



Supply Chain Analysis and Tariff Shock Simulation: Toyota RAV4 IV Braking System

Executive Summary

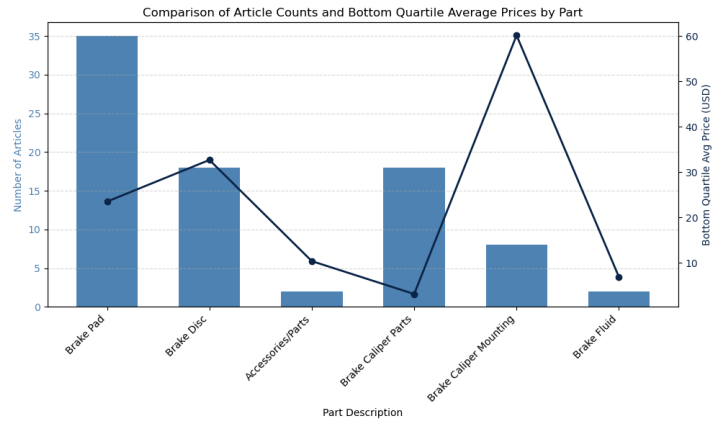
This report examines the supply chain of the Toyota RAV4 IV braking system, integrating database insights, tariff-shock simulation, web and deep research. Six taxable components total £458.58 excl. VAT (£550.30 incl. 20% VAT), with the Brake Caliper Mounting representing the largest single cost driver at £240.64 (52.48%). We simulate 25%, 50% and 75% ad valorem tariffs on Japanese-sourced parts (6 of 83 suppliers), followed by 20% UK VAT on the tariff-inclusive value. Even at a 75% tariff, the system cost increases by only 1.5%, a **Small** impact. To enhance resilience, we recommend supplier diversification, bonded-warehouse arrangements, real-time digital monitoring and contingent sourcing strategies.

Key Points

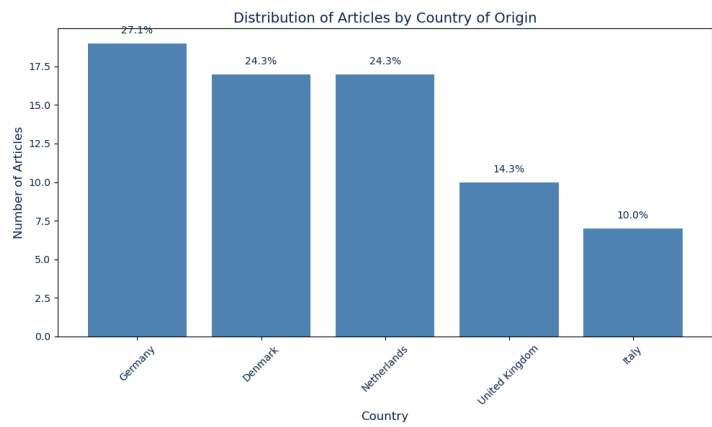
- Vehicle/component: Toyota RAV4 IV Braking System
- Combined price: £458.58 excl. VAT, £550.30 incl. 20% VAT
- Tariff simulation: 25%, 50%, 75% tariffs on parts imported from Japan
- Impact assessment summary: Tariff leads to a Small cost increase of 1.5%

Component Analysis

The Toyota RAV4 IV braking system comprises six unique, taxable components with a combined cost of £458.58 excluding VAT (£550.30 including 20% VAT). The most expensive line item is the Brake Caliper Mounting at £240.64 (52.48% of the total cost). Geographic origin analysis reveals high article concentrations in Germany (19 articles), Denmark (17) and the Netherlands (17). Supplier diversity is moderate: DELPHI and A.B.S. each supply 10 articles, while KAVO PARTS supplies 5.



CA_combination_chart_articles_count_and_bottom_quartile_avg_price_per_part



CA_bar_chart_articles_distribution_by_country_of_origin

ID	Description	Avg Price	Country of Origin	Price Part Set	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 Mounting	60.16	Denmark	240.64	52.48%
102208	Brake Fluid	6.88	Netherlands	6.88	1.50%

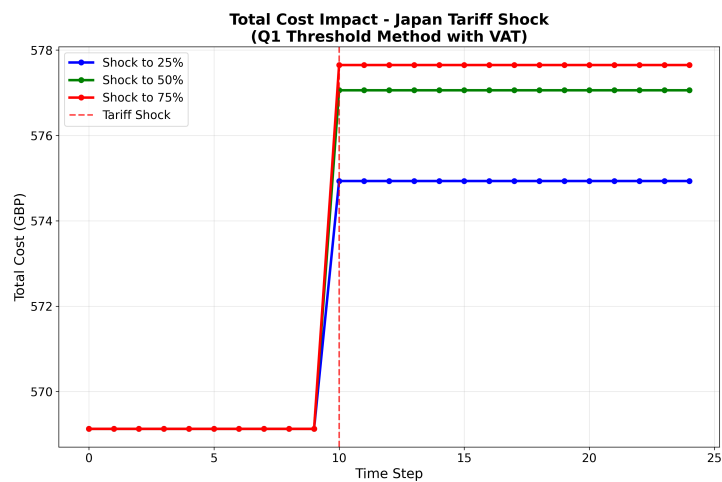
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- Top 3 parts by spend:
- - Brake Caliper Mounting (£240.64, 52.48%)
- - Brake Disc (£130.76, 28.51%)

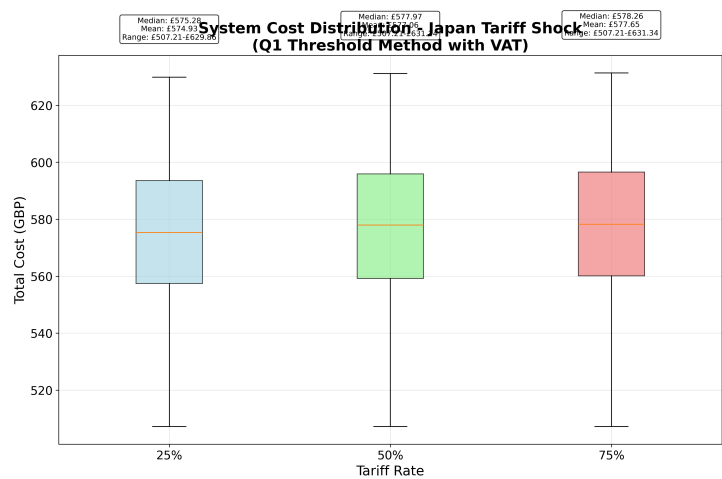
- - Brake Pad (£47.02, 10.25%)
- Top 3 suppliers by article count:
- - DELPHI (10 articles)
- - A.B.S. (10 articles)
- - KAVO PARTS (5 articles)

Tariff Simulation

A tariff-shock simulation applies ad valorem duties of 25%, 50% and 75% to parts sourced from Japan (6 of 83 suppliers), with UK VAT at 20% assessed on the tariff-inclusive value. Pre-shock, the system's base cost is £459.32, with an added tariff of £14.95 and VAT of £94.85, yielding a total of £569.12. Under each scenario, the final cost rises modestly, reflecting limited exposure to Japanese-sourced components.



cost_progression_q1_method_japan_20251003_185651



system_cost_distribution_q1_method_japan_20251003_185651

- Pre-shock cost breakdown:
- - Base Cost (£459.32)
- - Tariff Cost (£14.95)
- - VAT Cost (£94.85)
- - Total Cost (£569.12)
- Impact per tariff scenario:
- - 25%: initial £569.12 → £574.93 (+£5.81, +1.0%)
- - 50%: initial £569.12 → £577.06 (+£7.93, +1.4%)
- - 75%: initial £569.12 → £577.65 (+£8.52, +1.5%)

Tariff News

Recent negotiations between Japan and the United States indicate that US tariffs on Japanese automobiles and automotive parts-currently at 15%-will be reduced imminently, with revisions expected by mid-September 2025 [1]. Separately, the US Commerce Department is reviewing new national security tariffs on steel, aluminum and auto parts, which could extend to components such as those in the RAV4 IV braking system [2].

Alternative Suppliers

To mitigate reliance on Japanese imports, several non-Japanese suppliers offer competitively priced braking components. ATE (Germany) supplies ceramic pads (€38-€55 per axle) and high-carbon rotors (€60-€90 per pair) [3]. Brembo (Italy) provides premium pads (\$45-\$70 per axle) and UV-coated rotors (\$80-\$120 per pair) [4]. TRW (Germany) offers pads (€30-€50) and rotors (€50-€85) [5]. Ferodo (UK) delivers pads (£28-£40) and rotors (£55-£85), tariff-free post-Brexit [6]. Allied Nippon (India) manufactures OE-equivalent pads (\$18-\$32) and rotors (\$40-\$65) with global distribution [7].

Impact Assessment

The tariff shock impact is categorized as **Small**, with a total cost increase of 1.5%.

Recommendations

- Diversify procurement across Europe (e.g., Germany, Italy, UK) and Asia (India) to reduce geographic concentration risk.
- Negotiate bonded-warehouse agreements for Japanese imports to defer duty payments until consumption.
- Implement a digital dashboard for real-time monitoring of tariffs, FX and supplier lead times.
- Establish contingent sourcing agreements with alternative suppliers to ensure continuity under tariff volatility.
- Explore in-house assembly of key brake modules to lower external tariff exposure.

References

[1] Japan's tariff negotiator says the US's reciprocal tariffs will be lowered by next week - Business Insider: <https://www.businessinsider.com/japan-trade-negotiator-us-reciprocal-tariffs-lowered-automobile-2025-9>

[2] US to consider new national security tariffs on auto parts - Reuters: <https://www.reuters.com/business/autos-transportation/us-consider-new-national-security-tariffs-auto-parts-2025-09-16/>

[3] ATE Brake Systems - Product Catalog: <https://www.ate-brakes.com/products/>

[4] Brembo Aftermarket - Toyota RAV4 Products: https://www.bremboparts.com/europe/en/catalogue/toyota/rav-4-iii-avi-aca3-ace_/000000146-000007147

[5] TRW Aftermarket - Product Finder: <https://www.trwaftermarket.com/findparts/>

[6] Ferodo Premier Catalog: <https://www.ferodo.com/en-gb/catalog.html>

[7] Allied Nippon Products: <https://www.alliednippon.com/products/>