

DiagnosticLink 8.17 Features

12/08/2022



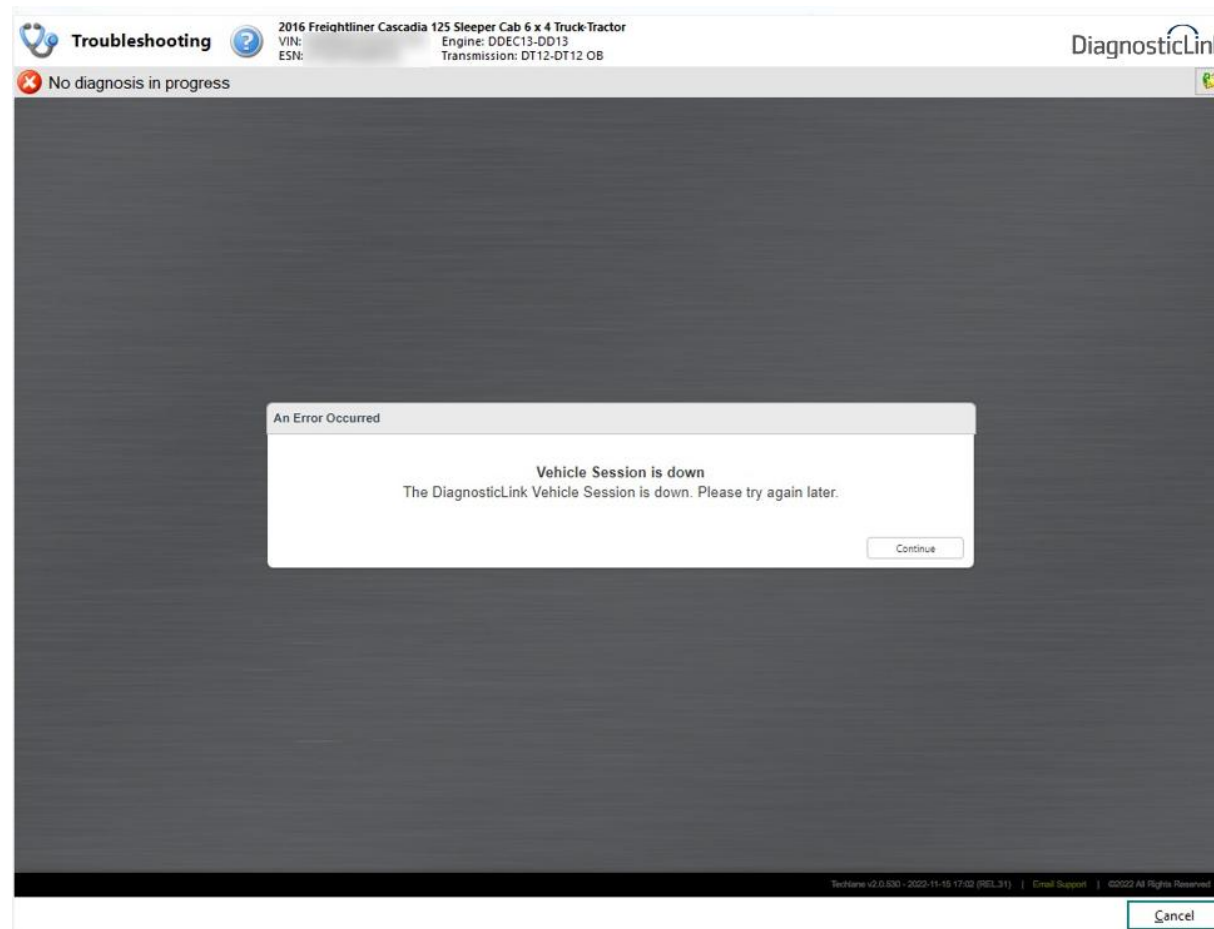
DL 8.17 Release Features Summary



- Covers full support for DD 15TC0, DD 13TC0, MY2022 HDEP, MY2022 MDEG ECU software packages
- The Techlane web browser has been migrated to Microsoft Edge Webview2.
- The open log file form has been updated with tooltip text for describing parameters.
- An issue has been resolved where eCPC parameter writes resulted in contractors being opened.
- Parameter updates disallowed during vehicle charging.
- The Help About menu now displays the RP1210 device name and version.
- The Help References dialog has been updated from DTNAConnect to the DTNA Portal.
- The client new version notification has been updated for internal users.
- Bootloader flashing support has been added for EMG vehicles
- The TechLit download process has been enhanced to help improve the troubleshooting manual update procedure.
- Campaign Management panel added to support checking status and starting campaigns for vehicles
- New panels added for EMG vehicle support.

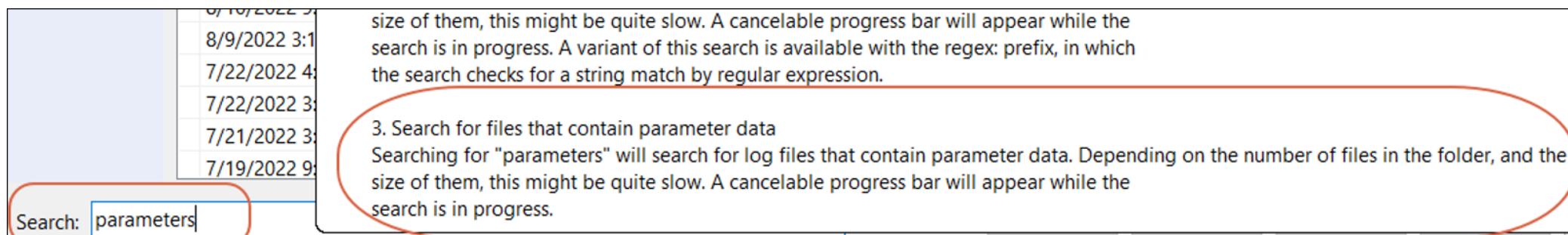
Microsoft Edge Webview2

- When the WebView2 component is not installed, an error will be displayed in the Techlane window (for dealers with Techlane access).
- The embedded web browser used by Techlane was migrated to WebView2 which uses the Microsoft Edge chromium-based browser.



Parameter Tooltip Text

- The open log file form has been updated with tooltip text for describing parameters.
- Typing “parameters” in the open log file search box displays all log files that contain parameter values



The screenshot shows a search interface with a search box containing the text "parameters". A tooltip is displayed, providing information about the search results. The tooltip text is as follows:

size of them, this might be quite slow. A cancelable progress bar will appear while the search is in progress. A variant of this search is available with the regex: prefix, in which the search checks for a string match by regular expression.

3. Search for files that contain parameter data
Searching for "parameters" will search for log files that contain parameter data. Depending on the number of files in the folder, and the size of them, this might be quite slow. A cancelable progress bar will appear while the search is in progress.

eCPC Parameter Fix

- When parameters are written to eCPC, the “Soft reset” routine is called to commit parameters to permanent memory.
- If the vehicle is in “HV ready” state, executing this routine will cause the contactors to be ungracefully opened.
- To avoid this, DiagnosticLink will prevent the user from performing actions that cause parameters to be written when the vehicle is in “HV ready” state.
- The user is warned of the condition, and is provided access to the “HV Active Discharge” dialog, to resolve the condition.

The screenshot shows the DiagnosticLink software interface. At the top, it displays the vehicle information: 2022 Western Star New 4700 Chassis 6 x 4 Truck, Engine: EMOBILITY-eDrive Powertrain. A warning message states: "Parameters cannot be edited: the high voltage system is enabled. Click here to open the 'High Voltage Active Discharge' panel." Below this, there is a table of parameters for the ECPC01T - Electric Common Powertrain Controller. The table has columns for Parameter, Value, Units, Minimum, Maximum, and Description. Parameters listed include Accelerator Pedal, Cruise Control, Max Cruise Set Speed, Engine Brake Over Speed, Min Cruise Set Speed Low, Enable SoftCruise, CC Start Function Mode, Manual Cruise Enable, Display Cruise Usage Recon, Legal Limits, PasSmart, PasSmart Speed Increment, PasSmart Reset Time, PasSmart Speed Duration, PasSmart Enable, PasSmart Min Remaining Time, Transmission Configuration, Enable Manual Mode, Powertrain Configuration, Vehicle Acceleration Control, Cruise Control Over Speed, and Vehicle Speed Sensor. A dialog box titled "High Voltage Active Discharge" is open, showing a warning icon and text: "WARNING: ELECTRICAL SHOCK. To avoid injury from electrical shock, do not rely on voltages displayed by DiagnosticLink®. These values can be in error and should only be used for diagnosis. Some components may retain a high voltage charge, so always verify the decommissioning procedure has been completed correctly and electrical components are fully discharged, before handling (Reference the DTNA Vehicle Decommissioning Checklist)." Below the warning, it shows "HV_Ready" as "Ready" in a green bar. There is a "close" button. At the bottom, it says "Request Results Active Discharge Status" with a play button icon. A green checkmark indicates "OTF HV Active Discharge: Procedure can start" with a "Start" button. At the bottom of the main window, a message states: "Programming pre-condition has not been met: the high voltage system is enabled. High Voltage Active Discharge" with "Back", "Next", and "Start" buttons.

Parameter Updates Disallowed During Vehicle Charging

- Parameter updates should not be allowed (to any ECU) while the vehicle is charging.
- Similar to the behavior of the tool when the 'last service data' check is not satisfied, the user is prevented from making changes until the precondition indicated at the top of the screen has been resolved.
- The Send button is also disabled when the precondition state is detected.

Parameters 2022 VIN: [redacted] Engine: EMOBILITY-eDrive Powertrain DiagnosticLink

Parameters cannot be edited: the vehicle is charging.

Parameter	Value	Units	Minimum	Maximum	Description
ECPC01T - Electric Common Powertrain Controller					
23 - Accelerator Pedal					
Battery Energy Recuperation during Coast - ...	-184.39	ft-lb	-3687.81	0.00	(023/025) AP tor...
30 - Cruise Control					
Max Cruise Set Speed	90.0988	mph	0.0000	155.3428	(030/036) Maxi...
Engine Brake Over Speed	5.0020	mph	0.0000	155.3428	(030/040) Defaul...
Min Cruise Set Speed Low	9.94	mph	0.00	77.67	(030/085) minim...
Enable SoftCruise	always enabled				(030/090) Enable...
CC Start Function Mode	Adaptive CC				(030/102) Cruise...
Manual Cruise Enable	enable and react...				(030/113) Mode ...
Display Cruise Usage Recommendation Pop-...	sna	mph	0.0	155.3	(030/143) Vehicl...
43 - Legal Limits					
Legal Vehicle Road Speed Limit	90.0988	mph	0.0000	93.2057	(043/001) legisla...
44 - PasSmart					
PasSmart Speed Increment	4.9958	mph	1.8641	12.4274	(044/001) PasSm...
PasSmart Reset Time	8	h	1	24	(044/008) PasSm...
PasSmart Speed Duration	10	min	0	250	(044/009) PasSm...
PasSmart Enable	enable				(044/012) PasSm...
PasSmart Min Remaining Time for Activation	30	s	1	250	(044/015) Minim...
160 - Transmission Configurations					
Enable Manual Mode	enabled				(160/003) 0: disa...
227 - Powertrain Configuration Tire					
Single (1) or Dual (2) Wheel on Driven Axle	2		1	2	(227/008) .
323 - Vehicle Acceleration Control					
330 - Vehicle Speed Sensor					
441 - Vehicle Speed Limits					
470 - Energy Management					

Parameters were successfully read from the device.

Send... Information

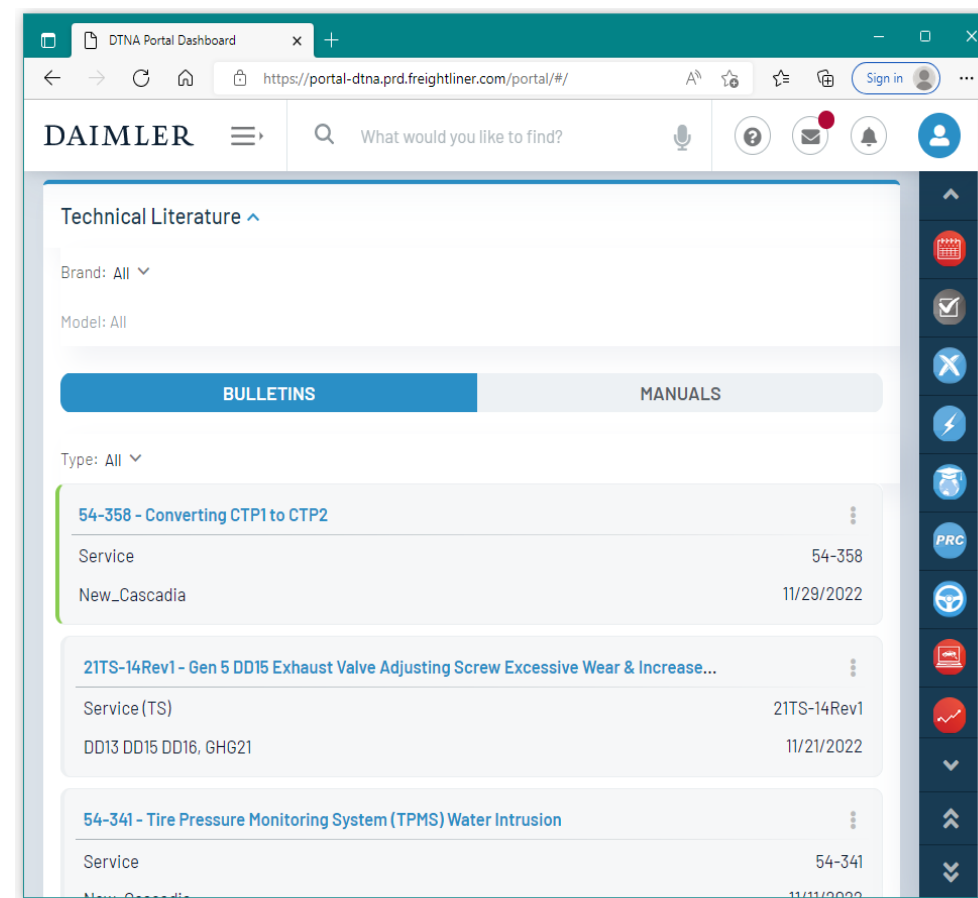
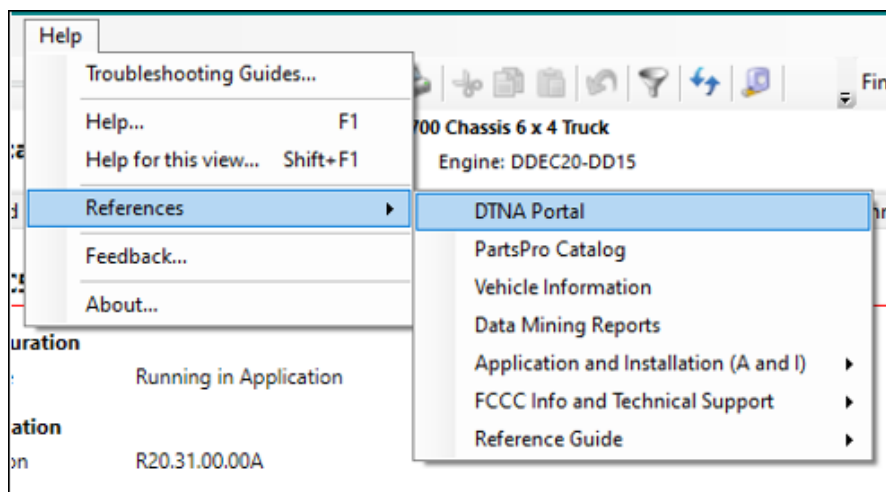
RP1210 Device Name and Version

- When supporting DiagnosticLink users, either interactively or when investigating incident reports, it is often useful to be able to know the RP1210 driver version used.
- The RP1210 device name and the driver version have been added to the Help > About menu.



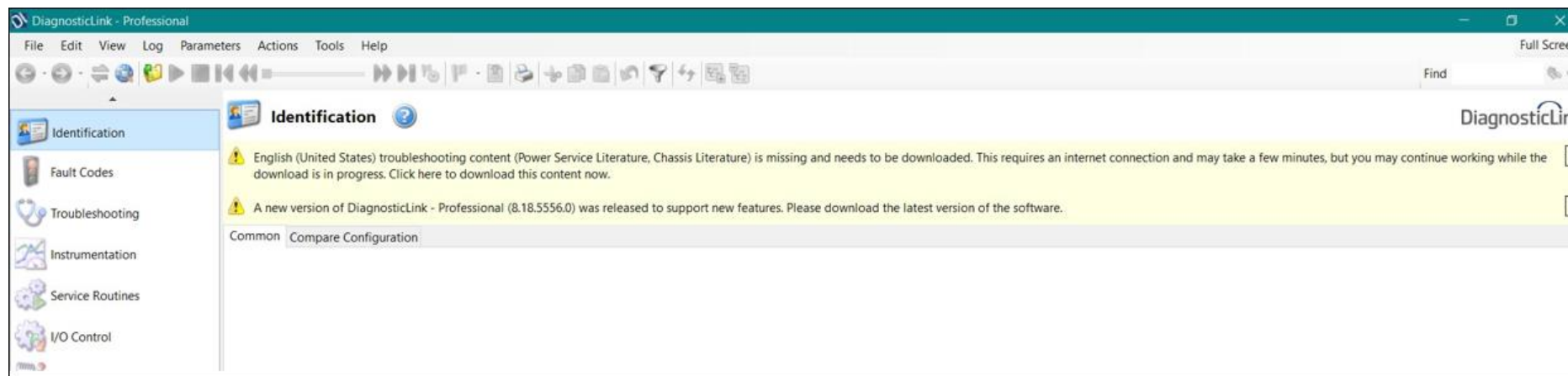
Client Shortcut Updated

- Since DTNAConnect will be sunset and replaced with the new 'DTNA Portal', the client shortcut text and URL is updated.



Update client new version notification for internal PRO users

- When a new version of DiagnosticLink is released, existing users are prompted to update via a message shown in the notification panel at the head of the screen.
- DiagnosticLink Professional users are prompted to visit the Snap-on ordering website to download the new version of the software. This works for most users, but not for internal users.
- DiagnosticLink 8.17 will show a more appropriate message that doesn't reference the ordering site for internal users.



Support eCPC Bootloader Updates

- Support added to flash eCPC bootloader if necessary
- Flash is attempted based on update/programming of application software
- Will only be programmed if server data specifies a different version from current bootloader

Processing: ECPC01T - Electric Common Powertrain Controller

– ECPC01T - Electric Common Powertrain Controller

Flash Boot Firmware: 64.8% Complete

Operation Information

Operation: Replace Device Settings with Server Configuration (same device)

Settings: latest

Configuration	Current	Target
Boot Software	A0284488108-001	A0284488102-001 (ECPC_R21_21_10_00_A_FBL)
Software	A0284488602-002 (T22.10.10.33A)	A0284488602-002 (R22.10.10.33A)
Shift Map Part Number	A0294488502-003	A0294488502-003 (ECPC_NAFTA_2007_87649)
Identification	Current	Target
Vehicle Identification Number	5KKH	5KKH
Engine Serial Number		EMGF
Hardware		
ECU Serial Number	2009410065	
Hardware Part Number	A0054463402-001	

TechLit Enhancement

- One of the major pain points of the TechLit distribution mechanism in DiagnosticLink was that the tool contains fixed references to specific manuals (in config.xml)
- This causes two main issues:
 - Not possible to change name/path of existing guides, as the reference will be broken.
 - Not possible to release new manuals without a corresponding DiagnosticLink update.
- The solution is to reference the same query as performed by the website, to obtain information about the specific manual type (e.g. troubleshooting) and the target model information (e.g. Cascadia, DD5).
- The target manuals to be downloaded by the tool are determined by these queries; new manuals can be distributed without a service pack.
- As part of this work, the downloaded structure now more closely aligns to that of the web site, which means that downloads can be optimized such that we don't download content that is already present.
- This allows a terminated content download to be resumed without re- starting from the beginning.

Troubleshooting Guides		
Title	Date	
Power Service Literature - English (United States)		
Electrical Wiring Schematics (DDC-SVC-MAN-0000)	12/24/2021	View
Detroit Transmissions Manual (DDC-SVC-MAN-0140)	10/22/2022	View
EPA07 MBE 900 DDEC VI Troubleshooting Manual (DDC-SVC-MAN-0015)	6/1/2021	View
EPA07 MBE 4000 DDEC VI Troubleshooting Manual (DDC-SVC-MAN-0010)	6/1/2021	View
GHG17 Heavy Duty Troubleshooting Manual (DDC-SVC-MAN-0191)	11/2/2022	View
DD Platform EuroV Electronics and Troubleshooting Manual (DDC-SVC-MAN-0203)	8/25/2022	View
EuroV MBE 900 Troubleshooting Manual (DDC-SVC-MAN-0202)	5/13/2021	View
EPA07 Series 60 DDEC VI Troubleshooting Manual (DDC-SVC-MAN-0009)	6/1/2021	View
EUROIV DDEC VI 10 Electronics and Troubleshooting Manual (DDC-SVC-MAN-0184)	3/28/2020	View
EPA07 10 GHG14 DDEC VI 10 Electronics and Troubleshooting Manual (DDC-SVC-MAN-0084)	11/17/2022	View
Gen 5 DD Platform Electronics and Troubleshooting Manual (DDC-SVC-MAN-0211)	11/21/2022	View
GHG17 DD5 Medium Duty Electronics and Troubleshooting Manual (DDC-SVC-MAN-0193)	11/2/2022	View
GHG17 DD8 Medium Duty Electronics and Troubleshooting Manual (DDC-SVC-MAN-0200)	11/2/2022	View
Chassis Literature - English (United States)		
Cascadia Troubleshooting Manual	8/29/2022	View
New Cascadia Electrical Systems and Troubleshooting Manual	11/21/2022	View
47X & 49X Electrical Systems and Troubleshooting Manual	11/21/2022	View

DRIVING THE UPTIME REVOLUTION

- # DRIVING THE UPTIME REVOLUTION

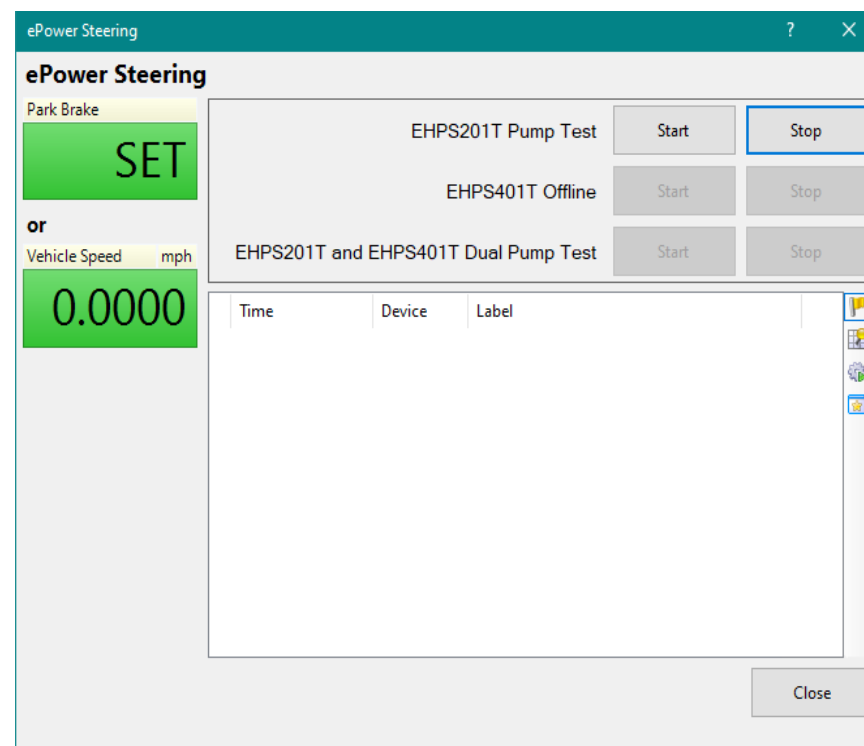
DRIVING THE UPTIME REVOLUTION

New Panels Added for EMG

12/08/2022


ePower Steering Panel

- Dialog to test EHPS201T and EHPS401T pumps



High Voltage Batteries State of Health Panel

- Panel to diagnose EMG high voltage battery state of health.



WARNING: ELECTRICAL SHOCK

To avoid injury from electrical shock, do not rely on voltages displayed by DiagnosticLink®. These values can be in error and should only be used for diagnosis. Some components may retain a high voltage charge, so always verify the decommissioning procedure has been completed correctly and electrical components are fully discharged, before handling (Reference the **DTNA Vehicle Decommissioning Checklist**).

Vehicle Speed	0.000
Parking Brake	SE
HV System	OK

Battery #1	DC Link High Voltage V	System SOC %	Current SOH %	Minimum Cell Voltage V	Maximum Cell Voltage V	Minimum Temp String °C	Maximum Temp String °C	SOH Deactivation Status
BMS01T	396	42.3	Request out of range	3.637	3.647	21.5	22.1	Request out of range
BMS201T	396	42.3	Request out of range	3.630	3.644	21.5	21.9	Request out of range
BMS301T	396	42.3	Request out of range	3.635	3.646	21.5	21.9	Request out of range
Battery #2	DC Link High Voltage V	System SOC %	Current SOH %	Minimum Cell Voltage V	Maximum Cell Voltage V	Minimum Temp String °C	Maximum Temp String °C	SOH Deactivation Status
BMS401T	396	42.3	Request out of range	3.635	3.647	21.5	22.1	Request out of range
BMS501T	396	42.3	Request out of range	3.627	3.644	21.4	21.9	Request out of range
BMS601T	396	42.3	Request out of range	3.629	3.644	21.5	21.9	Request out of range
Battery #3	DC Link High Voltage V	System SOC %	Current SOH %	Minimum Cell Voltage V	Maximum Cell Voltage V	Minimum Temp String °C	Maximum Temp String °C	SOH Deactivation Status
BMS701T	396	42.3	Request out of range	3.619	3.646	21.4	22.0	Request out of range
BMS801T	396	42.3	Request out of range	3.638	3.645	21.5	21.9	Request out of range
BMS901T	396	42.3	Request out of range	3.632	3.645	21.4	21.9	Request out of range

eRC Run In 'Refrigerant System Management' Panel

- Panel to diagnose EMG refrigerant system.

Refrigerant System Management

Park Brake ☐ ERC Run-In

SET

or

Vehicle Speed mph

Error

ERC Run-In Results

Start

Successful

Valve Control

EXV Chiller Position Closed

Open

Close

Return Control

Ambient Air Temperature °F 170.6

Evaporator Sensor Temperature °F -40.0

HV System ON

Edrive Fan Requested Duty Cycle % 0

ERC Compressor Speed V2 % 127.5

Cab Blower PWM 4

Time	Device	Label

High Voltage Batteries Safe to Ship

- Panel to indicate state of high voltage batteries.

HV Battery Safe to Ship								
1. Key off, wait 3 seconds and then press the e-stop button.						Vehicle Speed	0.0000	
2. Wait 3 seconds and then key on, internal isolation resistance can take up to ten seconds to populate.						Parking Brake	Set	
3. Once readings populate, key off, wait 3 seconds and then return e-stop to normal operation.						HV System	ON	
Battery #1	Aux. Contactor Negative	Aux. Contactor Positive	Precharge Contactor	HV Contactor Negative	HV Contactor Positive	Internal Isolation Resistance kOhm	Minimum Cell Voltage V	Maximum Temp String °C
BMS01T	Open	Open	Open	Closed	Closed	signal not available	3.637	22.1
BMS201T	Closed	Closed	Open	Closed	Closed	signal not available	3.630	21.9
BMS301T	Open	Open	Open	Closed	Closed	signal not available	3.635	21.9
Battery #2	Aux. Contactor Negative	Aux. Contactor Positive	Precharge Contactor	HV Contactor Negative	HV Contactor Positive	Internal Isolation Resistance kOhm	Minimum Cell Voltage V	Maximum Temp String °C
BMS401T	Closed	Closed	Open	Closed	Closed	signal not available	3.635	22.1
BMS501T	Open	Open	Open	Closed	Closed	signal not available	3.627	21.9
BMS601T	Open	Open	Open	Closed	Closed	signal not available	3.629	21.9
Battery #3	Aux. Contactor Negative	Aux. Contactor Positive	Precharge Contactor	HV Contactor Negative	HV Contactor Positive	Internal Isolation Resistance kOhm	Minimum Cell Voltage V	Maximum Temp String °C
BMS701T	Open	Open	Open	Closed	Closed	signal not available	3.619	22.0
BMS801T	Open	Open	Open	Closed	Closed	signal not available	3.638	21.9
BMS901T	Open	Open	Open	Closed	Closed	signal not available	3.632	21.9



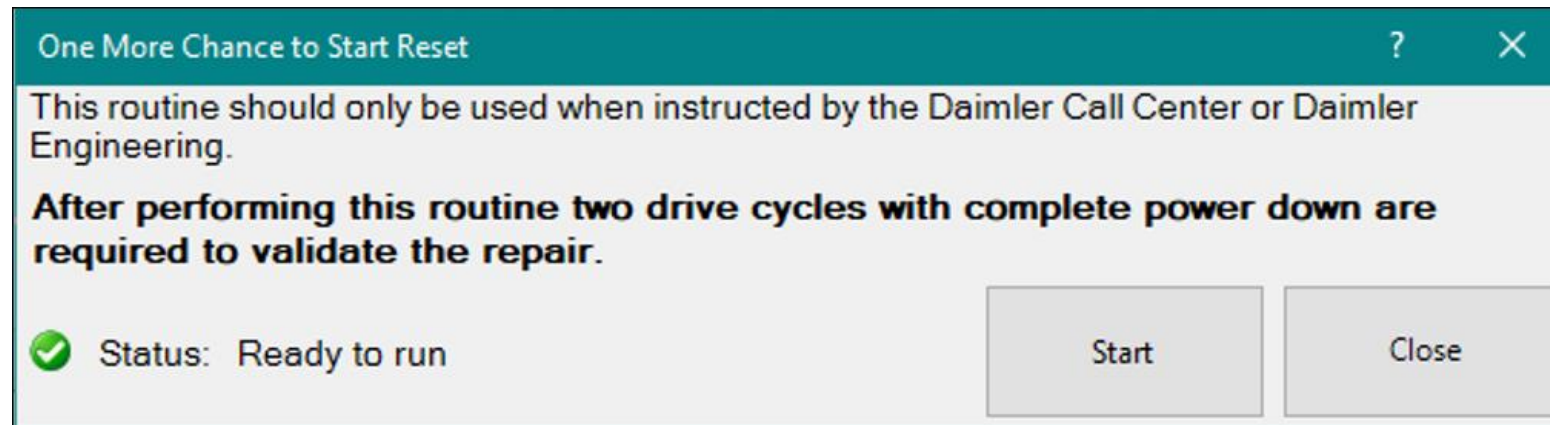
Low Voltage Batteries State of Health

- Panel to diagnose EMG low voltage battery state of health.

LV Battery State Of Health					
HV System	OFF	Parking Brake	SET	Vehicle Speed	0.0000
12 Volt System	V		24 Volt System	V	
	4.0		8.0		
Battery Temp	°F		Battery Type	A	
	32		Signal not available		0.000
Terminal Temp	°F		Battery State of Health	%	Battery Nominal Capacity
	32		0		255

One More Chance to Start Reset

- Dialog to allow the technician to OMCS routine when instructed by Call Center.



Fan Control for the Coolant Cooling Fans

- Provides control of the cooling fans.
- On Start, the eDrive Fan is set to 50% and returns to 0% on Stop.
- Available from the Actions menu.

Coolant Fan Control

Park Brake

Battery Coolant Circuit Temperature °F

eDrive in Coolant Circuit Temperat... °F

Engaged

3212.54375


3212.54375

Vehicle Speed mph

Fan Duty Cycle %

0.0000

0

 Status : Procedure can start

Start

Close

EMG Coolant Systems Pressure Testing

- Provides EMG vehicles with a way to have their coolant systems leak tested.
- The panel performs a series of controls to heat and pressurize the coolant systems so visual leak testing can be performed.
- Available in the Service Routines view.

Advanced 6x4 Dyno Routine | All Services | Coolant Systems Pressure Test | On Board Diagnostics J1939 | Tilt Sensor & Unlock | Transmission Dyno Mode

Battery Coolant Loop Test

✓ Ready to start. Start

Park Brake		Set
Vehicle Speed	mph	0.0000
Ambient Temperature	*F	170.6
Battery Coolant Temperature	*F	3212.54375
PTC Battery1 Duty Cycle	%	127.5
PTC Battery2 Duty Cycle	%	127.5

eDrive Coolant Loop Test

✓ Ready to start. Start

Before starting the eDrive Coolant Loop Test, turn the cab blower fan off.

HV System		ON
Blower Speed (feedback from blower)	rpm	0
Fan Duty Cycle	%	0
eDrive Coolant Temperature	*F	3212.54375
PTC Cab 1 Duty Cycle	%	127.5
PTC Cab 2 Duty Cycle	A	▶

Time	Label
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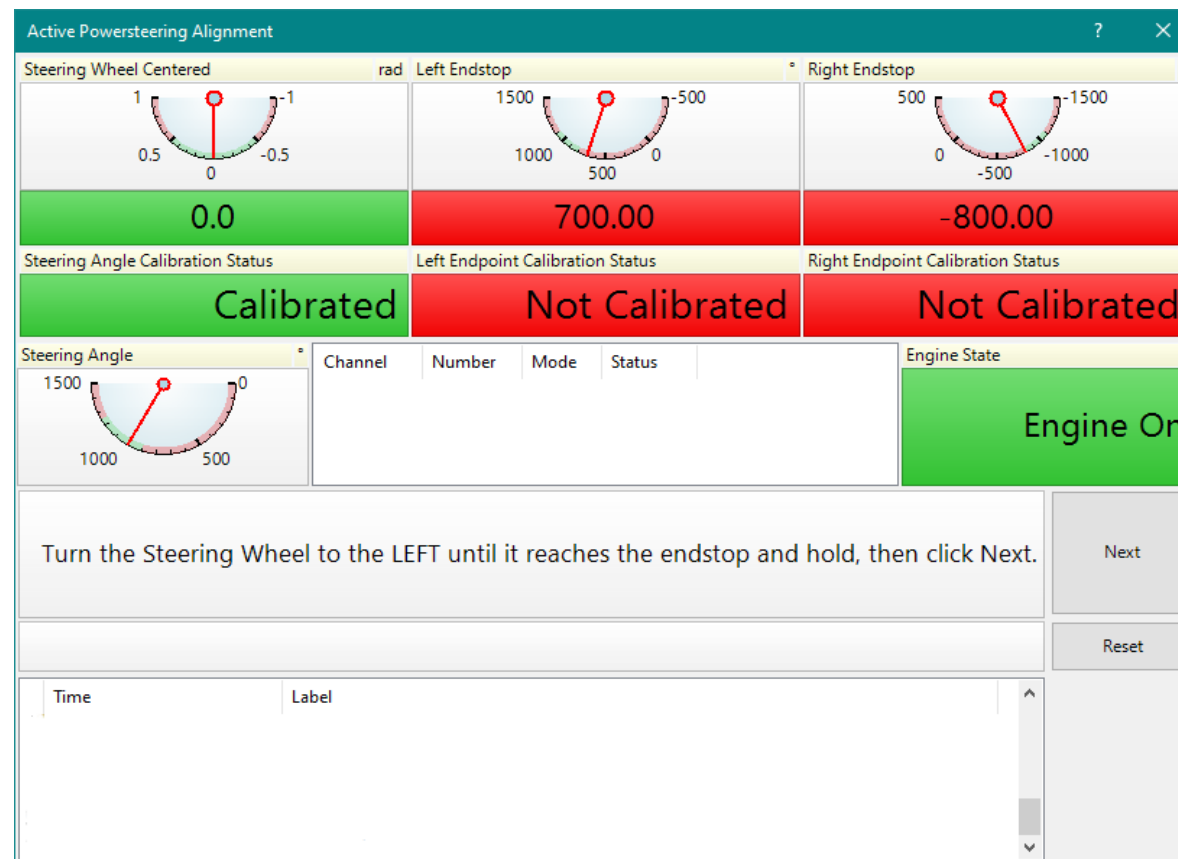
EMG Isolation Resistance

- External Isolation Measured This Power Cycle runs automatically once initial power up and ignition on is performed.
- For Internal Isolation Measured This Power Cycle, the on screen instructions must be followed.
- Available in the Instrumentation view.

HV Battery State of Health		Isolation Resistance Measurement		LV Battery State of Health		MSC Stalk and Switch Inputs		MSF Subbus Switches		PTO1 and PTO2 Engagement				
External Isolation Measured This Power Cycle														
System External Resistance				E-Stop Button Pressed		Park Brake		Vehicle Speed						
kOhm								mph						
1000				false		Engaged		0.0000						
Internal Isolation Measured This Power Cycle														
<p>"Signal not available" will be displayed until the HV contactors are re-opened this power cycle.</p> <p>To populate this reading perform the following steps:</p> <ol style="list-style-type: none">1. Key off, wait 3 seconds and then press the E-Stop Button.2. Wait 3 seconds and then key on. Internal isolation resistance can take up to ten seconds to populate.3. Once readings populate, key off, wait 3 seconds and then return the E-Stop to normal operation.														
BMS01T Internal Isolation Resis... kOhm			BMS201T Internal Isolation Resistance			BMS301T Internal Isolation Resistance			BMS401T Internal Isolation Resi... kOhm			BMS501T Internal Isolation Resi... kOhm		
900			750			800			800			855		
BMS601T Internal Isolation Resi... kOhm			BMS701T Internal Isolation Resi... kOhm			BMS801T Internal Isolation Resistance			BMS901T Internal Isolation Resi... kOhm					
750			900			750			800					

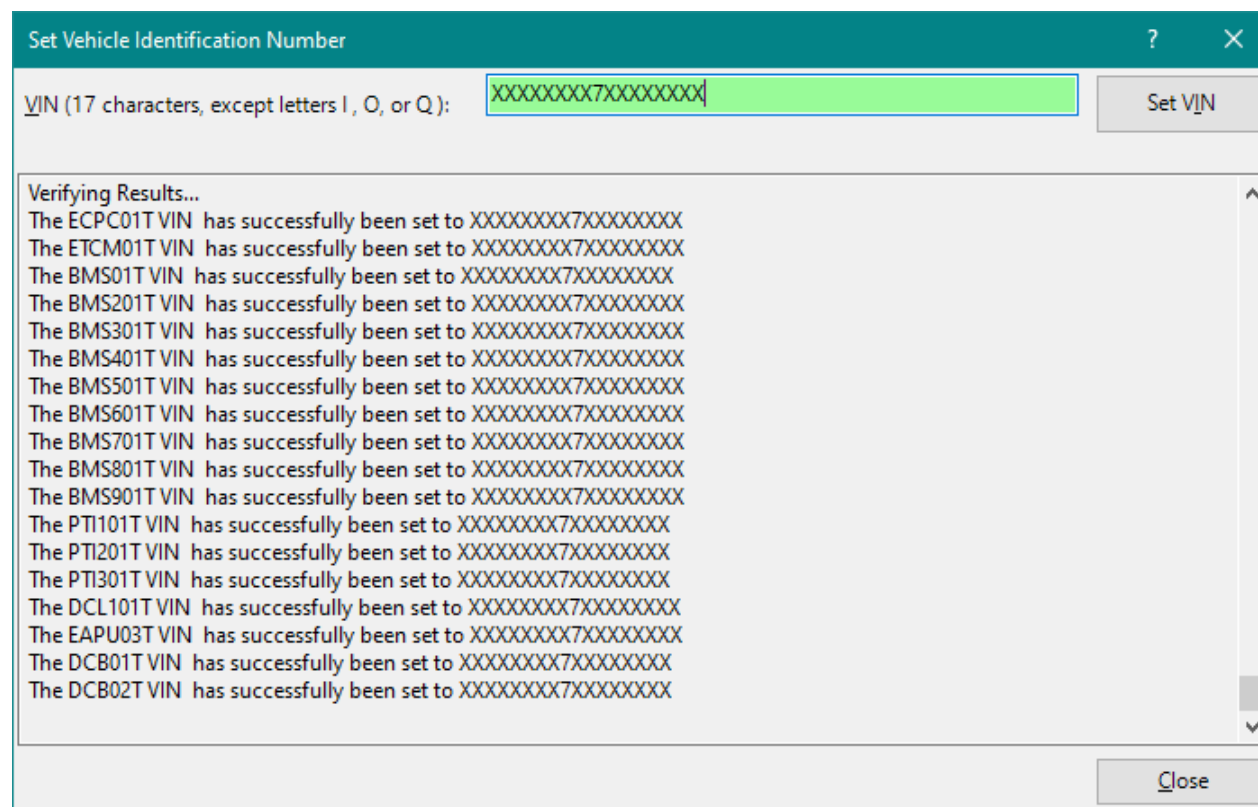
Active Power steering alignment panel gauge refinement

- Originally, the gauges appeared to turn in the opposite direction of the wheel.
- To alleviate confusion, the dials have been rotated so the green areas are in the expected position when turning the steering wheel.



Enable "Set Engine Serial Number / Vehicle Identification Number" Panel

- New support for EMG:
 - DCB01T, DCB02T
 - DCL101T
 - PTI101T-PTI301T
- Existing support for EMG:
 - ECPC01T
 - ETCM01T
 - EAPU03T





eDrive Temperature Sensors and Speed Sensors

- New EMG Instrumentation panel

eDrive Temperature and Speed Monitoring					
Temperature					
Ambient Air	°F	170.6	Battery Coolant Circuit	°F	3212.54375
Transmission Oil	°F	3226.94375	PT Sensor Chiller Refrigerant	°F	11756.3
Inverter #1	°F	419	PT Sensor Chiller Internal	°F	11756.3
E Motor #1	°F	419	eDrive Coolant Inlet	°F	3212.54375
Inverter #2	°F	419	eDrive Coolant Outlet	°F	3212.54375
E Motor #2	°F	419	eAxe Coolant Circuit	°F	3212.54375
Inverter #3	°F	419	eAxe 2 Coolant Circuit	°F	3212.54375
E Motor #3	°F	419			
Speed					
Gearbox Input	rpm	10485.60	eDrive Motor 1 Actual	rpm	16448.5
GearboxOutput	rpm	10444.64	eDrive Motor 2 Actual	rpm	16448.5
			eDrive Motor 3 Actual	rpm	16448.5

EMG Electrically Driven Air Compressor (EDAC) Oil Life Reset

- The Oil Life value needs to be reset when the Electrically Driven Air Compressor (EDAC) is replaced
- This Service Routine Dialog calls the reset service.
- Upon completion, a message box displays the result of calling the reset service.

