

Cummins ECM Water Intrusion Issue @ Jamestown Engine Plant (JEP)

05/23/2016





Problem Statement

- In certain ISX15 engines that are installed in [REDACTED] trucks, the ECM may develop a short circuit possibly resulting in an engine stall without warning (and without the ability to restart).





Initial Awareness

- Email from Cummins on 5/23/2016 advising [REDACTED] of issue and 573 defect report to NHTSA.
- NHTSA Recall Number is 16E047



Population

- Engine Build Wash Date Range: 3/7/16 through 4/12/16
- 137 [REDACTED] Trucks
- Location: [REDACTED]

[REDACTED]



Root Cause (5 Why)

Root Cause Analysis 3 Legged 5 Why (3L5W)

Date : 5/13/2016

Problem definition

Failed ECM resulting in burned 30 amp fuse

By : [Redacted]

		¿ Why did it happen ?	Corrective Action	Responsible	Date
Specific Problem	1.- WHY ?	Blown 30 amp Fuse caused the ECM to short and fail	[Redacted]	[Redacted]	4/12/2016
	2.- WHY ?	Water ingress via engine wash process through the connector ports resulting in corrosion			
	3.- WHY ?	[Redacted]			
	4.- WHY ?	[Redacted]			
	5.- WHY ?	[Redacted]			

		¿Why was it not detected ?	Corrective Action	Responsible	Date
Inspection	1.- WHY ?	[Redacted]	[Redacted]	[Redacted]	4/12/2016
	2.- WHY ?	[Redacted]			
	3.- WHY ?	[Redacted]			
	4.- WHY ?	[Redacted]			
	5.- WHY ?	[Redacted]			

[Redacted]



Root Cause (5 Why Continued)

		¿Why did the system let it happen ?	Corrective Action	Responsible	Date
System	1.- WHY ?	[REDACTED]	[REDACTED]	[REDACTED]	5/20/2016
	2.- WHY ?				
	3.- WHY ?				
	4.- WHY ?				
	5.- WHY ?				

[REDACTED]

Containment

- Replaced masking covers with verified/certified covers, the covers were vacuum tested to ensure proper sealing
- An additional cover was added prior to engine wash, as shown in picture

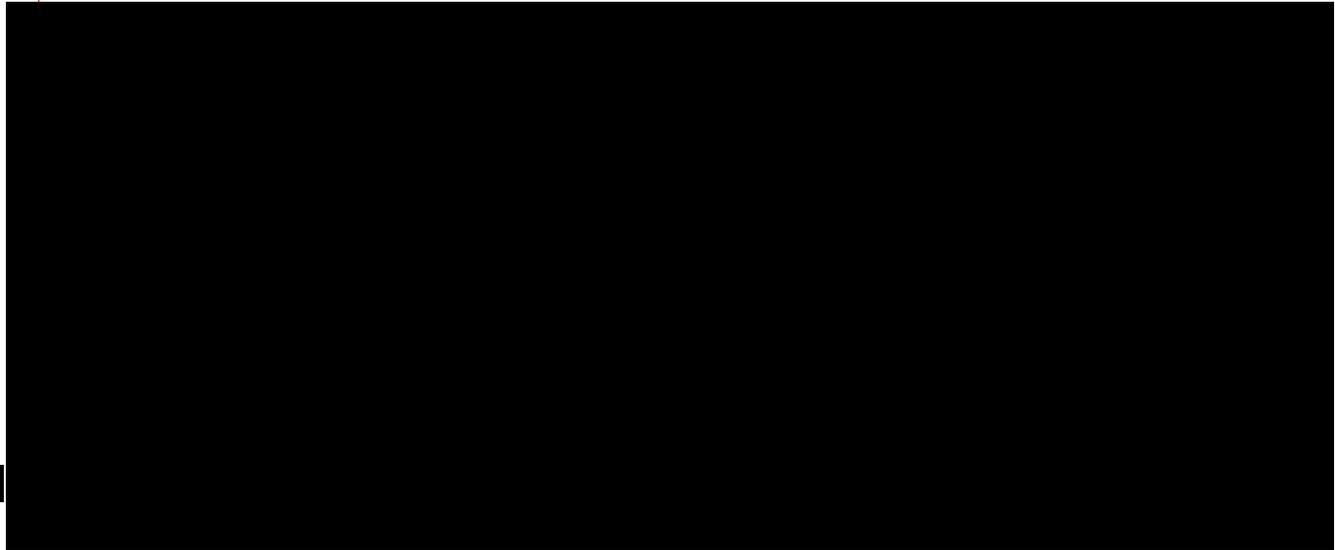




Containment Cont'd

- This flow shown below is the revised PM process flow for leak testing masking caps. It shows the method JEP uses to ensure all caps are leak checked, including the visual indicator post-check

ECM Masking Preventative Maintenance Process





Recommended Field Change

- Cummins will be managing the campaign and sending campaign letters to customers
- Repair direction will be to replace the suspect ECM on affected units





Permanent Corrective Action

- The containment actions will become the permanent corrective action. However, JEP will continue to look for improvement opportunities.





OEM Assistance

- Confirm receipt of documents provided by Cummins regarding safety field action
- Support Cummins with NHTSA 16E047 campaign and provide quarterly completion percentages to NHTSA

