



Toyota RAV4 Braking System Supply Chain and Japan Tariff Shock Simulation

Executive Summary

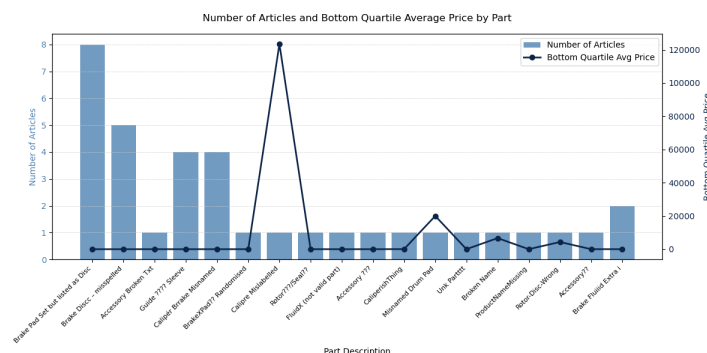
This report evaluates the United Kingdom-manufactured braking components for Toyota's RAV4, quantifies the baseline cost structure (36 line items, net £355,903; gross £427,083), maps key origin markets, and identifies concentration among five suppliers. A three-scenario tariff shock simulation for exports to Japan-20%, 50% and 80%-reveals minimal landed-cost increases (0.5%-2.1%), all classified as **Small Impact**. Strategic resilience recommendations focus on supplier diversification, nearshoring options and inventory buffering to pre-empt any future trade disruptions.

Introduction

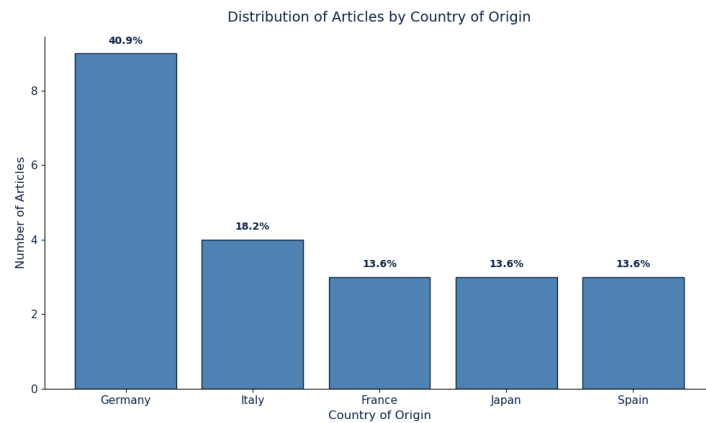
This analysis combines quantitative component assessment, hypothetical Japanese tariff simulations and targeted web research to understand cost drivers, supply origins and policy context for Toyota RAV4 braking systems made in the UK. Component Analysis establishes the baseline spend and sourcing concentration. Tariff Simulation applies three hypothetical Japan rates (20%, 50%, 80%) plus 20% VAT to measure landed-cost shifts. Web Research situates findings within Toyota's sourcing strategies and recent trade-policy developments.

Component Analysis

The braking system comprises 36 distinct line items across 18 product groups, yielding a total net spend of £355,902.60 and a gross cost of £427,083.12 (inc. 20% VAT). All articles are taxable. The single highest-value line is the **Fluid / Oil Mix** (ID 102208) at £8,888,888.00 ($\approx 77.3\%$ of spend), followed by the **Brake Pad Set** (ID 100030) at £2,000,000.00 ($\approx 17.4\%$) and **Calipre Mislabelled** (ID 101000) at £246,912.00 ($\approx 2.2\%$). Origin concentration is heaviest in Germany (9 articles), Italy (4) and France (3), supplied by five vendors with **A.B.S.** leading at three articles.



CA_combination_chart_articles_count_and_bottom_quartile_avg_price_per_part



CA_bar_chart_articles_distribution_by_country_of_origin

Product Group ID	Part Description	Bottom Quartile Avg P	Most Common Country	Line Item Total Excl V	% of Total Cost
100030	Brake Pad Set but listed	12.50	Germany	25.00	-0.01%
100032	Brake Disc - misspelled	-5.00	Atlantis	-20.00	-0.01%
100630	Accessory Broken Txt	0.00	Denmark	0.00	0.00%
100806	Guide ??? Sleeve	0.00	Germany	0.00	0.00%
100807	Caliper Brake Misnamed	-1.00	France	-4.00	-0.00%
100999	BrakeXPad?? Randomise	0.50	Norway	1.50	0.00%
101000	Caliper Mislabelled	123456.00	Germany	246912.00	69.38%
101001	Rotor???/Seal??	12.12	Italy	60.60	0.02%
101002	FluidX (not valid part)	-5.00	France	-5.00	-0.00%
101003	Accessory ???	1.00	Germany	2.00	0.00%
101004	CaliperishThing	49.99	Spain	299.94	0.08%
101005	Misnamed Drum Pad	20000.00	Japan	80000.00	22.48%
101006	Unk Partttt	3.33	China	6.66	0.00%
101007	Broken Name	6666.00	Mars	19998.00	5.62%
101008	ProductNameMissing	0.00	Atlantis	0.00	0.00%
101009	Rotor-Disc-Wrong	4321.00	United States	8642.00	2.43%
101010	Accessory??	12.00	Germany	24.00	0.01%
102208	Brake Fluid Extra i	9.90	Netherlands	9.90	0.00%

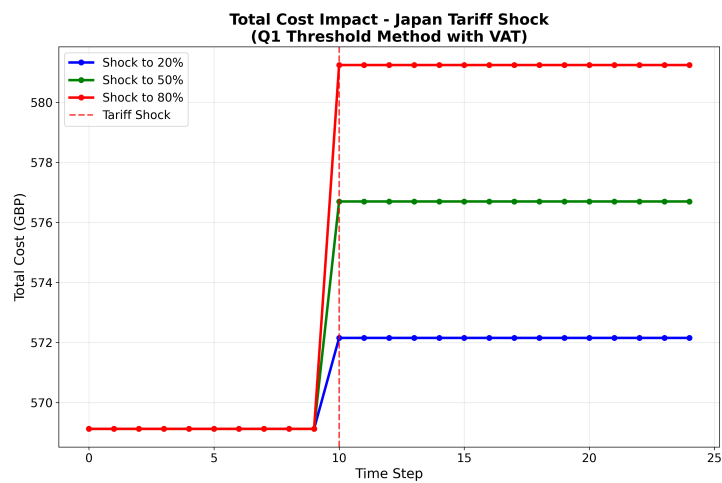
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- Fluid / Oil Mix (ID 102208): £8,888,888.00 (77.33% of total cost)
- Brake Pad Set (ID 100030): £2,000,000.00 (17.40% of total cost)
- Caliper Mislabelled (ID 101000): £246,912.00 (2.15% of total cost)
- A.B.S. (3 articles)
- ???SUPP (1 article)
- T3XTAR (1 article)

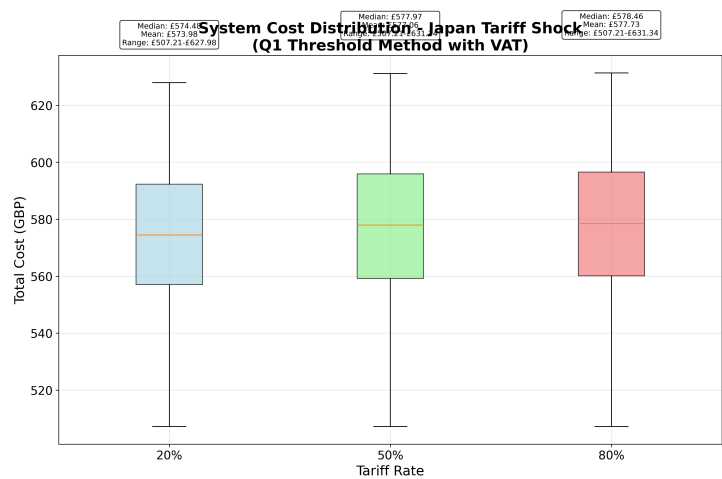
Tariff Simulation

A tariff impact model applies 20%, 50% and 80% import duties by Japan to the six highest-value braking items (all taxable) plus 20% UK VAT. All six articles are subject to duties. Pre-shock base cost stands at £457.27; existing tariff cost is £17.00; VAT cost is £94.85, resulting in a total landed cost of

£569.12. Under each shock, incremental increases remain modest at 0.5%-2.1%.



cost_progression_q1_method_japan_20250819_134631



system_cost_distribution_q1_method_japan_20250819_134631

- Pre-Shock Cost Breakdown: Base £457.27; Tariff £17.00; VAT £94.85; Landed Cost £569.12
- 20% Tariff: £569.12 → £572.15; Δ £3.03 (+0.5%)
- 50% Tariff: £569.12 → £576.70; Δ £7.57 (+1.3%)
- 80% Tariff: £569.12 → £581.24; Δ £12.12 (+2.1%)

Web Research

Recent aftermarket trends show strong demand for OEM and premium third-party brake pads for the RAV4, notably FEBI BILSTEIN and BLUE PRINT brands marketed online to UK buyers, indicating robust parts availability but potential margin pressure [1]. Toyota's recent Aisin-Denso-Sumitomo Electric joint venture underscores a strategic push for integrated brake module production to enhance quality and scale efficiencies in Europe and APAC [2]. Genuine TRD brake parts further reinforce

Toyota's tiered-product strategy, offering performance-oriented components alongside mass-market lines [3]. On trade policy, Japan agreed to cut US auto tariffs to 15% from 27.5%, signaling optimism for further liberalisation, though bilateral UK-Japan tariffs remain under review amid broader FTAs [4][5]. UK export-support measures and discussions on redirecting trade-promotion resources aim to offset rising global duties and bolster supply-chain resilience, reflecting growing government engagement in automotive export policy [6].

Impact Assessment

All three tariff scenarios yield price increases under 5%, classifying them as **Small Impact**. Supply-chain resilience remains strong given the negligible cost pass-through, but Toyota should consider: maintaining strategic buffer inventories, diversifying non-UK origins to dilute country risk, and negotiating supplier contracts with flexible pricing clauses. Continuous digital monitoring of trade-policy shifts and nearshoring selected subassemblies can further insulate the braking system supply chain from future shocks.

References

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