Core Trading Summary

The P&L table below and all commentary relate to the underlying performance of the core business, and percentage or absolute change figures in this document are on an organic basis, unless otherwise stated.

Summary income statement: Core business

£m	H1 2018	H1 2017	Change	Organic change*
Underlying revenue	**6,680**	**5,611**	**+19%**	**+16%**
Underlying OE revenue	3,247	2,594	+25%	+19%
Underlying services revenue	3,433	3,017	+14%	+14%
Underlying gross profit	**870**	**712**	**+22%**	**+12%**
Gross margin %	13.0%	12.7%	+30bps	-50bps
Commercial and administration costs	(479)	(436)	+10%	+4%
Research and development costs	(296)	(396)	-25%	-28%
Joint ventures and associates	51	50	+2%	+8%
Underlying operating profit	**146**	**(70)**	**216**	**183**
Underlying operating margin	**2.2%**	**-1.2%**	**+340bps**	**+300bps**
Financing costs	(65)	(56)	+16%	+2%
Underlying profit before tax	**81**	**(126)**	**207**	**182**
Tax	(22)	6	-	-
Underlying profit for H1	**59**	**(120)**	**-**	**n/a**
Underlying earnings per share	**3.1p**	**(6.5)p**	**n/a**	**n/a**
Free cash flow	**10**	**(264)**	274	-

*Organic change – 2018 excludes ITP Aero in order to be comparable to 2017

Underlying revenue up 16%

Underlying revenue rose 16% led by good growth in both Civil Aerospace and Power Systems. Civil Aerospace revenue increased 26% driven by higher invoiced volumes of both installed and spare engines together with increased services activity. Strong growth in engine flying hours continued. Power Systems delivered good progress, up 13%, with growth across almost all of its end markets driving double-digit growth in both OE and services revenues. Defence revenue remained stable in H1, with modest growth in OE offsetting a small decline in aftermarket due to Submarines. Civil Aerospace production ramp up continues. Widebody invoiced volumes rose by 50 engines to 259, reflecting good growth in both installed and spare engines, including higher sales to joint ventures – with a much more balanced delivery profile of spare engines H1:H2 this year relative to 2017.

Underlying gross profit up 12%

Underlying gross profit rose 12% to £870m, with gross margins of 13% driven by Power Systems, reflecting volume growth and improved factory utilisation. Civil Aerospace gross profit was broadly flat, with strong aftermarket trading including increased sales of spare parts for mature engines and higher OE spare engine volumes offsetting a large negative contract accounting adjustment of £(154)m (vs £(90)m in H1 2017).

Self-funded R&D cash spend up 14%; P&L charge down 28%

Gross research & development expenditure grew £44m to £663m. After funding from customers and other third parties, self-funded cash R&D spend rose 14% to £518m, reflecting increased investment on new engine demonstrators and technology for future products including the new business aviation Pearl family of engines and UltraFan / Advance3 in Civil Aerospace. Capitalisation of R&D rose from £84m to £239m consistent with the revised R&D policy application as outlined at our FY17 results (see Note 1). This led to a reduction in R&D charge to the income statement of £113m to £296m.

C&A costs up 4%

Commercial & administration costs were £479m, up £18m on the prior year driven by Power Systems where pay escalation was not yet offset by headcount changes, together with phasing differences compared to 2017. Within our other businesses, C&A costs were modestly lower in Defence and Civil Aerospace reflecting good discretionary spend control. Over the mid-term, as restructuring benefits start to accelerate, we continue to target a reduction in C&A costs.

Underlying operating profit up £183m

Group underlying operating profit saw a material £183m improvement on the prior year to £146m, reflecting good profit growth at Power Systems of £52m to £80m led by higher volumes and an improvement at Civil Aerospace, where the operating loss reduced by £149m to a £112m loss in H1, reflecting a number of factors:

- Good aftermarket growth led by higher spare parts sales for mature widebody engines
- Increased spare engine deliveries (reflecting a better H1:H2 balance to these than in prior year) which more than offset increased volumes of loss making installed OE engines
- The increased level of net capitalised R&D contributed £173m more than the prior year driven primarily by the policy application change which was absent from H1 2017
- These more than offset the impact of higher negative contract accounting adjustments, with a £(154)m impact in H1 vs £(90)m in the prior year

Interest

Interest and other financial costs marginally increased year-on-year by £1m to £65m. Net interest payable increased by £4m whilst other underlying financing costs reduced by £3m.

Taxation

Core underlying income statement tax charge was £22m vs a £6m credit in H1 2017, a core underlying rate of 27.2% compared with 4.8% in H1 2017.

Exceptional charge on Trent 1000

In H1 2018, an exceptional charge of £554m has been taken to the income statement. It reflects the income statement impact of the abnormal costs we are incurring to resolve the Trent 1000 in-service issues, which fall outside the scope of our normal TotalCare costs. The charge represents around 40% of the total cash costs expected to be incurred in resolving the Trent 1000 issues for the period to 2022 and is not incremental to them. The remainder of these costs will be recognised over time through our normal contract accounting margins. Cash costs on the Trent 1000 in-service issues will continue to be fully reflected in underlying free cash flow.

Exceptional restructuring charge

An exceptional restructuring charge of £179m was recognised in the first half (H1 2017: £31m), of which £47m relates to restructuring programmes that are already in place at Power Systems and Defence, reflecting actions to remove cost and improve operational efficiency. £132m relates to the cost of restructuring already disclosed at the Capital Markets Event and reflects the maturity of the restructuring plans. As we disclosed, the total cash cost to implement this restructuring is expected to be around £500m with approximately 25% of that in 2018 and the remainder in 2019 and 2020.

Summary funds flow: Group

£m	H1 2018	H1 2017	Change
Underlying profit before tax - Group	**73**	**(143)**	**216**
Depreciation & amortisation	313	331	(18)
Movement in net working capital	129	324	(195)
Expenditure on PPE & intangible assets	(669)	(599)	(70)
Other	128	(169)	297
Trading cash flow - Group	**(26)**	**(256)**	**230**
Taxation paid & pensions*	(46)	(83)	37
Free cash flow - Group	**(72)**	**(339)**	**267**
Of which: Free cash flow – Core business	***10***	***(264)***	***274***
Shareholder payments	(85)	(85)	-
Payment of financial penalties & other**	13	(262)	275
Foreign exchange	30	(20)	50
L'Orange disposal proceeds	584	-	584
Change in net funds	**470**	**(706)**	

*Includes contributions to defined benefits pensions in excess of underlying PBT charge
**Includes net funds acquired/acquisitions and Other Items

Group free cash flow improvement of £211m versus prior year

Overall Group free cash flow improved materially in H1, with an outflow of £72m (H1 2017: £(339m)). Our core business generated free cash flow of £10m (H1 2017: £(264)m). The good year-on-year cash flow improvement was driven by increased cash flows in the Civil Aerospace aftermarket from strong growth in

engine flying hours and T&M aftermarket activity, better deposit inflows at Defence and a more balanced profile of Civil spare engine deliveries in H1 versus H2 than in the prior year. These more than offset the increased level of R&D cash spend and higher cash costs incurred on Trent 1000 and Trent 900 in-service issues.

Working capital contribution
The working capital contribution was £129m positive to cash flow in H1, well below the prior year of £324m. Key drivers were the strong growth in engine flying hour receipts in advance of revenues being recognised, more than offsetting the growth in inventories in the period. A full description of working capital movement is provided on page 21.

Payment to shareholders held flat at 4.6p per share
For H1 2018 the final payment to shareholders is held at 4.6 pence (H1 2017: 4.6 pence), a cash cost of £86m. Restoring our shareholder payments to an appropriate level over time as free cash flow grows will be a key capital allocation priority.

Group net debt
At H1 2018 the Group moved to a net cash position of £165m (2017 Full Year: £(305)m) largely reflecting the €673m proceeds from the sale of L'Orange which was completed on 1 June 2018, group free cash outflow of £72m and shareholder payments of £85m.

Credit rating
The Group is committed to maintaining a robust balance sheet with an investment-grade credit rating. We aim to maintain stable ratings in the single A rating. We believe that this is important for our customers given that we deliver high-performance products and support for equipment which will be in operation for decades.

IFRS 15
Following transition to IFRS 15 on 1 January 2018 on a 'full retrospective' basis the financial results for both the current and comparative period are disclosed on an IFRS 15 basis. The impact of IFRS 15 on our accounting policies and our financial results in 2017 are shown on pages 28 and 45, respectively.

Foreign exchange
The Group hedges transactional foreign exchange exposures to reduce volatility of revenues and costs. The most significant exposure is net US dollar income which is converted into GBP (currently approximately $5-6bn per year and forecast to increase over time). The Group has a hedge book of $37.3bn (at an average rate of USD:GBP 1.55) covering this exposure. We expect the achieved £/$ hedge rate to remain unchanged at around USD:GBP 1.54 through to 2020.

Board update
During the first six months of the year we have appointed one new Non-Executive Director to the Board. Nick Luff was appointed with effect from the close of the Annual General Meeting on 3 May 2018 and joined the Nominations & Governance and Audit Committees.

Civil Aerospace overview

Financial overview

£m	H1 2018	H1 2017	Change	Organic change
Engine deliveries (volume)	**365**	**308**	**+19%**	**+19%**
Underlying revenue	**3,600**	**2,858**	**+26%**	**+26%**
Underlying OE revenue	1,530	1,151	+33%	+32%
Underlying services revenue	2,070	1,707	+21%	+22%
Underlying gross profit	**148**	**137**	**+8%**	**+12%**
Gross margin %	*4.1%*	*4.8%*	*-70bps*	*-50bps*
Commercial and administrative	(157)	(155)	+1%	+1%
Research and development cost	(152)	(280)	-46%	-46%
Joint ventures and associates	49	48	+2%	+6%
Underlying operating profit	**(112)**	**(250)**	**138**	**149**
Underlying operating margin %	**-3.1%**	**-8.7%**	**+560bps**	**+590bps**

Underlying revenue

£m	H1 2018	H1 2017	Change	Organic change
Original Equipment	**1,530**	**1,151**	**33%**	**32%**
Large engine	1,157	763	52%	51%
Business aviation	305	284	7%	5%
V2500	68	104	-35%	-35%
Services	**2,070**	**1,707**	**21%**	**22%**
Large engine	1,328	1,061	25%	25%
Business aviation	201	175	15%	18%
Regional	151	138	9%	14%
V2500	390	333	17%	17%

Underlying revenue increased 26% to 3,600m, reflecting growth in OE, up 32% to £1,530m, and in services, up 22% to £2,070m. This was driven by the continued ramp up of large engine production with deliveries growing to 259 from 209 in the prior year and strong year-on-year growth in spare engine OE sales to support the growing in-service fleet. Revenue growth from increased sales of spare engines to joint ventures contributed £141m to revenue growth in H1. The rise in OE deliveries includes higher sales of Trent 1000 engines for the Boeing 787 and Trent XWB, including the new Trent XWB-97 for the Airbus A350-1000, which entered into service earlier in the year.

Large engine service revenue increased 25% to £1,328m (H1 2017: £1,061m) driven by higher shop visit volumes, with 137 major LTSA shop visits (H1 2017: 91) as expected as a number of Trent 700 engine have had first overhauls combined with growth in spare parts sales and increased repair activity on engines not covered by LTSAs, notably RB211-535s.

Within business aviation, OE sales were 5% higher largely driven by increased engine sales to Bombardier and Gulfstream for large cabin aircraft. The 18% increase in service revenue reflects the impact of lower servicing costs for long-term support contracts which generated a positive contract accounting impact on revenue. The level of service activity on business aviation engines has remained broadly stable.

The 14% increase in regional revenue was driven by higher sales of spare parts to third party MRO bases. On the V2500, OE revenue was 35% lower, reflecting production slowdown on the Airbus A320ceo. The 17% increase in V2500 service revenue to £390m was driven by increased servicing and higher spare part sales. The payment from IAE for flying hours remained broadly stable.

Underlying operating profit
The underlying operating loss of £(112)m improved by £149m. Gross profit increased 12% to £148m with gross margins falling 50bps to 4.1%. Strong servicing activity driving increased spare part sales and higher profit from increased spare OE sales was partly offset by a materially higher negative impact from long-term contract assumption changes. Under long-term accounting, a variation in revenue or cost assumptions, up or down, can lead to contract accounting adjustments, positive or negative, for profits that have already been recognised over the life of a programme to date. In the period there was a negative contract accounting impact of £(154)m (2017: £(90)m) which comprised three components:

- Life-cycle cost benefits of £19m primarily reflecting lower servicing costs for business aviation
- Higher technical costs of £(71)m to reflect the reassessed costs of technical issues across various engine programmes including the additional inspection requirements on the Trent 1000
- Higher costs of £(102)m reflecting the latest information around future aircraft utilisation patterns and the resultant effects on shop visit cost and efficiency

£m	H1 2018	H1 2017
Life-cycle costs	19	(14)
Technical costs	(71)	(9)
Operational changes	(102)	(67)
Total contract accounting adjustments	**(154)**	**(90)**

Investment in self-funded R&D rose by £44m, reflecting increased investment in the new family of engines for business aviation engines and next generation technology, including for the UltraFan demonstrator. This was more than offset by an increase in R&D capitalisation and amortisation of £174m largely reflecting the stage of capitalisation of a number of development programmes which were applied from H2 2017. Overall the expensed R&D charge in the first half reduced from £(280)m in 2017 to £(152)m in H1 2018. While C&A charges of £(157)m were 1% higher, this reflected higher restructuring costs. Excluding such restructuring, C&A costs were £1m lower year-on-year. Profit from joint ventures and associates of £49m was 6% higher due to higher shop visit volumes and a change in the mix of work in joint venture overhaul bases. 2017 profit from joint ventures included £8m from ITP Aero when it was a still a joint venture and reported within Civil Aerospace.

Trent 1000 in-service update
Since 2016, we have been undertaking a proactive maintenance programme on the Trent 1000 to address lower than expected durability of a small number of parts. This has caused disruption to customers which we sincerely regret. On 7 March 2018, with our FY 2017 results, we provided further detail as we progressed our understanding of the technical issues impacting compressor rotor blades, and intermediate and high pressure turbine blades within the Trent 1000. We reported that £119m of cash costs were incurred in 2017 in relation to accelerated maintenance activities on the Trent 1000.

At the time of our FY 2017 results, we provided details of the anticipated future annual cash impact of the in-service issues with the Trent 1000 and issues with the durability of high pressure turbine blades for Trent 900. The impact was expected to broadly double in 2018 from the £170m incurred in 2017 across both the Trent 1000 and Trent 900, before falling by around £100m in 2019. The majority of the work is expected to have been undertaken in 2018 and 2019 and be fully complete by 2022.

On 13 April 2018, we announced the decision to undertake more frequent inspections of the compressors of our fleet of 386 Trent 1000 Package C engines. This was followed by EASA and the FAA issuing airworthiness directives related to repeat inspection requirements for Package C compressors. We said that we would mitigate the incremental cash cost of this accelerated inspection regime by reprioritising various items of discretionary spend. On 11 June 2018 we reported that a similar durability issue had been identified on a small number of high life Package B engines and we had agreed with the regulatory authorities to carry out a one-off inspection of the whole fleet of 166 Package B engines. We have since agreed with the authorities to carry out a regular inspection regime which we will manage as part of our ongoing maintenance programme.

On 15 June 2018, at our Capital Markets Event, we reported that our current assessment was that the further issues encountered since our FY 2017 results could lead to combined additional 2018 cash costs for both the Trent 1000 and Trent 900 in-service issues of around £100m on top of the doubling we had already guided, thus taking the total to approximately £450m. We added that we had successfully enacted a

number of short-term discretionary cost mitigation actions and free cash flow guidance for 2018 was maintained unchanged at around £450m +/- £100m.

Having provided updated guidance on the cost of these actions in 2018 at our Capital Markets Event in June we are now clarifying the incremental cost of this dynamic situation on 2019 and beyond. Our current assessment is that the combined cash cost of both the Trent 1000 and Trent 900 in-service issues will be at a similar level in 2019 to the approximately £450m we expect in 2018, before declining by at least £100m in 2020. We still expect to deliver an improvement in 2019 underlying core free cash flow compared to our guidance for 2018, marking a further step towards our 2020 free cash flow ambition. The cash costs of the Trent 1000 and Trent 900 issues are expected to step down materially after 2020, with all technical changes expected to be fully embodied into the Trent 1000 and Trent 900 fleets by 2022.

The Trent 1000 in-service engine issues have caused significant disruption for a number of our customers, which we sincerely regret. We continue to work hard to remedy this situation and have made further good progress on the implementation of long-term solutions in the first half of the year. We have significantly increased our Trent 1000 maintenance and overhaul capacity, sought ways to reduce engine shop visit turnaround times and have added approximately 50% more turbine blade capacity since the start of the year. We recently confirmed that we have now started certification testing of a redesigned intermediate compressor rotor blade for Trent 1000 Package C engines, with a redesign for Trent 1000 Package B engines to follow. In addition, as a precautionary measure, we have launched and, are in the process of testing, a redesign of the blade common to the Trent 1000 TEN and Trent 7000 engines. We continue to make good progress in addressing the other known issues affecting Trent 1000 engines.

Trent 1000 exceptional charge

In H1 2018, an exceptional charge of £554m has been taken to the income statement. It reflects the impact of the abnormal costs we are incurring to resolve the Trent 1000 in-service issues, which fall outside the scope of our normal TotalCare costs. The charge represents around 40% of the total cash costs expected to be incurred in resolving the Trent 1000 issues for the period to 2022 and is not incremental to them. The remainder of these costs will be recognised over time through our normal contract accounting margins. The treatment of such a charge as exceptional reflects a number of factors, primarily:

- The unprecedented nature of the issues with the Trent 1000 – being a fleet-wide issue of an unusual and abnormal scale, impacting multiple airline customers and resulting in a significant level of aircraft on the ground
- The fact that this technical issue has resulted in a number of separate airworthiness directives and non-modification service bulletins – a highly abnormal situation for Rolls-Royce

The costs which have been included in the exceptional charge cover those which we would not typically incur, such as responding to customer claims in connection with the significant disruption caused and wastage costs related to remediation shop visits, i.e. wasted material and labour to fulfil the contract that are not reflected in the price of the contract.

All other normal course of business costs associated with TotalCare service provision on Trent 1000 engines will continue to be expensed through the income statement within underlying profit in each financial period, in line with our normal contract accounting approach. Cash costs on the Trent 1000 in-service issues will continue to be fully reflected in underlying free cash flow.

Operational and strategic review

The long term trends driving demand for growth in passenger aircraft remain strong, in particular, a growing aspirational and mobile middle-class. We continue to expect strong widebody airframe demand, with an increased focus on newer, more fuel-efficient aircraft, which will support our continued growth in market share and installed base, delivering strong service revenues for decades. The total widebody engines on order is 2,416. In H1 2018, there were 259 widebody engines delivered and 185 orders were placed, including 106 Trent XWB engines and 46 Trent 7000 engines.

Our in-service large engine fleet grew by 4% in the first half to 4,567 and wide-body engine flying hours increased 20%, driven by growth in our Trent 700, Trent 1000 and Trent XWB fleets. The Trent 700 fleet, which now represents 35% of our in-service fleet with over 1,600 engines in service, achieved its 50 millionth flying hour in June. The Trent 700 engine which is known for its dependability and has become the engine of choice for Airbus A330ceo customers, helping us increase our in-service widebody passenger aircraft market share from 14% in 1995, when it was introduced, to 34% today. Our Trent XWB-84, which now represents 8% of our in-service widebody fleet, and has achieved over 2 million flying hours with

excellent levels of reliability. With over 1,300 engines on order, our Trent XWB engines will be a key driver of the continued growth in our market share to over 50% in the early 2020's.

Our strong position in new widebody aircraft was underpinned by progress with three new engines in the period. We powered the first test flight and entry into service of the Boeing 787-10 Dreamliner with delivery of the first Trent 1000 TEN powered Boeing 787-10 to Singapore Airlines. The Trent XWB-97 is now powering three Airbus A350-1000 aircraft with full ETOPs capability and we achieved full certification of the Trent 7000 which will power the Airbus A330neo, with entry into service expected later this summer.

We have seen positive signs of recovery in the business aviation market and are well placed to respond with our new family of engines, launched earlier this year with the announcement of the Pearl 15, which will power the new Bombardier Global 5500 and Global 6500 aircraft. This supports our strategy of regaining market share and reaffirms our position as the top engine supplier in the long range, large cabin sector of the market.

We have made good progress on our future technology programmes, including successfully starting icing tests on our new lean burn and low emission combustion system (ALECSys), which will be used in our UltraFan engine, as well as running our Advance3 engine demonstrator at full power for the first time.

We have taken steps to increase our capacity for engine testing in the first half. We signed a lease with American Airlines for a testbed in Texas which will be used for endurance testing on large engines. We also entered into an agreement with Thai Airways International to support maturity testing on our Trent XWB engines. In addition, we have started work to support the construction of a new testbed in Derby which will provide testing capability for the next generation of engines.

We continue to design and deliver new digital services for our customers, under the banner of our IntelligentEngine vision. With the support of our newly-established R^2 DataLabs team we are able to combine our pioneering technology with advancements in the digital realm to deliver greater reliability, efficiency and value for our customers.

Defence overview

Financial overview

£m	H1 2018	H1 2017	Change	Organic change
Aero engine deliveries (volumes)	**258**	**273**	**-5%**	**-5%**
Underlying revenue	**1,415**	**1,478**	**-4%**	**-**
Underlying OE revenue	608	629	-3%	+1%
Underlying services revenue	807	849	-5%	-1%
Underlying gross profit	**281**	**292**	**-4%**	**+1%**
Gross margin %	19.9%	19.8%	+10bps	+30bps
Commercial and administrative	(77)	(83)	-7%	-5%
Research and development cost	(44)	(32)	+38%	+41%
Joint ventures and associates	2	3	-33%	-33%
Underlying operating profit	**162**	**180**	**-10%**	**-3%**
Underlying operating margin %	**11.4%**	**12.2%**	**-80bps**	**-40bps**

Underlying revenue

Underlying revenue of £1,415m was broadly flat compared to the prior year on a constant currency basis. OE revenue remained broadly unchanged as combat volumes reduced after the completion of the Oman EJ200 production contract in 2017. This was offset by increased demand for transport engines such as the Multi-Role Tanker Transport (MRTT) aircraft and AE2100 variants and an OE contract for the UK's Dreadnought submarine programme. Service revenue was largely flat as increased Long Term Service Agreement (LTSA) revenues driven by EJ200 and Adour were offset by lower service revenue related to the phasing of work on UK submarines.

Underlying operating profit

Underlying operating profit of £162m was £6m lower than the prior year. Gross profit of £281m grew 1% driven by increased sales of MRTT engines and higher LTSA margin improvements of £28m (2017: £21m). This is reflective of cost improvements and increased flying hours on combat and patrol contracts, partially offset by lower OE combat volumes and lower margin on a bridging contract following completion of a submarine service agreement in the prior year.

An increase in R&D spend of £13m largely reflects ongoing future programmes across our Defence portfolio. C&A costs were £4m lower as a result of actions taken across the business to manage discretionary spend.

Operational and strategic review

Following the Group's restructuring announcement in January of this year, Tom Bell, previously Global Sales & Marketing for Defense, Space & Security at The Boeing Company, was appointed to lead the enlarged Defence business comprising Defence Aerospace, Submarine and Naval operations. During the first six months, meaningful progress has been made on integration in order to identify and pursue cost efficiency, leveraging our technology and operational experience across this enlarged business to provide integrated solutions to better serve our customers.

As part of this restructuring, Defence has streamlined to a five-layer organisation from top to bottom, focused upon Defence Programmes, Services and Submarine activities with aligned functional support. Opportunities have been actively pursued to incorporate elements of work previously done by central functions. An example of this is a move to combine the former head office function of the US Government Relations and the US Customer Business team within Defence in order to better serve one of the business' key customers.

Outlook for full year orders is positive, with a strong pipeline of expected opportunity in Combat, Naval and Submarines. Orders secured in the first half of 2018 reflect activity across markets to secure aftermarket contract renewals such as with the US Department of Defense to support in-service fleets, ongoing work related to the UK's submarine programmes and other smaller contracts. Notable orders include £300m of contracts in Submarines representing orders for decommissioning, development and sustainment activity in the near-term, and a sustainment agreement worth up to $420m over six years to support both US Air Force and Navy AE3007H engines. This is part of our innovative public-private partnership first formed in

2016 at Tinker Air Force Base in Oklahoma, US, which enables closer collaboration with our customer to maximise engine availability.

Naval continues to see good demand for its MT30 marine gas turbine with an initial MT30 powered Daegu-class frigate delivered to the Republic of Korea Navy, marking the first deployment of this engine outside the UK and US markets. In June, Japan was the fifth nation to select the MT30 engine for a major naval ship programme, while the Australian government's selection of the Type 26 Global Combat Ship as the preferred design for the SEA 5000 Future Frigate program presents further opportunity to provide a naval propulsion system with the MT30 engine at its core.

Operationally, there was solid progress across Defence. LiftSystem™ continued its good in-service fleet performance with the Royal Air Force deploying the first four F-35B Lightning II aircraft to the UK. EJ200 production volumes remain at a lower level; although the expectation remains for further orders following agreement of a contract to purchase 24 aircraft in December 2017 from the State of Qatar, and the signing of a memorandum of understanding to purchase a second batch of 48 aircraft for the Kingdom of Saudi Arabia.

We continue positioning the business to maximise the strengths of our teams to develop strong long-term relationships with current and future customers. This includes the modernisation of the Indianapolis facility, which continues on track to achieve its 2018 milestones, including substantial completion of construction and refurbishment and a quarter of manufacturing relocation. In addition, the business made good progress towards securing a substantive role to deliver a new combat power and propulsion system through its position as one of four partner companies in Team Tempest, a collaboration set up to explore a range of concepts as part of UK's Future Combat Air strategy. The signature of a contract during the Farnborough Airshow allows us to further advance our combat R&D activities and mature key next generation power and propulsion capabilities.

Power Systems overview

Financial overview

£m	H1 2018	H1 2017	Change	Organic change
Underlying revenue	**1,471**	**1,275**	**+15%**	**+13%**
Underlying OE revenue	945	814	+16%	+14%
Underlying services revenue	526	461	+14%	+12%
Underlying gross profit	**354**	**283**	**+25%**	**+23%**
Gross margin %	24.1%	22.2%	+190bps	+180bps
Commercial and administrative	(188)	(172)	+9%	+8%
Research and development cost	(86)	(84)	+2%	0%
Joint ventures and associates	-	(1)	n/a	n/a
Underlying operating profit	**80**	**26**	**+208%**	**+193%**
Underlying operating margin %	**5.4%**	**2.0%**	**+340bps**	**+330bps**

Underlying revenue

Underlying revenue was £1,471m, an increase of 13%. This excludes L'Orange which is now treated as non-core following its disposal in June. OE rose 14% with good growth in almost all segments, notably led by improved commodity end markets, Medium Speed Land, Rail and Marine / Government project wins. Power Generation was the only end market not to experience growth in H1, solely due to the tough comparison base after the high level of demand seen in 2017 from Chinese Telecoms related sales. Services revenue increased 12% with improved commodity markets driving higher engine running hours and hence improved spare parts and engine remanufacturing demand, particularly in the US.

Underlying operating profit

Overall, excluding L'Orange, underlying operating profit rose by £52m to £80m, 193% growth, reflecting the benefits of higher volumes. This also drove an increase in gross margin, up 180bps to 24%.

C&A costs were 8% higher with pay escalation not yet offset by headcount changes, together with phasing differences compared to 2017. Ongoing discipline around R&D investment saw costs held broadly flat despite continued investment in future engine platforms and in support of our electrification strategy and engineering capabilities.

Operational and strategic review

In the first half of 2018, market conditions remained robust across Power Systems' diverse end-markets. There was continued demand in Power Generation, particularly for diesel powered solutions to support infrastructure projects in emerging markets and for gas-engine power solutions driven by increasing availability of gas and requirements for fast response capability to support time-critical operations. Industrial end markets remain supported by higher commodity prices and rising demand for solutions tailored to offshore wind markets, however challenges remain in offshore markets, and Civil Nuclear faced some headwinds from project delays.

Order intake was up year-on-year primarily driven by the recovery of key markets, such as Oil & Gas, Mining and Agriculture, and also as some customers brought forward their orders into 2018 ahead of new emissions standards coming into effect in 2019. Bergen land engines are notable as all sales year-to-date have been accompanied by long term service contracts, contributing to further growth in services. Demand for Power Generation also continued to grow driven by an agreement signed in July to deliver 475MW of backup capacity for Chile's national electricity grid as part of a consortium led by TSK. Continued strong interest from naval customers has generated a pipeline of opportunity. Our confidence in full year delivery is underpinned by over 80% order coverage for the full year compared to circa 70% at the same time in the prior year.

Following the Group's restructuring announcement in January of this year, Power Systems has achieved milestones such as the integration of the Civil Nuclear operations and also completed the sale of L'Orange, a fuel injector business, to Woodward Inc. for total proceeds of €673m. L'Orange will remain an important partner and supplier for Power Systems in the future through a long-term supply agreement. Other key activities include projects to enable greater digitalisation, increasing fleet connectivity to support growth in the level of long-term Value Care Agreements (VCA) covering our in-service engines. This demonstrates

the strong drive from the leadership team to transform the business into a solutions-provider and achieve a greater share of the engine service opportunity.

The business is implementing MTU customer service 4.0, a service and digital strategy to transform the Power Systems service and distribution networks is focused on improving customer interfaces such as the opening of a new Customer Care Centre's based in Friedrichshafen, Novi in the US, and Singapore. The recent launch of pilot programmes will explore concepts for both the Factory of the Future and Service of the Future, informing how the business will align its internal processes more closely to meet customer needs. This highlights the commitment by the business to achieving strengthened service offerings and is complemented by further optimisation of inventory levels to increase availability of spare parts at the point of sale beyond 80%.

Good progress has been made to establish production capability in lower cost locations closer to key end markets. In early 2018, the joint venture MTU Yuchai Power began localised production of the MTU Series 4000 diesel engines under license as the business took receipt of the first engine from the production line in the city of Yulin, China, and production continues to ramp up. In April, an agreement was signed with Goa Shipyard Limited to assemble Series 8000 engines, further reinforcing a commitment to 'Make in India' after an earlier agreement to assemble Series 4000 naval engines in the country.

R&D activity focused on delivering efficient and disciplined investment in the current and future product portfolio. The business continued to reprioritise its product roadmap, with a reduction in product variants of around 30% achieved since 2015, and positioning of future products towards growth markets to reflect the structural shift away from traditional engine solutions. Investments focused on hybrid and gas technology with the first prototype of a 1MWh battery storage container for micro-grid solutions or off-grid power supply, while the launch of the pioneering Series 4000 marine gas engine demonstrates our capability to enable operators to meet stringent emissions regulation.

ITP Aero overview

Financial overview

£m	H1 2018	H1 2017*	Change	Organic change
Underlying revenue	**375**	**309**	**+21%**	**+19%**
Underlying OE revenue	336	-	-	-
Underlying services revenue	39	-	-	-
Underlying gross profit	**85**	**50**	**+70%**	**+67%**
Gross margin %	*22.7%*	*16.2%*	*+650bps*	*+650bps*
Commercial and administrative	(31)	-	-	-
Research and development charge	(14)	-	-	-
Joint ventures and associates	-	-	-	-
Underlying operating profit	**40**	**8**	**+400%**	**+400%**
Underlying operating margin %	**10.7%**	**2.6%**	***+810bp***	***+820bps***

* ITP Aero was acquired on 19 December 2017. Prior year comparatives are unaudited and are presented for comparison purposes only

Underlying revenues

Underlying revenue was £375m, an increase of 19% versus H1 2017. Growth was led by higher engine volumes, with significant ramp-up across various Civil Aerospace programmes in ITP Aero's portfolio. Civil Aerospace aftermarket growth was strong, with Defence sales modestly lower and flat revenues in MRO and services.

Underlying operating profit

Operating profit of £40m was a £32m improvement versus H1 2017 driven by significantly improved gross margins. Civil Aerospace was the key driver of progress driven mostly by Rolls-Royce programmes, with a combination of higher volumes, improved mix of engine types and a better aftermarket performance.

Operational and strategic review

The long-term trends driving demand for growth in passenger aircraft remain strong. The business continues to expect strong airframe demand for both narrow and wide body aircraft, with an increased focus on newer more fuel efficient aircraft. This, coupled with ITP Aero's presence on newly launched platforms which are currently ramping up, provides a solid base for ongoing growth, particularly in Civil Aerospace.

The business continued to deliver good operational progress underpinning production ramp-up. Production volumes have now reached a record level, driven by the considerable increases across Rolls-Royce and Pratt & Whitney civil engine programs, with a solid volume base from GE and Honeywell and also at Defence. In order to support this growth, we have continued to successfully execute on its capital investment plans, with expansion of production facilities in Spain and Mexico and across various products including turbo-machinery, externals and castings.

Execution continued on our Research & Technology plan, which includes among others, new technologies for future low pressure turbines (both conventional and high speed designs suitable for use in future geared drive systems). We also continue to invest in advanced manufacturing processes, including additive manufacturing and digitalisation.