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SUPERINDUSTRIA Y COMERCIO

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Señor
**SUPERINTENDENTE DE INDUSTRIA Y CO
DIVISION DE NUEVAS CREACIONES**
E. S. D.

REF. Expediente No. 03-040.933
Patente de Invención: "GENERADOR CA POLIFÁSICO SIN
ESCOBILLAS Y APARATO DE CONTROL
DE EXCITACIÓN PARA EL MISMO"
Solicitante: HONDA GIKEN KOGYO KABUSHIKI
KAISHA.

Destino: 09

Humberto RUBIO CAMACHO, mayor de edad, domiciliado en Bogotá, identificado con la Cédula de Ciudadanía No. 17'192.062 de Bogotá, Abogado en Ejercicio, portador de la Tarjeta Profesional No. 50.007 expedida por el Consejo Superior de la Judicatura, actuando en carácter de apoderado de la Sociedad **HONDA GIKEN KOGYO KABUSHIKI KAISHA.**, domiciliada en 1-1, Minamiaoyama 2-chome, Minato-ku, Tokio, Japón; me permito anexar los siguientes documentos:

- 1.- Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
- 2.- Teniendo en cuenta lo anterior, en forma respetuosa solicito de continúe con del trámite correspondiente.

Del señor Superintendente,



HUMBERTO RUBIO CAMACHO
C.C. 17'192.062 de Bogotá
T.P. 50.007 de Consejo Superior
de la Judicatura.
COD 4134

99/843-02/pi
icsr

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference PCT01Y	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP01/09718	International filing date (day/month/year) 07 November 2001 (07.11.01)	Priority date (day/month/year) 17 November 2000 (17.11.00)
International Patent Classification (IPC) or national classification and IPC H02K 29/00, F02N 11/04, 11/08		
Applicant HONDA GIKEN KOGYO KABUSHIKI KAISHA		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet. ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of <u>3</u> sheets.	
3. This report contains indications relating to the following items: I ☒ Basis of the report II ☐ Priority III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV ☐ Lack of unity of invention V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI ☐ Certain documents cited VII ☐ Certain defects in the international application VIII ☐ Certain observations on the international application	

Date of submission of the demand 10 April 2002 (10.04.02)	Date of completion of this report 03 December 2002 (03.12.2002)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP01/09718

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I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ 1-13 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____ 2,4-8 _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____ 1 _____, filed with the letter of _____ 13 September 2002 (13.09.2002)
- ☒ the drawings:
pages _____ 1-12 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, Nos. _____ 3 _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1, 2, 4-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-2, 4-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1, 2, 4-8	YES
	Claims		NO

2. Citations and explanations

Document 1: JP, 2000-104650, A (Kokusan Denki Co., Ltd.), 11 April, 2000 (11.04.00), full text, Figs. 1-8
Document 2: JP, 2000-278989, A (Toyoda Automatic Loom Works, Ltd.), 6 October, 2000 (06.10.00), full text, Figs. 1-6
Document 3: JP, 11-346497, A (K.K. Fujii Seimitsu Kaitenki Seisakusho), 14 December, 1999 (14.12.99), full text, Figs. 1-15
Document 4: JP, 8-275476, A (Hitachi, Ltd.), 18 October, 1996 (18.10.96), [0038]-[0048], Figs. 3 and 4
Document 5: JP, 4-183253, A (Sony Corp.), 30 June, 1992 (30.06.92), full text, Figs. 1-7

The constitution described in corrected claim 1, "advances by an angle corresponding to the width in the revolving direction, of a commutating pole," is neither described in any of documents 1-5 cited in the ISR, nor obvious to a person skilled in the art. So, the subject matters of claims 1, 2 and 4-8 appear to be novel and to involve an inventive step.

AMENDED CLAIMS UNDER ARTICLE 34

September 13, 2002

1. (Amended) A brushless polyphase AC generator, the
5 brushless polyphase AC generator including:

a stator (50) and its winding (53);

a cylindrical rotor (60) having a plurality of permanent
magnets (62) each disposed in the circumferential direction and
rotating relative to the stator;

10 magnetic pole sensors (29) for detecting the rotary position
of a rotor, wherein a phase current is supplied to each phase
of the windings for angle-advancement according to the detection
signal of the magnetic pole sensor,

the rotor has an interpole portion (613) between each
15 adjacent two of the permanent magnets, wherein the phase current
supplied to each phase is angle advanced though a amount of angle
represent a circumferential width of the interpole portion so
that the timing with which the phase current is supplied may
coincide with the timing with which the magnetic field detected
20 by the magnetic pole sensor is changed.

2. A brushless polyphase AC generator according to claim
1, which is a starter motor that is connected to a crank shaft
(201) of an internal combustion engine to thereby crank the
internal combustion engine.

25 3. (Canceled)

4. An excitation control apparatus for the brushless

polyphase AC generator according to claim 1 or 2, the excitation control apparatus for the brushless polyphase AC generator having the magnetic pole sensors according to the output signal from each of that one full rotation of the rotor is divided into a plurality of stages, whereby the respective phase currents are controlled in units of the stage,

wherein the phase of the phase current supplied to each phase is angle advanced by a half of the angular range corresponding to the one stage.

10 5. An excitation control apparatus for the brushless polyphase AC generator according to claim 4, wherein between at the time of normal rotation and at the time of reverse rotation the advancing amount of angle is the same.

15 6. An excitation control apparatus for the brushless polyphase AC generator according to claim 4 or 5, wherein, when the rotation speed of the rotor exceeds a prescribed value of standard speed, the advancing amount of angle is changed over to the angle corresponding to the one-stage phase.

20 7. An excitation control apparatus for the brushless polyphase AC generator according to any one of claims 4 to 6, wherein, when the rotation speed of the rotor is below the prescribed value of standard speed, excitation for angle advancement of 120° (electrical angle) is made for each phase.

25 8. An excitation control apparatus for the brushless polyphase AC generator according to any one of claims 4 to 7, wherein, when the rotation speed of the rotor exceeds the

prescribed value of standard speed, excitation for angle advancement of 180° (electrical angle) is made for each phase.