


## Japanese sealed ball bearing delivers major improvement in durability

Registration No.	Number 00324		
Registration Date	September 14, 2021	Registration Category	Category 1

Name (Model, etc.)	Sealed Clean Ball Bearings for Transmissions		
Location	Fujisawa-shi, Kanagawa		
	NSK Ltd.		
Owner (Custodian)	NSK Ltd.		
Manufacturer (Company)	NSK Ltd.		
Year Manufactured	In around 2019		
Year first appeared	1980		
Reason For Selection	<p>The sealed ball bearing, invented in Japan in 1980, is designed to shield the inner workings of the bearing from external contaminants. The invention was prompted by the discovery that bearings in vehicle transmission units were being damaged by hardened particles, often the product of gear abrasion, that were creating dents on the rolling surfaces of meshing gears. The innovative design placed the sealed bearing (which would normally be lubricated with grease) inside the transmission where it was surrounded by transmission oil, together with a seal lip to shut out contaminants and allow only clean oil in to lubricate the bearing. This world-first invention delivered significant improvements to the reliability and durability of vehicle transmission units. Although this item is a mass-produced article rather than the original invention, it is accompanied by production designs from 1984. The design itself was subsequently applied to all bearings used in oil jet lubrication and was widely adopted throughout the world.</p>		
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.)		

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Other useful information			