FEDERAL COURT OF AUSTRALIA

Calidad Pty Ltd v Seiko Epson Corporation [2019] FCAFC 115

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| Appeal from: | *Seiko Epson Corporation v Calidad Pty Ltd* (2017) 133 IPR 1;[2017] FCA 1403 |
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| File number: | NSD 348 of 2018 |
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| Judges: | **GREENWOOD, JAGOT AND YATES JJ** |
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| Date of judgment: | 5 July 2019 |
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| Catchwords: | **PATENTS –** appellants/cross-respondents (“Calidad”) importers and sellers of printer cartridges modified or “repurposed” by a third party – first respondent – first cross-appellant (“Seiko Epson”) the patentee of two patents in suit said to have been infringed by Calidad’s conduct – consideration of the doctrine of implied licence – consideration of the scope and content of any licence implied by law – consideration of the doctrine of repair – consideration of the nature, type and degree of modifications made to the original Seiko Epson cartridges by the third party modifier – consideration of whether the modifications fall within the scope and content of any implied licence – consideration of whether the modifications fall within the notion of repairs to “the product” sold by the patentee or its agents – consideration of whether the modifications amount to a “making” of a new product |
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| Legislation: | *Patents Act 1990* (Cth) ss 3, 13, 40, 120, 144 and Sch 1  *Patents Act 1903* (Cth) s 62 |
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| Cases cited: | *Australian Competition and Consumer Commission v Pfizer Australia Pty Ltd* (2018) 356 ALR 582  *Austshade Pty Ltd v Boss Shade Pty Ltd* (2016) 118 IPR 93  *Badische Anilin und Soda Fabrik v Isler* [1906] 1 Ch. 605  *Betts v Willmott* (1871) LR 6 Ch App 239  *Boston Store of Chicago v American Graphophone Co.,* 246 US 8 (1918)  *Bristol‑Myers v Beecham Group* [1974] AC 646  *Byrne v Australian Airlines Ltd* (1995) 185 CLR 410  *Canon Kabushiki Kaisha v Green Cartridge Co (Hong Kong) Ltd* [1997] AC 728  *Copyright Agency Ltd v State of New South Wales* (2008) 233 CLR 279  *Incandescent Gas Light Co. Ltd v Cantelo* 12 RPC 262  *Impression Products Inc v Lexmark International Inc.,* 137 S. Ct. 1523 (2017)  *Interstate Parcel Express Co. Pty Ltd v Time‑Life International (Nederlands) B.V.* (1977) 138 CLR 534  *Kirtsaeng v John Wiley & Sons Inc.,* 568 US 519 (2013)  *National Phonograph Company of Australia Limited v Menck* (1908) 7 CLR 481  *National Phonograph Company of Australia Limited v Menck* (1911) 12 CLR 15  *Quanta Computer, Inc., v LG Electronics, Inc.,* 553 US 617 (2008)  *Schütz (UK) Ltd v Werit (UK) Ltd* [2013] RPC 16  *Sirdar Rubber Co Ltd v Wallington Weston & Co* (1907) 24 RPC 539  *Solar Thompson Engineering Co Ltd v Barton* [1977] RPC 537  *Société Anonyme des Manufactures de Glaces v Tilghman’s Patent Sand Blast Co.* (1883) 25 Ch. D. 1  *United States v General Elec. Co.,* 272 US 476 (1926)  *United States v Univis Lens Co.,* 316 US 241 (1942)  *United Wire Ltd v Screen Repair Services (Scotland) Ltd* [2001] RPC 24 |
|  |  |
| Dates of hearing: | 13 and 14 August 2018 |
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| Date of last submissions: | 14 August 2018 |
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| Sub-area: | Patents and Associated Statutes |
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| Solicitor for the Respondents/Cross-Appellants: | Allens |

ORDERS

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|  | | NSD 348 of 2018 |
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| BETWEEN: | CALIDAD PTY LTD (ACN 002 758 312)  First Appellant  CALIDAD HOLDINGS PTY LTD (ACN 002 105 562)  Second Appellant  CALIDAD DISTRIBUTORS PTY LTD (ACN 060 504 234) (and another named in the Schedule)  Third Appellant | |
| AND: | SEIKO EPSON CORPORATION  First Respondent  EPSON AUSTRALIA PTY LTD (ACN 002 625 783)  Second Respondent | |
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| AND BETWEEN: | SEIKO EPSON CORPORATION (and another named in the Schedule)  First Cross-Appellant | |
| AND: | CALIDAD PTY LTD (ACN 002 758 312) (and others named in the Schedule)  First Cross-Respondent | |

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| JUDGES: | GREENWOOD, JAGOT AND YATES JJ |
| DATE OF ORDER: | 5 JULY 2019 |

THE COURT ORDERS THAT:

1. The appeal be dismissed.
2. The cross-appeal be allowed.
3. The parties confer and file agreed or competing orders reflecting these reasons for judgment by 4:00pm on 19 July 2019.
4. The matter be remitted to the primary judge for any hearing or orders on the remedies to be awarded.
5. The appellants/cross-respondents pay the costs of the respondents/cross-appellants of and incidental to the appeal and the cross-appeal.

Note: Entry of orders is dealt with in Rule 39.32 of the *Federal Court Rules 2011*.

REASONS FOR JUDGMENT

GREENWOOD J:

## Background

1. These proceedings raise an important question concerning the extent to which a patentee, by reason of the statutory grant of “exclusive rights” to “exploit the invention” and authorise others to do so in s 13 of the *Patents Act 1990* (Cth) (the “Act”) can prevent a person who has acquired title to a patented product (either the first buyer or a subsequent buyer) from, put simply for present purposes, manipulating or “repurposing” (as it is described) the patented product for subsequent sale, and to prevent persons from importing such repurposed products into Australia for sale, and selling such products.
2. Assuming that an answer to the patentee’s claim of infringement by importation and sale of a “repurposed product” is a contended right of re‑supply of “a product” deriving from the first sale of a patented product by the patentee (or its agents), a question arises as to the true *source* and *scope* of that right and whether *an article* emerging from the various steps constituting the so‑called repurposing process might no longer remain characterised as a product derived from the first sale but rather a *new* article of manufacture reflecting an *exercise* of one of the exclusive rights conferred upon the patentee, that is, the right to “make” the product the subject of the patent: s 13(1), s 3, Schedule 1 of the Act.
3. Seiko Epson Corporation (“Seiko”) contends that the appellants’ (treated collectively for present purposes) infringed its patents in suit by importing, offering for sale and selling printer cartridges which embody each of the integers of claim 1 of each patent. The appellants, however, assert an implied licence derived from Seiko’s *unrestricted* *sale* of the original Seiko Epson cartridges. Those cartridges were later subjected to a sequence of steps described at [73] of the primary judge’s reasons and more fully described at section 6 of the primary judgment. Those steps had the effect of bringing into existence the articles imported, offered for sale and sold by the appellants. The primary judge found that the appellants did not hold an “implied licence” to do so as to products within categories 4, 5, 6 and 7 (of the table at [73] of the primary judgment) imported for sale and sold prior to April 2016. The primary judge held that the appellants did hold an implied licence as to products within the categories of products imported and sold after April 2016.
4. Calidad appeals from the orders of the primary judge relating to its current products. Seiko cross‑appeals in relation to the dismissal of its case concerning Calidad’s former products.
5. These proceedings also raise an important question of whether the exclusive rights vested in the patentee in relation to a patent for an invention for a product, are *exhausted* at the point of first sale consistent with the United States Supreme Court authorities such as *Impression Products Inc v Lexmark International Inc.,* 137 S. Ct. 1523 (2017); *United States v Univis Lens Co.,* 316 US 241 (1942); *Quanta Computer, Inc., v LG Electronics, Inc.,* 553 US 617 (2008); *Kirtsaeng v John Wiley & Sons Inc.,* 568 US 519 (2013); *Boston Store of Chicago v American Graphophone Co.,* 246 US 8 (1918); *United States v General Elec. Co.,* 272 US 476 (1926).
6. However, in this appeal, we are asked by the parties not to examine the jurisprudential foundation for the doctrine of exhaustion as it applies in the United States and might apply in Australia should the High Court of Australia choose to adopt such a doctrine but rather, we are asked to proceed on the footing that for the purposes of patent law in Australia, the principles to be applied are those deriving from a decision of the Privy Council in the eleventh year of the 20th Century in *National Phonograph Company of Australia Limited v Menck* (1911) 12 CLR 15 (“*Menck PC*”) in which Lords Macnaghten, Atkinson, Shaw, Mersey and Robson (with the reasons read by Lord Shaw) *reversed* a 1908 decision of the High Court in *National Phonograph Company of Australia Limited v Menck* (1908) 7 CLR 481 (“*Menck HC*”). We are asked to take that course because the appellants “accept” that the Federal Court of Australia is bound by *Menck PC* “or, if not strictly bound, would follow that decision”: appellants’ submissions at para 7.
7. The appellants nevertheless assert that the primary judge (“PJ”) fell into error by failing to apply a doctrine of exhaustion of rights at the point of first sale but say that those grounds (grounds 6 and 7 of the notice of appeal) form part of the grounds of appeal simply for the purpose of preserving an opportunity for the appellants to contend before the High Court (should this proceeding ultimately be the subject of special leave to appeal to the High Court) “that the consequence of a patentee selling a patented article is that *all rights* in the article are *completely exhausted*” [emphasis added]. That was the position adopted by the majority (or plurality) in the High Court in *Menck HC* in 1908 consistent with the early United States authorities: Griffith CJ, Barton, O’Connor JJ, with a significant dissent by Isaacs J; and a separate judgment by Higgins J in apparent agreement with Isaacs J.
8. This question has not arisen squarely before the High Court in a patent case since 1908 although observations about the principles discussed in *Menck PC* were the subject of discussion in an important copyright case (although not a patent case) in *Interstate Parcel Express Co. Pty Ltd v Time‑Life International (Nederlands) B.V.* (1977) 138 CLR 534 (“*Time-Life”*): see especially the observations of Gibbs J at 540‑542; and Stephen J at 552‑553. Although the subject matter of that decision concerns questions arising under the *Copyright Act 1968* (Cth), the appellant in that case contended that the sale of books by or on behalf of the copyright owner imports a licence to sell them anywhere in the world and in order to support that proposition, the appellant called in aid the line of cases decided in relation to patents. That contention required their Honours to first consider the effect of those cases and the propositions they stand for as a matter of principle in patent law.
9. For my part, I accept, of course, that the question of whether an exhaustion of rights doctrine is to form part of the patent law of Australia on behalf of the citizens of this country is a matter to be determined by the High Court of Australia in the discharge of its role as the highest court of appeal at the apex of the Australian appellate structure, assuming their Honours grant special leave to appeal in the relevant class of case.
10. Having regard to the position taken by the appellants, submissions have not been directed to the Full Court about a contended exhaustion doctrine. The respondents, of course, do not therefore confront that proposition. It would not be appropriate to embark upon any consideration of that doctrine or the foundation principles developed by the United States Supreme Court which caused their Honours, in that country, to adopt it as an appropriate position in the patent law of the United States for the citizens of that country.
11. However, in relation to the question of whether the Federal Court of Australia is bound by *Menck PC*, it must be remembered that the statutory formulation considered in *Menck PC* and in *Menck HC* was the formulation of the grant contained in s 62 of the *Patents Act 1903* (Cth), enacted 116 years ago. That section provided that the effect of a patent is to “grant the patentee the full power, sole privilege and authority, by himself [or herself], his [or her] agents, and licensees during the term of the patent to *make, use, exercise* and *vend* the invention within the Commonwealth” [emphasis added] in such manner as to the patentee seems appropriate so that the patentee “shall have and enjoy the whole profit and advantage accruing by reason of the invention during the term of the patent”.
12. The particular form and language of the grant is set out in the First Schedule to the 1903 Act. The 1903 Act was amended in 1906, 1909, 1910, 1921, 1930, 1932, 1933, 1935, 1946 and 1950. The whole of the Acts of 1903, 1909, 1921, 1930, 1933, 1935 and 1946 were repealed by the *Patents Act 1952* (Cth) which was, in turn, repealed by the *Patents Act 1990* (Cth). Much legislative activity has flowed under the Parliamentary bridge since the decision in *Menck PC* in 1911, including the consideration by the Executive and the Parliament of the report of the Industrial Property Advisory Committee dated 29 August 1984 entitled *Patents, Innovation and Competition in Australia* aspects of which were taken up in the formulation of the *Patents Bill 1990* (Cth) (the “Bill”).
13. The present statutory formulation of the grant of rights is in these terms:

**Exclusive rights given by patent**

13. (1) Subject to this Act, a patent gives the patentee the exclusive rights, during the term of the patent, to exploit the invention and to authorise another person to exploit the invention.

(2) The exclusive rights are personal property and are capable of assignment and of devolution by law.

(3) A patent has effect throughout the patent area [as defined in Schedule 1 to the Act].

1. As to the term “exploit”, Schedule 1 to the Act provides this definition:

**exploit**, in relation to an invention, includes:

(a) where the invention is a product – make, hire, sell or otherwise dispose of the product, offer to make, sell, hire or otherwise dispose of it, use or import it, or keep it for the purpose of doing any of those things; or

(b) where the invention is a method or process – use the method or process or do any act mentioned in paragraph (a) in respect of a product resulting from such use.

1. An invention, of course, means any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the Statute of Monopolies, and includes an alleged invention: s 3, Sch 1, of the Act. It is not necessary to recite the “archaic language” of section 6 of the *Statute of Monopolies* 1623 (*Bristol‑Myers v Beecham Group* [1974] AC 646, Lord Diplock at 677) or its more contemporary reformulation seeking to translate some of the archaic language into a more modern formulation.
2. As to cl 13 of the Bill concerning the exclusive rights given by patent which became s 13 of the Act, the Explanatory Memorandum for the Bill as tabled in the Senate says this at para 24:

While the definition [of the term “exploit”] makes it clear that certain acts are capable of being held to infringe a patentee’s rights, it does not mean that a person who performs one of those acts will always be held to infringe. Clause 13 is not intended, in particular, to modify the operation of the law on infringement so far as it relates to subsequent dealings with a patented product after its first sale. This applies particularly where a patented product is resold or where it is imported after being purchased abroad. It is intended that the question whether such a resale or importation constitutes an infringement in a particular case will continue to be determined as it is now, having regard to any actual or implied licences in the first sale and their effect in Australia, and to what is often known as the doctrine of “exhaustion of rights” so far as it applies under Australian law.

1. Accordingly, it is necessary to consider the principles derived from *Menck PC* as they apply to the findings of fact in the case at hand and consider the source, scope and content of any implied licences that arise out of a sale of a product the subject of the patent or patents in suit.

## The relevant facts within which the questions in issue arise

1. I will attempt to synthesise the material findings of fact as much as possible.
2. Seiko, the first respondent, is a manufacturing company which sells printer products including printer cartridges (including cartridges for inkjet printers) under the trade mark “Epson”. It sells or authorises the sale of these printer cartridges (described by the primary judge as the “original Epson cartridges”) worldwide. The original Epson cartridges embody the invention claimed in two patents in suit described as the “643 patent” and the “239 patent”. Eleven different types of original Epson cartridges are relevant to the proceedings. Each cartridge is compatible with one or more Seiko printers. When the ink in an ink cartridge runs out, the cartridge must be replaced. Seiko has a worldwide business that supplies replacement cartridges for its printers: PJ at [1] and [3].
3. Ninestar Image (Malaysia) SDN BHD (“Ninestar”) is one of the world’s largest manufacturers of generic printer consumables which includes toner and inkjet printer cartridges. It has been operating for over 13 years and supplies products to over 100 countries. Ninestar, for a fee, obtains used original Epson cartridges from third party suppliers who have collected them. The primary judge observes that it is unclear on the evidence whether the third party suppliers acquired the cartridges from the original consumers of the original Epson cartridges or otherwise obtained them. The primary judge found it likely that a portion of the original Epson cartridges have been sold or given, by the original consumers, to third party suppliers and that otherwise the used original Epson cartridges have come into the hands of third party suppliers by a variety of means including “perhaps, collection from recycling facilities”: PJ at [67]. Ninestar’s products include Epson printer cartridges originally sold by Seiko and which, once used and discarded by the customer, are collected (by whatever means) and restored by Ninestar to working condition. Ninestar also restores cartridges originally made by other original equipment manufacturers including HP, Canon, Brother, Lexmark and Dell: PJ at [64].
4. Ninestar has modified 11 different original Epson cartridges used and discarded by a Seiko customer to produce five different products imported into Australia and sold by Calidad Distributors Pty Ltd (“CDP”), the third appellant. CDP operates a business that competes with Seiko in the supply of replacement cartridges for Seiko’s printers in Australia. CDP sells five different restored cartridges described as the Calidad cartridges. They are the *250 cartridges*; the *253 cartridges*; the *258 cartridges*; the *260H cartridges* (high capacity volume); and the *260S cartridges* (standard capacity volume). These products are promoted in Australia as “remanufactured Epson cartridges”: PJ at [3], [70] and [71].
5. Eleven different original Epson cartridges were modified by Ninestar to produce these five Calidad products. These five Calidad products are compatible with particular Epson printers sold by or with the permission of Seiko. The primary judge notes at [71] that the parties accepted that in broad terms there are four steps undertaken by or with the approval of Ninestar in the modification of the 11 original Epson cartridges so as to make these five Calidad products. The four steps are these (PJ at [71]):

(a) the preparation of the cartridge for ink refill (**preparation**);

(b) the refilling of the printer cartridge with ink not supplied by Seiko or with Seiko’s approval (**refilling processes**);

(c) the replacement, reprogramming or resetting of the memory chip (**memory replacement/reprogramming**);

(d) the research and development work in order to make alterations to the contents of the memory chip when it is in either “normal mode” or “test mode”.

1. The primary judge observes that some of the steps have changed over time for each of the Calidad cartridges and there are some variations to the steps applied to different models. In the result, although there are five Calidad products as earlier described, the proceedings addressed nine different *categories* of the Calidad products, each reflecting particular work performed so as to create a category of Calidad product. At [73], the primary judge sets out a table which identifies the nine categories of Calidad product. The first four categories (categories 1, 2, 3 and A) are concerned with cartridges sold *after* April 2016 (excluding the Calidad 260H product which was the original Epson cartridge described as T200XL), otherwise called the *current* products. The table as to those four categories identifies each of the steps taken to produce the particular Calidad category. The second part of the table sets out the Calidad cartridges sold by CDP *before* April 2016 (categories 4, 5, 6, 7 and B), otherwise called the *former* products. The table sets out the steps taken by Ninestar to produce each of those particular Calidad product categories. I will return to the table at [73] of the primary judgment later in these reasons.
2. There was (and remains) no dispute that each of the former and current Calidad products imported into and sold by CDP in Australia “fall within the scope of claim 1 of each patent”: PJ at [4]; appellants’ submissions at para 4.
3. Notwithstanding that concession, the primary judge notes at [4] that CDP contended that it had a complete answer to Seiko’s allegation (and that of its exclusive distributor, Epson Australia Pty Ltd) of patent infringement. The answer was said to be that Seiko released the original Epson cartridges “on the market” and, upon their sale, Seiko authorised, or is taken to have authorised, any purchaser or subsequent owner of the cartridges to treat them as an “ordinary chattel” and that Seiko “implicitly authorised Ninestar to refill and modify the original Epson cartridges, after which Ninestar was free to sell them to Calidad who was then free to import them into Australia and sell them”: PJ at [4]. That answer is said to derive from the application of *Menck PC* to the facts of the case. Alternatively, CDP contended that Seiko’s exclusive right to exploit the invention does not include the right to prevent the owner of the patented product from repairing or refurbishing it or from having subsequent dealings in that refurbished product including importing the product into Australia for sale.
4. At [200], the primary judge set out the integers of claim 1 of the 643 patent in these terms:

200. The 643 patent has 40 claims. Claim 1 provides as follows (for convenience, integer numbers have been added):

[1] A printing material container adapted to be attached to a printing apparatus by being inserted in an insertion direction, the printing apparatus having a print head and a plurality of apparatus-side terminals, the printing material container including:

[2] a memory driven by a memory driving voltage;

[3] an electronic device driven by a higher voltage than the memory driving voltage;

[4] a plurality of terminals including a plurality of memory terminals electrically connected to the memory, and a first electronic device terminal and a second electronic device terminal electrically connected to the electronic device, wherein:

[5] the plurality of terminals each include a contact portion for contacting a corresponding terminal of the plurality of apparatus-side terminals,

[6] the contact portions are arranged in a first row of contact portions and in a second row of contact portions, the first row of contact portions and the second row of contact portions extending in a row direction which is generally orthogonal to the insertion direction,

[7] the first row of contact portions is disposed at a location that is further in the insertion direction than the second row of contact portions,

[8] the first row of contact portions is longer than the second row of contact portions, and,

[9] the first row of contact portions has a first end position and a second end position at opposite ends thereof,

[10] a contact portion of the first electronic device terminal is disposed at the first end position in the first row of contact portions and

[11] a contact portion of the second electronic device terminal is disposed at the second end position in the first row of contact portions.

1. There is no dispute that if CDP makes good its contention at [25] of these reasons, that answer holds good for the claims of the 239 patent. The primary judge concluded that CDP infringed both patents in relation to the former Calidad products but not the current Calidad products. CDP appeals from the orders of the primary judge consequent upon those findings. The primary judge reached those conclusions by first identifying the legal principles to be applied in resolution of the dispute. The primary judge then isolated the questions that his Honour considered needed to be answered and then answered those questions having regard to the particular findings of fact.
2. The primary judge observed that:
3. Section 13(1) of the Act confers an exclusive right on the patentee during the term to *exploit* the invention (and authorise others to do so) and that right, where the invention is a product, includes the right “to use it”.
4. The exclusive right to use a product means that upon sale (or resale) the patentee “will have continuing control of the use” of a product the subject of a patent: PJ at [81].
5. Thus, the patentee could “impose limitations” on the buyer’s use of such a product: PJ at [81]. Such a buyer could “never” consider himself or herself “entitled to all the usual incidents of ownership”: PJ at [81].
6. However, this notion of a statutory right (by reason of the scope of the grant conferred by s 13(1) of the Act) to impose limitations upon the use of a patented product creates a “tension” between the normal attributes of ownership of goods and an entitlement in the patentee to exercise continuing control over “any use” of the patented product after the point of first sale: PJ at [81].
7. One method of resolution of this tension is a *construction* of the scope of the statutory grant of the term “exploit” in relation to an invention where the invention is a product (as here, and as a matter of consistency where the invention is a method or process) that *exhausts* all things (rights) falling within the definition of exploit (which, of course, is an inclusive definition), at the point of “first authorised sale”: PJ at [82]. However, an exhaustion of rights doctrine is not part of the law of Australia.
8. The tension is otherwise resolved according to the principles adopted in *Menck PC*.
9. As to those principles, the following matters should be noted.
10. The starting point is put this way in *Menck PC* at 22:

To begin with, the general principle, that is to say, the principle applicable to ordinary goods bought and sold, is not here in question. The owner may use and dispose of these as he thinks fit. He may have made a certain contract with the person from whom he bought, and *to such a contract he must answer*.

[emphasis added]

1. However, a buyer simply in his or her “capacity as owner” is not bound by any restrictions in regard to the use or sale of the goods “and it is out of the question to suggest [as Isaacs J suggests] that restrictive conditions run with the goods”: *Menck PC* at 22. Further, “[i]t would be contrary to the public interest and to the security of trade, as well as to the familiar rights attaching to ordinary ownership, if any other principle applied”: *Menck PC* at 22. The “real point of difficulty” is the “enforcement of that principle” without impinging upon the grant by the State of a right of property in the form of a patent monopoly “to make, use, exercise, and vend the invention … in such manner as to him seems meet”. This point of difficulty is described in this way:

This is, of course, with reference to the grant of the right as a *sole right*, that is to say, put negatively, with a *power* to exclude all others from the right of production, etc, of the patented article, and also with reference to the *imposition of conditions* in the transactions of *making*, *using* and *vending*, which are necessarily *an* *exception by Statute* to the rules ordinarily prevailing: *Menck PC* at 22.

[emphasis added]

1. The “doctrine” (adopted by Isaacs J and (probably) Higgins J in *Menck HC* in rejecting the majority view of an exhaustion of rights), to the effect that conditions imposed on the buyer by the patentee *run with the goods* would, if adopted, effect a *radical change* in the law of personal property: *Menck PC* at 23 and 24.
2. However, if the restriction upon alienation, use or otherwise of the goods purchased arises from the fact that the person has become the owner “with the knowledge *brought home to him* of the limitation of his rights of alienation or otherwise” [emphasis added], then “there seems to be no radical change whatever”. Such limitations “are merely the *respect paid* and the *effect given* to those conditions of transfer of the patented article which the law, laid down by Statute, gave the original patentee a power to impose” [emphasis added]: *Menck PC* at 24.
3. These principles were said (*Menck PC* at 24) to “harmonize” the rights of the patentee with the rights of the owner. One of those harmonizing principles is put this way (*Menck PC* at 24):

[W]here a patented article has been acquired by sale, much, *if not all*, may be *implied* as to the *consent* of the licensee to an undisturbed and unrestricted use thereof. In short, such a sale *negatives* in the ordinary case the *imposition of conditions* and the *bringing home* to the knowledge of the owner of the patented goods that restrictions are *laid upon him* [or her].

[emphasis added]

1. These harmonized principles are restated in this way (*Menck PC* at 28):

In their Lordships’ opinion, it is thus demonstrated by a clear course of authority, first, that it is open to the licensee, by virtue of his statutory monopoly, to make a sale *sub modo* [without restrictive conditions], or accompanied by restrictive conditions which would not apply in the case of ordinary chattels; secondly, that the imposition of these conditions in the case of a sale is not presumed, but, on the contrary, a sale having occurred, the presumption is that the full right of ownership was meant to be vested in the purchaser; while thirdly, the owner’s rights in a patented chattel will be limited if there is brought home to him the knowledge of conditions imposed, by the patentee or those representing the patentee, upon him at the time of sale.

1. The reference in that passage to “a clear course of authority” is a reference to the observations of the Lord Chancellor, Lord Hatherley, in *Betts v Willmott* (1871) L.R. 6 Ch. App., 239 at 245. That case concerned a circumstance where a patentee had a manufacturing facility in England and in France. The defendant sold in England a product embodying the integers of the patent. The product had not been manufactured by the patentee in England and the patentee could not prove that the product was not made in the patentee’s facility in France. If made in the patentee’s facility in France, could it be sold in England? Lord Hatherley L.C. said this at 245:

[W]here a man [or woman] carries on the two manufactories himself, and himself disposes of the article abroad, unless it can be shewn, not that there is some clear injunction to his agents, but that there is some **clear communication to the party** to whom the article is sold, I apprehend that, inasmuch as he has the right of vending the goods in *France* or *Belgium* or *England*, or in **any other quarter of the globe**, he transfers with the goods necessarily the licence to use them wherever the purchaser pleases. When a man [or woman] has purchased an article he [or she] expects to have the control of it, and there **must** be some clear and explicit agreement to the contrary to justify the vendor in saying that he has not given the purchaser **his licence** to sell the article, or to use it wherever he pleases as against himself. He cannot use it against a previous assignee of the patent, but he can use it against the person who himself is proprietor of the patent, and has the **power** of conferring a complete right on him by the sale of the article.

[emphasis in bold added]

1. It is also a reference (at *Menck PC* at 25 and 26) to the remarks of Cotton LJ in *Société Anonyme des Manufactures de Glaces v Tilghman’s Patent Sand Blast Co.* (1883) 25 Ch. D., 1 at 9 (“*Tilghman’s case*”) in these terms:

When an article is sold without any restriction on the buyer, whether it is manufactured under one or the other patent, that, in my opinion, as against the vendor gives the purchaser *an absolute right to deal* with that which he so buys in any way he thinks fit, and of course that includes selling in any country where there is a patent in the possession of and owned by the vendor.

[emphasis added]

1. As to the power to impose restrictions on the use of a patented article, the following remarks of Wills J in *Incandescent Gas Light Co. Ltd v Cantelo* 12 RPC 262 also formed part of that line of authority mentioned in *Menck PC* at 28:

The sale of a patented article *carries with it* the right to use it *in any way that the purchaser chooses to use it,* *unless he knows of restrictions*. Of course, if he knows of restrictions, and they are *brought to his mind* *at the time of the sale*, he is bound by them. He is bound by them on this principle: the patentee has the sole right of using and selling the articles, and he may prevent anybody from dealing with them at all, inasmuch as he has the right to prevent people from using them, or dealing in them at all, he has the right to do the lesser thing, that is to say, to impose his own conditions. It does not matter how unreasonable or how absurd the conditions are. It does not matter what they are if he says at the time when the purchaser proposes to buy, or the person to take a licence, “Mind, I only give you this licence on this condition”, and the purchaser is free to take it or leave it as he likes. If he takes it, he must be bound by the condition.

[emphasis added]

1. The following observations of Dowsett J in *Austshade Pty Ltd v Boss Shade Pty Ltd* (2016) 118 IPR 93 at [80] are, in my respectful view, a useful distillation of the principles derived from *Menck PC*. There are three propositions identified by his Honour.
2. The *first* proposition is this:

* [T]he principle applicable to ordinary goods bought and sold is that the owner may use and dispose of those goods as he or she thinks fit. Notwithstanding any agreement which such owner may have made with the person from whom he or she bought the goods (by which he or she is bound contractually), he or she is not bound, in his or her capacity as owner, by any restrictions concerning the use or sale of the goods. Hence it is, “out of the question” to suggest that any such restrictive conditions run with the goods. The rights of an intermediate owner in that “capacity” are to be distinguished from the contractual arrangements which may bind him or her in dealing with the person from whom the goods were acquired. The point is that the intermediate owner may give to his or her purchaser, good title to the goods, notwithstanding any contractual restriction imposed upon the intermediate owner at the time of his or her acquisition of the goods.

1. The *second* proposition is this:

* [T]he general doctrine of absolute freedom in the disposal of chattels of an ordinary kind is, in the case of patented chattels, subject to the restriction that the person purchasing them, having knowledge of the conditions attached by the patentee, which knowledge is clearly brought home to him at the time of sale, is bound by that knowledge and accepts the situation of ownership subject to the limitations. In other words, a patentee may bind the power of a purchaser to deal with the goods, but such limitation will only bind a subsequent purchaser from that purchaser if the former has, at the time or purchase, actual knowledge of the limitations.

1. The *third* proposition is this:

* [I]n the case of such a resale, it is not presumed that conditions imposed on the vendor by the patentee will bind the subsequent purchaser. Rather, the sale will be presumed to have vested the full right of ownership in the subsequent purchaser unless the conditions imposed by the patentee have been brought home to him or her at the time of sale. Hence it is not sufficient that the ultimate purchaser may know of the patent and its application to the goods acquired. There must be actual knowledge of the limitations imposed by the patentee at the time of the first sale.

1. In *Time‑Life* at 541, Gibbs J thought it odd to describe the sale of an article as importing a licence in the buyer to use it. It seemed to his Honour “a misuse of words” to say that a person who sells an article consents to its being used “in any way that the buyer wishes”. However, his Honour also observed that the statement that a patentee who sells a patented article gives the buyer *his licence* to *use it* has often been repeated by distinguished judges and that *Menck PC* affirms that the consent or licence of the patentee to use an article might be implied from the sale of the patented article. His Honour at 541-542 also regarded the following statement of Buckley J in *Badische Anilin und Soda Fabrik v Isler* [1906] 1 Ch. 605 at 610 as “a correct statement of the patent law”:

If a patentee sells the patented article to a purchaser and the purchaser uses it, he, of course, does not infringe. But why? By reason of the fact that the law *implies from the sale* a licence given by the patentee to the purchaser to use that which he has bought. In the absence of condition this implied licence is a licence *to use* or *sell* or *deal* with the goods *as the purchaser pleases*: *Thomas v Hunt; Betts v Willmott*. If the patentee sells, imposing no restriction or condition upon his purchaser at the time of sale, he cannot impose a condition subsequently by delivery of the goods with a condition indorsed upon them. … *Unless* the purchaser knows of the condition at the time of purchase and buys subject to the condition, he has the benefit of an implied licence to use free from condition.

[emphasis added]

[citations omitted]

1. In *Time‑Life*, Stephen J at 549 regarded the principles derived from *Betts v Willmott* and *Tilghman’s case* (as explained in *Menck PC*) as being:

… *confined* to the *quite special case* of the sale by a patentee of patented goods and as turning upon the *unique ability* which the law confers upon patentees of imposing restrictions upon what use may after sale be made of those goods. If the patentee, having this ability, *chooses* not to exercise it and sells *without imposing any such restrictions*, the purchaser and any successors in title may then *do as they will* with the goods, for they are then in no different position from any purchaser of *unpatented goods*. But, to ensure that consequence despite the existence, albeit in the instance unexercised, of this power on the patentee’s part, the law treats the sale without express restriction as involving the grant of a licence from the patentee authorising such future use of the goods as the owner for the time being sees fit. The law does this because, without such a licence, any use or dealing with the goods would constitute an infringement of the patentee’s monopoly in respect of the use, exercise and vending of the patent. A sale of goods manufactured under patent is thus a transaction of a unique kind because of the special nature of the monopoly accorded to the patentee; the licence, whether absolute or qualified, which arises upon such a sale is attributable to the existence and character of that monopoly. Absent that monopoly, peculiar to patents, there is no occasion for any licence.

[emphasis added]

1. Before turning to the way in which the primary judge framed the questions to be answered in resolving the controversy at trial, it is necessary to note some features of the original Epson cartridges as sold by Seiko (or its agents or its exclusive distributor) and some aspects of the facts.
2. The original 11 Epson cartridges contained an “integrated circuit” (otherwise generally described as a “chip”) mounted on or connected to an “integrated circuit board”: PJ at [46]. One of the things a user (consumer) wants to know when using an inkjet printer and a printer cartridge is the progressive use of ink from the cartridge. Typically, the printer has a number of sensors to detect whether the cartridge is installed; the ink level in the cartridge; whether paper is in the tray; whether a paper jam has occurred etc. Typically, at the priority date (and as at the trial date) the common way to store information about the remaining level of ink in a printer cartridge was by means of an integrated circuit on the printer cartridge itself: PJ at [37].
3. Integrated circuits (of varying kinds) are commonly interchangeably called “chips”. They are simply a collection of electronic components arranged on semi‑conductor material (typically silicon) so as to enable the circuit to control the flow of one or more electrical currents through the circuit to express some particular functionality. These integrated circuits called, relevantly, EEPROMs enable the *stable storing* of data (“non‑volatile memory family” of integrated circuits) even when the power source to them is switched off. Storing information about the volume or level of ink contained in a cartridge in the memory in the integrated circuit on the cartridge itself allows a range of cartridges to be used (containing a small, medium or large volume of ink) interchangeably on the same printer. However, the only function of the memory on the printer cartridge is to store information and communicate it to the main processor in the computer when prompted. Storing information about ink levels on an integrated circuit (EPPROM) on a printer cartridge requires a communication protocol to be established between the cartridge EPPROM and the main processor in the printer. The instructions over a data line between the processor and the integrated circuit on the cartridge enables the processor to read the binary values stored on the chip on the cartridge. Similarly, the processor can “write data” to the memory chip on the cartridge over a data line by causing a “charge pattern” to be altered by changing the binary values (011010, for example) stored in the integrated circuit on the cartridge.
4. The particular relevance of these communications between the printer processor and the integrated circuit on the cartridge is that once the ink reservoir in the cartridge is below a threshold level, firmware in the processor will recognise the level and prevent the printer from printing the print job. The printer processor will not allow the print task to occur until an ink cartridge is installed whose integrated circuit (containing the relevant sequence of binary charges) affirms, to the processor, a level of ink in the cartridge to enable the print job to be completed: PJ at [44].
5. The primary judge (at [44]) observes that:

This means that, even if the ink cartridge is refilled, if the data stored on the memory on the cartridge still indicates an inadequate ink level, the main processor will recognise the ink cartridge as empty and will prevent the print job from occurring.

1. And at [45] the primary judge observes that:

In addition to storing binary code about the ink levels, the memory on the cartridge may also have fields that relate to other information that is communicated to and interpreted by the main processor in a similar manner to that described above. This could include, for example, the type of ink, the colour of ink, the brand of the cartridge, the date of manufacture etc. The memory could also contain a field relating to the serial number of the cartridge, which would enable the main processor to determine when a cartridge has been changed.

1. Returning to the Seiko Epson cartridges specifically, each of the 11 original cartridges contain an integrated circuit (chip) connected to a circuit board although different models have different chips resulting in differing compatibility between printers and cartridges: PJ at [46]. Original Epson cartridges are designed so that a compatible printer is able to read and process data in the chip. The chip stores data such as “volume of ink, the cartridge, date of manufacture and model number”: PJ at [47]. Each chip is comprised of an array of individual memory cells each storing a single binary “bit” of information (0 or 1) at a unique location on the chip determined according to the state of the electrical charge according to the absence (binary bit, 1) or the presence (binary bit, 0) of electrons: PJ at [50].
2. When an Epson cartridge is in operation in a printer, the cartridge chip is in “normal mode”. After manufacture, the chip is operated in “test mode”: PJ at [51]. The primary judge observes at [62] that ultimately the parties were not in substantial dispute about the sequence of steps taken by Ninestar to modify the Epson cartridges. The particular steps taken in relation to the relevant original Epson cartridge to bring into existence each category of Calidad product (the *current* products: categories 1, 2, 3 and A); the *former* products: categories 4, 5, 6, 7 and B) are described in detail in the reasons of the primary judge. It is not necessary to set out all of the detail of that analysis here. These things, however, should be noted.
3. As already mentioned, Ninestar “obtains” “used original Epson cartridges” (originally sold by Seiko or its agents) from third party suppliers: PJ at [67]. Those suppliers have either “collected them” by acquiring them from the “original consumers” (original users of the patented product) “or otherwise” (perhaps from recycling bins). The primary judge found that at least some of the original cartridges were sold or given to third party suppliers by those consumers. Some may have been collected from recycling bins. When Ninestar acquires them, the information stored in the memory chip on each cartridge records that the cartridge is “used”. *Placing* the cartridge (with memory cells storing a sequence of 0s and 1s in a charge arrangement determined by interactions between the processor and the cartridge’s integrated circuit during the *working life* of the original Epson cartridge), in a compatible printer, will result in the memory chip in the cartridge telling the printer processor that the cartridge is “empty”: PJ at [68].
4. At this point, the printer cartridge, as manufactured, as a product embodying the “invention” exhibiting all of the integers of each patent in suit, has reached the end of its useful life. It is a spent force, as compared with the state of the cartridge during its working life as an original Epson cartridge. The cartridge chip tells its symbiotic printer that it can no longer do its job of providing a reservoir of ink for transmission onto a page to produce the image or text that the consumer wants the printer to produce and the chip in the cartridge disables the printer from performing the print function.
5. Nevertheless, the cartridge, exhausted of ink, remains a “printing material container” adapted to be attached to a printing apparatus as contemplated by integer 1 of each patent and it continues to exhibit each of the integers 2 to 11 as set out at [26] of these reasons. Because it is exhausted of ink, it is no longer capable, notwithstanding the presence of all of the integers of the claims, of enabling the printing function of the processor.
6. However, the cartridge, discarded or sold by the original consumer, once gathered in by Ninestar, is subjected to the steps generally described at [22] of these reasons. Put simply, Ninestar “prepares” the cartridge so as to enable it to be *refilled* with ink by doing particular things to the *physical* cartridge/container. It then refills the cartridge with ink not supplied by Seiko or its agents. It then either replaces the memory chip on the cartridge (storing the digital arrangement of bits reading “empty”) with a new chip or it resets the existing chip to enable it to function in “normal mode” with refilled ink. It then operates the cartridge in “test mode” and “normal mode” to be satisfied of the alterations made, or to be made, to the content of the memory chip to enable it to operate in either mode (a “research and development” step).
7. All of this results in “a repurposing” of the original cartridge to enable it, in its repurposed form, to function in a way that exhibits each of the integers of the two patents set out at [26] of these reasons even though it may also exhibit other features, as “a product”, in addition to those features represented by the integers of claim 1 of each patent. In her Honour’s reasons in this appeal, Jagot J has set out the table from [73] of the primary judge’s reasons which identifies each Calidad product; the original Epson product from which it was derived; and a summary of the steps taken by Ninestar to “repurpose” the original cartridge so as to produce the Calidad product. Her Honour also sets out the relevant findings of the primary judge concerning the modifications made to the various categories of cartridges. It is not necessary to set those matters out again here. Jagot J also sets out the primary judge’s discussion of the two patents. The primary judge recognised, of course, that the parties proceeded on the footing that there is no material difference in the disclosures in the body of the specification of the 643 patent and the 239 patent and there is no material difference between claim 1 of the 643 patent and the content of claim 1 of the 239 patent. Thus, the primary judge’s discussion was confined to the 643 patent as a convenient way of describing the patent specification and the integers of claim 1 in each case. Again, it is not necessary to set those matters out here.
8. As earlier mentioned, it is common ground that the products imported into Australia, offered for sale and sold by CDP, exhibit each of the integers of claim 1 of the 643 and 239 patents. The acts of infringement relied upon by Seiko for the purposes of s 120 of the Act as an infringement of Seiko’s exclusive rights conferred by s 13 are those acts of importing a product (where, as here, the invention is a product), keeping it for sale, offering it for sale and selling the product, all of which fall within the definition of “exploit” in Sch 1, for the purposes of s 13 of the Act. Calidad answers that claim by saying that Seiko sold the Epson cartridges without imposing *any* restrictive conditions or limitations on the use that might be made of the patented product by the buyer (or, for that matter, without imposing any restrictive limitations concerning any of the acts falling within the definition of exploit). Calidad says that no restrictive conditions or limitations were imposed on *it* even if Seiko imposed restrictions on its buyer. Calidad says that each of the acts of infringement relied upon by Seiko as falling within s 13 of the Act are comprehended by a licence arising upon the sale of the patented product without restriction. That licence entitles, it is said, CDP to import the article under challenge exhibiting the integers of claim 1 in both patents; to keep the article for sale; to offer it for sale; and to sell it.
9. Seiko says that a licence arising upon a sale by it or its agents of the patented product, without any restrictive conditions or limitations (although it asserts that the very configuration of the cartridge contained “inherent restrictive conditions constituting relevant limitations”), gives rise to a very limited licence in the buyer to “use” the product the subject of the patent, to resell (and probably to import it into Australia) but not to subject the product to the sequence of steps described at [22] of these reasons and also at [73] of the primary judge’s reasons which, when properly examined, can only be characterised, it is said, as an act of manufacturing (otherwise called “repurposing”) of the original Epson cartridge by Ninestar so as to bring into existence a new article of manufacture which, so made, exhibits all of the integers of claim 1 of each patent.
10. At that point, Ninestar is said to be exercising Seiko’s s 13 exclusive right of “making” a product “in relation to the invention” (using the introductory words in the definition of exploit), exhibiting each of the claim 1 integers. Calidad is said to be infringing each patent by importing, keeping for sale, offering for sale and selling *that product*. Calidad also says that the various steps undertaken by Ninestar also amount to undertaking “repairs” to, or “refurbishment” of, the product sold by Seiko and those acts fall within the licence enjoyed by the buyer of the original Epson cartridge such rights not expressly withheld by Seiko at the time of sale to its buyer.
11. Calidad says that Seiko’s grant of exclusive rights, in these circumstances, does not include a right to prevent Calidad from importing, keeping for sale, offering for sale and selling a repaired or refurbished product. Seiko says that the steps undertaken by Ninestar are not properly characterised as repairing or refurbishing the Seiko product and CDP’s conduct of importing, keeping, offering and selling the product does not fall within the scope of any implied licence recognised by law.
12. In determining whether CDP enjoyed a licence to import for sale, keep for sale, offer for sale and sell, any of the products in the product categories set out in the table at [73] of the primary judgment, the primary judge was required by *Menck PC*, to answer the following questions in order to resolve the controversy between the parties.
13. *First*, did the patentee, Seiko, either by itself or its agents, impose or attach **any** restrictive conditions on the sale of the patented products in its dealings with its buyer?
14. *Second*, if so, what is the **content** of the relevant restriction?
15. *Third*, if so, was **knowledge** of the restriction “clearly brought home” to that buyer?
16. *Fourth*, since any restrictive condition, clearly brought home to Seiko’s buyer, does not “run with the goods” and an intermediate owner may give good **title** to the goods to his or her buyer notwithstanding any restriction imposed on the seller, has, in fact, any restriction adopted by Seiko and clearly brought home to its buyer, also been clearly brought home to **CDP**?
17. *Fifth*, if **no** restriction was imposed on the sale of the patented product by Seiko or its agents, what exactly is the **scope and content** of any licence enjoyed by the buyer (and each and every subsequent intermediate buyer of the patented product), **implied by law**? In other words, the licence implied by law (if any) is a licence to do **what exactly**?
18. In my respectful opinion, the primary judge asked and answered the first four questions but asked and answered an entirely different question so far as question 5, as required by *Menck PC* is concerned. Rather than examine the true *scope* and *content* of any licence arising in Seiko’s buyer (capable of being exercised by subsequent buyers), in all the circumstances, the primary judge examined a question of whether an implied licence was brought to an end, extinguished or terminated by the conduct of Ninestar in making modifications to the original Epson products: PJ at [164] and particularly at [178]. The question that must be answered as required by *Menck PC* is what exactly is the scope and content of any licence in the buyer (and subsequent buyers) arising out of the sale by the patentee or its agents of the product the subject of the invention (and thus, the claims defining the monopoly), when no limitation or restriction is imposed at the time of that sale.
19. The conduct complained of either falls within the scope of a licence or it does not.
20. In this case, the primary judge found that although Seiko might have imposed, *expressly*, some restrictions or limitations on the buyer of the original Epson cartridges at the point of sale, “[f]or its own reasons, it has chosen not to”: PJ at [134].
21. Next, the primary judge considered whether the original Epson cartridges sold by Seiko or its agents, were sold subject to restrictive conditions imposed on the buyer *built into* the memory chip of each original Epson cartridge such that the “condition”, deriving as a matter of inference from the physicality and functionality of the memory chip in the cartridge (and, in turn, the cartridge’s relationship with the printer) is that “the original Epson cartridge is not to be used in a relevant Epson branded printer where at least one of the following circumstances applied: (a)  the ink in the original Epson cartridge has dropped below a threshold level; (b)  the cartridge has already been ‘used’ and is ‘empty’; and (c)  where applicable, the original Epson cartridge is not compatible with the Epson branded printer”: PJ at [120].
22. Seiko contended that these restrictive “conditions” are programmed into each memory chip to give “effect” to the “restrictive conditions and physically embody them”. For the reasons identified at [127] to [137], the primary judge rejected the “inherent restrictive conditions” argument. The primary judge was correct to do so.
23. Next, the primary judge found at [128] to [143] that no restrictive conditions were brought home to *Calidad*. The primary judge was correct to so find.
24. Having addressed those matters, the primary judge described as “the elephant remaining in the room” the “fact” of modifications having been made by Ninestar to the original Epson cartridges and Calidad’s importation of the “modified products” (being the products under challenge in the principal proceeding). The question the primary judge posed was: to what extent do the modifications *affect* the implied licence? (PJ at [144]).
25. As to the fact of the modifications, I gratefully accept the detail of those modifications as described by Jagot J in her Honour’s reasons in this appeal drawn from the findings of the primary judge and the subject of her Honour’s further analysis of the modifications. It is not necessary for me to set out those matters again here.
26. As to the scope and content of any licence, the foundational principles are to be found in *Menck PC* as earlier identified but also in the affirmation of those principles by Gibbs J and also Stephen J notwithstanding that the discussion of the question as to the scope of an implied licence arising for the purposes of patent law, did not arise for determination in quelling a controversy between parties concerning the terms of an implied licence of a patent. The decision in *Time‑Life* concerned questions arising in relation to the law of copyright. At the moment in time when their Honours in *Time‑Life* were examining the notion of an implied licence so far as the patent law of the Commonwealth is concerned in order to address the argument raised by analogy to the patent law authorities, the statutory terms of the grant of rights were those determined by the *Patents Act 1952* (Cth).
27. Section 13 of the *Patents Act 1990* (Cth) frames the grant in terms of an exclusive right to exploit and the term “exploit”, where the invention is a product, disposes of the old word “vend” and comprehends (although the identified classes of rights are expressed in inclusive terms) particular acts. They are: to make the product; to hire the product; to sell the product; to otherwise dispose of the product; to offer to make, sell, hire or otherwise dispose of the product; to use the product; to import the product; to keep the product for the purpose of “doing any of those things”.
28. Those are the acts included within the term exploit in relation to “an invention” where the invention is a product. The *specification* for the patent application must disclose *the invention* in a manner which is clear enough and complete enough for the invention to be performed by a person skilled in the relevant art; disclose the best method known to the applicant of performing the invention; and end with “a claim or claims defining the invention”: s 40 of the Act.
29. Thus, the “invention” is defined by the claim or claims.
30. The claim or claims defining the invention “must be clear and succinct and supported by matter disclosed in the specification”: s 40(3). The claim or claims must relate to one invention only: s 40(4).
31. When s 13 of the Act grants a patentee the exclusive rights to exploit the invention (and to authorise others to do so), those exclusive rights are concerned with the invention as defined by the claim or claims and where the term “exploit” uses the phrase, “in relation to an invention, includes, where the invention is a product”, the term “exploit” is contemplating an invention defined by the claim or claims relating to one invention only.
32. Where a patentee (or its agents) sells a product where the invention is *that product* all of the rights described at [77] of these reasons comprising the statutory grant are reserved to the patentee. The patentee, at the point of first sale of such a product, might elect to *prescribe* the things the buyer is able, or not able, to do with the product so purchased. The product might be sold, for example, on terms that the buyer can “use” the product but not “sell” or “hire” or “otherwise dispose of” the product or “keep it” for the purpose of doing anything other than using the product. However, in the absence of any prescription by the patentee or its agents (that is, any form of withholding) at the point of first sale, the buyer acquires a licence of the patent to exercise in relation to the product (being the expression of an invention defined by a particular claim or claims), “all of the normal rights of *an owner* including the right to resell” [emphasis added]. That formulation is drawn from *Blanco White* as a distillation of the effect of the earlier authorities including *Menck PC* and affirmed by Gibbs J and Stephen J in *Time‑Life* as a correct statement of the patent law in this country: see [43] and [44] of these reasons. That right has also been described by Cotton LJ as “an absolute right to deal with that which he [or she] so buys in any way he [or she] thinks fit …”: see [37] of these reasons.
33. If the scope of the patent licence implied by law is understood, consistent with *Menck PC* and the authorities already discussed, by reference to “all the normal rights of an owner” or the “absolute right” to deal with the product as the buyer thinks fit, that right would bring within the scope of the implied licence, rights which would fall within the statutory description of “exploit”, to *this extent*: to “hire, sell, otherwise dispose of the product, offer to sell, hire or otherwise dispose of it, use or import it, or keep it for the purpose of doing any of those things”.
34. The scope of the implied licence, however, does not include a right to “make” the product being a right exclusively reserved to the patentee. The “owner” of a product, where the invention defined by a claim or claims, is that product, does not enjoy, by reason of ownership, a right to make an infringing product.
35. Once Ninestar undertook modifications to the original Epson cartridges which are properly characterised as *making* an article constituting a product embodying the integers of a claim defining Seiko’s invention, Ninestar stepped outside the scope of the licence. The licence did not come to an end by reason of the modifications. Nor was it discharged or repudiated by Ninestar’s conduct. The scope and content of the licence simply did not comprehend an implied licence in the buyer or Ninestar or anybody else to subject the original Epson cartridges to a sequence of modifications so as to bring into existence a new article of manufacture the result of which, properly characterised, is a “making” of a product the subject of Seiko’s invention defined by reference, relevantly, to claim 1 of the 643 patent and the 239 patent.
36. Calidad’s entitlement to import the modified product so described above rises no higher than the limitations in the implied licence relating to Ninestar’s conduct. CDP has imported into Australia for sale, kept for sale, offered for sale and sold, a product which does not fall within the scope and content of the implied licence. Calidad has thus infringed Seiko’s patents. Apart from these observations, I otherwise agree with the observations of Jagot J and Yates J on the remaining questions in issue in the appeal.
37. The appeal ought to be dismissed and the cross‑appeal allowed, having regard to the content of the modifications as described by Jagot J.

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| I certify that the preceding eighty-seven (87) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Greenwood. |

Associate:

Dated: 5 July 2019

REASONS FOR JUDGMENT

JAGOT J:

##### The appeal and cross-appeal

1. The appeal and cross-appeal with which these reasons for judgment deal concern the sale of printer cartridges. The appellants, referred to as Calidad, imported printer cartridges for sale in Australia. These cartridges had been originally manufactured and sold by the first respondent/first cross-appellant, Seiko, and, after use, the cartridges had been discarded, collected and modified overseas by a company unrelated to Calidad to enable reuse and sold to Calidad to enable importation and sale in Australia.
2. Seiko contended that Calidad’s conduct of importing, offering to sell and selling the re-purposed printer cartridges infringed Australian Patents Nos 2009233643 and 20123219239 respectively. Calidad contended that it did not infringe the patents because Seiko’s unrestricted sale of the cartridges meant that Calidad had an implied licence in respect of all cartridges. The primary judge held that Calidad had an implied licence authorising its conduct in respect of some of the cartridges and did not have such a licence in respect of other of the cartridges, depending upon the extent and character of the modifications of the cartridges necessary to make them capable of re-use.
3. In the appeal and cross-appeal Calidad and Seiko both contended that the primary judge was in error, Calidad’s position being that the implied licence applied to all of the cartridges and Seiko’s being that the implied licence did not apply to any of the cartridges.
4. I consider that Calidad’s appeal should be dismissed and Seiko’s cross-appeal allowed. The implied licence arising on Seiko’s unrestricted sale of the printer cartridges did not extend to any of the modifications necessary to enable the cartridges to be re-used. The modifications did not amount to the repair of any cartridge. Rather, in each case, the totality of the modifications constituted the making of a new embodiment of the invention claimed in the patents, being conduct outside the scope of the licence implied by Seiko’s act of sale without express restrictions brought to the notice of the original purchasers of the cartridges at the time of sale.

##### The primary judge’s reasons

###### Introductory matters

1. The primary judge’s reasons in *Seiko Epson Corporation v Calidad Pty Ltd* [2017] FCA 1403; (2013) 133 IPR 1 disclose all relevant primary facts. I adopt the same abbreviations as the primary judge.
2. As the primary judge explained, Seiko sells or authorises the sale of printer cartridges (**original Epson cartridges**) worldwide. The original Epson cartridges embody the invention in each of Australian Patents Nos 2009233643 and 20123219239. After initial sale and use, third parties including Ninestar Image (Malaysia) SDN. BHD (**Ninestar**) modified the cartridges to enable them to be filled with ink and re-used, and then sold the cartridges to Calidad which imported them and sold them in Australia: [1].
3. The primary judge described the relevant issue in this way at [2]:

The central dispute in these proceedings concerns the right of a patentee to control or limit what may be done with a patented product after it has been sold. This gives rise to consideration of the intersection of the general rights of property ownership in a chattel once sold, and the monopoly rights conferred on a patentee under the *Patents Act 1990* (Cth) (**Act**). When a patentee sells a chattel that embodies an invention claimed in a patent, can the patentee restrain the subsequent use made of it by a purchaser or a successor in title to the purchaser? This case explores that question…

1. The primary judge identified that 11 different types of cartridges are relevant to these proceedings. Each is compatible with one or more printers. As sold by Seiko, the cartridges are not capable of re-use and when the ink in any cartridge runs out the cartridges need to be replaced. The primary judge continued at [3]:

… Seiko has a lively, worldwide business that supplies replacement ink cartridges for its printers. Calidad operates a business that competes with Seiko in the supply of replacement ink cartridges for Seiko’s printers in Australia. The Calidad products are sold under 5 different Calidad product numbers (250, 253, 258, 260H and 260S) (**Calidad products**). Eleven different original Epson cartridges (T0711, 125, 126, 18, ICLM50, 98, 73N, 133, 138, T200 and T200XL) were modified by Ninestar to produce one or other of the Calidad products. To complicate matters, different modifications were made at different times.

1. While the appeal and cross-appeal concern only the alleged infringement of the patents, the primary judge was burdened with other claims which are no longer pressed. To the extent patent infringement is concerned, the primary judge said this at [4]:

… Seiko contends that Calidad infringes the claims of its patents by importing and selling the Calidad products. Calidad accepts that its products fall within the relevant claims of the patents, but submits that it has a complete answer to the allegation of patent infringement based on the fact that Seiko released the original Epson products on the market and, upon their sale, authorised any purchaser and subsequent owner of the cartridges to treat them as an ordinary chattel. More particularly, Calidad submits that Seiko implicitly authorised Ninestar to refill and modify the original Epson cartridges, after which Ninestar was free to sell them to Calidad who was then free to import them into Australia and sell them.

1. The primary judge explained his conclusion at [4] in these terms:

… In the United States, upon the first sale of a product that embodies a claimed invention, the patent rights in that product are said to be exhausted, which means that the patentee can no longer exert control over the product; *Impression Products, Inc. v Lexmark Intern., Inc.* 137 SCt 1523 (2017) (***Lexmark***). In Australia, a different principle has developed which arises from *National Phonograph Co of Australia Ltd v Menck* (1911) 12 CLR 15 (Privy Council) (***National Phonograph***). Applying the principles set out in that case, I have found that Seiko’s infringement claim succeeds for Calidad’s past range of products, but not in respect of its current products…

1. The primary judge also noted at [10] that the parties agreed that “it was only necessary for the Court to consider one claim of one patent in order to determine the patent infringement issues (being claim 1 of the 643 patent)”.

###### The technology

1. It is sufficient to adopt the primary judge’s description of the technology at [24] to [40], the most salient parts of which are set out below.
2. “A printed circuit board or integrated circuit board is a non-conductive material (such as plastic or fibre glass) that has electronic components mounted onto it. The electronic components are connected together to form one or more working circuits or assemblies via strips of a conducting material (such as copper), which are printed or etched onto the board (also known as ‘traces’)”: [24].
3. The electrical components on a printed circuit board generally include traces, pads, one or more integrated circuits which connect to the board via leads, and “discrete electronic components (such as, for example, transistors, capacitors, inductors, light emitting diodes (‘LEDs’))”: [25].
4. “Integrated circuits (also known as ‘chips’) are a collection of electronic components arranged on a piece of semi-conductor material (such as silicon). The components are connected in such a way to enable the circuit to control the flow of one or more electrical currents through the circuit in order to achieve some useful function”: [26].
5. “Piezoelectric devices are devices that are made of certain materials (for instance ceramics or quartz) which mechanically respond when the voltage is applied and removed. They generally require high voltages and both the high voltage requirement and the fact that they respond mechanically when a voltage is applied means that piezoelectric devices are not generally built into integrated circuits”: at [28].
6. “The electrical currents that flow through an integrated circuit and between integrated circuits and/or other discrete components on one or more printed circuit boards often constitute digital information in the form of bits, which are the smallest unit of data, comprising single binary values, either 0 or 1”: at [29].
7. “Integrated circuits (and the boards on which they sit) can be designed to perform a number of different functions. For example, in relation to printers, they can include memory, which stores digital information, and communication devices between the printer and the computer (for example in a Universal Serial Bus (USB), or Ethernet)”: [30].
8. “Short circuiting is a problem for any electrical circuit. Short circuiting occurs when an accidental path is created in an electrical circuit, which results in an electrical current moving down an unintended path … In cases where a high voltage is directed onto a low voltage circuit, this can also cause the components in the low voltage circuit to fuse, thereby rendering it (and consequently the electrical device) unusable. This is because modern integrated circuits, which tend to be powered at quite low voltages, are susceptible to damage from higher than specified voltages”: [31].
9. “An **electronic printer** is a device that takes an electronic representation of an image and produces an impression of that image on a medium (such as paper). Printers in the Australian household consumer market generally include inkjet and laser printers. Inkjet printers have a number of very small nozzles through which liquid ink is forced, in the form of small droplets, onto the paper. Laser printers produce an image electrostatically on an intermediate surface. That electrostatic image attracts toner and applies it to the paper, using heat to set the toner onto the paper”: [32].
10. “**Inkjet printers** (as well as most other printers) comprise hardware and firmware. Hardware is the physical machinery that exists inside the printer. Firmware is the software or set of instructions programmed onto the hardware. Electronic printers generally also need to be associated with a printer driver, which is a piece of software commonly installed on the computer that is connected to the printer”: [33].
11. The key aspects that inkjet printers commonly include are, as described in [34]:

(a) a power source, which includes a converter that converts the mains electricity (which in Australia is 240 volts) to a lower voltage that is useable by the printer hardware;

(b) a communications interface which provides an electrical or wireless interconnection with a computer (this could be via, for example, USB, Ethernet, Wireless network (“wifi”) or Bluetooth technology);

(c) a main processor, which would typically be an integrated circuit on a printed circuit board of the type described above, that handles all the basic system functions that control the printer mechanism and convert the image data into ink ejection control signals.

(d) the main processor will have some memory which may be on the same integrated circuit or an external integrated circuit on the printed circuit board. A memory is an integrated circuit that commonly contains cells that store electrical charge (which represents the binary data that I refer to above) and circuitry to read and write the electrical charge to the cells. The main processor addresses cells to read and write binary data. The pattern of the bits represents the digital data;

(e) one or more ink cartridges (colour inkjet printers commonly utilise four colours, cyan, magenta, yellow and black; the colours will commonly be housed in four separate cartridges, however, others have multi-colour cartridges with separate ink orifices for each colour);

(f) a printhead assembly, which contains the components (including the nozzles referred to above and the heating element or piezoelectric device). The printhead assembly ejects the ink from the ink cartridges onto the page (in some cases the printheads are located in the ink cartridges but in other cases the printheads are located on the printer itself). The printhead assembly, if separate from the ink cartridge, commonly includes a needle designed to pierce the ink cartridge to enable ink to flow, via tubes and sometimes a filter, down to the nozzles, where a heating element or piezoelectric device cause droplets of the ink to be pushed out of the nozzles onto the paper;

(g) a carriage, which holds the ink cartridges and printhead assembly, that is attached to a mechanism to move the carriage (including the ink cartridge and the printhead assembly) along the width of the paper;

(h) a feed paper mechanism, which commonly includes paper input and output trays and one or more rollers and motors that interact to feed the paper through the printer; and

(i) a control panel to allow the user to interact with the operation of the printer.

1. The inkjet printer may also have, as described at [35], a number of sensors to detect (for example):

(a) whether the ink cartridges are installed in the printer;

(b) the ink levels in the printer cartridges;

(c) whether the lid of the printer is open or closed;

(d) whether there is paper in the input tray;

(e) whether there is too much paper in the output tray; and

(f) whether there is a paper jam in the printer.

1. The primary judge explained:

37 There are many ways in which the information about the remaining ink levels can be stored. However, a common way as at December 2005 (**priority date**) and today was to store the remaining ink level information on an integrated circuit on the printer cartridge itself. These types of integrated circuits are called EEPROM, and form part of a non-volatile memory family. The data stored in the memory in this family can be retained by the integrated circuit even when it is not powered (another example of a type of memory that falls into this class is a flash drive, also known as a USB memory stick).

38 By storing the information about the ink levels in a memory on the printer cartridge, the information about how much ink is in the printer cartridge is transportable with the cartridge, so the ink information is retained even if the cartridge is removed and replaced or moved to another printer.

39 Having memory on the ink cartridge itself also allows physically identical ink cartridges containing different amounts of ink (for instance small, medium and large volume cartridges) to be sold and used in the same printer. This is because the available ink volume can be determined from information written to the memory on the cartridge.

40 Storing the information concerning the ink levels on an integrated circuit on the printer cartridge requires a communication protocol to be established between the memory on the cartridge and the main processor in the printer… The information on the memory is stored as bits, i.e. as a series of binary numbers (0s and 1s), which is described above.

###### The original Epson products

1. “The original Epson cartridges are cartridges sold by or with the permission of Seiko and have the Epson model numbers T0711, 125, 126, 18, ICLM50, 98, 73N, 133, 138, T200 and T200XL. They contain an integrated circuit chip mounted on or connected to a printed circuit board (or integrated circuit board). Different models of the original Epson cartridges have different types of memory chips located on the rear of the integrated circuit boards, and have differing compatibility with Epson printers”: [46].
2. “Original Epson cartridges are designed so that a printer with which they are compatible is able to read and process the data in the memory chip. The memory chips store information regarding the printer cartridge, such as the volume of ink, the status of the cartridge, its date of manufacture and model number. Each category of information is stored in its own memory address on the memory chip”: [47].
3. “The memory chips in the Epson cartridges have two different modes, ‘normal’ mode and ‘test’ mode. When in operation in the printer, a printer cartridge’s chip will be in normal mode. The ‘test mode’ is accessed when testing the chips after manufacture and when certain types of data in certain types of Calidad products is re-written”: [51].

###### The Calidad products

1. The original Epson cartridges have been sold by or with the permission of Seiko: [66]. Ninestar, for a fee, obtains used original Epson cartridges from third party suppliers who have collected them. The primary judge said that “it is likely that a portion of the original Epson cartridges have been sold or given by the consumers to the third party suppliers, and that otherwise they have come into the hands of the third party suppliers by a variety of means, including, perhaps, collection from recycling facilities”: [67].
2. As the primary judge explained:

68 At the time when Ninestar acquires the original Epson cartridges, the information on the memory chip records that the cartridge is “used” such that when it is inserted into a compatible printer, the printer will not work because the information conveyed from the memory chip to the printer is that the cartridge is empty.

69 In order to be refilled and made available for sale the steps set out in detail in the table at [73] below must be taken. Broadly, for a re-filled cartridge to work, it is necessary to reconfigure or rewrite the information on the memory chip so that when it is inserted into a compatible printer, the information in the memory chip does not indicate that the cartridge is used or empty.

1. The table at [73] is as follows:

|  |  |  |
| --- | --- | --- |
| **No.** | **Type of modification** | **Calidad model / type** |
| **Current (all cartridges sold after April 2016, excluding the Calidad 260H referred to in Category 1)** | | |
| **Category 1** | (1) Preparation  (2) refilling processes +  (3) Reset in normal mode;  (4) **Normal mode R&D processes+** | Calidad 260 Std (originally Epson T200)  Formerly,Calidad 260H (originally Epson T200XL) |
| **Category 2** | (1) Preparation  (2) Refilling processes +  (3) Reset/reprogram in test mode for ink level, cartridge status  (4) **Test mode R&D processes** **+** | Some Calidad 253 (originally Epson 133)  Some Calidad 258 (originally Epson 138) |
| **Category 3** | (1) Preparation  (2) Refilling processes +  (3) Reset/reprogram in test mode for model number, ink colour, ink level, cartridge status and date of manufacture  (4) **Test mode R&D processes +** | Some Calidad 253 (originally cartridges other than Epson 133)  Some Calidad 258 (originally cartridges other than Epson 138) |
| **Category A** | Cartridge categories 2 or 3 above, without the gas membrane cut (95% of cases) | 5% of Calidad 253 and Calidad 258 cartridges |
| **Former (all cartridges sold before April 2016)** | | |
| **Category 4** | (1) Preparation  (2) refilling processes +  (3) Chip replacement process  (4) Compatible chip R&D processes + | Calidad 260H (originally cartridges other than Epson T200XL) |
| **Category 5** | Same as category 4 cartridges which have also had interface pattern cutting process | Some Calidad 250 |
| **Category 6** | Same as categories 2 or 3 plus interface pattern cutting process | Some Calidad 253  Some Calidad 258 |
| **Category 7** | Categories 5 or 6 cartridges plus replace integrated circuit assembly | Some Calidad 250 imported in 2014-2015  Some Calidad 253 imported in 2014-2015  Some Calidad 258 imported in 2014-2015 |
| **Category B** | Cartridge categories 5, 6, or 7 above, without the gas membrane cut (95% of cases) | Some Calidad 250  Some Calidad 253  Some Calidad 258 |

1. There was no factual dispute about these modifications apart from category 2 step (3), “Reset/reprogram in test mode for ink level, cartridge status”.
2. The primary judge made further factual findings about the modifications made to the various categories of cartridges in these terms:

**6.3 Category 1 – sold after April 2016**

**6.3.1 Summary of the modifications**

227 Category 1 cartridges are the Calidad 260S and 260H cartridges that were originally the Epson T200 or T200XL cartridges and which have been modified in the manner set out below. They are current Calidad products.

228 **Step (1) - preparation** involves inspecting the original Epson cartridges to confirm that they are the correct type and in a suitable condition to be restored. The cartridges are then emptied and cleaned in preparation for refilling. Any residual ink inside the cartridge is removed by inserting a vacuum device using a needle and a tube into the cartridge and applying suction and then weighing the cartridge to ensure all of the ink has been removed. Where the original ink contains pigment (rather than dye), the cartridges are also washed with water. The outlet hole is prepared by removing the original seal covering it, which was broken when the Epson cartridge was first used.

229 **Step (2) - refilling** involves the creation of a second hole (**injection port**) in the middle of the main side of the cartridge with a needle which is then used to inject replacement ink into the cartridge whilst a vacuum, which is part of the refilling device, draws air out of the cartridge from its outlet hole. The injection port and the outlet hole are each sealed by placing pieces of thin clear plastic over them and applying force and heat to effect a seal.

230 In all category 1 cartridges Ninestar also makes a small slit in the gas membrane of the cartridge (using a knife) which is then resealed with glue. This is done in order to improve the gas exchange within the cartridge when it is used in the printer. A cut in the gas membrane is also made to approximately 5% of Calidad 250, 253 and 258 cartridges (when a pressure test indicates that the pressure value of the cartridge is outside a certain range). The additional 253 and 258 cartridges without their membrane cut are referred to in the table above as **category A cartridges**.

231 The relevant background to **step (3) - reset in normal mode** is as follows. In an Epson printer, each time there is a print job, the Epson printer will write a series of bits into the “ink level” memory address of the printer cartridge’s memory chip that represents the level of ink that the printer software estimates is remaining or will remain in the cartridge after the completion of the print job. When the ink level becomes depleted, the bits written into the ink level memory address represent to the printer that the ink volume is beyond a threshold level. When the Epson cartridge is refilled the data must be altered so that it is recorded as unused again. A similar exercise is required in relation to the cartridge status. The data stored in the memory address on the Epson chips that relates to cartridge status represents that the cartridge is either an unused cartridge, a cartridge that has been previously used but is not yet empty, or an empty cartridge. During operation, the software causes the data stored in this memory address to be rewritten to represent that the cartridge status is “used”. This must be changed upon refilling because the printer will not print unless the data stored in the chip indicates that the cartridge is an unused cartridge or that the cartridge has been used previously but is not yet empty.

232 Step (3) resetting is a process in which the data stored on the memory chip in the addresses that relate to the ink level and cartridge status is re-written from one series of binary bits to another to record that the ink volume is “full” and that the cartridge status is either “unused” or “has been used previously but is not yet empty”. In category 1 cartridges the Epson cartridge memory is reset in **normal mode**. The process of rewriting takes a matter of seconds and involves holding the terminals of the cartridges up to a connector to equipment that causes the rewriting to take place.

233 The software process executed by the equipment used causes the data in the memory address on the original Epson chip to be rewritten from one series of bits to another series of bits. Mr Li gives an example in his affidavit whereby the change from a used original Epson cartridge to a restored Calidad cartridge might involve a change from “01111110” to “00000000” or from “11100000” to “00000001” in order to change the memory relating to ink level. The same type of rewriting takes place with respect to changes in cartridge status.

234 **Step (4) - normal mode research and development processes** concern the steps required to be undertaken in order to understand the original Epson cartridges, and their interaction with the Epson printers, to enable the modifications identified above to take place. Although the parties dispute the relevance of this stage to the legal dispute, there was no dispute as a matter of fact about what was required.

235 It is first necessary to obtain samples of the Epson printers in which the Calidad cartridges are intended to be used and to obtain used and unused samples of the original Epson cartridges that are to be replaced. They must be inspected in order to understand the path that the ink follows inside the cartridge and to understand where the sensor is located.

236 In order to determine how the memory chips of the Epson cartridges operate it is necessary to understand the electrical circuitry by removing a black seal on top of the memory chip, removing protective layers to reveal circuitry around each transistor, photographing each block of circuitry including each transistor (and there may be hundreds) and conducting electrical testing. It is also necessary to understand the interface protocol by which the printer and chip communicate, which involves use of an oscilloscope, to determine the data stored on the chip by collecting the communication between the printer in the chip and determine what the data means and the memory addresses at which information needs to be read or written. Finally, it is necessary to program electronic equipment to “reset” the data concerning ink level and cartridge status. The evidence indicates that these steps were either undertaken by specialist third parties commissioned by Apex or within the Apex group.

237 I accept that the process of research and development described involves a reasonable degree of expertise upon the party performing it and that it involves an invasive examination of sample original Epson cartridges.

…

**6.4 Category 2 – sold after April 2016**

**6.4.1 Summary of the modifications**

247 Category 2 concerns Calidad 253 and 258 cartridges that have been sold by Calidad since April 2016. They were originally Epson 133 and Epson 138 cartridges respectively.

248 **Step (1) - preparation and step (2) - refilling** for category 2 products are the same as for category 1, with the addition of conducting a pressure test which is required to ensure that the pressure valve of the cartridge is within a prescribed range.

249 **Step (3) - reset/reprogram** involves rewriting the information on the memory chip when it is in **test mode**. This involves selection of a “rewrite” function on the equipment used, similar to the process described in relation to category 1. The evidence of Dr Hawkins, upon which he was not cross-examined, is that it would be very difficult to access the test mode and determine what instructions to issue to write the data in the test mode. Whereas in the normal mode, observation of how the printer interacts with the ink cartridges can provide significant insight into the interface protocol and the structure of the information being written and read, there are no analogous communications while it is in test mode, since such communications only take place during ink cartridge manufacturing in Epson’s facilities (Hawkins 56 (b)).

250 Seiko contends that in addition to data relating to ink level and cartridge status, in category 2 cartridges data relating to cartridge model, ink colour and date of manufacture is also reprogrammed. Calidad disputes that these additional steps are taken in relation to this category of cartridges.

251 The disagreement arises from [46], [47] of Mr Li’s affidavit of 22 September 2016…

252 It may be that Mr Li could have been clearer in drawing a distinction between the different classes of Epson cartridges in this section, but in reading paragraphs [46]-[56] as a whole it appears clear enough that in [48]-[56] Mr Li is referring to the processes undertaken to cartridges that are equivalent to Epson 133 and 138 cartridges but which have different model numbers. Thus, at [50] when he says “[i]n addition to the data relating to ink level and cartridge status…”, he is referring to the steps taken in relation to this category of cartridge, not the Epson 133 and 138 cartridges…

253 I do not consider that the cross-examination served to establish that [48]-[56] of the affidavit should be read down to have the meaning for which Seiko contends. Accordingly, I find that for category 2 cartridges, the rewriting that takes place concerns cartridge status and ink level.

254 **Step (4) - test mode research and development** involves a significantly greater degree of research and development than is required compared to normal mode research and development. As with the cartridges that have their memory chips rewritten in normal mode, it is first necessary to obtain samples of the Epson printers in which the Calidad cartridges are intended to be used and to obtain used and unused samples of the original Epson cartridges that are to be replaced. They must be inspected in order to understand the path that the ink follows inside the cartridge and to understand where the sensor is. In order to determine how the memory chips of the Epson cartridges operate it is necessary to understand the electrical circuitry by removing a black seal on top of the memory chip, removing protective layers to reveal circuitry around each transistor, photographing each block of circuitry, including each transistor (and there may be hundreds), and conducting electrical testing. It is also necessary to understand the interface protocol by which the printer and chip communicate, which involves use of an oscilloscope, to determine the data stored on the chip by collecting the communication between the printer in the chip and determine what the data means and the memory addresses at which information needs to be read or written.

255 In addition to these steps, which are in common to the steps taken in normal mode research and development, it is necessary to determine how to activate the test mode and determine the applicable interface protocol for the test mode. This involves the use by Apex of specialist third-party technology. Details as to how to convert the chip into test mode is a business secret which is confidential and apparently not known by Apex. Evidence was not adduced as to precisely what happens. It is apparent that custom programmed electronic equipment is also necessary to reset the ink level and cartridge status and “reprogram” the data concerning date of manufacture, model number and ink colour. The process used is maintained as confidential. I infer that it is costly, time consuming and requires considerable specialised skill and experience.

…

**6.5 Category 3 – sold after April 2016**

**6.5.1 Summary of the modifications**

260 Category 3 products are Calidad 253 and Calidad 258 cartridges that were modified from cartridges other than Epson 133 and Epson 138 cartridges (that is, other than category 2 Calidad 253 and 258 cartridges). This is because whilst the Calidad 253 and 258 cartridges are marketed as alternatives respectively to the Epson 133 and 138 cartridges, in certain circumstances, each is produced by modifying different Epson cartridges. For instance, the Calidad 253 cartridge in some instances are made using Epsom 125, 98, or ICLM50 cartridges, or from cartridges acquired from overseas that have a corresponding model number to Epson 133.

261 **Step (1) - preparation and step (2) - refilling** are the same as steps (1) and (2) in category 1 cartridges.

262 **Step (3) - reset/reprogram in test mode** for category 3 cartridges involves modifications made in test mode to; model number, ink colour, ink level, cartridge status and date of manufacture. It involves, in one rewriting process, resetting this data. The process takes a few seconds.

263 The reason for additionally changing the data in relation to cartridge status and ink level (which does not take place in category 2 cartridges) is the same as set out in relation to category 1 above. It is necessary to rewrite the data stored in the memory address relating to cartridge model because where an identical cartridge is identified by Epson using a different model number (for instance an overseas equivalent) the model memory address must be rewritten to represent the model number that is used by Epson for that cartridge in the intended region for sale (here, Australia) as otherwise the local printers will not print. Mr Li explains that it is necessary to rewrite the data related to the date of manufacture stored in the memory address because the series of bits that record this information are interpreted by the printer and displayed on the printer screen of the computer as a prompt when the ink in the cartridge has expired or will soon expire. **Step (4) - test mode research and development process** for category 3 cartridges is the same as for category 2, as set out above.

…

**6.6 Category A – sold after April 2016**

**6.6.1 Summary of the modifications**

266 Category A is said to represent category 2 or 3 cartridges that do not have the gas membrane cut during the modification process. It is not in dispute that this represents 95 per cent of cartridges. The Calidad parties submit that this separate category is necessary and appropriate in the analysis. Seiko contends that it is a minor difference that does not warrant such treatment.

…

**6.7 Category 4 – sold prior to April 2016**

**6.7.1 Summary of the modifications**

269 Category 4 cartridges are Calidad 260H cartridges that have not been sold since April 2016 and that were modified from cartridges other than Epson T200XL such as cartridges acquired from outside Australia that have a corresponding number to the Epson T200XL and the Epson T200 (category 1 includes Calidad 260H cartridges that have been marketed since April 2016).

270 **Step (1) - preparation and step (2) refilling** processes for category 4 cartridges are the same as for category 2 cartridges.

271 **Step (3) - chip replacement process** is quite different to the “reset/reprogram” stage (step (3)) for the category 2 cartridges. Mr Shen gives evidence that instead of reprogramming or resetting the integrated circuit chip in these cartridges, Ninestar employees remove the integrated circuit boards from the printer using a cutting tool. The circuit boards are then sent to AMC which arranges for the manufacture of a compatible chip that contains: bits in the ink level memory address representing that the ink volume capacity was full; bits in the cartridge status memory address which represent that the cartridge was “unused”; bits in the date of manufacture memory address; bits in the model memory address representing the relevant cartridge model and ink colour suitable for its proposed use. AMC arranges for a third party to place the **new memory chip** on integrated circuit boards. When a printed circuit board is replaced, it is not on the same cartridge from which it was removed, but rather on any original Epson category 4 cartridge available.

272 Analysis of the evidence in relation to this category of cartridges indicates that the steps taken were to; remove the integrated circuit board from the cartridge using a cutting tool; manufacture generic memory chips using a third-party commissioned by AMC; test the chips at wafer level; program the generic memory chips; dice the wafers into individual die (each die being one chip) and good dies (those chips which have passed testing) picked and placed into waffle packs; replace original chips with generic memory chips on the integrated circuit board; and reattach the integrated circuit board to the cartridge.

273 **Step (4) - compatible chip research and development processes** for category 4 may be summarised as follows. It is first necessary to obtain samples of the Epson printers in which the Calidad cartridges are intended to be used and to obtain used and unused samples of the original Epson cartridges that are to be replaced. They must be inspected in order to understand the path that the ink follows inside the cartridge and to understand where the sensor is located. In order to determine how the memory chips of the Epson cartridges operate it is necessary to understand the electrical circuitry by removing a black seal on top of the memory chip, removing protective layers to reveal circuitry around each transistor, photographing each block of circuitry, including each transistor (and there may be hundreds), conducting electrical testing and constructing and simulating the circuitry in Electronic Design Automation software and testing its performance. It is also necessary to understand the interface protocol by which the printer and chip communicate, which involves use of an oscilloscope, to determine the data stored on the chip by collecting the communication between the printer in the chip and determine what the data means and the memory addresses at which information needs to be read or written.

274 It is then necessary to design and develop a compatible memory chip that may be substituted for the memory chip of the original Epson cartridge. This involves using AMC’s designs for standard memory cells, AMC’s patented technology and some of AMC’s own control data. A wafer level probe test for the memory chip may have to be developed (the evidence is not clear in this regard) and applied using AMC devices and electronic equipment must be programmed and used to write the relevant data on the generic memory chips, applying the knowledge from earlier testing and some degree of experimentation, to confirm that the compatible chip’s data structure functions compatibly with the Epson printer.

…

**6.8 Category 5 – sold before April 2016**

**6.8.1 Summary of the modifications**

278 Category 5 includes all Calidad 250 cartridges other than those identified in category 7 or category B below (in respect of which further steps were taken). These cartridges are marketed as an alternative to the Epson 73N and may be made from not only Epson 73N but also similar cartridges acquired from overseas with a number corresponding to the Epson 73N, from the Epson T0711 or from Epson standard or XL volume cartridges.

279 The processes used to modify these cartridges are the same as for category 4, with the addition that Ninestar cuts off the “interface pattern”, which is part of the exterior shape of one of the short sides the original Epson cartridge. The same research and development processes were also required.

…

**6.9 Category 6 – sold before April 2016**

**6.9.1 Summary of the modifications**

284 Category 6 cartridges are Calidad 253 and Calidad 258 cartridges that would otherwise fall within categories 2 or 3, but which have had the interface pattern removed in the manner described in category 5 and which were sold approximately before April 2016 (none were sold after this date).

…

**6.10 Category 7 – sold before April 2016**

**6.10.1 Summary of the modifications**

287 Category 7 consists of cartridges that fall within category 5 (that is, category 4 cartridges with the interface pattern cut off) or category 6 (that is, category 2 or 3 cartridges that have had the interface pattern cut off) that have additionally had the integrated circuit assembly replaced. This category concerns about 25% of the Calidad 253 and 258 cartridges and a smaller number of Calidad 250 cartridges.

288 On occasion, if Ninestar ran short of appropriate original Epson cartridges it would use the shell of one cartridge and replace it with the integrated circuit assembly of another. This led to the additional step of removing the integrated circuit assembly from the Epson 73N cartridges and replacing it with the integrated circuit assembly of an Epson 133 cartridge or an Epson 138 cartridge. The memory chip was reset or reprogrammed and the cartridge was supplied as either a Calidad 253 or Calidad 258 cartridge. On occasion the shells of Epson 133 and 138 cartridges had their integrated circuit assembly removed and replaced with the integrated circuit assembly of an Epson 73N cartridge. The memory chip was replaced and the cartridge was supplied as a Calidad 250 cartridge.

…

**6.10.3 Category B cartridges**

292 Category B consists of cartridges that fall within categories 5, 6 or 7 which have not had the gas membrane cut, which represents 95% of the Calidad 250, 253 and 258 cartridges. I do not consider that the gas membrane cut is a modification that is material to the embodiment as claimed.

###### The patent

1. At [179] the primary judge recorded:

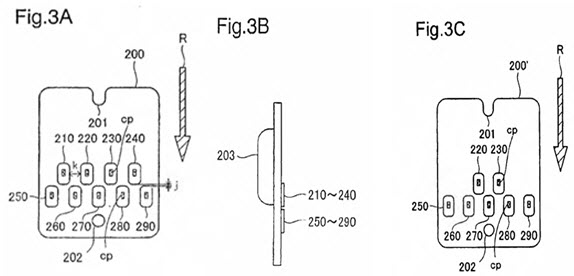
The parties agree that there was no material difference between the disclosure in the body of the specification of the 643 patent and the 239 patent. They also draw no material distinction, for the purpose of the present dispute, between the content of the 2 asserted claims, being claim 1 of the 643 patent and the content of claim 1 of the 239 patent. In these reasons, following the approach of the parties, attention focusses entirely upon the disclosure of the 643 patent, and claim 1 of that patent.

1. The 643 patent, entitled “Printing material container and board”, “relates in general to a printing material container (which includes an ink cartridge) and/or a board adapted to be attached to or connectable to a printing apparatus”: [182].
2. “The patent proposes ‘a structure for preventing the information storage medium [or memory] from shorting and becoming damaged due to a drop of liquid being deposited on the terminals connecting the printing apparatus with the storage medium’”: [183].
3. As the primary judge said at [185]:

…the specification directs attention to an ink cartridge that has 2 or more devices such as a memory and a high voltage piezoelectric device for detecting ink levels, each with electric terminals. A risk of shorting between the terminals arises. The patent proposes a solution to prevent the information storage medium (or “memory”) from being damaged as a result of shorting between terminals.

1. The primary judge continued noting the following aspects of the patent:

194 The “board” 200 is of particular relevance to the present dispute, as it is the arrangement of the terminals on it that provides an example of an embodiment within claim 1. This may be explained by reference to figures 3A, 3B and 3C, which are depicted below:



195 The arrow R indicates the insertion direction of the ink cartridge. The board 200 comprises a “device” in the form of a memory 203 disposed on its back face, and a terminal group composed of 9 terminals 210-290 disposed on its front face. The memory 203 stores information relating to the ink contained in the ink cartridge 100.

196 The specification explains the electrical arrangement set out in figures 3A, 3B and 3C as follows:

[42] … the ground terminal 220, the power supply terminal 230, the reset terminal 260, the clock terminal 270 and the data terminal 280 are electrically connected to the memory 203. The memory 203 is, for example, EEPROM comprising serially accessed memory cells, and performing data read/write operations in sync with a clock signal. …

197 In [74], [75] the specification provides additional explanation (emphasis added):

[74] As mentioned previously with reference to FIG. 3A, in the ink cartridge 100 pertaining to the embodiment the first sensor drive terminal 250 and the second sensor drive terminal 290 which apply the driving voltage to the sensor are arranged at the two ends of the terminal group, so the number of adjacent terminals is small. **As a result, the likelihood of the first sensor drive terminal 250 and the second sensor drive terminal 290 shorting to other terminals is low.** Fig. 3C shows another example of the board. This board 200’ is different from the board 200 shown in Fig. 3A in that the board 200’ has seven terminals 220, 230, 250, 260, 270, 280, and 290 excluding the first and second short detection terminals 210, 240. The upper row consists of the ground terminal 220 and the power supply terminal 230. The lower row consists of the first sensor drive terminal 250, the reset terminal 260, the clock terminal 270, the data terminal 280, and the second sensor drive terminal 290. **This board 200’ also has the effect that the likelihood of the first sensor drive terminal 250 in the second sensor drive terminal 290 shorting to other terminals is low, as is the case with the board 200 shown in Fig. 3A.**

[75] On the board 200, if the first sensor drive terminal 250 should short to the adjacent first short detection terminal 210, the shorting will be detected by the aforementioned cartridge detection/short detection circuit 502. …

198 The specification notes that damage to the circuits of the memory 203 and the printing apparatus 1000 caused by shorting or by infiltration of foreign matter can be prevented or reduced.

199 The specification describes 2 broad forms that provide a solution to the problem of shorting. The first is to place the terminals (or pads) on the printed circuit board in a particular way to reduce or prevent the likelihood of shorting by reason of the special arrangement. The second is to use one or more “short detection circuits” to detect shorting and take action to prevent damage to the printer or cartridge. These 2 aspects are combined in some embodiments.

1. The primary judge identified claim 1 of the 643 patent, by reference to the integers of the claim, in these terms ([200]):

[1] A printing material container adapted to be attached to a printing apparatus by being inserted in an insertion direction, the printing apparatus having a print head and a plurality of apparatus-side terminals, the printing material container including:

[2] a memory driven by a memory driving voltage;

[3] an electronic device driven by a higher voltage than the memory driving voltage;

[4] a plurality of terminals including a plurality of memory terminals electrically connected to the memory, and a first electronic device terminal and a second electronic device terminal electrically connected to the electronic device, wherein:

[5] the plurality of terminals each include a contact portion for contacting a corresponding terminal of the plurality of apparatus-side terminals,

[6] the contact portions are arranged in a first row of contact portions and in a second row of contact portions, the first row of contact portions and the second row of contact portions extending in a row direction which is generally orthogonal to the insertion direction,

[7] the first row of contact portions is disposed at a location that is further in the insertion direction than the second row of contact portions,

[8] the first row of contact portions is longer than the second row of contact portions, and,

[9] the first row of contact portions has a first end position and a second end position at opposite ends thereof,

[10] a contact portion of the first electronic device terminal is disposed at the first end position in the first row of contact portions and

[11] a contact portion of the second electronic device terminal is disposed at the second end position in the first row of contact portions.

###### Primary judge’s conclusions

1. The primary judge noted that there was no dispute “that the original Epson cartridges and the Calidad products possess all of the essential features of claim 1 of the 643 patent”: [76]. Calidad’s defence to infringement was an implied licence arising on the sale of the original Epson cartridges or, in the alternative, an argument that “a patentee’s exclusive rights under s 13(1) of the *Patents Act 1990* (Cth) do not include the right to prevent the owner repairing or refurbishing a patented product, or have subsequent dealings in that repaired or refurbished product (including importation)”: [76].
2. Having reviewed the relevant statutory provisions and authorities at [80] to [108] and [146] to [160], the primary judge concluded that the modifications made to the original Epson cartridges in categories 4, 5, 6 and 7 were outside of the implied licence from Seiko which arose on initial sale which infringed claim 1 of the 643 patent: [294]. In so concluding his Honour observed that:

144 I have found that neither Ninestar nor Calidad took the products in issue subject to notice of restrictions imposed by Seiko. However, that finding is not determinative of the matter in favour of Calidad. The elephant remaining in the room is the fact that Ninestar made modifications to the original Epson cartridges, and Calidad imported the modified products (ie the Calidad products) into Australia. To what extent do the modifications affect the implied licence? Seiko contends that the modifications so made are such that the implied licence cannot survive them.

145 No Australian law directly touches upon this subject. The parties called in aid United Kingdom authority in support of their respective positions. Seiko pointed to differences between the original Seiko cartridges and the Calidad products to contend that no implied licence could apply. Calidad drew on *United Wire* [*United Wire Ltd v Screen Repair Services (Scotland) Ltd* [2001] RPC 24] and *Schütz* [*Schütz (UK) Ltd v Werit (UK) Ltd* [2013] UKSC 16; (2013) 100 IPR 583] to contend that there was no infringement of rights. …

1. The primary judge reasoned as follows:

161 In the present case, CDP imported the products after Ninestar had modified them. The only defence available to Calidad is that the importation of the Calidad products falls within the umbrella of the implied licence.

162 A distinction must be drawn between two sets of rights that may be available to an owner of a patented product who takes it without restriction. First, the rights available to deal with the product without restriction. These rights concern the importation, sale and use of the patented product. Secondly, rights to repair the product (under an implied licence to repair) or otherwise perform acts which fall short of a “making” (pursuant to a residual right to do acts less than a “making”). The present case concerns only the first of these.

163 The proper question is accordingly not based on a repair or making analysis, but rather whether the implied licence can be said to apply in circumstances where one owner of the product, Ninestar, has modified it and then passed title in it to CDP. The relevant question then becomes; at what point has an owner of the embodiment made changes to it such that the implied licence arising from a sale *sub modo* is extinguished? No authority appears to have directly addressed this topic.

164 For the reasons developed below, in my view the threshold question to consider is whether or not the modified product is materially the same embodiment of the invention as claimed as the product that the patentee sold without restriction. That is not an inquiry that is at large. The right of the patentee to impose restrictions upon sale arises because the product is an embodiment of an invention as claimed. The question is not whether or not the *product* was altered or repaired, but whether the product, *insofar as it is an embodiment of the invention as claimed*, was materially altered, such that the implied licence can no longer sensibly be said to apply.

165 The implied licence arises from the disposition by a patentee of a particular embodiment of its invention. As noted in *National Phonograph* (at 22, 28), the patented goods are not free of restriction simply because they are chattels, but because the patentee has chosen not to exercise its right to impose restrictions on their use arising under the relevant Patents Act.

166 The basis for the implied licence is because of the sale of the particular **patented product**. That is, a physical product that embodies the features claimed in the patent. When such a product is sold by or with the authority of the patentee, the authority passed on to subsequent owners of the product is a permission relating to **that embodiment of the features of the claimed invention**. Accordingly, while the sale *sub modo* will remove the ability of the patentee to restrict a purchaser from importing, selling, using or disposing of the product, the licence is necessarily confined to such rights insofar as they apply to the particular embodiment sold with the approval of the patentee.

167 The extent to which modifications are to be regarded as relevant must be examined in the context of the exclusive right of a patentee to “exploit” the invention as conferred by s 13 of the Act. It is constrained by the extent to which any alleged infringing product falls within the claims of the patent. This is seen by the language of the definition of “exploit”, which in the chapeau identifies that the exclusive rights of the patentee exist “in relation to **an invention**”, being the invention as claimed.

168 The plurality noted in *D’Arcy v Myriad Genetics Inc* [2015] HCA 35; (2015) 258 CLR 334 at [14] (French CJ, Kiefel, Bell and Keane JJ, citations omitted):

… The function of the claim was described by Lord Russell of Killowen in 1938 as “to define clearly and with precision the monopoly claimed, so that others may know the exact boundaries of the area within which they will be trespassers.” Its limiting role was emphasised:

It and it alone [defines] the monopoly; and the patentee is under a statutory obligation to state in the claims clearly and distinctly what is the invention which he desires to protect.

Lord Russell’s observations have stood the test of time in the United Kingdom as “[t]he best-known statement of the status of the claims in UK law”. They also describe the function of the claim mandated by s 40(2)(b) of the Act. As succinctly, but accurately, stated in a recent Australian text that function is “to define what it is that the patentee has exclusive right to, during the term of the patent.”

169 In short, the exclusive rights of a patentee to constrain the conduct of the owner of a patented product can only arise insofar as that product is an embodiment of the invention as claimed. Otherwise the scope of the patentee’s rights would exceed the rights conferred by the Act.

…

178 This process of reasoning leads to the conclusion that to assess whether or not the implied licence continues after modifications are made one must consider the significance of modification work done on a product and how the modifications in question relate to the features of the patented product that are defined by the claim. Where that work done, or alteration made, does not concern a claimed feature, then the work is irrelevant to the analysis. That is because the patentee’s rights to limit the use of the patented product arise because the product represents an embodiment of the claimed features.

1. At [208] the primary judge also said this:

… as a matter of construction integer [2] is to be understood as referring to a hardware device. Such a device is characterised by its ability to hold or store information but the information stored on the device is not the subject of any claim limitation. The reason for this is that the invention is directed towards a particular terminal layout arrangement for a printing material container that has a reduced likelihood of shorting. The particular data stored in the memory has no role to play in reducing the likelihood of shorting. The combination claimed is concerned with the particular layout of the features described. Put another way, the claim itself is indifferent as to the information or data stored on the memory.

1. Applying this approach to the modifications of the various categories of cartridges, the primary judge said this:

**Category 1**

1. “…the modifications described above do not have a material bearing on the manner in which the original Epson cartridges described embody the invention as claimed”: [238].
2. In particular, at [240]:

Step 2 involves minor physical alterations to the cartridge container in the form of the creation of an injection port or a slit in the gas membrane. These changes bear no relationship to the invention the subject of the integers of the claim.

1. As to step 3:

241 Step 3 concerns changes made to the data contained in the memory. These concern ink level and cartridge status. Seiko contends that within the memory chip different “electrical states” (that is, relative presence or absence of electrons at each particular location for an EEPROM) or molecular states (in the case of a FRAM) are interpreted as a 0 or 1. The resetting and reprogramming constitute, Seiko submits, physical modifications to the memory as a “device” and the fact that the physical modifications are microscopic is irrelevant in the context of integrated circuits. It submits that the physical alterations made to the memory are highly substantial in the context of the patented article and essential to its functioning. When an original Epson cartridge is sold by Epson, the memory was in a certain physical state. The purchaser or user modified the memory by using the cartridge to print. Any implied licence to use the patent that article permitted such modifications. The cartridge was then discarded with the memory on a different physical state reflecting the ink level and the cartridge status. The step 3 process involves modifications to the memory by resetting the ink level to full and resetting the cartridge status to unused, in normal mode.

242 I accept that the changes described by Seiko are made within the memory, but the fact that data is stored in the chip by making minuscule physical changes to it is not to the point. The question is whether the original Epson category 1 cartridges have been materially altered insofar as they embody the invention as claimed. In this respect, Seiko’s submissions focus on the physical changes made to the original Epson cartridges *per se* rather than upon the manner in which those cartridges represent an embodiment of the invention.

243 Properly construed, the claim distinguishes between the memory chip and that which is stored upon it (whether it be data, software or otherwise). The combination of integers claimed is not for a monopoly referable to the content of the chip, but to the existence of the chip as part of the combination. Although I accept that a benefit arising from the claimed combination (reduced likelihood of shorting) is likely to be for the purpose of ensuring that the data content of the chip is not corrupted or destroyed in operation, the content of the chip is not part of the essential features of the claimed invention and does not form part of the monopoly in respect of which Seiko has rights by virtue of the patent. In that context it is not to the point that the resetting process involves microscopic physical changes to the memory chip. Those changes reflect only the information on the chip, which is not the subject of the claim.

244 Accordingly, I do not consider the step 3 alterations to be material.

1. Seiko’s contention that the research and development processes in step (4) are relevant was also rejected: [245].
2. As a result, “the category 1 Calidad products are cartridges in respect of which the licence implied by a sale without restriction of the original Epson cartridges applies”: [246].

**Category 2**

1. As the main difference between category 1 and 2 is only that “resetting or reprogramming of the memory chip is undertaken in test mode” which requires a “greater degree of research and development … to rewrite the contents of the memory chip”, the “analysis for category 2 chips is not different to that of category 1 cartridges”: [258].

**Category 3**

1. The primary judge said at [264]:

Steps 1 and 2 for the category 3 cartridges are the same as for category 1. However, step 3 is more complicated, and involves additional modifications to the contents of the memory chip. However, for the reasons given in relation to category 2 cartridges, the analysis and outcome is the same.

**Category A**

1. The primary judge said at [267]:

It follows from the analysis and conclusions expressed in relation to categories 2 and 3 that the category A cartridges have also not been the subject of material change such that the conclusion expressed in relation to those categories would be any different.

**Category 4**

1. The primary judge said:

275 The step 3 chip replacement process utilised in the category 4 cartridges represents a materially different process to that used in the earlier categories. It involves the entire removal of the integrated circuit board and the replacement of the memory chip with a generic memory chip. That generic chip is then placed on a printed circuit board and the printed circuit board is placed on a category 4 cartridge. It is the printed circuit board that has, on its opposite face, the terminals to which integers [4]-[11] of the claim relate.

276 In my view, the alterations performed on an individual original Epson category 4 cartridge fall on the wrong side of the line for the implied licence to be maintained. The cartridge has its original memory chip removed from the printed circuit board and replaced with an entirely different item of hardware. That generic memory chip is not replaced on the same printed circuit board as that which is on the cartridge as sold by Seiko. Integer [2] of claim 1 directly concerns the memory. Those modifications materially affect, and change, the embodiment by replacing the memory chip, and thereby represents a material change to the embodiment that Seiko sold.

277 As a consequence, Calidad has no licensed rights in respect of category 4 cartridges, and they infringe claim 1.

**Category 5**

1. The primary judge said:

280 The result that I have expressed in relation to the category 4 cartridges applies also to the category 5 cartridges. The difference between these cartridges is that Ninestar cuts off the interface pattern in addition to taking the steps identified in relation to category 4. Mr Shen gives evidence that Ninestar removed the interface pattern in order to permit used 250 cartridges that came from Japan to be able to be used in printers of Calidad’s customers in Australia. Similarly, the reason for removing the interface pattern from XL cartridges was to enable those cartridges to be supplied as standard 250 cartridges.

281 The relevance of the interface pattern is that it provides a physical means by which the range of Epson printers the cartridge may be used with is limited. Integer [1] requires that the printing material container be adapted to be attached to a printing apparatus by being inserted into it. The interface pattern formed part of the mechanism by which Seiko’s embodiment achieved that function. The modifications made may be regarded as borderline in the context of the present analysis. However, I conclude that they fall on the wrong side of the line such that this modification alone would serve to terminate the implied licence.

282 In any event, because the category 5 cartridges incorporate the same changes as made to category 4 cartridges, the same conclusion applies.

283 As a consequence, Calidad has no licensed rights in respect of category 5 cartridges, and they infringe claim 1.

**Category 6**

1. As the category 6 cartridges also have the interface pattern removed, the reasons given for and in conclusion in respect of category 5 apply: [285].
2. As a result, “the category 6 Calidad products are cartridges in respect of which the licence implied by a sale without restriction of the original Epson cartridges does not apply”: [286].

**Category 7**

1. The primary judge said:

289 For those category 7 cartridges that fall within category 4, for the reasons that I have identified in relation to that category, the alterations materially affect the embodiment sold by Seiko. However, category 2, 3 and 6 cartridges, absent the category 7 changes have not been materially altered. It is accordingly necessary to consider the additional changes made.

290 The category 7 cartridges represent, in effect, a hybrid of different original Epson cartridges. In order to create them Ninestar arranged for the removal of the integrated circuit board, which is central to the invention as claimed and which includes within it the layout of the terminals which are described in integers [4] – [11]. In my view, those changes amount to a material change to the embodiment as sold by Seiko.

291 This leads to the conclusion that the category 7 Calidad products are cartridges in respect of which the licence implied by a sale without restriction of the original Epson cartridges does not apply.

**Category B**

1. “Category B consists of cartridges that fall within categories 5, 6 or 7 which have not had the gas membrane cut, which represents 95% of the Calidad 250, 253 and 258 cartridges”: [292].
2. The primary judge did not “consider that the gas membrane cut is a modification that is material to the embodiment as claimed”: [292].
3. Accordingly, the primary judge concluded at [293] that:

… the separate modifications made to the category B cartridges do not of themselves lead to the conclusion that the implied licence no longer applies. However, because category B cartridges all fall within either categories 5, 6 or 7 they do not benefit from the implied licence.

##### Discussion

1. In their principal cases both parties accepted the test which the primary judge formulated, that the implied licence which arose on the sale of the cartridges by Seiko would continue for the benefit of subsequent purchasers provided that “the product, *insofar as it is an embodiment of the invention as claimed*, was [not] materially altered, such that the implied licence can no longer sensibly be said to apply” with the consequence that “to assess whether or not the implied licence continues after modifications are made one must consider the significance of modification work done on a product and how the modifications in question relate to the features of the patented product that are defined by the claim”: at [164] and [178] respectively.
2. Both parties contended, however, that the primary judge’s evaluation of these questions miscarried in part.
3. For Seiko, the miscarriage occurred in respect of the new cartridges where the primary judge found that there had been no material modification to the products insofar as they were an embodiment of the invention as claimed. According to Seiko (or its written submissions at least) the primary judge went wrong in applying the material modification test for two main reasons.
4. First, his Honour overlooked that the claimed invention involved a “printing material container” and thus did not give weight to the modifications in steps 1 and 2 which involved both removing the original broken seal covering the existing hole in the container (created when the container was originally used to allow the ink to flow) and then creating a second hole or injection port in the container (to enable the fresh ink to be inserted) and sealing both that hole and the original hole by covering them with clear plastic under force and heat to reseal the container. As a result, Seiko submitted, the process involved the printing material container ceasing to be a printing material container (due to the unsealed holes) and the making of a new printing material container (by the sealing of the holes).
5. Second, Seiko submitted that his Honour misconstrued “memory” in claim 1 by confining it to silicon hardware rather than construing it to include the electrons (or ions) present in the cells of the silicon hardware which are read as 1s and 0s and are used to convey information.
6. If either error is corrected, said Seiko, the result would be the conclusion that all of the cartridges failed the material modification test and thus involved conduct outside of the scope of the implied licence which arose on sale.
7. For Calidad, the miscarriage occurred in respect of the old cartridges in respect of which the primary judge found that there had been material modifications to the product insofar as they were an embodiment of the invention as claimed.
8. For example, for category 4, the replacement of the memory chip was not a material modification as the substituted chip was functionally equivalent to the original chip. Further, the fact that the printed circuit board was likely to be a different board was immaterial. To explain, Ninestar sent the old cartridges in bulk to another company to have the original memory chip removed and the new memory chip substituted. This required removal of the printed circuit board from the cartridge. The other company then returned the printed circuit boards in bulk with the new chip and the cartridges. As a result, it was unlikely that any individual printed circuit board was re-attached to the same cartridge from which it had been removed to carry out the chip removal and substitution. As the physical features of the printed circuit board remained identical, said Calidad, the re-assembled cartridge embodied the claimed invention in the same way.
9. Similarly, for category 5, the removal of the interface pattern enabling cartridges collected from Japan to be compatible with Australian printers had no effect on the printer cartridge as an embodiment of the claimed invention which does not include any integer about how the cartridge should attach to the printer.
10. Calidad’s alternative cases, I note, ranged from its submission that, contrary to the Privy Council’s decision in *National Phonograph Co of Australia Ltd v Menck* [1911] UKPCHCA 1; (1911) 12 CLR 15 and consistently with the High Court’s decision in *National Phonograph Co of Australia Ltd v Menck* [1908] HCA 96; (1908) 7 CLR 481, the consequence of the sale of an article is that all patent rights are completely exhausted, to a submission that the primary judge was wrong to conclude that the implied licence on sale was extinguished by any modifications to the original Epson cartridges because Seiko imposed no restrictions on sale, to another submission that all modifications that were made to the cartridges imported by Calidad were mere repairs and did not involve the making of any new product representing an embodiment of the claimed invention.
11. In its oral submissions Seiko contended that all of the cases, be they from Australia or the United Kingdom, were reconcilable. Apart from the High Court’s decision in *Menck* which the Privy Council overturned, properly understood, none stand for the proposition that the consequence of sale was extinguishment of all patent rights. Rather, all the cases, in one way or another, are about the scope of the implied licence which necessarily arises on the sale of every patented article, the scope of which will depend upon all relevant circumstances including but not limited to the nature of the patented article, the circumstances of the sale, and the imposition at the time of sale of any express restrictions on the use which the purchaser may make of the article after sale. In the present case, submitted Seiko, the approach of the primary judge is also about the scope of the implied licence; but so too are the cases about the doctrine of repair (as a right of repair ordinarily would be within the scope of any implied licence) and the doctrine that sale does not authorise the purchaser to make a new embodiment of the patented article (as such a right ordinarily would not be within the scope of any implied licence).
12. Whatever approach is taken, according to Seiko, all of the printer cartridges imported by Calidad are outside the scope of any possible implied licence which arose on the sale by Seiko of the original printer cartridges. Given the nature of the article it could never have been within the common contemplation of Seiko and any purchaser that a printer cartridge exhausted of ink would be re-purposed in the manner of the Calidad products. As a result, Calidad’s importation of the cartridges, which undisputedly embodied the claimed invention, infringed the patents.
13. I consider Seiko’s submissions, in particular its oral submissions, persuasive.
14. The Privy Council in *Menck* was concerned with the capacity to restrict the resale of a patented article. This required the resolution of the principles concerning the sale of goods with the statutory rights granted by a patent. At 22 the Privy Council noted that the general principle applying to goods bought and sold was not in question. The owner may do as the owner sees fit and no restrictive conditions run with the sale of the goods. The Privy Council continued:

The real point of difficulty is the enforcement of that principle without impinging upon something else, namely, the right of property granted by the State and by way of monopoly to a patentee, and his agents and licensees, “to make, use, exercise, and vend the invention … in such manner as to him seems meet.”

1. Their Lordships decided that “it is perfectly possible to adjust the incidence of ownership of ordinary goods with the incidence of ownership of patented goods in such a manner as to avoid any collision of principle”: also at 22. The principles were reconciled at 24 in these terms:

…the general doctrine of absolute freedom of disposal of chattels of an ordinary kind is, in the case of patented chattels, subject to the restriction that the person purchasing them, and in the knowledge of the conditions attached by the patentee, which knowledge is clearly brought home to himself at the time of sale, shall be bound by that knowledge and accept the situation of ownership subject to the limitations. These limitations are merely the respect paid and the effect given to those conditions of transfer of the patented article which the law, laid down by Statute, gave the original patentee a power to impose. Whether the law on this head should be changed and the power of sale *sub modo* should be withdrawn or limited is not a question for a Court. It may be added that where a patented article has been acquired by sale, much, if not all, may be implied as to the consent of the licensee to an undisturbed and unrestricted use thereof, In short, such a sale negatives in the ordinary case the imposition of conditions and the bringing home to the knowledge of the owner of the patented goods that restrictions are laid upon him.

These principles harmonize the rights of the patentee with the rights of the owner. They are not, in their Lordships’ opinion, novel …

1. The Privy Council, having reviewed the relevant authorities including *Betts v Willmott* (1871) LR 6 Ch App 239, reiterated the applicable principle at 28 as follows:

In their Lordships’ opinion, it is thus demonstrated by a clear course of authority, first, that it is open to the licensee, by virtue of his statutory monopoly, to make a sale *sub modo*, or accompanied by restrictive conditions which would not apply in the case of ordinary chattels; secondly, that the imposition of these conditions in the case of a sale is not presumed, but, on the contrary, a sale having occurred, the presumption is that the full right of ownership was meant to be vested in the purchaser; while thirdly, the owner's rights in a patented chattel will be limited if there is brought home to him the knowledge of conditions imposed, by the patentee or those representing the patentee, upon him at the time of sale.

1. Justice Gibbs referred to this principle in *Interstate Parcel Express Co Pty Ltd v Time-Life International (Nederlands) BV* [1977] HCA 52; (1977) 138 CLR 534 at 540 to 541. At 541 Gibbs J observed that the cases, including *Betts v Willmott* and *Menck*:

…seem to accord more with general principles than to say that a sale of an article imports a licence to use it. The sale of an article confers on the buyer all the rights of ownership including the right to use the article, but it seems a misuse of words to say that a person who sells an article consents to its being used in any way that the buyer wishes. However the statement that a patentee who sells a patented article gives the buyer his licence to use it has often been repeated by distinguished judges.

1. His Honour continued at 542 noting that, although the Privy Council in *Menck* said at 28 that “a sale having occurred, the presumption is that the full right of ownership was meant to be vested in the purchaser”, other passages in the judgment suggest an acceptance that the “the consent or licence of the patentee to use the article might be implied from the sale”. His Honour also said at 541 that the “words of Buckley J in *Badische Anilin und Soda Fabrik v Isler* [(1906) 1 Ch 605] must be regarded as a correct statement of the patent law”, namely at 610 that:

If a patentee sells the patented article to a purchaser and the purchaser uses it, he, of course, does not infringe. But why? By reason of the fact that the law implies from the sale a licence given by the patentee to the purchaser to use that which he has bought. In the absence of condition this implied licence is a licence to use or sell or deal with the goods as the purchaser pleases ...

1. Justice Gibbs also explained the difference, in this regard, between patent rights and copyright, saying at 542:

By the grant of a patent in traditional form, a patentee is granted exclusive power to “make, use, exercise and vend” the invention. The sale of a patented article, by the patentee, would be quite futile, from the point of view of the buyer, if the buyer was not entitled either to use or to resell the article which he had bought. It therefore seems necessary, in order to give business efficacy to such a sale, to imply a term that the patentee consents to the use of the patented article by the buyer and those claiming under him. The law accordingly does ordinarily imply the consent of the patentee “to an undisturbed and unrestricted use” of the patented article (*National Phonograph Co. of Australia Ltd v Menck* (1911) 12 CLR, at p 24; (1911) AC, at p 349). To make such an implication, for the purpose only of avoiding the restrictions upon the use of the article that would otherwise be imposed by the patent, seems to be perfectly consistent with the ordinary rules governing the implication of terms in contracts.

1. Justice Stephen adopted the same approach at 548 to 550, distinguishing patent rights as explained in *Betts v Willmott* and *Menck*, amongst other cases, from copyright saying that the patent cases:

… should, I think, be seen as confined to the quite special case of the sale by a patentee of patented goods and as turning upon the unique ability which the law confers upon patentees of imposing restrictions upon what use may after sale be made of those goods. If the patentee, having this ability, chooses not to exercise it and sells without imposing any such restrictions, the purchaser and any successors in title may then do as they will with the goods, for they are then in no different position from any purchaser of unpatented goods. But, to ensure that consequence despite the existence, albeit in the instance unexercised, of this power on the patentee's part, the law treats the sale without express restriction as involving the grant of a licence from the patentee authorizing such future use of the goods as the owner for the time being sees fit. The law does this because, without such a licence, any use or dealing with the goods would constitute an infringement of the patentee's monopoly in respect of the use, exercise and vending of the patent. A sale of goods manufactured under patent is thus a transaction of a unique kind because of the special nature of the monopoly accorded to a patentee; the licence, whether absolute or qualified, which arises upon such a sale is attributable to the existence and character of that monopoly. Absent that monopoly, peculiar to patents, there is no occasion for any licence.

1. Justice Stephen at 552 explained that:

The origin of and reason for the existence of the concept of the grant of an implied licence to use patented goods, arising upon a sale of those goods unaccompanied by any express restriction as to their future use, lies in the patentee's monopoly which otherwise would extend to the use to which the patented goods are put after he has disposed of them by sale. Without such a licence, implied or express, a purchaser might not lawfully put those goods to use; hence the need for a licence and, on a sale by the patentee without express restriction, for the law’s implication of a licence.

1. This principle was applied by the Full Court of the Federal Court in *Australian Competition and Consumer Commission v Pfizer Australia Pty Ltd* [2018] FCAFC 78; (2018) 356 ALR 582 at [593] to [594], noting (consistently with the statements in *Menck* and *Interstate Parcel*) that the implied licence to use or re-sell related to the product as sold (in that case, a pharmaceutical product).
2. Seiko’s emphasis upon the fact that the implied licence which arises on an unrestricted sale is a licence to use the patented goods (and not a new embodiment of the claimed invention) reflects the authorities. Those authorities, moreover, are consistent with the terms of s 13 of the Patents Actwhich, during the term of a patent, gives the patentee the exclusive right to exploit the invention and to authorise another person to exploit the invention throughout the patent area, “exploit” meaning, where the invention is a product, to “make, hire, sell or otherwise dispose of the product, offer to make, sell, hire or otherwise dispose of it, use or import it, or keep it for the purpose of doing any of those things”: s 3 and Sch 1. The relevant focus is “the product” which is the product embodying the claimed invention. For its part, Calidad accepted that the implied licence is a licence to use the product as sold and that such a licence could not extend to the making of a new embodiment of the claimed invention.
3. Seiko is also right that the repair cases are able to be understood as involving an assessment of the scope of the implied licence which arises on unrestricted sale of a patented article. Accordingly, in *Solar Thompson Engineering Co Ltd v Barton* [1977] RPC 537 at 554 Buckley LJ dealt with the doctrine of repair in the context of the implied licence, saying:

It has long been recognised that a purchaser of a patented article may carry out repairs to it without being held liable for infringement. On the other hand he cannot manufacture a new article which infringes the patent and claim that he has not infringed merely because in the manufacture he has used parts derived from a patented article sold by the patentee: *Dunlop Pneumatic Tyre Co. Ltd. v. Neal* (1899) 16 R.P.C. 247; *Dunlop Pneumatic Tyre Co. Ltd. v. Holborn Tyre Co. Ltd.* (1901) 18 R.P.C. 222. Lord Halsbury stated this principle succinctly in *Sirdar Rubber Co. Ltd. v. Wallington Weston & Co.* (1907) 24 R.P.C. 539 at 543, line 22, where he said: “The principle is quite clear although its application is sometimes difficult; you may prolong the life of a licensed article but you must not make a new one under the cover of repair”. The difficulty in such cases is to determine whether what has been done is truly a repair or whether the product is a new article.

1. His Lordship continued at 555 to this effect:

… whether the allegedly infringing article is substantially a new one made in accordance with some claim of the patent and so an infringement, or can fairly be regarded as having been repaired and so as involving no infringement, is a question of fact. It is largely a question of degree, depending on the nature of the patented article and the character of the work carried out upon it.

…The cardinal question must be whether what has been done can fairly be termed a repair, having regard to the nature of the patented article. If it is, any purchaser of such an article, whether from the patentee or from a licensee of the patentee or from a purchaser from the patentee or such a licensee or purchaser, is impliedly licensed to carry it out or to contract with someone else to carry it out for him; for clearly the implied licence must be as transferable as the patented article and must include permission to authorise an agent or contractor to carry out whatever the owner of the article could himself do under the licence, had he the required skill and equipment.

1. In other words, and as Seiko submitted, the scope of the implied licence to use the patented article which arises on unrestricted sale of the article is determined, at least in part, by the nature of the article itself. This is why, as Buckley LJ also put it at 555, some works may be described as repairs even though those works are complicated. In the event, the works were held to be repairs and thus within the scope of the implied licence of the purchaser. Accordingly, the works did not infringe the patent as they did not involve the making of the claimed invention.
2. In *United Wire Ltd v Screen Repair Services (Scotland) Ltd* [2001] RPC 24 Aldous LJ at [24] preferred the view expressed by the Privy Council in *Canon Kabushiki Kaisha v Green Cartridge Co (Hong Kong) Ltd* [1997] AC 728 at 735 that the “concept of a licence … is not really applicable to the repair of a patented article”:

[b]ecause repair is by definition something which does not amount to the manufacture of the patented article, it is not an infringement of the monopoly conferred by the patent. It cannot therefore be an unlawful act and needs no special licence to make it lawful, unless as part of a general implied licence to use the patented product at all, which is sometimes used to explain why mere user does not infringe the patentee's monopoly. But this is perhaps better regarded as a consequence of the exhaustion of the patentee's rights in respect of the particular article when it is sold.

1. On appeal, Lord Hoffman approved this approach at [68] explaining that:

The concept of an implied licence to do various acts in relation to a patented product is well established in the authorities. Its proper function is to explain why, notwithstanding the apparent breadth of the patentee's rights, a person who has acquired the product with the consent of the patentee may use or dispose of it in any way he pleases…Put shortly, the problem is to explain why, for example, a patentee cannot complain when someone to whom he had sold the patented product then, without any further consent, uses it or disposes of it to someone else. The answer given by Lord Hatherley L.C. in the leading case of *Betts v. Willmott* (1871) L.R. 6 Ch.App. 239, 245 (which concerned the resale of a patented product) was that he did so by virtue of an implied licence…

1. At [69] Lord Hoffman noted the alternative theory, adopted in European patent systems, of the exhaustion of rights. He continued in these terms:

70 Where however it is alleged that the defendant has infringed by *making* the patented product, the concepts of an implied licence or exhaustion of rights can have no part to play. The sale of a patented article cannot confer an implied licence to make another or exhaust the right of the patentee to prevent others from being made. A repair of the patented product is by definition an act which does not amount to making it: as Lord Halsbury L.C. said of the old law in *Sirdar Rubber Co. Ltd v. Wallington, Weston & Co.* (1907) 24 R.P.C. 539 at page 543:

“you may prolong the life of a licensed article but you must not make a new one under the cover of repair.”

71 Repair is one of the concepts (like modifying or adapting) which shares a boundary with “making” but does not trespass upon its territory. I therefore agree with the Court of Appeal that in an action for infringement by making, the notion of an implied licence to repair is superfluous and possibly even confusing. It distracts attention from the question raised by section 60(1)(a), which is whether the defendant has made the patented product. As a matter of ordinary language, the notions of making and repair may well overlap. But for the purposes of the statute, they are mutually exclusive. The owner's right to repair is not an independent right conferred upon him by licence, express or implied. It is residual right, forming part of the right to do whatever does not amount to making the product.

72 In *Solar Thomson Engineering Co. Ltd v. Barton* [1977] R.P.C. 537 [sic] the Court of Appeal held that there was an implied licence to repair. But the juridical nature of the right to repair was not in issue. The debate was over whether or not the defendants had, as the plaintiff's counsel contended (at page 544) made a “new merchantable article”. So the real issue was whether the defendants had made the patented product. Buckley L.J. quoted the remark of Lord Halsbury L.C. which I have already cited. He said that the question was one of fact and degree and said (at page 555) that the “cardinal question” was whether “what has been done can fairly be termed a repair, having regard to the nature of the patented article”. The context shows that Buckley L.J. saw no difference between this question and the question of whether, having regard to the nature of the patented article, the defendant could be said to have made it. Speaking for myself, I prefer the latter formulation.

1. Consistent with the conclusion of the Court of Appeal, Lord Hoffman considered that what had been done was to make the claimed invention, thereby infringing the patent. As he put it at [73]:

It is quite true that the defendants prolonged the useful life of the *frame*. It would otherwise presumably have been scrapped. But the *screen* was the combination of frame and meshes pre-tensioned by attachment with adhesive according to the invention. That product ceased to exist when the meshes were removed and the frame stripped down to the bare metal. What remained at that stage was merely an important component, a skeleton or chassis, from which a new screen could be made.

1. In *Schütz (UK) Ltd v Werit (UK) Ltd* [2013] UKSC 16; [2013] RPC 16 the Full Court of the Supreme Court of the United Kingdom explained at [50] that:

The mere fact that an activity involves replacing a constituent part of an article does not mean that the activity involves “making” of a new article rather than constituting a repair of the original article. Repair of an item frequently involves replacement of one or some of its constituents.

1. At [51] the Full Court said:

In the more directly relevant context of chattels rather than buildings, the normal use of “making” and “repairing” demonstrates the same point. Works to a ship or a motor car, which involve removal and replacement of defective significant constituent parts, could be substantial in terms of physical extent, structural significance, and financial cost, without amounting to “making” a ship or motor car, as a matter of ordinary language: in such a case, they would be “repair” of the existing ship or motor car.

1. At [57] it was emphasised that “whether replacing a part of a patented article constitutes ‘making’ it is a matter of fact and degree”. On the facts of the case the Full Court considered that the question whether the patented article (an intermediate bulk container or IBC used to transport liquids) was being made when the plastic bottle was replaced inside the cage should be answered in the negative. In so concluding various factors were taken into account including the “inventive concept” underlying the invention which is foreign to Australian law.
2. As Seiko submitted, none of the English cases suggest that the Privy Council’s decision in *Menck* altered the fact that a purchaser has no right to make a new embodiment of the invention. The implied licence arising on unrestricted sale could never extend so far. Nor could the doctrine of exhaustion of patent rights result in the loss of the right to prevent the making of new embodiments of the invention, whether or not the new embodiment involved starting from scratch or re-using and modifying parts of the patented product as sold. I accept that in the latter case questions of fact and degree will be involved, with the necessary focus being the nature of the patented product as sold and the nature of the acts done to that product, but I do not consider any aspect of the present case lies at the “borderline” between repair and making.
3. From whichever perspective the facts of the present matter are approached, be it the scope of the implied licence which arose on unrestricted sale of the original Epson cartridges or the undisputed proposition that whatever else a purchaser might do the purchaser may not make the claimed invention, I am satisfied that by the act of importing the re-purposed cartridges Calidad infringed claim 1 of the 643 patent. To this extent, I disagree with the primary judge about the new Calidad products sold after April 2016.
4. It cannot be doubted that on the facts as found by the primary judge, none of the Calidad products are the product as sold by Seiko. The products which Seiko sold all embodied the claimed invention including that part of the first integer consisting of a “printing material container”. Step 2 of the process for all categories of container involved creating a new hole in the container to enable the container to be filled with fresh ink and then sealing both the new hole and the original hole with plastic by applying heat and pressure: [240]. While the primary judge described this at [240] as a “minor physical alteration” with no relationship to the claimed invention, as Seiko submitted, at the moment the new hole was created, there was no longer an essential integer of the claimed invention, a “printing material container”, as unless and until the new seals were applied, the purported container could not contain printing ink. Nor do I see how it could be concluded that the implied licence which arose on sale enabling the purchaser to use and repair the original Epson printer cartridge could be thought to extend to re-purposing the cartridge once it was empty of ink by creating a new injection hole for ink to enable the cartridge to be re-filled and sealing the original and new holes so that the cartridge, which had ceased to be a printing material container, was made into a new printing material container. That is not a use of the patented article as sold at all; it is the making of a new article within the scope of the patent. As sold, the patented article could not be re-used at all for two reasons. One, the container was empty of ink. Two, the memory recorded that the container was empty of ink so it would no longer function. As re-purposed, the product was still an embodiment of the invention but was capable of re-use. Of itself, these facts indicate to us that the modifications involved the making of a new embodiment of the invention, outside of any implied licence arising on sale and outside any notion of repair of the original cartridge.
5. Further, for category 4 cartridges the memory chip was substituted altogether and not merely re-programmed. This required removal of the printed circuit board from the cartridge. Because the new printed circuit boards with the substituted memory chips attached are returned to Ninestar in bulk and separately from the cartridges from which the printed circuit boards have been removed, the original Epson product as sold necessarily ceased to exist most probably at the moment the printed circuit board was removed and certainly by the time the new chip had been attached to the printed circuit board and the printed circuit board reinserted into a different cartridge. The fact of functional equivalence of the substituted memory chip proposed by Calidad is beside the point. Nor are fine questions of fact and degree involved. The product is no longer the product which Seiko sold.
6. Again, I am unable to accept that the implied licence to use the patented product sold by Seiko could extend to this conduct which involved unmaking the printing material container, removing the printed circuit board from it (the electronic device to which the plurality of terminals is connected as claimed), removing the memory altogether (another integer of the claim) from the printed circuit board, attaching a new memory chip to the printed circuit board, and then inserting the printed circuit board into a cartridge (albeit most likely not the cartridge from which the particular printed circuit board was removed). This does not involve the use of the patented product as sold by Seiko. It does not involve the repair of that patented product. The product was not damaged or worn in any way. In the form it was sold, which must be taken to have been within the knowledge of the purchaser, it had merely exhausted its function. Further, no purchaser without the specialist expertise and access to processes of an entity such as Ninestar could have re-purposed the cartridges. It could never have been in the contemplation of any purchaser of the original that the purchaser could themselves have done what Ninestar did, nor could Seiko reasonably have expected that any such purchaser would themselves be able to do so.
7. Calidad’s contrary submission, that it repaired each cartridge, because it “no longer works” is unconvincing. The cartridge was sold in a particular form which enabled it to function as a printing material container until it ran out of ink. When it ran out of ink it was no longer functional for that reason. In the form it was sold, the product had worked precisely as it was designed to work. Characterising the work required to enable the cartridge to be re-filled and re-used as a “series of straightforward processes” masks the essence of what was being done, which was to manufacture another embodiment of the claimed invention.
8. The same must be said of category 5. Here is a product Seiko sold which, by reason of a certain interface pattern, was physically incompatible with Australian printers. To make these cartridges compatible with Australian printers, Ninestar cut off the interface pattern: [280]. The primary judge said at [281] that integer 1 of the claim requires that the printing material container be adapted to be attached to a printing apparatus by being inserted into it. The interface pattern formed part of the mechanism by which Seiko’s embodiment as sold achieved that function. The primary judge considered that these modifications may be considered “borderline” but fell “on the wrong side of the line” with the consequence that the implied licence was terminated. I agree with the ultimate conclusion. I do not, however, consider the issue to be one of a modification at the “borderline” causing termination of the implied licence. I consider that the removal of the interface pattern enabled a new kind of adaption for attachment to the printer and thus Ninestar made and Calidad imported a new embodiment of the claimed invention which contained all of the integers of the claim. I also consider that the implied licence could not have extended to this conduct, for the same reasons as given above in respect of category 4. In other words, the implied licence was not terminated. It never applied to authorise such conduct.
9. Category 7 is no different. As the primary judge said at [290], category 7 involves a form of hybrid. The integrated circuit assembly, which is “central to the invention as claimed and which includes within it the layout of the terminals which are described in integers [4]–[11]” was removed from one cartridge and placed in another cartridge as necessary. This too, in our view, involved the making of a new embodiment of the invention and could not have been within the scope of the implied licence to use the patented product as it was purchased from Seiko.
10. This brings us to the “memory” as referred to in integer [2] of claim 1 of the 643 patent, which refers to “a memory driven by a memory driving voltage”. I am unable to agree with the primary judge that the claim involves the mere physical existence of the memory chip. Integer [2] claims a memory “driven by” a memory driving voltage. The only thing which is driven by the memory driving voltage is the memory in the sense of the information stored on the chip. The fact that the chip has information on it which is able to be changed (driven by) the memory driving voltage is an essential part of the claimed invention. It may be accepted that the actual status of the memory (that is, whether it shows the cartridge as full, empty or anywhere in between) is not part of the claim, but the fact that the claim involves a memory driven by a memory driving voltage is not irrelevant. Considered in the context of the product as sold, which is essential to the scope of the implied licence to use the product without infringement of the patents, the fact that the re-purposing of the cartridges, as a minimum, involves re-programming the chip to change the memory supports the conclusion that the imported Calidad cartridges are outside the scope of any possible implied licence or any concept of repair.
11. While the changes to the chip for category 1 cartridges (involving the least amount of work to any category) involved “microscopic physical changes” necessary to reset the memory stored in the chip so as to show the ink level as full and the cartridge status as unused, as the primary judge described at [241], the fact is the memory driven by the memory driving voltage is changed in a fundamental way by Ninestar’s actions. The memory is changed from a status showing that the cartridge has been used so that there is no more ink to enable printing to a status so that the cartridge is full of ink and unused. I am unable to accept that this action was within the implied licence to use the patented product which Seiko sold. The research and development process required to enable the re-purposing of the cartridges is not irrelevant to the question of either the scope of the implied licence or the delineation of the boundary between repair and making of the patented product. This is because the licence arises on sale of the particular embodiment of the invention sold. The scope of the implied licence and the capacity to repair are necessarily informed by the nature of that particular embodiment of the invention.
12. In the present case, and despite Calidad’s submissions to the contrary, I do not consider that it may be inferred that a purchaser would purchase an original Epson printer cartridge on the basis that the purchaser would be able to conduct the research and development needed to re-program the memory chip or would hold the expertise allowing the purchaser to effect such re-programing. In *Schütz* the fact that a person would expect the plastic bottle to wear out before the metal cage was relevant to the scope of the capacity to repair the patented article: [65]. So too was the fact that the bottle was easily physically replaceable: [66]. Further, the bottle was a free-standing item of property: [70]. As a result, and in contrast to *United Wire*, the replaced bottle was not “integrally connected to the retained part”, was not subjected to “significant improvement work”, and could not be described as “manufacture” in contrast to the mere replacement of a bottle made from a relatively perishable substance: [71] and [66].
13. The facts of the present case have been described above. They are not comparable to the facts of *Schütz*. Indeed, where the issues are to be determined by reference to matters of fact and degree, comparisons of that kind are not helpful. To return now to the re-programming of the memory, as the primary judge found at [235] to [236], the task of re-programming in the normal mode involved collection of used and unused cartridges, removing the seal over the memory chip, removing the protective layers to reveal the circuitry around each transistor, photographing each block of circuitry and each transistor, conducting electrical testing, collecting the data on the chip, determining what it means and the memory address at which information needs to be read or written and programming electronic equipment to reset the data concerning the ink level and cartridge status. These are not the kind of steps which could have been within the contemplation of a purchaser of an original Epson cartridge which, in the form it was sold, enabled a single use only until the ink in the cartridge was exhausted. The same conclusion must apply to the test mode research and development processes which were more complex than the normal mode research and development processes: [254] to [255].
14. In any event, I consider the change by re-programming the memory, when considered with the totality of the minimum works necessary (the category 1 cartridges) to create the Calidad products, involved a new embodiment of the invention. The product which Seiko sold, in the form in which it was sold, was capable of use until the memory chip showed that the ink in the container was exhausted. By re-programming the memory chip, Ninestar enabled an embodiment of the invention, which could no longer be used, to be used. It was not repairing the cartridge. The cartridge was not damaged or worn in any way. It had simply reached the end of its intended life as a printer cartridge. Ninestar, by re-programming the memory, putting a new hole in the cartridge to enable it to be re-filled with ink, re-filling the cartridge with ink, and sealing the new and the existing hole created by the original use, manufactured a new embodiment of the invention, an act which could never have been authorised by the implied licence and could never be the subject of an exhaustion of patent rights by reason of sale. Calidad, in importing those cartridges, necessarily exploited the invention and thus infringed the patents.
15. I do not accept Calidad’s submissions to the contrary. Once the nature of the product as sold by Seiko is understood, which informs the scope of any implied licence and the concept of repair, I am unable to accept that Ninestar’s actions involve the mere prolonging of the life of the product as purchased: *Sirdar Rubber Co Ltd v Wallington Weston & Co* (1907) 24 RPC 539 at 543 (Lord Halsbury during oral argument), approved in *Solar Thompson* at 554 (Buckley LJ). As purchased, the product had a defined lifespan. Ninestar’s actions recreated or remade the product altogether in new embodiments of the invention. The product as sold by Seiko was for use until the memory chip showed that the ink had run out. The Calidad products were new printer cartridges capable of use after the ink had run out. Nor did Ninestar’s works involve the mere replacement of some worn or damaged part. There was no worn or damaged part. In the context of the product as sold, no part required replacement.
16. I do not see *Austshade Pty Ltd v Boss Shade Pty Ltd* [2016] FCA 287; (2016) 118 IPR 93 as material. The decision considers *Menck* in the Privy Council and the judgment of Gibbs J in *Interstate Parcel* but does not discuss the implied licence that arises on unrestricted sale to use the patented product.
17. Further, the fact that that which is not claimed is disclaimed provides no answer to Seiko’s complaint of infringement. From the perspective of both the scope of the implied licence and of the distinction between the repair of a patented product and the making of a new embodiment of the invention, it is the patented product in the form in which it was sold as an embodiment of the invention which is relevant. In any event, as I have said, the changes wrought by Ninestar involved essential integers of the invention including, as a minimum, unmaking and then remaking the “printing material container” (and reprogramming the memory driven by the memory driving voltage) and, for some categories, removing the electronic device containing the plurality of terminals to enable removal of the “memory driven by a memory driving voltage” and its replacement by another “memory driven by a memory driving voltage” and reinserting that device into another cartridge, as well as, for other categories, cutting off the interface pattern to enable the container to be “adapted to be attached to a printing apparatus”.
18. Contrary to Calidad’s submissions, on a practical approach to the construction of the claim, a container containing two unsealed holes is not a printing material container as it is incapable of containing ink. It may be accepted that acts can involve the replacement of an essential integer or integers and yet still involve the repair of the patented article rather than the making of a new embodiment of the invention. Everything turns on the facts of the particular case. In the present case, every purchaser purchased an embodiment of the invention which, in the form it was purchased, permitted a single use only. To render the cartridge capable of re-use, the acts described above were required. In the context of the invention as embodied in the product sold, I am unable to accept that what was done was other than an infringement of the patents. It was outside the scope of any implied licence which could have arisen on sale and outside any reasonable concept of repair.
19. I do not agree that that this approach involves accepting Seiko’s “inbuilt technical restrictions” contention, as if such could amount to the imposition of an express restriction on sale brought to the purchaser’s notice at the time of sale. This contention is problematic and need not be addressed further. What is determinative is that the scope of the implied licence and the right to repair a product must be informed by the nature of the product as sold which embodies the invention in question. It is the act of sale which gives rise to the implied licence, including the licence to repair. It is not to the point that the purchaser may well be unaware of the fact the product is the subject of a patent. The licence arising on sale is implied for this very reason. The scope of the implied licence is not determined by knowledge or lack of knowledge of the patent, as Calidad submitted. It must be determined objectively by reference to the nature of the product and the circumstances of the sale insofar as they are known. If it were otherwise the scope of the implied licence would depend on the purchaser’s subjective state of knowledge about the patent, a fact which could never be known to Seiko. Infringement too is determined objectively, in this case by reference to the scope of the implied licence and/or the distinction between the repair of a patented product and the making of a new product embodying the invention, both of which depend on the particular facts relating to the nature of the product as sold by Seiko and the acts of Ninestar modifying those products.
20. I do not see the materiality of the submission, which may well be right, that activities such as those of Ninestar and Calidad have occurred over many years. Nor do I accept that statements by Seiko about the environmental friendliness of its products or that they can be recycled are material. For one thing, there is no suggestion in any of the material that the intended recycling involved re-purposing the cartridges so they could be used again as a printer cartridge in the manner undertaken by Ninestar. For another, it cannot be inferred from the evidence that any purchaser had in mind at the time of purchase that the cartridge, once used, would be re-made in the way Ninestar has done.
21. It is unnecessary to consider the other subsidiary arguments of the parties. By importing each of the Calidad products, Calidad infringed the patents. The appeal should be dismissed and the cross-appeal allowed. The parties should confer and file agreed or competing orders reflecting these reasons for judgment and the matter otherwise be remitted to the primary judge for any further hearing on remedies.

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| I certify that the preceding ninety-six (96) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Jagot. |

Associate:

Dated: 5 July 2019

REASONS FOR JUDGMENT

YATES J:

# Introduction

1. To borrow the words of the primary judge, this appeal concerns the right of a patentee to control or limit what may be done with a patented product after it has been sold.
2. Seiko Epson Corporation (**Seiko**), one of the respondents/cross-appellants, manufactures and sells printer products, including ink cartridges for inkjet printers, under the EPSON brand (**original** **Epson cartridges**). An overseas corporation, Ninestar Image (Malaysia) SDN. BHD (**Ninestar**) acquired these cartridges after they had been used and discarded. After modifying and refilling the used cartridges, Ninestar re-supplied them. Relevantly to the present case, Ninestar supplied modified and refilled Epson cartridges to one of the appellants/cross-respondents, Calidad Distributors Pty Ltd (**CDP**), who imported and supplied the cartridges in Australia.
3. It is accepted that the original Epson cartridges, as made and sold, embodied the inventions claimed in Patent No. 2009233643 (the **643 patent**) and Patent No. 2013219239 (the **239 patent**). Likewise, it is accepted that the modified and refilled cartridges imported and supplied by CDP embodied the inventions claimed in the two patents, in particular claim 1 of each patent. Seiko is the patentee of each patent.
4. In the proceeding below, Seiko and the other respondent/cross-appellant, Epson Australia Pty Ltd (Seiko’s exclusive distributor in Australia), alleged that CDP infringed claim 1 of the 643 patent and claim 1 of the 239 patent by importing and selling the modified and refilled cartridges. They alleged that the other appellants/cross-respondents were liable for those infringements as joint tortfeasors with CDP. For ease of exposition, it is convenient, from this point, to refer to the respondents/cross-appellants as **Seiko** and the appellants/cross-respondents as **Calidad**.
5. Although accepting that the modified and refilled cartridges fell within the relevant claims of the patents, Calidad argued that it had a complete answer to the allegations of patent infringement: upon sale of the original Epson cartridges, Seiko authorised any purchaser and subsequent owner of the cartridges to treat them as ordinary chattels, thereby entitling Ninestar to modify and refill them, and then to re-supply them to customers like Calidad who, in turn, were free to import the cartridges into Australia and sell them. The authority to do so was said to be grounded in the principle recognised in *National Phonograph Co of Australia Ltd v Menck* (1911) 12 CLR 15 (***National Phonograph***)—namely, that the sale of a patented article by a patentee or its authorised licensee gives to the purchaser, in the absence of notice to the contrary, a licence under the patent to exercise in relation to the article all the normal rights of an owner, including the right to resell. The corollary of this principle is that it is open to the patentee, by virtue of its statutory monopoly, to impose restrictive conditions on the purchaser as to its use of the patented article. The ability of the patentee to do so is subject to the application of s 144 of the *Patents Act 1990* (Cth) (the **Act**) dealing with void conditions in contracts and licences.
6. The legal position was expressed by the Privy Council in *National Phonograph* as follows:

In their Lordships’ opinion, it is thus demonstrated by a clear course of authority, first, that it is open to the licensee, by virtue of his statutory monopoly, to make a sale *sub modo*, or accompanied by restrictive conditions which would not apply in the case of ordinary chattels; secondly, that the imposition of these conditions in the case of a sale is not presumed, but, on the contrary, a sale having occurred, the presumption is that the full right of ownership was meant to be vested in the purchaser; while thirdly, the owner’s rights in a patented chattel will be limited if there is brought home to him the knowledge of conditions imposed, by the patentee or those representing the patentee, upon him at the time of sale. It will be observed that these propositions do not support the principles relied upon in their absolute sense by any of the Judges of the Court below. On the one hand, the patented goods are not, simply because of their nature as chattels, sold free from restriction. Whether that restriction affects the purchaser is in most cases assumed in the negative from the fact of sale, but depends upon whether it entered the conditions upon which the owner acquired the goods. On the other hand, restrictive conditions do not, in the extreme sense put, run with the goods, because the goods are patented.

1. In the present case, the primary judge found that Calidad infringed the patents in relation to some of the modified and refilled cartridges (referred to by the primary judge as **Calidad’s past range of products**) but not others (referred to by the primary judge as **Calidad’s current products**), and granted injunctive and other relief accordingly. Calidad appeals, and Seiko cross-appeals, from the judgment given.
2. Calidad and Seiko advanced the appeal and cross-appeal on the footing that the Full Court should consider itself to be bound by the decision in *National Phonograph*, although Calidad reserved the right to challenge the correctness of that decision in any subsequent appeal.

# The primary judge’s reasons

## Overview

1. In the proceeding below, Calidad submitted that, based on the principle recognised in *National Phonograph*, Seiko’s right to control the use by others of the original Epson cartridges was effectively exhausted. No restrictive conditions had been imposed on the purchasers of those cartridges at the time of sale.
2. Calidad submitted, alternatively, that a patentee’s exclusive rights under s 13(1) of the Act do not prevent the owner repairing or refurbishing a patented product or having subsequent dealings in such a product. In this connection, Calidad drew a distinction between a repaired or refurbished product and a “new” product—thereby accepting that, if Ninestar had, by its activity in modifying and refilling the cartridges, made a “new” product, then Calidad would have infringed the relevant claims by importing and selling those products in Australia.
3. Calidad’s argument that an owner of a patented product can repair or refurbish it was based on an acceptance of the principles stated in *Solar Thompson Engineering Co Ltd v Barton* [1977] RPC 537 (***Solar Thompson***); *Canon Kabushiki Kaisha v Green Cartridge Co (Hong Kong) Ltd* [1997] AC 728 (***Canon***); *Schutz (UK) Ltd v Werit (UK) Ltd* [2013] UKSC 16 (***Schutz***); and *United Wire Ltd v Screen Repair Services (Scotland) Ltd* [2001] RPC 24 (***United Wire***).
4. For its part, Seiko submitted that a licence granted under a sale *sub modo* (i.e., without restrictions) of a patented article extended only to use or resale of the article, and not to re-manufacturing of the kind undertaken by Ninestar. In any event, restrictions had been imposed in the form of “in-built restrictive conditions” arising from the programming of the memory chips on the cartridges. The primary judge summarised this argument as follows:

120 Secondly, Seiko contends that each of the original Epson cartridges was sold subject to restrictive conditions in the form of conditions that are built into each original Epson cartridge’s memory chip. The condition that it submits was imposed is that the original Epson cartridge is not to be used in a relevant Epson branded printer where at least one of the following circumstances applied: (a) the ink in the original Epson cartridge has dropped below a threshold level; (b) the cartridge has already been “used” and is “empty”; and (c) where applicable, the original Epson cartridge is not compatible with the [Epson] branded printer. Seiko submits that these restrictive conditions are programmed into each memory chip to give effect to the restrictive conditions and physically embody them. A reasonable person would, Seiko submits, appreciate that the memory, either in normal mode or test mode, operated as an inbuilt restriction (**inbuilt restriction argument**). This is particularly obvious with respect to the reverse engineering required to operate the category 2 and 3 original Epson cartridges, which must be operated in test mode if they have been refilled with ink. The extensive research and development required to enable the memory to operate in that way demonstrates the limitation to any user endeavouring to reprogram the chip. However, as the presence of a restriction does not depend on the technical difficulty of the reverse engineering process, a reasonable person would also appreciate that the memory in normal mode operates as an inbuilt condition.

121 Seiko submits that Ninestar is on notice of the inbuilt technical restrictions and that various inferences should be made to the effect that Calidad is similarly on notice of those restrictions.

1. Relatedly, Seiko submitted that a licence granted on a sale *sub modo* does not travel with the article so that, once the original Epson cartridges had been discarded by end-users, Ninestar was not, relevantly, a purchaser of the cartridges from Seiko and could not, therefore, benefit from the licence contemplated in *National Phonograph*.
2. As to a licence to repair or refurbish, Seiko argued that, to the extent that Australian courts should follow the United Kingdom authority on which Calidad relied, the modifications made to the original Epson cartridges by Ninestar were not “repair”.
3. The primary judge rejected Seiko’s inbuilt restriction argument as it applied to Ninestar and Calidad. In the course of doing so, his Honour held:

129 The inbuilt restriction argument depends upon notification of limitations to Ninestar arising implicitly from the subject matter of the product itself. Seiko asks the Court to draw an inference that Seiko’s own intentions and reasons for programming its memory chips were for a particular purpose and that Ninestar would or should have knowledge of this fact. However, I do not accept that the particular requirements necessary to alter the functionality of the memory chip (and thereby the printer cartridge) amount to notice of conditions on the use to which the product may be put. They are digital attributes of the goods themselves: data stored on a memory chip. None amounts to notice of a relevant limitation.

1. His Honour also held:

131 The fact that the information on the memory chip has to be changed in order to enable the cartridge to be refilled does not of itself amount to notice to the owner that the cartridge may not be changed, or that it would be a violation of the patentee’s patent rights to do so. Indeed, the evidence of Dr Hawkins is that it is entirely possible for an OEM such as Seiko to arrange that the information be stored in a memory chip in such a way that it cannot be rewritten. Seiko has chosen not to do so.

1. The primary judge concluded that neither Ninestar nor Calidad took the products in issue subject to notice of restrictions imposed by Seiko. Implicit in this conclusion is a finding that Ninestar and Calidad each had the benefit of the implied licence referred to in *National Phonograph*. But, his Honour said, this conclusion did not determine the case in Calidad’s favour because there remained a question whether the extent of the modifications undertaken by Ninestar affected the implied licence and whether that licence could “survive” those modifications. This caused his Honour to turn to the United Kingdom “repair” cases. After reviewing those cases, his Honour concluded that none of them considered whether an implied licence arising from a sale *sub modo* could be extinguished by modifications made to the patented article and, if so, what (if any) modifications could be made.
2. His Honour reasoned that the only defence available to Calidad was that the importation of the modified and refilled cartridges fell within “the umbrella of the implied licence”. In this connection, his Honour said:

163 The proper question is accordingly not based on a repair or making analysis, but rather whether the implied licence can be said to apply in circumstances where one owner of the product, Ninestar, has modified it and then passed title in it to CDP. The relevant question then becomes; at what point has an owner of the embodiment made changes to it such that the implied licence arising from a sale *sub modo* is extinguished? No authority appears to have directly addressed this topic.

1. His Honour reasoned that this question was directed to considering:

164 … whether or not the modified product is materially the same embodiment of the invention as claimed as the product that the patentee sold without restriction. That is not an inquiry that is at large. The right of the patentee to impose restrictions upon sale arises because the product is an embodiment of an invention as claimed. The question is not whether or not the product was altered or repaired, but whether the product, *insofar as it is an embodiment of the invention as claimed*, was materially altered, such that the implied licence can no longer sensibly be said to apply.

(Emphasis in original.)

1. In support of this approach, the primary judge said:

165 The implied licence arises from the disposition by a patentee of a particular embodiment of its invention. As noted in *National Phonograph* (at 22, 28), the patented goods are not free of restriction simply because they are chattels, but because the patentee has chosen not to exercise its right to impose restrictions on their use arising under the relevant Patents Act.

166 The basis for the implied licence is because of the sale of the particular **patented product**. That is, a physical product that embodies the features claimed in the patent. When such a product is sold by or with the authority of the patentee, the authority passed on to subsequent owners of the product is a permission relating to **that embodiment of the features of the claimed invention**. Accordingly, while the sale *sub modo* will remove the ability of the patentee to restrict a purchaser from importing, selling, using or disposing of the product, the licence is necessarily confined to such rights insofar as they apply to the particular embodiment sold with the approval of the patentee.

167 The extent to which modifications are to be regarded as relevant must be examined in the context of the exclusive right of a patentee to “exploit” the invention as conferred by s 13 of the Act. It is constrained by the extent to which any alleged infringing product falls within the claims of the patent. This is seen by the language of the definition of “exploit”, which in the chapeau identifies that the exclusive rights of the patentee exist “in relation to **an invention**”, being the invention as claimed.

(Emphasis in original.)

1. In the same vein, the primary judge said:

172 That is not to say that the invention as claimed is not to be considered as a whole, or that particular integers are to be taken out of context or divorced from the combination of integers which make up the invention, but rather where modifications have no bearing on the invention as claimed, they are unlikely to amount to a material modification of the product. This was the approach taken in *Schütz* at [61], [63] and is applicable in the present case.

1. The primary judge concluded:

178 This process of reasoning leads to the conclusion that to assess whether or not the implied licence continues after modifications are made one must consider the significance of modification work done on a product and how the modifications in question relate to the features of the patented product that are defined by the claim. Where that work done, or alteration made, does not concern a claimed feature, then the work is irrelevant to the analysis. That is because the patentee’s rights to limit the use of the patented product arise because the product represents an embodiment of the claimed features. This involves the 3-staged factual inquiry undertaken below; first, what is the scope of the invention as claimed (which is addressed in section 4), secondly, what is the manner in which the patentee’s product is an embodiment of the invention as claimed (section 5) and thirdly, to what extent do the modifications made affect the patented product insofar as it represents an embodiment of the claims (section 6).

1. I pause at this juncture to observe that the framework for the primary judge’s analysis was whether the implied licence was extinguished by the modifications carried out by Ninestar. In my respectful view, that is not the correct framework. The correct framework is whether the activities of modifying and refilling the cartridges, and importing and supplying those cartridges in Australia, were within the scope of the implied licence.
2. Further, it appears that, when considering the materiality of modifications to the original Epson cartridges, his Honour’s focus was on modifications to the essential features of the invention claimed in claim 1 of the 643 patent. This focus is understandable. However, I consider below the consequences that other amendments might have when considering the scope of the implied licence that is granted.
3. The primary judge helpfully produced a table identifying, in summary form, the modifications that had been made to various categories of cartridges that Calidad imported and supplied. This table is Annexure A to the final orders the primary judge made on 16 February 2018. It is reproduced at [117] of Jagot J’s reasons in this appeal.
4. The primary judge identified four broad steps which were involved in the modification and refilling process:

* preparing the cartridge for ink refill (**preparation**);
* refilling the ink cartridge with ink not supplied by Seiko or with its approval (**refilling processes**);
* the replacement, reprogramming or resetting of the memory chip (**memory replacement/reprogramming**); and
* research and development undertaken to make alterations to the contents of the memory chip when in either “normal” mode or “test” mode.

1. Before the primary judge, Calidad contended that the last two steps were irrelevant to his Honour’s consideration.
2. It is convenient at this point to turn to claim 1 of the 643 patent. The parties agreed that there is no material difference between the disclosures in the specifications of the 643 patent and the 239 patent, and no material difference between the two relevant claims. For that reason, the primary judge understandably focussed his attention solely on the 643 patent and claim 1 thereof. His Honour’s findings in relation to claim 1 of the 643 patent are to be understood as also findings in relation to claim 1 of the 239 patent.
3. His Honour identified the integers of claim 1 of the 643 patent as follows:

[1] A printing material container adapted to be attached to a printing apparatus by being inserted in an insertion direction, the printing apparatus having a print head and a plurality of apparatus-side terminals, the printing material container including:

[2] a memory driven by a memory driving voltage;

[3] an electronic device driven by a higher voltage than the memory driving voltage;

[4] a plurality of terminals including a plurality of memory terminals electrically connected to the memory, and a first electronic device terminal and a second electronic device terminal electrically connected to the electronic device, wherein:

[5] the plurality of terminals each include a contact portion for contacting a corresponding terminal of the plurality of apparatus-side terminals,

[6] the contact portions are arranged in a first row of contact portions and in a second row of contact portions, the first row of contact portions and the second row of contact portions extending in a row direction which is generally orthogonal to the insertion direction,

[7] the first row of contact portions is disposed at a location that is further in the insertion direction than the second row of contact portions,

[8] the first row of contact portions is longer than the second row of contact portions, and,

[9] the first row of contact portions has a first end position and a second end position at opposite ends thereof,

[10] a contact portion of the first electronic device terminal is disposed at the first end position in the first row of contact portions and

[11] a contact portion of the second electronic device terminal is disposed at the second end position in the first row of contact portions.

1. It is not necessary for me to repeat the primary judge’s summary of the specification of the 643 patent or his analysis of claim 1: see at [182] ‑ [199] (summary of the specification) and [200] ‑ [208] (summary of claim 1) of his Honour’s reasons. There are, however, two matters to which I will draw attention.
2. The first is that the specification discloses that it has been common practice to equip ink cartridges used in inkjet printers with a memory for storing information relating to the ink, together with another device such as a high voltage circuit which is used to detect the remaining ink level in the cartridge. The second device applies a higher voltage than the driving device of the memory. The ink cartridge and the printing apparatus may be electrically connected through terminals. The specification states:

There is proposed a structure for preventing the information storage medium from shorting and becoming damaged due to a drop of liquid being deposited on the terminals connecting the printing apparatus with the storage medium furnished to the ink cartridge.

1. The solution proposed can be seen to reside in integers [4] – [11] noted above.
2. The second matter is the primary judge’s finding as to whether the “memory” feature (integer [2])—“a memory driven by a memory driving voltage”—is directed to a hardware device simpliciter (i.e., a device in which data can be entered and held and from which it can be retrieved) or to a hardware feature with information. The primary judge found that the former was the correct construction of this integer, saying:

208 Accordingly, as a matter of construction integer [2] is to be understood as referring to a hardware device. Such a device is characterised by its ability to hold or store information but the information stored on the device is not the subject of any claim limitation. The reason for this is that the invention is directed towards a particular terminal layout arrangement for a printing material container that has a reduced likelihood of shorting. The particular data stored in the memory has no role to play in reducing the likelihood of shorting. The combination claimed is concerned with the particular layout of the features described. Put another way, the claim itself is indifferent as to the information or data stored on the memory.

1. His Honour also said in this regard:

221 I have noted above (at [208]) that a distinction is to be drawn between the piece of hardware identified in integer [2] as the “memory”, and the data or information that is stored on a memory. The claim leaves open the content of the information that may be stored on the memory of the claim. A memory chip for a printer may store data as to how full an ink cartridge is, the colour of the ink or provide instructions that can communicate with the printer to determine whether the cartridge is compatible with the printer and so on. However, a memory could also be absent of these items of information and yet still fall within integer [2]. Accordingly, I regard as irrelevant to the current comparison the question of the changes made by Ninestar to the data contained in the memory chip.

1. In my respectful view, his Honour did not err in so finding. Further, I note that integer [2] does not define any hardware feature of the memory. The claim is satisfied by any kind of memory hardware.
2. Before turning to a detailed analysis of the particular modifications that had been made to the accused products, the primary judge recorded three general findings.
3. The first finding concerned the relevance of the contents of the memory chip. His Honour said that the changes made by Ninestar to the data contained in the memory chip on the modified and refilled cartridges were irrelevant to his analysis, based on the finding that the “memory” integer of claim 1 of the 643 patent is directed to a hardware device simpliciter.
4. The second finding was with respect to the relevance of research and development to the invention as claimed. His Honour concluded that consideration of the research and development that Ninestar and its agents performed in order to carry out the modifications was irrelevant. His Honour found that the focus of the implied licence was upon the manner in which the accused products embody the features of the claims. This depended on the alterations, not on how those alterations came to be made.
5. The third finding concerned Calidad’s contention that, in considering the work done to modify the original Epson cartridges, it was necessary and appropriate to consider the “inventive concept” that lies within the claims. In this connection, the primary judge found:

225 **Thirdly**, Calidad contends that in considering the work done to the original Epson cartridges it is necessary and appropriate to consider what may be characterised as the “inventive concept” that lies within the claims. That submission arose in the context of Calidad’s contention that the United Kingdom law going to the question of the “making” of a product was applicable in the present circumstances (see *Schütz* at [78]). I have rejected that analysis as irrelevant to the present controversy. In my view, the present inquiry does not require consideration of the extent to which the original Epson products reflect an embodiment of the inventive concept (or, for that matter, the degree to which the Calidad products do). The relevant inquiry is whether the work done by Ninestar results in a material alteration to the product, insofar as it is an embodiment of the invention as claimed.

(Emphasis in original.)

## Findings on the modifications to the accused products

1. The primary judge placed the accused products in categories. Cartridges in category 1, category 2, category 3 and category A were referred to as Calidad’s current products. Cartridges in category 4, category 5, category 6, category 7 and category B were referred to as Calidad’s past range of products. His Honour’s detailed analysis of the modifications made to the accused products, according to those categories, can be summarised as follows:

### Category 1

1. The first step—preparation—involved inspecting the used cartridges to determine their suitability to be restored, emptying and cleaning the cartridges, and preparing in each cartridge the outlet hole for the ink, by removing the original seal covering it (which had been broken when each original Epson cartridge was first used).
2. The primary judge found that this work made no changes to the printing material container identified in integer [1] of the claim. That integer only required that the printing material container be adapted to be attached to a printing apparatus by being inserted in an insertion direction.
3. The second step—refilling processes—involved creating a second hole (an **injection port**) in the main side of each cartridge with a needle through which the replacement ink was injected. In each cartridge, the injection port and the outlet hole were then sealed by pieces of thin clear plastic. In some cartridges, the gas membrane was cut and then resealed with glue.
4. The primary judge found that this step involved minor physical alterations to the cartridges, which had no relationship to the invention as claimed.
5. The third step—identified in the chart as “(3) Reset in normal mode”—involved re-writing data on the memory chips in the addresses that relate to ink level and cartridge status to record that the ink level is “full” and that the cartridge status is either “unused” or “has been used previously but is not yet empty”. The importance of doing this lies in the fact that the printer will not print using the modified and refilled cartridge unless the data stored on the chip indicates that the cartridge is an unused cartridge or that the cartridge has been used previously but is not yet empty. In category 1 cartridges, the memory was reset in “normal” mode.
6. Although the primary judge accepted that this step involved making changes or alterations to the physical state of the memory chips which, when they had been discarded, recorded a particular ink level and cartridge status, the primary judge found that these were not material changes because the combination of integers claimed was not for a monopoly referable to the contents of a memory chip, but referable to the existence of the memory chip as part of a claimed combination. In short, the contents of the chip were not an essential feature of the invention as claimed and did not form part of the monopoly in respect of which Seiko had rights by virtue of the patent. The changes made in this step were with respect to information on the chips, but information on a chip was not the subject of the claim.

### Category 2

1. The first step—preparation—and the second step—refilling processes—were the same as for the category 1 cartridges with the addition of a pressure test to ensure that the pressure valves of the modified cartridges were within a prescribed range.
2. The third step—identified in the chart as “(3) Reset/reprogram in test mode for ink level, cartridge status”—involved rewriting information on the chips as to ink level and cartridge status when the chips were in “test” mode.
3. The primary difference his Honour saw between the category 1 cartridges and the category 2 cartridges was the fact that a greater degree of research and development was required in order to rewrite the contents of the memory chips in “test” mode. However, his Honour found that the additional degree of difficulty involved was legally irrelevant and that, in the end result, the analysis for the category 2 chips was no different to the analysis for the category 1 chips.

### Category 3

1. The first and second steps carried out in respect of the category 3 cartridges were the same as for the category 1 and category 2 cartridges.
2. The third step—identified in the chart as “(3) Reset/reprogram in test mode for model number, ink colour, ink level, cartridge status and date of manufacture”—involved rewriting information on the chips in respect of these subject matters in “test” mode. It was necessary to rewrite the information regarding model number to represent the Epson model printer used in the intended region for sale (Australia), otherwise the “local” printer would not print using the modified and refilled cartridges. It was necessary to rewrite the information as to the date of manufacture because this information is used by the printer and displayed on a printer screen as a prompt when the ink cartridge has expired, or will soon expire.
3. The primary judge found that the third step was more complicated and involved additional modifications to the contents of the memory chip. However, his Honour noted that, for the reasons already given, this made no difference to his analysis.

### Category A

1. Category A cartridges comprised category 2 and category 3 cartridges in which the gas membrane of the cartridges was *not* cut (representing about 95% of the cartridges). As I have already noted, the primary judge did not consider cutting the gas membrane to be other than a minor physical alteration that had no relationship to the invention as claimed.

### Conclusion on category 1, category 2, category 3 and category A cartridges

1. The primary judge found that the modifications did not have a material bearing on the manner in which the original Epson cartridges embodied the invention as claimed. It followed, according to his Honour, that the cartridges in these categories were cartridges in respect of which “the licence implied by a sale without restriction of the original Epson cartridges applies”.

### Category 4

1. The first and second steps carried out in respect of the category 4 cartridges were the same as for the category 2 cartridges.
2. The third step—identified in the chart as “(3) Chip replacement process”—involved just that. Instead of reprogramming or resetting the chips in these cartridges, Ninestar removed the integrated circuit boards (**PCBs**) and sent them to another firm (referred to as **AMC**) to manufacture compatible chips that contained:

* bits in the ink level memory address that represented that the ink volume capacity was full;
* bits in the cartridge status memory address that represented that the cartridge was “unused”;
* bits in the date of manufacture memory address; and
* bits in the model memory address that represented the relevant cartridge model and ink colour.

1. The new chips were placed on the PCBs. In turn, the PCBs were placed on the category 4 cartridges but, in each case, not necessarily on the same cartridge from which each PCB was originally removed. As the primary judge put it, the PCBs were placed “on any original Epson category 4 cartridges available”. The primary judge found:

272 Analysis of the evidence in relation to this category of cartridges indicates that the steps taken were to[:] remove the integrated circuit board from the cartridge using a cutting tool; manufacture generic memory chips using a third-party commissioned by AMC; test the chips at wafer level; program the generic memory chips; dice the wafers into individual die (each die being one chip) and good dies (those chips which have passed testing) picked and placed into waffle packs; replace original chips with generic memory chips on the integrated circuit board; and reattach the integrated circuit board to the cartridge.

1. The primary judge concluded:

276 In my view, the alterations performed on an individual original Epson category 4 cartridge fall on the wrong side of the line for the implied licence to be maintained. The cartridge has its original memory chip removed from the printed circuit board and replaced with an entirely different item of hardware. That generic memory chip is not replaced on the same printed circuit board as that which is on the cartridge as sold by Seiko. Integer [2] of claim 1 directly concerns the memory. Those modifications materially affect, and change, the embodiment by replacing the memory chip, and thereby represents a material change to the embodiment that Seiko sold.

### Category 5

1. The processes used to modify these cartridges were the same as the processes involved for the category 4 cartridges, with the addition that Ninestar cut off the “interface pattern” (part of the exterior shape on one side of the original Epson cartridges). The interface pattern provides a physical means which limits the range of Epson printers on which an ink cartridge can be used. The primary judge noted integer [1] of claim 1, which defined the printing material container as “adapted to be attached to a printing apparatus by being inserted in an insertion direction”, and found that the interface pattern formed part of the mechanism by which Seiko’s embodiment of the invention achieved that function. His Honour concluded that this modification, while “borderline in the context of the present analysis”, fell on the wrong side of the line and alone served to “terminate the implied licence”. Further, as the category 5 cartridges incorporated the same changes made to the category 4 cartridges, they were, in any event, in no different position to the category 4 cartridges for the purposes of his Honour’s analysis.

### Category 6

1. The category 6 cartridges were the same as the category 2 and category 3 cartridges with an important difference: the interface pattern of the cartridges had been removed, as described with respect to the category 5 cartridges. On the primary judge’s analysis, this was a material alteration to a relevant aspect of the original Epson cartridges.

### Category 7

1. Category 7 cartridges comprised category 5 and category 6 cartridges that, in addition, had had their PCBs replaced. This was because, if Ninestar ran short of appropriate original Epson cartridges, it would use the shell of one cartridge with the PCB of another. The primary judge noted that the PCB included the layout of the terminals described in integers [4] – [11], and was central to the invention as claimed.

### Category B

1. Category B cartridges comprised category 5, category 6 and category 7 cartridges in which the gas membrane of the cartridge was *not* cut. As with the category A cartridges, the primary judge repeated his conclusion that “the gas membrane cut” was not a modification that was material to the embodiment of the invention claimed in claim 1 of the 643 patent. Nonetheless, the category B cartridges stood in no different position to the category 5, category 6 and category 7 cartridges.

### Conclusion on category 4, category 5, category 6, category 7 and category B cartridges

1. The primary judge found that, because of the materiality of the changes that had been made to the original Epson cartridges as the embodiments of the invention sold by Seiko, these cartridges were infringements of claim 1 of the 643 patent. His Honour explained the reason for this outcome in different ways. In respect of the category 4 and category 5 cartridges, his Honour said that Calidad had “no licensed rights” in respect of the cartridges. In respect of the category 6 and category 7 cartridges, he said that the licence implied by a sale without restriction of the original Epson cartridges “does not apply”. In respect of all categories, he said that the cartridges “do not benefit from the implied licence”. These various explanations are to be understood in light of the rubric of this part of his Honour’s reasons, which was: Do the modifications terminate the implied licence?

# Calidad’s submissions

## Overview

1. Calidad submitted that the modifications made to the original Epson cartridges did not materially affect or change how those cartridges embodied the invention claimed in claim 1 of the 643 patent. But, even if the modifications to the original Epson cartridges were material, this made no difference in the present case because no condition was imposed at the time of first sale of those cartridges that restricted the owner from modifying the cartridges or dealing with them, once modified. Further, the “old” cartridges were merely repaired or refurbished, and a patentee does not have a right to restrain a supplier, such as Calidad, from dealing in repaired or refurbished patented articles.

## Whether modifications were material

1. Calidad developed its first submission by arguing that, in the case of a patented article, any restriction on the ordinary right of the owner of a chattel to deal with that chattel cannot be broader than the rights that are conferred on the patentee by s 13 of the Act. As those rights are defined by the claims, it is necessary to begin with the relevant patent claim (in this case, claim 1 of the 643 patent and claim 1 of the 239 patent).
2. Calidad submitted that the primary judge correctly approached his analysis of the significance of the modifications to the original Epson cartridges by recognising that patent rights are conferred by statute and are confined in scope by the claim(s) in suit. Calidad submitted further that the primary judge was correct to find that the first and second steps referred to above—preparation and refilling processes—made no material alteration to the original Epson cartridges, so far as they embodied claim 1. Calidad also submitted that the primary judge was correct to find that the resetting and reprogramming processes with respect to the memory chips involved in the third step effected no material alteration because the changes were only with respect to information on the chips, and information on the chips was not a claimed feature of the invention of claim 1.
3. Calidad submitted, however, that the primary judge erred in finding that the rights arising from the unrestricted first sale of the original Epson cartridges were extinguished in respect of Calidad’s past range of products because the cartridges had been modified in a way that materially affected or changed how those cartridges embodied claim 1. Calidad said that this was so for two reasons.
4. First, the modifications that were made did not, on proper analysis, materially affect or change how the original Epson cartridges embodied the invention of claim 1.
5. Calidad initially illustrated this proposition by reference to the category 4 cartridges. It argued that replacing the memory chip does not change or otherwise affect how the printer cartridge embodies the feature of claim 1. To the contrary, the replacement chip is functionally equivalent to the original Epson cartridge chip and the integers of the claimed combination continue to interact with one another in precisely the same way, including to solve the problem of shorting. Calidad submitted that claim 1 does not define any feature of the memory chip’s content or its hardware. Just as the primary judge found that altering the memory chip’s content was immaterial, so too his Honour should have found that changing the memory hardware was immaterial, because the hardware features of the memory “stood outside the claim”.
6. As to the removal and replacement of the PCBs, Calidad submitted that this, similarly, did not result in any material change or alteration to the category 4 printer cartridges because, in each case, the original Epson PCB that Ninestar re-attached to each cartridge was removed from the same type of original Epson cartridge. Because the re-attached PCB was from the same cartridge type, the physical features of the PCB remained identical, before and after the chip replacement process.
7. Therefore, adopting the primary judge’s test regarding the presence or otherwise of material alterations, Calidad submitted that the primary judge should have found that the implied licence continued for Calidad’s benefit.
8. Calidad went on to direct submissions to the category 5, category 6 and category B cartridges. As to these cartridges (in which the interface pattern was cut), Calidad submitted that this modification did not materially alter or change the printer cartridges, so far as they embodied claim 1. Although claim 1 requires that the printing material container is “adapted to be attached to a printing apparatus by being inserted in an insertion direction”, it is silent on how this should be done. Therefore, cutting the interference pattern was not a material modification in the “context of the claimed combination”.

## Whether a restriction was imposed

1. The second reason why, Calidad said, the primary judge erred in finding that the rights arising from the unrestricted first sale of the original Epson cartridges were extinguished in respect of its past range of products was the alternative submission noted at [247] above: no condition was imposed at the time of first sale of the original Epson cartridges that restricted the owner from making the modifications or dealing in the cartridges once modified.
2. Calidad argued that the primary judge erred by truncating the rights that arise from an unrestricted first sale to importation, sale and use, whereas the presumption that arises from an unrestricted sale is that the full rights of ownership are vested in the purchaser, as is the case with the sale of any ordinary chattel. Therefore, Calidad argued, the owner of the patented article has “absolute freedom” to deal with the article as he or she wished. This freedom included the “right to modify the goods, together with the right to sell or exploit goods that have been modified”.
3. Calidad submitted that, in the present case, the patentee chose not to impose any restrictive condition that prohibited replacing the memory chip, and so on. Therefore, the owner of the original Epson printer cartridge enjoyed the right to modify it by replacing the memory chip and performing the cartridge preparation and filling processes that Ninestar had undertaken. According to Calidad, members of the public, such as Calidad, were entitled to buy, import and sell the modified product. Calidad submitted that this provided a “clear and simple answer to the whole of Seiko’s infringement claim, for both the old and current cartridges”. Calidad argued that this position was supported by the decision in *Austshade Pty Ltd v Boss Shade Pty Ltd* [2016] FCA 287; (2016) 118 IPR 93 (***Austshade***).

## Repair or refurbishment

1. Calidad then elaborated on the claimed right to repair or refurbish the original Epson cartridges. Calidad submitted that a right of repair or refurbishment falls outside a patentee’s exclusive rights conferred by s 13 of the Act. Alternatively, it is a right that must form part of the “full” ownership rights that arise from an unrestricted first sale.
2. As to the first proposition, Calidad referred to the definition of “exploit” in Sch 1 to the Act which, it argued, provides a comprehensive list of the acts that are exclusive to the patentee. An exclusive right to repair or refurbish, or to deal in a repaired or refurbished product, is not among the listed rights.
3. Referring to *Solar Thompson* at 554-555, Calidad submitted that the United Kingdom authorities have long recognised a “right to repair or to refurbish patented goods”, being a right which is now seen by the United Kingdom courts as a residual right forming part of the right to do whatever does not amount to “making” the invention: *United Wire* at [71], per Lord Hoffmann. I pause to note for later reference that it seems to me to be dubious to refer to this right as a right of repair *or refurbishment*, as Calidad does. This description appears to be Calidad’s embellishment. The cases themselves refer to a right of “repair”.
4. Calidad advanced the argument that the right to repair or refurbish, or to deal in a repaired or refurbished product, is not a listed right in the definition of “exploit”, while nevertheless accepting that “exploit” is defined inclusively in Sch 1. It argued that the definition of “exploit” should not be read as including an exclusive right to repair or refurbish having regard to “the long history of permissible repair in the case law”.
5. Calidad submitted that if repair is not an act of infringement then, equally, it could not be an act of infringement to use or otherwise exploit patented goods after they are repaired.
6. In this part of its submissions, Calidad also drew the distinction, which the United Kingdom cases draw, between “repairing” a patented article and “making” a patented article. The latter activity is an infringement; the former is not. Calidad submitted that, in determining whether an activity is, on the one hand, repairing or refurbishing a patented article or, on the other, making a patented article, one must consider the relationship between the features that are the subject of the repair or refurbishment and the invention as claimed in the patent. This is because, drawing on earlier themes in its submissions, the repair or refurbishment of features that form no part of the claim cannot be an activity fairly characterised as “making” the patented article. Calidad submitted further that repair or refurbishment can include the removal and replacement of one or more claim integers with newly manufactured components: *Schutz* at [5], [9] and [61].
7. Drawing on the analysis of the Supreme Court of the United Kingdom in *Schutz*, Calidad directed attention to the category 4 cartridges and argued that an empty ink cartridge is a cartridge that no longer works. Carrying out a series of “straightforward” steps—cleaning, drilling, injecting ink, re-sealing the drilling holes and, in some cases, cutting the gas membrane—was simply restoring the cartridge to working condition.
8. Further, Calidad argued that replacing the memory chip does not “cross the boundary” between repairing and making. Like the replacement bottle in *Schutz*, the memory chip is but a subsidiary component of the claimed combination, considered as a whole, and the claim does not require any particular memory chip hardware, or hardware having any defined features, to be used. Calidad argued that the replacement process did not involve rebuilding the cartridge (only temporary PCB removal), and there was no alteration to the spatial arrangement of the electrical terminals on the PCB. It submitted therefore that, as a matter of evaluation, the modifications to the category 4 cartridges amounted to no more than mere repair or refurbishment.
9. According to Calidad, the same conclusion should be drawn with respect to the category 5 and category 6 cartridges (in which the interface pattern was cut) because the interface pattern was an even more subsidiary component than the memory.

## Category 7 cartridges

1. Calidad treated the category 7 cartridges—in which the PCBs were replaced—separately because, in Calidad’s view, these cartridges raised an additional novel issue. Calidad submitted that the primary judge erred in finding that the implied licence was extinguished with respect to these cartridges for two reasons. First, no sale of the original Epson cartridges imposed a restriction that prevented an owner from using one cartridge’s components as a spare part when refilling another (and different) original Epson cartridge. Absent any such restrictive conditions, Ninestar enjoyed “full” ownership of the cartridges which entitled it to use the PCBs in this way. Alternatively, adopting a repair analysis, one functionally equivalent part of an original Epson cartridge had simply been used to repair or refurbish another original Epson cartridge.

# Seiko’s submissions

1. Seiko advanced a “primary position” and a “secondary position”.
2. As to its “primary position”, Seiko submitted that the approach adopted by the primary judge in deciding whether the alterations made to the original Epson cartridges by Ninestar were material, was correct but that his Honour erred in applying his test in respect of Calidad’s current products, having regard to his Honour’s own factual findings.
3. As to its “secondary position”, Seiko submitted that, if the primary judge adopted an incorrect approach when assessing the materiality of the changes made, his Honour did so in a way favourable to Calidad that should be corrected on appeal, such that it should be found that Calidad’s current products are also infringements of the patents in suit. Seiko advanced a number of reasons why this should be so, based on the actual modifications that Ninestar undertook to the original Epson cartridges.
4. Seiko stressed the limited nature of the implied licence on which Calidad seeks to rely and disputed that such a licence conferred on the owner of the patented article an absolute freedom to deal with that article as that person chooses.
5. Whilst not fully endorsing the existence of the right to repair or to refurbish, which Calidad advanced in its submissions, Seiko accepted that a patentee’s rights are not infringed by dealing in repaired patented goods. Seiko agreed that if the primary judge erred in applying his material modification test, then the test his Honour ought to have applied involved asking whether the relevant printer cartridges had been “repaired”. In expressing this agreement, Seiko made clear that it disagreed with Calidad in respect of “the approach represented by the repair test” and the application of the test to the facts of this case.
6. Finally, in its cross-appeal, Seiko re-agitated its inbuilt restrictions argument which the primary judge had rejected. Seiko submitted that “there is no principled limit, especially in the digital era, on the form in which a patentee may impose a condition”. Seiko submitted that the “inescapable inference” was that Ninestar and Calidad would have understood that the inbuilt technical restrictions in relation to Seiko’s programming of the memory chips in the original Epson cartridges imposed a restriction preventing re-use of the cartridges.

# Analysis

1. It is convenient to commence by addressing Calidad’s submissions on the subject of repair and refurbishment. As I have remarked, Calidad’s inclusion of a right of refurbishment appears to be an embellishment of the subject matter dealt with in the United Kingdom cases. So far as I can see, the United Kingdom cases speak only of a right of repair arising from an implied licence to repair or, more latterly, existing as a residual right falling outside the monopoly right to “make” the patented article: see Lord Hoffmann’s observations in *United Wire* at [71].
2. On no reasonable view can it be said that the modifications carried out by Ninestar to the original Epson cartridges constitute “repair”. The commencement of Calidad’s argument in this regard is that the cartridges acquired by Ninestar no longer worked. The implication is that these cartridges were, somehow, “broken” and in need of repair so that they could continue to function as they were intended to function when first sold. To so view the cartridges would be a mischaracterisation of the facts of the case.
3. In this regard, the following findings of the primary judge are pertinent:

52 The primary function of a memory chip in an ink cartridge is to keep track of ink in the ink cartridge. It is important for the printer to know how much ink remains in the ink cartridge. There is a high risk that some of the inkjet printhead channels will not be re-primed by the printer’s maintenance station if the ink is depleted to the point that the inkjet channels are emptied. While it is sometimes possible to recover such a de-primed printhead, the recovery takes a lot of ink and is not always successful. If the printhead cannot be recovered, then a new printer or printhead would need to be purchased or print defects would have to be accepted by the user.

53 Inkjet printers can print either a single drop size or a small number of different drop sizes. The printer’s electronics count the drops fired to determine how much ink has been used. The amount of ink used is monitored and then periodically entered by the printer into the memory chip on the ink cartridge. The printer prevents printing from taking place after the printer determines from the memory chip in the ink cartridge that the ink remaining on the cartridge has fallen below a threshold amount.

54 There are several additional benefits attached to tracking the quantity of ink used on the cartridge integrated circuit chip. One is to alert the printer user that the ink cartridge is getting close to empty. Another is to allow information regarding ink quantity to be transferred to any compatible printer in which the cartridge is used. Further, memory chips on ink cartridges often contain information about the original size of the ink supply (for example, whether it is a regular or high-capacity cartridge), the expiration date of the cartridge, and the length of time since the cartridge was first inserted into the printer, which may assist in determining whether the printer has been idle for a long period of time, which would affect reliability.

1. It should not be lost from this narrative that Seiko programmed the memory chips in the original Epson cartridges so that, when the ink level in the cartridges reached a threshold level, the cartridges would no longer be operative.
2. The following findings as to how Ninestar came to be in possession of the used cartridges are also pertinent:

67 Ninestar, for a fee, obtains used original Epson cartridges from third party suppliers who have collected them. It is unclear on the evidence whether the third party suppliers acquired the cartridges from the original consumers of the original Epson cartridges or otherwise obtained them, perhaps by collecting them from recycling bins. I find that it is likely that a portion of the original Epson cartridges have been sold or given by the consumers to the third party suppliers, and that otherwise they have come into the hands of the third party suppliers by a variety of means, including, perhaps, collection from recycling facilities.

68 At the time when Ninestar acquires the original Epson cartridges, the information on the memory chip records that the cartridge is “used” such that when it is inserted into a compatible printer, the printer will not work because the information conveyed from the memory chip to the printer is that the cartridge is empty.

69 In order to be refilled and made available for sale the steps set out in detail in the table at [73] below must be taken. Broadly, for a re-filled cartridge to work, it is necessary to reconfigure or rewrite the information on the memory chip so that when it is inserted into a compatible printer, the information in the memory chip does not indicate that the cartridge is used or empty.

1. It is clear from these findings that the cartridges in question were used cartridges. The reason the cartridges no longer worked was not because they were broken but because, as an inevitable consequence of their intended use, their ink resource had been depleted to the level that the cartridges should no longer be used but should be discarded. This is precisely what the owners of the original Epson cartridges did when this occurred.
2. It is also clear that the original Epson cartridges were not supplied in a form in which they could be accurately described as re-usable or re-fillable cartridges or, indeed, cartridges that, objectively, were intended to be re-used or re-filled. In his comprehensive description of the original Epson cartridges at [46] – [61], the primary judge referred to no feature that would lend aid to the suggestion that the cartridges, as supplied, were got up in a form that would characterise them as re-usable or re-fillable. That conclusion is supported by the description of the processes (informed by extensive research and development work) that Ninestar had to carry out in order to refill the cartridges and put them into a form, electronically and physically, in which they could, again, function as printer cartridges. Thus, Ninestar’s modifications were not carried out to repair the cartridges, but to re-purpose them.
3. Even if as a matter of principle it be correct to speak of a right of refurbishment in the same breath as a right of repair, the same conclusion follows. Properly considered, Ninestar’s modifications were not refurbishment, if “refurbishment” is taken to be some form of remediation different to repair that is nevertheless required to rectify some defect or deficiency in the cartridges. The simple fact is that there was no defect or deficiency as such. By the time the original Epson cartridges reached Ninestar’s hands, the purpose of their intended use had been achieved and their utility, as intended, was spent. Seiko programmed them to be that way.
4. Therefore, on the facts of the case, consideration of whether Australian patent law recognises a right of repair, or for that matter a right of refurbishment, can be—and should be—put to one side. That question does not arise for consideration.
5. I would add that care must be taken in any event when seeking to invoke other cases as factual analogues in the present context. Each case will turn on its own facts and the conclusion whether the impugned acts constitute permitted “repair” as opposed to non-permitted “making” (the dichotomy advanced by the parties) will involve matters of judgment on which reasonable minds may well differ.
6. I now turn to consider the rights under the implied licence arising on the first sale, without restriction, of a patented article, as recognised in *National Phonograph*. In this appeal and cross-appeal, the parties proceeded from the common point that such a licence existed in respect of the original Epson cartridges, subject (of course) to the implications of Seiko’s inbuilt restrictions argument.
7. The first matter to note is the limited scope of the implied licence. The licence concerns the right to use and the right to dispose of the patented article by the owner thereof who acquires title to the article from or with the authority of the patentee. In light of the Privy Council’s acceptance in *National Phonograph* of the correctness of *Betts v Wilmott* (1871) LR 6 Ch 239, one should add to this bundle the right to import the patented article. The limited scope of the implied licence was recognised by the primary judge:

162 A distinction must be drawn between two sets of rights that may be available to an owner of a patented product who takes it without restriction. First, the rights available to deal with the product without restriction. These rights concern the importation, sale and use of the patented product. Secondly, rights to repair the product (under an implied licence to repair) or otherwise perform acts which fall short of a “making” (pursuant to a residual right to do acts less than a “making”). The present case concerns only the first of these.

1. What is being harmonised by recourse to the notion of the implied licence is the right of a patentee to use and vend an invention, with the freedom that the owner of a chattel has to use and dispose of the chattel: *National Phonograph* at 24. When in *National Phonograph* the Privy Council referred to “the full right of ownership … vested in the purchaser” (see the passage quoted at [189] above), their Lordships were directing attention to an owner’s freedom of use and disposition of a chattel, and nothing more.
2. Further, the licence is one with respect to the article which, as an embodiment of the invention, the patentee has put into the market. The fact that the article is an embodiment of the invention means that the patentee can exercise control over it (if the patentee chooses to do so), but the permission (licence) which the patentee gives to the owner is one with respect to the particular article itself—that is to say, the right to use and dispose of *that* article as an incident of the ownership of it. If not for that permission, the purpose of the sale would be frustrated so far as use is concerned (the assumption being that the owner expects to use the article for its intended purpose). In this way it can be seen that the implication arises from necessity: see *Byrne v Australian Airlines Limited* (1995) 185 CLR 410 at 450 (McHugh and Gummow J); *Copyright Agency Limited v State of New South Wales* [2008] HCA 35; (2008) 233 CLR 279 at [92].
3. Therefore, ownership of a patented article supplied in an unrestricted sale does not imply a general licence to exploit the invention simply because the article is an embodiment of it. Nor does the implied right to use an article in accordance with the claimed invention extend beyond use of the article in the form in which the patentee puts it into the market—subject, of course, to the exercise of any right to repair the article.
4. This then focuses attention on the original Epson cartridges: see [280] – [282] above. The right of the owners to use those cartridges was implied by the fact of an unrestricted sale. But that right did not extend to use of the original Epson cartridges as printer cartridges beyond that for which they were got up to be used. The implied licence recognised by *National Phonograph* did not authorise any person, after the useful life of the original Epson cartridges, to modify them so that they could be used again as printer cartridges. It seems to me that the appeal and cross-appeal turn on this point.
5. As I have remarked, the primary judge asked whether the implied licence had been extinguished. It seems to me, with respect, that this is not the correct question, and the primary judge erred in this regard. The correct question is whether the impugned acts—the importation and sale of the modified and refilled cartridges by CDP—fell within the scope of the implied licence recognised in *National Phonograph*. Beyond an asserted licence to repair or refurbish, this is the only licence on which Calidad relies.
6. Also, the primary judge directed his attention to whether the modifications made by Ninestar to the original Epson cartridges amounted to material changes to those features of the cartridges that could be said to embody the invention claimed in claim 1 of the 643 patent. In my respectful view, the primary judge erred by confining his attention only to those modifications. It is of course true, as I have recognised, that the right to control the use of the original Epson cartridges derived from the fact that they were embodiments of the claimed invention and thus attracted those rights which, absent a licence, were exclusively the patentee’s to exercise. But the licence that was implied was with respect to the articles themselves, in the form in which they were got up by the patentee and put into the market. Once Seiko’s authority as patentee to control the use of those articles is recognised, as it must be, and once the limited nature of the implied licence is recognised, a consideration of the materiality of the modifications made by Ninestar to the original Epson cartridges is not confined to only those features of the articles that are claimed features of the invention. To so find is not to extend the patentee’s statutory rights. It is to do no more than recognise the patentee’s rights in the patented article itself as it comes into the hands of the first owner.
7. The primary judge’s analysis of Calidad’s past range of products and its current products was confined to the materiality of the modifications made to the claimed features of the invention, and led his Honour to conclude that the modifications to Calidad’s current products were not material because they were not relevant to his analysis. In my respectful view, this was an error. The correct approach was to ask whether, in each particular category, the modifications which Ninestar made to the original Epson cartridges altered them in such a way that they were, in substance, different articles to those which Seiko had put into the market and thus into the hands of the original owners. If so, they were not the articles in respect of which Seiko, as patentee, had given the implied licence and Calidad could not rely on that licence in respect of what were, in substance, different articles.
8. Undoubtedly, the modifications made by Ninestar that resulted in Calidad’s past range of products and its current products materially altered the original Epson cartridges that Seiko had put into the market. It is not necessary for me to repeat the cumulative modifications that were made in each case. It is sufficient for me to say that, in my view, the modifications amounted to remanufacture of the discarded original Epson cartridges to produce reborn printer cartridges that could not be said to have been of Seiko’s making. Thus, Calidad could not rely on the implied licence that Seiko had given to the owners of the original Epson cartridges.
9. It follows that I would dismiss Calidad’s appeal and allow Seiko’s cross-appeal. It is not necessary for me to address Seiko’s inbuilt restrictions argument because, on my analysis, the point is not reached where it becomes necessary to consider whether an express restriction, of the kind referred to in *National Phonograph*, of which sufficient notice had been given, was imposed.

# notices of contention

1. Seiko and Calidad each filed a notice of contention. The substance of the matters raised in the notices has been covered by the findings I have made above. It is not necessary to deal with the notices further.

# Disposition

1. As I have stated, I would dismiss the appeal and allow the cross-appeal. Calidad should pay Seiko’s costs of the appeal and of the cross-appeal. The parties should bring in agreed orders reflecting this outcome and providing for the variations that will need to be made to the primary judge’s orders pronounced on 16 February 2018. The matter should be remitted to the primary judge to determine the outstanding issues in the primary proceeding, including the costs of the hearing at first instance.

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| I certify that the preceding one hundred and fourteen (114) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Yates. |

Associate:

Dated: 5 July 2019

SCHEDULE OF PARTIES

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| --- | --- |
|  | NSD 348 of 2018 |
| Appellants |  |
| Fourth Appellant: | BUSHTA TRUST REG |
| Cross-Appellants |  |
| Second Cross-Appellant: | EPSON AUSTRALIA PTY LTD (ACN 002 625 783) |
| Cross-Respondents |  |
| Second Cross-Respondent: | CALIDAD HOLDINGS PTY LTD (ACN 002 105 562) |
| Third Cross-Respondent: | CALIDAD DISTRIBUTORS PTY LTD (ACN 060 504 234) |
| Fourth Cross-Respondent: | BUSHTA TRUST REG |