

*This Procedure was developed as a **GUIDE** for evaluating damage to an aluminum top chord. Not all circumstances or combination of circumstances can be addressed; therefore good judgment in assessing damage is essential.*

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GENERAL

- 1). This guide is primarily intended to address the top chord section between the bolster stakes. The section of top chord from the bolster stake to the corner cap may be repaired more extensively if practical.
- 2). Welding other than replacing original assembly welds should be avoided.

DEFORMATION

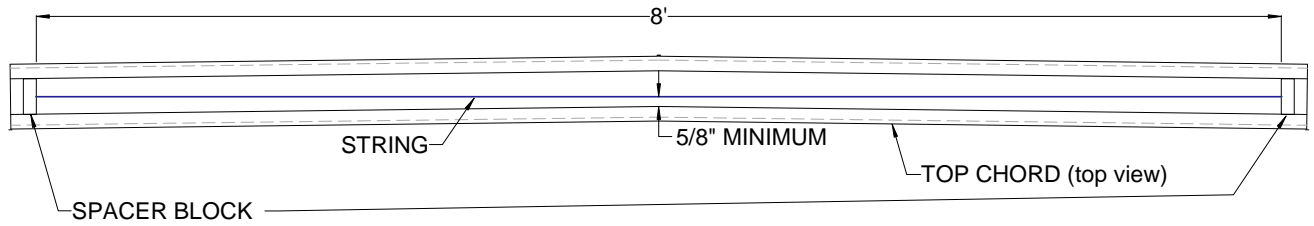
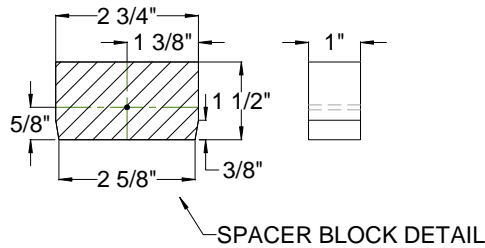
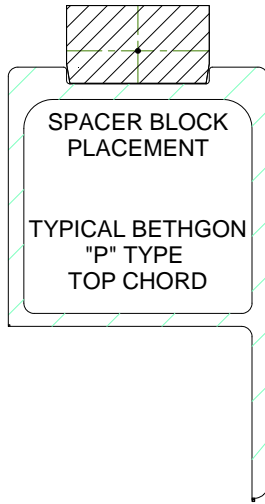
- 1). If a top chord is bent or bowed (and no other damage is present, i.e. interior bracing, side sheet buckling, etc.) so that the car exceeds the appropriate plate clearance, it should be replaced.
- 2). If a top chord has a localized buckle or offset (kink) of more than 3/4" in any 8 foot length it should be straightened & reinforced or replaced. Sketch 1 describes a method used to measure the offset of a BethGon "P" type top chord.
- 3). If a top chord is severely buckled, it should be replaced. See photo 1.
- 4). If a top chord cross section (i.e., dumper clamp damage)
 - a). is dented 1/2" or less no repairs are required. See Sketch 2. A localized reinforcement may be desired to minimize further damage.
 - b). is dented more than 1/2 " the top chord must be reinforced or replaced.

FRACTURE

- 1). Any top chord with a base metal fractured between the bolster posts in the tubular section should be replaced.
- 2). Top chords with fractures in the area between the bolster post and the end cap or in the flange may remain on the car provided:
 - a). it is 6" or less in length.
 - b). the fracture ends are drilled stopped.
 - c). the fractures primary direction is **NOT** perpendicular to the length of the top chord.
 - d). flanges with fractures are to be reinforced by an overlay (steel or aluminum) for a length that will incorporate at least 1 fastener beyond each end of the fracture.

GOUGING

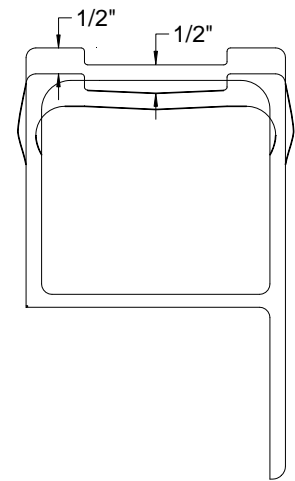
- 1). If gouges exist in the top reinforcement bars in excess of 7/16" in depth, the top chord must be replaced. Gouges in the aforementioned area less than 7/16" in depth, should be ground to smooth out sharp edges and blended into the surrounding material. In cases where gouges are too large to be effectively repaired, the top chord should be replaced.
- 2). If gouges exist in the vertical sides, bottom of tube section or in the flange in excess of 1/8" in depth, the top chord must be replaced. Gouges in the aforementioned area 1/8" or less in depth, should be ground to smooth out sharp edges and blended into the surrounding material. In cases where gouges are too large to be effectively repaired, the top chord should be replaced.



**SKETCH 1
METHOD TO INSPECT BENT TOP CHORD**



PHOTO 1 SEVERE BUCKLE



SKETCH 2