



Repair Standards

02-009 – Reefer Roof Sections

Disclaimer:

Only a certified and experienced person using suitable tools should complete the repairs described below. Repairs should meet or exceed manufacturer's minimum specifications and should be in agreement with all safety and ecological regulations.

Permissible upon return and does not require repair:

- Acceptable repairs.

Requires repair upon return:

- Unacceptable repairs
- Holes/breaks/extreme damage to the roof.

Safety Measures:

- Take appropriate safety precautions when working with fiberglass, polyester, epoxy or acetone.
 - Eyes should be covered with goggles.
 - Face should be protected by an OSHA approved respirator mask.
 - Hands should be protected by gloves.
- Take appropriate safety precautions when working with resins and solvents.
 - Read caution labels on each product used, in every use.
 - Never smoke or use tools that create sparks while making repairs to interior liners.
- Be sure that there is enough air circulation while working inside the trailer, without proper ventilation fumes could build up and cause harm.

Note:

- The interior ceiling liner should never be taken out, only the aluminum roof skin.
- An excess amount of epoxy resin should be added in between the aluminum roof skin and the insulation.
- Trailer must be on a flat surface and perfectly level before any repairs can be made. You can verify that the trailer is level by measuring the distance from the bottom rail to the ground on the front, middle and rear (on both sides) of the trailer.
 - **If the trailer is not level when the repairs are made, this may cause issues, such as a loose roof, when the trailer is loaded and sitting on a level area.**



Procedure:

1. Remove all rivets and fastener strips that are around the entirety of the roof.
 - 1) It is unnecessary to remove the "j" strips, they can be folded.
2. Cut and peel back the damaged area of the roof sheet to be sectioned.
 - 1) If a front roof section is being done, be sure to begin your cut three inches before the roof bow that is closest to the damage.
 - 2) If a rear roof section is being done, be sure to begin your cut on the front side of the roof bow closest to the damage.
 - i. When doing a rear section, be sure that the rear frame is square.
3. Take away roughly 16" of rivets around the original roof sheet then peel that area away.
 - 1) **Be sure not to cause any more damage to the roof sheet or cut, in any way.**
4. Beginning from the top rail flange, roll out the aluminum roof sheet.
5. Center and place the roofing material on the trailer.
 - 1) If a front section is being done, be sure that it overlaps the outside of the original sheet by two inches.
 - 2) If a rear section is being done, be sure that it is placed underneath the original sheet by two inches.
 - 3) Create a water tight seam by placing foam tape between the section and the original roof sheet.
6. Verify that the roof sheet is square and all holes in the insulation have been filled with a Polyurethane foam.
7. Apply adhesive to the sectioned area and rivet it together.
8. Rivet the seam:
 - 1) Apply two chalk lines to the top of the roof sheet, one chalk line should be ½" from the edge and the other 1-1/2" from the edge.
 - 2) Make sure that the post flange and first chalk line are matched up. Then, going the whole way across the seam, drill holes on two-inch centers.
 - i. The use of a side post is recommended to align the rivet pattern.
 - ii. Holes that are drilled should be inside the cargo area and **NOT** drilled through the rail flange.
 - iii. Using 3/16" x 3/8" soft bucking rivets, take away the post and rivet the seam.
 - 3) Make sure that the post flange and second chalk line are matched up.
 - i. Alter the holes by one-inch to stagger the first row from the rivets. Rivets are to be on one-inch centers in the middle of the two rows.
 - ii. Holes that are drilled should be inside the cargo area and **NOT** drilled through the rail flange.
 - iii. On two-inch centers, the pattern should be followed across the entirety of the seam.
 - iv. Repeat step iii, but take away the pattern before doing so.



9. *Before replacing the roof sheet, add an extensive amount of adhesive to the insulation and the roof bows to be sure that it is held into place.
10. Replace the roof sheet and tighten it with a chain jack.
11. In order to keep the roof right, begin riveting at the front corners, about 10" to the corner of the front and side rails.
12. Starting with only one side, rivet the replacement roof over each roof bow
 - 1) Repeat the same process on the other side.
13. Once riveting is completed over each roof bow, go back and put in all remaining rivets.
14. With rivets in place, take away tension from the chain jack (installed in step 4) and begin cutting/riveting the end from the middle and going out.
 - 1) As necessary, cut and curl the roof sheet under the top rail.
15. Apply load jacks to the roof bows in order for the adhesive to dry completely.
16. Make sure that the new roof sheet is water-tight and sealed by adding sealant to the seams on the top and at the ends, as necessary.