and cores.



3.2 Stamping tools

Fig. 3 9

Item	Nomenclature	Description
1	CD 50 4 C	Core stamping plate-side only [for 5 0 cores]
2	CD 50 4 B	Core stamping plate-face only [for 8 7 cores]
3	DD 5 1 4	Core/key marking plate
4	AD 50 4 A	Key stamping plate [for keys]
5	DD 5 1 3	Core/key marking block
6	DD 50 3	Number dies [1 / 1 6" or 3 / 3 2"]
7	DD 5 1 4 A	Magnetic strip ^a
8	DD 50 2	Letter dies [1 / 1 6" or 3 / 3 2"]

a. A set of 3 is included with the core/key marking plate (DD 5 1 4)

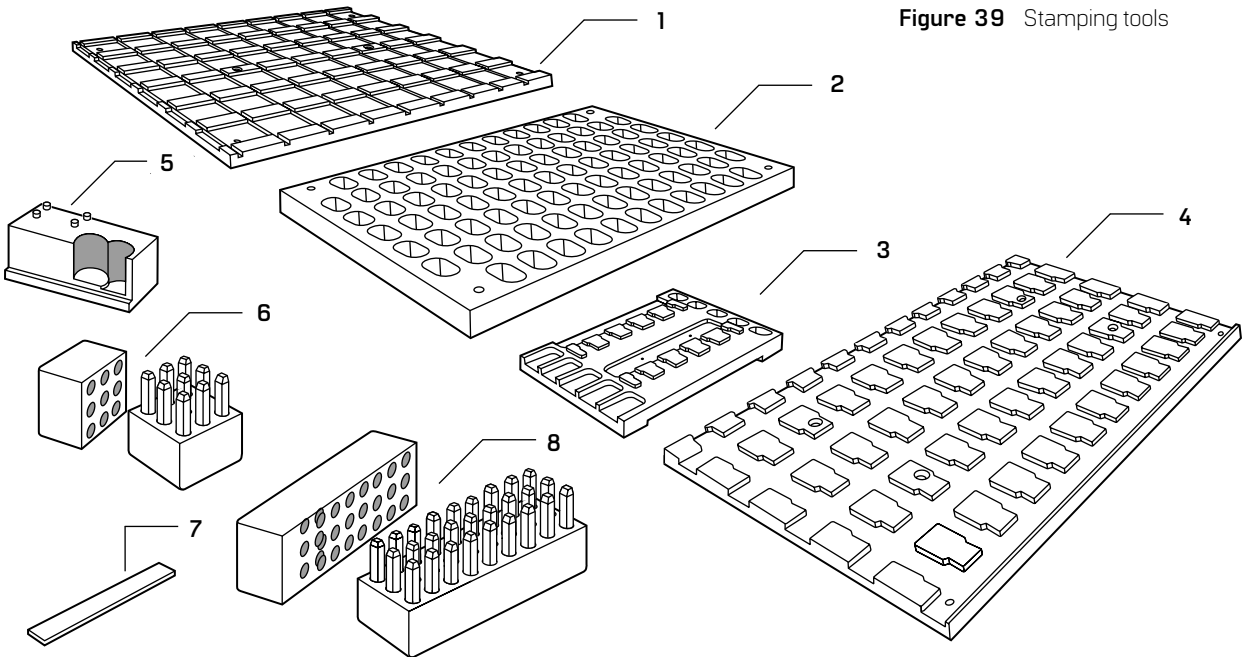


Figure 39 Stamping tools

3.3 Lubrication items

Fig. 4 0

Item	Nomenclature	Description
1	DD 5 3 7	LPS spray can
2	CD 5 3 5	Graphite gun
not shown	DD 5 3 5 A	1 pound container of graphite

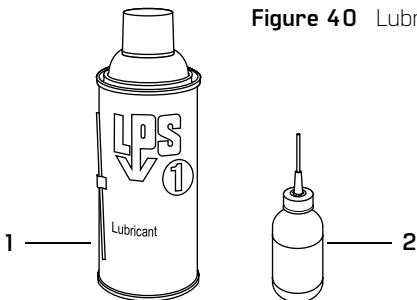


Figure 40 Lubrication items

4 Servicing

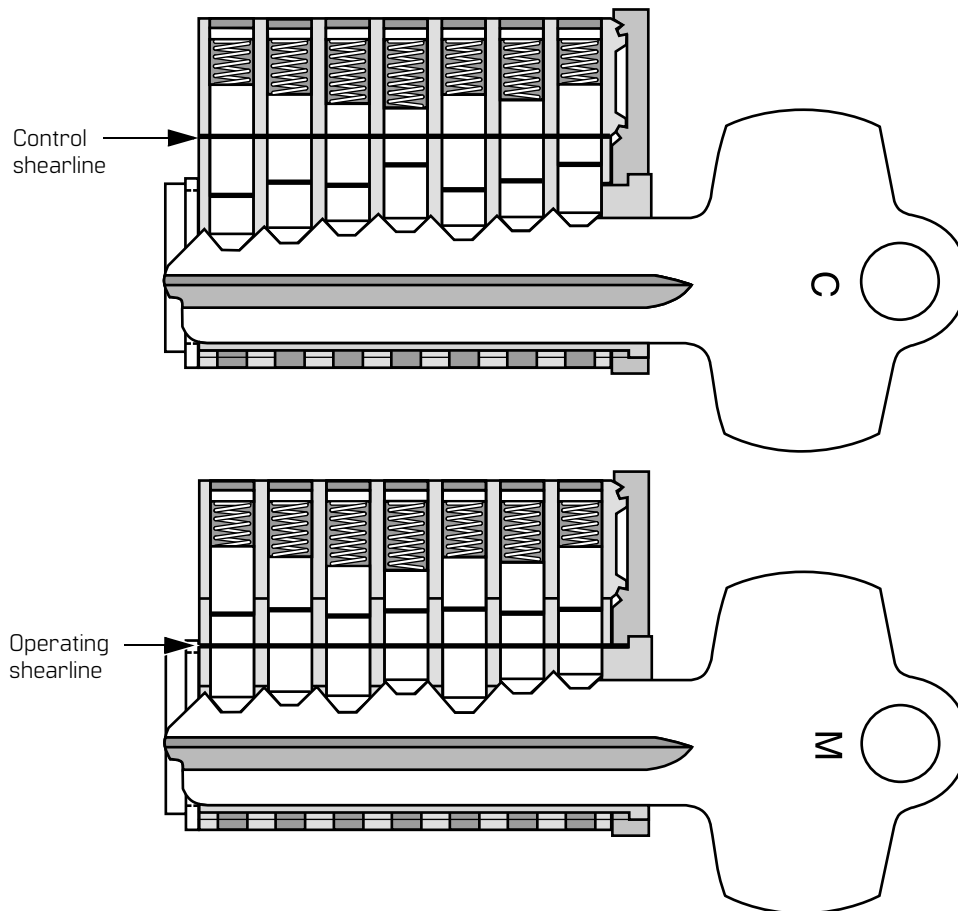
4.1 Placing pin segments, spring, and caps in a core

Fig. 4.1

Overview of how a key works in a core

BEST cores have two shearlines. **Upper** (or control) shearline allows removal of core from door. **Lower** (or operating) shearline allows operation of key in lock.

Figure 4.1 Cross section of a core showing control and operating shearlines



4.2 Loading core

Fig. 4 2

To determine specific sequence of segments to place in each core, refer to Masterkey Code Sheet and Combining Instruction Sheet supplied by dormakaba.

NOTE: For information about loading cores used for UL applications, see [page 14](#).

- 4.2.1 Before starting, identify parts of core you will be working with. Front of core is identified by BEST logo. Barrel number one is at back of core.

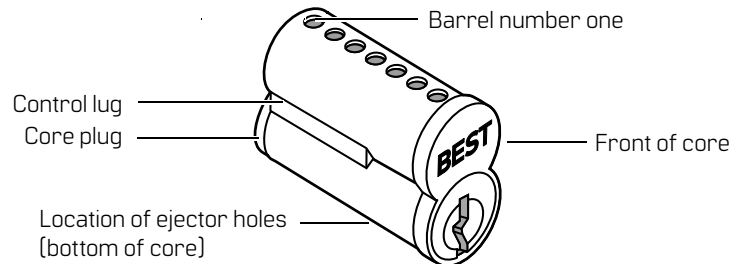


Figure 42 Identifying parts of core

4.3 Inserting ejector pin

Fig. 4 3

- 4.3.2 Insert ejector pin into notch on back of sleeve. Push control lug into thrown (extended) position. Remove ejector pin from notch.
- 4.3.3 Insert ejector pin into cavity between lug and core body to hold lug in thrown position. Use your thumb and forefinger to rotate core plug until keyway is straight up and down, and bottom of keyway is in six o'clock position. Remove ejector pin from cavity.
- 4.3.4 Insert ejector pin into barrel number seven to ensure barrels stay aligned. Leave ejector pin inserted and perform next step.

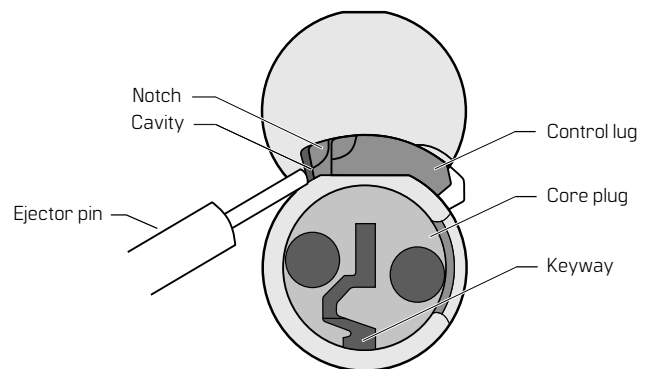


Figure 43 Pushing control log into thrown position

4.4 Inserting segments into barrel

Fig. 4 4

- 4.4.5 Use your combining instruction sheet to determine what segments are required for barrel number one. Insert bottom segment, beveled end down, into barrel number one.
- 4.4.6 Remove ejector pin from barrel number seven and use it to tap down segment until it seats at bottom of barrel. You should see segment protruding into keyway.
- 4.4.7 Insert next required segment into barrel number one. Use ejector pin to tap down segment until it is seated.
- 4.4.8 Repeat step 5 through step 7 until all required segments are loaded into all barrels.

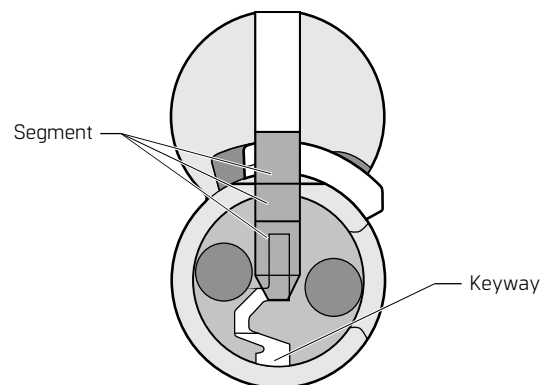


Figure 44 Inserting segments into barrel

4.5 Inserting stop pin and core into capping block

Fig. 4 5

- 4.5.1 Insert stop pin into appropriate hole in side of capping block to align core barrels with holes in capping block.

NOTE: Do not cut the segment springs and insert an extra cap.

- 4.5.2 Insert core into capping block.

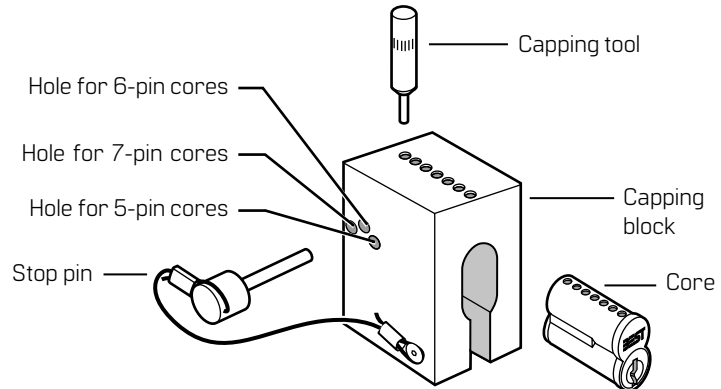


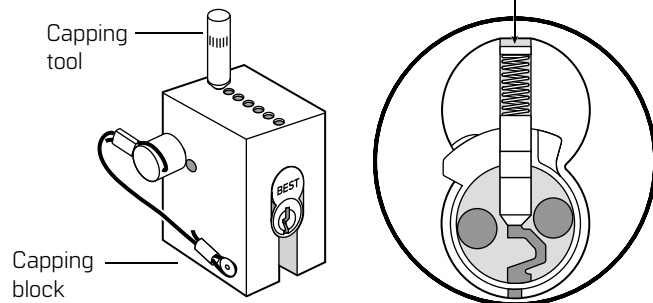
Figure 45 Inserting stop pin and core into capping block

4.6 Seating cap in barrel

Fig. 4 6

- 4.6.1 Insert a spring into barrel number one. Place a cap over the barrel.
- 4.6.2 Insert capping tool into barrel number one. Use a hammer to tap capping tool and drive down cap until bottom of capping tool hits top of capping block.
- 4.6.3 Repeat step 1 1 and step 1 2 until all barrels are capped.
- 4.6.4 Test all keys (including control, grandmaster and operating keys) in core to ensure each barrel is loaded correctly.

Figure 46 Seating cap in barrel



NOTE: If a barrel is not loaded correctly, insert ejector pin through ejector holes and tap out segments, spring, and cap. Discard used segments, spring, and cap, and reload barrel.

4.7 Special guidelines

When stamping and loading core, follow guidelines below:

- 4.7.1 If core is not operating smoothly while you are loading it, do not tap core against a metallic block. Use a block made of nylon or an equivalent material.
- 4.7.2 Do not use a metal-headed hammer on cores. Use a plastic-headed hammer only.
- 4.7.3 Do not use excessive force to stamp core markings on side of cores. Excessive force may cause barrel opening to close slightly.
- 4.7.4 Do not stamp core on bottom lobe.
- 4.7.5 Do not enlarge segment holes. This may cause problems with segment capping.

4.8 Checking a core for proper operation

- 4.8.1 Periodically test all of your keys, including control, grandmaster, and operating keys in core to make sure core is operating properly.
- 4.8.2 Insert a key in the core. If you can insert, turn, and remove the key easily, core and key are working properly. If not, see troubleshooting section on [page 25](#).

4.9 Replacing dust cover assembly

Fig. 4.7

- 4.9.1 Unscrew screw and remove dust cover and dust cover hinge.
- 4.9.2 Place dust cover over key hole in core so lip faces away from core. Place dust cover hinge on face of core with prongs covering dust cover, as shown in Figure 4.7.
- 4.9.3 Install screw.

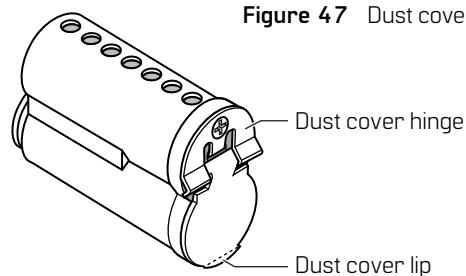


Figure 4.7 Dust cover assembly in position

4.10 Lubricating a core

Create a preventive maintenance plan that includes lubricating the core. To extend the life of the core, lubricate it regularly. Powdered graphite is the best choice for lubrication.



CAUTION! Do NOT lubricate a core with oil. Doing so will attract dirt.



CAUTION! Do not mix graphite with liquid lubricant.

For powdered graphite lubrication:

- 4.10.1 Remove core from lock.
- 4.10.2 Dip a key in graphite. With core inverted, insert key into keyhole and remove it; repeat several times, allowing graphite to penetrate the barrels.

OR

With core inverted, spray graphite into keyhole. Insert key into keyhole and remove it; repeat several times, allowing graphite to penetrate barrels.

4.11 Thawing a core

If core is frozen, use following techniques to thaw it:

- Heat key and insert it into core.
- Spray a commercial lock antifreeze or ice dissolver into core.



CAUTION! Do not heat core with a propane torch. This will cause internal damage and possibly cause core to become inoperable.

5 Troubleshooting

5.1 Causes and solutions for common problems

This table summarizes possible causes for most common core and key problems. Causes are listed in order of likelihood, with most likely cause first.

You notice...	Possible causes include...	You should...
It is difficult to insert or remove key.	Key's keyway is not compatible with core.	Look at the end of the key and the keyway of the core. If profiles do not match, check your Masterkey Specification to see what type of keyway must be used with core.
	Key is damaged.	Check key to see whether it has been damaged. If it has, replace key.
	There is foreign material on key or in keyway of core.	Check key and keyway of core for foreign material. If there is foreign material, remove it with compressed air or LPS lubricant.
	Keyway of core has been damaged.	Check keyway of core for damage. If it is damaged, contact your dormakaba Representative.
	Barrels of core are not loaded correctly.	1. Check inside keyway to see whether ends of bottom segments that protrude into keyway are flat or beveled. If any of bottom segments appear to be inserted incorrectly, reload that barrel with new segments, spring, and cap. Make sure beveled end of bottom segment is inserted first into barrel. 2. Perform the thumb check procedure to see whether the height of any segment stack varies. (see page 2 6). 3. If problem still is not solved, check Masterkey Specification for errors. Reload core and cut new keys as necessary.
	Caps are inserted too deeply into barrels	From top of core, look into barrels, or use a depth gauge to see whether one or more caps is inserted more deeply into barrel. (Correct cap depth is .0 2 5 to .0 4 0 inches from top of core.) If so, reload barrel with new segments, spring, and cap.
Key does not rotate core plug or control lug.	Key is cut improperly.	Use key cut indicator to determine whether key was cut correctly (see page 2 6). If key cuts are not correct, cut a new key.
	Barrels of core are not loaded correctly.	Reload core with new segments, springs, and caps. If key still does not rotate, check Masterkey Specification for errors.
	Key combinator needs to be recalibrated.	If you cut a new key and you are still having problems, Key Combinator may need to be recalibrated. See Key Combinator Service Manual.

You notice...	Possible causes include...	You should...
Key does not rotate smoothly.	Key is cut improperly.	Use key cut indicator to determine whether key was cut correctly. (see page 2 6). If key cuts are not correct, cut a new key.
	Barrels of core are not loaded correctly.	1. Check inside keyway to see whether ends of bottom segments that protrude into keyway are flat or beveled. If any bottom segments appear to be inserted incorrectly, reload that barrel with new segments, spring, and cap. Make sure beveled end of the bottom segment is inserted first into barrel. 2. Perform thumb check procedure to see whether height of any segment stack varies. (see page 2 6). 3. If problem still is not solved, check Masterkey Specification for errors. Reload core and cut new keys as necessary.
	Key combinator needs to be recalibrated.	If you cut a new key and you are still having problems, Key Combinator may need to be recalibrated. See Key Combinator Service Manual.
Core does not insert into cylinder/receptacle.	Core lug is not fully retracted.	Check behind the lug for any foreign material. Clean it as necessary.
	Throw pins inside receptacle are not aligned with holes in core.	Check to see whether throw pins are out of alignment. Use a screwdriver to align throw pins with throw pin holes in core.
	There is foreign material in cylinder/receptacle.	Check cylinder/receptacle for foreign material. Clean it as necessary.
	For mortise locks only, cylinder set screw is installed too tightly.	Remove mortise case faceplate and loosen cylinder set screw.
Cormax+ blocking feature missing.	Using Cormax key in Cormax+ core before installing	Contact Customer Support.
Ejecter pin or decapping block pin will not go in barrel 2 from the knockout hole.	Using an ejecter pin or decapping block that is too large.	Use a smaller pin (<0.052") or contact customer support.

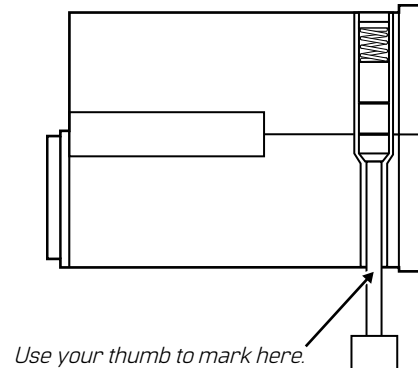
5.2 Performing thumb check procedure

Fig. 4 8

Perform following steps to check each barrel of core to make sure segment stacks are of equal height:

- 5.2.1 Insert ejector pin into number one ejector hole.
- 5.2.2 Use your thumb to mark depth on ejector pin. Keep your thumb in place.
- 5.2.3 Insert pin into other ejector holes. If segment stack height varies, use ejector pin to force out segments, springs, and caps of barrels that are incorrectly loaded. Discard used segments, springs, and caps. Reload barrels with new segments, springs, and caps.

Figure 48 Using ejector pin to mark segment stack height

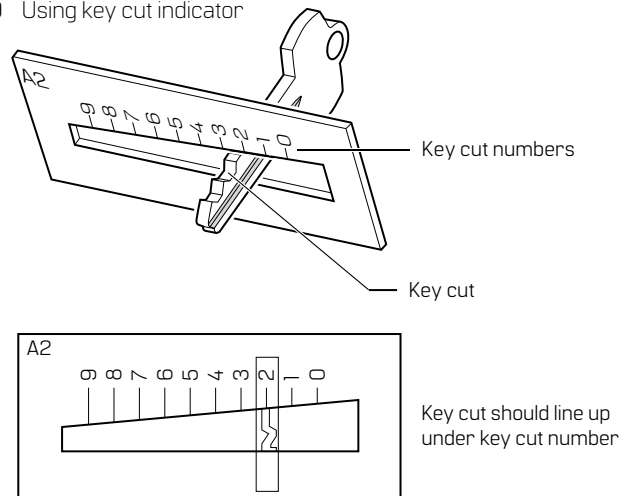


5.3 Using key cut indicator

Fig. 4 9

- 5.3.1 Insert your key into the key cut indicator that is appropriate for your keying system, with key cuts facing numbers on key cut indicator.
- 5.3.2 Slide key until it contacts indicator at the top and bottom. Read the key cut number that aligns with position of key.
- 5.3.3 Make sure that key cut corresponds to key cut for that position listed on your Masterkey Specification. If key cut does not match what is listed, cut a new key.
- 5.3.4 Repeat step 1 through step 3 for each key cut on your key.

Figure 49 Using key cut indicator



6 Documentation

All technical documentation, including all Key and Core service manuals, can be found on the Knowledge Base:

[Cores "C" & Keys "A" Series](#)

For additional product details, downloads, and warranty information, please visit:

<https://dhwsupport.dormakaba.com/hc/en-us/>



Scan for product details and downloads.

Call 1-800-392-5209 or visit
<https://dhwsupport.dormakaba.com/hc/en-us/>
for assistance and warranty information.