

Case No COMP/M.6844 - GE/ AVIO

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**REGULATION (EC) No 139/2004
MERCER PROCEDURE**

Article 6(1)(b) in conjunction with Art 6(2)
Date: 01/07/2013

*In electronic form on the EUR-Lex website under
document number 32013M6844*



EUROPEAN COMMISSION

Brussels, 1.7.2013
C(2013) 4253 final

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(1)(b) DECISION

To the Notifying Party:

Dear Sir/Madam,

**Subject: Case No COMP/M.6844 – GE/ Avio
Commission decision pursuant to Article 6(1)(b) in conjunction with
Article 6(2) of Council Regulation No 139/2004**

1. On 13 May 2013, the European Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004¹ by which the undertaking General Electric Company ("GE", United States) acquires within the meaning of Article 3(1)(b) of the Merger Regulation sole control of the Aviation Business of Avio S.p.a ("Avio", Italy) by way of purchase of shares.² GE is hereinafter referred to as "the Notifying Party", whereas GE and Avio are collectively referred to as "the Parties".

¹ OJ L 24, 29.1.2004, p. 1 (the "Merger Regulation"). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ("TFEU") has introduced certain changes, such as the replacement of "Community" by "Union" and "common market" by "internal market". The terminology of the TFEU will be used throughout this decision.

² Publication in the Official Journal of the European Union No C 143, 23.5.2013, p. 6.

2. After having been informed at the appropriate stage of the procedure that it could not be excluded that the proposed transaction, as originally notified, might raise serious doubts as to its compatibility with the internal market, the Notifying Party submitted commitments on 11 June 2013 designed to eliminate the serious doubts identified by the Commission, in accordance with Article 6 (2) of the Merger Regulation. Specifically, the Notifying Party committed to a number of obligations to provide additional protections towards Pratt & Whitney and Rolls-Royce against disruptions of supply and to eliminate any potential conflicts of interest between GE and the EUROJET Turbo GmbH (Eurojet). In light of the agreements subsequently concluded between the Parties and Pratt & Whitney, on the one hand, and the Parties and Rolls-Royce, on the other hand, the Commission considers that no serious doubts arise from a possible input foreclosure of components for Pratt & Whitney and Rolls-Royce engines (see below), so that the relevant part of the commitments submitted by the Notifying Party are no longer necessary. As explained in section VI below, only the commitments regarding Eurojet, a final version of which was submitted by the Notifying Party on 26 June 2013, are still deemed necessary to declare the proposed transaction compatible with the internal market.

I. THE PARTIES

3. GE is a global, diversified manufacturing, technology and services company. GE is made up of eight business units. GE Aviation, the business unit involved in the proposed concentration, manufactures commercial and military jet engines and components, turbo propellers and turbo shafts, as well as avionics and mechanical systems for aircraft.
4. Avio is a global aerospace manufacturer and service provider active in the following business areas: jet engine modules, maintenance repair and overhaul, control and automation systems, and electrical systems. Avio's assets and operations relating to its space business are not part of the proposed transaction.

II. THE OPERATION

5. On 21 December 2012, GE and Avio signed a Sale and Purchase Agreement ("SPA") according to which GE intends to acquire 100% of the shares in a company owning Avio's Aviation Business for EUR 3.3 billion.
6. Pursuant to the SPA, Avio will incorporate a wholly-owned limited liability company ("AeroCo") to which it will transfer all the assets, contracts and liabilities of Avio used exclusively or predominantly for the conduct of its Aviation Business. GE will purchase 100% of the ownership interest of AeroCo, while Avio will retain all assets and liabilities related to its Space Business.

III. CONCENTRATION

7. As a result of the proposed transaction, GE will acquire sole control of the whole of Avio's Aviation Business. The proposed transaction therefore constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

IV. EU DIMENSION

8. The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 000 million (GE: EUR 114 694 million, Avio: [...]). Each of them has an EU-wide turnover in excess of EUR 250 million (GE: [...], Avio: [...]), but they do not

achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State.

9. The proposed transaction has therefore an EU dimension under Article 1(2) of the Merger Regulation.

V. RELEVANT MARKETS

V.1. Industry overview

10. In the aircraft engine industry, original equipment manufacturers ("OEMs") design and manufacture the engines. The engines are specifically designed and tailored for a specific airframe or platform. The primary engine OEMs are GE, Pratt & Whitney ("P&W"), Rolls-Royce ("RR") and Snecma, which, in addition to manufacturing engines on their own, are also part of joint ventures or consortia such as CFM International³ ("CFMI"), Engine Alliance,⁴ EuroProp International,⁵ Eurojet,⁶ International Aero Engines AG⁷ ("IAE") and Turbo Union.⁸
11. P&W is a US-based aircraft engine manufacturer which is a subsidiary of United Technologies Corporation ("UTC"). Other members of the UTC Group include, inter alia: Pratt & Whitney Canada ("PWC"); Sikorsky, a helicopter airframer; and UTC Aerospace Systems which was formed in 2012 through the combination of Hamilton Sundstrand and the recently acquired Goodrich Corporation.
12. RR is a UK-based aircraft engine manufacturer which makes gas turbine engines for military, civil, and corporate aircraft customers, powering *inter alia* large commercial aircraft, regional jets, business jets, military fighters, military transports and helicopters.
13. Snecma is a French aircraft and rocket engine manufacturer which is a subsidiary of the SAFRAN Group. The SAFRAN Group also includes Hispano-Suiza and Techspace Aero.
14. Due to the significant investment required to design and produce a new engine, sometimes one or more OEMs may come together with or without additional partners to share the risk and reward of a particular engine programme. Supply agreements between OEMs and third parties (that is to say suppliers) are often in the form of Risk and

³ A GE (50%) and Snecma (SAFRAN) (50%) joint venture, producing a series of engines including the CFM56-5B/7B (A320, Boeing 737) and the LEAP-1A/B/C (A320neo, Boeing 737MAX and COMAC C919).

⁴ A GE (50%)/P&W (50%) joint venture producing the GP7200 (Airbus A380).

⁵ MTU Aero Engines ("MTU") (28%), RR (28%), Snecma (28%) and ITP (16%) together produce the TP-400D (A400M).

⁶ RR (33%), MTU (33%), Avio (21%) and ITP (13%) together produce the EJ200 (Eurofighter Typhoon).

⁷ A joint venture between P&W (49.5%), IHI/KHI (25.25%) and MTU (25.25%) for the production of the V2500 (A320). Originally, P&W and RR each had a 33% share of IAE. However, RR sold its 33% stake back to the group on 29 June 2012. RR continues to have a vendor relationship on the V2500, albeit without an ownership interest.

⁸ RR (40%), Avio (20%) and MTU (40%) together produced the RB 199 (Panavia Tornado – now out of production).

Revenue Sharing Participation ("RRSP") agreements, implying that the partner pays a participation fee to share the programme risks and revenues for the life of the programme. In particular, the partner typically shares in the development programme expenses, aircraft certification costs and sales concessions. In return it receives a fixed share of engine and spare parts revenues pre-negotiated with the engine OEM. Because the revenue share is pre-fixed, there is no scope for the partner to increase prices during the course of the engine programme.

15. Airbus SAS ("Airbus", France) and the Boeing Company ("Boeing", US) are the two largest airframe manufacturers of large commercial aircraft ("LCA"), including narrow-body and wide-body commercial aircraft. Bombardier and Embraer S.A. ("Embraer", Brazil) are the two largest manufacturers of regional aircraft, whereas for business jets, Bombardier, Embraer, Cessna, Dassault and Gulfstream Aerospace Corporation are the main players. With regard to military aircraft, fighter jet airframers include Boeing, Dassault, Sukhoi, Eurofighter, Lockheed Martin, SAAB and Russian Aircraft Corporation MiG (Russia), while important military transport airframers include Lockheed, Airbus, Boeing, and Kawasaki Heavy Industries ("KHI").

V.2. Vertical relationship between the Parties

16. As Avio is a supplier of engine components and GE is an engine manufacturer, the principal relationships involved in the proposed transaction are mainly of a vertical nature.⁹ OEMs (such as GE and its competitors P&W and RR) are Avio's customers.

V.3. Product market definition – upstream markets

V.3.1. Low Pressure Turbines ("LPTs")

17. The Commission has analysed in the past a number of aerospace component markets and has generally concluded that each aerospace component is a market in itself essentially on the basis that each component performs a distinct and vital function in the operation of the aircraft type it is used for, and is airframe specific (that is to say, customer engineered).¹⁰
18. The low pressure turbine ("LPT") is a component of aircraft turbofan, turboprop and turboshaft engines which converts the gases exiting the combustion chamber into mechanical energy. This energy is used to drive the fan or propeller and the low pressure

⁹ Both Parties are active in the machined parts and fabrications markets (see M.4561 – *GE/Smiths*). There is no overlap between their activities if each type of machined part or fabrication is considered separately (apart from the combustion chambers and turbine exhaust cases which will be addressed in detail in the present decision at section V.6, and the afterburner nozzles and flaps where the combined market share of the Parties would be below 15%). On the overall markets for machined parts and for fabrications, the combined market share of the Parties would be below 15% and they would be facing a large number of competitors including GKN, MTU, and IHI (see reply to the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to the Notifying Party, dated 27 May 2013). Both Parties are also active in thermal barrier coatings, which are used to enhance durability and heat resistance of aircraft engine components or airframe structural components, but the Notifying Party estimates the Parties' shares to be [0-5]%. As a consequence, the effects of the proposed transaction on the markets for machined parts, fabrications and thermal barrier coatings will not be discussed further in the present decision.

¹⁰ M.2892 – *Goodrich/TRW Aeronauticals Systems Group*, M.2220 – *General Electric/Honeywell* and M.1493 – *United Technologies/Sundstrand*.

compressor by means of a long shaft running through the engine centreline. The LPT must be capable of withstanding high stresses due to the high gas temperatures and extreme centrifugal forces of several tons acting on the disk rims.

19. According to the Notifying Party, there are no previous Commission decisions concerning LPTs. The Notifying Party submits that the relevant product market for LPTs is the manufacture of LPT components for all commercial aircraft engines, irrespective of any differences depending on the size and mission profile of the airframe. The Notifying Party submits that the major LPT suppliers are present across all sizes of civil aircraft.
20. The market investigation has confirmed that LPTs are part of a product market in their own right in that they cannot be substituted from the demand side by any other type of component. However, the market investigation was not conclusive regarding the question whether the market for the supply of LPTs should be further segmented according to aircraft size or purpose.
21. With respect to a potential segmentation according to the aircraft size (that is to say wide-body LCA, narrow-body LCA, large regional aircraft, small regional aircraft, corporate aircraft and helicopters), customers generally agreed that the competitive conditions (for example the number and identity of suppliers, manufacturing techniques/machines, know-how, required investment, marketing and technology) are similar across the various aircraft sizes.¹¹ One customer also stated that "*the fundamental design principles for LPTs do not vary greatly across the list of applications [...] design, development and manufacturing capability can largely be read across.*"¹² However, the replies from competitors were mixed as half of the respondents believe that competitive conditions in each segment are different, pointing for example to differences in size, materials, process requirements and supplier capability and past experience in the various segments.¹³
22. In any event, the Commission considers that the precise product market definition for the supply of LPTs can be left open as the proposed transaction does not raise serious doubts under any possible approach.

V.3.2. Combustion Chambers ("CCs")

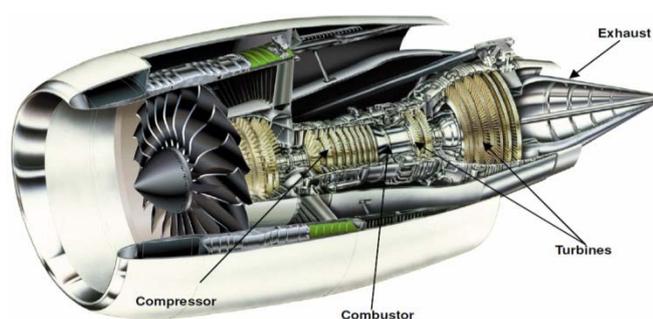
23. In an aircraft engine, the combustion chamber ("CC", also known as the combustor) sits between the compressors and the turbines. The compressors draw in and compress large volumes of air, which are mixed with fuel and burned within the CC, generating very high temperatures.

¹¹ Replies to question 14 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013.

¹² Reply to question 15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013.

¹³ Replies to question 10 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT competitors (Q10), dated 14 May 2013.

Figure 1: Combustion chamber



Source: Notifying Party

24. The Notifying Party submits that the relevant product market for CCs is the market for aerospace fabrications, that is to say a family of constructed static components for aircraft engines that are typically assemblies made up of machined parts, formed sheet metal, and complex castings.¹⁴ According to the Notifying Party, this market would include CCs for all commercial engines, regardless of their type (annular,¹⁵ can-type¹⁶ or can-annular type CCs¹⁷), given that all fabrications suppliers manufacture a very wide range of these products using identical manufacturing processes.
25. According to the responses to the Commission's requests for information, CCs can be produced alongside fabrications but it is unclear whether there is enough supply-side substitutability to consider CCs as being part of a broader market for fabrications.¹⁸ Similarly, it is unclear whether the market for CCs should be further segmented depending on the type of aircraft.¹⁹

¹⁴ M.4561 – *GE/Smiths*, paragraph 29.

¹⁵ According to the Notifying Party, annular CCs are suitable for engines with axial-flow compressors and low airflow rates. The flame tube and both secondary air ducts are annular. Annular CCs are open at the front to the compressor and at the rear to the turbine and relatively short. They are mainly used in gas turbine engines.

¹⁶ According to the Notifying Party, can-type CCs are particularly suitable for engines with centrifugal-flow compressors as the airflow is already divided by the compressor outlet diffusers. Each flame tube has its own secondary air duct. The separate flame tubes are all interconnected. The entire combustion section consists of 8 to 12 cans that are arranged around the engine. Individual cans are also used CCs for small engines or auxiliary power units

¹⁷ According to the Notifying Party, can-annular CCs are a combination of can-type and annular CC. All flame tubes have a common secondary air duct. The aerodynamic properties can be inferior to those of an annular CC as the connectors between the individual flame tubes adversely affect the ignition behaviour. Can-annular CCs are suitable for large engine and – for mechanical reasons – for engines with high pressure ratios. There are some notable differences between CCs for turboshafts and CCs for turbofans. With respect to the former, the CC is a single (double) annular (directly flow). On the other hand, turboshafts can have reverse flow or annular CCs and lower temperature.

¹⁸ Replies to question 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013, and replies to questions 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013.

¹⁹ Replies to question 15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013, and replies to question 15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013.

26. As regards the different types of CCs, the market investigation suggests that they can in principle be used for the same engines but that, once the engine has been designed for a specific CC, it is not easy to switch between models. Modern engines would use annular CCs given their benefits in terms of weight, volume and engine operability.²⁰ The market investigation also suggests that the different types of CCs can be produced by the same manufacturers.²¹
27. In any event, the Commission considers that the precise product market definition for the supply of CCs can be left open as the proposed transaction does not raise serious doubts under any possible approach.

V.3.3. *Turbine Exhaust Cases ("TECs")*

28. Turbine exhaust cases (or "TECs") are the rear structure of a jet engine. The TEC serves three primary functions in the engine system. First it provides the main structural mount for the rear of the engine. Second, it directs the hot gases that exhaust from the rear turbine through the vanes to optimize the exit flow in such a way as to optimise the engine's efficiency. Third, it provides the structural support for the rear bearing and the necessary plumbing to provide the bearing section with lubricating oil and cooling air if so designed.²²
29. From a demand-side perspective, TECs cannot be substituted by any other engine component. However, as for CCs, the Notifying Party considers that TECs belong to the wider segment of "fabrications". According to the Notifying Party, fabrications are not technological differentiators between aircraft engines and are also not the object of significant technological progress. The Notifying Party submits that if from a demand-side perspective an array of different fabrications may on an individual basis be unique in design or function, from a supply-side perspective all fabrications suppliers manufacture a very wide range of these products and therefore all fabrications are part of a larger product market.
30. Even if a distinct market for TECs were considered, the Notifying Party considers that, for supply-side substitutability reasons, isolating a specific market for TECs for a specific type of aircraft (for example TECs for business jets or LCAs) does not reflect the competitive realities of the market.
31. Respondents to the Commission's requests for information confirmed that TECs are not substitutable with other aircraft engine components and should be considered as distinct products from other aircraft components. As regards a further segmentation within TECs regarding aircraft size or purpose, competitors and customers generally agreed that TECs are specifically designed for an engine configuration or application. When the engine configuration is not similar (for example the geared turbofan solution adopted in a narrow-body aircraft), TECs also exhibit significant differences in manufacturing techniques and technologies. Regarding aircraft with comparable architecture but

²⁰ Replies to question 12 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013.

²¹ Replies to question 13 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013.

²² M.6581– *GKN/Volvo Aero*, para. 26.

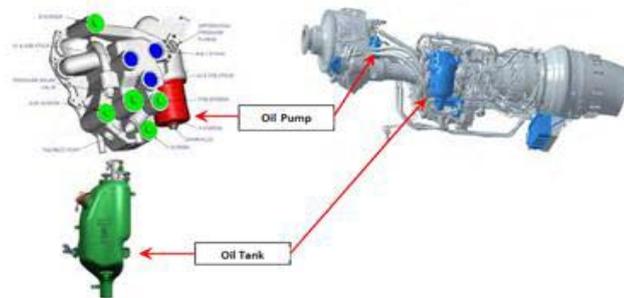
different sizes, as larger engines are more complex systems, manufacturing techniques and know-how for TECs for these large engines are more specific and the array of potential suppliers is narrower.²³

32. In any event, the Commission considers that the precise product market definition for the supply of TECs can be left open as the proposed transaction does not raise serious doubts under any possible approach.

V.3.4. Oil Pumps and Oil Tanks

33. Oil pumps and oil tanks are used in the lubrication and cooling of engine bearings and can either stand alone in an engine or else can be integrated²⁴ into the accessory gearbox ("AGB", see section V.3.7 below). The pressure from the oil is also used as a form of hydraulic power for some auxiliary systems, and to wash away particulates and contaminants. The design and manufacture of oil pumps and tanks is often tendered as part of the AGB, but these parts are less technically complex than the design and manufacture of gearboxes, and can be outsourced to a subcontractor.

Figure 2: Oil pump and oil tank



Source: Notifying Party

34. There are two types of oil system: the wet sump and the dry sump. Oil tanks are used for dry sumps, while wet sumps rely on oil contained within an engine in a pool (the sump) to supply lubrication. Dry sumps are more complex than wet sumps, and are used for larger engines (and thus on larger aircraft). According to the Notifying Party, almost all turbofan, turboprop and turboshaft engines use dry sumps rather than wet sumps as lubrication systems. The Notifying Party submits that all aviation dry sump suppliers also have the capability to design and manufacture wet sump oil pumps.
35. Oil pumps can also be designed either with a vane or a gerotor type pump. Vane and gerotor pumps are both rotary positive displacement pumps, which means that they use a rotating mechanism to create a vacuum to draw in and trap fluid, which is then forced into a discharge pipe. According to the Notifying Party, the primary difference between the two is how they generate the vacuum. Both types can be used for the pumping of oil in an aircraft engine although gerotors are sometimes preferred since they are considered to be more robust. The Notifying Party submits that all oil pump suppliers are capable of providing either gerotor or vane pumps.

²³ Replies to questions 11 and 12 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to TEC competitors (Q10), dated 14 May 2013.

²⁴ Although this is rather the case for oil pumps and fairly rare for oil tanks.

36. The Commission has not considered oil pumps and oil tanks in previous decisions. In the Notifying Party's view the relevant product markets are the manufacture of (i) oil pumps for all commercial and military aircraft engines and (ii) aerospace fabrications, which include oil tanks (including oil tanks for all commercial and military aircraft engines).
37. With regard to oil pumps, the market investigation confirmed that there are technical differences between dry sumps and wet sumps and that indeed almost all turbofan, turboprop and turboshaft engines use dry sumps rather than wet sumps.²⁵ In line with the Notifying Party's claim, the market investigation also indicated that wet sumps are mostly used with reciprocating engines and so are usually only found on smaller aircraft.²⁶
38. It was also confirmed that [...] oil pumps can be designed either with a vane or a gerotor pump²⁷ and that customers purchase both.²⁸ Manufacturers, however, are sometimes specialised in either gerotor or vane pumps.²⁹
39. As regards supply-side substitutability, it has also been pointed out that there "*are many configurations of lubrication systems, and these are predicated on each customer's approach to system design.*"³⁰ There are several competitors in lubrication systems which can produce all types.³¹ Finally, the large majority of competitors confirmed that the components they produce for lubrication systems can be used in all applications, (that is to say small and large engines, military or civil aircraft, etc).³²
40. For the purposes of the present decision, however, the Commission considers that the precise product market definition for the supply of oil pumps and oil tanks can be left

²⁵ Replies to question 13 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013, and replies to question 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

²⁶ Replies to questions 14-15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013, and replies to question 21 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

²⁷ Replies to question 23 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013, and replies to question 16 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

²⁸ Replies to question 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

²⁹ Replies to question 24 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

³⁰ Replies to question 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

³¹ Replies to question 7 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

³² Replies to question 25 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

open as the proposed transaction does not raise serious doubts under any possible approach.

V.3.5. *Maintenance, Repair and Overhaul ("MRO")*

41. Maintenance, Repair and Overhaul ("MRO") refers to the servicing of aircraft, engines and their respective components.
42. The Commission has previously divided MRO services for commercial aircraft into four separate segments: (i) line maintenance; (ii) heavy maintenance; (iii) engine maintenance; and (iv) component maintenance.³³ Furthermore, the Commission has previously considered a further sub-division of line and heavy maintenance into so-called A, B, C and D-checks.³⁴ The Commission has also considered subdivisions on the basis of aircraft and engine type. In the case of components maintenance, the Commission has found it appropriate to distinguish between MRO for commercial aviation and MRO for business aviation.³⁵ The market investigation in the present case has confirmed this distinction.³⁶
43. The Notifying Party submits that a separate market for the provision of MRO for military aircraft exists. From a demand-side perspective, the majority of respondents to the Commission's requests for information indicated that MRO for civil aircraft and MRO for military aircraft belong to separate markets. Each of these two segments have specific characteristics such as different components, equipment, aircraft platforms, design, know-how and usage (aircraft usage is far less intense in the military sector). In addition, military engines are subject to particular qualification tests, certification authorities, airworthiness regulations or confidentiality requirements. It was however acknowledged by some respondents that, from a technical point of view, a provider of MRO services for civil aircraft can perform MRO services for military aircraft.³⁷

³³ M.6410 - *UTC/Goodrich*, M.6554 - *EADS/STA/Elbe Flugzeugwerke JV*, M.5440 - *Lufthansa/Austrian Airlines*, M.3374 - *SR Technics/FLS Aerospace*, and M.3280 - *Air France/KLM*.

³⁴ M.6554 - *EADS/STA/Elbe Flugzeugwerke JV*, M.3280 - *Air France/KLM* and JV.19 - *KLM/Alitalia*. An A-check is performed approximately every 800 flight hours and requires around 200-300 man-hours to complete. B-checks are performed approximately every 4-6 months and are usually performed within 3 days at an airport hangar. C-checks are performed approximately every 18 to 24 months or after a specific amount of actual flight hours as defined by the manufacturer. D-checks/structural checks are the most comprehensive and demanding checks, since the entire aircraft structure is taken apart for inspection and overhaul. Intermediate structural checks occur after 5-6 years and heavy structural checks occur after 10-12 years. Such checks will usually demand around 15,000 to 20,000 man-hours and around 1 month to complete at suitably equipped maintenance bases.

³⁵ M.6410 - *UTC/Goodrich*.

³⁶ Reply to questions 5 and 6 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO customers (Q11), dated 14 May 2013, and reply to questions 7 and 8 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO competitors (Q12), dated 14 May 2013.

³⁷ Reply to question 7 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO customers (Q11), dated 14 May 2013, and reply to question 11 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO competitors (Q12), dated 14 May 2013.

44. Similarly, the Notifying Party submits that MRO for aero-derivatives engines³⁸ is distinct from MRO for the aircraft engines on which they are based. Although the market investigation did not determine whether a segmentation between MRO for aircraft engines and MRO for aero-derivatives engines in general is appropriate, the majority of the respondents to the Commission's requests for information agreed that MRO providers for aircraft engines have the capability/capacity to provide MRO services for aero-derivatives engines.³⁹
45. In the present case, the Commission considers that the exact product market definition for the supply of MRO can be left open, as the notified operation does not raise serious doubts under any possible approach.

V.3.6. Power Gearboxes ("PGBs")

46. In an aircraft engine, the transfer of mechanical power is accomplished by means of a PGB, which transmits the engine's power to drive the propeller, rotor blade or turbine fan, and, most importantly, manage the speed at which they rotate. Regardless of application, all PGBs are designed to accommodate high power loads in a relatively small area of space, which leads to high power density.
47. PGBs are predominantly used in turboprop engines and helicopter airframes. Traditionally, turbofan engines for large commercial and regional aircraft are direct drive configurations and do not use PGBs, although PGBs have been in use on turbofans regional jets and business jets since the 1970s. For example, Honeywell's TFE731, ALF502 and LF507 are all geared turbofan engines used on various Learjets, Cessnas and Dassault business jets as well as the Avro regional jet.
48. P&W has recently developed a turbofan engine (the PW1000G Geared Turbo-Fan family) which uses a PGB (also known as the Fan Drive Gear System, "FDGS"). Engines from this family will equip the Mitsubishi Regional Jet⁴⁰ (PW1200G engine), the Bombardier C-Series⁴¹ (PW1500G engine), the Irkut MC-21⁴² (PW1400G), and the Airbus A320neo⁴³ (PW1100G engine).

Figure 3: Geared turbofan engine

[...]

Source: Notifying Party

³⁸ Aero-derivative gas turbine engines are derived from existing aircraft engines for use in non-aviation applications, such as marine and industrial power generation applications. Aero-derivatives tend to be lighter-weight variations of an established aircraft engine model.

³⁹ Reply to questions 9 and 10 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO customers (Q11), dated 14 May 2013, and reply to question 10 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO competitors (Q12), dated 14 May 2013.

⁴⁰ Capacity of 70-96 passengers.

⁴¹ Capacity of 100-145 passengers.

⁴² Capacity of 130-230 passengers.

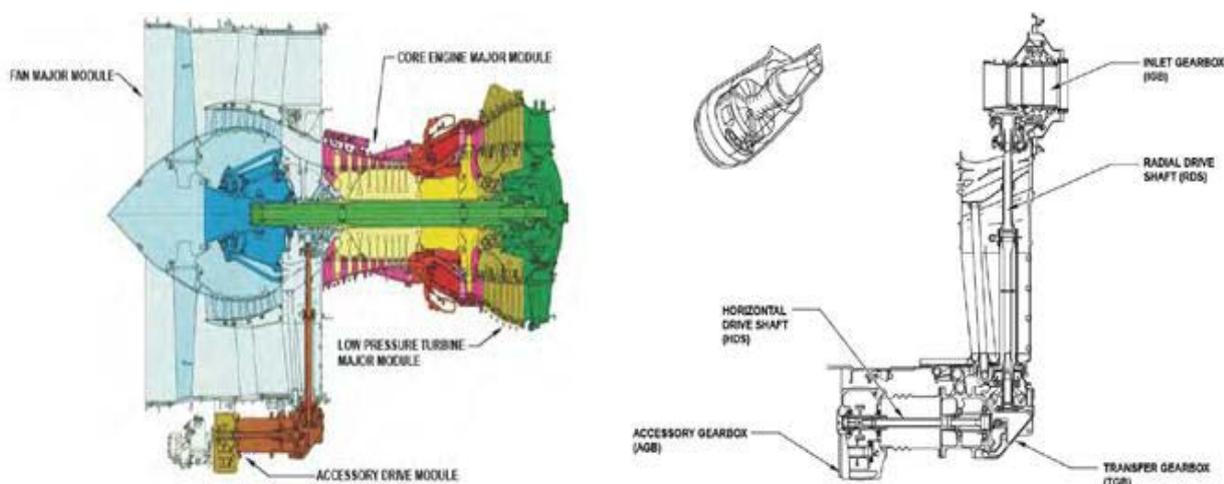
⁴³ Capacity of 124-220 passengers.

49. The Notifying Party submits that the relevant product market should be the market for the manufacture of all PGBs, regardless of the engine type (that is to say turboprop, turboshaft and turbofan) due to the high degree of supply-side substitutability. The Notifying Party stresses that PGBs cannot be substituted by any other type of gearboxes or engine components and that they constitute a separate product market.
50. The market investigation confirmed that PGBs are designed as complete modules⁴⁴ but some answers suggest that the following market segmentations may also be relevant: (i) PGBs for helicopters vs. PGBs for other type of aircraft, (ii) PGBs for large commercial aircraft vs. PGBs for other types of aircraft.⁴⁵
51. In any event, the Commission considers that the exact product market definition for the supply of PGBs can be left open, as the proposed transaction does not raise serious doubts under any possible approach.

V.3.7. Accessory Drive Trains ("ADTs")

52. According to the Notifying Party, in an aircraft engine the accessory drive train ("ADT") transfers power from the engine shaft to engine accessories such as generators and fuel and oil pumps and is composed of (1) an AGB, (2) a transfer gearbox ("TGB"), (3) an inlet gearbox ("IGB") and (4) accessory drive shafts ("ADSs"). In a typical configuration, the IGB takes power from the engine shaft and drives the ADSs, running through the TGB and after into the AGB.

Figure 4: ADT and its constituent components



Source: Notifying Party

53. Apart from providing propulsion for the aircraft, the engine also provides power for auxiliary systems. The ADTs are the means of transferring mechanical power from the

⁴⁴ Replies to question 8 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013, and replies to question 12 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB customers (Q7), dated 14 May 2013.

⁴⁵ Replies to questions 9 to 11 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013, and replies to questions 13 to 15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB customers (Q7), dated 14 May 2013.

engine shaft to electrical and hydraulic systems such as fuel pumps, oil pumps and starters but also aircraft systems such as avionics, hydraulic pumps or power generators. Supply of power to engine accessories and aircraft systems is critical to keep the aircraft airborne and passengers supplied with air, heat and light. The Notifying Party explains that ADT components for a particular engine are usually designed by a single supplier or the engine OEM.⁴⁶ According to the Notifying Party, after the design phase, different suppliers can supply different components on a build-to-print, "mix-and-match" basis.

54. The Commission has not considered ADTs in previous decisions. The Notifying Party claims that although the individual ADT gearboxes such as the AGB, IGB and TGB each perform different roles within an aircraft engine, they should not be viewed separately from the ADT as a whole. In particular, the Notifying Party puts forward that ADT manufacturers do not specialise in the production of a single component only. In addition, the Notifying Party explains that although it is common for a single supplier to supply the entire ADT, having a single supplier for each individual ADT component is not an "essential aspect". Finally, the Notifying Party claims that the engine OEM customers do not necessarily rely on ADT suppliers to integrate the various individual components into a single module and are able to integrate them themselves.
55. Moreover, the Notifying Party argues that although suppliers may not supply each individual component across all segments of aircraft, there are no technical or design barriers that would prevent a supplier of any ADT component for a certain type of engine from supplying for another type of engine and hence there would be no barriers for manufacturers for instance currently active in ADTs for small/military aircraft to produce for LCAs.
56. The Notifying Party thus argues that the relevant product market for ADTs is the manufacture of ADTs for all commercial and military aircraft engines.
57. The market investigation confirmed that the ADT transfers power from the engine shaft to engine accessories and is generally composed of the constituent parts as listed in paragraph 52. It was also pointed out that the IGB typically has a gear on the engine centreline and is not always supplied by the AGB provider, and that some engines, due to a different architecture, can also have a so called step-aside gearbox.⁴⁷ It was overwhelmingly confirmed that the AGB is the most crucial constituent part of the ADT.⁴⁸
58. Customers confirmed that they do not require their ADT suppliers to be able to design and manufacture a complete ADT module,⁴⁹ and competitors stated that in order to be

⁴⁶ Although sometimes the design of the IGB can be carried out separately.

⁴⁷ Replies to question 6 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013 and replies to question 13 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁴⁸ Replies to question 7 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013 and replies to question 14 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁴⁹ Replies to question 9 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

considered as a credible supplier in the ADT market, it is not necessary to be able to design and manufacture a complete ADT module.⁵⁰ ADTs are sometimes designed as a complete stand-alone module and sometimes their constituent parts are designed separately.⁵¹ Finally, there are competitors who supply the entire ADT module, but others are specialised in certain components only.⁵²

59. The market investigation was inconclusive as to the question whether suppliers of ADT components for smaller engines such as those used on regional aircraft would be able to manufacture ADTs or their components for larger engines. Whilst the majority of competitors indicated that it could be possible ("*Scale design to be applied from smaller to larger engines (Same Technology)*", "*probably most of them, based on their manufacturing capabilities*"⁵³), customers generally stated the contrary.⁵⁴
60. In any event, the Commission considers that the exact product market definition, that is to say whether ADTs as a complete module or its components separately constitute the relevant product market and whether ADTs should be further subdivided by aircraft engine type, can be left open as the proposed transaction does not raise serious doubts under any possible approach.

V.4. Geographic market definition – upstream markets

61. The Commission has indicated in prior decisions⁵⁵ that the market for the supply of goods to aircraft engine manufacturers is worldwide due to the physical presence of the same suppliers throughout the world and the worldwide purchasing policy of aircraft manufacturers, as well as low transportation costs. The Notifying Party shares this view.
62. In addition, the Notifying Party also submits, in line with the Commission's previous practice, that the geographic scope of the component maintenance market is worldwide⁵⁶ whereas that for engine maintenance is at least EEA-wide.⁵⁷ As the Parties have no overlapping activities in line and heavy maintenance, these markets will not be further discussed in this decision. With respect to MRO for military aircraft, the Notifying Party submits that the market is national in scope.

⁵⁰ Replies to question 16 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁵¹ Replies to question 10 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013 and replies to question 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁵² Replies to question 4 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁵³ Replies to question 15 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

⁵⁴ Replies to question 8 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

⁵⁵ See for example M.4561 – *GE/Smiths* at paras. 23 and 32, M.2738 – *GE/Unison* at para. 12, M.2220 – *GE/Honeywell* at paras. 240 and 336 and M.697 – *Lockheed Martin/Loral Corporation* at para. 17.

⁵⁶ M.6554 – *EADS/STA/Elbe Flugzeugwerke JV* and M.3374 – *SR Technics/FLS Aerospace*,

⁵⁷ M.6554 – *EADS/STA/Elbe Flugzeugwerke JV*.

63. The market investigation supports the Notifying Party's view regarding the supply of components. The vast majority of respondents to the Commission's requests for information confirmed⁵⁸ that competitive conditions for civil aircraft components are the same worldwide, procurement and other strategy decisions are taken globally and pricing decisions do not differ across the various regions of the world.⁵⁹ The market investigation also confirmed the Commission's previous findings concerning the geographic scope for component maintenance, but was not conclusive on the geographic scope of MRO for military aircraft. The majority of the respondents to the Commission's requests for information indicated that the geographic scope of the MRO for aero-derivatives is worldwide.⁶⁰
64. The Commission considers that the relevant geographic scope for the supply of components to aircraft engine manufacturers, as well as for the supply of component maintenance and MRO for aero-derivatives is worldwide. As regards the supply of MRO for military aircraft, the precise market definition can be left open as the proposed transaction does not raise serious doubts under any possible approach.

V.5. Product and geographic market definition: downstream market – aircraft engines

65. As explained above in Section V.2, the main vertical relationship resulting from this transaction is between GE's aircraft engine business (downstream) and Avio's engine component business (upstream).
66. In its previous practice regarding aircraft engines,⁶¹ the Commission has considered that the downstream markets for jet engines should be defined according to the "mission profile" of the aircraft on which the engine is deployed (that is to say, the purpose for which the aircraft is purchased, determined by reference to the aircraft's seating capacity, flying range, price and operational cost) . On that basis, in *GE/Honeywell*, the following four distinct jet engine markets were distinguished:

⁵⁸ In other cases, such as PGB, the limited number of replies to the market investigation did not provide any reason to deviate from the Commission's previous practice.

⁵⁹ Replies to question 18 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013, and replies to questions 26-28 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013. Replies to question 18 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013, and replies to questions 18 and 19 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013. Replies to question 14 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to TEC competitors (Q6), dated 14 May 2013. Replies to questions 12 and 13 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013, and replies to question 16 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB customers (Q7), dated 14 May 2013. Replies to questions 13, 14 and 17 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT competitors (Q10), dated 14 May 2013.

⁶⁰ Reply to question 11 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO customers (Q11), dated 14 May 2013 and reply to question 12 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to MRO competitors (Q12), dated 14 May 2013.

⁶¹ M.2220 – *GE/Honeywell* and M.4561 – *GE/Smiths*.

- engines for large commercial aircraft (> 100 passengers, range of 2000 to 8000 nautical miles), which include narrow-body/single-aisle aircraft and wide-body/double-aisle aircraft ("LCA");
 - jet engines for large regional aircraft (> 70 passengers, range up to 2000 nautical miles ("LRA");
 - jet engines for small regional aircraft (30-50 passengers, range up to 2000 nautical miles) ("SRA");
 - jet engines for corporate aircraft.
67. However, in *UTC/Goodrich* the precise product market definition as regards engines was left open, as the assessment of the vertical effects of the transaction in relation to engines did not depend on the precise scope of the engine market.⁶²
68. In the case at hand, the Notifying Party submits that the appropriate market definition that needs to be adopted to analyse the effects of the proposed transaction is that of aircraft engines that are suitable and compete for individual aircraft platforms. Aircraft engines are differentiated products which are designed and manufactured for a specific aircraft platform. Engines are tailor-made for an aircraft platform and customers (both airframers and end-customers) cannot utilize engines which do not meet the specific requirements of a given platform. Likewise, they are unable to switch to engines which have not been certified for this platform (if there is more than one certified engine).
69. The Notifying Party therefore considers that since an engine customer cannot substitute any non-certified engine on a specific aircraft and that aircraft certification is a long-term process, engine OEMs are not able (regardless of their market position) to provide a substitutable engine for a given platform in the short term. Therefore, only other certified engines (and, for new platforms, those whose certification process is ongoing) are potential alternatives for a given platform and the competitive dynamics should be assessed at a platform level where engines compete.
70. Moreover, the Notifying Party argues that even if a customer (for example an airline) wants to switch across engines certified for the same platform, it needs to incur additional expenses, in form of sunk investments, including training of pilots, flight crew and maintenance crew on the new engines, hiring additional personnel, etc.⁶³ Similar types of additional sunk investments, albeit of an increased magnitude, would be required in case of switching to competing aircrafts.
71. Overall, the Notifying Party suggested that a platform-by-platform analysis is more informative for the vertical analysis required in this case. In order to assess the merged entity's potential ability and incentives to foreclose, the Commission would need to focus its assessment on the specific aircraft platforms and related engines that could potentially be affected by a foreclosure strategy (such as the A320neo or the A380), as opposed to all engines for a broad category of aircraft taken together – some of the engines of a given category (for example large commercial aircraft) may not be certified on the platform at stake.

⁶² M.6410 - *UTC/Goodrich*, para 52.

⁶³ Form CO, para. 137.

72. While the Commission acknowledges that substitution to a different aircraft in the market would imply additional costs and investments (on the top of the costs of switching across engines on the same platform), it also considers that these additional costs and investments are substantially lower in case of switching to an engine under development for a competing aircraft as in that case the airlines have not yet sunk their investments.
73. The market investigation was not fully conclusive as to the potential segmentations of the engine market. Some of the airframers considered that competitive conditions are the same across aircraft categories, independently of the size and purpose of the programme.⁶⁴ Others put forward that manufacturing techniques and technology are similar irrespective of the size of the programme, but that the required investment and marketing vary with the size of the programme (and also with the size of the organization and market dynamics).⁶⁵
74. In any event, as the concerns expressed by engine manufacturers (see below) were specific to particular platforms, it appears that, as in *UTC/Goodrich*, the assessment of the vertical effects of the transaction in relation to engines does not depend on the precise scope of the engine market. The competitive assessment will therefore focus on these platforms independently of the precise delineation of the product market for aircraft engines, which can be left open.
75. As regards the geographic scope of the engine markets, the market investigation confirmed the Commission's finding in *GE/Honeywell* that all civil engine markets are worldwide.

VI. COMPETITIVE ASSESSMENT – HORIZONTAL ISSUES

VI.1. Combustion Chambers ("CCs")

76. There is a limited overlap between the Parties' activities as both GE (through its UEC business) and Avio supply CCs for helicopters.⁶⁶
77. However, GE supplies CCs for only [...] applications: the [...] (which powers the [...]) and the [...] (for which it only provides [...])% of the CC supply requirements). Avio supplies the [...] which powers various turboshaft platforms.
78. According to the Parties' estimates, since the [...] engines have a share of [10-20]%, while the [...] have a combined share of [5-10]%, the Parties' combined market share on a market for CCs for helicopters, taking into account the limited supplies to the [...]

⁶⁴ Replies to question 3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to airframers (Q13), dated 14 May 2013.

⁶⁵ Replies to question 3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to airframers (Q13), dated 14 May 2013.

⁶⁶ GE manufactures CCs for other type of aircraft but they are only used internally. There is also a limited overlap concerning auxiliary power units ("APU") since Avio provides CC components for [...] (which equips only regional airliners and business jets) and GE supplies the CC for [...]). This overlap is limited since the APUs are not intended for the same aircraft and compete with [...].

engine, would only amount to [10-20]%.⁶⁷ In addition, there are many alternative CC suppliers (see the analysis on the vertical issues below). This is confirmed by a respondent to the Commission's request for information which explained that the transaction "*will somewhat reduce the number of capable CC suppliers to helicopter engines, but we do not view the overall impact as being significant*".⁶⁸

79. In light of the foregoing, the Commission considers that the transaction does not raise serious doubts as regards its horizontal impact on the CC market.

VI.2. Turbine Exhaust Cases ("TECs")

80. The activities of both GE (through its Unison business) and Avio horizontally overlap on the market for TECs.

81. Most of GE's production of TECs is for captive use and the only TECs that GE produces for third parties are those for [...] engine range, which powers certain very light business jets such as the [...].⁶⁹ GE estimates it holds a market share of [30-40]% in the TECs for the light business jet segment.

82. Unlike GE, Avio supplies TECs for engines intended for use on midsize business jets:⁷⁰ first it supplies TECs for the PW308 which is the sole power option on the Hawker 4000 business jet (Hawker Beechcraft) and the Falcon 2000 (Dassault). Avio was also selected to provide TECs for the [...] which was announced as the engine for the [...] but the application was eventually cancelled in [year]. The Notifying Party estimates that Avio holds a share of [10-20]% in TECs for the midsize business jet TECs segment. If distinct markets between TECs for light business jets and TECs for midsize business jets are considered, there is no horizontal overlap between the Parties' activities in TECs. In the potential market for TECs for the entire business jet segment, the Notifying Party estimates that the merged entity holds a limited share of [10-20]% (GE [10-20]%, Avio [5-10]%).

83. The Notifying Party has not been able to supply market shares of its competitors as regards TECs for business jets but the market investigation indicated that several players are active in this market including MTU and ITP. No concerns were voiced during the investigation as regards the horizontal aspects of the merger for TECs and the horizontal impact of the merger as regards TECs is limited.

84. In the light of the above, the Commission considers that the transaction does not raise serious doubts as regards its horizontal impact on the TECs market.

⁶⁷ This figure takes into account the fact that GE supplies maximum [...]% of the CC requirements for Turbomeca and that as consequence, the Notifying Party estimates its market share to only amount to [...]% of [...]%.

⁶⁸ Reply [...] to question 36 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013.

⁶⁹ Capacity 4-8 passengers.

⁷⁰ Capacity of typically 8-12 passengers.

VI.3. Maintenance, Repair and Overhaul ("MRO")

85. There are limited horizontal overlaps between the Parties with respect to MRO services for components for commercial aircraft, MRO for military engines,⁷¹ as well as MRO for aero-derivative engines.
86. Avio provides MRO services for components of the GE90 engine, in particular LPT nozzles, AGB face seals, and IGBs. Although Avio could compete for further component MRO work on the GE90, in practice such work is largely performed by GE itself. No concerns were raised during the market investigation with respect to MRO for components.
87. With respect to aero-derivative engines, Avio provides MRO services for the LM2500 family of engines⁷² (military and commercial). GE performs services for [...]. As for aero-derivative commercial engines, Avio's market share for LM2500 engines is [5-10]%,⁷³ while GE has a market share of [50-60]%. Other competitors are ANZ ([5-10]%), MTU ([20-30]%), TCT ([5-10]%) and other unlicensed providers ([5-10]%). The Notifying Party submits that given Avio's limited presence in the market and the presence of other providers of MRO services for commercial aero-derivative services, the proposed transaction is unlikely to change significantly the current market structure.
88. The market investigation did not raise substantiated concerns with respect to aero-derivative MRO. Moreover, as the holder of the licence for the LM 2500 engine family, GE can decide to limit or provide licence access to other MRO suppliers even pre-merger. Thus the proposed transaction does not significantly change the market for MRO aero-derivatives.
89. In the light of the above, the Commission considers that the transaction does not raise serious doubts as regards its horizontal impact on the MRO market.

VII. COMPETITIVE ASSESSMENT – VERTICAL ISSUES

90. As Avio is a supplier of engine components and GE is an engine manufacturer, the principal relationships involved in the proposed transaction are vertical. More specifically, given that GE sources only a small part of its requirements for the relevant components from Avio's competitors, the proposed transaction is mostly susceptible of raising input foreclosure concerns.
91. In this regard, two main potential foreclosure scenarios could occur. The first one consists of foreclosure on **engine-to-engine competition**. Such a scenario would typically occur in cases where airframers (such as Airbus) certify more than one engine on a given aircraft platform and therefore give customers a choice between rivals' engines. Where a GE engine competes directly with another engine option on the same platform, GE could try to disrupt upstream supplies of Avio products to that competing

⁷¹ With respect to military aircraft,[...].

⁷² The LM2500 is one of GE's aero-derivative engines and is derived from the CF6-6 aircraft engine which is no longer in service.

⁷³ Avio has not performed any services on the LM2500+ in 2012, nor on the LM2500+G4 since the engine is too new for MRO services to be needed.

engine in order to divert sales to the GE engine option.⁷⁴ Currently, there are four engines supplied by Avio that compete directly with a GE (or a GE JV) engine for platforms that are currently in-production or shortly to enter into service (for example the Airbus A320neo):

Table 1: Aircraft where there is engine-to-engine competition

Name of competing manufacturer and engine	GE or GE JV engine	Platform
P&W PW4000	GE CF6 80E1 GE CF6 80C2 GE 90	Airbus A330 Boeing 767 Boeing 777
P&W PW1100G	CFMI LEAP-1A	Airbus A320neo
IAE V2500	CFMI CFM56-5	Airbus A320 family
RR Trent 900	Engine Alliance GP7200	Airbus A380

Source: Notifying Party

92. The second main foreclosure scenario concerns **aircraft-to-aircraft** competition. This would typically occur where one non-GE engine is certified for a given aircraft platform and GE or a GE JV offers its own engine on a competing platform. To succeed, any foreclosure strategy would require that the sales are diverted to an entirely different aircraft.

VII.1. Low Pressure Turbines ("LPTs")

93. The transaction gives rise to a vertical link between the upstream supply of LPTs, where Avio is active, and the downstream supply of aircraft engines, where GE is active. In particular, Avio supplies LPTs for: GE and CFMI engines in the large commercial aircraft segment;⁷⁵ GE engines in the helicopter and military segments;⁷⁶ and engines from GE's competitors which power business jets and military aircraft.

94. In particular, there are five rival engine OEM programmes on which Avio is an LPT supplier:

- The RR Trent 500 is the sole engine option on the wide-body Airbus A340-500 and -600.
- The P&W PW308 is a turbofan engine which is the sole power option on the Hawker 4000 and the Dassault Falcon 2000 business jets.

⁷⁴ A similar argument can be applied for aircraft-to-aircraft competition where all the engines across competing aircrafts are under development (engines for the A320neo vs. engines for the Boeing 737MAX) – see paragraph 71 for more details on the relevance of aircraft-to-aircraft competition when the related engines are under development. In the current case, the only relevant potential foreclosure scenario affecting aircraft-to-aircraft competition is related to the ADT component under development for the A320neo aircraft (to be discussed in section concerning the PW1100G).

⁷⁵ The GE90, GEnx, GE CF6-80E1 and CF6-80C2 (wide-body large commercial aircraft engines) and the CFM56-5B and -7B, LEAP-1A, -1B and -1C (narrow-body large commercial aircraft engines).

⁷⁶ The CT7 and the T700 are two GE helicopter engines which, when configured for turboprop, also power fixed wing aircraft such as the Casa CN-235 (CT7-9C).

- The Turbo-Union RB 199 is a turbofan jet engine which powers the Panavia Tornado combat aircraft.
- The Eurojet 200 is a turbofan jet engine powering the Eurofighter Typhoon.
- The P&W F135 is a turbofan jet engine powering the Lockheed F-35 II Joint Strike Fighter ("JSF").

95. Table 2 shows the Notifying Party's estimates for the worldwide market shares in LPTs split per the various aircraft size segments in which Avio is present.⁷⁷

Table 2: Worldwide LPT market shares according to aircraft size – installed base

	GE ⁷⁸	P&W	Snecma	Avio	KHI	IHI	MTU	JAEC	IIP	GKN Volvo
Wide-body	[0-5]%	[0-5]%	[5-10]%	[5-10]%	[0-5]%	[10-20]%	[10-20]%	[0-5]%	[10-20]%	[30-40]%
Narrow-body	[0-5]%	[5-10]%	[70-80]%	[5-10]%	[0-5]%	[0-5]%	[10-20]%	[0-5]%	[0-5]%	[0-5]%
All large commercial aircraft	[0-5]%	[5-10]%	[50-60]%	[5-10]%	[0-5]%	[0-5]%	[10-20]%	[0-5]%	[0-5]%	[10-20]%
Business jets	-	-	-	[5-10]%	-	-	-	-	-	-
Helicopters	-	-	-	[10-20]%	-	-	-	-	-	-
Fighter aircraft	-	-	-	[5-10]%	-	-	-	-	-	-
Military transport aircraft	-	-	-	[0-5]%	-	-	-	-	-	-

Source: Notifying Party

96. As indicated in the table, Avio's market shares upstream would range between [0-5]% and [10-20]% depending on the aircraft size and purpose segments. On the other hand, GE's estimated market shares downstream are [70-80]% in large commercial aircraft, [0-5]% in business aircraft, [20-30]% in helicopters, [50-60]% in fighter aircraft and [5-10]% in military transport aircraft.

97. The Notifying Party submits that the merged entity will not have the ability and the incentive to execute an input foreclosure strategy regarding existing supply relationships between Avio and GE's competitors as well as future competitions.

⁷⁷ The Notifying Party does not have reliable share information for Avio's LPT competitors in the business aircraft, helicopter or military segments. Both Avio and GE have very marginal presences in the business aircraft and helicopter segments (with Avio supplying one business class engine and two helicopter engines, while GE manufactures one business class engine and two helicopter engines). Nevertheless, the Notifying Party understands that the same suppliers present in the LPT large commercial and regional segment also serve the business aircraft and helicopter segments. As regards military applications, the Notifying Party does not have reliable share information for Avio's LPT competitors as this information is not publicly available or available from third-party market research sources. Nevertheless, the Notifying Party understands that the same suppliers present in the LPT civil segment also serve the military segment.

⁷⁸ GE also manufactures LPTs but only for internal use.

98. Regarding Avio's LPT supply relationships, Airbus announced in 2011 that production of the A340 had ceased, while production of the Panavia Tornado ceased in 1998. Since the A340 and the Tornado are out of production, the merged entity would have no incentive to engage in a hypothetical foreclosure strategy as there would never be any possibility of capturing diverted, downstream sales of the A340 and the Tornado given that there will be no new sales. Furthermore, GE's incentive to continue supplying spare and replacement parts is guaranteed by the aftermarket revenues. In addition, the supply relationship concerning the EJ200 is dealt in section V.8 which specifically deals with Eurojet. Therefore, the assessment in this section concerning Avio's supply relationships focuses on the remaining two programmes, the PW308 and the F135.
99. The Notifying Party argues that the lack of ability is a result of: (i) comprehensive contractual protections for GE's rivals;⁷⁹ (ii) Avio's lack of significant influence upstream;⁸⁰ and (iii) the availability of effective counterstrategies to prevent foreclosure.⁸¹ Moreover, the merged entity would have no incentive to foreclose, as: (i) GE would have no ability to capture diverted sales (for example due to GE's [...] and the unlikelihood that customers would switch given switching costs and strong customer preference); (ii) GE would be forced to bear substantial external costs (for example contractual damages and loss of upstream revenues) if it undertook such a strategy; and (iii) the ensuing reputational damage would have lasting, detrimental economic effects. In addition, the Notifying Party argues that the aerospace industry has a long history of cross-supply and cooperation without foreclosure, so any foreclosure strategy by GE would jeopardise its short- and long-term ability to work with other industry suppliers and customers.
100. Regarding in particular the likelihood that GE would be able to capture diverted sales, the Notifying Party argues that none of the rival OEM engines is used on an aircraft on which GE offers a competing engine and, as a result, the only form of competition with GE-powered engines is indirect, that is to say aircraft-to-aircraft competition. In such a case, the likelihood of diversion of a customer's purchase of a rival's engine to GE or a GE JV would be too remote and speculative to justify foregoing the lost profits from the upstream sale, in particular given the number of non-GE powered competing aircraft from which the customer could choose, as shown in the table below.

⁷⁹ According to the Notifying Party, the protections agreed in LTAs would include: (i) [...]; and (ii) [...]. The LTAs would cover 100% of Avio's supply of LPTs [...].

⁸⁰ The Notifying Party submitted that alternative suppliers include manufacturers such as ITP, MTU, IHI, Snecma, GKN Volvo Aero. In addition, all of the major engine OEMs would be vertically integrated and able to design and manufacture LPT components.

⁸¹ According to the Notifying Party, even in the case of a complete, long-term disruption of access to Avio's LPTs, GE's rivals would always be able to identify alternative suppliers, transfer production and return to engine production and delivery before customers could be diverted to a different, downstream GE or GE JV engine.

Table 3: Aircraft-to-aircraft competition regarding LPTs

	Aircraft platform	GE-powered platform	P&W-powered platform	Other powered platform
F135	F-35 II JSF	F/A-18 E/F Super Hornet (F414) F-16 Falcon/Viper (F110) F-15 Strike Eagle (F110) SAAB Gripen E/F (F414)	F-16 Falcon/Viper (F100) F-15 Strike Eagle (F100)	EuroFighter Typhoon (EJ200) Rafale Dassault (Snecma M88) MiG-29 (Klimov RD-33) MiG-35 (Klimov RD-33) Su-20 (NPO Saturn AL-31)
PW308	Hawker 4000	Bombardier Challenger 605 (CF34-3A)	-	Bombardier Challenger 300 (Honeywell HTF7000) Embraer Legacy 600 (RR AE3007) Gulfstream G280 (Honeywell HTF 7250) Cessna Citation X (RR AE3007)
	Dassault 2000	Bombardier Challenger 605 (CF34-3A)	-	Embraer Legacy 600 (RR AE3007) Gulfstream G280 (Honeywell HTF 7250) Cessna Citation Longitude (Snecma Silvercrest)

Source: Notifying Party

101. With respect to future programmes, the Notifying Party argues that the merged entity would not have the ability to foreclose input given the existence of alternative competitors and the long lead times on engine and engine component delivery, which would allow the customer/engine OEM for sufficient time to switch supplier. This would hold especially true with respect to future programmes where the engine OEMs would have very distant deadlines.
102. The results of the market investigation indicated that a potential input foreclosure scenario is unlikely regarding both existing and future programmes.
103. Regarding existing relationships, the fact that there are a number of non-GE powered aircraft competing with the PW308 indicates that the likelihood that GE would be able to divert sales to its programmes is very small. In that respect, it is to be emphasised that the merger will not provide GE with access to information on aircraft buyers' preferences or other means that could reduce the uncertainty that the foreclosure would benefit sales of aircraft platforms that are not powered by GE. Furthermore, while the F135-powered JSF is a state-of-the-art platform still in development and it is not expected to enter into service before 2016, the GE-powered platforms which according to the Notifying Party would compete with the JSF have already been in production for decades, which suggests that [...] they are not really substitutable to the JSF. In any event, not only the supply of LPTs for the PW308 and the F135 are protected by so-called Long Term Agreements ("LTAs"), but also the latter have been further amended by the Commercial Assurances Agreement between GE and P&W after the announcement of the proposed transaction.
104. With respect to future programmes, while customers pointed out that the incentive for Avio and GE's competitors to agree on a supply relationship may decrease and lead to a reduction in the number of available suppliers,⁸² there would remain sufficient alternative suppliers with design capability in the market (for example ITP, IHI and

⁸² Replies to questions 31, 32 and 34 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013.

MTU) while other companies have manufacturing capabilities (for example GKN VolvoAero, JAEC, KHI, Mitsubishi Heavy Industries "MHI") and there are a number of potential entrants.⁸³ In addition, not only engine OEMs are able to design and manufacture LPTs, or would be able to do it following some investment,⁸⁴ but they are able to sponsor the entry of new suppliers, as evidenced by RR's creation of the ITP joint-venture.⁸⁵

105. As regards the risk of a potential customer foreclosure, it is unlikely that competitors will be foreclosed from a significant share of the downstream market given the fact that GE is not a significant customer in business jets, GE's sourcing from Avio represented [10-20]% of GE's total LPT sourcing in 2011 and Avio's LPT sales to GE represented [70-80]% of Avio's total LPT sales in 2011. For example, Avio is involved in many of GE's large commercial aircraft engines, including the CF6-80C2 (Boeing 767), CF6-80E1 (Airbus A330), GE90 (Boeing 777) and the GENx (Boeing787). As explained by one competitor, "*there can be more opportunities for suppliers which compete with Avio on other than GE engine programme[s] because Avio might dedicate to GE engine programme[s] in the future.*"⁸⁶

106. Therefore, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between LPTs and aircraft engines.

VII.2. Combustion Chambers ("CCs")

107. Avio supplies CCs, none of which it designed, on the following engine programmes:

- the SaM146 which powers the Sukhoi Superjet 100;
- the PW100 family (in particular the PW127 which is the only engine still in large scale production) and the PT6 which are P&W engines that power a large number of turboprop aircraft;⁸⁷ and
- the Tay Mk 611-8C which powers the Gulfstream G350 and G450.

⁸³ Replies to question 21 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013, and replies to questions 15, 19 and 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT competitors (Q10), dated 14 May 2013.

⁸⁴ Replies to questions 19 and 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013, and replies to questions 19 and 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT competitors (Q10), dated 14 May 2013.

⁸⁵ [...] reply to question 30 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT customers (Q9), dated 14 May 2013.

⁸⁶ Reply to question 30 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to LPT competitors (Q10), dated 14 May 2013.

⁸⁷ Part of the PT6 CC requirements are also manufactured by P&W – see [...] reply to question 7.3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013.

108. None of the abovementioned aircraft offers a GE or GE JV engine option, therefore the only form of competition with GE or GE JV engines is indirect, that is to say aircraft-to-aircraft competition.
109. Avio's market share on an overall market for CCs, regardless of the type of aircraft, would be [0-5]% for the installed base and [5-10]% in order backlog. Apart from the CC segment for helicopters where Avio's market share is estimated at [5-10]%, Avio is present in the business jet segment with an estimated market share of [0-5]%⁸⁸ and the large regional jet segment where it holds a [90-100]% market share for the installed base of CCs and [70-80]% for the order backlog (with MHI accounting for the remaining [20-30]% market share). However, these market shares overestimate Avio's influence upstream since there are many other alternative CCs suppliers to which the OEMs could switch if necessary. Indeed, the market investigation confirmed that the OEMs are generally responsible for the design of the CCs whereas the manufacture is usually done either by themselves (for internal use) or by fabrications suppliers chosen by tender.⁸⁹ A customer even explained that "*CC manufacturing does not require a very distinctive manufacturing capability: even special processes used on modern CCs [...] are easily accessible. Therefore, a competitive open market exists which is addressed by tender*".⁹⁰ Apart from the engine OEMs, which generally have design and build-to-print capabilities, the alternative existing or potential CCs suppliers include MHI, Samsung Techwin, GKN, JAEC, Danville Metal Stamping, and TurboCombustor Technology.
110. In Avio's case, it should be noted that the CCs it supplies have been designed by the OEMs who could switch to other build-to-print manufacturers.⁹¹
111. Furthermore, as regards the PW100 family and the PT6, it should be noted that these programmes have been amended by the commercial assurances agreement mentioned below. In particular, P&W and the Parties have agreed to implement [...].
112. As regards the Tay Mk 611-8C, it should be noted that the agreement between RR and Avio provides that [...]. This has been addressed in the deed of amendment mentioned below, which foresees that RR and Avio [...].
113. Therefore, given the numerous alternative suppliers and the specifically tailored agreements entered into at the time of the proposed transaction, Avio would not have the ability to foreclose access to inputs for GE's competitors regarding CCs.

⁸⁸ The Notifying Party submits that the Parties have limited presence and do not have extensive market information. It considers that the market shares for medium class business jets and large class business jets can be estimated to be [0-5]% and [10-20]%.

⁸⁹ Replies to questions 6, 7.3, 26 and 27 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013, and replies to questions 29 and 30 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013.

⁹⁰ [...] reply to question 27 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013.

⁹¹ It would require time and some investments but not necessarily a recertification. See replies to questions 29, 29.1, 29.2 and 32 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC customers (Q3), dated 14 May 2013.

114. As regards incentives to foreclose, it should be noted that the platforms powered by engines for which Avio supplies CCs compete with many other platforms, a number of which are not powered by GE or GE JV engines.
115. First, the Sukhoi Superjet 100 competes with the MRJ (powered by the PW1200G), the Antonov AN-148 (Progress D-436), the new Embraer E-Jet (powered by the PW1700G and PW1900G) and only two GE-powered engines on platforms that are currently out of production or being phased out: the Bombardier CRJ (CF34) and the Embraer E-Jet (CF34). Since the GE platforms are out of production or being phased out, it is unlikely that a customer would switch to such platforms.
116. Second, the PW100 family powers a large number of aircraft,⁹² none of which competes with an in-production GE engine. The only potential overlap would occur between the P&W-powered EADS-CASA C-295 military transport aircraft and the GE-powered CASA/IPTN CN-235 military transport aircraft. Although both are military transport aircraft, the platforms have very different mission profiles. The CN-235 is much smaller than the C-295 and has a slightly shorter range (4,355 km to 4,600 km). However, even if these aircraft were considered to compete, there would still be many non-GE-powered options, including the Alenia C-27J Spartan (RR AE2100), C-130J Super Hercules (RR AE2100), V-22 Osprey (RR AE1107), A400M Atlas (TP400-D6) and Antonov A-70 (Progress D-27).
117. Third, the PT6 engine, for which both Avio and P&W manufacture CCs, powers an even larger number of aircraft.⁹³ The only GE-powered engine that would compete with the PT6 on comparable platforms would be the H80, which was certified in 2012 on only three aircraft:
- the Thrush 510G, which is an agricultural aircraft that would compete generally with a number of PT6-powered aircraft such as the Thrush 510P, 550P, 660 and 710P, the Air Tractor 401B 402B, 502B, 504, 602 and 802A, the Pacific Aerospace P-750 XSTOL, the Pacific Aerospace CRESCO, the Embraer EMB 202 Ipanema (Lycoming IO-540-K1J5), the GippsAero GA200 Fatman (Lycoming IO-540- K1A5), PZL-Mielec M-18 Dromader (WSK "PZL-Kalisz" ASz-62IR) and PZL-Mielec M-18 Dromader (WSK "PZL-Kalisz" ASz-62IR).
 - the Aircraft Industries L410, which is a small commuter plane, capable of carrying under 20 passengers and originally powered by the Walter M601 engine. Comparable aircraft include the Britten-Norman Islander (Lycoming O-540-E4C5), CASA C-212 Aviocar (Garrett AiResearch TPE-331-10R-513C), Dornier Do 228 (Garrett AiResearch TPE-331-5-252D),⁹⁴ Harbin Y-12 (P&W PT6) and PZL M28 Skytruck (P&W PT6).
 - the Technoavia Rysachok, a planned Russian aircraft that will be a twin turboprop-powered engine light utility aircraft. It will likely compete with the Aircraft Industries L410 and similar aircraft described above, as well as

⁹² 17 for the PW100 according to PWC's website.

⁹³ Over 100 according to PWC's website.

⁹⁴ The Garrett AiResearch TPE-331 engines are produced by Honeywell.

passenger and training aircraft including those offered by Cessna (208A Caravan (P&W PT6), 208B Grand Caravan EX (P&W PT6), 208B Super Cargomaster EX (P&W PT6)), Extra EA-500 (RR 250-B17F), GippsAero G8 Airvan (Textron Lycoming IO-540-K1A5), G10 (RR 250-B17F)), Pilatus (PC-6 (P&W PT6), PC-12NG (P&W PT6)), Piper (Meridian (P&W PT6), Malibu (Continental TSIO-520-BE), Seneca (Continental TSIO-360RB), Seminole (Lycoming O-360-A1H6), Arrow (Lycoming O-320-E2A Sensenich), and Archer (Lycoming O-360-A4M)) and Quest Kodiak (P&W PT6).

118. Fourth, the Tay powers two engines that are now out of production:

- The G450, which is a large-class business jet and which does not currently compete with any GE-powered platform. It is expected that the Bombardier Global 7000/8000 (powered by the GE Passport) will enter into service in 2017 and 2018 respectively; however, there are other competing aircraft such as the newer Gulfstream G500/G550 (RR BR710), Gulfstream G650 (RR BR725), Dassault Falcon 7X (P&W PW307) and Bombardier Global 5000/6000 (RR BR710). The Tay-powered and the GE-powered platforms are unlikely to compete with one another as one is out of production whereas the other will enter into service in a couple of years. Furthermore, GE's incentive to continue to supply spare and replacement parts is guaranteed by aftermarkets revenues.
- The G350, which is a medium-class business jet and which competes with two old GE-powered aircraft, namely the Bombardier Challenger 605 and 850. These two aircraft account for a total of only [5-10]% of the medium-class business jet segment (and [0-5]% of all business jets), indicating an inability to capture downstream sales.

119. Given the availability of several non-GE powered platforms that closely compete against the aircraft powered by engines with an Avio CC, the likelihood of diversion of a customer's purchase from an aircraft powered by a rival's engine to an aircraft powered by a GE engine is unlikely. GE would have no guarantee that an attempted input foreclosure strategy would result in a successful diversion to a GE engine.

120. As regards the risk of a potential customer foreclosure, it is unlikely that competitors will be foreclosed from a significant share of the downstream market given the fact that (i) GE is not a significant customer in business jets, (ii) GE has many significant competitors in the helicopter segment (GE's estimated market share is [20-30]%, RR's is [20-30]%, Turbomeca's (Safran) is [20-30]% and P&W's is [10-20]%), and (iii) as regards large regional jets, GE sources [a certain part of its] CC requirements internally. In addition, competitors who have replied to the Commission's requests for information indicated that the merger would not affect negatively their ability to compete.⁹⁵

121. In light of the foregoing, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between CCs and aircraft engines.

⁹⁵ Replies to question 40 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to CC competitors (Q4), dated 14 May 2013.

VII.3. Turbine Exhaust Cases ("TECs")

122. Avio supplies P&W with TECs for the PW308 engine which equips the Hawker 4000 business jet and the Falcon 2000. As GE does not offer a competing engine on these aircraft the only form of competition with GE-powered engines is indirect, that is to say aircraft-to-aircraft competition.
123. As discussed, Avio holds a limited position in the market for TECs for business jets. During the market investigation, customers identified several alternatives to Avio as a TEC designer and supplier, such as MTU, ITP and GKN VolvoAero.⁹⁶ P&W itself indicated that it currently designs TECs for some of its engines for business jets, such as the PW600 range.⁹⁷ It does not appear therefore that Avio has the ability to foreclose access to inputs for GE competitors regarding TECs in the light of the numerous alternatives that exist in the market.
124. As regards the incentive to foreclose, it appears that the Hawker 4000 and the Falcon 2000 compete with platforms which are powered by GE engines such as the Bombardier Challenger 605. The Notifying Party however submitted that these aircraft compete with several airplanes with non-GE engine option such as the Bombardier Challenger 300 (powered by a Honeywell engine), the Embraer Legacy 600 (powered by a RR engine), the Embraer Legacy 400 (RR engine) the Gulfstream G280 (Honeywell engine) and the Gulfstream G450 (RR engine). This wide availability of non-GE powered aircraft in competition with platforms equipped with the PW308 was confirmed by respondents to the Commission's requests for information.⁹⁸
125. Given the availability of several non-GE powered platforms that closely compete against PW308-powered aircraft, the likelihood of diversion of a customer's purchase from an aircraft powered by a rival's engine to an aircraft powered by a GE engine is unlikely. GE would have no guarantee that an attempted input foreclosure strategy would result in a successful diversion to a GE engine.
126. As regards the risk of a potential customer foreclosure, and although some concerns were voiced in the investigation as regards the future availability of Avio as a TEC supplier, it is unlikely that competitors will be foreclosed from a significant share of the downstream market given the fact that GE is not a significant customer in business jets, which is the main area of competence of Avio in TECs. For other types of aircraft, GE already sources most of its TECs from [a supplier] and it is unlikely that this policy will change as a result of the proposed transaction.
127. In view of the above, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between TECs and aircraft engines.

⁹⁶ [...] reply to question 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to TEC customers (Q5), dated 14 May 2013.

⁹⁷ [...] reply to question 7 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to TEC customers (Q5), dated 14 May 2013.

⁹⁸ [...] reply to question 4 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to airframers (Q13), dated 14 May 2013.

VII.4. Oil Pumps and Oil Tanks

128. Avio currently supplies oil pumps and tanks on a number of engine programmes. According to the Notifying Party, Avio as a rule submits an aggregate offer to supply the lubrication systems together with the ADT, that is to say together with the oil pump and/or oil tank.

129. Avio supplies oil pumps and/or tanks for the following non-GE engines:

Table 4: Avio's involvement on non-GE engines with regard to oil pumps and/or tanks

Avio's involvement	Engine	Engine OEM	Aircraft platform	Type of aircraft
Oil tank (together with the ADT) Design	PW1100G	P&W	A320neo family	Large commercial aircraft, large regional aircraft (turbofan)
Oil pump/tank (together with the ADT) Design	IAE V2500	P&W (JV)	A320 family	Large commercial aircraft, large regional aircraft (turbofan)
Oil pump/tank (together with the ADT) Design	Trent 900	RR	A380	Large commercial aircraft, large regional aircraft (turbofan)
Oil tank (together with the ADT) Build-to-print	PW4000	P&W	A330, Boeing 767 and 777	Large commercial aircraft, large regional aircraft (turbofan)

Source: Notifying Party

130. The Notifying Party argues that no input foreclosure issues arise either in relation to oil pumps or oil tanks.⁹⁹

131. The Notifying Party notes first that neither oil pumps nor oil tanks form the core part of Avio's business and at least part of the production of these components can be and indeed is usually outsourced.¹⁰⁰

132. Second, the Notifying Party submits that oil pumps and tanks on the engine programmes in question are supplied under life of programme LTAs (see below). As argued for other components, the Notifying Party claims that these LTAs give the competing downstream OEMs sufficient protection in terms of price, quality and delivery terms and enables them to terminate the contract [...]. Lastly, according to the Notifying Party, Avio lacks the ability to influence the upstream market significantly as Avio's share in large commercial and regional aircraft is [10-20]/[10-20]% (installed base/order backlog respectively) for oil pumps and [10-20]/[20-30]% (installed

⁹⁹ According to the Notifying Party, oil tanks form part of a wider market of aerospace fabrications. As set out in footnote 9, the effects of the proposed transaction on the markets for machined parts, fabrications and thermal barrier coatings are not be discussed further in the present decision. In any case, Avio's share in the upstream fabrications market would be [0-5].

¹⁰⁰ For instance, for the [...] the supply of an entire oil pump is entirely subcontracted to [...].

base/order backlog respectively) for oil tanks.¹⁰¹ Moreover, Techspace Aero is the leading supplier of oil pumps ([40-50]/[50-60] installed base/order backlog) whereas Parker Hannifin is the largest supplier of oil tanks ([50-60]/[30-40] installed base/order backlog). Other oil pump players include UTC Aerospace Systems, Crane and Parker Hannifin, whereas Techspace Aero, Israel Aircraft Industries ("IAI") and Hitchcock Industries are active in oil tanks. It is further claimed that both oil pumps and oil tanks are rather "low tech" products and are easily replicable and as such GE's downstream rivals would always be able to identify alternative suppliers and transfer production.

133. Table 5 shows the Notifying Party's estimates for the worldwide market shares in oil pumps split per the various aircraft size segments in which Avio is present. The Commission notes that according to Notifying Party, Avio's oil pump market shares based on the order backlog do not substantially differ from those based on the installed base.

Table 5: Worldwide oil pump market shares – large commercial and regional aircraft – installed base

	GE	Techspace Aero	Avio	UTC	Crane	Parker Hannifin
Wide-body	[0-5]%	[20-30]%	[0-5]%	[20-30]%	[50-60]%	[0-5]%
Narrow-body	[0-5]%	[70-80]%	[20-30]%	[0-5]%	[0-5]%	[0-5]%
All large commercial aircraft	[0-5]%	[50-60]%	[10-20]%	[5-10]%	[10-20]%	[0-5]%
Large regional jet	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[90-100]%	[0-5]%
Small regional jet	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[10-20]%	[80-90]%
TOTAL	[0-5]%	[40-50]%	[10-20]%	[5-10]%	[20-30]%	[5-10]%

Source: Notifying Party

134. Table 6 and Table 7 show the Notifying Party's estimates for the worldwide market shares in oil tanks split per the various aircraft size segments.

¹⁰¹ The Notifying Party believes that the provided oil pump market shares reflect the positions of dry sump oil pump producers. In addition, the Notifying Party submits that the shares for oil pumps as a whole reflect the gerotor and vane pumps sub-segments respectively.

Table 6: Worldwide oil tank market shares – large commercial and regional aircraft – installed base

	Avio	Parker Hannifin	Techspace Aero	IAI	Hitchcock Industries	Advanced Components	Other
Wide-body	[0-5]%	[20-30]%	[10-20]%	[30-40]%	[0-5]%	[0-5]%	[20-30]%
Narrow-body	[20-30]%	[70-80]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
All large commercial aircraft	[10-20]%	[50-60]%	[0-5]%	[10-20]%	[0-5]%	[0-5]%	[5-10]%
Large regional jet	[0-5]%	[90-100]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Small regional jet	[0-5]%	[40-50]%	[0-5]%	[0-5]%	[50-60]%	[0-5]%	[0-5]%
TOTAL	[10-20]%	[50-60]%	[0-5]%	[5-10]%	[0-5]%	[0-5]%	[5-10]%

Source: Notifying Party

Table 7: Worldwide oil tank market shares – large commercial and regional aircraft – installed base

	Avio	Parker Hannifin	Techspace Aero	IAI	Advanced Components	UTC	Other
Wide-body	[20-30]%	[10-20]%	[30-40]%	[0-5]%	[5-10]%	[0-5]%	[0-5]%
Narrow-body	[20-30]%	[40-50]%	[20-30]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
All large commercial aircraft	[20-30]%	[30-40]%	[30-40]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Large regional jet	[0-5]%	[20-30]%	[30-40]%	[0-5]%	[0-5]%	[0-5]%	[30-40]%
Small regional jet	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
TOTAL	[20-30]%	[30-40]%	[30-40]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%

Source: Notifying Party

135. Initially, both RR and P&W's raised concerns in relation to programmes on which Avio supplies oil tanks and/or oil tanks. These programmes are discussed in detailed below in sections V.7.6.1 and V.7.6.2 below.
136. Apart from these programmes, there were no concerns raised in the market investigation with regard to oil pumps and oil tanks. Several respondents confirmed they are active in lubrication systems (oil pumps and/or oil tanks)¹⁰² and the market investigation also confirmed that several of them are regarded as credible competitors.

¹⁰² Oil pumps: IHI, Parker Hannifin, (Techspace Aero) SAFRAN, Triumph, UTC (P&W) and ZF Luftfahrttechnik GmbH. Oil tanks: Kerns Manufacturing, Parker-Hannifin, (Techspace Aero) SAFRAN, Triumph and UTC (P&W). See replies to question 4 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013. See RR's reply to question 49 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013: "*Rolls-Royce is not reliant on Avio for access to oil pumps and oil tanks on future programmes.*"

Avio is not regarded as an unavoidable supplier for oil pumps and oil tanks.¹⁰³ According to customers, an engine manufacturer could switch to alternative suppliers for both oil pumps and oil tanks on an existing platform.¹⁰⁴

137. In addition, with regard to aircraft-to-aircraft competition, the only aircraft powered by an engine for which Avio is the lubrication system supplier (in this case an oil tank) which competes against another aircraft with a GE engine or GE engine option, is the PW1400G on the Irkut MS-21. The Commission notes first, however, that this aircraft is not yet in production and [...].¹⁰⁵ Moreover, the Irkut MS-21 is a multi-sourced engine as the PW1400G will compete against the Aviadvigatel PD-14 engine. Finally, the Irkut MS-21 is a narrow-body commercial aircraft that will offer three different models seating between 150 and 230 passengers and thus competes with a number of narrow-body aircraft against a number of other aircraft with no GE engine option, thereby making the possibility of a diversion of the customers' purchases to another aircraft unlikely. GE would have no guarantee that an attempted input foreclosure strategy would result in a successful diversion to a GE engine.

138. In view of the above, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between, on the one hand, oil pumps and oil tanks, and on the other hand, aircraft engines.

VII.5. Power Gearboxes ("PGBs")

139. The transaction gives rise to a vertical link between the upstream supply of PGBs, where Avio is active, and the downstream supply of aircraft engines, where GE is active. Avio supplies PGBs for turboprop and turbofan engines for a limited number of GE's competitors in the following programmes:¹⁰⁶

¹⁰³ See [...]'s reply to question 25 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

¹⁰⁴ Replies to question 32 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013. RR switched supplier both on oil pumps and oil tanks. Another example on switching was provided by the competitor Parker Hannifin: "*Years ago, Parker took over OEM production of the lube pumps for GE's Land & Marine engine product line.*" See Parker-Hannifin's reply to question 43 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil tanks and oil pumps competitors (Q2), dated 14 May 2013.

¹⁰⁵ According to the Notifying Party, [...].

¹⁰⁶ For helicopter PGBs (that is to say for turboshaft), Avio only has limited presence as [...].

Table 8: Avio's involvement on non-GE engines with regard to PGBs

Avio's involvement	Engine	Engine OEM	Aircraft Platform	Type of aircraft
[...]	PW1100G	P&W	A320neo family	Large commercial aircraft, large regional aircraft (turbofan)
[...]	PW1200G	P&W	Mitsubishi Regional Jet	Large commercial aircraft, large regional aircraft (turbofan)
[...]	PW1400G	P&W	Irkut MS-21	Large commercial aircraft, large regional aircraft (turbofan)
[...]	PW1500G	P&W	Bombardier C-Series	Large commercial aircraft, large regional aircraft (turbofan)
[...]	PW150	P&W	Bombardier Aerospace Q400/Dash 8	Small regional aircraft (turboprop)
[...]	TP400-D6	EPI	A400M Atlas military transport	Military transport (turboprop)

Source: Notifying Party

140. As regards civil applications, the Notifying Party submits that it does not have reliable information regarding turboprop and turboshaft fleet numbers and that, as a result, it was only able to provide market share information for turbofan engines. The Notifying Party claims that this overstates the Parties' market shares as important turboprop and turboshaft PGB suppliers were omitted whereas the Parties have very limited presence in the turboprop and turboshaft segment. The Notifying Party estimates the market shares for PGBs on turbofan engines to be the following:

Table 9: Worldwide PGB market shares – large commercial and regional aircraft – installed base

	GE	Honeywell	Avio
Large Regional Jet	[0-5]%	[90-100]%	[0-5]%
Total	[0-5]%	[90-100]%	[0-5]%

Source: Notifying Party

Table 10: Worldwide PGB market shares – large commercial and regional aircraft – order backlog

	GE	P&W	Avio
Narrow-body	[0-5]%	[70-80]%	[20-30]%
Large Regional Jet	[0-5]%	[90-100]%	[0-5]%
Total	[0-5]%	[70-80]%	[20-30]%

Source: Notifying Party

141. As regards military applications, Avio is only present in one engine for military transport aircraft, the TP400-D6, which has not yet entered into service. As a result, Avio's share for military transport platforms is [0-5]%.
 142. Out of the six engines mentioned in paragraph 139, only one competes directly with a GE JV engine on the same platform: the PW1100G which has been selected by Airbus, together with CFMI's LEAP-1A engine, to power the A320neo family. Concerns about the PW1100G were raised during the market investigation and are discussed in greater detail below.

143. For the other five engines mentioned in paragraph 139, the only form of competition with GE-powered engines is indirect, that is to say aircraft-to-aircraft competition. In this regard, the Notifying Party claims that the merged entity would not have the ability or the incentive to foreclose.
144. On civil aircraft, it should be noted that Avio acts as [...] of PGBs for three engines (PW11200G, PW1400G and PW1500G), which equip large commercial/regional aircraft, and as [...] for the PW150, which equips a small regional aircraft. The market investigation has shown that, for large commercial/regional aircraft, there are few suppliers with design capacities (mostly Avio and P&W) but that there are more suppliers with build-to-print capacities, (Avio, P&W, BMT Aerospace, Precision Gear, Triumph, KHI).¹⁰⁷ For small regional aircraft, the market investigation suggests that the following companies would have both design and build-to-print capacities: Avio, P&W, GE, Turbomeca, Honeywell, UTC, RR.¹⁰⁸ Therefore, the merged entity would not have the ability to foreclose access to inputs for GE competitors regarding PGBs in the light of the numerous alternatives that exist in the market.
145. In addition, as demonstrated in the table below, the aircraft powered by the engines for which Avio is a PGB supplier compete against a number of other aircraft with no GE engine option. The extent to which GE would have the opportunity to divert customers' purchases to GE-powered aircraft is significantly reduced by the wide number of available aircraft platforms that have no GE engine option. In that respect, it is to be emphasised that the merger will not provide GE with access to information on aircraft buyers' preferences or other means that could reduce the uncertainty that the foreclosure would benefit sales of aircraft platforms that are not powered by GE.

¹⁰⁷ Replies to questions 18 and 19 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013.

¹⁰⁸ Replies to questions 18 and 19 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013, and replies to question 18 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB customers (Q7), dated 14 May 2013.

Table 11: Aircraft-to-aircraft competition regarding PGBs

Engine	Platform	GE- or GE JV- powered platform	Other platform powered by an engine where Avio is not a PGB supplier
PW1200G	Mitsubishi Regional Jet	<p>Bombardier CRJ (CF34)¹⁰⁹ (platform out of production or being phased out)</p> <p>Embraer E-Jet (CF34)¹¹⁰ (platform out of production or being phased out)</p>	<p>New Embraer E-Jet (PW1700G and PW1900G)</p> <p>Sukhoi Superjet (PowerJet SaM146)</p> <p>Antonov An-148 (Progress D-136)</p>
PW1400G	Irkut MS-21 (also powered by another engine)	<p>Airbus A320neo (LEAP-1A)</p> <p>Boeing 737MAX (LEAP-1B)</p> <p>Comac C-919 (LEAP-1C)</p> <p>A320 family (CFM56) (platform out of production or being phased out)</p> <p>737 (CFM56) (platform out of production or being phased out)¹¹¹</p>	<p>A320 family (IAE V2500) (platform out of production or being phased out)</p> <p>Irkut MS-21 (Aviadvigatel PD-14)</p>
PW1500G	Bombardier C Series	<p>Airbus A320neo (LEAP-1A)</p> <p>Boeing 737MAX (LEAP-1B)</p> <p>Comac C-919 (LEAP-1C)</p> <p>A320 family (CFM56) (platform out of production or being phased out)</p> <p>737 (CFM56) (platform out of production or being phased out)</p>	<p>A320 family (IAE V2500) (platform out of production or being phased out)</p> <p>Irkut MS-21 (Aviadvigatel PD-14)</p>
PW150	Bombardier Dash8 Q400	<p>SAAB 340 (CT-7) (platform out of production or being phased out)</p>	<p>ATR 42 (PW100 family)</p> <p>ATR 72 (PW100 family)¹¹²</p> <p>Antonov-140 (PW100 family)</p> <p>Xi'an MA60 (PW100 family)</p> <p>Xi'an MA600 (PW100 family)</p> <p>Antonov-140 (Klimov TV3)</p>

Source: Notifying Party

¹⁰⁹ This has been confirmed by the market investigation – see [...] reply to question 4.1 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

¹¹⁰ This has been confirmed by the market investigation – see [...] reply to question 4.1 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

¹¹¹ This has been confirmed by the market investigation – see [...] reply to question 4.1 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

¹¹² In its reply to question 4.1 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013, [...] only lists the ATR 72 as a competing aircraft for the Dash8 Q400.

146. The merged entity would therefore have neither the ability nor the incentive to foreclose input on the segment of PGBs for civil aircraft.
147. On the segment of PGBs for military transport aircraft, Avio has a very limited presence, as shown by its market share mentioned in paragraph 141 above, and is facing some important current or potential competitors such as Northstar, Triumph, Timken, or KHI.¹¹³ Therefore, the merged entity would not have the ability to foreclose access to inputs for GE competitors regarding PGBs in the light of the numerous alternatives that exist in the market.
148. In addition, it should be noted that there is a significant difference in military transport between turboprop and turbofan platforms: military transports with turboprops are more appropriate for shorter-distance air drops and troop transport, and allow for preservation of maximum thrust during manoeuvring while military transports with turbofans are designed for long-distance transport, primarily of cargo, at high altitudes and consistent speeds. As a consequence the A400M, which is the aircraft powered by the TP400-D6, competes primarily against another turboprop: the Lockheed Martin C-130J Super Hercules (powered by the RR AE2100D3 engine). Other, smaller turboprop-powered transports such as the EADS CASA C-295 (powered by the PW127G turboprop) or CASA/IPTN CN-235 (powered by the GE CT7 turboprop) are not as close competitors since they have a lower passenger capacity and range. Among the turbofan military transport aircraft, GE is only present through its CF6-80C2 engine, which powers the Kawasaki C-2, and its GE F138, which powers the C-5M Super Galaxy. There are other important competing aircraft such as the Boeing C-17 Globemaster (powered by the PW F117 engine), the in-development Embraer KC-390 (powered by the IAE V2500 – manufactured in part by EPI consortium member MTU) or UAC/HAL Multirole Transport Aircraft (powered by the Aviadvigatel PS-90A). Given the availability of several non-GE powered platforms that closely compete against the A400M, the likelihood of diversion of a customer's purchase to an aircraft powered with a GE engine is unlikely. GE would have no guarantee that an attempted input foreclosure strategy would result in a successful diversion to the aircraft powered by its engine.
149. The merged entity would therefore have neither the ability nor the incentive to foreclose input on the segment of PGBs for military transport aircraft.
150. In view of the above and of the assessment on the PW1100G below, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between PGBs and aircraft engines.

VII.6. Accessory Drive Trains ("ADTs")

151. With regard to engine-to-engine competition, Avio supplies ADTs (or their constituent parts) on a number of engine programmes that power aircraft for which a GE or GE JV engine is also offered as an option. In particular, Avio supplies ADTs or their components for the following non-GE engines:

¹¹³ Replies to questions 5, 18 and 19 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013.

Table 12: Avio's involvement on non-GE engines with regard to ADTs

Avio's involvement	Engine	Engine OEM	Aircraft Platform	Type of aircraft
ADT [...]	PW1100G	P&W	A320neo family	Large commercial aircraft, large regional aircraft (turbofan)
ADT [...]	IAE V2500	P&W (JV)	A320 family	Large commercial aircraft, large regional aircraft (turbofan)
ADT [...]	Trent 900	RR	A380	Large commercial aircraft, large regional aircraft (turbofan)
ADT [...]	PW4000	P&W	A330, Boeing 767 and 777	Large commercial aircraft, large regional aircraft (turbofan)

Source: Notifying Party

152. The Notifying Party submits that it has not been able to gather sufficiently reliable and robust information to permit the calculation of individual ADT component shares on a stand-alone basis. Nevertheless, the Notifying Party believes that the shares for the supply of ADTs largely reflect the shares for the supply of AGBs, the "heart" of the ADT. The Commission will thus focus on the AGB and accept that the ADT market shares are taken as a proxy for the AGB. The Notifying Party submits that the merged entity will neither have the ability nor the incentive to foreclose.
153. In terms of ability, GE considers that (i) all ADT programmes are governed by LTAs signed between Avio and engine manufacturers which contain comprehensive contractual protections against any type of supply disruptions, including price, quality of products and delivery terms, and (ii) there are strong, viable competitors to which customers can switch without materially affecting their own downstream engine supply obligations (such as Hispano-Suiza/Safran, UTC Aerospace Systems/UTC, KHI, IHI, Triumph and Northstar Aerospace).
154. In terms of incentive, GE claims that any foreclosure attempts would result in a loss of sales and profits of Avio products, monetary damages resulting from a breach of contract and long-term reputational damage for both Avio and GE. Moreover, given the customers' ability to switch to alternative suppliers in a timely and cost-efficient way, GE considers it unlikely that foreclosure attempts would enable GE to divert sales away from its engine competitors.
155. The Notifying Party submits that Avio's civil share in large commercial and regional aircraft is [20-30]/[20-30]% (installed base/order backlog) for ADTs, with Hispano-Suiza being the market leader ([30-40]/[650-60]%, installed base/order backlog). With regard to the sub-segments of large commercial and regional aircraft, Avio's share is highest for wide-body large commercial aircraft ([60-70]/[40-50]%, installed base/order backlog). Hispano-Suiza is second in this segment ([10-20]/[30-40]%, installed base/order backlog).

Table 13: Worldwide ADT market shares – large commercial and regional aircraft – installed base

	RR	UTC	Hispano-Suiza	Avio	Northstar	Triumph	KHI	IHI
Wide-body	[5-10]%	[5-10]%	[10-20]%	[60-70]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Narrow-body	[0-5]%	[0-5]%	[50-60]%	[10-20]%	[0-5]%	[10-20]%	[0-5]%	[5-10]%
All large commercial aircraft	[0-5]%	[0-5]%	[40-50]%	[30-40]%	[0-5]%	[10-20]%	[0-5]%	[5-10]%
Large regional jet	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[90-100]%	[0-5]%
Small regional jet	[40-50]%	[0-5]%	[0-5]%	[0-5]%	[40-50]%	[0-5]%	[10-20]%	[0-5]%
TOTAL	[5-10]%	[0-5]%	[30-40]%	[20-30]%	[5-10]%	[10-20]%	[5-10]%	[5-10]%

Source: Notifying Party

Table 14: Worldwide ADT market shares – large commercial and regional aircraft – order backlog

	RR	UTC	Hispano-Suiza	Avio	Northstar	Triumph	KHI	IHI
Wide-body	[0-5]%	[10-20]%	[30-40]%	[40-50]%	[5-10]%	[0-5]%	[0-5]%	[0-5]%
Narrow-body	[0-5]%	[5-10]%	[60-70]%	[10-20]%	[0-5]%	[10-20]%	[0-5]%	[5-10]%
All large commercial aircraft	[0-5]%	[10-20]%	[50-60]%	[20-30]%	[0-5]%	[5-10]%	[0-5]%	[0-5]%
Large regional jet	[0-5]%	[10-20]%	[0-5]%	[20-30]%	[0-5]%	[0-5]%	[60-70]%	[0-5]%
Small regional jet	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
TOTAL	[0-5]%	[10-20]%	[50-60]%	[20-30]%	[0-5]%	[5-10]%	[0-5]%	[0-5]%

Source: Notifying Party

156. Although some concerns were expressed during the market investigation with regard to the fact that the number of available ADT/AGB suppliers on the market will be reduced, the market investigation also confirmed the presence of competitors in both full ADT modules as well as separate ADT components with design and build-to print capabilities. It was confirmed that Hispano-Suiza and UTC Aerospace Systems have full ADT/AGB capabilities for large commercial aircraft and are regarded as credible competitors.¹¹⁴ For smaller aircraft, KHI and Triumph are mentioned as credible competitors and RR and P&W also have internal capabilities.¹¹⁵ Apart from

¹¹⁴ Replies to questions 4-5 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013. "Both Hispano-Suiza and UTAS are credible suppliers, with sufficient track record and design expertise to work on future programmes." See [...] reply to question 51 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

¹¹⁵ Replies to question 20 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

manufacturers with design capabilities, several build-to-print suppliers are active on the market, including KHI and Northstar.¹¹⁶

157. Initially, RR and P&W's raised concerns in relation to programmes on which Avio supplies ADTs or ADT components. These programmes are discussed in detail below in sections V.7.6.1 and V.7.6.2.

158. Apart from these said programmes, there were no concerns raised in the market investigation with regard to ADTs or ADT components.¹¹⁷ According to Safran "*[t]here should be no problem unless GE decides to modify Avio's current strategy to supply all OEM engine manufacturers (including GE's competitors) on future programmes, which Safran rates as a low probability*" and "*Safran's assessment is that continued supply will be maintained on existing programmes.*"¹¹⁸

159. In view of the above and of the assessment in section V.7.6.2 below, the Commission considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market with respect to the vertical relationship between ADTs and aircraft engines.

VII.7. PW1100G

160. As explained above, Avio is P&W's development partner and key component supplier for the PW1100G, which will equip the A320neo and compete with the GE JV engine LEAP-1A on this platform. In particular, Avio is responsible for the design and manufacture of the ADT and the oil tank, as well as for the manufacture of the PGB.

161. The PW1100G is currently under development and has reached a critical stage as it is currently being tested and engine certification is scheduled in 2014, with a view to entering into service at the end of 2015. In this regard, the PW1100G is [...] of the LEAP-1A, which should be certified [...] and enter into service [...].

162. According to the estimates based on the data provided by the Notifying Party, approximately [20-30]% of the airlines that have ordered an A320neo have chosen the PW1100G whereas [30-40]% have opted for the LEAP-1A and [30-40]% still need to make a decision as regards the engine that will equip their A320neo.¹¹⁹

¹¹⁶ Replies to question 7 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks customers (Q1), dated 14 May 2013.

¹¹⁷ Although there were some comments pointing to possible customer foreclosure ("*if [GE] acquires Avio, will look less to outside suppliers, and more to Avio, which will reduce competition to win GE's business*", see [...] reply to question 48 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013), the Commission notes that Avio is already GE's most important supplier on its main programmes.

¹¹⁸ [...] reply to questions 51-52 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to ADT, oil pumps and oil tanks competitors (Q2), dated 14 May 2013.

¹¹⁹ This dataset was submitted on the 11 June 2013 as Annex 1 to the response to the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to the Notifying Party, dated 5 June 2013.

163. During the market investigation, some respondents, including P&W, raised concerns that the merged entity would have the ability and incentive to delay the design, testing and certification of the PW1100G because such a disruption could help GE achieve additional LEAP-1A sales.¹²⁰
164. It has been argued that the merged entity could slow down the testing, certification, troubleshooting and production process in many ways, for example by not putting the required levels of resources or by refraining from making all the efforts possible to solve problems diligently.¹²¹ In particular, it has been argued that it would be very difficult to demonstrate that the disruption results from negligence or misbehaviour on the part of the merged entity.¹²²
165. It has also been argued that merged entity could benefit from implementing disruptive strategies for the following reasons: (i) a delay in the testing/certification/production of the PW1100G would reduce P&W's first-mover advantage and damage the reputation of this new engine, thereby inducing customers to switch to the LEAP-1A, and (ii) given the limited financial value of the respective components supplied by Avio compared to that of an engine,¹²³ there could be an incentive to forego profits resulting from the components sales in order to increase engine sales. The risk of GE accessing confidential P&W information has also been raised.¹²⁴
166. The Notifying Party has argued that, contrary to the concerns raised during the market investigation, the merged entity would neither have the ability nor the incentive to foreclose P&W's access to the PW1100G components supplied by Avio. In particular, the Notifying Party argued that such behaviour would be made impossible by the comprehensive contractual provisions present in the long term agreement between P&W and Avio. This agreement, which covers the life of the PW1100G programme, contains provisions [...].
167. The Notifying Party has also emphasized the fact that the merged entity would lack significant influence on the upstream markets, that P&W is itself responsible for the production of part of the components requirements, and that P&W would be able to find alternative sources of supply for the ADT, the oil tank and the PGB.

¹²⁰ See [...] reply to question 21.3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013. See also [...]’s reply to question 34.1 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to PGB competitors (Q8), dated 14 May 2013.

¹²¹ See [...] reply to question 21.3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013. See also replies to question 23 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airlines (Q14), dated 14 May 2013.

¹²² See [...] reply to question 22.2 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

¹²³ According to the Notifying Party, the ADT represents less than 5% of the value of an engine, the oil tank less than 1% and the PGB less than 5%.

¹²⁴ See [...]’ reply to question 21.3 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

168. Furthermore, the Notifying Party submitted that the merged entity would have no incentive to foreclose given the contractual damages it would incur [...].
169. The Notifying Party also claims that it would be further deterred from any foreclosure attempts because of (i) the reputational damage it would be exposed to, (ii) the loss of revenues incurred on the upstream markets, (iii) the unlikelihood of customers switching their engine selection, and (iv) GE's inability to capture diverted sales [...].
170. The results of the market investigation cast some doubts on some of the arguments put forward by the Notifying Party. In particular, if a delay in certification or delivery of the PW1100G engine were to happen, some airlines indicated they may switch to another engine.¹²⁵
171. In addition, given the very tight schedule for the certification process and the time required to switch suppliers, it is doubtful that P&W would be able to replace Avio as supplier responsible for the design and manufacture of the ADT in a timely and effective manner.
172. Furthermore, while market respondents have indicated that the merged entity might indeed suffer reputational damage should it engage in delaying behaviour, some also indicated that P&W would also suffer reputational damage should its PW1100G engine be delayed.¹²⁶
173. Finally, a preliminary analysis of potential foreclosure incentives based on the sales revenue and margin datasets submitted by the Parties indicates that the present value of the average lifetime gross margin earned by GE on engine sales is several times larger than the corresponding margin earned by Avio on its component sales. This implies that GE would only need to capture a relatively small percentage of downstream engine sales to make a foreclosure strategy profitable. This is particularly so during the design phase of the PW1100G, given the [...]. As a consequence, incentives to foreclose cannot be entirely excluded.
174. On 19 June 2013, the Parties entered into a commercial assurances agreement (the "CAA") with P&W regarding the PW1100G and some associated programmes. The CAA supplements the existing relevant agreements. The key provisions of the CAA are in essence as follows:
- i. [...];
 - ii. [...];
 - iii. [...];
 - iv. [...];

¹²⁵ Replies to question 24.5 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airlines (Q14), dated 14 May 2013.

¹²⁶ Replies to question 24.2 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airlines (Q14), dated 14 May 2013, and replies to question 22.2 of the Commission's request for information pursuant to Article 11 of the Merger Regulation addressed to Airframers (Q13), dated 14 May 2013.

- v. [...];
- vi. [...];
- vii. [...];
- viii. [...];
- ix. [...];
- x. [...].

175. According to Paragraph 31 of the Guidelines on the assessment of non-horizontal mergers, "*input foreclosure arises, where, post-merger, the new entity would be likely to restrict access to the product or services that it would have otherwise supplied absent the merger, thereby raising its downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the merger*".¹²⁷

176. Paragraph 32 of the Guidelines provide that "*In assessing the likelihood of an anticompetitive input foreclosure scenario, the Commission examines, first, whether the merged entity would have, post-merger, the ability to substantially foreclose access to inputs, second, whether it would have the incentive to do so, and third, whether a foreclosure strategy would have a significant detrimental effect on competition downstream*".

177. As regards the ability of GE to engage into an input foreclosure strategy, the provisions of the CAA (as explained in the paragraphs above) address the concerns raised during the market investigation and will ensure that GE will not have the ability to engage in any input foreclosure strategy post-merger for the following reasons.

178. First, [...].¹²⁸ [...].

179. Second, [...].

180. Third, [...].

181. Fourth, [...].

182. In light of these considerations, the Commission considers that it is very unlikely that GE would have the ability to foreclose P&W as regards its access to inputs for the PW1100G engine.¹²⁹ The Commission therefore considers that the proposed transaction does not raise serious doubts as to its compatibility with the internal market as regards

¹²⁷ Guidelines on the assessment of non-horizontal mergers under Council Regulation on the control of concentrations between undertakings, OJ C 265, 18.10.2008, p. 6.

¹²⁸ Although the Commission considers in light of certain provisions of the CAA that the merged entity would not have the ability to foreclose P&W, were this not to be the case, it notes that [...] would also militate against any potential incentives of GE to foreclose P&W.

¹²⁹ This conclusion applies not only to the engine-to-engine competition concerns raised above but also more broadly, to any potential strategy aiming at diverting sales from the A320neo to a competing aircraft, such as the Boeing 737-MAX powered by the LEAP-1B.

potential foreclosure for the supply of components by the merged entity used in the production of the PW1100G engine.

VII.8. Trent 900

183. Avio supplies ADTs (or their constituent parts) for the RR Trent 900 engine, which powers the very large wide-body four-engine Airbus A380. The A380 is a large-size aircraft capable of carrying between 525 and 853 passengers depending on the configuration. In addition to the ADT parts already mentioned, in the Trent 900, the ADT also contains the SAGB (Step-Aside GearBox).
184. The A380 offers two engines as an option on the aircraft: the RR Trent 900 engine and the Engine alliance GP7200 (which is a 50-50 JV between GE and P&W, see footnote 4).
185. As regards the supply of these products, RR and Avio are parties to a [...] (The Trent 900 agreement) [...], as well as a [...] and a [...]. As explained above in paragraph 13, RRSP contracts are long-term, life of programme relationships. Partners provide upfront investment to the programme and share in programme risk and revenues. Partners are more aligned with RR's own business model than traditional supplier relationships, and have more access to specific details on the engine business case.

VII.8.1. RR's initial concerns

186. In the course of the market investigation, RR expressed concerns as regards the vertical impact of the transaction as regards the Trent 900.
187. In particular, RR considered that GE would have the ability to conduct input foreclosure on the components of the ADT. First, as described above in section V.3.7, AGBs/ADTs are a critical system for the engine, despite their comparatively modest value. There is a high level of technical integration into the rest of the engine. AGB/ADT failure or disruption would be highly problematic.
188. Second, provided that alternative suppliers are present on the market to replace Avio as an ADT supplier, RR considers that switching supplier mid-programme is extremely challenging. Even given access to Avio's IPR, it would take significant expense to bring another design-make supplier. The lead time would be around a year to develop the new system, and around six to twelve months for qualification and engine testing. The certification and testing issues would be even more significant with no access to Avio's IPR. Re-design would then more likely involve more flight testing - alongside the engine testing outlined above. Moreover, RR questioned the possibility to support arrangements for re-supply and repair of two separate lines of components in the aftermarket. According to RR, running mixed fleets of engines would be highly unattractive for operators (airlines and leasing companies).
189. Third, the existing contracts (LTAs) do not contain adequate protection against disruption by GE. Even if these contracts include [...], RR considers that they were drafted from a position where Avio and RR had an aligned commercial interest in a successful programme. In the situation where Avio is under GE ownership, their provisions are sufficiently unclear to [...]. These particular clauses have a number of issues from RR's perspective, each of which could lead to legal dispute between the parties and make them very difficult to enforce.

190. RR also considers that GE would have the incentive to disrupt RR's supply of Trent 900 engines to drive sales of its competing engines. This is mainly linked to the fact that GE would be able to capture a large proportion of diverted sales owing to its leading position in the wide body segment generally and specifically its position as the only competitor on the Airbus A380.¹³⁰

VII.8.2. The Notifying Party's position

191. The Notifying Party claims on the contrary that it will have neither the ability nor the incentives to foreclose RR's access to Avio's ADT components.

192. According to GE, the long term agreements signed between RR and Avio contain adequate protection clauses with regard to quality, prices and delivery guarantees of the ADTs supplied by Avio. As regards particularly the RR Trent 900 engine, the agreement includes provision which constrains the ability of the new entity to increase prices and it also protects against degradations of quality and delivery. According to GE, production continuity is further guaranteed by strict transition support obligations which ensure that, [...]. Nonetheless, as developed by RR, it is questionable whether these provisions are in themselves sufficient to ensure a smooth transition to another supplier, should this be necessary.

193. GE also considers that RR has effective and timely counter-strategies to make foreclosure impossible, such as switching to a potential alternative ADT supplier such as Hispano-Suiza, KHI, Triumph or Northstar, with no disruption of an engine programme thanks to Avio's continuing supply obligations foreseen by the LTAs. GE however acknowledges that it would take RR between [...] months to identify and develop a new source of supply for the disrupted product.¹³¹ GE considers that this transition would be further facilitated by Avio's contractual obligation to provide [...].

194. The Notifying Party put forward that the merged entity would not have incentives to foreclose access to inputs. In particular, any foreclosure strategy would negatively affect GE/Avio's short and long-term's commercial interests at a number of different levels by i) exposing the merged firm to significant contractual damages for breach of the contract; ii) exposing GE to lasting reputational damage and iii) creating a certain loss of revenues in upstream markets. There again, GE's exposure to contractual damages is linked to the enforceability of the relevant provisions of the LTAs.

195. Finally, the incentives to foreclose access to inputs are, according to GE, limited by the fact that customers are unlikely to switch engine choices even in the event of a temporary supply disruption, making the likelihood of any downstream capture by the merged entity more remote. Customers tend to have an installed base related to a particular engine option on an aircraft, giving them strong preference to maintain their original choice to avoid additional costs and additional complexity.

¹³⁰ RR put forward that the A380 competes (amongst others) with the Boeing 747-8 on which GE has engine exclusivity.

¹³¹ Form CO, para. 365.

VII.8.3. Agreement between RR and GE

196. On 30 May 2013, RR and GE reached an agreement¹³² ("The Deed of Amendment") on the specific amendments to be made to the principal relevant agreements between RR and Avio in civil programmes, including the Trent 900 engine.

197. The key provisions of the agreement are as follows:

- i. [...].
- ii. [...].
- iii. [...].
- iv. [...].
- v. [...].
- vi. [...].
- vii. [...].

VII.8.4. Assessment of the potential input foreclosure strategy

198. According to Paragraph 31 of the Guidelines on the assessment of non-horizontal mergers, *"input foreclosure arises, where, post-merger, the new entity would be likely to restrict access to the product or services that it would have otherwise supplied absent the merger, thereby raising its downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the merger"*.

199. In addition, Paragraph 32 of the Guidelines provide that *" In assessing the likelihood of an anticompetitive input foreclosure scenario, the Commission examines, first, whether the merged entity would have, post-merger, the ability to substantially foreclose access to inputs, second, whether it would have the incentive to do so, and third, whether a foreclosure strategy would have a significant detrimental effect on competition downstream"*.

200. As regards the ability of GE to engage into an input foreclosure strategy, the provisions of the Deed of Amendment (as explained in the paragraphs above) address the concerns expressed by RR during the market investigation and will ensure that GE would not have the ability to engage in any input foreclosure strategy post-merger for the RR Trent 900 engine for the following reasons.

201. First, the provisions as regards [...]. The commitment [...] will also facilitate the transition process for RR, and minimize the risk of a supply disruption.

202. Second, [...]. The provision ensures that RR has enough time to develop another source of supply before any potential supply disruption could occur.

203. Third, the commitment to [...] will ensure that GE is unable to harm RR by raising the prices of the products.

¹³² The agreement was subsequently signed by RR on 13 June 2013 and GE on 14 June 2013.

204. Fourth, [...] mitigate any risk of GE endangering RR's programmes through access to sensitive information.
205. Finally, RR confirmed that [...] in its view the provisions of the Deed of Amendment adequately safeguards its position and are sufficient to address any potential input foreclosure concerns.
206. In the light of these considerations, the Commission considers that it is most likely that GE would not have the ability to foreclose RR as regards its access to inputs for the Trent 900 engine. It is therefore concluded, on the basis of the all available evidence, that the notified operation does not raise serious doubts as to its compatibility with the internal market with respect to the Trent 900 engine.

VII.9. Military applications – Eurojet

VII.9.1. Introduction

207. Avio is a member of the Eurojet Turbo GmbH consortium (“Eurojet consortium”), which was formed for the purpose of the design and manufacture of the EJ200 engine that powers the Eurofighter Typhoon military aircraft. The other members of the Eurojet consortium are RR, MTU and ITP.
208. Both the aircraft and the engine are products of a collaborative programme between the governments of the United Kingdom, Germany, Italy and Spain. The Eurofighter programme is a multinational collaborative programme to develop and manufacture a multi role combat aircraft. The participation level of the equipment suppliers in the programme is directly linked to the number of aircraft ordered by each country (UK 33%, Germany 30%, Italy 19% and Spain 14%). Avio, together with Alenia, represent the Italian participation in the Eurofighter programme.
209. Eurojet supplies the engine to the Eurofighter GmbH consortium (“Eurofighter consortium”) which designs and manufactures the Eurofighter Typhoon military aircraft and integrates the EJ200 into the aircraft system. The members of the Eurofighter consortium are BAE Systems (United Kingdom), EADS Deutschland (Germany), EADS Construcciones Aeronauticas (Spain) and Alenia Aeronautica (Italy).
210. Apart from being a key supplier, Avio's participation in Eurojet reflects Italy's continued commitment to Europe's most important defence cooperation programme. Avio has developed and currently manufactures parts of the EJ200 engine and has a workshare of the engine of approximately [20-30]%. Avio designs and produces the gearbox, the afterburner and part of the low pressure turbine of the EJ200 engine.
211. In previous cases in the aerospace defence markets, the Commission has concluded that there is only a limited degree of supply-side substitutability and no substitutability from the demand side since military subsystems are conceived, designed and manufactured according to the very specific requirements of the applications and the military platform they serve.
212. The costs of military engine development, certification and integration into an aircraft platform are very high. Respondents to the market investigation have unanimously indicated that qualifying another manufacturer for the subsystems that Avio currently produces for Eurojet would be prohibitively expensive, time consuming and endanger the EJ200 programme.

213. It can thus be concluded that each of the subsystems that Avio produces for the Eurojet, and in particular each of the gearbox, the afterburner and low pressure turbine, form a market in themselves.
214. For defence markets, a distinction is traditionally made between those countries where the Ministries of Defence, being the ultimate customers, award contracts to a domestic supplier on the one hand, and those countries without a national supplier on the other hand. In the latter case, existing products rather than tailor made programmes are procured, and prime contractors are usually selected on the basis of open international tenders. The relevant geographic market is therefore considered national in scope where there is a national supplier, and otherwise the EEA or worldwide.
215. For the case at hand, the relevant geographic market for sales to NATO Eurofighter and Tornado Management Agency ("NETMA") Members (Germany, UK, Spain and Italy) covers those four Member States as each of those participating countries has participated in the development costs of the Eurojet / Eurofighter joint programme, has subsequently ordered a number of Eurofighter aircraft and its national suppliers have been awarded an equivalent industrial participation in the project. Aircraft deliveries to the four participating governments are ongoing.
216. Both the Eurofighter Typhoon and the Eurojet EJ 200 engine compete in international markets in respectively fighter aircraft platform and fighter engine-to-engine competitions.

VII.9.2. Competitive analysis: Possible competition problems through GE's ability to undermine the competitive position of Eurojet

VII.9.2.1. Introduction

217. MTU, ITP and RR as members of the Eurojet consortium, BAE Systems as part of the Eurofighter consortium, as well as the [...] have raised concerns that post-merger GE would obtain significant influence and access to strategic information of one of its main competitors in the market for selling fighter aircraft in international markets, that is to say outside the four participating Member States.
218. In a concentrated market with only two military engine manufacturers in the EEA and five worldwide, the proposed transaction would enable GE to prevent the Eurofighter from offering an alternative to GE-powered platforms and possibly would degrade the continued ability of Eurojet to compete on a level playing field.
219. The Commission has therefore to safeguard that the merger will not negatively affect the market structure, in particular with a view to the export markets, where only a few players are active and investment barriers are significant in terms of know-how and cost. As the ability of Eurojet / Eurofighter to continue competing on a level playing field with GE and GE-powered platforms is crucial for maintaining European capabilities, the Commission has to look carefully not only at the present competitive situation which is mainly focused on sales to the four founding Member States, but also at the export markets.

VII.9.2.2. Market position

220. The most important competitor to the Eurojet EJ200 in international markets is GE's F414 engine that powers the Boeing F/A-18E/F Super Hornet series and the SAAB Gripen. Other competitors include the Dassault Rafale (powered by Snecma), and the

GE F100 / F110 that powers the Lockheed Martin F-16 and Boeing F-15. Data on campaigns in which the Eurojet EJ200 / Eurofighter participated show that the aforementioned fighter platforms with their respective engines are its main competitors.

221. P&W also supplies engines for the F15 and F16, but appears to be less of an alternative to the Eurojet and GE engines in the export markets, as are the Russian Klimov, Saturn and Mikoyan engines that power various types of MiG and Sukhoi aircraft. The P&W F135 engine powering the Lockheed Martin F-35 JSF Lightning II has significantly different performance specifications compared to the Eurojet EJ200 and GE F404 / F414 engines. The JSF programme is – as explained above - a state of the art platform that replaces rather than substitutes the Eurojet and its competitors.
222. On the basis of the above, it can be concluded that the EJ200 is in direct competition with GE engines both in engine-to-engine competitions and through platform competition. Considering in particular performance specifications, the Eurojet EJ200 and GE F404 / F414 engines are particularly close competitors.
223. Avio is considered by the market as having unique capabilities on each of the gearbox, the afterburner and low pressure turbine that could not easily be replaced or replicated. In addition to the difficulties to replace suppliers in the civil aerospace segment, the [...] have pointed to the principle of '*juste retour*' whereby [...] companies are reserved a workshare on the Eurojet equal to that Member State's contribution. Therefore, even if a European alternative manufacturer such as Safran could replace Avio to some extent, this would not be possible within the context of Eurojet.

VII.9.2.3. Ability to foreclose

NETMA sales

224. With regard to the security and performance of supply of the participating Member States (NETMA), both Eurojet/Eurofighter consortium members and [...] have raised concerns about the security of supply for aircraft currently being produced. In addition, concerns have been raised that Avio would become a partner that is less willing to actively improve the capabilities of the EJ200 or respond to a call for updates and improvements.
225. Since the competition for powering the Eurofighter aircraft sold to the four NETMA participating Member States has run its course, it is not a given that GE would have the incentive to reduce, delay or frustrate Avio supplies for NETMA Eurofighter aircraft. The Parties have noted that GE has nothing to gain from such foreclosure, but would suffer from lost aftermarket sales and the repercussions of the reputational damage that such foreclosure would trigger. The Parties have also submitted that GE would not have the ability to foreclose Eurojet from continued input as there are contractual safeguards and the national MoD would readily detect and remedy any such foreclosure.
226. Respondents to the Commission's request for information do not consider that the MoDs' monopsonist countervailing buyer power would be sufficient to avoid GE foreclosing or degrading Avio's input. [...] (Decreto Legge N. 21/2012). [...] therefore consider that further supply assurances should be in line with what the Italian MoD required under national law. [...] also indicated that in the absence of accompanying commitments, the commitments provided under the Italian golden law could have an adverse effect for [...] that cannot replicate such commitments from Avio in terms of security and conditions of supply.

227. In particular with regard to technological improvements, both the consortium members [...] consider that supply assurances will be needed with regard to the merged entity continuing to invest in product updates, required modifications and continuous improvements, also when the Eurojet engine comes to the end of its lifetime.

Export sales

228. Currently, Eurojet's sales to the four NETMA member states account for the vast majority of Eurojet revenues. Up to the present date, Eurofighter Typhoons have been sold outside the four NETMA member states to Austria, Saudi Arabia and Oman. However, in each of these cases no other fighter airframers were invited to tender.

229. Non-NETMA sales ("Export Sales") will in the future increasingly be the focus of Eurojet and the continued competitiveness of the EJ200 engine in the export markets is essential for the consortium to maintain and develop its critical capabilities. In fact, export sales of the Eurofighter are considered by the market as vital to amortising the programme's supply and support costs.

230. The Parties have argued that there is very little opportunity for foreclosure even in the export markets because such foreclosure would lead to a certain loss of Avio revenues and an uncertain win of a GE-powered platform since there are numerous non-GE-powered options in the export markets. That uncertainty would be further increased by geo-political military procurement considerations that could decide a competition irrespective of performance or financial considerations. The risk of reputational damage that such foreclosure would trigger, the strong buyer power of both airframe manufacturers and military customers, and compulsory requirements for Avio to continue its commercial and supply relationships in favour of Eurojet, further reduce the incentive for GE to foreclose post-merger. With regard to the ability to foreclose, the Parties have stated that the long lead times and comprehensive contractual protections (including post-termination transition support from Avio) would allow Eurojet to transition supply to an alternative supplier without disruption, thus eliminating GE's ability to foreclose.

231. The Parties arguments have not been supported by the Eurojet consortium and the [...]. The market investigation has indicated that, since there is no possibility to replace Avio with an equally capable supplier as explained above, GE would have the ability to degrade the competitiveness of the Eurofighter since Avio has veto rights [...]. GE through Avio could influence export campaigns by refusing to agree on commercial elements that are essential to maintain existing export contracts and to win new contracts. Moreover, it could delay agreement on offset obligations, transfer of IP, commercial concessions, required technical adaptations [...]. Any of these actions would degrade the competitiveness of Eurojet. Whilst such actions of foreclosure are difficult to detect and prove, the repercussions on the competitiveness of Eurojet would be considerable, in particular in view of the market being lumpy, demand being very occasional and requiring protracted multi-level negotiations which facilitates foreclosing behaviour and the strategic use of information.

Engine-to-engine competition in export sales

232. Given that engine performance is a significant discriminator in military aircraft competitions, GE could delay acting on requests of customers to adapt its subsystems to specific performance requests. That would be most relevant for competitions between aircraft engines to be mounted on new or adapted aircraft platforms. As emerging

markets are moving to designing their own fighter platforms, competitions for the stand-alone engines are increasing. A decision from GE to prioritise other development programmes or to strategically act on information regarding engine performance requirements from international customers would not be necessarily easy to detect and to remedy.

233. The Parties have stated that engine-to-engine competition will take place exclusively on future platforms, as all current Eurojet-powered fighters are sole-sourced. As only future platforms could be affected, the long lead times between aircraft order and delivery would give Eurojet sufficient time to transition supply. However, supply foreclosure is not the only concern. The market investigation has indicated that, quite apart from whether the non-affected Eurojet members would be able to transition supply to an alternative supplier, Eurojet's competitive position would be significantly hampered by Avio being able to oppose participating in the call for proposals, delaying the formulation of the bid and/or refusing to make concessions in terms of price, off-take obligations, investments, required technical adaptations or IPR transfer. As illustrated by the current ongoing campaigns for [...], the consortium needs to act quickly in sophisticated and multi-faceted negotiations and Avio would be able to delay and distract these negotiations in favour of GE.
234. Respondents to the Commission's requests for information¹³³ have stressed that in such sophisticated negotiations, the access to sensitive information or ability to hamper the flexibility of the consortium to react quickly to changing customer demands can decide a competition. Furthermore, in such a lumpy market, the unexpected loss of an important competition can have significant consequences for continued capability.
235. In addition, the existing Eurojet contractual framework provides little protection against Avio's unwillingness to co-operate. The "Eurojet Collaboration Agreement" foresees that¹³⁴, in the event members would be unwilling to participate, the other Parties "[...]." Also¹³⁵, "[...]" and "[...]." This implies that for each competition and modification GE through Avio would be able to block or stall negotiations and have access to strategic information.
236. The Agreement further stipulates¹³⁶ that "[...]". Quite apart from whether the other consortium member would be able to take Avio's workshare, GE could significantly delay and even block Eurojet from competing in the process of negotiating the required licenses from Avio.
237. Since the engine price for the Eurofighter Typhoon (including support and maintenance activities for an average 30 years or more lifecycle) accounts for a significant proportion of the total aircraft system price, and Avio's contribution in terms of value is considerable, a potential price increase for Avio's contribution would not necessarily need to be very significant to have a material effect on the price of the Eurojet engine and thus on the Eurofighter itself.

¹³³ Joint presentation by Rolls-Royce, MTU and ITP to the Commission dated 22 May 2013.

¹³⁴ Section 4.4.1 of the Eurojet Collaboration Agreement.

¹³⁵ Section 4.4.3 of the Eurojet Collaboration Agreement.

¹³⁶ Section 4.4.2 of the Eurojet Collaboration Agreement.

238. GE's access to the information flow is in itself a major concern. As part of the Eurojet consortium, GE would obtain through Avio confidential information about Eurofighter Typhoon export bids and leakage of such information to its own engine operations or to its engine customers such as Boeing and Saab would deteriorate the competitive position of Eurojet and the Eurofighter consortium. Market participants have indicated that the current information restriction would be inadequate to compensate for such leakage and that firewalls are difficult to implement as long as Avio seconded personnel would be directly involved in these international competitions. The concerns about information leakage also apply to the technology applied for the Eurojet engine, which could be used by GE in the F414 or successor programmes.

VII.9.2.4. Incentive to foreclose

239. As to the incentive for GE to foreclose, it is noted that GE has [...] % ownership of its F404/414 engine programme and the revenues it generates compared to only [...] % of potentially foregone sales on Eurojet. In aircraft-to-aircraft competitions, GE would be incentivised to ensure that the GE powered F-18E or Gripen won, so obtaining [...] % of the engine supply rather than a smaller percentage via the Avio interest in the Eurojet consortium. Although it is correct that the existence of competing fighter aircraft with similar mission profiles would not give GE absolute certainty of being able to induce a customer to switch to a GE-powered fighter aircraft and capture downstream sales after foreclosure of the EJ200 / Eurofighter Typhoon, the rewards of such foreclosure would be very considerable and the foreclosure could be targeted for certain competitions on the basis of GE's access to strategic information.

240. The Parties have stressed that GE has made a commitment to the Italian Government that it will continue to supply the Eurojet consortium and the Italian Airforce. Members of the Eurojet consortium as well as [...] have taken the common position that any commitments that GE has made to the Italian Government would not limit the competition risks and may even result in further adverse effects for the other MoDs that cannot replicate such commitments from Avio in terms of security and conditions of supply. Existing contractual protection, the MoDs' countervailing power, reputational issues and potential retaliation of consortium members are considered insufficient by the market participants to rule out such an obvious and significant conflict of interest that would arise as a result of the proposed transaction.

VII.9.2.5. Effect on competition

241. The Parties further stress that the [...] ¹³⁷ It follows that since it was already possible for Avio to collaborate with GE on a fighter engine [...], the merger would have no effect on competition.

242. More specifically, the Parties have pointed to Snecma and RR having formed a partnership with regards to military and afterburning applications, and RR having started collaborations with both P&W and GE on potential fighter applications. Also, the Parties have pointed to MTU being involved in the F414 engine programme on a RRSP basis well before [...] and the fact that its current programme share comprises the manufacture and supply of sophisticated components/parts such as the high pressure

¹³⁷ Collaboration Agreement, clause 5.4.

compressor drum, complex blisks as well as other components, comprising [...]% of the F414 programme's value.

243. The Commission has examined each of these examples. Whereas RR's involvement with either Snecma or P&W will not lead to concrete results in the foreseeable future, MTU is indeed participating on a direct competitor to Eurojet. However, MTU acts as a component supplier with no say or knowledge in US or export programmes, nor does its participation in the F414 programme provide it with any access to information. In addition, MTU's collaboration does not lead to similar concerns in terms of being able to exercise veto rights and access sensitive information through seconded personnel. Overall, the market investigation has confirmed that such collaboration on a project – by – project basis is very much different from GE acquiring a consortium member.
244. The Commission considers that post-merger GE would obtain significant influence and access to the strategic information of one of its main competitors in the market for selling fighter aircraft. It follows that the proposed transaction is likely to allow GE to prevent the Eurofighter from offering an alternative to GE-powered platforms and to degrade the continued ability of Eurojet to compete.

VII.9.3. Conclusion

245. The Commission considers that the proposed transaction as originally notified raises serious doubts in the markets where Eurojet / Eurofighter is active, both with regard to NETMA sales and sales in the export markets. Indeed, as set out above, Avio's veto and information rights will most likely enable GE not only to prevent Eurojet and Eurofighter from competing in markets outside the four NETMA nations, but also to weaken the competitive position of Eurojet in the NETMA markets.

VIII. PROPOSED REMEDIES

246. In order to render the concentration compatible with the internal market, GE has modified the notified concentration by entering into the following commitments, which are annexed to this decision and form an integral part thereof. The submission of these commitments on 18 June 2013 extended the legal deadline for the Commission's decision to 2 July 2013. On 26 June 2013 GE submitted a modified version of its initial commitments.

VIII.1. Description of the Proposed Commitments

247. The content of the final set of commitments submitted by GE can be summarised as follows, whereby each of the following sets a condition to be fully complied with:

a) [...] involvement of Avio in Eurojet entities

248. GE commits that Avio will [...].

b) [...] decisional influence

249. GE commits that Avio will [...].

250. In addition, a fast track dispute resolution and arbitration process is put in place.

c) [...] Eurojet Shareholders Board with an Advisory Committee

251. In case the other Eurojet Shareholders [...].

d) Restricting access to confidential information, limitations on secondment and employment of Avio employees by GE

252. GE commits that the Avio representatives on the Eurojet Shareholders Board and the Eurojet General Meeting [...].

253. [...].

e) [...] cooperation in Non-NETMA Sales and supply assurances for NETMA sales

254. GE commits to [...].

VIII.2. Assessment of the Proposed Commitments

255. Under the Merger Regulation, the Commission has the power to accept commitments that are deemed capable of rendering the concentration compatible with the internal market so that they will prevent a significant impediment of effective competition. As indicated in point 9 of the Commission notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 ("the Remedies Notice")¹³⁸ the commitments have to eliminate the competition concerns entirely and have to be comprehensive and effective from all points of view.

256. In the present case, the commitments offered by the Parties are considered to address all the concerns identified regarding the Eurojet project and the EJ 200 engine.

a) [...] decisional influence [...]

257. The Commission's main concerns with regard to the transaction are linked to Avio's existing decisional power (through veto rights or other), which might constitute an effective legal tool to prevent Eurojet from competing with GE, to the detriment of Eurojet.

258. The present proposal to limit Avio's decision-making powers other than to protect the economic value of its minority investment in Eurojet removes that concern.

259. The fact that Avio [...].

260. The commitment [...] provides additional certainty that the commitment is of a structural nature that is fully in line with phase I remedy requirements.

261. The fast track dispute resolution and arbitration process provides a practical solution for potential interpretation conflicts, without the Commission having to decide on the issue again.

262. Respondents to the market test of the proposed commitment, [...], have confirmed that the remedy removes GE-Avio's decisional influence on future export competitions.

¹³⁸ OJ C 267, 22.10.2008, p. 1.

At the same time, the remedy respects Italy's significant contribution to the Eurofighter programme [...].

b) [...] Avio personnel involved in Eurojet entities [...]

263. The fact that GE accepts [...] provides safeguards that GE will not have access to sensitive information [...] or have decisional influence. That commitment results in [...]. This commitment also facilitates [...].

264. Respondents to the market test [...], consider that the remedy [...] structurally cuts the information flows to GE. [...]. Therefore, the safeguards that are in place were considered to be sufficient to exclude the risk of information being passed on to GE.

c) Information access

265. The commitment to [...] addresses the risk that might arise from the fact that GE could obtain confidential information on potential bidding opportunities and the strategic plans of Eurojet and use this information to hamper Eurojet's competitiveness. The information [...]. It cannot be expected that GE will receive any information through these limitations that might be directly related to export opportunities and that might enable GE to affect Eurojet's competitiveness.

266. The limitations [...] ensure that also in the more distant future GE will not be able to have access to information that could hamper Eurojet's competitiveness.

267. Respondents to the market test, [...], consider that the remedy structurally cuts the information flows to GE and that it should remain in place for the lifetime of the Eurofighter platform.

d) [...] cooperation in Non-NETMA Sales and supply assurances for NETMA sales

268. The commitment that Avio will [...], provides the additional certainty [...] that the acquisition of Avio by GE will not negatively affect Eurojet both for existing contracts and future competitions.

269. [...]

VIII.3. Conclusion on the Proposed Commitments

270. [...] the Commission notes that the [...] consortium members of both Eurojet and Eurofighter consider the remedy to be necessary to ensure the continued competitiveness of Eurojet, without endangering Italy's significant contribution to the Eurofighter programme.

271. Altogether, the Commission considers that the remedies provide an effective and sufficiently clear-cut solution to remove all identified competition problems on all potentially affected markets. The Commission is therefore of the opinion that, as far as the Eurojet project and the EJ 200 engine is concerned, the commitments as submitted by the Notifying Party on 26 June 2013 remove the Commission's serious doubts as to the compatibility of the transaction with the internal market and the EEA Agreement.

272. Under the first sentence of the second subparagraph of Article 6(2) of the Merger Regulation, the Commission may attach to its decision conditions and obligations intended to ensure that the undertakings concerned comply with the commitments they

have entered into vis-à-vis the Commission with a view to rendering the concentration compatible with the common market.

273. The fulfilment of the measure that gives rise to the structural change of the market is a condition, whereas the implementing steps which are necessary to achieve this result are generally obligations on the parties. Where a condition is not fulfilled, the Commission's decision declaring the concentration compatible with the common market no longer stands. Where the undertakings concerned commit a breach of an obligation, the Commission may revoke the clearance decision in accordance with the Merger Regulation. The undertakings concerned may also be subject to fines and periodic penalty payments under Articles 14(2) and 15(1) of the Merger Regulation.

274. In accordance with the basic distinction between conditions and obligations described above, the decision in this case is conditioned on the full compliance with the requirements set out in Section B of the commitments submitted by the Notifying Party on 26 June 2013 which constitute conditions, whereas the other sections of the commitments constitute obligations on the Notifying Party.

275. The full text of the commitments is annexed to this decision and forms an integral part thereof.

IX. CONCLUSION

276. For the above reasons, the Commission has decided not to oppose the proposed transaction as modified by the commitments and to declare it compatible with the internal market and with the functioning of the EEA Agreement, subject to full compliance with the conditions in section B of the commitments annexed to the present decision and with the obligations contained in the other sections of the said commitments. This decision is adopted in application of Article 6(1)(b) in conjunction with Article 6(2) of the Merger Regulation.

For the Commission
(signed)
Joaquín ALMUNIA
Vice-President

Case No. COMP/M.6844 – GE/Avio
COMMITMENTS TO THE EUROPEAN COMMISSION
26 JUNE 2013

Pursuant to Article 6(2) of Council Regulation (EC) No. 139/2004 as amended (the "Merger Regulation"), General Electric Company ("GE" or "Notifying Party") hereby provides the following Commitments (the "Commitments") in order to enable the European Commission (the "Commission") to declare the concentration notified in Case No COMP/M.6844 compatible with the internal market and the EEA Agreement by its decision pursuant to Article 6(1)(b) of the Merger Regulation (the "Decision").

These Commitments are given by the Notifying Party following discussions with the Commission to address doubts or concerns that the Commission may have regarding the compatibility of the proposed transaction with the common market. These commitments do not constitute a decision or admission by the Notifying Party that these commitments are necessary to avoid the proposed transaction being incompatible with the common market or a substantial part thereof, and are without prejudice to GE's views and position regarding the proposed transaction and its compatibility with the common market.

These Commitments shall take effect upon the date of adoption of the Decision, but will be subject to the closing of GE's acquisition of Avio.

This text shall be interpreted in the light of the Decision to the extent that the Commitments are attached as conditions and obligations, of the general framework of EU law, in particular in the light of the Merger Regulation, and by reference to the Commission Notice on remedies acceptable under Council Regulation (EC) No. 139/2004 and under Commission Regulation (EC) No. 802/2004.

DEFINITIONS

For the purpose of the Commitments, the terms defined below shall have the following meaning:

Arbitral Tribunal: has the meaning given in paragraph 46.

Avio: the present Aviation Business of Avio S.p.A., to be formed after the proposed transaction as GE AVIO S.R.L., a *società a responsabilità limitata* organized and incorporated under the laws of Italy, registered with the Register of Enterprises in Torino under number 10898340012, whose registered office is at Via I Maggio, 99, 10040, Rivalta Di Torino, Torino, Italy.

Closing: the completion of the Sale and Purchase Agreement of 21 December 2012.

[...].

Decision: the European Commission's Decision in Case No COMP/M.6844 – GE/Avio, declaring the concentration between GE and Avio compatible with the common market pursuant to Article 6(2) of the Merger Regulation.

Effective Date: the date of adoption of the Decision.

[...].

[...].

[...].

[...].

[...].

[...].

[...].

[...].

[...].

[...].

GE: General Electric Company, a public company, incorporated under New York Law.

ICC: has the meaning given in paragraph 44.

Indemnified Party: has the meaning given in paragraph 36.

[...].

Monitoring Trustee: a person appointed in accordance with Section C.

[...].

[...].

[...].

[...].

[...].

[...].

A. PURPOSE

1. The European Commission is concerned that GE's control over Avio will negatively affect the competitiveness of the EuroJet Engine Program, by disrupting EuroJet sales campaigns outside of Germany, Italy, Spain and the UK and by giving GE access to confidential EuroJet information.
2. Pursuant to the Commitments in Section B below, GE offers additional assurances to EuroJet, guaranteeing that Avio will comply with its obligations under the EuroJet Agreement.
3. GE therefore makes the following Commitments to address the Commission's concerns.

B. COMMITMENTS

B.1 Commitment Relating to Avio's Rights And Presence in EuroJet

4. [...].
 - (a) [...].
5. [...].
6. [...].
7. [...].
8. [...].
9. [...].

B.2 Commitment Relating to [...] Non-NETMA Sales

- (a) [...].
10. [...].
11. [...].
12. [...].

B.3 Supply Assurances / Firewalls

13. [...].

B.3.1 Supply Assurances

14. [...].

B.3.2 Firewalls

15. [...].

C. MONITORING TRUSTEE

Appointment Procedure

16. GE shall appoint a Monitoring Trustee to carry out the functions specified in this Section C. The Monitoring Trustee shall be independent of GE and Avio, possess the necessary qualifications to carry out its mandate, and shall neither have nor become exposed to a conflict of interest. The Monitoring Trustee shall be remunerated by GE in a way that does not impede the independent and effective fulfilment of its mandate.

Proposal by GE

17. No later than two weeks after the Effective Date, GE shall submit a list of one or more persons whom GE proposes to appoint as the Monitoring Trustee to the Commission for approval. The proposal shall contain sufficient information for the Commission to verify that the proposed Monitoring Trustee fulfils the requirements set out in paragraph 25 and shall include:
 - (a) the full terms of the proposed mandate, which shall include all provisions necessary to enable the Monitoring Trustee to fulfil its duties under these Commitments;
 - (b) the outline of a work plan which describes how the Monitoring Trustee intends to carry out its assigned tasks.

Approval or rejection by the Commission

18. The Commission shall have the discretion to approve or reject the proposed Monitoring Trustee(s) and to approve the proposed mandate subject to any modifications it deems necessary for the Monitoring Trustee to fulfil its obligations. If only one name is approved, GE shall appoint or cause to be appointed, the individual or institution concerned as Monitoring Trustee, in accordance with the mandate approved by the Commission. If more than one name is approved, GE shall be free to choose the Monitoring Trustee to be appointed from among the names approved. The Monitoring Trustee shall be appointed within one week of the Commission's approval, in accordance with the mandate approved by the Commission.

New proposal by GE

19. If all the proposed Monitoring Trustees are rejected, GE shall submit the names of at least two more candidates within two weeks of being informed of the rejection, in accordance with the requirements and the procedure set out in paragraphs 26 and 27.

Monitoring Trustee nominated by the Commission

20. If all further proposed Monitoring Trustees are rejected by the Commission, the Commission shall nominate a Monitoring Trustee, whom GE shall appoint, or cause to be appointed, in accordance with a trustee mandate approved by the Commission.

Functions of the Monitoring Trustee

21. The Monitoring Trustee shall act on behalf of the Commission to ensure GE's compliance with the Commitments. The Commission may, on its own initiative or at the request of the Monitoring Trustee or GE, give any orders or instructions to the Monitoring Trustee in order to ensure compliance with the conditions and obligations. GE is not entitled to give instructions to the Monitoring Trustee. The Monitoring Trustee will act on behalf of the Commission as a trusted expert in the fast track dispute settlement procedure described in Section D.
22. The Monitoring Trustee shall propose to GE such measures as the Monitoring Trustee considers necessary to ensure GE's compliance with the Commitments, and the Monitoring Trustee shall propose necessary measures to the Commission in the event that GE does not comply with the Monitoring Trustee's proposals within the timeframe set by the Monitoring Trustee.

Mandate of the Monitoring Trustee

23. The Monitoring Trustee shall:
 - (a) broker a resolution of any dispute that arises between a third party and GE regarding compliance with these Commitments;
 - (b) advise and, if need be, make written recommendations to the Commission when any dispute between a third party and GE regarding compliance with these Commitments is brought before the Arbitral Tribunal referred to in paragraph 46;
 - (c) provide to the Commission, sending GE a non-confidential copy at the same time, a report bi-annually during the first year that the Commitments are in effect and annually every year during the rest of the term of the Commitments as indicated in Section B, regarding the status and outcome of any dispute between a third party and GE in which the Monitoring Trustee has participated;
 - (d) propose to GE such measures as the Monitoring Trustee considers necessary to ensure compliance with these Commitments;
 - (e) supervise the implementation of compliance with the firewall arrangements;
 - (f) promptly report in writing to the Commission, sending GE a non-confidential copy at the same time, if it concludes on reasonable grounds that GE is failing to comply with these Commitments.

24. The Monitoring Trustee shall provide a detailed work plan to the Commission within one month of its appointment, sending a copy to GE at the same time, describing how it intends to carry out its mandate.
25. [...].

Duties and obligations of GE in relation to the Monitoring Trustee

26. GE shall provide and shall cause its advisors to provide the Monitoring Trustee with all such cooperation, assistance and information, including copies of all relevant documents and access to relevant staff, as the Monitoring Trustee may reasonably require to perform its tasks in relation to these Commitments.
27. GE shall indemnify the Monitoring Trustee and its employees and agents (each an "Indemnified Party") and hold each Indemnified Party harmless against, and hereby agrees that an Indemnified Party shall have no liability to GE for any liabilities arising out of the performance of its duties under the Commitments, except to the extent that such liabilities result from the wilful default, recklessness, gross negligence or bad faith of the Monitoring Trustee, its employees, agents or advisors.
28. At the expense of GE, the Monitoring Trustee may appoint advisors (in particular for technical or legal advice), subject to GE's approval (this approval not to be unreasonably withheld or delayed) if the Monitoring Trustee considers the appointment of such advisors necessary or appropriate for the performance of its duties and obligations under the mandate, provided that any fees and other expenses incurred by the Monitoring Trustee are reasonable. Should GE refuse to approve the advisors proposed by the Monitoring Trustee, the Commission may, after having heard GE, approve the appointment of such advisors instead. Only the Monitoring Trustee shall be entitled to issue instructions to the advisors. Paragraph 36 shall apply to the advisors *mutatis mutandis*.

Replacement, discharge and re-appointment of the Monitoring Trustee

29. If the Monitoring Trustee ceases to perform its functions under the Commitments or for any other good cause, including its exposure to a conflict of interest:
 - (a) the Commission may, after hearing the Monitoring Trustee, require GE to replace the Monitoring Trustee; or
 - (b) GE, with the prior approval of the Commission, may replace the Monitoring Trustee.
30. If the Monitoring Trustee is removed according to paragraph 38, the Monitoring Trustee may be required to continue in its function until a new Monitoring Trustee is in place to whom the Monitoring Trustee has effected a full hand-over of all relevant information. The new Monitoring Trustee shall be appointed in accordance with the procedure referred to in this Section C.

31. Besides the removal according to paragraph 38, the Monitoring Trustee shall cease to act as Monitoring Trustee only after the Commission has discharged it from its duties after all the Commitments with which the Monitoring Trustee has been entrusted have lapsed.

D. FAST-TRACK DISPUTE RESOLUTION

32. In the event that a third party, showing a sufficient legitimate interest, claims that GE is failing to comply with its obligations arising from the Commitments set out in Section B above, such third party may invoke the dispute settlement procedure described in this Section D. The arbitration process described in this Section D shall be used only to resolve disputes regarding compliance with the Commitments.
33. The third party who seeks to initiate the procedure shall notify GE and the Monitoring Trustee of its request and specify the reasons why it believes that GE is failing to comply with the Commitments. GE shall use its best efforts to resolve all differences of opinion and to settle all disputes of which it has been notified through co-operation and consultation within a reasonable period of time not to exceed 15 (fifteen) working days after receipt of the request.
34. The Monitoring Trustee shall present its own proposal to the Commission, GE and the relevant third party, for resolving the dispute within eight working days, specifying in writing the action, if any, to be taken by GE in order to ensure compliance with the Commitments vis-à-vis the third party, and be prepared, if requested, to facilitate the settlement of the dispute.
35. Should GE and the third party fail to resolve their differences of opinion, the third party may serve a notice ("the Notice"), in the sense of a request for arbitration, to the International Chamber of Commerce ("ICC"), with a copy of such Notice and request for arbitration to the Monitoring Trustee. The Notice shall set out in detail the dispute, difference or claim (the "Dispute") and shall contain, *inter alia*, all issues of both fact and law, including any suggestions as to the procedure, and all documents relied upon shall be attached, *e.g.* documents, agreements, expert reports and witnesses statements.
36. GE shall, within 10 working days from receipt of the Notice, submit its answer (the "Answer"), which shall provide detailed reasons for its conduct and set out, *inter alia*, all issues of both fact and law, including any suggestions to the procedure, and all documents relied upon, *e.g.* documents, agreements, expert reports and witnesses statements. The Answer shall, if appropriate, contain a detailed description of the action, which GE proposes to undertake vis-à-vis the third party.
37. The third party shall nominate its arbitrator in the Notice; GE shall nominate its arbitrator in the Answer. The arbitrators nominated by the third party and by GE shall, within five working days of the nomination of the latter, nominate the chairman, making such nomination known to the parties to the arbitration and the ICC, which shall forthwith confirm the appointment of all three arbitrators (together referred to as the "Arbitral Tribunal"). Should GE fail to nominate an arbitrator, or if the two arbitrators fail to agree on the chairman, the default appointment(s) shall be made by the ICC.

38. The Dispute shall be finally resolved by arbitration under the ICC Rules of Arbitration, with such modifications or adaptations as foreseen herein or necessary under the circumstances (the "Rules"). The arbitration shall be conducted in London, England, in the English language.
39. The procedure shall be a fast-track procedure. For this purpose, the Arbitral Tribunal shall shorten all applicable procedural time-limits under the Rules as far as admissible and appropriate in the circumstances. The parties to the arbitration shall consent to the use of e-mail for the exchange of documents.
40. The Arbitral Tribunal shall, as soon as practical after the confirmation of the Arbitral Tribunal, hold an organizational conference to discuss any procedural issues with the parties to the arbitration. Terms of Reference shall be drawn up and signed by the parties to the arbitration and the Arbitral Tribunal at the organizational meeting or immediately thereafter and a procedural time-table shall be established by the Arbitral Tribunal. An oral hearing shall, as a rule, be established within three weeks of the confirmation of the Arbitral Tribunal.
41. In order to enable the Arbitral Tribunal to reach a decision, it shall be entitled to request any relevant information from GE or the third party, to appoint experts and to examine them at the hearing, and to establish the facts by all appropriate means. The Arbitral Tribunal is also entitled to ask for assistance by the Monitoring Trustee in all stages of the procedure.
42. The arbitrators shall agree in writing to keep any confidential information and business secrets disclosed to them in confidence. The Arbitral Tribunal may take the measures necessary for protecting confidential information in particular by restricting access to confidential information to the Arbitral Tribunal, the Monitoring Trustee and outside counsel and experts of the opposing party.
43. The burden of proof in any dispute governed under the Rules shall be borne as follows:
 - (a) the party who has requested the arbitration must produce evidence of a prima facie case;
 - (b) if that party does so, the Arbitral Tribunal must find in favour of the requesting party unless the Relevant Party can produce evidence to the contrary.
44. The Commission shall be allowed and enabled to participate in all stages of the procedure by:
 - (a) receiving all written submissions (including documents and reports, etc.) made by the parties to the arbitration;

- (b) receiving all orders, interim and final awards and other documents exchanged by the Arbitral Tribunal with the parties to the arbitration (including Terms of Reference and procedural time-table);
 - (c) filing any Commission *amicus curiae* briefs; and
 - (d) being present at the hearing(s) and being allowed to ask questions to parties, witnesses and experts.
45. The Arbitral Tribunal shall forward, or shall order the parties to the arbitration to forward, the documents mentioned to the Commission without delay.
46. In the event of disagreement between the parties to the arbitration regarding the interpretation of the Commitments, the Arbitral Tribunal shall inform the Commission and may seek the Commission's interpretation of the Commitments before finding in favour of any party to the arbitration and shall be bound by the interpretation.
47. The Arbitral Tribunal shall decide the Dispute on the basis of the Commitments and the Decision. The Commitments shall be construed in accordance with the Merger Regulation, EU law and general principles of law common to the legal orders of the Member States without a requirement to apply a particular national system. The Arbitral Tribunal shall take all decisions by majority vote.
48. Upon request of the third party, the Arbitral Tribunal may make a preliminary ruling on the Dispute. The preliminary ruling shall be rendered within one month after the confirmation of the Arbitral Tribunal, shall be applicable immediately and, as a rule, remain in force until a final decision is rendered.
49. The Arbitral Tribunal shall, in the preliminary ruling as well as in the final award, specify the action, if any, to be taken by GE in order to comply with the Commitments vis-à-vis the third party. The final award shall be final and binding on the parties to the arbitration and shall resolve the Dispute and determine any and all claims, motions or requests submitted to the Arbitral Tribunal. The arbitral award shall also determine the reimbursement of the costs of the successful party and the allocation of the arbitration costs. In case of granting a preliminary ruling or if otherwise appropriate, the Arbitral Tribunal shall specify that terms and conditions determined in the final award apply retroactively.
50. The final award shall, as a rule, be rendered within six (6) months after the confirmation of the Arbitral Tribunal. The time-frame shall, in any case, be extended by the time the Commission takes to submit an interpretation of the Commitments if asked by the Arbitral Tribunal.
51. The parties to the arbitration shall prepare a non-confidential version of the final award, without business secrets. The Commission may publish the non-confidential version of the award.

52. Nothing in the above-described arbitration procedure shall affect the powers of the Commission to take decisions in relation to the Commitments in accordance with its powers under the Merger Regulation and the Treaty on the Functioning of the European Union.

E. GENERAL PROVISIONS

53. If the approval of the proposed transaction by another governmental authority is made subject to requirements that are potentially inconsistent with these Commitments, GE may request a review and adjustment of these Commitments in order to avoid such inconsistencies.

54. The Commitments in Sections C and D shall remain in place until the expiry or termination of every Commitment in Section B.

F. REVIEW

55. The Commission may, where appropriate, in response to a request from GE showing good cause and accompanied by a report from the Monitoring Trustee, waive, modify or substitute, in exceptional circumstances, one or more of the undertakings in these Commitments.

duly authorised for and on behalf of

GE

.....

Date: