504105682 11/21/2016

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE: NEW ASSIGNMENT NATURE OF CONVEYANCE: ASSIGNMENT

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------------|----------------|
| ANTHONY KEITH NATHAN NELSON | 06/23/2016 |
| SHANE A. MAY | 06/23/2016 |
| SUNEEL VENKATA KANDULA | 06/24/2016 |

RECEIVING PARTY DATA

| Name: | CATERPILLAR INC. |
|-----------------|----------------------|
| Street Address: | 100 NORTH EAST ADAMS |
| City: | PEORIA |
| State/Country: | ILLINOIS |
| Postal Code: | 61629 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15357446 |

CORRESPONDENCE DATA

Fax Number: (312)977-9959

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.

312-977-9903 Phone:

Email: ynunez@millermatthiashull.com

Correspondent Name: CATERPILLAR/ MILLER. MATTHIAS & HULL LLP

ONE NORTH FRANKLIN STREET Address Line 1:

Address Line 2: **SUITE 2350**

Address Line 4: CHICAGO, ILLINOIS 60606

ATTORNEY DOCKET NUMBER: 50100/16-0295 **NAME OF SUBMITTER:** NICOLE M. BULMAN SIGNATURE: /Nicole M. Bulman/ **DATE SIGNED:** 11/21/2016

Total Attachments: 4

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PATENT REEL: 040393 FRAME: 0595 504105682

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PATENT REEL: 040393 FRAME: 0596

JOINT INVENTION (Worldwide Rights) Attorney Docket No. 50100/16-0295 Client Ref. No. 16-0295

ASSIGNMENT

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

COMMAND FOR UNDERGROUND

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

WHEREAS, Caterpillar Inc., a corporation of Delaware whose post office address is 100 North East Adams, Peoria, Illinois 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 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, 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, WE HEREBY further covenant and agree that 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, WE HEREBY authorize the attorneys/representatives that we have empowered to prosecute this application filed herewith.

IN TESTIMONY WHEREOF, We have hereunto set our hands.

Page 1 of 4

JOINT INVENTION (Worldwide Rights) Atlomey Docket No. 50100/16-0295 Client Ref. No. 16-0295

| FULL NAME OF FIRST ASSIGNOR Anthony Keith Nathan Nelson | ASSIGNORS SIGNATURE | DATE 23 - June - 2016 |
|---|---------------------|-----------------------|
| ADDRESS 8 Amelia St., Burnie, Tasmania, 7320 AU | | CITIZENSHIP AU |
| | | |
| 1. WITNESS NAME | WITNESS SIGNATURE | DATE |
| ROBIN SAYERS | RJin-S | 23-June-2016 |
| ADDRESS 14 LEWIS ST, SOMERSET, TASMANIA 7322, AU | | CITIZENSHIP A.U. |
| | | |
| 2. WITNESS NAME | WITNESS SIGNATURE | DATE |
| Marka Webt Polyrian | Ma | 23 June 2016 |
| adoress 33 Sulton Street, Hillcrest, | TASMANIA, 7320, AU | CITIZENSHIP AU |
| | | |

JOINT INVENTION (Worldwide Rights) Attorney Docket No. 50100/16-0295 Client Ref. No. 16-0295

| 2. FULL NAME OF SECOND ASSIGNOR Shane A. May | ASSIGNOR'S SIGNATURE | DATE 25 344 |
|--|-----------------------------|----------------------|
| ADDRESS 171 Best Street, Devonport, Tasmania, 7310 AU | | CITIZENSHIP AU |
| | | |
| 1. WITNESS NAME ROBIN SAYERS | WITNESS SIGNATURE POSIALS | DATE 23-7-10-2016 |
| ADDRESS 14 LEWIS ST, SO | MERSET, TAS MANIA, 7322, AU | CITIZENSHIP A U |
| | | |
| 2 WITNESS NAME Martin Victor Pilgrim | WITNESS SIGNATURE W.G. | 0ATE 23 June 2016 |
| address 33 Sutton Street, Hillo | est, Tasmania, 7320, AU | CITIZENSHIP AU |
| | | i e |

JOINT INVENTION (Worldwide Rights) Attorney Docket No. 50100/16-0295 Client Ref. No. 16-0295

| 3. FULL NAME OF THIRD ASSIGNOR Suneel Venkata Kandula | ASSIGNOR'S SIGNATURE | DATE 24th TUNE 2016. |
|--|----------------------|---|
| ADDRESS 205/149 Pascoe Vale Road, Moonee Ponds, Melbourne, VIC, 3039 AU | | CITIZENSHIP IN |
| | | |
| 1. WITNESS NAME JOSHUA BANON | WITNESS SIGNATURE | DATE 24 JUNE 2016. |
| 18 MIA MIA ROAD PROM | HOFOLD VIC 3658 | CITIZENSHIP AUSTRALIA |
| 2. WITNESS NAME MARK BLACKBURN | WITNESS SIGNATURE | DATE |
| ADDRESS 48 WHARF KNAO, BETERBUSHIN, UK | | 24 SVME 266 CITIZENSHIP UK |
| | | *************************************** |

RECORDED: 11/21/2016