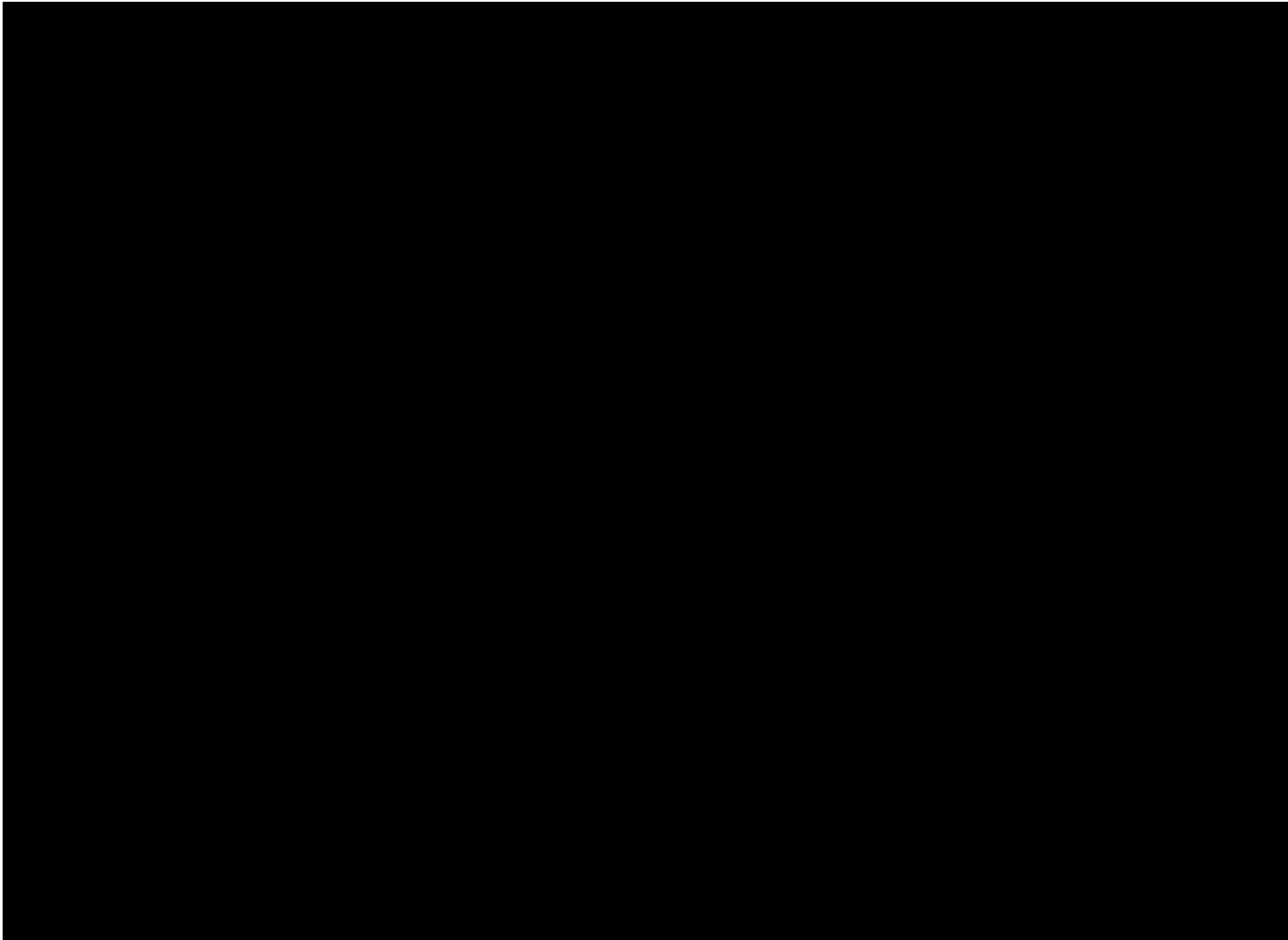




From: Lewark, Chris
Sent: Thursday, January 14, 2021 2:22 PM
To: blake.yazel <blake.yazel@lonestarsv.com>
Subject: REMA charger inlet cable update

Blake -

As discussed earlier this week over the phone, please find attached the TSB concerning the Rema inlet issue which affects all kits & vehicles that Dana has provided to you up to now. Until we can provide replacement parts, please refrain from charging or connecting to any charging infrastructure all vehicles that use Dana provided BEV components.

Thanks,

Chris Lewark
Program Management
Commercial Vehicle
Dana Incorporated
3939 Technology Dr. | Maumee, Ohio | 43537
Office: 419.887.3478

Mobile: 260.341.8561
chris.lewark@dana.com
www.dana.com

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TSB – Rema Charge Inlet Quality Issue

January 14th, 2020

People Finding A Better Way[®]



TSB – Rema Charge Inlet Quality Issue

Description of issue (1/2)

A manufacturing quality issue was identified with the Rema AC/DC Charge Inlet (P/N 9602094 (1741-002-01)). The supplier identified a manufacturing issue by which improper tooling and inadequate inspection of their assembly may lead to exposed and cut HV wiring jacket and conductors within the charge inlet assembly; and, inadequate adhesion of a piece of shrink tubing may expose a portion of the shield.

During manufacturing by Rema, two layers (1+2) of the cable are removed near the charge inlet and covered in shrink tube. Due to the tooling used, there is a high-risk of cutting through the inner layers (3+4).

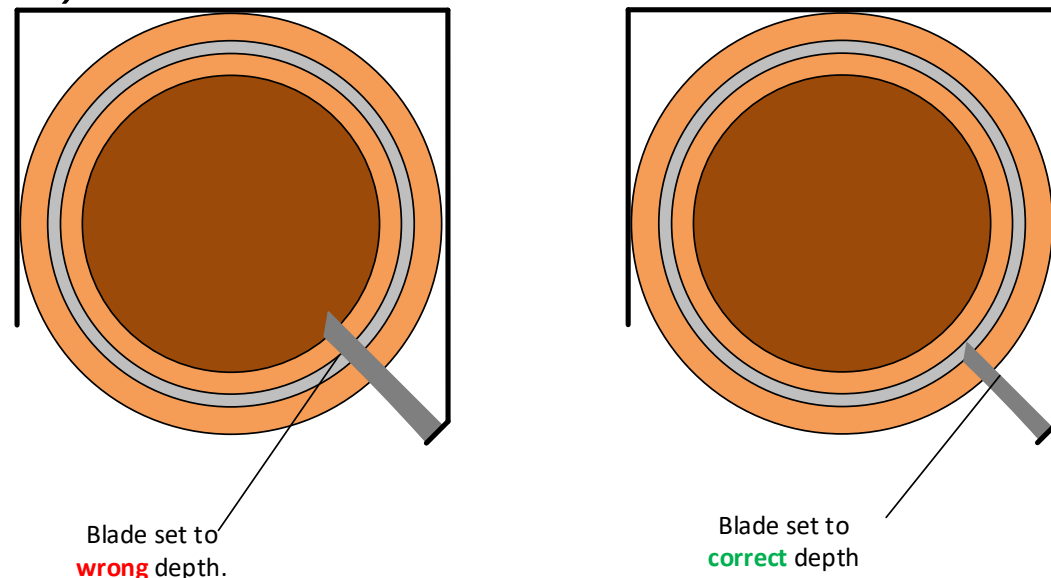


Fig 2 – Cros sectional view of wire + cutting tool

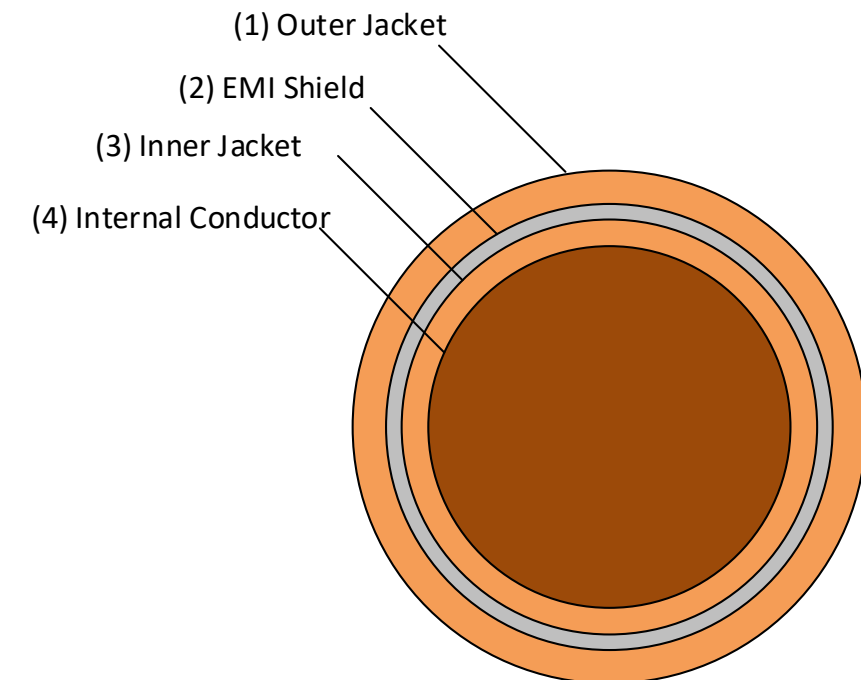


Fig 1 – Cross Sectional view of shielded cable

TSB – Rema Charge Inlet Quality Issue

Description of issue (2/2)

The issue was discovered due to shrink tubing that was not adhering to the cable assembly.

Cut inner jacket without exposed conductor

Shrink tubing not adhering to cable

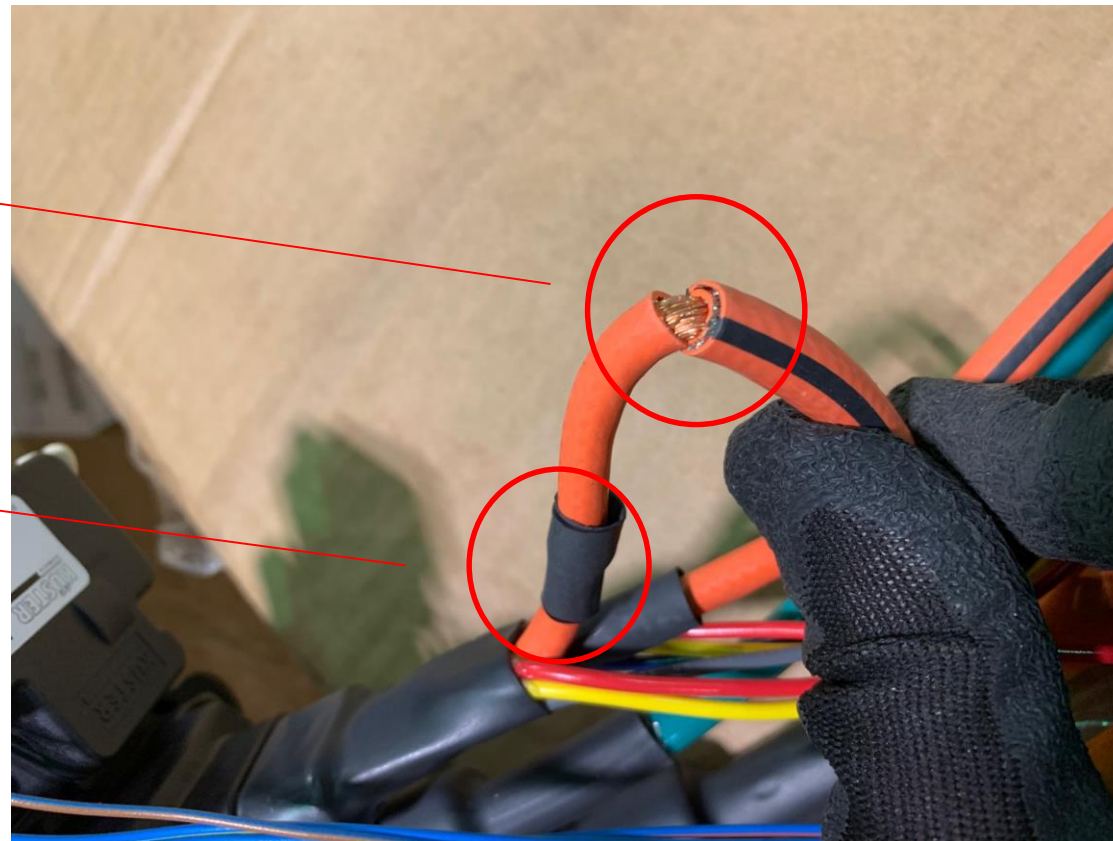


Fig 3 – Inner conductor + Inner Jacket cut

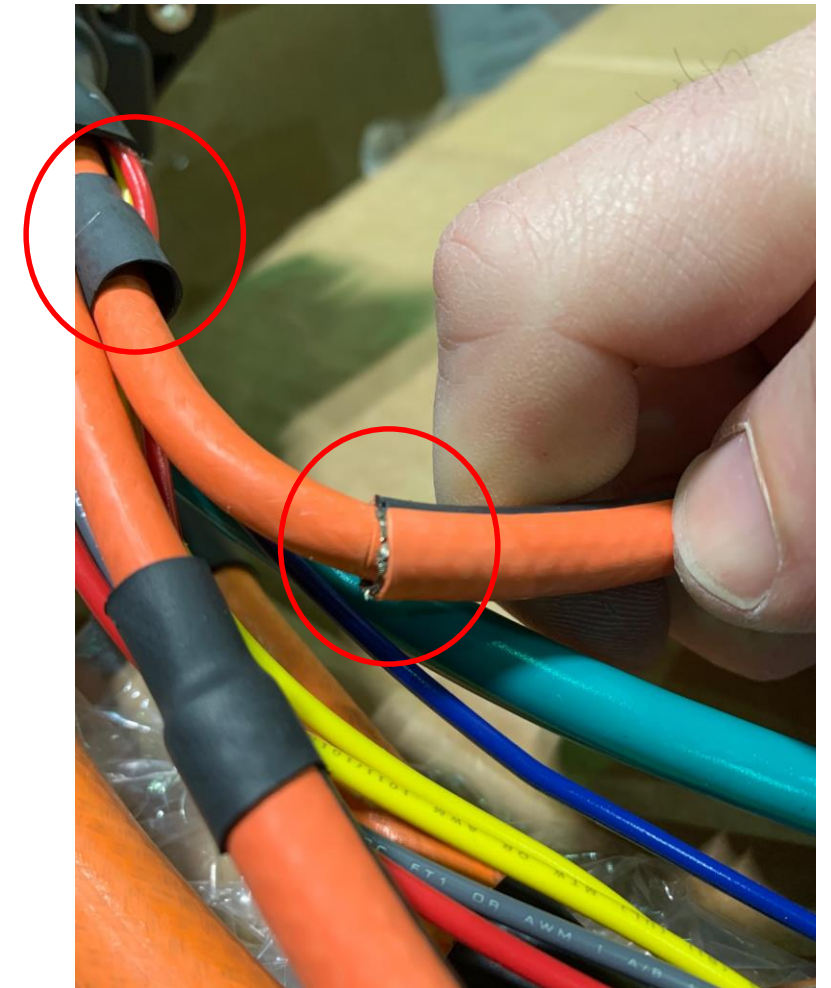


Fig 4 – Inner Jacket cut, conductor not exposed

TSB – Rema Charge Inlet Quality Issue

Impact on Vehicle Operation

As this issue can affect both the AC and DC wiring, the following impacts have been determined :

- (1) Risk of contact between the AC or DC high-voltage and the shield, which may cause a loss of isolation on the vehicle and/or energize the chassis
- (2) Risk of reduced cross-sectional area of the internal conductor, which may result in overloading and heat build-up in the conductor during AC or DC charging.
- (3) Risk of environmental contaminants entering conductor and causing corrosion inside the wire assembly, inhibiting charge function or increase wire internal resistance.



Although the issue may be present at all times, **electrical hazard are only present during AC and/or DC charging.** In all other operating conditions, the affected cables and wires are de-energized.

TSB – Rema Charge Inlet Quality Issue

Require Action from Customer

Until proven otherwise, please presume at this moment that components, kits and vehicles provided to LSV may be affected by this issue.



Due to the nature of the issue, please **refrain from charging**, or **connecting to any charging infrastructure**, both AC and DC, the BEV vehicles identified below, until inspected by Dana personnel.

LSV '**Eleanor**' vehicle

LSV '**NACV**' vehicle

LSV '**FMVSS**' vehicle (Kit 1)

LSV '**HEB**' vehicles (Kits 2-4)

All vehicles and parts, assembled or not, from all Dana provided kits to LSV (**Kits 1-11**)

Dana will inspect the vehicles and provide replacement parts when due.

From: Ziehm, Dan <dan.ziehm@dana.com>
Sent: Friday, January 15, 2021 7:29 AM
To: Bob Kern; Wayne Wilson; Crystal Childress
Subject: TSB for Rema Inlet Issue
Attachments: TSB_REMA_Inlet_issue_PACCAR_14_01_2020.pdf

Importance: High

Paccar team,

As discussed during our conference call on 1/13/21, please find attached the TSB concerning the Rema inlet issue which affects all kits & vehicles that Dana has provided to you up to now. Until we can provide replacement parts, please refrain from charging or connecting to any charging infrastructure all vehicles that use Dana provided BEV components.

Regards,

Dan Ziehm
Sr. Program Manager, Electrification
Commercial Vehicle Drive & Motion Systems
Cell (419) 265-7014



TSB – Rema Charge Inlet Quality Issue

January 12th, 2020

People Finding A Better Way[®]



TSB – Rema Charge Inlet Quality Issue



Description of issue (1/2)

A manufacturing quality issue was identified with the Rema AC/DC Charge Inlet (P/N 9602062 (1741-008-00)). The supplier identified a manufacturing issue by which improper tooling and inadequate inspection of their assembly may lead to exposed and cut HV wiring jacket and conductors within the charge inlet assembly; and, inadequate adhesion of a piece of shrink tubing may expose a portion of the shield.

During manufacturing by Rema, two layers (1+2) of the cable are removed near the charge inlet and covered in shrink tube. Due to the tooling used, there is a high-risk of cutting through the inner layers of the cable, exposing the conductor (3+4).

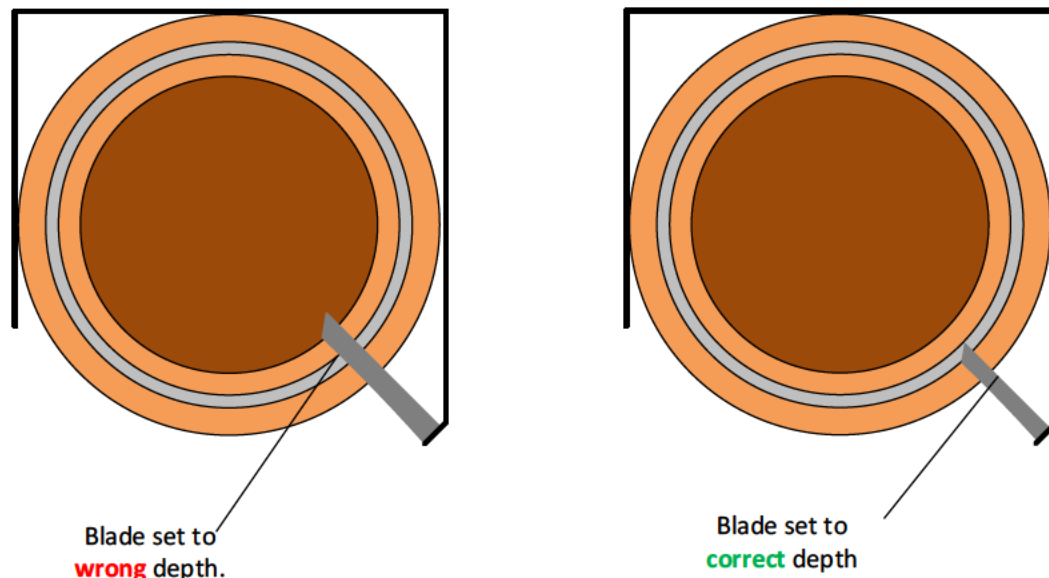


Fig 2 – Cross sectional view of wire + cutting tool

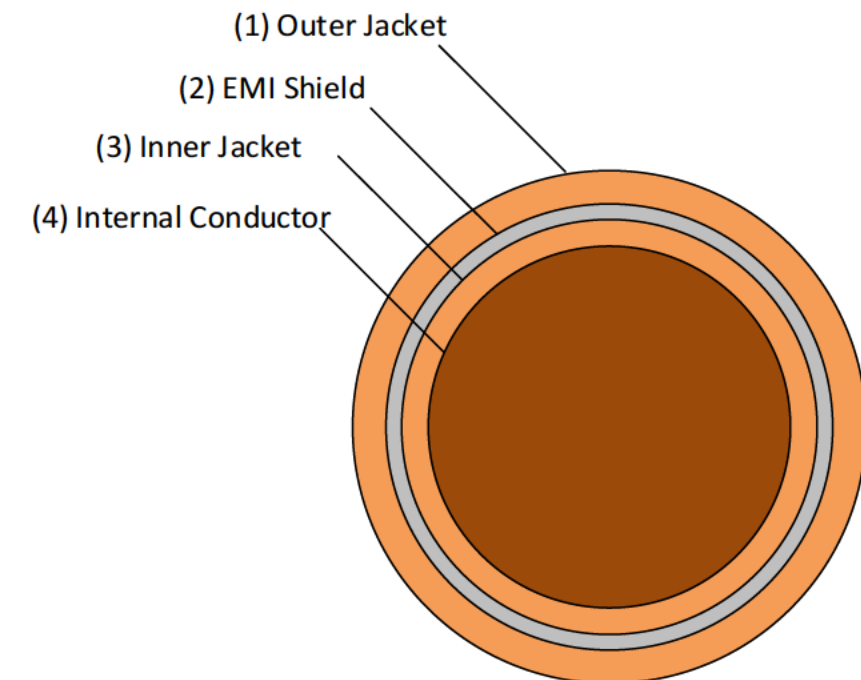


Fig 1 – Cross Sectional view of shielded cable

TSB – Rema Charge Inlet Quality Issue



Description of issue (2/2)

Dana inspected the stock on hand in its facility.

Cut inner jacket without exposed conductor

Shrink tubing not adhering to cable

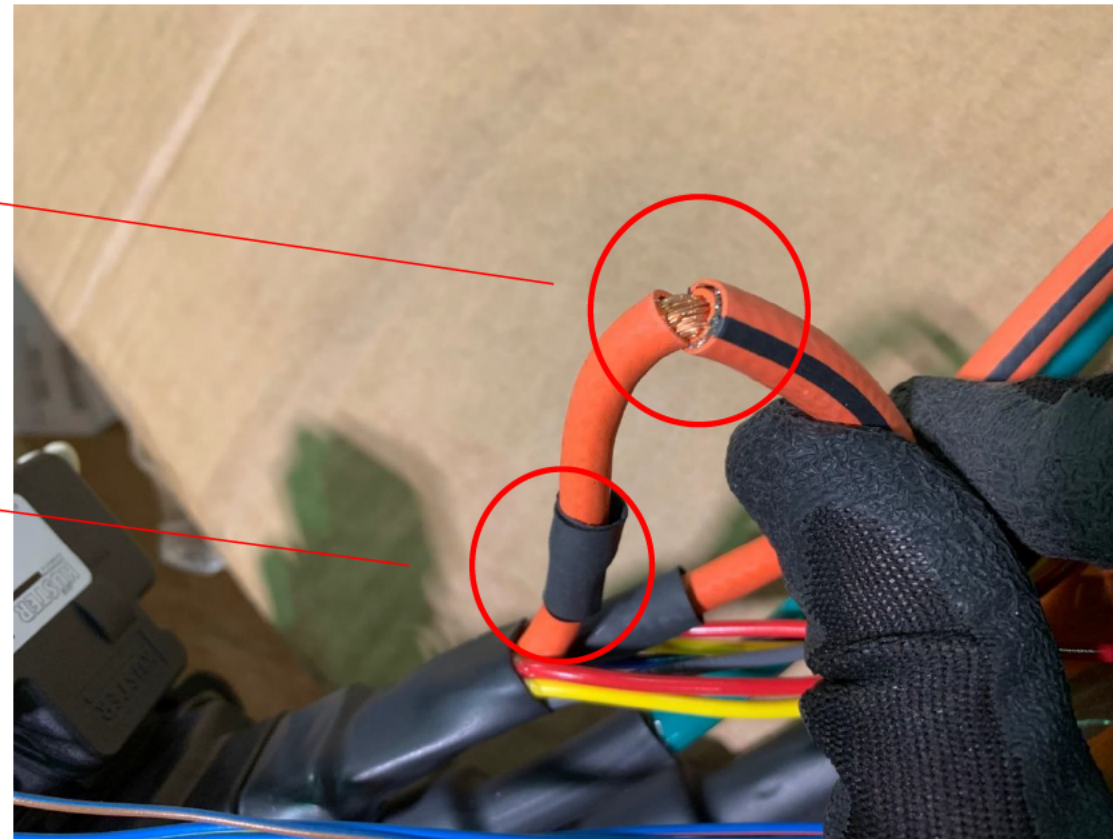


Fig 3 – Inner conductor + Inner Jacket cut

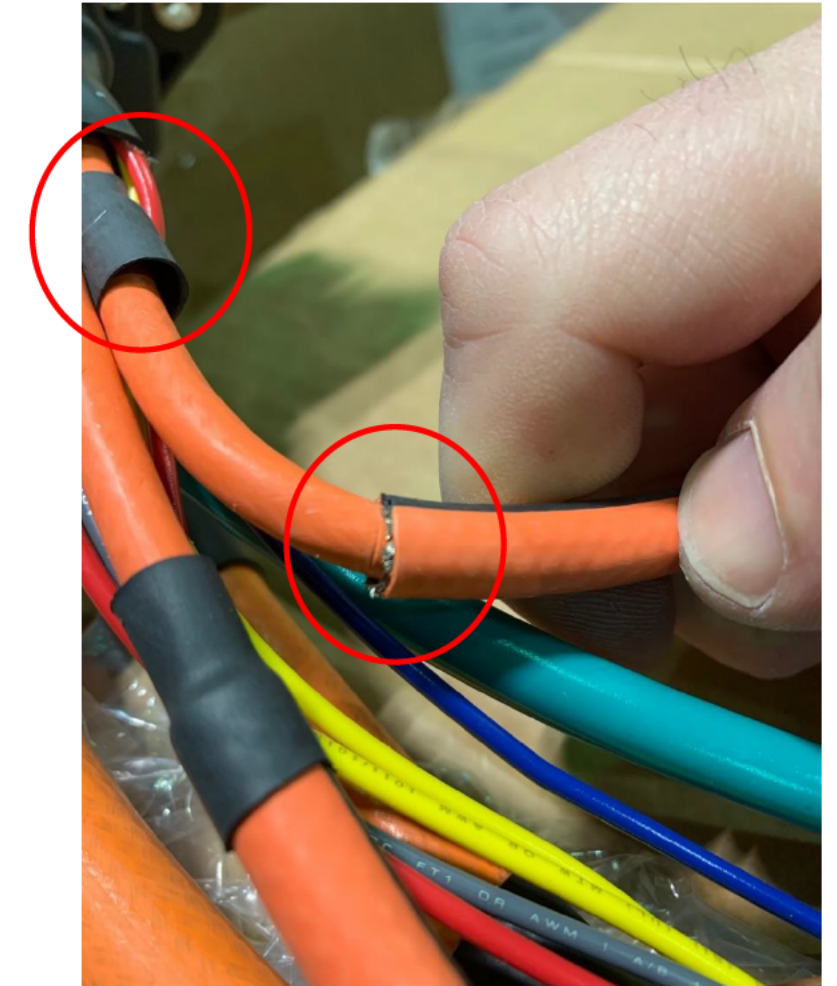


Fig 4 – Inner Jacket cut, conductor not exposed

TSB – Rema Charge Inlet Quality Issue

Impact on Vehicle Operation

As this issue can affect both the AC and DC wiring, the following impacts have been determined :

- (1) Risk of contact between the AC or DC high-voltage and the shield, which may cause a loss of isolation on the vehicle and/or energize the chassis.
- (2) Risk of reduced cross-sectional area of the internal conductor, which may result in overloading and heat build-up in the conductor during AC or DC charging.
- (3) Risk of environmental contaminants entering conductor and causing corrosion inside the wire assembly, inhibiting charge function or increase wire internal resistance.



Although the issue may be present at all time, **electrical hazards are only present during AC and/or DC charging.** In all other operating conditions, the affected cables and wires are de-energized and present no imminent risk.

TSB – Rema Charge Inlet Quality Issue

Require Action from Customer

Until proven otherwise, please presume at this moment that components, kits and vehicles provided to PACCAR may be affected by this issue.



Due to the nature of the issue, please **refrain from charging**, or **connecting to any charging infrastructure**, both AC and DC, the BEV vehicles identified below, until inspected by Dana personnel.

Kenworth 270e, VIN : **3BKJHG6X8LF582371**

Peterbilt 220 **EV1** 'Wabco', VIN : **xx593230**

Peterbilt 220 **EV2.1**, VIN : **xx593734**

Dana will inspect the vehicles and provide replacement parts when due.

NOTES :

- Follow Nordresa Harness Standard 8031-001-00

REF SCHEMATIC : 1830-001-00_REVW

PRELIMINARY

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P102 Number 1775-066-01 Revision 1 Date 2020-12-21
Type B1 Sub NA Section REF

Drawing By: nordresa Date: 2020-12-21
Validated By: nordresa Date: 2020-12-21
Approved By: nordresa Date: 2020-12-21

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