



# Springs Radiator Services (Pty) Ltd

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## FREIGHTLINER RADIATOR FAILURES

Because of an inordinate number of failures on Freightliner radiators, an extensive investigation was started. Three major areas of concern were found.

### 1. ELECTROLYSIS

Freightliners are prone to electrolysis, because they do not earth the truck to the same degree that other truck manufacturers do. In tubes that were cut open the electrolysis corrosion pitting marks are clearly visible. In correspondence that we managed to get hold of, certain improvements are recommended to address this problem.

- Additional earth cable equal in gauge to the battery (+) cable must be attached to the starter (-) terminal. This will form the common earth connection.
- From the cab electrical earth point an insulated 12 gauge electrical wire must be taken to the common point at the starter (-) terminal.
- All existing earthing connections must be removed and cleaned to bright metal condition. When reinstalling the earth connections aluminium wiring conductive grease must be applied to contact points. Earth connections must also be sprayed with an electrical insulating spray to keep out dirt and water.
- Whenever a battery is replaced and (+) cable connectors are cleaned, all earth connections must be cleaned as per the above instructions.
- **Do not fix an earth strap to the radiator. This will force a stray current through the radiator and aggravate the problem.**
- The front frame aluminium plate is used for earthing of lighting and other electrical attachments. The aluminium plate must be sanded clean to remove any aluminium oxide and then connections must be covered with aluminium wire grease and sprayed with electrical insulating spray. An earth wire must be attached from the frame to the cab earthing connection on the left front chassis frame rail, using aluminium wire grease and insulating spray.
- The above should form part of the regular maintenance schedule of vehicles.



## 2. CRACKING OF HEADERS

The Freightliner radiator fits into a frame. To ensure a tight fit and reduce vibration damage damper pads must be used. When re-fitting the frame to a radiator, make sure that the damper pads are still in a good condition. If they are compressed they must be replaced. Test the fitness of the damper pads after assembly.

Replace the bolts and pins in the correct places where they were taken from - bolts where bolts were used in the original assembly and pins where pins were used originally.

## 3. EROSION

The aluminium Freightliner radiators from USA use a dimpled tube to improve water turbulence. Because these dimples stand proud on the inside of the tube, they are very susceptible to erosion if the cooling system is dirty. Dirt swirling down the tubes scours the raised dimples away till a leak has sprung.

Aluminium oxide, the end product of corrosion/electrolysis is an abrasive used for making sanding paper. If there is Aluminium oxide in the system this will aggravate the erosion of the dimples in the tubes.

