# 503476305 09/11/2015

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3522930

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

## **CONVEYING PARTY DATA**

Name	Execution Date
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

## **RECEIVING PARTY DATA**

Name:         Rolls-Royce plc		
Street Address:     62 Buckingham Gate		
City:	ity: London	
State/Country:	ate/Country: Great Britain	
Postal Code: SW1E 6AT		

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number		
Application Number:	14852032		

## CORRESPONDENCE DATA

Fax Number:

(703)836-2787

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.

Phone:	703-836-6400
Email:	email@oliff.com
Correspondent Name:	JAMES A. OLIFF
Address Line 1:	OLIFF PLC
Address Line 2:	P.O. BOX 320850
Address Line 4:	ALEXANDRIA, VIRGINIA 22320-4850

ATTORNEY DOCKET NUMBER:	167802
NAME OF SUBMITTER:	CYNTHIA KLINE
SIGNATURE:	/Cynthia Kline/
DATE SIGNED:	09/11/2015

	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 18	
source=Assignment#page1.tif	
source=Assignment#page2.tif	
source=Assignment#page3.tif	
source=Assignment#page4.tif	
source=Assignment#page5.tif	
source=Assignment#page6.tif	
source=Assignment#page7.tif	
source=Assignment#page8.tif	
source=Assignment#page9.tif	
source=Assignment#page10.tif	
source=Assignment#page11.tif	
source=Assignment#page12.tif	
source=Assignment#page13.tif	
source=Assignment#page14.tif	
source=Assignment#page15.tif	
source=Assignment#page16.tif	
source=Assignment#page17.tif	
source=Assignment#page18.tif	

#### ASSIGNMENT

	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)		
		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				
(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC			
(10)	Insert Address of Assignce	(10)	62 Buckingham Gate, Lond	on, SWIE 6AT, Gr	eat Britain	
		(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	(11)	SEALING ELEMENT			
	Number, or Foreign		5585 NJR			
	Application Number	(Atto	mey Docket No. <u>1678</u>	)		
(12)	Alternative Identification for	(12)	U.S. Application Number	14/852,0	032	
	filed applications	filed	<< Application Date>>	September 1	1, 2015	

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.

2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

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.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.

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.

21

۴

Date	28.08.2015	Inventor Signature	JEFFREY ALLEN Johrey Olla	(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)

Date	28.08.2015	Witness for Jeffrey Allen	An Allen
Date	28.08.2015.	Witness for Jeffrey Allen	-Rhuland
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 Carroli
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

a

#### ASSIGNMENT

	Insert	(1)	JEFFREY ALLEN	(2)	ADRIAN WRIGHT	
(1-8)	Legal Name(s)	(3)	ANTHONY GRASSBY	(4)	KEVIN O'SULLIVAN	
	of Investor(s)	(5)	PHILIP CARROLL	(6)	PHILIP GORDON MINION	
		(7)	BARRY LOWE	(8)		
		the un		ency of which are	r good and valuable consideration paid to each of hereby acknowledged, each undersigned agrees to	
(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC			
(10)	Insert Address of Assignce	(10)	62 Buckingham Gate, London	i, SWIE 6AT, Co	an Britain	
		(hereinafter designated as the Assignee) and Assignce'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	(11)	SEALING ELEMENT			
	such as Title, Case Number, ar Forcign					
	Application Number	(Attomety Docket No. 167802.)				
(12)	Alternative	(12)	U.S. Application Number	14/852,0	32	
	Identification for					
	filed applications	filed	< <application date="">&gt;</application>	1	r 11, 2015	

 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.

2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignce in every way possible in obtaining evidence and going forward with such interference.

 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.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by referee or reexamination a grant of a valid United States patent to the Assignce.

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 excessed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assigner and Assigner'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 sm 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.

Date		Inventor Signature	JEFFREY ALLEN	(SEAL)
Dute	<u>28 Avenst Zois</u>	Inventor Signature	ADRIAN WRIGHT MAJ	(SEAL)
Dute		Inventor Signature	ANTHONY GRASSBY	(SEAL)
Date		Inventor Signature	KEVIN O'SULLIVAN	(SEAL)
Dute		Inventor Signature	PHILIP CARBOLL	(SEAL)
Date		Inventor Signature	PHILIP GORDON MINION	(SEAL)
Date		Inventor Signature	BARRYLOWE	(SEAL)

Date		Witness for Jeffrey Allen	
Date		Wilness for Jeffrey Allen	
Pate	28 Aug 2015,	Witness for Adrias Wright	IAN ALERIE AND -
Date	25th Aug 151.	Witness for Adrian Wright	DAVD BUILE GIVAG
Dute		Witness for Anthony Grassby	
Dute		Witness for Anthony Grassby	

Date	 Witness for Kevin O'Sullivan	
Bute	 Witness for Kevin O'Sullivan	
Date	 Witness for Philip Carroll	
Dute	 Witness for Philip Carroll	
Bute	 Witness for Philip Gordon Minion	
Dute	 Witness for Philip Gordon Minion	
Date	 Witness for Barry Lowe	
Date	 Witness for Barry Lowe	

#### ASSIGNMENT

	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)	
		the une		ciency of which are	er good and valuable consideration paid to each of hereby acknowledged, each undersigned agrees to
(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC		
(10)	Insert Address of Assignee	(10) 62 Buckingham Gate, London, SW1E 6AT, Great Britain			
		(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	(11)	SEALING ELEMENT		
	Number, or Foreign		5585 NJR		
	Application Number	(Attor	ney Docket No. <u>167802</u>		)
(12)	Alternative Identification for	(12)	U.S. Application Number	14/852,	032
	filed applications	filed	< <application date="">&gt;</application>	Septembe	r 11, 2015

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.

2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

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.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.
 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities

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

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.

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)
This argies most should apply the size of	hoforos (a) e Natary Duk	lia if within the LLCA (b) a LLC Community which the	- 11 0 4

Date	Witness for Jeffrey Allen	
Date	Witness for Jeffrey Allen	
Date	Witness for Adrian Wright	
Date	Witness for Adrian Wright	
Date 25 ALGUST 2015	Witness for Anthony Grassby	Jonas Tureru Minit
Date 25th 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

#### ASSIGNMENT

	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)	
		the und		cy of which are h	good and valuable consideration paid to each of ereby acknowledged, each undersigned agrees to
(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC		
(10)	Insert Address of Assignce	(10)	62 Buckingham Gate, London,	SWIË 6AT, Gre	at Britain
		the ent inventi continu	ire right, title and interest for the U on, and in all applications for pate	Inited States of A nt including any a substitute and re	irs, successors, assigns and legal representatives, merica as defined in 35 U.S.C. §100, in the and all provisional, non-provisional, divisional, issue application(s), and all Letters Patent,
					y be granted on the invention known as
(11)	Insert Identification	(H)	SEALING ELEMENT		y be granted on the invention known as
(11)	such as Title, Case Number, or Foreign	(11)	SEALING ELEMENT		y be granted on the invention known as
(11)	such as Title, Case		5585 NJR	802	y be granted on the invention known as
(11) (12)	such as Title, Case Number, or Foreign	(Attor	5585 NJR		

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.

2) Each indersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

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. 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or

reexamination a grant of a valid United States patent to the Assignee.

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 Assignce, 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.

Date		Inventor Signature	JEFFREY ALLEN	(SEAL)
Date		Inventor Signature	ADRIAN WRIGHT	(SEAL)
Date.		Inventor Signature	ANTHONY GRASSBY	(SEAL)
Date	1st September 2015	Inventor Signature	KEVIN O'SULLIVAN	(SEAL)
Date		Inventor Signature	PHILIP CARROLL	(SEAL)
Date		Inventor Signature	PHILIP GORDON MINION	(SEAL)
Date	18 Leptember 2015	Inventor Signature	Many Come	(SEAL)

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	1st September 2015	Witness for Kevin O'Sullivan	Dedan Jam
Date	1 <sup>44</sup> September 2015	Witness for Kevin O'Sullivan	Shily age of
Date		Witness for Philip Carroll	
Date		Witness for Philip Carroll	
Date		Witness for Philip Gordon Minion	
Date		Witness for Philip Gordon Minico	
Date	01 - Sour- 2015	Witness for Barry Lowe	BL RL
Date	<u>01 - Sept - 2015</u>	Witness for Barry Lowe	Turgen plapiticink

#### ASSIGNMENT

	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	)	
		the und		iciency of which a	her good and valuable consideration paid to each of e hereby acknowledged, each undersigned agrees to	
(9)	Insert Name of Assignee	(9)	ROLLS-ROYCE PLC			
(10)	Insert Address of Assignce	(10)	62 Buckingham Gate, Lond	ion, SW1E 6AT, (	Great Britain	
		(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	(11)	SEALING ELEMENT			
	Number, or Foreign		5585 NJR			
	Application Number	(Attorney Docket No. 167802 )				
(12)	Alternative Identification for	(12)	U.S. Application Number	14/852,	032	
	filed applications	filed	<< Application Date>>	September 1	1, 2015	

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.

2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

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.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.

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.

Date		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	26 Aur 5 2015	Inventor Signature	PHILIFEARROLL	(SEAL)
Date		Inventor Signature	PHILIP GORDON MINION	(SEAL)
Date		Inventor Signature	BARRY LOWE	_ (SEAL)

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	26 AUGUST 2015	Witness for Philip Carroll <u>A. Ceuthbert</u>
Date	26 AUGUST ZOIS	Witness for Philip Carroll <u>A. Gord</u>
Date		Witness for Philip Gordon Minion
Date		Witness for Philip Gordon Mínion
Date		Witness for Barry Lowe
Date		Witness for Barry Lowe

#### ASSIGNMENT

	Insert	(1)	JEFFREY ALLEN	(2	Ð.	ADRIAN WRIGHT	
(1-8)	Legal Name(s)	(3)	ANTHONY GRASSBY		0	KEVIN O'SULLIVAN	
	of Inventor(s)	(5)	PHILIP CARROLL		)	PHILIP GORDON MINION	
		(7)	BARRY LOWE	(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					
(9)	Insert Name of Assignce	(9)	ROLLS-ROYCE PLC				
(18)	Insert Address of Assignee	(10)	(10) 62 Buckingham Gate, London, SWIE 6AT, Great Britain				
	Insert Identification	inventi contini extensi	ion, and in all applications for uation, international, confirma ions, reissues and reexaminati	patent including an ation, substitute and	iy a rei	merica as defined in 35 U S C. §100, in the ind all provisional, non-provisional, divisional, ssue application(s), and all Letters Patent, y be granted on the invention known as	
(11)	insert facentification such as Title, Case Number, or Foreign Application Number	(11)	SEALING ELEMENT				
		5585 NJR					
		(Attorney Docket No)					
(12)	Alternative Identification for	(12)	U.S. Application Number	14/852	,0	32	
	filed applications	filed	< <application date="">&gt;</application>	September 1	1,	2015	
	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. 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

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.

4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.

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) in 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 in IFF FLC 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 an 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 ar 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

\_\_\_\_\_ (SEAL)

## REEL: 036546 FRAME: 0247

PATENT

Date		Inventor Signature	ADRIAN WRIGHT	(SEAL)
Date		Inventor Signature	ANTHONY GRASSBY	(SEAL)
Date		Inventor Signature	KEVIN O'SUILLIVAN	(SEAL)
Date		laventor Signature	PHILIP CARROLL	(SEAL)
Date	10" SEPAMBER 2015	Inventor Signature	PHILIP GORDON MINION	(SEAL)
Date		Inventor Signature	BARRY LOWE	(SEAL)
neither,	This assignment should preferably be signed then it should be signed before at least two w	i before: (a) a Notary Pub itnesses who also sign he	ilic if within the U.S.A. (b) a U.S. Consul if outside the re:	U.S.A. If
Date		Witness for Jeffrey Allen		
Date		Witness for Jeffrey Allen		,
Daie		Witness for Adrian Wright		
Date		Witness for Adriss Wright		
Date		Witness for Anthony Grassby		
Date .		Witness for Anthony Grassby		
Date		Witness for Kevin O'Sullivan		
		2		
			P/	ATENT

Scanned by CamScanner

REEL: 036546 FRAME: 0248

Date	Witzess for Reviz O'Sullivat	
Beis	Witness for Philip Carroli	
flate	Wilness for Philip Carroll	
non lath Septender 2015	Witness for Philip Gordon Minion	PERSANN MINION D.J. Minion
non 10th September 2015	Witness for Philip Gordon Minton	ALEXANDER MINION AM
Data	Witness for Barry Lawe	
Date	Witness for Barry Lowe	
	3	
canner ድ୪୦ ተወድጀን የህንዮ1/2015		REEL: 036546 FRAME: 024