T-FT61

PROJECT WORK
ON

STUDIES ON THE EFFECT OF SHOE FINISHING FOR THE IMPROVEMENT OF SHOE QUALITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR SCIENCE IN FOOTWEAR

TECHNOLOGY.

SUBMITTED BY: MD. KAMRUL HASSAN CHOWDHURY EXAM. ROLL-76 REG. NO.-2522 SESSION-1999-2000 DATE-AUGUST 2006

A PROJECT WORK

SUBMITTED TO

THE BANGLADESH COLLAGE OF LEATHER TECHNOLOGY

UNDER THE UNIVERSITY OF DHAKA

T-FT61

Dedicated to

My Respectable Parents

THANKS & ACKNOWLEDGEMENT

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ABSTRACT

Shoe finishing is a multi process activity where a number of operations are performed in a sequential manner on fabricated shoe to provide aesthetic perfection and a kind handle. In early days, shoe finishing refers to bottom finishing i.e. finishing of sole and heel etc. Actually finishing is carried out in both bottom and upper for value addition to the shoe, to make it resistant to external factor (rubbing, scuffing etc). It is also carried out to repair and camouflage any minor damage caused during construction, to modify and adopt the appearance of shoe with regard to gloss, color, feel or any special effect to suite customer requirements and ultimately to increase its aesthetic and intrinsic value as a commodity. The aesthetic sensual and practical attributes of shoe give it a high quality image in the eyes of the discerning customer. The finishing process varies from material to material, construction to construction and many other factor like machineries, production facilities etc. To be a successful shoe finisher one should have deep knowledge about the type upper and shoe finishing, the property and nature of shoe finishing chemicals and their compatibility with the previous leather finish and finally the method of shoe finishing.

Md. Kamrul Hassan Chowdhury

AIM OF MY PROJECT WORK

One of the important objective of shoe finishing is to "delight the customer" by improve the quality of shoe and there are two important opportunities to impress the customer in the retail shop.

1. First, there is the visual impact. At this moment of first customer contact, the appearance of the shoe should create a positive feeling in the potential purchaser's mind. The brand should be prominent and attractive and the cleanliness, shape and surface finish should create a good impression.
2. Then the second opportunity when the shoe is tried on. This is where comfort element play an important part in clinching the sale.

In this project work, I want to focus how to improve the appearance of the shoe by applying shoe-finishing material.

Therefore, I am inspired to work on shoe finishing for good covering, smooth, natural an aesthetic feel.

The aim of this project work is to give the necessary knowledge about shoe finishing.

List of Contains

Chapter One

Finishing and Improvement of Shoe Quality

INTRODUCTION OF FOOTWEAR:

Footwear: Any foot covering in the form of shoes, boots, slippers or hose used for utility or dress wear. Not necessarily synonymous with shoes which are simply one category of footwear.

In English, the term "Shoe" dates back to many centuries beginning with the Anglo-Sexon.

"Sceo" meaning a foot covering and evolving into "Schewis" then "Schooy" and finally "shoe".

The Purposes of shoes:

1. To protect the sole of the foot.
2. To protect the upper part of the foot.
3. To assist the foot to perform some abnormal task.
4. To overcome abnormalities in the foot itself.
5. To complete a costume.
6. To indicate rank or office.

1.2 FINISHING OF LEATHER:

The last and the most important operation in a tannery today is finishing where the leather surface is coated with a nice looking, colored or colorless, flexible stretchy durable film of some film forming material.

The surface of leather or the grain was treated in ancient times with a protective season. The modern finishing however has been developed in the last thirty years to a high performance technology with respect to the chemical composition and to the methods of application. Generally, 'Finishing" is defined as the up-gradation or treatment of the surface with finishes and seasons to impart the special properties desired of leather as commercial product.

1.3 OBJECTS OF FINISHING.

a) Changing the color to that, which is required.
b) Levelness of color on the leather.
c) Uniformity of shade from leather to leather and pack to pack.
d) Adding a transparent film through which the natural appearance of the leather may be viewed.
e) Imparting color or pattern to un-dyed leather.
f) Giving a surface to the leather varying from matt to gloss.
g) Alter the surface of the material is split.
h) Adding a transparent colored film to the leather

I) covering the leather with an opaque film in order to obliterate all defect

j) By filling the surface of loose leather improve the break of the grain.

k) Improve the scuff resistance of the leather.

I) Improve the water resistance of the leather, i.e. he finish should not discolor or swell and hence protect the leather and retain, its good appearance.

m) Render the leather light fastness.

n) *Give* leather of optimum cutting value.

0) Seal the leather surface so that it remains clean.

p) Render the leather fast to acids.

q) Render the leather resistant to a light pull up on lasting.

r) Render the leather heat fastness.

s) Render the leather fast to alkali.

1.4 FINISHING QUALITIES:

a) Not spoil the feel of handle of the leather.
b) Remain in its original condition of gloss or malt for a long period.
c) The finish should not craze or be easily removed.

d) It must adhere to the leather in dump or wet conditions

e) Not make a film on the leather, which is too plastic like appearance.

f) It should be resistant to the adhesives used in the manufacture of leather goods.

g) Have resistance to cold crack.

h) It should resist dry cleaning fluids.

i) Resist heats and not crack.

j) The finish should not take—up color from articles or impart color to it will be concluded that a leather do not require all the above properties and it must be stressed that all the above properties cannot be achieve by the use of one finish only.

k) Be water vapor permeable.

I) Allow the leather to be washed.

The number of coats of finish applied to a leather and the way in which they are applied is very important sometimes more important than the actual constituents of the finish. Most leather should be dyed slightly darken than that they are intended to be finished

1.5 FEATURES OF FINISH FILM THAT IMPROVE THE SHOE QUALITY:

1. FLEXIBILITY AND STRETCHINESS:

Leather is a flexible materiel with certain degree of stretchiness. If the film to the leather surface does not possess these properties to the same extent as leather, it will make the leather hard and the film will crack in course of time.

2. ADHESION:

The film should be firmly fixed to the leather surface so that the former does not come out during use.

3. HOLDING POWER:

The film should have sufficient capacity to hold in it other sub-stances like pigment, plasticizers etc. during drying or film formation no ingredient of the finish should precipitate out. The ideal film will never allow the plasticizers to migrate into the leather.

4. **GLOSS:**

The film should glaze by itself of should acquire this quality after glazing under glazing machine of hot plating or brushing.

5. ABRASIVE RESISTANCE AND FASTNESS:

The film should have sufficient resistance to abrasion for longer life and at the same time, it should hold the coloring materials so tightly that it does not come out when rubbed a dry or wet cloth.

6. WATER PROOFNESS AND WATERVAPOUR PERMEABILITY:

The film should repel water so that the leather under it does not come in contact with water but at the same time, it should allow water vapor to pass through.

7. THICKNESS:

The film should be as thin as possible so that it does no spoil the leathery appearances of the finished leather at all but at the same time, the film should hide all deflects in the leather.

8. RESISTANCE TO ACID, ALKALI AND CHEMICALS:

During use, the leather comes in contact with dirt, mud, acid and alkaline fumes sweat etc. The film on the leather should have therefore, sufficient capacity to protect the leather from these.

1.6 TYPES OF FINISHES:

There are three different types of leather finishes, which are commonly used by leather finishers. They are:

(a) Water type finishes.
(b) Solvent type finishes.
(c) Emulsion type finishes.

a) WATER TYPE FINISHES:

There may be based on pigments, protein binders, such as casein, shellac, gelatin, egg and blood albumin, waxes and mucilaginous substances. These finishes are mainly used for glazed finish leathers, which are required to be glazed by glazing machine. Recently water type finishes based on pigments or dyes and resin dispersions are increasingly used to achieve special effects on the finished leather. The use of such finishes has produced many improvements over the conventional protein based finished such as better adhesion and flexibility of the finish, improved filling and sealing properties and greater uniformity of the finish.

b) SOLVENT TYPE FINISHES:

In contrast to water type finishes, solvent-based finishes contain as a binder polyurethane or coloidion cotton (Nitrocellulose). These finishes are dissolved in organic solvents such as butyl acetate, cyclo-hexanone etc. These finishers are widely used for finishing upholstery leather, bah and ease leather etc. Solvent finished based on vinyl resin instead of nitrocellulose have shown improved resistance to flexing and better flexibility at low temperature. They have been successfully used on upholstery leather, case leather and certain military leathers where low temperature flexibility is necessary.

C) EMULSION TYPE FINISHES:

Emulsion type finishes consist of emulsions of nitrocellulose or resins. Such emulsions are being widely used to confer combining properties of water and lacquer finish. Lacquer emulsion top coats for upper, garment and glove leather are gaining wide acceptance.

Chapter Two

Shoe Finishing

2.1 Definition of Shoe Finishing:

The upper leather received from leather industry to make footwear may well fulfill all the requirements. But during shoe production the leather has to pass through various physical and mechanical operations (Which are sometimes quite abrasive and stretchful and it will have an accumulation of factory dirt and damages, resulting in a comparatively battered appearance. After completing all those fabricating operations, the upper could possible loss its glass, original security and sometimes even its inherent characteristics, which has to be recovered. The process of recovering and enhancement of all those properties of upper leather is known as shoe finishing.

2.2. Objectives of the shoe finishing:

Shoe finishing is the final operation performed on footwear after constructional work has been completed. It is done to fulfill the following objectives:

To ensure that footwear has the best possible appearance at the point of sale.
To repair minor damages caused during manufacture.
To remove general soiling, stitch marks wrinkles and loose thread ends.

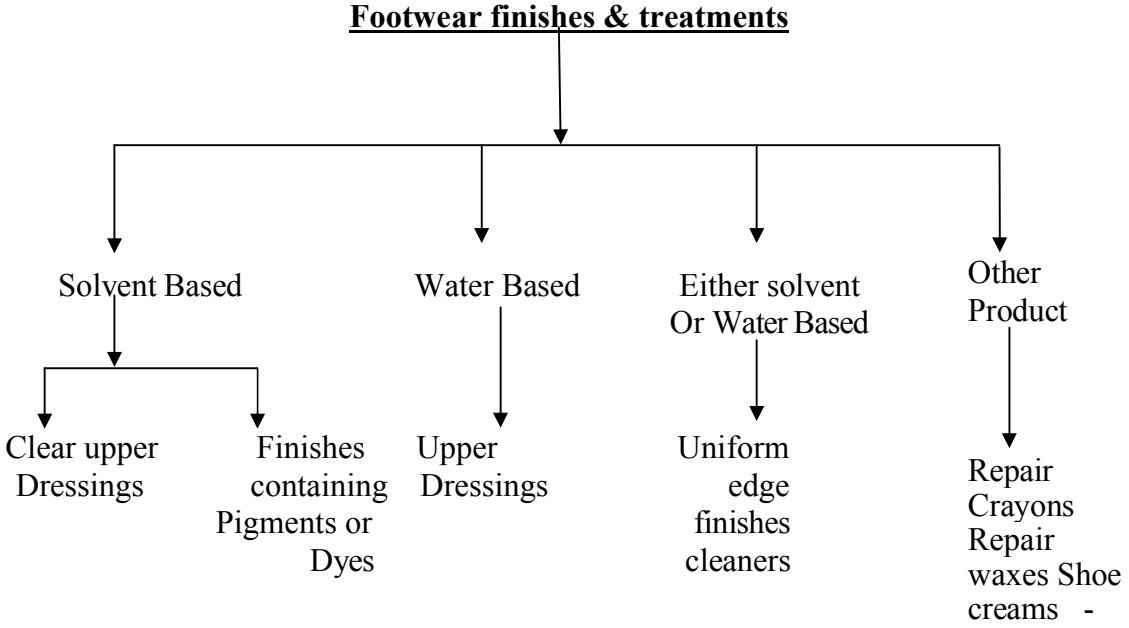
2.3 Finishes On Leather:

To be able to achieve the objectives of shoe finishing, a shoe room supervisor must have a thorough knowledge of upper materials and particularly of their finishes, to enable him to select the appropriate shoe room system. Following tables may help a shoe room supervisor to identify the basic finish types, to select the right dressing system and to avoid problems of incompatibility between the leather finish and the dressing.

2.4. Materials required and methods of use

Shoe Room	Finishing Materials/Using Method
Sole edge finishes	**Solvent /water based** **Apply by sponge or**
Raw edge stains	**Usually water based.** **Apply by sponge/brush/cotton bar**
Bottom finishes	**Water based on: Leather Solvent based on PVC; PU etc. Water based: Apply by sponge or brush** **Solvent based: Apply by spray.**
Wax Paste repairers	**Applied with a cloth or sponge, Colored wax**
Wax crayons	**Applied by a colored wax strikes.** **Usually rubbed on the defective area of the upper.**

2.5. Type of shoe finishes:



Those tree gives an indication about the products which are available, but in general, finishes are either:

Solvent Based

Or

Water Based

Both of these are special types of 'Paint'. They have some common features:

- They both 'dry' by the evaporation of a liquid.
- When dry they must be satisfactory in appearance and abrasion resistance.

Solvent Based:

Solvent based finishers contain two main ingredients:

i. The liquid (a solvent)

It is an organic chemical liquid.

At normal factory temperature, it evaporates in a few minutes,

ii. The solid (dissolved in liquid)

- Which is left behind as a thin film, appropriately one thousand of an inch thick or less.
- The film contains the colored pigments or dyes, when they are used. The solid part or, the film forming part of the finish is generally a resins substance.

Each of the resins are used of give the finish some particular property: Gloss Flexibility Toughness etc Water Based:

It has also two main ingredients:

I. The liquid (Water)

It evaporates in factory temperature,

ii. The solid:

Which is left behind as a thin film.

2.6 Material used in shoe finishing

Kenda Farben Italy Shoe Finishing Chemicals

1. CLEANER

Function: Concentrated cleaner for leather uppers.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

2. CLEANER SUPPER

Function: Solvent base, degreasing dresser for types of leather and synthetic material for uppers. It removes the adhesive residuals.

Shelf life: about 12 months if stored in well-closed original packing in a dry and airy place.

3.APPRETTO SUPPER

Function: Water base finish. "Universal" Type, Highly Glossy, Suited for all type of full and corrected grain casein, aniline and niter tanned leathers.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place.

4. APPRETTO MILD

Function: Water base finish. "Universal" Type, suited for all type of full and corrected grain casein, aniline and niter tanned leathers. It gives a bright and gloss effect to the shoes.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

5. SIRIO

Function: High glossy, self-shining, finishing paste cream, for leathers.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place.

6.SETA

Function: Finishing cream for leathers having natural glossy effect and a silky touch.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place.

7.SIRIO

Function: Base coat in cream for leathers, coloring, equalizing and covering the leather defects before the final application of the finishes.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place.

8.SIRIO

Function: Finishing cream for leathers having a full glossy effect suitable for open grain leathers.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

9. Abrasive, Polishing solid waxes

Function: Abrasive was for smoothing with cotton brush: leather soles bottom, heels and edges.

10. ANTIQUA

Function: Finishing cream for leather having natural waxy effect excellent coverage of the open grain.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

11. LYS

Function: Cream renewed for white leathers.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

12 BRAVOPELL

Function: Softener for footwear.

Shelf life: about 24 months if stored in well-closed original packing in a dry and airy place.

13. FEDOR

Function: Varnish for PVC.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place.

13. DIAMANTE E

Function: Emulsion of waxes and valuable resins for the finishing of smoothed leather soles bottom.

Shelf life: about 24 months if stored in well closed original packing in a dry and airy place. Keep from freezing and extreme heat.

2.7 Identifying finishes:

Effect of dilute ammonia	Effect of acetone	Copper metal test	Finish type	Class of leather having such finish
Colour transferred to cloth	No effect	No green colour	Protein finish	Aniline calf box calf Glace kid
No or negligible effect on L/R	Colour readily removed. Base coat may be contrasting colour	No green colour	Resin	Resin semi an iliac rub off, persisted, finished split melalised
No effect	No effect	No green colour	Poryuretha ne	Patent scuffresistant, water, ' split, finished split
No effect	Slight tackiness	Strong green flame	PVC	Patent coated split
Negligible	Negligible	No green colour	Wax/oil	Burnish able oily pull-up oily nubuck

2.8 Properties of the finishes:

Type of the finish	**Property required in a finish**
i. Solvent based ii. Generally solvent based iii. Generally solvent based iv. Water based v. Water based vi. Water based	i. Fast drying ii. Adhesion to 'difficult to coat' materials iii. Speed of operation on a track system. iv. Low fire risk v. Minimum damage from fumes vi. Minimum risk of accidental marking of adjacent area.

Chapter Three

Finishing Process (Leather Upper)

3.1 Definition of Finishing Process (Leather upper)

Shoe finishing started with initial checking cleaning and culminated in packing. Actually shoe finishing is the name of combination of a series of operations where the operations are performed in a sequential manner.

3.2 The main operations of shoe finishing are:

1. Cleaning
2. Repairing
3. Wrinkle chasing
4. Filling by base coating
5. Top dressing
6. Cutting and polishing

3.3 Cleaning:

The surface to be finished must be clean before surface coating. It is necessary not only to remove the dirt, adhesive, over spill and other unwanted marks and contamination but also to condition the finish surface to accept dressings and/or other treatments.

Principles *to* follow when cleaning:

Relate the choice of cleaner and the method of cleaning to the type of contamination that is being removed and the type of finish on the upper.

For example solvent based cleanness should be used to soften natural rubber. But do not try to remove rubber solution from suede with a solvent based cleaner or "tide marks" will result suede has to be dry cleaned.

Use dry methods in preference to wet.

Use the mildest treatment possible that will effectively remove the contamination.

The stronger the cleaner, the more finish it will remove in cleaning. If uncertain what cleaners to use, always start with the mildest, and try progressively stronger cleaners until the dirt is removed. The effect on finishes can be tried on cuttings of the name material obtained from clicking room.

3.4 Cleaning methods:

The methods of clean is two types they are:

- Dry
- Wet

Both can be done by hand or machine. The choice of cleaner and method of cleaning depends on the type of finish on the upper.

Dry cleaning by hand:

Dry cleaning is primarily used on suede finishes which must on no account be cleaned with liquids. It also to be employed on all types of fabrics as liquids leave "Tide marks" Dry cleaning by hand is done with the following different tools to serve various distinct purposes.

- Brushes and scouring pads:

Are ideal for removing general dust and dirt and for brushing up the nap.

- Power dove tail brush:

To remove dust from between the sole edge and upper leather edge. Also used to remove stitch marks from the upper.

- Crepe rubber/resin rubber:

To remove adhesives from upper and lining.

- Soft sponge rubber:

To brush and refresh the suede nap/nubuck nap

- Blunt knife:

To scrap away hard substance and to remove wax and thermoplastic hot melt adhesives. It could be used on suede and nubuck leather.

- Emery paper:

To remove adhesive from suede and nubuck, if the adhesive is not penetrated too deep. It is also used for raising and even up any suede nap that has been badly treated or discolored.

- Brass wire/stiff bristle brush:

To remove general dust and loose foreign substance from suede and nubuck leather .Brushing is done lightly in one direction (preferably from front to back) to give same nap.

Dry cleaning by machine:

This method is the same as the 'wet' method (as described below) except that all brushes are used dry.

Using the brushes dry on the machine requires a hard finish which will stand up to friction and the heat generated. The operation needs skill to use just sufficient pressure to remove dirt without damaging the finish . Actually, hand method is used only to remove some stubborn contamination.

Wet cleaning by hand:

In this case, cleaners are applied by cloth (White neck-pieces are best) wrapped round fingers rubbing gently over that surface, or by sponge when very little rubbing pressure is required. Stubborn dirt may need extra rubbing or application of a more suitable cleaner, cloths should be renewed frequently, and sponges regularly washer.

The attraction of hand cleaning is that selective cleaners can be used and each shoe can be given individual and each shoe can be given individual treatment.

Wet cleaning by machine:

The machine has only one applicator for cleaner and usually a mild water based type is chosen for general cleaning, care should be taken not over brush and damage the finish.

Any stubborn areas may have to be cleaned by hand to avoid damage. The amount of cleaner applied to the brush should be adjusted to 'Wet out' the material without being excessive. The method of cleaning on the machine is

(a) The feather area is cleaned with small well cleaning brush.

(b) The upper is cleaned with the bigger brush.

(c) The upper is dried on the cloth mop.

(d) Polishing is done on the bristu brush.

3.5 Types of Liquid Cleaners:

Cleaning wet is carried out with any of the following types of cleaners:

Water based: These are usually very mild types of deaners and contain soaps, wetting, dispersing and emulsifying agents and sometimes weak alkalis such as ammonia dissolved or suspended in water.

- These cleaners are mild enough to use for machine cleaning.
- These are suitable for over all removal of the general grime and dirt.

Example: CL404(stall),CL435 (stahl), CL577(stahl) etc. GWater/solvent based: Cleaners of this type are made from solvents which mix with water such as methylated spirit and acetone.

- These cleaners are suitable for overall cleaning of certain finishes that are unaffected by these solvents such as pu coated fabrics patents.
- They have a big advantage over water based in that they dry much quicker.

Solvent based: The solvents in this type are usually derived from petroleum, and can be mixed with other solvents of the same type to give different cleaning powers.

- These are suitable for removing grease, oils and waxes and weaker blends can be used for removal for overall cleaning of certain finishes.
- They are very quick in drying,

Example: CL309(stane) ,CL5 19(shahl), CL5 lO(steal)

G Cleaner/polishes: these are supplied as gels and contain solvent cleaners and polishing agents, which remain on the surface after the solvents have been evaporated. Application is by sponge or cloth and after drying can be polished on a power mop.

- Suitable for patents and pu coated fabrics
- Have the advantage of giving an accept able semi-bright finish without having to spray.

Example: CL529

3.6 Conditions:

Conditioners are water based, and are designed to open up the surface for efficient cleaning.

The cleaners described above can be again classified as following as follows:

Type	Action	Formulation
Water-based (for hand or m/c application)	mild	A natural cleaner containg detergent/soap.
		May contain ammonia
		May contain ammonia or solvent(e.g. alcohol)
Solvent (For hand application)	Mild	Light petroleum spirit eg.ligroin
	Medium	Petroleum spirit containing chlorinated solvents. Alcohol based spirit
	Strong	Solvents capable of dissolving resin finishes
Cleaner conditioners(for	Medium cleans and 'fills' in one operation	Contain small amount of resin to 'fill' and may contain some tight petroleum spirit

3. 7 Selection of cleaning solvents in common use:

Solvent	Other Names	Dissolves	Remarks
Toluene	Tolucol	Rubber, oils, fats, resign and	Very flamable. Toxic fumes.
Petroleum Naphtha a. Petroleum	Benzine petrol gasoline		Too flamable and volatile for general use.
b. Ligroin c. White spirit	petroleum Middle Benzine cleaning Benzine Heavy Benzine turps substitute	Ditto	Very flamable volatile Flammable.
Carbon tetra Chloride	'Thaw pit'CTC	Rubber, oils, fats resins,	Non flammable toxic fumes particularly with lighted cigarettes.
Trichloroethylene	Wastrel	ditto	As above, but more powerful very poisonous.
Methylated Spirit	Ethyl alcohol	Resins, spirit dyes, sewing	Flammable, mixes with water
Autone		Resins, fats some waxes acetate rayon	Very flammable party mix with water.
Methylethyl ketone	M.E.K		Flammable less volatile than acetone mix with
Anylacetate	Banana oil	ditto	Flammable less volatile than acetone peardrop

3.8 Repairing:

During footwear manufacturing, uppers may be damaged as a result of

- Over roughening along the feather line.
- Scuffing of the finish during handling.
- Damage to the finish by solvents and heat.
- Grain crack during lasting, shade variation of upper may increase.

In order to overcome these damages repairing is needed on shoe upper Actually it is done to bring the shoe to a good standard before continuing with the other operation in the finishing. Using rninimum amount of repair pastes, spray paints, renovators, or uniformers on upper materials repairing can be done to achieve the desired effect.

To achieve the better performance correct materials should be used. For this reason a shoe

room supper visor should have necessary knowledge about the repairs. Here criteria of

some wide used repairs are described:

Repair Crayons:

From: Stick, discs

Type : Wax based in very soft (lipstick), medium and hard forms,

color.

Method of application: Soft crayons can be rubbed on. Hard crayon melted on with warm

Knife.

Special features:

- Gap filling will not shrink. Used for heavy damage.
- Not suitable for flexible areas.
- Dry instantly on cooling.
- Resin sprays may not stick to repaired

areas. Repair Pastes:

From: Thick paste

Type : Colored resin emulsions(matched if needed)

Method of application: Brush or knife

Special features:

Not gap filing.

- For light damage.
- Can be matched
- Not suitable for flexible areas.
- Dry in 5-20 minutes.

Uniformers, Renovators:
From : Solution or emulsion
Type: pigment, solvent or water borne Method of application: Spray or Brush Special features:

- To even shade of uppers.
- Solvent borne dry fast.
- Can be matched.
- Some water based give a degree of feel. Antiquing product

From: Solution

Cream Ink Type: Solution — Resin/ dry in Solvent.

Cream — coloured, water borne Ink - Resin / dry in Solvent. Method of application:

Solution — Spray

Cream — Brush, sponge or cloth

Ink — Brush or cloth.

Special features:

Solution — Fast dying for resin finished

Cream — For coloring wax edges. Excess should be wiped off resin spray may mat stick.

Ink — For coloring wax edges, wiped of excess immediately.

3.9 Wrinkle chasing:

This operation is done remove wrinkles from the upper by hot air and steam and by ironing steaming. Principles of wrinkle chasing:

- This operation is best done before cleaning.
- It is done with the shoe with last, so that the upper takes up the shape.
- The air is very hot (about 300 c) so care should be taken while doing this operation, Otherwise, over heating can cause burn to the upper.

Filling by base coat:

Filling or base coat application is done to fill and the uppers that have developed an open or hungry look after lasting.

Points about base coat or fillers:

- They act as a base coat for subsequent top dressings.
- They are usually available in black leather and are colorless for other leather colours.
- They are nearly always applied by hand using sponge.
- They should dry out streak free.

Types of base coat or filler:

Three types of filler are used in shoe marking finishing and they are used according to degree of fill:

Types	usage
Light	For light leather finishes e.g. protein
Medium	**For** resin **finished leather**
Heavy .	For leathers **with look**

Top dressing:

This operation is the final and most important treatment. Which gives the shoe its luster

and determines its final appearance.

Success of top dressing:

The success of top dressing rest son:

- Correct and thorough cleaning.
- Compatibility of the dressing the material finish.
- Condition of the upper before spraying.
- Correct application.
- Correct spray gun adjustment.

Types of Dressings and application:

a. Water based:

- Water based dressings are used only on leather and are not so durable as solvent based.
- They are mainly wax emulsions, or blends of wax with resins. They are usually colorless.
- Application: Usually by spray.

b. Solvent based:

- Solvent based dressings from Strang coatings, which are compatible with a wide range
  of upper materials.
- They are fast drying and are based on cellulose derivatives acrylics or polyurethane.
  They can be clear or colored

- Application : by spray.

c. Creams, polishes and waxes:

- These are non film forming and can only impart a semi gloss to the material. However they tend to improve the feel and handle of materials.
- Silicones have been introduced in creams for patents to prevent it sticking to itself as can occur in the shoe box.
- Application : by sponge or cloth allowed to dry and then brushed on a power driver cloth. Further hard work (carnauba) can be applied at this stage by power mop and finally polished on a bristle brush.

d. Clear/polishes:

- These are supplied as gels or creams and contain solvent cleaners and polishing agents with remain on the surface after solvents have evaporated.
- These are very suitable for patents and pu coated fabrics.
- Application by sponge or cloth. After drying it can be polished on a power mop.
- Selecting a dressing system for leather:

Before selecting a system the shoe room supervisor should know:

- The type of finish on the leather.
- The final requirement of the upper in terms of glass and handle.
- The range of commendably available shoe room products.
- If the production is new it is essential to try a range of suitable shoe room systems and select the most appropriate.
- It is not advisable to develop a shoe room system using products from different findings suppliers. Top dressing from the same supplier can usually be intern mixed if they are of same type in order to obtain the correct degree of luster.

Chapter four

Shoe Polishes and Creams

4.1 Polishes:

There are two main reasons for shoe finishes and dressing . The first one is to present to the public with a well finished appearance and there is no doubt that smart, attractive finishing enhances the quality of the footwear . Secondly final dressing of shoes should mask and cover up any small , superficial defects. Apart from this shoe finishes should impart greater durability and increased wear resistance to the shoes, for instance to render greater waterproofness to heels and edges.

Polishes are concentrated mixtures consisting of a blend of waxes, solvents, oils and coloring agents.

(1) Waxes: The function of the wax is to provide a hydrophobic protective film, which can be polished by friction. The types of waxes employed include carnauba wax , candelilla wax, paraffin wax, montan wax and silicone waxes; economic considerations bear heavily on the choice of wax.

(2) Solvents: Solvents are used initially to render the waxes soluble and after application of the polish, evaporate, leaving a film of wax on the leather surface. The solvents will also remove grease etc. from the leather, giving the product a cleansing function. Thus polishes must always be stored in closed containers. The solvents employed are of the hydrocarbon type and include white spirit and related solvents.

(3) Oil: Oils are present in small amounts to act as plasticizes and to feed the leather. They act also as solvents for oil soluble coloring agents.

(4) Coloring agents: Polishes are colored with dyestuffs and pigment.

4.2 Creams:

These are aqueous emulsion of waxes, solvents, oils and coloring materials. They contain emulsifying agents and may be weakly alkaline in reaction. Thus, care should be taken when using them to ensure that the grain surface of the leather is not harmfully disturbed.

4.3 Waxes

These are esters of aliphatic fatty acids with alcohols other than glycerol, te, higher fatty alcohols (monohydric alcohols).

4.4 Classification of waxes:

These are animal, vegetable, mineral and synthetic waxes, depending upon the source. Animal waxes are secreted as protective coatings by certain insects vegetable waxes are found as coatings on leaves, stems, flowers and seeds. Mineral waxes are paraffin waxes obtained from petroleum and such waxes as are yielded by coal, peat and lignite.

(1) Bees wax: This is probably the best known wax. It is made from honeycombs by solvent extraction , expression or boiling in water. The honey combs of the bees is melted and the liquid is strained to remove solid matters. It is then solidified in moulds by cooling. The crude yellow Wax thus formed is refined to white wax by bleaching (either by air or by oxidizing agents such as Hydrogen peroxide and chromic. The crude yellow wax is used in leather dressing, candles, polishes, etc.

(2) Carnauba wax : This wax is obtained from the carnauba palm, which grows in Brazil. The leaves are cut, dried for 3 days and sent to beater house. The drying loosens the wax which can be easily beated from the slashed leaf and it falls to the floor where it is gathered at end of the day and melted. Less than IL of molten wax is filtered through cheesecloth , allowed to harden and sold. A palm tree produce best 90 gm of wax per year.

M.P: 84'c. Uses: Polishes, carbon paper, printing ink.

(3) Spermaceti: It is a solid animal wax obtained as a crystalline solid from the head

cavities of the sperm whale, crude spermaceti is light yellow in color and contains mainly the cetye palnitite, but refined from is a white translucent solid, insoluble in water . It is almost odorless, very brittle and can be readily powdered.

(4) Orocerite: It is the name given to certain naturally occurring mineral waxes . The hard wax is available in a range of colors verifying from green to white, with melting points of 66-78'c. Orocerite wax is composed mainly of Saturated and unsaponifiable hydrocarbons.

Uses:

As paraffin (candles, polishes, cosmetics)

(5) Paraffin wax: These are mineral waxes derived from petroleum They are saturated and unsaponifiable hydrocarbons. Paraffins are the cheapest waxes.

M,P: 50-60'c. Uses: Candles, Polishes, Cosmetics.

(6) Mountain wax: The name mountain wax generally applies to the wax obtained from a bituminous wax , solvent- extracted from bituminous lignite or shale but a similar wax may be obtained from peat or brown coal.

M,P: 75'c. Uses: Polishes, Carbon paper, insulating.

(7) Candelilla wax: It is a vegetable wax harder then bees wax, but not so hard or brittle as camauba wax. Crude wax is brown in colour and may be refined to get light yellow coloured wax.

M,P: 68'c. Uses: Polishes, Candles.

(8)Synthetic wax : Various materials are used to make synthetic waxes. Carbowaxes are high molecular weight polyethylene glycols. They are useful as wax emulsifiers as well as bring waxy themselves. Higher aliphatic alcohol are used as wax substitutes. Other synthetic waxes are produced from fatty acids and amines.

M,P: 60-80'c. Uses: Polishes, Carbon paper, Printing inks.

4.5 Wax polishes:

The wax polish consists of semi-solids, being solution or dispersions of wax in suitable solvent such as turpentine and/or white sprit, and coloured to the required shade. Shoe polishes of this type in various grades can be obtained using a variety of waxes. For a bright polish a large portion of high polishing wax such as carnauba or candelilla is essential, together with a smaller proportion of paraffin or ozokerite type waxes. For black polishes considerable quantity of the naturally occurring black coloured montan wax may be used. The following formulae represent typical examples of black and brown boot polishes:

Black Boot Polish

Carnauba wax — 8 parts by weight

Ozokerite wax — 3 parts by weight

Paraffin wax — 6 parts by weight

Montan wax —8 parts by weight

Bees wax —2 parts by weight

Oil soluble black dye(Nigrosine) — 3 parts by weight

Turpentine — 100 parts by weight

Brown Boot Polish

Carnauba wax — 5 parts by weight

Paraffin wax —22 parts by weight
Bees wax — 6 parts by weight

Turpentine — 50 parts by weight

White spirit —50 parts by weight
Oil soluble brown dye — 0.2 parts by weight

4.6 Wax emulsions:

Wax is emulsified with water to produce oil in water dispersion and this may be of a thin,. creamy nature and can be sold in the shoe trade as fakes, glosses and polishing pastes. It

has the advantage over wax polish as -

I)Ease of spreading and evenness of film formation

2) Greater penetration and better keeping qualities

The lather being the slower rate of evaporation of water compare to organic solvents.

The disadvantages are:

1) It has got lower degree of luster in the final polish and the resulting film being ittle tacky.
2) The polish may be less water resistant.

The reading water dispersible nature of carnauba wax made it suitable for this application.

A typical composition is given below:

Carnauba wax — 13%
Oleic Acid —2%
Triethanolamine —*2%*
Water — 83%

Instead of oleic acid, long chain carboxylic acid, ester or salts such as 3-hydroxy-I ,3,4- pentad cane tricarboxylic acid also are used.

4.7 Other Shoe Polishes:

The improvement in luster and water repellant properties and increased solvent retaining capacity of paraffin wax was obtained by addition of phenol formaldehyde resin and non-oxidized polyethylene wax or high melting synthetic casein . Acid casein gritted with 4-6 parts of vinyl acetate monomer was modified as shoe polishing material. Polyethylene wax mixed with paraffin wax also finds application as shoe polish. Addition of polyethylene siloxane and other siloxanes increases the water resistance of these shoe polishes. Antarctic polypropylene, a byproduct of isotactic polypropylene, can be used in place of paraffin wax in making shoe polishes. A typical composition is given below:

Polyethylene —8-15% Paraffin wax —20-30% Butanol —0.8-1.0%

Steric acid—0.8-1.0

White and/or Turpentine —53-70.4%

In all shoe polish formulations 0.05-0.07% of sodium pentachlorophenate is added as a fungicide. The shoe polish composition that does not require wax to provide a high luster with better water resistance than wax based polishes can be made in the following composition:

Polymethyl methycrylate	20 parts
Butyl cellulose	8 parts
Diacetone alcohol	I part
Water	71 part

1,2 polybutadiene in an organic solvent such as cyclohexane and xylene containing gasoline and silicone oil can also be used as a shoe polishing material poly(2-hydroxy ethye methacrylate) either alone or copolymer of poly (2-hydroxy ethyl methacrylate with butyl methacrylate) in the ratio of 80:20 can also be used as a shoe polish.

Chapter five

Dressing

5.1 Definition of Dressing & Application:

Of all the finishes or coatings used on upper materials, those present on leather are the most varied. The ideal Shoe Room 'treatment for one leather may be disastrous for another.

Some simple tests (Table 1) are available to help Shoe Room supervisors identify the basic finish types, select the right dressing system and avoid problems of incompatibility between the leather finish and the dressing. Table 2 shows a simple scheme for identifying the different types of finish.

TOP DRESSING

This is the last dressing applied to the shoe upper before boxing. It p the final feel and the required gloss or lustre and may be applied by spray, sponge, brush or mop.

Type	Base	**General**
Water-borne spray	Wax. Wax and Shellac, Acrylic resin, Nitrocilulose, Polyurethane	Non flammable, slow drying. **Some may contain Solvent.**
Solvent-borne spray	NitroceHulose,	**Flarnmabte.** fast **drying, water resistant, film forming** miscible with metallic or pearised finished
Water-borne creams	Wax **with** resins or silicone	**Non-Film forming: Often dry-bright or self-sh Sfick** feel.
Polishing wax	**Hard** wax	**Good gloss developed mopping or brushing, Non-film forming.**

- borne sprays

Nitrocellulose, A resin, Polyurethane, other cellulose resins flirt, ?oimlng, mishbje wfth metallic or pearlised fin

5.2 DRESSING: TYPES AND APPLICATION

* This operation is the final and most important treatment, which gives the shoe its lustre and determines its final appearance.
* The operation is known by various other names depending on the way it is applied:-
Top dressing Spraying
Top spraying

* The success of this operation rests on: Correct and thorough cleaning compitibility of the dressing with the material

Finish

Condition of the upper before spraying Correct application

Correct spray gun adjustment and technique.

TYPES OF DRESSINGS & APPLICATION

(a) WATER BASED.

Water based dressings are used only on leather, and are not so durable as solvent based

types. They are mainly wax emulsions, Or blends of wax with resins. They are usually

colorless.

APPUCATION : Usually by spray

(b) SOLVENT BASED.

Solvent based dressings form strong coatings, which are compatible with a wide range of upper materials. They are fast drying and are based on cellulose derivatives, acrylics or polyurethane. They can be clear or coloured, are available in a wide range of lustre from matt to high gloss.

APPLICATION :by spray

C) CREAMS, POLISHES AND WAXES.

These are non-film forming and can only impart a semi gloss to the material. However, they do tend to improve the feel and 'handle" of materials. Silicones have been introduced in creams for patents to prevent it sticking to itself as can happen in the shoe box.

APPLICATION: by sponge or cloth, allowed to dry and then brushed on a power driven cloth mop. Further hard waxes (carnauba) can be applied at this stage by power mop, and finally polished on a bristle brush. Spraying is not necessary.

(d) **CLEANER/POLISHES.**

These are supplied as gels or creams, and contain solvent cleaners, and polishing agents, which remain F on the surface after the solvents have evaporated. These are very -suitable for patents and PU coated fabrics, and have the advantage of giving an acceptable semi-bright finish without having to spray. APPUCATTON: by sponge or cloth. After drying it can be polished on a power mop.

5.3 SPRAY GUN ADJUSTMENT

On most spray guns for top spraying, the following adjustments are available:

(a) MATERIAL FLOW.

Usually a screw adjustment which controls the amount of liquid being sprayed when the trigger is fully depressed.

(b) SPRAY PATFERN.

On some guns the shape of the spray-pattern can be altered between round and oval. "Pear drop" and "banana" shapes are incorrect and are likely to lead to uneven coverage.

(C) SPRAY PATIERN POSITION.

This is important on oval spray patterns, which should be vertical.

AIR PRESSURE

NOTE that air pressure is not controlled on the gun, but usually on an air transformer somewhere close by.

5.4 **SPRAYING TECHNIQUE.**

A technique should be developed to obtain an overall even coat of the dressing, without Streaks, runs, misted or rough finish. The following are some factors that are important:-

(a) CHECK SPRAY PATTERN.

The spray pattern should be checked by momentarily spraying on a piece of waste material such as cardboard held square to the gun. Uneven patterns are usually due to obstructions or damage at the fluid tip.

(b) CHECK AIR PRESSURE TO THE GUN.
This should be 2.8-3.5 Bar (40-SO psi).
(c) HOLDING THE SHOE.
For shoes, it is best to put the hand inside. The hand is used to present the shoe at the correct angle (not to move it past the gun). The hand will protect the inside of the shoe from over A glove should be worn for protection. On boots, the hand can be put inside the leg.

Some operatives hold the top of the heel, but there is danger of leaving marks on successive shoes from the accumulation of over-spray on the thumb and fingers. The shielding effect of finger and thumb to the over-spray can also leave noticeable areas on the side of the heel.

(d) ATTITUDE TO, AND DISTANCE FROM THE SHOE,

The nozzle of the gun should be kept square to the upper surface, and at a distance of 30 cm (12) at all times. The fluid flow should be adjusted to give sufficient dressing to "wet out without causing runs.

e) SPRAYING THE SHOE

Various methods are practiced, and the best seems to start at the toe, move along the feather, up the back seam, along the top-line, over the instep, along the other side top-line, down the back seam, along the feather to the toe, and up the centre of the vamp to the top of the quarters (see diagram)

The gun must be moved with one hand, whilst the other presents the shoe in the right attitude. The spray should be started and finished JUST OFF the shoe, and must be KEPT MOVING AT A CONSTANT SPEED over the surface.

DRYING.

Once spraying is completed, very great care must be taken to avoid touching the wet surface, or allow anything to come into contact with it until it is thoroughly dry.

5.5 FAULTS WHICH OCCUR IN SPRAYING.

TYPE OF FAULT	POSSIBLE CAUSE
Mist or fog	Dressing is too thin. Air pressure too high. Gun held too far
Uneven finish (orange peel effect)	Poor cleaning. Wrong air pressure. Wrong gun distance. Wrong thinners used (if diluted in factory) Contaminated dressing. Air hose contamination (disturbing applied dressing)
Rough finish	Insufficient fluid feed. Gun too far away. Too high a spraying pressure
Streaks	Uneven spray pattern. Gun not square to
Runs or snags	Dressing too thin. Too much dressing applied. Gun not square to work. Working too slowly over the surface
Splatter on starting	Air valve activator wrongly adjusted. Broken needle spring. Foreign body in fluid tip
Air Leakage from gun	Dirty valve seat. Worn valve seat. Broken spring. Lack of lubrication on valve stem.
Fluid leakage	Worn or damaged fluid tip or needle. Dirty fluid tip. Wrong size needle.

The treatment of leather upper.

LEATHER FINISH	CLEANING	FILLING	REPAIRING	DRESSING
RESIN	solvent or water based cleaners. May be hand or machine cleaned.	Water& Solvent based fillers available, Not	Use wax crayons or pigment pesters for scratches and scuffs. If only the finish is damaged use uniforms or enovators	Solvent and water based are suitable . If finish is filled water based dressings are best. Creams are also available.
ANILLINE	Mild water based cleaners,	Not usually necessary but special fillers are	Can be very difficult, Special aniline repair sticks are available.	water based keep dressing quantity to a minimum. Wax emulsion, ion polishes may be applied by hand or brush.
PATENT	Solvent based	Not	Solvent	No top dressing
PVC	types besy. Special cleaner polishes available,	necessary	based repairers or renovators are available, Repairers usually only effective in non flexing parts of the shoe.	necessary. Creams or special cleanerlpolishes are available if required

PROTEIN	Water and solvent based are suitable although water based may remove some of the colour,	Water based preferred. Special base	As for resin	Water based dressings preferred. When special base coats are used (see filling) solvent based can sometimes be used.
EASYCARE (e.g. scuttresistant)	Solvent based	Not necessary	Solvent based Preferred but. may be difficult (as with patents)	Solvent based dressings are preferred or poryurethane based materials. Creams are also suitable. Little dressing should be required.
RUB-OFF	Solvent based or sometimes stronger cleanersare	Not necessary	As for resin using color similar to original rub-off	Solvent based preferred. Sometimes top dressing may not be necessary." Creams or waxes often used.
SUEDE	Brushing	Not necessary	Suede dyes are suitable to match shade.	Colored sprays are available. Water proofing sprays are also available.

THE TREATMENT OF SYNTHETIC (MANE — MADE) UPPERS

ITSYNTHETIC MATERIAL	CLEANING	REPAIRING	DRESSING
POLYVINYL CHLORIDE (P.V.C) COATED FABRIC	Solvent based preferred. Special cleaner/polishe $ are available Hand cleaning	Some hard repair sticks are available solvent based repairers should be used. Repairing is difficult.	Solvent based dressing are available but are not usually necessary. Creams! cleaners polishes for general cleaning and finishing are available.
POLYURETHANE COATED FABRIC (P.U.C.F)	As for PVC	Not usually possible.	As for PVC
PROMERIC	As above	Solvent based renovators and repairers should be used. Repairing difficult.	Solvent based dressing are generally used but some water based dressings are available creams/cleaner polishes usually adequate.

5.6 SELECTION OF DRESSING SYSTEM FOR LEATHER

Before selecting a system the Shoe Room supervisor should know:

- The type of finish on the leather.
- The final requirements of the upper in terms of gloss arid handle
- The range of commercially available Shoe Room

products. The product is new it is essential to a range of

suitable

Shoe Room systems and select the most appropriate.

Chapter six

Sequence of finishing

6.1 Sequence Of Shoe Finishing

I. Heel Paring
2. Heel Scour (Rough and
3. Edge Pare
4. Heel Scour (Superfine)
5. Stain Heels
6. Smooth Heels
7. Gum Heels
8. Ink Edges
9. Edge Set
10. Naumkeag
11. Bottom Polish
12. Heel Burnish and Seat
13. Clean Uppers and Welts
14. Slip Lasts

1. Heel Paring

The purpose of this operation is to remove any excess material from the heel and to impart to the heel its required shape. This is carried out by a pair of eliptical cutters set into a feed plate, traveling at 6000 - 7000 r.p.m. Guards and guides are fitted to the machine to allow the heel to be fed at a pre-determined position. Because of the variety of materials used it is vitally important that the cutters are regularly sharpened; a special machine is provided for this purpose. A rending cutter is used to trim the seat portion.

The correct result must be: -

(a) Heel to be correctly shaped.
(b) Cleanly pared from heel corner to heel corner.
(c) No bumps or hollows.

(d) Not to be pared more than 1/32 inch into top piece.

(e) No damage to upper.

(f) Heel seat to be cleanly randed.

2. Heel Scour (Rough and Fine)

Abrasive bands are fitted to revolving rollers which scour the heel in progressive stages, first roughly and then finely. The heel is positioned to the roller which is generally fitted with a width guard and\ fed against the roller. Rough scouring removes any knife marks from heel paring while fine scouring removes any deep scratches from rough scouring: Burning or charring may occur if too great a pressure is exerted. Care must be taken to avoid damage to the upper.

The correct result must be:

(a) Heel to be scoured from corner to corner

(b) Heel to be correct shape

(c) Heel to be smooth - no scouring marks

(d) No damage to upper

(e) No charring on upper

3. Edge Paring

This is an important Operation in that it can make or mar the appearance of toe finished shoe. The operation consists of removing excess material from the sole edge to produce a uniform sole shape. High speed rotary cutters are used having various profile shapes according to the style of edge required on the sole.

Maintenance of the correct cutting angle and the sharp cutting edge are fast ore most important. Most leather sole edges are first pared dry, then wetted with a special fluid and pared again. This serves to lay down the leather fibers produces a much smoother feather edge.

The correct must be: —

(a) sole to be correct shape
(b) Angle of edge to be correct
(c) joints to be in correct position

(d) Edge pared complete to heel corners
(e) Edges smooth - no burning or charring
(f) Edge distance as specified
(g) No damage to uppers

4. Heel Scour (Superfine)

This operation is the same as the previous heel scouring using a superfine abrasive, usually emery. This ensures that the heel lines up accurately with the waist of the sole.

5. Stain Heels

A coat of water based edge finish (as used for sole edges) is applied by bristle brush around the seat area of the heel. This is followed by an application of a spirit based finish by camel hair brush. This serves to swell the fibres of the heel and give an adequate base for later heel finishing operations.

6. Smooth Heels

This is carried out in the same manner as heel scouring but using either a worn superfine abrasive or turning the abrasive over to use the cloth backer. This serves to key the finish into the heel to improve its waterproofing properties and to give it a semi-polished appearance.

7. Gum heels

A cost of spirit veneer is now applied to the heel by camel hair brush. This must be applied smoothly and allowed to dry to prepare the heel for the later operation burnishing.

8. Ink Edges

A water based edge completely and evenly covered with ink, but there must he no ink on the upper, sole or any stitching.

9. Edge Set

This machine has four heads mid can be used by two operators. Each head carries a heated oscillating iron which has an identical profile tm that produced by the earlier operation of edge paring. The oscillating action of the heated iron melts the previously applied wax and forces it into the fibres of the sale edge. This consolidates the edge increasing its water resistance, and gives the polished appearanceThe correct result must be: —

(a) Edge to be completely and evenly set
(b) No burns
(c) Sole edge profile welt defined d)
No wax on uppers

(e) Joints correctly positioned
(f) Glossy appearance

10. Naumkeag

The machine consists of a rotating inflatable rubber pad, covered with a fine grade abrasive disc. This removes the grain surface either over the whole area of the sole or around the edge, according to requirement.

Care must be taken to prevent excessive removal of the grain otherwise the appearance may be marred.

11. Bottom Polish

A finish may be applied by brush or spray gun, allowed to dry and their wax polished on a revolving linen mop and soft hair brushes.

Alternatively a friction wax may be used which colours the sole and impregnates the surface. This also requires wax polishing black sole bottoms require an additional operation of burnishing with a leather pad before polishing.

12. Heel Burnish and Seat Wheel

There are two alternative methods of heel burnishing

(a) Cold Wax Burnishing

A block of finish wax is applied to a revolving pad consisting of closely peaked section of material. The pad provide polish which is then followed up by a final treatment with a camel hair brush.

(b) Hot Wax Burnishing

The machine is fitted with a heated wax pot above a cotton covered pad. Hot wax is dripped onto the pad as required. The heel is held against the pad to apply a coat of the melted wax. An identical pad is then used to give the burnishing treatment followed by brushing to produce a high gloss finish.

The seat wheeling is carried out on a rotating wheel of which the lip is a fixed member, whilst a row of teeth free-wheel. The seat portion of the heel is applied to the wheels to produce indentations around the edge of this area, while the lip serves to iron the top edge to ensure a complete line up with the edge setting of the sole.

13. Clean Uppers and Welts

Surface dust is removed from the upper by brushing on rotating soft brushes. A tapered stiff bristle brush is used to remove dust and wax from the weLt and sole edge.

14. Slip Lasts

The last is slipped from the shoe making sure that all lacing strings or gusset stays have

been removed and buckles loosened.

There are many variations to this sequence which will be applied to suit the needs of the

construction and soling materials.

The shoes are now ready to go into the Treeing department.

6.3 Quality control procedure of shoe finishing

For the quality control procedure of shoe finishing the following attempt should be maintain:

1. At first the quality controller should not received the faulty shoes which can not be removed in finishing.

2. Sock lining should be inserted properly. Size of sock lining should be same to the shoe size. No wrinkle is allowed in sock lining and it is essential that the lining of the shoe should be kept clean when inserting the sock after painting.

3. Cleaning is done very carefully. A small blunt knife is used to scrap away any dried ink, crepe rubber is rub off smoothly to remove any adhesive, proper amount cleaners is used to remove any marks.

4. Ironing should be done in proper temperature. It should be between 60-75"c for high temp. Ironing teflon tape must be used. The purpose of this operation is to iron or hot blast the shoe whilst it is held on a shape identical to the original last, so that no distortion may appear in the shoe as it is prepared for the final process of boxing up.

   Care must be taken to smooth out the leather and not to strival it up. The hot blast also needs particular care in operation to prevent scorching ,as if the blast in too fierce not only until the leather be burnt but the upper stitching and probably the finish of the heels and edges also rewind . Edge inking should be done properly.

5. In the case of dressing the condition of sponge itself is of fine texture, if there large holes an uneven flow will result from the sponge and unsightly streaks will show. It must also be thoroughly clean. It is obvious that in the general application

by spray, the dressing must be colourless, otherwise the linings and edges will become stained.

6. The best results are only obtained by using the spray carefully and by moving both the shoe and the gun in the correct way.lt is also of the greatest importance that the air pressure to the gun is maintained at between 50 to 60 lb/sq in for general upper spraying.

7. The shoes must be submitted for a final examination before boxing. Any damages to the upper must be repaired if possible or the shoes rejected or returned to be pulled up and put in order.

8. After the final examination and repairing the shoes are given a last polishing up of the edges and bottom which may have become slightly dulled during the various repairing process. For the quality control of a shoe the above attempt should have to be maintain. If we follow above mention it is sure that the shoe will be a quality full shoe.

The success of shoe finishing is due to the care that has been taken to ensure accuracy at all stages of the shoe making from pattern making to the finishing.

6.3 TEST OF FINISH FILM

Bond Strenath Between the leather surface and the finish film Bond Strength Between the Leather Surface and the Finish Film.

The anchorage between the finish film and the leather surface and between the individual finish coats can be tested in two ways:

1. Adhesive Tape Method:

A strip to adhesive tape of approximately 50 mm length is pasted to the finished leather surface in such a way that 10 mm length of the tape remains outside the leather. The 40 mm length of the tape is rubbed several times with finger on the leather surface so that the tape is nicely pasted to the leather surface without any air bubble inside. After 15 seconds, the type is stripped off holding the 10 mm long free end. No finsh should adhere to the tape Id the bondage between the leather surface and finish film is strong and satisfactory.

2 Wet and Dry Rubfastness

It is actually a test for the finish film and not for the leather. The German Standard, DIN 54021. specifies a method by the Krais" tester or veslic in which a white felt at a force of 1 kg load moves back and forth on the finish side of the leather through a distance of 10 cm. The felt may be dry or wet. In SATRA instrument the circular dry felt at a feud at 2.5 kg rotates on the finish side of the leather and in the Case of wet felt the load is only' 0.75 kg. In both the cases the stained felts are compared with the grayscale. In the case of white leather the colour of the felt should be dark blue or black but never white.

3 Resistance to Solvents

During the manufacture of Shoe and many types of leather articles the non-aqueous adhesive- is sometime applied to the unfinished flesh side of the leather. The solvent of this adhesive may reach to the finish film through the leather. Sometime 'the cap stiffeners are dipped in solvents to soften or render them moldable. So leather finish should have sufficient resistance to solvents. The number of Solvents are vast and most of them are esters, ketones alcohols, chlorinated hydrocarbons, benzene and its substituted products etc. Useless and otherwise stated the resistance of leather finish film to solvents is determined for acetone and tricolor ethylen.

Nearly one cc. of the solvent is slowly applied to the Un finished flesh side of the leather with the help of a burette. The leather is then turned upside down and kept in that condition for one minute at room temperature. Finally dry Rubfastness test is carried out on the grain side of this leather either in SATRA or Veslic machine. Both the pad and the leather (after drying) are compared with respective grey scales.

4. Resistance to Water Stain (water spot)

If the finish surface of a leather, particularly protein glazed leather (like glace kid), receives a drop of water and the latter dries up on the leather surface a special type of water stain may be formed. The stained area generally becomes mall and, dull, water spot generally noticed when the shoes or glazed leather goods come in contact with rain drops and the water dries up on leather.

To test this resistance a drop of water is put on the finish surface of the leather and allowed to dry overnight. If any stain is developed then stained area is rubbed with a soft cloth. If the stain IS not removed small quantity of colorless shoe polish is applied there and again rubbed with a soft cloth, if the stain does not go out this time also, the leather should be considered of poor water-stain resistance.

5. Resistance to dressing agents

The actual compositions of shoe dressings are not generally disclosed by the shoe manufecturers but most of them are based on any one of the following three colorless emulsions- So this test is carried out with these emulsions one after another.

(a) A water-free solvent containing wax dressing

b) A nonionic wax emulsion containing solvents and water.

(c) A solvent free aqueous, nonionic wax emulsion

To carry out the test, the emulsion is applied on the finish sides of two pieces of leather with finger. The surface of one piece is then immediately rubbed with a dry linen cloth either by hand or in fastness taster (ten times in the krais tester) and the surface of the second piece is rubbed in the same manner after 30 minutes when the solvent of the

emulsion has evaporated out. The linen clothes for both the leather pieces are then examined for stain development and compared with, the grey scale.

6.4 Result of the test:

a. Bond strength between the UR surface and the finish film:

Bond strength good. As no finish should adhere to the tape, so the bondage between the leather surface & finish is strong & satisfactory.

b. Wet & dry rub fastness:
Gray scale rating: 3

As the gray scale rating 3 it shows good wet and dry rub fastness property.

c. Resistance to solvent:

Gray scale rating 3. Resistance to solvent is satisfactory.

d. Resistance to dressinfi agents:
Gr ayscalerating—%.

e. Resistance to water stain:

As the stain is go out by rubbed with a soft cloth, the leather should be considered of good stain resistance.

Conclusion:

Quality is most difficult to assess as there are so many standards of quality and the work of one distinct would not be accepted by another. However quality is decided upon there should be some attempt made to maintain that standard and the departmental head will have to be vigilant to detect any lowering of the standard quality must also affect output. Clearly, all shoes cannot be of high standard but for too much quality has been scarified for Increased output.

In my project work I try to focus briefly the effect of shoe finishing that improved the show quality. Shoe finishing due to some limitation of facilities and insufficient time I did not get opportunity to study more about this. So I think it should be more studied.

Finishing procedures deal with the materials and processes used in the final stages of production. In fact, finishing impart further value to the shoe by improving the aesthetic appeal and promoting brand loyalty. It has a special place in quality control as it provides the fore dispatching.

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