



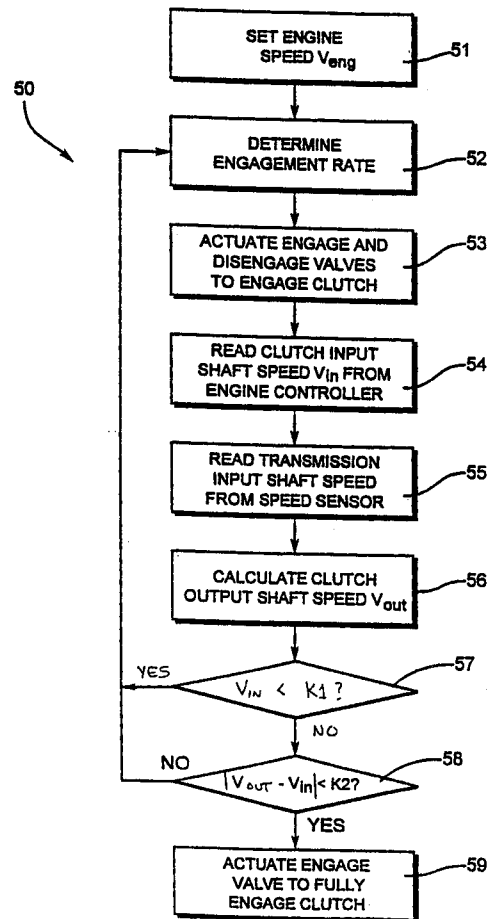
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : <b>B60K 41/02</b></p>	<p><b>A3</b></p>	<p>(11) International Publication Number: <b>WO 99/02876</b> (43) International Publication Date: 21 January 1999 (21.01.99)</p>
<p>(21) International Application Number: PCT/US98/14312 (22) International Filing Date: 9 July 1998 (09.07.98) (30) Priority Data: 08/891,625 9 July 1997 (09.07.97) US (71) Applicant: TRANSMISSION TECHNOLOGIES CORPORATION [US/US]; 23382 Commerce Drive, Farmington Hills, MI 43335 (US). (72) Inventor: WHEELER, James, A.; 2343 Coe Court, Perrysburg, OH 43551 (US). (74) Agent: MacMILLAN, Richard, S.; MacMillan, Sobanski &amp; Todd, LLC, One Maritime Plaza, 4th floor, 720 Water Street, Toledo, OH 43604 (US).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 15 April 1999 (15.04.99)</p>

(54) Title: METHOD AND APPARATUS FOR OPERATING A CLUTCH IN AN AUTOMATED MECHANICAL TRANSMISSION

(57) Abstract

A controller (20) sets an engine speed (51), determine engagement rate (52), actuates engage/disengage valve (53), read clutch input speed (54) and transmission input shaft speed (55), calculate clutch output speed (56) and engage clutch as a function of speed difference (57, 58, 59).



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**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US98/14312

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC(6) : B60K 41/02  
 US CL : 477/174, 175, 180  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**  
 Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 477/174, 175, 180

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,295,551 A (ZIMMERMAN et al.) 20 OCTOBER 1981 (20.10.81), SHEET 6.	1, 2, 4-6
X	US 5,086,894 A (IIZUKA et al.) 11 FEBRUARY 1992 (11.02.92), FIGURE 3 AND COLUMN 6.	1-3
X	US 4,722,429 A (KONO) 02 FEBRUARY 1988 (02.02.88), FIGURE 4, COLUMN 5.	1, 2, 4

Further documents are listed in the continuation of Box C.  See patent family annex.

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Date of the actual completion of the international search 22 JANUARY 1999	Date of mailing of the international search report <b>19 FEB 1999</b>
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