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Datasheet for the decision of 27 April 2017

Case Number: T 1903/13 - 3.4.02

Application Number: 01128644.0

Publication Number: 1211500

IPC: G01M13/04, G01P3/44

Language of the proceedings: EN

Title of invention:
Rolling bearing apparatus with sensor

Patent Proprietor:
NSK LTD

Opponent:
SKF BV

Headword:

Relevant legal provisions:
EPC Art. 123(1)
RPBA Art. 12(4)
EPC 1973 Art. 56

Keyword:
Admissibility of diverging auxiliary requests (no)

Decisions cited:
T 0840/93, T 1685/07

Catchword:

It is within the board's discretion not to admit auxiliary requests which define subject-matter "diverging" from subject-matter of higher ranking requests, including those requests which, in essence, were filed during first-instance proceedings and re-filed with the respondent's reply, but were not examined by the first-instance department. See point 3.3 of the Reasons.

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Case Number: T 1903/13 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 27 April 2017

Appellant: (Opponent)	SKF BV P.O. Box 2350 3430 DT Nieuwegein (NL)
Representative:	Rehse, Helen Valea AB Box 1098 405 23 Gothenburg (SE)
Respondent: (Patent Proprietor)	NSK LTD 6-3, Ohsaki 1-chome, Shinagawa-ku, Tokyo (JP)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 1 July 2013 concerning maintenance of the European Patent No. 1211500 in amended form.**

Composition of the Board:

Chairman	R. Bekkering
Members:	A. Hornung
	B. Müller

Summary of Facts and Submissions

I. The opponent appealed against the interlocutory decision of the opposition division maintaining European patent No. 1211500 in amended form.

Opposition had been filed against the patent as a whole and based on the grounds of Article 100(a) EPC, together with Articles 54(1) and 56 EPC, Article 100(b) EPC and Article 100(c), together with Article 123(2) EPC.

The opposition division had found that the patent as amended according to a second auxiliary request then on file and the invention to which it related met the requirements of the EPC.

II. Oral proceedings before the board were held on 27 April 2017.

The opponent-appellant requested that the decision of the opposition division be set aside and that the patent be revoked.

The patent proprietor-respondent requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of

- the claims of the Main Request, i.e. claims 1 to 11 according to then Auxiliary Request II as filed in the oral proceedings before the Opposition Division and found to meet the requirements of the EPC, with the description pages including new pages 5, 11, 12 and 14 as filed with a letter of 24 February 2017;

- claims 1 to 11 of Auxiliary Request I,

- claims 1 to 10 of Auxiliary Request II,

- claims 1 to 8 of Auxiliary Request III,

- claims 1 to 8 of Auxiliary Request IV,

all claims of the auxiliary requests as filed with a letter of 19 March 2014.

In response to the patentee filing Auxiliary Requests I to IV, the opponent further requested that none of Auxiliary Requests I to IV be admitted into the proceedings.

III. Independent claim 1 according to the main request reads as follows:

"A rolling bearing apparatus with sensor comprising:

a sensor unit (35) retaining a plurality of types of sensors in a single holder (33), said sensors detecting the status of a rolling bearing,

wherein the plurality of types of sensors are at least two types of sensors of a rotation speed sensor (27a), a temperature sensor (29a) and a vibration sensor (40),

characterized by

the rolling bearing apparatus further comprising one of a surge absorber protecting a sensor circuit of the sensor unit (35) from a surge voltage for eliminating a noise, or a Zener diode protecting a sensor circuit of the sensor unit (35) from a surge voltage for eliminating a noise,

and by the rolling bearing apparatus further comprising a reference voltage generation circuit (52) located within

said sensor holder (33) for supplying a reference voltage to at least one of said temperature sensor and said vibration sensor."

Independent claim 1 according to the first auxiliary request differs from claim 1 of the main request in that it comprises the following additional feature:

"wherein a constant voltage regulator, a DC-DC converter, a reference voltage IC, or a constant voltage diode is used as the reference voltage generation circuit (52)".

Independent claim 1 according to the second auxiliary request differs from claim 1 of the main request in that it comprises the following additional feature:

"wherein outputs from at least one of said temperature sensor (29a), and said vibration sensor (40) are in the form of current".

Independent claim 1 according to the third auxiliary request differs from claim 1 of the second auxiliary request in that it comprises the following additional feature:

"the rolling bearing apparatus further comprising:
inner (5) and outer rings (4) rotating relative to each other such that one of said inner (5) and outer rings (4) is a rotating ring and the other is a stationary ring;
a plurality of rolling elements (6) rotatably disposed between a raceway (7) formed on an inner surface of said

outer ring (4), and a raceway (8) formed on an outer surface of said inner ring (5); and
an encoder (19) supported on said rotating ring or a portion rotating together with said rotating ring, and rotating together with said rotating ring,
wherein said sensor unit (35) is disposed close to said encoder (19) in such a manner as to oppose said encoder (19), at said stationary ring or a portion supporting said stationary ring,
the rolling bearing apparatus further comprising:
a nut (14) disposed on an end of a shaft so as to position said inner ring in an axial direction of said shaft,
a housing being the portion supporting said stationary ring; and
a cover (22a) attached to said housing,
wherein said encoder (19) is disposed between said inner ring and said nut (14) in the axial direction or on an outer surface of said nut (14), and
wherein said sensor unit (35) is attached to one of said housing and said cover (22a)".

Independent claim 1 according to the fourth auxiliary request differs from claim 1 of the second auxiliary request in that it comprises the following additional feature:

"wherein further each of signal lines extending from said sensors (27a,29a,40) is twisted with a ground line, and said twisted signal lines are shielded individually".

IV. The following documents relied on in the first-instance opposition proceedings will be referred to in the present decision:

D2: WO 98/11356
D6: US 5,158,374

Reasons for the Decision

1. Main request

1.1 The opponent raised objections against claim 1 of the main request under Article 100(c) and (b) EPC. After a debate during oral proceedings, the board decided not to sustain the opponent's objections. The board sees no need to explain its stance on these objections in the present decision. This is because the subject-matter of claim 1 of the main request lacks an inventive step, and the detailed reasons for this finding are stated at point 1.3 below.

1.2 Construction of the claim wording

1.2.1 During oral proceedings, contrary to its written statement in its letter of 20 March 2017, page 8, second paragraph, the opponent argued that the expression of claim 1 "reference voltage generation circuit" merely meant a "circuit providing any voltage which can be known" without comprising any other special technical properties. The board agrees with the opponent on this interpretation. Indeed, claim 1 does not comprise any technical feature characterizing the "reference voltage generation circuit" other than by the fact that it is located within the sensor holder and by the fact that it supplies a "reference voltage" to a sensor. However, a "reference voltage", in its broadest meaning, has no special technical meaning other than that its value can be known and that it can be used as a general reference. For instance, it is left open by the wording of the claim whether the "reference voltage" is a constant voltage or a non-constant voltage.

The patentee referred to paragraphs [0063] and [0064] of the patent for explaining that the "reference voltage generation circuit" of claim 1 provided a "voltage having an invariable, accurate value" and that "the circuit sends a constant reference voltage to the temperature sensor", "thereby enabling accurate measurement of a temperature" (see page 11 of the patent, lines 18, 32 and 27, respectively). While the board acknowledges that the description discloses concrete attributes of the "reference voltage generation circuit", these limiting features cannot be used to limit the scope of claim 1 with respect to the prior art disclosure because they are not mentioned in the claim (see Case Law of Boards of Appeal, eighth edition, sections II.A.6.3.2. and II.A.6.3.4.).

1.2.2 The term "sensor" in the expression of claim 1 "... for supplying a reference voltage to at least one of said temperature sensor and said vibration sensor" covers, in its broadest meaning, not only the basic sensor component but also any additional electrical components for operating the basic sensor component and for delivering a usable output signal. Indeed, except from its location in the sensor holder and its functionality to sense rotation speed, temperature or vibration, claim 1 does not comprise any other characterizing features of the "sensor".

1.3 Inventive step

The claimed subject-matter lacks an inventive step in view of the disclosure of D2 and D6 (Article 56 EPC 1973).

1.3.1 It is undisputed by the parties that D2 represents the closest prior art and that it discloses the features of the preamble of claim 1 (see D2, page 2, lines 11 to 14; figure 7).

1.3.2 The rolling bearing apparatus of claim 1 differs from the apparatus of D2 in that it comprises:

(a) a Zener diode protecting a sensor circuit of the sensor unit from a surge voltage for eliminating a noise,

and

(b) a reference voltage generation circuit located within said sensor holder for supplying a reference voltage to at least one of said temperature sensor and said vibration sensor.

1.3.3 Feature (a) of claim 1, i.e. a Zener diode, has the technical effect of eliminating surge voltages or overvoltages occurring in an electrical circuit.

Feature (b) of claim 1 has the technical effect of supplying a known voltage to a sensor in a compact manner.

The technical effects of features (a) and (b) relate to distinct aspects, i.e. protection against overvoltage and supply of a known voltage, respectively. Features (a) and (b) do not interact so as to provide a combined or synergistic technical effect which goes beyond the sum of the technical effects of the individual features. In other words, features (a) and (b) represent a mere aggregation of features, each feature solving a partial problem.

1.3.4 Feature (a) solves the partial objective technical problem of how to protect a sensor circuit against overvoltages.

Starting from D2 which belongs to the technical field of electronic sensors for monitoring operating conditions of bearings, striving for a robust and reliable sensor circuit

is a natural desire. It naturally leads the skilled person to contemplate the protection of the sensors of D2 against overvoltages. Being confronted with this technical problem, the skilled person will recognize that D6 discloses the solution to this problem in the form of a Zener diode protecting the sensor (see D6, column 2, lines 31 to 40). Applying the teaching of D6 to the sensor circuit of D2 will lead the skilled person to implement a Zener diode in the sensor circuit of D2, thereby inherently eliminating unspecified noise which could emanate from the overvoltages, so as to arrive at feature (a) of claim 1 in an obvious manner.

1.3.5 Feature (b) solves the partial objective technical problem of how to supply voltage to a sensor circuit in a compact manner.

D2 discloses a battery (128), located within the sensor module B, supplying energy to a transmitting device (124) (see D2, figure 7, page 10, lines 26 to 29). The battery delivers a known voltage and, therefore, falls under the wording of a "reference voltage generation circuit". The board acknowledges that D2 does not explicitly disclose that the battery supplies a "reference voltage" to the temperature sensor or the vibration sensor. However, as discussed during oral proceedings, D2 discloses that the temperature sensor and the vibration sensor provide a digital output (see D2, page 9, lines 17 to 22). In order to provide such a digital output, it is implicit that the sensors of D2, which may comprise additional electronic components, are supplied with a known, predefined voltage, i.e. a "reference voltage", for transforming the raw sensor signal into a digital output.

If the "reference voltage" is effectively supplied by the battery to the sensors, then feature (b) is implicitly anticipated by the disclosure of D2.

If the "reference voltage" is supplied by an external source other than the battery (see D2, page 11, lines 2 to 4), it would be obvious for the skilled person to provide the adequate electronic components for converting the electrical energy from the external source into the "reference voltage", i.e. to provide "a reference voltage generation circuit" as claimed. In order to render compact the voltage supply, the skilled person would implement the "reference voltage generation circuit" in close proximity with the battery and the sensors, i.e. within the sensor holder, thereby arriving at feature (b) without exercising any inventive skills.

1.3.6 Counter-arguments by the patentee

- The patentee argued that features (a) and (b) provided a synergistic effect: both features served the same aim namely to increase measurement precision. As evidence for this finding, the patentee referred to various passages in the description of the patent. In particular, feature (a), i.e. the Zener diode, eliminated noise arising from crosstalk between sensor signals, the crosstalk being due to the fact that different types of sensors were tightly packed together in a single holder. Feature (b), i.e. the "reference voltage generation circuit", provided a constant "reference voltage", thereby enabling an accurate measurement by making sensors independent from variations in the external environment.

  The board is not convinced by this argument because it cannot be derived from the wording of claim 1 that

features (a) and (b) effectively provide the alleged effects which are only mentioned in the description.

- The patentee further argued that D6 did not refer, like the present invention, to a situation with different types of sensors being packed in a single holder so that crosstalk between sensor signals arose. The Zener diode of claim 1 eliminated this noise. Neither D2 nor D6 disclosed this problem. Therefore, D6 could not provide any indication to use a Zener diode to reduce noise in the environment as claimed.

  The board cannot follow this argument because, firstly, the alleged effect of the Zener diode to reduce noise generated by crosstalk between sensor signals is not derivable from claim 1 and, secondly, the use of a Zener diode is obvious anyway for the reason that it protects the sensor circuit against overvoltages (see point 1.3.4 above).

- The patentee still further argued that it was clear from paragraphs [0063] and [0064] of the patent that an invariable/constant voltage was supplied directly to the temperature sensor, thereby enabling accurate measurement of the temperature. D2 was silent about whether its sensors were supplied with electrical energy and, if yes, whether an invariable and constant "reference voltage" was supplied.

  As explained in point 1.2.1. above, no invariable or constant voltage supply is derivable from claim 1. Paragraphs [0063] and [0064] of the patent describe a very specific embodiment of the invention including a thermistor, whose limiting features are absent from claim 1. Furthermore, as explained in point 1.3.5. above, D2 discloses sensors providing a digital output,

which implies that a known, predetermined voltage is supplied to the sensors. Therefore, the patentee´s counter-argument above is not found convincing by the board.

- The patentee contended that according to claim 1 the "reference voltage" was supplied directly to the basic sensor and not to another electronic component connected to the sensor.

  As explained in point 1.2.2 above, however, the claim wording allows a broader interpretation of the term "sensor". In particular, the sensor of D2 which may include electronic components for delivering a digital output falls under the meaning of the term "sensor". The "reference voltage generation circuit" of claim 1 is to be interpreted as supplying voltage to any part of the sensor. Therefore, this counter-argument is also not found convincing by the board.

- The patentee explained that D2 disclosed only sensors and a battery located within the sensor holder, however, everything else was located elsewhere, i.e. outside the sensor holder. It was not obvious to locate additional electronic components inside the sensor holder.

  The board is not convinced by this argument for the reasons given in point 1.3.5 above. If the "reference voltage" is supplied by the battery, all components are indeed located within the sensor holder. If the "reference voltage" is supplied by an external source, it would be an obvious design possibility for the skilled person to locate any additional electronic component useful for supplying a "reference voltage" near the sensors in the sensor holder for reasons of noise reduction or compactness.

1.3.7 In conclusion, the subject-matter of claim 1 lacks an inventive step in view of D2 in combination with D6 (Article 56 EPC 1973).

2. First auxiliary request

2.1 Admissibility

The opponent objected to the admissibility of the first auxiliary request into the appeal proceedings for the reason that it was filed for the first time during appeal proceedings and comprised features taken from the description which might require a new study of the prior art. For the opponent, the first auxiliary request should have been filed during first instance opposition proceedings.

The board cannot follow this reasoning. The first auxiliary request was filed by the patentee together with its reply to the opponent´s appeal, i.e. at the earliest possible point in time of the appeal proceedings. The board sees no reason why the patentee should have filed this request earlier, since claim 1 of the present main request, which has a broader scope than claim 1 of the present first auxiliary request, was found compliant with the requirements of the EPC by the opposition division. In addition, claim 1 of the first auxiliary request represents an unsurprising and reasonable attempt to clarify and restrict the scope of the invention as defined in claim 1 of the main request.

Therefore, the board decides to admit the first auxiliary request into the appeal proceedings.

2.2 Inventive step

The claimed subject-matter, however, lacks an inventive step in view of the disclosure of D2 and D6 (Article 56 EPC 1973).

2.2.1 Compared to claim 1 of the main request (see the differing features (a) and (b) defined in point 1.3.2 above), claim 1 of the first auxiliary request further differs from the apparatus of D2 in that:

(c) a constant voltage regulator, a DC-DC converter, a reference voltage IC, or a constant voltage diode is used as the reference voltage generation circuit (52).

During oral proceedings, a debate took place for the first time about the technical effect and the objective technical problem solved by the electronic modules or components of differing feature (c). Indeed, in the written proceedings, the patentee merely noted that "none of the other references give any indication to use any of such components as a reference voltage generation circuit" (see the patentee's letter of 24.02.17, point II).

2.2.2 In view of this debate, the board comes to the conclusion that the technical effect of feature (c) does not go beyond the mere provision of an electronic component usable as "reference voltage generation circuit" and the problem to be solved consists in how to realize such a "reference voltage generation circuit".

2.2.3 Numerous electronic modules or components for supplying a predefined voltage are known in the art, including those listed in feature (c). This was not contested by the patentee during the debate in the oral proceedings. The selection of one of these known components for supplying a predetermined voltage depends merely on the concrete circumstances and characteristics of the sensor unit of D2

without providing any unknown or surprising technical effect. For instance, it would be obvious to include, where necessary, a DC-DC converter to convert the battery voltage to different voltages required by each of the different sensors provided in the sensor module of D2. Such a selection, therefore, corresponds to an arbitrary selection of electronic components from a number of known possibilities not involving any inventive step.

2.2.4 Counter-arguments by the patentee

- During the oral proceedings, the patentee stated that the four electronic components of claim 1 solved the objective technical problem that "they were more suitable for providing an accurate measurement" than the "reference voltage generation circuit" of claim 1 of the main request. In support of its statement, the patentee referred to paragraphs [0063] and [0064] of the patent.

  This argument was not found convincing by the board. As explained in point 1.2.1 above, features described only in the description generally do not limit the scope of a claim. For instance, it is not comprehensible how a DC-DC converter by converting a DC voltage into another DC voltage, could provide a more accurate measurement in general. Therefore, the above formulation of the objective technical problem by the patentee is not suitable. Moreover, feature (c) and its effect is disclosed in paragraph [0063] of the patent in relation to a specific embodiment including a thermistor as being the temperature sensor, whereas claim 1 is not limited to a thermistor.

- The patentee argued that there was no motivation for the skilled person to add an additional electronic component between the sensors and the battery of D2. The exact

type of the sensors of D2 was unknown. It was not even known whether the sensors of D2 needed a voltage supply at all.

The board is not convinced by this argument. The sensors of D2 include electronic components which require a voltage supply (see point 1.3.5 above). The provision of an additional electronic component is an obvious design possibility for this voltage supply (see point 2.2.3 above).

- The patentee formulated the objective technical problem solved by the four electronic components of claim 1 as follows:

"How to provide a power supply to the sensor which is influenced as little as possible by variations in the external environment despite being able to use power supplied from the outside of the sensor unit".

The patentee explained that this problem was solved in an unobvious manner by the four electronic components of claim 1, i.e. the constant voltage regulator, the DC-DC converter, the reference voltage IC and the constant voltage diode, due to the fact that they were located within the sensor holder with the sensors.

The board finds that this objective technical problem does not support the presence of an inventive step in the subject-matter of claim 1 for the following reasons:

- The objective technical problem is formulated in vague terms having no clear meaning, i.e. "as little as possible", or refers to constraints which are not forming part of the claim, i.e. "the external

environment" and "power supplied from the outside of the sensor unit".

- There is no indication that the four electronic elements of claim 1 effectively solve the objective technical problem under all the possible circumstances covered by the vague and broad formulation of the problem.

- Even if, despite the vague and broad formulation of the objective technical problem, the skilled person attempted to solve it, he would obviously implement a solution falling under the wording of present claim 1. Indeed, the selection of an electronic component as claimed (see point 2.2.3 above) and its location within the sensor holder (see point 1.3.5) are obvious and also solve the objective technical problem formulated by the patentee.

3. Second to fourth auxiliary requests

3.1 The second to fourth auxiliary requests were in essence already filed but not examined during first-instance opposition proceedings and re-filed during appeal proceedings by the patentee with the reply to the opponent's statement of grounds of appeal.

Except for the deletion of an alternative feature in claim 1, i.e. an electromagnetic interference filter, the second to fourth auxiliary requests are identical to the respective auxiliary requests already filed during first-instance opposition proceedings. However, the opposition division had to decide neither on the admissibility nor on the patentability of the subject-matter of these three auxiliary requests because it maintained the patent on the basis of a higher ranking request.

3.2 The opponent requested that the second to fourth auxiliary requests not be admitted into the proceedings because they were directed to subject-matter which did not converge with the subject-matter of the main request and first auxiliary request.

3.3 The board decides to sustain the opponent's request for the following reasons:

3.3.1 The main purpose of the opposition appeal proceedings is to give the parties an opportunity to have the decision of the opposition division reviewed. However, if the patentee, as in the present case, desires to have claim requests reviewed different from those underlying the decision of the opposition division, it is settled case law that the board has a discretion to admit or not these new requests into the appeal proceedings based on whether these new requests fulfil certain criteria (e.g. T 840/93, point 3.1; T 1685/07 point 6.4). Pursuant to Article 123(1) EPC, "The European patent may be amended in proceedings before the European Patent Office ...". From this wording it ensues that a board of appeal has discretion to admit or not new requests into opposition appeal proceedings. In other words, there is no absolute right for the patentee to file amendments. How the board should exercise its discretion to admit parties' submissions is defined inter alia in Article 12(4) RPBA.

3.3.2 Article 12(4) RPBA reads as follows: "Without prejudice to the power of the Board to hold inadmissible facts, evidence or requests which could have been presented or were not admitted in the first-instance proceedings, everything presented by the parties under (1) shall be taken into account by the Board if and to the extent it relates to the case under appeal and meets the requirements in (2)".

3.3.3 According to the first part of the sentence of Article 12(4) RPBA, *everything* filed with the statement of grounds of appeal or the reply is part of the proceedings, except for facts, evidence and requests which could have been presented or were not admitted in the first-instance proceedings. In the present case, despite the fact that the second to fourth auxiliary requests were in essence filed during first-instance proceedings and re-filed with the respondent's reply, the consequence seemingly implied by the first part of the sentence of Article 12(4) RPBA that any requests filed with the statement of grounds of appeal shall be taken into account by the boards, does not apply because these requests were not examined by the opposition division. Otherwise, Article 12(4) RPBA would make it compulsory for the boards of appeal to deal with requests that the opposition division would, in proper exercise of its discretion, not have admitted. Article 12(4) RPBA cannot be construed as restricting the exercise of the discretion under Article 123(1) EPC in such circumstances. No automatic admissibility of auxiliary requests filed during first-instance opposition proceedings and presented under Article 12(1) RPBA can therefore be deduced from Article 12(4) RPBA.

3.3.4 In the context of admittance or not of the present auxiliary requests, the board also notes the pertinent established case law of the boards of appeal. According to this case law the admissibility of amendments depends, among other things, on whether the amended claims converge with or diverge from the subject-matter previously claimed, i.e. whether they develop and increasingly limit the subject-matter of the claims in the same direction and/or in the direction of a single inventive idea, or whether they entail different lines of development because, for instance, they each incorporate different features (see "Case Law of the Boards of Appeal", 8th edition 2016, section IV.E.4.4.4). Indeed, in case T 1685/07, point 6.5, the board concluded that

"convergence" or "divergence" was a relevant criterion for the restrictive handling of the admissibility of auxiliary requests.

The present board shares this view and considers that amendments in auxiliary requests should represent a convergent development.

3.3.5 Apart from that, the board notes that the second part of the sentence of Article 12(4) RPBA according to which everything shall be taken into account *if and to the extent it relates to the case under appeal*, has to be understood in the light of the forementioned "convergence principle" as established in the case law: subject-matter of lower ranking requests which does not converge with the subject-matter of higher ranking requests by comprising features which restrict its scope within the line of development defined by the amendments of the higher ranking requests, i.e. which does not follow the same inventive concept as that of the higher ranking requests, may be considered *as not relating to the case under appeal* within the meaning of Article 12(4) RPBA and, hence, need not be taken into account in the appeal proceedings.

3.3.6 Present claim 1 of the second to fourth auxiliary requests is considered by the board as diverging from claim 1 of the main request and the first auxiliary request.

Claim 1 of the main request and of the first auxiliary request has been amended with respect to claim 1 of the patent as granted by adding the features of a "reference voltage generation circuit" and of a "constant voltage regulator, a DC-DC converter, a reference voltage IC, or a constant voltage diode used as the reference voltage generation circuit", respectively. In other words, the amendments related to a voltage supply to the sensors.

Claim 1 of the second to fourth auxiliary requests has been amended with respect to claim 1 of the first auxiliary request by deleting the feature which has been added previously to claim 1 of the first auxiliary request and by replacing it by a sensor output in form of current. Claim 1 of the third and fourth auxiliary request have been further amended by adding features relating to mechanical aspects (third auxiliary request) or to twisted signal lines (fourth auxiliary request).

These amendments of claim 1 of the second to fourth auxiliary requests, instead of forming a consistent development of the claimed subject-matter in the direction defined by the consecutive amendments carried out in the higher ranking requests, represent new lines of development diverging from the inventive concept of the main request and the first auxiliary request, i.e. the electrical power supply of the sensors.

3.3.7 Therefore, the board, in exercising its discretion under Article 123(1) EPC, holds the second to fourth auxiliary requests inadmissible for not being convergent with the line of development defined by the main request and the first auxiliary request.

3.4 Counter-arguments by the patentee

The patentee argued that the second to fourth auxiliary requests had been filed in a slightly different form already during the first-instance proceedings, that the filing of the auxiliary requests did not constitute an abuse of procedure and that there was at least a partial convergence with the main request and the first auxiliary request in the sense that claim 1 of all requests defined features for eliminating noise. The patentee also argued that the

admissibility of the auxiliary requests should have been decided at the beginning of the oral proceedings which would have allowed the patentee to modify the order of the auxiliary requests.

The board is not convinced by the patentee's counter-arguments for the following reasons:

- As explained above, the board has a discretion not to admit diverging auxiliary requests, including those requests which were filed during first-instance proceedings and re-filed with the respondent's reply but were not examined by the first-instance department.

- The question whether an abuse of procedure occurred in filing the second to fourth auxiliary requests was neither raised by the opponent nor by the board and had no influence on the decision taken by the board in the present case.

- The feature of a Zener diode for eliminating noise was already present in claim 1 as granted. The subsequent amendments of claim 1 of the main request and the first auxiliary request, however, do not contain features related to the elimination of noise (see also point 1.3 above). Therefore, even if it were assumed that the amended features of claim 1 of the second to fourth auxiliary requests, which do not explicitly refer to the elimination of noise, effectively define means for eliminating noise, the aspect of elimination of noise does not represent a consistent development of the amendments of the claims.

- It is the patentee's task and responsibility to present the requests in the order according to which the

requests are to be examined by the opposition division and the board.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Kiehl R. Bekkering

Decision electronically authenticated