

# DETERMINATOR™

## GM 1

General Motors has expanded their lock systems. There are now 3 manufacturers of their locks, Stratec, HUF and Ortec. There are now 3 different **DETERMINATORS™** to cover the GM 10 cut systems:

GM 1  
GM 3  
GM 4

These instructions and procedures cover only the GM 1 **DETERMINATOR™**.

### IN DASH IGNITIONS (EXCLUDING TRANSPONDERS)

These are no problem. Except for the Corvette, all you have to do is decode the door lock with your **DETERMINATOR™**. This will give you spaces 3-9. Now you can progress spaces 1 and 2 and you are done. On the Corvette you will decode the door to obtain spaces 6-10. You will have to use the 5 space ½ cut progression chart. The maximum number of keys you will use is 5. It takes no more than 20 minutes to run through the whole progression. After you get your key to turn in the ignition, you will have to determine the VATS value. I use the VATS plastic keys with a VATS adapter.

### VATS

These are very easy. The "ears" snap off quickly and easily. Do be careful with the VATS wires. Once the ears are off, you can use your **WAVE KEYS™** to pick the ignition. The VATS ignitions seem to pick very easily. Once you have your mechanical key for the ignition, simply insert an uncut VATS blank into the ears, and turn your mechanical key. Once you find the correct value, cut the VATS key and simply snap the ears on. VATS pellet codes may be found on some double-sided cylinders. See chart on page 3 for pellet values and codes.

### TRANSPONDERS

Some vans and cars use the CSS column with a transponder. Simply use your **WAVE KEYS™** to pick over the ignition and remove the cylinder to get the code. Special **DETERMINATORS™** are available for the HUF and ORTEC lock systems with transponders (**GM 3 & GM 4**). They will decode the door lock, and with instructions originate a working ignition key. Some transponder ignitions have tumblers on both the top and bottom. Visually inspect each ignition that you work on.

### CSS COLUMNS

The CSS column is used on the trucks and vans, and on some cars. You have some choices on originating these keys. One choice is to decode the door lock for spaces 6-10, then use the 5 space ½ cut progression chart. Another choice is to "pry off" the ears of the ignition. Do this carefully. After the ears are off, you can see the sidebar. By applying pressure to the sidebar and using your **WAVE KEYS™** you can pick the ignition over, remove it, and cut a key by code. The newer trucks and vans are using the MRD security system. The ears on the ignition are bigger and more sturdy. Pull the shroud, and that will give you access to the metal ring that acts as a deterrent on the ears. The metal ring will need to be pried off. It is a little harder than the previous one. The metal ring cannot be used again as it will be mangled. (The ears will snap on and hold with no problem.)

### LUBRICATION

You want the tumblers to move freely. There is a lot of grease put into the locks at the factory. You can use a lubricant or a degreaser, try both and see what works best for you.

### SIDE BAR DOOR LOCK

Some GM 10 cut door locks, on certain models, are sidebar locks. You can identify them because the keyway is off center. You can disassemble the glove box lock and get spaces 7-10, then progress space 6. I use my 6-10 **DETERMINATOR™** to decode the glove box. I know the space numbers on the tool won't line up correctly. But, by using common sense, when the tool is inserted into the glove box lock, the trap is on space 10. The space number might say 7, but ignore that. Simply go by feel and sight, as to how far the key pulls out and traps any tumblers. You are only dealing with 4 spaces.

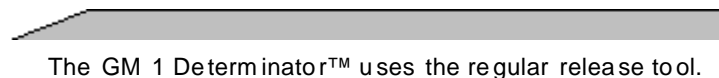
## DETERMINATING THE DOOR LOCKS

Here is how I use my **DETERMINATOR™** to decode a door lock. Use the GM Application chart to determine the tumbler placements. I spray the passenger door lock well with a degreaser. I work a key blank in and out a few times. I then use the correct **DETERMINATOR™** and decode the door lock. I cut my odd spaces on one side of the key and my even spaces on the other. Doing this allows me to visually inspect each space clearly for impression marks. I use 1 depth and 3 depth cuts (**not ½ cuts**) when originating the key. I then look for impression marks and lower the cuts as necessary. If you are unsure if a tumbler wanted to trap, cut that space to a 1 ½ depth. You can then check it for impression marks and raise or lower it as necessary.

## TUMBLER PLACEMENT

When GM first introduced the 10 cut system, they had many different tumbler placements. One thing you need to watch out for is on the early models variations in the tumbler placements. You may have a model that calls for spaces 3-7 in the doors and 4-8 in the trunk. I have seen some trunk locks containing 3-7 and you think that you will progress space 8, be careful. If space 8 turns on your first try with a 1 depth, double check to make sure that there is a space 8 in the trunk lock by making space 8's depth a 4. If it doesn't turn then you know that you were right with the 1 depth. IF IT STILL turns, then the trunk lock does not contain space 8.

The GM 1 **DETERMINATOR™** tool and procedures work on most GM products using the ten cut system. When used properly you will be able to generate a key for a vehicle quickly.



## THE TOOL

The **DETERMINATOR™** is a decoding tool and a tumbler release tool. The **DETERMINATOR™** works by trapping the 3 and 4 tumblers. It will pass the 1 and 2 depth tumblers. The **DETERMINATOR™** has numbers stamped on both sides of the blade. These numbers correspond to the tumbler space locations. When the **DETERMINATOR™** traps a tumbler, take note of the number closest to the face of the lock. That is the space being determined as a 3 or 4 depth cut. You will then use the release tool to raise the trapped tumbler. Slide the release tool along the slot milled in the side of the tool, sloped end first. You will feel it raise the tumbler, slowly pull the **DETERMINATOR™** out a little to the next space and remove the release tool.

When the **DETERMINATOR™** traps a tumbler you know that it is a 3 or a 4 depth tumbler. Spaces that pass you will know are a 1 or a 2 depth tumbler. You will make cuts 1 depths and 3 depths and then impression down from there.

Your **DETERMINATOR™** package contains an application chart of vehicle makes and lock systems. You will need to reference the chart each time you originate a key for a vehicle. It also contains procedure with instructions to originate keys.

It contains the following tools:

- 1) one stamped "3 4 5 6 7" on one side - used on spaces 3-7 in door locks  
the other side is stamped "6 7 8 9 10" - used on space 6-10 in door locks
- 2) one stamped "3 4 5 6 7 8 9" used on spaces 3-9, 4-9, and 5-9 in the door locks
- 3) five **WAVE KEYS™** used to pick ignitions

The GM 1 **DETERMINATOR™** tool decodes the **DOOR LOCKS** and the simple procedures will allow you to generate an ignition key. If the ignition is a separate key from the door, the specially designed **WAVE KEY™** will allow you to originate an ignition key.

MAKE/MODEL	YR	TUMBLER PLACEMENT	KEY	VATS TRANS	IGNITION LOCATION	DETERMINATOR	PROCEDURE
<b>BUICK</b>							
Century	97 ½ - up	doors ign	6-10 (separate) 1-9	B86	VATS	Column	GM 1 Ign door 1 5
LeSabre	00 - up	doors ign	4-10 1-9	B99PT	TRANS	Column	GM 4 GM 1
Park Avenue/Ultra	00 - up	door trunk ign	3-9 3-9 1-9	B97PT	TRANS	Column	GM 3 GM 3
	97 - 99	door ign	3-9 1-9	B97PT	TRANS	Column	GM 3 GM 3
Riviera	95-99	door ign	6-10 (separate) 1-9	B86	VATS	Column	GM 1 Ign door 1 5
Regal	97 ½ -up	door ign	6-10 (separate) 1-9	B86	VATS	Column	GM 1 Ign door 1 5
Skylark	96 ½ - 98	door ign	3-9 1-9	B86	--	Column	GM 1 2
	96	door ign trunk	3-7 1-9 4-10 (3-7)	B86	-	Column	GM 1 (trunk 4-10) 3 (trunk 3-7) 4
	94 - 95	door ign	H KEYWAY 1-9	B86	-	Column	GM 1 1

MAKE/MODEL	YR	TUMBLER PLACEMENT	KEY	VATS TRANS	IGNITION LOCATION	DETERMINATOR	PROCEDURE
<b>CADILLAC</b>							
Escalade	01-up	door ign	3-9 1-9	B86	-	Column	GM 1 2
	99-00	door ign	6-10 1-9	B86	-	Column	GM 1 1
Deville	00-up	door ign	3-9 3-9	B99PT	TRANS	Column	GM 3 GM 3
Seville	98-up	door ign	3-9 3-9	B99PT	TRANS	In dash	GM 3 GM 3
SLS	98-up	door ign	3-9 3-9	B99PT	TRANS	In dash	GM 3 GM 3

MAKE/MODEL	YR	TUMBLER PLACEMENT	KEY	VATS TRANS	IGNITION LOCATION	DETERMINATOR	PROCEDURE
<b>CHEVROLET/GMC</b>							
All truck s and vans exp Venture	01-up	door ign	3-9 1-9	B86	-	Column	GM 1 2
	95-00	door ign	6-10 1-9	B86	-	Column	GM 1 1
Cavalier	96 ½ -up	door ign	3-9 1-9	B86	-	Column	GM 1 2
	96	door ign trunk	3-7 1-9 3-7 (4-8)	B86	-	Column	GM 1 (trunk 3-7) 3 (trunk 4-8) 4
	most 95	door ign trunk	6-10 1-9 3-7 (4-8)	B86	-	Column	GM 1 (trunk 3-7) 7 (trunk 4-8) 6
Corvette	97-up	door ign	6-10 1-9	B86	VATS	In dash	GM 1 5
Impala	00-up	door ign	3-9 1-9	B91	--	In dash	GM 1 2
Malibu	97-up	door ign	3-9 1-9	B86	--	In dash	GM 1 2
Monte Carlo	00 - up	door ign	3-9 1-9	B91	-	In dash	GM 1 2
Venture	01-up	door ign	3-9 1-9	B97PT	TRANS	Column	GM 1 2
	99-00	door ign	6-10 1-9	B97PT	TRANS	Column	GM 1 1

MAKE/MODEL	YR	TUMBLER PLACEMENT	KEY	VATS TRANS	IGNITION LOCATION	DETERMINATOR	PROCEDURE
<b>ISUZU</b>							
Hombre	96-up	door ign	6-10 1-9	B86	--	Column	GM 1 1
<b>MAKE/MODEL YR TUMBLER PLACEMENT KEY VATS TRANS IGNITION LOCATION DETERMINATOR PROCEDURE</b>							
<b>OLDSMOBILE</b>							
Achieva	96 ½ -98	door ign	3-9 1-9	B86	-	Column	GM 1 2
	96	door ign trunk	3-6 1-9 3-7 <b>(4-8)</b>	B86	-	Column	GM 1 (trunk 3-7) 3 <b>(trunk 4-8) 4</b>
	94-95	ign	1-9	B86	-	Column	GM 1 1
Alero	99-up	door ign	3-9 1-9	B91	-	In dash	GM 1 2
Aurora	01	door ign	4-10 1-7	B97PT	TRANS	In dash	GM 4 GM 4
	95-99	door (separate) ign	6-10 1-9	B86	VATS	Column	GM 1 ign door 1 5
Bravada	96-up	door ign	6-10 1-9	B86	-	Column	GM 1 1
Cutlass	97-00	door ign	3-9 1-9	B91	-	In dash	GM 1 2
Intrigue	00 ½	door ign	5-9 1-9	B91	-	In dash	GM 1 8
	00	door ign	4-9 1-9	B91	-	In dash	GM 1 9
	97-99	door ign	3-9 1-9	B86	-	In dash	GM 1 2
Silhouette	99-00	door ign	6-10 1-9	B97PT	TRANS	Column	GM 1 1
	97-98	door ign	6-10 1-9	B86	-	Column	GM 1 1
<b>MAKE/MODEL YR TUMBLER PLACEMENT KEY VATS TRANS IGNITION LOCATION DETERMINATOR PROCEDURE</b>							
<b>PONTIAC</b>							
Bonneville	00	door ign	4-10 1-9	B99PT	TRANS	In dash	GM 4 GM 4
Grand Am	99-up	door ign	3-9 1-9	B93	-	In dash	GM 1 2
	96 ½-98	door ign	3-9 1-9	B86	-	Column	GM 1 2
	96	door ign trunk glove	3-7 1-9 3-7 <b>(4-8)</b> 7-10*	B86	-	Column	GM 1 (trunk 3-7) 3 <b>(trunk 4-8) 4</b>
	94-95	ign	1-9	B86	-	Column	GM 1 1
Grand Prix	04	door ign	3-10 1-10	B106	-	In dash	GM 6 GM 6
	00 -03	door ign	6-10 1-9	B103P T	TRANS	Column	GM 1 1
	97-99	door ign	3-9 1-9	B92	-	Column	GM 1 2
Montana	99-up	door ign	6-10 1-9	B97PT	TRANS	Column	GM 1 1
	97-98	door ign	6-10 1-9	B86	-	Column	GM 1 1
Sunfire	96 ½ -up	door ign	3-9 1-9	B89	-	Column	GM 1 2
	96	door ign trunk	6-10 1-9 3-7 <b>(4-8)</b>	B86	-	Column	GM 1 7 or 6
Transport	97-98	door ign	6-10 1-9	B86	-	Column	GM 1 1

## RULES FOR GM 1

No 4 depth in space 1

No 1 depth in space 10 (except ORTEC system, use GM 4 **DETERMINATOR™**)

MACs 2 – No 4 depths next to a 1 depth

Doors have tumblers on top and bottom

Ignitions have tumblers on bottom only (except some transponders, visually inspect)

## HOW TO USE THE **DETERMINATOR™**

1. Degrease the passenger door lock with a quick drying spray and run a key blank in and out a few times.
2. Insert the **DETERMINATOR™** fully into the door lock.
3. Slowly pull the **DETERMINATOR™** out of the lock with a slight left and right motion.
4. When the **DETERMINATOR™** traps a tumbler, take note of the space, and record a "3" on your chart.
5. Use the release tool and proceed to the next space.
6. Record only the "3" cuts. When you are done with both sides of the lock and have all your "3" spaces, THEN all other spaces will be "1" cuts.
7. Cut a key with 1s and 3s. Insert it into the lock and turn the key. Use your impressing skills to obtain impression marks. Any space where you have impression marks cut to the next full depth i.e. a number 1 depth that marked make a 2, a number 3 that marked make a 4 depth.
8. You will now have an operable key for the door lock with the correct spaces and depths.

## PROCEDURES

1. The plastic ears on these locks will pry off. Carefully pry behind the ears starting at the 2 o'clock position and work your way around. The ears will snap back on.

Remove ears. At this time you will be able to see the sidebar. Insert a **WAVE KEY™** and apply pressure to sidebar with a pick. Turn the key back and forth and move the key in and out of the lock slightly, you will feel the sidebar drop and the lock will turn. If the lock does not turn after a short period of time, try the other side of the **WAVE KEY™**. Use all **WAVE KEYS™** until the lock turns. Once the lock is in the appropriate position depress the retainer and remove lock. Then read code or decode as necessary.

You can also apply pressure to sidebar and pick. When the sidebar drops and the lock turns slightly insert a key with #4 cuts in all positions. Turn lock to the appropriate position, depress the retainer and remove the lock.

If it is a CSS column ( any truck, van, or car with VATS or TRANSPONDER) you can also use PROCEDURE 5 or PROCEDURE 10.

2. Decode door 3-9 with the **DETERMINATOR™** 3-9 tool.  
Progress space 10 from the trunk.  
Use 2 space progression chart to obtain spaces 1 & 2 in the ignition.
3. Decode door 3-7 with the **DETERMINATOR™** 3-7 tool.  
Use 4 space ½ cut progression chart to obtain 1, 2, 8, and 9 in the ignition.
4. Decode door 3-7 with the **DETERMINATOR™** 3-7 tool.  
Progress space 8 from the trunk.  
Use 3 space ½ cut progression chart to obtain spaces 1, 2, and 9 in the ignition.
5. Decode door 6-10 with the **DETERMINATOR™** 6-10 tool.

**PROGRESSION  
CHARTS ON  
PAGE 8.**

Use 5 space ½ cut progression chart to obtain spaces 1 -5 in the ignition.

6. Decode door 6-10 with the **DETERMINATOR™** 6-10 tool.  
Progress spaces 4 and 5 from the trunk.  
Use 3 space ½ cut progression chart to obtain spaces 1, 2, and 3 in the ignition.
7. Decode trunk 3-7 with the **DETERMINATOR™** 3-7 tool, then decode door 6-10 with the **DETERMINATOR™** 6-10 tool. Combine your readings. You now have spaces 3-10.  
Use 2 space progression chart to obtain spaces 1 & 2 in the ignition.
8. Decode door 5-9 with the **DETERMINATOR™** 3-9 tool.  
Progress space 10 from the trunk.  
Use 4 space ½ cut progression chart to obtain spaces 1, 2, 3, and 4 in the ignition.
9. Decode door 4-9 with the **DETERMINATOR™** 3-9 tool.  
Progress space 10 from the trunk.  
Use 3 space ½ cut progression chart to obtain spaces 1, 2, and 3 in the ignition.
10. Decode door 6-10 with the **DETERMINATOR™** 6-10 tool.  
Cut the following spaces and depths and use this key with **PROCEDURE 1**.

SPACE	1	2	3	4	5
Side 1	2½	2½	1½	2½	3½
Side 2	1	2½	3½	2½	1½

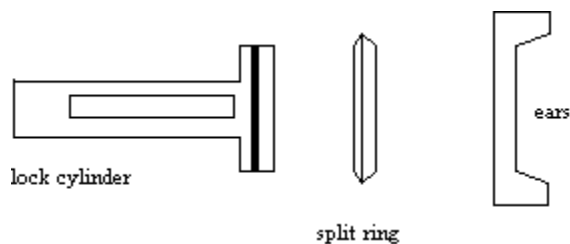
## PROGRESSION CHARTS ON PAGE 8

Vehicles using the GM 4 or the GM 3 **DETERMINATOR™** have their own instructions.

### BUICK PARK AVENUE / ULTRA WITH TRANSPONDER

You can use the GM 1 **DETERMINATOR™** WAVE KEYS™ to pick the ignition, or you can use the GM 3 **DETERMINATOR™** to decode the doors. Pry the ears off the ignition lock. You will notice a black plastic split ring on the front of the lock. This ring should stay on the cylinder, but if it comes off that is Ok, it is easy to put on. The ring goes on with the thicker portion toward the ears and the thinner half toward the lock cylinder. The split ring fits into a groove on the cylinder. See figure below. You will need to tap the ears back onto the cylinder.

To get to the retainer pin, you may want to remove the steering column shroud. It is held on with 2 Torx 20 cap screws. The top half of the shroud is held on with a 4mm bolt on the side with the transponder system. Once the shroud is off, you will be able to see the retainer pin access hole.



# PROGRESSION CHARTS

When using the progression charts, cut A's as 1 ½ depth, B's as 3 ½ depth, and 3 as 3 depth. When trying the ½ cut keys, you may want to use your impressing pliers with a slight up and down motion while turning.

Once you get a ½ cut key to turn in the ignition, check for any impression marks and make any necessary adjustments to the depths. For example, if you lower a 3 ½ to a 4, and the ignition still turns, then you know the correct depth is a 4. If it does not turn any more, then you know the correct depth is a 3.

## 2 SPACE PROGRESSION CHART

1 <sup>st</sup> side	2 <sup>nd</sup> side	3 <sup>rd</sup> side
1 1	2 1	3 1
1 2	2 2	
1 3	3 2	
2 3	3 3	
2 4		
3 4		

## 3 SPACE HALF-CUT PROGRESSION CHART FOR SPACES 1, 2, and 3 OR SPACES 1,2 and 9

1 <sup>st</sup> side		2 <sup>nd</sup> side		3 <sup>rd</sup> side	
Space 1 2	Space 3 or 9	Space 1 2	Space 3 or 9	Space 1 2	Space 3 or 9
A A	A	3 A	A	A A	B
A B	A	3 A	B	A B	B
3 B	A				
3 B	B				

## 4 SPACE HALF-CUT PROGRESSION CHART

1st side		2nd side		3rd side		4th side		5th side		6th side	
Space 1 2	Space 3 4 8 9	Space 1 2	Space 3 4 8 9	Space 1 2	Space 3 4 8 9	Space 1 2	Space 3 4 8 9	Space 1 2	Space 3 4 8 9	Space 1 2	Space 3 4 8 9
A A	A A	A A	B A	A B	A A	3 A	A A	3 A	B A	3 B	A A
A A	A B	A B	B A	A B	A B	3 A	A B	3 B	B A		
A A	B B	A B	B B	3 B	A B						
3 A	B B										
3 B	B B										

**\*\*NOTE:** ON IN-DASH IGNITIONS IT MAY BE NECESSARY TO USE A 3 SPACE ½ CUT PROGRESSION IN SPACES 1,2 AND 3 AND A FULL CUT PROGRESSION FOR SPACE 4. CUT SPACE 4 AS A ONE, THEN RUN THROUGH THE 3 SPACE PROGRESSION, THEN CUT SPACE 4 AS A 2 AND RUN THROUGH THE 3 SPACE PROGRESSION, ETC.

**CONTINUED ON NEXT PAGE**

### 5 SPACE HALF-CUT PROGRESSION CHART\*\*

KEY 1		KEY 2		KEY 3		KEY 4		KEY 5	
SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2	SIDE 1	SIDE 2
AAAAA	AAABA	AABAA	ABAAA	3AAAA	ABAAB	ABABA	AABAB	3AABA	3ABAA
AAAAB	AABBA	ABBAA	3BAAA	3AAAB	ABABB	3BABA	ABBAB	3ABBA	3ABAB
AAABB	ABBBA	3BBAA	3BAAB	3AABB					
AABBB	3BBBA	3BBAB	3BABB	3ABBB					
ABBBB									
3BBBB									

\*\* With exact cuts in spaces 6-10 and ½ cuts in spaces 1-5, the ignition will turn, use your impressing pliers, use a slight up and down rocking motion while turning the key.

### FRAMON CUTTING INFORMATION

DETERMINATOR	CUTS START	CUT TO CUT	DEPTHS			
			1	2	3	4
GM 1	.216	.092	1=.315	2=.290	3=.265	4=.240
(tip stop)			1½=.303	2½=.278	3½=.253	

HPC CARD - CF215