OUTER HOUSE, COURT OF SESSION

[2020] CSOH 72

CA1/18

OPINION OF LORD ERICHT

In the cause

M G CONSTRUCTION LIMITED

Pursuer

against

AGD EQUIPMENT LIMITED

Defender

Pursuer: Marney; Brandon Malone & Company
Defender: Brown; Anderson Strathern LLP

14 July 2020

Introduction

[1] The pursuer, a construction company, purchased a pile driving hammer from the defender. The hammer failed while in use on a construction site. The manufacturer replaced the hammer. The pursuer raised an action against the supplier for recovery of the amount paid in settlement of breach of the construction contract, loss of profit on the remaining work due to be carried out, legal costs, consultancy fees and lost director's time, on the ground that the hammer was not of satisfactory quality under section 14 of the Sale of Goods Act 1979.

[2] The case called before me for proof before answer on liability. I heard the evidence prior to the COVID-19 outbreak, with closing submissions being made by telephone due to the restrictions resulting from the outbreak.

The failure

[3] A piling hammer (also known as a rig) is a hydraulic impact hammer used for pile driving. It is attached to a leader which acts as a guide for the hammer so that verticality may be easily maintained resulting in the piles being driven into the ground plum. The leader is attached to the base excavator. The base excavator is a vehicle which is separate from the hammer, but to which the hammer is attached. The base excavator provides the necessary hydraulic power and ability to travel the machine from pile position to pile position. The ram box, which is also known as a swivel arm, is part of the leader assembly.

[4] There was an incident with the hammer on 17 May 2015. The pursuer had been contracted by Barhale Limited to drive piles on a site in Portobello. The ram box failed, breaking into two parts, and the hammer collapsed.

[5] On inspection of the failed hammer, it became apparent that it had sheared along the line of a pre-existing crack. The crack had gone all the way round. The crack had been repaired by a weld. That weld will be referred to in this opinion as the "casualty weld". Metal plates had also been inserted within the box. There was also another weld, on the surface of the ram box. That other weld will be referred to in this opinion as the "check weld".

[6] The pursuer's position was that the casualty weld had not been made by the pursuer and so must have been made prior to delivery. The defender's position was that it had not been made before delivery. The defender drew attention to a scenario (the "Defender's

Scenario") which might explain the making of the casualty weld after delivery. The Defender's Scenario was that after taking delivery of the hammer the pursuer's staff had misused it by pushing it against piles which had not been inserted into the ground straight in order to straighten them. The misuse caused the swivel arm to fail due to fatigue, and that failure was repaired by the casualty weld shortly before the incident.

[7] The key issues at proof were whether the pursuer had proved that the casualty weld had been made before delivery, and if so whether the pursuer had failed to mitigate or had broken the chain of causation.

Statutory provision

[8] Section 14 of the Sale of Goods Act 1979 provides:

> "14.—Implied terms about quality or fitness.
>
> (1) Except as provided by this section and section 15 below and subject to any other enactment, there is no implied [term] about the quality or fitness for any particular purpose of goods supplied under a contract of sale.
>
> (2) Where the seller sells goods in the course of a business, there is an implied term that the goods supplied under the contract are of satisfactory quality.
>
> (2A) For the purposes of this Act, goods are of satisfactory quality if they meet the standard that a reasonable person would regard as satisfactory, taking account of any description of the goods, the price (if relevant) and all the other relevant circumstances.
>
> (2B) For the purposes of this Act, the quality of goods includes their state and condition and the following (among others) are in appropriate cases aspects of the quality of goods—
>
> (a) fitness for all the purposes for which goods of the kind in question are commonly supplied,
>
> (b) appearance and finish,
>
> (c) freedom from minor defects,

(d) safety, and

(e) durability."

Witnesses as to fact

Pursuer's witnesses

Craig Milloy

[9] Mr Milloy was the managing director of the pursuer. He holds a BSc in civil engineering and in the past was a chartered civil engineer. He had in excess of 28 years of experience in piling as a contractor and company owner.

[10] Mr Milloy's evidence was that in around 2014 the pursuer decided to approach the defender for procurement of a new top drive hydraulic hammer. They selected the hammer manufactured by FAMBO because they already had FAMBO hammers. They were informed by Gordon Law of the defender that the defender had a hammer in stock available for immediate delivery, avoiding the normal fabrication lead time of around 6 months. The defender advised him that the hammer was in stock as it was the last rig manufactured in Sweden by FAMBO, who were terminating their manufacture process. Bauer, who had acquired FAMBO sometime prior to this, were taking control of manufacture in Germany.

[11] The defender fitted the hammer to the pursuer's base crawler excavator. During the commissioning process, there were a number of difficulties with the hammer. The difficulties were referred to in emails from the pursuer to the defender on 20 September, 23 September, 30 September 2014 and letter of 24 October 2014. The problems included hammer rams not retracting, hydraulic output, hammer guides and cage, hammer not giving full stroke, tyre rods breaking, hammer hitting mass ten plate and electrical cables lengthened and protected.

[12] Mr Milloy said that if an operator had damaged the arm as suggested by the Defender's Scenario, the operator would have had to report it to the pursuer's plant department and it would have appeared within their report. There was no possibility that the plant manager Morris Crane would not have been aware of damage or major repair work. The pursuer was a relatively small company with under 20 employees. It has eight hammers, which are the basis of its operation. The pursuer's operational records of using these hammers over 50 years show no such damage. In any event, the pursuer's plant department would not attempt a repair like this, but would subcontract it to a coded welder. In any event they would have not made the repair which was done, but would have replaced the part. It was a relatively small part and could have been replaced for £200 or so. The workshop was next to Mr Milloy's office and he would have been aware if a hammer was taken in for repair. The pursuer's staff were fully trained and did not have a practice of misusing hammers. There was no evidence of misuse of hammers in the 28 year history of the company. On being asked in cross-examination whether it could be that an employee did try to use it to straighten a pile, Mr Milloy responded that there was always the possibility but he found it unlikely. His employees did not have the skill to conceal the casualty weld with paint. The weld was very poor quality but the concealment was extremely high quality.

[13] He gave evidence that the pursuer had an inspection regime whereby there are regular inspections by the company's plant department staff and in addition the hammer was inspected on a daily basis by the operator for general maintenance purposes. It was also inspected on a 6 monthly or annual basis by insurance inspectors.

[14] Mr Milloy was not on site on the day in question so did not see the hammer immediately prior to the incident.

[15] Barhale raised an action against the pursuer for breach of contract which Mr Milloy settled on a commercial basis for a reduced sum.

[16] The pursuer returned the hammer to the defender retaining the smaller part of the section of the Ram Box containing the failed weld. It did so in order to retain some evidence in case they sued the defender. That part had since become lost. It was a mistake to lose it. In this opinion I shall refer to the lost part as the Smaller Ram Box Section and the other part of the section of the Ram Box containing the failed weld as the Larger Ram Box Section.

[17] On cross-examination he explained that a fault in the hammer did not have potential to cause delay in the Barhale contract: the pursuer would just have used another hammer. He accepted that the pursuer's records might not record everything that had been done to a machine in its history, but in re-examination agreed with his counsel's suggestion that if the pursuer had undertaken a significant repair to the machine he would expect to see that recorded.

[18] I found Mr Milloy generally to be a credible and reliable witness on factual matters on which he had direct personal knowledge. However I did not accept his inference from such facts that the casualty weld was not made by the pursuer's staff. The pursuer's procedures and inspections and the location of Mr Crane's office do not exclude the possibility of an employee carrying out the casualty weld outwith the proper procedures and not making the pursuer or Mr Crane aware of what he had done. A further difficulty with Mr Milloy's evidence is that Mr Milloy was not on site at East Kilbride on 12 May and had no direct knowledge of what Mr Jack did that day.

Mark Jeffrey

[19] Mr Jeffrey has been employed by the pursuer since 2008 and is the leading foreman. He was on site at East Kilbride on Tuesday 12 May 2015, prior to the failure of the hammer at Portobello on Sunday 17 May. He saw something on the paintwork on the hammer arm. It looked like a blemish in the paint but he had not noticed it before and wanted to get it checked. It did not look like a crack, just a mark. He put out a call to the fitter, Scott Jack and pointed out the blemish in the paint to him. Mr Jack was not sure what the mark on the paint was either. Mr Jack ground off the paint. Mr Jeffrey could not recall whether or not he saw the metal when the paint had been ground off, but as far as he knew there was nothing to see as Mr Jack continued to investigate. Mr Jeffrey went off to do other things and did not witness what Mr Jack did. Mr Jack told Mr Jeffrey that he applied a weld to see if the heat showed up a crack or movement, but it did not. They proceeded on the basis there was no crack there and the rig was not taken out of service. Mr Jack did not have paint with him.

[20] In assessing Mr Jeffrey's evidence, two difficulties present themselves. The first is that there is a stark difference of fact between Mr Jeffrey and Mr Jack on the state of the hammer on 12 May 2015. Mr Jeffrey's evidence was that there was a blemish in the paint. Mr Jack's daily report, set out in below, states there was a crack. There is a material difference between these accounts as a blemish is a less serious defect than a crack. A crack might support the Defender's Scenario, whereas a blemish might not. Without hearing evidence from Mr Jack, it is impossible to decide whether Mr Jeffrey's account or Mr Jack's account is to be preferred. Further, Mr Jeffrey has no direct knowledge of what Mr Jack did, as Mr Jeffrey was elsewhere on site at the time. On account of these difficulties, little weight can be placed on Mr Jeffrey's evidence in considering whether the pursuer has proved its case.

Morris Crane

[21] Mr Crane is the pursuer's plant manager, a post which he has held for around 12 years.

[22] During the commissioning process a number of problems came to light. There was excessive welding on the hammer which prevented it from sliding on the guides: the excessive welding had to be ground off. The hammer would not flow to its proper weight. The defender had fitted an improper hydraulic valve and had not calibrated the gauge properly. The main hydraulic rams for the hammer were overheating. The hammer was travelling too far on the slides and damaging the top of the hammer and guides when it got to its maximum height. After commissioning, there was an instance when the machine was being used in Newcastle when hydraulic control valves became faulty. There was then a period of normal operation until the incident. Mr Crane was not on site at the time of the incident. He subsequently went to the site and took photographs.

[23] After the incident, he received Scott Jack's daily report sheet for Tuesday 12 May 2015. In that report sheet Mr Jack recorded:

> "TRAVEL TO EAST KILBRIDE REPORT OF OIL LEAK ON FAMBO HAMMER. COULD NOT FIND ANY LEAKS TIGHTENED SEVERAL CONNECTORS AND UNIONS. NOTICED SMALL CRACK IN PAINTWORK ON SIDE SHIFT RAM BOX SECTION. APPLIED WELD TO CRACK FOR VISUAL CHECK. RETURNED TO YARD"

[24] After the incident, the defender replaced the hammer and took the old hammer away. Mr Crane's recollection was that all parts of the hammer were taken away, but he was not certain about that. He was sure that they took the larger part of the arm away and that it had not been cut, broken up, or touched in any way before they took it away. Whether or not they took the smaller section, he could not be sure.

[25] He said that his photograph showed rust on the casualty weld which would not have been there had the casualty weld been done a few days before the incident.

[26] I found Mr Crane generally to be a credible and reliable witness on matters of which he had direct factual knowledge. However he was not on site at East Kilbride on 12 May and had no direct knowledge of what Mr Jack did that day. I do not accept his inference drawn from the rust, as it was based on colouring in a photograph and I was not satisfied that colour reproduction in a photograph is sufficiently accurate to allow a diagnosis of rust.

Thomas Gibson

[27] Thomas Gibson is a former director of the defender. He had a telephone conversation with Francis McCauley following the incident. He was driving home. There were two people on the call, Mr McCauley and one other. They were very aggressive on the call. They were putting hypothetical situations to him. He agreed with their suggestion that if the pursuer had carried out the repair it should have been tested. He did not say that the pursuer had carried out the repair to the arm. Everything was hypothetical at that stage as the investigations had not been completed and it was not clear exactly what had happened.

[28] In cross-examination there was put to him the account of the conversation given by Mr McCauley in his investigation report. Two different versions of Mr McCauley's report had been lodged in process and the witness was referred to the version of the report forming part 4 of the Appendix to Ms Wasserman's report (Production 7/8). The account of the conversation in that version of the report stated:

> "Regarding the (failed) weld on the Ram Anchorage point [Mr Gibson] acknowledged that there was a crack and that an attempt had been made to undertake a repair, which was unsatisfactory. [Mr McCauley] questioned Tom Gibson regarding the attempted repair asking if it should have been test/certificated? Tom Gibson's reply was that it should have been sent for testing but hadn't been"

Mr Gibson's response was that Mr McCauley asked a similar question which was if you had carried out a repair would it have certification to which Mr Gibson had replied yes if they had carried out a repair. Mr McCauley asked if it would be good practice to have it tested and Mr Gibson said yes. Mr McCauley said did you and Mr Gibson said no.

Defender's witnesses as to fact

Michael Probst

[29] Mr Probst is the director of quality management at Bauer. He is based in Germany and has held that position for 7 years. With reference to a photograph of the actual hammer which failed, which had been taken prior to delivery, it could be seen that there were no visible signs of welding. If the weld had been ground flat and painted over it would be visible.

[30] The quality control information which the FAMBO provided Bauer with would have suggested that the hammer was in good working condition. The quality control procedure for the hammer would have been carried out by FAMBO. The ram box was designed to be made out of a single sheet of steel. The design did not include a weld at the point of the casualty weld.

[31] When asked on cross-examination whether the hammer which failed was the last FAMBO hammer made in Sweden he replied he was not sure and he could not answer that. The parts were manufactured individually by different companies and assembled in Sweden by FAMBO.

[32] I found Mr Probst to be generally a credible and reliable witness. However I do not accept his inference that the hammer was in good working condition: he has not excluded the possibility that the casualty weld was concealed in such a manner that it was not picked

up by the quality control procedures. The question of the state of the hammer prior to delivery is a matter for the court having heard all the evidence.

Stefan Lämmle

[33] Mr Lämmle has worked for Bauer Maschinen GmbH as a technical specialist customer service advisor and has worked for them since 1997. He has worked within Bauer as a welder in steel construction, assembly of drilling rigs and mechanical repairs. From April 2014 until August 2015, he worked in customer service for FAMBO. He had a qualification as a construction machinery mechanic master.

[34] He inspected the failed hammer on 27 May 2015, after the incident, and produced a report (the "Bauer report") dated 1 June 2015.

[35] The Bauer report found that the damage to the leader was caused by the failure of the swing arm on the pivoting device. It was found on the swivel arm that two pieces of steel were joined together by a welded joint. The weld was not carried out correctly according to the specifications of BMA. The square tube at this weld weakened which led to failure of the components. After the detection of a crack at the swivel arm, welding repairs were performed. This incident should have been reported to Bauer Maschinen to be expertly repaired. Even a half penetration weld would have withstood the normal stresses occurring. Impermissible form forces have been possibly initiated. With an expert repair the extent of damage could have been avoided.

[36] I found the Bauer report to be useful on factual matters in that it set out in detail, including photographs, the results of an inspection of the failed hammer by Mr Lämmle shortly after the incident. However it was not an expert report but an internal report by Bauer and does not constitute opinion evidence. In particular, there is a finding in the report

that after the detection of a crack at the swivel arm, welding repairs were performed. That finding was based on no evidence and is a matter for the court. Accordingly, I do not accept that finding.

Robert Law

[37] Mr Law is the managing director of the defender. He has worked for the defender since 1983, beginning work as a trainee and having been the managing director since 2002.

[38] The defender purchased the hammer from FAMBO in July 2014. He had bought all of FAMBO's stock. The hammer supplied to the defender was the last one ever made by FAMBO in Sweden. It was then supplied by the defender to the pursuer about 11 August 2014. The hammer was subject to quality testing prior to delivery. This was carried out by FAMBO at the factory. No defects were noted on inspection by the defender.

[39] Mr Law had sold FAMBO equipment since 2002 and had always found their equipment to be well designed, well-built and safe and had never known of a weld to fail in any of their equipment.

[40] The hammer was supplied with the warranty valid for 12 months from the date of purchase. From delivery of the hammer in 2014 until the incident in May 2015, there were several occasions when the pursuer contacted the defender about the warranty. These were minor issues and the defender repaired the machine. This showed that the pursuer was aware of the warranty, but they chose not to follow the warranty procedure when the crack was discovered.

[41] After the incident, Mr Law made an offer of replacing that hammer as it seemed to him the only way that litigation would be avoided. He did not accept liability. In an email dated 9 June 2015 he stated "This is an ex gratia offer of settlement and is offered in the spirit

of maintaining a good relationship with you". After sundry correspondence and discussions, it was agreed that the hammer would be replaced and the pursuer would pay £7,500 plus VAT as the new hammer was better than the damaged one. This was set out in an email from the defender to the pursuer dated 17 June 2015 which stated "This is not an admission of liability on our part".

[42] There was no inventory taken when the parts of the hammer arrived at the defender's yard. Mr Law decided that they should be put into storage in case they were required at some point in the future and they were put in stillages, that is steel pallets with sides used to store equipment. It was only in September 2018, when the defender was asked to make the parts available for examination by its experts that Mr Law realised that all of the swivel arm (ram box) had not been returned. The Smaller Ram Box Section had not been returned. The other half of the ram box had been cut off from the main frame and cut away on three sides. That meant that they had only one edge of the casualty weld. The missing part and the parts cut away had been cut with angle grinders. The defender does not generally use angle grinders to cut items in its workshop. Grinders are regularly used on construction sites. In his view, the pursuer must have failed to return the part of the swivel arm (ram box) which would have been attached to the piling rig. He further believed that they had cut away the part which was attached to the mounting plate.

[43] Mr Law explained the Defender's Scenario. He was aware from experience that it was common practice for some piling contractors to use the base excavator to push against the leader to straighten up piles that are already embedded in the ground. The FAMBO hammer and the leader are not designed to be used in that way. Using it in that way will result in the hammer being exposed to a greater degree of force than it is designed to take. The swivel arm (ram box) is not designed to withstand the force of the base excavator

pushing against it when it is locked on a pile which is already embedded in the ground. An overload failure or a fracture caused by excessive force being applied to the equipment is most likely to occur in the swivel arm (ram box) at the weakest point, in this case the casualty weld. Employing this practice with a 40 tonne excavator would have imparted impermissible forces on the swivel arm.

[44] Mr Law commented on a document entitled "M G Construction Plant Management System". The purpose of that document was to act as a record of maintenance work. It shows the hours worked by the base machine or excavator on which the pursuer had mounted the FAMBO. They show a total of 655 working hours from 18 September 2014 to 8 March 2015. He assumed that given that the hammer was used in conjunction with the excavator, it had been used for approximately the same number of hours. He would expect a machine like this to work about 1000 hours per year.

[45] I found Mr Law to be generally a truthful and reliable witness on matters of fact. I did not accept his evidence about the number of hours the hammer worked. That evidence was based on documentation showing the hours the excavator worked, but he had no basis of knowing whether the hammer had been attached to that particular excavator for all of these hours. I accept his explanation as to the effect on a hammer of misuse in straightening piles, but note that this was a general explanation of what might hypothetically happen and was not direct evidence as to what actually happened in this case.

Gary Woodfull

[46] Mr Woodfull is currently employed as the plant manager for the BCS group. The BCS group includes Barhale. He has over 30 years' experience in the construction industry

and has worked for various companies over that period. He has engaged in several internal and external (at Walsall College) site manager courses.

[47] He was asked by Barhale to attend at the site after the incident and did so on 18 May 2015, the day after the incident.

[48] On his inspection of the box section he noticed a hairline crack. The hairline crack had been welded over and it was a fresh weld. In order to carry out a weld competently there required to be the grinding back of the surface. From his experience it looked like a very amateur job in an attempt to patch up the crack. He prepared a report for Barhale.

[49] In his view, the fracture could have been caused by the Defender's Scenario. A piling on of the mass would have caused repeated damage to the box section. The crack could have been caused by the treatment of the machinery. The crack on the box looked like it had been a fresh weld albeit that there was rust present in the inside. He would expect to see rust on the inside of the crack if this had happened over a period of time and had been left rather than the crack occurring immediately before his inspection. The crack on the box section was too large to attempt to repair by simply welding and the proper procedure should have been followed in respect of any attempts to weld it, or the machine should have been replaced.

[50] The welding specification procedure did not appear to have been undertaken. Check welds should be carried out on site and when a crack appears must be carried out by a competent welder. There must be certificates to ensure that the proper materials are being used. Good practice would suggest that the machinery should have been taken out of service immediately in the interests of safety. The hammer should have received a fresh weld and been replaced due to the weight bearing on it rather than simply patched up in a manner that it was.

[51] On cross-examination it became apparent that Mr Woodfull's evidence was predicated on his understanding that there was only one weld. When the evidence of there being a casualty weld and a check weld was pointed out to him, he accepted that his original evidence was misleading.

[52] I did not find Mr Woodfull's evidence to be of assistance. He is not an independent expert, but an employee of a Barhale group company who investigated the incident as it occurred on a Barhale site. His evidence was predicated upon there only being one weld, whereas the evidence as a whole establishes that there was a casualty weld and a check weld.

Francis McCauley

[53] Mr McCauley works for Barhale Limited, which was the company that had contracted the pursuer to work on the site at the date of the incident. He is the Health and Safety advisor for the Scotland region. On 21 May 2015 he had a conversation with Mr Gibson. Mr Gibson acknowledged that there was a crack and a repair was attempted. Mr McCauley asked him should this have been tested or certified and he replied it should have but was not.

[54] On cross-examination Mr McCauley agreed that on 21 May 2015 he thought that the check weld was a repair. At that time he had not seen Mr Jack's report in which Mr Jack stated that he had applied a weld for a visual check. If he had he would have factored that in. He agreed that the conversation was more nuanced than appeared in his report, and that Mr Gibson's position was not as stark as presented in that report.

Bernhard Lindermair

[55] Mr Lindermair was currently the managing director and CEO of RTG Rammtachnik GmbH which is a fully owned subsidiary of Bauer Maschinen. He had been the executive director of the business unit of piling technology of Bauer since 2005, including the FAMBO products. He was the managing director of FAMBO from approximately 2010 to 2015. He had worked with Bauer Maschinen for 27 years and had an engineering degree from a technical university in Germany.

[56] Bauer acquired FAMBO on or around 2003 – 2004 and it became a fully owned subsidiary of Bauer. The FAMBO production facility in Sweden was closed in 2015 and production of FAMBO products was moved from Sweden to Bauer in Germany. Since 2015, production of FAMBO products had been in Germany in the Bauer factory, although the FAMBO brand was still used.

[57] The quality control information which FAMBO provided to Bauer in relation to the hammer would have suggested that the FAMBO hammer was in good working condition. There is no specific quality inspection of the ram box and as FAMBO carried out quality control procedure for the hammer, Bauer did not have any further information to provide. The inspection of the ram box had been carried out by FAMBO and Sweden. The FAMBO hammer was not an uncommon piece of machinery and about 180 units had been supplied throughout the world. If there was a design flaw it would have presented a massive problem.

[58] I found Mr Lindermair to be a credible and reliable witness in so far as his evidence went. However, he was unable to assist on FAMBO's quality control procedures.

Expert witnesses

Pursuer's expert witnesses

Darren Prince

[59] Mr Prince was a technician working for SOCOTEC UK Limited.

[60] He examined four samples as follows:

Sample 1, labelled "Red Layer, metal section near weld. Position 1."

Sample 2, labelled "White Layer, metal section near weld. Position 1."

Sample 3, labelled "Red Layer, metal section away from weld. Position 2."

Sample 4, labelled "White Layer, metal section away from weld. Position 2."

[61] Samples 1 and 3 produced a spectrum consistent with urethane/acrylic paint. Urethane/acrylic paints are most commonly found as top coats.

[62] Analysis of samples 2 and 4 produced a spectrum consistent with epoxy paint. Epoxy paints are very commonly used in industrial coating application.

[63] There was a 98.5% correlation between samples 1 and 3, of which would suggest that they were the same product. There was a 99.6% correlation between samples 2 and 4 of which would suggest that these were the same product.

Scott Bate

[64] Mr Bate was also a technician with SOCOTEC UK Limited.

[65] He examined two samples, a red sample and a white sample. He compared the red sample with the red welded piece and found that under FTIR spectra comparison, the match between the red coats was almost exact. He also compared the white sample against the white welded piece and found that the match between the white coats was almost exact.

Daphne Wassermann

[66] Ms Wassermann is a chartered mechanical and metallurgical engineer with over 40 years experience. She holds a first class MA degree in natural sciences (metallurgy) and an MSc in the mechanics of materials. In addition to her career as an engineer with various companies, she also has extensive experience as an expert witness, both in the UK and abroad.

[67] In Ms Wassermann's opinion, the failed box section was manufactured in two parts. It was unlikely that the hammer could have been overloaded if it had been used within the manufacturer's guidance. The casualty weld was not carried out effectively. There was lack of fusion, lack of penetration, slag inclusions and pores and porosity. In Ms Wassermann's view, had the casualty weld been examined at manufacture this would have been noticed. Had it been made from one piece then there would have been no weld to fail.

[68] She would not expect a section manufactured in two parts and welded to operate within the same parameters as a part manufactured from a single section of the material. She could see no reason why the component should have been in two parts in this case: it was relatively short and normally manufactured in one part.

[69] The casualty weld was very poor with a number of defects. It was not executed correctly. In her opinion, the incorrect execution of the weld was the cause of the failure.

[70] In her opinion, the hammer with the casualty weld would have failed under normal use. The stresses calculated by Bauer, when combined with the weld defects and the repeated impact loading, would be sufficient to cause failure of the faulty weld.

[71] The section that failed was short and the pursuer could not have anticipated that there was a weld in that location. The weld had been ground flat and painted over so that there was no indication of the presence of a casualty weld.

[72] Her understanding of the evidence was that Mr Jack noticed some cracking of the paint and applied a small weld to monitor whether there was a crack in the metal causing the paint to crack. She would not recommend that action to determine whether a crack was present. Dye penetrant or alternatively magnetic particle inspection should have been carried out to check for the presence of a crack. However, in her opinion, the application of the check weld by Mr Jack did not have any effect on the failure of the hammer. If Mr Jack had not noticed the crack in the paintwork and had taken no action the hammer could still have failed.

[73] Prior to the proof, Ms Wassermann had met with the defender's metallurgy expert, Mr Dalton, as directed by the court. At the joint meeting of experts, agreement was reached on the following. The weld would not be visible under the paint if it were a good weld. There was however disagreement as to the situation where there was a poor weld. There was agreement that a check weld was not an ideal way to monitor cracking or yielding, but that the check weld was unlikely to have had a significant influence on the failure. There was agreement that the strength of the casualty weld was low and it was not fit for purpose. The poor quality of the casualty weld was the cause of failure. It was agreed that the check weld was not good practice but there was disagreement as to the extent to which this was poor practice.

[74] At their meeting the experts also considered whether the investigation had been prejudiced by the lack of availability of the missing Smaller Ram Box Section. There was agreement that the check weld was located on the side of the component which would have been under compression during use. The remaining part of the fracture was at the side and was unlikely to have been the initiation point of the fracture. It was therefore impossible to tell whether the fracture was gradual, by fatigue or sudden. In addition, study of the paint

near the weld and further away could have indicated whether all the paintwork was carried out at the same time or whether the weld was overpainted at a later stage. It was not possible to examine the swivel arm for any evidence of damage which could have led to it being removed and repaired.

[75] As a result of the experts' comment about what could be discovered from study of the paint, the paint was analysed by Mr Prince and Mr Bate as set out above.

[76] In Ms Wassermann's opinion as set out in her Supplementary Report dealing with the paint analysis, the results of the paint testing demonstrated that the same paint was used for the whole component. Therefore unless the whole component was repainted at some stage, it was likely that the hammer was supplied with the casualty weld in place.

[77] She noted that there was a statement in Mr Woodfull's report which stated that the surface showed signs of rust. This implied that rust had been growing in the weld for some time. She was referred to the brown colouration in Mr Crane's photographs but said it was notoriously difficult to tell rust from a photograph.

[78] On cross-examination, it transpired from an examination of the part from which the paint samples were taken, that the samples were taken further away from the weld than Ms Wasserman had thought when she wrote her Supplementary Report. Ms Wasserman was asked whether that changed her view in her report that unless the whole component was repainted at some time it was likely that the hammer was supplied with the casualty weld in place. She said that she thought that was unclear now. When asked if she was withdrawing her conclusion she said she was casting some doubt on it.

[79] She also commented on not having examined the Smaller Ram Box Section. She said that without the full specimen we cannot see where the crack initiation was and what the exact failure mechanism was: we only have a little strip of the weld not the full

circumference of the weld but just one side of it. Without seeing the whole section she did not know if it was a gradual crack (which was most likely) or sudden failure. Further, in respect of rust she commented that we have not had the full cross section to see where initiation started and which part corroded more. In respect of the check weld, she said that it would be useful to know what was in Scott Jack's head.

Defender's expert witnesses

John Carter

[80] Mr Carter is a graduate of the Royal Institute of Chemistry. He is currently a business development manager for coating and polymer for SGS (UK). Prior to joining SGS he worked for 24 years within the coating industry, working his way up from the laboratory bench through to operations director within various paint manufacturing companies prior to 14 years in independent coating testing. He currently chairs two working committees of the National Association of Corrosion Engineers and is an active member of numerous NACE working groups developing and updating test methods and specifications for coatings used in the oil and gas industry.

[81] Mr Carter examined the hammer, which was found to have sections missing, although additional sections (but not the Smaller Ram Box Section) were furnished to him at a later date. The overall surface finish of the coating system was in a generally acceptable condition. The coating system was found to be uniform in appearance across the primary submitted hammer piece and the off-cuts received later. The material showed material degradation and localised damage of coating which could be attributable to heat damage. As the heat damage was on top of the coating, it could only be presumed that this occurred after the coating had been applied.

[82] Sample chippings were removed from the body of the hammer. The applied coating was determined to be a two coat system. The initial layer was white and the top coat was red. The white layer was epoxy and the material of the red layer was not known. Mr Carter conducted examination by FTIR spectrometer, a film thickness tester and microscope.

[83] His conclusion was that the coating system was uniformly coated with a white epoxy-based primer and a red top coat, forming a two-coat system. There was no evidence of further touch ups or repairs that indicate later coating activity. On the contrary there were observable defects that would potentially be a source of corrosion in the long term. The spot film thickness measurements suggested that there was a variance that would not generally be of satisfactory quality. Additional data evaluated on the sample in proximity to the weld defects showed no indication of additional overcoating. The film thickness measurement, both non-destructive and cross-sectional were consistent with the spread of measurements across the body of the hammer. In the limited area of coated material in proximity to the weld, there were signs of coating degradation that were consistent with heat damage.

Tom Dalton

[84] Mr Dalton is currently employed by RCA Laboratories Limited as senior metallurgist. He has been employed as a metallurgist in various roles since 1977 and graduated from Manchester Polytechnic in 1988 with a Masters degree in metallurgy. He is a fellow of the Institute of Materials, Minerals and Mining, and a chartered engineer.

[85] His understanding was that a crack had previously appeared at the same position as the failure, and that the pursuer's operators had performed a check weld. The check weld was made either directly on top of, or very close to the casualty weld. The absence of

corrosion on the surface of the unprotected steel suggested that the check weld was likely to have at least been made only a short time before the catastrophic failures. Paint had been ground away but it was not known whether this was to make the casualty weld or the check weld.

[86] Mr Dalton inspected the hammer however the ram side of the swivel arm was not included with the other items. In addition three of the four sides of the fracture on the mounting plate side had previously been removed using a disc cutter and the parts removed had not been supplied to him.

[87] Close visual examination of the only remaining section of the fracture confirmed the presence of a partial penetration weld (the casualty weld). A partial penetration weld is one which does not extend through the full thickness of the plate and is therefore considerably weaker than a full penetration weld. The casualty weld was of very poor quality with an uneven profile, little penetration and large areas of lack of fusion. Mr Dalton removed and examined a small section. He also examined a similar FAMBO hammer and found that in the other FAMBO hammer the box section was a single piece of steel with no weld being present.

[88] In his opinion, the failure had occurred at the position which coincided with a point of maximum stress, that is the natural position at which an overload failure would be expected to develop. A section of plate had been inserted into the joint, presumably to increase the strength. This was not good industry practice and could have acted to intensify the stresses. The absence of any corrosion on the unprotected steel suggested that the casualty weld was carried out only a short time before the catastrophic failure. Although it was unlikely that the check weld played a significant role in the failure, the manner in which it was carried out was not in line with good industry practice. Having discovered a crack

the correct course of action would have been to inform the defender. An appropriate repair procedure would have involved complete removal of the crack by grinding following which the excavated area would have been replaced by a fully penetrating weld. All of this would have been controlled by an appropriate welding procedure specification ("WPS") and carried out by a qualified welder. Had the check weld been carried out in a controlled manner it is likely that the underlying substandard weld would have been identified and replaced with a good quality weld.

[89] Although he accepted that a good quality weld could have been hidden by careful grinding and painting, the casualty weld was of such a poor quality that it would be expected that some indication of its existence would have been visible through the paint layer.

[90] He gave the following reasons why in his opinion the casualty weld was not part of the original manufacture:

(1) The fabrication drawing for the swivel arm did not show a weld at the position of the casualty weld.

(2) The casualty weld was located precisely where an overload failure would be most likely to occur.

(3) The casualty weld was made by a welder of poor skill and experience and was not consistent with the high quality of another weld within the swivel arm.

(4) The insertion of a section of steel plate into the joint was not a standard procedure and was unlikely to have been carried out by a reputable fabricator.

(5) The only portion of the fracture which was available for examination possessed a flame-cut edge whereas disc-cutting or saw-cutting would normally be used for a material of this thickness.

(6) No edge preparation had been applied to the joint whereas the design drawing showed this to be a requirement for all other welds in the swivel arm. It would be reasonable to assume that had this weld been made during the original fabrication it too would have incorporated an edge preparation.

(7) The casualty weld was a partial penetration type whereas the design drawing showed fully penetrating welds to be a requirement for all other welds within the swivel arm.

(8) A similar FAMBO Hammer which was fabricated around the same time as the failed item did not contain a weld at this position.

(9) Whilst the casualty weld had been ground flush, all other welds within the hammer were unground.

(10) There is no logical reason why the swivel arm would be made in two pieces when the use of a single piece would have been simpler and more cost-effective.

[91] In Mr Dalton's opinion, the metallurgical investigation was severely compromised by the fact that only one eighth of the fracture was available for examination. The Smaller Ram Box Section was missing and could not be examined. Accordingly it was impossible to conclusively establish the reason for the existence of the casualty weld. Had the whole of the fracture been available, the investigation would almost certainly have been more conclusive and it may have been possible to explain how the casualty weld came to exist. Had the whole of the fracture been available it would have been possible to establish if the

catastrophic failure was the result of the application of a single load which was in excess of the strength of the joint, or was the consequence of a slowly developing defect which had been present for a significant period of time. That information may have been helpful in establishing the point at which the casualty weld had been made.

[92] The Defender's Scenario would account for the presence of the casualty weld. The failure scenario was that the arm became deformed, possibly by misuse or being damaged during handling or transportation. Since the swivel arm is too strong to be straightened, the only course of action is to remove it by flame cutting. The front edge would then be dressed by grinding to remove the deformed region. Because the flame cutting process had melted away a few millimetres of steel, the arm would now be shorter than it originally was so to correct the length, a piece of steel would be inserted into the joint to act as a spacer. A repair weld would be made to join the two pieces of the arm, but since the gap between the two halves was excessive, the weld would be of poor quality. To disguise its presence the weld is ground flush and painted over.

[93] On cross-examination he stated that rust can occur almost instantaneously, giving as an example rust which appears on brake discs after washing a car.

[94] I heard Mr Dalton's evidence under reservation of competency and relevancy as counsel for the pursuer objected to his evidence on the ground that he had failed in his duties as to impartiality as set out in *Kennedy* v *Cordia (Services) LLP* 2016 SC (UKSC) 59. His opinion was not an objective unbiased opinion and he had assumed the role of advocate. He had omitted to consider material facts and blurred the distinction between areas that truly fell within his expertise and those which fell outside. For these reasons, counsel submitted that Mr Dalton's evidence should be excluded as inadmissible. In my opinion, Mr Dalton's evidence should not be excluded as inadmissible. Although he took into account the

Defender's Scenario, he did so objectively. His opinion was based on the full facts as presented to him in the witness box. His evidence fell within his area of expertise. Accordingly, I find that his evidence is admissible. It will however of course have to be tested in accordance with the rest of the evidence and assessed as appropriate.

David Dimelow

[95] Mr Dimelow is a loss adjuster and director and head of engineering at Sedgwick. He began his career in 1975 as an engineering apprentice at Rolls-Royce Plc. After completing his engineering qualifications he moved into loss adjusting in 1988 and has worked as a loss adjuster since. His qualifications are BEng (Hons), CEng, MIMechE, MBA. In his view the poor quality of the casualty weld would have given rise to failure within 1 or 2 weeks.

[96] His report was based on the assumption that on 12 May 2015 the defect with the swivel arm had been discovered.

[97] In his opinion the swivel arm was originally manufactured from one piece of square tubular steel as detailed on the manufacturing drawing. It was not known when the swivel arm was welded and a piece of steel inserted to strengthen the welded joint. As there was no weld preparation as detailed on the FAMBO manufacturing drawing the failed weld was not undertaken by FAMBO. The damage to the FAMBO leader and hammer was due to misuse and abuse caused by excessive loads being transmitted through the equipment whilst driving or straightening piles. The swivel arm initially failed due to fatigue and was repaired shortly before the incident using a poor quality and poorly prepared weld which was unable to withstand the excessive load being imposed due to misuse and abuse. Had the pursuer reported the defect with the swivel arm when it was first noticed, the incident

would not have occurred. If the hammer had been supplied from new with a poor quality weld the swivel arm would have failed within 1 or 2 weeks not after 9 months of use.

[98] The pursuer submitted that Mr Dimelow was not adequately and appropriately qualified to give opinion evidence to the court. He was a loss adjuster with limited engineering qualifications and had never done the type of work which Mr Jack was undertaking. He offered opinions as to welding with no relevant qualifications. He did not take into account factual material which might have affected his opinion. He admitted he was speculating.

[99] In my opinion, Mr Dimelow's evidence consisted of little more than a summary of the defender's case. It offered no new original insights based on particular areas of expertise. It came to conclusions based on limited evidence which are the preserve of the court having heard all the evidence. His report was a perfectly proper and appropriate report for a loss adjuster who was investigating an incident. However, it was not the report of an expert witness for purposes of court proceedings, and accordingly was of no assistance to me.

The missing sections of the ram box

[100] The defender objected to the admissibility of any evidence to be led by the pursuer on whether the ram box was manufactured in two parts and the quality of the casualty weld in the ram box, and the expert evidence of Ms Wassermann which was based on these matters. The ground of the objection was that the pursuer failed to return all of the ram box and that there was prejudice to the defender as a result of all of it not being available for examination by the defender's expert.

[101] Counsel for the defender submitted that the Smaller Ram Box Section and the section which was cut away were of vital importance in the proper investigation of the case. The defender's investigation of the origin of the weld was prejudiced as a result of not being able to carry out physical investigations on the missing parts. The circumstances in which the sections came to be lost were attended with suspicion and the court should be hesitant about admitting the secondary evidence. The defender cannot be considered to have been at fault for not having the ram box examined by experts before the hammer was returned. Reference was made to Dickson - *A Treatise on the Law of Evidence in Scotland* – Chapter IV, paragraphs 236, 237 and 241; S*cottish and Universal Newspapers Limited* v *Gherson's Trustees* 1987 SC 27; *Belling* v *McGowan* 1983 SLT (Notes) 77; *Stirling Aquatic Technology Limited* v *Farmocean AB (No 2) Limited* 1996 SLT 456; *Peacock Group plc* v *Railston* 2007 SLT 269; *Haddow* v *Glasgow City Council* 2005 SLT 1219; *Scottish Water Business Stream Limited* v *Automatic Retailing (Scotland) Limited (In Administration)* [2014] CSOH 57.

[102] Counsel for the pursuer submitted that the evidence was admissible. The missing Ram Box section had been lost prior to litigation. Both parties had been prejudiced by its absence. The lack of the Smaller Ram Box Section was a neutral fact. No case was ever perfect or had every possible item of evidence. This case would require to be decided on other evidence.

[103] I note that this objection is wide in scope and seeks to exclude as inadmissible any evidence led by the pursuer on whether the ram box was manufactured in two parts and the quality of the casualty weld in the ram box. In seeking to exclude such a broad range of evidence, in my opinion the defender goes too far. It seeks to exclude evidence pertaining to the timing of the casualty weld which is not derived from the ram box, such as for example evidence from Mr Milloy about the records not disclosing the making of a casualty weld

after delivery, or evidence from Mr Jeffrey as to the state of the hammer on 12 May. It seeks to exclude evidence as to the quality of the casualty weld, notwithstanding that there is no dispute between the parties or their experts that the casualty weld is of poor quality. The defender also specifically seeks to exclude the expert evidence of Ms Wassermann, notwithstanding that Ms Wasserman's evidence took into account that she had not been able to examine the missing part. The lack of the missing part prejudiced the pursuer as well as the defender. In these circumstances, I find that the evidence led by the pursuer on whether the ram box was manufactured in two parts and the quality of the casualty weld in the ram box, and the expert evidence of Ms Wassermann, is admissible. However, the absence of the information which would have been available had the missing parts been available for inspection by the defender's expert and the pursuer's expert must be taken into account in assessing the weight of the evidence.

Pursuer's submissions

[104] Counsel for the pursuer invited me to sustain the pursuer's fourth plea in law and repel the first, second and third pleas in law for the defender, and put the case out by order to determine further procedure in relation to quantum.

[105] Counsel submitted that the hammer was supplied with the casualty weld. It followed that it was not of satisfactory quality. He submitted that his case rested on the witness evidence from Mr Milloy, Mr Crane and Mr Jeffrey. They had no knowledge that anything was wrong with the hammer and no indication of any intervention by the pursuer. Had some failure occurred requiring the casualty weld to be made they would have known about it.

[106] Counsel further submitted that the actions of Mr Jack did not break the chain of causation (*Borealis AB* v *Geogas Trading SA* [2010] EWHC 2789 (Comm); *Lester Stacey t/a the New Gailey Caravan/Motorhome Centre* v *Autosleeper Group* [2014] EWCA Civ 1551; *County Limited* v *Girozentrale* [1996] 3 All ER 834; *Compania Naviera Maropan* v *Bowaters (The "Stork")* [1955] 2 QB 68; *The Polyglory* [1977] 2 Lloyd's Rep 353; *The "Spontaneity"* [1962] 1 Lloyd's Rep 460; *Barings Plc* v *Coopers and Lybrand* [2003] EWHC 1319 (Ch)).

[107] He further submitted that as the pursuer had been placed in a difficult situation by the defender's breach of duty and acted reasonably in the adoption of remedial measures, there was no failure to mitigate his loss (*Borealis* v *Geogas Trading*; *Banco de Portugal* v *Waterlow* [1932] AC 452).

[108] He further submitted that as the present case proceeded by way of breach of contract, there was no requirements to prove fault on the part of the defender (*Forsikringaktieselskapet Vesta* v *Butcher* 1989 AC 852; *MacGregor on Damages* 20th Ed at 7-011 to 7-15).

Defender's submissions

[109] Counsel for the defender submitted that it was for the pursuer to satisfy the court that the hammer was not of satisfactory quality under section 14(2) of the Sale of Goods Act 1979 (*Watters* v *The Masters Golf Co Limited* [2013] CSOH 126; *Tayside Contracts* v *D Geddes (Contractors Limited)* 2017 CSOH 108). Having regard to the absence of evidence from Mr Jack, the fact that the part was not available for inspection and other factors, the pursuer had failed to discharge the onus to prove the hammer was not of satisfactory quality.

[110] Counsel submitted that the casualty weld was not made by the manufacturer. The casualty weld must have been formed at some point after the supply of the hammer. The circumstances in which it came to be formed could only be known to the pursuer. However, an inference could be drawn that the casualty weld was formed following damage being caused to the ram box through misuse. It is known that contractors can and do misuse the excavator to manipulate a pile of which was not embedded straight. As a result of operating the equipment in that way, the ram box was subjected to forces which it was not designed to withstand, the result being it is likely to deform. The Defender's Scenario was a plausible explanation for the repair of such deformation. This explanation accounts for features of which Mr Dalton would not have expected to see in a manufacturer's weld namely the flame cut edge and the spacer plate standing proud on the inside surface of the smaller section of the ram box. The defenders position was that both the casualty weld and the check weld were carried out by Mr Jack.

[111] The defender further submitted that it was possible to carry out the weld remotely shortly before the incident occurred without Mr Milloy or Mr Crane knowing that it had been done. The absence of flash rusting around the weld was an indicator that the weld had been made shortly before the rig failed. The ram box failed on Sunday 17 May, shortly after Mr Jack's involvement on Tuesday 12 May. It was not clear whether there had been piling between these days. The same equipment could be used to make the casualty weld and the check weld. The casualty weld could have been carried out in the field. The evidence was consistent with the casualty weld being made shortly before the failure and had been possible to use the hammer for a period before it failed. It could have been possible to make the casualty weld without affecting the paintwork. The replacement of the hammer was not an admission of liability.

[112] Counsel further submitted that rather than apply a weld, Mr Jack should have arranged to have had a more detailed inspection carried out and that the hammer should have been taken out of service pending that being done. If those steps had been taken that would have led to the ram box being replaced or properly repaired and the incident would have been avoided. In failing to take the hammer out of service for proper investigations and continuing to use it, the pursuer failed to take reasonable steps to mitigate its loss. Alternatively, the pursuer's decision to continue to use the hammer amounted to a break in the chain of causation (*Lexmead (Basingstoke) Limited* v *Lewis and others* (also known as *Lambert* v *Lewis*) 1982 AC 225; *Schering Agrochemicals Limited* v *Resibel NV SA* Court of Appeal (Civil Division) 26 November 1992 unreported).

Discussion and decision

First issue: whether the pursuer has proved on the balance of probabilities that the casualty weld was made during the manufacturing process

[113] In order to succeed, the pursuer must satisfy the onus of proving on the balance of probabilities that the casualty weld was undertaken prior to the delivery of the hammer to the pursuer.

[114] There was no dispute between the parties that the failure was caused by the poor quality of the casualty weld. The dispute between them centred on the question of when the casualty weld was undertaken.

[115] The pursuer's position was that the casualty weld was not undertaken by or on behalf of the pursuer and that therefore it must have been undertaken prior to delivery of the hammer.

[116] The defender's position was that the casualty weld was not undertaken during the manufacturing process, so must have been done after delivery. The defender suggested the Defender's Scenario as plausible explanation. The defender's position was that the casualty weld was undertaken by Mr Jack on 12 May.

[117] It is important to note at the outset that there is no onus on the defender to prove the Defender's Scenario. The onus is on the pursuer to prove its case.

[118] The fundamental difficulty which the pursuer faces in this case is that it has not led Mr Jack in evidence. All we have is what he wrote in his report. He has not been made available for cross-examination on whether what he wrote in his report was true. We do not have his evidence on the state of the ram box when he first saw it. Without hearing from Mr Jack we cannot resolve the conflict of evidence between his report that there was a crack and Mr Jeffrey's evidence that there was merely a blemish. We do not have Mr Jack's evidence on the nature or extent of the crack. We do not have Mr Jack's evidence on whether or not he made the casualty weld.

[119] The pursuer's explanation for not leading Mr Jack is that it was not possible to do so as Mr Jack was working offshore in Africa at the time of the proof and had refused to give evidence. The absence of a key and essential witness abroad does not necessarily mean that his evidence cannot be led. There are a number of mechanisms that can be used to ensure that the evidence of a key witness is before the court. The proof can be discharged and refixed for a time when the essential witness is available. The evidence of the essential witness can be taken by remote video link during the course of the proof. The evidence of the essential witness can be taken in advance of the proof on commission, either with the witness physically present or by video link abroad. Steps can be taken to compel the attendance of a reluctant witness, either for a proof diet or commission. The pursuer did not

seek any of these solutions but instead proceeded with the proof in the absence of the essential witness. In these circumstances, the pursuer has taken the risk that he will be unable to prove his case.

[120] There was no direct evidence that the casualty weld was undertaken during the manufacturing process. In the absence of any direct evidence that the casualty weld was made prior to delivery, the pursuer founded its case on the evidence of Mr Milloy, Mr Crane and Mr Jeffrey. I am not satisfied that pursuer's case can be proved by the evidence of Mr Milloy, Mr Crane and Mr Jeffrey in the absence of evidence from Mr Jack. None of Mr Milloy, Mr Crane nor Mr Jeffrey was present when Mr Jack worked on the hammer on 12 May. The evidence of Mr Milloy, Mr Crane and Mr Jeffrey does not prove on the balance of probabilities that the casualty weld was not made by Mr Jack.

[121] The pursuer also led various items of circumstantial evidence. However, in my opinion, the circumstantial evidence does not prove on the balance of probabilities that the casualty weld was made before delivery.

[122] It is clear that the casualty weld should not have been made. It should not have been made as part of the manufacturing process: the design was for an unwelded, single component. It should not have been made by the pursuer after delivery: any repair should have been properly undertaken to an appropriate technical specification.

[123] Neither the pursuer's records nor the defender's records document the casualty weld having been made. That does not take us any further forward in deciding whether it was made before or after delivery. All it tells us is that whoever made it, whether before delivery or after delivery, did not document it.

[124] The casualty weld was of very poor quality. That does not take us any further forward either. All it tells us is that whoever made it, either before or after delivery, made a

very poor job of it. It is no more likely that a person making and concealing an unauthorised undocumented weld during the production process would make a poor quality weld than it is that a person making and concealing an unauthorised undocumented weld after delivery would do so.

[125] The particular hammer in question had not been made to order. It was one of the last hammers made by FAMBO in Sweden and had been bought by the defender for stock. I do not accept that in some way an inference could be drawn from this that the casualty weld had been made as part of the manufacturing process. There was no evidence or logical reason why a hammer in stock, or the last ones made in a particular factory, should differ in any way from a hammer made to order.

[126] Nor can any inferences been drawn from the defects which require to be dealt with during the commissioning period. These were separate defects and bore no relation to any defect in the ram box or to whether it had been welded.

[127] Mr Jeffrey's evidence was that there was a "blemish" in the paintwork. However, absent evidence from Mr Jack, a blemish cannot be accepted as circumstantial evidence pointing towards the casualty weld having been made prior to delivery. It is contradicted by Mr Jack's report that there was a "crack", and without Mr Jack's evidence the court cannot resolve that contradiction.

[128] There was also circumstantial evidence about whether there was rust present in the casualty weld. The pursuer said that there was, and an inference from this could be drawn that the casualty weld was undertaken during manufacture. However, in my opinion, this evidence cannot be relied upon as pointing to the casualty weld having been made before delivery. I am not satisfied that the colour reproduction in the photograph was adequate basis for Mr Crane to conclude that rust existed. In any event, I did not find the existence or

absence of rust useful in dating the casualty weld. The evidence of the pursuer's expert Ms Wasserman on rust was inconclusive as she had not been able to inspect the Smaller Ram Box Section. I have no reason not to accept the evidence of the defender's expert Mr Dalton that rust can occur within a relatively short time.

[129] Further, the replacement of the hammer by the defender free of charge (other than betterment cost) is not an admission by the defender that the casualty weld was made prior to delivery. It is not unreasonable or uncommon for a supplier of goods to replace goods which are not defective as a goodwill gesture to enhance its reputation as a good company with which to do business. This is particularly the case in situations such as this one where the customer buys an upgraded item and pays for the difference between the original item and the upgraded one. In any event, the supply of the replacement hammer was expressly made without admission of liability.

[130] The defender sought to found upon the conversation between Mr Gibson and Mr McCauley on 21 May 2015. I accept Mr Gibson's account of that conversation. I find that Mr Gibson was discussing a hypothetical situation rather than making an admission that the casualty weld had been made by the pursuer. The conversation was shortly after the incident and there was no evidence on which it could be said that by that time Mr Gibson had become aware of sufficient information upon which to make such an admission. I did not find Mr McCauley to be a reliable witness in respect of the conversation: he was under a misapprehension that the check weld was a repair and in cross he stepped back from the certainty of his original position.

[131] Turning now to the expert evidence, in my opinion in the absence of Mr Jack's evidence and the absence of an examination of the missing part of the ram box, the evidence of Ms Wasserman does not establish that the casualty weld was made before delivery. The

pursuer's position was that the failure of the hammer was caused by stresses applied after delivery, in the course of normal operation of the hammer, to a casualty weld which had been made prior to delivery. This position was undermined by Ms Wasserman's acknowledgment that she could not see what the failure mechanism was because she had only been able to examine a small strip of the weld and had not been able to examine the Smaller Ram Box Section. The pursuer's argument that the paint samples establish that the casualty weld was painted over as part of the manufacturing process was fatally undermined by the doubts expressed by Ms Wasserman when she realised that the paint samples were not taken as close to the weld as she had thought.

[132] In *Watters* v *The Master Golf Co Ltd* at para [14], Lord Tyre quoted with approval the following *dictum* of Lord Brandon:

> "...The judge is not bound always to make a finding one way or the other with regard to the facts averred by the parties. He has open to him the third alternative of saying that the party on whom the burden of proof lies in relation to any averment made by him has failed to discharge that burden. No judge likes to decide cases on burden of proof if he can legitimately avoid having to do so. There are cases, however, in which, owing to the unsatisfactory state of the evidence or otherwise, deciding on the burden of proof is the only just course for him to take."*(Rhesa Shipping Co SA* v *Edmunds (The Popi M)* [1985] 1 WLR 948 at p 955-6)

[133] In my opinion, this is such a case. There was an absence of evidence from Mr Jack which was essential to the fulfilment of the onus on the pursuer. The circumstantial evidence led was not sufficient, on its own, to satisfy the onus. The pursuer's expert evidence did not satisfy the onus as it was limited by the lack of opportunity for the pursuer's expert to examine the Smaller Ram Box Section and by the location from which paint samples were taken. In these circumstances the pursuer has failed to prove its case.

Second issue: effect of Mr Jack's actions on mitigation and causation

[134] In view of my decision on the first issue, the second issue does not arise.

Order

[135] As the pursuer has not satisfied the onus on it to prove its case on the balance of probabilities, I shall uphold the defender's second plea of law and grant decree of absolvitor. I reserve all questions of expenses in the meantime.