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**Datasheet for the decision
of 14 September 2016**

Case Number: T 0792/12 - 3.2.06

Application Number: 07008152.6

Publication Number: 1803909

IPC: F01N7/10

Language of the proceedings: EN

Title of invention:

Exhaust manifold for internal combustion engine

Patent Proprietor:

NISSAN MOTOR CO., LTD.

Opponent:

Friedrich Boysen GmbH & Co. KG

Headword:

Relevant legal provisions:

EPC 1973 Art. 54, 56, 111(1)

EPC Art. 69(1), 123(2)

RPBA Art. 13(1)

Keyword:

Novelty - main request, auxiliary request 3 (no); auxiliary requests 5 and 11 (yes)

Amendments - added subject matter - auxiliary requests 1, 2 and 4 (yes)

Inventive step - auxiliary request 5 (no); auxiliary request 11 (yes)

Substantial procedural violation - appealed decision sufficiently reasoned (no)

Remittal to the department of first instance - (no)

Reimbursement of appeal fee - (no)

"Interruption by the Board of a party's pleading - impartiality (Point 2.1 to 2.3)"

Decisions cited:

T 0056/87

Catchword:



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Case Number: T 0792/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 14 September 2016

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 20 March 2012
revoking European patent No. 1803909 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman M. Harrison
Members: M. Hannam
E. Kossonakou

Summary of Facts and Submissions

- I. An appeal was filed by the patent proprietor (appellant) against the decision of the opposition division revoking European Patent No. 1 803 909. It requested that the decision be set aside and the patent be maintained as granted, alternatively that it be maintained according to one of auxiliary requests 1 to 12. It furthermore requested that the appeal fee be reimbursed due to the opposition division having committed a substantial procedural violation.
- II. The respondent (opponent) requested that the appeal be dismissed.
- III. The following documents, referred to by the parties in their submissions, are relevant for the present decision:

E1 DE-A-197 45 269 and annotated Fig. 1 of E1 filed during the opposition proceedings by the patent proprietor with its submission of 29 June 2010
E6 US-A-6 009 706
- IV. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of the main request appeared to lack novelty whilst that of the auxiliary requests either failed to meet the requirement of Article 123(2) EPC or lacked an inventive step.
- V. Oral proceedings were held before the Board on 14 September 2016, during which the appellant filed a number of further auxiliary requests, all of which were subsequently withdrawn along with auxiliary requests 6

to 10.

The appellant's final requests were to set aside the decision and maintain the patent as granted, alternatively to maintain the patent according to one of auxiliary requests 1 to 5 or 11.

The respondent requested that the appeal be dismissed.

VI. Claim 1 of the main request reads as follows:

"An exhaust manifold (1, 101) connected to exhaust ports of at least three straightly arranged cylinders (#1, #3, #5) of an internal combustion engine, comprising:

a primary exhaust pipe (111, 112, 113) extending from the foremost cylinder (#1) of the cylinders in a rearward direction (#1D) of the engine along a direction of the straight arrangement of the cylinders; and

a plurality of secondary exhaust pipes (112, 113, 115, 116) extending from the other cylinders (#3, #5) except for the foremost cylinder (#1) to the primary exhaust pipe,

characterised in that each secondary exhaust pipes comprises an intermediate portion (115b, 116b) winding around to an outer periphery of the primary exhaust pipe (111, 112, 113)."

Claim 1 of auxiliary request 1 shares the preamble of claim 1 of the main request, the characterising portion reading:

"characterized in that each secondary exhaust pipes comprises an intermediate portion (115b, 116b) crossing over the primary exhaust pipe (111, 112, 113) and winding around to an outer periphery of the primary exhaust pipe (111, 112, 113)."

Claim 1 of auxiliary request 2 reads as for claim 1 of auxiliary request 1 with the following features appended:

"and the plurality of secondary exhaust pipes (112, 113, 115, 116) are collected to the primary exhaust pipe (111, 112, 113) at a plurality of points of the primary exhaust pipe (111, 112, 113) with respect to the extending direction of the primary exhaust pipe (111, 112, 113), and are connected with the primary exhaust pipe (111, 112, 113)."

Claim 1 of auxiliary request 3 reads as for claim 1 of the main request with the following feature appended:

"and that each secondary exhaust pipes comprises a downstream end portion (115c, 116c) being collected to the primary exhaust pipe and arranged parallel thereto."

Claim 1 of auxiliary request 4 reads as for claim 1 of auxiliary request 1 with the following feature appended:

"and that each secondary exhaust pipes comprises a downstream end portion (115c, 116c) being collected to the primary exhaust pipe and arranged parallel thereto."

Claim 1 of auxiliary request 5 reads as for claim 1 of the main request with the following features appended:

"and that on a projection plane perpendicular to a center axis (L1) of the primary exhaust pipe, a turn angle (θ) defined by a line connecting an upstream end of each secondary exhaust pipe and the center axis and a line connecting a downstream end of each secondary exhaust pipe and the center axis increases as the cylinder (#3, #5) connected to the secondary exhaust

pipe becomes apart from the foremost cylinder (#1) connected to the primary exhaust pipe."

Claim 1 of auxiliary request 11 shares the preamble of claim 1 of the main request, with the following features appended:

"wherein each secondary exhaust pipe comprises an intermediate portion (115b, 116b) winding around to an outer periphery of the primary exhaust pipe (111, 112, 113) characterised in that a pipe length of the primary exhaust pipe (111, 112, 113) is set to be equal to a pipe length of the secondary exhaust pipes (115, 116), and that on a projection plane perpendicular to a center axis (L1) of the primary exhaust pipe, a turn angle (θ) defined by a line connecting an upstream end of each secondary exhaust pipe and the center axis and a line connecting a downstream end of each secondary exhaust pipe and the center axis increases as the cylinder (#3, #5) connected to the secondary exhaust pipe becomes apart from the foremost cylinder (#1) connected to the primary exhaust pipe."

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

As regards the main request, the subject-matter of claim 1 was novel over E1. E1 had minimal written disclosure, such that many features had to be taken from the figures which, with particular reference to T56/87, was not allowable. E1 clearly related to an exhaust manifold for connection to the exhaust ports of four aligned cylinders; the skilled person would not take the second one of the four as the 'foremost cylinder'. The 'foremost cylinder' meant the foremost one of the engine. All four cylinders of the engine had a relationship, such that ignoring the foremost

cylinder of the engine was not suggested by the wording of claim 1 and would not be the understanding of the skilled person. Claim 1 defined that the exhaust manifold was 'connected', rather than 'connectable', to exhaust ports and this limiting feature of the subject-matter claimed was also not anticipated in E1. The expressions 'straight arrangement of the cylinders' and 'rearward direction' clearly indicated to the skilled person that the cylinders were aligned with the vehicle with the rearward direction being relative to the vehicle. E1 also failed to disclose the secondary exhaust pipes 'winding around to' and 'extending to' the primary exhaust pipe, since all exhaust pipes were gathered together into a common funnel rather than the secondary exhaust pipes merging into the primary. Even if the primary exhaust pipe were taken as being connected to the exhaust port 12 of E1, this did not extend in a rearward direction of the engine. It was also necessary to interpret claim 1 in the light of the description and drawings, as provided for in Article 69 EPC, which would clarify the fact that claim 1 was directed to a very different device from E1.

The Board seemed intent on sticking by its preliminary opinion, even interrupting the party, despite the highly relevant (and sometimes even new) arguments of the appellant which should have been convincing, such that the Board appeared to lack impartiality.

The refusal by the opposition division to admit the auxiliary requests 1 to 9 filed on 21 December 2011 due to their being late filed was not correct. These requests were filed within the time limit given in the summons to oral proceedings. These requests should thus be admitted before the Board and the case should be remitted to the department of first instance for

further prosecution since otherwise the appellant would be deprived of two instances. The Board's preliminary opinion had also indicated that remittal might be appropriate if fundamental deficiencies were apparent in the impugned decision. The representative of the appellant had also only recently taken over the case and so had personally been unable to request remittal sooner. It was anyway the Board's task *ex officio* to consider remittal; the appellant did not need to ask for it.

As regards auxiliary request 1, the subject-matter of claim 1 met the requirement of Article 123(2) EPC. The inclusion of the 'crossing-over' feature would be seen by the skilled person merely as a further clarification of the feature 'winding around' such that the further detail regarding the pipe paths in the description was unnecessary. The feature of 'crossing over' was furthermore present in the first and second embodiments and so could not be inextricably linked to specific technical features of either embodiment; rather it was disclosed in a generic context of common and essential technical features of both embodiments. Although the Board's communication had stated that the requirements of Article 123(2) EPC seemed not to be met due to the lacking detail regarding the physical path followed by the secondary pipes, this should be overcome by the appellant's arguments. The disclosure of the center axes crossing with respect to the first embodiment was thus also nothing more than unnecessary information when viewed with the eyes of the skilled person.

No additional arguments compared to the previous request were to be made with regard to auxiliary request 2, but this was to be maintained anyway.

Regarding auxiliary request 3, the secondary exhaust pipes of E1 did not collect to the primary exhaust pipe since the connection only occurred in the funnel which was past the downstream end of the exhaust pipes. In this respect the terms 'collect' and 'connect' could be seen as equivalent and interchangeable. The novelty attack relied on significant inference from Fig. 1 which was not evident without a knowledge of the claimed subject-matter.

Also with respect to auxiliary request 4, no additional arguments were to be made but the request was nonetheless to be maintained.

The subject-matter of claim 1 of auxiliary request 5 was novel and involved an inventive step. From Fig. 1 of E1, it was not possible to unambiguously extract that the turn angles increased with distance from the primary exhaust pipe, particularly since the plane, in which the downstream end of the exhaust pipes lay, need not be the same as that in which the exhaust ports were found. Starting from E1 and wishing to solve the objective problem of providing a compact exhaust manifold arrangement without degrading the exhaust sound, the skilled person would not find the claimed solution as obvious. The claimed increasing turn angle with distance from the primary exhaust pipe would necessarily result in all exhaust pipes having comparable lengths.

Claim 1 of auxiliary request 11 involved an inventive step. E1 failed to disclose the turn angle feature and the equal pipe lengths. These features solved the objective problem, E6 offering no hint to the claimed solution disclosing a completely different exhaust arrangement and failing at least to offer any hint to

the claimed turn angle relationship.

The opposition division committed a substantial procedural violation at least through failing to provide any reasons why auxiliary requests 1 to 9 filed with letter of 21 December 2011 were not admitted. The appeal fee should thus be reimbursed.

VIII. The respondent's arguments may be summarised as follows:

The subject-matter of claim 1 of the main request was not new with respect to E1. The wording of claim 1 allowed any three straightly arranged cylinders of E1 to be considered as those claimed. The perspective view of the exhaust manifold of E1 showed details of the relative paths of the exhaust pipes anticipating the claimed relative paths. If the vehicle engine was indeed part of the claimed subject-matter, and limited to this combination, as the appellant had itself argued due to the words 'connected to' in claim 1, this was anyway known from the description in E1.

The subject-matter of claim 1 of auxiliary requests 1, 2 and 4 did not meet the requirement of Article 123(2) EPC. The feature 'crossing over' taken-up into claim 1 of each request was disclosed in combination with other features in the description such that its inclusion in isolation in claim 1 amounted to an unallowable intermediate generalisation. The Board had also stated this clearly in its provisional opinion.

The subject-matter of claim 1 of auxiliary request 3 lacked novelty. From Figs. 1 and 2 of E1 it was clear that the secondary exhaust pipes collected together and ran parallel to the primary exhaust pipe.

The subject-matter of claim 1 of auxiliary request 5 was not new over E1. From a sketch, based on the arrangement of Fig. 1 of E1, depicting the claimed way in which the turn angles of the secondary exhaust pipes were to be measured, it was clear that the turn angles increased with distance of the secondary exhaust pipes from the primary exhaust pipe. With reference to Figs. 17, 31 and 32 of the patent it was also clear that very similar arrangements to that depicted in Fig. 1 of E1 were shown. Under the assumption that the figures of the patent fell under the scope of claim 1, E1 with a similar arrangement also had to satisfy claim 1. An inventive step was also lacking; by way of changing the exhaust manifold angles in order to fit into a differently dimensioned engine bay, the skilled person would eventually have reached the claimed turn angle without becoming inventively active; this was simply a process of fitting an exhaust manifold to vehicle engine bay constraints.

Regarding auxiliary request 11, this was not convergent with the previous requests considered and, despite being filed with the grounds of appeal, amounted to a change of case due to the new higher ranking auxiliary requests filed and considered during the oral proceedings. The subject-matter of claim 1 anyway lacked an inventive step. E6 disclosed matching exhaust pipe lengths in order to reduce exhaust interference (col. 6, lines 13 to 19) and the skilled person would recognise that the varying turn angles depicted in Fig. 1 of E1 would enable the equal pipe lengths to be achieved with minimal modification to that arrangement. With E1 and E6 both disclosing exhaust manifolds, modifying E1 with the technical

teaching of E6 would be obvious to the skilled person.

Reasons for the Decision

1. *Main request*

1.1 *Novelty (Article 54 EPC 1973)*

The subject-matter of claim 1 lacks novelty at least over E1.

- 1.1.1 E1 discloses the features of claim 1 as follows (the reference signs in parentheses referring to E1 and to the annotated Fig. 1 of E1 submitted by the appellant): An exhaust manifold (see Fig. 1) connected to exhaust ports (at 12, 13, 14) of at least three straightly arranged cylinders (this is implicit from the exhaust port connection arrangement of Fig. 1) of an internal combustion engine (col.1, lines 5 to 8), comprising: a primary exhaust pipe (12a, connected to exhaust port at 12) extending from the foremost cylinder (associated with exhaust port positioned at 12) of the cylinders (i.e. the three straightly arranged cylinders) in a rearward direction of the engine (see Fig. 1; direction from 12 to 14 taken as the rearward direction) along a direction of the straight arrangement of the cylinders; and
a plurality of secondary exhaust pipes (connected to exhaust ports at 13, 14) extending from the other cylinders except for the foremost cylinder (associated with exhaust port at 12) to the primary exhaust pipe (see Fig. 1),
wherein each secondary exhaust pipes (connected to exhaust ports at 13, 14) comprises an intermediate portion (13a, 14a) winding around to an outer periphery

of the primary exhaust pipe (12a).

1.1.2 As regards the appellant's argument that Fig. 1 alone of E1 could not validly anticipate the 'secondary exhaust pipes ... winding around to an outer periphery of the primary exhaust pipe' of claim 1, this is not accepted. When taking pipe 12a as the primary exhaust pipe, Fig. 1 allows its path to be clearly followed from the exhaust port at 12 all the way to the collecting funnel at the confluence of the four exhaust pipes. The same is true of the pipes 13a and 14a which each pass over the path of the primary exhaust pipe and can be seen to wind around to an outer periphery of the primary exhaust pipe (i.e. to a side of the pipe remote from the exhaust port connections). The appellant's broad reference to T56/87, as being a decision which shows that features and dimensions are not always unambiguously disclosed in drawings, does not contradict this interpretation since, as also argued by the respondent, no dimensions or ambiguous information is being extracted from Fig. 1 of E1 through this reasoning, rather solely the paths followed by the exhaust pipes relative to one another, which in Fig. 1 unambiguously show a winding of the intermediate portions of the secondary exhaust pipes around the primary exhaust pipe. It is also unambiguously to be taken from Fig. 1 that the primary exhaust pipe extends in a rearward direction of the engine, since in the context of Fig. 1 with the foremost cylinder being taken as that connected to exhaust port at 12, the primary pipe 12a clearly follows a path essentially with an orientation defined by the direction of the secondary exhaust ports at 13, 14 further distancing themselves from the primary exhaust port, in other words in a rearward direction relative to the engine. Although the appellant argued that drawings cannot be

given a meaning beyond what is disclosed, the information which is imparted to a skilled person also cannot be ignored such that certain information in a figure is, as in this case, directly and unambiguously derivable.

1.1.3 The appellant's further contention that the expression 'winding around to' implied a connection between the secondary exhaust pipes into the primary exhaust pipe is also not accepted. Linguistically the expression simply describes the final location after the 'winding around' has occurred, the word 'to' being a preposition of place with no implication of a physical connection to anything. The same applies to the expression 'extending to' in the phrase 'a plurality of secondary exhaust pipes extending from the other cylinders except for the foremost cylinder to the primary exhaust pipe'. Here the word 'to' is again a preposition of place indicating to where the secondary exhaust pipes extend; no suggestion of a physical connection to the primary exhaust pipe can be implied therefrom. Although the appellant argued that a different meaning should be attached to the word 'to' in these expressions, the appellant provided no support for its argument apart from a broad reference to the Figures of the patent; in this latter, despite asking the appellant to explain what aspect specifically was being referred to, the Board is unable to understand what difference the appellant is referring to, or in what way any alleged difference is supposed to be reflected in the claims.

1.1.4 The appellant's argument that the skilled person would not take the second one of the four aligned cylinders of E1 as the 'foremost cylinder' is not persuasive. What is defined in the first paragraph of claim 1 is 'at least three straightly arranged cylinders'. The

relative position of these at least three cylinders in the engine is left open; for a set of four straightly arranged cylinders it could, for example, be the first three, the last three, or even the first cylinder and the last two cylinders. In other words, any three cylinders can be selected, provided that they are straightly arranged. The next paragraph of claim 1 makes reference to the previously selected at least three cylinders (in the Board's evaluation of E1 for the novelty objection just three cylinders 12, 13 and 14) and defines, relative to these three cylinders, that the 'foremost cylinder' extends in a rearward direction of the engine. This foremost cylinder of the three selected cylinders in E1 is taken by the Board as cylinder 12. It thus follows that, contrary to the appellant's opinion, the foremost cylinder in Fig. 1 of E1 does not have to be the left-most cylinder (i.e. the foremost of the engine's cylinders) but can simply be the foremost cylinder of the three selected cylinders 12, 13, 14. The appellant's suggestion that the skilled person would only interpret the foremost cylinder as the foremost of the engine is entirely without basis and relates, at best, only to what a skilled person understands when looking at an engine *per se*. Claim 1 on the other hand, does not define this, but instead defines the foremost cylinder of 'the cylinders' (i.e. those defined in the claim) and not the foremost cylinder of any particular engine. The appellant's further argument in this regard that all four cylinders in the engine of E1 have a relationship such that the foremost cylinder would only be understood as the foremost of the engine does not persuade. This view could be understood and followed if the engine was included within the scope of claim 1. As drafted, however, claim 1 refers only to the foremost of the three straightly arranged cylinders which is, as

explained above, anticipated by the cylinders 12, 13 and 14 of E1.

1.1.5 The appellant further argued that the claim was directed to, and had to be understood as, the manifold 'connected to' the exhaust ports of an engine and that the claim was not claiming only an exhaust manifold. E1 allegedly did not show this feature. However, even though the Board can accept that this wording is indeed a limitation of the claim to a manifold connected to an engine (rather than one just 'connectable to' an engine), this does not distance the claim from E1. Whilst the engine and its exhaust ports are not explicitly depicted in Fig. 1 of E1, col. 1, lines 9 to 13 clearly describes that each exhaust port has a dedicated exhaust pipe directly connected to the cylinder head. The skilled person would thus unambiguously read E1 as not only being connectable to, but also disclosing the manifold 'connected to' the exhaust ports of an engine.

1.1.6 The appellant's further argument that the expressions 'straight arrangement of the cylinders' and 'rearward direction' clearly indicated to the skilled person that the cylinders were aligned with the longitudinal axis of a vehicle is not accepted. Nowhere in claim 1 is an indication of the orientation of the claimed engine relative to a vehicle defined. Whilst the words 'straight' and 'rearward' may well be used with respect to the vehicle in which the engine is located, these expressions are used in claim 1 specifically and solely with respect to the engine included in the claim, as is clear from their context: 'extending ... in a rearward direction of the engine along a direction of the straight arrangement of the cylinders'. Contrary to the appellant's opinion, therefore, the orientation of the

cylinders relative to the vehicle in which the engine is mounted is left open in claim 1. To suggest otherwise, would be to ignore the wording of the claim.

1.1.7 The appellant's contention that claim 1 should be interpreted in the light of the description and drawings as provided for in Article 69 EPC is also unable to convince that the claim should be read differently. Firstly it is noted that Article 69(1) EPC concerns only the extent of protection conferred by a claim. Further, whilst Article 69 EPC was cited by the appellant as simply having to be applied, the appellant failed to provide any specific justification for its application in the present case, or even which specific parts of the description it was relying upon for a different, more limited, interpretation of the claim. The repeated reference to all the figures of the patent does not alter this. Rather, the appellant's understanding of the claim relies on an unspecified disclosure generally to a skilled person. A general requirement that claims be interpreted with the help of the description can not be derived from Article 69(1) EPC. Whilst claims cannot be considered in complete isolation from the description, there is nothing in the present description to suggest that expressions found in the claims, which are clear already, should be interpreted in anything but their ordinary literal sense; there is thus no need in the present case to invoke Article 69(1) EPC to understand the claim.

1.1.8 In summary, the subject-matter of claim 1 thus lacks novelty at least with respect to E1 (Article 54 EPC 1973).

2. *Procedural issues*

2.1 The appellant's contention in the course of the discussion on the main request, that the Board seemed intent on sticking by its preliminary opinion, seemed not to want to listen to the arguments of the appellant and appeared to lack impartiality in the case by not being convinced by its arguments and interrupting on several occasions, is rejected.

2.2 In accordance with Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), the Chairman of the Board presides over the oral proceedings and ensures their fair, orderly and efficient conduct. When the Chairman sees a need to interject in a party's submissions to ensure that the proceedings are efficiently conducted, in particular to avoid a party repeating arguments, this is done. A Board is not required to passively listen to repetition. In the same way, a Chairman, or indeed any member of the Board, may interrupt when it is felt necessary to ask questions which the Board for example finds important for reaching its decision. The appellant's insistence that the Board not make any interruption during its pleadings, which it considered to indicate a lack of impartiality, is a misconception by that party of what constitutes a fair hearing.

2.3 The fact, as here, that a Board is not convinced by the representative's arguments on a certain matter, and even interrupts the representative to clarify how the representative sees that a certain argument is at all relevant to the claim in question, or to the matter of novelty or inventive step which is being discussed, does not imply that a Board is not listening or is intent on sticking by its provisional opinion. In the

present case a significant portion of the representative's submissions particularly with respect to the main request, were a simple repetition of the numerous written submissions prior to oral proceedings, and indeed often a repetition of what had been presented already orally but a few minutes earlier. It is here of relevance to note that, when interrupted on one last occasion so as to limit further repetition, the representative of the appellant himself argued that during his submissions he had in fact made two new points not mentioned in writing (a general reference to T56/87 and a reference to Article 69 EPC - see above, both duly noted and commented upon in the course of the debate by the Board). The objections of the appellant are, at least for these reasons, unfounded.

3. *Remittal to the first instance*

The request of the appellant to remit the case back to the department of first instance for further prosecution was refused.

- 3.1 This request was first made by the appellant after the Board had given its finding with respect to the main request. It was thus made at a very late stage of the appeal procedure at a juncture at which the appellant had not only received the Board's preliminary opinion on several auxiliary requests, but had also received a negative finding on its main request. Furthermore, the respondent had prepared its case in preparation for the oral proceedings and remitting the case would represent a significant inefficiency in both its and the Board's time spent in preparation. Still further, the appeal case had been pending since 2012 with the consequence that further delay in reaching a final outcome would be undesirable from a legal certainty viewpoint. It is

also, still further, noted that a considerable number of written exchanges had occurred between the parties, such that the case was without doubt ready for a decision to be taken.

3.2 The appellant's argument that the Board had an *ex officio* duty, particularly in view of Article 11 RPBA, to consider remittal where fundamental deficiencies were apparent, is not persuasive for the Board to remit the case. Article 11 RPBA includes the proviso '... unless special reasons present themselves for doing otherwise' which is seen to be applicable in the present case. As already indicated in point 3.1 above, the request for remittal was submitted for the first time at oral proceedings even after having received some indication, from the preceding discussions, of how the Board viewed the technical subject-matter relating to several of the pending requests. As also indicated in the preliminary opinion accompanying the summons, a significant period had elapsed since the appeal was filed and remittal at this juncture would still further prolong the period until a final decision was taken. As regards the alleged *ex officio* duty of the Board to consider remitting a case, this is indeed what has been done here when preparing the Board's preliminary opinion and, as indicated above, such consideration has resulted in special reasons being found for not remitting the case.

3.3 The appellant's argument that the case should be remitted to the department of first instance for further prosecution, since otherwise the parties would be deprived of two instances deciding on the case, is not persuasive. There is no absolute right to have a case heard before two instances even when, as in the present case, a collection of auxiliary requests were

not admitted before the department of first instance. The decision to remit a case lies in the discretion of the Board (Article 111(1) EPC) in view of the specific facts of the case. As indicated in point 3.1, the present facts weigh against remittal.

3.4 The appellant's argument that it had only recently taken over this case as a new representative and so had been unable to request remittal sooner was also not accepted. First, it is noted that the same firm has been responsible for representing the appellant since the procedure began; the appellant's argument that a change of representative has occurred can only be understood to mean that the current representative personally became involved in the case. A change of representative, whether in the same firm or not, cannot provide an acceptable justification for requests to be filed at this late stage of proceedings. To allow such an argument would leave the door open for a change of representative to be purposively made in order to enable the admittance of new requests after the period laid down in Article 12(2) RPBA. This would not provide a basis for a fair procedure.

3.5 The Board thus decided to exercise its discretion so as to not remit the case to the department of first instance (Article 111(1) EPC).

4. *Auxiliary request 1*

4.1 *Article 123(2) EPC*

The subject-matter of claim 1 does not meet the requirement of Article 123(2) EPC.

4.1.1 The added feature in claim 1 in comparison to the main request concerns the intermediate portion of each secondary exhaust pipe 'crossing over the primary exhaust pipe'. This is not directly and unambiguously disclosed in such generality in the application as filed.

4.1.2 With respect to the first embodiment, col. 5, lines 22 to 25 and lines 36 to 40 indeed mention a crossover of the primary exhaust pipe by the fifth cylinder branch portion.

The first passage however includes that the fifth cylinder branch portion not only crosses the primary exhaust pipe but is also curved downwardly. Since the crossover feature relates to the path taken by the fifth cylinder branch portion relative to the primary exhaust pipe, the further detail relating to its path is clearly structurally linked to the crossover feature taken up into claim 1. The inclusion of the 'crossing over' feature in claim 1 thus finds no basis in this passage of the description without inclusion of at least the further detail relating to the fifth cylinder branch portion curving downwardly.

The second passage cited above discloses that 'a center axis of the downstream end of fifth cylinder branch portion 13 obliquely crosses with a center axis of primary exhaust pipe 11'. It is thus evident that it is not a mere 'crossing' disclosed here, but rather the respective center axes obliquely crossing. Thus this passage also provides no basis for the feature taken up into claim 1 in isolation at least from the combined manner in which it is disclosed with other detail in the cited passage of the description.

4.1.3 With respect to the second embodiment, col. 10, lines 16 to 20 and col. 11, lines 11 to 14 mention an intermediate portion of third and fifth cylinder branch pipes crossing branch pipe 111 and intermediate pipe 112 respectively. However, each passage includes further detail regarding the path of the intermediate portion of third and fifth cylinder branch pipes after the crossing, with each pipe being bent downwardly in order to wind around the pipe immediately downstream. This further detail is seen to be disclosed in combination with, and structurally linked to, the 'cross-over' feature, particularly because the detail concerns the path followed by the respective intermediate portions. It follows that taking up just the 'cross-over' feature into claim 1 amounts to an unallowable intermediate generalisation of that disclosed in this cited passage of the description.

4.1.4 The appellant's contention that the 'crossing-over' feature would be seen by the skilled person merely as a further clarification of the feature 'winding around' is not convincing. Firstly, the expression 'crossing over' implies a simple axial crossing of one element with respect to another whereas 'winding around' is understood as the development of one element around the axis of another. As such the very different meanings of the two expressions contradict the skilled person regarding one as a further clarification of the other. Furthermore the expression 'crossing over' has been taken from the description where it is found in combination with further features with which it is at least structurally related. In both the first and second embodiments discussed in point 4.1.2 and 4.1.3 respectively above, the 'crossing-over' feature is directly and structurally related to the pipe subsequently being bent or curved downwardly.

Extracting just the feature 'crossing over' for inclusion in claim 1 is thus not directly and unambiguously disclosed to the skilled person.

4.1.5 The appellant's further argument that the center axes crossing with respect to the first embodiment was nothing more than unnecessary information when viewed with the eyes of the skilled person is also not accepted. The crossing of the center axes of the pipes is a disclosure more detailed and thus potentially different to the feature taken into claim 1 of the pipes simply crossing over. The appellant was unable to show that these expressions are identical and indeed a minor crossing of the center axes could be envisaged without the pipes yet being considered to have crossed.

4.1.6 The appellant's arguments in writing go in a different direction to what was argued during oral proceedings, and these are addressed here for completeness. In writing it was argued that the feature of 'crossing over' was present in the first and second embodiments and so could not be inextricably linked to specific technical features of either embodiment; rather it was disclosed in a generic context of common and essential technical features of both embodiments. None of these arguments are however persuasive.

As indicated in point 4.1.2, the 'crossing over' feature indeed appears with respect to both the first and the second embodiments. However as further indicated there, this feature is, in each embodiment, disclosed in combination with additional features with which it is inextricably linked. Therefore, the direct and unambiguous disclosure regarding the 'crossing over' feature is solely in combination either with the further features of the first embodiment or with the

further features of the second embodiment; an isolated disclosure of the 'crossing over' feature *per se* is not to be found in the application as filed, even if this feature is common to both these embodiments.

As regards the concept of 'essential technical features' of the embodiments, this is not a factor which is relevant for the evaluation of whether or not a particular subject-matter is disclosed in the originally filed documents. Rather, what is important is whether the claimed subject-matter, after amendment, is directly and unambiguously derivable, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the application as filed. For the reasons given above, this is evidently not the case as regards the subject-matter of claim 1 when comprising the 'crossing over' feature.

4.1.7 In conclusion, therefore, the subject-matter of claim 1 of auxiliary request 1 does not meet the requirement of Article 123(2) EPC. The request is thus not allowable.

5. *Auxiliary request 2*

Claim 1 of this request also includes the feature 'crossing over the primary exhaust pipe' which was found in claim 1 of auxiliary request 1 not to meet the requirement of Article 123(2) EPC. The appellant declined to provide any further arguments in defence of this request and the Board also sees no additionally added feature which would lead it to change its opinion in this respect.

The subject-matter of claim 1 thus fails to meet the requirement of Article 123(2) EPC for the same reasons

as apply to claim 1 of the first auxiliary request.
Auxiliary request 2 is therefore not allowable.

6. *Auxiliary request 3*

6.1 *Novelty (Article 54 EPC 1973)*

The subject-matter of claim 1 is not new with respect to E1.

6.1.1 Relative to claim 1 of the main request, claim 1 of this request has the added feature 'that each secondary exhaust pipe comprises a downstream end portion being collected to the primary exhaust pipe and arranged parallel thereto'. From Fig. 1 of E1 alone it is evident that this additional feature is disclosed by the arrangement depicted.

6.1.2 In this respect, and contrary to the opinion of the appellant which saw the terms as equivalent and interchangeable, the Board considers the skilled person seeing a difference between the terms 'collected' and 'connected' both in their normal linguistic usage and also as used in the patent. From a linguistic standpoint 'collected' is used in the sense of 'being collected together' which in the context of the patent implies an amalgamation of the pipes into a bundle. Conversely, 'connected' is used in the sense of 'having a connection' which, in the context of the patent, suggests a physical path between the connected items.

6.1.3 It is also noted that the claimed expression 'downstream end portion' is itself not precise and would thus be interpreted by the skilled person as a portion in the vicinity of the end of the downstream

extremity of the exhaust pipe.

- 6.1.4 With the skilled person's understanding of the expressions given in 6.1.2 and 6.1.3 and applying these to Fig. 1 of E1, the portions of the exhaust pipes immediately upstream of the collecting funnel can be equated to the claimed downstream end portions of the secondary exhaust pipes. The primary exhaust pipe is collected together with the secondary exhaust pipes in this position and, since all the exhaust pipes connect into the collecting funnel, they must all run parallel paths at this point.
- 6.1.5 As regards the appellant's contention that the novelty attack based on E1 relied on significant inference from Fig. 1 which was not evident without a knowledge of the claimed subject-matter, this is not accepted. When finding the subject-matter of a claim to lack novelty, the features of the claim are given the broadest reasonable technical interpretation and the prior art being held against it must for the skilled person unambiguously disclose the claim's subject-matter. In the present claim 1, the features added thereto in this request are, due to the terminology used, open to very broad interpretation (downstream end portion; being collected to; arranged parallel thereto). As shown in points 6.1.2 to 6.1.4 above, such justifiably broad interpretation has the consequence that the subject-matter of claim 1 is not distinguished from the disclosure in Fig. 1 of E1 and the related description.
- 6.1.6 In summary therefore, the subject-matter of claim 1 is not new with respect to E1 (Article 54 EPC 1973). Auxiliary request 3 is thus not allowable.

7. *Auxiliary request 4*

Claim 1 of this request, similarly to auxiliary request 2, includes the feature 'crossing over the primary exhaust pipe' found, in claim 1 of auxiliary request 1, to involve subject-matter not meeting the requirement of Article 123(2) EPC. The appellant again declined to provide any further argument in defence of this request. Due to the lack of argument provided by the appellant, and since the Board itself also sees no additionally added feature which would lead it to change its opinion in this respect, nothing leads the Board to a different conclusion on this request.

The subject-matter of claim 1 thus fails to meet the requirement of Article 123(2) EPC, such that auxiliary request 4 is not allowable.

8. *Auxiliary request 5*

8.1 *Novelty (Article 54 EPC 1973)*

The subject-matter of claim 1 is novel over the cited prior art.

8.1.1 The feature added to claim 1 regarding the turn angle of the secondary exhaust pipes increasing with distance from the primary exhaust pipe is not unambiguously disclosed in E1. From viewing Fig. 1 of E1 it is not possible to say whether the flange at the downstream end of the exhaust pipes lies in a common plane with the exhaust ports at 11 to 14; in effect it could lie in almost absolutely any plane. As a consequence, the claimed projection plane which is perpendicular to a center axis of the primary exhaust pipe could also be almost any plane, such that it is not possible to

definitively say that the turn angles of the secondary exhaust pipes, as defined in the claim, increase with distance from the foremost cylinder.

8.1.2 The respondent's argument that from a sketch of the claimed turn angles it was possible to see E1 depriving claim 1 of novelty is not convincing. This sketch was directed to depicting the turn angles of the exhaust pipes of Fig. 1 of E1 in the manner depicted in Figs. 31 and 32 of the patent. Whilst this sketch provided by the respondent during oral proceedings indeed may have anticipated the subject-matter of claim 1, this was an idealised interpretation of Fig. 1 in which the flange at the downstream end of the exhaust pipe lay in a common plane with the exhaust ports. As identified by the appellant, however, there is no certainty from the figure itself, which is a perspective view of the exhaust manifold, that this interpretation is correct; it could be correct, yet it was not unambiguously the correct interpretation of E1.

8.1.3 The respondent's further contention that, comparing the figures of the patent with Fig. 1 of E1, the similarity of exhaust manifold depicted must prove that E1 anticipated claim 1 is also not accepted. The figures of the patent were schematic drawings and sketches aimed at depicting the claimed subject-matter. It was thus not possible to conclude that any particular figure disclosed exactly what was defined in claim 1. Similarly Fig. 1 of E1 was a perspective view of exhaust pipes exiting the exhaust manifold and as such was not suited to any direct correlation of turn angles between this Figure and Figs. 31 and 32 of the patent, due to the inability to extract depicted turn angles with any degree of confidence from such imprecisely

depicted exhaust arrangements.

8.1.4 It thus follows that the subject-matter of claim 1 is novel over E1 (Article 54 EPC 1973).

8.1.5 No further documents were cited by the respondent questioning the novelty of the subject-matter of claim 1 of this request. The subject-matter of claim 1 is thus novel over the cited prior art (Article 54 EPC 1973).

8.2 *Inventive step (Article 56 EPC 1973)*

The subject-matter of claim 1 lacks an inventive step.

8.2.1 Starting from E1 as the most promising starting point for an inventive step attack, claim 1 differs therefrom through the feature relating to the turn angle of the secondary exhaust pipes increasing with distance from the primary exhaust pipe (see above). Based on this differentiating feature, the technical problem, as formulated by the appellant, was 'how to achieve a compact exhaust manifold without degrading the sound performance'.

8.2.2 Whilst it is accepted that the claimed turn angle relationships can potentially enable a more compact exhaust manifold without degrading the sound performance as claimed, this is not necessarily achieved. From the patent (e.g. see col. 7, lines 35 to 38 and col. 11, lines 40 to 43) it is evident that exhaust sound quality is improved through providing nearly equal exhaust pipe lengths. Whilst the claimed turn angle relationships can achieve this, if as a consequence of the turn angle the exhaust pipe lengths of each cylinder are very similar, this is not

necessarily the case. It is equally possible for the feature regarding the turn angle relationships to be met and yet for very different exhaust pipe lengths from each cylinder to result, in which case the exhaust sound performance will not be maintained. The Board thus finds that, in failing to solve the technical problem formulated by the appellant, this technical problem cannot be regarded as objective. Instead the claimed solution can merely be seen as solving the problem of 'adapting the arrangement of E1 to a different installation space', as formulated by the respondent. In trying to solve this problem, the skilled person would be aware that adjusting the turn angle of the respective exhaust pipes would allow an engine to fit in differently dimensioned engine bays. The skilled person would therefore not need to become inventively active in order to reach the claimed conditions for turn angle, since these would be reached simply through seeking an alternative arrangement to that of E1.

- 8.2.3 The appellant's contention that equal pipe lengths would necessarily result from the turn angle relationship defined in claim 1 is not supported by the claim in any way. Even with an increasing turn angle with distance from the primary exhaust pipe, at least the precise position along the length of the primary exhaust pipe of where the secondary exhaust pipes enter the primary exhaust pipe is undefined. This factor combines with the turn angle in dictating the length of the secondary exhaust pipe before it enters into the primary exhaust pipe. As a result, the turn angle alone does not ensure that the above technical problem formulated by the appellant is solved.

8.2.4 The subject-matter of claim 1 of auxiliary request 5 thus does not involve an inventive step (Article 56 EPC 1973). The request is therefore not allowable.

9. *Auxiliary request 11*

9.1 *Admittance*

This request was filed with the grounds of appeal; yet, the filing of higher ranking auxiliary requests during the oral proceedings before the Board introduced a change of order of requests, which led to a change in the appellant's complete case, rendering its admittance at the discretion of the Board (Article 13(1) of the Rules of Procedure of the Boards of Appeal).

9.1.1 Despite the respondent's objection to this request being admitted due to it being an unexpected change of case and non-convergent with previous requests, the Board finds that the subject-matter of claim 1 represents an understandable, albeit not entirely logical progression, in view of the foregoing requests. In view of the extensive discussion of the previous request in view of inventive step, the subject-matter of the present request and its discussion is also not one of great complexity. The intermediate requests which had been presented during oral proceedings had also been withdrawn at a point in time to provide, after their withdrawal, some recognisable convergence in the requests. Finally, this request could be accepted by the Board as introducing economy into the procedure after the discussion of inventive step of auxiliary request 5. Furthermore, this request was originally filed with the grounds of appeal, albeit with a number of intervening requests

and also corresponded to the first auxiliary request which had been considered by the opposition division (albeit found unallowable) and so the respondent was able to immediately put forward specific objections. Due to the Board having made a different finding on novelty of the feature of the turn angle compared to that made by the opposition division, the request also addressed certain relevant points which had been raised in the discussion on the issue of inventive step concerning the objective problem to be solved.

9.1.2 In view of the above considerations, the Board exercised its discretion to admit auxiliary request 11 into the proceedings (Article 13(1) RPBA).

9.2 *Inventive step (Article 56 EPC 1973)*

The subject-matter of claim 1 involves an inventive step.

9.2.1 Starting from E1, the subject-matter of claim 1 differs from the known exhaust manifold in that:

- a pipe length of the primary exhaust pipe is set to be equal to a pipe length of the secondary exhaust pipes; and
- on a projection plane perpendicular to a center axis of the primary exhaust pipe, a turn angle defined by a line connecting an upstream end of each secondary exhaust pipe and the center axis and a line connecting a downstream end of each secondary exhaust pipe and the center axis increases as the cylinder connected to the secondary exhaust pipe becomes apart from the foremost cylinder connected to the primary exhaust pipe.

9.2.2 The objective technical problem being addressed by these differing features is 'how to achieve a compact

exhaust manifold without degrading the sound performance'.

9.2.3 E6 discloses the balancing of exhaust pipe lengths as a way of avoiding exhaust interference (see col. 6, lines 13 to 19), which interference would create undesirable sounds in the exhaust. However, neither E6 nor E1 discloses the turn angle of the secondary exhaust pipes increasing with distance from the primary exhaust pipe, nor any indication of how to achieve a more compact exhaust manifold. As a consequence, when starting from E1, the skilled person would receive no hint from E6 to modify the manifold of E1 as defined in claim 1 in order to solve the objective technical problem.

9.2.4 The respondent's argument that the varying turn angles in Fig. 1 of E1 would allow the teaching of matched exhaust pipe lengths of E6 to solve the objective technical problem with merely minimal modification is not convincing. As mentioned in point 8.1 above, the claimed turn angle variation is not unambiguously known from E1 such that combining this with the teaching from E6, that merely matched exhaust pipe lengths to maintain the exhaust sound performance, still did not enable the skilled person to achieve a compact exhaust manifold and thereby reach the claimed subject-matter. Since no teaching from E6 goes in this direction, only with impermissible use of hindsight of the invention could it be considered obvious to arrange the turn angle as defined. The Board concurs with the respondent that E1 and E6 both relate to exhaust manifolds and will thus be considered for combination by the skilled person when seeking to solve the objective technical problem. However, the fact remains that, even when combined with one another, the skilled person would not reach the subject-matter of claim 1 without becoming

inventively active.

9.2.5 No further document combinations were relied upon by the respondent in its arguments. The Board thus concludes that the subject-matter of claim 1 of auxiliary request 11 involves an inventive step (Article 56 EPC 1973).

9.2.6 The respondent raised no objections to the claims 2 to 7 dependent from claim 1 and the Board also sees no objection in this regard.

9.2.7 For the avoidance of any doubt, the Board has not adapted the description and figures to the amended claims, this being entrusted to the department of first instance.

10. *Substantial procedural violation*

10.1 As is evident from the minutes of the oral proceedings before the opposition division (see item A towards the end of page 1 thereof), the opposition division did not consider the patent proprietor's auxiliary requests 1 to 9 of 21 December 2011, as they were regarded as 'late filed' although the deadline for filing submissions before the oral proceedings had been observed. Whilst no formal mention of non-admittance is indicated, it is evident from the patent proprietor expressing its disagreement with the requests being considered late filed (end of item A in the minutes), and subsequently filing a new auxiliary request, that the auxiliary requests 1 to 9 were not admitted by the opposition division. Although item C of the minutes on page 4 states that the patentee announced that he wanted to submit a new auxiliary request, it cannot be understood from this that he had withdrawn any

objection to the earlier auxiliary requests being regarded as late-filed.

10.2 There is mention of these auxiliary requests having been filed in point 6.2 of the facts and submissions of the decision, yet no reasoning at all is to be found in the decision as to why these requests were not considered / not admitted by the opposition division. Such lack of reasoning is contrary to the requirement of Rule 111(2) EPC and presents a substantial procedural violation.

10.3 *Reimbursement of the appeal fee*

10.3.1 In the present case the appeal is based on the non-allowability of both the main request (form as granted) and the single auxiliary request filed during the oral proceedings before the opposition division. The auxiliary request was filed in response to the main request having been found not allowable and the opposition division not admitting auxiliary requests 1 to 9 filed in response to the preliminary opinion of the division. It is thus apparent that, irrespective of the opposition division admitting auxiliary requests 1 to 9 or not, the proprietor would have had to file an appeal in order to try to defend its interests with respect to the main request. Furthermore, in the course of the oral proceedings, the appellant filed numerous auxiliary requests in addition to those already on file. Whilst these were subsequently withdrawn, including several of the original auxiliary requests 1 to 9, a number were considered at length prior to their withdrawal, thereby contributing to the case not simply being a re-consideration of requests on file before the opposition division. Also, the finding of the claims of auxiliary request 11 as allowable by the Board has no

causal link with the procedural violation. In all the circumstances of the case, therefore, the Board finds that it would be inequitable to order reimbursement of the appeal fee.

10.3.2 The request for reimbursement of the appeal fee is thus refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of claims 1 to 7 of auxiliary request 11 as filed during the oral proceedings before the Board and of a description and drawings to be adapted to these claims.
3. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:



N. Schneider

M. Harrison

Decision electronically authenticated