

**2022-2026MY Carnival
High Pressure Cross Over Fuel Pipe
Basis of Safety Defect Determination 573.6(c)(6)**

January 8, 2025	During routine review of field data, Kia North America (Kia NA) Safety Office identifies reports of fuel smell and leakage from the high-pressure crossover fuel pipe (“cross over pipe”) connecting the GDI fuel rails in the 2022-2024MY Carnival. No fire incidents identified. Kia NA Safety Office begins to collect warranty returned parts and monitors the issue.
February 27, 2025— March 31, 2025	Kia NA Safety Office sends collected crossover pipe assemblies to Kia Corporation (Kia HQ) for evaluation. Kia HQ and cross over pipe assembly supplier (“supplier”) conduct dimensional and hardness analysis and informs Kia NA Safety Office that no issues identified. Kia HQ and supplier continue investigation.
April 29, 2025—August 4, 2025	Kia HQ works with supplier and supplier conducts additional component inspection and engine vibration testing to evaluate potential effect of engine vibration on the crossover pipe nut tightness. No issues found. Kia HQ continues to work with supplier.
August 4, 2025—August 28, 2025	Kia NA Safety Office inspects vehicles in the field with and without fuel leak allegation. Two (2) vehicles with a reported fuel leak from a loose cross over pipe nut were inspected and found to have a loose nut with no root cause identified. Six (6) vehicles with no reported fuel leak were also inspected and found to have secure cross over pipe nuts and joints.
September 9, 2025— January 5, 2026	Kia HQ informs Kia NA Safety Office of its finding of the supplier’s inconsistent records of thread lubricant concentration applied to cross over pipe nuts. Test results indicate that when nuts with lower concentration of thread lubricant are torqued to specification, the resulting axial force at the cross over pipe joints is lower than that of parts with proper concentration. Kia HQ and supplier conduct additional vibration durability testing and Kia HQ informs Kia NA Safety Office that even with lower thread lubricant concentration, the nuts remain fastened.
January 1, 2026—March 24, 2026	Kia HQ and Kia NA Safety Office continue to review additional potential contributing factors from engine production and supplier. No root cause confirmed. However, engines produced after 11/19/2024 have an updated crossover pipe torque specification. Evaluation with supplier confirms that increased torque application

	to cross over pipe nuts with low thread lubricant concentration achieves higher axial force.
April 2, 2026	Kia NA Safety Office updates field data analysis and identifies no fires, accidents or injuries. However, finds 258 unique VINs with fuel leak at the cross over pipe [dates of receipt 9/22/2021—3/18/2026]
April 3, 2026	Kia NA Safety Office decides to recall all 2022-2024MY and certain 2025-2026MY Carnival vehicles as a precautionary measure to address the risk of a potential fire.