



Countries: AUSTRALIA, BAHAMAS, BOLIVIA, BRAZIL, BELIZE, CANADA, CHILE, TAIWAN, COLOMBIA, COSTA RICA, DOMINICAN REPUBLIC, ECUADOR, EL SALVADOR, GUAM, GUATEMALA, GUYANA, HAITI, HONDURAS, JAMAICA, KOREA, SOUTH KOREA, MEXICO, ARUBA, NICARAGUA, PANAMA, PERU, PUERTO RICO, RUSSIA, SOUTH AFRICA, TRINIDAD AND TOBAGO, UNITED STATES, URUGUAY, VENEZUELA, Curaçao

Document ID: IK2600286

Availability:

Major System: PROGRAMMING SUPPORT

Current Language: English

Other Languages: NONE

Viewed: 32

Revision: 0

Created: 5/21/2025

Last Modified: 5/29/2025

Author: Matthew Carrigan

[Less Info](#)

Hide Details

Coding Information

Copy Link 	Copy Relative Link 	Bookmark View My Bookmarks	Add to Favorites 	Print 	Provide Feedback 	Helpful 0	Not Helpful 0
----------------------	-------------------------------	--	-----------------------------	------------------	-----------------------------	-------------------------	-----------------------------

Title: Vehicle Programming Information for Engine: Single Box 1998-2004 I6 & V8

Applies To: Single Box 1998-2004 I6 & V8

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

05/29/2025 - Initial Article Release

DESCRIPTION

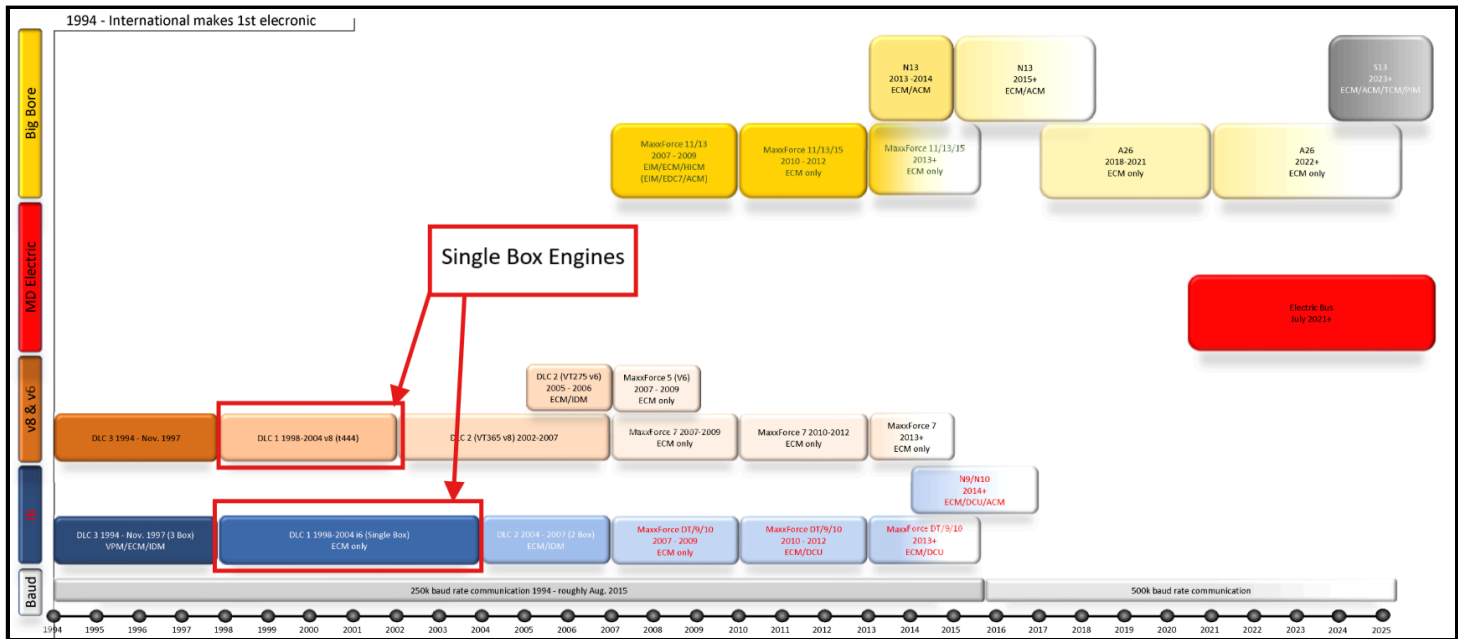
This document aims to enable technicians to:

1. Accurately identify Single Box engine control systems.
2. Understand the programming intricacies related to these systems.
3. Autonomously execute programming tasks without needing technical support.

Table of Contents

Timeline	How Single Box ECMs Work	ECM Part Numbers	Common Programming Problems With Single Box Systems
Software Integrations	Connecting To A Single Box Engine	Horsepower Quotes	
Naming Conventions	Source Addresses	Single Box Engine Swaps	

Timeline



[Return to Top](#)

Software Integrations

- **Servicemaxx 1708:** Supported. Used for diagnostics & parameter changes.
- **DLC Fleet Tool:** [IK2600074](#) For changing Idle Shutdown Timer time & mode, service interval, and engine warning protection system (only works with legacy communication cables)
- **NavKal:** Supported
- **HeRo:** Supported
- **DLB:** Supported. (Beginning with Introduction of electrical system control modules (ESC) in 2001)
- **360 Write Up:** Supported
- The [programming station](#) works with this engine type.

[Return to Top](#)

Naming Conventions

"Diamond Logic Controller" (DLC) is a term used to describe International's brand new (as of 1994) electronic engine control system. This second version of International's electronic engine controls was referred to as DLC 1 or DLC I. The "1" stands for "Single-Box" - indicating that this version of the engine electronic control system has 1 module.

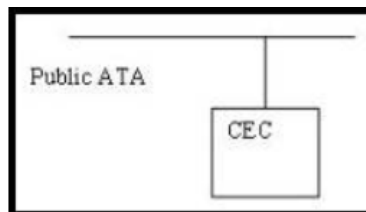
The two engine electronic control systems surrounding this one were referred to as DLC 3 and DLC 2 - both indicating the number of modules used to control the engine at that time. Each of these first three generations of electronic engines had its own diagnostic software package: DLC 3, DLC 1, and DLC 2. These were also referred to as Master Diagnostics 3, Master Diagnostics 1, and Master Diagnostics 2 (MD3, MD1, MD2)

[Return to Top](#)

How Single Box ECMs Work

ECM: Engine Control Module. The ECM holds both the calibration and the parameters. Single Box ECMs are dealer programmable. Both the calibration and parameters can be changed/programmed.

Functional info: This engine type only uses a single control module that is connected to the public 1708 data link.



A photo of a Single Box Engine ECM can be seen below. For additional information and photos see [IK2600273](#)



[Return to Top](#)

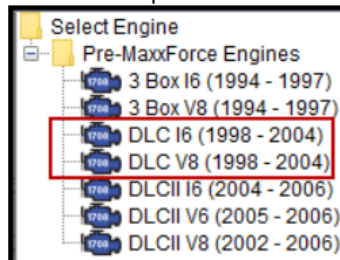
Connecting To A Single Box Engine

Engine Type: DLC I6 (1998 - 2004)
 Reference Number: PRD6AU01
 Engine Family Rating Code: 6122
 Vehicle Identification Number: 1HTWHADR13J057066
 Engine Serial Number: 531HM2U1357452
 Transmission Type: Allison MD
 Rated Power: 300 hp
 Total Miles: 5.0 miles
 Total Fuel Used: 5 gal
 Total Engine Hours: 5.0 hr

When ServiceMaxx 1708 connects to a Single Box engine, you should see data similar to the screenshot above (further description is below)

Engine Type	DLC I6 (1998-2004) or DLC V8 (1998-2004)
Reference Number	Will show an 8 digit calibration name
Engine Family Rating Code	(ERFC) should show a 4 digit number
Vehicle Identification Number	Will show the full 17 digit VIN
Engine Serial Number	Will shows the full 14 digit ESN
Transmission Type	Should correctly reflect the installed transmission (unless the vehicle has an Eaton automated manual transmission - then it is normal for ServiceMaxx 1708 to show an Allison transmission)
Rated Horsepower	Should correctly show the rated horsepower
Total Miles	Should show correct total vehicle distance
Total Fuel Used	Should show correct total fuel used
Total Engine Hours	Should show correct total engine hours

If you need to manually select the engine type for a Single Box engine in ServiceMaxx 1708 or in NavKal, you will select one of these options:



[Return to Top](#)

Source Addresses

- The engine broadcasts source address of 128 (One hundred and twenty eight).
- The is broadcast on the 1708 data link.
- This source address can be seen in the sniffer in either ServiceMaxx 1708 or NavKal.
- If you are using a Nexiq communication cable, you could check the Nexiq Device Tester to see if source address 128 shows up.

[Return to Top](#)

ECM Part Numbers

There are a few different ECM part numbers available - they **ARE NOT** interchangeable. [IK2600091](#) covers which ECM part numbers can be used with which engines types/ calibrations.

If you need engine identification information, please see [IK2600242](#)

[Return to Top](#)

Horsepower Quotes

Horsepower increases are supported by International. However, you will not find a list of available single box ratings in the CT400 Sales Data Book - as that resource does not go back that far. You will need to submit a case file to the Vehicle Programming group in order to get a horsepower quote for a single box engine. If the engine you're considering is already rated at the highest possible rating, then no increases are available. There are a few different ratings that are highest in their class. See the chart below for those highest ratings. There is no need to submit a case requesting a horsepower quote for an engine that is already at one of these ratings - as there are no increases available.

1998	12NKD	ST	466	230HP, FED	605	1141
1998	12NLD	ST	466	230HP, CA	605	1141
1998	12NKJ	HT	466	250HP, FED	660	2142
1998	12NLJ	HT	466	250HP, CA	660	2142
1998	12NKV	ST	530	300HP, FED	950	5151
1998	12NLT	ST	530	300HP, CA	950	5151
1998	12NKS	HT	530	300HP, FED	1050	6122
1998	12NLS	HT	530	300HP, CA	1050	6122
1999	12NHD	ST	466	230HP, 50 State		1141
1999	12NHJ	HT	466	250HP, 50 State		2142
1999	12NHR	ST	530	300HP, 50 State		5151
1999	12NHP	HT	530	300HP, 50 State		6122
2000	12NMD	ST	466	230HP, 50 State	620	1141
2000	12NMK	HT	466	250HP, 50 State	800	2152
2000	12NMT	ST	530	300HP, 50 State	950	5151
2000	12NMS	ST	530	300HP, 50 State	950	5132
2000	12NMV	HT	530	330HP, 50 State	1150	6152
2001	12NMZ	HT	530	340HP, 50 State	6151	1200

International does not support changes from standard torque ratings to high torque ratings (and vice versa). So, if you have a Single Box engine with one of the ratings listed in the chart above, it is not possible to increase to a higher rating. If you submit a case file with this type of request, it will receive the response that there are no increases available.

[Return to Top](#)

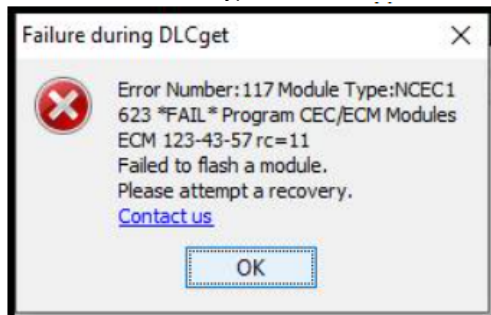
Single Box Engine Swaps

See [IK2600047](#) for information about engine swaps. Programming changes may be needed in order to accommodate an engine swap. There are some instances where International CANNOT support an engine swap. If you have any doubts about whether your engine swap will be supported by International, please start a case file with the Vehicle Programming group and we will let you know if International will support the swap. It is advisable to do this BEFORE swapping the engine. The potential negative outcome would be that you install an engine that International cannot support – then we would not be able to provide you with the correct programming.

[Return to Top](#)

Common Programming Issues With Single Box Systems

- NavKal Error 117 Module Type: ... NCEC1 623..



- This error has 2 possible causes:
 - Communication from other modules interfering with NavKal on the data link.
 - **Fix** - either pull transmission/ABS fuses, or use [programming station](#).
 - Using wrong ECM part number

- **Fix** - Reference [IK2600091](#) to find single box ECM part number information.
 - NavKal **Error 8** indicates that NavKal expected to see a module on the data link, but couldn't detect it.
 - **Fix** - [IK2600252](#) provides troubleshooting steps and direction
- [Return to Top](#)

Other Resources

[Master Service Information Site](#)

[Return to Top](#)

 Hide Details

Feedback Information

Viewed: 31

Helpful: 0

Not Helpful: 0

No Feedback Found