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Datasheet for the decision of 12 November 2013

Case Number: T 0304/12 - 3.2.08

Application Number: 00301891.8

Publication Number: 1035342

IPC: F16D23/14, F16C33/78

Language of the proceedings: EN

Title of invention:
Clutch release bearing

Patent Proprietor:
NSK LTD

Opponents:
Masashi Shiotani
SKF FRANCE

Headword:

Relevant legal provisions:
RPBA Art. 13(1)
EPC Art. 84, 123(2), 56

Keyword:
Admissibility of late filed request (yes)
Clarity (yes)
Amendments - extension beyond the content of the application as filed (no)
Inventive step - (yes)

This datasheet is not part of the Decision.
It can be changed at any time and without notice.

Decisions cited:

Catchword:

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Case Number: T 0304/12 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 12 November 2013

Appellant: (Patent Proprietor)	NSK LTD Ohsaki 1-chome Shinagawa-ku Tokyo (JP)
Representative:	Moreland, David Marks & Clerk LLP Aurora 120 Bothwell Street Glasgow G2 7JS (GB)
Respondent: (Opponent 1)	Masashi Shiotani 206, Koyodai, Ikoma-shi Nara-ken (JP)
Representative:	von Kreisler Selting Werner Deichmannhaus am Dom Bahnhofsvorplatz 1 50667 Köln (DE)
Respondent: (Opponent 2)	SKF FRANCE 34, avenue des Trois Peuples 78180 Montigny le Bretonneux (FR)
Representative:	Casalonga, Axel Casalonga & Partners Bayerstrasse 73 80335 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 5 December 2011 revoking European patent No. 1035342 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman:	T. Kriner
Members:	M. Alvazzi Delfrate
	C. Schmidt

Summary of Facts and Submissions

I. By its decision posted on 5 December 2011 the opposition division revoked European patent No. 1 035 342.

II. The appellant (patent proprietor) lodged an appeal against this decision on 9 February 2012, paying the appeal fee on the same day. The statement of grounds of appeal was filed on 13 April 2012.

III. Oral proceedings before the Board of appeal were held on 12 November 2013.

IV. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request filed at the oral proceedings.

The respondents (Opponents 1 and 2) requested that the appeal be dismissed.

V. Claim 1 of the sole request reads as follows:

"A clutch release bearing (10), comprising:
an outer ring (12);
a rotatable inner ring (11) having an outer diameter,
rolling members (15) provided between the outer ring (12) and the inner ring (11); and
a seal at a transmission side of the bearing, that seal being a metal plate forming a labyrinth seal (18) only, and being attached to the outer ring (12); and
a seal (17) at an engine side of the bearing (10) fixed to the outer ring (12), and comprising a labyrinth seal section (17c) located in an external portion of the bearing (10) to form a labyrinth seal with the inner

ring (11), and a contact seal section (17b) located in an internal portion of the bearing (10) to be in a slight contact relationship with the inner ring (11), characterised in that
the contact seal section (17b) has a triangular shape in cross-section, and the ratio of the interference of the contact seal section (17b) with respect to the outer diameter of the inner ring (11) is from 1/1000 to 1/200, and in that
the seal (17) has a protrusion (17e) located on the internal side portion of the contact seal section (17b), the protrusion (17e) has an inner periphery to define a parting portion in an approximately cylindrical shape in a non-contact relationship with the inner ring (11), the seal (17) further comprising a root portion (17d) with a thickness (t) and the thickness (t) of the root portion (17d) being set to 0.1 mm to 0.5 mm, and being smaller than the thickness (T) of the contact seal section (17b), and in that the labyrinth seal section (17c) has an inner periphery defining a cylindrical shape to form the labyrinth seal with the inner ring (11)."

VI. The following documents played a role for the present decision:

P1: priority document JP application H11-060989;
P2: priority document JP application 2000-021727;
D12: documents relating to the prior use of bearing BRU 0404 B;
D14: documents relating to the prior use of bearing CTS64SA (Enclosures 1, 2.1 to 2.5, 3, 4 and 5);
D16: Declaration of Benoît Arnault of 27 June 2006; and
D16a: Declaration of Benoît Arnault of 16 January 2009.

VII. The appellant's arguments can be summarised as follows:

Admissibility of the main request

It was true that the main request was filed only about one month before the oral proceedings. However, it differed from the fourth auxiliary request filed together with the statement of grounds of appeal solely in that it specified that the labyrinth seal at the transmission side of the bearing was a metal plate. Hence it should be admitted into the proceedings.

Article 84 EPC

The feature according to which the labyrinth seal 18 is at a transmission side of the bearing while the seal 17 is at an engine side served to distinguish the two sides of the bearing. Accordingly, this definition did not render claim 1 unclear even if the transmission and the engine were not part of the bearing.

Article 123(2) EPC

The features introduced into claim 1 were disclosed in the application as originally filed. In particular, a contact seal section with a triangular shape in cross-section was disclosed in paragraphs [0034] and [0045]. Moreover, paragraph [0033] described the provision of a seal at a transmission side of the bearing, that seal being a metal plate forming a labyrinth seal only, and being attached to the outer ring.

Although the embodiments described in these paragraphs comprised further features, it was clear from the application as filed that the features added to claim 1 were not structurally linked to these further features, in particular to the core metal 17a and the peripheral

groove 12b. Therefore, the amendments to claim 1 complied with the requirements of Article 123(2) EPC.

Priority

P2 disclosed an interference ratio in accordance with claim 1. Moreover, although its description was silent on a parting portion as stipulated by the claim, such a portion was clearly shown in Figure 4. Therefore, the priority of P2 was validly claimed, and the effective date of the patent in suit was the date of filing of this priority document.

Prior uses D12 and D14 as prior art

Enclosure 1 of D14 showed a bearing whose diameter C1 was not the same as the diameter of the bearing depicted in the drawings of enclosures 2.1 to 2.5. Hence it was not proven that the bearings made available to the public in accordance with enclosures 1, 3 and 4 were those shown in enclosures 2.1 to 2.5. Accordingly, the alleged public prior use D14 was not proven.

Nor was there any evidence that the dimensions of the parts depicted in the drawings of D12 were the same as those of the parts shipped on 7 January 2000, since the real dimensions of the bearings did not always correspond to their nominal dimensions. Hence, also in the case of D12, the alleged public prior use was not proven.

Inventive step

In the event that the bearings disclosed in D12 were considered to belong to the prior art, they could not

be detrimental to the patentability of the subject-matter of claim 1.

First, although the seal at the engine side had a protrusion located on the internal side portion of the contact seal section, it was not disclosed that this portion was a parting portion.

Moreover, it was clear from present claim 1 that the thicknesses t and T were to be measured along the same direction. Hence, even if the portion of the seal at the engine side comprised between the labyrinth seal and the contact seal section could be regarded as a root portion, its thickness and the thickness of the triangular contact section were not in accordance with claim 1.

In any event, the drawings of D12 showed a bearing where the labyrinth seal on the transmission side was neither a metal plate nor attached to the outer ring.

A metal plate provided increased rigidity in respect of the rubber seal shown in D12, thus better preventing foreign matter from intruding from the transmission side.

The person skilled in the art had no hint to replace the labyrinth rubber seal of the bearing shown in D12 with a metal plate.

Therefore, the subject-matter of claim 1 involved an inventive step.

VIII. The respondents' arguments can be summarised as follows:

Admissibility of the main request

Although the proceedings had lasted several years and a number of requests had been filed during this time, the main request was filed only about one month before the oral proceedings. Hence it should not be admitted into the proceedings.

Article 84 EPC

Claim 1 had been amended to recite that the labyrinth seal 18 was at a transmission side of the bearing, while seal 17 was at an engine side. However, neither the transmission nor the engine were part of the claimed product. Therefore, this amendment rendered the claim unclear.

Article 123(2) EPC

The feature according to which the contact seal section had a triangular shape in cross-section had also been introduced into claim 1. This feature was disclosed in paragraph [0034] of the application as originally filed solely in combination with a core metal, which was not present among the features of claim 1. Since this core metal was necessary to provide the function of the triangular contact seal section, paragraph [0034] could not provide a basis for the amendment of claim 1. As to paragraph [0045], which did not mention a core metal, it could not provide this basis either, because it described merely that the tip of the contact portion was formed in a substantially triangular shape.

Nor was there a basis for the amendment which specified the provision of a seal at a transmission side of the bearing, that seal being a metal plate forming a

labyrinth seal only, and being attached to the outer ring. This feature was disclosed, in paragraph [0033] of the application as filed, solely in combination with a peripheral groove 12b of the outer ring, which was not mentioned in claim 1.

Therefore, claim 1 had been amended in a way contrary to the requirements of Article 123(2) EPC.

Priority

Neither of the priority documents P1 and P2 disclosed all the features of claim 1.

P1 did not disclose an interference ratio in accordance with claim 1.

As to P2, its description did not disclose a protrusion located on the internal side portion of the contact seal section which had an inner periphery to define a parting portion in an approximately cylindrical shape in a non-contact relationship with the inner ring. Nor could this protrusion be directly and unambiguously derived from Figure 4, which showed merely a schematic drawing.

Therefore, the priorities of P1 and P2 were not validly claimed, and the effective date for the patent in suit was its date of filing, i.e. 8 March 2000.

Prior uses D12 and D14 as prior art

Enclosures 1, 3 and 4 of D14 proved that clutch release bearings of the company Koyo Seiko with the reference CTS64SA were offered for sale in 1993 (see D14, enclosure 1) and sold to the company AGCO Limited in

1996 (see D14, enclosures 3 and 4). As confirmed by the declaration of Mr Eguchi, these bearings were shown in the drawings of enclosures 2.1 to 2.5. It was true that the diameter C1 depicted in these drawings was different from the value indicated in enclosure 1. However, this diameter depended on the specific requirements of the customer, whereas the other dimensions, in particular for the thicknesses t and T and the interference ratio, were fixed. Hence the bearing depicted in enclosures 2.1 to 2.5 belonged to the prior art.

D12 comprised an invoice for 4060 parts BRU-0404 B shipped on 7 January 2000. The drawings of D12 referred to these components and showed their dimensions. Although these drawings carried a stamp with the date of 6 November 2003, the history of the changes to which the components were subject after their creation was documented in the boxes on the left side of the drawings. Moreover, even if the real dimensions of the bearings did not always correspond to their nominal dimensions, it was clear that at least some of the more than 4000 delivered bearings exhibited said nominal dimensions. Accordingly, the public prior use of a bearing with the dimensions disclosed in the drawings of D12 was also proven.

Inventive step

The bearing shown in the drawings of D12 exhibited all the features of claim 1 with the exception of the feature according to which the labyrinth seal on the transmission side is a metal plate and is attached to the outer ring. In particular, the protrusion located on the internal side portion of the contact seal section had an inner periphery to define a portion in

an approximately cylindrical shape in a non-contact relationship with the inner ring and could be considered a parting portion, as also made clear by the presence of some residual rubber on it. Moreover, the portion of the seal at the engine side comprised between the labyrinth seal and the contact seal section could be regarded as a root portion. Hence, the thicknesses t and T as indicated in D12 were in agreement with claim 1.

The features differentiating the claimed bearing from the known one did not contribute to any effect derivable from the patent, and their provision was obvious for the person skilled in the art.

Attaching the seal to the outer ring was a standard alternative to the arrangement shown in D12.

As to the replacement of the rubber seal shown in D12 by a metal plate, this was a standard measure when increased rigidity was desired, especially since in D12 itself the seal on the transmission side was supported by a metal element fixed to the inner ring.

Therefore, the subject-matter of claim 1 did not involve an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. Admissibility of the main request

The present main request was filed (as auxiliary request 5) about one month before the oral proceedings. Therefore, its admission into the proceedings is at the Board's discretion. This discretion is exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy (see Article 13(1) Rules of Procedure of the Boards of Appeal).

While it is true that a number of requests have been filed during the proceedings, the present main request differs from the fourth auxiliary request filed together with the statement of grounds of appeal solely in that it defines that the labyrinth seal at the transmission side of the bearing is a metal plate. Accordingly, the new subject-matter introduced by this request is not complex and its consideration does not cause any delay in the proceedings. Under these circumstances the Board decided to admit the main request into the proceedings.

3. Article 84 EPC

The feature according to which the labyrinth seal is at a transmission side of the bearing while the seal is at an engine side has been introduced from the description into claim 1. The respondents have submitted that a lack of clarity arises from this amendment.

It is true that neither the transmission nor the engine are part of the claimed product. However, the reference to these entities does not seek to define features of the claimed bearing by means of features of the unclaimed transmission or engine. Rather, it merely

serves the purpose of distinguishing the two sides of the bearing. No unclarity can be seen in this definition. Therefore, the objection under Article 84 does not justify revocation of the patent in suit.

4. Article 123(2) EPC

4.1 Claim 1 of the main request further comprises features that

- stipulate that the contact seal section has a triangular shape in cross-section; and

- recite the provision of a seal at a transmission side of the bearing, that seal being a metal plate forming a labyrinth seal only, and being attached to the outer ring.

These features were not present in claim 1 as originally filed and were added during the opposition proceedings and the corresponding appeal proceedings.

4.2 Paragraph [0034] of the application as originally filed discloses that the contact seal section has a triangular shape in cross-section.

It is true that this paragraph also mentions a core metal. However, paragraph [0045], according to which the tip of the contact portion is formed in a substantially triangular shape, does not mention any core metal. Moreover and most importantly, the triangular contact seal section 17b and the core metal 17a, which supports it at the opposite end of the seal, are located far away from each other (see Figure 3). Hence it is clear that there is no functional or structural relationship between the triangular shape of

the contact seal section and the presence of a core metal.

Therefore, the isolation of the feature defining the shape of the contact seal section from the other features disclosed in paragraph [0034] and its introduction in claim 1 is an amendment which meets the requirements of Article 123(2) EPC.

4.3 Paragraph [0033] of the application as filed discloses the provision of a seal at a transmission side of the bearing, that seal being a metal plate forming a labyrinth seal only, and being attached to the outer ring.

It is true that according to this passage the seal is attached to a peripheral groove 12b of the outer ring. However, it is clear for the person skilled in the art that this is merely one of the possible ways of attaching the labyrinth seal to the outer ring.

Hence the fact that present claim 1 does not mention the peripheral groove does not introduce subject-matter which extends beyond the content of the application as filed either. Therefore, this amendment too complies with the requirements of Article 123(2) EPC.

5. Priority

The patent in suit claims the priorities of P1 and P2.

It is undisputed that P1 does not disclose an interference ratio in accordance with claim 1.

As to P2, its description does disclose this ratio. However, P2 does not mention a protrusion located on

the internal side portion of the contact seal section which has an inner periphery to define a parting portion in an approximately cylindrical shape in a non-contact relationship with the inner ring. It is true that Figure 4 shows a protrusion located on the internal side portion of the contact seal section in a non-contact relationship with the inner ring. However, Figure 4 is not a technical drawing but rather a schematic representation. Accordingly, it cannot be unambiguously and directly derived from it that this protrusion is a parting portion in an approximately cylindrical shape.

Accordingly, neither P1 nor P2 discloses the claimed invention. Therefore, their priorities are not validly claimed, and the date to be considered for assessing whether a disclosure belongs to the prior art under Article 54(2) EPC is the date of filing of the patent in suit, i.e. 8 March 2000.

6. Prior uses D12 and D14 as prior art

6.1 The respondents submitted that both the bearings shown in documents D12 and D14 were made available to the public before that date by means of public prior use.

When public prior use is alleged it is necessary to determine the date on which the alleged use occurred, what has been used and all the circumstances relating to such use. In prior public use cases where practically all the evidence in support of an alleged prior public use lies within the power and knowledge of the opponent, the latter has to prove his case "up to the hilt" (see Case Law of the Boards of Appeal of the European Patent Office, 7th edition 2013, I.C. 2.2, third paragraph).

6.2 Enclosures 1, 3 and 4 of D14 prove that clutch release bearings of the company Koyo Seiko with the reference CTS64SA were offered for sale in 1993 (see D14, enclosure 1) and sold to the company AGCO Limited in 1996 (see D14, enclosures 3 and 4). Enclosure 1 discloses some of the dimensions of these bearings. However, it does not disclose the dimensions for the thicknesses T and t and the ratio of interference of the contact seal section with respect to the outer diameter of the inner ring.

Nor can these dimensions be derived from the drawings of enclosures 2.1 to 2.5 of D14. It is true that these drawings depict a component which is also referred to as CTS64SA. However, its diameter C1 is different from the value indicated in enclosure 1 (64.8 mm in enclosure 1 vs. 65.2 mm in enclosure 2.1).

The respondents submitted that this diameter depended on the specific requirements of the customer, whereas the other dimensions, in particular for the thicknesses and the interference ratio, were fixed. However, they failed to provide any evidence to support this statement. Therefore, the Board is not satisfied that the bearings made available to the public correspond to the components shown in enclosures 2.1 to 2.5.

The affidavit of Mr Eguchi (enclosure 5) fails to convince the Board to the contrary. First it is not clear how - directly or indirectly - Mr Eguchi gained knowledge of what he declares. Moreover, this affidavit, which refers to the bearing offered in the catalogue of enclosure 1 and the drawings of enclosures 2.1 to 2.5, is in plain contradiction with the fact that these documents do not show the same bearing but

rather bearings that differ from each other, at least in respect of diameter C1.

Therefore, the evidence provided in respect of alleged public prior use D14 is not sufficient to prove what was made available to the public.

6.3 D12 comprises an invoice for 4060 parts BRU-0404 B which were shipped on 7 January 2000.

The drawings of D12, both created on 14 January 1999, refer to parts BRU-0404 B and their seal component SR-BRU-0404 B. It is true that these drawings carry a stamp with the date of 6 November 2003. However, the boxes on their left side document what has been changed, and when, in the parts depicted in the drawings after their creation on 14 January 1999 (see also D16 and D16a). Hence the nominal dimensions of the parts shipped on 7 January 2000 can be gathered from these drawings.

It is true that the real dimensions of the bearings do not always correspond to their nominal dimensions. However, given the conspicuous number of bearings delivered (4060) and the small tolerances of the values concerned, the Board is satisfied that at least some of the delivered bearings exhibited the dimensions disclosed in these drawings.

Accordingly, it has been proven that bearings with the dimensions disclosed in the drawings of D12 were made available to the public before the filing date of the patent in suit.

7. Inventive step

7.1 The drawings of D12 show a clutch release bearing, comprising: an outer ring; a rotatable inner ring having an outer diameter, rolling members provided between the outer ring and the inner ring; and a seal at a transmission side of the bearing; and a seal at an engine side of the bearing fixed to the outer ring, and comprising a labyrinth seal section located in an external portion of the bearing to form a labyrinth seal with the inner ring, and a contact seal section located in an internal portion of the bearing to be in a slight contact relationship with the inner ring, wherein the contact seal section has a triangular shape in cross-section. The labyrinth seal section has an inner periphery defining a cylindrical shape to form the labyrinth seal with the inner ring.

Considering the nominal diameters of the seal (62.1 mm) and of the inner ring (62.3 mm), a ratio of the interference of the contact seal section with respect to the outer diameter of the inner ring within the range from 1/1000 to 1/200 is obtained (see paragraphs [0041] and [0044] of the patent in suit for details of how to calculate the interference ratio).

Moreover, the seal at the engine side has a protrusion located on the internal side portion of the contact seal section. The protrusion has an inner periphery to define a portion in an approximately cylindrical shape in a non-contact relationship with the inner ring. This portion separates, i.e. parts, two different surfaces of the seal. Furthermore, since D12 indicates that some residual rubber may adhere to this portion (see note with * in D12), it is clear that the production mould was parted in correspondence with this portion. Therefore, this portion is considered to be a parting portion.

The portion of the seal at the engine side comprised between the labyrinth seal and the contact seal section can be regarded as a root portion. Its thickness, as indicated in D12 and measured along the direction perpendicular to the parallel surfaces of the root portion, is 0.3 ±0.05 mm. The thickness of the contact seal section, as indicated in D12 and measured along the direction halving the angle at the tip of the triangular shape, is 0.35 mm. It is true that these thicknesses are measured along different directions. However, the choice of these directions is a reasonable one in view of the shapes of the root portion and the contact seal section. Moreover, present claim 1 does not require that the thicknesses of the root portion and the contact seal section be measured along the same direction. Hence the thicknesses of these elements are in accordance with claim 1.

7.2 However, in the bearing shown in D12 the seal on the transmission side is made of rubber and is attached to the inner ring. Hence the public prior use did not disclose a bearing whose seal on the transmission side is a metal plate forming a labyrinth seal only and is attached to the outer ring.

7.3 The appellant submitted that a metal plate provided increased rigidity in respect of the rubber seal shown in D12, thus better preventing foreign matter from intruding from the transmission side.

The Board, while being satisfied that a metal plate is generally more rigid than a rubber seal, cannot derive from the patent that this results in better prevention of the intrusion of foreign matter.

Accordingly, the object to be achieved by the claimed invention starting from the prior art represented by this public prior use can be regarded as being to provide an alternative to the known bearing.

7.4 The prior art does not hint at achieving this object by replacing the labyrinth rubber seal of the bearing shown in D12 with a metal plate.

It is true that in the bearing shown in D12 the seal on the transmission side is supported by a metal element which is fixed to the inner ring. However, the seal itself is made of rubber. Hence, in view of its higher flexibility, it exhibits a quite different behaviour compared to a metal plate and cannot be considered as an equivalent to the latter. Nor does the prior art teach that a rubber seal may be replaced by a metal plate to provide similar effects.

Accordingly, even if the person skilled in the art could have replaced the rubber seal of D12 with a metal plate, he would have had no hint that he should do so to achieve the above object.

Therefore, the subject-matter of claim 1 involves an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain a patent in the following version:

   Claims: Claim 1 as filed during the oral proceedings.

   Description: Columns 1, 2, 3, 4, 7, 8 and 11 as filed during the oral proceedings and columns 5, 6, 9 and 10 as published in the European patent specification.

   Drawings: Figures 1 to 4 as published in the European patent specification.

The Registrar: The Chairman:

V. Commare T. Kriner

Decision electronically authenticated