

2016 Minnesota TZD Conference

Best Practices for Using Car and Driver Data

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Ignition Interlock Devices



Breath alcohol Ignition Interlock Devices (BAIIDs) are designed to protect the public by incapacitating drunk drivers



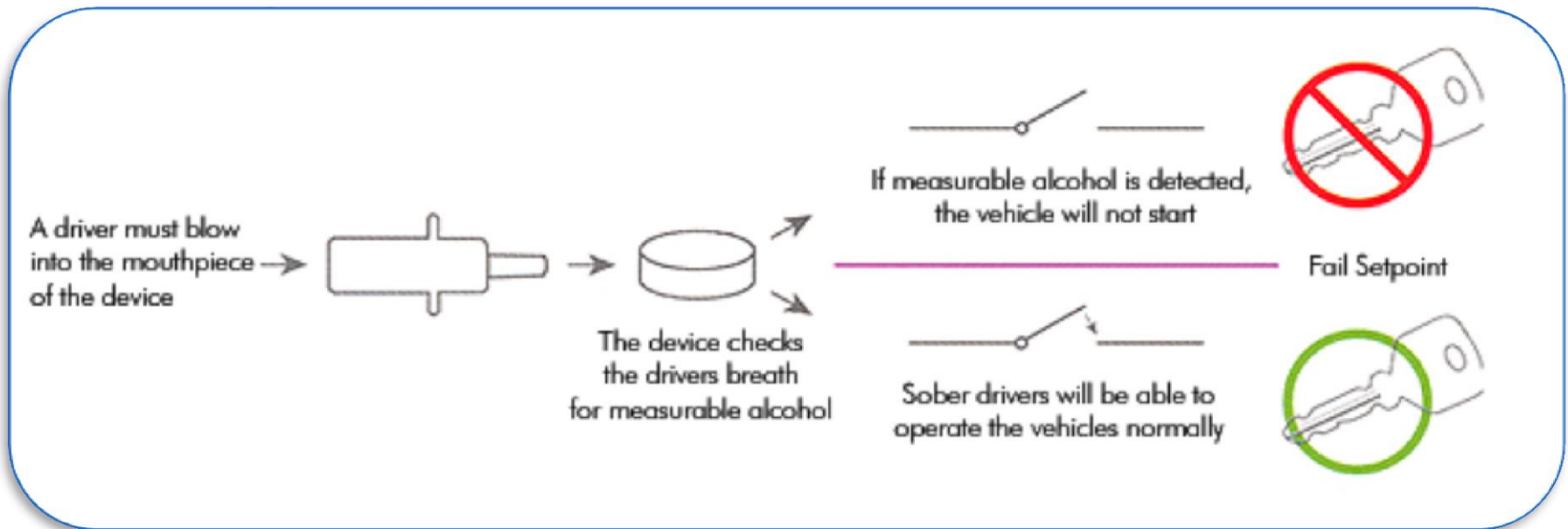
What is an Ignition Interlock?

- An ignition interlock is a breath-testing device attached to a car's starter.
- It prevents the car from being started when a pre-set level of alcohol is detected in the breath sample provided by the driver of the vehicle.



Ignition Interlock Operation

Blocking State



.020 Set Point



Non-Blocking State



BAIID Configuration Profile

- Many current BAIID's are highly programmable.
- Configurations may be downloaded into the BAIID at the factory, service center level, or wirelessly. (firmware/software)
- States attempt to identify their configuration profile by approving devices by model and version.
- BAIID's optional settings:
 - *What information is collected, why, and who has access?*



BAIID Configuration Profile

- NHTSA guidelines/standards
- Breath sample consists of 1.5 liters of breath
 - The same sample size as most evidential breathalyzers
- To assist in preventing non-human breath samples, devices employ the following types of sample acceptance
 - Hum Tone
 - Humming and blowing at the same time
 - Blow and Suck Back
 - Blowing for 3-5 seconds and then sucking back for 2-3 seconds, then blow again for 1-2 seconds



BAIID Configuration Profile

- Many devices are capable of recording the following information
 - Efforts to disable the device
 - Date/time of vehicle use
 - Pass/fail records
 - BrAC Levels
 - Start and stopping of vehicle engine
 - Service reminders “Lock Out Mode”
 - Date service performed
 - Photos
 - Calibration data
 - Notification messages
 - GPS (*MN DVS does not collect or access GPS data*)
 - Voltage
 - Anti-circumvention information

States can choose what information they are provided with from the devices.



Minnesota BAIID Configurations

- Initial sample – MN **Fail Point .020 BrAC**
- Second sample (rolling re-test) in 5-7 minutes.
- Random re-test every 15-45 minutes.
- Photos are captured with each sample.
- Driver is given 10 minutes to provide a re-test.
 - Warning lights
 - Audible tone
 - Worded text



Minnesota Ignition Interlock Devices

- Beginning in July (2016) device information is available in real-time (cellular).
 - **Information is transferred to the vendors server and web portal in real-time. And, with access approval, can be viewed (levels).**
- Device data must also be downloaded every 60 days or the device will go into “lock out” in 7 days.
 - Lock Out does not allow the operator to start the vehicle until the device has been serviced.
- Early recall “lock out in 5 days” occurs when certain violations are recorded.



Data Base Logs

welcome, Jim Bearegard Location Administration Home Jurisdiction: Minnesota

Client Information

Events Glossary


Files

MN: TEST

Client ID: **11479000394**
 DL #: h123456789123
 DOB: 04/07/1977

Home Phone: 6516864041
 Work Phone:
 Cell Phone:

Email:
 Next Service Date: 10/23/2016
 Install Date: 9/23/2016
 Removal Date:



Event Logs

2008 Chevrolet Silvarado (Plate #: 1234MN)*

Date	Transaction	Serial	Fail	Total Test	High Fail	Failed Retest	Power Disconnect Violation	Start Violation	Emergency Override	Lockout	Summary Report	HMU Summary Rev. 2	Full Report	Monitor Report	Photos
9/23/2016	Install	0017547	0	0	0	0	0	0	0	0					(no photos)
8/9/2016	Deinstall	0000929	4	99	3	7	0	1	0	1					(View)
8/1/2016	Install	0000929	0	0	0	0	0	0	0	0					(no photos)
7/29/2016	Deinstall	0000929	1	53	0	2	0	0	0	0					(View)
7/26/2016	Monitoring Check	0000929	0	0	0	0	0	0	0	0					(View)
7/26/2016	Install	0000929	0	0	0	0	0	0	0	0					(no photos)
6/7/2016	Deinstall	0001280	19	283	19	7	0	6	1	6					(View)
5/12/2016	Install	0001280	0	0	0	0	0	0	0	0					(no photos)
5/11/2016	Deinstall	0001280	0	0	0	0	0	0	0	0					(no photos)
5/11/2016	Install	0001280	0	0	0	0	0	0	0	0					(no photos)



Data Base Logs

<u>Timestamp</u>	<u>Day</u>	<u>Event</u>
8/31/2016 5:08:51 PM	Wednesday	Handset Breath Temperature Data
8/31/2016 5:08:53 PM	Wednesday	Running Retest BrAC Reading 0.000
8/31/2016 5:08:53 PM	Wednesday	BrAC Pass
8/31/2016 5:43:32 PM	Wednesday	retest requested
8/31/2016 5:44:32 PM	Wednesday	Relay Tone Sanction
8/31/2016 5:53:32 PM	Wednesday	VIOLATION, Retest Refused
8/31/2016 5:53:32 PM	Wednesday	retest requested
8/31/2016 5:59:56 PM	Wednesday	Handset Breath Temperature Data
8/31/2016 5:59:58 PM	Wednesday	Running Retest BrAC Reading 0.000
8/31/2016 5:59:58 PM	Wednesday	BrAC Pass



Data Base Logs

Timestamp	Day	Event
9/5/2016 9:59:27 AM	Monday	Running Retest BrAC Reading 0.000
9/5/2016 9:59:27 AM	Monday	BrAC Pass
9/5/2016 10:18:36 AM	Monday	retest requested
9/5/2016 10:18:52 AM	Monday	Handset Breath Temperature Data
9/5/2016 10:18:54 AM	Monday	Running Retest BrAC Reading 0.000
9/5/2016 10:18:54 AM	Monday	BrAC Pass
9/5/2016 10:40:08 AM	Monday	retest requested
9/5/2016 10:40:33 AM	Monday	Handset Breath Temperature Data
9/5/2016 10:40:36 AM	Monday	Running Retest BrAC Reading 0.000
9/5/2016 10:40:36 AM	Monday	BrAC Pass
9/5/2016 11:03:54 AM	Monday	retest requested
9/5/2016 11:04:07 AM	Monday	Handset Breath Temperature Data
9/5/2016 11:04:10 AM	Monday	Running Retest BrAC Reading 0.000
9/5/2016 11:04:10 AM	Monday	BrAC Pass
9/5/2016 11:25:08 AM	Monday	CRM Handset Disconnected
9/5/2016 11:27:48 AM	Monday	██████████ EVENT_RELAY_HANDSET_DISCONNECT_VIOLATION
9/5/2016 11:32:44 AM	Monday	CRM Handset Connected
9/5/2016 11:33:40 AM	Monday	Running Retest BrAC Reading 0.000
9/5/2016 11:33:40 AM	Monday	BrAC Pass
9/5/2016 11:39:53 AM	Monday	retest requested
9/5/2016 11:40:06 AM	Monday	Handset Breath Temperature Data
9/5/2016 11:40:09 AM	Monday	Running Retest BrAC Reading 0.000



Data Base Logs

Timestamp

Day

Event

9/1/2016 9:37:02 AM	Thursday	Early Service Recall
9/1/2016 9:38:11 AM	Thursday	Running Retest BrAC Reading 0.000
9/1/2016 9:38:11 AM	Thursday	BrAC Pass
9/1/2016 9:43:45 AM	Thursday	engine off
9/1/2016 9:46:45 AM	Thursday	Stall Protect Off
9/1/2016 9:47:34 AM	Thursday	Handset Breath Temperature Data
9/1/2016 9:47:37 AM	Thursday	Startup BrAC Reading 0.000
9/1/2016 9:47:37 AM	Thursday	BrAC Pass
9/1/2016 9:47:41 AM	Thursday	engine on
9/1/2016 9:52:55 AM	Thursday	retest requested
9/1/2016 9:53:18 AM	Thursday	Handset Breath Temperature Data
9/1/2016 9:53:21 AM	Thursday	Running Retest BrAC Reading 0.189
9/1/2016 9:53:21 AM	Thursday	BrAC FAILED
9/1/2016 9:53:21 AM	Thursday	VIOLATION, HIGH BrAC
9/1/2016 9:53:55 AM	Thursday	Relay Tone Sanction
9/1/2016 9:55:10 AM	Thursday	Handset Breath Temperature Data
9/1/2016 9:55:14 AM	Thursday	Running Retest BrAC Reading 0.007
9/1/2016 9:55:14 AM	Thursday	BrAC Pass



Data Base Logs

9/6/2016 8:27:39 AM	Tuesday	Handset Breath Temperature Data
9/6/2016 8:27:39 AM	Tuesday	Startup BrAC Reading 0.250
9/6/2016 8:27:39 AM	Tuesday	BrAC FAILED
9/6/2016 8:27:39 AM	Tuesday	VIOLATION, HIGH BrAC
9/6/2016 8:32:57 AM	Tuesday	Handset Breath Temperature Data
9/6/2016 8:33:01 AM	Tuesday	Startup BrAC Reading 0.250
9/6/2016 8:33:01 AM	Tuesday	BrAC FAILED
9/6/2016 8:33:01 AM	Tuesday	VIOLATION, HIGH BrAC
9/6/2016 8:38:17 AM	Tuesday	Handset Breath Temperature Data
9/6/2016 8:38:21 AM	Tuesday	Startup BrAC Reading 0.250
9/6/2016 8:38:21 AM	Tuesday	BrAC FAILED
9/6/2016 8:38:21 AM	Tuesday	VIOLATION, HIGH BrAC



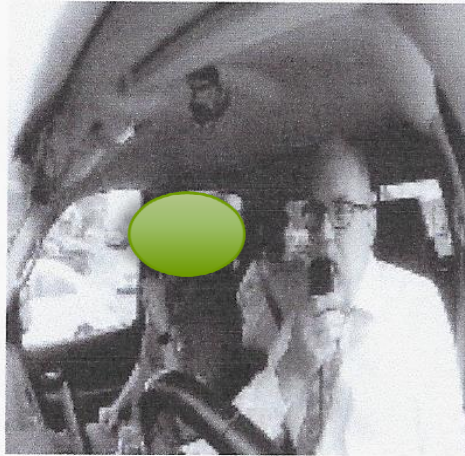
Data Base Logs

Name: Testing - Real time, MN
DOB: 8/22/81
Account: 001421160615131043

Report Generated: 6/17/16 3:05 AM
From: 6/15/16 1:11 PM
To: 6/16/16 8:43 AM

Wednesday, June 15, 2016

2:32:30 PM



2:32:38 PM

Analyzing Test Sample

2:32:39 PM

Initial Test-Pass

0.000

2:32:40 PM

Engine Start

12.547v

2:32:40 PM

Picture Requested



**TOWARD
ZERO
DEATHS**

Data Base Logs

6220	06/13/2016 10:15:48 AM	Handset Disconnect Violation		
6221	06/13/2016 10:15:48 AM	Early Service Recall	Handset disconnect violation	
6222	06/13/2016 10:15:48 AM	Vehicle Movement Begins		
6223	06/13/2016 10:16:30 AM	Ignition Off		
6224	06/13/2016 10:16:30 AM	Engine Stop		
6225	06/13/2016 10:16:30 AM	Engine Run Time	00:02:18	
6226	06/13/2016 10:16:30 AM	Vehicle Movement Ends		
6227	06/13/2016 10:16:30 AM	Free Start Timer Begins	180 second(s)	
6228	06/13/2016 10:19:30 AM	Free Start Timer Ends		
6229	06/13/2016 10:19:30 AM	Starter Relay Opened		
6230	06/13/2016 10:23:17 AM	Ignition On		
6231	06/13/2016 10:23:21 AM	Handset Reconnected		
6232	06/13/2016 10:23:21 AM	Marker Detection Begins	Marker Detection mandatory with timeout	
6233	06/13/2016 10:23:23 AM	Service Reminder (Grace Period)	5 day(s)	
6234	06/13/2016 10:23:33 AM	Ready for Breath Test		
6235	06/13/2016 10:23:51 AM	Marker Detection Ends		
6236	06/13/2016 10:23:51 AM	Breath Test Started		
6237	06/13/2016 10:24:03 AM	Startup Test Passed	0	g/210L



**TOWARD
ZERO
DEATHS**

Circumvention Investigations

02/22/2014 09:53:38	Initial Test-Violation	0.044
02/22/2014 09:53:39	Temporary Lockout Start	
02/22/2014 09:54:13	Disconnected Head	
02/22/2014 09:54:42	Engine Start	13.053v
02/22/2014 09:58:42	Circumvention	
02/22/2014 10:02:42	Circumvention	
02/22/2014 10:06:42	Circumvention	
02/22/2014 10:10:42	Circumvention	
02/22/2014 10:14:42	Circumvention	
02/22/2014 10:18:38	Connected Head	
02/22/2014 10:18:44	Connected Head	
02/22/2014 10:18:45	Violation Grace Period Start	7200 minutes remaining
02/22/2014 10:19:12	Rolling Retest Requested	
02/22/2014 10:19:15	Picture Requested	Test Started
02/22/2014 10:19:35	Rolling Retest-Violation	0.031
02/22/2014 10:20:09	Disconnected Head	
02/22/2014 10:22:41	Circumvention	
02/22/2014 10:23:19	High Battery Voltage	13.798v
02/22/2014 10:23:19	Engine Stop	13.798v
02/22/2014 11:15:00	Engine Start	14.474v
02/22/2014 11:18:59	Circumvention	
02/22/2014 11:22:59	Circumvention	
02/22/2014 11:26:59	Circumvention	
02/22/2014 11:30:59	Circumvention	
02/22/2014 11:34:59	Circumvention	
02/22/2014 11:38:59	Circumvention	
02/22/2014 11:42:59	Circumvention	
02/22/2014 11:46:59	Circumvention	
02/22/2014 11:50:43	Connected Head	
02/22/2014 11:50:49	Connected Head	
02/22/2014 11:50:50	Violation Grace Period Start	7108 minutes remaining
02/22/2014 11:50:50	Circumvention	Circumvention
02/22/2014 11:51:03	PC Connected	



Circumvention Investigations

73 Smartlog Events		
Timestamp	Type	Details
02/22/2014 11:54:45	PC Disconnected	
02/22/2014 11:54:48	Power On	
02/22/2014 11:54:50	Engine Start	14.477v
02/22/2014 11:55:55	Connected Head	
02/22/2014 11:55:56	PC Connected	
02/22/2014 11:56:43	Connected Head	
02/22/2014 11:57:13	Rolling Retest Requested	
02/22/2014 11:57:16	Picture Requested	Test Started
02/22/2014 11:57:36	Rolling Retest-Violation	0.221
02/22/2014 11:58:09	Disconnected Head	
02/22/2014 12:00:38	Circumvention	
02/22/2014 12:04:38	Circumvention	
02/22/2014 12:08:38	Circumvention	
02/22/2014 12:12:38	Circumvention	
02/22/2014 12:16:38	Circumvention	
02/22/2014 12:20:38	Circumvention	
02/22/2014 12:24:38	Circumvention	
02/22/2014 12:27:23	Engine Stop	13.758v
03/20/2014 20:02:11	Connected Head	
03/20/2014 20:02:11	Violation Grace Period Start	7200 minutes remaining
03/20/2014 20:02:35	Picture Requested	Test Started
03/20/2014 20:02:43	Initial Test-Pass	0.000
03/20/2014 20:03:02	Engine Start	14.291v
03/20/2014 20:03:03	Picture Requested	Vehicle Started
03/20/2014 20:04:26	High Battery Voltage	13.476v
03/20/2014 20:04:26	Engine Stop	13.476v
03/20/2014 20:04:53	Connected Head	
03/20/2014 20:04:53	Violation Grace Period Start	7197 minutes remaining
03/20/2014 20:05:17	Picture Requested	Test Started
03/20/2014 20:05:25	Initial Test-Pass	0.000



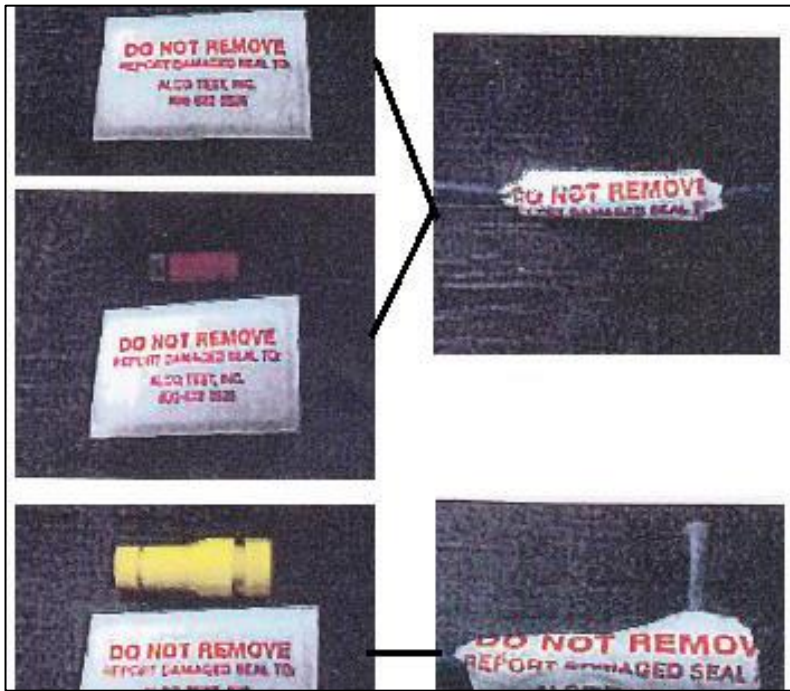
Investigations

Obtaining Private Data

- Begin with local legal consultation.
 - Minnesota Data Practices
- Release of information waivers.
 - Probation
- Search warrants.
- Company contacts.
 - [MN Ignition Interlock Companies](#)



Circumvention Prevention



Circumvention Investigation

Filtered Air: Methods Utilized to Alter Breath Samples:

- Chemical filters
- Water filters



Circumvention Investigation

Altered Breath Sample: Stored Air

- Utilized an air pump to supply the exhaled breath sample.
- When the inhale portion was necessary, the air nozzle was removed and the individual supplied the inhale portion.
- The vehicle was able to start with the individual altering the submitted breath sample.



Circumvention Investigation

Filtered Air: Methods Utilized to Alter Breath Samples:



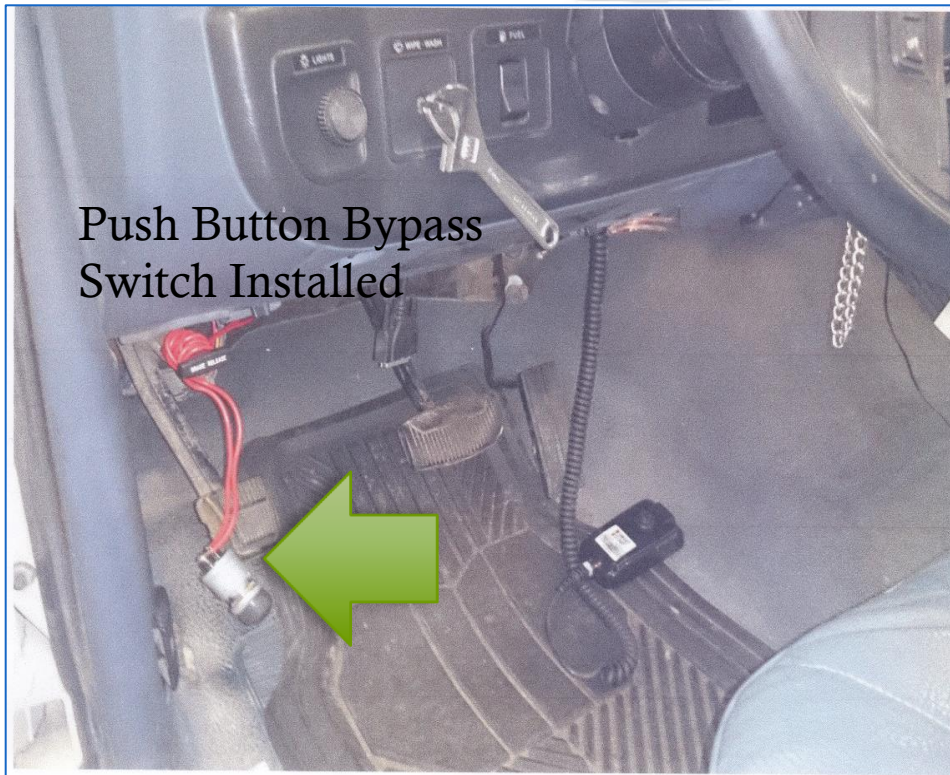
Circumvention Investigation

Wiring:

- Hard wire bypass
- Starter bridge



Circumvention Investigations



Push Button Bypass
Switch Installed

A Bypass Switch interrupted the ground and hot wires prior to reaching the BAIID.

When the switch was turned on it closed the ignition circuit, allowed the vehicle to start.

The BAIID did not recognize the vehicle was on.

Circumvention Investigation

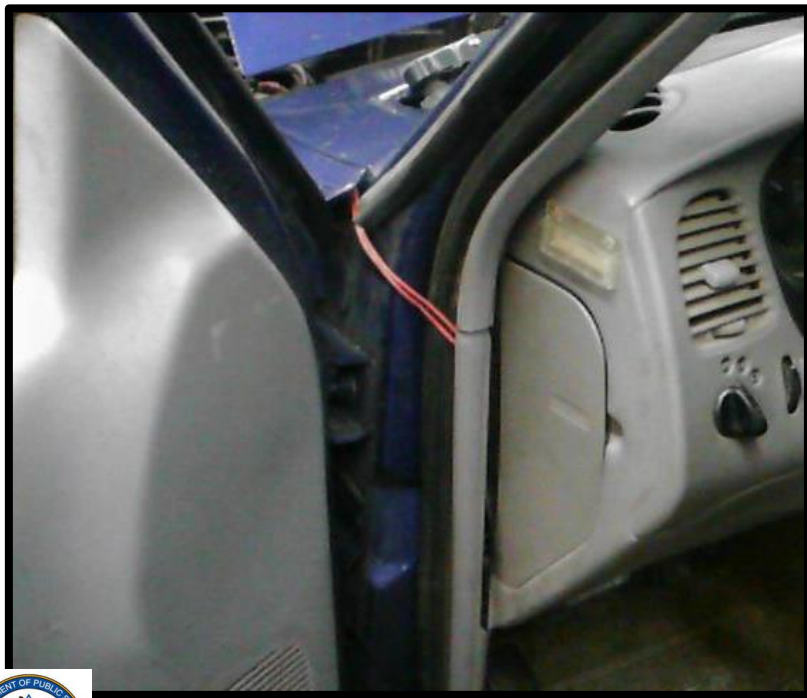
Wiring:

- A Bypass Switch interrupted the ground and hot wires prior to reaching the BAIID.
- When the switch was turned on: it closed the ignition circuit, allowed the vehicle to start.
- The BAIID did not recognize the vehicle was on.



Circumvention Investigation

Wiring: Hard Wire Bypass



Circumvention Investigation



Wiring Jumper Bypass:

- Tamperproof seal removed.
- Sewing pins inserted through the ground and hot wires.
- When pressed together the circuit was closed (non blocking state) and the vehicle was able to start without a breath sample.

Education

Education for:

- Law Enforcement
 - [How Ignition Interlock Works](#)
 - [Law Enforcement Roll Call](#)
 - [MN Program Guidelines](#)
- Probation
- Courts
- Legislators
- Media



Questions?

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