*.	3	11-06-20		Patent ai Attorney		
70	To the Director of the U.S. Pate Please record the attached ori		3	Mail Stop A	ssignment R	ecordation Services
10,0	1. Name of conveying par (1) Gregory J. SPECKI (2) Mark Edward HART (3) Jackson WAI (4) Joshua Michael WI	HART IMAN	2. Name:	Name and address	_	party(ies): OLA 000
	, 	party(ies) attached? ☐ Yes ☒ No	Internal Address			3 C
	3. Nature of conveyance:		Street		Adams Street	1130
		☐ Merger	City:	Peoria		
	Security Agreement	☐ Change of Name	State:	IL	Zip Code:	61629-5490
	Joint Research Agreement	Government Interest Assignment	Addition	nal name(s) & Addr	ess(es) attach	ned?
	Executive Order 9494, Confirmatory License	Other:		☐ Yes		
	Execution Date: (1) Gregory J. SPECKHART - October 31, 2006 (2) Mark Edward HARTMAN - October 30, 2006 (3) Jackson WAI - October 30, 2006 (4) Joshua Michael WILLIAMS - October 30, 2006					i
		number(s): If this document is being file 06, (2) October 30, 2006, (3) October 3		together with a new application, the execution date of the 0, 2006, (4) October 30, 2006		
	A. Patent Application Num	nber(s):	В.	Patent Number(s):	
11/01	2006 CNGUYEN2 00000053 11589967	· \				'
04 FC	8021 (40.	.00 DP Additional numbers attached?	Yes	⊠ No		
	Name and address of party to whom correspondence concerning document should be mailed:		5.	Total number of a	applications ar	nd patents involved:
	Name: Roland G. McAndrews	3	6.	Total fee (37 CFF	R 1.21(h) and	3.41): \$40
	Internal Address: FINNEGAN, & DUNNER	, HENDERSON, FARABOW, GARRET , L.L.P.	T 🛛			deficiency or credit count 06-0916)
	Street Address: 901 New Yo	ork Avenue, N.W.		Authorized t	o be charged	to deposit account
	City: Washington, D.	C.				
	State: 2	Zip: 20001-4413	7.	Deposit Account	No.: <u>06-0916</u>	
	8. Statement and signatur	re.				
	To the best of my knowledge and belief, the foregoing information is true a document.			t and any attached	copy is a true	e copy of the original
	Signed:	turner			October 31,	2006
		Roland G. McAndrews Reg. No. 41,450			D	ate
ł	Total	number of pages including cover sheet	attachment	s and documents:	10	

5/2006

PATENT

ASSIGNMENT

WHEREAS We, the below named inventors, [hereinafter referred to as Assignors], have made an Invention entitled:

for which We executed an application for United States Letters Patent concurrently herewith or filed an application for

ELECTRIC MOTOR SYSTEM IMPLEMENTING VECTOR AND SLIP CONTROL

United States Letters Patent on	, 2006 (Serial No); and	
WHEREAS, Caterpillar Inc., a con Street, Peoria, IL 61629-6490 (hereinafter interest in and to this invention in all count Patent on this invention and the Letters Pa	r referred to as Assignee), is des ries throughout the world, and in	irous of securing the e and to the application	intire right, title, and
Patent of the United States which may be basis of the above provisional application all applications for Letters Patent which may be granted on this invertigant I/We hereby authorize and request the of any foreign country whose duty it is to is this invention to Assignee, its successors a	receipt of which from Assignee over, and do hereby sell, assign, right, title, and interest in and to his application, and all divisions, granted thereon, and all reissues (if any), as well as all rights to cla ay hereafter be filed for this inven- tion in any foreign country, and a Commissioner of Patents and issue patents on applications as c and assigns, in accordance with	is hereby acknowledge transfer, and set over this invention, provision and continuations there thereof, and all rights aim priority on the basination in any foreign could extensions, renewall extensions, renewall excluded above, to issue the terms of this Assignments.	ed, We, as Assignors, unto the Assignee, its nal application Serial No. reof, and all Letters to claim priority on the s of this application, and untry and all Letters is, and reissues thereof; ted States and any official ue all Letters Patent for nment;
AND, WE HEREBY covenant that We have not executed and will not execute	we have the full right to convey any agreement in conflict with t	the interest assigned this Assignment;	y this Assignment, and
AND, WE HEREBY further covens Assignee, its successors and assigns, any proceeding, sign all lawful papers when can necessary or desirable to perfect the title to divisional, continuation, and reissue applic Assignee, its successors and assigns, to o and any foreign country, it being understoom the Assignee, its successors and assigns. IN TESTIMONY WHEREOF, We it	rfacts known to me/us respecting the distribution for the distribution for the distribution for the distribution of the distri	g this invention, and te deliver any and all pap its successors or assi d generally do everyth protection for this inve	stify in any legal ers that may be igns, execute all ling possible to aid ntion in the United States
1. FULL NAME OF SOLE OR FIRST ASSIGNOR Gregory J. SPECKHART	ASSIGNOR'S SIGNATURE	//-	DATE /0/3//06
ADDRESS 228 East Oak Cliff Ct., Peoria, IL 6	31614		CITIZENSHIP USA
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Page 1 of 3

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James Siegle	MITNESS SIGNATURE	DATE 10/31/2006
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1. WITNESS NAME HUZEFA GILLAMHUSEIN	VITNESS SIGNATURE HUGEL	DATE 10/30/06
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PEORIA, IL 61615		
2 WITNESS NAME ALIAS GEL LUKMANTT	ITTNESS SIGNATURE # 1932.	DATE 10/30/06
ADDRESS 2402 W. JUBILEE	E LN	CITIZENSHIP TANEANIA.

Page 2 of 3

PATENT

3, FULL NAME OF THIRD ASSIGNOR, IF ANY Jackson WAI	ASSIGNOR'S SIGNATURE	DATE
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2. WITNESS NAME	WITNESS SIGNATURE	DATE
ADDRESS		CITIZENSHIP
4. FULL NAME OF FOURTH ASSIGNOR, IF ANY Joshua Michael WILLIAMS	ASSIGNOR'S SIGNATURE	DATE
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1. WITNESS NAME	WITNESS SIGNATURE	DATE
ADDRESS	CITIZENSHIP	
2. WITNESS NAME	WITNESS SIGNATURE	DATE
ADDRESS	CITIZENSHIP	

Page 3 of 3

PATENT

ASSIGNMENT

WHEREAS We, the below named inventors, [hereinafter referred to as Assignors], have made an invention entitled:

ELECTRIC MOTOR 51518	EM IMPLEMENTING VECTOR AND SLIP CONT	RUL
for which We executed an application for United United States Letters Patent on	States Letters Patent concurrently herewith or fil	ed an application for
Street, Peoria, IL 61629-6490 (hereinafter refer	on of Delaware corporation whose post office add red to as Assignee), is desirous of securing the e proughout the world, and in and to the application to be issued upon this application;	ntire right, title, and
other good and valuable consideration the receip have sold, assigned, transferred, and set over, a lawful successors and assigns, our entire right, to filed (if any), and this applicant of the United States which may be granted basis of the above provisional application (if any) all applications for Letters Patent which may here Patent which may be granted on this invention in and I/We hereby authorize and request the Comof any foreign country whose duty it is to issue pathis invention to Assignee, its successors and assigns, any facts a proceeding, sign all lawful papers when called up necessary or desirable to perfect the title to this if divisional, continuation, and reissue applications.	r and in consideration of the sum of One Dollar (\$ pt of which from Assignee is hereby acknowledge and do hereby sell, assign, transfer, and set over title, and interest in and to this invention, provision plication, and all divisions, and continuations then ed thereon, and all reissues thereof, and all rights i), as well as all rights to claim priority on the basis eafter be filed for this invention in any foreign country, and all extensions, renewal missioner of Patents and Trademarks of the Unite atents on applications as described above, to ississigns, in accordance with the terms of this Assignave the full right to convey the interest assigned be agreement in conflict with this Assignment; diagree that We will, without further consideration known to me/us respecting this invention, and tespon to do so, execute and deliver any and all papinvention in said Assignee, its successors or assignated enforce proper patent protection for this invention and enforce proper patent protection for this invention.	ad, We, as Assignors, unto the Assignee, its nal application Serial No. reof, and all Letters to claim priority on the s of this application, and intry and all Letters is, and reissues thereof; ed States and any official ue all Letters Patent for nment; by this Assignment, and in, communicate with stify in any legal ers that may be gns, execute all ing possible to aid
	and enforce proper patent protection for this inveit any expense incident to the execution of such participates in the execution of such participates.	
IN TESTIMONY WHEREOF, We have h	ereunto set our hands.	
1. FULL NAME OF SOLE OR FIRST ASSIGNOR Gregory J. SPECKHART	ASSIGNOR'S SIGNATURE	CATE
ADDRESS 228 East Oak Cliff Ct., Peoria, IL 61614		CITIZENSHIP USA

Page 1 of 3

1. WITNESS NAME	WITNESS SIGNATURE	DATE	
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2. WITNESS NAME	WITNESS SIGNATURE	DATE	
ADDRESS		CITIZENSHIP	
2. FULL NAME OF SECOND ASSIGNOR, IF ANY Mark Edward HARTMAN	ASSIGNORS SIGNATURE	DATE	
ADDRESS 6551 North Cedarbrook Lane, Peoria, II	L 61614	CITIZENSHIP USA	
1. WITNESS NAME	WITNESS SIGNATURE	DATE	
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2. WITHESS NAME	WITNESS SIGNATURE	DATE	
ADDRESS	CITIZENSHIP		

Page 2 of 3

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3, FULL NAME OF THIRD ASSIGNOR, IF ANY Jackson WAI	ASSIGNOR'S SIGNATURE	DATE 10 (30) a6	
ADDRESS 5912 North Cypress Dr., Apt. 1209, Pe	CITIZENSHIP Singapore		
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1. WITNESS NAME WILLIAM J. TATE	WITNESS PIGNATURE TATE	DATE 10/30/06	
1417 WI TIMBERDALE]	DR.	CITIZENSHIP US.A	
DUNLAP, IL 61525			
2. WITHESS NAME Thuong D. Le	WITNESS SIGNATURE Dictions Le	DATE 10/30/06	
6338 N. Upland TE	extacl	CITIZENSHIP USA	
Peoria, IL 61615			
4. FULL NAME OF FOURTH ASSIGNOR IF ANY Joshua Michael WILLIAMS	ASSIGNOR'S SIGNATURE	DATE	
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1. WITNESS NAME	WITNESS SIGNATURE	DATE	
ADDRESS	CITIZENSHIP		
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2. WITNESS NAME	WITNESS SIGNATURE	DATE	
ADDRESS		CITIZENSHIP	

Page 3 of 3

PATENT

ASSIGNMENT

WHEREAS We, the below named inventors, [hereinafter referred to as Assignors], have made an invention entitled:

ELECTRIC MOTOR SYSTEM IMPLEMENTING VECTOR AND SLIP CONTROL for which We executed an application for United States Letters Patent concurrently herewith or filed an application for United States Letters Patent on _____, 2006 (Serial No. _____); and WHEREAS, Caterpillar Inc., a corporation of Delaware corporation whose post office address is 100 N.E. Adams Street, Peoria, IL 61629-6490 (hereinafter referred to as Assignee), Is desirous of securing the entire right, title, and interest in and to this invention in all countries throughout the world, and in and to the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application: NOW THEREFORE, be it known that for and in consideration of the sum of One Dollar (\$1.00) in hand paid and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged. We, as Assignors, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention, provisional application Serial No. (if any), and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application, and all applications for Letters Patent which may hereafter be filed for this Invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, and all extensions, renewals, and reissues thereof: and I/We hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment: AND, WE HEREBY covenant that We have the full right to convey the interest assigned by this Assignment, and 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 the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee, its successors and assigns. IN TESTIMONY WHEREOF, We have hereunto set our hands. 1. FULL NAME OF SOLE OR FIRST ASSIGNOR ASSIGNOR'S SIGNATURE DATE Gregory J. SPECKHART ADDRESS 228 East Oak Cliff Ct., Peoria, IL 61614 CITIZENSHIP

Page 1 of 3

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1. WITNESS NAME	WITNESS SIGNATURE	OATE	
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2. WITNESS NAME	WITNESS SIGNATURE	DATE	
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2. FULL NAME OF SECOND ASSIGNOR, IF ANY MARK Edward HARTMAN	ASSIGNOR'S SIGNATURE	DATE	
ADDRESS 6551 North Cedarbrook Lane, Peoria, I	L 61614	CITIZENSHIP USA	
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2. WITNESS NAME	WITNESS SIGNATURE	DATE	
ADDRESS		Citizenship	

Page 2 of 3

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3. FULL NAME OF THIRD ASSIGNOR, IF ANY Jackson WAI	ASSIGNOR'S SIGNATURE .	DATE
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2. WITNESS NAME	WITNESS SIGNATURE	DATE
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4. FULL NAME OF FOURTH ASSIGNOR, IF ANY Joshua Michael WILLIAMS	ASSIGNOR'S SIGNATURE	DATE (6/80/Q @0 6
ADDRESS 4733 West Pendleton Place, Peoria, IL		CITIZENSHIP USA
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1. WITNESS NAME A Keil	WITHESS EIGNATURE QUI	DATE 70- 30-06
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2. WITNESS NAME Jonathan D Steinbrink	WITHESS SIGNATURE	DATE 10-30-06
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CREEN VALLEY A		

Page 3 of 3

RECORDED: 10/31/2006

PATENT