

# Automotive

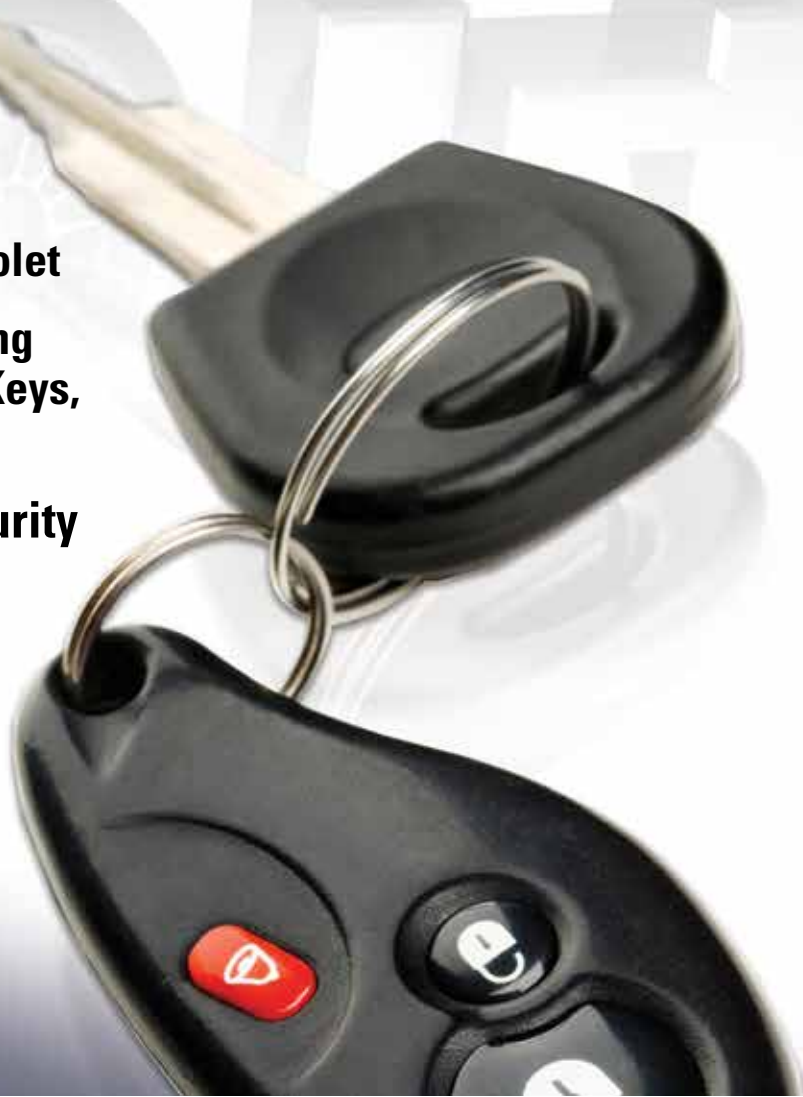
Supplement to Locksmith Ledger International

May 2014

# LOCKSMITHING



- ▶ **The 2014 Chevy Impala:  
Not Your Father's Chevrolet**
- ▶ **Programming and Cloning  
Transponder-Equipped Keys,  
Remotes & Fobs**
- ▶ **Duplicating High-Security  
Automotive Keys**





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3030 Salt Creek Lane, Suite 300, Arlington Heights, Illinois 60005  
Phone: 847-454-2702 • Fax: 847-454-2759

12735 Morris Road, Deerfield Point, Bldg. 200, Suite 180  
Alpharetta, Georgia 30004  
Phone: 800-547-7377

### EDITORIAL

**Editor-in-Chief** Gale Johnson  
847-454-2703  
gale.johnson@cygnus.com  
Fax: 847-454-2759

**Managing Editor** Emily Pike  
emily.pike@cygnus.com

**Technology Editor** Jerry Levine  
jlevine@sbcglobal.net

### Contributing Editors

Tom Gillespie, CML • Steve Kaufman • Bill Neff, CML • Tim O'Leary  
• Tony Fiorini, CRL • Jeremy Reeder

### SALES

**Publisher** Nancy Levenson-Brokamp  
nancy.brokamp@cygnus.com

**Sales Representative** Brian Lowy  
847-454-2724  
brian.lowy@cygnus.com

**Sales Representative** Erica Finger  
920-568-8324  
erica.finger@cygnus.com

**Brand Director** Scott Bieda  
scott.bieda@cygnus.com

### SALES OFFICES

Nancy Levenson-Brokamp  
3030 Salt Creek Lane, Suite 300  
Arlington Heights, IL 60005  
Phone: 847-454-2702 • Fax: 847-454-2759

### PACIFIC ASIA

Young Media Inc. - Young J. Beak  
407 Jinyang Sangga, Chungmoro 4 ga, Jung-ku, Seoul, Korea 100-713  
82 2 2273 4819 • Fax: 82 2 2273 4866 • ymedia@chol.com

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Circ.locksmithledger@omeda.com

**Classifieds & Marketplace** Erica Finger  
800-547-7377 Ext. 1324  
Fax: 920-563-1699  
erica.finger@cygnus.com

### Reprints

Nick Iademarco  
VWright's Media  
1-877-652-5295 x102  
niademarco@wrightsmedia.com

### Art Director

Kayla White  
kayla.white@cygnus.com

### Production Manager

Jane Pothlanski  
631-963-6296  
jane.pothlanski@cygnus.com

### Audience Development Manager

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800-547-7377 ext. 1781

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# 2014 Chevrolet Impala – Not Your Father’s Chevrolet

**Part 1 of our servicing guide to the 2014 Chevrolet Impala addresses car opening, key generation and transponder programming. Part 2 will cover ignition and door lock servicing and removal. The new Impala uses the GM side-milled lock system with a Flip-Key fob.**

BY STEVE YOUNG



Photo 1. 2014 Chevy Impala

The 2014 Chevrolet Impala is the 10th generation of the Impala name that was first introduced in 1958. It is also the first American sedan to earn the Consumer Reports top score in 20 years, earning a score of 95 out of



Photo 2. Vertical linkage rod sandwiched between inner door skin & trim panel

a possible 100. The 2014 Impala is larger than the outgoing model and shares the same platform as the Cadillac XTS. I spent two full days with this one and came away very impressed. This car is not only a nice ride, but it also incorporates a ton of brand new features, many of which are technical changes that are not readily apparent.

The new Impala uses the GM side-milled lock system with a Flip-Key fob. The ignition lock is essentially the same as the one used on the Camaro, but the housing and the access to the housing have been changed to prevent the removal of the lock cylinder without turning it. This new style housing is also being used on the Chevrolet Silverado and GMC Sierra. In addition, most 2015 GM SUVs such as the Yukon and Tahoe are supposed to get this same ignition lock, if they are not equipped with a push-button start.

There seems to be some confusion regarding the door lock cylinder. Some literature says that the new Impala uses the same door lock as the Camaro, but that was not what I found on the Impala that I disassembled. I do know for sure that this door lock only uses cuts 3 – 8, and is challenging to remove.

The door latches now feature an integrated power door lock mechanism that virtually eliminates the possibility of unlocking the car with conventional inside-the-door tools. As you can see in Photo 2, the entire vertical linkage rod is sandwiched between the inner door skin and the trim panel, making access to that linkage from outside the car impossible. The base of the vertical linkage rod is connected directly to the integrated power door lock motor, which is part of the door latch mechanism. The latch itself, as well as the lock linkage and the



Photo 3. Tight weatherstripping

bicycle-style cable outside handle linkage, are all shielded either by the window track or by clever metal guards inside the door. Attempting to use an inside-the-door tool on this vehicle is an utter waste of time.

### CAR-OPENING PROCEDURES

When I removed the front door panel, I discovered that the weatherstripping at the base of the window (Photo 3) fits so tightly that it would be almost impossible to insert an under-window tool. In addition, the front windows are made of tempered glass which can be easily damaged by tools that contact the edges of the glass. I decided against trying an under-window tool on this car.

Another potential problem is the thin wrap-around metal trim (Photo 4) on the edge of the front doors. Using any kind of lever or hard wedge to open a gap into the vehicle is very likely to leave an unsightly ding that the owner will see every time they open the door. Fortunately, the Tech-Train / Lockmasters air wedge (Photo 5) has rounded corners and incorporates a plastic stiffener inside the bag itself that allows it to be inserted without using a lever or a wedge. Be careful to insert the air wedge (Photo 6) low enough that you have room to insert your tool above it. Once the air wedge is in place and inflated, you will have just barely enough room to work with.

Once the air wedge is inflated, it's not difficult to insert the long reach

rod from the Jiffy-Jak Vehicle Entry System. I did remove the rubber tip from the tool and added duct tape over the treaded portion of the rod (Photo 7)



Photo 4. Thin wrap-around metal trim

to protect the vehicle. I'm also using the finish protector sleeve over the rod to protect the edges of the door and frame. If you are using a different tool, or don't have a finish protector sleeve, an inexpensive substitute is a flattened toilet paper tube. The important thing is that you prevent the shaft of the tool from scratching the paint as it goes through the gap between the door and the frame.

Once the long-reach rod is inside the car, place it inside the handle trim and work the tip down so that the tip of the tool is against the door panel just below the handle (Photo 8). In this position, simply twist the handle of the tool (Photo 9) to lever the inside door handle out and unlock the door. It's not necessary to pull the handle far enough to actually open the door. As you lever the handle out, you will see the inside lock control button come up. As soon as the button is all the way up, you can remove your tools and open the door in the normal fashion. The new Impala is also one of the first GM vehicles in years that uses an inside door handle that will override the lock system.

One way to determine if the inside door handle will override the lock system is to look at the inside lock control button (Photo 10). If the top of the button is flush with the top of the door, so that you would not be able to pull it up if you were inside the vehicle, that indicates that pulling the inside handle will override the



Photo 5. Tech-Train / Lockmasters air wedge with rounded corners



Photo 6. Air wedge in place



Photo 7. Jiffy-Jak Vehicle Entry System



Photo 8. Tip against door panel just below handle

lock system and unlock the door.

Unfortunately, two different 2014 Chevrolet Impala models are on the market. The 2014 "Chevrolet Impala

Limited" is actually a rebadged ninth generation Impala that GM is selling as a fleet vehicle and to the rental car companies. That vehicle uses the Z-keyway lock system with the



Photo 9. Lever the inside door handle out and unlock



Photo 10. Inside lock control button options



Photo 11. HU-100 2-in-1 pick set from Lishi



Photo 12. Strattec 5925267, package of five replacement blades

"Circle +” transponder system and can be unlocked in the same way as any Impala made from 2006 to 2013.

## GENERATING A KEY

If I were called out to generate a new key for a 2014 Chevrolet Impala, my first choice would be to use the HU-100 2-in-1 pick set from Lishi (Photo 11). I would begin by picking and decoding the door lock, which contains tumblers 3 - 8. After cutting a key that operates the door lock, I would then progress cuts one and two in the ignition until I had a working key. The most cost-effective key blanks to use for this type of key generation would be the Strattec 5925267 (Photo 12), which is a package of five replacement blades for the GM Flip-Key fobs.

Once I had a key that operates both the door and the ignition, I could then insert that blade into a GM Flip-Key fob and program that fob to the vehicle.

If the customer did not want the remote, I could also copy the working cuts onto a Strattec 7013237 transponder key (Photo 13) and program that key into the vehicle. In my opinion, that is a poor choice, but sometimes it's necessary.

GM Flip-Key fobs are one of the best bargains and high profit margin products in the automotive locksmith business. Giving a customer a key without a remote doesn't save them much money and will prove to be an irritating thing to them in the future.

I only do this when the customer insists, or the customer wants an emergency key to hide. Since the transponder in the 7013237 blank is completely encapsulated in rubber, the key is essentially waterproof and can be hidden much more effectively than a Flip-Key fob.

If you do not have a Lishi HU-100 2-in-1 pickset, or other device

to decode the door lock without removing it from the door, the next best choice would be to remove and disassemble the door lock to determine cuts 3 - 8. As you will see, this is not an easy job, and I suggest that you charge accordingly. Of course, this is the same procedure that you would need to use if you needed to re-key the car to prevent access with a stolen or lost key.

## TRANSPONDER PROGRAMMING

Like most GM vehicles, the new Impala has onboard programming capabilities. If no working keys are available, you can program a new key with three 10-minute cycles, just as on other GM vehicles. If you have a working key, and the maximum number of keys has not already been programmed into the vehicle, you can program an additional key by simply inserting and turning it within 10 seconds of removing a working key. (Vehicles made for the Canadian market may require two working keys to be inserted and turned before a



Photo 13. Strattec 7013237 transponder key

new key can be added.) The remote functions of the Flip-Key fobs will program automatically as you program the transponder function.

During the programming process, the transponders inside both the Flip-Key fobs and the Strattec 7013237 transponder keys will have vehicle-specific information "burned" into them. After the transponders have been "burned," they cannot be programmed into another vehicle. They can be programmed back into the same vehicle if the programming in the vehicle has been lost or erased. ■

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# Programming and Cloning Automotive Transponder-Equipped Keys, Remotes and Fobs



*Kaba Ilco TKO*

BY JERRY LEVINE

**M**ore than 95 percent of new North American passenger vehicles are equipped with some type of engine immobilizer system. Of this number, more than 80 percent of these vehicles' keys and fobs can be cloned. A significant majority of the remaining vehicles engine immobilizer systems can be programmed by locksmiths.

These numbers are pretty amazing, considering the first transponder-based engine immobilizer systems were introduced into North America for the 1996 model year, which was about 18 years ago. The first transponder-equipped vehicle I programmed was a 1996 Ford Taurus equipped with a fixed code Texas Instruments (TI) transponder chip. A fixed code transponder has a set value that does not change.



*Transponder Chip*

In addition to TI, a number of other companies provided fixed code transponders for other vehicle manufacturers. These included Megamos, Philips and Temic.

Around the same time, some luxury vehicle manufacturers introduced rolling code transponder-based engine immobilizer systems. A rolling code transponder changes its value (code). Every time the ignition key is cycled in the ignition lock, the computer will expect a new value.

Then came the encrypted transponders that use a Challenge and Response function to calculate the value sent to the vehicle's on-board computer. The encrypted transponder values are based on mathematical algorithms. The transponder and the on-board computer use these algorithms to calculate the response. If the response sent by the transponder matches the on-board computer's calculation, the engine will start.

As transponders were evolving to provide higher levels of security, vehicle manufacturers personalized their transponders. This made it more difficult for aftermarket key blank manufacturers to produce transponders



*Transponder Ampoule*

that were compatible with the original equipment manufacturers. Mitsubishi is a good example of a vehicle manufacturer who made it much more difficult to find compatible transponder-equipped key blanks for their different vehicle years and models.

Transponders come in two types: programmable and clonable. Programmable transponders have a set value. This value is then programmed into the vehicle's on-board computer.

Common original equipment transponder-equipped keys/fobs come in the following four types:



*Transponder Circuit Board*



*Transponder Equipped Automotive Key Blank*



- Plastic head transponder-equipped keys
- Flip Keys with remote functions
- Remote Key Entry (RKE) with an attached blade for keyed start
- Passive Key Entry/Proximity Keyless Entry (PKE) fob (no attached blade), both with remote functions.

PKEs are also known as Passive Entry Passive Start. Many PKEs and some Flip Keys and RKEs are equipped with programmable electronic circuit boards, combining the remote functions with the engine immobilizer functions into one circuit board.

## CLONING DEVICES

Clonable transponders and circuit board or electronic keys, also known generically as read-write transponders, have either no pre-programmed value or have a value that can be written over. Clonable transponders are designed to obtain their values using compatible cloning devices. Clonable transponder and circuit board-equipped keys are sold as molded plastic head keys, chipless plastic head keys, electronic (two-piece) keys and fob (keyless configurations). Read-write transponders are not available at this time with pushbutton remote functionality.

When a cloning device is manufactured, it is designed to clone most of



*Proximity Keyless Entry Fob*

the programmable transponders on the market at that time. Some cloning equipment can be upgraded to the newer programmable transponders using software or add-on hardware. Other cloning devices do not have a path for upgrades.

Clonable keys are not universal. If the cloning device is sold through a key blank manufacturer, it will clone the transponder/circuit board-equipped key blanks sold by that manufacturer. However, competitive transponder/circuit board-equipped key blank manufacturers' products may not be able to be cloned using that key blank manufacturer's cloning device. Before purchasing cloning equipment, determine whose clonable key products you will be using.



*Inserting Transponder into Key Bow*

read the information written on the customer's transponder or electronic circuit board-equipped key and then write that information on the clonable transponder or electronic circuit board, creating a duplicate (clone) of the customer's key. Some clonable transponders can be duplicated multiple times. Some have limitations to being either cloned once or just couple of times.

Most vehicle manufacturers do not offer clonable key blanks. Clonable automotive transponders and electronic key blanks are manufactured by Ilco, Jet Hardware, JMA USA, Keyline USA and STRATTEC. The key blank manufacturers make use of dedicated clonable chip, ampoule or circuit board transponders that are designed to specifically clone a transponder type or multiple transponder types for the aftermarket. A



*Flip Keys*

dedicated clonable transponder will clone a fixed code Texas Instruments or a Philips Crypto.

JMA USA now offers a keyless system for specific BMW models. The BM-6.RKE is designed for Series 1 (2004-2011), Series 3 (2005-2011), Series 5 (2003-2010), Series 6 (2004-2011), X5 (2004-2011), Z4 (2006-2011) and X1 (2009-2011). These fobs with door key do not have remote functions. They are available with or without a TPX4 transponder.

Ilco has introduced the GTI clonable, glass ampoule transponder designed to clone Texas Instruments Encrypted and Philips Crypto programmable transponders. The GTI transponder is contained within the GTH Multi Transponder Head for use with the Ilco Modular Key System. The GTI transponder is compatible with the RW4 Plus and Plus Box cloning devices. In order to clone the GTI transponder, a free software



*Remote Head Key Blank*



Kaba Ilco RW4Plus



Kaba Ilco RW4 Plus Box

update is required.

Keyline USA's (previously known as Bianchi USA) circuit board-equipped head, the TK100, can reproduce multiple transponder types. This battery-less electronic head can be used to clone most fixed code and encrypted/Crypto code transponder types. Keyline has developed clonable Keyless System Kits for specific models of BMW, Volvo, Toyota, Hyundai, Kia, Infiniti, Nissan, Jeep and Chrysler vehicles. These fobs with door keys do not have remote functions.

Cloning equipment choices include Advanced Diagnostics, Jet



Advanced Diagnostics AD900 Pro Cloner

Hardware, JMA USA, Kaba Ilco, Keyless Ride and Keyline.

*Note: Advanced Diagnostics and Keyless Ride do not manufacture transponder-equipped key blanks.*

The Advanced Diagnostics AD900 Pro key duplicator features the detection, reading, generating and cloning of fixed code transponders and the ability for copying of Crypto 42 type transponders and the Texas 4C and 4D transponders. In addition, the AD900 can identify the Philips cryptographic (encrypted) transponders. The AD900 machine is designed to be upgraded to the latest transponder chip technology by adding additional software. For example, adding the AD980 Texas Crypto Stand-Alone Module, the AD900 can detect, read, generate and clone Philips Crypto transponder equipped keys, flip keys, remote head keys and fobs.

Kaba Ilco's RW4 Plus Transponder Key Duplicator clones Texas Instruments and Philips encrypted code and fixed code (T2, T5) transponder keys without the need of a computer or internet connection. An additional feature of the RW4 Plus is the ability to identify the presence of a transponder and indicates chip type, value and manufacturer. This unit can be used to generate a transponder value. A 12VDC adapter is included for mobile key cloning. The RW4 Plus has a RS232 (serial) port and a USB port. It has an easy-to-read liquid crystal display and multiple language support. Ilco offers an alternative to having to purchase a RW4 Plus Transponder Key Duplicator by offering the Plus-Box, which attaches to the RW4 Cloning Device in order to upgrade to cloning the Philips Crypto transponders.

The Jet Hardware Intelli-Clone (iClone) Device clones Texas Instruments encrypted transponder chips, Texas Instruments fixed code and Philips Crypto 46 transponders in the Jet

Hardware's plastic head clonable transponder key blanks and the new clonable electronic head with attachable key blades.



Jet Hardware iClone

The electronic heads are available with the C1 ampoule style Texas Instruments fixed code clonable transponder, and the C2 ampoule style Texas Instruments encrypted code clonable transponder or the C3 ampoule style Philips Crypto 46 clonable transponder. An ETH head can accommodate a variety of transponders and transponder chips.

The JMA TRS5000 EVO is a fully integrated transponder cloning device that can detect, read and



JMA TRS5000 EVO

clone transponder keys equipped with Megamos, Nova, Philips, Silca, Temic and Texas Instruments fixed code transponders, and Philips and Texas Instruments encrypted (Crypto) transponders. It does not require attachments, a computer or access to the internet. The unit is compact, measuring approximately six by seven inches at approximately 3.5 inches tall and weighing about one pound.

A large four-line by 20-character alphanumeric display is easy to read. Two buttons perform the cloning

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procedure: "Read" and "Write." For data connections, the EVO has one female DB9 RS-232 connector and two USB connectors.

Keyless Ride is the North American master distributor of the Zed-Bull and Zed-Full product line. The Zed-Bull can identify and clone a significant number of today's vehicle keys. In addition, the Zed-Bull can be expanded to offer additional capabilities when working with transponders and programming keys and remotes. This includes the range of EPROM reading and writing software applications, enabling keys to be cloned from the vehicle memory and standalone 4D and ID46 cloning. There are several configurations for purchasing the Zed-Bull and Zed-Full devices. The kits contain the programmer, PC USB cable, Power adapter, 12V cigar lighter adapter, operating manual on PC software and Security log-in card.

The Keyline USA 884 Decryptor Ultegra is a standalone cloning tool that identifies and clones Texas Instruments Fixed and Encrypted, Philips Fixed and Crypto 2nd generation and other transponders. The 884 is designed to function with the TK100 Universal Head as well as the TK24, TK40, TK50 and TK60 electronic heads. The 884 Decryptor Ultegra is designed to clone 1-piece clonable keys (T2, T5, TK1) from various manufacturers. It is capable of code generation and manual code entry for fixed code transponders. When a compatible



Keyline USA 884 Decryptor Ultegra

transponder key is inserted, the 884 displays the transponder manufacturer and the type. Features include easy-to-read liquid crystal display, USB and Serial ports, a 12V vehicle adaptor and multiple language support. The 884 has been sold in two colors, green and red.

### TRANSPONDER PROGRAMMING

Programming a programmable transponder-equipped key or circuit board equipped fob into a vehicle's on-board computer can be accomplished using different methods. Depending upon the make, model and year of the vehicle, a programmable transponder or circuit board key or fob can be on-board programmed or device programmed as long as the basics are followed.

Only a limited number of transponders can be programmed into a vehicle's on-board computer. The transponder or circuit board type must be compatible with the vehicle. For example, the 2014 Toyota RAV4 and the Corolla use the "H" transponder-equipped remote head key. This transponder is different from the "G" transponder and is not backwards compatible. Another example is the 80 byte Ford transponder key blank. For Ford vehicles using the 80 byte Texas Instruments Encrypted Transponder, these vehicles can only be programmed with an 80 byte transponder-equipped key.

Another consideration is remote function keys and fobs. Not only must the transponder be the same, but also the remote circuitry must operate at the same frequency. Unfortunately, not all remote function keys and fobs have the frequency listed. Fobs and remotes must be ordered vehicle model and year specific to ensure proper operation.

Once the proper transponder key blank, remote, flip key or fob is chosen, the next step is to determine the method of programming.



Zed-Bull

Transponder-equipped keys (no remote functions) may be able to be programmed on-board. Many remote head keys, flip keys and fobs require additional programming for the remote functions, making it more practical to use a programming device.

On-board programming procedures vary by manufacturer, model and year. Some require two operating keys. Some require one key.

One resource for on-board programming information and instructions is the STRATTEC annual comprehensive catalogs or the Web Site: [www.aftermarketstrattec.com](http://www.aftermarketstrattec.com). Another option is the Ilco Auto Truck Key Blank Reference, which contains cloning and programming information in addition to the key blank reference. The latest can be downloaded at the Ilco Web Site: [www.kaba-ilco.com](http://www.kaba-ilco.com)

When programming a transponder or circuit board-equipped key or fob, the choices include multi-vehicle transponder programming devices and dedicated vehicle programming devices. For most locksmiths, using a multi-vehicle programming device is financially practical because it will include many common vehicle manufacturers and models. Multi-vehicle programming devices are available from Advanced Diagnostics USA, Keyless Ride and Ilco.

Advanced Diagnostics offers two programming devices, the TCode Pro and the MVP Pro. Both will program bladed transponder-equipped keys and fobs (keyless) as well as specific remotes. The TCode Pro is sold in



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Advanced Diagnostics MVP Pro

different configurations from the device alone to the device with 21, 26 or 38 software programs. The locksmith purchases all software and accessories for the TCode Pro.

The MVP Pro is token-based device that is sold as a complete package that includes one new MVP Pro machine, 10 tokens, a carrying case, user's manual, main cable (ADC-250), Nissan old style port cable (ADC-136), USB update cable, 110v power cable, 11 color coded dongles and the Smart Card Calculator Kit with 2 "SMC" cards.

The use of tokens to program a fob, key and/or remote takes the place of having to purchase any software updates. However, any hardware, cables, or non-standard dongles are an optional purchase.

The Keyless Ride Hotwire PC-based transponder, RKE and PKE programming device operates in conjunction with a laptop computer. The Hotwire is a box measuring approximately 6" X 4", which contains the electronics to program a vehicle. Thirty-one software titles are available. Keyless Ride has a number of purchasing programs.

Kaba Ilco's TKO Transponder Key Originator programming tool can be used to program and originate transponder keys, read and reset vehicle immobilizer error codes, determine the number of keys programmed to a vehicle and program remote keyless entry. Built into the TKO is an internal database of vehicles that is expandable and updateable, an internal CAN Router and a "Help" function to

locate vehicles OBDII port.

TKO dimensions are 9" by 6.5" by 2". The device comes with an OBDII cable, a serial cable, a power cord and adapter, software and instructions, and carrying and storage case.

The TKO can be purchased as Complete and Select buyer option programs. The Complete program is preloaded with all available software through the previous year. The Select program is preloaded with popular software that is based on the national average. Additional software is available on an "a la carte" basis.

For locksmiths who specialize in automotive work, there are several programming devices that might be considered depending upon your market. These include the D-Max, the VAG Tango and the Ford IDS device.

The AE Tools & Computers DMax Chrysler Skim Code Reader reads and programs the Skim Module in order to program the anti-theft system on Chrysler, Dodge and Jeep vehicles manufactured from 1998-on including fobik keys.

The Edilock Ltd VAG Tango transponder programmer can cover, read, write and generate transponders used in the latest vehicle immobilizer technologies. Vehicle manufacturers include Audi, BMW, Mini, Porsche, VW and Saab.

The Ford Integrated Diagnostic System (IDS) provides diagnostic and engine immobilizer programming of current and future North America Ford, Lincoln and Mercury vehicles. The IDS package replaced the Worldwide Diagnostic System (WDS). This enables locksmiths to program keys and fobs to new vehicle models, eliminating the wait during the development time that the multi-vehicle device manufacturers require until their software is available. The IDS runs on a standard laptop platform, and utilizes the VCM and VMM.

Asian knock-off programming and cloning machines are also available.

They are significantly less expensive than the originals. However, they are not exactly the same as the originals and as a result, they may not operate as the originals. Asian knock-off machines may be up to that date when they were originally built. However, I do not know of any that can be updated using correctly written software. In addition, there is no technical support and no customer service. If there is a problem, the shipping costs to return the machine make it impractical. Caveat Emtor.



Keyless Ride HotWire

## FOR MORE INFORMATION

The following transponder programmer, cloner and transponder key blank companies have been discussed in this article. Their web Sites are:

Advanced Diagnostics USA:  
[www.mvptcodesupport.com](http://www.mvptcodesupport.com)

AE Tools & Computers:  
[www.aetools.us](http://www.aetools.us)

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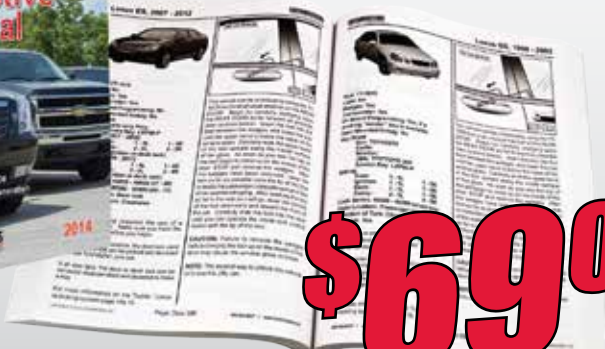
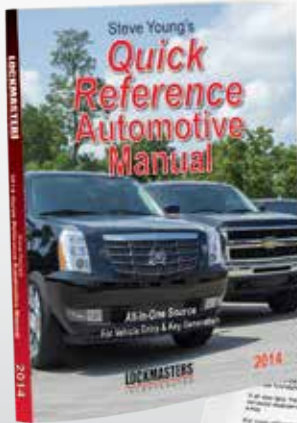
JMA USA: [www.jmausa.com](http://www.jmausa.com)  
Kaba Ilco Corp.: [www.kaba-ilco.com](http://www.kaba-ilco.com)  
Keyless Ride: [www.keylessride.com/locksmiths](http://www.keylessride.com/locksmiths)

Keyline USA: [www.keyline-usa.com](http://www.keyline-usa.com)  
STRATTEC: [aftermarket.strattec.com](http://aftermarket.strattec.com) ■

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# What's New At Advanced Diagnostics USA?

BY TONY PRESIDIO

Some major changes have occurred at Advanced Diagnostics USA. Its Headquarters and Operations have relocated to 4125 W. Dewey Drive, Las Vegas, NV 89118. Phone: 702-799-9705. Fax: 702-728-5233. For most locksmith calls, Tech Support staff members are Cliff Steiner, Ammar Tumah, Donald Jacobs, Brook Francisco and Sophy Peou. Tech Support Hours are weekdays 6 a.m. to 8 p.m. and Saturdays 9 a.m. to 5 p.m. PST.

## TDB002 TRANSPONDER TESTER

The new Advanced Diagnostics TDB002 Transponder Tester can determine not only if the key or fob is equipped with a transponder, but also if data is being sent by the transponder. It has a frequency range of 125KHz and 133KHz. It can test keys, fobs and remotes equipped with fixed and crypto transponders. A large aperture enables most keys and remotes to be checked. The TDB002 requires 3 AA batteries, normal or rechargeable, and has an operational life expectancy of greater than 20 hours. An automatic power-off feature conserves battery life. The tester has a low-battery indicator.

## AD35 REMOTE CONTROL TESTER

The AD35 Remote Control Tester determines the frequency of Infrared (IR) and Radio Frequency (RF) remote controls. Its frequency range is 100Mhz to 1000Mhz, covering the standard frequencies used by automotive remotes. This battery-operated



AD35 Remote Control Tester

tester can be helpful when trying to identify remotes from vehicle manufacturers such as Ford who use different frequencies depending upon make and model year, while the remotes are visually identical.

To test a remote, place the remote below the LCD screen and activate the remote. The signal is emitted and if in range, received by the AD35. The numeric value will appear on the display. The AD35 requires three AA batteries.

## QR SCANNER APP

Two Apps have been introduced: the QR Scanner App for Web Challenges and the SmartCard App. Minimum requirements for these Apps are an Apple iOS or Android Device and an AD Registered Account for an MVP Pro or TCODE Pro. For the SmartCard App, Pro Testers need to be SmartCard enabled on your mobile device.

The AD QR Scanner App for Web Challenges works on iOS and Android devices. The QR Code Scanner from



Advanced Diagnostics provides a quick method to obtain coded responses for vehicles requiring a web challenge procedure. Sign in using your AD account and you're ready to start using the App. During the key programming procedure, your tester will display a QR code on the screen. Simply scan this using your smartphone with the QR Scanner App to generate a web challenge code. The App requires an internet connection and uses minimum data. The App can be downloaded at either Google Play or the Apple App Store by typing in ADQRSCANNER in the search bar.

## SMARTCARD APP

The AD SmartCard App is an alternative to the SmartCard & Calculator. When you are logged in, the App displays the response code to the device's challenge code. Using the App keypad, enter the response code. The SmartCard and the IQ app can 'hot swap' between each other, providing seamless functionality. The App requires an internet connection and uses minimum data.

The App can be downloaded at either Google Play or the Apple App



Store by typing in ADSMARTCARD in the search bar. There is a fee for the iOS and Android versions of this App.

## SOFTWARE RELEASES

Two software releases were introduced during the last quarter of 2013, the Ford Software ADS209 and the Jaguar/Land Rover Software ADS 207. ADS209 software is for late model Ford vehicles equipped with keyed ignitions (bladed keys) and intelligent access systems (proximity key, push button start). The software is designed for the 2013-14 C-Max, Escape, Fiesta and the 2012-14 Focus (Prox) and 2014 Focus (Keyed Ignition).

Advanced Diagnostics has made a recent announcement of a free update for Ford 2013 USA Software - ADS209. The software has been updated with two new vehicles - the



TDB002 Transponder Tester

Ford Fusion 2013 and the 2013 Lincoln MKZ. Keyed ignitions (bladed keys) & intelligent access systems (proximity key, push button start) are supported.

*Note: A registered NASTF Account including an Advanced Diagnostics login is required to successfully program the Fusion and Lincoln Models mentioned.*

This latest version of Ford software requires that ADS100, ADS172 and ADS175 software be installed.

ADS207 software combines both Land Rover & Jaguar and programs vehicles fitted with proximity keys and remotes in a simple programming procedure. No PIN code

is required for these vehicles.

Programming of Non-Prox vehicles will require the previous software. Jaguar - ADS151 and Jaguar/Land Rover - ADS151 & ADS207. The new software is available worldwide and is not dependant upon any previous Jaguar or Land Rover software. For MVP PRO Customers, the software will be added free.

The 2014 Complete User Manual includes programming information.

For the most current information and updates on Advanced Diagnostics Products and Service, contact your locksmith distributor or visit Advanced Diagnostics USA online at [www.adusa.us](http://www.adusa.us). ■

*Tony Presidio is director of North American sales for Advanced Diagnostics USA. Contact Presidio directly at 650-351-8203 or by email at [tony@adusa.us](mailto:tony@adusa.us).*

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# Ilco Introduces 057HS Manual Duplicator For High Security Auto Keys

Offering duplication service for high security vehicle keys has become a necessity for every automotive locksmith

BY GALE JOHNSON

Not too many years ago laser-style high security automotive keys were only used by the rich and famous. Mercedes, BMW and Saab were the first manufacturers to use high security car keys. These keys were more a curiosity than a profit maker for most locksmiths. Due to the low volume, only a small percentage of locksmiths at that time invested in the specialized key machines needed to duplicate high security keys.

As insurance companies began seeing an increase in auto theft, they demanded better vehicle security protection. One result has been a gradual shift towards high security

key systems. Mitsubishi is one of the last holdouts. Every other major car company has one or more models which use laser-cut, high security key systems. Even as some vehicles become equipped with pushbutton starting systems, almost all of the emergency keys for these vehicles continue to use high security keyways. Offering a duplication service for high security vehicle keys has now become a necessity for every locksmith business.

Kaba Ilco Corp. has responded to this need with their new 057 HS automotive high security key duplicator. This economical machine occupies a workbench space of only 11" X 15". It is a dedicated machine strictly manufactured for the duplication of two-track and four-track, internal and external high security automotive keys. With few exceptions, every popular high security automotive key can be duplicated by using the vise jaw and 2.5 MM cutter and guide furnished as standard equipment with the 057 HS machine.

Most high security key blank blades are within a standard



Ilco 057 HS Key Machine

thickness range and have blade edges which can be easily clamped in a vise for duplication. A few key blanks such as an Ilco S50HF-P for Mercedes or the Ilco HU66-P for VW, Porsche & Audi have blade edges which are not easily held in a standard vise jaw. Kaba-Ilco has two sets of optional clamping adapters for holding these types of keys. An optional 2 MM cutter and guide are also available to be used when duplicating newer type Lexus emergency keys having cuts on only one side of the blank.

There are two lever controls on the 057 HS machine. On the right is the traverse lever. It controls both



Transparent circular cutter shield

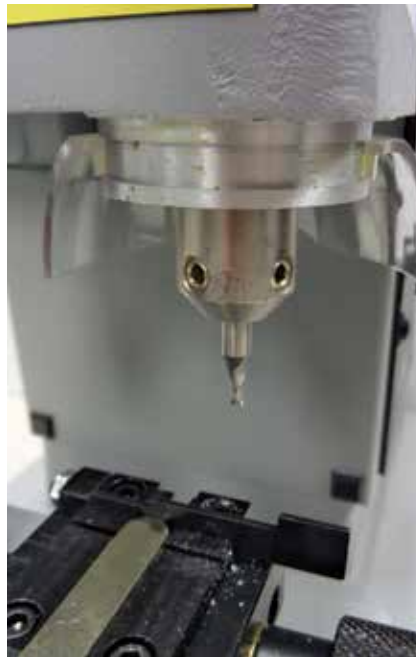


Calibration keys

space and depth movement of the vise jaw. To the left is the Z-axis lever. It controls vertical movement of the cutter and guide. A knob on the right side is the Z-axis locking knob. Once the correct cutter height is made, the Z-axis locking knob is used to tighten the cutter and guide in that position. All key cutting action is done by movement of the traverse knob.

### ADJUSTING CUTTER BLADE GUIDE HEIGHTS

A unique feature of the 057 HS machine is its set of calibration keys. If the operating height of the cutter and guide are not coordinated correctly, it is possible to touch the cutter against the jaw and damage either or both parts. Calibration keys are designed to prevent such an



Cutter

accident. Calibration keys are marked 'L' and 'R'. The 'R' calibration key is .002 thicker than the 'L' calibration key. To adjust cutter height, install the calibration keys in the left and right jaws according to the 'L' and 'R' markings. Install the required cutter guide into the sleeve on the left side until it bottoms out, then tighten in place.

Insert the required cutter into the right hand spindle and lower the head assembly until the guide touches the 'L' calibration key. While holding slight downward pressure against the 'L' calibration key, move the cutter against the 'R' calibration key and tighten the cutter in place. Two set screws retain the cutter in place on 057 HS machines. Cutter/ Guide heights are coordinated when


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*Partially cut key*



*Shoulder stop key*

both guide and cutter touch the calibration keys at the same time. Once the calibration keys are removed, the cutter will be .002 higher than the guide which prevents the cutter from touching the jaw if the guide should come in contact with the jaw.

Vise jaws have another unique feature. If for any reason the vise jaw becomes damaged or worn, small jaw sections which hold the key blank can be removed and replaced with new sections which saves the cost of complete vise jaw replacement.

High security automotive keys are designed with a variety of different blank thicknesses. After duplication, the amount of metal remaining in the center of the key is called the web. Web thickness is very important. If the web is too thin, the key is weakened. If the web is too thick, there is a possibility that the new duplicate will not enter into the vehicle lock cylinders.

Before each duplication procedure and with the 057 HS machine

turned OFF, first place the original key into the key vise and under the key guide. Use the Z-axis lever to move the guide downward into any cutout area near the front of the original key. Gently touch the cut surface and then tighten the guide height at that position using the Z-axis locking knob. Next insert the new key blank into place.

High security automotive key systems may have either a shoulder stop or tip stop design. Shoulder stop key shoulders are aligned against the front of the jaw. Tip stop key blades can be of several different lengths depending on the lock design and amount of cut spaces in the lock. Two grooves are machined into the vise jaw and a set of tip stop gage bars are included with the 057 HS machine. Depending on the tip stop key length, gage bars are inserted in the front or rear grooves and the tip of the original key and key blank are pressed against the tip stop gages and tightened into position for perfect tip alignment.

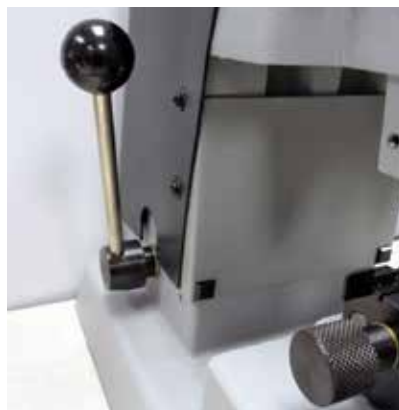
Once the keys have been correctly tightened and proper cutter height has been set, key cutting can begin. When viewed from above, the cutter blade is spinning in a clockwise direction. Just as with a saw blade, optimum cutting action takes place in only one

direction. For a four-track, external cut key, begin on the right side of the key and near the bow. Move the cutter along the key towards the tip. Move around the tip of the key and continue cutting the left side beginning at the tip and moving the cutter back towards the bow. Do not try to complete the key cuts in one pass. Move the cutter away from the key and back to the right side and begin a second and third pass if needed beginning each pass at the key bow.

Two track and internal design keys each have their own cutter direction requirements. The 057 HS manual and an 057 HS CD video training manual provide good fundamental instructions for operating the 057 HS machine.

The 057 HS machine is equipped with an 'inverter friendly' 110 volt motor which draws approximately 230 watts (460 peak) and is ideal for mobile use. Cutter changing, height adjustments and final key cutting take only a few moments per key. A protective transparent circular cutter shield can be rotated out of the way during cutter changing and adjusting. However, whenever using any key cutting equipment, always use safety glasses for additional protection.

For more information on the 057 HS high security key duplicator, contact your local Kaba-Ilco distributor or contact Kaba-Ilco at 800-334-1381, [www.kaba-ilco.com](http://www.kaba-ilco.com). ■



*Z axis knob*



*Tip stop*



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and easy-to-use reference. Printed copies are available from Kaba Ilco Corp. distributors or online on the Ilco website [www.kaba-ilco.com/key](http://www.kaba-ilco.com/key) systems, or [www.ilco.us](http://www.ilco.us). This document is located under Literature & Support, Key Blanks, Automotive Key Blanks, General Information, under References/Guides.

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## TCode Pro/MVP User Manual

The 2014 TCode Pro/MVP User Manual is available from Advanced Diagnostics USA.

Updated sections include Honda/Acura 2013, Chrysler Prox, Chrysler/Dodge 2013, Fiat 300, Ford Key Pad, GM Prox, GM Remotes, Kia/Hyundai 2013, Nissan/Infiniti 2013, Subaru Remotes, Toyota Prius and Toyota Lexus 2013. For more information, visit [www.adusa.us](http://www.adusa.us).

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Included with the Futura is a 10" touch-screen tablet, pre-loaded with the most extensive database on the market today. The convenient removable tablet stand allows the tablet to be placed on the counter. The Futura features WiFi enabled communication between tablet and machine. Updates are available via WiFi connectivity or USB port.

For additional information, contact an authorized Ilco distributor or Kaba Ilco Customer Service at 800-334-1381 (option 1) or visit [www.ilco.us](http://www.ilco.us).

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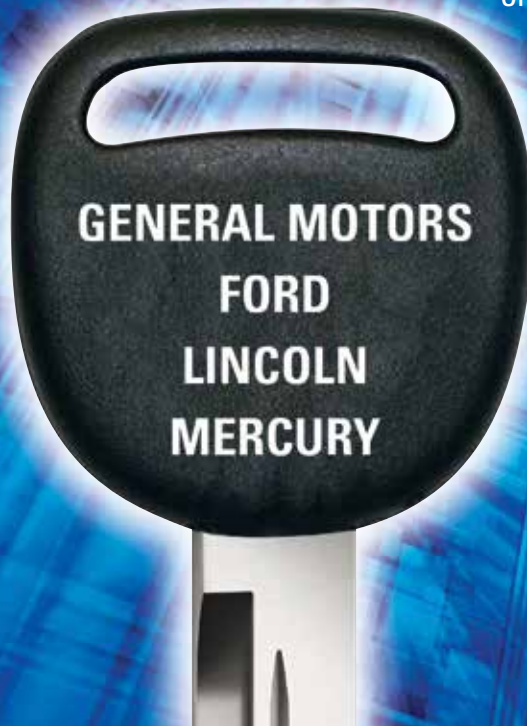
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