

NAFLIC

National Association For Leisure Industry Certification

Standards & Related Documents Sub-Committee

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053. Sellner-Man Tilt A Whirl

Morgan-Ward (NDT) Ltd have reported to us a problem encountered on a "Tilt and Whirl" ride manufactured by Sellner-Man in the USA. This relates to the discovery of cracking of several flange mounts which carry the pins about which car spin occurs.

We are not sure whether this problem has been encountered by others, but Morgan-Ward have very kindly made available a full report from which we have been able to distil this Bulletin.

One of the flange mounts was sent for metallurgical examination following discovery of the cracks and a photocopy of the subsequent photographs is attached.

The component consists of a flange (grey cast iron) into which a bearing post is inserted with an interference fit. It is further pinned to prevent rotation. Several cracks were observed on the flat surface on the top of the raised neck region of the cast flange, emanating radially from the hole into which the bearing post was fitted. The largest crack was measured to be 12mm in length, the others between 1 and 2mm. It was also noted that the flat surface on which the cracks were found was deformed in the region of the aforementioned defects, the surface being raised up, in some instances resulting in evidence of wear from the rotating bearing above. The bearing surface of the post showed evidence of spalling, confined to a region opposite to the cracked region of the flange.

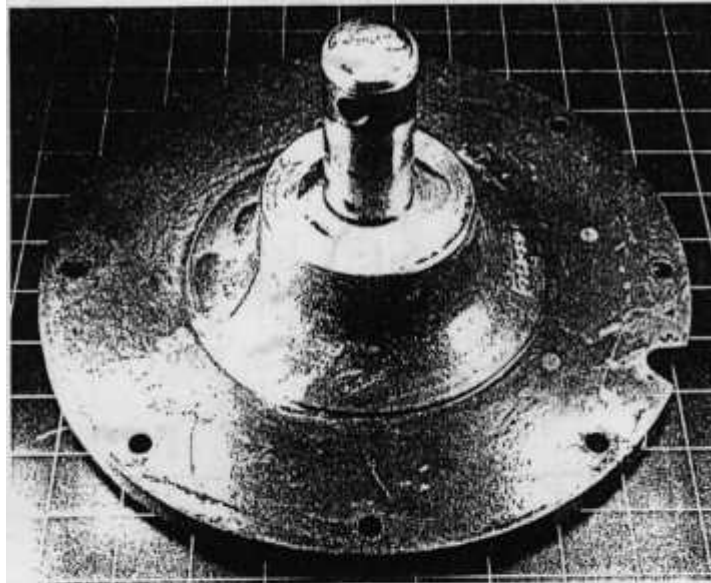


Figure 1 General view of the assembly

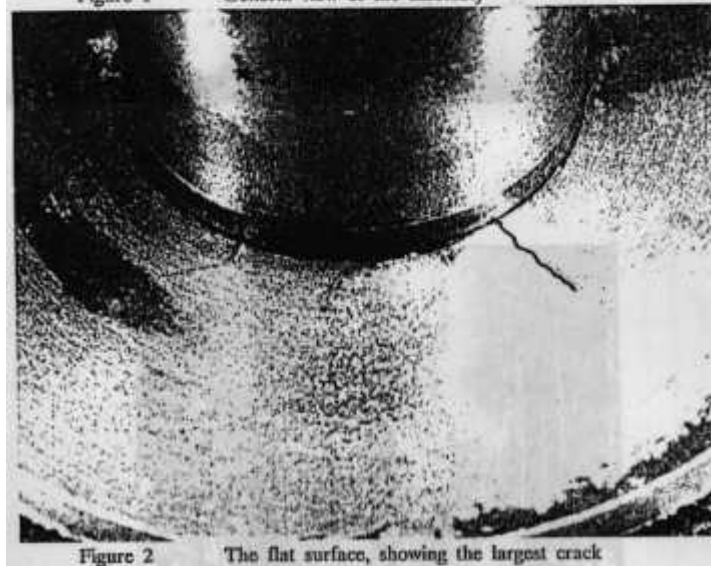


Figure 2 The flat surface, showing the largest crack