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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
YANCHAI ZHANG	01/20/2017
ZHIJUN CAI	01/20/2017
ZHAOXU DONG	01/20/2017
XUEFEI HU	01/22/2017

RECEIVING PARTY DATA

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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15412630

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Email: assignments@leydig.com CHARLES S. COHEN **Correspondent Name:**

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NAME OF SUBMITTER:	CHARLES S. COHEN
SIGNATURE:	/Charles S. Cohen/
DATE SIGNED:	01/23/2017

Total Attachments: 5

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> **PATENT** REEL: 041048 FRAME: 0581 504191180

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PATENT REEL: 041048 FRAME: 0582

ASSIGNMENT

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

PUMP FAILURE DIFFERENTIATION SYSTEM

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

WHEREAS, Caterpillar Inc., a corporation of Delaware whose post office address is 100 N.E. Adams Street, Peoria, IL 61629 (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 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, I/WE 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, I/WE 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, I/WE HEREBY 8	authorize Assigne	ee or the attorneys/representatives of Assignee to	insert here in	
parenth	eses the country, appli	cation number, a	ind official filing date (U.S. Patent Application No	15/412,630	,
filed	January 23, 2017).			

IN TESTIMONY WHEREOF, I/We have hereunto set our hands.

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PATENT REEL: 041048 FRAME: 0583

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