



RP 732

VMRS 077

## TRAILER REAR IMPACT GUARD REPAIR GUIDELINES

### PREFACE

The following Recommended Practice is subject to the Disclaimer at the front of TMC's Recommended Maintenance Practices Manual. Users are urged to read the Disclaimer before considering adoption of any portion of this Recommended Practice.

This Recommended Practice (RP) serves as a guide for the proper inspection and repair of trailer rear impact guards—often referred to as underride guards or I.C.C. bumpers—provided on trailers produced after January 26, 1998. The scope of this RP encompasses van, reefer and flatbed trailers, excluding units with work-performing equipment and other exemptions under Federal Motor Vehicle Safety Standard (FMVSS) 224.

**NOTE: Equipment users must consult with individual trailer/equipment manufacturers to see if the guidelines established in this RP are applicable to their specific product.**

### INSPECTION GUIDELINES

FMVSS 223 and 224 regulate the strength, location, energy absorption and dimensions of rear impact

guards. The rules also require a certification plate or label to be located on the forward-facing surface of the horizontal member and located within 12 inches of the outside of the horizontal member on the curbside. This label must give the name and address of the guard manufacturer, month and year of manufacture and the letters "DOT." The guard must conform to the dimensions shown in **Figure 1**.

Rear impact guards should be regularly inspected for cracked welds, cracked or fractured vertical members, cuts and tears in any member and for dimensional integrity. Trailer manufacturers may add additional bracing, such as diagonal struts running from the center of the horizontal member to the vertical supports.

**NOTE: FMCSR 393.86, which became effective on October 1, 1999, requires that equipment users maintain the underride guard in a close-to-like new condition. This, in part, means that it should not deviate improperly from the dimensions given in Figure 1.**

### REPAIR GUIDELINES

Industry surveys of damaged guards indicate that

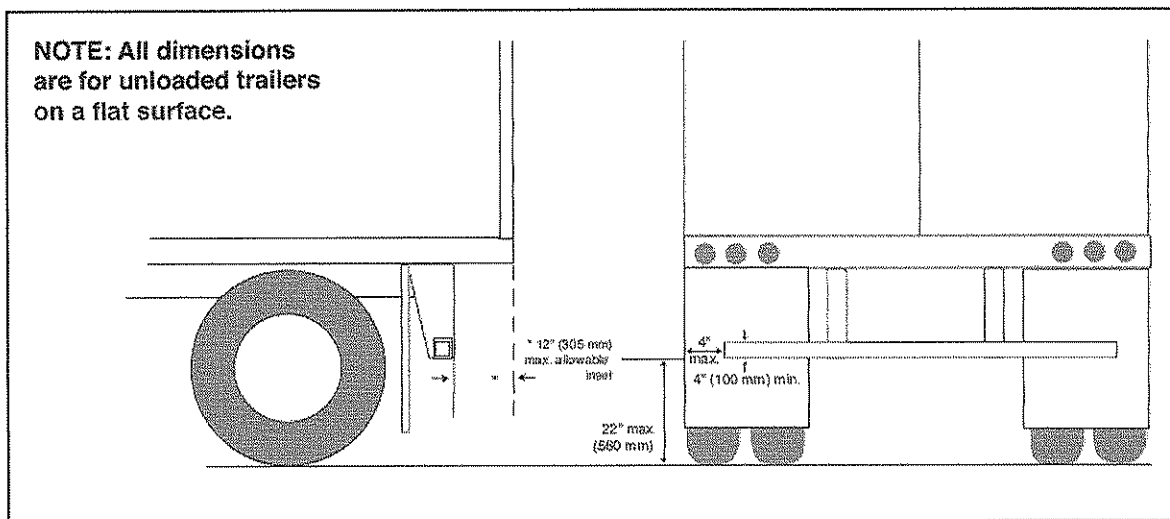


Figure 1

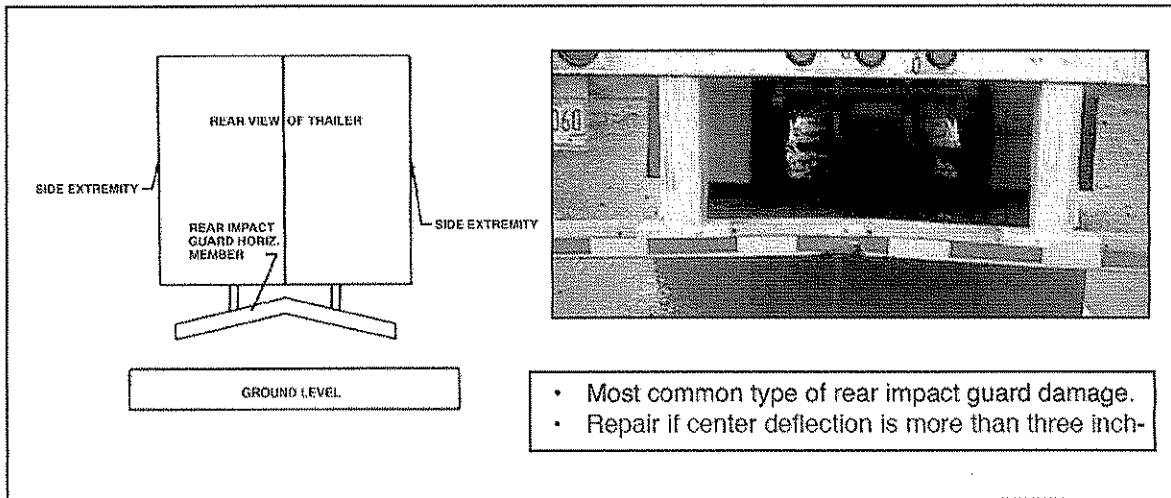


Figure 2

damage falls into a few distinct categories. A common type of damage is a vertical bend in the horizontal member of the impact guard, shown in Fig. 2. Manufacturer data and a study commissioned by the Technology & Maintenance Council with the National Research Council of Canada's Centre for Surface Transportation Technology indicates that this type of damage does not affect a particular guard's ability to meet the strength or energy absorption requirements of FMVSS 223 and 224 if the deflection is three inches or less. If the bend exceeds three inches, it should be repaired to conform to the dimensions shown in Figure 1.

In some instances, the ends of the horizontal member are bent upward or downward (see Figure 4) or towards the front of the trailer (see Figure 5). If it is bent upward, it can be bent down to its original position. If it is bent downward, it can be left alone or bent upward to its original position at the equipment owner's option.

**CAUTION:** Use only cold bending methods. Heating the guard may affect its strength. Also, repetitive bending should be avoided since it will have a detrimental effect on strength.

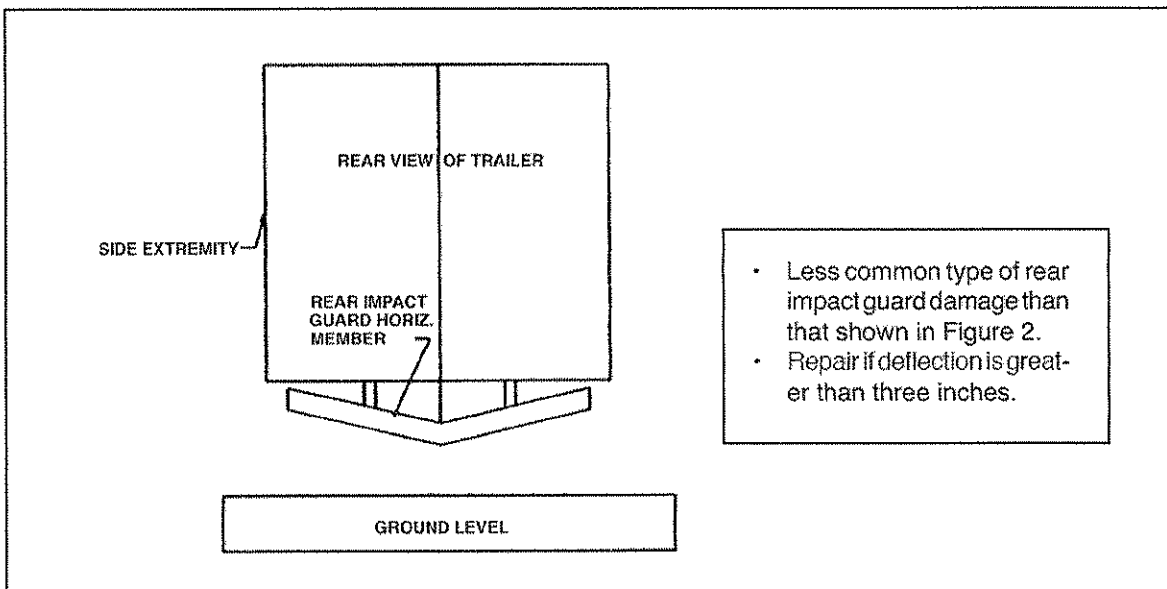


Figure 3

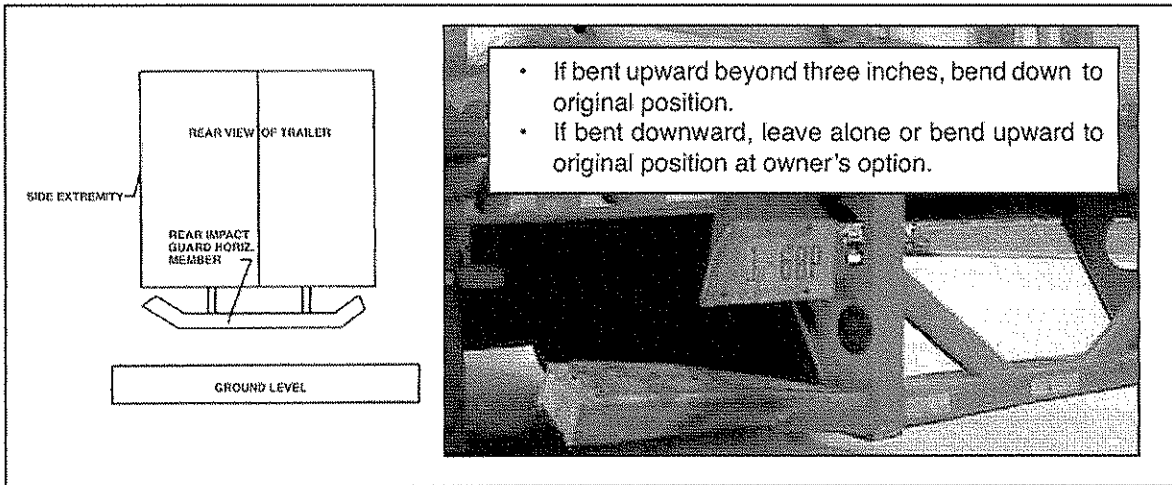


Figure 4

Sometimes the middle of the horizontal member is bent toward the front of the trailer (see **Figure 6**). Consult the manufacturer for repair guidelines for this damage condition. Additionally, in some instances there may be accompanying damage to the cross members at the rear of the trailer. The rear cross members, rear sill, vertical members and last six feet of the floor must also be inspected for damage, and repaired as needed. If replaced under manufacturer's recommendations, the horizontal members should be replaced with an OEM-approved replacement member having the same or better metal alloy and dimensions as the original. Installation must follow manufacturers' instructions.

At times, there is no damage to either member, but the entire guard is canted inward to the front of the trailer (See **Figure 7**). In this situation, consult the manufacturer for specific repair guidelines. Also note that the rear cross members, the rear sill, the vertical members and last six feet of the floor must also be inspected for damage, and repaired as needed per manufacturer guidelines.

Cracked welds must be repaired as soon as discovered. Minor cuts, tears, or dimples do not have to be addressed as long as the dimensions in **Figure 1** are met.

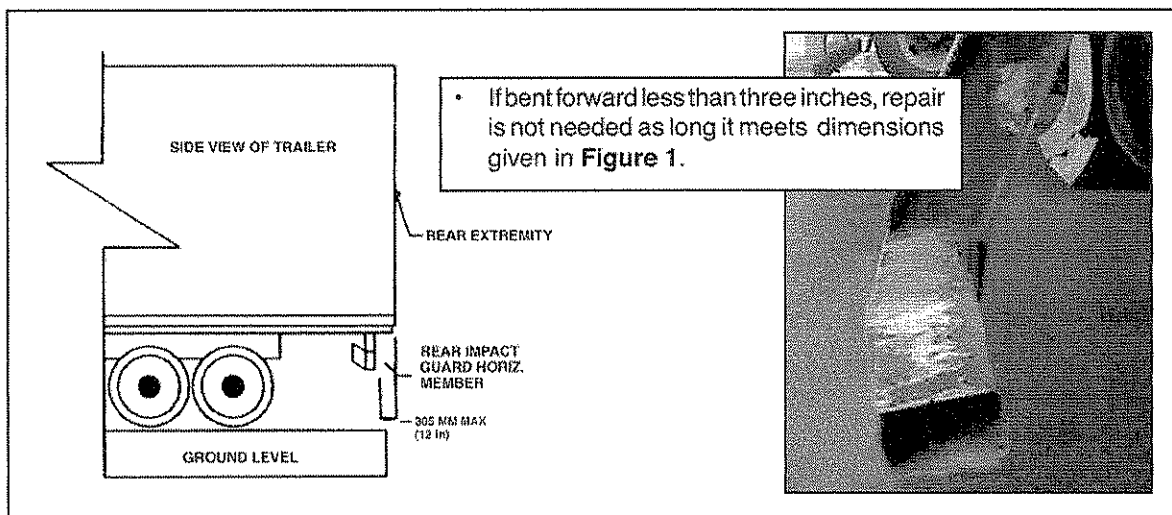


Figure 5

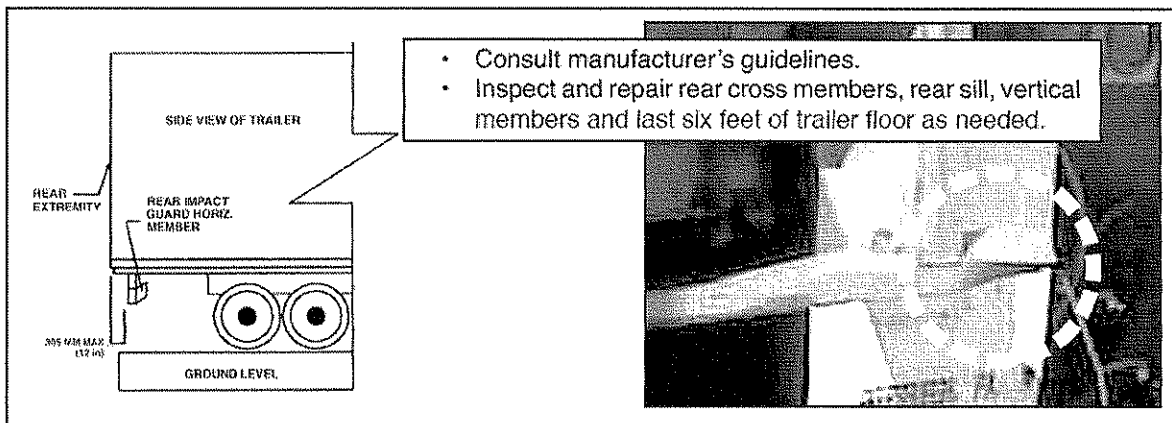


Figure 6

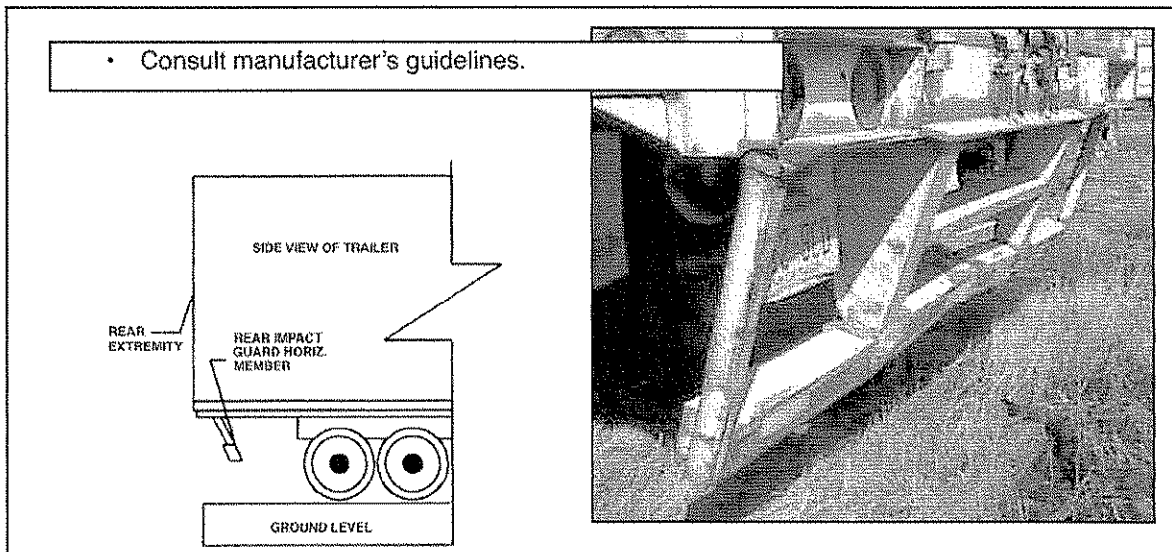


Figure 7

**CERTIFICATION LABEL**

Currently, FMVSS 223 requires that every new trailer must have a label certifying it meets the requirements of the FMVSS. The status of the label has not yet been finalized for aftermarket repairs. TMC recommends that equipment users follow the progress of the rulings concerning the label and follow the regulation as adopted.