

Condemning Limits and Flats on PMC/BVV Resilient Wheel Tires for Bochum Type 54, 84 & 2000 Wheels

Purpose

Penn Machine has become aware of wheels that are in revenue service below the tires' condemning limit diameter, and/or with flat spots of varying sizes and severity. The purpose of this Service Bulletin is to raise the awareness of the tires' condemning limits and also offer guidance on what to do with tires having wheel flats.

Condemning Limits

Every PMC/BVV Resilient Wheel tire has a condemning limit diameter. This diameter is the one at which the tire must be replaced before the wheel can be used in revenue service. If you are unsure of your condemning limit, please contact Penn Machine.

The condemning limit diameter ensures that the residual tire thickness is sufficient to maintain the wheel's integrity while in revenue service. The condemning limit diameter is for a tire without flats or other damage. A tire should NEVER be machined to its condemning diameter and then put into revenue service. Any tire wear or flats will cause this tire diameter to be below its condemning limit diameter, and therefore subject to forces the tire was not designed to support.

Many PMC/BVV wheel tires are manufactured with "witness grooves" or "condemning limit grooves." These grooves are for visual reference only. The grooves are often machined off during wheel re-contouring. Proper measuring equipment must be used to determine a tire's diameter.

NOTE: RUBBER BLOCKS MUST ALWAYS BE REPLACED ANY TIME A NEW TIRE IS INSTALLED ON A WHEEL

Flats

Wheel or tire flats occur when a tire skids along the rail. Flats occur for a variety of reasons, and vary greatly in severity. There are no rules or guidelines published by APTA or the AAR regarding flats. To provide our customers with guidance related to size limits and various repair methods for flats, Penn Machine has produced this Service Bulletin.

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The lengths listed below are maximum lengths and the necessary treatment of three ranges of flats. These are maximums, and stricter criteria should be considered.

<u>Flat Length Radial Direction</u>	<u>Necessary Action</u>
¾" or less	None
¾" – 1 ½"	Blend in flat with grinder
1½" or more	Re-contour wheel

Severe Flats

A severe flat is one that generates enough heat to change the color of the tire to blue. This temperature is approximately 550°F.

A tire with a severe flat as the result of prolonged skidding must be re-contoured as soon as possible. The longer a tire with a flat of this severity stays in service, the greater the risk of tire fracture, especially as the tire diameter approaches its condemning limit.

The re-contouring must remove a minimum of 0.200" (5mm) below the surface of the flat to machine away any microscopic cracks that may have started as a result of the skid flat.

The cut must remove at least 0.200" (5mm) per side or 0.400" (10mm) on diameter.

If the re-contouring will machine the tire below its condemning limit, the tire and rubber blocks must be replaced.

Example: A wheel with a severe flat is measured at 27.755". The wheel is machined until the flat is no longer visible, and the diameter is now 27.630". An additional 0.200" on RADIUS, 0.400" on DIAMETER, must be machined off the tire to remove potentially damaged material. Therefore, the MAXIMUM tire diameter at which this wheel can be placed back in service is 27.230".

Severe Flats

Tires are safety critical and should be inspected regularly. Any tire suspected of having flats should be carefully inspected and repaired, if needed. The tire diameter also needs to be monitored after re-contouring. Tires that have been re-contoured to within ¼" of their condemning diameters need to be closely monitored and replaced as they approach their condemning diameters.

If you have any questions regarding this Service Bulletin, please contact Penn Machine.



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