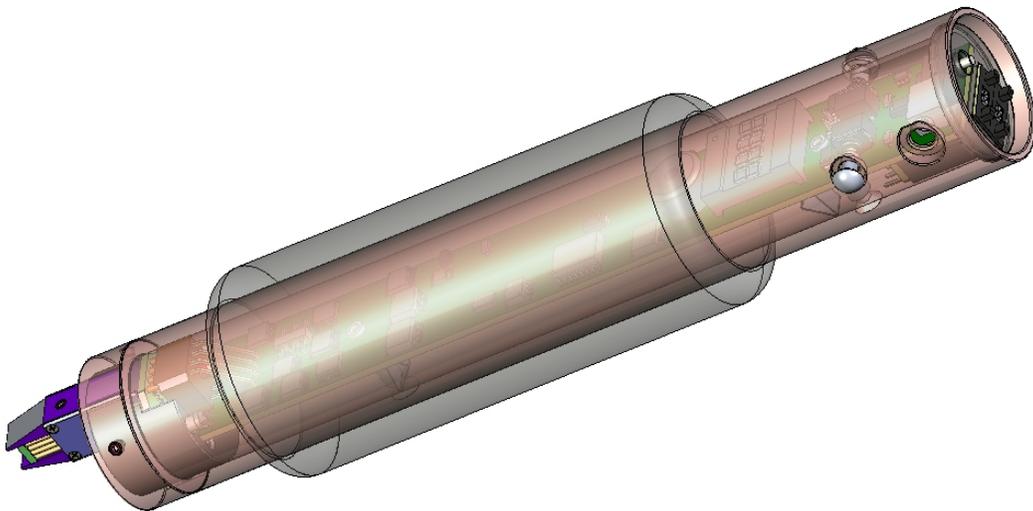# PENLOADER TOOL

User Manual

For Software Version: 2.03

The use of this apparatus is limited to legitimate and legal purposes for vehicle maintenance, in compliance with federal and state laws and regulations.

Thumbwheel Setting	Operation
00	Write from memory block 0
01	Write from memory block 1
02	Write from memory block 2
03	Write from memory block 3
04	Display keys for 3key 16 bit
05	Prog file: 3key16bit
06	Prog file: 16bit
07	Prog file: 32bit
08	Prog file: 47010
09	Prog file: 34010
10	Prog file: 50020
11	Prog file: 60330
12	Prog file: 60230
13	Prog file: 33110
14	Prog file: Aa010
15	Prog file: 35090
16	Prog file: 60220
17	Prog file: 08010
18	Prog file: 50050
19	Prog file: 48020
20	Prog file: 0e010
21	Prog file: 47020
22	Prog file: 50030
23	Prog file: 50031
24	Prog file: 24020
25	Prog file: nontrans
26	Prog file: Red_Black
27	Display Red and Black keys
28 to 88	Not in use
89	Jeep Liberty 95080 PIN read
90	Nissan 05 PIN read
91	Nissan 09 PIN read
92	VW Beetle PIN read
93	Isuzu PIN read
94	Chrysler PIN read

95	Restore original contents
98	Switch to THUMB 1 settings
99	Display serial number and power supply voltage

THUMB 1 settings:

Thumbwheel Setting	Operation
00	Send memory block 0 to computer
01	Send memory block 1 to computer
02	Send memory block 2 to computer
03	Send memory block 3 to computer
04	Receive data from computer and save in memory block 0
05	Receive data from computer and save in memory block 1
06	Receive data from computer and save in memory block 2
07	Receive data from computer and save in memory block 3
08	Read and save to memory block 0
09	Read and save to memory block 1
10	Read and save to memory block 2
11	Read and save to memory block 3
12	Save last to memory block 0
13	Save last to memory block 1
14	Save last to memory block 2
15	Save last to memory block 3
16	Read and save 25C010 to Restore block
17	Read and save 25C020 to Restore block
18	Read and save 25C040 to Restore block
19	Read and save 25C080 to Restore block
20	Read and save 25C160 to Restore block
99	Display serial number and power supply voltage

1 Introduction

The Penloader was designed to provide a tool that can be used to program memory devices installed on circuit boards, as well as read existing PINs. The tool is simple to use and requires no external computers, keypad entry devices, adaptor boards or cables.

Features of the tool are:

- Small sized unit for hand held use
- 4 digit alpha-numeric display
- Simple to use
- Programming options selected through a 2 digit thumbwheel switch
- Onboard probes with spring loaded protective cover, for programming 8 pin SOIC packages
- Supports Microwire, I2C and SPI devices
- Powered by rechargeable batteries or external 12V dc supply
- Provides measurement of power supply voltage (battery and external supply)
- Includes dual LED lamps to illuminate area around device to be programmed
- Audio feedback to user
- Capability to read and display PIN numbers
- 60 second auto power off when not in use
- Software is field updateable using a Windows PC and a serial cable
- 4 on board memory blocks that can be used to save 4 unique user files.
- Restore operation that can be used to restore contents of last device programmed.
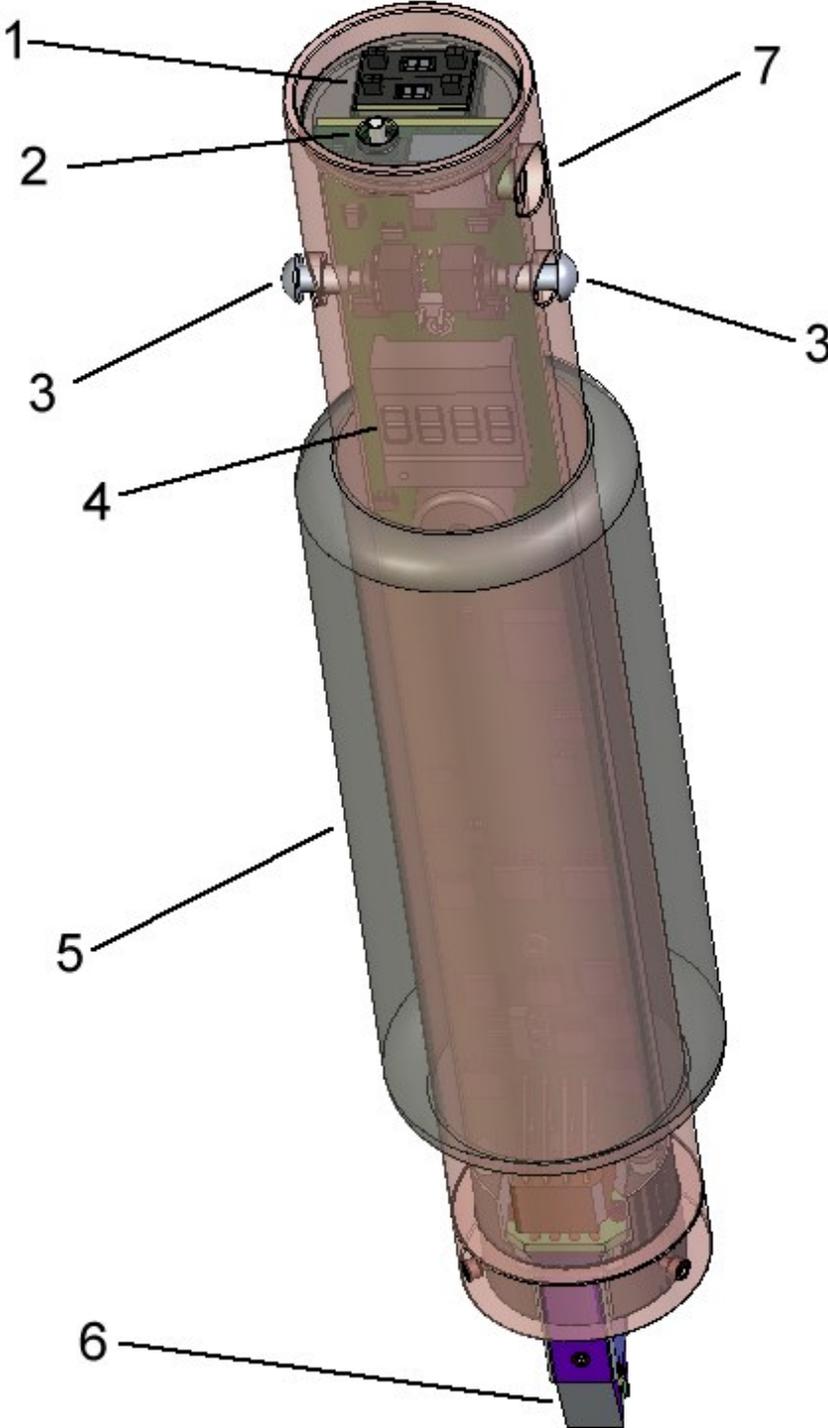
2 Product Features

Figure 1 – Penloader Unit

Item	Description
1	Thumbwheel selector
2	On/Off button
3	START buttons
4	4 character display
5	Neoprene grip
6	Spring probes
7	12V dc input connector

3 4D Quick Reset Orange Dongle

A "4D Quick Reset Orange Dongle" is included in the Penloader package, to provide an easy method of adding a key for the Toyota and Lexus models specified below. The User Manual for this product is provided in Appendix A. It is suggested that the "4D Quick Reset Orange Dongle" be used first with the vehicles identified in the table below, and the Penloader used if there is a problem adding a key using the "4D Quick Reset Orange Dongle".

Type of operation: Add key
Manufacturer(s): Toyota, Lexus (models specified in the following table).

Make	Model	Year
Toyota	4Runner	2003 -2009
Toyota	Camry	2003-2009
Toyota	Solara	2004-2009
Toyota	Landcruiser	2003-2009
Toyota	Yaris	2005-2009
Lexus	ES 330	2004-2006
Lexus	GX 470	2003-2007
Lexus	RX 300	2004-2006
Lexus	RX 350	2007-2008
Lexus	LS 430	2004-2006
Lexus	SC 300	2002-2006
Lexus	SC 400	2002-2006
Lexus	SC 430	2002-2007
Lexus	LX 470	2003-2007

4 Penloader Operation

This tool provides a set of programming and PIN read functions to help the locksmith when programming new transponder keys and proxy.

4.1 *General Operation*

The basic operating procedure for using the Penloader is as follows:

(i)   Remove module containing memory device to be programmed, from the vehicle, and disassemble to provide access to the memory device to be programmed or read.

(ii)   Set thumbwheel to the required number (refer to Table 3.1 below).

(iii)   Power up the Penloader (thumbwheel must not be set to 98 before power up).

(iv)   Position the Penloader over the 8 pin memory device ensuring that the spring probes are making good contact with the legs on the memory device. Where possible, a "Flash device identifier" is specified to help locate the correct 8 pin device on the circuit board. Figure 2 below shows how to locate pin 1 on the 8 pin memory device. It is important that the spring probe identified as "1", is in contact with Pin 1 on the 8 pin memory device.

(v)   Push the START button.

(vi)   The 4 character display will show status as the programming/read operation proceeds. The Penloader unit will also provide audio cues during the operation (ref section 4.2 below).

(vii)   On completion the display will identify whether the programming operation was successful or not. In the case of PIN reads, the display will show the 4 digit PIN (and hold it for 5 seconds) if the operation was successful.
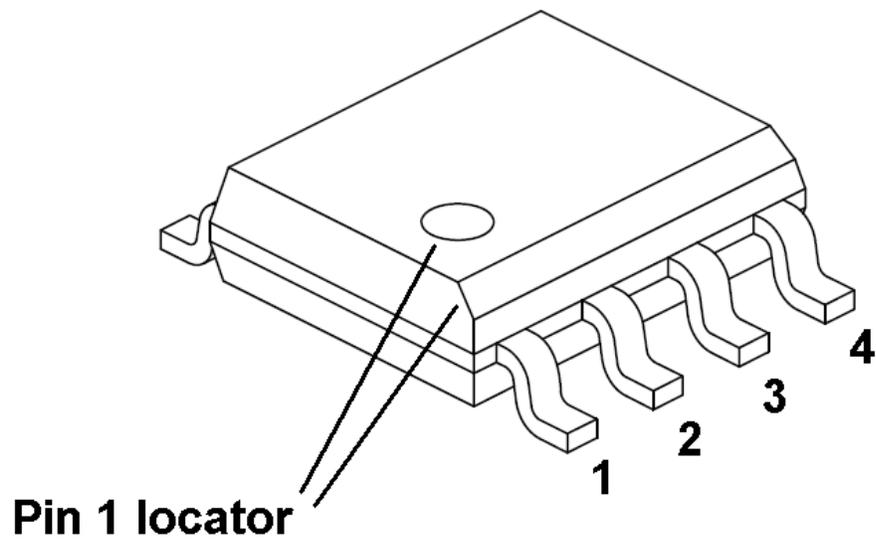
Figure 2 – Locator for Pin 1

The following table shows the options that are selectable using the thumbwheel.

Thumbwheel Setting	Penloader Function
00	Write using data from memory block 0
01	Write using data from memory block 1
02	Write using data from memory block 2
03	Write using data from memory block 3
04	Displays 2 keys for use with thumbwheel setting 05
05	Lexus or Toyota **3 key** file program
06	Lexus or Toyota - **16bit** file program
07	Lexus or Toyota - **32bit** file program
08	Toyota Prius - **47010** file program
09	Toyota Sequoia - **34010** file program
10	Lexus LS400 - **50020** file program
11	Lexus GX470 - **60330** file program
12	Lexus LX470 - **60230** file program
13	Lexus ES330 - **33110** file program
14	Toyota Camry – **aa010** file program
15	Toyota 4runner - **35090** file program
16	Toyota Landcruiser - **60220** file program
17	Toyota Sienna - **08010** file program
18	Lexus LS430 - **50050** file program

19	Lexus RX330 - **48020** file program
20	Lexus RX330 - **0e010** file program
21	Toyota Prius - **47020** file program
22	Lexus LS430 - **50030** file program
23	Lexus LS430 - **50031** file program
24	Lexus SC430 - **24020** file program
25	Lexus or Toyota - **nontrans** file program
26	Honda **Red/Black keys** program
27	Displays 2 keys for use with thumbwheel setting 26
28 - 88	Not used
89	Jeep Liberty 95080 PIN read
90	Nissan 2005 PIN read
91	Nissan 2009 and up PIN read
92	VW Beetle 2000 PIN read
93	Isuzu 2003-2005 PIN read
94	Chrysler PIN read
95	Restore original contents
98	Switch to THUMB 1 settings
99	Displays unit serial number and power supply voltage

Table 4.1 – Thumbwheel selection options

4.2 *Visual and Audible Cues*

When the Penloader is used to program an update into a memory device it will provide both visual and audio cues to the user. The following table defines these cues and their definition. Note that all visual cues are displayed on the 4 character display.

Visual Cue	Audio Cue	Definition
IDNT	Faint ticking sound, with ticks approximately 1 second apart	The Penloader is determining what type and size device it is currently positioned over.
PROG	Machine gun type sound	The Penloader is programming the external memory device.
VRFY	Same sound as used for PROG.	The Penloader is comparing the data in the programmed part, with the data used to perform the program function.
OK	Pseudo "charge" tune.	The VRFY operation was successful, and the data in the programmed part matches the data used in the program operation.
FAIL	Low tone held for 2 seconds.	An error occurred, or the Penloader could not determine the type of device.
READ	None	The Penloader unit is reading data from an external memory device.
SAVE	None	The Penloader unit is saving data a memory block.

Table 4.2 – Visual and audible cues

4.3 *Memory Blocks*

The Penloader contains four onboard memory blocks, which can be used for the purpose of saving and retrieving custom data files. Each memory block can hold up to 2K Bytes (2048 Bytes) of data. To identify the memory blocks, they are numbered as 0, 1, 2 and 3.

Data can be read from an external memory device and saved to any of the four memory blocks (THUMB 1 thumbwheel options 08 to 11 – refer to section 4.5). External memory devices can also be programmed using data sourced from any of the four memory blocks (thumbwheel options 00 through 03).

In addition, the Penloader contains the capability to send the contents of any of the memory blocks to an external computer (via RS-232) for viewing and editing purposes (THUMB 1 thumbwheel options 00 to 03); and also to receive, and save to a memory block, data files from an external computer (THUMB 1 thumbwheel options 04 to 07).

Each memory block has an associated comment field, which can be used to name or add a note for a particular memory block. The comment field may not exceed 58 characters in length (including spaces). To add a comment field, an external computer must be used. This procedure is described in a separate document called "Penloader Tool – Data Send and Receive Manual".

4.4 *Restore Original Contents*

The Penloader also contains a reserved "Restore" memory block which is used by the Penloader to save the contents of an external memory device before it overwrites it with new data.

When programming an external memory device, and after the START button is pressed, and the Penloader has

identified the external device to be programmed, the Penloader reads the contents of the external memory device, and saves it to the "Restore" memory block.

Should the user desire to restore the original contents of the external memory device after programming, this is made possible through the use of the thumbwheel 95 setting.

It is important to note that the "Restore" memory block is overwritten by each subsequent programming of an external device. As a consequence, it is only possible to restore the last contents of the last external memory device programmed.

It is possible to permanently save the contents of the "Restore" memory block, as described in section 5.2.4.

4.5   THUMB 1 Settings

The Penloader contains a second bank of thumbwheel settings, referred to as the THUMB 1 settings. These settings are invoked by setting the thumbwheel to 98 prior to powering on the Penloader. When this is done, the display will indicate "THUMB 1 active", and the thumbwheel selections will switch over to the THUMB 1 settings table, as follows:

Thumbwheel Setting	Operation
00	Send memory block 0 to an external computer
01	Send memory block 1 to an external computer
02	Send memory block 2 to an external computer
03	Send memory block 3 to an external computer

04	Receive data from computer and save in memory block 0
05	Receive data from computer and save in memory block 1
06	Receive data from computer and save in memory block 2
07	Receive data from computer and save in memory block 3
08	Read and save to memory block 0
09	Read and save to memory block 1
10	Read and save to memory block 2
11	Read and save to memory block 3
12	Save last to memory block 0
13	Save last to memory block 1
14	Save last to memory block 2
15	Save last to memory block 3
16	Read and save 25C010 to Restore block
17	Read and save 25C020 to Restore block
18	Read and save 25C040 to Restore block
19	Read and save 25C080 to Restore block
20	Read and save 25C160 to Restore block
99	Display serial number and power supply voltage

These thumbwheel settings will remain in place until the power is cycled, with the thumbwheel set to some setting other than 98.

5 *Thumbwheel* Selections In Detail

5.1 *General Operation*

The following sections describe the operation of the
Penloader under the general thumbwheel settings.

5.1.1 Thumbwheel Settings 00 through 03

File: Sourced from Memory Block (0,1,2 or 3)
Flash device identifier: Depends on manufacturer
Type of operation: Programming
Manufacturer(s): Any

These thumbwheel setting are used to program a memory
device (93C series [microwire] and 24C series [I2C]) using
the contents of one of the four memory blocks provided. Set
thumbwheel to 00, 01, 02, or 03 depending on which
memory block (1, 2, 3, or 4) should source the data to be
programmed into to the external device. Note that the
contents of the comment field will scroll on the display when
the thumbwheel is set to one of these selections.

To perform the programming function use the procedure
described in section 4.1. Display must display "OK" at the
end of the procedure, else the programming operation
failed.

5.1.2 Thumbwheel Setting 04

This thumbwheel setting is used to display the 2 keys programmed into a memory device using Thumbwheel setting 05. The keys are displayed in 4 character increments, as follows:

(i)   Before starting, perform the programming procedure as described in section 5.1.3 below.

(ii)   Set thumbwheel to 28.

(iii)   Press the START button. The display will scroll until "KEY1" is displayed, then the scroll operation will pause. KEY1 is the first Key, and KEY2 is the second Key.

(iv)   Press the START button again to continue the display scroll to the next 4 digits of the key value.

(v)   Continue step (iv) until all 28 digits of both keys have been displayed. Pressing START again will scroll the data from the beginning again.

5.1.3 Thumbwheel Setting 05

File: 3 key16bit
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota, Lexus – Type 1 ECU (models specified in the following table).

Model	Year	ECU Location
4Runner	1998-2001	Behind glove box
Avalon	1998-2003	Behind glove box
Camry	1998-2000	Behind glove box
Solara	1998-2000	Behind glove box
Highlander	2001-2003	Behind glove box
Landcruiser	1998-2000	Behind glove box
MR2	2001-2003	Behind driver seat

Rav 4	2002-2003	Behind glove box
Sienna	1998-2003	Behind glove box
ES 300	1998-2001	Behind glove box
GS 300	1998-2000	Under hood, driver's side
GS 400	1998-2000	Under hood, driver's side
LS 400	1998-2000	Behind glove box
LX 470	1998-2000	Under hood
RX 300	1999-2003	Under hood
SC 300	1998-2000	Below glove box, under carpet
SC 400	1998-2000	Below glove box, under carpet

Note: Use this option if the immobilizer will not enter "Learn" mode after re-programming using Thumbwheel selection 30.

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After the programming procedure successfully completes, set Thumbwheel to 28 to display the two Key values programmed.

5.1.4 Thumbwheel Setting 06

File: 16bit
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota, Lexus – Type 1 ECU (models
specified in the following table).

Model	Year	ECU Location
4Runner	1998-2001	Behind glove box
Avalon	1998-2003	Behind glove box
Camry	1998-2000	Behind glove box
Solara	1998-2000	Behind glove box
Highlander	2001-2003	Behind glove box
Landcruiser	1998-2000	Behind glove box
MR2	2001-2003	Behind driver seat
RAV 4	2002-2003	Behind glove box
Sienna	1998-2003	Behind glove box
ES 300	1998-2001	Behind glove box
GS 300	1998-2000	Under hood, driver's side
GS 400	1998-2000	Under hood, driver's side
LS 400	1998-2000	Behind glove box
LX 470	1998-2000	Under hood
RX 300	1999-2003	Under hood
SC 300	1998-2000	Below glove box, under carpet
SC 400	1998-2000	Below glove box, under carpet

To perform the programming function use the procedure
described in section 4.1. Display must display "OK" at the
end of the procedure, else the programming operation
failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.1.1 to register keys into the ECU.

If the immobilizer will not enter "Learn" mode after re-programming, reprogram using Thumbwheel setting 29.

Note: If vehicle will only register 1 key after programming - this is an indication that it probably uses a Type 2 ECU, and was programmed with the wrong file. Reflash with the correct file.

5.1.5 Thumbwheel Setting 07

File: 32bit
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota, Lexus – Type 2 ECU (models
                    specified in the following table).

Model	Year	ECU Location
4Runner	2002	Behind glove box
Camry	2001-2009	Behind glove box
Solara	2001-2004	Behind glove box
LandCruiser	2001-2002	Behind glove box
Sequoia	2001-2002	Behind glove box
ES 300	2002-2003	Behind glove box
GS 300	2001-2003	Under hood, driver's side
GS 430	2001-2003	Under hood, driver's side
IS 300	2001-2003	Under hood, driver's side
LX 470	2001-2002	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the

end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.1.1 to register keys into the ECU.

Note: If vehicle will only register 1 key after programming - this is an indication that it probably uses a Type 1 ECU, and was programmed with the wrong file. Reprogram with the correct file.

5.1.6 Thumbwheel Setting 08

File: 47010
Flash device identifier: IC
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following table).

Model	Year	Immo Location
Prius	2001-2003	Under dash board, above steering column. Must drop the column – 10mm bolt to release the bracket located in left corner behind roll bar.

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.4.1 to register keys into the Immobilizer.

After programming all modules must be resynchronized by performing the following procedure:

5.1.7 Thumbwheel Setting 09

File: 34010
Flash device identifier: IC2
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following table).

Model	Year	Immo Location
Sequoia	2003 and newer	Behind cluster. Must be a 4D-67 transponder.

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

Important: One of the pins of the blue colored component in the corner of the board next to IC1, must be connected to GND before trying to program IC2 (refer to photo in Appendix B).

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.8 Thumbwheel Setting 10

File: 50020
Flash device identifier: IC2
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	ECU Location
LS 400	1997	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the

end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.3.1 to register keys into the ECU.

5.1.9 Thumbwheel Setting 11

File: 60330
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
GX 470	2003-2004	Behind instrument cluster

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.5.1 to register keys into the Immobilizer.

5.1.10 Thumbwheel Setting 12

File: 60230
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
LX 470	2003-2004	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.5.1 to register keys into the Immobilizer.

5.1.11 Thumbwheel Setting 13

File: 33110
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
ES 330	2004	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.12 Thumbwheel Setting 14

File: aa010
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following table).

Model	Year	Immo Location
Camry	2001-2004	Behind glove box
Solara	2003-2004	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.13 Thumbwheel Setting 15

File: 35090
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following table).

Model	Year	Immo Location
4Runner	2003-2004	Behind glove box

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.7.1 to register keys into the Immobilizer.

5.1.14 Thumbwheel Setting 16

File: 60220
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following
table).

Model	Year	Immo Location
LandCruiser	2003-2004	Behind glove box

To perform the programming function use the procedure
described in section 4.1. Display must display "OK" at the
end of the procedure, else the programming operation
failed.

After programming is successfully completed, follow the
procedure described in Appendix C, section C.7.1 to
register keys into the Immobilizer.

5.1.15 Thumbwheel Setting 17

File: 08010
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following
table).

Model	Year	Immo Location
Sienna	2004	Above center dash

To perform the programming function use the procedure
described in section 4.1. Display must display "OK" at the
end of the procedure, else the programming operation
failed.

After programming is successfully completed, follow the
procedure described in Appendix C, section C.7.1 to
register keys into the Immobilizer.

5.1.16 Thumbwheel Setting 18

File: 50050
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following
table).

Model	Year	Immo Location
LS 430	2004	Above navigation system

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.17 Thumbwheel Setting 19

File: 48020
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following
table).

Model	Year	Immo Location
RX 330	2004 (VIN starts with "J")	Above center dash

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.18 Thumbwheel Setting 20

File: 0e010
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following
table).

Model	Year	Immo Location
RX 330	2004 (VIN starts with "2")	Above center dash

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

5.1.19 Thumbwheel Setting 21

File: 47020
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Toyota (models specified in the following
table).

Model	Year	Immo Location
Prius	2004	Under dash board, above steering column.

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.6.1 to register keys into the Immobilizer.

Thumbwheel Setting 22

File: 50030
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
LS 430	2001-2002	Above navigation system

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.5.1 to register keys into the Immobilizer.

5.1.20 Thumbwheel Setting 23

File: 50031
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
LS 430	2003	Above navigation system

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.5.1 to register keys into the Immobilizer.

5.1.21 Thumbwheel Setting 24

File: 24020
Flash device identifier:
Type of operation: Programming
Manufacturer(s): Lexus (models specified in the following table).

Model	Year	Immo Location
SC 430	2002-2003	Behind instrument cluster

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After programming is successfully completed, follow the procedure described in Appendix C, section C.5.1 to register keys into the Immobilizer.

5.1.22 Thumbwheel Setting 25

File: nontrans
Flash device identifier: IC900
Type of operation: Programming
Manufacturer(s): Toyota, Lexus (models specified in the following table).

Model	Year	VIN
All models not equipped with a separate transponder/immobilizer unit. Must use a Type 1 ECU.		
Camry	Sept 2002 - Jan 2003	1 or 4 (4 or 6 cyl)
Camry	Sept 2002 - 2005	1 or 4 (4 cyl only)
Camry	Sept 2002 - Jan 2003	1 or 4 (6 cyl only)
Camry	Sept 2002 - 2005	J (4 cyl only)
Camry	Sept 2002 - Jan 2003	J (6 cyl only)
Camry	Sept 2002 - July 2003	J (4 cyl only)
Camry	Sept 2002 - Jan 2003	J (6 cyl only)

Normally, Type 1 ECU vehicles would be programmed using the "16bit" file (ref sections 5.1.27 and 5.1.28), however if no transponder keys are available, the ECU unit can be programmed using the "nontrans" file. In this case a standard metal key should be used after programming.

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

After performing the programming operation, do not install the center plug when reinstalling the ECU.

5.1.23 Thumbwheel Setting 26

File: Red/Black Keys
Type of operation: Programming
Manufacturer(s): Honda (models specified in the following table).

Model	Year	Immo Location
NSX	1997 - 2004	Attached to steering column.
Prelude	1997 - 2002	
RL	1996 - 2004	

To perform the programming function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the programming operation failed.

The Red Key, and one Black Key, for use with this programming operation is displayed using thumbwheel setting 27. Use a T Code Pro, SDD or CodeSeeker programmer to initialize a Black Key.

5.1.24 Thumbwheel Setting 27

This thumbwheel setting is used to display the Red Key and one Black Key programmed into a memory device using Thumbwheel setting 26. The keys are displayed in 4 character increments, as follows:
  (i)   Before starting, perform the programming procedure as described in section 5.1.23 above.
  (ii)   Set thumbwheel to 27.
  (iii)   Press the START button. The display will scroll until "Red" is displayed, then the scroll operation will pause. "Red" identifies the start of the Red Key, and "Blck" identifies the start of the Black Key.
  (iv)   Press the START button again to continue the display scroll to the next 4 digits of the key value.

(v) Continue step (iv) until all 16 digits of each key has been displayed. Pressing START again will scroll the data from the beginning again.

5.1.25 Thumbwheel Setting 28 through 88

These thumbwheel selection options are not in use.

5.1.26 Thumbwheel Setting 89

File: N/A
Type of operation: PIN read
Manufacturer(s): Jeep (models specified in the following
table).

Model	Year	Immo Location
Liberty	2006	Steering column

This thumbwheel selection can be used to read the 4 digit PIN for the vehicle(s) specified.

5.1.27 Thumbwheel Setting 90

File: N/A
Type of operation: PIN read
Manufacturer(s): 2005 Nissan (models specified in the
following table).

Model	Year	BCM Location
All	2005	Consult Tcode manual.

This thumbwheel selection can be used to read the 4 digit PIN for the vehicle(s) specified.

5.1.28 Thumbwheel Setting 91

File: N/A

Type of operation: PIN read
Manufacturer(s): 2009 Nissan (models specified in the
following table).

Model	Year	BCM Location
Altima	2009 and up	Driver's side, under instrument panel.
Pathfinder	2009 and up	Driver's side, under steering column. Remove lower knee protector to access.
Frontier	2009 and up	
XTerra	2009 and up	
Armada	2009 and up	
Titan	2009 and up	
Rogue	2009 and up	Under dashboard, passenger side, near glove box.
Murano	2009 and up	Driver's side, behind combination meter.
Quest	2009 and up	Near parking brake pedal assembly.
Versa	2009 and up	Behind glove box.
Sentra	2009 and up	Behind glove box.
Maxima	2009 and up	Under instrument panel, attached to steering member.
350Z	2009 and up	Driver's side, adjacent to fuse block.
370Z	2009 and up	Under dashboard, passenger side.
Z12	2009 and up	Left driver's side, under instrument lower panel.
GT-R	2009 and up	Under dashboard, passenger side.

This thumbwheel selection can be used to read the 4 digit
PIN for the vehicle(s) specified.

5.1.29 Thumbwheel Setting 92

File: N/A
Type of operation: PIN read
Manufacturer(s): Volkswagen (VW) (models specified in the
following table).

Model	Year	Immo Location
Beetle	2000 and up	In cluster, under dash board

This thumbwheel selection can be used to read the 4 digit
PIN for the vehicle(s) specified.

5.1.30 Thumbwheel Setting 93

File: N/A
Type of operation: PIN read
Manufacturer(s): Isuzu (models specified in the following
table).

Model	Year	Immo\ECU\BCM Location
Axiom	2003 - 2005	Below steering column
Rodeo	2003 - 2005	Below steering column

This thumbwheel selection can be used to read the 4 digit
PIN for the vehicle(s) specified.

5.1.31 Thumbwheel Setting 94

File: N/A
Type of operation: PIN read
Manufacturer(s): Chrysler (models specified in the following
table).

Model	Year	Immo Location
All Type 1 Chryslers	1998 and up	On steering column at ignition switch.

This thumbwheel selection can be used to read the 4 digit PIN for the vehicle(s) specified.

Important: One of the pads on the board must be connected to GND before trying to program the board (refer to photo in Appendix B).

5.1.32 Thumbwheel Setting 95

This thumbwheel setting is used to restore the contents of a memory device to it's value prior to programming.

Anytime the Penloader is used to program a device, it reads the device and saves the contents into a "Restore" memory block (contained in the Penloader) prior to overwriting the device with new data. If there is a desire to restore the original contents of the device after programming, this can be achieved using thumbwheel setting 95.

It is important to note that the contents of the "Restore" memory block are overwritten with each subsequent programming operation. Thus a function is also provided to save the contents of the "Restore" memory bank to one of the other 4 memory banks provided (ref section 5.2.4).

(i)   Set thumbwheel to 95.
(ii)   Position the Penloader over the 8 pin memory device.
(iii)   Press the START button.
(iv)   If successful, the original contents of the memory device will be restored and the display will indicate "OK".

File: Data from "Restore" memory block.
Flash device identifier: Depends on manufacturer
Type of operation: Programming
Manufacturer(s): Any

5.1.33 Thumbwheel Setting 96 through 97

These thumbwheel selection options are not in use.

5.1.34 Thumbwheel Setting 98

Switch to THUMB 1.

5.1.35 Thumbwheel Setting 99

This thumbwheel selection will display the serial number of the Penloader, plus the voltage of either rechargeable batteries, if an external dc supply is not connected to the unit; else the voltage of the external dc supply.
To display these 2 parameters the thumbwheel switch should be set to 99, and the START button pressed. The unit will display a WAIT message, then continually scroll through a message that shows the serial number and the supply voltage.

5.2 *THUMB 1 Settings*

The following sections describe the operation of the Penloader under the THUMB1 thumbwheel settings. To invoke these thumbwheel settings, set the thumbwheel to 98 before powering on the Penloader. These settings are only valid until the Penloader is powered off.

The THUMB 1 settings include all of the save operations to one of the onboard 4 memory blocks. Note that the write function to these memory blocks can take a while, depending on the amount of data to be written. In some instances, this save operation may take 30 seconds or more. In all cases audio cues are used to define the end of the operation, and status is shown on the display.

5.2.1 Thumbwheel Settings 00 through 03

This thumbwheel setting is used to transfer the contents of a memory block up to a computer. This procedure is described in a separate document called "Penloader Tool – Data Send and Receive Manual".

Set thumbwheel to 01, 02, 03, or 04 depending on which memory block (0, 1, 2, or 3) should source the data to be sent to the computer.

5.2.2 Thumbwheel Settings 04 through 07

This thumbwheel setting is used to transfer the contents of a data file from a computer to a memory block. This procedure is described in a separate document called "Penloader Tool – Data Send and Receive Manual".

Set thumbwheel to 04, 05, 06, or 07 depending on which memory block (0, 1, 2, or 3) the data received should be saved to.

5.2.3 Thumbwheel Settings 08 through 11

File: Not applicable

Flash device identifier: Depends on manufacturer
Type of operation: Reading and saving data
Manufacturer(s): Any

This thumbwheel setting is used to read the contents of a memory device (93C series [microwire] and 24C series [I2C]), and save the contents to one of the four memory blocks provided.

Set thumbwheel to 08, 09,10, or 11 depending on which memory block (0, 1, 2, or 3) the data read should be saved to. To perform the read and save function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the operation failed.

5.2.4 Thumbwheel Settings 12 through 15

File: Not applicable
Flash device identifier: Not applicable
Type of operation: Saving data
Manufacturer(s): Not applicable

This thumbwheel setting is used to save the contents of the "Restore" memory block to one of the four memory blocks provided.

Anytime the Penloader is used to program a device, it reads the device and saves the contents into a "Restore" memory block (contained in the Penloader) prior to overwriting the device with new data. If there is a desire to restore the original contents of the device after programming, this can be achieved using thumbwheel setting 95 (ref section 5.1.32). It is important to note that the contents of the "Restore" memory block are overwritten with each subsequent programming operation. Thus a function is provided to save the contents of the "Restore" memory bank to one of the other 4 memory banks provided.

Set thumbwheel to 12, 13,14, or 15 depending on which memory block (0, 1, 2, or 3) the data should be saved to.

To perform the save, press the START button after the thumbwheel selection has been dialed in, then wait for the audio cue to signal completion.

5.2.5 Thumbwheel Settings 16 through 20

File: Not applicable
Flash device identifier: 25xxx or 95xxx series devices
Type of operation: Saving data
Manufacturer(s): Not applicable

This thumbwheel setting is used to read the contents of an SPI memory device (25 series or 95 series), and save the contents to one of the Restore memory block.

Set thumbwheel to 16 through 20 depending on which size SPI device is to be read, as specified in the table below. To perform the read and save function use the procedure described in section 4.1. Display must display "OK" at the end of the procedure, else the operation failed.

Thumbwheel Setting	Device
16	25LC010 or 95010
17	25LC020 or 95020
18	25LC040 or 95040
19	25LC080 or 95080
20	25LC160 or 95160

Note that the LC in the above device part numbers is not significant – devices may have variations on parts numbers such as 25AA040, or 95C020.

5.2.6 Thumbwheel Setting 99

This thumbwheel selection will display the serial number of the Penloader, plus the voltage of either rechargeable batteries, if an external dc supply is not connected to the unit; else the voltage of the external dc supply.
To display these 2 parameters the thumbwheel switch should be set to 99, and the START button pressed. The

unit will display a WAIT message, then continually scroll through a message that shows the serial number and the supply voltage.

APPENDIX A

User Manual – *4D Quick Reset*
Orange Dongle

- Supports Toyota and Lexus vehicles.
- Safe and efficient: Only needs 20 seconds to add one key.
- It is safe for the security alarm system.
- Supports all kinds of Toyota and Lexus smart key systems: supports K line and CAN-BUS protocols.
- Is the safest and fastest key programmer device for Toyota and Lexus series.
- Supports all lost keys.

Detailed operating steps for common keys is as follows:

a. Turn the ignition switch "ON" using the key containing the original 4D chip.

b. Insert the 4D Quick Reset Orange Dongle into the car diagnostic interface OBD, and the dongle will enter into the procedure of car auto searching with a short sound of "di". 7 seconds later, the dongle will connect with the car computer successfully, with the short sound of two or three "di" (two means the car belongs to the second generation, and the three means third generation). After 20 seconds, the dongle will enter into the "learn key procedure" with a long sound of "di".

c. Reading the key code:
   - To match two main keys and one subsidiary key to the immo computer (attention: there must be two new main keys and one subsidiary key):
     - Insert the first new main key into the ignition lock and wait for 5 seconds until the SEC light turns on (do not turn on the ignition when inserting the key).
     - Insert the second new main key into the ignition lock and wait for 5 seconds until the SEC light turns on (do not turn on the ignition when inserting the key).

- Insert the subsidiary key into the ignition lock and the SEC light should turn off (do not turn on the ignition when inserting the key).

- To match only one or two main keys to the immo computer (close the matching mode manually after the matching is finished).

    - Insert the first new main key into the ignition lock and wait for 5 seconds until the SEC light turns on (do not turn on the ignition when inserting the key).

    - Insert the second new main key into the ignition lock and wait for 5 seconds until the SEC light turns on (do not turn on the ignition when inserting the key).

    - Insert the first finished key, and turn on the ignition quickly 5 times, then remove the key.

Important:

    (i)   Use the correct brand of smart key.

    (ii)   If the keys cannot be programmed, and the immo light has been flashing, you must clean out the fault codes in the anti-theft system

    (iii)   After you have finished programming the keys, if the key starts the vehicle, but the immo light is still on, use the copy key to the program a new key. Only the original key can shut down the system.

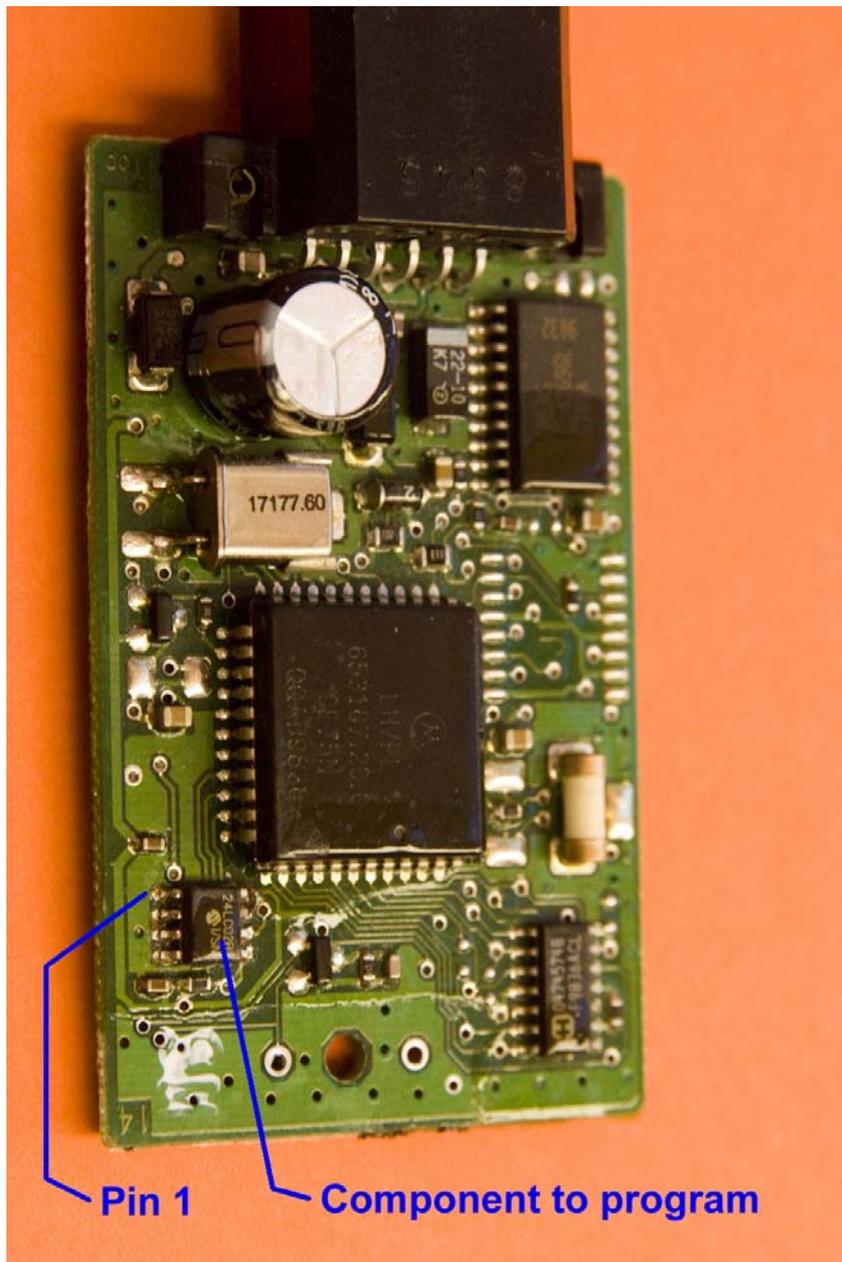# APPENDIX B

User Manual – *Circuit Board Photos*

Penloader kit
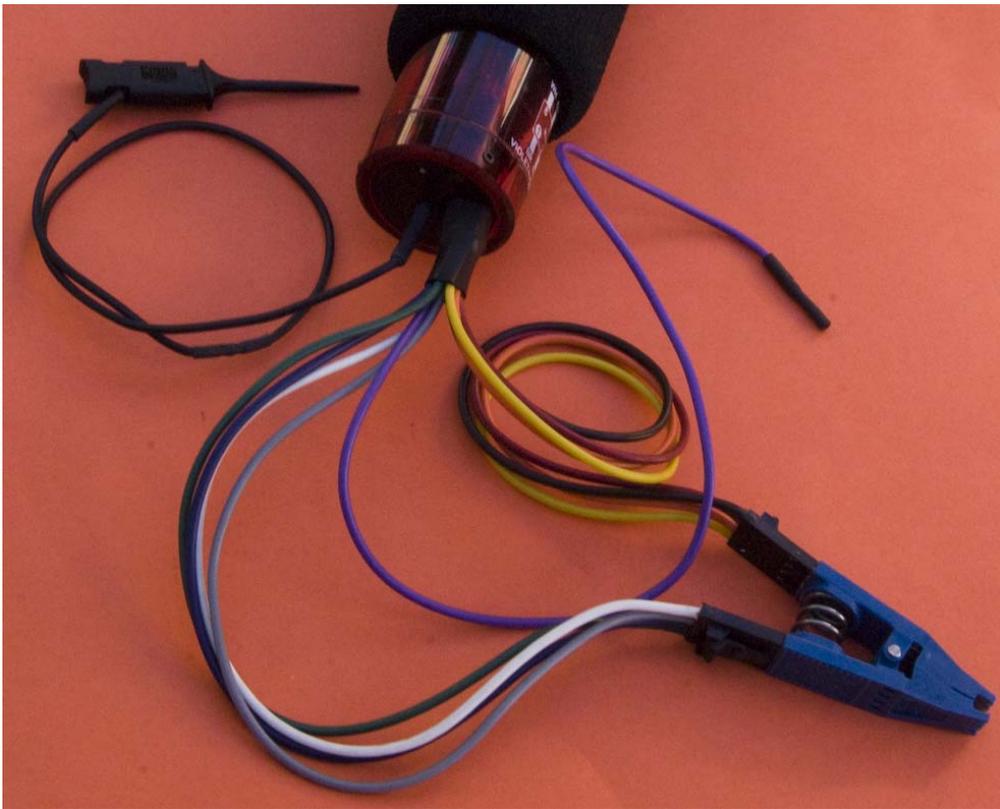
Attachment of Pomona clip to Penloader

Correct installation of extension cables to Pomona clip
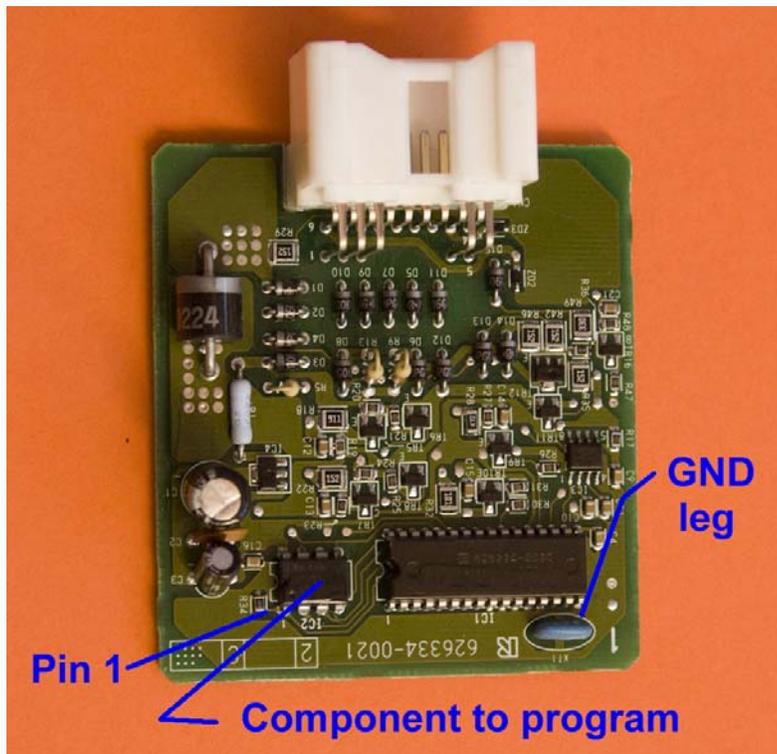
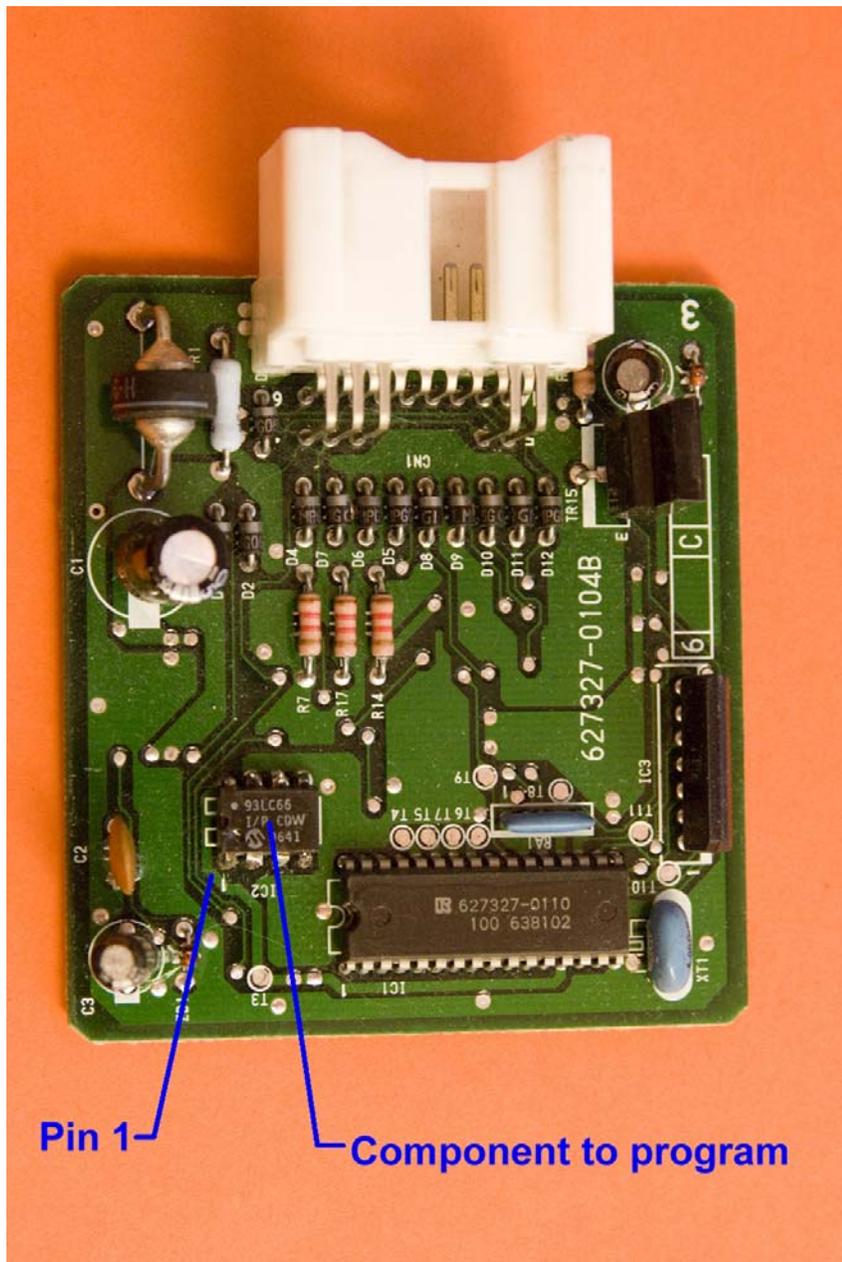**Circuit Board from 34010 module**

Pin 1   **Component to program**

Chrysler (Type 1) PIN read
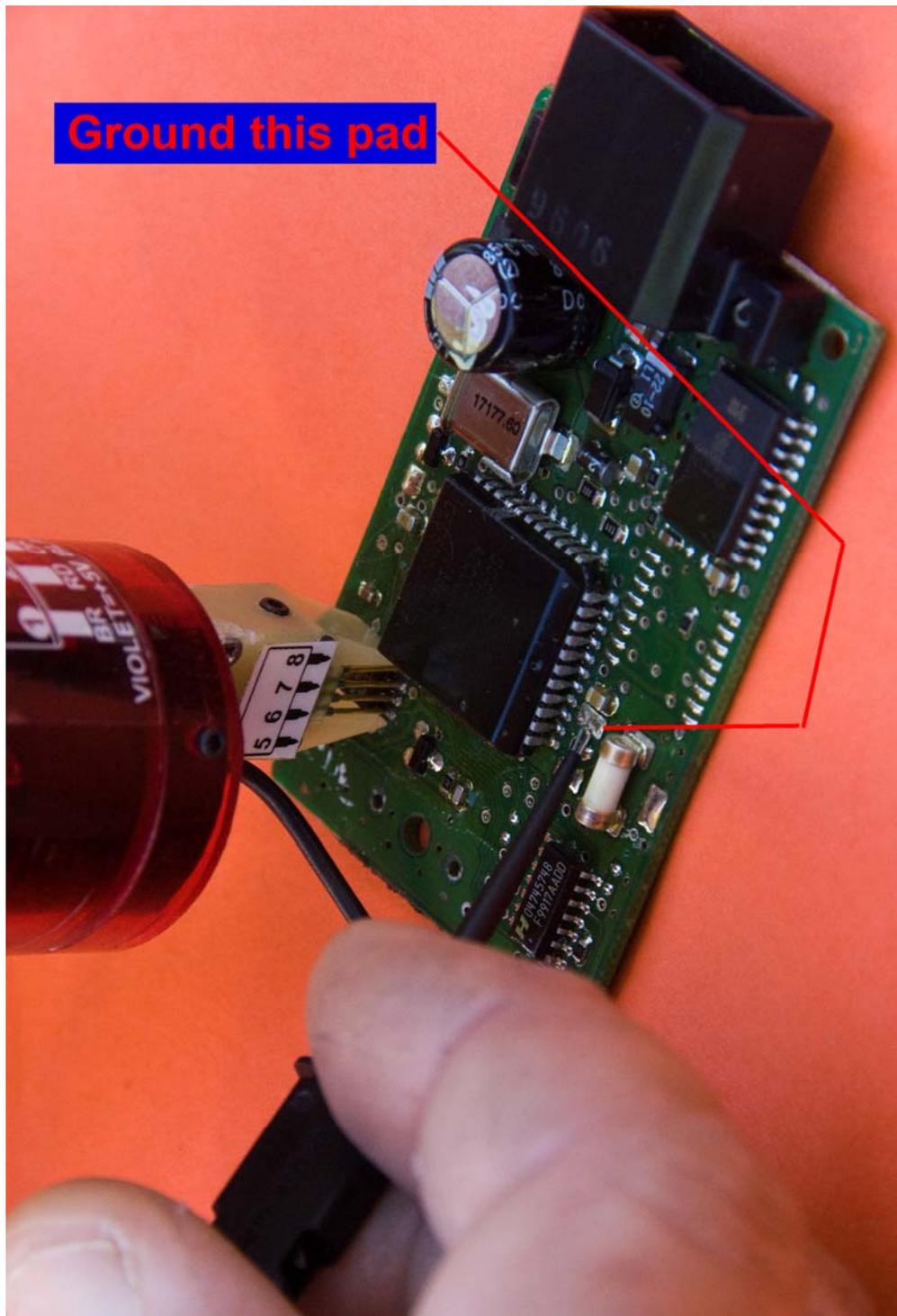
Chrysler (Type 1) – circuit board pad to ground before reading PIN
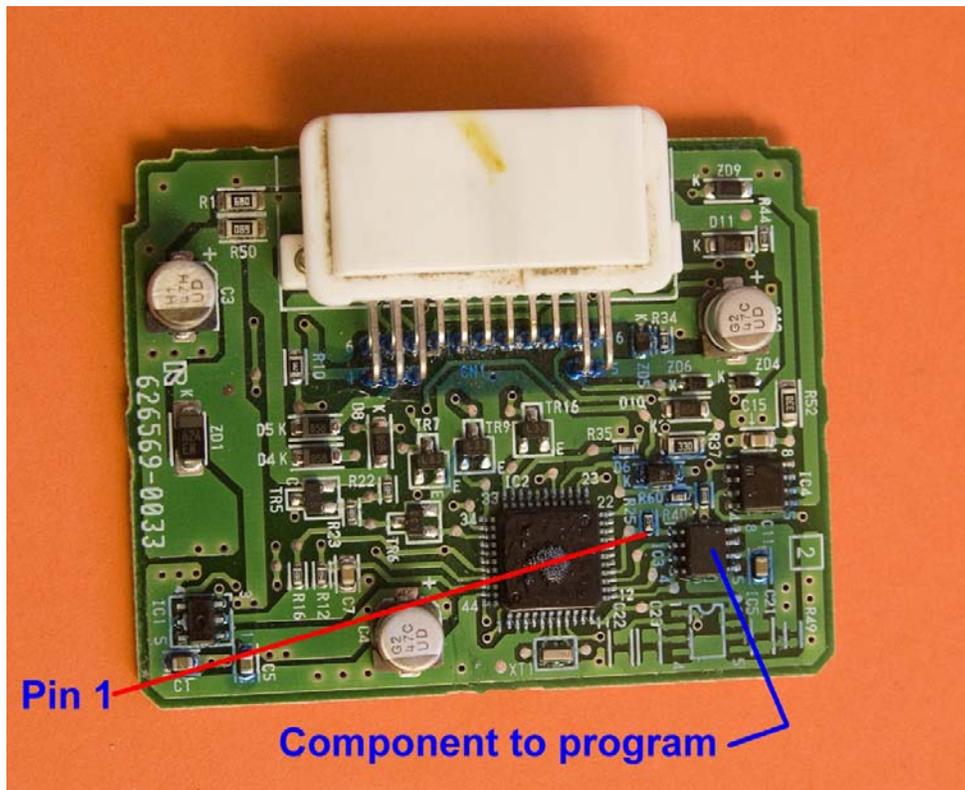
Circuit Board from 02060 module

Pin 1

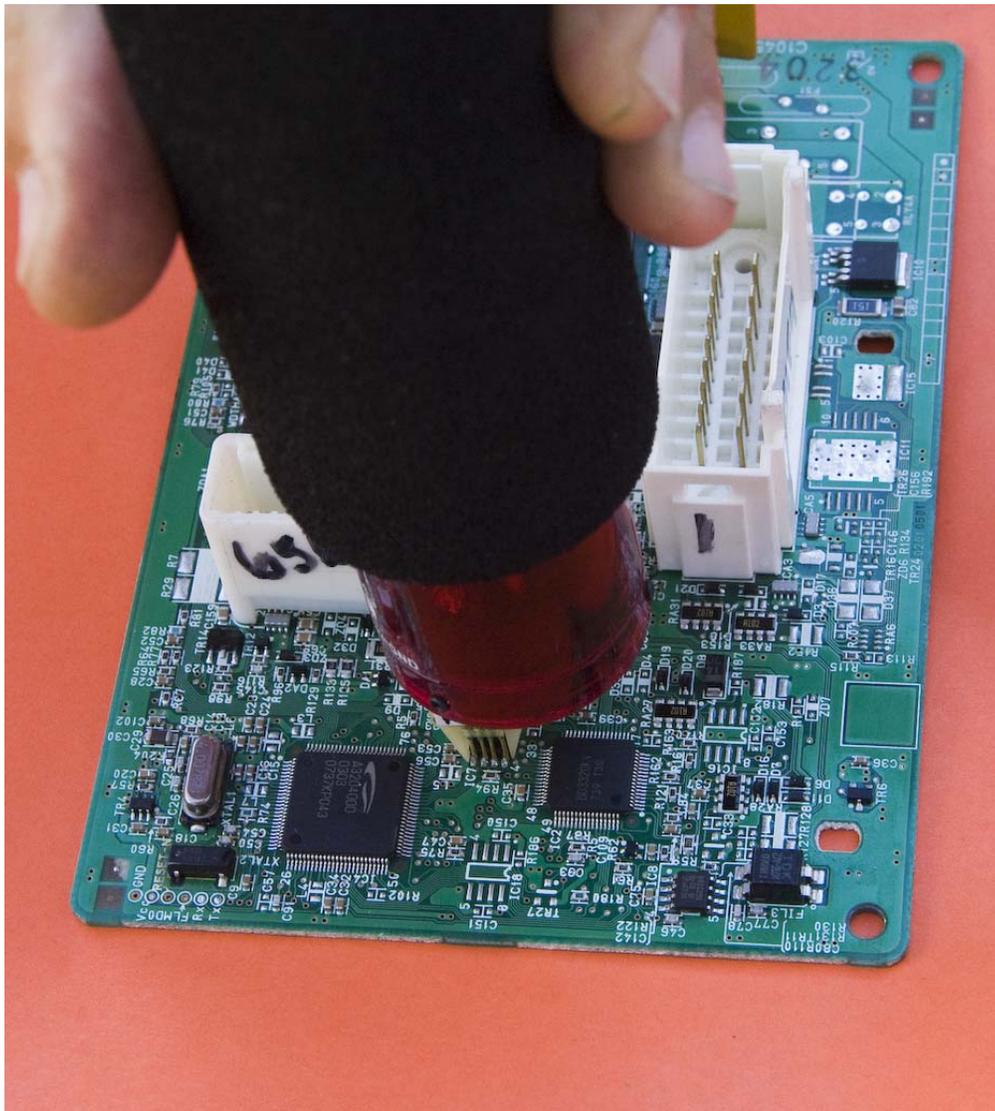Component to program

Circuit Board from 50020 module
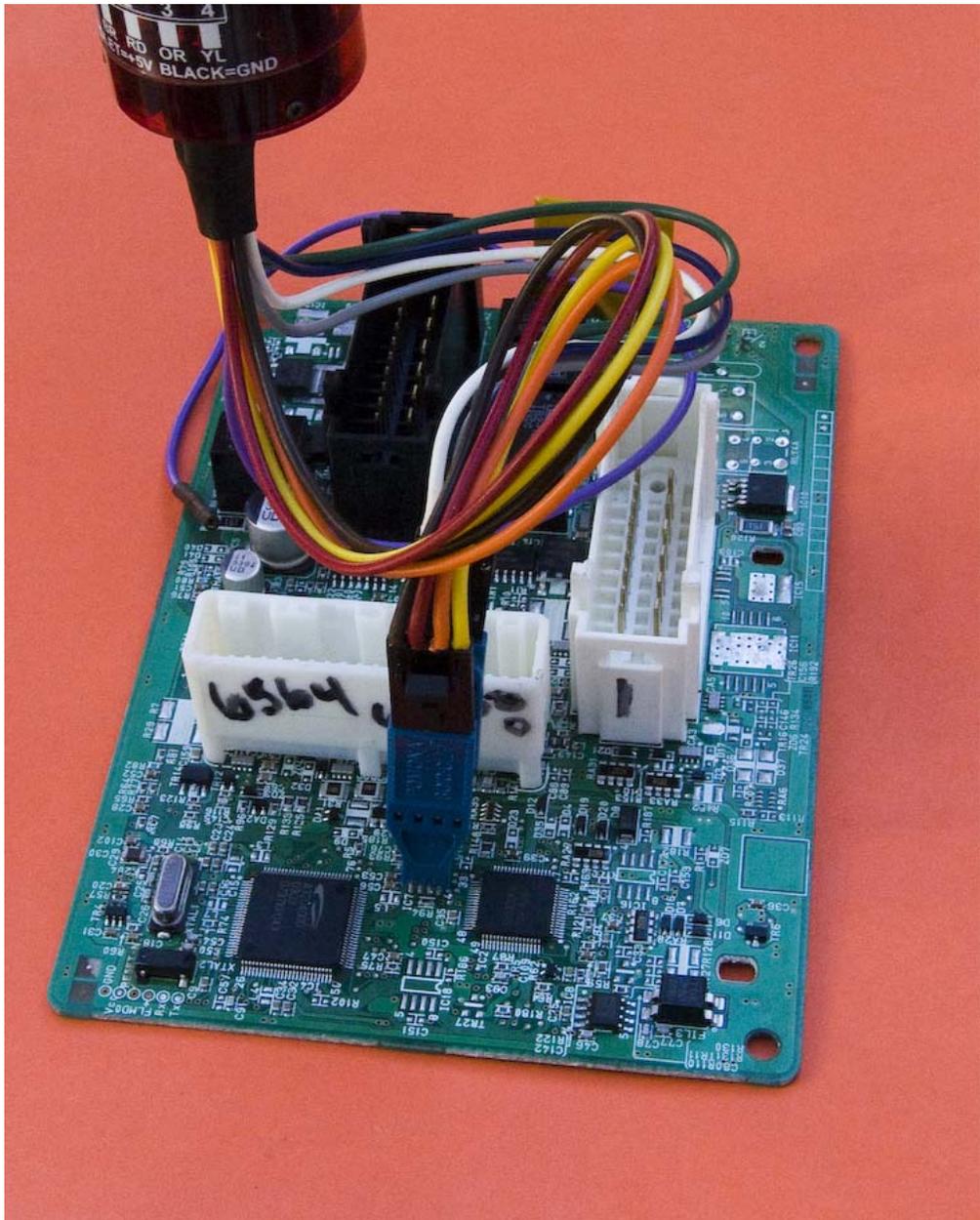
Circuit Board from AA010 module

Toyota-Lexus 16bit ECU circuit board
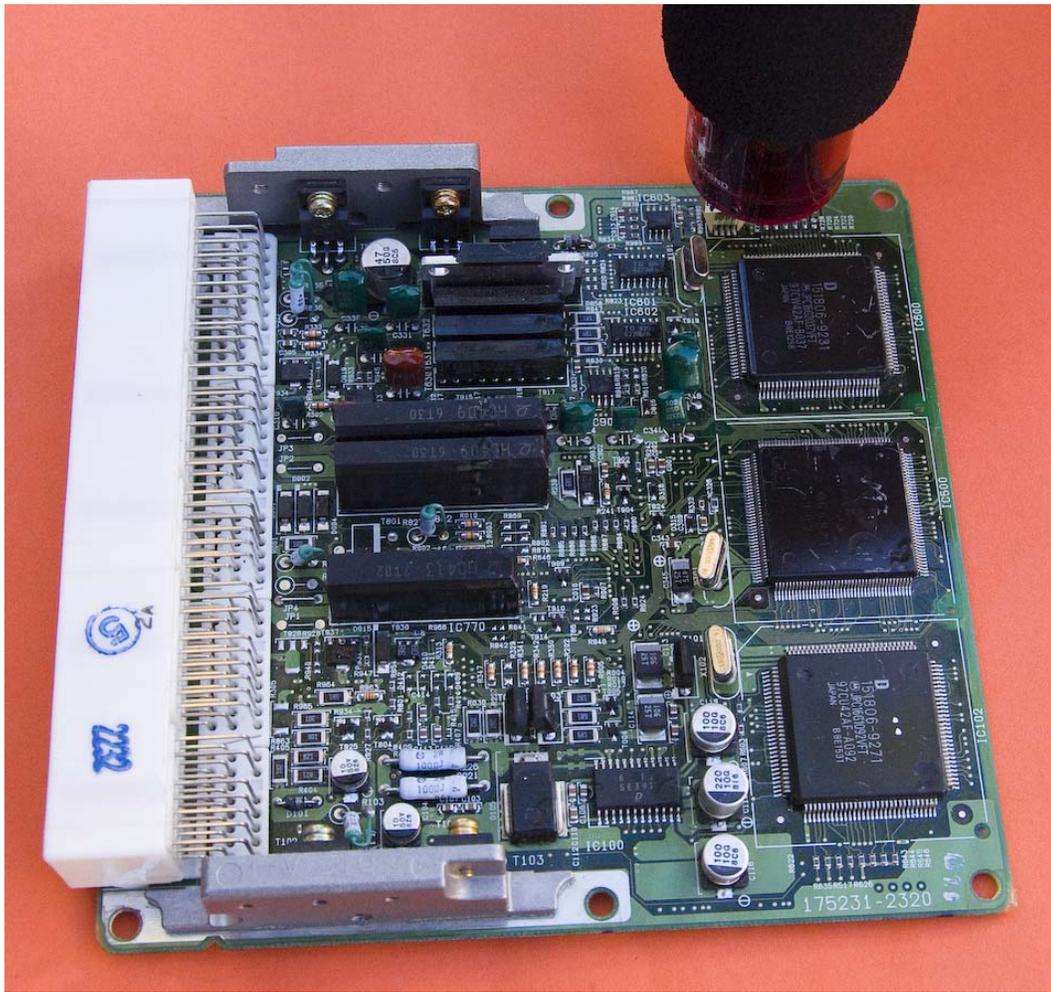
**Penloader installed on Toyota-Lexus 16bit
ECU circuit board**

Penloader installed on Nissan 09 BCM circuit board

Pomona clip installed on Nissan 09 BCM circuit board

2003 and later Sequoia immobilizer location behind instrument cluster.

APPENDIX C

Toyota/Lexus Post Programming Procedures

C.1 Procedures to be followed for the following vehicles:

Make	Model	Year	Remark
Toyota	4Runner	1999-2002	
	Avalon	1998-2003	
	Camry	1998-2002	
		2001-2003	4 cylinder engine
	Highlander	2001-2003	
	LandCruiser	1998-2002	
	MR2	2000-2003	
	RAV4	2000-2003	
	Sequoia	2001-2002	
	Sienna	1998-2003	
	Solara	1999-2003	
Lexus	ES300	1998-2003	
	GS300	1998-2003	
	GS400	1998-2000	
	GS430	2001-2003	
	IS300	2001-2003	
	LS400	1998-2000	
	LX470	1998-2002	
	RX300	1999-2003	
	SC300	1998-2000	
	SC400	1998-2000	

C.1.1 To register Keys in a new ECU:
- a. ECU is in Automatic Registration mode, and the Security light should be blinking.
- b. Insert a key into the ignition switch (do not turn ignition on). The Security light should now be on (not blinking).
- c. Wait for the Security light to go out.
- d. The key is now registered.
- e. Remove key from the ignition switch.
- f. Repeat steps b through e if more keys are to be registered.
- g. Once all keys are registered, remove last key from the ignition switch, then depress and release the brake pedal once.

h. Programming mode completes after 10 seconds.

Note: The first key registered will be the new Master Key. The last key registered will be the Valet key. If only 1 key is to be registered, cycle the single key through the registration process 4 or 5 times.

C.1.2 To register an additional Master Key:
   a. Insert a registered Master key into the ignition switch (do not turn ignition on).
   b. Depress and release the gas pedal 5 times.
   c. Depress and release the brake pedal 6 times.
   d. Remove the Master key from the ignition switch.
   e. Insert new key to be registered into the ignition switch (do not turn ignition on).
   f. Depress the gas pedal once.
   g. Wait approximately 1 minute until the security light stops blinking.
   h. Remove the key.
   i. Depress and release the brake pedal once.
   j. Programming mode completes after 10 seconds.

C.1.3 To register an additional Valet Key:
   a. Insert a registered Master key into the ignition switch (do not turn ignition on).
   b. Depress and release the gas pedal 4 times.
   c. Depress and release the brake pedal 5 times.
   d. Remove the Master key from the ignition switch.
   e. Insert new key to be registered into the ignition switch (do not turn ignition on).
   f. Depress the gas pedal once.
   g. Wait approximately 1 minute until the security light stops blinking.
   h. Remove the key.
   i. Depress and release the brake pedal once.
   j. Programming mode completes after 10 seconds.

C.1.4 To delete all other existing keys:
   a. Insert a registered Master key into the ignition switch (do not turn ignition on).
   b. Depress and release the gas pedal 6 times.

c. Depress and release the brake pedal 7 times.
d. Remove the Master key from the ignition switch.
e. Insert new key to be registered into the ignition switch (do not turn ignition on).
f. Depress the gas pedal once.
g. Wait approximately 1 minute until the security light stops blinking.
h. Remove the key.
i. Depress and release the brake pedal once.
j. Programming mode completes after 10 seconds.

C.2 Procedures to be followed for the following vehicles:

Make	Model	Year	Remark
Toyota	Sequoia	2003	
Lexus	LS430	2001-2003	
	SC430	2002-2003	

C.2.1 To register an additional Master or Valet Key:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert a registered Master key into the ignition switch.
d. Turn ignition switch ON then OFF 5 times.
e. Open, then close, the driver's door 6 times. This must be completed within 35 seconds of finishing the previous step (item d above).
f. Remove the Master key from the ignition switch.
g. Insert new key to be registered into the ignition switch (do not turn ignition on). This must be completed within 10 seconds of removing the Master key.
h. Wait approximately 60 seconds until the Theft light goes out.
i. Remove the key.
j. Programming mode is complete.

C.2.2 To delete all other existing keys:

a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert a registered Master key into the ignition switch.
d. Turn ignition switch ON then OFF 6 times.
e. Open, then close, the driver's door 7 times. This must be completed within 35 seconds of finishing the previous step (item d above).
f. Remove the Master key from the ignition switch.
g. The Master key is the only key now programmed into the ECU.

C.3 Procedures to be followed for the following vehicles:

Make	Model	Year	Remark
Lexus	LS400	1997	

C.3.1 To register a new Master Key after installing a new ECU:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert the new Master key into the ignition switch.
d. Turn ignition switch ON then OFF.
e. Remove key from ignition switch.
f. Open, then close, the driver's door. Programming mode is complete.

C.3.2 To register an additional Master Key:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert a registered Master key into the ignition switch.
d. Turn ignition switch ON then OFF 5 times leaving the ignition switch in the ON position on the 5th cycle. This operation must be completed within 15 seconds of inserting the key into the ignition switch.

e. Open, then close, the driver's door within 15 seconds of starting step d (timing starts when Master key was inserted into the ignition switch).

f. Open, then close, the driver's door 5 times. This must be completed within 20 seconds of closing the door in the previous step (item e above).

g. Remove the Master key from the ignition switch. This must be completed within 20 seconds of closing the door in step e above.

h. Insert new key to be registered into the ignition switch. This must be completed within 10 seconds of removing the Master key.

i. Turn ignition switch ON. This must be completed within 10 seconds of inserting the key into the ignition switch.

j. Wait at least 60 seconds, then turn ignition switch OFF and remove key.

k. Key is now registered in ECU.

l. Another key may be registered if it is inserted into the ignition switch within 10 seconds or removing the previous key, and repeating steps i through k.

m. Open, then close, the driver's door. Programming mode is complete.

C.3.3 To register an additional Valet Key:

a. Ensure there is no key in the ignition.

b. While sitting in drivers seat, close all vehicle doors, but do not lock them.

c. Insert a registered Master key into the ignition switch.

d. Turn ignition switch ON then OFF 4 times leaving the ignition switch in the ON position on the 4th cycle. This operation must be completed within 15 seconds of inserting the key into the ignition switch.

e. Open, then close, the driver's door within 15 seconds of starting step d (timing starts when Master key was inserted into the ignition switch).

f. Open, then close, the driver's door 4 times. This must be completed within 20 seconds of closing the door in the previous step (item e above).

g. Remove the Master key from the ignition switch. This must be completed within 20 seconds of closing the door in step e above.
h. Insert new key to be registered into the ignition switch. This must be completed within 10 seconds of removing the Master key.
i. Turn ignition switch ON. This must be completed within 10 seconds of inserting the key into the ignition switch.
j. Wait at least 60 seconds, then turn ignition switch OFF and remove key.
k. Key is now registered in ECU.
l. Another key may be registered if it is inserted into the ignition switch within 10 seconds or removing the previous key, and repeating steps i through k.
m. Open, then close, the driver's door. Programming mode is complete.

C.3.4 To delete all other existing keys:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert a registered Master key into the ignition switch.
d. Turn ignition switch ON then OFF 6 times leaving the ignition switch in the ON position on the 6th cycle. This operation must be completed within 15 seconds of inserting the key into the ignition switch.
e. Open, then close, the driver's door within 15 seconds of starting step d (timing starts when Master key was inserted into the ignition switch).
f. Open, then close, the driver's door 6 times. This must be completed within 20 seconds of closing the door in the previous step (item e above).
g. Remove the Master key from the ignition switch. This must be completed within 20 seconds of closing the door in step e above.
h. Open, then close, the driver's door. Programming mode is complete.

C.4 Procedure to be followed for the following vehicles:

Make	Model	Year	Remark
Toyota	Prius	2001-2003	

C.4.1 To register Keys in a new ECU:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert first new Master key into the ignition switch.
d. Wait 5 seconds, then remove key from ignition switch.
e. Insert second new Master key into the ignition switch.
f. Wait 5 seconds, then remove key from ignition switch.
g. Insert new Valet key into the ignition switch.
h. Wait 5 seconds, then remove key from ignition switch.
i. All 3 keys should now trun off the theft light, but will no start the vehicle.
j. Insert a Master Key into the ignition switch, and turn turn ignition switch on.
a. Short OBD2 connector terminal 4 to terminal 13 using a wire or paper clip.
i. Wait 30 minutes, then turn ignition switch off and remove shorting wire from OBD2. Programming mode is complete. Vehicle should now start with any of the 3 keys.

C.4.2 To register an additional Master or Valet Key:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert a registered Master key into the ignition switch.
d. Quickly turn ignition switch ON then OFF 5 times.
e. Quickly open, then close, the driver's door 6 times.
f. Remove the Master key from the ignition switch.
g. Insert new key to be registered into the ignition switch (do not turn ignition on). This must be

completed within 10 seconds of removing the Master key.
h. Leave key in the ignition switch for a minimum of 60 seconds, until the Theft light goes out.
i. Remove the key from the ignition switch.
j. Key is now registered in ECU.

C.5 Procedure to be followed for the following vehicles:

Make	Model	Year	Remark
Lexus	GX470	2003 - 2004	
	LS430	2001-2003	
	LX470	2003 - 2004	
	SC430	2002-2003	

C.5.1 To register Keys in a new Immobilizer:
a. Theft light should be on indicating that the Immobilzer is in Auto learn mode.
b. Insert first Master key (4D with an id of 32, 52 or b) into the ignition switch. Theft light will blink once then remain on.
c. Remove key from ignition switch.
d. Repeat steps b and c for the remaining 3 keys. Last key registered is the Valet key (4D with an id of 72 or 92).
e. Removing fourth key closes Auto learn mode.
f. Once Auto learn mode is closed the Immobilizer must be resynchronized with the ECU, else vehicle will not start. Insert a Master Key into the ignition switch, and turn ignition switch on (do not try to start the vehicle).
g. Short OBD2 connector terminal 4 to terminal 13 using a wire or paper clip.
h. Wait for 30 minutes.
i. Remove shorting wire from OBD2 connector.
j. Turn ignition switch off and remove key.
k. Reinsert key and verify that vehicle can now be started.

Notes: Up to 4 keys may be registered. If less than 4 keys are registered, Auto learn mode must be closed manually.

To close Auto learn mode, turn ignition switch on, then off, 5 times within a 10 second period, then remove the key from the ignition switch.

Theft light blinking two long blinks, and one short blink, indicates that Auto learn mode failed.

Theft light blinking two short blinks, and two long blinks, indicates that a key that has already been registered, was registered a second time.

C.6 Procedure to be followed for the following vehicles:

Make	Model	Year	Remark
Toyota	Sequoia	2003	
Toyota	Camry	2001 - 2004	
Toyota	Solara	2003 - 2004	
Lexus	LS430	2004	
Lexus	ES330	2004	
Lexus	RX330	2004	VIN starts with J or 2

C.6.1 To register 3 Keys (2 Master, 1 Valet) in a new Immobilizer:
    a. Ensure there is no key in the ignition.
    b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
    c. Insert first Master key into the ignition switch and wait 5 seconds.
    d. Remove key and insert second Master key into the ignition switch and wait 5 seconds.
    e. Remove key and insert Valet key into the ignition switch and wait 5 seconds.
    f. Remove key.
    l. The Immobilizer must be resynchronized with the ECU, else vehicle will not start. Insert a Master Key into the ignition switch, and turn ignition switch on (do not try to start the vehicle).
    m. Short OBD2 connector terminal 4 to terminal 13 using a wire or paper clip.

n. Wait for 30 minutes.
o. Remove shorting wire from OBD2 connector.
p. Turn ignition switch off and remove key.
q. Reinsert key and verify that vehicle can now be started.

To register less than 3 Keys in a new Immobilizer:
a. Ensure there is no key in the ignition.
b. While sitting in drivers seat, close all vehicle doors, but do not lock them.
c. Insert first Master key into the ignition switch and wait 5 seconds.
d. Remove key. If required, insert a second key into the ignition switch, wait 5 seconds then remove key.
e. Insert first Master key into the ignition switch.
f. Quickly turn ignition switch ON then OFF 5 times.
g. Remove key.
h. The Immobilizer must be resynchronized with the ECU, else vehicle will not start. Insert a Master Key into the ignition switch, and turn ignition switch on (do not try to start the vehicle).
i. Short OBD2 connector terminal 4 to terminal 13 using a wire or paper clip.
j. Wait for 30 minutes.
k. Remove shorting wire from OBD2 connector.
l. Turn ignition switch off and remove key.
m. Reinsert key and verify that vehicle can now be started.

C.7 Procedure to be followed for the following vehicles:

Make	Model	Year	Remark
Toyota	4Runner	2003	
	Camry	2003	V6 Engine
	LandCruiser	2003	
	Sienna	2004	

C.7.1 To register Keys in a new Immobilizer:
a. Theft light should be on indicating that the Immobilzer is in Auto learn mode.

b. Insert first Master key (4D with an id of 32, 52 or b) into the ignition switch. Theft light will blink once then remain on.
c. Remove key from ignition switch.
d. Repeat steps b and c for the remaining 3 keys. Last key registered is the Valet key (4D with an id of 72 or 92).
e. Removing fourth key closes Auto learn mode.
f. Once Auto learn mode is closed the Immobilizer must be resynchronized with the ECU, else vehicle will not start. Insert a Master Key into the ignition switch, and turn ignition switch on (do not try to start the vehicle).
g. Short OBD2 connector terminal 4 to terminal 13 using a wire or paper clip.
h. Wait for 30 minutes.
i. Remove shorting wire from OBD2 connector.
j. Turn ignition switch off and remove key.
k. Reinsert key and verify that vehicle can now be started.

Notes: Up to 4 keys may be registered. If less than 4 keys are registered, Auto learn mode must be closed manually. To close Auto learn mode, turn ignition switch on, then off, 5 times within a 10 second period, step on the brake, then remove the key from the ignition switch.

Theft light blinking two long blinks, and one short blink, indicates that Auto learn mode failed.

Theft light blinking two short blinks, and two long blinks, indicates that a key that has already been registered, was registered a second time.