Technical Service Note

SUBJECT: Cab Leaks and Water Intrusion into SAM Modules

PRODUCTS: Freightliner Cascadia

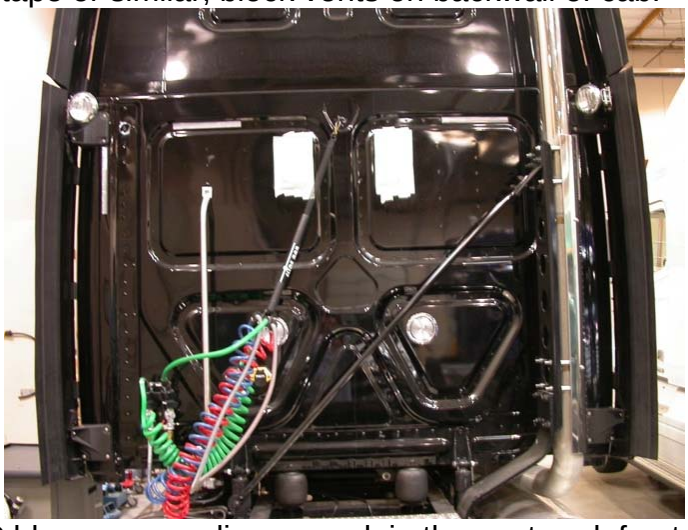
GROUP: 60

PROBLEM / SYMPTOMS: Water can leak from the windshield, the roof-cap seam, or the front wall into the interior. Water entering the cab has the potential of reaching an unsealed portion of the SAM Chassis module. As long as the fuse panel cover is in place, the only path for moisture to enter the SAM Chassis is through the interior connectors. Once water has entered the SAM, it can cause various electrical malfunctions and, in some cases, more severe consequences.

PRODUCTION ACTION: Beginning September 19th, Cascadia cabs received an external bead of sealant, followed by top-coat paint, around the entire roof cap seam. The manufacturing plant will continue this redundant sealing process until the primary sealing/bonding process becomes more consistent and reliable. A number of design changes to the SAM Chassis are also being considered, in effort to improve resistance to water ingress.

FIELD ACTION: If cab leaks are suspected, inspect cab for leaks and seal as necessary. Inspect Chassis SAM for corrosion on lower outside connector pins, remove insulation around interior connectors, and drill drain hole in housing.

1. If a vehicle has evidence of a cab water leak, test cab to identify leak location. Note: The following method is very sensitive and will likely identify air leaks that would not result in water leaks - it should only be used to confirm WHERE a suspected water leak is coming from and not IF there is a water leak.
    a. Using duct tape or similar, block vents on backwall of cab.



    b. Turn HVAC blower on medium speed, in the vent or defrost mode; make sure the HVAC is not in recirc.

c. Ensure all doors are shut firmly.
d. Use soapy water to check for air leaks at windshield seal, the roof-cap seam, and at the front-wall, directly above the SAM Chassis.

2. If the windshield leaks, refer to Section 60.02 of the Cascadia Workshop Manual for the repair procedure.
3. If leaks are present on the front wall, directly above the SAM Chassis, seal bulkhead connectors and other components with silicone sealant, as necessary.
4. If the roof-cap seam leaks, apply a continuous bead of silicone or polyurethane sealant to the perimeter of the roof-cap to cab-wall seam.
    a. Clean the seam area with air from a shop air hose and dry it with a clean shop rag.
    b. Apply masking tape to the edges of the roof to cab seam.

c. Using a caulking gun, apply a bead of silicone sealant, part number 48-00094-501 (or equivalent), to the seam. Fill in the seam completely.

d. Smooth the silicone by running a wetted finger or a tongue-depressor over the bead.

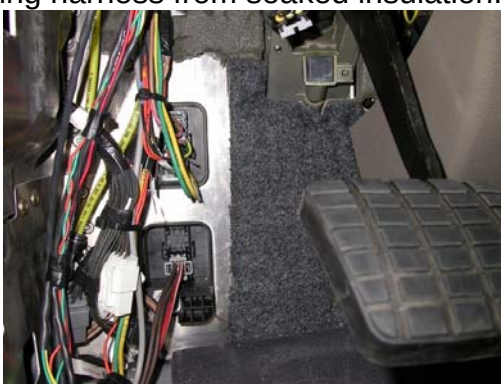
5. Once tack-free, polyurethane sealant can be painted, if desired. Silicone cannot be painted.
6. Check SAM Chassis for water intrusion.
   a. Remove both lower, outside connectors and check for corrosion on pins.

   b. If severe corrosion is evident on these pins, the SAM has been damaged by water. Replace the module.

7. If the SAM Chassis has not been damaged by water intrusion, conduct the following steps to reduce the opportunity for water to enter the module.
    a. Remove the driver's side lower A-pillar cover to gain access to the SAM Chassis connectors on the inside of the cab.

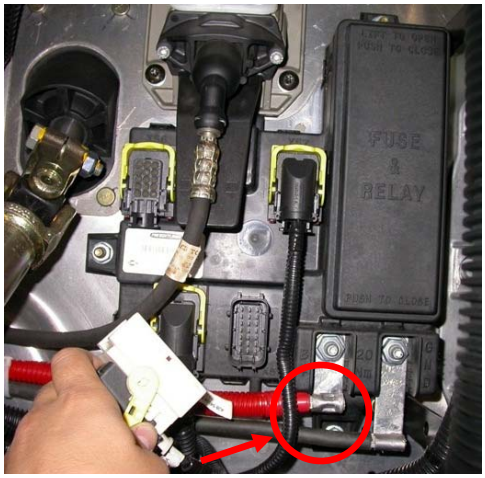
    b. Using a utility knife or other suitable cutting tool, remove the insulation surrounding the inside SAM Chassis connectors. This reduces the potential of water wicking up the wiring harness from soaked insulation.

Before



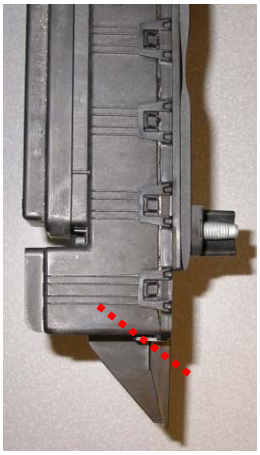
After

    c. Unplug the inside connections to allow removal of the SAM Chassis.
    d. Remove the SAM Chassis from the front wall of the vehicle. Using a 6mm drill bit, drill a small drain hole through the backside of the lower mounting tab at an upward angle so it allows water to exit the module. 1 to 1½ inches of drill penetration is required; be careful to avoid drilling out the front side of the module. Note: This area of the SAM contains no circuitry. This drain hole will prevent water from puddling inside the SAM and will reduce the chance of catastrophic damage to the circuitry.



Drill from back-side of this mounting tab

Drill location



Drill angle

e. Reinstall the SAM Chassis and plug-in all removed wiring harness connectors.
f. Reinstall the lower A-pillar cover.

PARTS AVAILABILITY: Clear silicone sealant, part number 48-00094-501, is recommended and is available through the PDCs. Any clear 100% silicone caulk will work, and should be available from a variety of sources. Sikaflex -221, Sikaflex -227, or Sikaflex -252 are polyurethane adhesive sealants that can also be used. The Sikaflex products are available in black, white, gray, and other colors and can be painted; silicone cannot.

Note: If a Sikaflex product is used in lieu of silicone, the cured seal will be much stronger and harder, making future body repairs more difficult. Sikaflex is also more difficult to clean-up, less UV resistant (if not painted), and is more likely to damage paint. Silicone is a more appropriate product for this application.

WARRANTY: Normal warranty applies if silicone sealant is used. If Sikaflex and topcoat paint are used, the additional labor and material cost will not be covered.

FSPR: 14577, 15788

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