

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference K1139	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2007/000180	International filing date (<i>day/month/year</i>) 07 March 2007 (07.03.2007)	Priority date (<i>day/month/year</i>) 14 March 2006 (14.03.2006)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant NTN CORPORATION			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 16 September 2008 (16.09.2008)
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference K1139		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/JP2007/000180	International filing date (day/month/year) 07.03.2007	Priority date (day/month/year) 14.03.2006
International Patent Classification (IPC) or both national classification and IPC		
Applicant NTN CORPORATION		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2007/000180

Box No. I	Basis of this opinion
1.	<p>With regard to the language, this opinion has been established on the basis of:</p> <p><input checked="" type="checkbox"/> the international application in the language in which it was filed</p> <p><input type="checkbox"/> the translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).</p>
2.	<p>With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> on paper</p> <p><input type="checkbox"/> in electronic form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed</p> <p><input type="checkbox"/> filed together with the international application in electronic form</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search</p>
3.	<p><input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p>
4.	<p>Additional comments:</p>

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/JP2007/000180
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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																		
1. Statement																			
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Novelty (N)</td> <td style="padding: 2px;">Claims <u>1-14</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Inventive step (IS)</td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims <u>1-14</u></td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Industrial applicability (IA)</td> <td style="padding: 2px;">Claims <u>1-14</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> </table>	Novelty (N)	Claims <u>1-14</u>	YES		Claims _____	NO	Inventive step (IS)	Claims _____	YES		Claims <u>1-14</u>	NO	Industrial applicability (IA)	Claims <u>1-14</u>	YES		Claims _____	NO	
Novelty (N)	Claims <u>1-14</u>	YES																	
	Claims _____	NO																	
Inventive step (IS)	Claims _____	YES																	
	Claims <u>1-14</u>	NO																	
Industrial applicability (IA)	Claims <u>1-14</u>	YES																	
	Claims _____	NO																	
2. Citations and explanations:																			
<p>Document 1: JP 2004-239699 A (NTN Corp.), 26 August 2004, entire text, all drawings (Family: none)</p> <p>Document 2: JP 4-172219 A (Fanuc Ltd.), 19 June 1992, entire text, all drawings (Family: none)</p> <p>Document 3: JP 8-261794 A (Mitsubishi Electric Corp.), 11 October 1996, entire text, all drawings & US 5721546 A</p> <p>Document 4: JP 9-265504 A (Tamagawa Seiki Co., Ltd.), 07 October 1997, entire text, all drawings (Family: none)</p> <p>Document 5: JP 9-273942 A (Aisin Seiko Co., Ltd.), 21 October 1997, entire text, all drawings & US 5783925 A</p> <p>Document 6: JP 7-35574 A (Matsushita Electric Industrial Co., Ltd.), 07 February 1995, entire text, all drawings (Family: none)</p> <p>Document 7: JP 2002-139350 A (Matsushita Electric Industrial Co., Ltd.), 17 May 2002, entire text, all drawings (Family: none)</p> <p style="margin-top: 20px;">The inventions set forth in claims 1, 2, 8 through 10, 13, and 14 do not involve an inventive step with respect to documents 1 through 3 cited in the ISR.</p>																			

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2007/000180

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

As described in documents 2 and 3, a delay time correction means which corrects the delay time from detection by a magnetic sensor element until the detected angle is output by an angle calculation means was already well-known prior to the present application, and employing this in the magnetic sensor described in document 1 would be easy for a person skilled in the art.

Also, the magnet formed by a pair of magnetic poles described in claim 2 and the bearing supporting a rotating shaft described in claim 13 are described in document 1.

In addition, the delay time correction means corresponding to rotational speed described in claims 8 through 10 is described in document 2 (page 4, upper right, line 4 to lower left, line 8).

In addition, the matter described in claim 14 is described in document 3 (see paragraph [0051], fig. 1, 4).

The inventions set forth in claims 3, 11, and 12 do not involve an inventive step with respect to documents 1 through 5 cited in the ISR.

As described in documents 4 and 5, an interpolation means which interpolates the sampling interval and calculates the change portion of an angle was already well-known prior to the present application. Also, document 4 describes a rotational angle inference means which infers the rotational angle at an arbitrary time based on rotational angle information and rotational speed information. Employing this in the invention described in document 1 would be easy for a person skilled in the art.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2007/000180

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

The inventions set forth in claims 4 and 5 do not involve an inventive step with respect to documents 1 through 6 cited in the ISR.

Document 6 describes a means which provides a pulse generation circuit for generating a rotational pulse signal based on the output of a magnetic sensor, and which outputs a rotational angle using a rotational direction signal and two rotational pulse signals output from the pulse generation circuit with phases that are 90° different from one another. Employing this in the invention described in document 1 would be easy for a person skilled in the art.

The inventions set forth in claims 6 and 7 do not involve an inventive step with respect to documents 1 through 7 cited in the ISR.

Document 7 describes a memory means which stores an angle value outputting an index signal. Employing the memory means described in document 7 in the invention described in document 1 and configuring the inventions set forth in claims 6 and 7 would be easy for a person skilled in the art.