

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKESHI KAI,
TOSHIYA SAKAI, HIROYUKI SAITOH
and MASAHIRO SATO

Appeal No. 2006-1546
Application No. 09/974,262

DECIDED: AUGUST 24, 2006

Before GARRIS, WARREN, and JEFFREY T. SMITH, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal, which involves claims 1-2, 5-12, and 18-20.

We AFFIRM.

The claimed invention is directed to an airbag device designed so that, upon collision of a vehicle, an airbag is

deployed into a vehicle compartment through an opening resulting from the breaking of a cover member mounted on a steering wheel. (Specification, page 1, lines 5-8).

Further details regarding this subject matter are set forth in representative independent claims 1 and 7 which read as follows:

1. An air bag device for a vehicle comprising:

an air bag module including an air bag and an inflator connected to each other,

a module-supporting member mounted at a central portion of a steering wheel for supporting said air bag module,

a cover member slidably supported on the module-supporting member to cover said air bag module,

a switch which operates when the cover member is pushed and slid relative to the module-supporting member,

groove-shaped tear lines formed in an inner surface of the cover member, so that said air bag, as expanded by a high-pressure gas generated by said inflator upon collision of the vehicle breaks the cover member along the tear lines to deploy into a passenger compartment of the vehicle, and

said cover member has at least one independent ridge integrally formed on the inner surface thereof astride at least one of the tear lines, said at least one ridge having a width which is substantially equal to or larger than the width of said one tear line over a major portion in the lengthwise direction of the ridge.

7. A cover member for an air bag device disposed with a steering wheel having an activating switch provided therewith, the air bag device including an air bag module having an air bag and an inflator connected to each other, and a module-supporting

member mounted at a central portion of the steering wheel for supporting said air bag module, wherein:

said cover member is slidably supported on the module-supporting member to cover said air bag module and said switch,

said cover member operates said switch when the cover member is pushed and slid relative to the module-supporting member,

said cover member has groove-shaped tear lines formed in an inner surface thereof to assure that said air bag reliably breaks the cover member along the tear lines when it is inflated by said inflator, and

said cover member has at least one independent rigidity enhancing member integrally formed on the inner surface thereof to assure sufficient rigidity of the cover member, said rigidity enhancing member having a width which is substantially equal to or larger than a width of said tear lines over a major portion in the lengthwise direction of the rigidity enhancing member.

The references set forth below are relied upon by the Examiner as evidence of obviousness:

Yokota	6,244,618	Jun. 12, 2001
Otsuka et al. (Otsuka) ¹	JP 11-139235	May 25, 1999

All of the claims on appeal are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

All of the claims on appeal are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yokota in view of Otsuka.

¹Our understanding of this reference is based on the English Translation of record.

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Rather than reiterate the respective positions advocated by the Appellants and by the Examiner concerning these rejections, we refer to the brief and reply brief and to the answer respectively for a complete exposition thereof.

OPINION

For the reasons provided below, the 35 U.S.C. § 112, first paragraph rejection and the 35 U.S.C. § 103(a) rejection are sustained.

Regarding the § 103(a) rejection, Appellants indicate in their brief that all the claims are argued separately. However, as the Examiner indicates in his answer, only claims 2, 10, 19 and 20 are argued separately. Appellants do not challenge the Examiner's claim grouping in their reply brief. Accordingly, we agree with the Examiner's grouping of the claims. The groupings of the claims for this appeal are as follows:

1. Claims 1, 5-9, 11-12 and 18 stand or fall with claim 1,
2. Claims 2 and 10 are a separate grouping,
3. Claims 19 and 20 are a separate grouping.

We generally affirm for the reasons provided by the Examiner in his answer. (Answer, pages 4-6). We provide the

additional discussion below to further respond to Appellants' arguments made in the brief and the reply brief.

35 U.S.C. § 112, First Paragraph Rejection

During prosecution, claims 1 and 7 were amended by Appellants to include the following limitations: (1) the ridge has a width "larger than the width of said one tear line" (claim 1) and (2) the rigidity enhancing member has a width "larger than a width of said tear lines" (claim 7). The Examiner contends that the above quoted language fails to satisfy the § 112 written description requirement. (Answer, pages 3 and 4).

Appellants argue that their Figures 5, 7, 9A and 9B closely represent "in scale and appearance" the tear lines and ridges formed on the inner surface of a steering wheel cover. (Brief, page 10). From these figures, Appellants argue that the relative dimensions of the tear lines and the ridges provide support for the added claim language thereby satisfying the written description requirement of 35 U.S.C. § 112, first paragraph. (Brief, page 10). Furthermore, the Appellants state that they have never indicated that their drawings are not drawn to scale and that if the drawings are not to scale, then the dimensions would be equally out of proportion, such that size of

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one component relative to the other is still accurate. (Brief, pages 10-11). Appellants also indicate that, if a ruler is used to measure the tear line widths and ridge widths in Figures 5, 7, 9A and 9B, then a range of approximate ridge widths results (Figure 5: 4 mm, Figures 7 & 9A: 5 mm and Figure 9B: 7 mm). According to Appellants, the measured widths of the tear lines are relatively constant in Figures 5, 7, 9A and 9B (i.e.,) (approximately 4.5 mm). (Reply Brief, page 2). These arguments are unpersuasive.

Patent drawings do not define precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue. Hockerson-Halberstadt, Inc. v. Avia Group Int'l., Inc., 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000). Also, absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value. In re Wright, 59 F.2d 1124, 1127, 193 USPQ 332, 335 (C.C.P.A. 1977). See also, Manual of Patent Examining Procedure (MPEP) § 2125 (Rev. 3, August 2005).

Appellants concede that they have "never indicated that the drawings are not drawn to scale. . . ." (Brief, page 10). More

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importantly, Appellants do not indicate in their specification that their figures are drawn to scale. In fact, Appellants' specification is completely silent about the sizes of any features shown in their drawings, but particularly the size of the ridge width and the tear line width. Because the specification is silent about quantitative values for the ridge width and tear line width, Appellants' arguments based on their ruler measurements taken from the drawings are of "little value." Wright, 59 F.2d at 1127, 193 USPQ at 335. Moreover, because the drawings are not disclosed as being to scale, conclusions regarding the quantitative values of the measured ridge width compared with the measured tear line width are speculative at best.

For the aforementioned reasons, we affirm the § 112, first paragraph, lack of written description rejection.

35 U.S.C. § 103(a) Rejection

The Examiner rejects all the claims as being obvious and therefore unpatentable over Yokota in view of Otsuka. The Examiner states that Yokota discloses an airbag device having all the limitations in independent claims 1 and 7 except for an airbag cover with either "at least one independent ridge" (claim

1) or "at least one independent rigidity enhancing member" (claim 7). (Answer, page 3). As the Examiner states, Otsuka teaches an airbag cover having a central "breakage part" (i.e., the here claimed "tear line") 16a defined by "groove wall surface" 19 and "breakage phase" 18 with "ribs" (i.e., the here claimed "ridges") 26 extending across the central "breakage part." (Answer, page 3). The Examiner concludes that it would have been prima facie obvious to have modified Yokota's airbag cover with Otsuka's rigidity enhancing "ribs" (i.e., "ridges") across the "breakage part" (i.e., "tear line") because this modification would increase the "rigidity of the cover and prevents the cover from deforming when an occupant presses on the cover." (Answer, page 3). Moreover, the Examiner indicates that Otsuka teaches that conventional airbag covers suffer from the problem of insufficient rigidity when pushed on by a user, and that providing the cover with the "ribs" (i.e., ridges) 26 solves this problem by increasing the rigidity of the cover. (Answer, pages 4-5).

Appellants argue that the Examiner bases his § 103(a) rejection upon impermissible hindsight, rather than the teachings of the prior art. (Brief, page 11). However, as the Examiner contends, Otsuka provides express motivation for the

combination with Yokota. (Answer, page 5). Otsuka teaches that conventional airbag covers suffer from the problem of insufficient rigidity when pressed upon (English Translation, ¶ [0008]), and that adding "ribs" (i.e., ridges) to the "breakage parts" (i.e., tear-lines) solves the lack of rigidity problem. (English Translation, ¶¶ [0013], [0015], [0017], [0050]). One of ordinary skill in the art, at the time the invention was made, given Otsuka's teaching that adding "ribs" (i.e., ridges) to "breakage parts" (i.e., tear lines) enhances the rigidity thereof, would have been motivated to add such "ribs" (i.e., ridges) to the tear lines in Yokota's airbag cover to enhance and control the rigidity thereof. The Examiner's obviousness conclusion is based on the explicit teachings of Otsuka, not impermissible hindsight.

Appellants' argument regarding the width and shape of Otsuka's tear lines as compared to Yokota's tear lines is not persuasive. Appellants argue that Yokota's narrow tear lines are a series of interconnected vertical, horizontal and curved sections as shown in Yokota's figure 4, whereas Otsuka's wide recess region 23 extends linearly through the center of the rectangularly shaped cover. (Brief, page 12). Appellants conclude that there would not have been motivation to have

combined Otsuka with Yokota because the "reason(s) for the central wide linear fracture section [i.e., "recess region" in Otsuka] 23 and the side fracture sections [i.e., "breakage parts" in Otsuka] 16b . . . are not present in Yokota's cover, i.e., it is not rectangular and does not include fracture sections formed at the bases of downwardly extending side walls." (Brief, page 12). However, as the Examiner states in his answer, the combination of Otsuka with Yokota is not based on the shape of the Otsuka's breakage parts (i.e., tear lines) or Yokota's tear lines, but on the express teaching of Otsuka that adding "ribs" (i.e., ridges) to "breakage parts" (i.e., tear lines) enhances the rigidity thereof. (English Translation, ¶¶ [0013], [0015], [0017], [0050]; Answer, page 5).

Appellants argue that Otsuka's breakage-part (i.e., tear line) pattern is only meant for passenger-side airbag covers. (Reply Brief, page 4). Appellants indicate that since Otsuka's breakage-part (i.e., tear line) pattern is wide and "H"-shaped it is meant specifically for a rectangular passenger-side airbag cover panel. (Reply brief, page 4). In view of Otsuka's teaching to use the disclosed panel for a passenger-side airbag cover, Appellants conclude that Otsuka's rectangular airbag cover and breakage part pattern is "very distinct" from Yokota's

triangular airbag cover and tear line pattern. (Reply Brief, page 4).

We are not persuaded by Appellants' arguments. This is because Otsuka teaches that his airbag cover can be used as a steering wheel airbag cover (as well as a passenger-side air bag cover) (English Translation, ¶ [0066]). Additionally, Otsuka's breakage-part (i.e., tear line) pattern is not limited to the "H"-shape, but also may be "substantially U-shaped" (English Translation, ¶ [0064]). We note that the upper portion of Yokota's tear line pattern shown in Figure 4 may be similarly characterized as "substantially U-shaped." The similarity in the shape of the "breakage part" (i.e., tear line) pattern between Otsuka and Yokota, coupled with Otsuka's teaching to use his cover with steering wheel mounted airbags, evinces that Otsuka's and Yokota's airbag covers are not "very distinct" from each other as Appellants allege. (Reply Brief, page 4). Rather, in view of these similarities, Otsuka's teaching to control rigidity of the cover using ribs (i.e., ridges) and Otsuka's teaching to use his airbag cover with steering wheel mounted airbags, one of ordinary skill in the art at the time the invention was made would have combined Otsuka's ribs with

Yokota's steering wheel airbag cover to enhance the rigidity of the cover.

Appellants also argue that the width of the ribs (i.e., ridges) in Otsuka do not have a width at least as large as the "central fracture section (or tear lines) 23" (i.e., "recess region" in Otsuka) which they reinforce. (Brief, pages 12-13). Moreover, Otsuka's ribs (i.e., ridges) are not "astride" one or more breakage parts (i.e., tear lines). (Brief, page 13). Appellants refer to Figure 4, to show that Otsuka's ribs (i.e., ridges) 26 are flush with the inner surface of the cover, rather than "astride" the breakage part (i.e., tear line). (Brief, page 13). Appellants also indicate that a "tear line," as conventionally understood, would correspond to Otsuka's recessed region (23), not merely the breakage part (16a). (Brief, pages 13-14). Appellants refer to Yokota's tear lines 47a and 47b to show that a "tear line" is generally an overall weakened, grooved area. Appellants conclude that based on the conventional definition of "tear line" the Examiner's interpretation of the breakage part as corresponding to the "tear line" is unreasonable in light of the Otsuka disclosure. (Brief, page 14).

Based on Appellants' specification and Otsuka's disclosure, we find that the Examiner properly construes breakage parts 16a and 16b as "tear lines", whereas Otsuka's recess region 23 is simply a depression used to aid in molding the tear lines. (Otsuka, ¶¶ [0016], [0028], [0044]). Appellants indicate that the prior art describes "tear lines" as brittle grooves that provide an area on an airbag cover where breakage occurs when an airbag is deployed. (Specification, page 1, lines 16-19). Correspondingly, Otsuka refers to elements 16a and 16b as "breakage parts." (English Translation, ¶ [0005]). Moreover, Otsuka describes that fracturing occurs along the "breakage parts" when the airbag is deployed. (English Translation, ¶ [0005]). Otsuka also describes how the "breakage parts" 16a and 16b combine to form "breakage part" 16, for the airbag cover. (English Translation, ¶ [0005]). Moreover, breakage parts 16a and 16b are the thinnest parts of the airbag cover. (English Translation, ¶¶ [0042],[0046] and Figure 2; i.e., "breakage part" (16a) thickness "A" ranges from 0.6 to 1.2 mm and "general thickness part" (24) thickness "C" may be 3.5 to 5.0 mm). Generally, fracturing occurs along the thinnest area of a sheet of material, as this is the area with the highest stress. Additionally, paragraphs [0016], [0028], [0044] of

Otsuka describe how ramp 22, of the recess region 23 "confuse[s]" the flow of the resin near the breakage part and changes the orientation of the resin. Otsuka is clear that ramp 22 of the recessed region 23 is provided for a completely different purpose (i.e., controlling resin flow in molding) than a tear line (i.e., providing a fracture location on an airbag cover).

Accordingly, the Examiner's position that Otsuka's breakage parts 16a and 16b correspond to the here claimed "tear lines" is reasonable and consistent with both Otsuka's and Appellants' disclosure.

Having determined the breakage parts 16a and 16b to correspond to the claimed "tear lines," both the claimed ridge width and the "astride" limitations are satisfied by Otsuka. Otsuka teaches that the rib (i.e., ridge) 26 may have a thickness (i.e., width) of 2.0 mm or less. (English Translation, ¶ [0037], Figure 5, reference character "t1"). The width of the breakage part (i.e., tear line) 16a is 0.5 to 4.0 mm. (English Translation, ¶ [0042], Figure 2, reference character "X"). From Otsuka's teachings, the rib (i.e., ridge) width may be selected such that it is larger than the breakage part (i.e., tear line)

width. In such circumstances, the claimed ridge width as compared to tear line width limitation is satisfied.

Regarding the claimed "astride" limitation, as shown in Otsuka's Figures 4 and 5, the rib (i.e., ridge) 26 spans across the full width of the breakage part (i.e., tear line) 16a and extends beyond both sides of the breakage part (i.e., tear line). Similar to the embodiment shown in Appellants' Figure 6, Otsuka's rib (i.e., ridge) 26 is "astride" the breakage part (i.e., tear line).

However, even if we take the claimed tear line to correspond to Otsuka's recessed region 23 as argued by Appellants (Brief, pages 13-14), rib (i.e., ridge) 26 still would satisfy the "astride" limitation in the sense that it spans the entire width of the recess region 23. We observe that the conventional definition of "astride" includes "spanning."² Rib (i.e., ridge) 26 spans recess region 23 because it has one end touching one side of the recess region (i.e., the "tear line" according to Appellants) (22a) and the other end touching the second side of the recess region (i.e., the "tear line" according to Appellants) (22a). (Otsuka, Figure 4).

²Because Appellants have not defined the term "astride" in their specification, we may look not only to the specification but also to a dictionary to obtain the broadest reasonable meaning of the claim term. Phillips v. AWH Corporation, 415 F.3d 1303, 1324, 75 USPQ2d 1321, 1334 (Fed. Cir. 2005).

Dependent claims 2 and 10 require "a groove [is] defined in a side face of said ridge and extends to a bottom of said at least one tear line" (claim 2), and "said ridge extends to the bottom of said one tear line" (claim 10). The Examiner indicates that Otsuka's Figure 5 embodiment shows that the ribs (i.e., ridges) 26 have breakage origin parts (i.e., grooves) 28 that extend to a bottom of the breaking part (i.e., tear line) 16a. (Answer, page 3).

Appellants argue that Otsuka's ribs (i.e., ridges) do not include a groove defined in a side face and extending to a bottom of the breakage part (i.e., tear line) as claimed in claims 2 and 10. (Brief, page 14). Appellants refer to Otsuka's Figures 1-4 to show that the breakage origin part 28 is a notch that extends a short distance down the height of the rib (i.e., ridge) 26. (Brief, page 14). However, the Examiner expressly states that he is not relying on Otsuka's "notch" 28 embodiment shown in Figure 4 to teach the features of claims 2 and 10. (Answer, pages 5 and 6). Rather, the Examiner relies on Otsuka's Figure 5 to show that the side of the rib (i.e., ridge) 26 has a breakage origin part 28a formed by reducing the thickness of the rib (i.e., ridge) 26 so as to form a thin portion (i.e., a groove) in the side of the rib (i.e., ridge).

(English Translation, ¶ [0039], Answer, pages 5 and 6). The Figure 5 embodiment substitutes the reduced thickness rib (i.e., ridge) for the notch as the breakage origin part. (English Translation, ¶ [0039]). Also, as shown in Figure 5, the breakage origin part (28a) extends all the way to the bottom of the breakage part (i.e., tear line). It follows that Otsuka teaches the claimed features of claims 2 and 10.

Dependent claims 19 and 20 include the following limitations: "only one or two independent ridges are integrally formed on the inner surface of the cover member astride said at least one of the tear lines" (claim 19) and "only one or two independent ridges are integrally formed on the inner surface thereof astride said at least one of the tear lines" (claim 20). The Examiner contends that it would have been obvious to supply Yokota with only one or two ridges taught by Otsuka in order to minimize the complexity of the cover, thereby reducing manufacturing time and cost. (Answer, pages 4 and 6). The Examiner further states that a modification involving a mere change in number is generally considered to be within the level of ordinary skill in the art. (Answer, page 6).

Appellants argue that Otsuka's ribs (i.e., ridges) are spaced uniformly along the entire length of the breakage part

(i.e., tear-line). Appellants indicate that Otsuka does not use only one or two ribs (i.e., ridges) for reinforcing the recess region. Appellants refer to Otsuka's figures 1-7 to show that there are four ribs (i.e., ridges) (26) and eight side ribs (i.e., ridges) (30). Moreover, Appellants state that each breakage part (i.e., tear line) would be required to have at least one rib (i.e., ridge) according to Otsuka's disclosure. From this alleged teaching, Appellants determine that the sum of the ribs (i.e., ridges) would exceed the "only one or two independent ridges" limitation. (Reply Brief, page 6).

Contrary to Appellants arguments regarding the features of claims 19 and 20, Otsuka teaches that the ribs may number "one or more." (English Translation, ¶ [0014]). Otsuka's teaching that the ribs (i.e., ridges) number "one or more" appears to be directed toward the total number of ribs (i.e., ridges) on the airbag cover (i.e., both sets of ribs (i.e., ridges) 26 and 30 are included in the total). (English Translation, ¶ [0014]). This interpretation of Otsuka is reasonable because paragraph [0014] refers to a "breakage part" (i.e., tear line) which Otsuka later explains in paragraph [0035] to be indicated by reference numeral 16 in Figure 1. As further explained in paragraph [0035], breakage part (i.e., tear line) 16 is composed

of both the horizontal breakage part (i.e., tear line) 16a and the breakage part (i.e., tear line) 16b. Ribs (i.e., ridges) 26 are used to reinforce horizontal breakage part (i.e., tear line) 16a and ribs (i.e., ridges) 30 are used to reinforce breakage part (i.e., tear line) 16b. (Otsuka, Figure 1). As such, Otsuka's use of the term "breakage part" to describe the portion of the cover composed of both the horizontal breakage part 16a and breakage part 16b and his addition of ribs (i.e., ridges) thereto in order to solve the rigidity problem in the airbag cover, demonstrates that Otsuka's "one or more" rib (i.e., ridge) disclosure reasonably relates to all breakage part(s) (i.e., tear lines(s)) and therefore includes all sets of ribs (e.g., 26 and 30). From this Otsuka teaching, the minimum number of ribs (i.e., ridges) "astride" the breakage parts (i.e., tear lines) on the cover may be one.

As to Appellants' argument that claims 19 and 20 should be construed such that "only one or two independent ridges" be present on the airbag cover, we cannot agree. (Brief, page 6). Claims 19 and 20 require "only one or two independent ridges" be integrally formed on the inner surface of the cover member "astride said at least one the tear lines." The claim language may be construed, as Appellants' contend, to mean that only one

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or two ridges are "astride" the total number of tear lines present on the airbag cover, such that only one or two ridges are present on the entire cover. However, the claim language may also be construed to mean that only one or two ridges are "astride" each of the tear lines on the airbag cover, such that many ridges may be present, as long as each tear line has, at most, two ridges.

During examination claim language is given its broadest reasonable interpretation that is consistent with the specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). Additionally, a specification is examined for whatever enlightenment by way of definitions or otherwise it may provide to construing claim language. Id. When interpreting a claim, the specification is usually the single best guide to the meaning of disputed claim language. Phillips v. AWH Corporation, 415 F.3d at 1315, 1321, 75 USPQ2d at 1327, 1332.

Appellants' specification does not provide any definitions that would aid in determining the exact meaning of the claim language. However, we do note that Appellants' specification does state that the number ridges 30 are "not limited to those in the embodiments and may be changed as desired."

(Specification, page 14). In light of Appellants' disclosure, the broader interpretation of claims 19 and 20 (i.e., at most two ridges per tear line) appears reasonable and consistent with Appellants' specification. In re Morris, 127 F.3d at 1054, 44 USPQ2d at 1027. This broader interpretation does not become unreasonable simply because the Appellants can point to support for their more narrow interpretation. Id., 127 F.3d at 1056, 44 USPQ2d 1029. The language of claims 19 and 20, in our opinion, is broad enough to include each tear line having at most two ridges. Otsuka clearly teaches embodiments wherein the breakage parts (i.e., tear lines) have "one or more" (e.g., one or two) ribs (i.e., ridges), which would satisfy this broader interpretation. (English Translation, ¶¶ [0014], [0053], [0055]).

Moreover, Otsuka teaches the number of ribs (i.e., ridges) may be manipulated to achieve any desired rigidity and breakage strength. (English Translation, ¶ [0055]). In view of Otsuka's teaching that the number of ribs (i.e., ridges) is an art recognized result-effective variable for controlling rigidity, it would have been obvious to optimize the number of ribs, through routine experimentation, to achieve a desired rigidity thereby resulting in one or two ribs (i.e., ridges) as required

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by claims 19 and 20. In re Boesch, 617 F.2d 272, 205 USPQ 215
(C.C.P.A. 1980).

The § 103(a) rejection is affirmed.

CONCLUSION

In summary, we sustain the 35 U.S.C. § 112, first Paragraph
written description rejection and the 35 U.S.C. § 103(a)
rejection.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 C.F.R.
§ 1.136(a) (iv) (effective Sept. 13, 2004).

AFFIRMED

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