

**Mack Models**

Mack Model	CHU - Pinnacle, Axle back , CXU - Pinnacle, Axle front , GU - Granite , TD - Titan
-------------------	--

Emission Standard

Emission Standard	US14+OBD16
-------------------	------------

**** SOLUTION ****

Title	Mack Chassis - FSB 284 - 068, Exhaust Particulate Sensor, Repair (2016 Vehicles)
-------	--

Cause	Some trucks may experience a Particulate Matter (PM) Sensor fault that can result in the MIL lamp illuminating.
-------	---

Solution	For more information regarding FSB 284 - 068, Exhaust Particulate Sensor, Repair (2016) refer to Impact for the latest updated document.
----------	--

NA_Sister solutions	K90105554
---------------------	------------------

Solution visibility	Dealer distribution
---------------------	-------------------------------------

Function(s)/component(s) affected

Function affected	1 1 0 EMS , Diagnostic tool , FSB
-------------------	-----------------------------------

Function Group

Function Group	2846 Sensor
----------------	-------------

Customer effect

Main customer effect	soot , regeneration , efficiency/abnormal behavior , fault code/display
----------------------	---

Lights/Messages on information display	message on display , - - - - , - - / - -
--	--

Fault code(s)

OBID 2013 Diagnostic Trouble Codes	P24D1 , P24DA
------------------------------------	---------------

Conditions

Vehicle operating mode	when driving , when stationary
------------------------	--------------------------------

Administration

Author	A241298
--------	---------

Dealer ID	A241298
-----------	---------

Last modified by	A241298
------------------	---------

Creation date	07-12-2018 18:12
---------------	------------------

Date of last update	02-01-2019 20:01
---------------------	------------------

Status	Published
Average score	5
Number of scores	1

This Field Service Bulletin replaces FSB 284-068 dated 11.2018

Date	Group	No.	Release	Page
11.2018	284	068	02	1(6)

Exhaust Particulate Sensor, Repair
2016 Models
CXU, CHU, GU

FSB 284-068, Exhaust Particulate Sensor, Repair (2016 Vehicles)

(November 2018)

Some trucks may experience a Particulate Matter (PM) Sensor fault that can result in the MIL lamp illuminating. These faults may be P24DA, "PM Sensor Exhaust Sample Error," or P24D1, "PM Sensor Regen Incomplete." These faults may be caused by contamination of the PM sensor. In order to reduce the likelihood of sensor contamination, new exhaust pipe parts are being made available that contain an internal water management feature along with an integrated drain that will prevent contamination of the sensor. If either of these two faults occur, follow the instructions outlined in this bulletin to clean the exhaust pipes and install a new exhaust pipe with the new contamination prevention measures.

Required Parts – All Years

Inspect and replace the v-band clamp as needed

A new gasket will be needed when disconnecting the SCR exit.

Note: No gasket needed for vertical SCR.

Part Description	Part Number
SCR Gasket	21095726
V-band Clamp	21021850
Particulate Matter Sensor	22946032

Note: Customer adaptations can change required parts. Check for adaptations before ordering parts.

Parts List – 2016 Vehicles

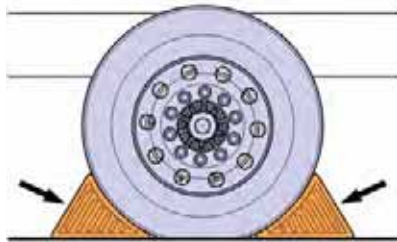
Model	Cab Type	Exhaust Configuration	Pipe 1 Part Number	Pipe 2 Part Number	Flex Pipe Part Number	Clamp Part Number (Qty will vary)
CX/CH/GU	Day Cab	Single Outlet Right Side Outboard	(Not Bright) 23154801 (Bright) 23154802	N/A	23154829	20961913
CX/CH/GU	Day Cab	Single Outlet Right Side Inboard	(Not Bright) 23154804 (Bright) 23154807	N/A	23154829	20961913
Titan	Day Cab	Dual Outlet	23154811	23207482	23154829	20961913
CX/CH/GU	Day Cab	Dual Outlet Outboard	(Not Bright) 23154813 (Bright) 23154814	(Not Bright) 23202241 (Bright) 23202243	23154829	20961913
CX/CH/GU	Day Cab	Dual Outlet Inboard	(Not Bright) 23154816 (Bright) 23154817	(Not Bright) 23202244 (Bright) 23202245	23154829	20961913

All	All Sleepers	N/A	(Not Bright) 23154798 (Bright) 23154799	(Not Bright) 23200550 (Bright) 23200551	23154829	20961913
GU Twin Steer Axle	Day Cab	SCR Horizontal Mid Mount	(Not Bright) 23181996 (Bright) 23181995	N/A	N/A	N/A
All	Day Cab	11.5 ft Exhaust Stack Right Side	(Not Bright) 23208695 (Bright) 23153180	N/A	23296273	23189982 (x2)
All	Day Cab	11.5 ft Exhaust Stack Left Side	(Not Bright) 23153179 (Bright) 23208696	N/A	23296273	23189982 (x2)
All	Day Cab	12.5 ft Exhaust Stack Right Side	(Not Bright) 23208700 (Bright) 23208701	N/A	23296273	23189982 (x2)

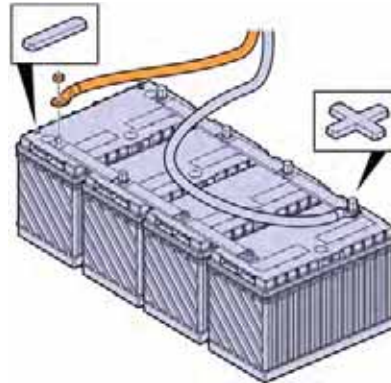
Model	Exhaust Configuration	Pipe Part Number	Steel Tube Part Number	Adapter Part Number
GU7	Forward mounted SCR with B-pillar mounted forward stack	23154819	23204515	21985642
GU7 GU8	Rearward mounted SCR with B-pillar mounted forward stack	23154821	23204515	21985642

Instructions

- 1 Decommission the vehicle. Install wheel chocks and disconnect the battery.



W7086748



W3086747

- 2 Remove the PM sensor and module.
- 3 Remove all exhaust pipes up to the SCR outlet pipe.
- 4 Pressure wash the inside of each pipe that will be reused. Wipe out the inside of the SCR outlet pipe
- 5 Reassemble the exhaust system using the new parts referenced in the table above.
- 6 Mark the SCR outlet pipe 1.5" from the end also mark the new pipe (not flex) 1.5" from its inlet.
- 7 Slip the flex pipe as far over the SCR outlet pipe as possible.
- 8 Install the new exhaust pipe.
- 9 Using a new clamp assemble the new exhaust pipe to the new flex pipe using the 1.5" mark to get the correct amount of overlap.
- 10 Slide the assembly into place using the 1.5" mark on the SCR outlet as a reference point and to ensure the correct amount of overlap, once in both pipes are in place use clamps to secure.

Note: Correct installation is achieved when the flex pipe is in a "relaxed" state, there should be no compression or expansion visible on opposing sides of the pipe after installed.

- 11 Install the new PM sensor and module.

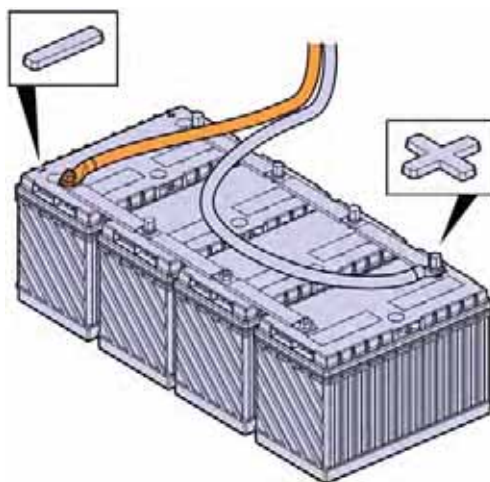
Note: Do not use any lubricant of any kind on the PM sensor threads.

Note: Align the tab on the sensor with the slot.

- 12 Torque the sensor to 35 +/- 5 Nm (26 +/- 4 Ft lb)
- 13 Install the sensor module.
- 14 Torque the nuts to
M6: 10 +/- 5 Nm (88 +/- 3 in lb)
M8: 24 +/- 4 Nm (17.1 +/- 3 ft lb)
- 15 Install the wire ties and clamps.

Note: Use high temperature cable ties.

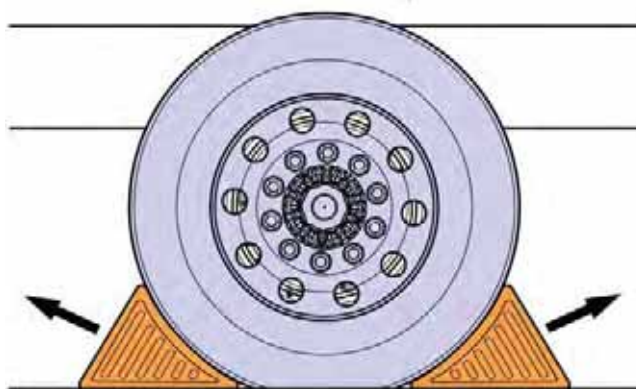
16 Connect the battery.



W3086758

17 Clear any DTC codes.

18 Remove the wheel chocks.



W7086759

Reimbursement

This repair may be eligible for reimbursement if a product failure was experienced within time and mileage limits of the applicable Warranty coverage. Reimbursement is obtained via the normal claim handling process.	UCHP Reimbursement
Claim Type (used only when uploading from the Dealer Bus. Sys.)	W
Labor Code	
Primary Labor Code (Exhaust Particulate Sensor, Repair)	2846-16-09-01 See table for times.
Causal Part	22946032

Labor Times Reference – 2016 Vehicles

Model	Cab Type	Exhaust Configuration	Pipe 1 Part Number
CX/CH/GU	Day Cab	Single Outlet Right Side Outboard	2.1 hr
CX/CH/GU	Day Cab	Single Outlet Right Side Inboard	2.1 hr
CX/CH/GU/Titan	Day Cab	Dual Outlet	2.8 hr
CX/CH/GU	Day Cab	Dual Outlet Inboard	2.8 hr
All	All Sleepers	N/A	3.5 hr
GU Twin Steer Axle	Day Cab	SCR Horizontal Mid Mount	1.7 hr
All	Day Cab	11.5 ft Exhaust Stack Left & Right Side	0.9 hr
All	Day Cab	12.5 ft Exhaust Stack Right Side	0.9 hr
GU		Forward mounted SCR with B-pillar mounted forward stack	1.9 hr
GU		Rearward mounted SCR with B-pillar mounted forward stack	1.8 hr