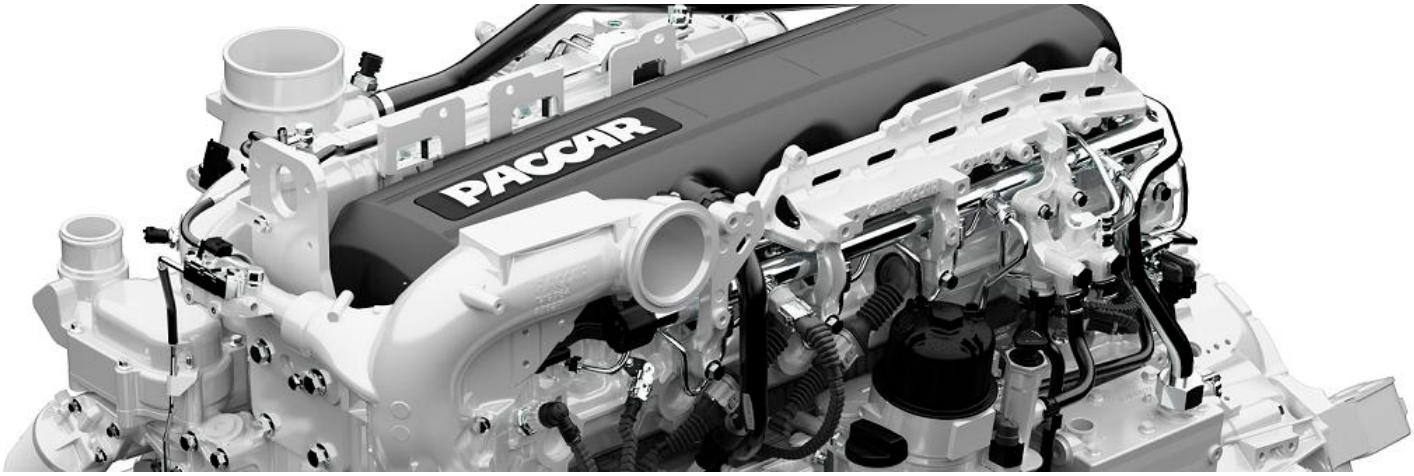
2013 PACCAR MX-13
Diagnostic Service Manual
EPA2013

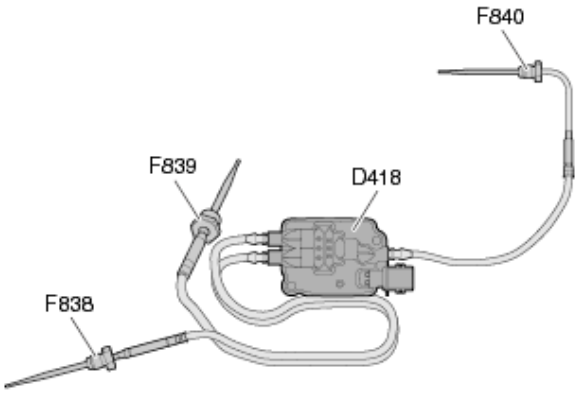
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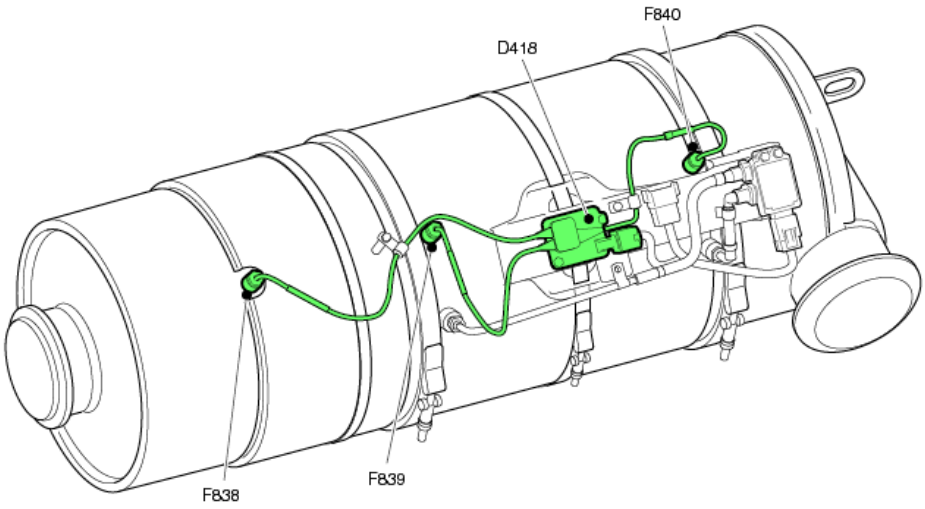
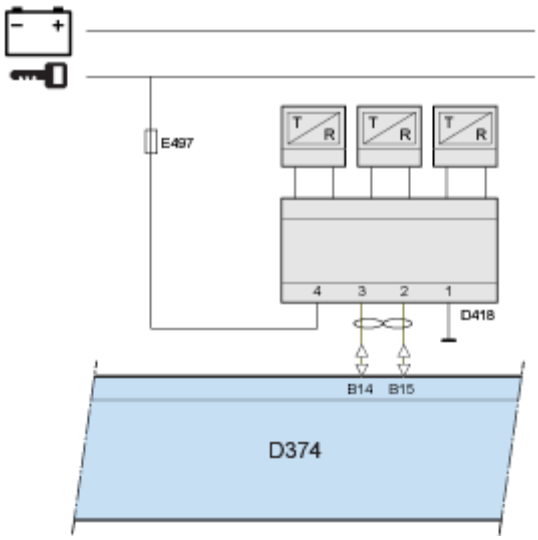


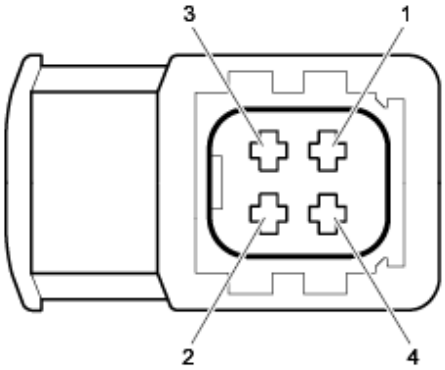
Index

P3874 P3875 P3876 P3877 P3878 P3879 P3880 P3881 P3882 P3883 P3884 P3885 P3886 P3887
P3888 P3889 P3890 P3891 P3892 P3893 P3894 P3895 P3898 P3899 P3900 P3901 P3902 P3903
P3904 P3905 P3906 P3907 P3908 P3909 P3910 P3911 P3912 P3913 P3914 P3915 P3916 P3917
P3918 P3921 P3922 P3923 P3924 P3927 P3928 P3929 P3938 P3942 P3943 P3944 P3945 P3946
P3947 P3948 P3949 P3950 P3951 P3952 P3953 P3954 P3955 P3956 P3957 P3958 P3959 P3960
P3961 P3962 P3963 P3964 P3965 P3966 P3967 P3968 P3969 P3970 P3971 P3972 P3973 P3975
P3976 P3977 P3978 P3979 P3980 P3982 P3983 P3984 P3985 P3986 P3987 P3988 P3989 P3990
P3991 P3992 P3993 P3994 P3995 P3996 P3997

P3874

Code number	P3874
Fault code description	CAN communication – Message timeout from DOC/DPF temperature sensors ECU
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418).  1 Exhaust gas temperature sensor before DOC (F838) 2 Exhaust gas temperature sensor before DPF (F839) 3 Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature • Calculates the amount of fuel that must be injected

	• Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) • Measure the exhaust gas temperature before the DPF Effect of the output signal on the system: • Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	This DTC is set when the CAN communication from the temperature sensors DPF/DOC ECU (D418) to the EAS-3 (D374) is interrupted.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU
D418 DOC-DPF temperature sensors ECU
E497 after treatment CAN fuse

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)
Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN
Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	± 60 Ω	

Possible causes

CAN wiring, see "General troubleshooting - CAN"

Additional information

No additional information available.

Diagnostic Step-by-Step

Please refer “General troubleshooting – CAN”

Verification Drive Cycle

To validate the repair, perform the same procedure outlined for the Steady State cycle:
To validate the repair, using DAVIE, select the following Monitor values to record:

	• Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.
	Back to Index

P3875

Code number	P3875
Fault code description	ECU EAS-3 - Data lost due to incorrect power down
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	This information not available in this document. Please refer to truck wiring diagrams
Location of component(s)	This information not available in this document. Please refer to truck wiring diagrams
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	The EAS-3 ECU (D374) lost power supply.
Reset condition of fault code	This information not available in this document. Please refer to truck wiring diagrams
Electrical diagram(s)	This information not available in this document. Please refer to truck wiring diagrams
Technical data	This information not available in this document. Please refer to truck wiring diagrams
Possible causes	Check the wiring harness.
Additional information	No Additional information available
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3875a	SRT
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		

Step 2	Step ID 3875b	SRT
Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits?		

<table>
<tr><td></td><td>
Yes - Proceed to step 3
No - Proceed to step 4
<table>
<tr><td>Step 3</td><td>Step ID 3875c</td><td>SRT</td></tr>
<tr><td colspan="3">Make the appropriate repairs or component replacements and use DAVIE to re-check for the presence of active faults.
Fault inactive – issue resolve
Fault active - Proceed to step 4</td></tr>
</table>
<table>
<tr><td>Step 4</td><td>Step ID 3875d</td><td>SRT</td></tr>
<tr><td colspan="3">General Troubleshooting – CAN
For fault codes associated with the controller area network (CAN), refer to the “General Troubleshooting – CAN” instructions in Engine Rapido – Service, linked under the diagnostic trouble code information for this or similar fault codes.</td></tr>
</table>
<table>
<tr><td>Step 5</td><td>Step ID 3875e</td><td>SRT</td></tr>
<tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr>
</table>
</td></tr>
<tr><td>Verification Drive Cycle</td><td>To validate the repair, with the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.</td></tr>
<tr><td></td><td>Back to Index</td></tr>
</table>

P3876

<table>
<tr><td>Code number</td><td>P3876</td></tr>
<tr><td>Fault code description</td><td>ECU EAS-3 - Hardware defect error, internal error 1</td></tr>
<tr><td>Fault code information</td><td>1 trip MIL
3 drive cycle recovery
Readiness group – None
Freeze frame type – Comprehensive</td></tr>
<tr><td>Description of component(s)</td><td>This information not available in this document. Please refer to truck wiring diagrams</td></tr>
<tr><td>Location of component(s)</td><td>This information not available in this document. Please refer to truck wiring diagrams</td></tr>
<tr><td>Diagnostic condition</td><td>This diagnostic runs continuously when the ignition is on.</td></tr>
<tr><td>Set condition of fault code</td><td>This DTC is triggered when the internal EAS-3 ECU (D374) diagnostics detect a read or write error internal to the module.</td></tr>
<tr><td>Reset condition of fault code</td><td>To validate the repair, start the engine and let it idle for 1 minute.</td></tr>
<tr><td>Electrical diagram(s)</td><td>This information not available in this document. Please refer to truck wiring diagrams</td></tr>
<tr><td>Technical data</td><td>This information not available in this document. Please refer to truck wiring diagrams</td></tr>
<tr><td>Possible causes</td><td>This DTC can only be caused by an internal EAS-3 ECU (D374) problem.</td></tr>
<tr><td>Additional information</td><td>• The EAS-3 ECU (D374) has internal diagnostics that continuously run and check the internal memory.
• The engine may not start.</td></tr>
<tr><td>Diagnostic Step-by-Step</td><td>Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.
• Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
• For specific electrical component information and pinout locations, always refer to the technical data.
• It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
• Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

<table>
<tr><td>Step 1</td><td>Step ID 3876a</td><td>SRT</td></tr>
<tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr>
</table>

<table>
<tr><td>Step 2</td><td>Step ID 3876b</td><td>SRT</td></tr>
<tr><td colspan="3">Electrical Checks
Ensure that the ignition key/switch has been set to OFF before disconnecting related cab wires.

Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits:
• Supply and signal voltages (12V).
• Cable continuity (no opens or shorts).</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
Are measured electrical values outside of expected range or limits?

Yes - Proceed to step 3
No - Proceed to step 4

<table>
<tr><td>Step 3</td><td>Step ID 3876c</td><td>SRT</td></tr>
<tr><td colspan="3">

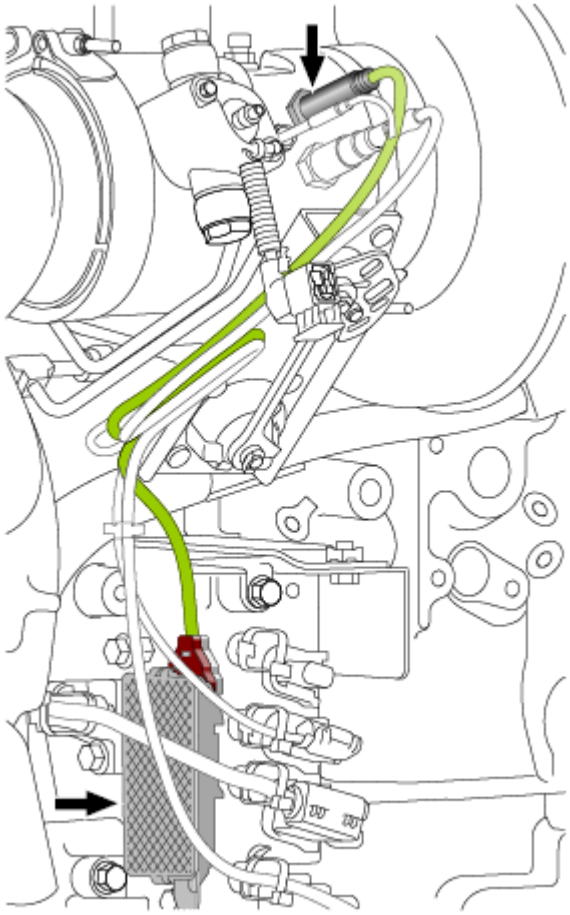
Make the appropriate repairs or component replacements and use DAVIE to re-check for the presence of active faults.
Fault inactive – issue resolve
Fault active - Proceed to step 4

</td></tr>
</table>
<table>
<tr><td>Step 4</td><td>Step ID 3876d</td><td>SRT</td></tr>
<tr><td colspan="3">
Replace: Engine Controller Unit (ECU)
Contact the PACCAR Engine Support Call Center to confirm replacement of the ECU.
Use DAVIE to re-check for the presence of active faults.

Fault inactive – issue resolve
Fault active - Proceed to step 5

</td></tr>
</table>
<table>
<tr><td>Step 5</td><td>Step ID 3876e</td><td>SRT</td></tr>
<tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr>
</table>
</td></tr>
<tr><td>Verification Drive Cycle</td><td>To validate the repair, with the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.</td></tr>
<tr><td></td><td>Back to Index</td></tr>
</table>

P3877

Code number	P3877
Fault code description	NOx sensor before catalyst - Persist, not valid
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – Exhaust gas sensors Freeze frame type – Comprehensive
Description of component(s)	 The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit. Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI


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