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(54) **Electrohydraulic control system for a vehicle**

(57) An electronic control system and data-logging system for a snow removal vehicle. The vehicle includes hydraulically actuated tools, the control of which can be through a dual axis controller such as a joystick. Electrical

communication among components in the system is provided by a power line carrier protocol (PLC).

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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 0867

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 524 368 A (STRUCK JOHN M [US] ET AL) 11 June 1996 (1996-06-11) * column 2, lines 61-64 * * column 3, lines 8-18 * * column 3, lines 50-54 * * figures 1,2 *	1-3	INV. E01H5/06
X	US 6 163 985 A (CHINNERY RONALD THOMAS [US] ET AL) 26 December 2000 (2000-12-26) * column 5, lines 1-64 * * column 6, lines 24-27 * * column 7, line 45 - column 8, line 35 * * figures 1,5 *	1-3	
X	DE 195 30 106 A1 (CATERPILLAR INC [US]) 22 February 1996 (1996-02-22) * column 3, line 39 - column 4, line 25 * * column 7, line 41 - column 8, line 16 * * column 11, lines 58-65 * * figures 1,2 *	1-3	
A	US 6 484 421 B1 (DONOGHUE JOHN BARRY [US]) 26 November 2002 (2002-11-26) * paragraph [0003] * * paragraph [0028] * * paragraph [0054] - paragraph [0056] * * figures 1,12,15 *	1	TECHNICAL FIELDS SEARCHED (IPC) E01H E02F G05B
1 The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 November 2009	Examiner Kerouach, May
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 08 00 0867

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

see additional sheet(s)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 08 00 0867

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3

An apparatus for controlling a snowplow of a vehicle wherein the movement of the snowplow can be controlled by a joystick and/or a keypad having first and second manual switches.

2. claims: 4-6

An apparatus for controlling the snow removal functions of a vehicle, wherein a joystick can control either a snowplow or another actuatable tool, depending on the states of a first and second switch of the joystick.

3. claims: 7-8

An apparatus for controlling a snowplow of a truck wherein a two axis controller is moveable in one axis for moving the snowplow in one direction, and moveable in the other axis for moving the snowplow in another direction.

4. claims: 9-10

A system for electronically logging the snow and ice removal functions of a vehicle, wherein the position of a snowplow, the rate of distribution of a granular product, the position of the vehicle and the time are used for computing a product rate in terms of weight of product distributed per unit distance.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 00 0867

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-11-2009

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5524368	A	11-06-1996	CA	2123340 A1	02-09-1995
US 6163985	A	26-12-2000	CA	2300012 A1	05-10-2000
DE 19530106	A1	22-02-1996	JP	8068070 A	12-03-1996
			US	5499684 A	19-03-1996
US 6484421	B1	26-11-2002	CA	2357836 A1	27-03-2002