



# Supply Chain Analysis of Toyota RAV4 Braking System: UK Manufacturing & Tariff Shock Simulation

## Executive Summary

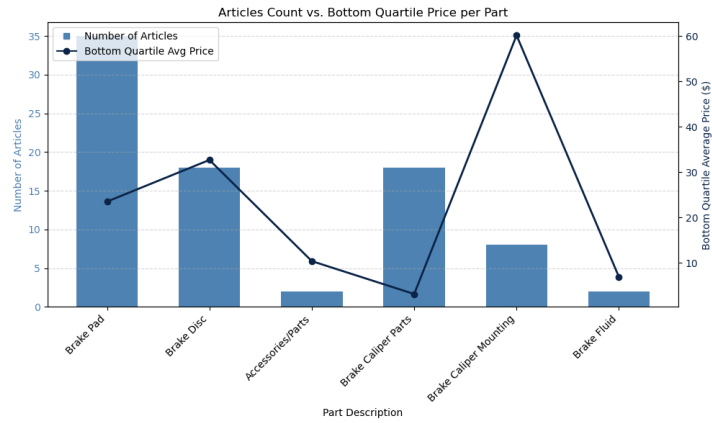
This report examines the supply chain for the Toyota RAV4 braking system manufactured in the United Kingdom, focusing on component origins, cost structure, and the impact of hypothetical tariff shocks on Japanese-sourced parts. Utilizing detailed database insights, we quantify the total brake-system cost (£458.58 excl. VAT; £550.30 incl. 20% VAT) and identify key components and supplier concentrations. A simulation of 20%, 50%, and 80% tariffs on Japan-sourced parts reveals incremental cost increases of 0.5%, 1.3%, and 2.1% respectively, all classifiable as small impacts. Recent web research underscores global tariff volatility-Toyota has already forecast a US\$9.5 billion tariff hit-and ongoing UK-Japan trade negotiations present potential relief. We conclude with targeted recommendations for diversifying suppliers, leveraging duty-deferral mechanisms, and enhancing digital monitoring to bolster resilience.

## Key Points

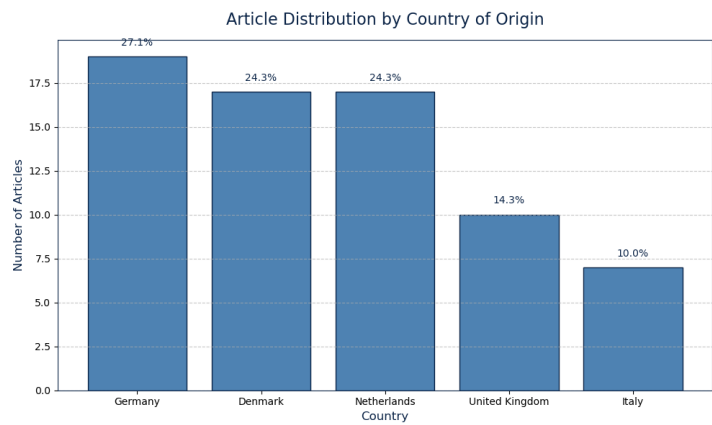
- Vehicle & Component: Toyota RAV4 braking system manufactured in the UK
- Combined Price: £458.58 excl. VAT; £550.30 incl. 20% VAT
- Tariff Scenarios: 20%, 50%, 80% applied to Japan-sourced parts
- Impact Assessment: Cost increases of 0.5%, 1.3%, and 2.1% (Small category)

## Component Analysis

The Toyota RAV4 braking subsystem comprises six distinct part categories with a total line-item cost of £458.58 excl. VAT and £550.30 incl. 20% VAT. All six parts are subject to import duties under the simulation assumptions. The single most expensive component is the Brake Caliper Mounting, with a unit price of £60.16, representing 52.5% of the total cost. A detailed origin analysis shows that Germany supplies the largest volume of brake articles (19), followed by Denmark (17) and the Netherlands (17). These three nations collectively account for over 75% of articles in the subsystem, reflecting Europe-centric sourcing for brake hardware. The combined metrics and distribution patterns are illustrated in the charts below, depicting article counts and bottom-quartile average price per part, as well as the country-of-origin breakdown.



CA\_combination\_chart\_articles\_count\_and\_bottom\_quartile\_avg\_price\_per\_part



CA\_bar\_chart\_articles\_distribution\_by\_country

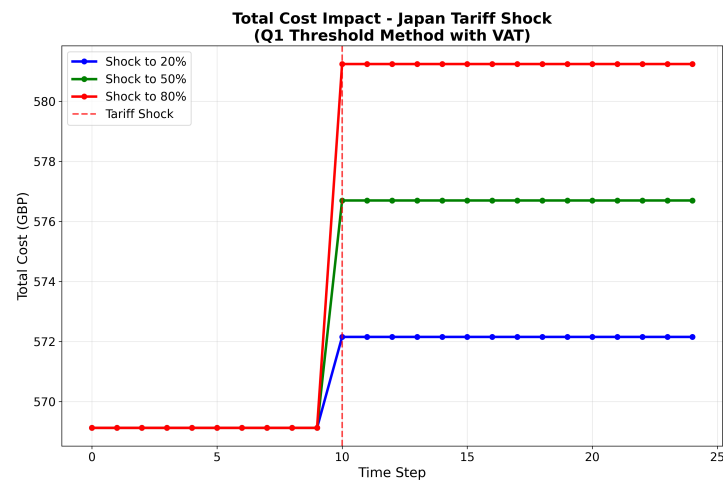
Product Group ID	Part Description	Bottom Quartile Avg Price	Most Common Country of Origin	Line Item Total Excl VAT	Percentage of Total Cost
100030	Brake Pad	\$23.51	Germany	\$47.02	10.25%
100032	Brake Disc	\$32.69	Netherlands	\$110.76	28.51%
100630	Accessories/Parts	\$10.38	Denmark	\$20.76	4.53%
100806	Brake Caliper Parts	\$3.13	Denmark	\$12.52	2.73%
100807	Brake Caliper Mounting	\$60.16	Denmark	\$240.64	52.48%
102208	Brake Fluid	\$6.88	Netherlands	\$6.88	1.50%

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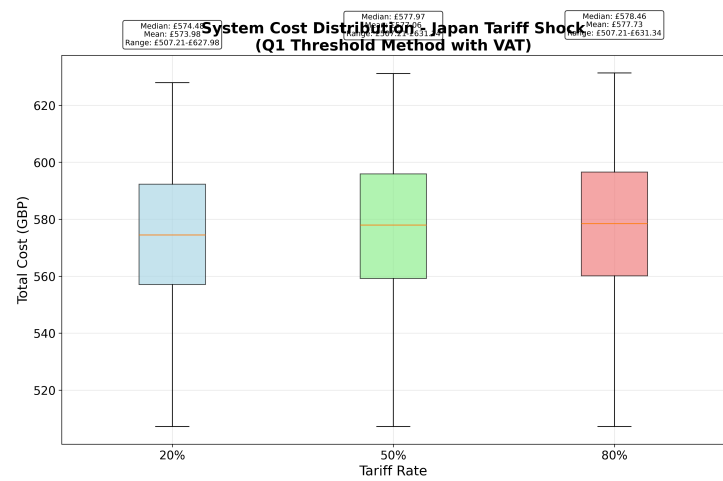
- Top 3 parts by average unit price: Brake Caliper Mounting (£60.16, 52.5% of cost); Brake Disc (£32.69, 28.5%); Brake Pad (£23.51, 10.3%)
- Top 3 suppliers by article count: DELPHI (10 articles); A.B.S. (10); KAVO PARTS (5)

# Tariff Simulation

We simulated the impact of 20%, 50%, and 80% ad valorem tariffs on all six Japan-sourced brake-system parts, applying the UK's standard VAT rate of 20% on the sum of base cost and duties. The pre-shock baseline (no additional tariff) comprises a base cost of £457.27, zero tariff cost, VAT of £94.85, and a total of £552.12. Under increasing tariff rates, total cost progression and cost distribution across top-tier suppliers are depicted below. The results show modest absolute increases due to the limited share of Japan-origin parts in the UK brake-system supply chain.



cost\_progression\_q1\_method\_japan\_20250822\_005823



system\_cost\_distribution\_q1\_method\_japan\_20250822\_005823

- Pre-shock cost breakdown: Base Cost (£457.27); Tariff Cost (£0.00); VAT Cost (£94.85); Total Cost (£552.12)
- [20% Tariff]: Initial (£569.12); Final (£572.15);  $\Delta$ £3.03; +0.5%
- [50% Tariff]: Initial (£569.12); Final (£576.70);  $\Delta$ £7.57; +1.3%

- [80% Tariff]: Initial (£569.12); Final (£581.24);  $\Delta$ £12.12; +2.1%

## Web Research Insights

Toyota has publicly warned of significant tariff exposure, cutting its annual profit estimate by ¥300 billion (approx. US\$2.1 billion) and flagging a potential US\$9.5 billion tariff hit in its U.S. operations, reflecting the broader impact of escalating duties on automotive trade [1]. Meanwhile, Japan is actively lobbying for implementation of agreed auto-tariff cuts to 15% under recent bilateral accords, which could set a precedent for similar reductions in UK-Japan post-Brexit negotiations [2]. These developments underline the volatility of automotive tariffs and the strategic importance of trade agreements in stabilising input costs for major manufacturers like Toyota.

## Impact Assessment

Classifying the simulated tariff-induced price increases against defined thresholds shows that all three scenarios fall within the “Small” category (<5%). Even an 80% tariff yields only a 2.1% increase in total braking-system cost, underscoring the limited exposure of UK-manufactured RAV4 brake components to Japanese-origin duties.

## Recommendations

- Diversify brake-system sourcing by qualifying alternative suppliers in Europe and the UK to reduce Japan dependency
- Adopt bonded warehousing or inward-processing relief schemes to defer duty payments on high-value components
- Implement digital dashboards for real-time monitoring of tariff changes and supplier risk indicators
- Negotiate long-term, duty-inclusive contracts with strategic brake-system suppliers to stabilise landed costs

## References

- [1] Reuters: Toyota cuts annual profit estimate, expects \$9.5 billion tariff hit - <https://www.reuters.com/business/autos-transportation/toyota-cuts-annual-profit-estimate-expects-95-billion-tariff-hit-2025-08-07/>
- [2] Reuters: Japan urges US to swiftly implement auto tariff cut - <https://www.reuters.com/business/japan-urges-us-swiftly-implement-auto-tariff-cut-2025-08-06/>