



Fresno Fire Department Forcible Entry Guide





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Introduction

The objective of this manual is to provide the reader a comprehensive study of forcible entry. Although it cannot cover every aspect or technique of this demanding skill, it does cover those techniques that have proven to be successful for members of the FDNY.

The skill of forcible entry has been part of the fire service since its inception. The ingenuity and foresight of many talented people developed these techniques, which were then handed down through the generations of firefighters by “on-the-job training.” It is our privilege to honor these people for providing the motivation and drive to put this material together.



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ACKNOWLEDGEMENTS

This manual was adapted from the New York Fire Department Forcible Entry Manual for use within the Fresno Fire Department. To learn from others experience, this comprehensive guide on forcible entry was taken from the years of on-the-job experience and testing done by the FDNY. We thank the FDNY for their continuous efforts to lead the fire service and pass on the knowledge to make this job great!

This manual was compiled by Captain John Vigiano (Ladder Company 176- Ret.) with the assistance of several experienced and knowledgeable members of the FDNY. They are Captain Robert Morris (Rescue Company 1), Lieutenant Mickey Conboy (Squad 41), Captain Bill Youngston (Ladder Company 133- Ret.), Captain Dennis Murphy (Squad Company 288-Ret.), BC Stephen Geraghty (Battalion 50), Firefighter Kenneth DiTata (Ladder Company 111), Firefighter James Cody (Ladder Company 24), and Firefighter John Faracco (Ladder Company 28- Ret.).

Assistance with the illustrations were provided by Zack Herman (Bridgeport FD) and Joe Fisher.



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Reviewer Name/Rank:	Dave Doss, Captain	Review Level:	1
Administrative Support:	Manuel Graves, Civilian Training Officer		ADA

Table of Contents

Introduction	2
ACKNOWLEDGEMENTS	3
RESPONSIBILITY	38
Proficiency:	38
Jimmying a Door:	38
“Why Are You There?”	39
Size-Up	39
TOOLS	41
Conventional Tools	41
Thru-the-Lock Tools	41
External Lock Tools	41
Power Tools	41
Specialty Tools (Limited use)	41
Modified Tools	42
Conventional Tools	42
Wood and Fiberglass Handles	46
Thru-the-Lock Tools	48
Power Tools	51



Fresno Fire Department

TYPES OF LOCKS	53
Key-In-the-Knob Lock.....	53
Tubular Dead Bolt.....	53
Rim Locks.....	53
Mortise Locks	54
Dead Bolt and Latch	55
Magnetic Lock	56
TYPES OF DOORS	59
Wood and Glass Panel Door	59
Wood Door	59
Kalameine Door.....	60
Metal Door.....	61
Tempered Glass Door	62
Aluminum Frame Glass Door	62
ADDITIONAL SECURITY DEVICES	64
Sliding Bolt.....	64
Static Bar (Drop Bar)	64
Angle Iron	65
Shielded Angle Iron	66
Home Made Locking Device.....	67
CONVENTIONAL FORCIBLE ENTRY	69
Entry Definition	69
Entry Size-Up	69
Steps for Forcing a Door	70



Fresno Fire Department

Alternate Methods to Gap an Inward Opening Door	77
The Halligan Tool Gets Stuck	81
The Door Does Not Open During the Initial Operation	84
Driving the Lock off The Door	86
Angle Iron Inward Opening Door (Door swings away from you)	87
Forcing the “J Channel” <i>Inward</i> Opening Door	88
Using the ADZ End	89
Using the Fork End	90
Problems Encountered When Forcing <i>Outward</i> Opening Doors	92
Metal Strip on the Edge of the Outward Opening Door	93
HINGES	97
Hinge Types	97
Standard Hinges	97
Self-Closing Hinge	97
Pin Type Hinge	98
Standard Hinge – Inward Opening Door (Door swings away from you)	99
Standard Hinge	101
Standard Hinge – <i>Outward</i> Opening Door (Door Swings toward You)	101
Pin Hinges	103
CHOCKING THE DOOR	105
Securing the Door	107
Thru-the-Lock Entry	108
Size-Up	109
Key-In-The-Knob Lock	110



Fresno Fire Department

Forcing the Key-In-The-Knob Lock - Using the Officer's Tool	110
Forcing the Key-In-The-Knob Lock – Removing the Center of the Knob.....	111
Forcing Key-In-The-Knob Locks – Outward Swinging Doors	111
Tubular Dead Bolt.....	112
Forcing the Tubular Dead Bolt.....	113
Problems Encountered When Using the K-Tool	114
RIM Locks.....	114
Principal of Operation – RIM Lock.....	115
Using a Lock Puller (Officer's Tool / K-Tool).....	116
Driving Off the Lock	119
Mortise Locks	119
Principle of Operation – Mortise Locks	120
Pivoting Deadbolt	122
Principle of Operation – Pivoting Deadbolt	122
Forcing the Pivoting Deadbolt - Using the K-Tool.....	123
Forcing the Pivoting Deadbolt – Using the Vise Grips	124
Forcing the Pivoting Deadbolt – Using the Vise Grips	125
Alternate Means of Forcing – Using the Saw.....	126
Alternate Means of Forcing – Using the Saw.....	126
PADLOCKS	127
Categories of Padlocks.....	128
Padlock Size Up:	128
Parts of a Padlock	128
Light Duty Padlock.....	129



Fresno Fire Department

Heavy Duty Padlock	130
Special Padlocks	131
Hockey Puck / American 2000 Series	131
Wrapped Lock	132
Gate Locks	132
Bolt Lock (Medeco).....	132
Mushroom Lock	133
Tank Lock	133
ASSOCIATED HARDWARE USED WITH PADLOCKS:	134
Hasps	134
Slide Bolts.....	134
Forcing Padlocks – Using the Forcible Entry Saw	135
Padlock with <i>Exposed</i> Shackle:.....	135
Padlock with <i>Shielded</i> Shackle.....	136
Hockey Puck Lock (American 2000 Series)	136
Pike of The Halligan Tool	137
Forcing Padlocks – Using the Bolt Cutters	138
Forcing Padlocks – Using the Pipe Wrench	139
Forcing Padlocks – Thru-The-Lock.....	140
ROLL-DOWN SECURITY GATES.....	141
Fire Ground Problems	141
TYPES OF GATES:	143
Sliding Scissor Gate	143
Forcible Entry Operations	144



Fresno Fire Department

Construction Features	145
Forcible Entry Operations	146
Mechanical Roll-Down Gate (Chain Hoist)	147
Open-Grill or Designer Gate (Variation of A Roll-Down Gate).....	149
Locking Devices Found on Roll-Down Gates	150
Gate Lock (Bolt Lock)	152
External Shields.....	153
Cutting the Roll-Down Curtain	155
MISCELLANEOUS SECURITY PROBLEMS	160
Window Bars	160
Forcing Window Bars	160
Window Bars: Various Types and Mountings	162
Window Gates	163
Forcing Swing Bar Gate	164
HUD Windows/Doors.....	164
Forcing A HUD Window.....	167
Plywood Covering Window/Door	167
Chain and Padlock (Formidable Device)	169
Tight Door in a Metal Frame	170
DEFINITIONS	173
REFERENCES.....	177
TABLE OF FIGURES	178



Fresno Fire Department

RESPONSIBILITY

It is important to understand that the fire cannot be extinguished, searches cannot be made, and extension of fire cannot be checked until entry is made. The fire fighter assigned the job of gaining entry is given that responsibility. To accomplish this task, there are an assortment of tools and techniques, which this text will introduce to you. Some techniques are basic, others are more difficult, but all are achievable.

Proficiency:

Why all firefighters should be proficient in the basic forcible entry skills.

- **The need for speed in gaining entry.** It is important to realize that most fire and emergency operations start at the front door or main entrance. Before any tactical moves can be made, (e.g., search, rescue, or the stretching of a hand line to the seat of the fire), the entry door must be opened.
- **Reduce damage resulting in improper techniques.** Most people given tools can gain entry. A door can be “battered” down with an axe (the movie version). However, until we consider what is behind that door, we want to ensure the door’s integrity. Why destroy a perfectly good door for a non-fire emergency? With the proper training, most firefighters will be able to open a door with minimal damage.
- **Professionalism.** This is the benchmark of a good firefighter. The firefighter represents the Department and ultimately the City of Fresno. Pride in our work will reflect pride in the Department. By reducing the damage to a minimum, we ensure the safety of the people we serve. Remember that when we leave the fire scene, the doors we destroy leave the occupants vulnerable to further loss from vandalism. The people we are sworn to serve rely on our good judgement.

Jimmying a Door:

The old technique of “**jimmying a door**” (the spreading of the door away from the jamb without damaging the lock) can seldom be accomplished today. This is due to stronger doors, more formidable locks, and multiple locks on a single door.

The primary motivation should be professionalism. As a firefighter, you have an obligation to get the job done **safely, efficiently and with the least amount of damage.** At times, brute force must be combined with skill, technique, and knowledge. You control that action.



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For situations such as: water leaks, steam leaks, lock-ins, etc., consider the least damaging means of gaining entry. In some instances, you may be able to enter through a window or by using a “Thru-the-Lock” method of entry. Always **use common sense** when forcing your way into any premises; you never know what is behind that door or window.

You must also consider what will happen once your job is done. Who will provide security for the occupancy after you leave?

To become proficient in the skill of forcible entry, you should have a mixture of:

- **Hands on training** – this is the primary way to sharpen your skills.
- **Experience** – by going to fires and emergencies and actually “forcing the door.”
- **Knowledge** – may be gained by experience, reading, observing, and attending training seminars and by exchanging information and ideas with other firefighters.

Finally, using some **common sense** and trusting your instincts; they are usually correct.

“Why Are You There?”

What are the reasons for entry? Is it a **Tactical Response**? That is, for a fire and/or life-threatening emergency, or is it a **Routine Response** for a non-life-threatening emergency? In either situation, control, speed, and effectiveness of access to the area of operations will justify the amount of damage done by the firefighter. Remember, the goal is to: **protect life, extinguish fire, and control all hazards.**

Size-Up

This is the ongoing evaluation of the problems confronted within a fire situation.

As you get off the apparatus, you should be asking the following questions:

- Where is the fire?
- How many floors?
- What type of occupancy?



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- What type of building?

Size-up starts with the receipt of an alarm and continues until the fire is under control.

This process may be carried out many times and by many different individuals during a fire or an emergency.

In conducting a size-up we should consider the following:

- **Occupancy:** Knowing you are responding to a residential or commercial occupancy will help determine the type of doors and locks you may encounter. This will help determine what specialized tools may be required.
- **Door:** Knowledge of the type of door and its components may guide you as to proper tool placement and method of entry. This would include:
 1. **Direction of door opening:** Most **residential doors** open into the occupancy. They are considered **inward opening** (away from you). Whereas in **commercial occupancies**, the door opens out of the occupancy. They are considered **outward opening** (toward you).
 2. **Door Frame:** A structural case or boarder into which a door is hung. Also referred to as a **Door Buck, Door Jamb** or simply, the **"Frame."** They can be made of metal or wood.
 3. **Hinges:** There are many types of hinges used today. The types we discuss here will be known as (a) standard, (b) self-closing, and (c) pin type.
 4. **Replacement Door:** A new pre-hung door and jamb installed into an **existing** doorframe.
- **Locks:** To determine the degree of difficulty in forcible entry you should have a working knowledge of the **various types of locks** as well as a basic understanding of how they operate and how they are installed. One should also take notice of how many locks are present and where they are located on the door.
- And finally, you should always **TRY THE DOORKNOB** - **"is the door open?"**



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TOOLS

The success of any job resides in the knowledge of the tools and their correct application. Listed here, within categories, are many of the tools used in forcible entry:

Conventional Tools

- Axe (6 and 8 pound)
- Halligan Tool
- Maul (10 pound)
- Halligan Hook (steel shaft)

Thru-the-Lock Tools

- K-Tool and Key Tools
- Lock Puller (Officer's Tool)
- Shove Tool
- Vice Grips (may be used for Padlocks, Thru-the-Lock)

External Lock Tools

- Bolt Cutter
- Pipe Wrench with Cheater Bar

Power Tools

- Power Saw
- Cordless Drill/Cordless Sawzall

Specialty Tools (Limited use)

- Vice Grips (may be used for Padlocks, Thru-the-Lock)



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Modified Tools

Modified tools are standard tools and/or devices that have been modified for use in the fire service. Shown are the most common types out in the field

- Channel Lock Pliers
- Key Tools
- 8-Pound Axe

The following are brief descriptions and reasons we chose the above tools for **Forcible Entry**. There may be firefighters that have a different approach or use different tools to accomplish the same end, but these are the tools we have used and are most familiar with.

Conventional Tools

Axe (6 and 8 pound): This should be a **FLAT HEAD** type axe and not a pike head axe. The purpose of this axe is to drive (SET) the Halligan Tool. There are two sizes available, and choice is up to the unit.

Either axe should be “dressed,” e.g., the striking part of the axe should be filed and kept square. Avoid having the crown of the axe from “mushrooming” over.



Figure 1 - Irons Married Together

The axe with the Halligan Tool forms the “Irons” which are the basic forcible entry tools.

The axe can also be used to:

- “Chock open” the door.



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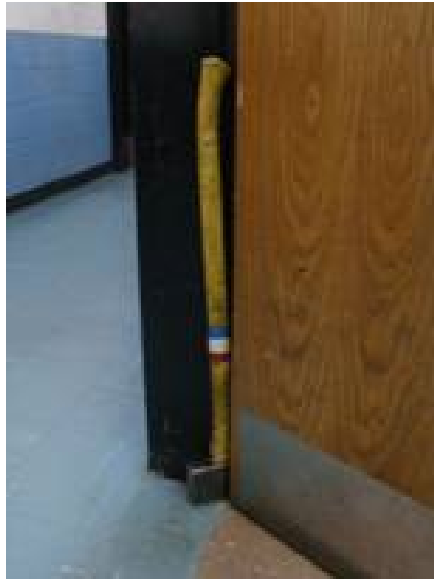


Figure 2 - Choke a door open at the jamb

- Be a backstop for the Halligan



Figure 3 - Choke a door open at the floor

- Hold the purchase when repositioning the Halligan Tool.



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Figure 4 - Hold the purchase of the opening



Figure 5 - Be a backstop for the halligan

Halligan Tool: There are many models of this popular tool. The one illustrated here is approximately thirty inches long with a beveled fork, a tapered ADZ, and pike. For more details refer to “Conventional Forcible Entry” (below).



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Figure 6 - "Pro Bar" Single Piece Halligan



Figure 7 - Set of Irons

Proper maintenance of tools and equipment is the first step in tool safety. Tools should be inspected and cleaned on a regular basis. Always check for wear and damage. If equipment is found damaged it should be removed from service until repaired or replaced. Proper care of forcible entry tools will increase their serviceability.

Metal Parts

- Remove any dirt or rust with steel wool or emery cloth.
- Use a metal file to maintain the proper profile and cutting edge.
- Sharpen edges and remove any burrs with a file.
- Do not keep the blade edge too sharp as this may cause it to chip when in use.
- Do not grind the blade as this may overheat the metal and cause it to lose the temper.
- Never apply oil to the striking surface of a striking tool (axe or Halligan).
- "Dress" the edges to keep square and free of burrs which may splinter off



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when striking tool.



Figure 8 - Sharpen the bevel of the forks

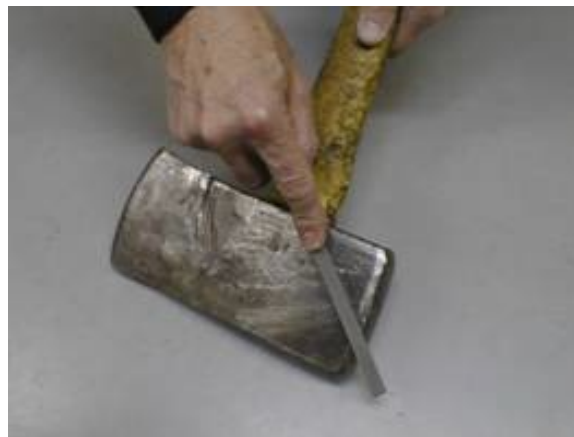


Figure 9 - File off mushrooming of the flat head from striking the halligan

Wood and Fiberglass Handles

- Clean with soap and water; rinse and dry completely.
- Check for damage and sand off any splinters.
- Do not paint or varnish the handle. A small band of paint or brand may be



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used to identify the tool.

- Ensure the head of the tool is securely fastened.
- Use tape to mark off a narrow stripe on handle to identify unit.



Figure 10 - 10# Sledge

Sledge (10 pound): This tool comes in a variety of sizes, but the most common and versatile is the 10-pound model. This tool may be used in place of the axe to form the “Irons.” Other uses would be to “batter” a door or to remove cinder block from a window or door of a vacant and sealed occupancy

Halligan Hook (steel shaft): This tool is a six-foot, steel shaft hook, with a distinct shaped head and is commonly referred to as a “Halligan Hook.”

These are primarily “pulling tools,” e.g., for pulling ceilings. For entry, the steel shaft can be used to set the Halligan Tool into a tight doorframe (such as a bulkhead type door) by “toeing” on the end of the shaft and driving the Halligan Tool with the shaft.



Figure 11 - Halligan hook steel



Figure 12 - Halligan hook fiberglass



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Thru-the-Lock Tools

K-Tool: This tool was developed for pulling a lock cylinder (Thru-the-Lock entry) on a door. It is used with an axe and Halligan Tool.



Figure 13 - K Tool with lock blades

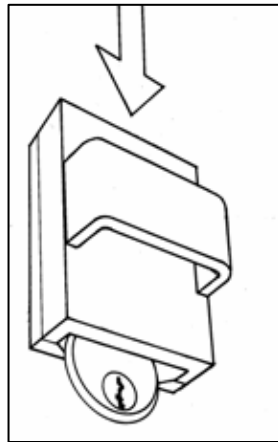


Figure 14 - K Tool slides over the lock to pull the lock face off

The K-Tool is forced behind the ring and face of the cylinder until the wedging blades take a bite into the cylinder body. Light blows with the axe set the K-Tool.

The Halligan Tool's ADZ is placed into the slot on the face of the K-Tool and pried upwards, pulling the cylinder from the door.



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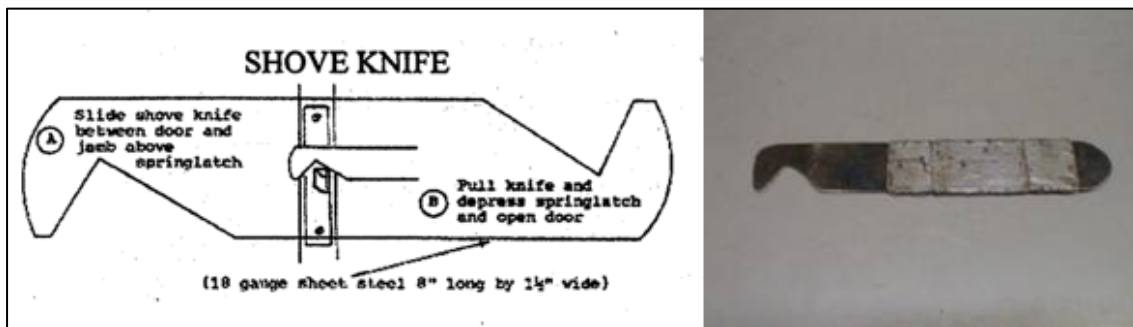


Figure 15 - Homemade shove knife

Vice Grips: A very useful tool for any firefighter's toolbox. This locking plier can be used to "unscrew" a mortise lock cylinder from the lock housing or to simply hold a padlock while it is being cut with a power saw.

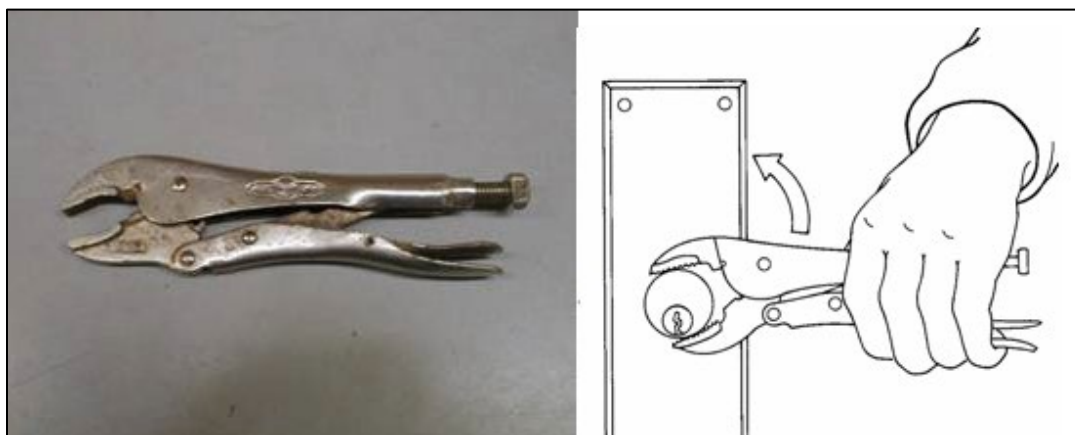


Figure 16 - Vice Grips used to twist lock face and expose internal locking mechanism



Figure 17 - Bolt Cutters Large and Small



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Bolt Cutter: Another tool used for cutting hasps, light-duty padlocks, and chains. It is limited by the opening spread of the blades. It is not recommended for cutting case-hardened shackles since that may damage the cutting blades. If possible, when cutting, try to cut the staple holding the padlock. If you must cut the padlock, cut both sides of the shackle.



Figure 18 - Pipe wrench used like vice grips to twist off lock face and expose internal locking mechanism



Figure 19 - Pipe can be slid onto the pipe wrench and used as a cheater bar to gain leverage on sticky locks



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Power Tools

Saw: The Power Saw improves forcible entry efficiency by facilitating cutting operations at fires, especially where roll-down security gates are present. These saws come in a variety of models. They require a metal cutting blade when cutting padlocks and/or roll-down security gates. The saw is usually run at low Rpm's until a groove is made in the metal; the power is then increased to maximum speed to complete the cut. More will be covered in Section 14: Roll-Down Security Gates.



Figure 20 - Rotary Saw

Cordless Drill: A method of Thru-the-Lock entry which causes minimal damage to the door. It is a convenient tool for entering high-rise office buildings.



Figure 21 - Cordless drill

Cordless Sawzall This tool is quickly becoming multi-versatile. Not only is it good for removing gates and bars, but it is also used in vehicle extrication.



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Figure 22 - Cordless Sawzall



TYPES OF LOCKS

Key-In-the-Knob Lock

As the name implies, the locking mechanism is part of the knob. These locks are found on both residential and commercial doors.

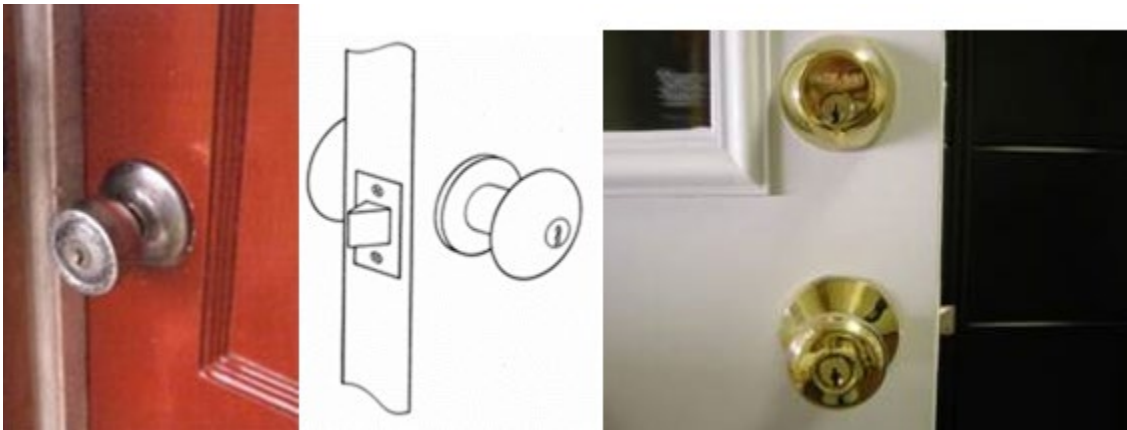


Figure 23 - Key in Knob

Tubular Dead Bolt

This is a very popular locking device. It may be single or double key activated. It is a cross between a mortise lock, rim lock and a key-in-the-knob lock.



Figure 24 - Tubular deadbolt

Rim Locks

These locks are usually installed as an **add-on lock**. They are installed on the **inside surface of the door** (with the cylinder extended through the door). Only the cylinder is visible from the outside of the door.

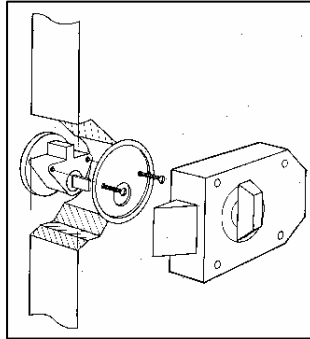


Figure 25 - Rim lock

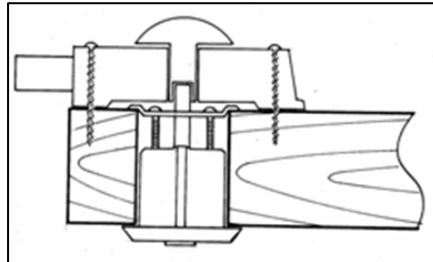


Figure 26 - Rim lock attached to surface of door

Mortise Locks

Designed and manufactured to fit into a cavity in the edge of either a metal or solid wood door. They have a solid, threaded key cylinder, which is secured in place by set-screws. Two most common types: Mortise/Latch Key and Mortise/Doorknob (see below).

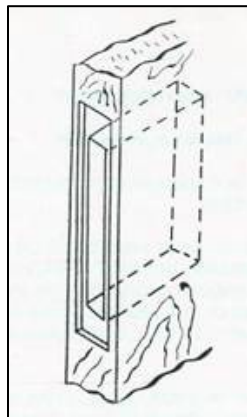


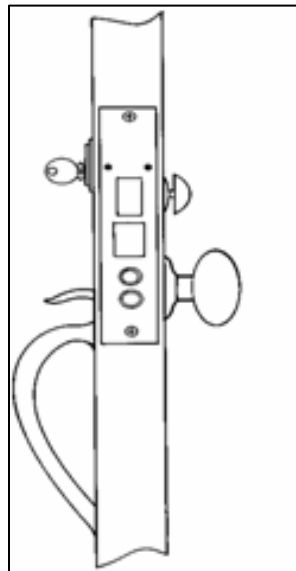
Figure 27 - Mortise lock in frame



Figure 28 - Mortise lock

Dead Bolt and Latch

This commonly used lock today contains both a latch and a bolt in a single unit. It is distinguishable by the proximity of the lock cylinder to the doorknob. Below are examples of this type of lock.



**Figure 29- Mortise
/ Latch Key**

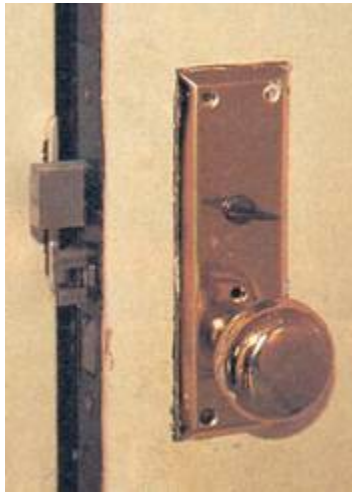


Figure 30 - Deadbolt and Latch

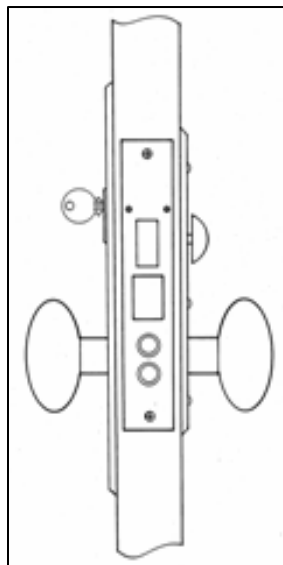


Figure 31 – Mortise / Doorknob

Magnetic Lock

The magnetic lock is a relatively new locking device that has been incorporated into occupancies for added security.



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Figure 32 - Magnetic door locks



Figure 33 - Magnetic door lock add-on



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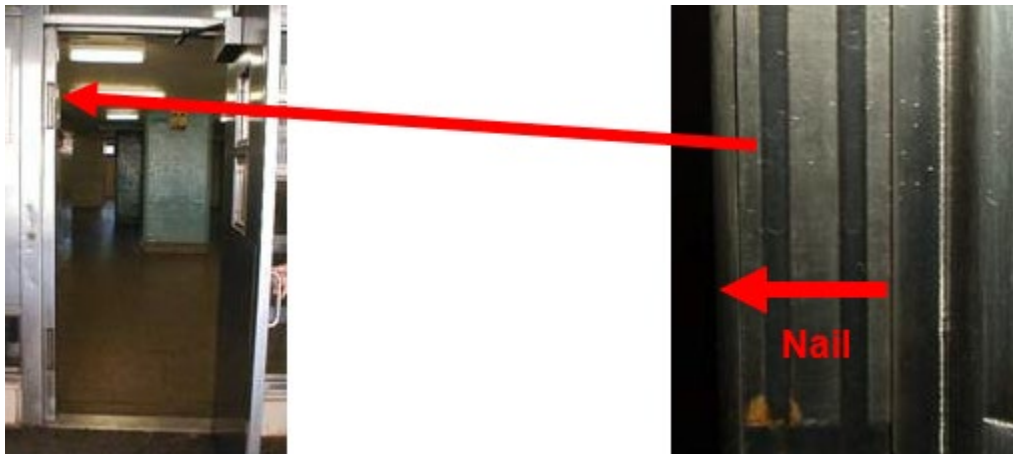


Figure 34 - Place nail on magnet lengthwise

Note: Placing a common 8-10 penny nail over the magnet will prevent the door from re-locking.



TYPES OF DOORS

Wood and Glass Panel Door

This was a very popular door in older buildings. It provided light to the public hall in multiple dwellings. The original plain glass panels were changed to wire glass. Some wood and glass doors may contain plate glass. Today these are found in some older “Mom and Pop” stores.

Note: Plate glass may be quite dangerous. When broken, it may fall in large sharp pieces. These pieces have significant weight and force to cause serious cuts or stabbing and dismembering injuries.



Figure 35 - Wood frame with glass insert

Wood Door

There are two types of wood doors: Hollow Core and Solid Core.

Hollow Core: Made up of an assembly of wood strips formed into a grid. These strips are glued together within the frame forming a stiff and strong core. Over this framework and grid are layers of plywood veneer paneling.



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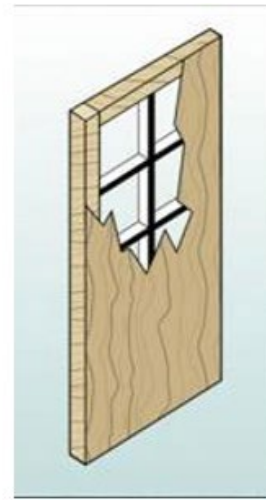
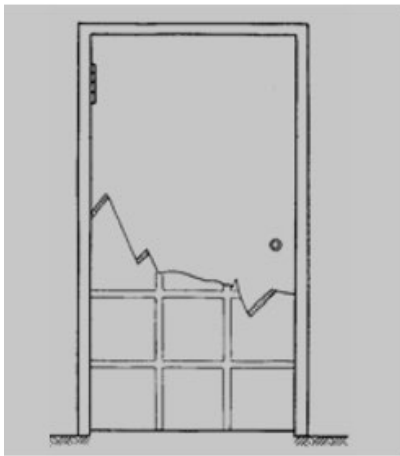


Figure 36 - Hollow core door

Solid Core: The entire core of the door is constructed of solid material such as tongue and groove boards that are glued within the frame. Other solid core doors may be filled with a compressed material that is fire retarded. In either case, the door is sided with a plywood veneer covering.

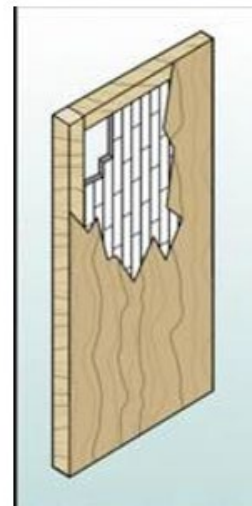


Figure 37 - Solid core door

Kalameine Door

The main problem with a wood door, especially in multiple dwellings, was the “burn-through” time. To overcome this problem and to increase the burn-through time, these doors were covered with metal. They were known as “**Kalameine Doors.**”



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Figure 38 - Kalameine door

Metal Door

Constructed of metal, these doors are usually set in hollow or filled metal doorframes. When set in a masonry wall, as well as a metal frame, they are quite formidable and will hold back considerable fire. Today a metal door is quite common even in private dwellings.



Figure 39 - Metal door



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Tempered Glass Door

The tempered glass door is Distinguishable by the lack of a full frame with little or no trim. The door handle is usually mounted through the glass. The lock may be installed in either the top or bottom stile **usually the bottom one**. It is commonly known as a "Glass Door."

The breaking characteristics of Tempered Glass are quite different than ordinary Plate Glass. This is due to the heat treatment given to the glass during tempering. This results in high-tension stress in the center of the glass and high compression stress in the exterior surfaces. These tension and compression stresses balance each other. The heat treatment also increases the strength and flexibility as well as the resistance to shock, pressure, and temperature increases.

Tempered glass is approximately four times stronger than plate glass, when broken and disintegrates into relatively small pieces.



Figure 40 - Tempered glass doors

Aluminum Frame Glass Door

These are the most popular doors in commercial occupancies, especially the taxpayer type. It is not uncommon to have the plate glass replaced with tempered glass, lexon or plexiglass in some areas.



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**Figure 41 - Aluminum frame
glass door**



ADDITIONAL SECURITY DEVICES

Sliding Bolt

The sliding bolt is a device that travels in a track, which locks into a recessed hole or hardware. Padlocks may pass through rear of bolt and make the bolt secure. These slide bolts may be made of case-hardened steel. They are installed with screws or carriage bolts, which may be exposed or guarded.



Figure 42 - Slide bolt added on with supplemental locks

Static Bar (Drop Bar)

A static bar is a fastening device that can be mounted across the door at any point. Generally, they are in pairs. The bars are held in place by brackets, which may be fastened to the doorframe.



Figure 43 - Double drop bar



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Figure 44 - Outside view with bolt heads



Figure 45 - Drop bar

Note: With the Sliding Bolt and Static Bar in place, you know the occupants did not exit through that door. There is either another means of egress, or the occupants are still inside. Static bars in place may not be visible from the outside.

Angle Iron

A device secured to the door and occasionally the doorframe. It can be found on both inward swinging doors (away from you) and outward swinging doors (toward you). It



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may be partial or run the full vertical length of door. It represents another form of security which may be added to an occupancy.



Figure 46 - Angle iron over door gap

Shielded Angle Iron

A device that is mounted to both the door and the frame and inter-locks on itself. It may be partial or run the full vertical length of the door. It is two separate pieces mounted, one to each surface. By adding this inter-locking piece of angle iron additional security is added to the occupancy.



Figure 47 - Shielded angle iron

Note: The arrow points out a lock cylinder located NEAR THE BOTTOM of the door. This simple but ingenious set up prevents most “push-in” forcible entries.

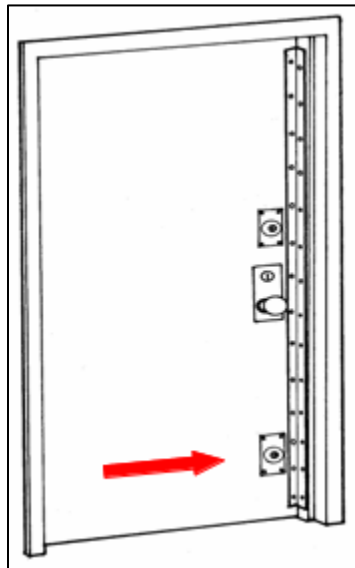


Figure 48 - Secondary lock on bottom of door

Home Made Locking Device

A recent ingenious method of securing a door has started to appear in multiple dwellings. This is a homemade modification of a “chain lock.”

Here the occupant bolts a length of heavy chain to the inside of the door. (The Chain is similar to that which secures motorcycles.) Generally, the carriage bolt and washer are secured approximately one foot or less from the edge of the door and about one-foot above the doorknob. The other piece of chain, similar in size and strength, is attached to the doorframe.

Joining the two pieces is a heavy-duty padlock.

What makes this device so ingenious is its simplicity and effectiveness. Since the carriage bolt may be overlooked, the forcible entry team will force the door, and then be confronted with a heavy-duty chain and lock which continues to secure the door.

Most people know a chain and lock can be quite formidable, especially if not under tension. Add to this the products of the fire venting out through the opening created by the initial forcible entry. Now the team must remove the chain and lock under much worse conditions.

Suggestions: In your size-up of the door, check for the presence of a bolt head in the



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door. If you suspect this is the chain lock, drive the bolt head through the door **BEFORE** forcing the door. This can be done with the pike of the Halligan Tool and sharp blows delivered with the axe or maul. **Size- up is very important.** If you miss the bolt head on the door, entry may be delayed.

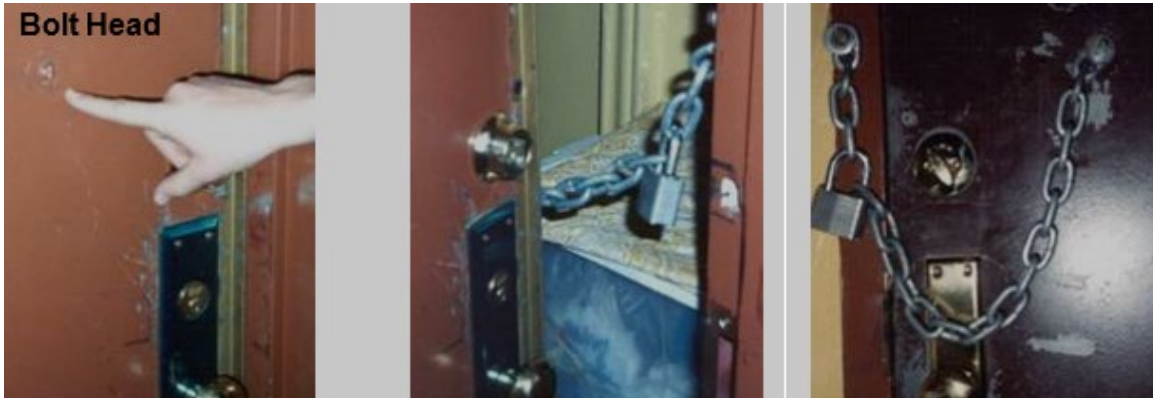


Figure 49 - Supplemental homemade locking devices

If the bolt is missed, and the door is forced open, lock the fork of the Halligan Tool around the chain at the frame side and try to pull it out of the frame. While doing this, maintain pressure on the door in the open position.

If fire emits from the open door, close the door until a charged line is in position, then continue as above.

This is not a simple operation. If the chain is bolted through the frame or secured with more than a single bolt, a forcible entry saw may have to be used. In this case, a delay will cause the fire to accelerate.

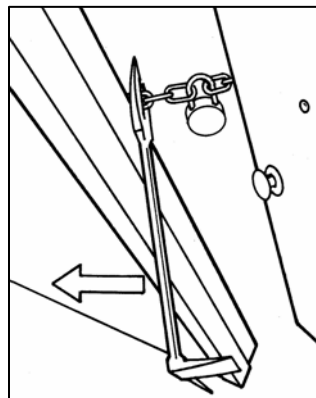


Figure 50 - Lock halligan into chain and attempt to pry chain from the frame



CONVENTIONAL FORCIBLE ENTRY

Entry Definition

Conventional forcible entry is the oldest and most versatile method of entry. Usually a two-person team, using a flat head axe and the Halligan Tool accomplishes this task.

It requires skill and technique to master, and at times this may have to be done by one firefighter. When forcible entry is required, it should be started immediately. A door should be forced in such a manner as to preserve its integrity. If speed is an important consideration in gaining entry, then conventional forcible entry should be considered. Once a firefighter has mastered the skill of using the axe and Halligan Tool (Irons), most doors, even those that are well secured can be forced quickly. With the combination of the axe and Halligan, the forcible entry team can generally force any door or occupancy. It is a simple matter of technique and leverage.



Figure 51 - Forcible entry team

Entry Size-Up

The fire ground is a very stressful place to work in. This is especially true for the first arriving units who must accomplish a variety of tasks immediately. Among them is making a correct entry size-up.

Prior to forcing a door: The Forcible Entry Team should: **TRY THE DOOR** to determine **"IS THE DOOR LOCKED?"** Too many times over-aggressive firefighters have forced an unlocked door. They should take note of the **Type of Door and the Locking Devices** involved. Also, what are the **Prevailing Conditions** at the scene,



Fresno Fire Department

such as heat, smoke, and visibility? They should then feel the door and/or the doorknob. This may give an indication of the amount of heat behind the door. Finally, **Check for Resistance**; push in at top, center, and bottom of door. This may give you an idea as to where the locking devices are secured.

To master this skill a firefighter should have a basic knowledge of the types of doors and security devices he/she will encounter, in addition to the skills gained through hands-on experience. Also, the firefighters must have confidence in their skills that will allow them to work through any situation under pressure.

Steps for Forcing a Door

Most conventional forcible entry involves several moves to accomplish the goal. To make it understandable, we have broken down the operation into three separate steps. Each step may have additional maneuvers, but once one understands the basic principles it is easy to follow and move quickly through the steps.

The recommended steps for forcing a door are **GAP – SET – FORCE**.

FORCING *INWARD* OPENING DOORS (door swings away from you)

1. **GAP the DOOR** - This step will make an opening in the door and/or frame to create a **purchase point**. It may also force open a poorly secured door.
 - Work the **ADZ** into the stop on the doorframe approximately 6 inches above or below the lock (see “Note” below). The tool can be set into the frame by swinging like a bat and driving the **ADZ** into the frame.
 - If there are 2 locks close together, go between them (unless they are stacked locks).
 - Push up or down on the Halligan Tool causing the **ADZ** to rotate and crease the door. Best purchase is gained when the **ADZ** end is used on the door, not the pike.



Figure 52 - Gap the door up and down

Note: The reason for the 6-inch rule is to avoid the Halligan Tool from striking the lock. The fork of the Halligan Tool is approximately 3-inches wide, and most lock bodies are also 3-inches wide.

Technique Tip: You will lose power when pushing down if the pike hits the door. You will increase spread by moving the tool up.

SET THE TOOL - This step requires the most skill. This involves working the **FORK** of the Halligan Tool into the **Gap** to spread the door away from the frame. The Halligan Tool is considered "**Set**" when the **FORK** is "**locked in**" to the inside of the doorframe.

- Position the Halligan Tool **FORK approximately six inches above** or below the lock cylinder. If the tool is too close, the **FORK** may hit the lock and will not go through to "**lock in**." If it is too far away, the door may flex, and the lock will not fail.
- Place the **FORK** of the Halligan Tool, (**Bevel to the Door**) and angle the Halligan Tool to work around the doorstop. This is considered the ideal position since it produces the most spread of the door and frame and puts the most stress on the locking device. It is important for the member holding the Halligan Tool to "**walk the tool**" around the doorstop and frame.



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- These methods give greater range of motion to the halligan tool since the ADZ will be facing away from the door and not strike when the door is forced.
- It also offers a better striking position. The Halligan Tool will stand out at approximately 90 degrees to the door allowing the member with the axe more room to maneuver and deliver the necessary blows.



Figure 53 - Gap the door

Note: When there are multiple locks closely spaced on the door (stacked locks), position the tool above the upper lock or below the lower lock. Remember the six-inch rule is a general rule and should allow the FORK to clear the inside to the lock.

- The **forcible entry firefighter should be between the door and the tool**. Generally, the forcible entry member should have his shoulder in contact with the door. This position gives a good view of the area where the tool is being driven in and gives full range of motion for the tool as it is pushed away from the door as it is being driven in.
- The forcible entry firefighter should keep his **eyes on the FORK end** of the Halligan Tool where it is being driven into the **Gap**.
- **Keep moving the Halligan Tool** away from the door as it is being driven in (struck).



Set the Tool

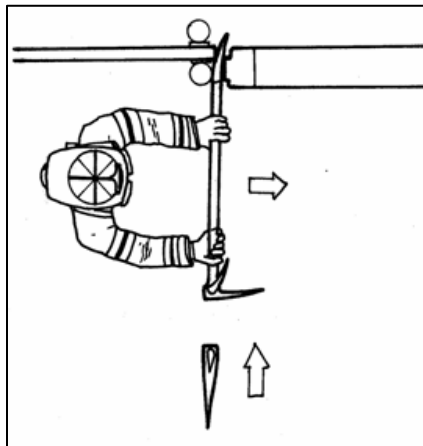


Figure 54 - Spring the door to prevent the forks from hitting the frame



Figure 55 - Set the Tool

Technique Tip: As soon as the tip of the fork is past the edge of the door, sharply push the tool away from the door. “Spring” the door away from the frame and maintain pressure on the tool to prevent the tips from striking the frame.

- **When** the Halligan is nearly **perpendicular** to the door, **drive in forcefully**. The **FORK** end of the tool is driven past the inside of the frame. This will ensure the tool being “**locked**” into position and not slipping when pressure is applied.



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- The tool is **SET** when the **ARCH** of the **FORK** is even with the **inside edge of the door / doorstep**.

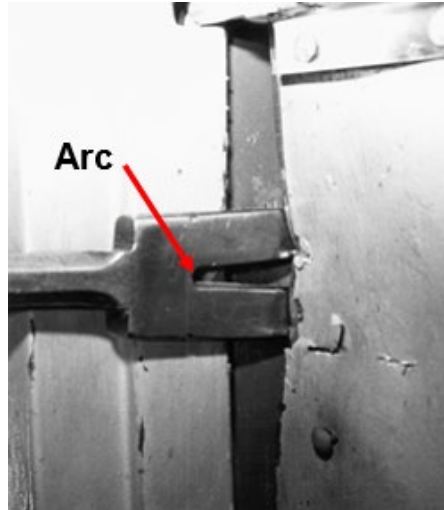


Figure 56 - Arch or Crotch of the halligan

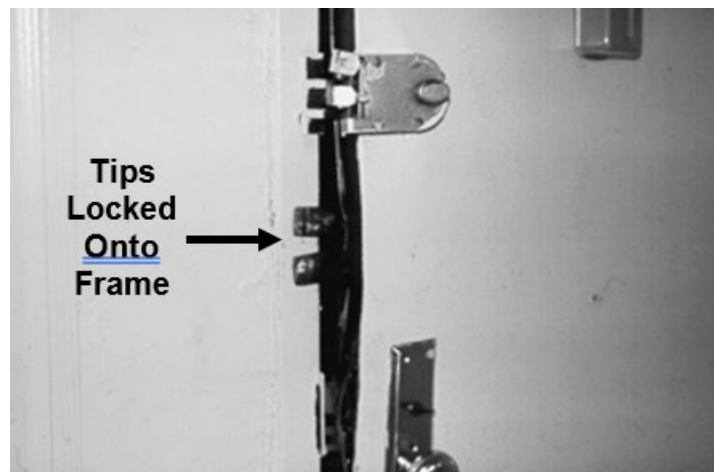


Figure 57 - Fork tip locked onto frame inside the door

Striking the Halligan Tool

Coordination and communication must be maintained between the members of the forcible entry team.

- The member holding the Halligan Tool (forcible entry firefighter) controls the operation.



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- The member with the axe strikes the Halligan Tool **PERPENDICULAR TO THE ADZ.**
- The member with the axe may have to stand, crouch, or kneel to obtain the best position.
- The member with the axe strikes the Halligan only when told.
- The commands “**HIT**” and “**STOP**” must be understood.

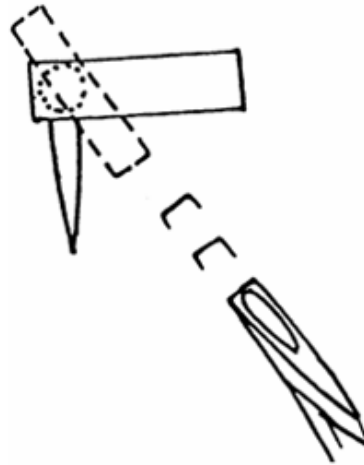
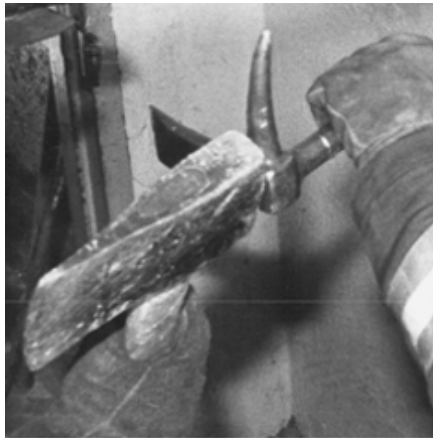


Figure 58 - Strike the ADZ and drive the body of the tool

Maintain Control

- Short chopping blows.
- Perpendicular to the ADZ.
- In line with the shaft.



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Figure 59 - Driving the body

Note: As the tool is SET, more powerful blows can be delivered.

1. **FORCE** - When the Halligan Tool is set, **force** is applied to the tool creating leverage against the door.
 - Forcible entry member **changes position to face the Door**. This gives him better position to apply pressure.
 - Ensures everyone is **ready**.
 - The other member of the team should try to control the sudden opening of the door by holding onto the doorknob or applying a hose strap to the knob.

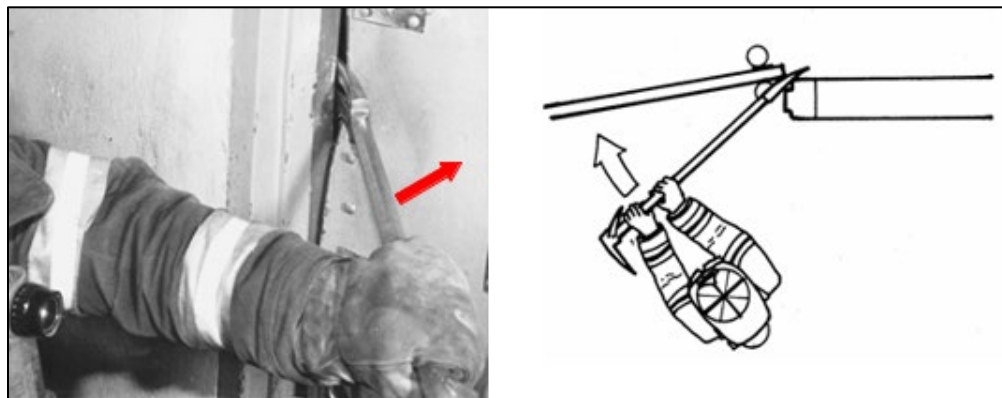


Figure 60 - Push door inward using the frame as a fulcrum for the forks and halligan



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- **Push in sharply to create maximum force.**
- If strong **resistance is met**, a second firefighter may be used to assist.
- As the door opens, the second firefighter must **MAINTAIN CONTROL OF THE DOOR.**

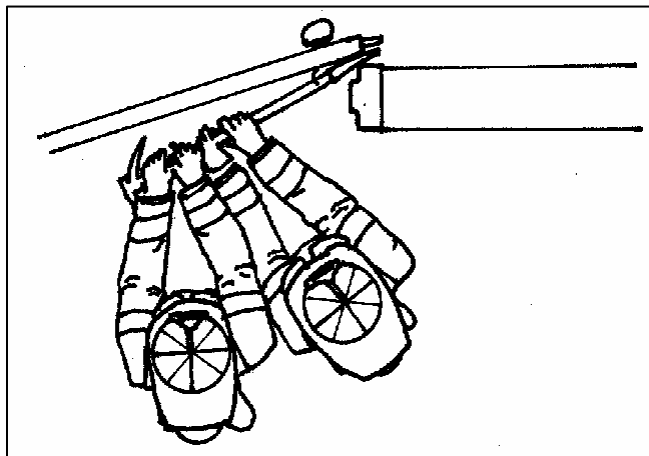


Figure 61 - Two-person force

Note: In the above method, as the door is flexed from the pressure, note the presence of fire behind the door. If fire is present, make sure there is a charged line in position to protect the forcible entry team.

Alternate Methods to Gap an Inward Opening Door

Pike or ADZ into the Frame

Driving the **PIKE** or **ADZ** into the **doorframe** with either the axe or maul, or simply by taking a “baseball-bat swing,” should give the tool enough bite to ensure a purchase. Try to bury the **PIKE** into the frame as close to the door and lock as possible. This procedure is very quick and simple for a one-man operation. **This procedure may force the door.** It works best on wooden doors with wooden frames.

- Place the **PIKE** between the door and the doorstop, on or near the lock.
- Drive (set) the **PIKE** with the axe.

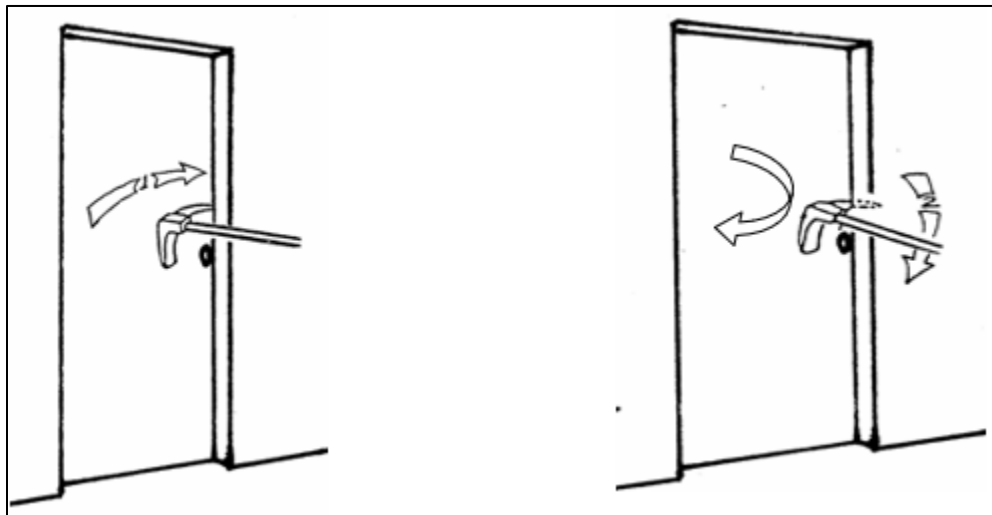


Figure 62 - Pike into the frame



Figure 63 - Gapping the door with the ADZ

Bevel to the Frame

- Place the **BEVEL** of the Halligan Tool **against the frame** and with an axe or maul, drive the Halligan Tool in.

This is usually done when there is a very tight door with stiff resistance:

- Usually a metal door with a metal frame.
- Obstruction is in the way making it difficult to strike the tool.

As the tool is driven in, it must not be driven **into the frame**. This takes a “**feel**” of the tool to do correctly.



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Note: This method does not give the full range of motion to the tool. The ADZ will strike the face of the door as the member pushes towards the door.



Figure 64 - Bevel to the frame

Batter the Door

Batter the Door with a few sharp blows with the Halligan Tool, axe, or maul to loosen the door to allow the ADZ to be slipped in. However, when using this method, you must hit the “**rail of the door**,” since this is usually the strongest area of the door.

Striking the door at other areas may weaken the door or knock out a panel such as on a raised panel door. **This is dangerous** since it allows heat, smoke, and fire to vent out of the opening making further forcible entry more difficult. **Do not** knock in the panel unless there is a charged line in position.



Figure 65 - Batter the door



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Technique Tip: If the door is set in a weak wood frame, several **sharp blows to the door right on the lock** may split the frame. This is especially true if the door contains a **mortise lock**. Note the mortise lock is set into a cavity made in the door. This may compromise the integrity of the door.

Batter the Door Frame

Batter the Door Frame by striking with an axe, maul, or Halligan Tool approximately 6 inches above or below the lock and driving it away from the door to allow entry for the Halligan Tool. Sometimes steel frames are filled with concrete and may not crush.

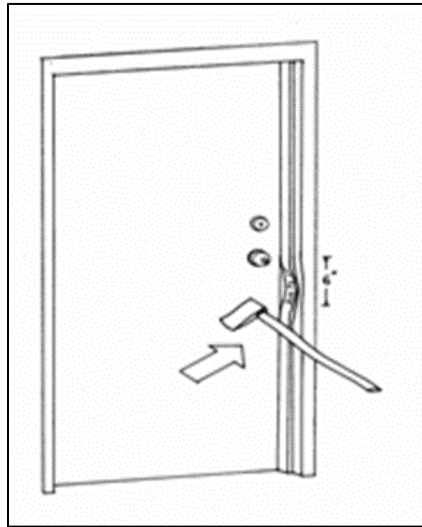


Figure 66 - Batter the frame

Remove the Door Stop

Remove the doorstop on wood and / or Kalameine doors with the **ADZ** or **FORK** end of the Halligan Tool. This is a simple way to open a door with minimal damage. This method works best on wood doors with wood frames.

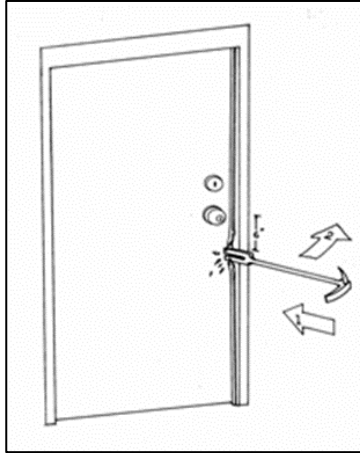


Figure 67 - Remove the door stop

The Halligan Tool Gets Stuck

Problem: THE FORK IS IN CONTACT WITH THE DOORFRAME

Solution:

- Increase the angle away from the door.
- “Rock” the tool to free it.
- Re-Gap the door; reverse the tool (Bevel to Frame).
- Move further away from the lock; this makes the door easier to spread.

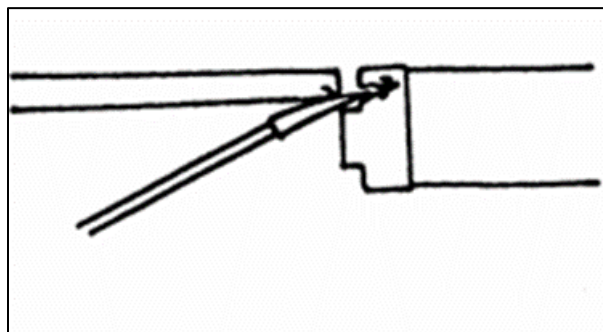


Figure 68 - Contact with doorframe

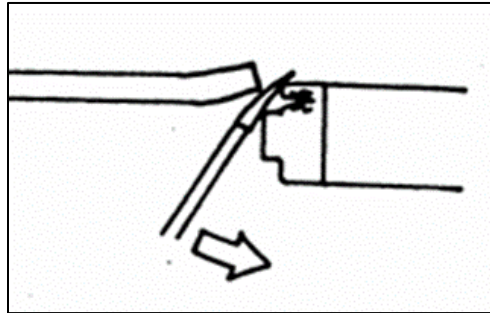


Figure 69 - Increase angle

Problem: THE FORK IS HITTING THE BOLT OR LOCK

Solution:

- Reposition the Halligan Tool above or below the lock.

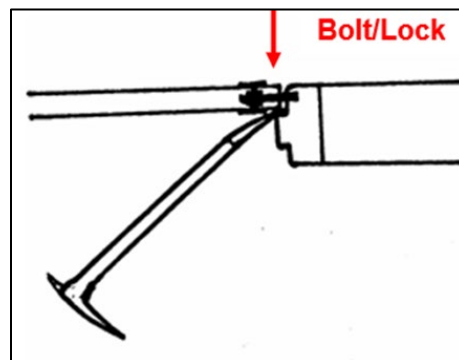


Figure 70 - Striking bolt/lock

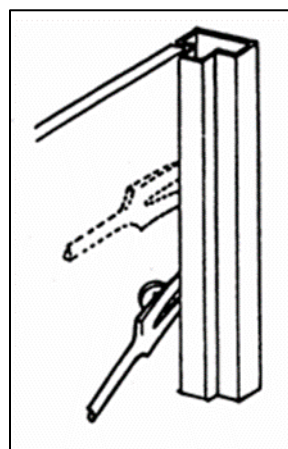


Figure 71 -
Reposition halligan



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Problem: THE FORK IS WEDGED INTO A TIGHT DOOR

Solution:

- Springing the Door
 - Move the Halligan Tool **side to side** to free up the tool.
 - Push sharply and hold until the tool is driven further in.

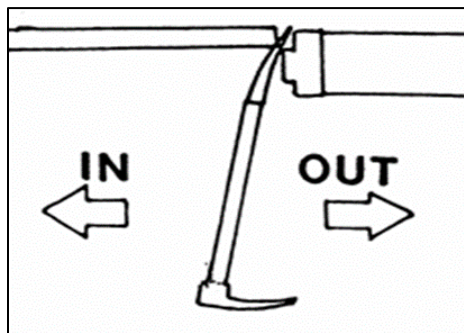


Figure 72 - Spring the door

Problem: THE FORK IS WEDGED INTO A TIGHT DOOR

Solution:

- Slipping the Lock
 - Move the Halligan Tool up and down. This may allow the tool to slip past the bolt of the lock.

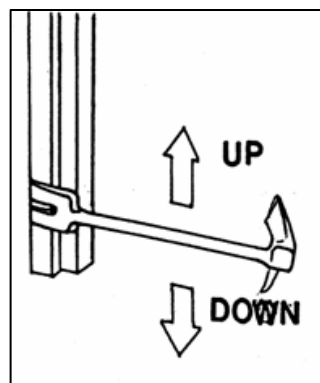


Figure 73 - Wedged forks in tight door



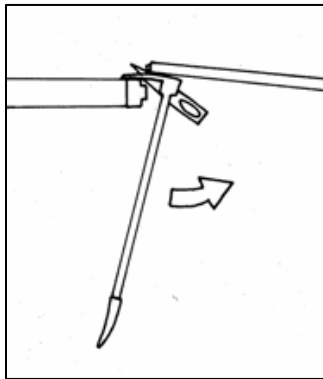
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The Door Does Not Open During the Initial Operation

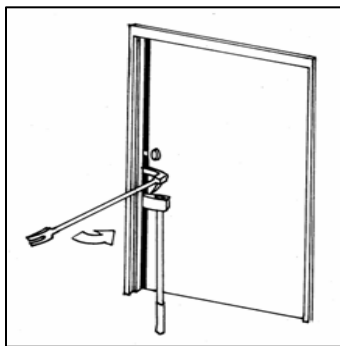
Problem: THE DOOR FLEXES AND DOES NOT OPEN

Solution: Method A – Using the ADZ

- **Maintain the purchase** with axe or another tool.
- **Slip the ADZ (or door chock) inside and behind the doorframe.**
- Both members of forcible entry team **push or pull** on the Halligan Tool.
- If the doorframe collapses and the ADZ gets stuck between the door and the frame, use the axe to wedge open the space, then **push or pull** the Halligan away from the door to release the ADZ.



**Figure 74 - Top View
of ADZ in door**



**Figure 75 - Front View
of ADZ in door**



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Note: This method greatly increases the Range of Motion of the Halligan Tool and will break most locks.

Problem: THE DOOR FLEXES AND DOES NOT OPEN

Solution: Method B – Using the Axe and Fork End

- Extra push may be obtained by placing the **head or blade of the axe** **between the Halligan and the door**.
- Place either the blade or the head of the axe into the door seam.
- Push in sharply with the Halligan.

Problem: THE DOOR DOES NOT OPEN DURING THE INITIAL OPERATION

Solution: Method B – Using the Axe and Fork End

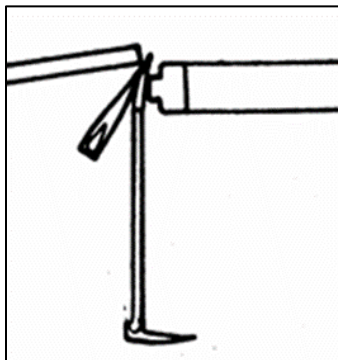


Figure 76 - Blade into door seam

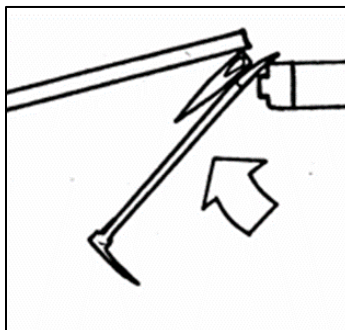


Figure 77 - Head into door seam



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Problem: DOOR OPENS PARTIALLY DUE TO STRONG LOCK(S)

Solution:

- Place the Halligan Tool **directly on the lock and drive it off** the door. Driving the lock off the inside of the door takes sharp blows with the axe. Remember that you are trying to drive out the screws that hold the lock onto the door.

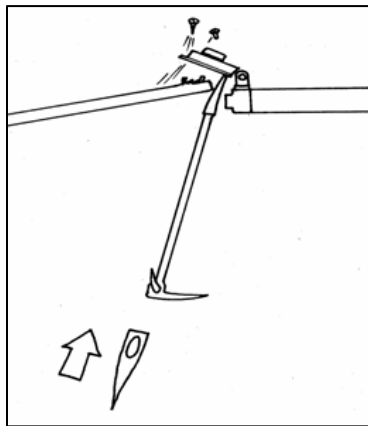


Figure 78 - Drive lock off the door

Driving the Lock off The Door



Figure 79 - Visualize the locking mechanism

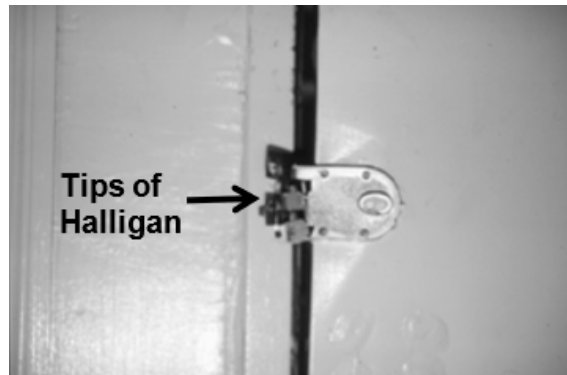


Figure 80 - Drive the lock off the door

Note: If you can crush the door enough to see the locking device (especially the vertical deadbolt type), you may be able to shear off the striker with the Halligan Tool.

Angle Iron Inward Opening Door (Door swings away from you)

- Usually bolted to the door, may be partial or full length.
- The angle iron may be flat stock or shielded (interlocked with “J” channel).
- Place the **BEVEL** towards the angle iron and the tool **PERPENDICULAR** to the door between the angle iron (shield) and the frame.
- Lock the tips of the fork into the doorstop and push in sharply, **(GAP) the door with the fork between the angle iron and the frame.**
- Reset the tool and drive in **(SET)**.
- Using the angle iron under the tool, **(FORCE)**.



Figure 81 - Gap, Set, Force with the Forks

Forcing the “J Channel” *Inward* Opening Door

- A newer type of device that is screwed into the door frame.
- The technique is modified by driving the **FORK** end of the Halligan between the shield and the door frame.
- Drive the **FORK** in until the tips hit the door.
- Push the tool toward the door, popping the shield off the frame or bending it out of the way.
- Re-set the tool and drive it in until it is set.
- Force the door.



Figure 82 - Gap, Set, Force inside the angle iron



Using the ADZ End

- Place the **ADZ** between the door and the frame.
- **GAP** the door by rocking the tool **up and down** to spread the door from the frame.
- **SET** the tool, and pry the door out by **pulling** on the Halligan so the **ADZ** can be driven in. Be careful not to “**bury the tool**” into the doorstop.
- **Force** the door, set the **ADZ** end around the inside of the door.

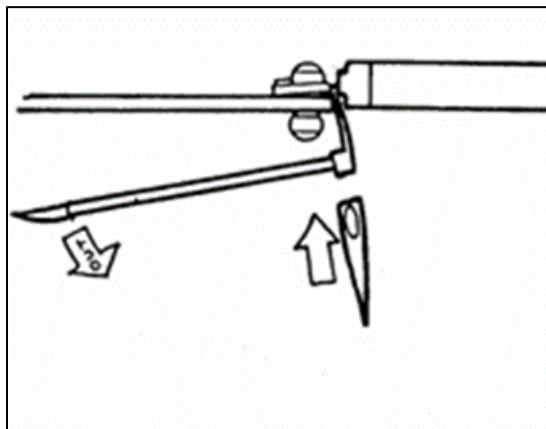


Figure 83 - Gapping the door (Top View)

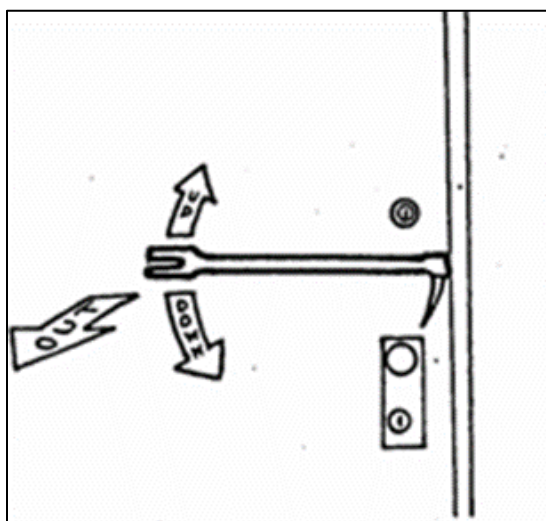


Figure 84 - Gapping the door (Front View)

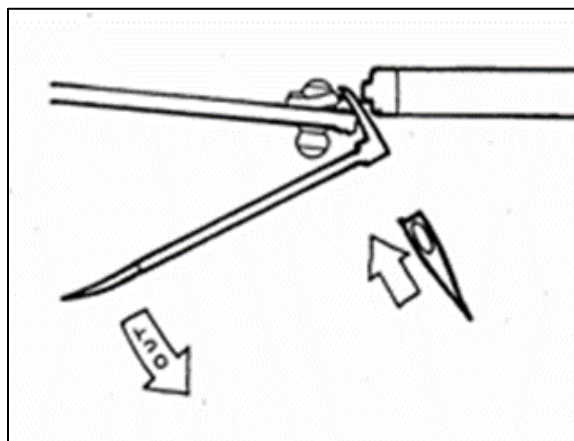


Figure 85 - Set the Tool

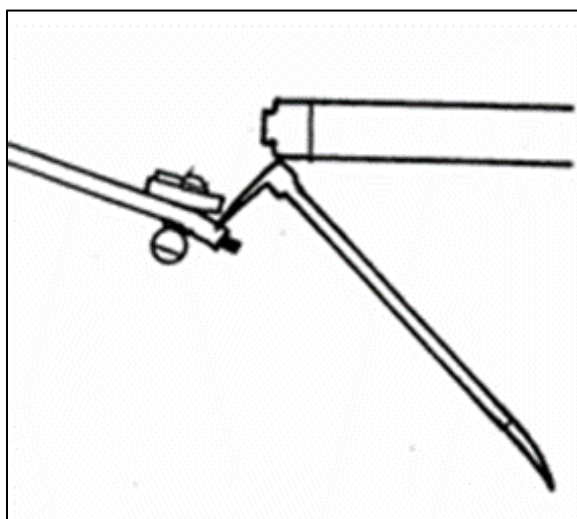


Figure 86 - Force the Door

Note: The firefighter always faces the door.

Using the Fork End

- **GAP** the door by placing the bevel side of the **FORK** toward the frame, just above or below the lock or hinge.
- **SET** the tool, pry the door by **pulling** out on the Halligan so the **FORK** can be driven in past the inside frame. Be careful not to “bury the tool” into the doorstep.



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- **FORCE** the door, set the **FORK** end around the inside of the door and by **pulling or pushing** the Halligan Tool **away** from the door (toward the wall).
- To use this method, the Halligan Tool must have sufficient room to allow the movement of the tool away from the door.

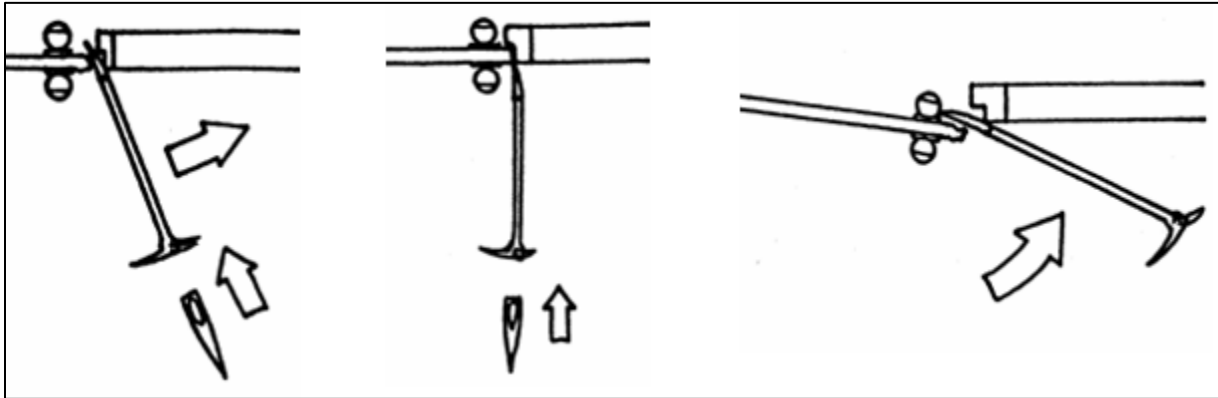


Figure 87 - Gap, Set, Force

Note: These methods will be dictated by the configuration of the building or any obstructions near the door.

PROBLEMS ENCOUNTERED WHEN FORCING *OUTWARD* OPENING DOORS

Problem: **RECESSED DOOR OR OBSTRUCTION**

Solution:

- To allow the **ADZ** to be driven in and around the door stop and to provide sufficient space for the **ADZ** to move away from the door.
 - Make a hole in the wall (if possible), for the movement of the tool.
 - **GAP – SET – FORCE** the door.



Figure 88 - Tight spaces are usually the norm in forcible entry

Problems Encountered When Forcing *Outward* Opening Doors

Problem: DIFFICULTY GETTING A PURCHASE (Tight Seam between Door and Frame)

Solution:

- Use the **Blade** of the axe.
- Use the **Fork** or **ADZ** end of the Halligan.
 - Tilting the **ADZ** up or down may start the purchase easier.

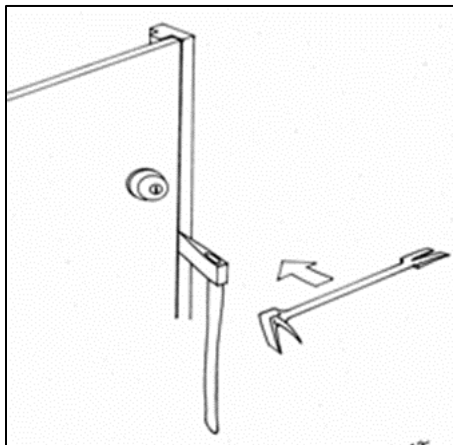


Figure 89 - Gaining a purchase with the blade of the axe

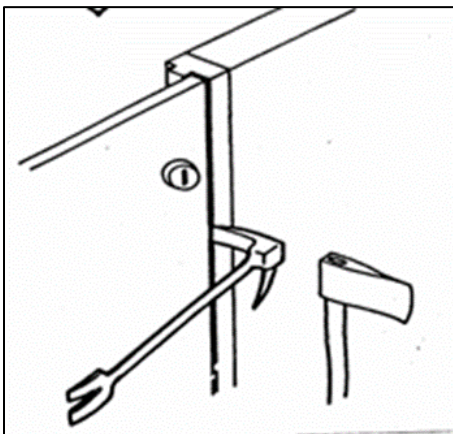


Figure 90 - Gaining a purchase with the ADZ of the halligan

Metal Strip on the Edge of the Outward Opening Door

Additional security may be installed on these doors by bolting a metal shield to protect the space between the door and the frame. It may be a full-length or partial shield. Dealing with the shield will require an additional step before proceeding to **Gap – Set – Force**.



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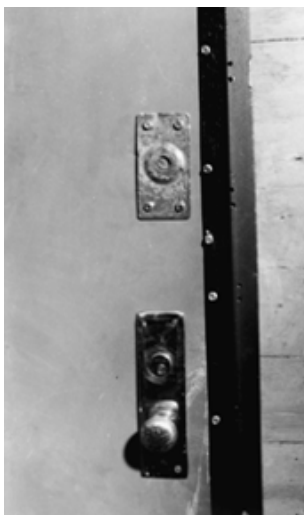


Figure 91 - Additional security on doors

- Drive the **ADZ** end under the edge of the metal strip and push the tool toward the door. Work the **ADZ** between the door and the frame and drive in to establish a gap.



Figure 92 - Use the ADZ

- Drive the **FORK** end under the edge of the metal strip and push the tool back toward the door.
- Work the **FORK** between the door and frame. Reverse the tool if necessary.



Figure 93 - Use the Forks

- Drive the **ADZ** end between the door and shield, bending the shield away to allow entry of the Halligan Tool.

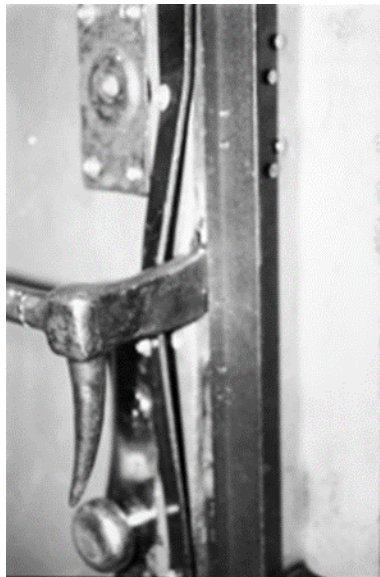


Figure 94 - Peel the angle iron to present the gap

- Shear the bolts and pry, bend or remove the shield as a last resort.



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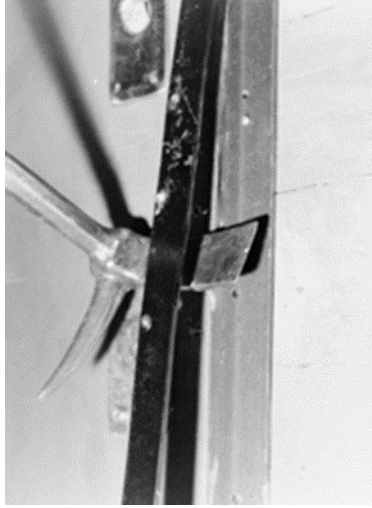


Figure 95 - Remove shield as the last resort

Note: At times if the angle iron is secured well, it may assist you in opening the door. If not, then you must remove it to access the door.



HINGES

Hinge Types

There are many types of hinges used today. The types we discuss will be known as:

- Standard
- Self-Closing
- Pin Type

Standard Hinges

- Most common type found in residential occupancies. May find two or three mounted on a door. The center pin connects the two pieces of the hinge.



Figure 96 - Standard hinges

Self-Closing Hinge

- This hinge is more common in commercial type occupancies. It is a sealed, spring-loaded hinge. These may also be mounted in sets of two or three to a door.



Figure 97 - Self closing hinge

Pin Type Hinge

- As a rule, these hinges are mounted on the exterior of Commercial Occupancies. The “Pin” is secured to the frame and the hinge is secured to the shutter or door.



Figure 98 - Pin type hinge

- Forcing a door at the hinge side **SHOULD NOT** be a **primary** means of gaining entry.



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- Once a door is forced in this manner you will **“lose the integrity”** of the door.
- The **PRIMARY** means of gaining entry should be on the **LOCK** side.
- Forcing a door at the hinge side should only be done when **ALL** other means of gaining entry on the lock side have failed.

Standard Hinge – Inward Opening Door (Door swings away from you)

Some suggested means of gaining entry:

- Force the door to expose the hinge, using the Halligan, then work directly on the hinge.
- Create a gap and use either the ADZ or FORK end of the Halligan.
- Place end of tool just below the hinge.
 - ADZ ends apply force either up or down.
 - FORK ends apply force either toward or away from the door.
- Using the **PIKE** end, as a fulcrum, separate the hinge from the frame.
- **“Batter the door”** at the hinge.
- With the back of the axe, maul, or Halligan Tool, strike the solid part of the door adjacent to the hinge.



Figure 99 - ADZ End



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Figure 100 - Fork End



Figure 101 - Pike End



Figure 102 - Batter the door



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Standard Hinge

Removing A Door

- With the door partially open, slip the **ADZ** between the door and the frame just below the hinge; then pry up or down.

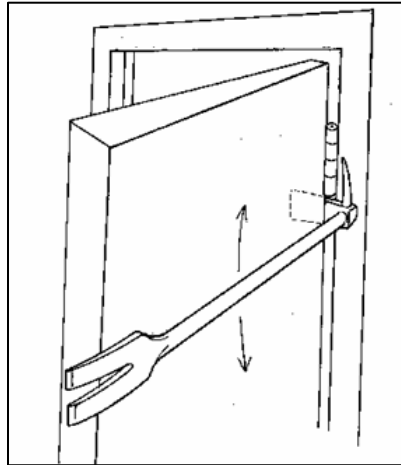


Figure 103 - Remove door

Note: ALWAYS attack the UPPER hinge FIRST so that smoke and heat will rise while completing the entry on the bottom of the door. Be aware, many doors now have three hinges.

Standard Hinge – *Outward* Opening Door (Door Swings toward You)

Some suggested means of gaining entry:

- Place the FORK end of Halligan Tool over the exposed hinge and pry up or down.
- On stronger hinges drive the Halligan over the hinge and twist side to side to break or loosen the mounting screws, then pull out.
- Remove the pin, if possible, to separate the hinge.

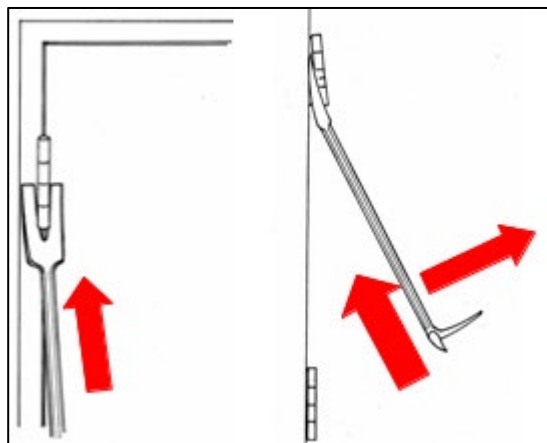


Figure 104 - Remove hinge front and side view

Note: ALWAYS attack the UPPER hinge FIRST so that smoke and heat will rise while completing the entry on the bottom of the door. Be aware, many doors now have three hinges.

Technique Tip: For a Bulkhead door, keep the door between you and the opening to protect from heat and or flames, which may come out.

Self-Closing Hinges

Method 3

- Cut the hinges with the forcible entry saw.

Note: ALWAYS attack the UPPER hinge FIRST.

Technique Tip:

For a bulkhead door, keep the door between you and the opening to protect from heat and or flames which may come out.



Figure 105 - Cut hinge

Pin Hinges

These types of hinges are usually found on shutters. They can also be found on commercial buildings and places of public assembly. The “pin” is attached to the window frame or doorframe, and the shutter or door holds the corresponding hinge. Some suggested means of forcing entry:

- Use the power saw to cut the hinge.
- Breaking the anchor point where the hinge is set by using the back of the axe, maul, or Halligan.
- Prying the hinge with the hydraulic tool.

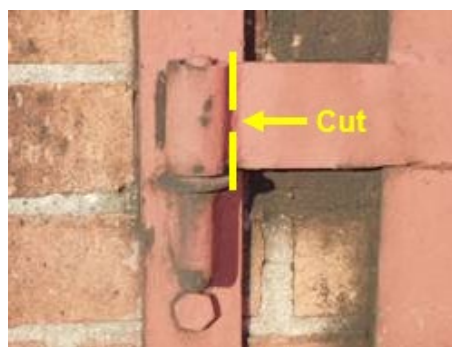


Figure 106 - Cut the smallest amount of metal

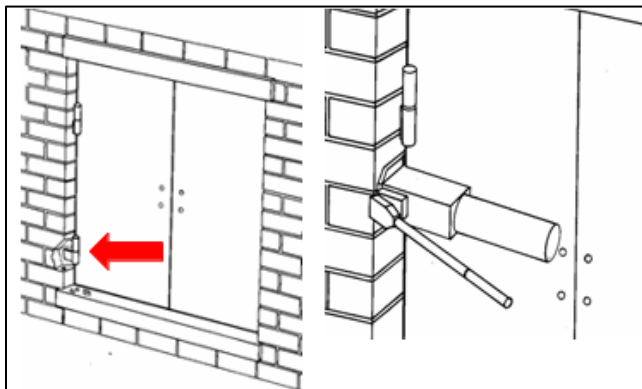


Figure 107 - Break out the masonry holding the hinge

Note: Be aware of possible venting smoke and or fire. Place the shutter/door between you and the opening if possible.



CHOCKING THE DOOR

This is a very basic and important task that gets overlooked from time to time. Many doors are self-closing and if not chocked open, delays other members from entering the fire building (occupancy).

Whatever means used to chock the door must be **“positive,”** not something that can be knocked out unintentionally. However, it must be something that **can be removed quickly** if necessary.

It is suggested that the first unit to enter the fire building be responsible for **“chocking”** the door. That could be the Officer or any member of the forcible entry team.

Some suggested methods of chocking a door:

- A wooden chock wedged under the door. Every member should carry at least two wood chocks in their pockets.



Figure 108 - Place wedge out of the walking path so it does not get kicked out



Figure 109 - Wood wedge



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- Head of axe slid under the door. As the forcible entry team enters the occupancy, the axe is wedged under the door. This method marks the door, keeps it open and safeguards the axe since it is rarely used **INSIDE** once the door is forced. If you feel the axe might be needed **INSIDE**, then this method would not be appropriate.



Figure 110 - Axe head as door chock

- Head of axe placed between the door and the frame, below the bottom hinge. A variation of the above method is placing the axe between the hinges. This ensures the door staying open and lessens the chance of the axe being kicked out by members entering. It also marks the door and safeguards the axe. If you feel the axe might be needed **INSIDE**, then this method would not be appropriate.



Figure 111 - Axe head in frame

- A nail placed between the frame and door

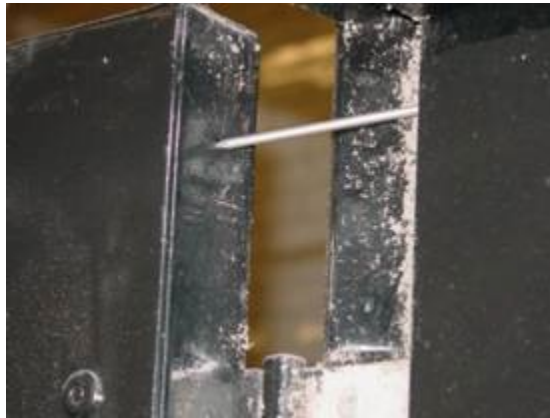


Figure 112 - Nail in frame

- Disable the door by placing a tool between the frame and the door just above or below the hinge and prying down will break most hinges and keep the door open.

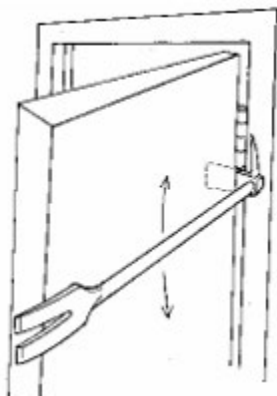


Figure 113 - Remove the door so it does not close

- Any other method that keeps the door open.

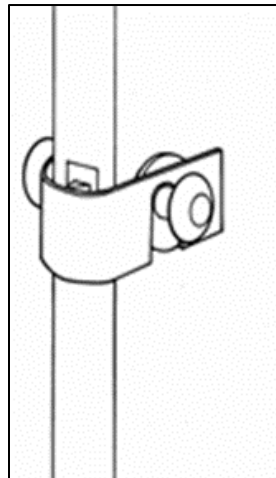
Securing the Door

To ensure that the “opened” door does not close and re-lock, the following methods may help.

- **“Rigging the Lock”** - Throw the bolt of the dead bolt lock so the extended bolt will prevent the spring latch from locking.
- Placing a latch-strap over the doorknobs to prevent the spring latch from engaging.



Figure 114 - Rigging the lock



**Figure 115 -
Latch strap**

Thru-the-Lock Entry

The “Thru-the-Lock” approach is a means of gaining entry by attacking the locking device and **opening the door with little or no damage to the door or frame**. This is a professional method of entry and serves as a good public relations tool.

In most cases, this method would only be used when **time and fire conditions are not urgent**, or where conventional methods would cause more damage than the fire itself. Examples would be high-rise office buildings, hotels, motels, and/or commercial occupancies, where many rooms and or occupancies must be checked without causing too much damage. The Thru-the-Lock method usually does not create as much of a security problem as conventional forcible entry method.



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There are times with certain types of locks that the Thru-the-Lock method of forcible entry may be a quicker, more efficient means of entry, whatever the conditions.

Since security has been improved through technology over the years, this book can only address what is most common. This section of the book will outline some basic principles, methods and techniques used in **Thru-the-Lock Entry**.

Size-Up

Size-up is an important function that is performed, for all operations, on the fireground. It is critical that a proper size-up is done before we begin our forcible entry operation.

Though it is impossible to know for sure what type of lock is securing the occupancy by looking at a solid door from the outside, we can make an educated guess based on:

- Type of **occupancy**.
- Type of **door**.
- **Location** of the **lock cylinder(s)**.
- **Direction** the door **moves** (inward or outward).
- What we **see on the door** (other than the locks).
- Anything **unusual** (lock cylinders out of line).
- Knowledge of the **type of lock**.
- Let the **fire condition** dictate your method of entry.

Combine all this information with past experience and proceed in **attacking the lock**, not the door.

We need to understand that only **practice** will make us more proficient in our operation, so we must use every opportunity.

Note: The cheaper the lock, the more difficult it may be to force. Cheaper locks tend to break up causing delays, and/or requiring alternative means of pulling the cylinder.



Key-In-The-Knob Lock

As the name implies, the locking mechanism is part of the knob. These devices are found on both inward and outward swinging doors. The spring latch on many of these locks enters the striker approximately 1/2 inch.

Forcing the Key-In-The-Knob Lock - Using the Officer's Tool

The doorknob can be removed simply and quickly with the Officer's Tool (FDNY), without damaging the stem assembly.

- If the **door is hollow**, an axe can be placed behind the tool to give the fulcrum a substantial base to pivot off.

After the doorknob is removed, insert the stem of the Key Tool into the slot (if present) or into the back of the spring latch and pull or twist toward the hinge side of the door to activate the latch.



Figure 116 - Knob removal



Figure 117 - Axe head as a backstop



Forcing the Key-In-The-Knob Lock – Removing the Center of the Knob

There are some locks where the center of the knob can be removed (example, Kwikset type lock) with a knife-like tool or slotted screwdriver.

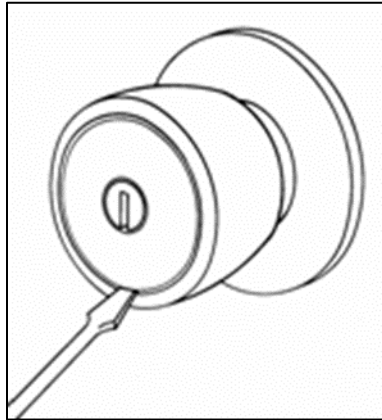


Figure 118 - Removal of lock face

Forcing Key-In-The-Knob Locks – Outward Swinging Doors

Key-in-the-Knob locks on outward swinging doors have a simple spring latch which can be slipped back (opened) with a flat tool such as a **Shove Tool**.



Figure 119 - Shove Tool

At times there is a simple device known as **anti-loitering pin**, which may be added to the latch. This pin prevents the insertion of the shove tool without moving this pin first.

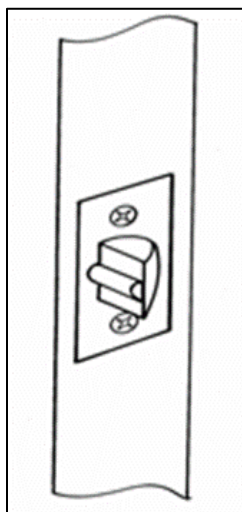


Figure 120 - Pin engaged

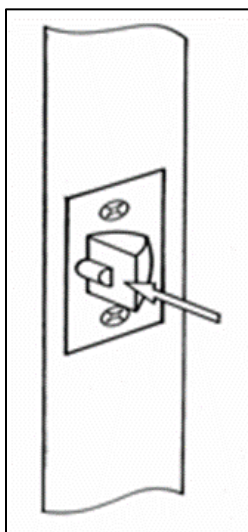


Figure 121 - Pin pushed back

Tubular Dead Bolt

This is a very popular locking device. It may be single or double key activated. It is a cross between a mortise lock, rim lock and a key-in-the-knob lock. These locks may be recognized by their **position on the door and/or the size and shape of the cylinder**.

These locks have become more sophisticated as the demand for greater security has



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increased. They may have a hardened steel rod through the center of the locking bolt. The length of the bolt has been increased to the point that it **may take two full rotations of the key to remove the bolt from the keeper.**

The lock face is usually held in place by a hardened steel mounting. The cylinder is either **too deep or too wide**, which prevents the K-Tool from being used. To use the Thru-the-Lock method, the cylinder needs to be removed to enable the use of a Key Tool to trip the lock. If the K-Tool is unable to remove the cylinder, then an alternate method of removal would be needed to use this method.

If the cylinder is unable to be removed, then you will have to resort to conventional forcible entry methods to force the lock.

The stem of the tubular deadbolt, which retracts the locking bolt, can be various shapes.

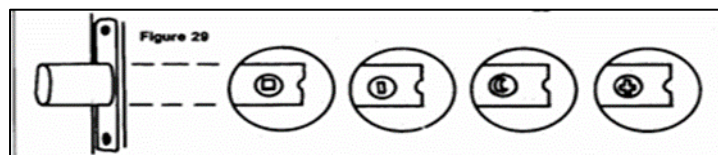


Figure 122 - Tubular deadbolt

Forcing the Tubular Dead Bolt

- Remove the cylinder by pulling it out with either the Officer's Tool, K-Tool, or modified Halligan.
- Insert Key Tool.
- Rotate to open.



Figure 123 - Remove cylinder



Technique Tip: Place the Officer's Tool at an angle to start the operation.

Note: Using the Officer's Tool would be the preferred method on most of these locks due to its ability to get a better bite behind the cylinder.

These locks may be found below the normal entry lock and doorknob to prevent someone from kicking in the lock.

Problems Encountered When Using the K-Tool

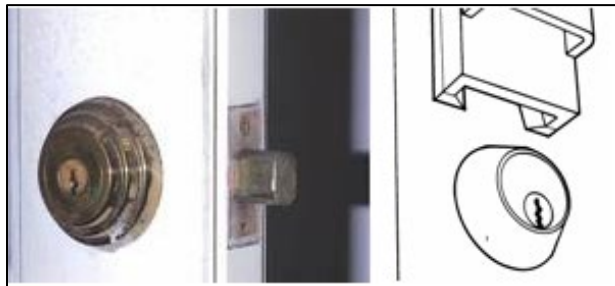


Figure 124 - Cylinder too deep

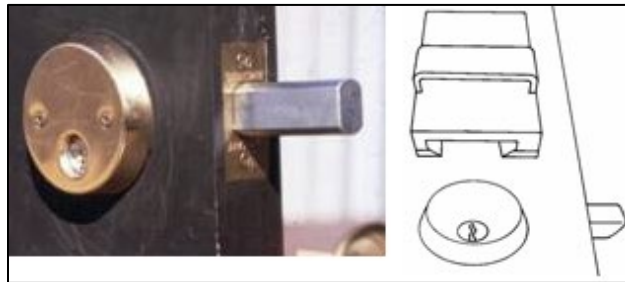


Figure 125 - Cylinder too wide

RIM Locks

These locks are usually installed as an **add-on lock**. They are installed on the **inside surface of the door** (with the cylinder extended through the door). Only the cylinder is visible from the outside of the door. See Chapter 5 for types of rim locks.



Figure 126 - Rim lock on the outside of a door

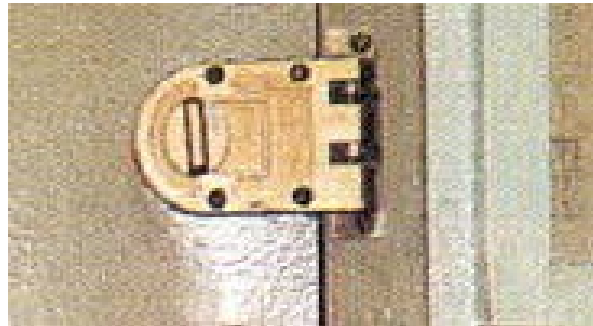


Figure 127 - Rim locks are usually added on to the inside of a door

Principal of Operation – RIM Lock

The back of the rim cylinder has a stem, which is inserted into the backside of the lock. As the key is rotated in the cylinder, **the stem** on the back end of the cylinder rotates the latch or bolt, which locks or unlocks the lock.

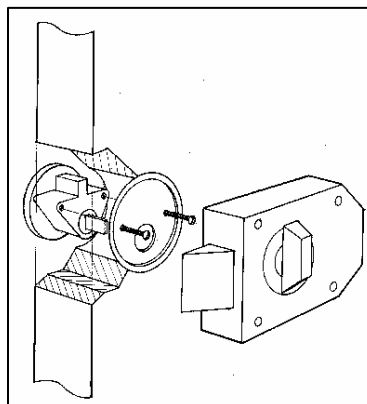


Figure 128 - Rim lock operation



Using a Lock Puller (Officer's Tool / K-Tool)

- Set the lock puller behind the cylinder getting a secure purchase.
- **Pry up** on the lock puller, pulling the cylinder from the door.
- The back plate is either pulled through the opening or the set screws are ripped from the back plate.
- Insert correct **"Key Tool"** and turn, unlocking the lock.

Note: The cylinder is held in place by two set screws through a back plate. It is the back plate being pulled through the cylinder hole that determines the difficulty.

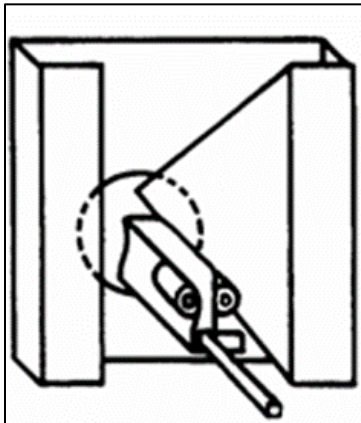


Figure 129 - Set the Tool

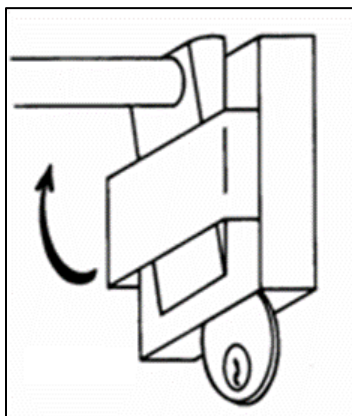


Figure 130 - Pry up on the cylinder

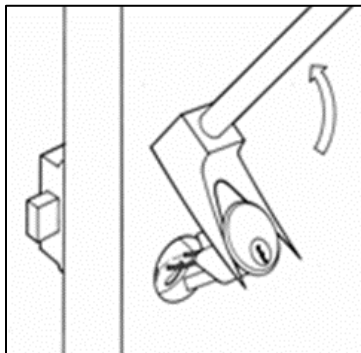


Figure 131 - Pull the back plate through

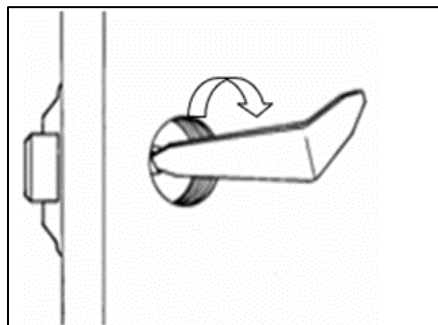


Figure 132 - Turn the key tool to manipulate the lock

Note: Once you have pulled the lock cylinder, be sure to use the proper end of the Key Tool.



Figure 133 - Lock cylinder removed



Figure 134 - Proper end of key tool

On some rim locks, a “shutter” may be installed over the lock mechanism. This will prevent the insertion of a Key Tool. You may have to drive the lock off the door with the tool inserted in the cylinder hole.

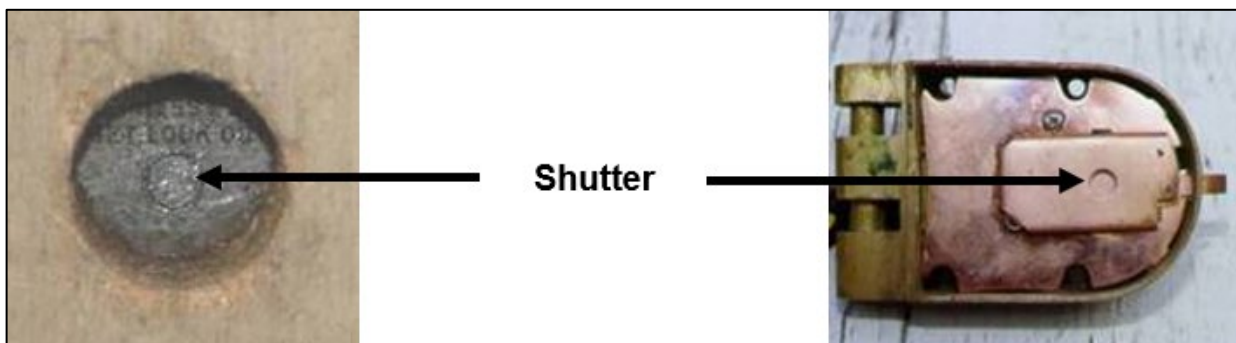


Figure 135 - Shutter installed over mechanism



Driving Off the Lock

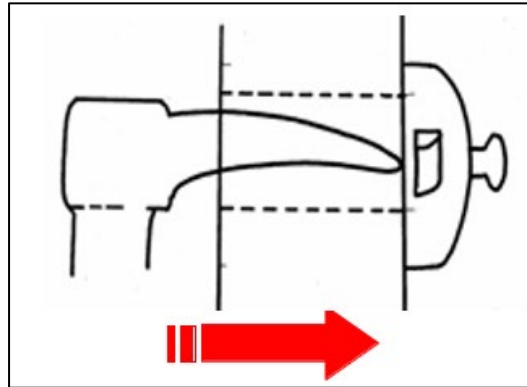


Figure 136 - Pike end

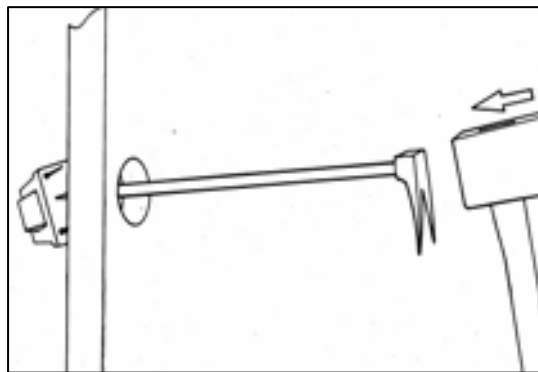


Figure 137 - Officers Tool

Mortise Locks

Are designed and manufactured to fit into a cavity in the edge of the door (either metal or solid wood). They have a solid, threaded key cylinder which is held in place by two set-screws. There are various types and styles of these locks available today.

A deadbolt and latch is a mortise type lock that contains both a latch and a bolt in one unit.



Figure 138 - Mortise Locks

Principle of Operation – Mortise Locks

As the key is rotated in the cylinder, it turns a cam on the back of the cylinder. This cam contacts a lever inside the lock box removing it from the strike. Although the key will cause the cam to make a complete revolution, the actual work of opening the bolt is usually accomplished between 5 and 7 o'clock or 7 and 5 o'clock of that revolution depending on which side (right or left) of the door the lock is mounted.

FORCING THE MORTISE LOCK:

- Set the K-Tool firmly on the cylinder and remove the cylinder by **pulling up**.
- Insert the correct Key Tool.
- Rotate the Key Tool. If the mechanism is found at 5 o'clock, rotate toward 7 o'clock, if found at 7 o'clock, rotate toward 5 o'clock.
- If mounted with a doorknob, it may have a latch that may be connected to a second assembly.
- This may **necessitate a second revolution** of the cam to remove the cam from the keeper.

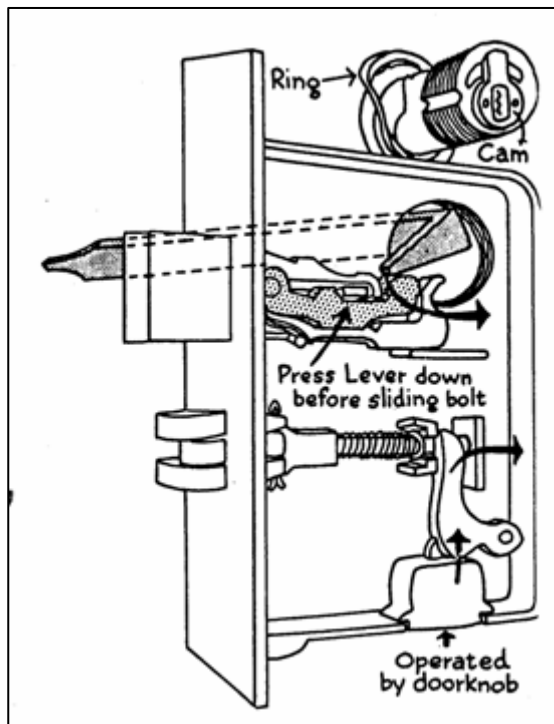


Figure 139 - Mortise Lock: Remove ring and cylinder, press lever down with key tool before sliding the bolt, turn doorknob

Note: Once you have pulled the lock cylinder, be sure to use the proper end of the Key Tool.



Figure 140 - Lock cylinder removed

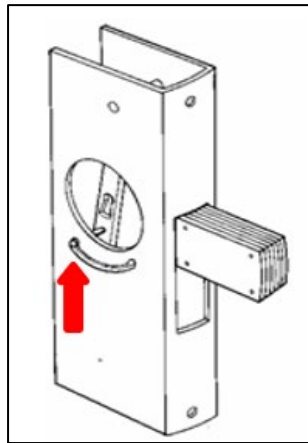


Pivoting Deadbolt

This popular lock is usually found on aluminum and glass panel doors with narrow stiles. It is also found on solid glass (tempered glass) doors with the frame on the top and bottom edges only. Generally, these are commercial occupancies.

Principle of Operation – Pivoting Deadbolt

These locks usually have a laminated bolt, which may extend up to 1-3/4-inches. The tripping mechanism is slightly different than other mortise locks, which requires the correct Key Tool to be used to depress the locking pin, which rotates the dead bolt. The pivoting bolt allows forward throw to be the entire depth of the frame channel.



**Figure 141 - Pin
away = door locked**

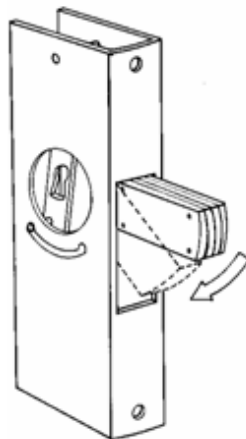
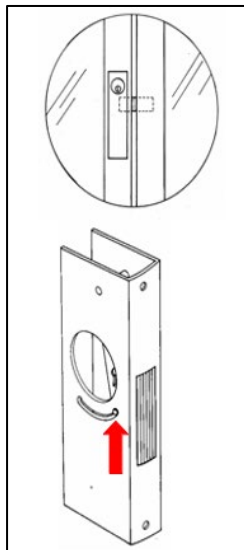


Figure 142 - Bolt pivots into the frame



**Figure 143 - Pin
forward = door
unlocked**

The above is a narrow style, pivoting deadbolt showing the 1 $\frac{3}{4}$ inch laminated bolt. The locking pin is **AWAY** from the leading edge of the door. The door is **locked** when the pin is in this direction. As it is depressed the bolt “**pivots**” into the frame. When the locking pin is **FORWARD**, the bolt is inside the frame and the door is **unlocked**.

Forcing the Pivoting Deadbolt - Using the K-Tool

This device is virtually impossible to force conventionally (axe and Halligan) without breaking the glass insert and or destroying the door and or the frame because of the long **throw of the DEADBOLT (up to 1-3/4-inches)**.

Pulling this cylinder is usually no problem for the “**K -Tool**” (it was designed for this lock). These cylinders rarely break apart.’

Instructions

- Place the K-Tool over the cylinder and set by driving down over the face of the cylinder to lock onto the cylinder.
- Pry **UP** with the **ADZ** end of the Halligan, removing the cylinder.
- Using the bent end of the Key Tool, **DEPRESS** the pin and **SLIDE** the pin forward, pivoting the deadbolt down into the housing.
- As the locking pin slides forward, the bolt is retracted, unlocking the door.



Figure 144 - Insert K tool, pry up on lock cylinder, slide key tool in and unlock

Note: The pin will be located at either the 5 o'clock or the 7 o'clock position. Move the pin from 5 o'clock to 7 o'clock or from 7 o'clock to 5 o'clock to retract the bolt, unlocking the door.



Figure 145 - Place end of key tool in to depress the pin

Forcing the Pivoting Deadbolt – Using the Vise Grips

The cylinder may be able to be turned out of the lock by using a pair of vise grips. Since all cylinders are held in place with set-screws, a quarter turn clockwise may bend the set screw just enough to allow you to **turn the cylinder counter-clockwise** and remove it. After entry is accomplished, the cylinder may be screwed back into the lock box.

This method may work on most mortise locks.

If the cylinder guard is beveled or rotates freely, pulling the cylinder is a difficult, if not impossible, task.



Forcing the Pivoting Deadbolt – Using the Vice Grips



Figure 146 - Vice grip on cylinder



Figure 147 - Unscrew cylinder to expose locking pin

Note: At no time do we recommend breaking the glass in the door. The reason is safety. If it is “Plate” glass, the broken pieces may be quite large and very heavy. If they are in front of the doorway, they can become a tripping or slipping hazard. Glass and water make for a very unsafe combination when on the ground.

If a glass piece hangs up in the frame it may become dislodged and strike a member causing a severe cut or laceration. This is quite common since the smoke coming from the occupancy may cover the upper portion of the doorframe obscuring any fragments left in the door.



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Alternate Means of Forcing – Using the Saw

If the occupancy has **center opening double doors**, take the **forcible entry saw** with the metal cutting blade and cut the bolt between the doors. There is enough room between the doors because of the door swing and the space is usually covered with only weather stripping. This may work with a single door if there is clearance for the saw to get in.

Alternate Means of Forcing – Using the Saw



Figure 148 - Rotary saw on pivoting bolt



Figure 149 - Completed cut on pivoting bolt

Note: If the bolt has a ceramic insert it will be more difficult to cut through alternate means of forcing – Using the Halligan



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Place the **ADZ** end of the Halligan between the door and the jamb, with the bar of the Halligan in line with the cylinder, and parallel to the ground. Strike the Halligan with an axe or maul **DOWNWARD** on the **ADZ**. This may snap the pin holding the bolt and pivot the bolt out of the keeper.

This may work with single or double doors if there is room to place the Halligan.

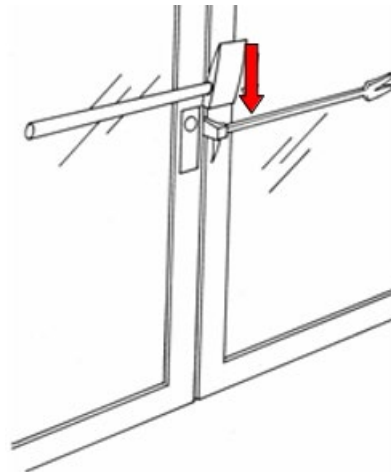


Figure 150 - ADZ on top of bolt, strike down



Figure 151 - Throw of lock is down

PADLOCKS



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Padlocks are detachable locking devices having a sliding and pivoting shackle that pass through fixed or removable hardware and then made secure.

This section provides information and recommended procedures and tools used for forcible entry of padlocks. Like any fire or emergency, operational procedures and conditions on arrival will dictate the course of action. Is it a ***tactical response*** - Fire and/or life-threatening emergency or is it a ***routine response*** - non-life-threatening emergency?

Padlocks are used in all types of occupancies, e.g., multiple dwellings, commercial, private dwellings, vacant buildings and even subways and railroads.

Padlocks are used on both the exterior and interior of occupancies. They are found in the places you least expect, and you may have to force one with only the tools you carry. Therefore, members should be able to identify the various types of padlocks and their attachment hardware and means of installation.

For this guide, the names of the locks used by the author are “street” names and not the manufacturer’s product name.

Categories of Padlocks

For size-up and understanding of padlocks, they are placed in three (3) categories:

- Light duty.
- Heavy duty.
- Special purpose.

Padlock Size Up:

- Type of padlock.
- Hardware and installation (attachment device).
- How many padlocks and their location?
- Accessibility.

Parts of a Padlock

- Shackle or bow.



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- Body, solid or laminated.
- Keyway.

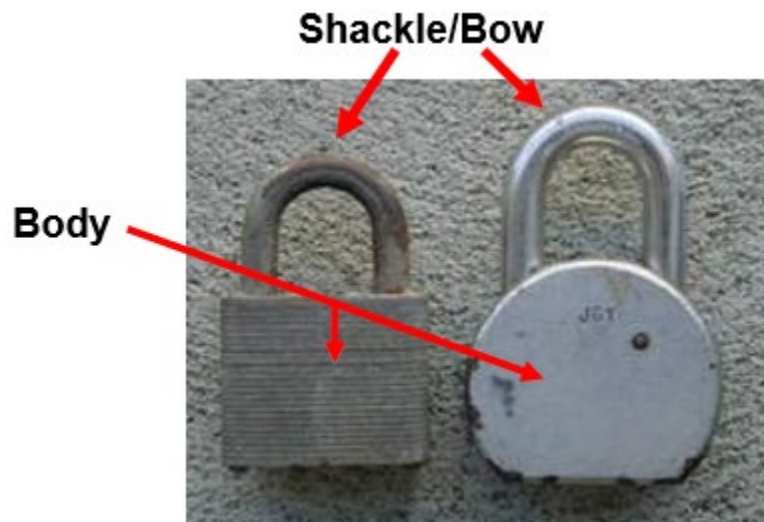


Figure 152 - Laminated lock on Left, Solid lock on Right



Figure 153 - Keyway

Light Duty Padlock

- Shackle or bow is usually **1/4 inch or less**.



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- Shackle or bow **usually not case-hardened**.
- Body of lock, solid or laminated.
- Keyway (type may vary).



Figure 154 - Light duty padlocks

Heavy Duty Padlock

- Shackle or Bow, **1/4 inch and larger**.
- Body of lock, solid or laminated.
- **Case-hardened steel.**
- Toe and heel locking.
- Guarded keyway.



Figure 155 - Heavy duty padlocks

Special Padlocks

Hockey Puck / American 2000 Series

Round padlock, American 2000 is the most common. This device may also be called a “doughnut” lock.

- No exposed shackle.
- Locking device fits over the staple.
- Removable pin.
- May be case-hardened.



Figure 156 - American 2000 Series (Hockey Puck Locks)



Wrapped Lock

Constructed on an individual basis, it is not a commercially sold padlock and will vary in strength.

- Heavy **gauge steel welded** to the lock.
- **Limited** access to the keyway.



Figure 157 - Additional security for pad locks

Gate Locks

These are devices made specifically for securing roll-down security gates. There are a few varieties of gate locks that are becoming very popular in urban areas. Here are a few of the most common the authors have encountered.

Bolt Lock (Medeco)

This case-hardened, tubular steel device goes through the gate and rail securing the occupancy. When secured properly it is very effective.



Figure 158 - Bolt lock front and side views



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Mushroom Lock

This device is secured into the bottom rail of the security gate.



Figure 159 - Mushroom lock

Tank Lock

An extreme method of protecting the padlock. This is manufactured on the site. It is steel welded to the frame protecting the padlock.



Figure 160 - Tank lock



ASSOCIATED HARDWARE USED WITH PADLOCKS:

Hasps

Manufactured in many different sizes and strengths. They may be in-stalled with screws or bolts, which may be guarded by the hinge while in the locked position.



Figure 161 - Hasp

Slide Bolts

A device that travels in a track, which locks into a recessed hole or hardware. Padlocks pass through rear of bolt and are made secure. These slide bolts may be made of case-hardened steel. They are installed with screws or carriage bolts which may be exposed or guarded.



Figure 162 - Slide bolt

Note: An alternate means of forcing a slide bolt is to place the FORK or PIKE end of the Halligan Tool inside the shackle and twist the entire lock to break the hardware (slide bolt) holding the lock.



Figure 163 - Twist slide bolt off with the fork of the halligan

Forcing Padlocks – Using the Forcible Entry Saw

Use the aluminum oxide blade. This should be the **primary tool** to remove padlocks, hardware, and attachment devices. It offers speed and is relatively safer than striking tools

Padlock with *Exposed* Shackle:

- Rotate the padlock to get a cutting position.
- Cut through BOTH SHACKLES AT THE SAME TIME.



Figure 164 - Cut shackle with Rotary saw



Padlock with *Shielded* Shackle

- This could be the American 747 series or a wrapped lock.
- Rotate the padlock; confirm that the shield covers both front and rear of the lock.
- Cut through both shields at same time.
- Apply two vertical cuts through the shackle if accessible.



Figure 165 - Shielded shackle

Hockey Puck Lock (American 2000 Series)

Cut through the body of the padlock **3/4 up from the keyway**. If lock remains engaged after being cut through, strike the side of the padlock with a sharp blow. This will usually remove the lock. Some of the newer 2000 series have a shielded keyway which must be cut to open the lock.

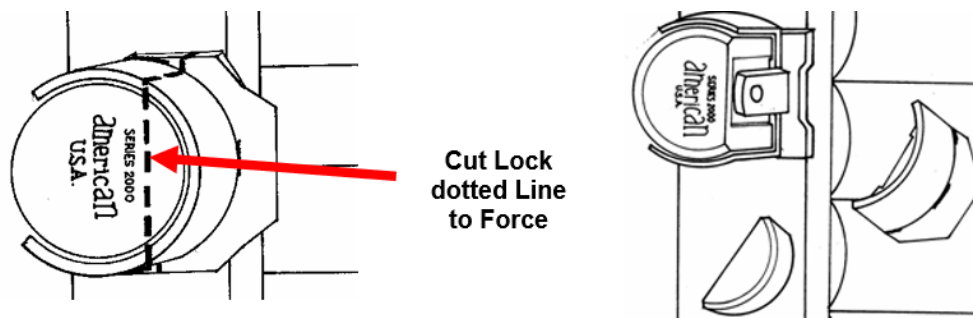


Figure 166 - Cut the upper third of lock with a rotary saw



Figure 167 - Rotary saw cutting a hockey puck lock



Figure 168 - Hockey puck lock exposed

Note: This is a change from traditional cuts of 2/3-inches up the keyway. You must cut $\frac{3}{4}$ -inches up from the keyway to clear the internal hasp.

Pike of The Halligan Tool

- The **PIKE** of the Halligan Tool may be more effective on padlocks with short shackles.



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- Place the pike into the shackle opening, keeping the Halligan Tool as horizontal as possible.
- Maintain pressure on the lock body.
- Deliver sharp blows with a maul or axe.

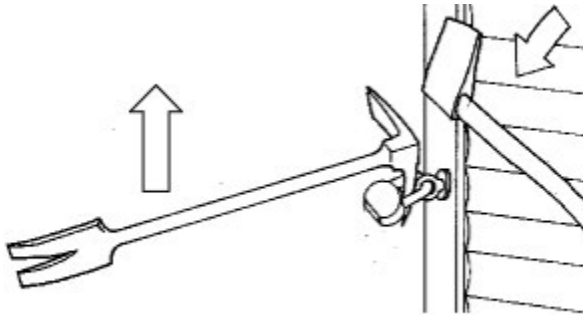


Figure 169 - When striking either tool with the axe, the eight-pound axe is preferred.

Forcing Padlocks – Using the Bolt Cutters

Bolt Cutters

Bolt cutters are excellent for cutting light duty pad locks, light duty chains, cable, and hardware. As a last resort they can also be used to cut heavy-duty padlocks, but when used this way, they may damage the jaws of the bolt cutter.

If they must be used for a heavy-duty padlock:

- Open the bolt cutter to the maximum spread.
- Position the bolt cutter so one handle is securely positioned against a substantial object (wall, ground, etc.).
- Push with hands on handle to cut the hardware.

Note: Most heavy-duty padlocks have toe and heel locking. Both sides of the shackle may have to be cut or twisted to remove the lock.

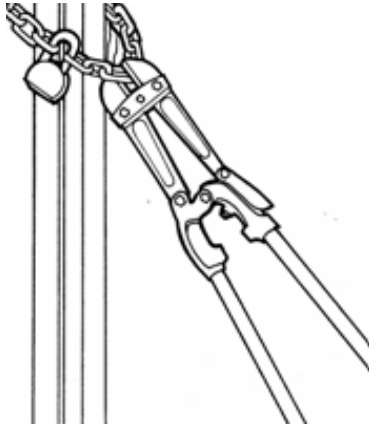


Figure 170 - Cut the chain



Figure 171 - Cut the lock

Forcing Padlocks – Using the Pipe Wrench

- Secure the jaw over the body of the lock.
- Apply force downward.



Figure 172 - Hockey puck lock with pipe wrench and cheater bar

Note: This will only work on the American series 2000 lock. This method of forcing this lock WILL NOT work if there is any type of shielding present.

Forcing Padlocks – Thru-The-Lock

If you can remove the keyway (cylinder), you might expose the lock mechanism and possibly trip the lock using a modified Key Tool or screwdriver. Two methods that have been used with some success are the Bam-Bam tool (FDNY), which will remove the keyway, and prying off the guard, (protecting the keyway), allowing the cylinder to possibly drop out.



ROLL-DOWN SECURITY GATES

Roll-down security gates are becoming quite common throughout many cities. These gates protect storefronts, factories, warehouse, and residential occupancies. They are also used to secure occupancies **inside buildings**, vacant buildings, and roof bulkhead doors in vacant buildings.

Adjacent to the opening (window or door) two channel rails are secured to the exterior wall. These are known as the “**guide rails**.” Above the guide rails is a drum which houses the **curtain** (interlocking slats of metal or fiber glass). The **slats** ride up and down in the guide rail covering the opening. The curtain may be raised manually, mechanically (with a chain assist) or through electricity. All roll-down gates are constructed the same, except for the opening mechanism.

Fire Ground Problems

Designed for security, they have added to our fire ground problems by:

- Delayed discovery.
- Intense fire upon arrival.
- Extension of fire throughout.
- Very high heat and heavy smoke conditions.
- Potential for backdraft.
- Ventilation delayed and limited.
- Potential for wall collapse.
- Difficulty in locating the seat of the fire.
- Time consumed in extended forcible entry.
- Need for power saws to gain entry.
- Difficulty in determining the exact entrance door when numerous gates are present.
- May block entrance to sidewalk cellar door, upper floors, and FD Siamese



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connection.

- Gates may be secured from the inside, and occupants use another exit to leave building or worse yet, lock themselves inside.



TYPES OF GATES:

- Sliding Scissor Gate.
- Manual Roll-Down Gate.
- Mechanical Roll-Down Gate.
 - Chain Operated
 - Gear Operated
- Electric Roll-Down Gate.

Sliding Scissor Gate

This is the oldest type of security gate. These are among the first barriers that owners put in place to discourage vandalism and break-ins. Unlike the more common gates we encounter today, **these gates slide in a track to open.**

Construction Features

- The bottom track usually picks up and secures the gate in the open position; some pivot ninety degrees to achieve the maximum opening.
- These gates may be secured with numerous padlocks.
- These locks will be in the center of the opening of the gate cover or off to one side, attached to the frame.



Figure 173 - Sliding scissor security gate



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Forcible Entry Operations

- Locate and remove all padlocks and / or other locking devices.
- Slide the gate manually.
- Lift the bottom track and secure in open position. If possible, rotate gate ninety degrees to achieve maximum opening.



Figure 174 - Doorway gate



Figure 175 - Full store front gate



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Usually found on the front of smaller occupancies. These gates can cover an entire storefront or just a doorway.

Construction Features

- Gates ride up and down a channel rail on each side of the gate.
- The slats may be wider on the older gates.
- The gate is attached to a winding drum.
- At the top of the gate (on larger manual gates), the drum may have a spring counter-balance to assist in the opening.
- The winding drum is concealed behind sheet metal housing or inside the building wall.
- These gates are secured with metal pins that pass through the channel rail and the gate. These pins are secured to the channel rail with a padlock that attaches to a metal clip or staple welded to the channel rail.
- Each gate may be secured with numerous padlocks.
- The manual gate is easily recognized by the absence of a raising mechanism housing on the side of the winding drum (top of the gate).
- Lifting handles are usually attached to the bottom rail of the gate.
- Slide bolts may be attached to bottom rail and may be secured into the channel rail with a padlock.
- The curtain may be constructed of:
 - Inter-locked, solid sheet metal slats.
 - Open grill metal bars connected with metal tabs.
 - Fiber glass.



Figure 176 - Metal curtain



Figure 177 - Metal curtain doorway

Forcible Entry Operations

- Locate and remove all padlocks and/or other locking devices.
- Pull (slide) all metal pins and slide bolts out.
 - Most of the padlock points will have a removable pin.
 - Bottom rail usually has a slide bolt to disengage.
- Raise gate with lift handle or bottom bar.



Figure 178 - Exterior locks on roll up door/curtain



Figure 179 - Be aware of external latches that may be easier than forcing the door

Mechanical Roll-Down Gate (Chain Hoist)

The mechanical roll-down gate has all the same features as the manual gate. These types of gates are generally found on wider openings.

Construction Features

- Gates ride up and down a channel rail on each side of the gate.
- The slats will be narrower, span a wider opening.



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- On gates mounted on the exterior walls of buildings, the chain hangs from a narrow metal housing attached to the side of the winding drum housing. The chain is secured behind a hinged piece of angle iron. The chain is attached to a hold-down device such as a bolt to prevent pulling the chain out from the top of the angle iron. The angle iron is secured to the channel rail with one or more padlocks.
- On gates mounted with the winding drum concealed in the building wall, the chain will not be visible. The chain will be secured in a small access panel on the building wall adjacent to the channel rail. A key operated latch type lock will secure the access panel.
- The hoisting chain is secured behind a piece of angle iron and usually secured with padlocks.
- Each gate may be secured with numerous padlocks and slide bolts like the manual gates.
- The gate is usually larger, hence heavier.



Figure 180 - Mechanical roll down gate (Chain Hoist)

Forcible Entry Operations

- Locate and remove all padlocks and/or other locking devices.
- Pull (slide) all metal pins and slide bolts out.
- Free the chain hoist from its hold-down device and raise the gate with the chain.



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- The angle iron covering the chain hoist is usually hinged and must be pivoted out and away from the rail to access the chain hoist.
- If the angle iron is not hinged, you may have to pry it open to access the chain.
- If the gate cannot be raised with the chain hoist assemblies, cut the chain near the top and raise it manually.



Figure 181 - Notice the different housing for the pull chain

Note: This may take several firefighters since it will be much heavier.

Open-Grill or Designer Gate (Variation of A Roll-Down Gate)

The open-grill or designer gate has the same basic design as the other types of roll-down gates. The variation is that sections of the gate, either all or partial, are constructed of small, tubular pieces of metal or metal bars, connected with metal tabs. This type of gate is open so that you may see what is behind it.

This type of gate is generally used where high security is not vital or where the owner wants the public to view the display and provide some security.

Construction Features

- All the same construction features of the other style gates.
- The curtain may be all or partial of a grid like design.
- Operation of gate will be the same as any other. It can be manually, mechanically, or electrically operated.



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Open-Grill or Designer Gate

Construction Features

- Each gate may be secured with numerous padlocks.
- Slide bolts may be present at the bottom.

Forcible Entry Operations

- Locate and remove all padlocks and /or other locking devices.
- Pull (slide) all metal pins and slide bolts out.
- Operate gate based on the type of design, either manual, mechanical or electric.



Figure 182 - Familiarity of designer gates help in forcible entry

Locking Devices Found on Roll-Down Gates

There are many ways to secure these gates. Having some knowledge as to how the locking devices are installed will aid you in removing them.

- Generally, there is an opening made into the channel rail and the curtain. Through this opening a “pin” may be inserted which prevents the curtain from moving up.
- There could also be an “eye” buried into the sidewalk to secure the bottom rail.



Figure 183 - Examples of locking devices found on roll-down gates

Steps for Removal:

- Cut or open padlock and remove.
- Remove **PIN**.
- Raise curtain.



Figure 184 - Eye bolt or pin bolt



Figure 185 - Padlock through a pin bolt

Gate Lock (Bolt Lock)

Another popular device for securing roll-down security gates, fire doors, counter doors, and shutters.

Features

- No hasps.
- No shackle.
- No pin.
- Resists cutting, drilling.
- Pick Proof



Figure 186 - Bolt lock

Forcible Entry

Go for **the weakest point** of this lock, which is the **brass pin which rotates the cam.**



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One way to force this device is to apply **pressure outward** and try to snap the brass pin.

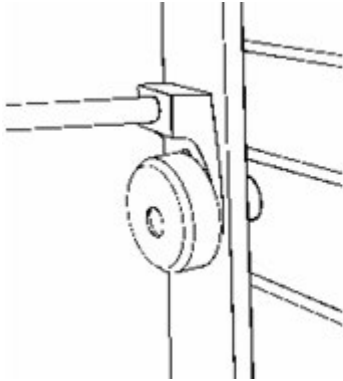


Figure 187 - Downward pressure to snap the brass pin

Note: With many of these locks being covered (shielded) with steel, another method would be to try and cut the body of the lock on an angle between the rail and curtain



Figure 188 - Cut the body of the bolt lock

External Shields

Most any type of padlock can be found with an external shield. They are used to protect the padlock and to make forcible entry more difficult.

Types of Shielding for Padlocks

- Wrapped shield **welded to padlock.**



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- Fixed shield to padlock attachment point.
- Removable shield.
- Welded box.

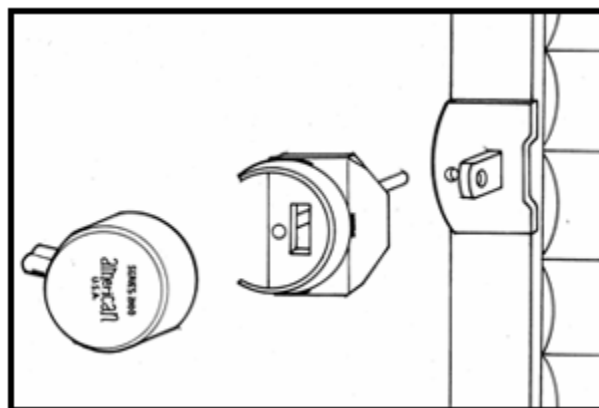


Figure 189 - External shields



Figure 190 - Examples of external shields around locks



Forcible Entry Operations

- Utilizing the Power Saw, cut through the shield and lock.
- Cut the gate.



Figure 191 - American Series 747

Cutting the Roll-Down Curtain

There are many ways to cut roll-down security gates to gain access. There are just as many theories to justify these cuts. Each has its own merits but for simplicity, we are showing just a few.

Remember, each fire situation will dictate the appropriate cut.

Note: Always check to see if the bottom rail is covering a street-level cellar door. Once a cut is made, it will cover over that means of access/egress.

Triangular Cut

This is the quickest and fastest to get water on the fire. The key to this cut is the overlapping of cuts as **high as you can get and bringing the cuts down to the ground.**

Advantages:



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- Ability to put water on the fire immediately.

Disadvantages:

- Large pile of cut gate in front of opening.
- Unable to cut all the way to ground.
- The cut can only be made as high as the saw operator's reach.



Figure 192 - Teepee cut



Figure 193 - Do not cross cuts until second cut is complete



Triangular Cut



Figure 194 - Drive pike into slat to remove sections

Box Cut

This operation requires three vertical cuts. The key to this evolution is ensuring the outside cuts are **at least a foot away from the guide rail**. Again, the cuts must be made as high as possible and down to the ground. Unlike the triangular cut where gravity brings the cut to the ground, here a couple of slats must be removed manually pulling them from the rail side toward the middle.

Advantages:

- Less of a pile in front of the opening.
- Can be used on very wide openings.
- If done correctly, the opening will be squared.

Disadvantages:

- Requires more time.
- Requires more than one member.
- **Must** remove slat **above** the locking pin.

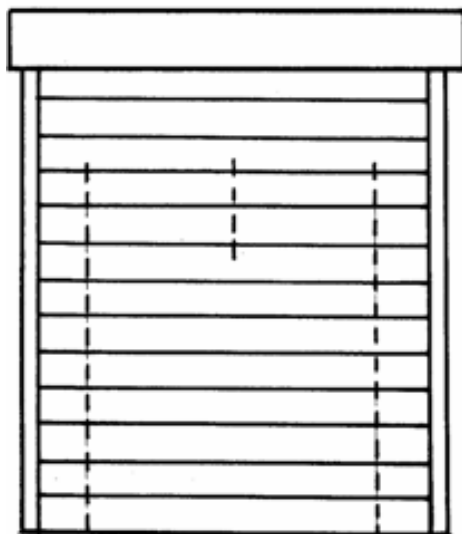


Figure 195 - Cut should be a foot away from guide rail and as high as possible



Figure 196 Cutting the roll down curtain



Figure 197 - Drive the Pike end of the Halligan into a slat to remove. If slats are tight, drive the Halligan with an axe.



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MISCELLANEOUS SECURITY PROBLEMS

Window Bars

As a rule, bars are fixed and permanent. Gates are designed to open but may be fixed.

These obstacles come in a variety of sizes, shapes, and strengths. They may be mounted to the window frame with screws or bolts or set into the mortar. Bars and gates are used primarily for security and leave very little room for error in the case of fire.

Attacking and removing these obstacles during a fire situation takes time. If fire is being vented through the window being worked on, it becomes more of a challenge. Anyone trapped behind them has little chance of survival.



Figure 198 - Security bars in masonry

Forcing Window Bars

Bars are usually secured to a window at four points. The mounting point may be a lag bolt into the mortar or brick, or the mounting point may be part of the brickwork.

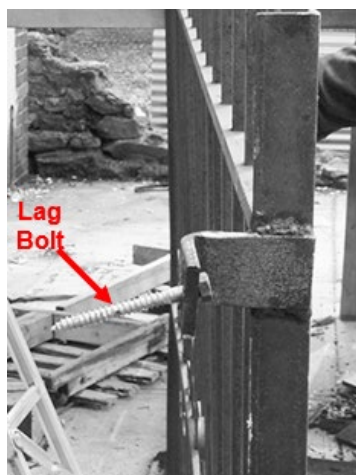


Figure 199 - Most security bars are lagged



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Using a Halligan Tool, you may be able to pry the bar from its mount.

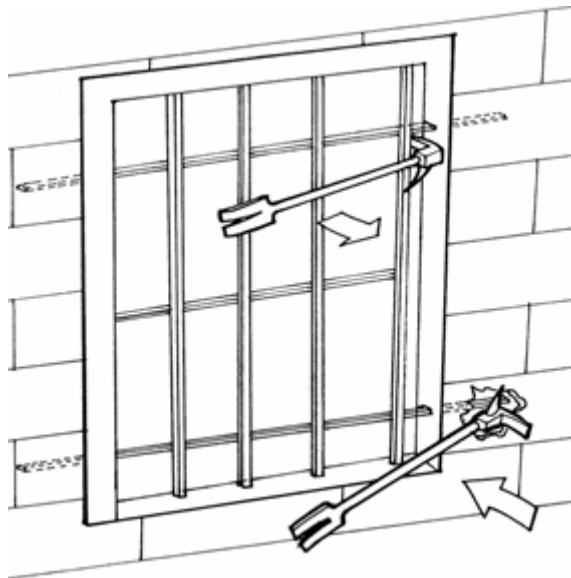


Figure 200 - Depending on the depth of lag or set, you may be able to pry the bar away from the building

Using a power saw, cut the mounting bracket and remove the entire bar assembly, or cut two sides and bend the bars away.



Figure 201 - Utilize the rotary saw to cut the bars off

After forcing the attachment points on one side, push the gate to the side (while still attached with a hook), allowing an unobstructed opening.

Pushing the gate to the side still attached will cause the gate to break free, dropping it



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to the ground.

Keep this area clear to prevent anyone from getting hit by the falling gate.

Note: Start this operation from the bottom and work up to stay out of the path of the gate if it should fall.



Figure 202 - Swing the bars away from the window

Window Bars: Various Types and Mountings



Figure 203 – Examples of various types of security bars



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Window Gates

Gates come in a variety of types. They vary in size and strength. From the “Scissor” type to the more formidable “Jail-House” type gates.

Gates are usually attacked at the hinge side since the swing side is usually secured with a padlock. Using the Halligan Tool, the frame of the gate is pulled away from the window frame. The window gate is usually held in place with screws.

In doing this, **the window must be broken**. This will complicate the action because we have “vented” the area we want to access. In gaining access, the entire gate should be removed, as well as the window sash and any window decorations (curtains, verticals, etc.).

Note: When entering via a window with a gate, you must ensure your way out. Other windows may be similarly fortified.

Approved Type Window Gate

Most people are very concerned about their security and will use any method it takes to guarantee it.

In many municipalities, approved gates may be used. This is to eliminate the need for padlocks or other entrapment devices. These “approved” gates usually have a locking device that is in the form of a lever enclosed behind a small door, thereby eliminating the need for a padlock.

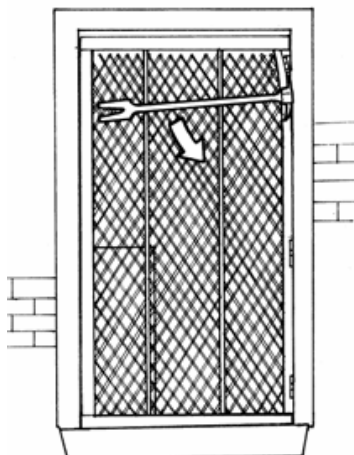
There is no “one way” to remove these obstacles. Like everything else in fighting fires, you must take what is given you and make the best of it.

Using the correct tool and common sense should get the job done.

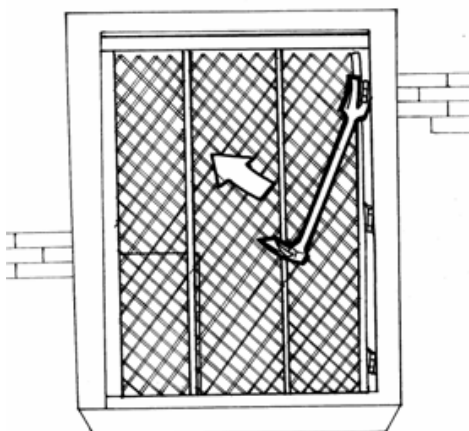
Forcing Approved Type Window Gates

The following are suggested methods:

Pry the hinge away from the frame by using the **FORK** end of the tool. You will get more leverage this way, but you may be restricted due to a fire escape.



**Figure 204 - Use ADZ
end if there is no room**



**Figure 205 - Pry off the hinge
with the fork end**

Forcing Swing Bar Gate

HUD Windows/Doors

When buildings and in some cases, occupancies become vacant, the owner will secure the premises pending further renovation, or re- occupancy.



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Figure 206 - Boarded up vacant



Figure 207 - Typical board up

One or two sheets of plywood over a window opening secured with two or four, 2 x 4's. The 2 x 4's (Two-by-fours) are wider than the window opening and hold the plywood in place. One or two bolts go through the 2 x 4's and secure the plywood in place.

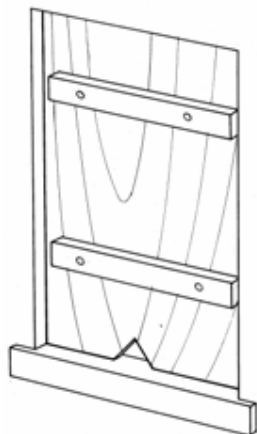


Figure 208 - Outside View

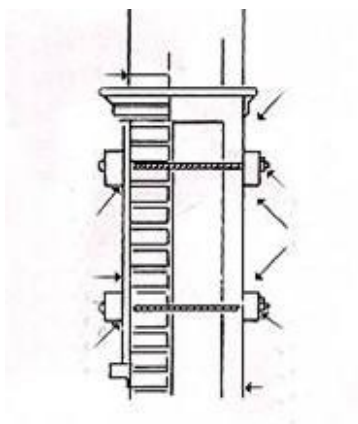


Figure 209 - Side View

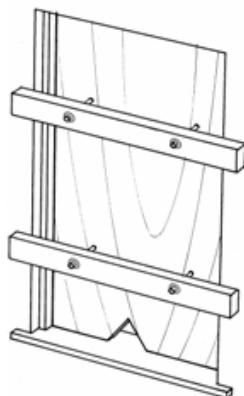


Figure 210 - Inside View



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Forcing A HUD Window

To remove this obstacle, use the **PIKE** of the Halligan Tool to strike and split the 2 x 4 at the bolt. Splitting one side and rotating the other is usually sufficient. This would have to be done to both of the 2 x 4's.



Figure 211 - Split the 2x4 with the pike

Another method to remove these would be using the forcible entry saw (aluminum oxide blade). In this method, the bolt head that is securing the 2 x 4 would be cut at a slight angle. Once the bolt heads are removed, you can drive the bolt through using the **PIKE** end of the Halligan.

Forcing A HUD Window

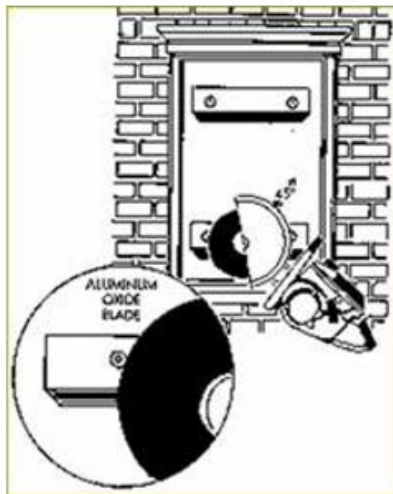


Figure 212 - Cut the bolt heads with a rotary saw

Plywood Covering Window/Door

When the plywood is secured to the inside of the window frame only, just pry the



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window trim away and the plywood covering comes with it. If attached on the exterior, this removal is more involved, and the same problem exists with the potential for the sheathing “sailing.”



Figure 213 - Secured inside



Figure 214 - Secured outside

A variation to the plywood covering is nailing wire lath to the sheet of plywood, followed by a “scratch coat” of mortar. This makes an effective seal and offers no point of reference as to where the opening is. This method of sealing will usually provide three layers of covering, plywood, wire mesh and mortar, forming an effective seal.



Figure 215 - Three layers forming an effective seal



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Forcing Entry

This type is best removed using the power saw (carbide tip blade). Using one of the following methods will work in most situations:

- Cut an "X" opening in the plywood and peel it back.
- Cut an opening into the plywood, creating another door.
- With a window, cut a triangle for immediate access.

Chain and Padlock (Formidable Device)

A hole cut through the door and the bulkhead and secured with a chain. There is nothing to get leverage on since the chain will slip through the hole.

In this instance, **attack the hinge side first** and pivot the door on the lock side.



Figure 216 - Chain through plywood

An **alternate method** would be to batter the door at the chain attempting to break the door at the opening holding the chain.



Figure 217 - Break away the plywood to release the chain

Note: If there is a heavy smoke condition, attempt to vent the skylight above the bulkhead first. This will vent the stairs while you are attempting to open the door.

Tight Door in a Metal Frame

Drive the **ADZ** of the Halligan Tool into the side, top or bottom of the door, to get a purchase point. Another method would be to use the **PIKE** end. By “toeing” the Halligan Hook, you can use the hook to drive the Halligan into the seam to get a purchase. Work the Halligan Tool down to the area of the locking device and force the door.

Note: There is usually some clearance at the top and/or bottom of most doors.

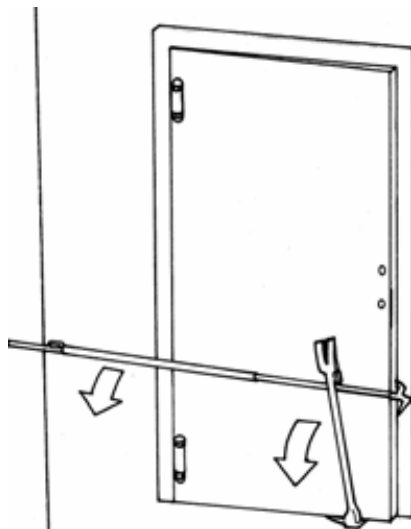


Figure 218 - Pry down on the halligan from the bottom to insert the hook

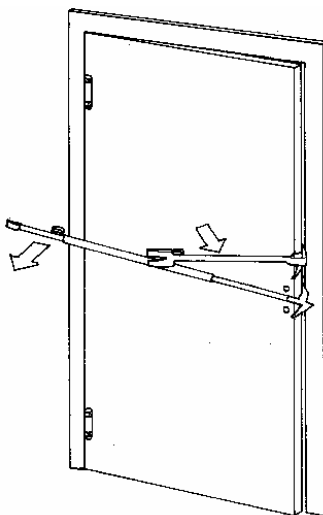


Figure 219 - Replace the hook with the halligan



Figure 220 - Utilize the hook as a force and hit the halligan

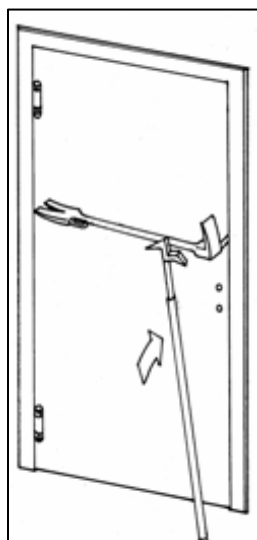


Figure 221 - Hook becomes your force



DEFINITIONS

“A” Tool	A lock puller (Officer’s Tool, FDNY).
ADZ	The axe-like tool with a curved blade at right angle to the handle (shaft).
Arch	The inside curve on the fork end of the Halligan Tool where the two blades of the fork are joined.
Batter the Door	Striking the door, doorframe, with an axe, maul or Halligan Tool.
Bevel Side	The curved side of the fork end of the Halligan Tool.
Bolt	A fastening device that is square or round that slides into a notch (keeper).
Chocking the Door	A means of keeping a door open.
Claw Tool	A forcible entry tool.
Cylinder Guard	A metal security plate mounted over the lock cylinder.
Door Flexes	Door bends but does not break or open.
Door Frame	A structural boarder into which a door is hung, also known as a door- buck or doorjamb.
Door Rail	The outer edge of a door, usually the strongest part of the door.
Door Stop	That portion of the doorframe that prevents the door from winging past the frame.
Doughnut Lock	American 2000 series lock “Hockey Puck.”
Duckbill Lock Breaker	A tool designed for forcing padlocks (FDNY).
Fasco Lock	American 2000 series lock used for securing maintenance rooms in public housing developments.
Gap the Door	The initial opening made in the door and or frame to create a purchase point.



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Glass Door	A tempered glass door.
Guarded Keyway	A device over the keyway to prevent the keyway from being removed.
Halligan Tool	Forcible entry tool.
Hockey Puck	American 2000 series lock "Doughnut Lock."
Horseshoe Padlock	Type of heavy-duty lock.
HUD Window/Door	A method of securing an opening with plywood and 2 x 4's horizontal to the opening securing the plywood.
Inward Opening Door	Door swings AWAY from you.
Irons	Set of forcible entry tools, usually an axe and Halligan Tool.
Jimmying a Door	Separating (spreading) of the door away from the jamb.
K-Tool	A tool designed for pulling lock cylinders.
Kalameine Door	A door covered with metal.
Key Tool	A set of tools used in conjunction with K-Tool to open locks.
Latch	A fastening device that is angled to slide into a notch (keeper).
Lock In	Getting the Halligan Tool or lock puller tool behind the doorframe.
Lock Puller	A tool designed to pull lock cylinders.
Mortise Lock	A locking device that is designed to fit into the cavity in the edge of the door.
Multi-Lock Door	A door with an integrated lock system which has four pins locking the door into the jamb at four different points.
Officer's Tool	Lock puller or "A" tool.
Outward Opening Door	Door swings TOWARD you.



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Pivoting Deadbolt	A fastening device that is square and pivots into a notch (keeper).
Pocket Door	An interior sliding door that slides into a partition or cavity in the wall.
Police Lock	A vertical bar lock.
Purchase Point	The opening made in the door / door frame for forcing the door.
Rail of the Door	The outer edge of a door, usually the strongest part of the door.
Replacement Door	A pre-hung door and jamb installed into an EXISTING frame.
Rim Lock	A surface mounted lock.
Set the Tool	Driving the Halligan Tool into the GAP until the arch of the fork is even with the door and or the door stop.
Shoulder	The topside of the fork end at the shaft.
Slipping the Door	Moving the Halligan Tool up and down to free the tool that may be stuck.
Springing the Door	Moving the Halligan Tool side to side (in and out) to free the tool that may be stuck.
Stacked Locks	A series of locks placed close together on a door.
Static Bar	A fastening device which can be mounted across the door.
Stem	On a rim lock, that portion of the lock cylinder that locks or unlocks the mechanism.
Thru-the-Lock	Gaining entry by attacking the locking device and opening the door with little or no damage to the door and or frame.
Tubular Dead Bolt	A cylinder lock that is a cross between a mortise lock, rim lock and a Key-in-the-Knob lock. May be double-keyed.



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Warehouse Window/Door A method of securing an opening with plywood and 2x4's angled to the floor.

Wrapped Lock Padlock with steel welded to the lock.



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REFERENCES

Fire Department of New York

Forcible Entry Manual

Standard Operating Procedures

[Section 201.005, Risk Management Policy](#)

[Section 202.002b, Residential Structure Fires, Garage](#)

[Section 202.003, Commercial/Big Box Fires](#)

[Section 202.023a, Center Hall Construction](#)

Training and Equipment Manual

[Section 309.002, STIHL TS 400 Cutting Saw](#)

Individual Performance Evaluations

[Section 316.036, Operate a Stihl TS 400 Rotary Saw](#)

Guides

[Building Construction Guide](#)



TABLE OF FIGURES

Figure 1 - Irons Married Together	42
Figure 2 - Choke a door open at the jamb.....	43
Figure 3 - Choke a door open at the floor.....	43
Figure 4 - Hold the purchase of the opening	44
Figure 5 - Be a backstop for the halligan.....	44
Figure 6 - "Pro Bar" Single Piece Halligan	45
Figure 7 - Set of Irons.....	45
Figure 8 - Sharpen the bevel of the forks	46
Figure 9 - File off mushrooming of the flat head from striking the halligan	46
Figure 10 - 10# Sledge.....	47
Figure 11 - Halligan hook steel.....	47
Figure 12 - Halligan hook fiberglass.....	47
Figure 13 - K Tool with lock blades	48
Figure 14 - K Tool slides over the lock to pull the lock face off.....	48
Figure 15 - Homemade shove knife	49
Figure 16 - Vice Grips used to twist lock face and expose internal locking mechanism	49
Figure 17 - Bolt Cutters Large and Small	49
Figure 18 - Pipe wrench used like vice grips to twist off lock face and expose internal locking mechanism.....	50
Figure 19 - Pipe can be slid onto the pipe wrench and used as a cheater bar to gain leverage on sticky locks	50
Figure 20 - Rotary Saw	51
Figure 21 - Cordless drill	51
Figure 22 - Cordless Sawzall	52
Figure 23 - Key in Knob.....	53
Figure 24 - Tubular deadbolt.....	53
Figure 25 - Rim lock	54
Figure 26 - Rim lock attached to surface of door.....	54
Figure 27 - Mortise lock in frame	54
Figure 28 - Mortise lock.....	55
Figure 29- Mortise / Latch Key	55
Figure 30 - Deadbolt and Latch.....	56
Figure 31 - Mortise / Doorknob	56
Figure 32 - Magnetic door locks	57
Figure 33 - Magnetic door lock add-on.....	57
Figure 34 - Place nail on magnet lengthwise.....	58
Figure 35 - Wood frame with glass insert.....	59
Figure 36 - Hollow core door	60
Figure 37 - Solid core door.....	60
Figure 38 - Kalameine door.....	61
Figure 39 - Metal door	61
Figure 40 - Tempered glass doors	62



Fresno Fire Department

Figure 41 - Aluminum frame glass door	63
Figure 42 - Slide bolt added on with supplemental locks.....	64
Figure 43 - Double drop bar	64
Figure 44 - Outside view with bolt heads.....	65
Figure 45 - Drop bar	65
Figure 46 - Angle iron over door gap.....	66
Figure 47 - Shielded angle iron	66
Figure 48 - Secondary lock on bottom of door	67
Figure 49 - Supplemental homemade locking devices	68
Figure 50 - Lock halligan into chain and attempt to pry chain from the frame	68
Figure 51 - Forcible entry team	69
Figure 52 - Gap the door up and down.....	71
Figure 53 - Gap the door	72
Figure 54 - Spring the door to prevent the forks from hitting the frame	73
Figure 55 - Set the Tool.....	73
Figure 56 - Arch or Crotch of the halligan.....	74
Figure 57 - Fork tip locked onto frame inside the door	74
Figure 58 - Strike the ADZ and drive the body of the tool.....	75
Figure 59 - Driving the body	76
Figure 60 - Push door inward using the frame as a fulcrum for the forks and halligan ..	76
Figure 61 - Two-person force	77
Figure 62 - Pike into the frame	78
Figure 63 - Gapping the door with the ADZ.....	78
Figure 64 - Bevel to the frame.....	79
Figure 65 - Batter the door	79
Figure 66 - Batter the frame	80
Figure 67 - Remove the door stop.....	81
Figure 68 - Contact with doorframe	81
Figure 69 - Increase angle	82
Figure 70 - Striking bolt/lock.....	82
Figure 71 - Reposition halligan.....	82
Figure 72 - Spring the door	83
Figure 73 - Wedged forks in tight door	83
Figure 74 - Top View of ADZ in door	84
Figure 75 - Front View of ADZ in door	84
Figure 76 - Blade into door seam	85
Figure 77 - Head into door seam.....	85
Figure 78 - Drive lock off the door	86
Figure 79 - Visualize the locking mechanism	86
Figure 80 - Drive the lock off the door	87
Figure 81 - Gap, Set, Force with the Forks	88
Figure 82 - Gap, Set, Force inside the angle iron.....	88
Figure 83 - Gapping the door (Top View).....	89
Figure 84 - Gapping the door (Front View).....	89



Fresno Fire Department

Figure 85 - Set the Tool.....	90
Figure 86 - Force the Door	90
Figure 87 - Gap, Set, Force.....	91
Figure 88 - Tight spaces are usually the norm in forcible entry	92
Figure 89 - Gaining a purchase with the blade of the axe	93
Figure 90 - Gaining a purchase with the ADZ of the halligan	93
Figure 91 - Additional security on doors	94
Figure 92 - Use the ADZ	94
Figure 93 - Use the Forks.....	95
Figure 94 - Peel the angle iron to present the gap	95
Figure 95 - Remove shield as the last resort.....	96
Figure 96 - Standard hinges	97
Figure 97 - Self closing hinge.....	98
Figure 98 - Pin type hinge	98
Figure 99 - ADZ End	99
Figure 100 - Fork End	100
Figure 101 - Pike End.....	100
Figure 102 - Batter the door	100
Figure 103 - Remove door	101
Figure 104 - Remove hinge front and side view	102
Figure 105 - Cut hinge.....	103
Figure 106 - Cut the smallest amount of metal.....	103
Figure 107 - Break out the masonry holding the hinge.....	104
Figure 108 - Place wedge out of the walking path so it does not get kicked out	105
Figure 109 - Wood wedge	105
Figure 110 - Axe head as door chock.....	106
Figure 111 - Axe head in frame.....	106
Figure 112 - Nail in frame.....	107
Figure 113 - Remove the door so it does not close.....	107
Figure 114 - Rigging the lock	108
Figure 115 - Latch strap	108
Figure 116 - Knob removal.....	110
Figure 117 - Axe head as a backstop.....	110
Figure 118 - Removal of lock face.....	111
Figure 119 - Shove Tool.....	111
Figure 120 - Pin engaged.....	112
Figure 121 - Pin pushed back	112
Figure 122 - Tubular deadbolt	113
Figure 123 - Remove cylinder	113
Figure 124 - Cylinder too deep.....	114
Figure 125 - Cylinder too wide	114
Figure 126 - Rim lock on the outside of a door.....	115
Figure 127 - Rim locks are usually added on to the inside of a door.....	115
Figure 128 - Rim lock operation	115



Fresno Fire Department

Figure 129 - Set the Tool.....	116
Figure 130 - Pry up on the cylinder	116
Figure 131 - Pull the back plate through.....	117
Figure 132 - Turn the key tool to manipulate the lock.....	117
Figure 133 - Lock cylinder removed	118
Figure 134 - Proper end of key tool.....	118
Figure 135 - Shutter installed over mechanism	118
Figure 136 - Pike end	119
Figure 137 - Officers Tool.....	119
Figure 138 - Mortise Locks	120
Figure 139 - Mortise Lock: Remove ring and cylinder, press lever down with key tool before sliding the bolt, turn doorknob	121
Figure 140 - Lock cylinder removed	121
Figure 141 - Pin away = door locked.....	Error! Bookmark not defined.
Figure 142 - Bolt pivots into the frame.....	122
Figure 143 - Pin forward = door unlocked	Error! Bookmark not defined.
Figure 144 - Insert K tool, pry up on lock cylinder, slide key tool in and unlock.....	124
Figure 145 - Place end of key tool in to depress the pin.....	124
Figure 146 - Vice grip on cylinder.....	125
Figure 147 - Unscrew cylinder to expose locking pin	125
Figure 148 - Rotary saw on pivoting bolt.....	126
Figure 149 - Completed cut on pivoting bolt.....	126
Figure 150 - ADZ on top of bolt, strike down	127
Figure 151 - Throw of lock is down	127
Figure 152 - Laminated lock on Left, Solid lock on Right	129
Figure 153 - Keyway	129
Figure 154 - Light duty padlocks	130
Figure 155 - Heavy duty padlocks.....	131
Figure 156 - American 2000 Series (Hockey Puck Locks)	131
Figure 157 - Additional security for pad locks.....	132
Figure 158 - Bolt lock front and side views.....	132
Figure 159 - Mushroom lock.....	133
Figure 160 - Tank lock.....	133
Figure 161 - Hasp.....	134
Figure 162 - Slide bolt	134
Figure 163 - Twist slide bolt off with the fork of the halligan	135
Figure 164 - Cut shackle with Rotary saw	135
Figure 165 - Shielded shackle.....	136
Figure 166 - Cut the upper third of lock with a rotary saw	136
Figure 167 - Rotary saw cutting a hockey puck lock	137
Figure 168 - Hockey puck lock exposed.....	137
Figure 169 - When striking either tool with the axe, the eight-pound axe is preferred.	138
Figure 170 - Cut the chain.....	139
Figure 171 - Cut the lock	139



Fresno Fire Department

Figure 172 - Hockey puck lock with pipe wrench and cheater bar	140
Figure 173 - Sliding scissor security gate.....	143
Figure 174 - Doorway gate.....	144
Figure 175 - Full store front gate	144
Figure 176 - Metal curtain	146
Figure 177 - Metal curtain doorway.....	146
Figure 178 - Exterior locks on roll up door/curtain.....	147
Figure 179 - Be aware of external latches that may be easier than forcing the door...	147
Figure 180 - Mechanical roll down gate (Chain Hoist).....	148
Figure 181 - Notice the different housing for the pull chain	149
Figure 182 - Familiarity of designer gates help in forcible entry	150
Figure 183 - Examples of locking devices found on roll-down gates.....	151
Figure 184 - Eye bolt or pin bolt	151
Figure 185 - Padlock through a pin bolt.....	152
Figure 186 - Bolt lock	152
Figure 187 - Downward pressure to snap the brass pin	153
Figure 188 - Cut the body of the bolt lock.....	153
Figure 189 - External shields.....	154
Figure 190 - Examples of external shields around locks	154
Figure 191 - American Series 747.....	155
Figure 192 - Teepee cut.....	156
Figure 193 - Do not cross cuts until second cut is complete	156
Figure 194 - Drive pike into slat to remove sections.....	157
Figure 195 - Cut should be a foot away from guide rail and as high as possible.....	158
Figure 196 Cutting the roll down curtain.....	158
Figure 197 - Drive the Pike end of the Halligan into a slat to remove. If slats are tight, drive the Halligan with an axe.	158
Figure 198 - Security bars in masonry.....	160
Figure 199 - Most security bars are lagged	160
Figure 200 - Depending on the depth of lag or set, you may be able to pry the bar away from the building.....	161
Figure 201 - Utilize the rotary saw to cut the bars off	161
Figure 202 - Swing the bars away from the window.....	162
Figure 203 – Examples of various types of security bars	162
Figure 204 - Use ADZ end if there is no room.....	164
Figure 205 - Pry off the hinge with the fork end.....	164
Figure 206 - Boarded up vacant.....	165
Figure 207 - Typical board up	165
Figure 208 - Outside View	166
Figure 209 - Side View	166
Figure 210 - Inside View.....	166
Figure 211 - Split the 2x4 with the pike	167
Figure 212 - Cut the bolt heads with a rotary saw	167
Figure 213 - Secured inside	168



Fresno Fire Department

Figure 214 - Secured outside	168
Figure 215 - Three layers forming an effective seal	168
Figure 216 - Chain through plywood	169
Figure 217 - Break away the plywood to release the chain	170
Figure 218 - Pry down on the halligan from the bottom to insert the hook	171
Figure 219 - Replace the hook with the halligan	171
Figure 220 - Utilize the hook as a force and hit the halligan.....	172
Figure 221 - Hook becomes your force	172