

# Event Data Recorder Use in Traffic Crash Reconstruction



EDR



HYUNDAI

## Data Retrieval Tool Technician



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NORTH FLORIDA™

# Event Data Recorder Use in Traffic Crash Reconstruction

## Kia/Hyundai Event Data Recorder Technician



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# KIA/HYUNDAI

- KIA & HYUNDAI released the ability to read ACM's in vehicles built after 9/1/2012 models to their dealer scan tool maker, GIT Tool Company.
- There is separate kit for each company with different software. Interface module hardware is identical. Direct to module cables mostly overlap but each brand has a few unique cables.
- Data is intended to meet the requirements of US 49CFR Part 563 that became effective 9/1/2012.

# Officially Supported 2013+ Models

		Model Years						
Model	Module Location	2013*	2014	2015	2016	2017	2018	2019
<b>KIA</b>		Cable #	Cable #	Cable #	Cable #	Cable #	Cable #	Cable #
CADENZA (VG, 2014) (Azera sister)			19(VG)	19	19	13(YG)	13	13
FORTE (TD 2013, YD 2014))		10 (TD)	6/12 (YD)	6/12 (YD)	6/12 (YD)	6/12 (YD)	12(YDM)	12(YDM)
FORTE/CERATO (BDm)								21(BDm)
FORTE/FORTE KOUP (TD)								10(TD)
K900 (KH 2015)				11 (KH)	11	11	11	21(RJ)
NIRO (DE EV, DE HEV, DE PHEV)						21(DE)	21	21
OPTIMA (2013 TF QF, 2016 JF, JFA)		4 (TF/QF)	4	4	14 (JF, JFA)*	14	14	14
OPTIMA HYBRID		4 (TF HEV)	4	4	4	23(JF HEV)	23	23
RIO (UB)		8(UB)	8	8	8	8	21 (SC)	21 (SC)
RONDO (Canada only 2011 MY+)		(not officially supported since non-US, read as a Kia Rio)						
SEDONA (VQ '14, YP '15)		No	10(VQ)	12(YP)	12	12	12	12
SORENTO (XM to 2015)(UMA 2016)		3(XM)	7(XM)	7	13 (UMA)	13	13	13
SOUL (AM 2013, PS 2014+)		1(AM)	12(PS)	12(PSEV)	12	12	12	26 (SK3)
SPORTAGE (SL)		2(SL)	2	2	2	13(QL)	13	13
STINGER (CK)							21 (CK)	21
<b>HYUNDAI</b>								
ACCENT (RB)		5(RB)	5	5	5	5	21(HC)	21(HC)
AZERA (HG)		7(HG)	7	7	7	7	7	7
ELANTRA Coupe(JK), Sedan(UD/MD)	Center stack -side air	8(JK/UD/MD)	8	8	8	21(AD, ADA)	21	21
ELANTRA GT (GD) (aka "i30")		1	6/12(GD)	6/12(GD)	6/12(GD)	12	21(PD)	21
EQUUS (VI)(stretch genesis)		9(VI)	11(VI)	11	11			
GENESIS (Coupe BK, Sedan BH/DH))		9(BK, BH)	9	13(DH)	13			
GENESIS <b>BRAND</b> G80 (DH), G90 (HI) MODELS						13(DH, HI)	13	13
IONIQ EV and HEV, 2019 G70(IK)						21(AE)	21	21
KONA (New very small SUV)							24 (OS)	27 (OS EV)
NEXO								26 (FE)
SANTE FE (Sport DMA, NC)		7(NC,DMA)	7	7	7	7	7	25 (TMA)
SONATA (YF sedan, YF HEV)		4(YFA, YF HEV)	4	14 (LF) 4 (HEV)	14 (LF HEV)	14	14	14
TUCSON (LM to 2015)(TL in 2016)		2(LM)	2	2	13(TL)	13	13	13
VELOSTER coupe (FS)		5(FS)	5	5	5	5	5	14 (JS)
Gold = 2013 Part 563 Compliant								28 (JSN)

Yes = Successful report of DTC readout. No = No data using current tool. ? = No information on whether model has EDP

# Ordering Hyundai/Kia Tools

- Hyundai: Call GIT America Tool Company (714)433-2180 order Part G0Z**H**DMMN001 Cost approximately \$6,150 includes thru Cable 24 (may go up as new cables are added).
- Kia also call GIT, order part GIT0Z**K**DMMN001. Cost \$6950 thru Cable 23 (may go up as new cables are added).
- Annual Software updates \$495/yr per mfr. from GIT.
- There is a separate software program for Kia and Hyundai. The hardware interface is **Red for Kia** and **Blue for Hyundai** but functions identically. The required direct to module cables overlap between Kia and Hyundai by about 70%, the rest are unique to the brand.

# Kit comes in a case w/software USB

Older kits had CD





Kit consists of **V**ehicle **C**ommunication **I**nterface (**VCI**),  
DLC Cable, Direct to Module Cables, Power Source.  
You provide the computer.



ACU Adapter Part Number	Applied Vehicle Name & Model Year
G1ZDDPA002	Tucson (LM) 2013MY - 2015MY Tucson (LM FCEV) 2015MY - 2017MY
G1ZDDPA004	Sonata (YFA) 2013MY - 2014MY Sonata Hybrid (YF HEV) 2013MY - 2015MY
G1ZDDPA005	Accent (RB) 2013MY - 2017MY Veloster (FS) 2013MY - 2018MY
G1ZDDPA006	Elantra GT (GD) 2013MY - 2017MY
G1ZDDPA007	Santa Fe (NC) 2013MY - Current Santa Fe Sport (DMA) 2013MY - 2018MY Azera (HG) 2013MY - 2017MY
G1ZDDPA008	Elantra Coupe (JK) 2013MY - 2015MY Elantra (UD) 2013MY - 2016MY Elantra (MD) 2013MY - 2016MY
G1ZDDPA009	Genesis Coupe (BK) 2013MY - 2016MY Genesis (BH) 2013MY - 2014MY
G1ZDDPA011	Equus (VI) 2013MY - 2016MY
G1ZDDPA012	Equus (VI) 2013MY - 2016MY Elantra GT (GD) 2013MY - 2017MY
G1ZDDPA013	Genesis (DH) 2015MY - 2016MY G80(DH) 2017MY - Current G90(HI) 2017MY - Current Tucson(TL) 2016MY - Current
G1ZDDPA014	Sonata (LFA) 2015MY - Current Sonata HEV (LF HEV) 2016MY - Current Sonata PHEV (LF PHEV) 2016MY - Current Veloster (JS) 2019MY - Current
G1ZDDPA021	Elantra (AD) 2017MY - Current Elantra (ADA) 2017MY - Current IONIQ Electric (AE EV) 2017MY - Current IONIQ Hybrid (AE HEV) 2017MY - Current Elantra GT (PD) 2018MY - Current IONIQ Plug-In Hybrid (AE PHEV) 2018MY - Current Accent (HC) 2018MY - Current G70 (IK) 2019MY - Current
G1ZDDPA024	Kona (OS) 2018MY - Current
G1ZDDPA025	Santa Fe (TMA) 2019MY - Current Palisade (LX2) 2020MY
G1ZDDPA026	Nexo (FE) 2019MY - Current
G1ZDDPA027	Kona Electric(OS EV) 2019MY - Current
G1ZDDPA028	Veloster N (JSN) 2019MY - Current

Hyundai  
Cable #



ACU Adapter Part Number	Applied Vehicle Name & Model Year
G1ZDDPA001	Soul (AM) 2013MY
G1ZDDPA002	Sportage (SL) 2013MY - 2016MY
G1ZDDPA003	Sorento (XM) 2013MY - 2015MY
G1ZDDPA004	Optima (TF/QF) 2013MY - 2015MY Optima Hybrid (TF HEV) 2013MY - 2016MY
G1ZDDPA006	Forte (YD) 2014MY - 2016MY
G1ZDDPA007	Sorento (XM) 2014MY - 2015MY
G1ZDDPA008	Rio (UB) 2013MY - 2017MY
G1ZDDPA010	Sedona (VQ) 2014MY
G1ZDDPA011	Forte/ Forte Koup (TD) 2013MY K900(KH) 2015MY - 2018MY
G1ZDDPA012	Soul (PS) 2014MY - Current Soul EV (PS EV) 2015MY - Current Sedona (YP) 2015MY- Current Forte (YD) 2017MY - 2018MY Forte (YDm) 2017MY - 2018MY
G1ZDDPA013	Sorento (UMA) 2016MY - Current Sportage (QL) 2017 MY - Current Cadenza (YG) 2017 MY - Current
G1ZDDPA014	Optima (JF) 2016MY - Current Optima (JFa) 2016MY - Current
G1ZDDPA019	Cadenza (VG) 2014MY – 2016MY
G1ZDDPA021	Niro HEV (DE HEV) 2017 MY - Current Niro PHEV (DE PHEV) 2018 MY - Current Niro EV (DE EV) 2019 MY - Current Rio (SC) 2018 MY - Current Stinger (CK) 2018 MY - Current Forte (BDm) 2019MY - Current K900 (RJ) 2019MY - Current
G1ZDDPA023	Optima Hybrid (JF HEV) 2016MY - Current Optima PHEV (JF PHEV) 2017MY - Current
G1ZDDPA025	Telluride (ON) 2020MY
G1ZDDPA026	Soul EV (SK3 EV) 2019MY - Current Soul (SK3) 2020MY

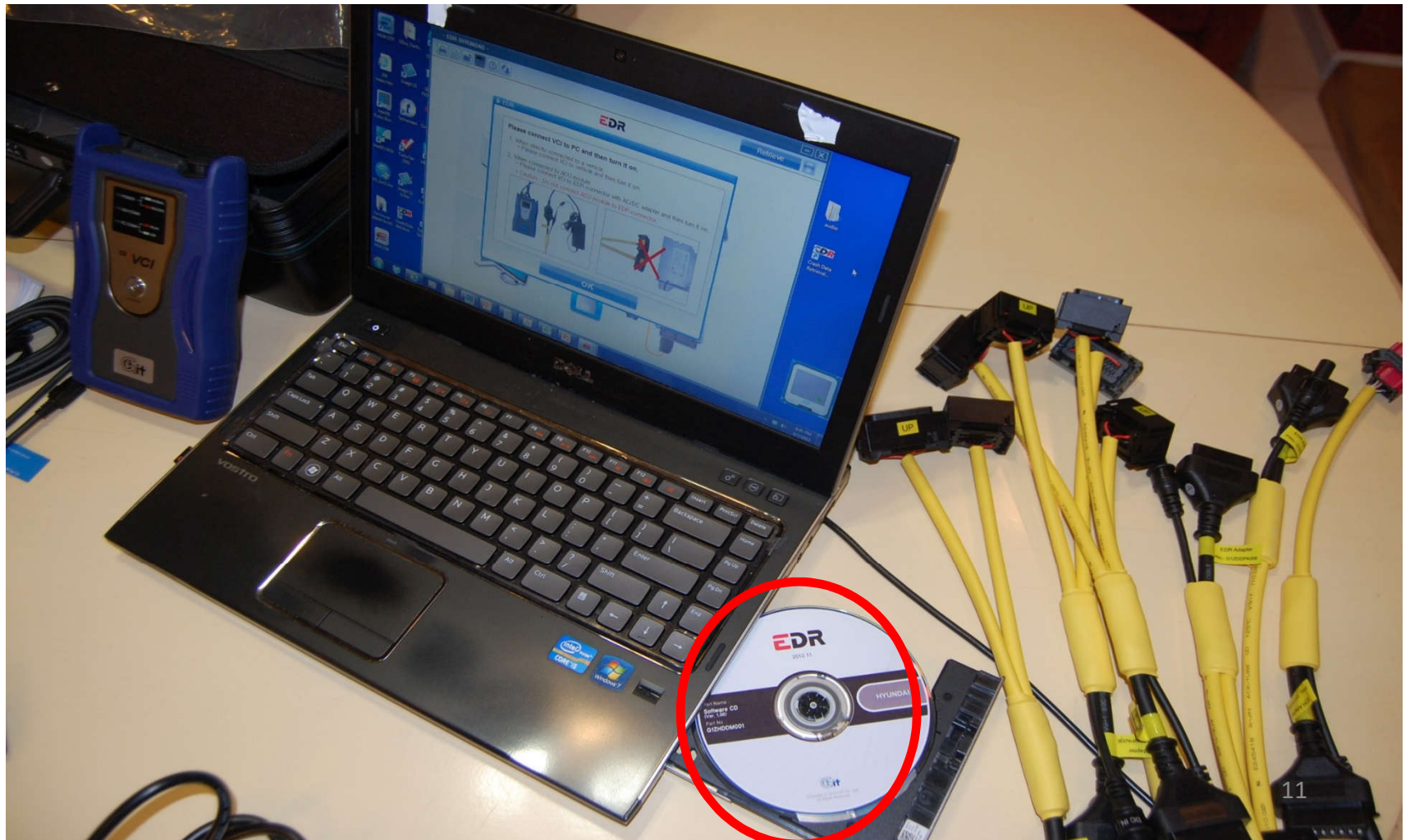
Kia Cable  
Numbers

# First time setup: Computer Selection

- Select what computer you will install the software on.
- The Kia/Hyundai Software has worked well on Windows 7. Use on Win7 if possible.
- Users have reported problems with Windows 10. If using Windows 10, you must contact GIT and request the special drivers needed for Windows 10.
- Microsoft is reported to be discontinuing support for Windows 7 in Jan 2020, this could affect your decision.

## First Time Setup: Load software from USB or older CD.

Hardware interface MUST be attached to run or update software.  
Software checks for updates on internet, prompts you to download/install.  
You must supply username and password that came with hardware.



# First Time Setup

## Print “EDR Users Manual” (39 Pgs)

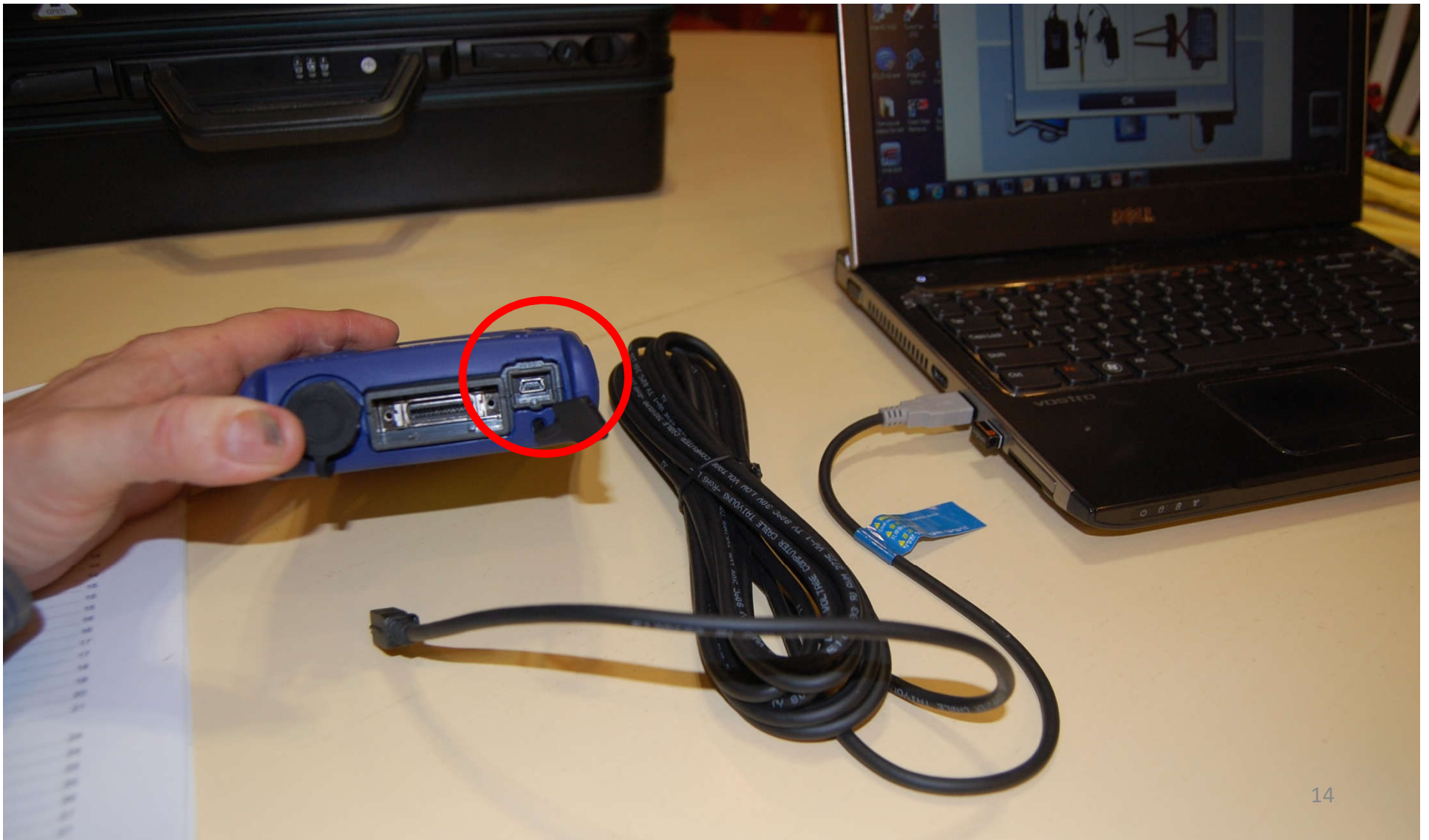
- From USB. Gives complete kit description and instructions how to use it. Save on Desktop so you can refer to it for troubleshooting.
- Tells what cables go with what model codes
- Some models have undergone redesigns and have different codes for later model years.
- Codes also appear to the right of the part number on the ACM itself.

# Attach one end of USB to Laptop



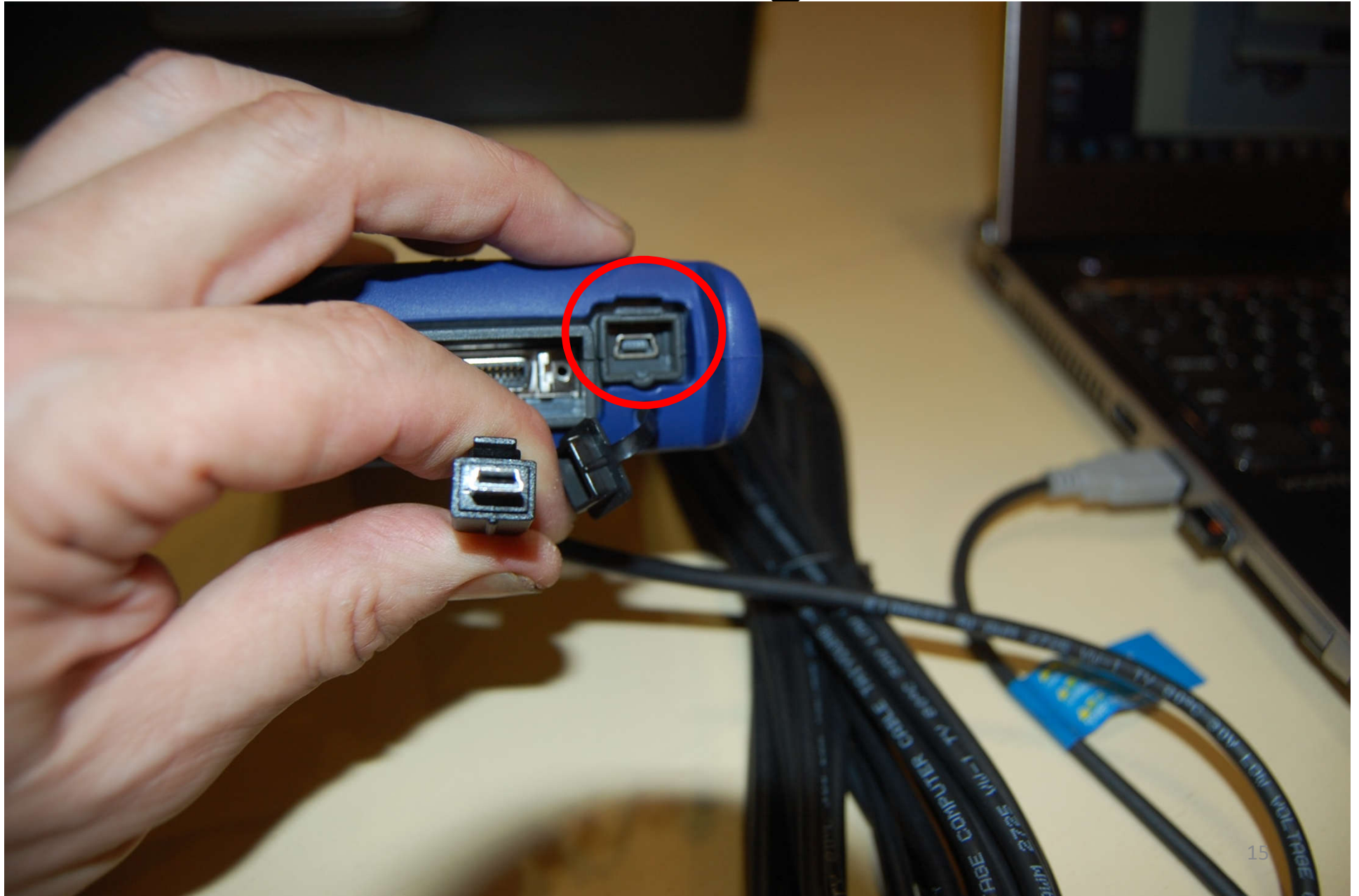


# Attach other end (mini USB) to VCI





# Mini USB Plug in VCI



# Laptop connected to VCI



# Locate VCI to DLC cable





# Attach DLC VCI Connector

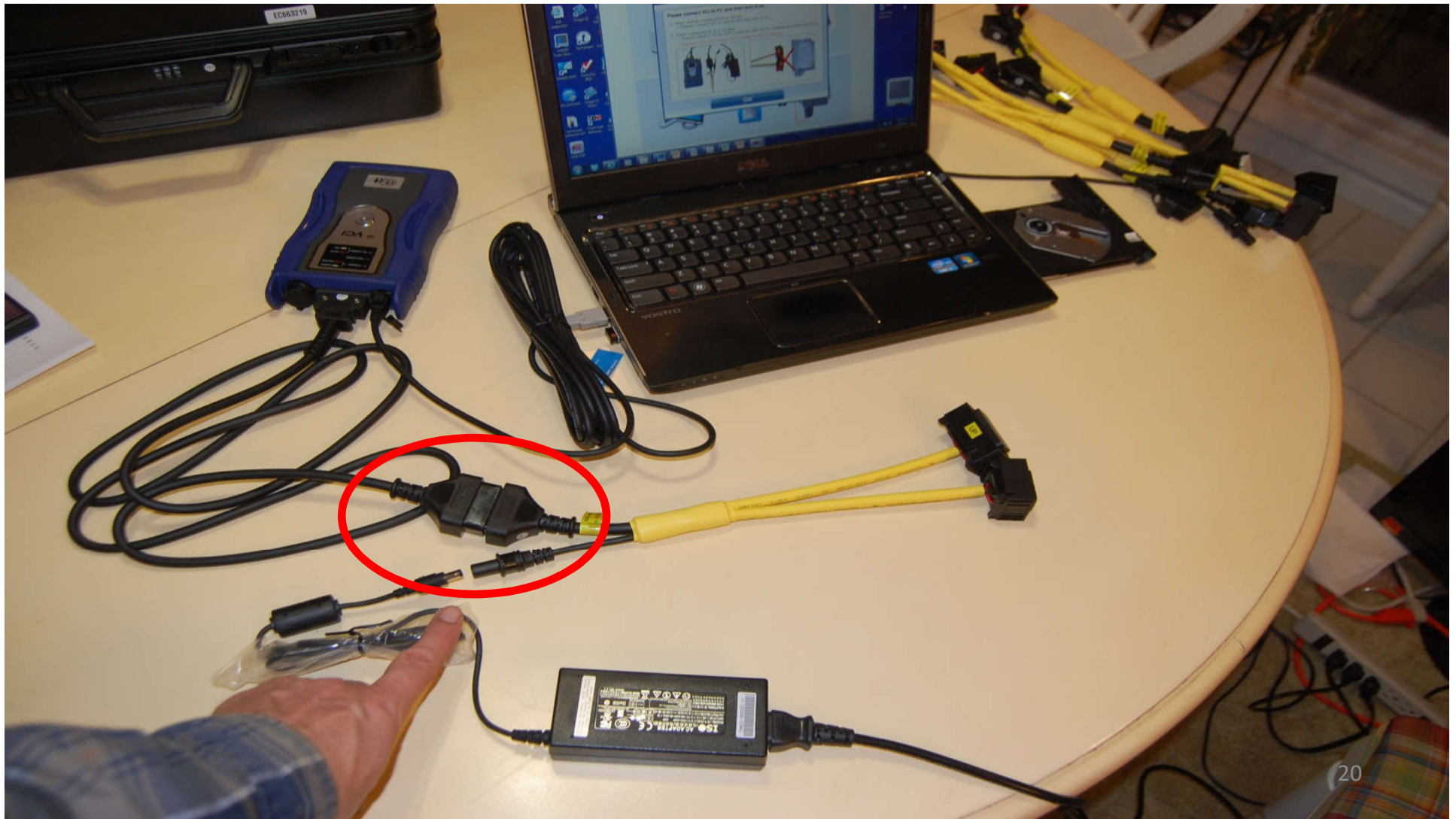


FIRST TIME SETUP,  
attach any yellow cable into DLC



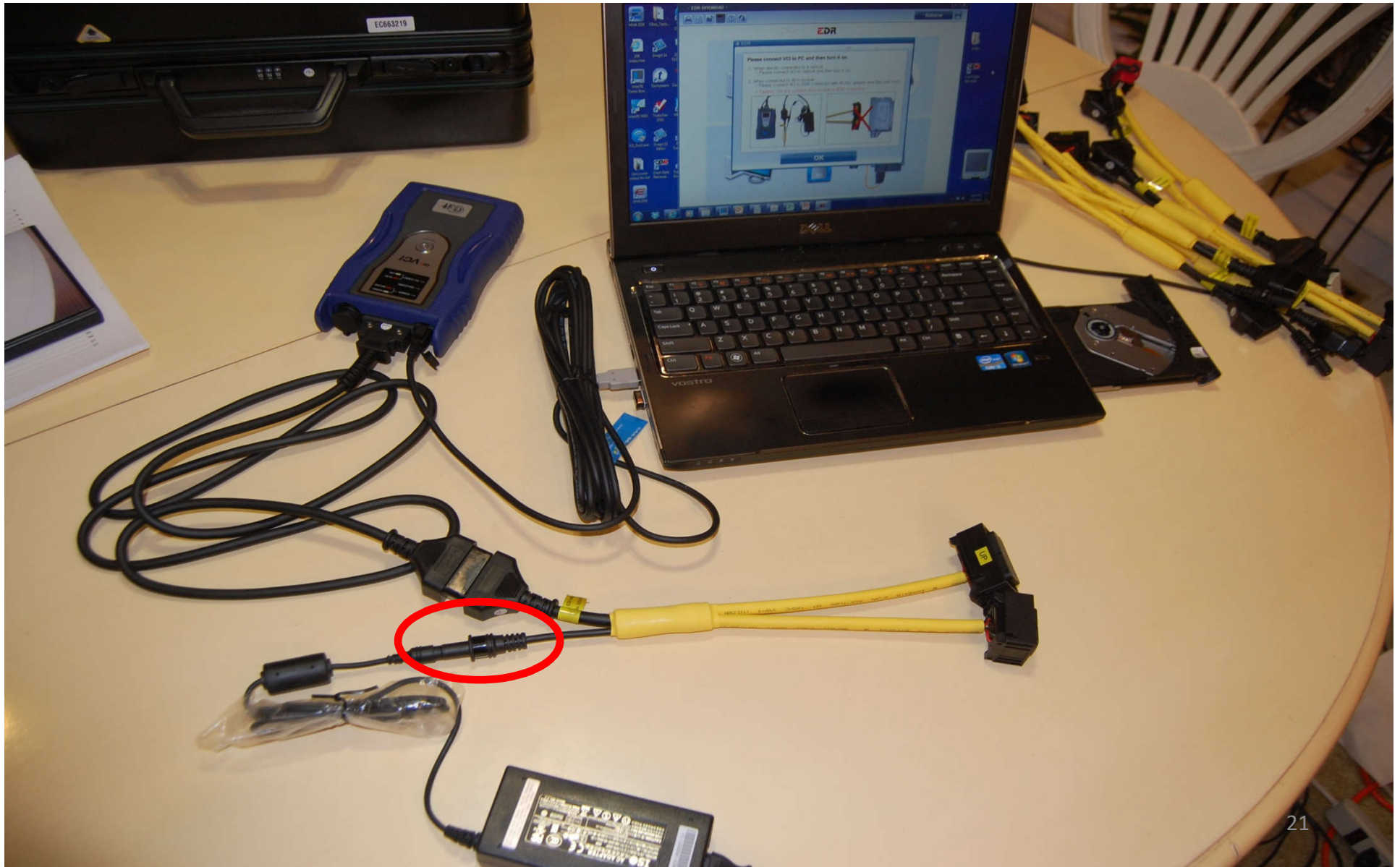
# Plug in 12V power brick and plug 12V input into jack in yellow cable.

You can also use your Bosch CDR cigarette lighter plug with a jump pack





Plug power jack in to module cable  
Setup does not require an ACM attached



(DLC& DTM) Turn Power Button on VCI on





VCI has lights for power, PC Com, Veh Com



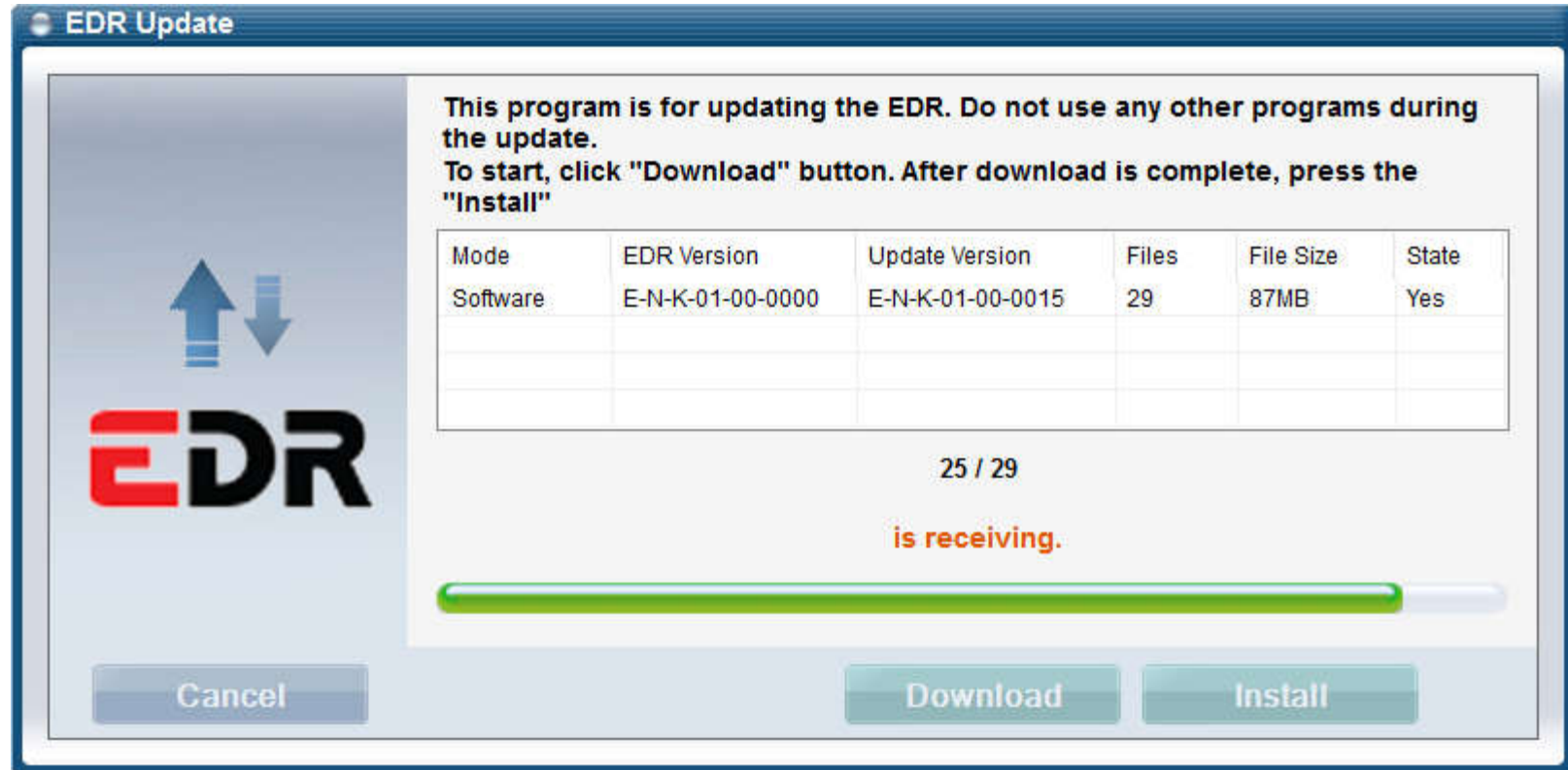
# Open Software – See Initial Screen (VCI must be connected & ON for software to run)



# INITIAL SETUP SOFTWARE UPDATE

- When connected to internet, software will automatically scan and prompt for software update. Agree to this.
- Software will prompt for USER ID (example **HYUNDAIEDR110** or **KIAEDR113**) and PASSWORD (8 letters, example **GBEYDSCL** or **MMYN5L8H**). **Capitalization is necessary.** Type them in and enter. The password only works on the *specific* interface module the software license is for.

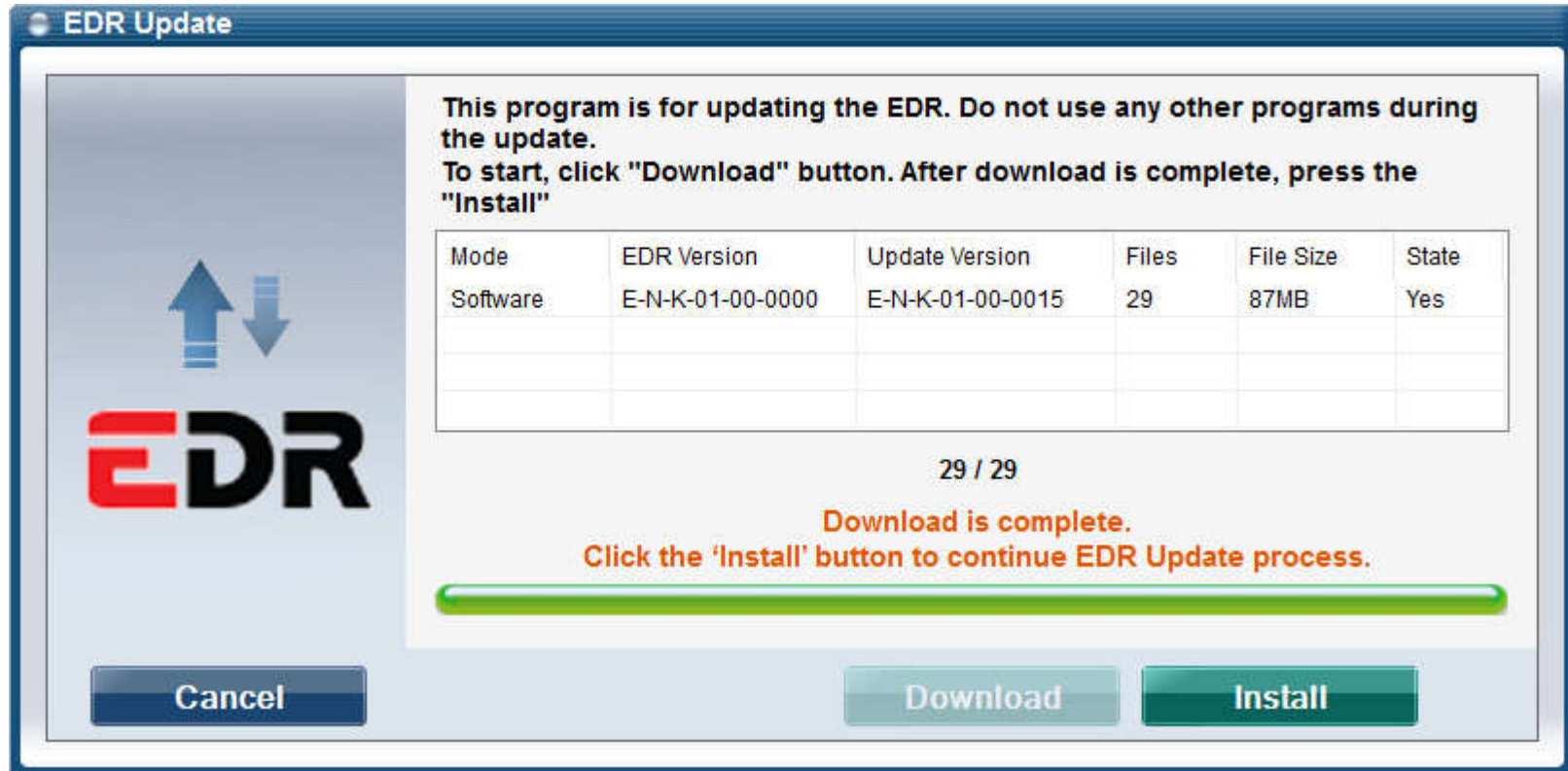
# Updates being received



Updates may take several minutes to download

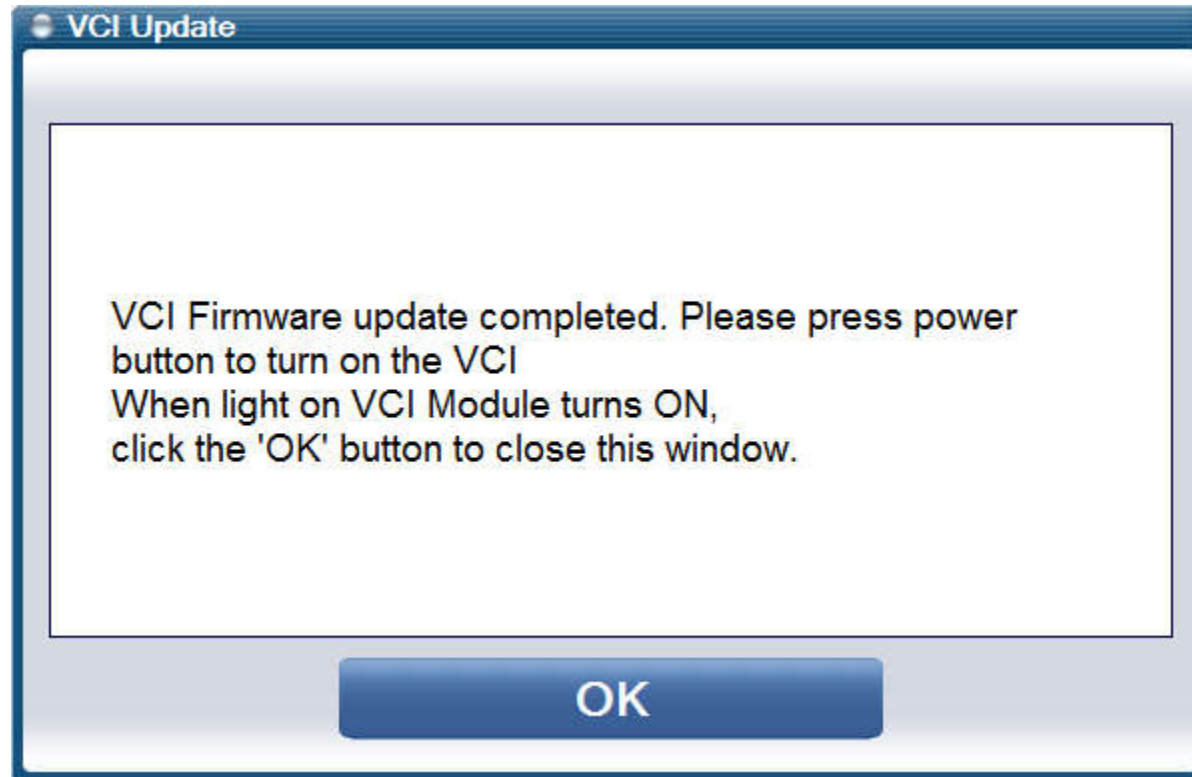


# Done receiving, now install



- After installation, VCI firmware will update
- VCI will turn itself off when done

# VCI update successful screen




# Initial Setup Now Complete

## Periodic Updates May Be Necessary

- The license holder will receive an email from GIT saying a new software version is available
- With computer and VCI connected and with an internet connection, software should prompt you to update. If it does not prompt you, click on the “globe” icon and it will check for updates. After initial setup, subsequent updates only take a short time.
- The user name and password are specific to the VCI the license was issued for. You cannot use someone else’s VCI’s username and password. After updating you must restart the software.

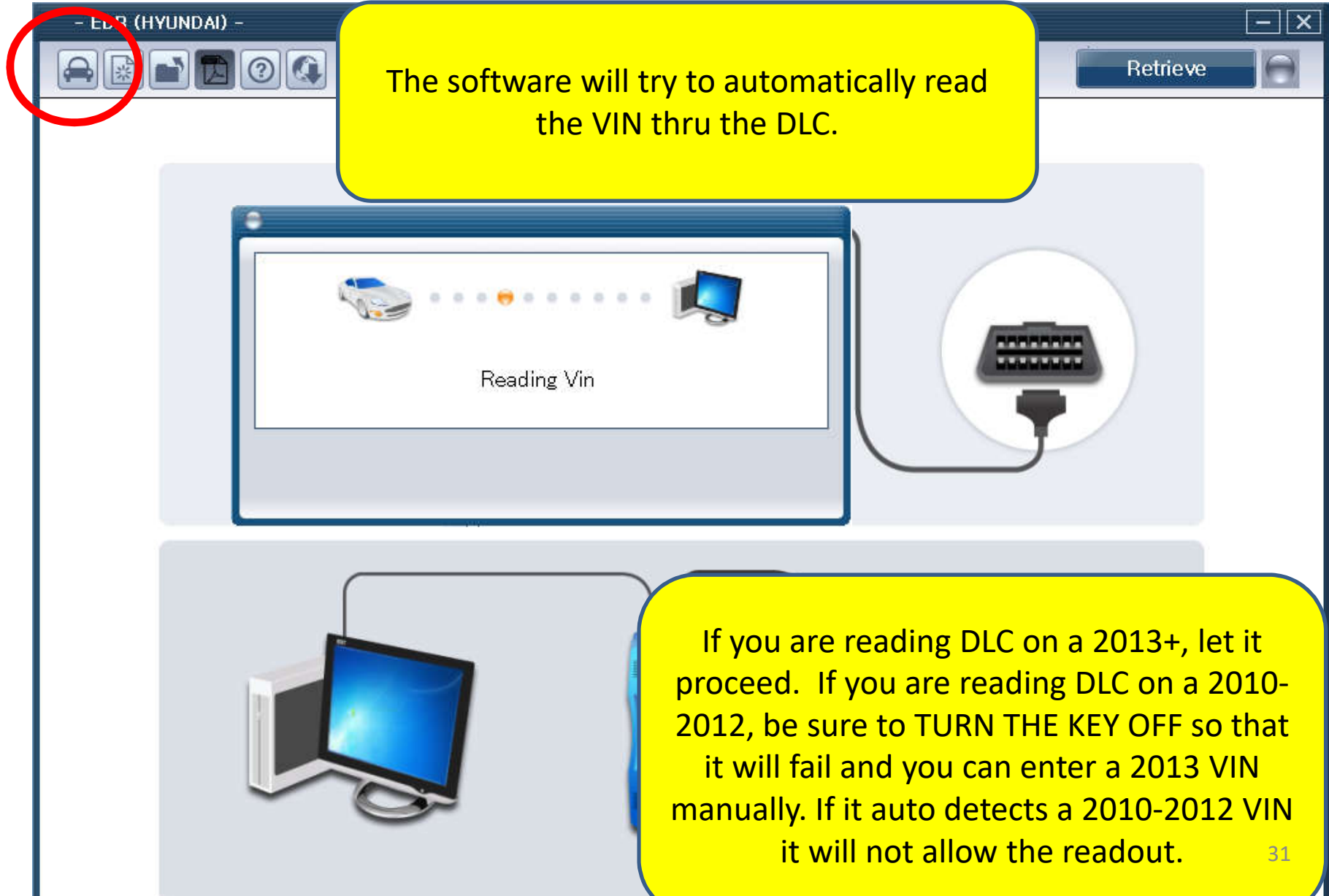
# Begin Readout. Select Vehicle Icon

Start the readout process by selecting the car icon in the upper left.



The image displays two connection diagrams for a VCI (Vehicle Communication Interface) device. The top diagram shows a computer connected to a VCI device, which is then connected to a car's OBD-II port. The bottom diagram shows a computer connected to a VCI device, which is then connected to a car's OBD-II port via a cable.

# After hitting the vehicle select button

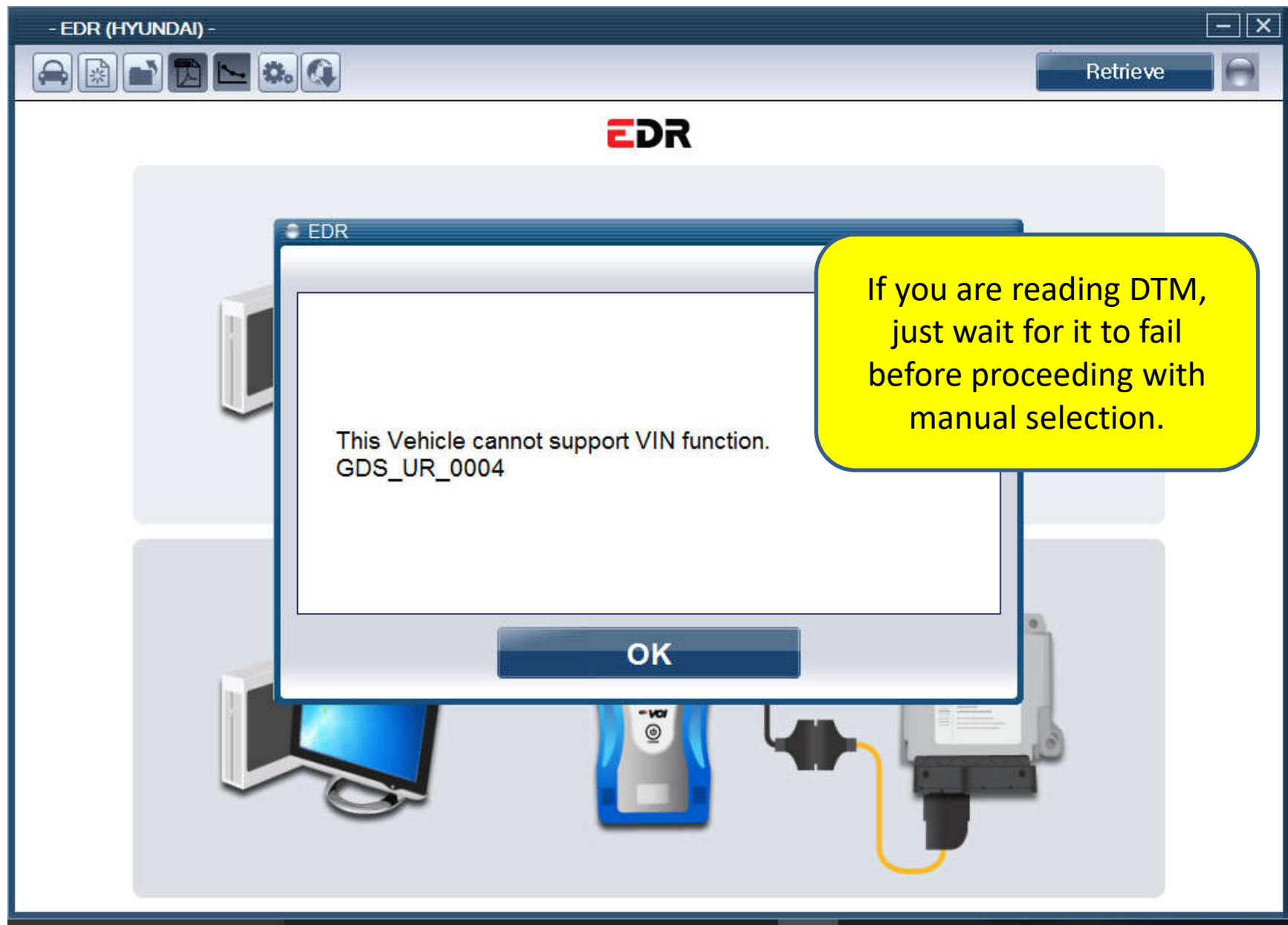


The software will try to automatically read the VIN thru the DLC.

Reading Vin

If you are reading DLC on a 2013+, let it proceed. If you are reading DLC on a 2010-2012, be sure to TURN THE KEY OFF so that it will fail and you can enter a 2013 VIN manually. If it auto detects a 2010-2012 VIN it will not allow the readout.

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Vehicle Selection

5NPEC4AB1DH652980

Auto VIN Search

Clear

Model

Adapter

ACCENT(RB)  
AZERA(HG)  
ELANTRA COUPE(JK)  
ELANTRA GT(GD)  
ELANTRA(AD)  
ELANTRA(ADA)  
ELANTRA(MD)  
ELANTRA(UD)  
EQUUS(VI)  
G80(DH)  
G90(HI)  
GENESIS COUPE(BK)

Additional Information

OK

Cancel

Type 2013+ VIN

Then hit auto search

After the VIN search fails, you can manually enter a 2013+ VIN and click Auto VIN Search, it will chose the correct model code, and the adapter screen will populate with a picture of the cable and its cable #.

# Alternative to typing VIN: Select Model

The screenshot shows a 'Vehicle Selection' dialog box. At the top, there is a text input field with the placeholder 'To search vehicle, Please insert VIN', an 'Auto VIN Search' button, and a 'Clear' button. Below this is a table with two columns: 'Model' and 'Adapter'. The 'Model' column contains a list of vehicle models: ACCENT(RB), AZERA(HG), ELANTRA COUPE(JK), ELANTRA GT(GD), ELANTRA(AD), ELANTRA(ADA), ELANTRA(MD), ELANTRA(UD), EQUUS(VI), G80(DH), G90(HI), and GENESIS COUPE(BK). The 'Adapter' column is currently empty. Below the table is an 'Additional Information' section. At the bottom are 'OK' and 'Cancel' buttons. A yellow callout box points to the 'Model' list with the text 'Select Model by clicking on it'. Another yellow callout box points to the 'OK' button with the text 'Click to Proceed when done'. A large yellow text box on the right side of the dialog contains the following text: 'After the VIN search fails, look at the application chart (slide 5) and determine which 2 letter code your vehicle is. . If two models are shown together (MD/UD) either one works. Click on it, and the adapter screen will populate with a picture of the cable and its cable #.'

Vehicle Selection

To search vehicle, Please insert VIN

Auto VIN Search

Clear

Model	Adapter
ACCENT(RB)	
AZERA(HG)	
ELANTRA COUPE(JK)	
ELANTRA GT(GD)	
ELANTRA(AD)	
ELANTRA(ADA)	
ELANTRA(MD)	
ELANTRA(UD)	
EQUUS(VI)	
G80(DH)	
G90(HI)	
GENESIS COUPE(BK)	

Additional Information

OK

Cancel

Select Model by clicking on it

Click to Proceed when done

After the VIN search fails, look at the application chart (slide 5) and determine which 2 letter code your vehicle is. . If two models are shown together (MD/UD) either one works. Click on it, and the adapter screen will populate with a picture of the cable and its cable #.

Vehicle Selection

5NPEC4AB1DH652980


Auto VIN Search

Clear

**SONATA(YFA)**

Adapter

Check the connector on the ACU side and connect the adaptor accorded with the specifications



Part number : G1ZDDPA004

GENESIS COUPE(BK)  
GENESIS(BH)  
GENESIS(DH)  
IONIQ electric(AE EV)  
IONIQ hybrid(AE HEV)  
SANTAFE SPORT(DMA)  
SANTAFE(NC)  
SONATA HEV(LF HEV)  
SONATA HYBRID(YF HEV)  
SONATA PHEV(LF PHEV)  
SONATA(LFA)  
**SONATA(YFA)**

Additional Information

OK Cancel

VIN you typed

Model it selected

Model it selected

Click to Proceed when done

Vehicle Selection

5NPEC4AB1DH652980

Auto VIN Search

Clear

Adapter

Additional Information

VIN as Programmed into EMS

User-entered VIN

User Name

Case Number

Crash Date

Tire Size(s)

Memo

OK

Cancel

Re-type VIN here

Box may be barely visible off top of screen, but click in it and it will allow typing

Leave blank

Populates here as you type above

Type the 2013 or later VIN into the upper left box. As you do, it should also populate the User Entered VIN screen.



Vehicle Selection

KMHDH4AE2DU258008

Auto VIN Search

Clear

ELANTRA(MD)

Adapter

Additional Information

VIN as Programmed into EMS

User-entered VIN

KMHDH4AE2DU258008

User Name

Case Number

Crash Date

Tire Size(s)

Memo

OK

Cancel

You may now fill in case information. This is simply printed on your report, it does NOT affect the interpretation

# If you inputted model and not VIN

Vehicle Selection

KMHDH4AE2DU258008

**ELANTRA(MD)** **Adapter**

**Additional Information**

VIN as Programmed into EMS

User-entered VIN

User Name

Case Number

Crash Date

Tire Size(s)

Memo

Now Type VIN here

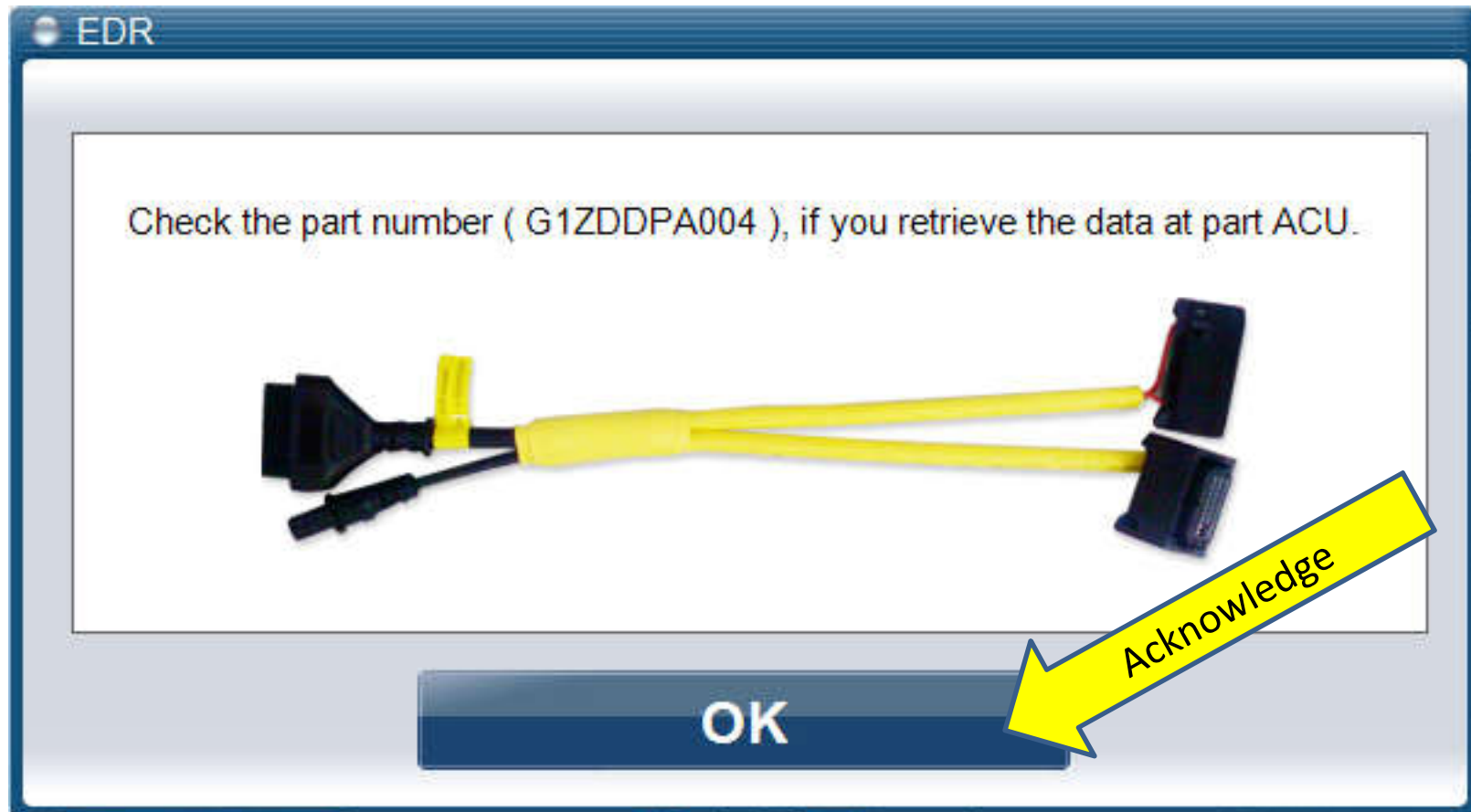
VIN populates here

OK when done

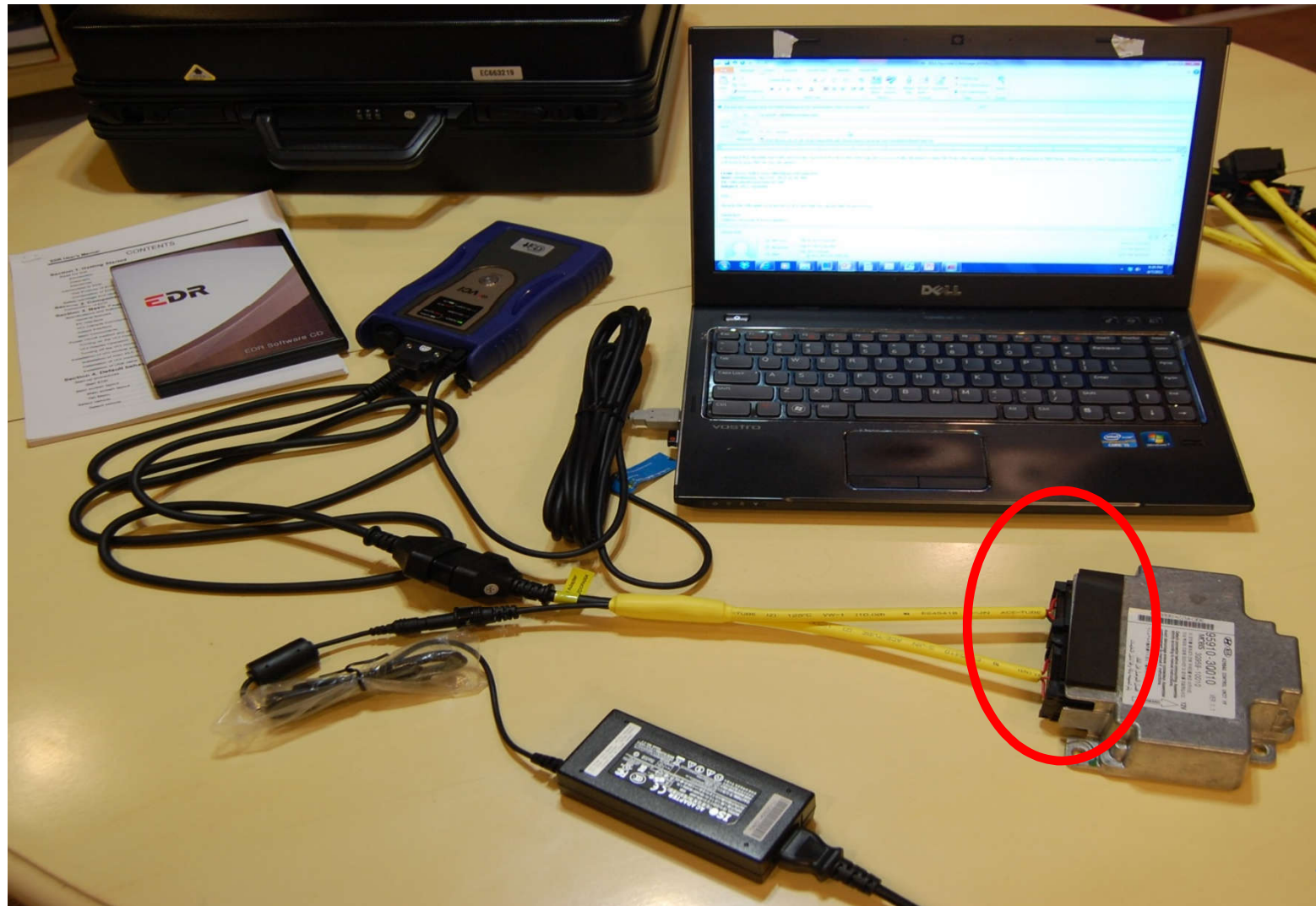
For pre-2013's, outside of this program, google a 2013 VIN from the same model and change the last 6 digits to 0's, then iterate check digit 9 (from 0-9 or X) until it passes. (I use CDR to create mine). Example: change VIN 5NPEB4AC7CH657757 to 5NPEB4AC8DH000000. This way it is obvious you are doing a deliberate VIN substitution.

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For DLC readout just OK the direct to module cable number and proceed on to pressing retrieve button.



For DTM, Unplug power. Insert Connectors into Module. Replug power and turn VCI on again







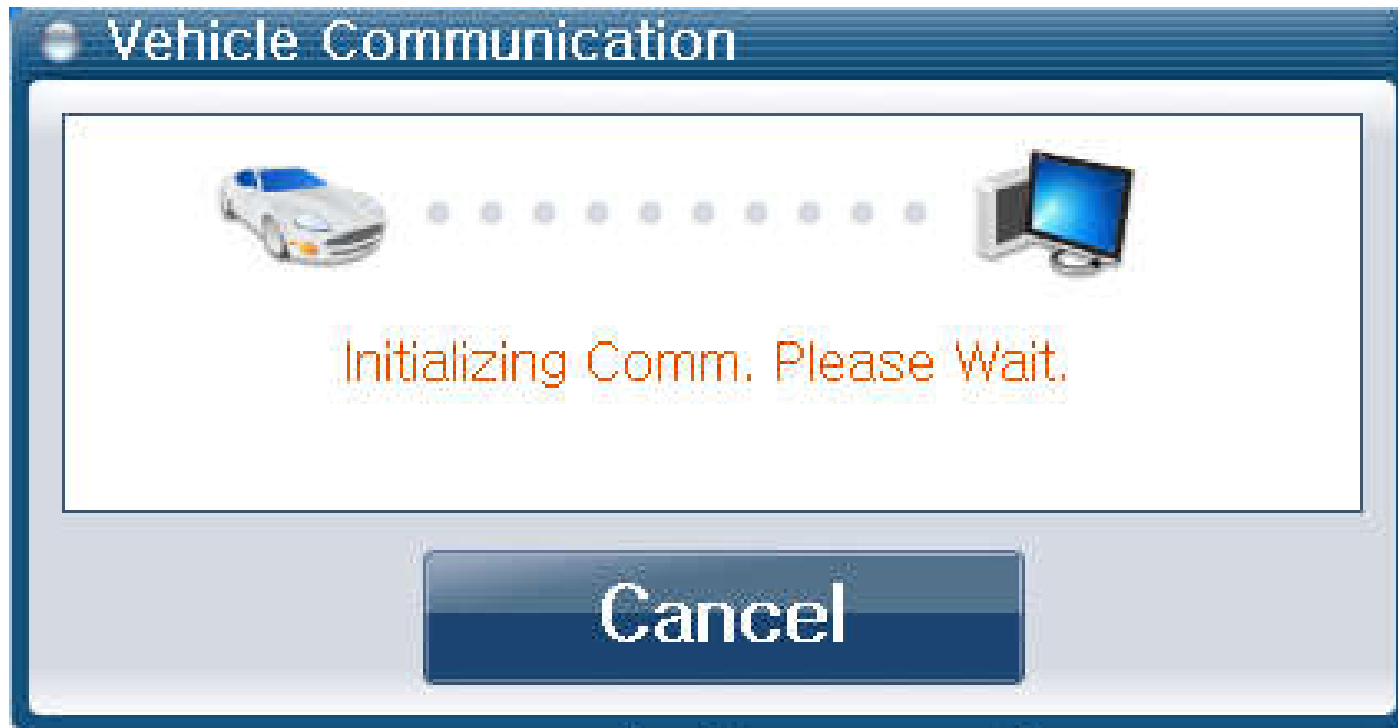
Retrieve

**EDR**

Activate Retrieve Button



PC begins communicating thru VCI  
Initializing takes a few seconds  
then it will go to the next screen



You will see this only briefly before the  
report appears



EDR Report is Writing...

Please wait a few seconds.

IF the writing screen stays on more than 45  
seconds, the software may be stuck on it. Click on  
the save as PDF button

- EDR (HYUNDAI)

Retrieve

Save as PDF

EDR

This is the first page of your report

Software will suggest "EDR Report" with date/time as file name. You may want to add VIN or model/model year

Vehicle Information

HYUNDAI   ELANTRA(MD)   2013   AIRBAG SYSTEM	
VIN as Programmed into EMS	

Additional Information

User-entered VIN	KMHDH4AE2DU258008
User Name	
Case Number	

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# Document Your Readout

- There is no VIN stored in the EDR. There is only the VIN you typed in. You can help tie this ACM to your case by typing module serial number in.
- Opposing parties could demand you prove the module and file you got is from vehicle/incident under investigation.
- Photograph module in vehicle and record ACM serial number prior to removal.
- Photograph benchtop setup making sure module serial number is visible in at least one photo.
- Make sure time/date in computer and camera are correct so the file readout time and the time stamp on the picture you took of the setup agree.

# Additional Kia/Hyundai Issues

- No VIN stored in the ACM. As of March 2016, a user entered VIN prints in the PDF report, –you must document that the report you got came from the module/vehicle you are investigating (pictures or video).
- Reports are PDF's and are not secure. The other side can claim you ***could*** have manipulated data. Have other side present at readout and give them a copy onsite, and/or **secure the module into evidence** so it can be read again if necessary to prove data validity.
- Software level listed in report said 1.0 through first several changes, but as of April 2014 is updated each time the software is updated. As of March 2019 we are on Version 29 of the software.

# Take Equipment Apart

- After saving, push and hold VCI power on button for 3-5 seconds to turn it off.
- Be careful not to disturb module for ??? minutes (not stated in data limitations – est 3)
- Connectors into VCI have “position assurance devices” (releases) on them – be sure to release before trying to pull them out – do not use brute force and break releases.

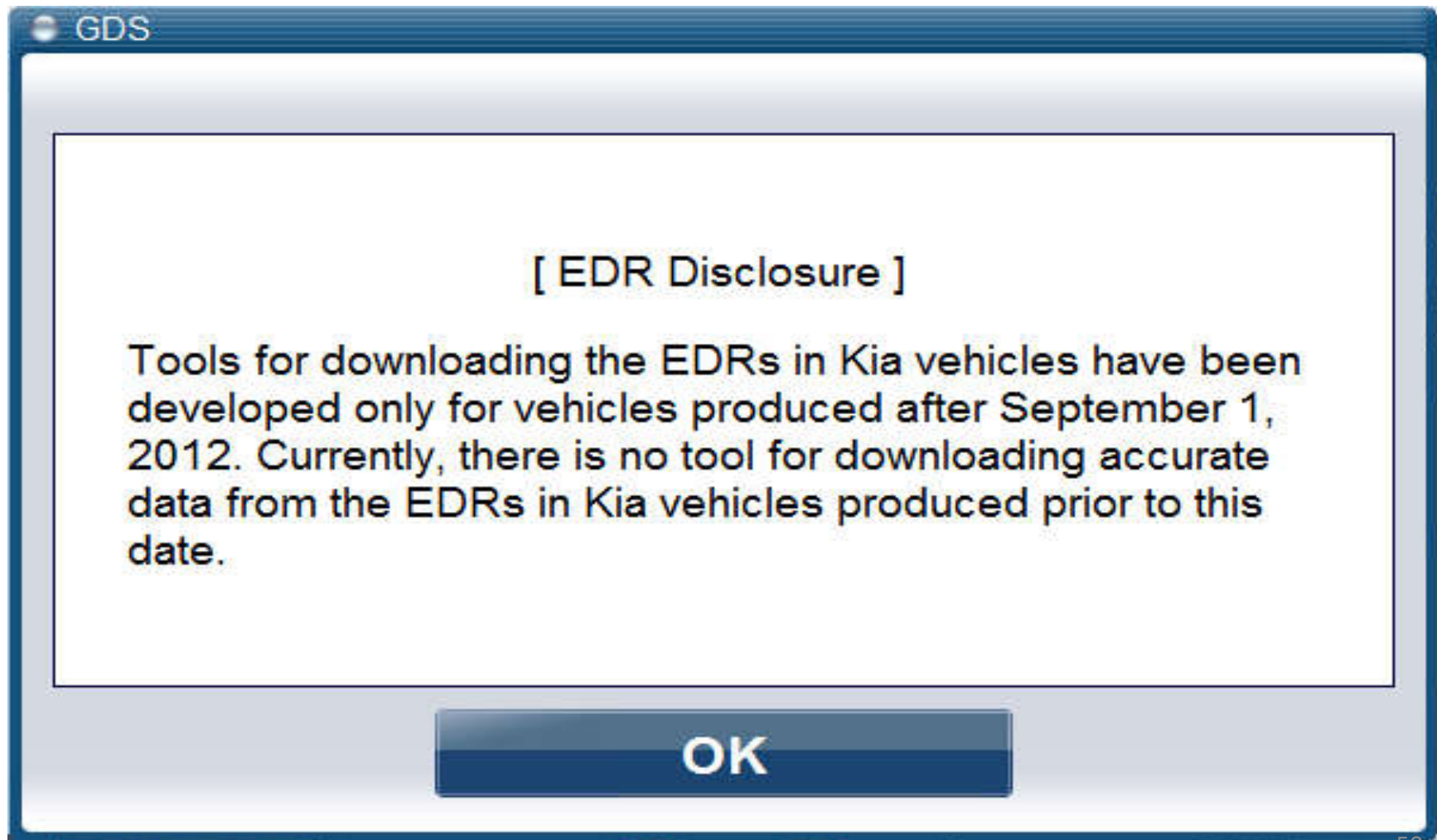


# Back Powering Issues

- The VCI module is meant to be powered by the **DLC, or** external power in direct to module cable.
- If the car battery is dead, there is no provision for external power input to the VCI or DLC cable.
- For back powering, you must back power BOTH the ACM fuse and the DLC fuse
- Alternative: Use a DLC to DLC banana plug breakout box and plug power to pin 16 and ground to pins 4&5. A female DLC to male DLC jumper can be created with an external power jack in it (call instructors to pursue making one).

# More on Reading 2010-2012 Modules

## Remember this Disclaimer?



# Choice of Words

- Empirical testing proves the tool downloads the hex data in some 2010-2012 MY vehicles.
- Kia/Hyundai chose to say “There IS **NO TOOL FOR DOWNLOADING ACCURATE DATA**” (before 2013MY).
- We believe *hex data* is *accurately downloaded*, but because the Part 563 standard was changing, some data storage locations and scale factors changed between 2010 and 2013. The 563 decoder does not *accurately* interpret data fields that changed locations or scale factor for 2013. (Example: 2011 RPM had resolution of 64 rpm per count, 2013 assumes 100 rpm/ct)
- Your instructors would suggest the following instead: “Kia and Hyundai have not **tested or verified** this 2013+ EDR tool on 2010-2012 models. The tool may retrieve hex data from some models, but Kia and Hyundai do not warrant the accuracy of its interpretation. **Users must assume any and all risk** if they choose to retrieve and use 2010-2012 data.”
- The speed and Delta V of greatest interest to are accurately interpreted in most models by the 2013 software.
- Other data like steering can be interpreted manually if necessary.

# 2010-2012's with EDR data in pink

Model	Vehicle Size, Description	Model Years			
		2010	2011	2012	2013*
<b>KIA</b>		Cable #	Cable #	Cable #	Cable #
CADENZA (VG, 2014) (Azera sister)	112.0" WB	YG requires cable 13 per software			
FORTE (TD 2013, YD 2014))	104.3"WB, compact	10	10	10	10 (TD)
K900 (KH 2015)	119.9"WB				
NIRO					
OPTIMA (2013 TF QF, 2016 JF, JFA)	110.0" WB sedan	No	4	4	4 (TF/QF)
OPTIMA HYBRID	110.0" WB sedan	No	4	4	(TF HEV)
RIO (UB)	94.5"WB, compact	No	No	8	8(UB)
RONDO (Canada only 2011 MY+)		No	No	9	(not officially sup
SEDONA (VQ '14, YP '15)	113.8/118.9" WB miniv	No	No	No	No
SORENTO (XM to 2015)(UMA 2016)	106.3" WB, crossover	No	3	3	3(XM)
SOUL (AM 2013, PS 2014+)	100.4" WB	1 see note 1	1 see note 1	1	1(AM)
SPORTAGE (SL)	103.9" WB, crossover	No	Yes	2	2(SL)
STINGER					
<b>HYUNDAI</b>					
ACCENT (RB)	94.5"WB, compact	No 10	No?	5 <sup>see note 2</sup>	5(RB)
AZERA (HG)	109.4"WB, sedan		likely	Yes	7(HG)
ELANTRA Coupe(JK), Sedan(UD/MD)	104.3"WB, compact	No	Yes	8	8(JK/UD/MD)
ELANTRA GT (GD) (aka "i30")	former Elantra Touring	old model		new model	1
EQUUS (VI)(stretch genesis)	119.9" WB, luxury seda	?	yes?	yes?	9(VI)
GENESIS (Coupe BK, Sedan BH/DH)	115.6" WB, luxury seda	9 shave keyway	9 shave keyway	?	9(BK, BH)
GENESIS <b>BRAND</b> G80, G90 MODELS					
IONIQ EV and HEV, <b>2019 G70(IK)</b>					
KONA (New very small SUV)					
NEXO					
SANTE FE (Sport DMA, NC)	106.3" WB, crossover	9 shave keyway note 3	9 shave keyway	9 shave keyway	7(NC,DMA)
SONATA (YF sedan, YF HEV)	110.0" WB sedan		4	?	4(YF)
TUCSON (LM to 2015)(TL in 2016)	103.9" WB, crossover	Yes	Yes	2	2(LM)
VELOSTER coupe (FS)	104.3"WB, compact	out of production		?	5(FS)
Gold = 2013 Part 563 Compliant		Pink = Some data may be inacct K/H Common Cables		28 (JSN)	
Yes = Successful report of DLC readout, No = No data using current tool ? = No information on whether model has EDR					

# What should you do if you have a 2010-2012?

- Thoroughly brief counsel on issues and get agreement on a plan of action before doing anything.
- Consider reading the module with the 2013 tool as an interim step, to see if speed & Delta V indicate data is important to your case (and while it is in your chain of custody).
- Ask Kia/Hyundai if they will send to supplier in Korea for correct interpretation. Hyundai has done this, Kia typically says it is not possible. If sending, write VIN on housing and back plate, THOROUGHLY document identity and condition of module being sent (take pictures of all sides including back of module).
- Send chain of custody documents with module, request they be filled out at each step.



## Handling 2010-2012's cont'd

- If a manufacturer's interpretation is available, rely upon it at trial versus the 2013 tool report.
- Send copies of both 2013 tool readout and supplier readout to Rick Ruth who acts as a Kia/Hyundai pre-2013 database.
- If the manufacturer will not co-operate, then rely upon SAE 2014-01-0502 to establish admissibility of speed and  $\Delta V$ .
- If steering, rpm, or other data not validated in SAE 2014-01-0502 are important to your case, contact Rick Ruth who has reverse engineered the proper decoder for some models.

# Mechanics of a pre-2013 Readout

- Input same model\* (just different MY) whenever possible into tool.
- Some models use an “ISO 9141” communication protocol, some use “KPW2000” protocol. If you pick the wrong model it may try to use the wrong protocol and fail.
- The 2012 Santa Fe protocol is different than the 2013 protocol. You must read a 2012 Santa Fe as a 2013 Genesis.
- Connectors have keyways on them. A rib on the 2012 Genesis and Santa Fe module side connector must be shaved off for the vehicle side connector to fit on.

\*(Exception: Must use 13 Genesis when reading 12 Santa Fe).

# Event Data Recorder Use in Traffic Crash Reconstruction

## Kia/Hyundai Event Data Recorder Technician

END



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