

SIL 07-TR-20
July 22, 2020
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SUBJECT: Thrust Washers for X1100 and X200 Series

MODELS AFFECTED: X1100 Series™, X200 Series™

Introduction:

To remain compliant with industry standards, the material of the thrust washers in the X1100 and X200 Series is changing from bronze to a graphite-infused polyimide. The new polyimide washers are available now. The bronze washers will remain available as long as supplies last.

Function is unaffected for all 12 washers listed in [Table 1](#). However, the form of all 12 washers is changing because the old and new washers will be visually distinct due to the material change from bronze to Vespel® polyimide.

The only part with a change to fit is P/N 12552308. In addition to the material change, this washer has been made twice as thick as the old washers being replaced. This washer is used within the P1, P2, and steer carriers of the X1100 Series, and we were able to replace both the bronze (P/N 12267815) and steel (P/N 12267600) washers with a single Vespel washer that is twice as thick. The overall fit between the carrier, washers, and pinions is ultimately unaffected because the new washer takes up the same space as both old washers combined.

The other 11 washers are dimensionally identical to the old bronze versions being replaced, so there is no change to fit elsewhere.

Why Is the Material Changing from Bronze?

The current bronze alloy is being replaced because it contains a significant amount of lead, which is being phased out industry-wide due to RoHS. Furthermore, our thrust washer supplier informed us that sourcing the particular leaded bronze alloy was becoming increasingly difficult, and recently it became impossible for them to source. To ensure production could continue, we had to implement a material change. We worked with the supplier to investigate lead-free bronzes, but ultimately they could not provide a material that would serve as an effective substitute. Therefore, in addition to changing materials, we also had to change suppliers.

What Is the New Material?

The new material we chose is called DuPont™ Vespel SP-21. It is a graphite-infused polyimide material with excellent anti-wear properties and is frequently used as a lead-free replacement material for thrust washers at Allison and elsewhere in industry. For example, this same material has been used to make the thrust washers on the output carriers of the X200-4A Series for many years, and we have had no notable issues historically. It is also used in several positions of the X1100 Series transmission for the Abrams Main Battle Tank.

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Table 1. X1100 and X200 Series New Thrust Washers

Old P/N	New P/N	Product Line
12267815	12552308	X1100
12267328	12552310	X1100
12267332	12552342	X1100
12267573	12552373	X1100
12268053	12552374	X1100
29533333	29562856	X1100
6839375	29562850	X200
6839376	29562851	X200
6839514	29562852	X200
23013453	29562853	X200
23018154	29562854	X200
23018282	29562855	X200