



THE SUPREME COURT OF APPEAL OF SOUTH AFRICA
JUDGMENT

Not reportable

Case no: 265/2024

In the matter between:

KIDO STAALWERKE CC

APPELLANT

and

SAFETY ENGINEERING INTERNATIONAL LLC

FIRST RESPONDENT

AEROKLAS DUYS (PTY) LTD

SECOND RESPONDENT

Neutral citation: *Kido Staalwerke CC v Safety Engineering International LLC and Another* (265/2024) [2026] ZASCA 114 (4 September 2026)

Coram: MOLEMELA P, MOCUMIE, MAKGOKA and UNTERHALTER JJA and PHATSHOANE AJA

Mocumie JA (first judgment): [01] to [76]

Unterhalter JA (second judgment): [77] to [118]

Heard: 15 May 2025

Delivered: 4 September 2026

Summary: Intellectual property law – patent – infringement of claims – test to prove infringement restated – onus to prove that the infringer infringed the patent – use of expert evidence – adverse inference drawn from not calling a witness, after undertaking to do so in terms of rule 36 of the Uniform Rules of Court.

ORDER

On appeal from: Court of the Commissioner of Patents, Pretoria (Kuny J sitting as court of first instance):

The appeal is dismissed with costs.

JUDGMENT

Mocumie JA (Molemela P and Phatshoane AJA concurring)

Introduction

[1] This Court in *Multotec Manufacturing (Pty) Ltd v Screenex Wire Weaving Manufacturers*¹ (*Multotec*) warned that a court should always guard against too 'textual' an approach in the interpretation of claims in a patent specification. The claims must be examined to determine whether an infringement has occurred. But by 'peering too closely at the language of a claim', the Court may overlook an infringement which takes the substance of the invention.

[2] *Multotec* referred to part of the passage quoted in *Frank & Hirsch (Pty) Ltd v Rodi & Wienenberger Aktiengesellschaft*² where it was said: '[I]t is seldom that the infringer does the thing, the whole thing, and nothing but the thing claimed by the specification. He always varies, adds, omits, and the only protection the patentee has in such a case lies . . . in the good sense of the tribunal which has to decide whether the substance of the invention has been pirated'. The Court found that in this context, it is often said that an infringer who takes the 'pith and marrow' of the invention commits an infringement even though he omits an unessential part . . . or substitutes for that part a mechanical equivalent Where the alleged infringer has deviated in regard to some feature from the invention as literally claimed in the specifications, it

¹ *Multotec Manufacturing (Pty) Ltd v Screenex Wire Weaving Manufacturers* 1983 (1) SA 709 (A) at 721–722.

² *Frank & Hirsch (Pty) Ltd v Rodi & Wienenberger Aktiengesellschaft* 1960 (3) SA 747 at 762.

may often be a matter of considerable difficulty to determine whether the deviation relates to an essential or non-essential feature of the relevant claim or claims’.

[3] The above observation is particularly apt in this appeal, which raises for consideration whether the appellant, Kido Staalwerke CC (Kido Staalwerke), a company incorporated in terms of the South African company laws, with its principal place of business in Kuruman, Northern Cape Province, infringed the invention of the patentee, Safety Engineering International LLC (Safety Engineering), a company with limited liability incorporated in the United States of America, with its headquarters in California. The appeal is with the leave of this Court.

Factual Background

[4] The matter commenced in the Gauteng Division of the High Court, Pretoria (the high court), sitting as a Commissioner of Patents as a patent infringement action instituted by the first respondent, Safety Engineering and Aeroklas Duys (Pty) Ltd (Aeroklas) against Kido Staalwerke and TY2ONE (Pty) Ltd (TY2ONE), the first and second defendants in the high court. The second respondent, Aeroklas, intervened in those proceedings under s 65(5)³ of the Patents Act 57 of 1978 (the Act) as the second plaintiff. TY2ONE did not defend the action or participate in any way in the proceedings, either before that court or on appeal. Kuny J upheld the action with costs.

[5] Safety Engineering is the registered proprietor and patentee of the patent in suit, South African Patent No. 2011/02026 titled ‘Vehicle Rollover Protection Roof Geometry and Structure’ (the patent). The patent was filed in the Republic of South Africa’s Patent Office on 18 March 2011 in the name of Safety Engineering. The patent is based on the United States of America international patent application no. PCT/US 09/054293 filed on 19 August 2008. It was granted on 25 January 2012 in the name of Safety Engineering. The patent was licensed and assigned to Aeroklas, a South African licensee, on 17 March 2021 as recorded in the patent register.

[6] To better understand the dispute between the parties, the following technical terms of the patent play a crucial role:

³ Section 65(5) provides that ‘[t]he plaintiff in any such proceedings shall, before he institutes the proceedings, give notice thereof to every licensee under the patent in question whose name is recorded in the register, and any such licensee shall be entitled to intervene as a co-plaintiff’.

- 6.1 The **center of mass** is defined as the position of the mass-weighted average of the particles that make up a particular object. For practical purposes, the center of mass is the same as the center of gravity of an object and these terms can be used interchangeably.
- 6.2 The **roll axis** is the longitudinal axis of a vehicle, on a line extending between the front and back of the vehicle. It is the axis about which a vehicle is inclined to roll where such an event occurs. The roll axis passes through the center of mass.
- 6.3 The **roof line contact surface** is the upper surface of a vehicle (the roof aspect), that engages with the ground when a rollover occurs.
- 6.4 **Minor radius** is defined by a straight line from the roll axis (the center of mass) to the closest portion of the roof of the vehicle.
- 6.5 **Major radius** is defined by a straight line from the roll axis to the closest portion of the roof rails of the vehicle.
- 6.6 **Hoop radius** is the distance from the roll axis to the closest ground-engaging surface of a roll hoop.
- 6.7 **A fairing** is an external metal or plastic structure added increased streamlining on a vehicle.
- 6.8 **A pillar, B pillar and C pillar** refer to the vertical or nearly vertical supports of a motor vehicle's window area, designated respectively as the A, B, C or D pillar, moving from front to rear, in profile/side view.

The Patent

[7] It is common cause that rollovers are a significant cause of serious injuries and fatalities to vehicle occupants. This is due to the 'aggressivity' of the impact on the far side of the vehicle when it rolls. Safety Engineering's patent describes how the crushing force that occurs on the far side, on impact, may be minimized, to protect occupants in the vehicle from serious injuries.

[8] Safety Engineering's invention is a vehicle rollover protection device that features a roof geometry which can either be integrated or retrofitted onto vehicles,

enhancing their resistance to rollover crush in an accident in which a vehicle overturns. Also protected by the patent is a method to determine the roof geometry and the structure to be mounted on the vehicle. Claim 1 relates to a vehicle geometry for rollover crush resistance comprising a center of mass providing a rollover axis and a roof line contact surface spaced from the center of mass by a hoop radius substantially equal to a major radius of roll contact from the roll axis. Claims 2 to 6 are all dependent on claim 1 and are progressively narrower in scope. Claim 7 is a method claim concerning the method for increasing rollover crush resistance which establishes a center of mass for determination of a roll axis and shaping a roll contact surface of the vehicle to a hoop radius which minimizes far side aggressivity. Claims 8 to 13 are dependent on claim 7 and are also progressively narrower in scope. Claim 14 features a rollover protection structure.

[9] This structure comprises an ‘arcuate member’⁴ extending from a nominally flat roofline, with the said arcuate member having a hoop radius substantially equal to a major radius of roll contact from a center of mass providing a roll axis. The specification explains that the modified ‘roofline contact surface’ may be provided in two ways: (1) built into the vehicle’s roof structure (‘monocoque’ design), or (2) by affixing one or more arcuate steel members between the roof’s side rails.

[10] Kido Staalwerke manufactures a Roll Over Protection System (ROPS) under the trademark ‘FALOSA’. The FALOSA ROPS is fitted onto vehicles to protect occupants in a rollover event. It is on this basis that Safety Engineering contends that FALOSA ROPS infringes its patent.

Before the commissioner

[11] In their particulars of claim, Safety Engineering and Aeroklas alleged that Kido Staalwerke and TY2ONE were directly infringing their patent, the HALO ROPS, by making, offering to dispose and disposing of a ROPS falling within the scope of claims 1,4 and 6 of the patent by installing a FALOSA ROPS onto vehicles; making, importing, using, offering to dispose and disposing of a FALOSA ROPS, falling within the scope

⁴ In the South African Patent No.2011/02026, the arcuate (curved) structural member is defined as a curved structural component shaped as a “byte of the hoop radius”, specifically designed for integration into the original vehicle designs (as a monocoque structure), as an original equipment manufacturer (OEM) item, or as a retrofit structural assembly.

of claims 14 to 19 and 21 of the patent; and using and/or exercising a method for increasing vehicle rollover crush resistance falling within the scope of claims 7 to 10,12 and 13 of the patent.

[12] Safety Engineering further alleged that there had been contributory infringement in that Kido Staalwerke and TY2ONE had independently or jointly offered to dispose of and/or disposed of the FALOSA ROPS with the intention that it be installed on vehicles using the method claims 7 to 10,12 and 13 of the patent.

[13] In its plea, apart from the bare denials, Kido Staalwerke admitted that it manufactured, used, offered for sale and sold the FALOSA ROPS. It did not deny, nor did it call any witness(es) to refute Safety Engineering's allegations that (i) the FALOSA ROPS fell within the scope of claims 1,7,10,12 and 13 of the patent; and (ii) it had carried out the method of claim 7 of the patent. As a result of the admissions and uncontested evidence, there has never been any dispute between the parties on the question of the manufacture, use, offer or sale of the ROPS.

[14] When Safety Engineering issued summons, Kido Staalwerke initially challenged the validity of the patent and pleaded that it was liable to be revoked in terms of s 61(1)(c) of the Act,⁵ alleging that the invention was not new and did not include an inventive step as envisaged in s 25(1) of the Act.⁶ However, thereafter, following various pre-trial engagements, on 6 December 2021, Kido Staalwerke gave notice of its intention to amend its plea. It followed with a similar notice on 8 December 2021. However, following various pre-trial engagements, it no longer disputed the validity of the patent.

[15] The Commissioner upheld Safety Engineering's action and dismissed Kido Staalwerke's defence. The Commissioner found that the disputes raised by Kido Staalwerke regarding the measurements were more apparent than real. He also found that Safety Engineering succeeded in demonstrating that the 'hoop radius' of the

⁵ Section 61(1)(c) provides: 'Any person may at any time apply in the prescribed manner for the revocation of a patent on any of the following grounds only, namely –
(c) that the invention concerned is not patentable under section 25.'

⁶ Section 25(1) provides: A patent may, subject to the provisions of this section, be granted for any invention which involves an inventive step, and which is capable of being used or applied in trade or industry or agriculture.'

FALOSA ROPS was substantially equal to a major radius of the roll contact from the roll axis as described in the patent.

Before this Court

[16] The issue for determination is whether the Commissioner correctly found that Kido Staalwerke infringed Safety Engineering's patent.

Kido Staalwerke challenges Safety Engineering's patent on claims 1,7 and 14. Kido Staalwerke alleges that the claims have not been infringed.

The law

[17] Section 45(1) of the Act provides as follows:

'The effect of a patent shall be to grant to the patentee in the Republic, subject to the provisions of this Act, for the duration of the patent, the right to exclude other persons from making, using, exercising, disposing or offering to dispose of, or importing the invention, so that he or she shall have and enjoy the whole profit and advantage accruing [because] of the invention.'

[18] This section establishes that a patent confers upon the patent holder the exclusive right, for the patent's duration, to prevent others from making, using, exercising, selling, offering for sale, or importing the patented invention. This exclusive right ensures that the patentee can fully benefit from the profits derived from their invention.

[19] While the inquiry into infringement requires the allegedly infringing article or process to be compared against the language of the claim, it appears from the *dictum* in *Letraset Ltd v Helios Ltd*⁷ (*Letraset*), which has been followed subsequently in cases before this Court,⁸ that the language of the claim must be construed purposively to extract from it the essence, or essential elements of the invention.⁹ This means giving effect to the inventor's intention as conveyed to a person skilled in the art. One must avoid an unduly literal approach if it conflicts with the invention's essence.

⁷ *Letraset Ltd v Helios Ltd* 1972 (3) SA 245 (A) at 274G-H (*Letraset*).

⁸ Op cit fn 1 above.

⁹ *Aktiebolaget Hassle and Another v Triomed (Pty) Ltd* [2002] 4 All SA 138 (SCA); 2003 (1) SA 155 (SCA) (*Aktiebolaget*) para 8.

[20] This purposive approach requires the court to identify those features of the invention which the patentee intended to be essential. In *Catnic Components Ltd and Another v Hill and Smith Ltd*,¹⁰ a United Kingdom court held:

‘[A] patent specification is a unilateral statement by the patentee, in words of his own choosing, addressed to those likely to have a practical interest in the subject matter of his invention (ie “skilled in the art”), by which he informs them what he claims to be the essential features of the new product or process for which the letters patent grant him a monopoly. It is those novel features only that he claims to be essential that constitute the so-called “pith and marrow” of the claim. A patent specification should be given a purposive construction rather than a purely literal one derived from applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge. The question in each case is: whether persons with practical knowledge and experience of the kind of work in which the invention was intended to be used, would understand that strict compliance with a particular descriptive word or phrase appearing in a claim was intended by the patentee to be an essential requirement of the invention so that any variant would fall outside the monopoly claimed even though it could have no material effect upon the way the invention worked.’¹¹

[21] The essential elements of the invention are not determined by considering individual words in isolation, but from the invention as a whole. In *Aktiebolaget Hassle and Another v Triomed (Pty) Ltd (Aktiebolaget)*¹² the following was stated:

‘[W]hat is sought by a purposive construction is to establish what were intended to be the essential elements, or the essence, of the invention, which is not to be found by viewing each word in isolation but rather by viewing them in the context of the invention as a whole . . .’¹³

[22] Once the claims have been construed in this manner, the question is whether the allegedly infringing article or process falls within their ambit. Differences which are not matters of substance will not avoid infringement where the alleged infringer has taken the essence or ‘pith and marrow’ of the protected invention. In the minority judgment in *Letraset*,¹⁴ which the majority does not disavow, the nature of the enquiry into an infringement was described as follows:

¹⁰ *Catnic Components Ltd and Another v Hill and Smith Ltd* [1982] RPC 183 (HL) at 242, the passage is cited with approval and adopted by this Court in several cases (see authorities cited in *Aktiebolaget* and *Multotec* above.

¹¹ *Ibid.*

¹² *Aktiebolaget* op cit fn 9 above.

¹³ *Ibid*, para 9.

¹⁴ *Letraset* at 274H-275A.

'The determination of the question as to whether or not the plaintiff has proved an infringement of [their] patent turns upon a *comparison between the article or process, or both, involved in the alleged infringement and the words of the claims in the patent. If the article or process falls within the ambit of the claims, properly construed, an infringement is proved.* But the article or process will not be regarded as falling outside the scope of the claims if such differences as the comparison may disclose are not matters of any substance. In making the comparison, the law looks at the essence of what is contained in the claim and will not allow what is described as the "pith and marrow" of the protected invention to be pirated. The evaluation of what the substance or essence of an invention is a matter for the "good sense" of the judicial tribunal seized with the enquiry.' (Emphasis added.)

[23] The claims define the scope of the patent's legal protection, while the specification provides the context in which they are understood. Recently, in *Orica Mining Services SA (Pty) Ltd v Elbroc Mining Products (Pty) Ltd*¹⁵ (*Orica*), this Court took a 'contextual' and 'purposive' approach to a claim construction. In *Monsanto v MDB Animal Health (Pty) Ltd (Formerly MD Biologics CC)*¹⁶ (*Monsanto*), in relation to the rules to use in the interpretation of a patent, that a patent specification must be read as a whole and in context. The words used are generally given their ordinary meaning, or their ordinary technical meaning where appropriate, but where the specification gives a word or expression a particular meaning, that meaning must be understood in the context of the specification as a whole.

[24] Of relevance in this matter is *Monsanto's* caution concerning reliance on the ordinary or dictionary meaning of words. That caution recognises that, while dictionaries may assist in ascertaining meaning, the meaning ultimately attributed to a word must remain sensitive to its context. What this Court had to say in *South African Nursing Council v Khanyisa Nursing School (Pty) Ltd and Another*¹⁷ (*Khanyisa*) has equal force in interpreting a patent. There, this Court cautioned:

'[T]he lawyer's reverence for dictionaries has limits. As this Court has observed, to stare blindly at the words used seldom suffices to yield their meaning in a statute or contract . . . There is no straightforward attribution of a dictionary meaning of a word as the word's ordinary

¹⁵ *Orica Mining Services SA (Pty) Ltd v Elbroc Mining Products (Pty) Ltd* [2017] ZASCA 48; [2017] 2 All SA 796 (SCA); 2017 JDR 0608 (SCA).

¹⁶ *Monsanto Co v MDB Animal Health (Pty) Ltd (Formerly MD Biologics CC)* 2001 (2) SA 887 (SCA); 2001 BIP 34 (SCA) paras 8 – 10.

¹⁷ *South African Nursing Council v Khanyisa Nursing School (Pty) Ltd and Another* 2023 JDR 1900 (SCA); [2023] ZASCA 86; 2024 (1) SA 103 (SCA) (*Khanyisa*).

meaning, . . . to construe a statute, subordinate legislation or a contract. The dictionary meaning of a word will often give rise to further questions . . . And the different shades of meaning with which a word has been used, over time, quite often lead to selectivity bias. That is to say, the interpreter chooses the dictionary meaning that best suits the preferred outcome of the case, rather than the meaning that shows the greatest fidelity to the meaning that best fits what has been written, given what we know as to the institutional originator of the words, what the words are used for, and the larger design of the instrument we are called upon to interpret.’

[25] This caution does not mean that dictionary meanings are without utility. They may serve as a guide, provided they are applied in a manner consistent with the context and purpose of the instrument under consideration. Thus, the ordinary or dictionary meaning of a word is a useful interpretive aid, but it cannot displace the meaning yielded by the patent specification read as a whole.

[26] Determining whether the infringement has occurred requires a two-stage inquiry: first, construing the relevant claims and, in doing so, determining the meaning of the terms used in those claims. Second, the alleged infringing article and the method employed by Kido Staalwerke must be considered.¹⁸

[27] In civil cases, the burden of proof is discharged as a matter of probability. The standard is often expressed as requiring proof on a ‘balance of probabilities’ but that should not be understood as requiring that the probabilities should do no more than favour one party in preference to the other. What is required is that the probabilities in the case be such that, on a preponderance, it is probable that the particular state of affairs existed.¹⁹ To succeed, Safety Engineering had to establish on a balance of probabilities that Kido Staalwerke infringed its patent. Safety Engineering would succeed only if it satisfied the commissioner on a balance of probabilities that its version is true, accurate, and therefore acceptable.

Analysis

[28] The patent in this matter pertains to the roof geometry of a vehicle, specifically a specially shaped structure mounted on the vehicle that enables it to roll in a certain

¹⁸ *Johnson and Johnson (Pty) Ltd v Kimberley-Clark Corporation and Another* (86/84/AV) [1985] ZASCA 132 (27 November 1985) at 12 (*Johnson and Johnson*).

¹⁹ Schwikkard PJ (*et al*), *Principles of Evidence*, 4th Ed, 2016, page 627, at 32.7.

manner, thereby protecting the occupants in the event of an accident. There is also protection for a method to determine the roof geometry and the structure to be mounted.

[29] As alluded to, the patent has 28 claims. The broadest are the independent claims 1, 7 and 14. The dependent claims add features to the independent claims and are therefore narrower in scope. They provide as follows:

29.1 **Claim 1** covers a vehicle geometry for rollover crush resistance comprising:

29.1.1 a center of mass providing a roll axis;

29.1.2 a roof line contact surface spaced from the center of mass by a hoop radius substantially equal to a major radius of roll contact from the roll axis.

29.2 **Claim 7:** A method for increasing vehicle rollover crush resistance comprising: establishing a center of mass for the determination of a roll axis; and shaping a roll contact surface of the vehicle to a hoop radius, which minimizes far-side aggressivity.

29.3 **Claim 14:** A rollover protection system for a vehicle comprises:

an arcuate member extending from a nominally flat roofline, said arcuate member having a hoop radius substantially equal to a major radius of roll contact from a center of mass providing a roll axis.

[30] Furthermore, the infringement which Safety Engineering pleaded gives rise to the following issues: whether the 'hoop radius' demands a complete hoop (full circle) as Kido Staalwerke argued or whether a partial arcuate radius suffices. What an 'arcuate member extending from a nominally flat roof line' means under Claim 14, and what involves a 'roof line contact surface' as referenced in Claim 1 and the meaning of 'minimizes' for purposes of Claim 7. The meaning assigned to these words depends, in part, on the expert evidence establishing the common general knowledge of a person skilled in the art and the teaching of the patent, in this case, paragraph 6 of the patent.

Admission of expert evidence

[31] The use of expert evidence, which is a central point of dispute between the parties in this appeal, to prove or disprove the infringement, is the same as how courts treat expert evidence in general or other cases. The general rule in South African law is that opinion evidence by witnesses, including experts, is not admissible. This is so

because it is the function of a court to draw inferences and form its opinion from the facts; the witnesses give evidence as to the facts, and the court forms its opinion from those facts. However, there are exceptions. For instance, at common law, the opinions of skilled witnesses are admissible wherever the subject is one upon which competency to form an opinion can only be acquired by a course of special study or experience.²⁰

[32] It is also important to remind ourselves that while it is not for the expert to interpret the patent,²¹ an expert can provide guidance to the court²² to enable it to understand concepts that would otherwise be foreign to it, or to point out, as in this case, the significance of the teaching in the patent, which might otherwise not be apparent to a court.

[33] Safety Engineering called Professor Grzebieta, an engineering professor with particular experience in vehicle rollovers. Professor Grzebieta was the only expert witness who testified.

[34] Professor Grzebieta testified, amongst others, but most pertinent to this appeal, that:

‘[A] hoop curved member which is its radius is equal to the major radius of the vehicle. And so when the vehicle rolls, if it interact[s] with that hoop, that curved hoop, then the center of gravity is not dropping.

. . .

And importantly, you do not get any part of the vehicle pivoting about point B in figure A. What you have ... is a vehicle that is in constant contact with the curved member, there is no dynamic fall of the vehicle in terms of the center of gravity. In other words, it is not thumping down onto the roof and then having to lift itself back up again like you would a brick, for example. It is changing the vehicle into a wheel shape.’

[35] Professor Grzebieta located the meaning of the words ‘hoop radius’, ‘arcuate member extending from a nominally flat roofline’, and ‘roof line contact surface’ in the patent in issue. He was cross-examined thoroughly and at length but was

²⁰ *Johnson and Johnson* op cit fn 18 above.

²¹ *Gentiruco AG v Firestone SA (Pty) Ltd* 1972 (1) SA 589 (A) at 617F-618B.

²² *Johnson and Johnson* op cit fn 18 above.

unpersuaded to change his version, except for one aspect: the measurements that Mr GM Futi (Mr Futi) took when he was asked whether his tape measure was vertical to the ground. In other words, whether there was a 90-degree angle between the tape measure and the pole. And thus, a larger measurement on the Professor's calculation.

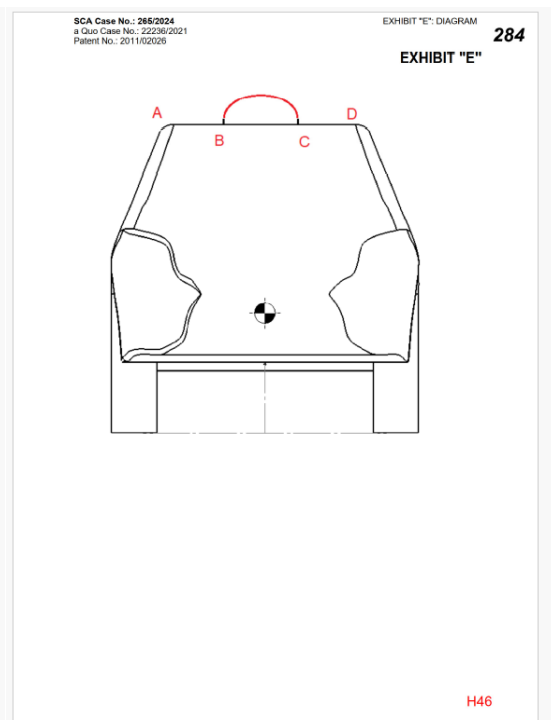
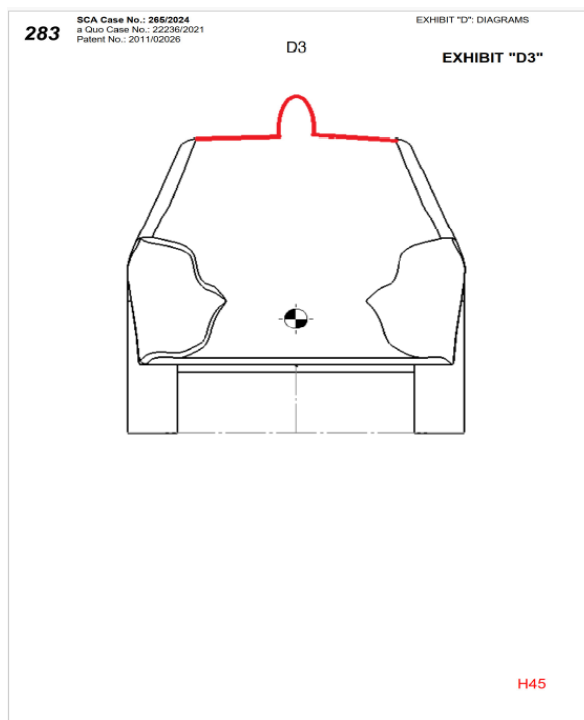
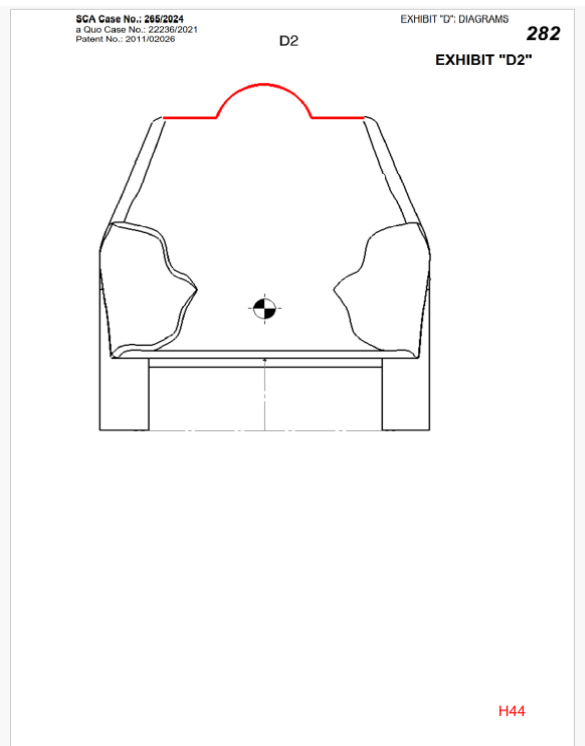
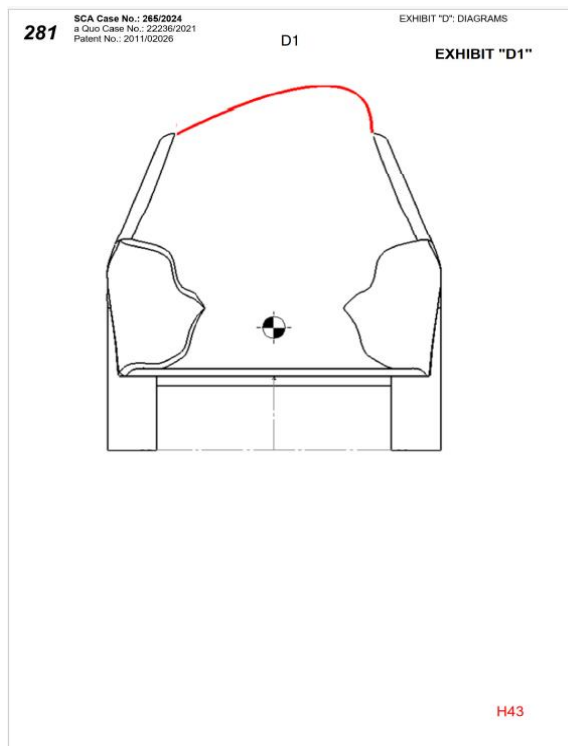
[36] Professor Grzebieta stated that, if it was not a 90-degree angle (not straight down), the tape measure, if measured from the ground to that member that has the level on it, would show a slightly smaller difference. Such difference would not affect the working of the invention. He used the word 'negligible'. And explained further that the spirit of the invention is centered on the hoop, specifically its contact with the ground, which reduces the severity of the rollover event. He went on to explain that even if the measurement of the radius is slightly less, the vehicle is still in contact with the ground when it is upside down on that hoop, and that is a gradual rise, not a thumping rise as required.

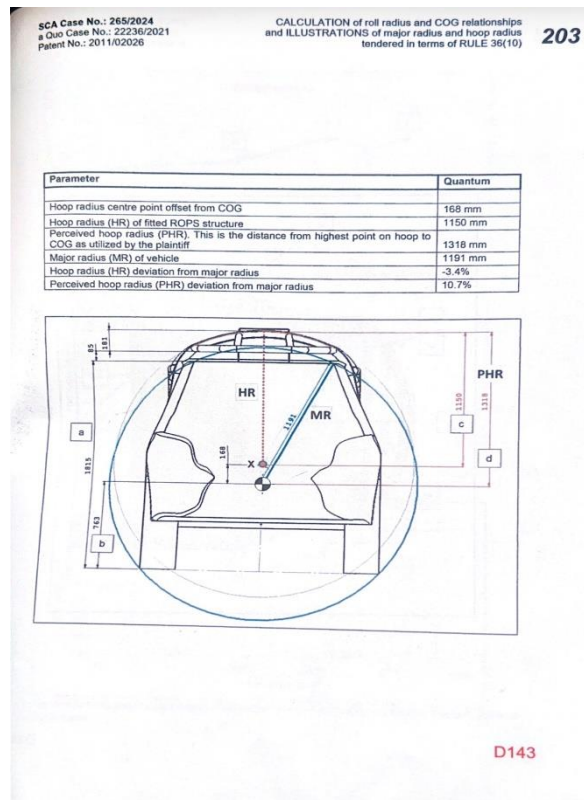
[37] In essence, his evidence about the patent: its claims, integers and specifications in his report as amended, after input received from Kido Staalwerke, stands uncontradicted.

[38] Over and above, Professor Grzebieta, four witnesses, testified for Safety Engineering: (a) Ms AT Kunene, an employee of Mtimandze Auto, which sold the Toyota Hilux Double Cab bakkie (the Hilux bakkie) to Aeroklas, installed with the FALOSA ROPS (Her evidence was not disputed); (b) Mr Futi, who took the measurements of the Hilux bakkie and mounted the FALOSA ROPS onto the roof of the Hilux bakkie that was bought by Safety Engineering for purposes of their case (His evidence was not attacked nor was any alternative measurements put to him); (c) Mr K Maphela, who confirmed the conditions under which Mr Futi took the measurements of the roofline, confirming and or supporting the accuracy of Mr Futi's evidence on the measurements.

[39] Kido Staalwerke did not call an expert witness to contest and refute the expert evidence led by Safety Engineering on the meaning of various terms used in the patent. It also did not challenge the evidence through an affidavit of their expert. Nevertheless, Professor Grzebieta was cross-examined at length to test his evidence.

During cross-examination, the following exhibits, which look somewhat similar to those produced by Safety Engineering, were put to Professor Grzebieta.





[40] He was shown the diagrams depicted above, but in particular diagram D143, which depicts the 'CALCULATION of roll radius and CoG relationships and ILLUSTRATIONS, major radius and hoop radius tendered in terms of Rule 36(10). He was asked several questions. It was put to him that the one ellipse extends from one side of the vehicle to the other. He disputed this and said what was put to him would not work. He explained why 'the roof extension', kept at the center of the roof, can withstand the rollover of the vehicle. He said the ROPS minimized the far-side aggressivity and explained how it did so. He did not deviate from his version.

[41] Kido Staalwerke did not call its own expert witness whom it indicated under rule 36(9(a) and (b))²³ it would call. It only filed diagrams by notice on 13 April 2022 (this notice was not admitted by Safety Engineering within the required time, but was never withdrawn) and on 31 May 2022 (features D142 and D143). Safety Engineering admitted the diagrams and measurements, except for the calculations and opinion on D143. On appeal, Kido Staalwerke took issue that, although the diagrams were

²³ Rule 39(9)(a) of the High Court Rules provides that a party intending to call an expert witness must deliver a formal written notice of that intention at least 15 days before the hearing, unless they have the leave of the court or the consent of all other parties. Subparagraph (b) requires delivering a summary of the expert's opinion and the reasons for it not less than 10 days before the trial.

admitted as it sought, and despite the fact that they were never withdrawn, the Commissioner was precluded from considering them.

[42] This Court in *Hotz v University of Cape Town*²⁴ (*Hotz*) held:

‘Uniform rule 36(10) provides for the admission without the need for formal proof of plans, diagrams, models and photographs. The mechanism for doing so is to give notice of the intention to produce such items at the hearing and to require the other party to admit them. If there is no response to that notice, those items may be received in evidence on their mere production without further proof thereof. There was no response to the notices delivered by the university, and hence all the photographs and video footage were receivable in evidence without further proof.’

[43] The Court further held:²⁵

‘The effect of the rule is that “if the prerequisites are established, [it] creates an admission only (i) as to the authenticity of the document, i.e. it dispenses with the need to call the author of the plan or to provide other proof of its authorship, and (ii) as to the physical features actually found by the author.” *Shield Insurance Co Ltd v Hall* 1976 (4) SA 431 (A) at 438F. In the case of photographic material it is an admission as to what is depicted in the photograph.’

The same analogy applies to the diagrams in issue.

[44] In his judgment, with reference to *Mabalane v Rondalia Assurance Corporation of SA Ltd*²⁶ and *Shield Insurance C Ltd v Hall*,²⁷ the Commissioner stated:

‘In my view, all the measurements on the diagrams tendered by the first defendant, save for the measurement in relation to the center of mass of the vehicle, relate to physical features. However, the mark on the diagram in relation to the center of mass of the vehicle stands on a different footing. It is the projected position of the center of gravity of the vehicle calculated with reference to various other measurements that do not appear on the diagram. Accordingly, in my view, *this mark amounts to an opinion as to where the center of mass of the vehicle lies.*’ (Emphasis added.)

²⁴ *Hotz v University of Cape Town* [2016] ZASCA 159; [2016] 4 All SA 723 (SCA); 2017(2) SA 485 (SCA) para 27 (*Hotz*).

²⁵ *Ibid* fn 6.

²⁶ *Mabalane v Rondalia Assurance Corporation of SA Ltd* 1969 (2) SA 254 (W).

²⁷ Cited with approval in *Hotz* fn 24 above.

[45] And furthermore, at para 49, the Commissioner continued:

'I conclude that [Safety Engineering], having failed to admit the diagrams served with [Kido Staalwerke's] April Rule 36(10) notice, [is] entitled to rely on the measurements in the diagrams, save insofar as they relate to the vehicle's center of mass. The measurements contained in the diagrams annexed to [Kido Staalwerke's] May Rule 36(10) notice that have been admitted by [Kido Staalwerke] may also be relied upon by [Safety Engineering] if they choose to do so.'

[46] Like in *Hotz*, Safety Engineering did not respond to or object to the admission of the diagrams under rule 36. So, they were admitted despite Kido Staalwerke not calling its expert witness who purportedly drew them. The fact that the diagrams were never withdrawn, as conceded by counsel for Kido Staalwerke before this Court, entitled the Commissioner to receive them in evidence on their mere production without further proof. He was entitled to take them into account when he assessed the evidence. He did not rely solely on them to find against Kido Staalwerke but weighed them against all the other evidence presented. It is trite that when a party formally consents to the admission of diagrams or plans into evidence and does not subsequently seek or obtain leave to withdraw that admission, this Court is bound to treat the factual content depicted in those diagrams as undisputed. It is not open to reconsideration by this Court. The Commissioner was fully entitled to analyse them.²⁸ The criticism levelled against the Commissioner for relying on the admissions (in the form of the diagrams shown above) made by Kido Staalwerke in terms of rule 36(9) is unjustified.

[47] Counsel for Safety Engineering contended that the structures depicted in the diagrams above are comical and that the interpretive exercise ought not to be informed by examples that are so obviously impractical and unscientific. He argued that the structures depicted in D1 and D3 do not, in any event, include an arcuate member because they cannot be said to 'bend like a bow', nor do they include 'a hoop'. As to the structure in D2 and E, he argued that depending on the dimensions, it may fall within the scope of the invention. I agree with this submission.

²⁸ This conclusion is drawn without going into detail on admissions and exceptions applicable under the Civil Proceedings Evidence Act 25 of 1965, as this Court was not called upon to do so. See *Hotz* fn 25 and 26 above.

The meaning of ‘the hoop’

[48] The detailed description of the patent explains that the ‘hoop radius’ is the distance measured ‘from the center of mass to roof line’, being a curve surface of a vehicle manufactured in accordance with the invention. In its heads of argument, Kido Staalwerke seeks to define the hoop radius as ‘a line segment extending from the center of a circle or sphere to the circumference of a bounding surface’.

[49] The Concise Oxford Dictionary²⁹ inter alia defines radius as ‘a straight line from the center to the circumference of a circle or sphere – a dial line from the focus to any point of a curve’. As I see it, the latter aligns with the literal meaning of ‘a hoop’, which includes an arch. Prof Grzebieta described the hoop in the patent-in-suit as a curved member that gradually extends from one side of a vehicle to another.

[50] The main contention between the parties is the ‘hoop radius’ in claim 1. Claim 1 references the hoop radius several times. If Kido Staalwerke accepts, as they do, that the ‘arcuate member’ is a genus of a ‘hoop radius’ in a particular circle, there is no reason to say a ‘hoop radius’ should be a perfect circle. The word ‘hoop’ was not meant to present a perfect circle, as Kido Staalwerke was constrained to concede. The fact that the ROPS is not physically attached to the roof is inconsequential. A radius is simply a line from one point, the center point, to another point.

[51] The term ‘hoop radius’ is used by the patentee to define the distance between the center of gravity and the roofline contact surface created by the invention. Insofar as it indicates the distance as ‘hoop radius’ as opposed to a distance between two points, it seems to me that Safety Engineering has limited its invention to a roofline contact surface (Claim 1) and a roll contact surface that is curved (Claim 7). As for the limitation in Claim 14, it is to an arcuate member shaped like an arch.

[52] As alluded to above, Professor Grzebieta stated that ‘the hoop’ is attached to ‘the nominally flat roofline’. His evidence in response to counsel for Kido Staalwerke was as follows:

²⁹ The Concise Oxford English Dictionary, 10th edition, revised.

'Mr Michau: ...This is not the shape of the roof itself, because this is a roll-over protection structure, I think, or system, I am not sure which is the correct one, that goes... that is attached to the roofline. Am I correct?

Mr Grzebieta: That is the hoop, yes, attached to the roofline, yes.

...

Mr Michau: And just below the little curve at B and at C, you will see two little portions.

Mr Grzebieta: Yes.

Mr Michau: Okay. That is where it is being affixed to the nominally flat roofline as it extends from the flat roofline. Do you understand the drawing, Professor?

Mr Grzebieta: Yes.'

[53] In essence, no evidence was led to rebut Professor Grzebieta's evidence, in respect of the measurements and the invention. Kido Staalwerke did not advance an alternative set of measurements to those before the Commissioner, nor did they present any before this Court.

Claim 1: The meaning of 'Roofline contact surface'

[54] In terms of paragraph 6 of the body of specification, a 'roof line contact surface' is established in two ways: First:

'The roof line contact surface may be established in the original designs for vehicles as a monocoque structure or provided as an original equipment manufacturer (OEM) item or retrofitted structure assembling it using an arcuate member shaped by a byte of the hoop radius which is mounted between the two side rails on a nominally flat roof with additional supports for the arcuate member.'

Second, the roof line contact surface 'may be established when the arcuate member is mounted between two side rails on a nominally flat roof line'.

[55] Besides, Prof Grzebieta, in their own documents, Kido Staalwerke refers to a roof line which comes into contact with the earth.

[56] Counsel for Kido Staalwerke argued that, based on paragraph 6 of the body of specification, the roof line contact surface can only be established when a ROPS is retrofitted and mounted between the two side rails on a nominally flat roof line. Therefore, he contended, when the ROPS is not mounted between the two side rails, the roof line contact surface is not altered from its original state and thus not established. He further argued that the FALOSA ROPS manufactured by Kido

Staalwerke is attached to the bin of a bakkie rather than the roof itself. In addition, Kido Staalwerke criticised Professor Grzebieta of being biased in his interpretation of the 'roof line contact surface'. Safety Engineering is correct that 'roofline' must mean the surface that comes into contact with the earth when the vehicle rolls.

[57] A patent has two distinct parts: the claims and the body of the specification. A claim in a patent defines the patent's monopoly. In *Orica* this Court said that if the meaning of a claim, properly construed, is sensible, clear and unambiguous, it is decisive and cannot be restricted or extended by anything else stated in the body and title of the specification.³⁰ I do not read claim 1 to specify that a ROPS be secured or mounted to the existing roof of a vehicle to establish a 'roof line contact surface'. The 'roof line contact surface' is part of the upper surface of a vehicle that engages with the ground during the rollover event. As Prof Grzebieta's report shows, if the 'roof line contact surface' is established by retrofitting a ROPS, the roofline contact surface will be the hoop or the arcuate member of the ROPS. This much Kido Staalwerke conceded. The criticism levelled against Professor Grzebieta is not well-founded and cannot be sustained. His evidence concerning the meaning of a 'roof line contact surface' is derived from the patent itself. His evidence was not controverted by any witness.

Claim 7: The meaning of 'minimizes'

[58] It was argued for Kido Staalwerke that 'minimizes' in Claim 7 means reducing far- side aggressivity to nil. This would be the case where the major radius and the hoop radius are equal, and to one another, where the arcuate member is a segment of a circle that has a radius equal to the major radius.

[59] To my mind, the phrase 'minimize' cannot be equated to a reduction to zero. The patentee makes it plain that minimising does not entail reducing aggressivity to nil. It is manifest that the major radius and hoop radius may differ as much as +10% and -5%, as evident in Claims 9 and 10 which are dependent on Claim 7. It therefore follows that minimising does not mean total elimination of aggressivity. It means that aggressivity is significantly reduced.

³⁰ *Orica* op cit fn 15 above.

[60] The main contention between the parties is the 'hoop radius' in claim 1. Claim 1 references the hoop radius several times. If Kido Staalwerke accepts, as they do, that the 'arcuate member' is a genus of a 'hoop radius' in a particular circle, there is no reason to say a 'hoop radius' should be a perfect circle. A radius is simply a line from one point, the center point, to another point. Safety Engineering is correct that 'roofline' must mean the surface that comes into contact with the earth when the vehicle rolls.

[61] Besides, Professor Grzebieta, in the diagrams that were admitted under rule 36(9)(a) as Kido Staalwerke sought, it refers to a roof line which comes into contact with the earth. The word 'hoop' was not meant to present a perfect circle, as Kido Staalwerke was constrained to concede. The fact that the ROPS is not physically attached to the roof is inconsequential.

[62] Counsel for both parties agreed that when interpreting the patent, regard must be had to paragraph 6 of the body of the specification, albeit for different reasons, which support their divergent versions. The relation between paragraph 6 and the invention which Kido Staalwerke attempted to rely upon does not determine the meaning of the claims. Instead, from a plain reading of paragraph 6, it is clear that it contains the teachings of the claims, which explain how to use the invention. It is the teachings which explain the scope and content of the claims. It follows that paragraph 6 is not a dictionary nor can it be regarded as such to define the claims, as counsel for Kido Staalwerke sought to impress upon this Court. The specification provides context for understanding the claims, but it does not define or confine them.

Claim 14: The meaning of 'extending from a nominally flat roofline'.

[63] In this matter, the meaning of the words 'extending from' used in claim 14 also divides the parties. Kido Staalwerke's submission is that the FALOSA ROPS is not attached to and does not touch the roof of a vehicle and consequently does not infringe Claim 14 because the ROPS extends 'over' as opposed to 'from' the nominally flat roof line of a vehicle. This argument, in my view, is fastidious. It is not necessary to deal with the point at any great length because I have already found that the claim does not require that the ROPS be secured or mounted to the existing roof of a vehicle to establish a 'roof line contact surface'.

[64] The dependent claims such as claims 10, 12 and 8, add features to the independent claims and are therefore narrower in scope. Therefore, when interpreting what claim 14 means, an interpreter must have regard not only to what claim 14 provides, but also to the most relevant dependent claim, which provides a broader understanding and meaning thereof. In this instance, claim 8.

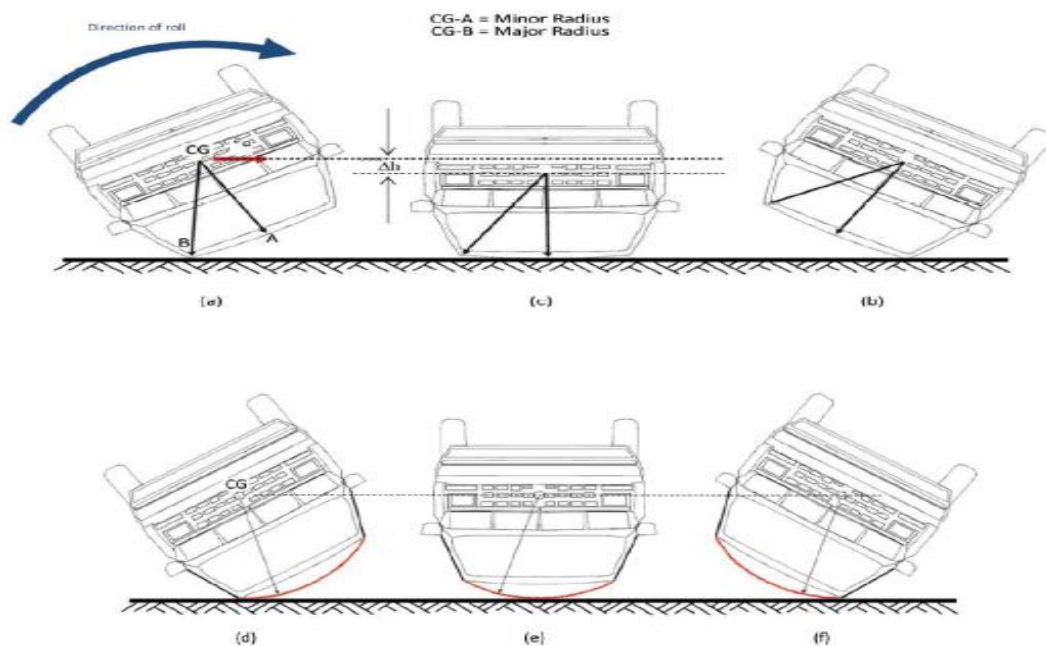
Claim 7: Methodology

[65] Claim 8 adds an additional step to the method of claim 7, being to shape the roll contact surface to establish a hoop radius substantially equal to a major radius of roll contact from the roll axis. The claims which depend on these three independent claims in issue are similar in scope. Kido Staalwerke could hardly be heard to raise any dispute on other claims. As indicated, it accepted that whatever difference there was in respect of the measurements in terms of the major and minor radii, those were minimal to the point of not being taken into consideration.

[66] On 27 January 2021, a FALOSA rollover system was installed on the Hilux bakkie pursuant to a sale reflected in an invoice marked 'POC2' in the plaintiffs' summons before the high court. Prior to this sale, the system had been tested, as evidenced in a letter from Anglo American South Africa Limited (Anglo), dated 21 September 2020, which records that the test was conducted 'in accordance with the Anglo-American 2640773:2012 specification...This specification is intended to assure operators and passengers of trackless vehicles in the operations of Anglo companies reasonable protection during rollover accidents, as well as from falling objects. The specification is based on best practice requirements found in existing standards and practices. Version 3 identifies a 'High Attenuation Load Off-set' (HALO), which during a rollover 'must ensure a minimum change in the center of gravity during all phases of roll-over . . . '.

[67] Furthermore, in their pitch to Anglo, Kido Staalwerke explained in detail how the product worked. Based on this explanation, Anglo approved the product against the requirements for high attenuation load offset defined in the light vehicle standard. In the annexure, RG6, the standard 'high attenuation load offset' is defined as 'the roll-over protection system [which] must ensure a minimum change in center of gravity

during all phases of roll-over as illustrated below'. Kido Staalwerke goes further to show, by way of an illustration of a vehicle with a roll hoop mounted on its roof, with the center of gravity indicated on it. The illustration shows how the center of gravity is kept at the same horizontal level or plane during three phases of rollover, which confirms that the center of mass would have been established prior to the making of the FALOSA ROPS.



[68] Safety Engineering stated, without contradiction, that this is exactly how their product is described in the patent. The methodology Kido Staalwerke adopted in installing the FALOSA ROPS onto the Hilux bakkie is a copy of theirs. One would have to accept, in the absence of any evidence to the contrary, the version of Safety Engineering that the product fitted to the Hilux bakkie by Kido Staalwerke was their invention, the HALO ROPS.

[69] For Kido Staalwerke not to have called a witness from Anglo compounded their case further. It created the impression that Anglo would have supported Safety Engineering's version, particularly on the methodology used, which is equivalent to the attachment referenced in claim 7. The illustrations depict no difference except that those of Kido Staalwerke appear upside down compared to those of Safety

Engineering above. There is even a reference to HALO, which is the name used by the inventors of the Safety Engineering product. It is trite and well established that where a witness is available and able to elucidate the facts and that witness is not called by a party, such a failure as this Court held in *Brand v Minister of Justice and Another*³¹ 'leads naturally to the inference that he fears that such evidence will expose facts unfavourable to him'.

[70] If the conclusion to be drawn is that the methodology used by Kido Staalwerke is the same as claim 7, the inescapable conclusion to draw would be that Kido Staalwerke breached claim 7. The minimal differences in the measurements referenced in claim 14, which were conceded as making no difference, are just that: minimal. To accept the language used by Kido Staalwerke, such as 'mounted on' to mean not 'extending from the roof line', would be to peer too closely at the language of a claim and disregard the claims read as a whole and in their context and with the background given by others, the dependent claims such as claim 18.

[71] In sum, Kido Staalwerke conceded the measurements in claim 7 and the meaning of 'minimizes' in claim 14. What remained contentious was whether 'the hoop radius' must be attached to 'the roof line or not'. On the uncontradicted evidence of Professor Grzebieta, 'the hoop radius' must be attached to 'the roofline' to give passengers the protection it professes it gives during a rollover. However, whether attached to or not is neither here nor there. The invention was developed to create a ball-like structure to ensure that, when the vehicle rolls, it hits the surface at a different angle, which will minimize fatalities and/or injuries to the occupants in that vehicle. The meaning Kido Staalwerke attaches to the fact that the arcuate member need not be attached is far-fetched because there cannot be protection without any form of attachment to the roofline. Claim 14 itself refers to 'attachment'.

[72] In any event, Kido Staalwerke has to date never said 'this is what our invention is'. Or looking at both products, these are the differences between ours and the HALO ROPS'. This Court, like the commissioner, has been left in the dark as to why Kido Staalwerke claims not to have copied the HALO ROPS as alleged by Safety

³¹ *Brand v Minister of Justice and Another* 1959 (4) SA 712 (A) at 715F–G.

Engineering. As emphasised in *Letraset*, we have not been given the article or process or both involved in the alleged infringement, and the words of the claims in the patent.

[73] If we look at the overall function of the FALOSA ROPS as it emerges from the documents issued by Anglo, the FALOSA ROPS seeks to achieve precisely that which the invention of the patent in issue achieves, and it seeks to do so in the same way. Thus, whether connected to the roofline or the side line makes no difference. It is abundantly clear that the FALOSA ROPS has taken the substance of the invention. It has at least infringed the independent claims of the patent. Therefore, the ineluctable conclusion that must be drawn is that it is a copy. For what is stated above, it's apparent that the dictionary meaning of the words used in the patent specification could not avail Kido Staalwerke.

[74] For the reasons set out, it follows that a proper case has been made out in respect of claims: 1, 2, 3, 7, 9, 10, 12, 14, 15 to 19, and 21. The commissioner was correct in his approach, conclusion and order.

[75] In conclusion, the delay in finalising this appeal warrants mention. The matter was not finalised within the period ordinarily expected of an appeal of this nature. Such delay is regrettable, particularly given the importance of the issues raised and the interests of the parties in the expeditious determination of proceedings. The Court acknowledges the delay and regrets any inconvenience occasioned thereby.

Order

[76] In the result, the following order issues:

The appeal is dismissed with costs.

BC MOCUMIE
JUDGE OF APPEAL

Unterhalter JA (Molemela P and Makgoka JA and Phatshoane AJA concurring)**Introduction**

[77] I have had the pleasure of reading my sister, Mocumie JA's judgment. It provides a full account of the law, which requires no repetition. I am in agreement with the conclusion to which her judgment comes and the order that is made. I arrive at this conclusion by recourse to somewhat different reasoning. For the benefit of the parties, my reasoning follows.

[78] Safety Engineering International LLC (Safety Engineering), is the registered proprietor of patent no. 2011/02026, entitled 'Vehicle Rollover Protection Geometry and Structure' (the patent). Aeroklas Duys (Pty) Ltd (Aeroklas) is the registered licensee of the patent in South Africa. The invention of the patent relates to vehicle rollover protection. Safety Engineering and Aeroklas instituted an action in the Court of the Commissioner of Patents, Pretoria (the high court). They claimed that Kido Staalwerke CC (Kido Staalwerke) and TY2One (Pty) Ltd (TY2ONE) were infringing the patent by manufacturing, offering to dispose, and disposing of a rollover protection system for vehicles, being a Roll Over Protection Structure (a ROPS), which it called the FALOSA ROPS. Only Kido Staalwerke defended the action.

[79] The Commissioner found that the FALOSA ROPS constitutes an infringement of certain claims in the patent and granted interdicts against Kido Staalwerke and TY2ONE. In addition, the Commissioner made an order for delivery-up, an enquiry into damages, and costs (collectively 'the remedies'). Kido Staalwerke sought leave to appeal. This was refused by the high court, but granted by this Court.

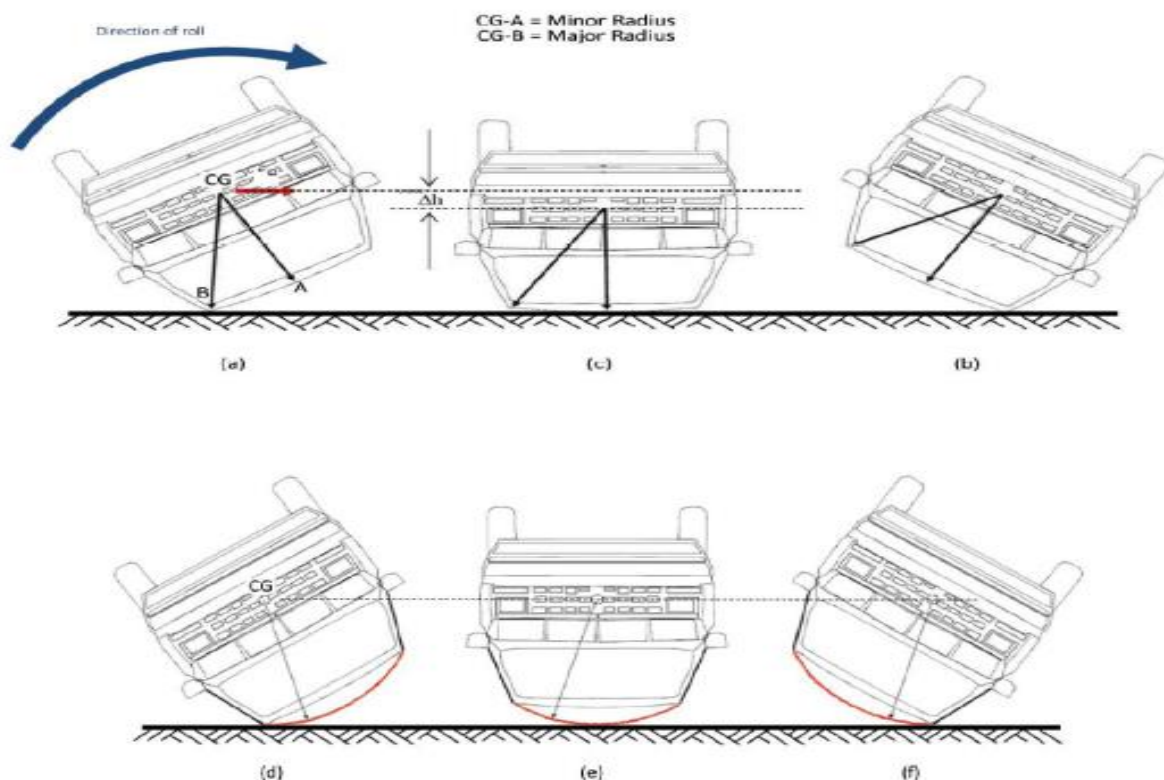
[80] The patent has 28 claims. Of these, the broadest are the independent claims, being 1,7 and 14. It was common ground between the parties that the appeal turned upon these independent claims, and it is to these claims and the invention of the patent that we turn.

The invention of the patent

[81] The invention of the patent appears from its teaching. When a vehicle rolls, it makes contact with the ground, in a particular sequence. The forces thereby generated

are differently orientated at these points of contact. As the teaching explains: '[T]he near side contact usually produces forces oriented into the near side pillars, limiting the extent of their deformation. The far side forces are typically lateral and therefore more easily bend the pillars'. This rollover 'crush' can cause injury to the occupants of a vehicle in the event of a rollover. The invention of the patent provides, as the field of the invention explains, a roof geometry for increased rollover crush resistance.

[82] The physics of the invention is as follows. There is a radius (being a radial line) from the center of gravity (CoG) to the roof of the vehicle, vertically above the CoG. This is referred to as the Minor Radius. There is also a radius from the CoG to the corners of the vehicle. This is referred to as the Major Radius. This difference is illustrated in a diagram placed in evidence by Professor Grzebieta, the expert called to testify at trial by the respondents.



[83] The first illustration (marked (a) (c) (b)) depicts the Minor Radius and the Major Radius. For most vehicles, the Minor Radius is shorter than the Major Radius. This difference matters when a vehicle rolls. The greater the difference between the Major and Minor Radii, the greater the roll crush of the vehicle is likely to be. The difference

in the radii is a measure of the ‘aggressivity’ of the structure of the vehicle. As the teaching of the patent explains, during a roll, the CoG ‘falls towards the ground before being forced to rise as the far corner with the larger radius rolls over the ground’. If the roof is not strong enough, and the CoG is not (sufficiently) raised, the roof collapses – with the risk of grave injury to passengers in the vehicle.

[84] The invention of the patent is concerned to reduce the difference between the Major and Minor Radii of a vehicle, that is to say, its aggressivity. This is done either by the geometric shape of vehicle’s roof or retrofitting a rollover protection structure, referred to as an ‘arcuate member’, being a kind of cap, fitted onto the roof that provides the benefits of this geometry. In the diagram set out above, the second illustration (marked (d) (e) (f)), depicts a vehicle that has a hoop radius (marked by the red line). As the vehicle rolls, it maintains contact with the hoop radius. The hoop radius is designed to prevent a fall in the vehicle’s CoG, during a roll, and thereby reduces aggressivity to reduce roof crush on the far side of the vehicle.

The claims of the patent

[85] Claim 1 is ‘[a] vehicle geometry for rollover crush resistance comprising:
a center of mass providing a roll axis;
a roof line contact surface spaced from the center of mass by a hoop radius substantially equal to a major radius of roll contact from the roll axis’.

Claim 7 is ‘[a] method for increasing vehicle rollover crush resistance comprising: establishing a center of mass for determination of a roll axis; and shaping a roll contact surface of the vehicle to a hoop radius which minimizes far side aggressivity’.

Claim 14 is ‘[a] rollover protection system [a ROPS] for a vehicle comprises an arcuate member extending from a nominally flat roofline, said arcuate member having a hoop radius substantially equal to a major radius substantially equal to a major radius of roll contact from a center of mass providing a roll axis’.

[86] In consequence of the written and oral arguments of counsel for the parties, the ambit of the dispute was helpfully narrowed. In order to determine whether the high court correctly decided that Kido Staalwerke and TY2ONE infringed the patent, we must first decide upon the meaning of the following terms used in the claims, so as

properly to construe the relevant claims of the patent: (i) ‘hoop radius’ in claims 1, 7 and 14; (ii) ‘roof line contact surface’ in claim 1; (iii) ‘minimizes’ in claim 7; and (iv) ‘extending from a nominally flat roofline’ in claim 14. Before doing so, we turn, briefly, to the legal principles by recourse to which the patent is to be interpreted.

The principles of interpretation

[87] There was common ground as to the principles of application to the interpretation of patents. They have been often stated and reaffirmed by this Court.³² The specification of the patent is distinct from its claims. The claims define the scope of legal protection for an invention. The specification describes how to make and use the invention. The specification provides context for understanding the claims. In addition to the principles summarised in *Monsanto Co v MDB Animal Health (Pty) Ltd*,³³ we take note also of the cautionary words in *Multotec*³⁴ that ‘by peering too closely at the language of a claim the Court may overlook an infringement which takes the substance of the invention’. Mindful of these principles, the task is to apply them.

Hoop radius

[88] The term *hoop radius* is to be found in claims 1, 7 and 14. Kido Staalwerke contended that the term determines the vehicle geometry in claim 1, and the shape of the arcuate member in claim 14. Kido Staalwerke submitted that claims 1, 7 and 14 refer to ‘a hoop radius’. (My emphasis.) The use of the singular in respect of the word ‘radius’ has both linguistic and mathematical import because only a circle has a single radius. The reference to a hoop connotes a shape, and that shape is a circle because only a circle has a single radius. It is the line extending from the center of a circle to the circumference.

[89] This interpretation is further supported, according to Kido Staalwerke, because the tolerances referenced in claims 2, 9, 10, 16 and 17, and the optimization specified in claim 6, all require a particular length of radius, being segments of larger or smaller circles. Save for paragraph 33 of the specification, neither the specification, nor the claims, refer to radii, but a hoop radius – and this uniform use of the singular supports the interpretation that a hoop radius connotes a single radius, being a circle.

³² *Monsanto* fn 1 above at paras 8-10.

³³ *Ibid.*

³⁴ *Multotec* fn 15 above at 721 C-E.

Paragraph 33, Kido Staalwerke contends, is simply a reference to the measurement of the radius at two different points. The respondents do not accept these strictures.

[90] As with any interpretative endeavour, the starting point is to pay close attention to the words used in the claims, understood in their context. Kido Staalwerke places great emphasis on the use of the indefinite article 'a' to introduce the noun 'radius' as the basis for its interpretation that this language references a single radius, and, as the written argument framed the proposition, 'a circle only has one radius. Hence, it is contended that the hoop in claim 1 is a segment of a circle'.

[91] The premise of Kido Staalwerke's interpretation is faulty. First, while radii within a single circle are of equal length, a circle does not have a single radius. A circle has an infinite number of radii because a circle is made up of an infinite number of points on its circumference. The use of the indefinite article does not reference a single radius of a circle because a circle does not have a single radius. Second, claims 2, 9, 10, 16 and 17 recognise that a hoop radius is equal to the major radius or 10% larger or 5% smaller than the major radius. This means that the length of the radius may, within these tolerances, vary. Once that is so, the claims allow for radii of different lengths. That is not what a circle can be. Of course, different circles may have radii of different lengths. But then the force of the use of the indefinite article is lost.

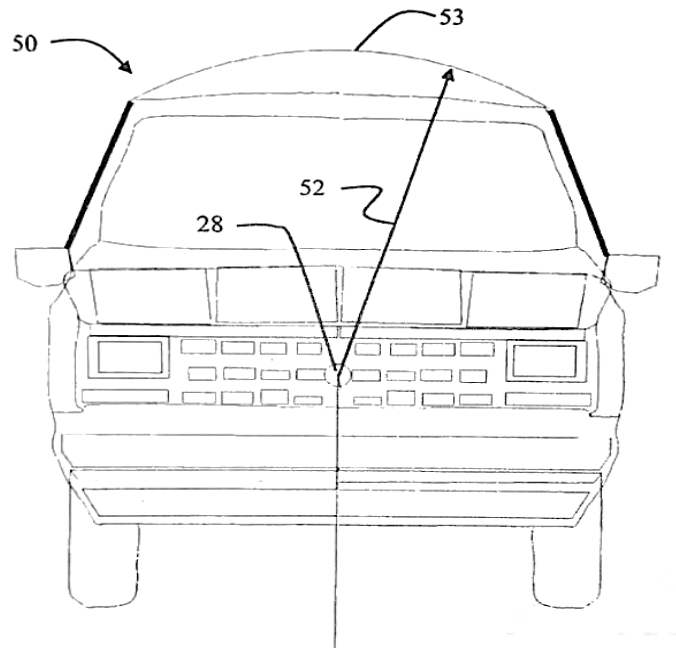
[92] Third, while a radius is often understood in the context of a circle, both as a matter of language and mathematics, a curvature has a radius. And a curvature need not be a circle. It may be an arc or a bow that is oval or elliptical. Hence a dictionary meaning of radius is 'a radial line of a curve, drawn from a given point such as a focus to any point on the curve'.³⁵ This Court has warned about the selectivity bias that may infect the use of dictionaries.³⁶ But there is nothing about the meaning of a radius that requires it to be the radius of a circle.

[93] Fourth, there are further textual references that do not chime with Kido Staalwerke's interpretation that a hoop radius is a circle. Paragraph 22 forms part of the detailed description of the invention. It references a vehicle shown in Figure 5,

³⁵ *Shorter Oxford English Dictionary* 6th Ed 2007 Volume 2.

³⁶ *Khanyisa* fn 8 para 15.

being a front view of a vehicle incorporating a hoop radius according to the present invention.³⁷ Paragraph 22 contains the following description: 'The hoop radius 52 from the center of mass to a roof line 53 for optimum performance should preferably be equal to the major radius within a range of +0 to 5% . . .'. Fig. 5 appears in the patent thus:



[94] A hoop radius is the distance from the center of mass (the CoG) to a roof line. That is marked on figure 5 as '52', and the roof line is marked as '53'. This diagrammatic depiction is consistent with what is stated in claim 1, being 'a roof line contact surface spaced from the center of mass by a hoop radius'. It is a matter of observation that the roof line contact surface referred to in claim 1 and depicted in Fig 5 is a curvature, not a circle. This is reinforced by the reference in claim 7 to 'shaping a roll contact surface'. In claim 14, a vehicle is stated to comprise 'an arcuate member extending from a nominally flat roofline'. Arcuate is an adjective meaning shaped like a bow or an arch.³⁸ The arcuate member is thus bow or arch-shaped. It is not a circle.

[95] Upon a careful consideration of the text of the patent, read in context, taken with the diagrammatic depiction, and the vehicle geometry that is required to give

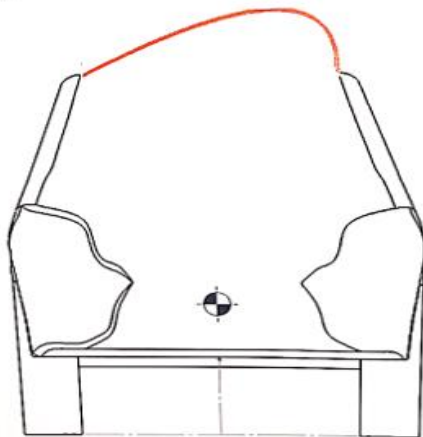
³⁷ Following the description of Fig 5 in paragraph 14.

³⁸ The *Shorter Oxford English Dictionary* 6th Ed 2007 Volume 1 defines 'arcuate' as 'bent like a bow, curved, arched.'

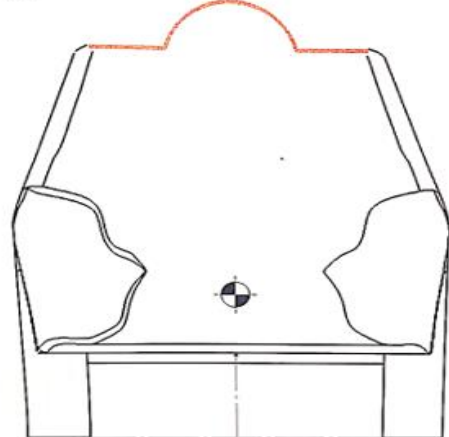
effect to the protective purpose of the invention, we conclude that a hoop radius need not be the radius of a circle, as Kido Staalwerke has contended.

[96] This conclusion is reached without reliance on the evidence given by Professor Grzebieta, the expert called by Safety Engineering and Aeroklas at trial. However, Professor Grzebieta's evidence is to like effect. He testified that a hoop means any arcuate member, as opposed to a segment of a circle, whose radii may vary. Kido Staalwerke submits that this interpretation cannot be reconciled with the wording of the patent, 'the spirit of the invention or basic mathematical principles'. For the reasons given, this criticism is not correct. Kido Staalwerke contends further that the meaning Professor Grzebieta attributes to a hoop would lead to absurd results. The following exhibits were put to Professor Grzebieta in cross-examination to show that the improbable shapes, depicted in red, would qualify as a hoop, under his definition of any arcuate member.

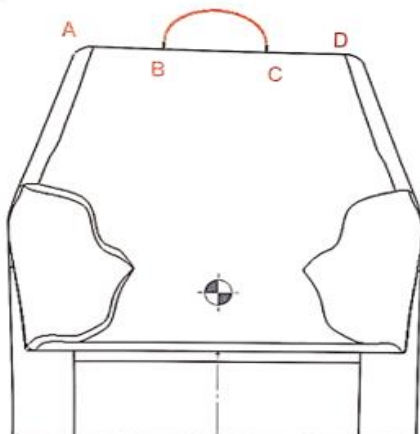
D1



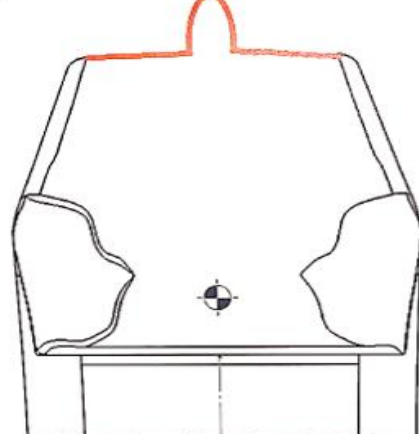
D2



D3



E



[97] The argument from absurdity is unavailing. The improbable shapes in the exhibits do not, as Professor Grzebieta observed, depict a hoop radius substantially equal to the major radius. Nor do they depict anything approximating an arcuate member which has the shape of a bow or an arc that is oval or elliptical. The exhibits thus do not disturb the meaning Professor Grzebieta gave to a hoop radius, nor do they render our own interpretation vulnerable to challenge on the basis of over-extension.

Roof line contact surface

[98] Claim 1 refers to the phrase 'a roof line contact surface'. Kido Staalwerke relies upon the specification to interpret this phrase. It contends that the roof line contact surface either forms part of 'a monocoque structure' or is a ROPS mounted between the side rails of a nominally flat roof. The FALOSA ROPS manufactured by Kido Staalwerke is neither a monocoque structure nor is it mounted between the side rails of a nominally flat roof. Rather, the FALOSA ROPS is attached to the bin of a bakkie, and not its roof.

[99] The interpretation urged by Kido Staalwerke is that what is constitutive of 'a roof line contact surface' is the means of its establishment, as set out in Para 6 of the specification. Para 6 provides as follows:

'The roof line contact surface may be established in original designs for vehicles as a monocoque structure or provided as an original equipment manufacturer (OEM) item or retrofit structural assembly using an arcuate member shaped as a byte of the hoop radius, which is mounted between two side rails on a nominally flat roofline with additional structural supports for the arcuate member.' I will refer to this means of assembly as 'the side rails mounting'.

[100] A monocoque structure is a vehicle built as a single structure. This means that the ROPS may form part of a single structure. Para 6 also references the establishment of the roofline contact surface by use of the arcuate member which, as we have observed, is a species of cap that is established by means of the side rails mounting. Kido Staalwerke contends that when the ROPS is not mounted between the two side rails, and is not a monocoque structure, the roof line contact surface is not established as envisaged by the patent.

[101] The specification provides context for the interpretation of the claims. However, the specification is not constitutive of the claims. Paragraph 6 of the specification indicates how to make the invention. It explains how the roof line contact surface *may* be established. It does not require that it must be so established. All that Claim 1 contains, in relevant part, as the text plainly indicates, is the spacing of a roof line contact surface, and not the manner of its establishment. Once that is so, side rails mounting is not constitutive of a roof line contact surface. And Kido Staalwerke's interpretation on this aspect of the patent cannot be accepted. Kido Staalwerke offered certain criticisms of the evidence of Professor Grzebieta's testimony as to the meaning of a roof line contact surface. There is no need to traverse these criticisms, as we have determined the issue without recourse to his testimony.

Minimizes

[102] Claim 7 refers in relevant part to 'shaping a roll contact surface of the vehicle to a hoop radius which minimizes far side aggressivity'. Kido Staalwerke interprets the word 'minimizes' to mean 'to reduce to the smallest possible amount or degree'. To minimize is distinct from the word 'reduce' which, it says, means 'to make smaller or less an amount, degree or size'. This interpretation is offered as further support for its contention that the arcuate member referenced in the patent is a segment of a circle because to minimize far side aggressivity to the smallest possible amount occurs where the major radius and the hoop radius are equal to one another (and aggressivity is reduced to nil), and that is when the arcuate member is a segment of a circle.

[103] There is no warrant to interpret the word 'minimizes' with the stringency that Kido Staalwerke contends for. To minimize, as Kido Staalwerke acknowledges, concerns what is possible, and I would add, in some contexts, what is practical or feasible. Thus, to minimize far side aggressivity does not mean to eliminate it. Rather, it means to reduce far side aggressivity as much as possible. Claims 9 and 10, which are dependent on Claim 7, make it clear that the hoop radius and the major radius may vary in the range +10% and – 5%. It follows that to minimize far side aggressivity does not mean to reduce it to nil. It means to reduce it within the bounds of what is possible, particularised in the range of variance of the hoop radius and the major radius. The major radius and the hoop radius need not be equal to one another, and hence the arcuate member need not be a segment of a circle.

Extending from a nominally flat roofline

[104] Claim 14 refers to a ROPS comprising, ‘an arcuate member extending from a nominally flat roofline . . .’. Kido Staalwerke distinguishes ‘extending from’ and ‘extending over’. The FALOSA ROPS is not attached to the roof of the vehicle. Rather, it extends over the roof of the vehicle. The distinction is consistent, Kido Staalwerke contends, with Para 6 of the specification which, as set out above, describes an arcuate member mounted between two sides on a nominally flat roofline. Mounted in this way, the arcuate member extends from the roofline, but not over it.

[105] The distinction that this interpretation rests upon cannot be sustained. The extension from one thing to another means to expand, lengthen, or take further. An extension must always be from something. It must state what is expanded, lengthened, or taken further. In Claim 14 it is the arcuate member that extends from the roofline. How the arcuate member is affixed in order to extend from the roofline is not determined by the use of the word ‘from’. Extending over is but one means by which an extension from the roofline may be achieved. As observed above, Para 6 of the specification simply explains how the roofline contact surface may be established. It is not constitutive of what it means to extend from a nominally flat roofline. The interpretation urged upon us by Kido Staalwerke cannot prevail.

The infringements

[106] Having determined these questions of interpretation, I proceed to consider the basis upon which Kido Staalwerke contended that its FALOSA ROPS does not infringe the specific Claims in the patent.

Claim 7

[107] In respect of Claim 7, Kido Staalwerke advances the proposition that there was no evidence to establish that the FALOSA ROPS minimizes far-side aggressivity. I have held that to minimize does not mean to eliminate, but rather to reduce as much as possible, as instanced within the range specified in Claims 9 and 10. The issue is then this: was there evidence, in particular the evidence of Professor Grzebieta, sufficient to discharge the respondents’ onus to prove that the FALOSA ROPS

minimizes far-side aggressivity, given the meaning of the word minimizes? Kido Staalwerke submits there is no such evidence.

[108] Professor Grzebieta's expert summary, which he confirmed in his evidence in chief, stated that the FALOSA ROPS will minimize far side aggressivity because the hoop radii serve to reduce the difference in lengths of the major and minor radii. He then provided detailed measurements of the radii of a vehicle, with an installed FALOSA ROPS, and concluded that the difference in lengths of the major and minor radii were such as to minimize far side aggressivity. Professor Grzebieta confirmed in his testimony that the major and minor radii should be substantially the same, within the range specified in Claims 9 and 10. So understood, the FALOSA ROPS met this standard, and hence did minimize far side aggressivity, within the meaning that I have found minimize to have in Claim 7.

[109] This conclusion was supported by certain letters from Anglo that were disclosed and admitted by Kido Staalwerke, in so far as they referred to it. The letters confirmed that Kido Staalwerke's Toyota Hilux double cab FALOSA rollover protection system was deemed, after testing, to be appropriate for use, on certain conditions. The Anglo specifications used for the testing of the FALOSA ROPS were traversed with Professor Grzebieta in his evidence. Those specifications refer to 'high attenuation load off-set' which, in relevant part, requires that the roll-over protection system must ensure 'a *minimum* change in center of gravity during all phases of rollover'. (Emphasis added.) To have met this standard was further evidence that the FALOSA ROPS does minimize far-side aggressivity.

[110] There was sufficient evidence adduced by the appellants to establish that the FALOSA ROPS minimizes far-side aggressivity for the purposes of Claim 7, and hence the appeal, on this score, must fail.

Claim 14

[111] Kido Staalwerke points out that the FALOSA ROPS is not mounted between the two side rails on a nominally flat roofline. It is installed on the load bin, and does not touch the roof. That is so. Thus, it contends, the FALOSA ROPS does not infringe Claim 14 of the patent. However, for the reasons set out above, the correct

interpretation of Claim 1 does not mean that side rail mounting is constitutive of a roof line contact surface. That the FALOSA ROPS is not so mounted does not therefore avoid the infringement of Claim 14. The FALOSA ROPS has an arcuate member, extending from a nominally flat roofline, on the interpretation of Claim 14 set out above, even though the FALOSA ROPS does not make use of a side-rail mounting. The appeal, on this point, thus cannot prevail.

Claim 1

[112] Kido Staalwerke challenges the conclusion of the Commissioner that the FALOSA ROPS infringes Claim 1. It does so, in the first place, in reliance upon its interpretative arguments as to how 'a roof line contact surface' is established and that the 'a roof line contact surface' must form a segment of a circle. Kido Staalwerke says that there was no attempt to show that the FALOSA ROPS was in the shape of a circle. And, as set out above, the FALOSA ROPS is not installed on the roof, but above it, and does not make use of a side-rails mounting.

[113] I have found that Kido Staalwerke's interpretation of Claim 1 is not correct. It therefore matters not, for the purposes of deciding whether the FALOSA ROPS infringes upon Claim 1, whether the FALOSA ROPS forms the segment of a circle and that the FALOSA ROPS does not make use of a side-rails mounting. Counsel for Kido Staalwerke accepted that if Kido Staalwerke's interpretation of Claim 1 did not prevail, then these defences could not do so.

[114] Kido Staalwerke further contended in its written argument that, quite apart from its interpretative arguments, the appellants had failed to prove that the hoop radius of the FALOSA ROPS is equal to the major radius (as *per* Claim 1) or within +10% and -5% of the major radius (as *per* Claim 2) because the appellants had failed to establish the CoG of the specimen Toyota Hilux with a FALOSA ROPS mounted on it. Hence, Kido Staalwerke's infringement of Claim 1 was not proven.

[115] In oral argument, Kido Staalwerke's counsel placed little emphasis on this contention. And rightly so. The appellants sought admissions from Kido Staalwerke prior to the trial. In terms of Rule 36(10), Kido Staalwerke gave notice that it intended to tender in evidence certain diagrams, including an illustrative view of the basic design

and geometry of the FALOSA ROPS fitted onto a Toyota double cab, and '[c]alculations of roll radius and CoG relationships & illustrations of major radius and hoop radius relative to CoG; . . .'. In respect of one of the diagrams referenced by Kido Staalwerke in its Rule 36(10) notice, the respondents sought certain admissions from Kido Staalwerke. They asked Kido Staalwerke to admit (amongst other matters): (i) that the vehicle represents a double cab Toyota Hilux with a FALOSA ROPS mounted on it; and (ii) that the height of the center of gravity of the vehicle with the FALOSA ROPS mounted on it is 759 mm above the ground. It responded to the request. Kido Staalwerke gave the admission in (i), and as to (ii), it gave a corrected figure of 763 mm.

[116] Kido Staalwerke submitted that it never tendered in evidence the diagrams referenced in its Rule 36(10) notice, and neither did the appellants. It does not follow, however, that Kido Staalwerke is not bound by the admissions given by it. Those admissions do not depend upon whether the diagrams were tendered in evidence by Kido Staalwerke. A formal admission made by one party renders it unnecessary in civil proceedings for the other party to prove the facts admitted. The admission remains binding, unless it is withdrawn with the leave of the court. Kido Staalwerke never sought to withdraw its admissions. It follows that the height of the CoG of the vehicle with the FALOSA ROPS mounted on it was proven at trial because it made a specific admission as to this matter.

[117] Apart from the CoG measurement, there were other measurements that were placed in evidence and reflected in Professor Grzebieta's supplementary summary. His evidence was that the hoop radius of the FALOSA ROPS when installed in a double cab Hilux bakkie is substantially the same as the major radius of the vehicle. That is, the hoop radius is no more than 10% longer or no less than 5% shorter than the major radius. The challenge made on appeal by Kido Staalwerke was the failure by the respondents to prove the CoG of the specimen Toyota. That challenge must fail by reason of the specific admission made by Kido Staalwerke. And in consequence, Kido Staalwerke's appeal in respect of the infringement of Claim 1 cannot succeed.

Conclusion

[118] The high court found that the respondents established infringements of Claims 1, 2, 3, 7, 9, 10, 12, 14, 15 to 19, and 21, and contributory infringement. In consequence, it granted the remedies. The challenges mounted by Kido Staalwerke in this appeal cannot prevail, and the appeal must be dismissed, with costs.

D N UNTERHALTER
JUDGE OF APPEAL

Appearances

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