

COMMON WOOD FINISHING PROBLEMS



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PROBLEM SOLVING

Should finishing problems occur, a careful investigation should be made for the purpose of determining the exact cause of the problem. Every factor that may have a bearing upon the finishing or coating operation from the wood or surface on through to the finishing coats should be taken into account. To solve problems, consider the following factors which impact the end result of your finishing operation.

1. Type of surface
2. Preparation of the surface.
3. Type and brand of washcoat and sealer.
4. Type and brand of stain or filler.
5. Type and brand of thinner used.
6. Percentage of material reduction for each coat.
7. Type and brand of topcoats.
8. Method of Application.
9. Drying time between coats and method of drying.
10. Number of coats in each operation.
11. Mixing procedures of material prior to application.
12. Appearance of the goods in the package.
13. Shop conditions.
 - a. Cleanliness
 - b. Atmospheric conditions, shop temperature and humidity both in application area and drying area.
 - c. Knowledge of finishing practice.
14. The manufacturing dates, product identification numbers or reference and other identification marks stamped on the packages of the material in question.

The usual causes of trouble are: An unclean surface, insufficient drying time for each coat, sealing in moisture, failing to stir the material thoroughly, and unfavorable shop conditions. Make sure the environmental conditions, ventilation, temperature and humidity are suitable to insure proper application. Check the spray equipment to make sure that the gun and compressor are working properly and that neither oil nor moisture is passing through the air of material lines.

COMMON WOOD FINISHING PROBLEMS



BLEEDING

Cause	Remedy
A. Organic red pigments or various dyes used in stain or undercoats and have not been sealed.	A. Best remedy is to avoid use of bleeding colors. Where bleeding colors have been used, a vinyl type sealer usually tends to seal the bleeding better than lacquer sanding sealers.

BLISTERING

Cause	Remedy
A. Sometimes strong solvents tend to react with the preceding coat. Also air or gasses in film can be trapped as it dries due to temperature, air movement or fast solvents being used.	A. Be sure that the undercoats are thoroughly dry. Use recommended primer. Use thinner with weakest solvent strength which will still act as a steady diluent. If you are using heat lamps or oven drying be sure adequate flash off time is used before putting finished part in oven.
B. Butyl cellosolve used as a retarder.	B. Butyl cellosolve is a heavy solvent. If too much is used, it will sink to the bottom of the film. If top of film skins over before complete film drying, then solvent pop can occur.

BLUSHING

Cause	Remedy
A. A combination of factors tend to cause blushing: Humid weather, drafts, poor thinner (too hot), lacquer sprayed when cold, damp spray rooms (generally concrete floor at ground level), and moisture in spray equipment.	A. Likewise, a combination of factors may be used to remedy the difficulties: Add up to 13oz. per gallon of slow evaporating lacquer reducer like M.L. Campbell C161 1 Lacquer Retarder. Retarder should always be added to solvent lacquers when humidity is over 50%. Humid weather: add retarder to thinner or use a higher quality thinner. For drafts find source. Bring the lacquer to room temperature. Blushing caused by condensation of water and subsequent evaporation from cold spray rooms can be avoided by warming up the room. Film has a white haze in areas. The film has dried too fast and entrapped.

BRITTLENESS

Cause	Remedy
A. It is often difficult to differentiate between "lack of adhesion" and brittleness when evaluating film failures. Other than inherent brittleness or lack of adhesion in a finish, the cause for either difficulty will be the same.	A. See "Lack of Adhesion".

BROWN SPOTS

Cause	Remedy
A. Oil coming through "separator" of supply line.	A. Cleanliness. Bleed the line at least once every shift, or every eight hours.

BUBBLES (On open pore wood)

Cause	Remedy
A. Air, gas or vapor is entrapped in the pores of open- grain wood (oak) and the finish dries before bubbles can dissipate.	A. Apply a thin, wash coat of sealer (5 to 1 reduction) as a first coat. Bubbling is a difficult problem that seem to be related to the quality of the wood used and its occurrence is very spotty. A retarder (slow solvent) can also be used to slow the drying. Bubbles can be caused by air leakage in a gun or a hose.

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BUBBLING OF COATING (Water Borne)

Cause	Remedy
A. Temperature too high for application.	A. Lower temperature. Use flow additive.
B. Air pressure too low.	B. Increase air pressure and use smaller gun tip to improve atomization.

CHANGES IN LUSTER DURING APPLICATION

Cause	Remedy
A. After several hours of application, the material will dry to a lower luster than when the application started.	A. Stir material thoroughly at the start of the job being sure all flattening agent is well distributed. Thoroughly stir low solids products and stains before and during the application process. Finish must be removed

Note: The more coats applied to a piece, the smoother the finish will be. The smoother the finish is, the glossier the finish will look, optically, due to light reflectance.

CRACKING OR CRAZING OF FILM

Cause	Remedy
A. Excessive coating weight can cause cracks and checks in the film when aging (first twelve months). Excessive coating weight is not usually a problem with nitrocellulose lacquers but it is critical when using acid catalyzed products like pre-catalyzed lacquers and catalyzed varnishes.	A. Use a wet mil gauge during application. Follow manufacturer's recommendation for the number of coats and wet mil application per coat.
B. Mud cracking.	B. Occurs when latex is applied in excess film thickness or encounters air too soon after application.

NOTE: Normally 4 to 5 dry mils, after sanding is recommended for proper coating weight. Film cracking can be identified by cracks across grain. Cracks that run with the grain indicate substrate cracking.

CRATERING (The formation of small depressions in the coating)

Cause	Remedy
A. Cratering (crawling) is the tendency of a wet film to crawl away from certain areas of the substrate. Cratering is caused by contamination of the surface, equipment or coating with silicon, wax, oil or other contaminants. Cratering is a prevalent problem in refinishing shops.	A. Locate source of contamination and eliminate it. Check wipers, belt dressing, lubricating greases, oils, hand creams, metal and wood polishes, etc., as possible sources.
B. Old work (refinishing).	B. Add an anti-cratering additive (silicon) to the finish as a last resort. Caution: Anti-cratering additives will contaminate all equipment.

DELAMINATION OF FINISH OVER STAIN

Cause	Remedy
A. Clear finish is peeling or shows poor adhesion and when removed, finish shows stain adhering to the back of the chip.	A. This usually occurs when the finisher is trying to obtain a very deep stain color such as a mahogany or a white white. The application of too heavy of a coat of stain without wiping can leave a loose surface film of pigment. When the clear coat is applied over the pigment, it only adheres to the pigment and does not have good adhesion to the wood, therefore leading to peeling. Dark stain color should be obtained by using toners as a first coat before stain application. All heavy application of stains should be wiped before finish is applied. In addition, stain should be allowed to dry the time recommended by the manufacturer.

COMMON WOOD FINISHING PROBLEMS



DIRTY OR SEEDY FINISH

Cause	Remedy
A. Unclean conditions of application areas: 1) Dust in paint room.; 2) Dirt in air or paint line of spray application.	A. Cleanliness. Rearrange equipment so that any spray dust from booth does not reach drying chambers.
B. Improper solvent which tends to throw resin out of solution.	B. Use the proper recommended thinner.
C. Material has been subjected to extreme cold which tends to throw some particles out of solution.	C. Allow materials to reach 75°F.

NOTE: Always check coating with a magnifying glass to be sure there is dirt in film instead of small air bubbles. Pour coating on a clean surface like glass to assure finish is not seedy or has dirt in finish. Let it dry in a dust free area. Any contamination will show up when glass is held up to light.

DISCOLORATION

Cause	Remedy
A. Presence of foreign vapors/fumes.	A. Investigate the nature of vapors which might be present. It will then be necessary to shield off the vapors from contact with the finish.
B. Water borne coatings will rust steel parts or oxidize aluminum in application equipment and can contaminate coatings.	B. Change to stainless or plastic parts.
C. Improper drum liner.	C. Make certain correct liner is being used.
D. Using old nitrocellulose products.	D. Nitrocellulose finishes tend to amber in color as they age, even in a closed container. Always use as fresh material as possible.
E. Tannin bleed when using water borne coatings.	E. Use stainblocking undercoater as first coat to stop tannin bleed.

EXCESSIVE BODY (Material too thick)

Cause	Remedy
A. Any material which will dry in the presence of air at normal temperatures will tend to take on body. This occurs by virtue of the evaporation of solvent (oxidation) which takes place.	A. If body of the material has not proceeded to the point where there is living action, it is often possible to bring the thickened particles back into solution. Addition of a stronger solvent of the same general type or class should accomplish this task.
B. In the more advanced stages of oxidation, a living action often occurs. This is aggravated by the too swift addition of extra thinner. It should be remembered that thinner should always be added slowly and the mixture stirred at the same time.	B. If a definite living has occurred, it is not easily feasible to reclaim the material. A sample should be obtained for evaluation.
C. Use of improper solvent.	C. Use recommended thinner.
D. Freezing (Water Borne).	D. Store inside or above 32°F. If material has freeze/thaw stability, do not agitate material when frozen. Allow it to return to the unfrozen state undisturbed.

NOTE: Primary causes of excessive bodying are: use of old material, improper handling of dip tanks or mishandling of other storage facilities. A method for keeping all storage tanks tightly sealed should be arrived at and carefully adhered to.

EXCESSIVE MARRING

Cause	Remedy
A. Film not completely dried.	A. Allow for more complete air drying.
B. Cold application (Water Borne).	B. Most water borne coatings will not coalesce below 50°F–60°F. Film that has not coalesced properly will be powdery or exhibit very poor film integrity.
C. Cold drying area (crosslink/catalyzed coatings).	C. Catalyzed coatings, drying area should be 68°F–70°F minimum. If not then cold cure (improper crosslinking) can occur.
D. Catalyzed finishes used too quickly after application.	D. Catalyzed finishes reach 90% of their hardness within 24 hours. They then take 15-25 days to reach final cure. If used in harsh environment (i.e. restaurants, schools), then allow 5-7 days curing before use.
E. Catalyzed finishes or precatalyzed finishes used after shelf life or pot life has expired.	E. Follow manufacturer's usage schedule for pot life or shelf life.

COMMON WOOD FINISHING PROBLEMS



EXCESSIVE MATERIAL USAGE

Cause	Remedy
A. Not triggering the gun at each stroke.	A. It should be a habit to release trigger after every stroke.
B. Gun held at wrong angle to surface.	B. Hold gun at right angle to surface.
C. Gun held too far from surface.	C. Work gun 6 to 10 inches from surface.
D. Wrong air cap or fluid tip.	D. Use correct combination.
E. Depositing material film of irregular thickness.	E. Learn to calculate depth of wet finish film.
F. Air pressure too high.	F. Use least amount of air necessary.
G. Fluid pressure too high.	G. Reduce pressure.

EXCESSIVE SETTLING

Cause	Remedy
A. Over reduction or improper thinner.	A. Follow thinning instructions.
B. Too rapid thinning.	B. Add thinner gradually, stirring constantly.

EXCESSIVE SPRAY FOG

Cause	Remedy
A. Wrong solvent blend.	A. Usual remedy is to choose a slower evaporating thinner.
B. Atomizing air pressure too high.	B. Use least amount of compressed air necessary.
C. Over reduction of material.	C. Use less reduction. Add fresh material to that which has already been over reduced.
D. Gun held too far from surface.	D. Hold gun at proper distance, usually 6-10 inches, from work.
E. Spraying past surface of the product.	E. Release trigger when gun passes target.
F. Wrong air cap or fluid tip.	F. Ascertain and use correct combination.
G. Fluid pressure too low.	G. Increase fluid pressure.

FINISH PRINTING

Cause	Remedy
A. Insufficient drying time.	A. Allow longer air drying.
B. Too heavy a coat.	B. Apply lighter coats.
C. Slow drying or poor drying conditions.	C. See reference to non-drying or poor drying.
D. Improper coating selection.	D. Check with your coatings supplier for proper selection.
E. Improper catalyzation.	E. Check with your coatings supplier for proper catalyst amount.
F. Catalyzed material past pot life.	F. Follow manufacturer's recommended time for pot life.
G. Catalyzed material dried in a cold area, less than 70°F (cold cure).	G. Make sure drying area is 70°F minimum.

FINISH SANDING NEW WOOD

(Before applying stain or clearcoats on closed grain hardwoods: Maple, Birch, Beech, etc.)

- * Finish sand with fresh 120-150 grit paper, be sure sanding belts are not worn.
- * Thin first coat 10-15%, or use a vinyl sealer as first coat.

NOTE: It is important on closed grain hardwoods that there is a good wood profile for the first coat of finish to be anchored to.

FLAT SPOTS

Cause	Remedy
A. An absorbent-type putty used that has not been sealed in, causes the topcoat to strike in.	A. Seal the putty.
B. Oily or dirty surfaces.	B. Provide clean finishing surface.

COMMON WOOD FINISHING PROBLEMS



FOAMING (Water Borne coatings)

Cause	Remedy
A. Agitation too rapid.	A. Reduce the amount of agitation.

GUN SPUTTERS CONSTANTLY

Cause	Remedy
A. Fluid tip not tightened to spray gun.	A. Tighten securely, using a good gasket.
B. Leaky connection on fluid tube or fluid needle packing (suction gun).	B. Tighten connections and lubricate packing.
C. Lack of sufficient material in container.	C. Refill container with material.
D. Tipping container at an acute angle.	D. If container must be tipped, change position of fluid tube and keep container filled with material.
E. Obstructed fluid passageway.	E. Remove fluid tip, needle and fluid tube then clean.
F. Material too heavy (suction feed).	F. Thin material.
G. Clogged air vent in cup lid (suction feed).	G. Clean.
H. Dirty or damaged coupling nut on cup lid (suction feed).	H. Clean or replace.
I. Fluid pipe not tightened to pressure tank or pressure cup cover.	I. Tighten and check for defective threads.

HAND MARKS/FINGERPRINTS ON FINISH COAT

Cause	Remedy
A. Oily hands in contact with finish during sanding operation.	A. Employees should, prior to sanding, clean hands thoroughly or wear gloves during the sanding process.

HAZE

Cause	Remedy
A. Incorrect thinner (not necessarily an inexpensive one).	A. Use the correct thinner as recommended by the manufacturer of the lacquers.
B. Over catalyzation of finish.	B. Finish must be removed.

NOTE: Both blushing and haze can almost always be removed on finished articles by spraying retarder thinner over the affected parts if it is not caused by over catalyzation.

LACK OF ADHESION BETWEEN COATS

Cause	Remedy
A. Stain or topcoat not recommended to use together.	A. Use proper system. A total system from one manufacturer is always recommended.
B. Primer surface may have picked up contamination.	B. Clean surface. Apply the finishing coat in recommended sequence.
C. Stain coat not wiped.	C. Always wipe stain coat to remove excess pigment.
D. Stain coat not dry.	D. Always allow stain coat to dry to manufacturer's recommendation.
E. Catalyzed finishes allowed to dry too long between sanding and recoating.	E. Always sand catalyzed finishes within eight hours of recoating.

LACK OF FLOW

Cause	Remedy
A. Insufficient reduction.	A. Reduce according to instructions.
B. Use of solvents with high evaporation rates.	B. If fast evaporation is due to local weather conditions, choose a slower evaporating solvent than originally recommended.
C. Improper atomization of spray gun.	C. Adjust spray equipment.
D. Application of too thin a film.	D. Apply more material to surface.
E. Draft condition.	E. Find reducing solvent or blend to provide proper flow in a draft or eliminate the draft.

COMMON WOOD FINISHING PROBLEMS



LACK OF HIDING

Cause	Remedy
A. Over reduction.	A. Add fresh, unreduced material to that which has been reduced.
B. Application on very hot or smooth surface which tends to cause film to flow off.	B. Use a faster evaporating solvent. Sand surface to be finished with fresh 120-150 grit sandpaper.
C. Pigment not properly stirred into suspension.	C. Stir thoroughly to properly distribute pigment.
D. Slow evaporating solvent causing too much flow.	D. Use faster evaporating solvent.
E. Improper atomization.	E. Adjust spray equipment.
F. Low film thickness.	F. Apply more paint via more passes with spray gun, higher solids (less reduction), or faster thinner.
G. Edges show through.	G. If edges are too sharp before finishing, sand white wood edges with fresh 120-150 grit sandpaper.
H. Wood sanded too smooth.	H. Always pre-sand wood with fresh 120-150 grit paper.

MATERIALS LEAK FROM SPRAY GUN

Cause	Remedy
A. Fluid needle packing too tight.	A. Loosen nut and lubricate packing.
B. Fluid needle packing dry.	B. Lubricate needle and packing frequently.
C. Foreign particle blocking fluid tip.	C. Remove tip and clean.
D. Damaged fluid tip or fluid needle.	D. Replace fluid needle with correct size for fluid tip being used.
E. Broken fluid needle spring.	E. Remove and replace.

MATERIAL LEAKS FLUID NEEDLE PACKING NUT

Cause	Remedy
A. Loose packing nut.	A. Tighten packing nut.
B. Dry fluid needs packing.	B. Remove and soften packing with a few drops of light oil.

MATERIAL WON'T FLOW FROM SUCTION CUP

Cause	Remedy
A. Dirty air cap or fluid tip.	A. Remove air cap and fluid tip and clean thoroughly.
B. Clogged air vent on cup cover.	B. Remove obstruction.
C. Wrong air cap.	C. Ascertain and use correct set-up.
D. Leaky connections on fluid tube, air cap, or fluid tip.	D. Check for leaks and repair.

MATERIAL WON'T PUMP FROM PRESSURE TANK OR PRESSURE CUP

Cause	Remedy
A. Lack of proper air pressure in pressure tank or cup.	A. Check for air leaks or lack of air entry. Adjust pressure for sufficient flow.
B. Air in-take opening inside pressure tank or cup lid clogged by dried up paint. This is a common problem.	B. Clean air in-take opening periodically.
C. Leaking gasket on tank cover or pressure cup lid.	C. Replace with new gasket.

MATERIAL WON'T SPRAY FROM SPRAY GUN

Cause	Remedy
A. Exhausted paint supply.	A. Add paint.
B. Grit, dirt, paint skin, etc., blocking air cap, fluid tip, fluid needle, or strainer.	B. Clean spray gun thoroughly and strain paint. Always strain paint before using.

COMMON WOOD FINISHING PROBLEMS



NON-DRYING OR POOR DRYING

Cause	Remedy
A. Humid weather.	A. If possible, place in heated and/or dehumidified drying room.
B. Cold weather.	B. Maintain a temperature in drying area of at least 70°F to 75°F.
C. Greasy, waxy or otherwise unclean wood surface.	C. Clean surface carefully with volatile solvents. Dry completely.
D. Failure to stir all pigmented finishes into proper suspension before application.	D. Stir the material thoroughly so that the liquids and pigments will be evenly disbursed.
E. Improper ventilation.	E. Provide ventilation (air movement).
F. An attempt to fill open grain wood by applying a heavy coat, or applying a heavy coat to flat surfaces such as table tops, retards thorough drying.	F. Apply only over a normal wet coat, 4 to 5 wet mils. Allow each coat to dry.

OIL BLOOM

Cause	Remedy
A. Rubbing down with oil before lacquer is thoroughly dry. Absorbed oil floats to the surface later.	A. Allow longer drying time. Bloom can sometimes be removed by washing with naphtha or spraying thin coat of clear. Allow to dry and re-rub.

ORANGE PEEL

Cause	Remedy
A. Material not thinned out sufficiently.	A. Add the correct amount of solvent by measure.
B. Failure to deposit a wet coat.	B. Check solvent. Use correct spread and overlap of stroke.
C. Spray gun stroke too rapid.	C. Take deliberate, slow stroke.
D. Insufficient air pressure.	D. Increase atomizing pressure or reduce fluid pressure.
E. Using wrong air cap.	E. Select correct air cap for the material and feed.
F. Spray gun too far from the surface.	F. Stroke the spray gun 6–10 inches from surface.
G. Spray gun too close to surface.	G. Spray gun should be worked 6–10 inches from surface.
H. Overspray striking a previously sprayed surface.	H. Spray gun should be worked 6–10 inches from surface gun so overspray hits unsprayed work.
I. Poor thinner, too hot.	I. Use better grade of thinner for material or add retarder to allow flow-out.
J. Material not thoroughly dissolved.	J. Mix material thoroughly.
K. Drafts.	K. Eliminate excessive drafts.
L. Humidity too low.	L. Raise humidity of room.

PINHOLES OR BUBBLING

Cause	Remedy
A. Drafts which cause surface drying before the solvent can break through the surface film in order to evaporate.	A. Find source of drafts. Open windows, doors etc.
B. Fine drops of moisture coming through "separator" in spray apparatus.	B. Clean spraying equipment.
C. Air trapped in open pores of wood such as red oak.	C. Spray a thin wash coat as first coat, or add retarder to finish.
D. Fine bubbles after force drying.	D. Be sure adequate solvent flash off time is used before putting the finished part in oven.

POOR ADHESION OF FILM

Cause	Remedy
A. Unclean surface.	A. Clean carefully with volatile solvent.
B. Sometimes the finishing coat and primer coat are not meant to be used together. The solvent in the finishing coat lifts the primer from the surface. Even though the film will dry and have a good appearance, primary adhesion has been ruined.	B. Make sure that the proper recommended primer and finishing coat are used together.
C. Wood sanded too smooth. Especially closed grain hardwoods like maple and birch.	C. Always finish sand closed grain hardwoods with fresh 120-150 grit sandpaper before the finishing process.

COMMON WOOD FINISHING PROBLEMS



POOR ADHESION OF HIGH SOLIDS COATINGS

Cause	Remedy
A. High solids coatings (40% solids or more) show delamination.	A. Inspect the wood sanding process prior to finishing. High solids coatings need a better wood profile to anchor to than a low solids coating that contains more thinner. Many times in sanding (especially hard woods like maple) the finishers will over sand and polish the wood to where there is not enough profile to produce good adhesion with the topcoat. This problem can also be caused by the shop using worn sanding belts. When utilizing high solids coatings (40%+) a final sanding on hard woods should be done with fresh 120-150 grit paper. This will assure good adhesion to the wood.

PROPER SANDING (Prior to application of stain or finish)

- * Close Grain Hardwoods; Maple, Birch, Beech — Finish Sand 120-150 Grit.
- * Open Grain Hardwoods; Oak, Ash, Walnut — Finish Sand 120-150 Grit.
- * Soft Woods; Pine, Fir, Poplar — Finish Sand 120-150 Grit.
- * MDF; Routed Areas — Finish Sand 400-600 Grit. Face Area — Finish Sand 400 Grit.

PUMP FREEZE-UP (Latex)

Cause	Remedy
A. Heat build-up in pump causes latex to coalesce.	A. Switch to diaphragm pump.

RECOMMENDED MOISTURE CONTENT FOR WOOD PRIOR TO FINISHING

- * Hardwoods' moisture content should be 6-8 percent. Softwoods' moisture content should be 10-12 percent. Always use a moisture gauge to randomly check woods' moisture content. Store lumber in a warm dry room. Wood shrinks when it loses moisture and expands when it absorbs moisture.

SAGGING OF FILM (Curtaining)

Cause	Remedy
A. Sagging is caused by either over reduction or by use of a solvent that evaporates too slowly.	A. Use the proper solvent consistent with the general nature and temperature of the surface to be coated.
B. Heavy application of a coating.	B. Control amount of material applied to surface.
C. Draft condition.	C. Eliminate draft.
D. Strong sunlight causing top drying and consequently, late slippage of film on vertical surfaces.	D. Avoid application in strong sunlight.
E. Jerky operation of mechanical equipment from withdrawal from dip tank.	E. Repair or redesign equipment.
F. Cold weather.	F. Use faster evaporating reducing thinner (caution, may cause blush) or bring room temperature up to 70°F.
G. Dirty air cap and fluid tip.	G. Remove cap and fluid tip then clean.
H. Gun manipulated too close to surface.	H. Hold the gun 6 to 10 inches from surface.
I. Failure to release trigger at end of stroke (when stroke does not go beyond object).	I. Release trigger after every stroke.
J. Gun manipulated at wrong angle to surface.	J. Work gun at right angles to surface.
K. Fluid pressure too high.	K. Reduce fluid pressure.
L. Operation too slow.	L. Speed up movement of gun across surface.
M. Improper atomization.	M. Use larger air cap (internal mix); increase volume of air through horns (external mix).

COMMON WOOD FINISHING PROBLEMS



SANDING/FINISHING TIPS

- * Sanding should be done as close to finishing as possible to assure a wood profile remains for finish adhesion.
- * The coarser the sandpaper grit used, the darker the stain color produced due to penetration.
- * Caution - Sanding belt will polish the wood as grit is worn off. Worn sanding belts can cause intense heat (up to 400 degrees) and produce a burned surface that restricts finish penetration.
- * To avoid scratches in the wood, always use a series of grits when sanding and each subsequent sanding grit should be just one grit finer than the previous paper used. A sequence to use could be 100 grit followed by 120,150.
- * Most fine woods are not sanded beyond the 150 grit before finishing. When using solid wood and veneers on the same project, the veneers are traditionally sanded with one finer grit than you sand the solid wood. This will tend to give you better uniformity of stain colors.
- * Sanding new (white) wood, should be done with an open coat type paper that is made with silicone carbide or aluminum oxide. Never use silicon papers on unfinished wood. These papers are recommended for the sanding of finishes only.

SEPARATION OF LIQUID (Partial precipitation out of solution of the coating)

Cause	Remedy
A. Wrong solvent used.	A. If the separation is slight, addition of the proper solvent, along with constant agitation, may have a positive result.
B. Material subjected to unusual conditions of heat or cold.	B. Keep material at a temperature of 70°F to 75°F.
C. Over reduction.	C. Follow directions for proper reduction. If material is already over reduced, addition of fresh material will often bring the production batch back to the proper state.
D. Reducer added too quickly without sufficient stirring.	D. Add reducer slowly, stirring constantly.
E. Natural evaporation of solvent if material allowed to remain open to the air over a period of time.	E. If oxidation has not proceeded too far, addition of proper amounts of solvent, plus addition of fresh material will restore the condition of the batch.

Note: If the separation is too pronounced, it may not be possible to put the material back into condition satisfactorily for use.

SKINNING OF LIQUID

Cause	Remedy
A. While it has been possible (to a large extent) to minimize skinning, it is something which will occur to a varied degree whenever any air drying material is exposed to air.	A. Make sure that containers in which the material is stored are sealed airtight. Dipping tanks should preferably have an oil or water-sealer cover. The cover should be in place whenever the tank is not in use.

Note: If the separation is too pronounced, it may not be possible to put the material back into condition satisfactorily for use.

* Oil-Type Material: Cover remaining contents of partially filled containers, with a small amount of mineral spirits before sealing.

* Synthetic Type - Cover remaining contents of partially filled container with a small amount of synthetic reducer before sealing.

* Water borne - Float water on surface.

SPOTTY DRYING

Cause	Remedy
A. Unclean surface.	A. Carefully clean wood surface with volatile solvent prior to coating.

SPRAY PATTERN BOTTOM HEAVY

Cause	Remedy
A. Horn holes partially clogged (external mix).	A. Remove air cap and clean.
B. Obstruction on bottom side of fluid tip.	B. Remove and clean tip.
C. Dirt on air-cap seat or fluid-tip seat.	C. Remove and clean seat.

COMMON WOOD FINISHING PROBLEMS



SPRAY PATTERN HEAVY AT CENTER

Cause	Remedy
A. Spreader adjustment valve set too low.	A. Increase volume of air by opening spreader adjustment valve.
B. Atomizing pressure too low.	B. Increase pressure.
C. Material of too thick a viscosity.	C. Thin material with suitable thinner.
D. Fluid pressure too high for air cap's normal capacity (pressure feed).	D. Reduce fluid pressure.
E. Fluid tip too large for material used.	E. Use smaller fluid tip.

SPRAY PATTERN HEAVY TO LEFT

Cause	Remedy
A. Left side of air holes partially clogged.	A. Remove air cap and clean air holes.
B. Dirt on left side of fluid tip.	B. Remove fluid tip and clean.

SPRAY PATTERN SPLIT

Cause	Remedy
A. Air and fluid not balanced.	A. Reduce width of spray pattern.
B. Air cap or fluid tip dirty.	B. Remove and clean.

SPRAY PATTERN TOP-HEAVY

Cause	Remedy
A. Horn holes partially plugged (external mix).	A. Remove air cap and clean.
B. Obstruction on top side of fluid tip.	B. Remove and clean.
C. Dirt on air cap seat or fluid tip seat.	C. Remove and clean seat.

STREAKS

Cause	Remedy
A. Dirty air cap and fluid tip.	A. Remove cap and fluid tip then clean.
B. Failure to overlap strokes correctly or sufficiently.	B. Follow previous stroke.
C. Gun moved too quickly across surface.	C. Take deliberate, slow strokes.
D. Gun held at wrong angle to surface.	D. Work gun at right angles to surface.
E. Gun held too far from surface.	E. Stroke 6 to 10 inches from surface.
F. Air pressure too high.	F. Use least amount of air pressure necessary.
G. Split spray.	G. Reduce air adjustment or change air cap.
H. Tipping gun.	H. Spray pattern should strike surface at right.

TOO LITTLE COATING WEIGHT

Cause	Remedy
A. The coating weight will directly effect the durability of all types of coatings. Too little coating will allow wood fibers to penetrate the film and wick moisture causing early film failure.	A. Do not over-thin coating! Use a wet mil gauge during application and follow the manufacturer's application spreading rates. Assist new spray personnel in establishing a pattern for proper application.

NOTE: Normally 4 to 5 dry mils, after sanding is recommended for proper coating weight.

WHITE SPOTS

Cause	Remedy
A. Water mixing with the lacquer either through the "separator" or by not having the surface dry.	A. Clean air line and "separator". Be sure surface to be finished is dry. Bleed the line at least once every shift, or every eight hours.
B. Flattening paste not mixing in.	B. Stir thoroughly and strain material if necessary.