

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3522930

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
Jeffrey ALLEN	08/28/2015
Adrian WRIGHT	08/28/2015
Anthony GRASSBY	08/25/2015
Barry LOWE	09/01/2015
Kevin O'SULLIVAN	09/01/2015
Phil CARROLL	08/26/2015
Philip Gordon MINION	09/10/2015
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	Rolls-Royce plc
<b>Street Address:</b>	62 Buckingham Gate
<b>City:</b>	London
<b>State/Country:</b>	Great Britain
<b>Postal Code:</b>	SW1E 6AT
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	14852032
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(703)836-2787
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	703-836-6400
<b>Email:</b>	email@oliff.com
<b>Correspondent Name:</b>	JAMES A. OLIFF
<b>Address Line 1:</b>	OLIFF PLC
<b>Address Line 2:</b>	P.O. BOX 320850
<b>Address Line 4:</b>	ALEXANDRIA, VIRGINIA 22320-4850
<b>ATTORNEY DOCKET NUMBER:</b>	167802
<b>NAME OF SUBMITTER:</b>	CYNTHIA KLINE
<b>SIGNATURE:</b>	/Cynthia Kline/
<b>DATE SIGNED:</b>	09/11/2015

PATENT

**Total Attachments: 18**

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**ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e))**  
**For Application with Filing Date on or after September 16, 2012**

**ASSIGNMENT**

<b>(1-8)</b>	<b>Insert Legal Name(s) of Inventor(s)</b>	(1) <u>JEFFREY ALLEN</u>	(2) <u>ADRIAN WRIGHT</u>
		(3) <u>ANTHONY GRASSBY</u>	(4) <u>KEVIN O'SULLIVAN</u>
		(5) <u>PHILIP CARROLL</u>	(6) <u>PHILIP GORDON MINION</u>
		(7) <u>BARRY LOWE</u>	(8) _____

In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the receipt and sufficiency of which are hereby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and set over to

<b>(9)</b>	<b>Insert Name of Assignee</b>	(9) <u>ROLLS-ROYCE PLC</u>
<b>(10)</b>	<b>Insert Address of Assignee</b>	(10) <u>62 Buckingham Gate, London, SW1E 6AT, Great Britain</u>

(hereinafter designated as the Assignee) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and interest for the United States of America as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including any and all provisional, non-provisional, divisional, continuation, international, confirmation, substitute and reissue application(s), and all Letters Patent, extensions, reissues and reexamination certificates that may be granted on the invention known as

<b>(11)</b>	<b>Insert Identification such as Title, Case Number, or Foreign Application Number</b>	(11) <u>SEALING ELEMENT</u>
		<u>5585 NJR</u>
		(Attorney Docket No. <u>167802</u> )

<b>(12)</b>	<b>Alternative Identification for filed applications</b>	(12) U.S. Application Number <u>14/852,032</u>
		filed <<Application Date>> <u>September 11, 2015</u>

- 1) Each undersigned agrees to execute all papers necessary in connection with any application and/or patent for the invention and also to execute separate assignments in connection with such applications and patents as the Assignee may deem necessary.
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- 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
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- 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities to issue any and all patents resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs, successors, assigns and legal representatives.
- 6) Each undersigned hereby grants the firm of **OLIFF PLC** the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

**(13) Declaration**

As an above named inventor, I hereby declare that:


I believe I am the original inventor or an original joint inventor of a claimed invention (or claimed design) in the above-identified application for which this declaration is being submitted.

The application was made or authorized to be made by me.

I have reviewed and understand the contents of the above-identified application, including the claims, and am aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date 28.08.2015 Inventor Signature JEFFREY ALLEN  (SEAL)

Date \_\_\_\_\_ Inventor Signature ADRIAN WRIGHT (SEAL)

Date \_\_\_\_\_ Inventor Signature ANTHONY GRASSBY (SEAL)


Date \_\_\_\_\_ Inventor Signature KEVIN O'SULLIVAN (SEAL)


Date \_\_\_\_\_ Inventor Signature PHILIP CARROLL (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP GORDON MINION (SEAL)

Date \_\_\_\_\_ Inventor Signature BARRY LOWE (SEAL)

This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Date 28.08.2015 Witness for Jeffrey Allen 

Date 28.08.2015 Witness for Jeffrey Allen 

Date \_\_\_\_\_ Witness for Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for Anthony Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for Anthony Grassby \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Kevin O'Sullivan** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Kevin O'Sullivan** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Philip Carroll** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Philip Carroll** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Philip Gordon**  
**Minion** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Philip Gordon**  
**Minion** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Barry Lowe** \_\_\_\_\_

**Date** \_\_\_\_\_ **Witness for**  
**Barry Lowe** \_\_\_\_\_

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-------	---	--	--

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(hereinafter designated as the Assignee) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and interest for the United States of America as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including any and all provisional, non-provisional, divisional, continuation, international, confirmation, substitute and reissue application(s), and all Letters Patent, extensions, reissues and reexamination certificates that may be granted on the invention known as

(11)	Insert Identification such as Title, Case Number, or Foreign Application Number	(11) SEALING ELEMENT _____ 5585 NJR _____ (Attorney Docket No. 167802 )
------	---	---

(12)	Alternative Identification for filed applications	(12) U.S. Application Number 14/852,032 _____ filed <<Application Date>> September 11, 2015 _____
------	---	--

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- 6) Each undersigned hereby grants the firm of OLIFF PLC the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

**(13) Declaration**

As an above named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of a claimed invention (or claimed design) in the above-identified application for which this declaration is being submitted.

The application was made or authorized to be made by me.

I have reviewed and understand the contents of the above-identified application, including the claims, and am aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

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In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date \_\_\_\_\_ Inventor Signature JEFFREY ALLEN (SEAL)

Date 28 AUGUST 2015 Inventor Signature ADRIAN WRIGHT (SEAL)

Date \_\_\_\_\_ Inventor Signature ANTHONY GRASSBY (SEAL)

Date \_\_\_\_\_ Inventor Signature KEVIN O'SULLIVAN (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP CARROLL (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP GORDON MINION (SEAL)

Date \_\_\_\_\_ Inventor Signature BARRY LOWE (SEAL)

This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date 28<sup>th</sup> Aug 2015 Witness for  
Adrian Wright IAN ALDRIDGE

Date 28<sup>th</sup> Aug 15' Witness for  
Adrian Wright DAVID BUE

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date ..... Witness for  
Kevin O'Sullivan .....

Date ..... Witness for  
Kevin O'Sullivan .....

Date ..... Witness for  
Philip Carroll .....

Date ..... Witness for  
Philip Carroll .....

Date ..... Witness for  
Philip Gordon  
Minion .....

Date ..... Witness for  
Philip Gordon  
Minion .....

Date ..... Witness for  
Barry Lowe .....

Date ..... Witness for  
Barry Lowe .....




## ASSIGNMENT

REEL: 036546 FRAME: 0238

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date \_\_\_\_\_ Inventor Signature JEFFREY ALLEN (SEAL)

Date \_\_\_\_\_ Inventor Signature ADRIAN WRIGHT (SEAL)

Date 25 AUGUST 2015 Inventor Signature ANTHONY GRASSBY  (SEAL)

Date \_\_\_\_\_ Inventor Signature KEVIN O'SULLIVAN (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP CARROLL (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP GORDON MINION (SEAL)

Date \_\_\_\_\_ Inventor Signature BARRY LOWE (SEAL)


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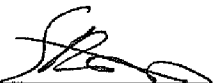
Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date 25<sup>th</sup> August 2015 Witness for  
Anthony Grassby John Turrell 

Date 25<sup>th</sup> August 2015 Witness for  
Anthony Grassby SCOTT BELFIELD 

Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Carroll \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Carroll \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Gordon  
Minion \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Gordon  
Minion \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Barry Lowe \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Barry Lowe \_\_\_\_\_

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**For Application with Filing Date on or after September 16, 2012**

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Insert	(1)	JEFFREY ALLEN	(2)	ADRIAN WRIGHT
(1-8) Legal Name(s)	(3)	ANTHONY GRASSBY	(4)	KEVIN O'SULLIVAN
of Inventor(s)	(5)	PHILIP CARROLL	(6)	PHILIP GORDON MINION
	(7)	BARRY LOWE	(8)	

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(9) Insert Name of Assignee	(9)	ROLLS-ROYCE PLC
(10) Insert Address of Assignee	(10)	62 Buckingham Gate, London, SW1E 6AT, Great Britain

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(11) Insert Identification such as Title, Case Number, or Foreign Application Number	(11)	SEALING ELEMENT
		5585 NJR
	(Attorney Docket No.	167802 )

(12) Alternative Identification for filed applications	(12)	U.S. Application Number	14/852,032
	filed	<<Application Date>>	September 11, 2015

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In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date \_\_\_\_\_ Inventor Signature JEFFREY ALLEN (SEAL)

Date \_\_\_\_\_ Inventor Signature ADRIAN WRIGHT (SEAL)

Date \_\_\_\_\_ Inventor Signature ANTHONY GRASSBY (SEAL)

Date 1st September 2015 Inventor Signature *K. O'Sullivan*  
KEVIN O'SULLIVAN (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP CARROLL (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP GORDON MINION (SEAL)

Date 1st September 2015 Inventor Signature *Margy Lowe*  
BARRY LOWE (SEAL)

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Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

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Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date 1<sup>st</sup> September 2015

Witness for  
Kevin O'Sullivan

Deelan Javan

Date 1<sup>st</sup> September 2015

Witness for  
Kevin O'Sullivan

Philip O'Neil

Date \_\_\_\_\_

Witness for  
Philip Carroll

\_\_\_\_\_

Date \_\_\_\_\_

Witness for  
Philip Carroll

\_\_\_\_\_

Date \_\_\_\_\_

Witness for  
Philip Gordon  
Minion

\_\_\_\_\_

Date \_\_\_\_\_

Witness for  
Philip Gordon  
Minion

\_\_\_\_\_

Date 01 - Sept - 2015

Witness for  
Barry Lowe

Bl RL

Date 01 - Sept - 2015

Witness for  
Barry Lowe

Fergus Fitzpatrick

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Insert	(1)	JEFFREY ALLEN	(2)	ADRIAN WRIGHT
(1-8) Legal Name(s)	(3)	ANTHONY GRASSBY	(4)	KEVIN O'SULLIVAN
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Date \_\_\_\_\_ Inventor Signature ANTHONY GRASSBY (SEAL)

Date \_\_\_\_\_ Inventor Signature KEVIN O'SULLIVAN (SEAL)

Date 26 August 2015 Inventor Signature PHILIP CARROLL (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP GORDON MINION (SEAL)

Date \_\_\_\_\_ Inventor Signature BARRY LOWE (SEAL)

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Anthony  
Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_



Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date 26 AUGUST 2015 Witness for J. Cuthbert  
Philip Carroll \_\_\_\_\_

Date 26 AUGUST 2015 Witness for A. Gordon  
Philip Carroll \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Gordon  
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Date \_\_\_\_\_ Witness for  
Philip Gordon  
Minion \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Barry Lowe \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Barry Lowe \_\_\_\_\_

**For Application with Filing Date on or after September 16, 2012**

(1-8)	Insert	(1)	JEFFREY ALLEN	(2)	ADRIAN WRIGHT
	Legal Name(s)	(3)	ANTHONY GRASSBY	(4)	KEVIN O'SULLIVAN
	of Inventor(s)	(5)	PHILIP CARROLL	(6)	PHILIP GORDON MINION
		(7)	BARRY LOWE	(8)	

(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC
(10)	Insert Address of Assignee	(10)	62 Buckingham Gate, London, SW1E 6AT, Great Britain

(11) Insert Identification  
such as Title, Case  
Number, or Foreign  
Application Number

(11) SEALING ELEMENT

5585 NJR

(Attorney Docket No. 167802 )

(12)	Alternative Identification for filed applications	(12)	U.S. Application Number	<u>14/852,032</u>
		filed	<<Application Date>>	September 11, 2015

- (13) Declaration

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date \_\_\_\_\_ Inventor Signature JEFFREY ALLEN (SEAL)

## PATENT

Date \_\_\_\_\_ Inventor Signature ADRIAN WRIGHT (SEAL)

Date \_\_\_\_\_ Inventor Signature ANTHONY GRASSBY (SEAL)

Date \_\_\_\_\_ Inventor Signature KEVIN O'SULLIVAN (SEAL)

Date \_\_\_\_\_ Inventor Signature PHILIP CARROLL (SEAL)

Date 10<sup>th</sup> SEPTEMBER 2015 Inventor Signature PHILIP GORDON MINION  (SEAL)

Date \_\_\_\_\_ Inventor Signature BARRY LOWE (SEAL)

This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Jeffrey Allen \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Adrian Wright \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Anthony  
Grassby \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Kevin O'Sullivan \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Carroll \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Philip Carroll \_\_\_\_\_

Date 10<sup>th</sup> September 2015 Witness for  
Philip Gordon Minion DEBORAH MINION D.J. Minion

Date 10<sup>th</sup> September 2015 Witness for  
Philip Gordon Minion ALEXANDER MINION [Signature]

Date \_\_\_\_\_ Witness for  
Harry Lowe \_\_\_\_\_

Date \_\_\_\_\_ Witness for  
Harry Lowe \_\_\_\_\_