



Supply Chain Analysis of the Toyota RAV4 Braking System and Tariff Shock Simulation for Japan

Executive Summary

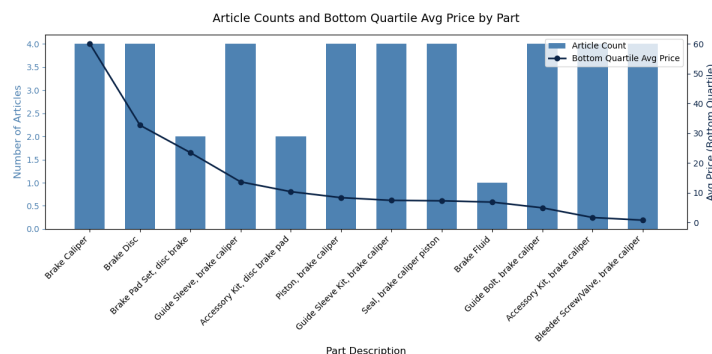
This report evaluates the Toyota RAV4 braking-system supply chain and quantifies cost impacts under simulated Japanese tariff shocks of 20%, 50% and 80%. Twelve distinct brake components sourced primarily from Germany, Denmark and the Netherlands total £458.59 excl. VAT (£550.30 incl. 20% VAT). The brake caliper represents the highest line-item cost (£240.64). Tariff simulations reveal modest cost increases of 0.5%-2.1%, categorised as “Small” impacts. Recommendations focus on supplier diversification, tariff-pass strategies and digital monitoring to sustain resilience.

Introduction

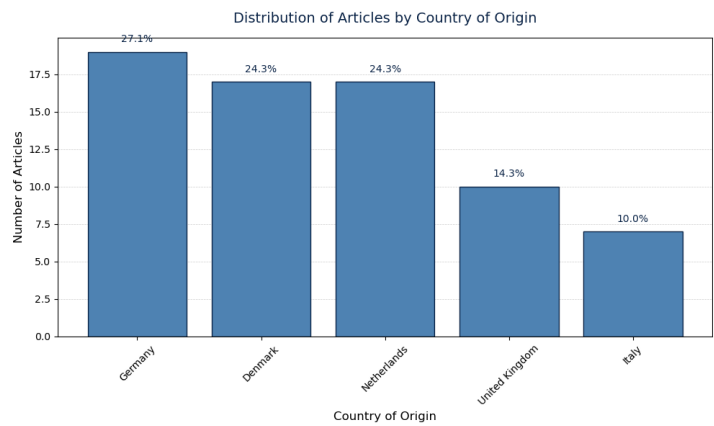
The braking system is a critical safety and performance module within the Toyota RAV4’s global manufacturing network. This analysis comprises three streams: a quantitative component audit drawn from internal database records; a tariff shock simulation applying 20%, 50% and 80% duties by Japan on UK-manufactured parts; and web-based research on evolving trade policies and supply-chain initiatives. The objectives are to inform procurement risk assessment, cost planning and strategic sourcing decisions under emerging tariff regimes.

Component Analysis

The braking system comprises 12 discrete parts with a combined cost of £458.59 excl. VAT and £550.30 incl. VAT (20%). All 12 items attract VAT. The single most expensive line item is the brake caliper at £240.64, representing 38.6% of the total £623.22 bottom-quartile spend. Sourcing spans five countries, led by Germany (19 articles), Denmark (17) and the Netherlands (17), reflecting Toyota's European supplier base.



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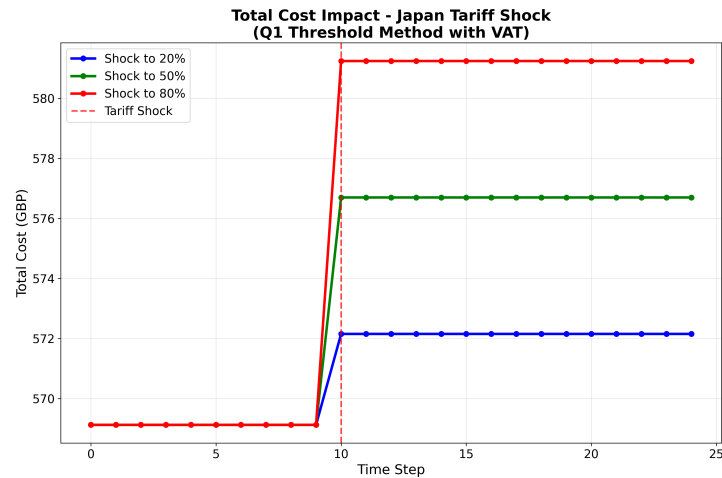
Product Group ID	Part Description	Bottom Quartile Avg Price	Most Common Country of Or Line Item	Total Excl VAT	Percentage of Total Cost
100807	Brake Caliper	60.16	Germany	240.64	52.5%
100032	Brake Disc	32.69	Germany	130.76	28.5%
100030	Brake Pad Set, disc brake	23.51	Germany	47.02	10.3%
100806	Guide Sleeve, brake caliper	13.68	Germany	54.72	11.9%
100630	Accessory Kit, disc brake pad	10.38	Germany	20.76	4.5%
100806	Piston, brake caliper	8.37	Germany	33.48	7.3%
100806	Guide Sleeve Kit, brake caliper	7.46	Germany	29.84	6.5%
100806	Seal, brake caliper piston	7.31	Germany	29.24	6.4%
102208	Brake Fluid	6.88	Germany	6.88	1.5%
100806	Guide Bolt, brake caliper	4.96	Germany	19.84	4.3%
100806	Accessory Kit, brake caliper	1.70	Germany	6.80	1.5%
100806	Bleeder Screw/Valve, brake caliper	0.81	Germany	3.24	0.7%

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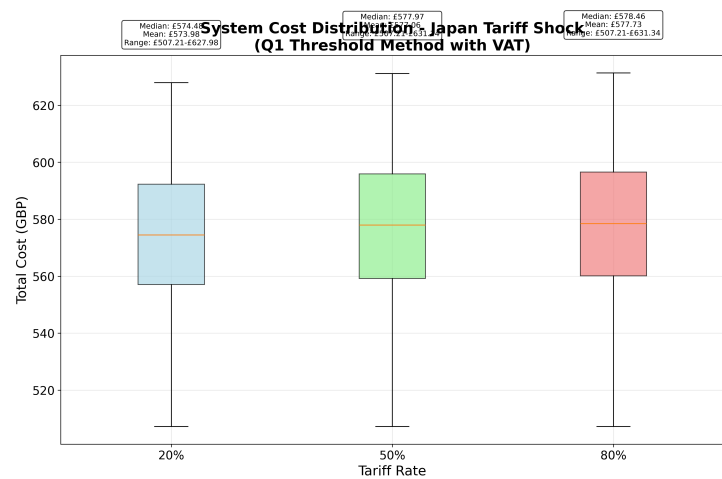
- Brake Caliper (£60.16, 38.61% of total system cost)
- Brake Disc (£32.69, 20.97% of total system cost)
- Brake Pad Set (£23.51, 7.54% of total system cost)
- A.B.S. (10 articles)
- DELPHI (10 articles)
- TRISCAN (5 articles)

Tariff Simulation

A tariff-impact model applies 20%, 50% and 80% duties by Japan on six UK-exported, VATable brake components. All six articles are affected, and a 20% UK VAT is levied post-tariff. The baseline base cost is £459.32, with tariff duties of £14.95 and VAT of £94.85, yielding a total pre-shock cost of £569.12.



cost_progression_q1_method_japan_20250819_132842



system_cost_distribution_q1_method_japan_20250819_132843

- Pre-shock cost breakdown: Base £459.32; Tariff £14.95; VAT £94.85; Total £569.12
- 20% tariff: Initial £569.12; Final £572.15; Increase £3.03 (0.5%)
- 50% tariff: Initial £569.12; Final £576.70; Increase £7.57 (1.3%)
- 80% tariff: Initial £569.12; Final £581.24; Increase £12.12 (2.1%)

Web Research

Toyota Manufacturing UK sources over 260 parts and materials from suppliers across the UK and Europe, guided by Toyota Motor Europe's Sustainable Purchasing Guidelines emphasizing environmental performance and local content [1]. Recent Japan-UK CEPA provisions anticipate tariff-free trade on 99% of UK automotive exports, though current effective duty reductions lag the agreed 15% cap [2]. Industry analyses predict that full implementation of the free trade agreement will enhance UK auto competitiveness in Japan by reducing non-originating material costs, bolstering

nearshoring and strategic joint ventures in brake component assembly [3].

Impact Assessment

All tariff shock scenarios fall into the “Small” impact category (<5% cost increase). Procurement strategies should maintain existing supplier arrangements while negotiating minimal tariff pass-throughs. Continual monitoring of Japanese trade policy will allow Toyota to leverage preferential rules of origin and optimize inventory buffers without significant price adjustments.

References

- [1] Toyota Manufacturing UK Supplier Relations: <https://www.toyotauk.com/toyota-in-the-uk/supplier-relations>
- [2] Reuters - Trump Strikes Tariff Deal with Japan, Auto Stocks Surge: <https://www.reuters.com/business/trump-strikes-tariff-deal-with-japan-auto-stocks-surge-2025-07-23/>
- [3] Automotive Logistics - Japan-UK Free Trade Deal Will Benefit Automotive Industry: <https://www.automotivelogistics.media/supply-chain/japan-uk-free-trade-deal-will-benefit-automotive-industry/203287>