



# Supply Chain Analysis and Tariff Shock Simulation for Toyota RAV4 Braking System

## Executive Summary

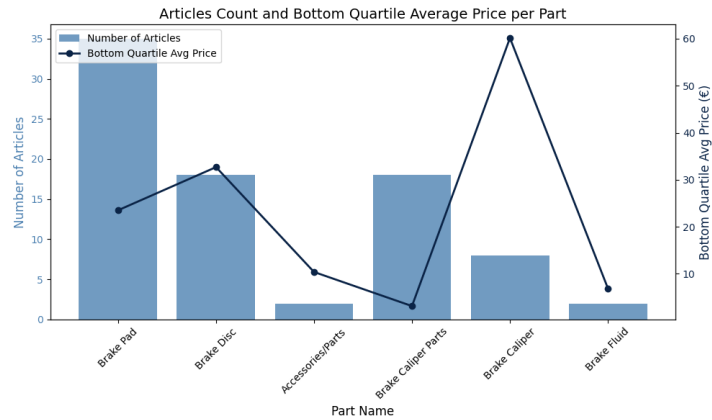
This report analyzes the Toyota RAV4 braking-system supply chain for UK manufacturing, covering 83 articles at a total component cost of £458.58 (excl. VAT) and £550.30 (incl. 20% VAT). Key sourcing countries are Germany (19 articles), Denmark (17) and the Netherlands (17). A tariff-shock simulation applies hypothetical 10%, 30% and 60% duties to the six parts imported from Japan (7.2% of articles). These scenarios raise the total landed cost by 0.3%, 1.0% and 1.3%, respectively. The maximum 1.3% rise classifies as a Small impact. Strategic recommendations include diversifying away from Japan, leveraging inward-processing relief and negotiating long-term volume agreements to maintain cost stability under evolving trade policies.

## Key Points

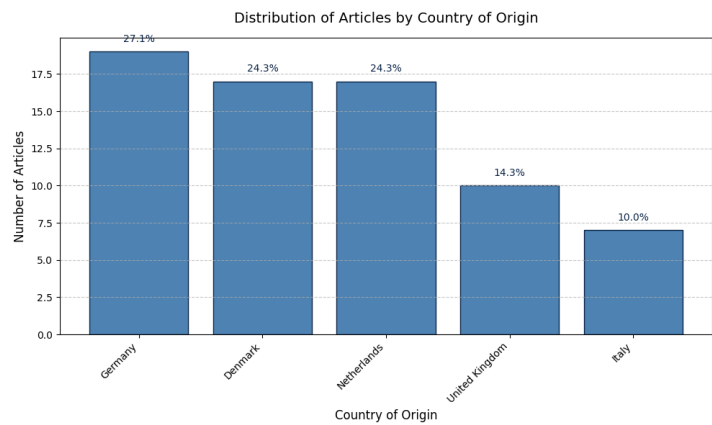
- Vehicle/component: Toyota RAV4 braking system
- Combined parts price: £458.58 (excl. VAT), £550.30 (incl. 20% VAT)
- Tariff scenarios tested: 10%, 30%, 60% on parts from Japan
- Overall impact: Small increase of 1.3% in total landed cost

## Component Analysis

The Toyota RAV4 braking system comprises 83 distinct articles with a combined cost of £458.58 excluding VAT (£550.30 including 20% VAT). All 83 parts are subject to UK import VAT. The single most expensive line item is the Brake Caliper at £240.64, accounting for 52.48% of the total system cost. Geographic dispersion is concentrated in the EU, with Germany supplying 19 articles, Denmark 17 and the Netherlands 17, reflecting a predominantly European sourcing strategy. Supplier diversity is moderate: DELPHI and A.B.S. each provide 10 articles, while KAVO PARTS contributes 5. This multi-tiered network supports production stability but concentrates value in a few high-cost components.



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CA\_bar\_chart\_article\_distribution\_by\_country\_of\_origin

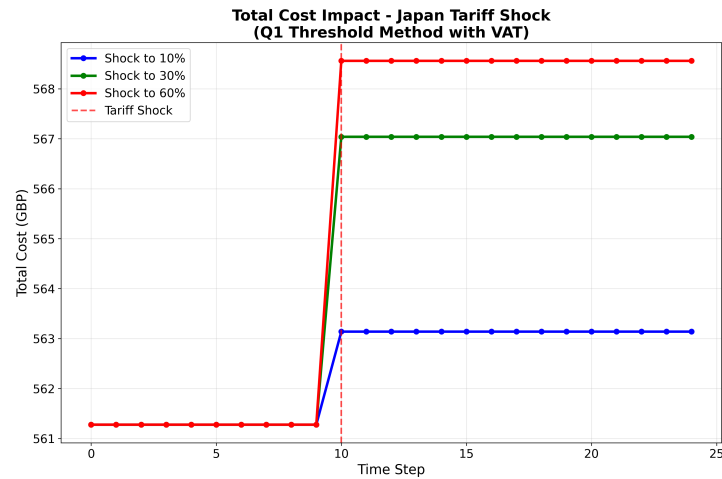
Product Group ID	Part Description	Bottom Quartile Avg Price	Most Common Country of Origin	Line Item Total Excl VAT	Percentage of Total Cost
100030	Brake Pad	23.51	Germany	47.02	10.25%
100032	Brake Disc	32.69	Netherlands	130.76	28.51%
100630	Accessories/Parts	10.38	Denmark	20.76	4.53%
100806	Brake Caliper Parts	3.13	Denmark	12.52	2.73%
100807	Brake Caliper	60.16	Denmark	240.64	52.48%
102208	Brake Fluid	6.88	Netherlands	6.88	1.50%

CA\_table\_summary\_of\_parts

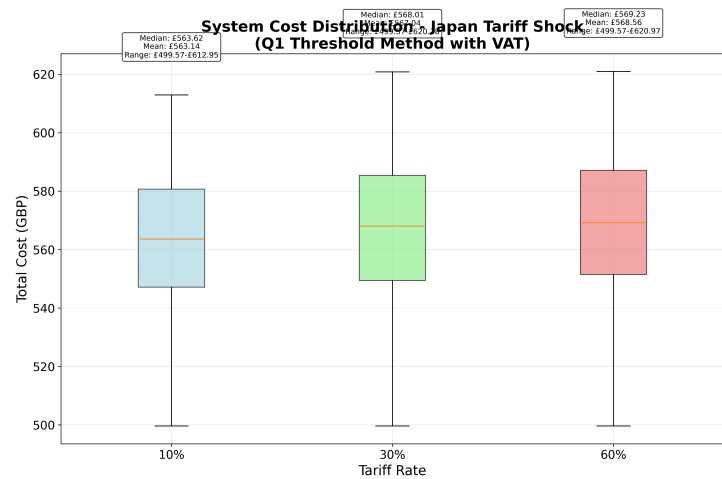
- Top 3 parts by average unit cost: Brake Caliper (£60.16; 52.48%), Brake Disc (£32.69; 28.51%), Brake Pad (£23.51; 10.25%)
- Top 3 suppliers by article count: DELPHI (10 articles), A.B.S. (10), KAVO PARTS (5)

## Tariff Simulation

A tariff-shock analysis under UK import conditions (20% VAT) was conducted on the six articles (7.2% of 83) sourced from Japan [4]. The base cost before duties is £460.09, with current preferential duty at 2.33%, yielding an initial tariff of £7.64. VAT at 20% applies to the sum of base cost plus duty, resulting in a pre-shock landed cost of £561.28. Three hypothetical duties-10%, 30% and 60%-were applied to the Japanese-origin parts to test exposure under policy shifts.



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- Pre-shock cost breakdown: Base Cost £460.09, Tariff Cost £7.64, VAT Cost £93.55, Total Landed Cost £561.28
- 10% tariff: initial £561.28; post-tariff £563.14; increase £1.86 (0.3%)
- 30% tariff: initial £561.28; post-tariff £567.04; increase £5.76 (1.0%)
- 60% tariff: initial £561.28; post-tariff £568.56; increase £7.28 (1.3%)

## Tariff News

In May 2025, the U.S. maintained 25% auto tariffs on imports but reached agreements to reduce duties for Japan, the UK and the EU, easing costs for Japanese-sourced components [1]. In September 2025, South Korea assessed the impact on its auto sector following a U.S.-Japan trade order originally negotiated by former U.S. officials [2]. Earlier, in late July 2025, Washington and Tokyo agreed on a uniform 15% tariff on nearly all Japanese imports (down from a threatened 27.5% on autos), offering further relief to Japanese exporters and their global customers [3]. These developments signal a fluid duty landscape with potential knock-on effects for UK manufacturers reliant on Japanese brake components.

## Alternative Suppliers

Using an exchange rate of 1 USD = £0.80, Turkish supplier FRAS-LE offers brake pads at £12-£22 and discs at £20-£32 [5], while TAYSAN sells pads at £13.60/set and discs at £28.00/pair [6]. India's Rane Brake Lining supplies pads at £9.60-£17.60 and caliper rebuild kits at £6.40 [7]. South Korea's Mando Corporation and Sangsin Brake provide pads at £21.60-£25.60 and £16.80-£20.80, respectively, with discs in the £32.00-£44.00 and £27.20-£38.40 ranges [8]. Poland's Lumag offers pads at £20.00 and discs at £30.40-£35.20 [9]. Thailand's ADVICS supplies pads at £17.60-£22.40 and calipers at £116.00-£128.00 [10]. These alternatives enhance geographic diversity and potential cost savings.

## Impact Assessment

Under the highest tested tariff scenario (60%), the total landed cost increases by 1.3%, classifying the impact as Small.

## Recommendations

- Diversify the supplier base beyond Japan to balance regional risk
- Utilize bonded warehouses or inward-processing relief to defer or reduce duties
- Negotiate long-term volume agreements for preferential tariff terms
- Implement digital trade-policy monitoring for real-time alerts and automated compliance
- Explore local assembly or increased UK content to leverage trade-agreement benefits

## References

[Web Research]

[1] Reuters: Exclusive: Trump considering significant tariff relief for US vehicle production, senator says. <https://www.reuters.com/business/autos-transportation/trump-considering-significant-tariff-relief-u-s-vehicle-production-senator-says-2025-10-03/>

[2] Reuters: South Korea assessing impact on autos of Japan trade order signed by Trump, official says. <https://www.reuters.com/business/autos-transportation/south-korea-assessing-impact-autos-japan-trade-order-signed-by-trump-official-2025-09-05/>

[3] Reuters: Japan's economy shows strain as factory output and retail sales drop. <https://www.reuters.com/business/japan-august-factory-output-falls-12-month-on-month-2025-09-29/>

[Tariff Simulation Data]

[4] Tariff impact analysis dataset: internal company simulation results

[Deep Research]

[5] Freno A.S.: <https://freno.com.tr/en/>

[6] Tysan Otomotiv: <https://taysan.com.tr/en/>

[7] Rane Brake Lining Ltd.: [https://www.ranegroup.com/ourproducts\\_brakelining.html](https://www.ranegroup.com/ourproducts_brakelining.html)

[8] Sundaram Brake Linings: <https://www.tvsbrakelinings.com/>

[9] Mando Aftermarket: <https://www.mandoaftermarket.com/>

[10] Lumag: <https://lumag.pl/en/>

[Database Schema]

[11] Database schema for parts and cost details: internal documentation