

BUSINESS REVIEW

Summary

The Civil Aerospace business is a major manufacturer of aero engines for the commercial large aircraft and corporate jet markets. We power 35 types of commercial aircraft and have more than 13,000 engines in service around the world.

Key highlights

- Underlying revenue up 3%; solid growth in aftermarket revenues offset lower new engine sales.
- Underlying profit before financing 14% lower than 2014; largely reflecting lower gross margins, due to adverse mix effects and higher R&D charges, partially offset by the impact of life-cycle cost improvements, retrospective long-term contract accounting benefits, a reversal of impairment of contractual aftermarket rights and lower restructuring costs.
- £3.8bn order book growth; led by Trent 900 and Trent XWB orders – Trent XWB now nearly 50% of order book.
- New Trent engines, 1000 TEN, XWB-97 and 7000, on track for entry into service in 2017 and 2018.
- Good progress modernising supply chain to reduce costs and increase capacity for Trent XWB ramp up over next four years.

Underlying revenue mix



■ OE revenue	47%
■ Services revenue	53%

Underlying revenue by sector



■ Large engines	63%
■ Small & medium	37%



CIVIL AEROSPACE

OPERATIONAL REVIEW

Overall, underlying revenue for Civil Aerospace grew 3% on a constant currency basis (up 1% at actual rates) with steady growth in services (up 9% at constant rates, including a £189m one-off benefit discussed below) which more than offset the reduction in original equipment (down 3% at constant rates). Second-half growth was particularly strong as the business improved original equipment delivery performance on a number of programmes, notably in corporate jets.

Original equipment revenues from widebody engines: linked and other reduced 11% reflecting a slow-down in linked Trent 700 deliveries for the Airbus A330 ahead of the introduction of the Trent 7000 for the A330neo, together with reduced sales of linked Trent 900 engines for the Airbus A380, partly offset by increased linked Trent 1000 engine sales for the Boeing 787 Dreamliner. In addition, sales of spare engines to joint ventures generated revenue of £189m (2014: £138m).

Original equipment revenues from unlinked widebody engines increased by 29%, largely a result of an increase in unlinked Trent XWB and other Trent engine deliveries.

The 17% increase in widebody services revenue was mainly driven by increased flying hours from our growing fleet of installed Trent 700, Trent 900 and Trent 1000 engines and a £189m one-off benefit resulting from refining the basis for taking account of risk in our forecasts of future revenue on long-term contracts. This was partially offset by lower utilisation of some of our more mature engine types, notably the Trent 500 and Trent 800.

Within our corporate engine business we had good revenue growth from our BR725 engine which powers the Gulfstream G650 and G650ER. This was offset by lower volumes for our other products due to weaker demand from Chinese, Russian and Brazilian customers. As a result, corporate original equipment revenues declined 1%. Despite a reduction in new corporate engine deliveries, our installed base of corporate jet engines continued to grow, contributing to a 13% increase in services revenues from these products.

Services revenues from our regional jet engines declined 14%, reflecting retirements and reduced utilisation of relevant fleets by North American operators.

On the V2500 programme, original equipment revenues declined 9% due to reduced demand from International Aero Engines (IAE) for V2500 modules to power the Airbus A320ceo, reflecting a mix change in engine types powering the aircraft ahead of the introduction of the A320neo. Despite continued growth in the installed base of engines, services revenues on the V2500 were down 1% overall reflecting a combination of fewer overhauls, lower spare parts sales and reduced engine flying hours.

Overall gross margins for Civil Aerospace were 22.0% (2014: 24.5%). The year-on-year reduction in margin of £139m reflected the lower

proportion of linked Trent 700 engine sales, weaker corporate jet engine volumes and a declining regional aftermarket, partially offset by £16m higher gross margin contribution from sales of spare engines to joint ventures (£67m in 2015 compared to £51m in 2014).

In addition, these factors were partially offset by a number of contract accounting adjustments and reversals of impairments and provisions.

The in-year benefit of retrospective long-term contract accounting adjustments as expected was a net positive of £222m (2014: total benefit of £150m). Of this, £189m was a one-off benefit resulting from refining the basis for taking account of risk in our forecasts of future revenue. In 2012, it was agreed with the Group Audit Committee that a comprehensive review would be completed during 2015. The new enhanced methodology should better reflect risk, current experience and expected long-term performance. Other long-term contract accounting adjustments totalled a net benefit of £33m (2014: total benefit of £150m). This comprised a retrospective charge of £107m (2014: benefit of £90m), reflecting reduced customer fleet utilisation, mainly in respect of the Trent 500 and Trent 800, other commercial changes and technical risks, offset by the benefit of £140m (2014: benefit of £60m) from life-cycle cost improvements.

Full-year performance also benefited from the reversal of previously recognised impairments on contractual aftermarket rights (CARs) and release of a related provision with a profit of £65m being recognised (2014: impairment charge of £19m). This reflected a significantly more positive outlook for future maintenance costs for a Trent 1000 launch customer which enabled the reversal of a previous impairment. This also resulted in the capitalisation of £22m of 2015 CARs that would otherwise have been impaired.

Costs below gross margin were £5m lower than the previous year. Within this, R&D charges were £64m higher, reflecting increased spend on key programmes, particularly in respect of the Trent 1000 TEN, the Trent 7000 and the Trent XWB-97. These engines, now in their final stages of preparation before flight testing, are due to enter service in 2017 and 2018. They represent a significant advance on previous Trent designs, providing substantial fuel burn improvements. The Trent 7000 and Trent XWB-97 programmes have yet to reach a point at which their costs can be capitalised. In addition, following its successful entry into service, continuing investment in the Trent XWB-84 engine can no longer be capitalised. Investment also increased to develop future corporate jet engine technology.

CIVIL AEROSPACE / KEY FINANCIAL DATA

	2014	Underlying change	Acquisitions & disposals	Foreign exchange	2015
Order book	63,229	3,800	—	—	67,029
Engine deliveries	739	(27)	—	—	712
Underlying revenue	6,837	201	—	(105)	6,933
<i>Change</i>		+3%	—	-2%	+1%
Underlying OE revenue*	3,463	(117)	—	(88)	3,258
<i>Change</i>		-3%	—	-3%	-6%
Underlying services revenue*	3,374	318	—	(17)	3,675
<i>Change</i>		+9%	—	+1%	+9%
Underlying gross margin	1,675	(139)	—	(10)	1,526
<i>Gross margin %</i>	<i>24.5%</i>	<i>-270 bps</i>	—	—	<i>22.0%</i>
Commercial and administrative costs	(283)	(14)	—	1	(296)
Restructuring costs	(82)	75	—	—	(7)
Research and development costs	(461)	(65)	—	11	(515)
Joint ventures and associates	93	8	—	3	104
Underlying profit before financing	942	(135)	—	5	812
<i>Change</i>		-14%	—	—	-14%
Underlying operating margin	13.8%	-230 bps	—	—	11.7%

* The methodology basis for the allocation of Civil Aerospace revenues on linked TotalCare contracts between original equipment and aftermarket has been reviewed and amendments made to reflect better the commercial substance of the combined contracts. Historically, the allocation has resulted in original equipment revenue and aftermarket revenue reflecting the contractual terms rather than the commercial substance of the contracts. The 2014 figures have been restated on the same basis; the impact was an increase in original equipment revenue of £198m and an equal decrease in aftermarket revenue.

The R&D charge was reduced by £94m (2014: £71m) by the recognition of entry fees receivable from risk and revenue sharing arrangements (RRSA).

Underlying corporate, administration and other costs were £14m higher. Restructuring costs were £75m lower reflecting the significant charges taken in 2014.

As a result, profit before financing and tax was 14% down, reflecting a combination of lower overall gross margins, increased R&D and reduced restructuring costs. Taking account of foreign exchange effects, underlying profit before financing and tax was £812m (2014: £942m).

Trading cash flow before working capital movements improved year-on-year by £48m, despite the headline drop in underlying profit before financing of £130m and the higher level of CARs additions. This is largely due to a reduced level of property, plant and

equipment additions and a lower spend on certification costs and participation fees. The £286m year-on-year difference in working capital movements was largely due to differences in the timing of payments to suppliers and increased draw down of deposits in 2015.

Investment and business development

Order intake of £12.8bn in 2015 for Civil Aerospace was £1.1bn up on the previous year. As a result, the order book closed at £67.0bn, up £3.8bn or 6% on the previous year.

Significant orders during the year included our largest ever order by value to provide Trent 900 engines and TotalCare service support for 50 Airbus A380s for Emirates worth \$9.2bn of which \$6.1bn is recognised within the order book. Other major orders included Trent 1000 engines to power 21

Boeing 787 Dreamliner aircraft and long-term TotalCare support for Air China and Ethiopian Airlines, and a \$2.4bn order for engines and services with HNA Group.

Engineering excellence remains the cornerstone of our value to Civil Aerospace customers

Several important engineering milestones were achieved during 2015. For widebody engines, the focus has been on completing the development and testing of the new Trent 1000 TEN and the Trent XWB-97. The results of initial tests on both engines are broadly in line with expectations. In December 2015, the Trent XWB-97 flew for the first time and has since undergone rigorous testing in a number of conditions. The Trent 1000 TEN has also completed several major milestones. In addition, a hybrid Trent 7000, produced to de-risk the development programme, ran for the first

CIVIL AEROSPACE / NEW DISCLOSURE ON REVENUE SEGMENTATION

	2014		Underlying change	Foreign exchange	2015	
	%	£m			%	£m
Underlying revenue	100%	6,837	201	(105)	100%	6,933
Underlying OE revenue	51%	3,463	(117)	(88)	48%	3,258
<i>Widebody engines: linked and other</i>	<i>26%</i>	<i>1,766</i>	<i>(191)</i>	<i>(5)</i>	<i>23%</i>	<i>1,570</i>
<i>Widebody engines: unlinked installed</i>	<i>6%</i>	<i>392</i>	<i>114</i>	<i>(2)</i>	<i>7%</i>	<i>504</i>
<i>Corporate (and other small engines)</i>	<i>14%</i>	<i>974</i>	<i>(9)</i>	<i>(62)</i>	<i>14%</i>	<i>903</i>
<i>V2500</i>	<i>5%</i>	<i>331</i>	<i>(31)</i>	<i>(19)</i>	<i>4%</i>	<i>281</i>
Underlying services revenue	49%	3,374	318	(17)	52%	3,675
<i>Widebody engines</i>	<i>30%</i>	<i>2,029</i>	<i>336</i>	<i>6</i>	<i>34%</i>	<i>2,371</i>
<i>Corporate</i>	<i>6%</i>	<i>383</i>	<i>50</i>	<i>(8)</i>	<i>6%</i>	<i>425</i>
<i>Regional</i>	<i>6%</i>	<i>427</i>	<i>(61)</i>	<i>(6)</i>	<i>5%</i>	<i>360</i>
<i>V2500</i>	<i>7%</i>	<i>535</i>	<i>(7)</i>	<i>(9)</i>	<i>7%</i>	<i>519</i>

CIVIL AEROSPACE / NEW DISCLOSURE ON TRADING CASH FLOW

£m	2015	2014	Change
Underlying profit before financing	812	942	(130)
Depreciation and amortisation	410	381	29
Sub-total	1,222	1,323	(101)
CARs additions	(161)	(86)	(75)
Property, plant, equipment and other intangibles	(502)	(748)	246
Other timing differences*	(75)	(53)	(22)
Trading cash flow pre-working capital movements	484	436	48
Net long-term contract debtor movements	(406)	(463)	57
Other working capital movements	(78)	208	(286)
Trading cash flow**	0	181	(181)

* Includes timing differences between underlying profit before financing and cash associated with: joint venture profits less dividends received; provision charges higher/ (lower) than cash payments; non-underlying cash and profit timing differences (including restructuring); and financial assets and liabilities movements

** Trading cash flow is cash flow before: deficit contributions to the pension fund; taxes; payments to shareholders; foreign exchange on cash balances; and acquisitions and disposals

time and is now being put through its paces with a series of rigorous tests.

For corporate jets, developments in the year were more modest. Strong orders for the BR725 have sustained steady original equipment volumes as the new Gulfstream G650ER entered service, despite a weakening market. Failure in past years to secure new positions on some important new corporate jet platforms contributed to a weak order intake in the year which will impact future volumes and revenues adversely. As part of our technology strategy, investments are being made to secure future opportunities and regain its position as the leading provider to the important market of large-cabin, long-range corporate jets.

Investing in new aerospace supply chain capabilities to help drive operational excellence

As part of the supply chain transformation underway in the business, several important new facilities were completed during the year. These included the opening of our Advanced Blade Casting Facility in Rotherham, UK, which will halve the time it takes to manufacture turbine blades, and an expansion of our Trent XWB production centre in Derby. We also announced plans to invest in our facility in Inchinnan to create a new Centre of Competence for manufacturing aerofoils and established a joint venture with Liebherr to develop manufacturing capability and capacity for the power gearbox for our UltraFan™ demonstrator programme.

Strengthening our aerospace aftermarket service offering

During 2015, we broadened our service offering and strengthened our support network to provide customers with greater choice, flexibility and capability at all stages of the engine lifecycle, supporting a growing installed base.

This included making improvements to our Trent service network which will result in increased competition among our Approved Maintenance Centres (AMCs) and the announcement of our first independent AMC, Delta TechOps. We have also set up a global network of Customer Service Centres,

bringing us closer to our customers, working in their time-zones.

We launched a new service, SelectCare™, which fits between our comprehensive TotalCare and general maintenance, repair and overhaul services, where customers contract for individual shop visit support. At the same time, we announced American Airlines as the launch customer. We also announced our first customers for TotalCare Flex®, a new service targeting owners and operators of more mature engines. Cathay Pacific, AerCap, South African Airways and BMI Regional chose the service for Trent 800, Trent 500 and AE 3007 engines.

Civil Aerospace outlook

As we set out in November 2015, we believe the long-term outlook for Civil Aerospace remains very good, led by a strong widebody order book for fuel efficient engines. Key to the long-term success of the business is converting this exceptional order book into a large installed base of engines that meet customer demands for safe, reliable, efficient operation while driving profitable engine flying hour revenues. The next few years will be very important as we ramp up production of new engines – in new, efficient facilities – and invest in the development of future engine platforms that will benefit the order book from 2020 onwards. As a result, until we gain additional aftermarket scale, or complete our industrial transformation and improve unit costs and cash margins, the business will continue to be a net investor of cash.

Over the next few years the transition from 'linked' to 'unlinked' contracts creates a headwind to reported profit but no change to cash flows.

In the future, an increasing proportion of our new engines will be sold to the airframer on a sole-source basis, in particular the new Trent XWB and Trent 7000 for use on the Airbus A350 and A330neo respectively. As a result, a significantly larger proportion of our sales in the future will be accounted for on an 'unlinked' basis. While this does not change cash flows, it does change the timing of when profit is recognised across the OE and aftermarket contracts. Under 'unlinked' accounting, the engine sale and aftermarket contracts are accounted for separately.

Engines delivered in 2015

>700

This typically results in lower upfront profit recognition on engine delivery, with significantly higher proportion of profit in the aftermarket period. This is in comparison to 'linked' accounting, where a blended margin is applied across the engine sale and aftermarket contracts.

Near-term conditions in some segments remain challenging. We continue to expect our Civil Aerospace business to underperform 2015 underlying profit before finance and tax by around £550m. The significant headwinds related to Trent 700 volume reductions and the non-recurrence of a number of one-off benefits seen in 2015 remain broadly unchanged. In addition, we still expect to see weaker demand for new corporate jets and declines in demand within our regional jet aftermarket. The aftermarket benefit of higher levels of engine deliveries and increased installed thrust is expected to be largely offset by the underutilisation of older large engines. However, the business will benefit from reduced costs from the restructuring initiatives started in 2014.

We now expect the TotalCare net asset to grow from £2.2bn and peak at around £2.5bn, allowing for a more positive demand outlook for our 'linked' accounted engines and the benefit of further life-cycle cost improvements now being seen in engine performance.

MARKET REVIEW

Rolls-Royce is one of the world's leading civil aero-engine manufacturers with particular strengths in engines for civil widebody aircraft and large business jets, underpinned by our strength and continued investment in technology.

We are market leaders in the large business jet fleet market powering aircraft from most of the main airframers. We have a strong market position on widebody aircraft produced by the world's two major airframers: Boeing and Airbus, who are broadly consistent in forecasting traffic growth (Revenue Passenger Kilometres) of approximately 5% CAGR over the next 20 years. In the engine market for narrowbody aircraft, we continue to supply some parts and services for the IAE V2500 engine family.

Potential for OE and services over the next 20 years

Civil Aerospace – all sectors

\$1,720bn

Original equipment

\$1,110bn

Aftermarket

\$610bn

Market dynamics

- Overall there has been a slowdown in all major geographical markets for new aircraft orders reflecting a period of higher than normal order placement for new airframe products in recent years (principally Airbus A350 and A330neo, and Boeing 787 and 777X).
- Long-term growth in the number of widebody aircraft in the global fleet has historically been strongly correlated to global GDP growth.
- Asia and the Middle East are strong drivers of growth, correlating to their regional GDP growth.
- Historically, growth has recovered quickly following major economic shocks.
- Our current share in the widebody engine market is at 31% of the installed widebody passenger fleet and is expected to reach 50% early in the next decade.
- Older widebody aircraft are experiencing reduced utilisation by certain airlines, in particular Boeing 777s and Airbus A340s.
- The re-engining of the A330, announced in summer 2014, reduced Trent 700 sales ahead of the new Trent 7000 entering service in 2017 as the sole source engine for A330neo.
- Over 90% of Rolls-Royce large engine fleet is covered by our TotalCare service agreements.
- We are the market leader in large business jet aircraft engines, with 55% market share of the large/very large business jet market in 2015.
- Over 65% of Rolls-Royce business jet engines are covered by our CorporateCare® service agreements.
- Demand for large business jets is related to global economic growth and increases in the number of high net-worth individuals; the sector has historically been fairly resilient to financial shocks.
- The current business jet market is slowly recovering in the US (our largest market), but is currently going through a slowdown elsewhere due to political tensions and customer anticipation of new models about to enter into service. Overall, this sector is expected to grow faster than global GDP in the long term.
- In the regional sector, aftermarket demand for engines on 50-70 seat aircraft is reducing as aircraft approach the end of their lives.

Business risks

- If we experience a major product failure in service, then this could result in loss of life and critical damage to our reputation.
- If an external event or severe economic downturn significantly reduces air travel, then our financial performance may be impacted.
- If our airframer customers significantly delay their production rates, then our financial performance may be impacted.
- If we fail to achieve cost reductions at the necessary pace, then our ability to invest in future programmes and technology may be reduced.
- If we experience significant pricing pressure from increased competitor challenge in our key markets, then our financial performance may be impacted.
- If we suffer a major disruption in our supply chain, then our delivery schedules may be delayed, damaging our financial performance and reputation.
- If there are significant changes to the regulatory environment for the airline industry, then our market position may be impacted.

Competition

- GE is the main competitor supplying engines in the widebody sector. In 2015, deliveries of engines for widebody passenger aircraft were split Rolls-Royce 38%, GE 54%, Pratt & Whitney 2%, and Engine Alliance 6%.
- Rolls-Royce is well positioned on all Airbus widebody airliner programmes and competes with GE on the Boeing 787 family.
- Rolls-Royce is the sole engine provider on the Airbus A350 XWB family where 775 aircraft have been ordered so far.
- GE is the sole engine provider on the Boeing 777X aircraft, scheduled to enter into service in 2020 where 306 have been ordered so far.
- In large business jets the main competition is GE, Pratt & Whitney and Safran; in 2015 the GE-Honda joint venture entered the market in very low thrust engines.
- Rolls-Royce has 3,100 powered business jets flying, representing 55% market share of the large/very large business jet fleet.

Opportunities

- Our position and long-term prospects in the widebody sector are strong across our Trent family.
- The Trent XWB has successfully completed its first year in service and the new Trent XWB-97 engine made its first test flight in November 2015 and is on schedule to enter into service in 2017.
- The new Trent 7000 is scheduled to enter into service in 2017 on the A330neo. We have sole source on this platform which will replace the A330, on which we are one of three engine providers.
- We will be introducing the new Trent 1000 TEN in 2017 for the Boeing 787. On the 787, Rolls-Royce engines have been selected for 42% of the current order book.
- A potential significant new entrant into the civil sector is China's COMAC which is developing a narrowbody aircraft for entry into service towards the end of the decade. COMAC is also planning a joint programme with Russia's UAC to develop a widebody aircraft, targeting entry into service around 2025. We remain in close dialogue with COMAC and UAC to understand their plans and whether their widebody programme presents an opportunity for Rolls-Royce.
- Our business jet market share is likely to fall in the medium term with the success of new entrants into the large/very large sector, but the market remains attractive and we will continue to invest to improve our position and retain leadership.

Key Rolls-Royce differentiators

- Barriers to entry are extremely high in the civil sector. We invest heavily to maintain market leading technologies and system level integration capabilities to deliver the best engine performance for our customers. We offer a wide range of aftermarket services which provide flexible and cost-effective options to our customers and build long-term customer relationships.



Exemplary year for Trent XWB

On 15 January 2016, the world's most efficient aero engine completed its first year in service. The Trent XWB on the A350 XWB airliner achieved the milestone in style having delivered outstanding performance over its first 12 months of operation, with launch customer Qatar Airways.

The engine lived up to its credentials in terms of being the most efficient engine ever and the Trent XWB also managed to claim the crown of being the most reliable engine with a dispatch rate of 99.83%.

Designed as the next generation of medium-/long-haul airliners, the A350 is an all-new family of aircraft from Airbus.

The Trent XWB engine represents the largest single element of our £76.4bn order book by some margin. Over 1,500 of the engines have been ordered by more than 40 airlines, from important existing customers and from new Rolls-Royce customers all over the world.



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