U.S. PTO 11/882217 07/31/2007	08-09-200	-	U.S. Department of Commerce Patent and Trademark Office Customer No. 58,982 Attorney Docket No. 08350.7030-000				
To the Director of the U.S. Patent an Please record the attached original 103435005			Mail Stop Assignment Recordation Serv				
Name of conveying pa Victoriano Ruiz		Z. Name:	Name and address of Caterpillar Inc.	receiving party(ies):			
Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No		Internal Address	Internal Address:				
3. Nature of conveyance:			Street Address: 100 N.E. Adams Street				
	☐ Merger	City:	Peoria	· West-sec			
Security Agreement	☐ Change of Name	State:	IL Zij	Code: 61629-6490			
Joint Research Agreement	Government Interest Assignment	Addition	al name(s) & Address(es) attached?			
Executive Order 9494, Confirmatory License	Other:		☐ Yes	No			
Execution Date: July 17, 20	07						
Application number(s) the application: July 1	or patent number(s): If this document is 7, 2007	being filed to	ogether with a new app	lication, the execution date			
A. Patent Application Number(s):			B. Patent Number(s):				
	Additional numbers attached?	☐ Yes	⊠ No				
Name and address of party to whom correspondence concerning document should be mailed:			Total number of applications and patents involved 1 (one)				
Name: Roland G. McAndrews		7.	Total fee (37 CFR 1.2	1(h) and 3.41): \$40			
Internal Address: FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.				e charge deficiency or credi deposit account 06-0916)			
Street Address: 901 New York Avenue, N.W.			Authorized to be	charged to deposit accoun			
City: Washington, D	P.C.						
State:	Zip: 20001-4413	8.	Deposit Account No.:	06-0916			

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.

Signed:

July 31, 2007

Roland G. McAndrews Date

Total number of pages including cover sheet, attachments and documents: 3

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PATENT REEL: 019688 FRAME: 0436

SOLEJOINT INVENTION (Worldwide Rights) Customer No. 58,982 Attorney Docket No. 08350.7030-00000 Client Ref. No. 07-030

ASSIGNMENT

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

PARTICLE SENSOR

for which I executed an application for United States Letters Patent concurrently herewith; 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, I, as Assignor, 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 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 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, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any agreement in conflict with this Assignment;

AND, I HEREBY further covenant and agree that I will, without further consideration, communicate with Assignee. its successors and assigns, any facts known to me 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, I have hereunto set my hands.

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1. FULL NAME OF SOLE OR FIRST ASSIGNOR Victoriano Ruiz	ASSIGNOR'S SIGNATURE	teuro	fler "	DATE 7-17-07
ADDRESS 110 Holly Lane, Roscommon, Michigan	48653		5	CITIZENSHIP U.S.A.

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RECORDED: 07/31/2007

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