PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5272250

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
COMPOSITE TECHNOLOGY AND APPLICATIONS LIMITED	12/31/2017

RECEIVING PARTY DATA

Name:	ROLLS-ROYCE PLC
Street Address:	62 BUCKINGHAM GATE
City:	LONDON
State/Country:	ENGLAND
Postal Code:	SW1E 6AT

PROPERTY NUMBERS Total: 2

Property Type	Number
Application Number:	15609918
Patent Number:	9045991

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: OLIFF PLC
Address Line 1: P.O. BOX 320850
Address Line 2: SUITE 500
Address Line 4: ALEXANDRIA, VIRGINIA 22320-4850

ATTORNEY DOCKET NUMBER:	154162.99
NAME OF SUBMITTER:	PATTY PEACOCK
SIGNATURE:	/Patty Peacock/
DATE SIGNED:	12/07/2018

Total Attachments: 11
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Mail Stop:
Assignment Recordation Services
Director of the U.S. Patent
and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

RECORDATION FORM COVER SHEET
PATENTS ONLY

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

Attorney Docket No. 154162.99

Please record the attached original document or copy thereof.

1. A. Name of conveying party(ies):

COMPOSITE TECHNOLOGY AND APPLICATIONS LIMITED

B. Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

2. A. Name and address of receiving party(ies):

Rolls-Royce PLC
62 Buckingham Gate
London, SW1E 6AT
England

B. Additional name(s) & address(es) attached? ☐ Yes ☒ No

3. A. Nature of conveyance:

☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Other _____

B. Execution Date: December 31, 2017

4. ☐ This document is being filed together with a new application.

A. Patent Application No.(s) 15/609,918

B. Patent No.(s) 9,045,991

Additional numbers attached? ☐ Yes ☒ No

C. Title of Application: COMPOSITE AEROFOIL

D. ☐ **This Assignment is submitted for a dual purpose: (1) recording in the assignment database; and (2) for use in the above-identified application as the oath or declaration pursuant to 37 CFR 1.63(c).**

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: James A. Oliff

Address: **OLIFF PLC**
P.O. Box 320850
Alexandria, VA 22320-4850
email@oliff.com

6. Total number of applications and patents involved: 2

7. Please charge Deposit Account No. 15-0461 the total fee (37 CFR 3.41) in the amount of $0.

8. Credit any overpayment or charge any underpayment to deposit account number 15-0461.

9. **Statement and signature.**
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

/Christopher J. Wheeler/ Date: December 7, 2018
James A. Oliff, Registration No. 27,075
Christopher J. Wheeler, Registration No. 60,738

Total number of pages including cover sheet, attachments, and document: 11

Schedule 3

Confirmatory Intellectual Property Assignment

This Agreement is made on 31st December 2017

Between

(3) **Composite Technology and Applications Limited** (No. 6604702) whose registered office is at Moor Lane, PO Box 31, Derby DE24 8BJ (**Assignor**); and

(4) **Rolls-Royce PLC** (No. 1003142) whose registered office is at 62 Buckingham Gate, London SW1E 6AT (**Assignee**),

each a party and together the parties.

Whereas:

(A) The Assignor has assigned the Assigned Rights (as defined below) to the Assignee.

(B) This Agreement is entered into for the purposes of confirming the assignment by the Assignor to the Assignee of the Assigned Rights.

It is agreed

1 Definitions

In this Agreement "Assigned Rights" means the patents and [patent applications] short particulars of which are set out in Appendix 1 and the inventions disclosed in those patents [and patent applications] including:

(a) [in respect of those patent applications, the right to claim priority therefrom and obtain patents granted pursuant thereto]; and

(b) in respect of each and any invention disclosed in those patents [and patent applications], the right to file applications, claim priority from such applications and obtain grant of patent or similar protection in any country or territory.

2 Confirmation of assignment

In order to document that the assignment has occurred, and in consideration of the payment by the Assignee to the Assignor of the sum of £1 (receipt of which the Assignee hereby acknowledges), the Assignor hereby confirms that the Assigned Rights were assigned to the Assignee on [insert date of completion].

Executed by)
Composite Technology and Applications Limited)
acting by its duly appointed attorney)

..... Attorney

Andrew West M.D.

Executed by	)	
Rolls-Royce plc	)	.....
acting by its duly appointed attorney	)	Attorney DAVID WATERS

Appendix 1

Assigned Rights

Indicative - As at the 13th December

CTAL Ref	HL Reference	Country	Application No	Patent No	Filing Date	Title
1319A	P120389EPPC	European	13812035.7		19/12/2013	AN AEROFOIL STRUCTURE
1319A	P120389PC00	PCT	PCT/GB2013/053369		19/12/2013	AN AEROFOIL STRUCTURE
DBY11183	P120389GB00	UK	1222973.8		19/12/2012	AN AEROFOIL STRUCTURE
1319A	P120389USPC	USA	14/654390		19/12/2013	AN AEROFOIL STRUCTURE
1320A	P120390PC00	PCT	PCT/GB2013/053370		19/12/2013	AN AEROFOIL STRUCTURE
DBY11067	P120390GB00	UK	1222974.6		19/12/2012	AN AEROFOIL STRUCTURE
1321A	P120391PC00	PCT	PCT/GB2013/053371		19/12/2013	AN AEROFOIL STRUCTURE
DBY11315	P120391GB00	UK	1222975.3		19/12/2012	AN AEROFOIL STRUCTURE
1322A	P120432CAPC	Canada	2906176		14/03/2014	CUTTING MECHANISM
1322A	P120432CNPC	China	201480027926.8	ZL 201480027926.8	14/03/2014	CUTTING MECHANISM
1322A	P120432EPPC	European	14711593.5		14/03/2014	CUTTING MECHANISM
1322A	P120432FREP	France	14711593.5		14/03/2014	CUTTING MECHANISM
1322A	P120432DEEP	Germany	14711593.5		14/03/2014	CUTTING MECHANISM
1322A	P120432JPPC	Japan	2015-562334		14/03/2014	CUTTING MECHANISM
1322A	P120432PC00	PCT	PCT/GB2014/050818		14/03/2014	CUTTING MECHANISM
IOW2012-0001	P120432GB00	UK	1320989.5		28/11/2013	CUTTING MECHANISM
1322A	P120432GBEP	UK	14711593.5		14/03/2014	CUTTING MECHANISM
1322A	P120432US00	USA	13/839511	9149949	15/03/2013	CUTTING MECHANISM
1322A	P120432US01	USA	14/733480		15/03/2013	CUTTING MECHANISM
1323A	P120433CAPC	Canada	2906171		14/03/2014	CUTTING MECHANISM
1323A	P120433CNPC	China	201480027957.3		14/03/2014	CUTTING MECHANISM
1323A	P120433EPPC	European	14711845.9		14/03/2014	CUTTING MECHANISM
1323A	P120433JPPC	Japan	2015-562333		14/03/2014	CUTTING MECHANISM
1323A	P120433PC00	PCT	PCT/GB2014/050817		14/03/2014	CUTTING MECHANISM
IOW2012-0018	P120433GB00	UK	1320990.3		28/11/2013	CUTTING MECHANISM

IOW2012-0018	P120433US00	USA	13/839531	9193140	15/03/2013	CUTTING MECHANISM
1323A	P120433US01	USA	14/734638	9669590	15/03/2013	CUTTING MECHANISM
1324A	P120496CAPC	Canada	2919883		30/07/2014	FAN TRACK LINER
1324A	P120496CNPC	China	201480042777.2		30/07/2014	FAN TRACK LINER
1324A	P120496EPPC	European	14749972.7		30/07/2014	FAN TRACK LINER
1324A	P120496JPPC	Japan	2016-530609		30/07/2014	FAN TRACK LINER
1324A	P120496PC00	PCT	PCT/GB2014/052343		30/07/2014	FAN TRACK LINER
IOW2011-0042	P120496GB00	UK	1313594.2		30/07/2013	FAN TRACK LINER
1324A	P120496USPC	USA	14/908981		30/07/2014	FAN TRACK LINER
IOW2012-0008	P120497GB00	UK	1313595.9		30/07/2013	A FAN BLADE
1325A	P120498PC00	PCT	PCT/GB2014/052342		30/07/2014	A TIP CAP FOR A FAN BLADE
IOW2012-0010	P120498GB00	UK	1313596.7		30/07/2013	A TIP CAP FOR A FAN BLADE
1326A	P122659EPPC	European	15707749.6		27/02/2015	SELF-HEATING TOOL
1326	P122659PC00	PCT	PCT/GB2015/050572		27/02/2015	SELF-HEATING TOOL
2013-0055	P122659GB00	UK	1403637.0		01/03/2014	SELF-HEATING TOOL
1326A	P122659USPC	USA	15/123189		27/02/2015	SELF-HEATING TOOL
5797	P123866CAPC	Canada	2983073		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5797	P123866CNPC	China	201680024885.6		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5797	P123866EPPC	European	16720489.0		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5797	P123866JPPC	Japan	2017-556716		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5797	P123866PC00	PCT	PCT/GB2016/051171		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5797	P123866GB00	UK	1507281.2		29/04/2015	METHODS AND SYSTEMS FOR BONDING
5797	P123866USPC	USA	15/568337		26/04/2016	METHODS AND SYSTEMS FOR BONDING
5798	P123867GB00	UK	1507283.8		29/04/2015	METHODS AND APPARATUS FOR COMPOSITE MATERIALS

5808	P123868GB00	UK	1507416.4		30/04/2015	METHOD AND APPARATUS FOR MANUFACTURING A COMPOSITE COMPONENT
5786	P123869EPPC	European Application	16716666.9		12/04/2016	BAGGING APPARATUS
5786	P123869PC00	PCT	PCT/GB2016/051021		12/04/2016	BAGGING APPARATUS
5786	P123869GB00	UK	1506182.3		13/04/2015	BAGGING APPARATUS
5786	P123869USPC	USA	15/566130		12/04/2016	BAGGING APPARATUS
6275	P124669PC00	PCT	PCT/GB2017/053401		10/11/2017	COMPOSITE MATERIAL LAY-UP EQUIPMENT
6275	P124669GB00	UK	1619076.1		11/11/2016	COMPOSITE MATERIAL LAY-UP EQUIPMENT
5806	P124670CAPC	Canada	2983063		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670CNPC	China	201680024736.X		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670EPPC	European	16718900.0		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670JPPC	Japan	2017-556715		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670PC00	PCT	PCT/GB2016/051155		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670GB00	UK	1507418.0		30/04/2015	A TOOL FOR FORMING A COMPOSITE COMPONENT
5806	P124670USPC	USA	15/568346		25/04/2016	A TOOL FOR FORMING A COMPOSITE COMPONENT
5805	P124814CAPC	Canada	2983070		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5805	P124814CNPC	China	201680024884.1		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5805	P124814EPPC	European	16718902.6		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT

5805	P124814JPPC	Japan	2017-556717		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5805	P124814PC00	PCT	PCT/GB2016/051157		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5805	P124814GB00	United Kingdom	1507414.9		30/04/2015	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5805	P124814USPC	USA	15/568354		25/04/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5804	P124815GB00	United Kingdom	1507415.6		30/04/2015	A TOOL FOR MANUFACTURING A COMPOSITE COMPONENT
5962	P125529PC00	PCT	PCT/GB2016/053172		13/10/2016	A METHOD OF GENERATING A MOVEMENT PROFILE FOR A LAYUP PROCEDURE
5962	P125529GB00	United Kingdom	1518284.3		15/10/2015	A METHOD OF GENERATING A MOVEMENT PROFILE FOR A LAYUP PROCEDURE
5963	P125530PC00	PCT	PCT/GB2016/053170		13/10/2016	A METHOD OF DESIGNING A PLYBOOK FOR A COMPOSITE COMPONENT
5963	P125530GB00	United Kingdom	1518285.0		15/10/2015	A METHOD OF DESIGNING A PLYBOOK FOR A COMPOSITE COMPONENT
5872	P125531EPPC	European	16736605.3		04/07/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5872	P125531PC00	PCT	PCT/GB2016/052016		04/07/2016	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
5872	P125531GB00	United Kingdom	1511706.2		03/07/2015	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
4617	P125681CN00	China	201110186147.0	ZL201110186147.0	05/07/2011	A COPOSITE TURBOMACHINE BLADE
4617	P125681EP00	European	11169739.7	2405101	14/06/2011	A COPOSITE TURBOMACHINE BLADE
4617	P125681FREP	France	11169739.7	2405101	14/06/2011	A COPOSITE TURBOMACHINE BLADE

4617	P125681DEEP	Germany	11169739.7	2405101	14/06/2011	A COPOSITE TURBOMACHINE BLADE
4617	P125681GBEP	United Kingdom	11169739.7	2405101	14/06/2011	A COPOSITE TURBOMACHINE BLADE
4617	P125681US00	USA	13/160028	8851855	14/06/2011	A COPOSITE TURBOMACHINE BLADE
4646	P125682FREP	France	11174682.2	2415584	20/07/2011	A FIBRE CUTTING DEVICE AND METHOD
4646	P125682DEEP	Germany	11174682.2	2415584	20/07/2011	A FIBRE CUTTING DEVICE AND METHOD
4646	P125682GBEP	United Kingdom	11174682.2	2415584	20/07/2011	A FIBRE CUTTING DEVICE AND METHOD
4646	P125682US00	USA	13/187147	8714960	20/07/2011	A FIBRE CUTTING DEVICE AND METHOD
4647	P125683FREP	France	11174685.5	2415585	20/07/2011	A COMPOSITE MATERIAL CONTAINMENT CASING OF A TURBOMACHINE
4647	P125683DEEP	Germany	11174685.5	2415585	20/07/2011	A COMPOSITE MATERIAL CONTAINMENT CASING OF A TURBOMACHINE
4647	P125683GBEP	United Kingdom	11174685.5	2415585	20/07/2011	A COMPOSITE MATERIAL CONTAINMENT CASING OF A TURBOMACHINE
4647	P125683US00	USA	13/186954	8920115	20/07/2011	A COMPOSITE MATERIAL CONTAINMENT CASING OF A TURBOMACHINE
4894	P125685EP00	European	12175963.3		11/07/2012	COMPOSITE AEROFOIL
4894	P125685EP01	European	17167001.1		11/07/2012	COMPOSITE AEROFOIL
4894	P125685US00	USA	13/546647	9045991	11/07/2012	COMPOSITE AEROFOIL
4894	P125685US01	USA	15/609918		11/07/2012	COMPOSITE AEROFOIL
5807	P126186CAPC	Canada	2983065		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
5807	P126186CNPC	China	201680024459.2		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
5807	P126186EPPC	European	16718901.8		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT

5807	P126186JPPC	Japan	2017-556707		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
5807	P126186PC00	PCT	PCT/GB2016/051156		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
5807	P126186GB00	United Kingdom	1507412.3		30/04/2015	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
5807	P126186USPC	USA	15/568359		25/04/2016	A METHOD AND APPARATUS FOR FORMING A COMPOSITE COMPONENT
6079	P126391GB00	United Kingdom	1604603.9		18/03/2016	LAY-UP HEAD
6079	P126391US00	USA	15/462290		17/03/2017	LAY-UP HEAD
6162	P126392PC00	PCT	PCT/GB2017/051816		21/06/2017	AN APPARATUS FOR MANUFACTURING A COMPOSITE COMPONENT
6162	P126392GB00	United Kingdom	1610865.6		22/06/2016	AN APPARATUS FOR MANUFACTURING A COMPOSITE COMPONENT
6277	P126393GB00	United Kingdom	1619077.9		11/11/2016	A METHOD OF DE-BULKING A PREFORM FOR A COMPOSITE COMPONENT
6368	P126394GB00	United Kingdom	1704890.1		28/03/2017	A TOOL FOR MANUFACTURING A COMPOSITE COMPONENT
5934	P126395PC00	PCT	PCT/GB2016/052687		31/08/2016	LAY-UP HEAD
5934	P126395GB00	United Kingdom	1515955.1		09/09/2015	LAY-UP HEAD
15049	P126395USPROV	USA	62/213912		03/09/2015	LAY-UP HEAD
5887	P126396GB00	United Kingdom	1512980.2		23/07/2015	A METHOD OF MANUFACTURING A CONTAINMENT FOR A GAS TURBINE ENGINE
5852	P126518GB00	United Kingdom	1510239.5		12/06/2015	METHOD OF MANUFACTURING A COMPOSITE COMPONENT
6095	P128176PC00	PCT	PCT/GB2017/050858		28/03/2017	A METHOD OF MANUFACTURING A COMPOSITE COMPONENT
6095	P128176GB00	UK	1605888.5		06/04/2016	A METHOD OF MANUFACTURING A COMPOSITE

						COMPONENT
6282	P128177CA00	Canada	2986668		24/11/2017	A METHOD OF CHECKING HEADPATH DATA
6282	P128177CN00	China	201711282088.0		07/12/2017	A METHOD OF CHECKING HEADPATH DATA
6282	P128177EP00	European	17205778.8		07/12/2017	A METHOD OF CHECKING HEADPATH DATA
6282	P128177JP00	Japan	2017-233194		05/12/2017	A METHOD OF CHECKING HEADPATH DATA
6282	P128177GB00	UK	1620816.7		07/12/2016	A METHOD OF CHECKING HEADPATH DATA
6282	P128177US00	USA	15/815424		16/11/2017	A METHOD OF CHECKING HEADPATH DATA
6276	P129489GB00	UK	1619093.6		11/11/2016	A TOOL AND METHOD FOR FORMING A COMPOSITE COMPONENT
6456	P131351GB00	UK	1713440.4		22/08/2017	AN EDGE SHIELD
16441	P131352GB00	UK	1720715.0		12/12/2017	ROLLER INTERCHANGE DEVICE

Executed by)
Composite Technology and Applications)
Limited)
acting by its duly appointed attorney)

.....
Attorney
Name ANDREW WEBB M.D.

Executed by)
Rolls-Royce plc)
acting by its duly appointed attorney)

.....
Attorney Name [illegible]