PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHRISTOPHER R. GEHRKE	04/17/2019
ANTHONY THOMAS PETROU	04/18/2019
DAVID ANDREW PIERPONT	04/17/2019

RECEIVING PARTY DATA

Name:	CATERPILLAR INC.
Street Address:	510 LAKE COOK ROAD
Internal Address:	SUITE 100
City:	DEERFIELD
State/Country:	ILLINOIS
Postal Code:	60015

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16388686

CORRESPONDENCE DATA

Fax Number: (309)675-1236

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.

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Email: gwendolyn.ramsey@leehayes.com **Correspondent Name:** CATERPILLAR INC. JOINT OC

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ATTORNEY DOCKET NUMBER:	C190-0051US
NAME OF SUBMITTER:	GWENDOLYN C. RAMSEY
SIGNATURE:	/Gwendolyn C. Ramsey/
DATE SIGNED:	04/18/2019

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> **PATENT** 505435653

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PATENT REEL: 048932 FRAME: 0045

JOINT INVENTION (Worldwide Rights) Attorney Docket No. C190-0051US Client Ref. No. 19-0012-71197

ASSIGNMENT

WHEREAS I/We, the below named inventor(s), [hereinafter referred to as Assignor(s)], have made an invention entitled:

SYSTEM AND METHOD FOR ESTIMATING ENGINE PERFORMANCE

for which I/We will or have filed a patent application; and

WHEREAS, Caterpillar Inc., a corporation of Delaware, having a place of business at 510 Lake Cook Road, Suite 100, Deerfield, Illinois 60015, United States of America (hereinafter referred to as Assignee), is desirous of securing the entire right, title, and interest in and to this invention, and in and to the patent application for this invention and any and all patents to be issued upon this application throughout the world;

NOW THEREFORE, be it known that for good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I/We, as Assignor(s), have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my/our entire right, title, and interest in and to this invention, and this application, and all divisions, and continuations thereof, and all patents which may be granted thereon, and all reissues thereof, as well as all rights to claim priority in any country or jurisdiction or patent office on the basis of this application, and all applications for patents which may hereafter be filed for this invention in any country or jurisdiction or patent office and all patents which may be granted on this invention in any country or jurisdiction or patent office, and all extensions, renewals, and reissues thereof, and I/We hereby authorize and request any official of any country or jurisdiction or patent office whose duty it is to issue patents on applications as described above, to issue all patents for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment:

AND, IWE HEREBY covenant that I/We have the full right to convey the interest assigned by this Assignment, and I/We have not executed and will not execute any agreement in conflict with this Assignment;

AND, IWE HEREBY further covenant and agree that I/We will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to me/us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid Assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in any country or jurisdiction or patent office, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee, its successors and assigns;

AND, IWE HEREBY authorize the attorneys/representatives that I/WE have empowered to prosecute this

application to insert here in parentheses the country, application number, and official filing date (

IN TESTIMONY WHEREOF, I/We	nave hereunto set our hands.	
FULL NAME OF SOLE OR FIRST ASSIGNOR	ASSIGNOR'S SIGNATURE	DATE
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Application No.

PATENT REEL: 048932 FRAME: 0046

JOINT INVENTION (Worldwide Rights) Attorney Docket No. C190-0051US Client Ref. No. 19-0012-71197

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JOINT INVENTION (Worldwide Rights) Attorney Docket No. C190-0051US Client Ref. No. 19-0012-71197

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PATENT REEL: 048932 FRAME: 0049

RECORDED: 04/18/2019