To investigate the possibilities of distressed denim as decoration through engravings and cuts in a laser cutter.

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1.1. ABSTRACT

The area of this work is distressed denim in women’s wear. Denim wear has been distressed by machines to imitate the individual patina that becomes from wearing e.g. a pair of unwashed jeans until the color strips from creases. This work uses challenges the faked used look, using a decorative motive in distressed denim.

Lace has been used as a decoration of dress since medieval times. By using lace as the pattern for the distressing of denim one will decorate the denim in a destructive way that questions the perfection and delicate way that lace is usually used. Lace consists of threads and holes that builds an ornamental pattern, worn down denim often results in holes and threads at the most vulnerable areas of the garment.

Denim is a warp faced cotton twill weave with blue indigo yarn in warp and natural white yarn in weft. By using a laser cutter to engrave a pattern on the warp faced side of the denim, one can set the settings on the laser cutter so that only the blue warp threads will be met by the laser beam. After wash the engraved warp threads will dissolve and depending on the scale and the design of the pattern the unengraved parts can dissolve as well. Therefor one needs to fix the unengraved parts of the pattern before wash if one wants the pattern to remain. There is several ways to fix the pattern before wash; this work includes fixing with laser cut fusing and with seams. Some of the garments aren’t engraved in this work but cut in the laser cutter. The two cutting techniques used is first a regular cut out technique and second a slicing technique.

The shapes of the garments derives from typical denim and lace garments such as jeans, denim jackets, denim shirts, lace gown, wedding dresses and underwear such as negligees, corsets, bras and panties.

Initially, experiments were done to understand the visual and technical effect of clashing materials and garments. The result is a collection, combining ideas from two different origins in fashion, denim from mineworkers and lace from nobles. The outfits manages how one can control distressed denim and shows a variation from lace, to garments where the traces of lace have completely or partially dissolved.

The primary motive is to investigate surface possibilities in distressed denim through a specific pattern. The result is difficult to control and experiments in full scale are necessary to evaluate distressed experiments.

The secondary motive is global. Can lasercutting and engravings be an alternative to sandblasting? It is not dealt with in this investigation. However this investigation shows a selection of alternative expressions for distressed denim.

This work challenges the idea of distressed denim as the only way to make a fake, torned effect. It points at new possibilities, using decorative motifs by lasercuts and engravings in combination with other treatments in search for alternative expressions in denimwear.

1.2. KEYWORDS

CLASH, DENIM, LACE, LASER CUTTER, ENGRAVE, FASHION DESIGN, DECORATION
2. BACKGROUND

2.1. INTRODUCTION TO THE FIELD

This chapter introduces the background to the fields that this work includes and explains why certain aspects of the fields are important to this work. Clashing garments is the main field of putting features of two garments together, after that lace and denim is introduced as the two variables that has been clashed in this work. Lace that questions perfection and fashion where fabrics are aging and crumbling are mentioned as they aspects of how lace and denim is used in this work. This chapter also addresses the value in worn down denim and how one can use the distressed denim as a decorative pattern instead of an personal finger print.

2.1.1. CLASHING GARMENTS

Combining the features and/or material of archetypical or recognizable garments has been used to captivate the viewer’s attention. There are different stages in how two garments reacts to each other. The simplest way is to sew two garments together, as Margiela (2015 and 2013). In the suit pants-jeans (fig 1) and the trench-dress (fig 2) the features of both garments are still at the same positions and the material doesn’t affect each other. The garments aren’t influenced by each other’s features or material. In figure 3, Back (2012) has made a coat into a dress by simply cutting the coat at the bust line and adding straps. There is an unavoidable inequality in the interaction between the garments that is a result from taking one garment (coat) and turning it into another (dress).

Acne (2014) has in figure 4 made a denim skirt in a sequin fabric. This is also an example of how you can play with the viewer’s expectations on a garment. The seam framing the fly communicates that it is a denim skirt, but the fabric says something else. In Comme des Garçons Fall 2009 RTW collection (fig 5), models wore dresses of tulle that were strongly influenced by other garments (here, a double breasted coat) which itself covered or held up a dress that was placed onto the body. This is partially the same idea as Acne, where you make a garment in an unexpected fabric, but there is also two garments that’s clearly interacting with each other (the tulle dress holding up the dress underneath by being tight).
2.1.2. LACE

Lace has been used as a decoration of dress since medieval times.

The website Dictionary.com defines lace as "a net-like ornamental fabric made of threads by hand or machine" (No Date). There is multiple ways of making lace by hand such as bobbin lace, needle point, knitting, crochet etc. but today the most common lace fabrics in fashion are made by machines. Through history, lace has been used as a way to show your wealth. By attaching large pieces of white lace as cuffs, or by wearing stiff, uncomfortable collars in white lace, nobles have shown off their wealth and that they don’t need to get their hands dirty. According to Broby-Johansen (1966) the nobles spend so much money on it that they eventually let themselves be buried with their precious lace.

In the 20th century, machine made lace evolved, and nowadays you can find lace in clothes and underwear by commercial clothing brands. The handmade lace is not used in day to day clothing, but it can be seen in national costumes. More expensive machine made lace is mostly used in wedding dresses.

2.1.3. LACE THAT QUESTIONS PERFECTION

Lace is mostly shown as a delicate and fine fabric that reflects perfection, but some designers have worked against that to show a raw side of the fabric. Alexander McQueen’s collection Highland Rape (1995) features a dress made out of “torn and far-from-fine lace—bought for next to nothing from low-priced fabric suppliers” (Frankel & Blanks & Bolton 2011, p. 20) (fig. 6). The collection caused a scandal since the torn fabrics revealed the naked female body in a brutal way and the title of the show alluded to rape, although McQueen stated that the collection referenced the massacre of the Scottish Highlands caused by Britain.

In Christopher Kane’s Spring 2013 RTW collection he focused on lace applique. By simply taping the lace in a rough way on top of the dresses he creates a new expression that’s questioning the perfection and the deliciousness of the classic lace (fig 7).
2.1.4. DENIM

Denim is a sturdy cotton twill fabric characterized by a 3x1 warp faced weave, in which the weft passes under two or more warp fibers according to Hang (2006). Traditionally, it’s made with a warp of indigo-dyed yarn and natural yarn in weft. Nowadays jeans and denim wear is a given part of an ordinary western wardrobe, but it has it’s origins in work wear used by miners (Hang). According to Lina Eriksson (2013) typical details for denim wear is rivets, stitching, buttoning, the five pockets, labels and cuts like the yoke.

2.1.5. DISTRESSED DENIM

Denim as a fabric has great potential in fashion because of it’s signature worn down and distressed look. By wearing a pair of unwashed jeans for several years they will eventually wear down in creases and you have created a personal imprint on your jeans (fig. 8).

Recent years fashion designers have created new demand for denim with a pre-worn look. Some of the techniques that are used to create this look is sandblasting, hand sanding, chemical spraying and stone washing. In garment-producing countries in the global South, manual sandblasting is mostly used, and often without installing proper ventilation. The workers are thereby directly exposed to silica particles of blasted sand that are released from air compressor guns. If inhaled, these tiny particles can cause severe respiratory problems and could lead to fatal diseases such as silicosis and lung cancer (Muller 2013). According to Bonde, Nyström and Webb (2012) approximately 50 000 workers died from silicosis in Turkey during the year 2012 after they had been working with sandblasting denim.
2.1.6. WORN DOWN, CRUMBLING AND DECAYING

Fashion often tells stories of how a piece of clothing is worn down, crumbling and decaying. Hussein Chalayan first collection, which showed his intricate creative process, was his Central Saint Martins graduation collection “The Tangent Flows” (fig 9), in which he buried the clothes with iron filings (Golbin, Clark, Frankel, King, Lowthorpe, Mower 2011). The labels in the clothes told the story behind the process and the inspiration for it. Chalayans 2002 collection ”Medea” shows layers of historical garments mixed together and ripped apart which casts its wearer through a time warp through history (fig 10). The altered condition of the garments symbolized curses and/or wishes. Chalayan said, ”the garment is a ghost of all the multiple lives it may have had” and ”nothing is shiny and new; everything has a history” (Golbin, Clark, Frankel, King, Lowthorpe, Mower 2011, p. 76). Some of the garments were also buried, just as in his graduation collection.

In Alexander McQueens Spring/Summer 2007 RTW (fig 11) collection one showpiece dress was made out of frozen flowers, according to AlexanderMcQueen.com (Author Anon 2015). The flowers were a symbol of life and death and the flowers actually felled of the dress in movement.
2.2. **MOTIVE / IDEA DISCUSSION**

2.2.1. **HISTORY = VALUE?**

Chalayans buried clothes tells something about the garments history, especially when the label explains the inspiration. There the garment has been through something else than the normal aging-process of a person wearing it.

One could wonder if history gives a garment value. Second hand shoppers would probably say so. But what is ’historical value’ when referring to clothing? Is it when you inherit a pair of wore down jeans from your parent, knowing that he/she shaped those distressed creases, or when you buy a pair of second hand jeans, not knowing the person who shaped them? Could you not say that every pair of new jeans is unique because it could never be sewn in the exact same way? The seamstress and workers that creates our jeans, aren’t they giving it a piece of value? As Kitty Hauser wrote:

> "Whilst we might imbue our jeans with our own shape, and mould their form and appearance through our habits, we do not do so an a tabula rasa - for these garments have their own unique structure, made by, and imbedded with the traces of, the actions and habits of invisible workers, in the prehistory of their existence as commodities."

(Hauser, 2005. p. 164)

In our society, jeans and denim wear gets a higher value because of the patina that comes from wear it, as a result of its history. Within the commercial selling of jeans, the worn down effect has often been imitated through mechanical methods. The idea of this work is to produce a decorative pattern to change the surface of the garment without referring to wear from the carrier.

2.2.2. **WHY DENIM AND LACE?**

Both denim and lace have strong reference points to two different sides of fashion and clothing. Denim being the rough everyday fabric and lace being the fancy up-scale material. What do the two of them have in common? Both fabrics are made of threads and they are both associated with holes. Lace is multiple threads arranged so that different sizes of holes creates a pattern (most commonly a floral pattern), and one of denim’s most recognizable features is its destroyed or distressed finish which can be achieved by cutting with knives and scissors and/or use sandblast machines, brush it with steel brushes or by applying enzymes (Eriksson, 2013). Another frequently used method for achieving a bleached look on denim is stonewashing, where chemicals which are hazardous at close contact or inhalation is used (Bonde & Nyström & Webb, 2012). Denim’s cutout look refers to a worn down look, while lace’s holes are created simultaneously as the fabric is produced. The most common lace pattern motif is the flower, which Alexander McQueen uses as a symbol for life and death (Author Anon 2015). In the process of when a pair of jeans is worn down, they are aging.

There must be a deeper way to combine/clash two garment and/or material than Maison Martin Margiela, Ann-Sofie Back, Acne and Comme des Garçons (fig 1-5) in a way that the clash between the two garments/materials are merged into one. Both material and shape can influence each other.

This work begins with a study between clashes of material and different archetypical garments.
2.2.3. PRIMARY AND SECONDARY MOTIVE

When a pair of jeans is worn down by a person, the area of which is distressed is different depending on who is wearing them down. The primary motive of this work is to create a distressed pattern on denim, which is not a personal "finger print", but a motif.

How can you control and create a worn down look in denim? How fringed can the result be while still controlled? A floral lace pattern works as both questioning of lace’s perfection (through the controlled vs. uncontrolled distressed denim) and as denims typical worn down look (the flower as a symbol of life and death vs. aging denim).

A way to get the floral print on to the fabric would be through laser cutting or laser engraving.

The secondary motive of this work is to explore possibilities to distress denim in a way that is less harmful for the workers in production. Laser has been used in distressing denim, but mainly to exaggerate the creases around the crotch on jeans. If laser could be used instead of sandblasting, the workers wouldn’t get sand particles in their lungs and therefore decrease the risk of getting silica or lung cancer, as Muller (2013) reports as the danger of sandblasting.
2.3. **AIM:**

**TO INVESTIGATE THE POSSIBILITIES OF DISTRESSED DENIM AS DECORATION THROUGH ENGRAVINGS AND CUTS IN A LASER CUTTER.**
3. METHOD

This chapter explains some design methods that are relevant for this work, and how they were used.

3.1. JOHN CHRIS JONES’S THREE-STAGE DESIGN PROCESS

A way of describing design methods is through John Chris Jones three-stage design process (1992). He divides the process into three fundamental stages of the design process: divergence, transformation and convergence. In the first phase, divergence, one could say that the designer takes a step back to look at the bigger picture of the design situation searching for decisions that could be used in the design.

The second phase, transformation, is where the experimentations is made. Here the designer can use the question or aim in relation to active work. The decisions made in the transformation phase will set the scene for the upcoming, more specific choices. The third phase, the convergence, is where the design gets more and more detailed. Each decision in this phase is influenced by the directional decisions made in the transformation phase and by the previously made decisions. Eventually, the variables have been identified and the possibilities shrinked to one.

According to Linnea Nilsson, this design process is not linear: "The designer goes back and forth between what could be part of the design (divergence), what should be (transformation), and how it should be (convergence)" (Nilsson, 2014, p. 9; paper 3).

In this work, one could say that the divergence phase was when clashing garments and clashing material experiments were used. Different archetypical garments and their materials were tested in clashes to see which ones were most effective and which techniques fitted. Here, the lace material were chosen to work with.

The second phase, transformation, was when lace were tested in relation to the laser cutter. Here one detected the similarities between lace and denim. Different engraving- and cuttingtests were made on denim and how to control the distressing of denim became a problem that needed to be solved.

In the third phase, convergence, were where the design decisions were made. E.g. Which garment should one use? How near the original garment must the result be in design? Which technique to control distressed denim should be used, and where? One decision that were made in the convergence phase was to add a regular lace in the collection, so that the viewer would easier see the resembles of lace in the pattern that was distressed on the denim.

3.2. CLEMENS THORNQUIST’S "RE-ENACTING TRADITION"

Another design method that relates to this work is Clemens Thornquist’s "Re-enacting tradition" where the idea is: "To understand dominant traditions in fashion design and their relationship to each other" (Thornquist, 2010, p.53). In this work, both distressed denim and lace wear are examined. In fashion design there are authors writing their versions of theories (2010) and this work questions the typical expression of two materials in fashion.

Lace is mostly shown as a delicate and fine fabric that reflects perfection. Denim is a fabric that is closely related to work wear and it has been described as a rebel fabric by Marsch and Trynka (2002). By clashing these to fabrics in relation to their archetypical garments one finds alternative expressions in fashion. E.g. In making the corset felled seams were used as holder of corset boning. Felled seams are not the ultimate seam for shaped curves, and the shape is thereby less controllable. By adding the material manipulation (distressed denim) onto the corset, lace is conveyed in a trashy aesthetic, instead of the perfect and neat way that it’s usually shown as. Here material(denim), details(felled seams), shape(corset) and lace pattern could be seen as parts of dominant traditions in lace and denim wear and this is a way to re-enact them with each other.

One could also ask oneself: What happens when a delicate flower motive is used in a context of distorted jeans? Is it the contradiction of the denim’s rawness and the flowers fineness that will take over, or the symbolism of the flower being a living thing, that eventually dies, in a trashy and almost dissolved way.
4. DEVELOPMENT

4.1. WORKBOOK

This chapter describes the development process. The main focus is on the process of developing and experimenting with materials. The initial purpose of this work was to explore the clash between two garments, which turned into clashing two fabrics in fashion: lace and denim. The archetypical garments of lace and denim wear was then chosen to work with, using classic details and shapes to highlight the material manipulation.
4.1.1. CLASHING MATERIAL EXPERIMENTS: Denim and sequin

The first tests on clashing materials was with blue denim and a gold sequin fabric. First the two fabrics were sewn together and then some material manipulation were needed to make the transition smooth. First gold sequins were embroidered onto the denim, then a test with laser cut denim sequins were made. To even out the transition more, some sequins were made out of gold foil printed denim. The foil sequins were embroidered between the denim sequins and the regular gold sequins (fig. 13).

The experiments with denim and sequin were not considered as successful, mainly because of how time consuming the technique was, but also because of the scale of the materials and the lack of tension between the raw denim and gold sequins. The expression of the example is that there is two materials sewn on top of each other.
4.1.2. CLASHING MATERIAL EXPERI-
MENTS: Fake fur and tartan twill

When clashing the materials fake fur and tartan
twill the technique of needle felting were chosen
as the most suitable. With needle felting, one could
attach small pieces of fur to the tartan twill without
using stitches or glue (fig. 15). The fibres of the
fake fur would also pervade the tartan if felted from
the backside of the fabric.

To felt the fabrics in different layers and cutting the
fabric in a curved shape (fig. 15) instead of a straight
line (fig. 14) was beneficial.

This experiment were seen as unsuccessful because
of how time consuming the technique was.

The experiment could have been better if the colors
of the fur and wool would have matched better, or if
the check pattern had been shaved in the fur.
4.1.3. CLASHING MATERIAL EXPERIMENTS: Leather and lace

Clashing lace with leather by using laser cutter. Figure 16 shows the lace by itself and figure 17 is the scanned and drawn pattern in Illustrator. Figure 18 is the first test of failed laser cut lace, either the laser was too hard and cut too much or too soft and didn’t cut through at all. Figure 19 is the two materials put together with glue with the leather lace on top. From a far it works pretty well (fig 20). It’s quite hard to see where the lace stops and the leather starts, mainly because of the complexed pattern. The transition becomes smooth and almost invisible. Partially because of the color is the same.
4.1.4. CLASHING GARMENTS EXPERIMENTS THROUGH DRAPING: Denim jeans and sequin gown

Draping experimentations with the archetype garments denim jeans and a sequin gown. Keeping the essence of a pair of jeans that are not too tight, but not baggy (red circle in fig. 27), and the long and fluidness of a sequin gown.

Fig. 21-34. Draping experiment with denim jeans and sequin gown.
A short film were made to capture the essence of the result from jeans/sequin dress draping experiment. On this dress, the material manipulation from the experiments in fig. 12 were added.
4.1.5. CLASHING GARMENTS EXPERIMENTS THROUGH DRAPING: Fake fur coat and tartan kilt

First draping experiments working with the archetypical garments of a fake fur coat and a kilt. Adding a lapel collar to the coat, and pleating the tartan wool.

In the red circle on fig. 39 you can see an example of where the coat and kilt are still in their regular position, and therefore don’t challenge the expression.

Fig. 37-48. First draping experiment working with fake fur coat and kilt.

Fig. 49-50. First draping experiment working with fake fur coat and kilt result.
Second draping experiments working with the archetypical garments of a fake fur coat and a kilt. Here, there was less consideration of the position of the drape as compared to the archetypical garments' normal position (meaning, for the fur: over the shoulders, covering the arms; and for the kilt: on the higher part of the legs, as a skirt). The red circle shows that the position of the kilt and fur almost switched places with their normal position.
4.1.6. CLASHING GARMENTS EXPERIMENTS THROUGH DRAPING: Leather jacket and lace gown

Draping experimentations of the garments leather jacket and lace dress were made. Starting of with a piece where the typical leather jacket collar and lapel is cut out to see where the detail could fit the best, while not being too obvious. Cotton fabric were used to replace leather in the toile.
The reason for why the leather/lace tests works better than denim/sequin and fake fur/tartan could be the complicated flower pattern. It could also be that they are in the same color. The red circle shows where the leather and lace transition is.

The purpose of this experiment was to clash a typical rebel garment (leather jacket) and a classic lace gown. It was also a good opportunity to test the laser cutter technique with a lace pattern, and leather seemed as a suitable material to laser cut, since it’s skin and not a weave (and would thereby not fall apart when laser cutting it).
Fig. 89-104. Second draping experiment with leather and lace, using cotton fabric instead of leather.

4.1.7. CLASHING GARMENTS EXPERIMENTS THROUGH DRAPING: Leather and lace Scale experiment

One more test with leather and lace were made. Here, the jacket and dress references weren’t as clear. An experiment with scale were added.
The purpose of this draping experiment was to see if scale in the lace pattern would distort the impression of lace that meets leather. Lace patterns are repetetive in scale, and by simply change scale on one flower, maybe a different expression would appear.

One could say that the result of the experiment is ok but maybe to simple. In fig. 116 and 119 one can see the transition between leather and lace, marked with a red circle.
Fig. 116-122: Lace/leather jacket.
4.1.8. EVALUATION OF CLASHING EXPERIMENTS

All of these tests are not as good as they can be. All of them works with transitions and not a complete merge. They are more like a 1+1 rather than a total merged clash.

After trying out these experiments, one wonders what a successful merged clash is? Since no-one has worked with clashing garments before, at least not focused on the meeting between two garments in a full collection, and calling the method for something (like clashing garments or similar) it’s hard to find examples to compare the results to. After studying the examples in the chapter 2.1.1 a clash should be a design where two garments interacts with each other, both in draping/construction and materials. The two garments that have been clashed should still have some or all of their regular features, and there should be some kind of transition between the garments, so that they don’t look as they’ve simply been sewn together.

If to choose one of the experiments 4.1.1-4.1.8 to move further with, it would be the lace/leather. The laser cutter combined with lace could open new possibilities in exploring the lace expression in different materials. Maybe leather isn’t the best material to combine with lace. The leather works good with the laser cutter since it is skin and not a weave. Some woven fabrics needs to be tested.
Fig. 12, 35. Clash experiments with denim jeans and sequin dress.

Fig. 15, 49, 50. Clash experiments with fake fur coat and tartan kilt.

Fig. 19, 88, 115: Clashing experiments with leather and lace.
4.1.9. INVESTIGATING LACE THROUGH OTHER MATERIALS

When experimenting with other materials through lace, the laser cutter is an excellent tool. According to Dictionary.com lace is “a netlike ornamental fabric made of threads by hand or machine”. The aesthetic of lace is threads that’s building a pattern, and the laser cutter can mimic that expression by cutting out holes leaving a small strip that resembles a thread. One could also say that it is a modern way of mimicking a classic handicraft.
The technique of ausbrenner/devoré/burn out print is also a modern technique that resembles the aesthetic of lace. By printing a chemical blend that dissolves cellulosa fibres onto a mixed-fibre material one can create a semi-transparent pattern. Velvet was the most fruitful material to use since it gave some structure to the pattern. Although this is an interesting way to create lace, it has been done before.
4.1.10. MATERIAL EXPERIMENTS IN DENIM THROUGH A LACE PATTERN IN THE LASER CUTTER

To do just one cut out shape in denim is relatively easy, the problem comes when you cut out several shapes next to each other, forming a lace pattern. The threads in the denim is to thick and the weave is to loose to handle a normal scaled lace pattern. One of these tests, where the denim lace fell apart when you touched it(fig. 131-132), were washed in the washing machine in 90°C (fig 133). All of the edges freyed and it was a nice touch that the edges of the lace wasn’t straight as you normally see freyed denim in fashion today.

This was a breakout in the research. After washing the laser cut denim piece, the resembles to lace became clearer. Distressed and destructed denim is, after all, threads and holes that decorates denim. It’s original beginning was when being worn down by a wearer, but now you can buy jeans and denim wear that is ready-worn.

The washed piece had a cluster of smaller pieces that hanged from one or two threads, almost looking like a flower. If one can learn how to controll distressed and destructed denim, one can interpret lace through denim. The research can be an exploration of distressing denim in a decorative patten, instead of the normal worn down look. It could also benefit the lace exploration - to challange the perfection of lace, and what it’s always stood for - wealth.
4.1.11. EXPERIMENTS TO CONTROL DISTRESSED DENIM

When experimenting to control distressed denim, the first goal was to find a way to remove the warp threads in decided areas (depending on the pattern) and the white weft to stay. Since the laser cut denim cut off to many theads and easily fell apart, the next step was to engrave in the laser cutter using a weaker beam. Denim is a warp-faced twill, so by engraving gently on the surface, one can hit only warp threads. On one test the outline was engraved and the threads removed carefully by hand (fig. 134) but in an easier way.

The laser cutter was used to engrave the holes in a lace pattern. The laser cutter settings were set so that the engravings wasn’t falling apart by itself (fig. 135) but when you add friction by wrinkle the piece to a ball of fabric in your hand it tears (fig. 136). The engraved parts was much more affected of the wrinkles than the regular denim.
One engraving test were made on a denim jacket. The engravings were made on almost a ready sewn garment (fig. 137-138) to see how the felled seams (four layers of fabric) would react to the engraving and washing.

After washing the jacket in 60°C (in a washing bag to not clog the machine with the cotton fibers that falls off) one could see that the felled seams has survived the wash (red circles on fig. 139-141) and the places where there was only one layer of fabric has washed away (fig. 139-142). This is partially because the lace pattern has big areas of engraved denim compared to the untouched denim. In the center front overlapping part of the jacket you can see that the fused engraved fabric survived better that the one-layered (fig. 143-144). Maybe the fusing could be a way to control how much of the engraved denim will dissolve when washed in the washing machine.
Fig. 137-138: Denim jacket with felled seams, engraved on front and back.

Fig. 139-142: Engraved and washed denim jacket.

Fig. 143-144: Detail of engraved and washed jacket
4.1.12. EXPERIMENTS WITH NOTHING ADDED TO MAKE THE PATTERN LAST IN WASH

When a test were made with only cutting and washing once more (to see how the pattern differs) one could see that too much of the motif were washed away (fig. 150-151).

Several tests were made with only engraving, to see if it’s possible to find the right intensity in the laser beam so that the engraved areas appears distressed and the untouched stays and keeps the motif together. The conclusion is that the laser cutter isn’t working as good as one would like. It always prints in different strengths depending on where in the laser cutter you place your piece. As one can see in figures 152-153 the intensity is stronger to the left (which was placed to the upper part of the laser cutter while engraving). Therefore one cannot use only engravings to get the wanted result. One solution could be to add something to the untouched parts of the pattern that would make it stay while washing.
Fig. 147-148: Experiment with only engraving, before and after wash.
Fig. 149-150: Experiments with coating on the backside before wash.
4.1.13. EXPERIMENTS WITH ENGRAVINGS AND COATING

Some tests with coating were made. The denim weave is quite loose and that is a big reason why the laser cut or engraved denim lace collapse when washing. With coating, the weave becomes stiffer and the hopes were that the coating would make the lace pattern stay after washing.

On one engraved lace piece, the coating CP21 were smeared on the backside of the fabric (fig. 149-151). After washing (by hand), the results were really stiff. Big parts of the engraved spaces stayed almost completely untouched, and since the piece got so stiff, it lost a lot of the fringing freyed expression.

On fig. 152-153 you can see a coating test that were made by hand painting the coating with a brush on to the untouched parts of the engraved lace. The coating dries quickly and the result is an uneven white color on the surface. After handwashing, the coated parts stays, but the expression is stiff and no fringed edges appear. Techniques with coating was cancelled since the denim becomes to stiff and loses it’s typical denim drape.
Fig. 152-153: Experiments with coating on the front, applied with brush before and after wash.
Fig. 154-155: Experiment with engraving and sewing outlines before and after washed by hand.
4.1.14. EXPERIMENTS WITH SEWING

Some tests with sewing were made. On the hand-washed test (fig. 154-155) one could see that everything that were sewn stayed in place. One the next test, the piece were washed in a washing machine in 40°C (fig. 156). It worked well, although the engravings were to shallow and affected by the unevenness of the laser cutter. On the next test, where the engravings were deeper, stitches were made as a zig-zag straight over the lace pattern. One could see that the stitches over the engraved areas also helps the untouched areas to stay (fig. 157). The first two tests were very time-consuming, so maybe a mixed between the outline and zig-zag seams would work the best.
4.1.15. EXPERIMENTS WITH LASER CUT FUSING

When looking back on the denim jacket, the center front overlapping part were kept better than the rest because of the vliseline. Therefore one test were made with vliseline. The denim was engraved and the vliseline cut in the same pattern as the engravings and after that fused with each other. After wash, one could see that the edges of the pattern is much more defined (red circle), but still some freyed threads are left, making the experiment not look forced (fig. 158). This experiment could benefit of using it on a colored denim, to see more difference between the fused and not-fused areas and where the freyed edges would appear more clearly.
4.1.16. EXPERIMENTS WITH CUTTING SLICES

Tests were made to see how to get the white weft threads stay. Slices were cut along side with the weft with different intervals (fig. 159-160), cutting of the warp. After wash, one could see that the 7.5 mm is best to get as many weft threads as possible to stay, but the 10 mm were also interesting where the warp stayed and created a structure.

One test were made where the slicing only in the holes of the lace pattern (fig. 161). This denim had 2% elastane in the weft, and an additional structure appeared.

These techniques could be used in a garment where the lace pattern isn’t as important, and where you want to achieve a trashy aesthetic.
4.1.17. ENGRAVING A REPORTED PRINT ON A LARGE PIECE OF FABRIC

To get shape out of the distressed denim experiments, one test was made where the engraving pattern were reported onto a 2x1.5m piece of fabric. The laser cutter area is approximately 60x90cm and all of the fabric needs to lay flat on the cutting area using weights to weigh down the fabric. About halfway through engraving, the laser beam hit some fabric that were sticking up, and started burning. 2 m of fabric were totally destroyed and the laser cutter broke down from the fire. Since the risk of repeating the fire, the reported engravings on a large piece of fabric experiment was not tried again.
Fig. 163-169: Draping, laser engraving, adding laser cut vliseline and washing long denim/lace dress.
4.1.18. DRAPING WITH ARCHETYPICAL GARMENTS, ADDING DISTRESSED DENIM EXPERIMENTATION: EVENING DRESS

In order to use the learnings from the material experiments, it was necessary to make full size garments, early in the process and try them on a body. Some fabrics collapses e.g from washing and this sets limitations and challenges for each specific outfit.

When creating garments with the distressed denim experiments, one must always be one step ahead.

The draping starts with one archetypical garment in mind, here a long lace evening dress. The volume in the front were made to let the distressed denim create shape or collapse after wash. To give some extra shape so that the lace wouldn’t only be decoration. The shoulder seams were left unsewn until after engraving, so that the material easier would fit into the laser cutter machine. In the laser cutter, the pieces were placed so that the strongest beams would strike the front line, using the unevenness in the machine to ones advantage.

After washing, some flowers were stitched together in the front (red marks on fig. 170), like you’re fixing something that has fallen apart (fig. 170-173).
4.1.19. DRAPING WITH ARCHETYPICAL GARMENTS, ADDING DISTRESSED DENIM EXPERIMENTATION: CORSET

One of the earlier ideas was to make a corset in denim where the felled seams would work as tunnels for the corset boning. Felled seams are not the ultimate seam for shaped curves, and the shape is thereby less controllable. Since the corset were sewn before engraved, the engravings only reaches the top layer of the felled seams. Therefore the felled seams with boning would hold after washed. The lace pattern were reinforced with seams.

After wash, the boning held the distressed pattern perfect from not falling completely.
Fig. 174-175: Corset being engraved, close up

Fig. 176-177: Felled seams used as tunnels for boning and corset on body, unwashed.

Fig. 178-180: Corset result after wash.
Fig. 181-187: Process draping the wedding dress

Fig. 188-191: Wedding dress before engravings (pinned in shoulder seams)

Fig. 192-193: Wedding dress in laser cutter
4.1.20. DRAPING WITH ARCHETYPICAL GARMENTS, ADDING DISTRESSED DENIM EXPERIMENTATION: WEDDING DRESS

A strong reference point to lace was needed in the collection, and the decision to make a wedding dress was made.

The dress was draped using a large piece of white denim (fig.181-187). When the shape of the dress was decided, the places where to engrave was made. The area around the neckline and back cleavage were chosen (fig. 192-193), and also a big flower on the left skirt were engraved.

After the engravings stitches were sewn on top of the lace pattern, and the shoulder seams were made (with felled seams). A belt in denim was made and belt loops were attached to the dress to make a clearer reference to jeans.

The risk of making a wedding dress in the collection is that it could be viewed as cheesy or dated. A wedding dress isn’t something that one would expect in a denim collection, so the benefits of including it could be either good or bad. The decision whether to keep it in the collection or not was decided during the line up developed.
4.2.1. LINE UP DEVELOPMENT

This chapter explains how the composition in terms of garments, color and styling of the collection has evolved.

After ca 50 % of a complete 7 outfits collection were made, all of the garments were lined up to see what was missing in the composition. Here, the archetypical garments are: evening dress (lace), dungaree skirt (denim), corset (lace), baggy jeans (denim), negligee/nightgown (lace), and two versions of denim jackets. While evaluating the composition a decision were made to add a wedding dress with a similar drape as in the jacket on outfit 5 (see previous page). Something in the light blue denim from outfit 3 is also needed.
When presenting this line up, the perception from the viewers were that they didn’t see the lace in the work. The denim is taking too much space and the lace is perceived as some kind of decoration rather than lace. The distressed areas were also questioned, since the distressed areas in this work is not the typical worn down areas.

To convince the viewer that this work is about lace and distressed denim, one could add an outfit in regular lace and an outfit of classic denim wear where the typical worn down areas are distressed with the lace pattern.

In this line-up, some regular grey melange T-shirts were used as compliment garments, originally inspired by the classic styling of jeans and T-shirt. The expression of the collection with the T-shirts was more dressed down in a too relaxed way, so the choice of not keeping them in the collection was made.

The negligee in outfit 3 was rejected by the tutors, due to the shape added to the dress. The fact that it was a negligee was on the contrary appreciated. A decision to add a new negligee was made, interpreted in another way.
The new garments in this line up (fig. 202-208) is the jeans (regular wide jeans, no engravings) the bra and lace dress in the first outfit (to show the viewer the inspiration of the lace print), the jeans and jacket in outfit 2 (where the typical worn down areas are engraved), a train to the wedding dress (attached with belt loops to the belt of the wedding dress), the red lace jeans in outfit 5 (the jeans are sewn exactly like a pair of jeans but in lace instead of denim) and the new negligee in outfit 6.

The red colored lace were added to get a pop of color in the composition. After seeing the full line up the color was reconsidered expected and not that exciting. It rather lowered the impression of the collection as something modern. The best choice of color for this collection was decided to be the white and the different shades of blue that the denim came in.

The lace dress in outfit 1 was made in a typical indigo blue that denim regularly is in, and the shape was made to repeat the shape of the last dress in outfit 7. Outfit 2 was considered as successful for bringing the viewer “back to basics” of denim wear. The wedding dress doesn’t fit in this line up due to it’s fullness in shape and dramatic expression, especially when added the train. The suggestion of keeping the train to a pair of jeans instead was given. The negligee in outfit 6 was considered to trashy and ripped apart when paired with the white pants, but could benefit from being paired with a regular white pair of jeans.

What could be added to this line up is more garments in the lighter blue color (similar to the dress in outfit 7). The jacket in outfit 4 could look more up to date with a wide pair of jeans.

Fig. 202-208: Line-up version 3.
4.2.2. COLOR, TREATMENT AND WASH

Throughout the development of the line-up colors have mainly been chosen from classic denim and lace wear. The exceptions are the light grey melange T-shirts in the second version of the line-up (fig. 201) and the red lace pieces in the third version (fig. 202-208). The T-shirts were cancelled because of them not having a purpose to the collection, neither in color or shape (since T-shirts are neither a typical denim or a lace garment). They were added at first because T-shirt is a typical garment to style denim with. The light grey melange doesn’t interfere with the denim shades, but it doesn’t add any excitement to the composition either.

The red lace bra and jeans in the third line-up (fig. 202-208) were added to give the collection a pop of color and to achieve a classic color range (navy, red and white) and the result came out as to classic, almost boring and expected. After cancelling the red, the choice were made to add more of the engraved green color instead.

The colors which are chosen are based on typical denim colors. The classic indigo blue can be seen in the corset outfit 1, jacket in outfit 2 and jeans in outfit 4, and a darker version of indigo in the vest on outfit 5. A dark green/blue has been used in jeans in outfit 2, jacket in outfit 4 and the jacket and jeans in outfit 6 (although the jeans are covered with engravings). Bleached white denim were used in outfit 3 to distinctly reference the lace inspiration from bridal wear and underwear. The bleached denim in outfit 7 was added to lighten up the composition and the light blue denim in outfit 5 to complement outfit 7. The engraved parts has lighten up the fabrics in the corset in outfit 1, jacket and jeans in outfit 2, jacket in outfit 4, jacket and jeans in outfit 6, and on the dress in outfit 7. The engravings on the vest on outfit 5 were so deep that they dissolved after wash and thereby you can not see the traces of engravings. The lace dress and lace jeans in outfit 1 were made in navy blue to relate closely to the classic denim color indigo blue.

The washes varies from unwashed (jeans and jacket in outfit 2, shirt in outfit 5 and jeans in outfit 6) to washed in temperatures 40-60°C temperatures (the rest of the denim pieces). The wash changes the color of the engravings, the amount of how much the engravings collapses and the stiffness of the whole garment and thereby the choice was made to not wash all of the garments. The brown/gold hue that the unwashed pieces have are because of the fibres being burned, and could give the viewer a clue of how it’s made.

The only treatment used, other than engravings and washes, is the bleaching on the dress in outfit 7. The fabric was bought with that treatment already added.
4.3. DESIGN RATIONALE

First some clashing material experimentations were made, which were then tested on some shapes. When the first clashing experimentations were evaluated as failures, lace were chosen as a material to work further into. The laser cutter was proven the most successful tool to explore lace through other materials with, and denim was the most interesting fabric to explore through lace. Denim were chosen because of the resembles of distressed denim and lace and the contrast between denim’s and lace’s origin (work wear and nobles). After several experiments, some material manipulated denims were chosen to continue with.

An attempt to make a by-the-yard fabric with material manipulation failed, and that excluded the possibilities of working with a ready made manipulated fabric before deciding shape.

The ultimate process of a garment was then found by testing materials on shapes (archetypical garments) to see how the shape would react by the material manipulation. Thereby this work came to be about decoration and how decoration can change a shape.

The element of control became an important factor to this work due to the difficulties of predicting the changes that would happen when washing a fabric or a garment that had been engraved. The most important variables in controlling engraved distressed denim was size of pattern, settings on the laser cutter (how strong the laser beam was), the thickness of denim and if something were added to keep the pattern from falling apart (e.g. vliseline or thread).
5. RESULT / CONCLUSIONS, PRESENTATION AND DISCUSSION

5.1. RESULT / CONCLUSIONS

The result is an investigation of distressed denim in a lace pattern using the laser cutter as a tool. One could say that the material experimentations has been more in focus than the exploration of shape. One reason for that is the difficulties to create a by-the-yard fabric to drape with. To explore shape the garment was affected when adding distressed areas onto a shape. Therefore one can say the work relates to the discussion of construction and decoration.

All of the shapes is inspired by archetypical garments from lace and denim wear. The shapes chosen was: evening dress, jeans, corset, denim jackets, negligee, wedding train, bra and panties.

The three most beneficial ways to control distressed denim was first by using vliseline cut in the same pattern as the denim was engraved, the second was by sewing felled seams in the fabric before the engravings were made and the third was by sewing straight seams after the engravings were made. Three types of cutting in the laser cutter is used. The first one is a regular cut out pattern technique, as seen in outfit 5, the second is to slice the fabric in strips, as seen on the negligee in outfit 3, and the third is to slice the fabric in strips but in the lace pattern, as seen in the train on outfit 3.

The engraved and cut parts of the denim is engraved in a lace pattern. It’s not as clear in outfit 3 and 5 that it’s a lace pattern, as in outfit 2, 6 and 7. In outfit 4, the lace pattern is so large in scale that it looses the lace-effect.

The third outfit is quite unclear patternwise. Due to its color (no contrast in warp and weft) and trashyness, the pattern is not as easily read.

The most important outfits for convincing the viewer of the lace and denim clash is the first, second and seventh outfits. There one can see three different poles in the collection: lace, denim and a clash between lace and denim. The first and second outfits adresses the clash between lace and denim aswell, but in a much more uneven balance between them.

The colors are different shades of denim blues, white and a green/gold hue that is the result of the engraved denim (outfit 2 and 6). The gold/brown hues is the burned fibres, and that hue would disappear if washed, as in the jacket on outfit 4 and 6.
5.2. PRESENTATION

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MATERIAL OVERVIEW

NON TREATED MATERIALS

REGULAR BLUE LACE  REGULAR WHITE LACE  BLUE DENIM  GREEN DENIM

WHITE DENIM  DARK BLUE DENIM  LIGHT BLUE DENIM  BLEACHED DENIM (BOUGHT BLEACHED)

ENGRAVED DENIM, UNWASHED

ENGRAVED BLUE DENIM UNWASHED  ENGRAVED GREEN DENIM UNWASHED  ALL-OVER ENGRAVED GREEN DENIM UNWASHED
ENGRAVED AND WASHED DENIM

ENGRAVED GREEN DENIM
WASHED

ENGRAVED BLUE DENIM
FIXED WITH SEAMS, WASHED

ENGRAVED BLEACHED DENIM
FIXED WITH LASER CUT FUSING, WASHED

ENGRAVED WHITE DENIM
FIXED WITH LASER CUT FUSING, WASHED

ENGRAVED AND WASHED DENIM

LASER CUT
LIGHT DENIM
UNWASHED

LASER CUT
LIGHT DENIM
WASHED

LASER CUT
WHITE DENIM
SLICES CUT
WASHED
OUTFIT 1

**CORSET**
Blue denim corset with felled seams that holds the corset boning. Press button in center back.
The engravings were fixed with seams over the pattern. Raw edges on top and bottom hemlines.

**LACE DRESS**
Sewn by hand on shoulder seams, raw edges cut alongside the lace pattern. Slit in front left side. Made to inspired by the dress in outfit 7, but a lace version.

**LACE JEANS**
Regular jeans sewn in dark blue lace to reference the classic indigo blue denim. Raw edges on hems.
X = ca 9 cm

X = ca 9 cm

X = ca 12 cm

X = ca 9 cm
JEAN JACKET
Classic jean jacket with engravings on shoulders, collar, front, back and sleeves. Unfixed engravings and unwashed. Made to reference the typical worn down look, but here the worn down areas are distressed by lace engravings. No buttons or buttonholes. Welt pockets.

JEANS
Classic jeans with engravings on front thighs and back thighs. Unfixed engravings and unwashed. Made to reference the typical worn down look, but here the worn down areas are distressed by lace engravings. No rivets. Zip fly. Raw edges on hemlines.
OUTFIT 3

NEGLIGEE/NIGHT GOWN
White denim negligee engraved and laser cut in slices as top sketch on opposite side. Before wash the engravings are fixed with laser cut fusing and the top hemline is strengthen by a seam. Small snap buttons on left side.

TRAIN
White denim wedding train. The pattern is cut in slices as seen on sketch on following sides. Attached to jeans with a belt and belt loops. Washed. Were made to add a dramatic wedding influence. Raw edges all around.

BRA
White lace bra with elastic tapes and bra snap. Made to cover the models breasts and add more lace.

JEANS
Negligee before wash

X = ca 12 cm

Slices cut in 1 cm intervals

Negligee after wash

Negligee before wash

Negligee after wash

Negligee before wash

Negligee after wash

Negligee before wash

Negligee after wash
$X = \text{ca } 18 \text{ cm}$
Engraved pattern for the jacket on the following page

X = ca 24 cm

Left side

Right side
 OUTFIT 4

**JACKET**
Sleeveless jacket with drape on back. The engravings on the sides are very shallow and does not need to be fixed before wash. The drape in the back is supposed to reference a draped lace gown. Raw edges on hemline, center front and collar. Welt pockets. See the engraved pattern for the jacket on the previous page.

**FLARED JEANS**
DENIM VEST
Vest with engravings that has completely dissolved. This is the most torn apart garment in the collection. Raw edges on hemline and armholes. One welt pocket on the left side. No buttons or buttonholes. See the complete engraved pattern for the vest on fig. 137-138.

DENIM SHIRT
Sleeveless shirt with lace pattern cut on the left side in light denim. Unwashed. No buttons in center front. This shirt was made to reference another typical denim garment than jeans or a jacket. Yoke in back. Raw edges on hemline and armholes.

WIDE PANTS
These pants are a more abstract version of jeans. They are still in the right fabric, but the shape has changed and the fly and waistband has been removed. Laser cut and washed. Raw edges on top and bottom hemline and hidden zipper in center back.
X = ca 18 cm

X = ca 21 cm
**SHORT JACKET**
Jacket with engravings on front, back and sleeves (see top sketch on the following page). The engravings are not fixed and washed. The jacket were made to add something with sleeves to the collection, and to add something that were very torn apart, similar to the dress in outfit 7. Raw edges on the hemline and center front. Breast pockets. Snap button in center front.

**ENGRAVED JEANS**
All over engraved jeans in dark green. The model has wide legs and a loose fit. Not washed, to keep the brown/golden hue the green engravings get from the fibres that have burned. Raw edges on the hemlines. Zip fly. Made to complement in color. Engraved after sewn, so that the height of the material in the laser cutter would create more effect.
Short jacket before wash

X = ca 9 cm

X = ca 8 cm

Short jacket after wash, not showing engravings

X = ca 9 cm
DENIM GOWN
Bleached denim gown, engraved as sketches on the following pages shows, fixed with laser cut fusing and washed. After wash, some of the flowers have been stitched by hand to close the center front of the dress (see the marks on the sketches on following pages). The denim was bought pre-bleached. Raw edges on the hemline and neckline, with felled seams in the shoulder seams.

BRA
Bra made in light denim to cover the models breasts and camouflage behind the bleached and engraved denim. Raw edges on every hemline, on the bra-strap and a bra snap.

PANTIES
Panties made in light denim to cover the models private parts and camouflage behind the bleached and engraved denim. Raw edges on every hemline, alongside the seams on front and back and a hidden zipper in center back.
Denim gown after wash, not showing engravings.
Before Wash

Sewn with felled seams

X = ca 13 cm
After Wash

The marks are stitched together by hand, the green mark on top of the red.
The lace pattern has been drawn in illustrator from an already existing lace (as shown in fig. 16 and 17). This picture shows 4x2 reports. For every garment that has been engraved with this pattern has the scale of the print varied. Thereby the flower has been measured on every garment to get the scale right. To not show every scale in 1:1, a distance has been measured and marked with a red X so that the scale can be written in a smooth way on every sketch (see previous pages).
5.3. DISCUSSION & REFLECTION

5.3.1 INVESTIGATION & PURPOSE

The intentions of this work was to explore the clash of two garments. The clash was intended to be more than just two garments sewn together, both the features and materials was supposed to affect each other. After experimenting with clashes (through draping and material manipulation) between a fake fur coat and tartan kilt, denim jeans and sequin gown, lace dress and leather jacket the conclusion was that the results weren’t a complete merge between the garments, but rather a 1+1 result where two halfs were sewn together.

The most interesting part of the clash experiments was to work with the laser cutter in lace experiments. The laser cutter is an easy tool to work with when creating different cut outs. This investigation took a turn, and now the exploration of materials through the laser cutter in a lace pattern was focussed on.

When exploring denim one found similarities to lace in the holes and threads. In lace, the holes and threads builds a pattern that is controlled and ornamental, often with flowers. In denim, the holes and threads are created by friction and usage which often creates a historical value for the consumer. Nowadays, denim wear is often sold pre-worn with distressed areas made from the workers at the production factories. The procedure often includes sandblasting, which is harmful for the worker (Muller).

One test was made with hopes of creating a by-the-yard fabric with denim engravings. The fabric engraved on was to large and it ended up with a fire. This was a restriction found in the exploration of shape, and after this accident only more controlled experimentations with shape were made.

The result is a selection of garments inspired by archetypical garments from lace and denim wear: from lace: evening dress, corset, negligee, wedding dress and underwear; and from denim: jeans, jean jacket and denim shirt. The garments are made in denim and has different material manipulation placed on them, in some the shape is affected, and in some not.

5.3.2 DECORATION, ORNAMENTS AND SHAPE

Is decoration simply embellishment or could it be something that’s affecting the construction and shape?

Emelie Ahlnér (2013) explains the difference between ornament and decoration in fashion depending on: how incorporated the element is in the garment, if it has structural values or if it is just an additive element placed upon the garment as an afterthought.

According to Ahlnérs conclusion the distressed denim on the corset on outfit 1, the jacket and jeans in outfit 2, the jacket on outfit 4 and the jeans in outfit 6 could be seen as decoration.

The distressed denim in outfit 3, 5, jacket in outfit 6 and dress in outfit seven is far more affecting on the shape of the garment and should thereby be seen as ornaments, and not decoration.

5.3.3 INITIAL IDEA

The initial intention of this work was to merge two archetypical garments in a clash using the original garments shapes and materials (called "clashing garments" in this work). After experimenting with clashing garments, the lack of tension in the transitions between shape and material were detected. This work shifted to focus on denim and lace, because of the found similarities in the materials (threads and holes) and their different histories (lace from nobles and denim from mine-workers).

5.3.4 PRIMARY MOTIVE

The aim is to investigate the possibilities of distressed denim as decoration through engravings and cuts in a laser cutter. All outfits includes at least one garment that reflects the aim, but there are some garments which don’t, and these are made as complements to the composition of the line-up or to cover certain body parts.

The jeans in outfit 6 are engraved, but all-over and not in the flower pattern as decoration. They were made to add more of the green/golden hue to the color palette.

The jeans in outfit 3 and 4 are regular jeans with no engravings. The blue wide jeans in outfit 4 are worn
down with sandpaper to imitate the distression of an old pair of jeans. These two jeans are made to show the starting point, and also to add some simple garments to rest the eye on. There is also a bra and a pair of panties in outfit seven which are made of light blue denim to camouflage to the dress and the purpose of them is to cover the models private parts. There is also three garments in lace, which were added to help the viewer see lace in the engraved flower pattern: a dress, a bra and a pair of jeans. The bra was made to cover the breasts on the model, but also as a styling garment (Though the model may be ok with showing her breasts, it could be an unnecessary focus point in the outfit). The lace dress is made to look like the denim dress in outfit 7, uneven and "trashy" in the finishing to reflect the denim. And the lace jeans are made to turn the tables in a subtle way: here the lace is explored through jeans, and not jeans through lace.

If this work would more clearly demonstrate clashes with greater tension to challenge the conventional expression in denim the places where the lace is more visible after washing should have been further developed and been part of the collection results. Examples of these techniques can be found in the fig. 151, 153 and 155 (experiments with coating and sewing outlines). The shapes of the final garments could also be further developed to challenge the expression of new shapes in relation to the selected techniques. The role of the selected print motif, a flower, would need a full investigation on it’s own and should have been further investigated in this work. However, form the experiments, the general findings where, the shape of cut (flower), size, distance of the open areas, position on each garment and many other parameters are all affecting the outcome of the distressed denim and the expression of the garment.

5.3.5. SECONDARY MOTIVE

When exploring denim engravings with the laser cutter the intention was to control distressed denim. The distression was always made in a lace pattern, with the hopes of making the pattern stay after washing it. After finding some succesful ways of controlling distressed denim, the shape of garments was explored.

This work is challenging visual possibilities, making decorations in distressed denim through lasercutting and engraving. As already mentioned, there are e.g. new possibilities in combining techniques with coatings, adding stitching etc. This work is just a look into the possibilities of laser cutting and engravings on denim, and does not answer if it’s a sustainable alternative to sandblasting.

5.3.6. POTENTIAL AND LIMITATIONS

The potential of this work is new ways of distressing denim which aren’t harmful for the workers at the production factories. There is also potential in the design areas to use distression as a pattern on denim, instead of a personal finger print. This could be highly commercial and a new way of decorate denim.

The biggest limitation met in this work was when a by-the-yard fabric test failed. The reasons why the fabric started to burn is probaly the unexperience of the laser cutter and unknown easy tips to rely on. After examination, the tip was given to wet the fabric in water before engraving it. That would stop the fabric from catching fire. Thereby the by-the-yard engraved fabric could be developed and researched further. The size of the laser cutter was also a limitation, so if one had a bigger laser cutter, this work could be easier done with less limitaions.

This work explores technical and visual possibilities and difficulties in distressed denim through laser cutting and engravings. It challenges the idea of the worn down look being the main expression of denim and suggests decorative distression to achieve alternative expressions.
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Fig. 12-208
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Representative images of work
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Models: Karin T / Modellink & Alva Johansson
Critique: Camilla Arnbert *Surfaced Print*

**Aim:** To investigate the relationship between surface and the printed check by the use of material manipulation.

Idea: Good and relevant - surface and print - because of how flat digital prints can look.

Craftsmanship: Camilla is great at these techniques and she’s been really smart in the choice of pattern and color. It’s an incredible amount of work in her collection which I appreciate. I like the fifth outfit for being the most uncontrolled in shape and print.

Composition: I feel that the ones where the transitions are more fluent are more successful (outfits 1, 2, 3, 5, 7). I appreciate that the straight lines are repeating hemlines from garments, but I feel that the transition in outfit 6 is neither straight or fluent which makes it feel slightly forced. I would change the pattern fit in the transition on outfit 4. I love the pocket detail on outfit 7, and the fact that it’s the only flat fabric on the coat.

My proposal: I took away the pants that were paired with the coat. The dress that were outfit 6 in Camilla’s line-up has now longer sleeves to match the orange dress, and the embroidered material is more fluently placed.

The colors are turned up in outfit 1 and 6 (from my line-up) to match the bright blue and orange. I really like that it’s only four colors that reads differently depending on the check pattern and material, but I feel that the composition needs at least one more outfit that pops in color.

I changed the order of the line-up because I feel that the jacket with fringed skirt is the best outfit and should be last.
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