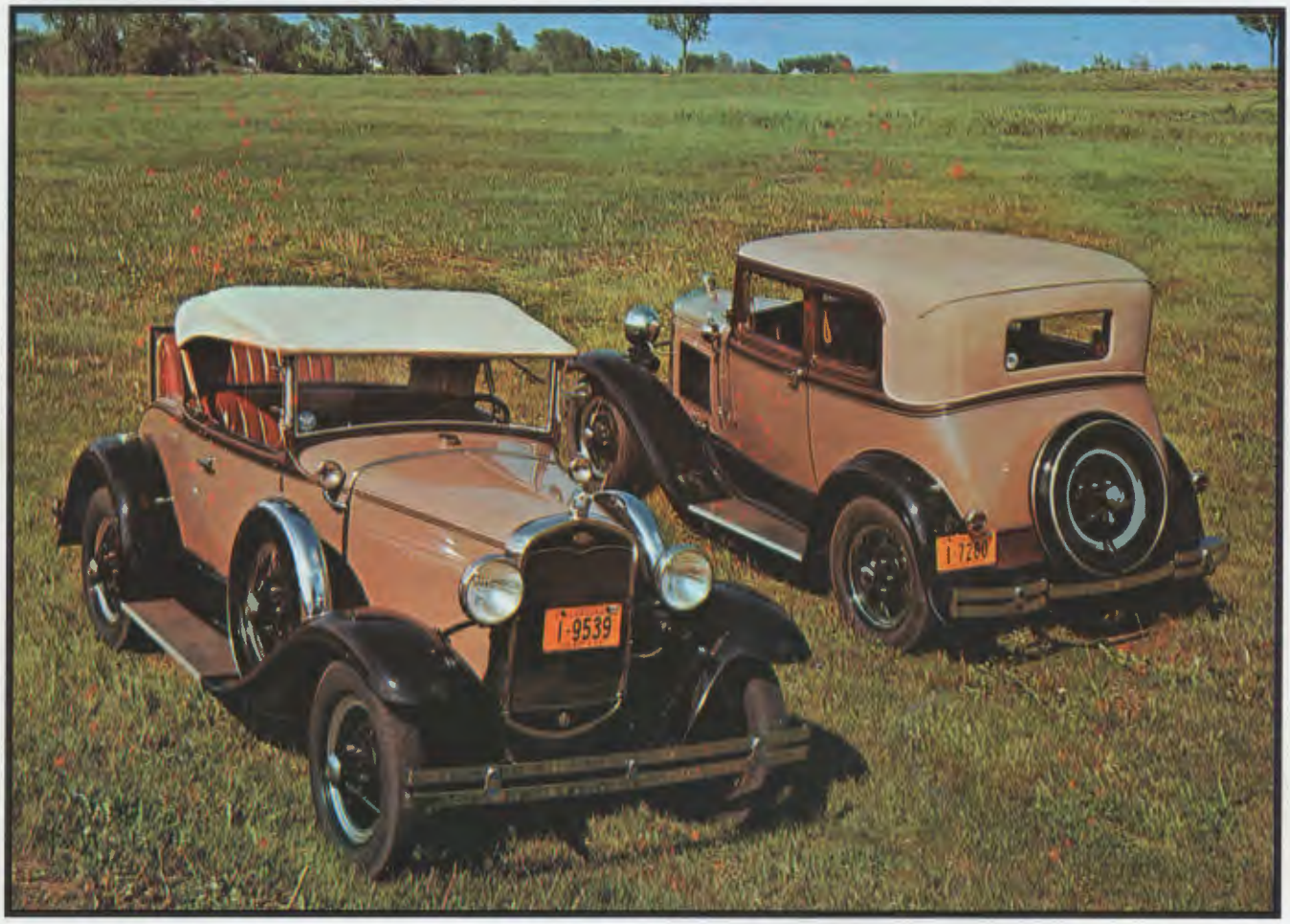
ANTIQUE FORD
REPAINT MANUAL



A REPAINT MANUAL for FORD AUTOMOBILES
1928 1936

PPG

A COMPILATION OF HISTORIC DATA

INDEX

FOREWORD

In this manual data from four years research has been gathered in reference to the refinishing, as original, antique Ford automobiles. The years have played tricks on memories and records have become confused; yet, in this manual you will find basic information to complete an authentic repaint job on your antique car.

Confusion reigns supreme with the Model A Ford of years 1928 through 1931. With nearly five million of this car produced many questions are unanswerable which may very well be fact. We ask that the reader accept the content of this manual as generally the basic concept as it is historic fact that special units were produced for special occasions. Since all restorers are researchers, no voice can be discounted as a reference to authenticity.

Colors displayed in the manual are PPG Lacquer Finishes, a standard Ford original finish embodying all the improvements of the paint manufacturer over the past thirty years. By formulating these colors with intermix bases, they can be mixed and matched in the exact same shade as needed.

Whether or not the restorer plans to spray the color on his car, he will derive a great degree of satisfaction in the completed job by doing the preparatory work himself ... and doing it right. Materials for sanding, cleaning and priming can be secured from local PPG Finishes and antique auto parts dealers. Colors not shown in manual (black, gold, silver and interior colors) can also be secured from such local firms.

Experience reveals that 10 coats of color is the point of diminishing return in repainting. Experts agree that more than this amount of color leads to surface troubles. Applying the sufficient color to the largest type Model A has consumed 6 quarts of color material before thinning.

PREPARING

The life of a finish and the appearance of that finish will depend considerably upon the condition of the surface over which the paint is applied. That's common knowledge. Old Timers know exactly what to do with ordinary jobs and also what to do when they get a special job, but some of the younger painters have never encountered these problems and need a little help in getting a good start.

WHAT DO WE MEAN BY SURFACE?

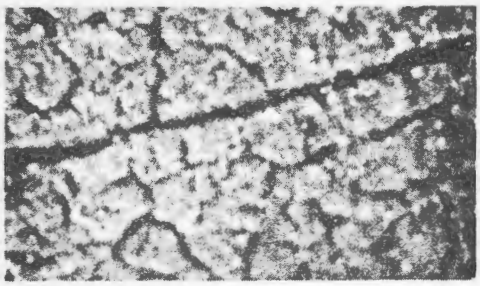
We are going to define the "surface" as the stage in the painting just before the application of the final lacquer or enamel coats. To get a smooth, level surface is therefore going to involve the steps necessary to get good adhesion and also the subsequent filling and sanding operations. Any painter knows that the lacquer or enamel coat does little filling of rough areas and that the finished job is no smoother than the surface over which these materials are applied.

PREPARING AN OLD PAINT SURFACE

(A) Old Paint—If a repaint job is to be done over old paint, obviously the first thing to determine is whether or not the old paint has good adhesion. You can check this by sanding through the finish and feather edging a small spot. If the thin edge does not break or crumble, it is pretty safe to assume that the old paint is going to stay where it was put.

GREASE AND WAX MUST COME OFF

Having satisfied yourself on this score, the next step is to be sure there is no old wax left imbedded in the finish. Gasoline is often used to clean up a job, but it is a poor wax solvent and will not remove deeply imbedded wax. Before the job is sanded, it should be cleaned with a good wax and grease remover like PPG's DX 330 Acryli-Clean® Wax and Grease Remover and after sanding, given a final clean up with the same material. Don't use shop towels furnished by a laundry service as these are frequently oily or have chemical residues. The wax and grease remover should be applied to small sections of the body and should be wiped up with a clean cloth while it is still wet. When no more scum comes off on the rags, it can be assumed that the wax and grease remover has dissolved all of the old wax and floated it up to where it can be removed.



A microphotograph of an old lacquer surface that looked smooth. Magnified 300 times the surface reveals many crevices where wax and grease can lodge. To clean such surfaces use PPG's DX-330.

TESTING FOR LACQUER OR ENAMEL

The third step is to determine whether the old finish is lacquer or catalized enamel. Old lacquer or uncatalized enamel coats can be dissolved by wetting with a good grade of lacquer thinner and rubbing a small area. If the old finish is not dissolved and does not come off, it is likely to be catalized enamel. If, however, the finish turns out to be lacquer, precautions must be taken to prevent swelling of the old coat when it is recoated in a lacquer system. Swelling usually occurs where sanding has been done and unless the new solvents are prevented from reaching the old finish no amount of care will prevent the sand scratches from showing.

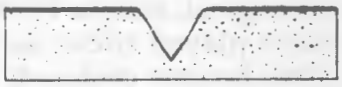


Figure 21—Greatly enlarged scratch in an old finish showing insoluble outer-layer.

Figure 22—The solvents in the fresh coat of lacquer cause swelling in the freshly exposed parts of the scratch.

Figure 23—The swelling recedes after all of the solvents have evaporated and the new finish shrinks leaving furrows similar to the old scratches.

THE SURFACE!

SAND OLD ENAMEL FINISHES CAREFULLY

When repainting over an old enamel finish just be sure that you do not use a sandpaper that is too coarse and that *all* of the old surface has been scuffed to provide for a good tooth for the new finish. Unless the old enamel is in excellent condition it is better to use a primer surfacer as the first coat. This will take care of the problem of adhesion and will provide for sanding over any rough areas. Some old enamels are quite brittle, and it is a good idea to check adhesion very carefully before proceeding with any new coats.

WATCH OUT FOR FINGERPRINTS

(B) Steel—Most painters know exactly what to do with bare metal spots on bodies or fenders or finishing over sheet steel because this is the customary job. However, some of them don't realize the importance of having the steel absolutely clean before applying any undercoats. Some continue to rub their hands over the area to determine the effect of the sanding without realizing that they are transferring oil from their hands to the surface. Oil comes from the skin and from shop tools, and even if one's hands are freshly washed a fine oily film will be left on the surface because there are not many people who have oil-free skin. If you have any doubts about this, take hold of your eye glasses or a clean drinking glass with your bare hand and see if you can avoid leaving fingerprints or a smudgy spot. The F.B.I. depends on fingerprints to a large extent in tracking down criminals, and they pick up these fingerprints from all kinds of surfaces. The prints are not noticeable to the naked eye but when they are dusted with a very light powder they show up clearly. We are not going to suggest the use of dusting powder in the paint shop, but we do know that wiping off the surface with a good wax and grease remover just before applying the finishing coat is excellent insurance against peeling. PPG's wax and grease remover, DX-330 Acryli-Clean® Wax and Grease Remover, is made for this purpose.

HOW TO CHECK RUST

If there is any rust on the metal or a suspicion of rust because the bright steel has been allowed to stand for a day or so before being primed, no priming should be done until the metal has been treated with an acid that will neutralize the rusting action. In the car factories, bodies are bonderized and in most plants the sheet metal is also treated in this manner to prevent the spreading of the microscopic rust. The factories have learned that this is essential if peeling is to be avoided and would not add this cost to body painting if it were not warranted. PPG's Metal Cleaning and Conditioning System has an action very similar to bonding and can be applied at room temperature rather than at a boiling temperature as used in the factories. Its use requires only fifteen or twenty minutes and is well worth the short delay. The etching action of this material also results in maximum adhesion to the steel. Be sure to dilute it with water as specified in the directions for maximum results.

If any soldering has been done on the job, the soldering acids should be neutralized; otherwise, you will get blistering or peeling. A wash of a mixture of equal parts of ammonia, alcohol, and water will do the trick

Fig 24—Enlarged Cross section of rough metal.

Fig 25—Same metal coated with Primer-Surfacer. Surface of undercoat follows approximate contours of original metal when thoroughly dry.

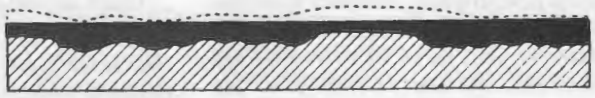


Fig 26—Sanding levels off high spots, producing a flat, smooth surface If not dry when sanded, further shrinking over deep fills produces uneven surface and shows file marks.

THOROUGH SANDING IS ESSENTIAL

A word here about sanding the metal may be timely. Modern primer surfacers and glazing putties will fill almost any rough surface but much time and material can be saved if the metal is quite smooth before these materials are applied. A good practice is to use three or four grades of paper from coarse to fine and to take off most of the ridges left by the coarser papers with each of the succeeding fine papers. In other words, if you start with a No. 16 open coated disc follow this with a No. 50 close coated disc and finally hand sand with No. 150 paper. There are no good short cuts. The surface will always reflect the care used in its preparation.

SAND SCRATCHES AND

Figure No 31 Enlarged section of metal sanded with No 24 grit and followed with No 50 grit still showing small combs or burrs on top of ridges.

Figure No 32 Light scuffing with No 150 paper will remove combs and will round tops of rides eliminating much trouble with sand scratches.

SANDING THE METAL

Sand scratches are probably the most ornery things around a paint shop. Many otherwise beautiful paint jobs are spoiled because of some miserable sand scratches in a prominent place. And the worst part of it is that they don't show up until the finish coat is applied, and then it is usually too late to correct them.

If we understand what causes them and don't try to hurry the job too much, most of them can be avoided.

START WITH SMOOTH METAL

The first and prime requisite for a good paint job is smooth metal. The metal finisher or bump man can make it doubly hard for the painter if the metal is not properly finished. Careless filing or bearing down too hard on the coarse disc will leave furrows that are hard to fill. The best practice is to use the coarse disc for roughing out the job, getting rid of weld spots and high areas only. Then do the major part of the sanding with the 24 disc and finally finish off the metal with a No. 50 or No. 80 disc. Even this method will not eliminate some sources of sand scratches because there are often little burrs or fins on the crests of the scratches, and these cause uneven shrinkage in the surfacer coat—see figure No.31. To eliminate them, do a little hand sanding with No. 150 paper and round off the tops of these crests—see figure No.32. Don't worry about getting the metal too smooth. Sanded metal which looks and feels smooth will still have plenty of "tooth" for the surfacer.

SPRAY SEVERAL COATS OF SURFACER

Modern primer surfacers are very versatile materials and will do a lot of filling, but none of them will do all of the filling in one coat. It isn't hard to understand that the thicker the coat the slower the drying, so spray several coats with 15 to 30 minutes between them, and you will actually save time over spraying a real heavy coat and having to wait a long time for it to dry through. It is difficult to tell when a thick coat is really dry because the surface will appear to be dry while there is still a lot of thinner trapped below the surface and shrinkage is still going on. Where the imperfections or scratches in the metal are unusually deep, the use of a lacquer glazing putty such as PPG's DFL-1, or DFL-17 Spot Putty will save much time in getting a smooth surface.

USE FINE PAPER FOR SANDING SURFACERS

After the primer surfacer has dried thoroughly, the next thing to consider is the sanding operation. The use of coarse sandpaper, such as No.220 or No.240 will produce scratches in the primer surfacers that will be hard to fill by the final finish coats, especially if the final finish is not going to be sanded and polished. The only reason the painter uses these coarse sandpapers is to speed up the sanding rate. With the present day surfacers, sanding is so easy it is not necessary to use paper coarser than Nos. 320 to 360.

In order to get even less scratches, the use of No. 400 paper as a final sanding is recommended.

WHAT HAPPENS WHEN LACQUER COLOR IS APPLIED

When a lacquer finish coat is used the lacquer thinner penetrates and swells the lacquer undercoat, and where the undercoat is the heaviest, as in the deep scratches, the swelling will be the greatest. If the lacquer is sanded and polished before all of the thinner has evaporated from the primer surfacer, there will be further shrinkage at the point of deepest fill. Therefore, it is important to give the finish coats of lacquer plenty of drying time before sanding and polishing. When the danger of sand scratch swelling is present in the refinishing operation, the spraying of a light fog coat for the initial color coat is good practice. This very light first coat keeps the solvent content on the low side when it first comes in contact with the old feather-edged finish.

It will be seen from the diagrams on this page—numbers 33,34,35 and 36 — that the shrinkage and swelling of lac-

Figure No 33 Primer surfacer applied over sanded metal simulates the contours of the metal, shrinkage being more over the deeper fills.

Figure No. 34. If sanded level before all solvents have evaporated further evaporation of solvents will cause a shrinkage leaving furrows over sand marks in metal.

THE MORE HASTE THE

HOW TO AVOID THEM

quer undercoats is an important thing to consider in the elimination of sand scratches. If the undercoat is not allowed to dry down to its final position before sanding or applying other coats, trouble is sure to result. The swelling of a lacquer undercoat due to another coat over it carrying lacquer thinners is unavoidable, but that can be kept at a minimum by starting with smoother metal.

SCRATCHES IN THE FINISH COAT

Scratches can be produced on the final finish by the use of coarse rubbing compounds. There are a number of grades of rubbing compounds on the market, some contain a coarse abrasive and others a fine abrasive and some contain both fine and coarse. The finer the abrasive used, the less the scratching and the higher the gloss. Avoid compounds with variable sizes of abrasives and choose one that is uniformly fine. PPG's DRX-45 is a fast cutting compound that is very uniform, but for extremely fine work PPG's DX-25, Polishing Compound, is one that will answer these specifications and will produce a very high lustre.

PROBLEMS IN REFINISHING OVER OLD LACQUERS

In refinishing old lacquer surfaces other problems develop that need special materials as well as technique. In spot repair work the old finish should be featheredged around the bare metal with fine sandpaper No. 360 or No. 400. Rubbing compounds may also be used to produce even a smoother edge. If rubbing compounds are used it is always good practice to clean up with a solvent such as DX-330 ACRYLI-CLEAN® Wax and Grease Remover before applying undercoats because rubbing compounds usually contain some lubricant. If the spot is not correctly prepared, sand scratches will show up all around the feather-edge.

For complete refinishing, old lacquer surfaces should not be sanded with paper coarser than 360. An old lacquer film is very insoluble on the surface, but the underneath portion is quite soluble. When fresh lacquer is applied to an old lacquer surface that has been sanded with sandpaper that is too coarse, the lacquer solvents will penetrate the sand scratches and cause a swelling of the disturbed part of the old lacquer film. This raising or swelling of the sand scratches is noticeable on certain makes of cars and especially during cold weather when the lacquer solvents remain longer in contact with the old lacquer film causing an excessive amount of swelling.

SELECT THE RIGHT THINNER

There are many lacquer thinners on the market—some with strong solvents, some with weak solvents, some with fast solvents, and some with slow solvents and some with hardly any solvents at all. If you are doing à touch-up job on an enamel fender, you will be obliged to use a thinner carrying a good percentage of strong, slow solvents so that the overspray will blend and flow into the surrounding enamel. In a case like this, you will have to be very careful to eliminate all of the sources of sand scratches because the thinner you have to use will swell the surfacer coats and on drying and shrinking will show up the sand scratches.

If you are repainting an old lacquer job, you should not use a thinner with strong solvents because it will cause the old lacquer to swell and again you will be reproducing the sand scratches.

Just keep in mind what transpires when you spray one coat over another and also remember that the temperature in your shop, and also the humidity of the air, are determining factors in the evaporation of thinners. On a cold, humid day the thinners will stay in the freshly sprayed film longer and will have a tendency to penetrate the old paint. On a hot, dry day they will evaporate so fast that too much penetration will take place unless you spray a very wet coat.

SAND SCRATCHES IN SYNTHETIC ENAMEL SYSTEMS

Many of the remarks concerning lacquer finishing systems also apply to finishing with enamels. In this system, however, there are no strong solvents to worry about but the enamels dry with such a high lustre that scratches otherwise hardly noticeable will show up in this process in the enamel system, even more care must be exercised to get a smooth undercoat job. Careful water sanding and the use of fine grits for the final operation are a must if you want a job free from sand scratches.

These are the factors that influence sand scratches, and if you will keep them in mind you will save many headaches:

1. Grade of Sandpaper.
2. Thickness of new coats.
3. Reduction with thinner.
4. Kind of thinner.
5. Drying time between coats.
6. Temperature and humidity of shop.
7. Kind of old finish.

Figure No 35 If lacquer color is now applied over this surface, swelling of the primer surface will bring it back to its level at the time of sending or slightly higher making for thin coats of lacquer over the deep fills.

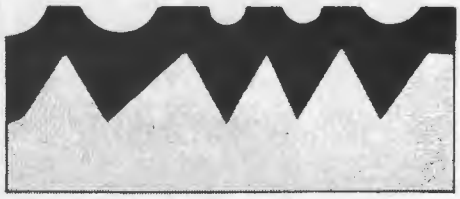
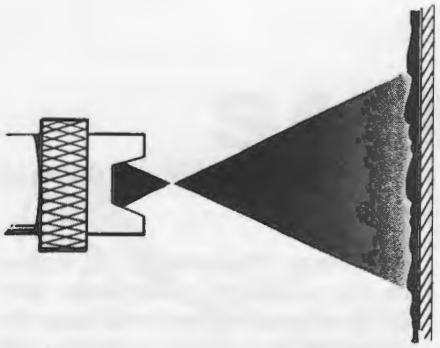


Figure No 36 When all of the solvents evaporate from both primer surfacer and lacquer color coat the scratches will be more pronounced than they were over the surfacer alone. If the lacquer coat is sanded too early the results will be still worse.

MORE SAND SCRATCHES

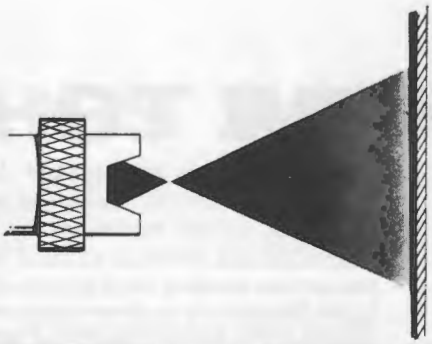


WRONG

Heavy Coat with sags, ripples or orange peel.

REASONS

Dirty air nozzle.
Gun too close.
Paint too Thin.
Low air pressure.
Stroke too slow.
Too much overlap.



HOW TO SPRAY AU

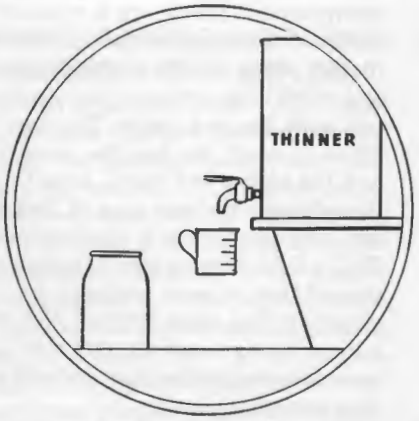
PULLING a trigger on a spray gun and shooting some paint on a surface is so simple that too many embryo painters assume that they know all about the business because they have a good index finger. Because they can spray a ping-pong table they assume that there is nothing to the spraying business and they are immediately qualified to paint an automobile. A good many of them find out eventually, to their dismay, that spraying an automobile is a totally different kind of a job and calls for considerably more experience and knowledge than just holding down the trigger and hoping that the gun will put the paint where it is supposed to be and in the right amount.

KIND OF GUN

There are several types of spray guns in use. Bleeder type guns are used where only low air pressures are available. These guns do very well for the backyard furniture refinisher, but are not recommended for automotive work. Then there is the pressure fed gun that is used in high production factories. These guns are very efficient and handle more paint than the guns most refinishing shops use. The pressure fed gun either works from a pressure pot or from a pump. In either case paint is forced through the gun and the air pressure on the gun is only used for atomization. Such guns are not suited for average refinishing work because it is difficult to clean them when changing colors or materials. The gun most suited to refinishing work is the syphon cup gun. This differs from the "bleeder" gun in that the trigger action controls both air and fluid while in the bleeder gun the fluid only is controlled. All spray guns suitable for first class work have an assortment of fluid tips, needles and spray cups which will adapt them for any type of material. It is very important to have a good gun and one that is designed for automotive work, in fact in any shop where there are sufficient jobs going through to justify it, there should be at least three guns. One gun to be used primarily for spraying undercoats like primers and surfacers, another gun for spraying lacquers, and a third gun for spraying synthetic enamels. If these guns are kept clean and in good working order much time will be saved over trying to make one gun serve all of these functions and having to adjust it each time that the operation is changed.

SPRAYING VISCOSITY

Altogether too many painters, both young and old, fail to concern themselves with the spraying viscosity of paint materials. The average painter pays little attention to the reduction in thinner that is specified on the can of material and determines the right viscosity by continuing to add thinner until the paint runs off of the stirring paddle at a certain rate that has been pre-established in the painter's mind and which may or may not be very satisfactory. It is unfortunate that there are no simple or inexpensive devices for quickly determining the correct spraying viscosity for any given material but he can come very close to the correct spraying viscosity if he will follow the instructions on the can. It can be demonstrated in a laboratory that a three-second change in viscosity will have a distinct influence on the flow of the material. If you keep in mind that the amount of reduction with thinner greatly influences the evaporation rate between the time that the material leaves the gun and the time that it arrives on the surface to be sprayed you will understand why spraying viscosity is important. It may interest you to know that in factory operations spraying viscosities are held to within a variation of one-second from the prescribed viscosity, and the factories would not be so particular about this matter if it were not so important. Besides producing improper flow-out, low viscosities are also very wasteful of thinner. Trying to spray at high viscosities also results in difficulties. If the paint is not sufficiently reduced the painter has a tendency to make up for the poor atomization by piling on more material to get a better flow, and this in



turn results in sags and orange peel. If the air pressure is raised to improve the atomization it raises the evaporation of the volatiles in the spray fan and increases the tendency toward orange peel and dry spray. The proper procedure is to read the directions on the can carefully and adhere to these instructions. Measure the thinner and the lacquer, or enamel, so that the correct proportions will be maintained.

TEMPERATURES

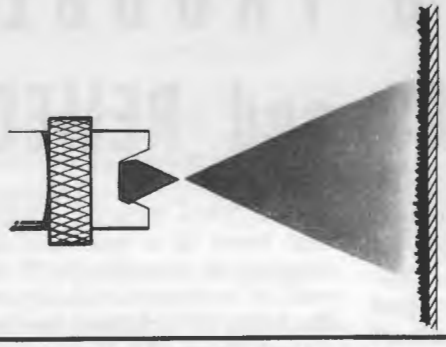
The temperature at which a material is sprayed and dried has a great deal of influence on the smoothness of the finish. This involves not only the air temperatures of the shop but the temperature of the work as well. A job should be brought into the shop long enough ahead of spraying time to arrive at approximately the same temperature as the shop. Spraying a warm lacquer on a job that has been brought in from the cold or spraying a cool lacquer on a surface that has been outside and exposed to the sun will completely upset the flowing time of the material. The rate of evaporation

RIGHT

Medium Coat, good flow-out with hardly any orange peel and no sags.

REASONS

Gun clean and properly adjusted.
Gun distance okay.
Proper thinning.
Right amount of air.
Stroke okay.
Overlap 50%.



WRONG

Thin Coat, rough, dry, no lustre.

REASONS

Wrong air nozzle.
Gun too far away.
Paint too heavy.
Too much air.
Stroke too fast.
Not enough overlap.

UTOMOBILE FINISHES

on a hot summer day is approximately fifty per-cent faster than it is on an average day or a shop temperature of around 72°. This immediately indicates that appropriate thinners should be used for warm weather and for cold weather applications.

FILM THICKNESS

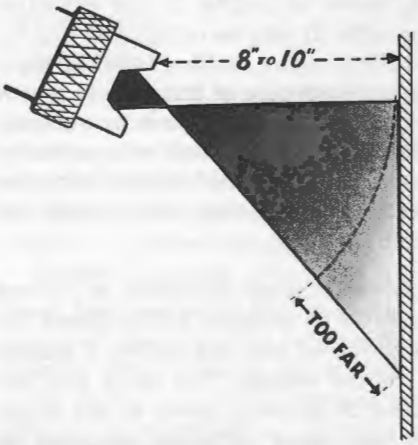
It isn't hard to understand that a thick film remains wet much longer than a thin one and that there is correspondingly more time for flow-out than there is in a thin film. It is just as important to avoid spraying real heavy coats as it is to avoid spraying real thin coats. The painter should develop a technique so that the coat he sprays on a surface will remain wet long enough for proper flow-out and no longer. Heavier coats are not necessary and what's more they will produce sags and curtains especially on vertical surfaces. Besides producing wrinkles in the case of enamels excessive thickness may also produce blistering most of which is caused by the hardening of the outer surface and the trapping of some of the thinners in the film before it has had an opportunity to dry all of the way through. The amount of material sprayed on a surface with one stroke of the gun will of course depend on width of fan, distance from gun, air pressure at the gun and reduction. Also the thickness may be varied by the speed of the spray stroke and this will depend on the operator or the size of the object being painted. Rather than trying to do all of the painting in one stroke it is better to adjust the gun so that you will get a wet film at the distance at which you are spraying which will remain wet only long enough for good flow-out and to get the final finish thickness by spraying an additional coat after the first has dried a short time.

DISTANCE FROM WORK

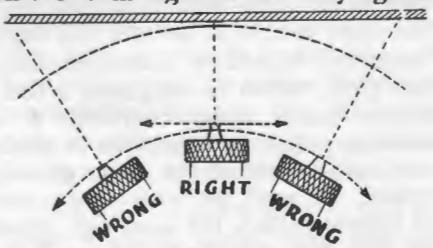
Nearly all standard spray guns are designed to give the best performance at a distance of eight to twelve inches from the surface to be sprayed. If the spraying is done from a shorter distance the high velocity of the spraying air tends to ripple the wet film especially if it is too thick. On the other hand if the distance is increased beyond that specified there will be a greater percent of the thinner evaporated in the spraying operation and the results will be orange peel or a dry film because the spray droplets will not have an opportunity to flow together. There is no sort of a device that will keep the spray gun at a fixed distance from the work and it therefore behooves each spray operator to keep constant watch of this distance and to practice and continue to practice until he can maintain a uniform distance from the work regardless of his posture or the shape and location of the work. If when spraying on large surfaces it is impossible to maintain the spraying distance within close limits, it is then advisable to use a different thinner. A slower evaporating thinner will permit more variation in the distance of the spray gun from the job but on the other hand it will be very apt to produce sags and runs if by any chance the gun becomes too close to the work. Excessive spraying distance also causes a loss in materials which are blown away by the air stream.

STROKES AND OVERLAPS

From what has been said above it is obvious that if the gun is tilted toward



the surface so that the fan pattern is not uniform or if the gun is swung in an arc from right to left varying the



distance from the nozzle to the work, much trouble will ensue. The gun should be at right angles to the job in all directions and at all times. In other words do not fan the gun from left to right or do not have any up and down wrist motions if you want a uniform film. The only time that it is permissible to fan the gun at all is on a small spot spray where you want the edges of the spot to be thinner than the center portion and even then the fanning operation should be kept at a minimum. On large surfaces where it is necessary to use many strokes to cover the area always work to a wet edge by using a fifty percent overlap and direct the center of the spray fan at the lower or nearest edge of the previous stroke.

PAINTING TROUBLES
Their CAUSES and REMEDIES

CHALKING. Although chalking has been encountered almost since the inception of automobile enamels and lacquers, it is still the most discussed and confused of finish complaints. It is a surface disintegration due primarily to weathering effects, particularly sunlight. All enamels and lacquers show chalking when exposed to sunlight, but the amount of chalking varies according to the exposure and color. It may be recognized first by a dulling of the surface, followed by a slight powdering of the surface which may be removed in part by rubbing with a cloth. This cloth will probably show traces of the color. Further cleaning with polish will restore the finish to its original lustre.

In discussing chalking, it is not a matter of whether a film shows the condition or not, but rather a matter as to the extent. The same film exposed in different parts of the country will show different amounts of chalking. Different colors show variations in the same locality. Different cars in the same section painted with the same enamel or lacquer will show variations depending upon their usage and care. When investigating a complaint based upon chalking, it is necessary that a comparison be made with other cars of the same general colors, as well as with other cars of approximately the same age, painted with the same color, to see if the finish has been given average care.

REMEDY—For heavily chalked cases use a paste cleaner followed by a liquid polish. Refinish the job if the situation is chronic.

FADING OR COLOR CHANGE. Fading is often included with chalking complaints since the latter often causes a change in color until removed, so that no complaint on fading should be considered until the finish has been thoroughly cleaned and polished. Very few paints will not show some change in color over a period of time, but the amount will vary with the color. Some colors are more permanent than others. If the color change is uniform, and there is a question about the amount of the change, it would be well to compare with other cars of the same color before making a definite decision. These cars used in the comparison should have different lengths of service.

REMEDY—True fading cannot be restored by compounding or polishing. Remedy is to repaint.

DULLED FINISH (LOSS OF LUSTRE). A finish may have a tendency to lose its lustre quickly for two reasons, first of which is an inferior enamel or lacquer, and secondly, because of its being rubbed up before it is thoroughly dry. If the loss of lustre occurs after the job is in service, it may be due to the use of an inferior touch-up material or to abnormal conditions of exposure.

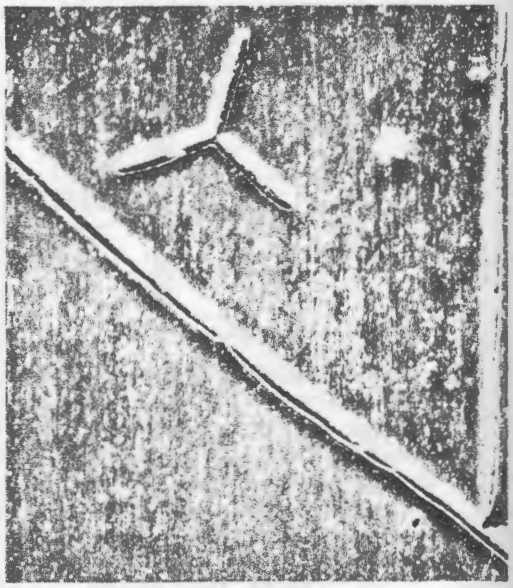
Paint films dry from the outside inward, and though the surface may appear to be thoroughly dry, it is only a skin condition and does not represent the state of dryness of the whole film. It is therefore advisable to follow the directions on the can very carefully and to allow for a drying period as long or longer than specified for the material, especially if the temperatures are below 70 degrees, before any polishing is done.

Use of soaps, caustic cleaners, and inferior polishes will destroy the lustre and produce a dull finish.

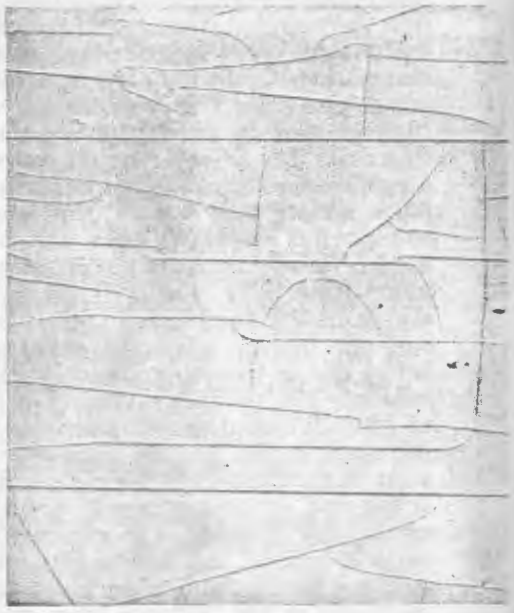
REMEDY—If a good clean-up with paste cleaner and liquid polish will not help, then the surface should be refinished.

WET SPOTS. Occasionally the painter will have a job which does not dry thoroughly all over and these spots which do not dry at the same rate as the rest of the finish are known as wet spots and are almost invariably due to some wax or grease on the surface over which the finish was sprayed, or a film left there by sanding with gasoline containing anti-

Chalking

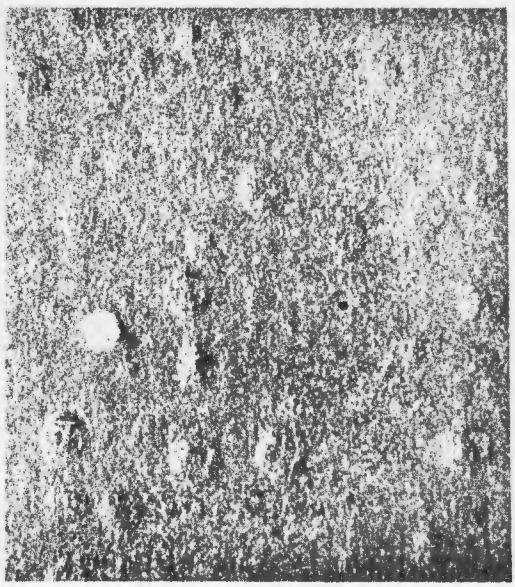


Line Cracks and Crowfoot Checks Enlarged

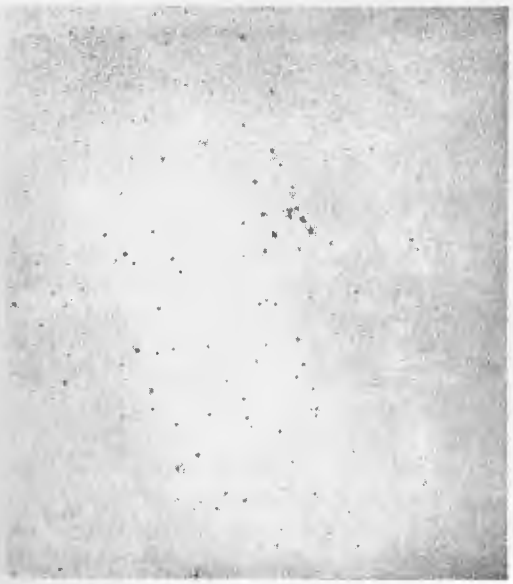


Line and Figure Checks.

Rust Under Finish.



Blisters (Enlarged).



Pin Point Blistering.

knock lead compound or top oil. Excessively heavy coats of undercoats will sometimes cause wet spots.

REMEDY—Remove these areas and refinish.

BRONZING. Some colors, particularly deep blues, are subject to a very fine form of chalking in which the individual particles are crystalline and when viewed from an angle produce an iridescent effect known as bronzing. This is purely a surface condition and can be removed easily with liquid polish, but will continue to recur. It is a condition inherent in the pigment used for certain colors, but is not a serious proposition even though considerable of the paint film seems to be coming off in the polishing operation. An extremely small amount of pigment will produce a very decided discoloration of the cleaning rags.

REMEDY—Clean with liquid polish as needed.

CRACKING AND CHECKING. In the case of either cracking or checking, the cracks and checks may extend all of the way through the film to the metal, only part way through to the undercoat, or may be a depression in the film produced by a crack in the undercoat, but in any event the distinguishing characteristics between the two are that cracking usually refers to single line cracks or single definite figures or large shapes while checking is a multiplicity of these same lines or figures producing smaller figures or shapes and resulting in a pattern or design. Definite causes will produce definite patterns and in fact the cause of the checking can very often be determined from the pattern.

There are simple line cracks resulting from temperature stresses, movement of body panels or straight shrinkage cracks due to a short film or one that has been coated over before it had thoroughly dried. Ordinary line cracks are due to applying too many coats of finish without allowing sufficient drying time between coats. Line cracks are also due to poor stirring or a failure to incorporate all of the binder back into the mixture in the same distribution as when manufactured. The use of an unbalanced thinner or one containing an insufficient amount of solvents will produce the same effect. Sometimes cracks or checks are confused with sandpaper scratches in the metal or undercoats.

Other common types of cracks or checks are line checks and figure checking. In many cases the cause of these are quite involved and require considerable knowledge of paint chemistry to be thoroughly understood. They can be avoided in refinish work by the use of dependable materials, thorough stirring and following the manufacturer's directions for the drying periods.

REMEDY—The remedy in all cases of cracking or checking is to remove the finish down to the metal for an area considerably larger than the affected area and rebuild the finish according to the schedule of refinish work.

RUST UNDER FINISH. There have been constant improvements in the methods available for preventing rusting. Among these are systems to remove any rust that is present when the job is prepared for painting and to retard rusting after the car is in service. Rusting of the surface before the film is broken is usually made apparent with raised sections or blisters. After the film is broken, the rust eats back under the edges. Some rust preventative systems are similar to rust in color and may be mistaken for it unless carefully examined.

REMEDY—Sand off area and refinish, treating metal with rust remover before applying undercoats.

BLISTERING. Although not very common, there are cases where blisters occur without the presence of rust. Among other causes may be excessive moisture or foreign materials getting between the coats, causing them to separate. Condensation blown onto the body from under mouldings when car is sprayed after standing unprimed overnight. Oil or water in the air lines will produce blisters. In the case of a blistering complaint, it is necessary to examine the area very carefully for any contributing factors.

In localities where there is a prevalence of high temperatures and high

humidity, pimpling or blistering may result. No paint film is entirely impervious to moisture; hence these failures are unavoidable and the owner must regard them much as he would the result of parking in the vicinity of chemical fumes or other local hazards.

Excessive polishing or the use of abrasive cleaner will reduce the film thickness to a point where it becomes less impervious to moisture and will blister more rapidly.

REMEDY—Remove finish to the metal and refinish. If there is any question about the film thickness, it would be advisable to respray the entire car.

PIN POINT BLISTERING. This type of complaint is often confused with pitting because the small broken blisters have the appearance of pits in the finish, but "pitting" is an entirely different condition. In the early stages this condition is known as pimpling because the small blisters, ranging from the size of a pin head down to small points, are raised and present the appearance of a rough finish.

When the points of the blisters are knocked off in polishing or by other means the result is a finish with an infinite number of small holes in it which in reality are just small blisters.

REMEDY—Same as for large blisters.

PEELING. A peeling condition of course indicates a lack of adhesion. It may be lack of adhesion between finishing coats, the finishing coats may be peeling from the surfacer or primer, or the entire film may have poor adhesion to the metal. In case only a portion of the film is coming off, it is necessary to know which coats are separating. In case all of the film is peeling, examine the surface closely for grease, oil, and other foreign matter, as well as for rust.

REMEDY—Sand and clean up the entire area and refinish.

PITTING. Pitting is often caused by water or oil coming through the air line and being deposited on the surface with the paint. As the paint will set before these materials evaporate, the result is a number of small depressions like very small craters.

REMEDY—sand down to smooth surface and refinish.

ORANGE PEEL. This is a pebbled or dented effect on the paint film which closely resembles the skin of an orange and may result from a number of causes, the principal of which, however, are solvent selection, insufficient reduction, and amount of air pressure on the gun as compared with the amount of fluid that is being sprayed.

When materials are properly thinned, the correct adjustment has been reached for both the amount of fluid and the air pressure, and the gun is held at the proper distance from the work, the orange peel effect will be reduced to a minimum.

A thinner which dries too rapidly will produce orange peel, and spraying lacquer on a hot surface will also produce a rough condition. If the painter will keep in mind that orange peel and roughness result from a quick-drying effect with no time allowed for flow-out, he can gauge the type and amount of solvent to be used in eliminating this difficulty.

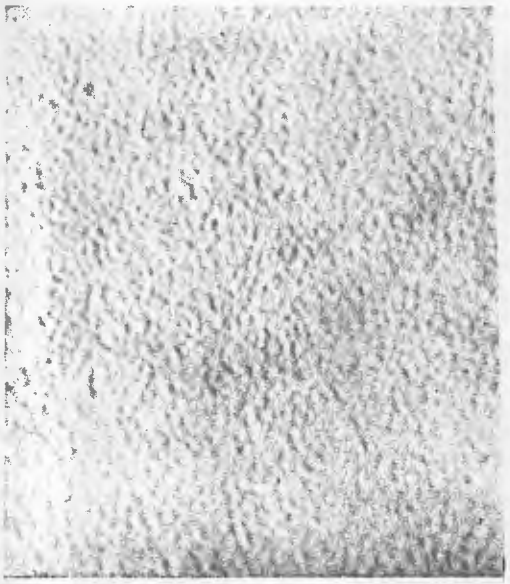
Orange peel is present to some extent in all newly sprayed finishes, but the normal cleaning operations, combined with aging, will cause the condition to gradually disappear.

DIRT IN FINISH. The length of time required for a synthetic enamel to "dry out of dust", which is from 15 to 30 minutes, permits the newly sprayed film to pick up lint and dirt, thus producing a finish with specks in it which is more or less typical of any enamel finish. Even with washed air conditions these very minute particles find their way to the wet film and cannot be dislodged until after the film is hard. Lacquer films also pick up these same particles, but they are removed in the subsequent rubbing and polishing operations.

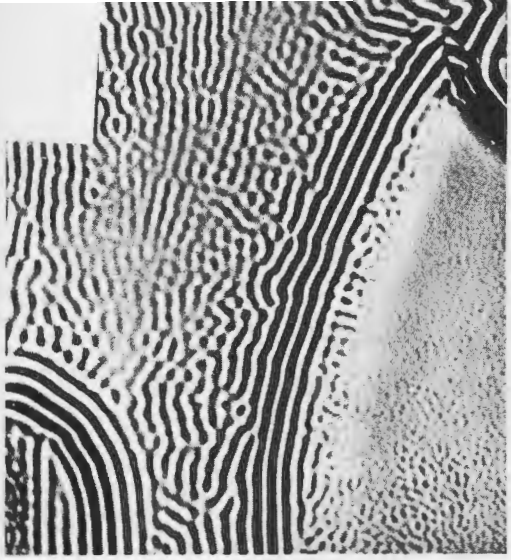
Synthetic enamels may be rubbed and polished in the same manner when thoroughly dry (at least 48 hours) by first flushing the surface with water to remove any abrasive particles and using a liquid polish following the use of the synthetic rubbing compound . The last men-

Peeling

Pitting or Cupping



Orange Peel



Wrinkling (Enlarged).

Water Spotting.

Stone Bruises.

tioned material is finer in grit than lacquer rubbing compound and should not be confused with it.

In extreme cases of roughness, it is advisable to wet sand the surface with No. 600 paper and follow with the compound and liquid polish. When using either 600 paper or rubbing compound, care should be exercised to avoid using too much pressure on the surface.

UNDERCOAT SHOWING. This condition may be caused by either insufficient film thickness or by the frequent use of an abrasive polish.

REMEDY—Clean up with wax and grease remover and respray.

WRINKLING. Wrinkling, while not found in the application of lacquer materials, is often encountered with the use of synthetic enamels, and is chargeable in nearly every instance to the application of a very heavy coat. Sometimes abnormal drying conditions and extremely hot weather will cause the material to surface dry very rapidly, while the balance of the film remains soft, and thus causes wrinkling. The best precaution for a failure of this type is to spray only sufficient material to thoroughly cover the surface and not try to build up a heavy coat all in one operation. If the painter will thin the materials according to the directions on the can and also spray in accordance with these same directions, the trouble from wrinkling will be practically eliminated.

The use of a fast thinner in warm weather will lead to the application of very heavy coats which will surface dry too rapidly and cause wrinkling. Also the lack of sufficient thinner will produce the same effect.

WATER SPOTTING. Results from washing in bright sunshine, use of old wax or inferior grade of wax in polish.

REMEDY—Use wax and grease remover, paste cleaner and liquid polish.

ALCOHOL SPOTS. These usually occur on the hood or fenders in the vicinity of the radiator, and on the lacquer finishes appear to have a bleached-out appearance. Synthetic enamels have less tendency to water-spot or show the effects of alcohol.

REMEDY—Sand out and rebuild the finish.

MISCELLANEOUS SPOTS. Resulting from alkali dust, cement dust, chemical fumes, bird dung, sap from trees, etc., all chargeable to parking in the vicinity of these hazards. Mud spots produced from soil carrying a high alkali content can be removed in part by proper cleaning methods followed by exposure to the sunlight.

REMEDIES—Try paste cleaner and liquid polish first. If no results, refinish the spot.

BRUISES AND CHIPPING are produced by stones, careless handling of the car and other hazards and are most common with finishes that are hard or brittle. Present day finishes are formulated to remain elastic over a long period so that this complaint is not as prevalent now as it was some years ago.

REMEDY—Sand out and refinish.

SCRATCHES. These may result from driving through heavily wooded sections, the branches of the trees inflicting long horizontal scratches. Scratches produced in transportation of new cars also fall under this heading. These may generally be removed by compounding and repolishing.

REMEDY—Deep scratches usually call for a sanding out process and some touch-up work.

SANDPAPER SCRATCHES ON NEW WORK. Sand scratches will result if heavy coats of surfacer are sanded before they are entirely dry or if the grit is too coarse. The remedy is to do the sanding with a finer grit (about 320) and then only after all of the solvents have evaporated from the surfacer.

SANDPAPER SCRATCHES ON OLD WORK, such as touch-up spots over old lacquer or synthetic enamel jobs, require that the old finish be sanded with a fine grit sandpaper such as 320, and in the case of synthetic enamels it is sometimes necessary to go one step farther and smooth the feather edges with a suitable rubbing compound. Surfacer coats should

always be applied by spraying a medium wet coat rather than one heavy coat and this is particularly true when spraying over old finishes.

LIFTING. Lifting is a puckering and wrinkled effect usually resulting from applying a coat of material carrying strong solvents over a partially oxidized enamel or lacquer. The strong solvents partially dissolve the older film and destroy its adhesion to the surface under it. Adhesion may also be destroyed by the presence of some foreign material due to lack of cleaning but this does not usually have the wrinkled appearance of lifting. Painting over a surface from which all of the wax has not been removed will produce such a loss of adhesion. Automotive baked enamels or air dry synthetic enamels when thoroughly oxidized (60 to 90 days) are not usually soluble in ordinary lacquer thinners but some oleo-resinous enamels of the household variety are very susceptible to lifting by such strong solvents as are used in lacquers. Some lacquers contain oxidizing resins or oils and will lift if recoated with another lacquer. Swelling of sand scratches is also encountered occasionally. This is a very mild form of lifting. Lifting also takes place in applying *enamel* over inadequately cured enamel. Application and reduction have much to do with this condition. Lifting may sometimes be avoided if the coat carrying the strong solvents is applied in very thin coats or mist coats with time for drying allowed between coats. Remedy for lifting is to remove the affected area and respray.

FISH-EYES AND POOR WETTING. The widespread use of waxes and polishes containing silicone resins and oils has brought about the need for more efficient cleaning of any paint surface before another coat of paint is applied. The usual effects obtained when paint is applied over surfaces containing silicone consists of crawling of the paint, improper wetting of the surface, craters or fish-eyes, poor flow-out and poor adhesion. The minutest quantity of silicone can cause difficulties.

The remedy is to do a thorough job of cleaning the metal or old paint, *before sanding*, with a silicone removing compound. The procedure is as follows: Wash off the area to be painted with clean rags saturated with PPG's DX-330 ACRYI–CLEAN® Wax and Grease Remover. Follow this phase of the operation with dry sanding or water sanding. Water sanding is preferred since it will kill any dust that might possibly contain silicones and which, in settling on other jobs, will make them unfit for repainting. After the sanding operation, wash with water, dry or blow-off, and repeat as in the beginning. With clean rags, saturated with PPG's DX-330 ACRYI–CLEAN® Wax and Grease Remover wash off the entire area to be repainted. Any blow-off should occur immediately after the sanding operation since, if the job is blown off with compressed air after the finish of the cleaning operation, dust or other debris which has been coated with silicones will be removed from under the moldings, etc., and will settle on the job. If this occurs, the only remedy is to start over with the cleaning program.

Rags which have been used in effecting the removal of silicone bearing materials should not be reused for any phase of a painting operation as this will only cause further contamination and add to the painter's difficulties.

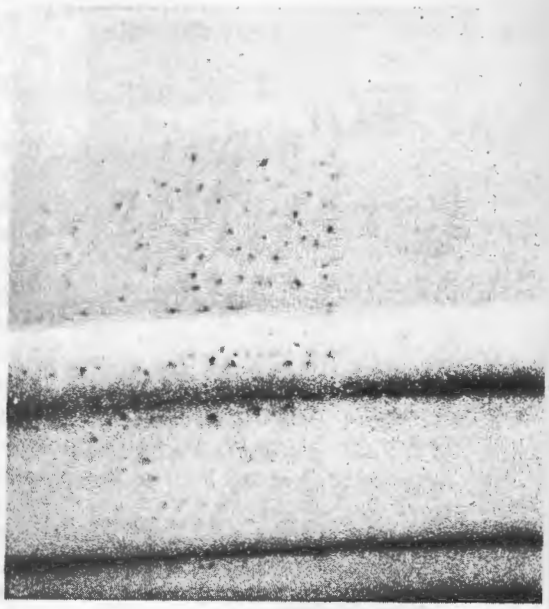
Lacquer primer surfacer applied on a surface containing silicones will be retarded in its drying causing it to roll up under the paper when sanded.

PEELING OVER SOLDER SPOT. If a paint system is applied over soldered spots without neutralizing the soldering acids, the first effect, noticeable in a few weeks, will be a dulling or loss of luster of the finish. This breakdown of the finish will continue until the film becomes hard, cracks open and finally separates from the metal.

This can be avoided if the soldered area is given a good wash of a mixture of equal parts of ammonia, alcohol and water, then wiped with a clean cloth and allowed to dry.

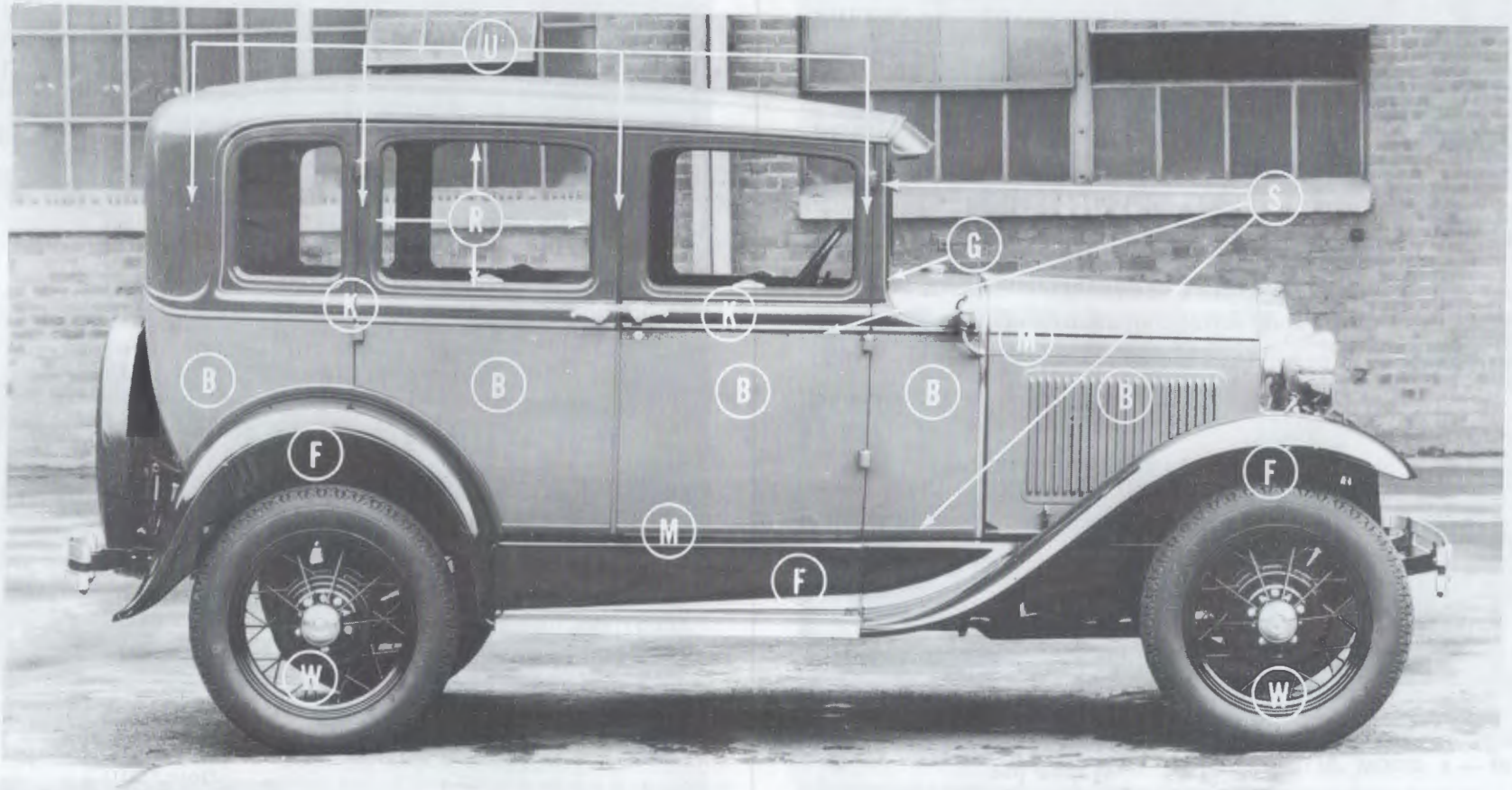
If the job is to be baked, every precaution to dry out the pores of the solder must be made to avoid pinholes in the finish.

Lifting



Fish - Eyes and Poor Wetting

Peeling Over Solder Spot



(R) Reveals	(M) Molding	(K) Belt
(W) Wheels	(S) Stripe	(F) Fenders and Shields
(B) Body Panels	(U) Upper and Back	(G) Rail-Front Belt

REFINISHING DETAIL FOR ANTIQUE FORD – 1928 THROUGH 1936

DETAIL: MODEL A FORD 1928–1931

BODY –– light colors on body area –– dark colors on upper and upper back quarter –– early 1928 upper back quarter black or belt color –– exception to above noted as kewanee and elkpoint green.

BELT AND MOLDING –– 1928-1929 solid belt and molding around passenger compartment contrasting but harmonizing with body color –– 1930-1931 emphasis placed on stripe although some bodies continued with solid belt and molding.

REVEALS –– of contrasting color to upper body usually following body color –– area below plane of door frame entire color.

STRIPE –– one-eighth inch wide –– centered on molding –– one-quarter inch from leading edges of large surfaces –– stripe on upper body of deluxe sedans.

FENDERS –– black –– black enamel on chassis –– Ford engine green on engine areas –– upper radiator shell body color 1931 deluxe.

WHEELS –– production line color black –– color on special order matching with stripe of car.

DASH PANEL –– color of body with stripe around raised portion on 1930-1931 deluxe models.

RAIL PANEL AND WINDOW STRIP –– open cars all years followed belt color when belt painted otherwise body color –– commercials black (not station wagon –– body color) –– firewalls body color.

The following colors used (no formulas) on closed cars to contrast:

Mahogany –– dark body colors on deluxe models.
Maroon –– dark body colors on standard models.
Light buff-gray –– neutral body colors on standard.
Black Walnut –– town car and convertible sedan (optional).

DETAIL: V-8 AND 4 CYLINDER FORD FOR 1932 AND 1933

BODY –– entire body one color 1933 –– colors optional on all passenger bodies.

BELT AND MOLDING –– solid color 1932 around passenger compartment to radiator shell –– sales literature indicates entire upper body as darker shade of body color –– reveals in body color –– factory advised colors subject to change without notice.

STRIPE –– single stripe for 1933 –– double stripe for 1932 –– lower completely around body –– upper from radiator shell over cowl and back to radiator shell on opposite side –– also over cowl circling upper body back to cowl.

FENDERS –– black with black enamel on chassis.

WHEELS –– black or color to match body.

DASH PANEL AND WINDOW STRIP –– grained mahogany on deluxe models –– gray or plain mahogany on standard models.

DETAIL: V-8 FORD 1934

BODY –– first year complete body and fenders one color –– colors optional for all body styles.

STRIPE –– single stripe starts at radiator shell over center of molding around entire body.

WHEELS –– color to match stripe of body.

DASH PANEL AND WINDOW STRIP –– burled walnut.

DETAIL: V-8 FORD 1935

BODY –– single color –– colors optional on all body styles.

STRIPE –– single surrounding entire body.

WHEELS –– to match stripe or body color.

DASH PANEL AND WINDOW STRIP –– taupe colors to match upholstery.

DETAIL: V-8 FORD 1936

BODY –– single color –– colors optional on all body styles.

STRIPE –– single surrounding entire body.

WHEELS –– same as body.

DASH PANEL AND WINDOW STRIP –– metallic pyroxylin gray or matching with upholstery.

STANDARD PHAETON, MODEL A — 35A, 1928-29

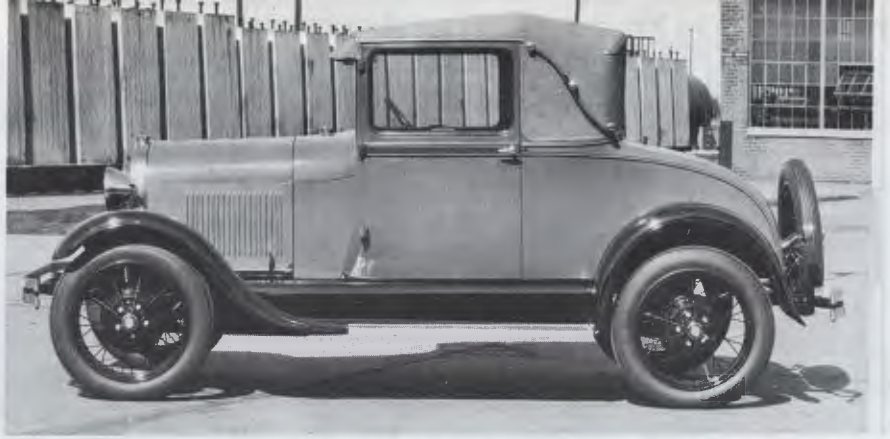
STANDARD PHAETON, MODEL A — 35B, 180A, 1930-31

STANDARD ROADSTER, MODEL A — 40A, 1928-29

STANDARD ROADSTER, MODEL A — 40B, 1930-31

STANDARD COUPE, MODEL A — 45A, 48A (Spl), 1928-29

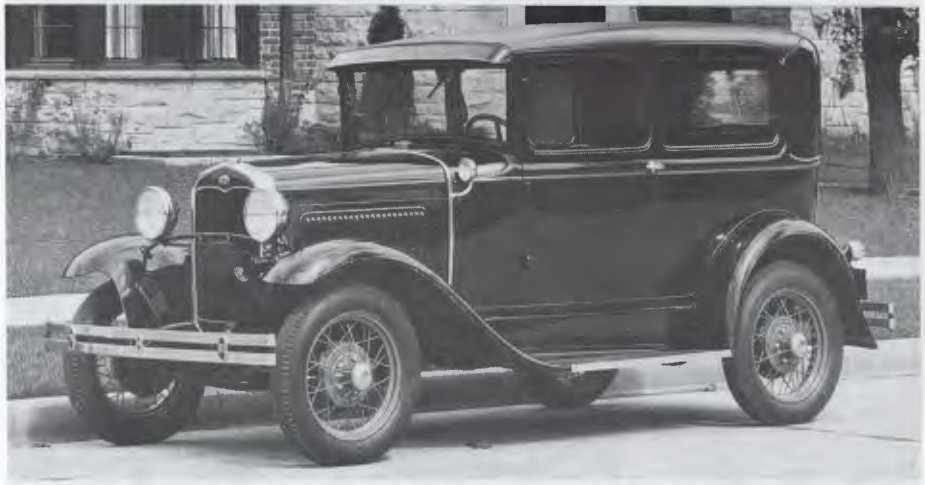
STANDARD COUPE, MODEL A — 45B & Dlx., 1930-31



SPORT COUPE, MODEL A — 50A, 54A Bus., 1928-29

SPORT COUPE, MODEL A — 50B, 1930-31

TUDOR SEDAN, MODEL A — 55A, 1928-29



TUDOR SEDAN, MODEL A — 55B & DIx., 1930-31

FORDOR STD. SEDAN, MODEL A — 60A-B-C. 165A-B. 1928-29

FORDOR STD. SEDAN, MODEL A — 160A, 165C-D, 170B, 1930-31

CABRIOLET, MODEL A — 68A, 1929

CABRIOLET, MODEL A — 68B-C, 193

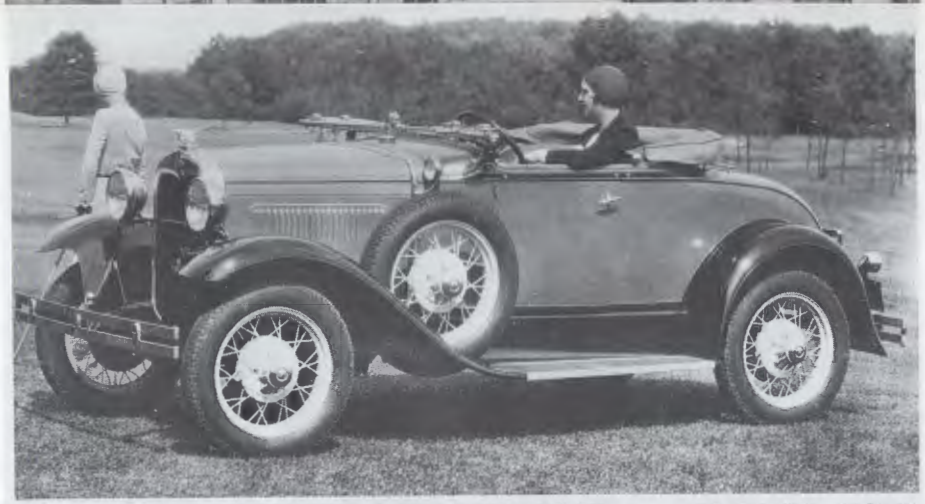
TOWN SEDAN, MODEL A — 155A-B, 1929

TOWN SEDAN, MODEL A — 155C-D, 160B, 19

TOWN CAR, MODEL A — 140A, 1928-29

VICTORIA COUPE, MODEL A — 190A, 1930

CONVERTIBLE SEDAN, MODEL A — 400A, 1931



ROADSTER, MODEL A — 40B DeLUXE, 1930-31

STATION WAGON, MODEL A — 150A, 1928-29

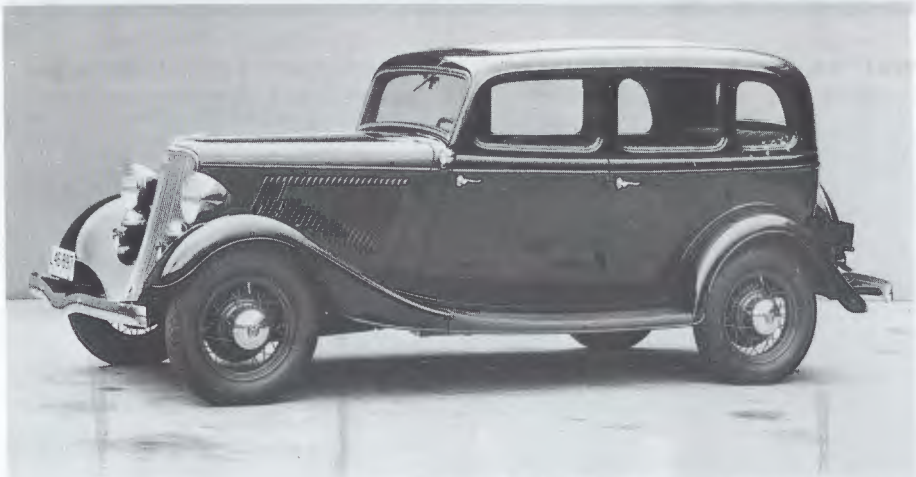
STATION WAGON, MODEL A — 150B, 1930-31

PICK UP, MODEL A — 76-78A Open; 76-78B Closed, 1928-31

TOWN CAR DELIVERY, MODEL A — 295A, 1931

PICK UP, MODEL A — 76-78A Open; 76-78B Closed, 1928-31

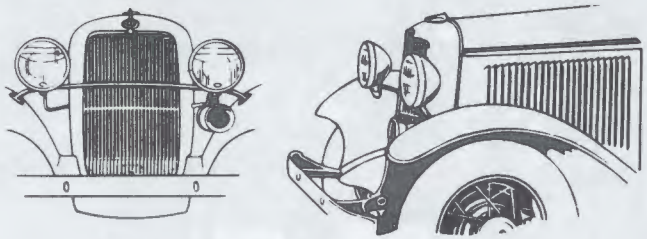
ROADSTER, DeLUXE V-8, MODEL B40, 1932



FORDOR DeLUXE SEDAN, TYPE 40-730, 1933

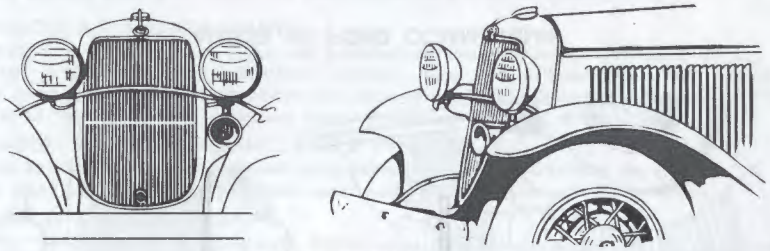
FORDOR DeLUXE SEDAN, TYPE 40-730, 1934

TOWN CAR DELIVERY, MODEL A — 295A, 1931



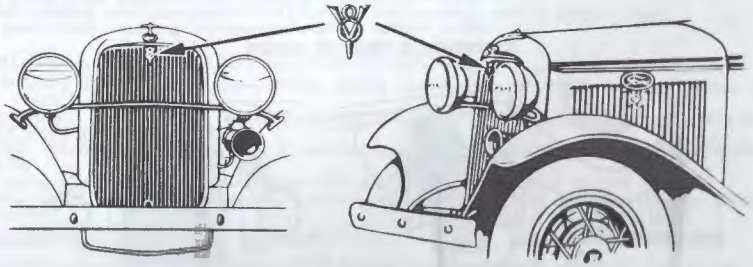
MODEL B FORD COMMERCIAL

MODEL B & BB FORD COMMERCIAL, V-8 & 4-Cyl., 1932



MODEL 46 FORD COMMERCIAL

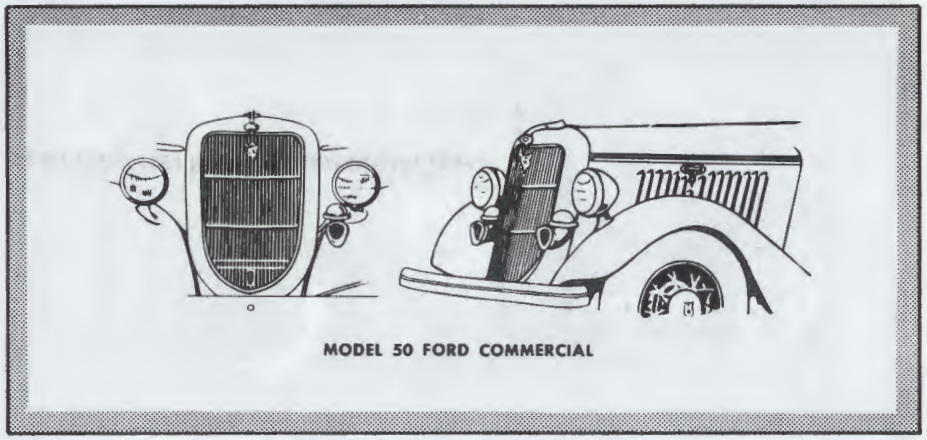
MODEL 46 & BB COMMERCIAL, V-8 & 4-Cyl., 1933



MODEL 46 FORD COMMERCIAL

MODEL 46 & BB FORM COMMERCIAL, V-8 & 4-Cyl., 1934

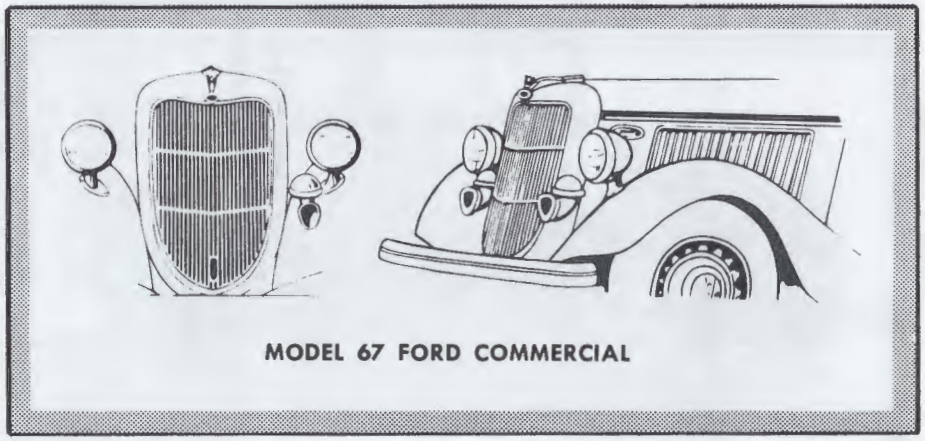
FORDOR STANDARD SEDAN, TYPE 48-730, 1935



MODEL 50 FORD COMMERCIAL

MODEL 50 & 51 FORD COMMERCIAL, V-8, 1935

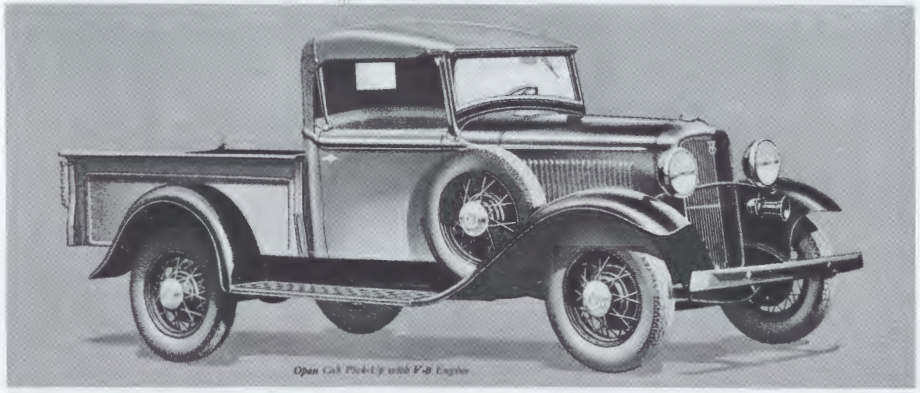
ROADSTER, MODEL 68-710, V-8, 1936



MODEL 67 FORD COMMERCIAL

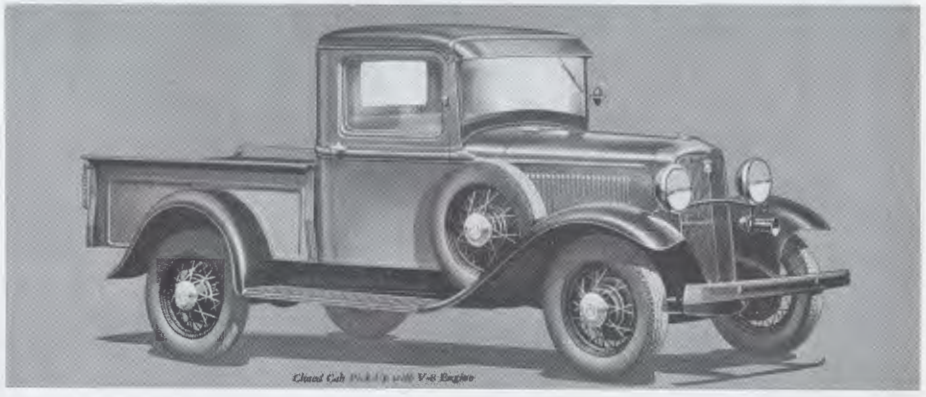
MODEL 67 & 51 FORD COMMERCIAL, V-8, 1936

Commercial Car Pick-Up with Open Cab



Open Cab Pick-Up with V-8 Engine

Commercial Car Pick-Up with Closed Cab



Closed Cab Pick-Up with V-8 Engine

FACTORY PRODUCTION SCHEDULES, 1928 - 1936

1928 MODEL A ROADSTER AND PHAETON*:

NIAGARA BLUE LIGHT or DARK lower body—DUCHESS BLUE belt-molding—FRENCH GRAY stripe.
ARABIAN SAND LIGHT or DARK lower body—COPRA DRAB belt-molding—FRENCH GRAY stripe.
DAWN GRAY lower body—GUNMETAL BLUE belt-molding—FRENCH GRAY stripe.
GUNMETAL BLUE lower body—CHELSEA BLUE belt-molding—STRAW stripe.

1929 MODEL A ROADSTER AND PHAETON*:

BONNIE GRAY lower body—CHELSEA BLUE belt-molding—STRAW stripe.
ROSE BEIGE lower body—SEAL BROWN belt-molding—ORANGE stripe.
BALSAM GREEN lower body—VALLEY GREEN belt-molding—MEDIUM CREAM stripe.
ANDALUSITE BLUE lower body—BLACK belt-molding—FRENCH GRAY stripe.

1929 MODEL A COUPE AND TUDOR SEDAN*:

BONNIE GRAY entire upper and lower body—CHELSEA BLUE belt-molding and reveals—STRAW stripe.
VAGABOND GREEN entire upper and lower body—ROCK MOSS GREEN belt-molding and reveals—STRAW stripe.
ROSE BEIGE entire upper and lower body——SEAL BROWN belt-molding and reveals—STRAW stripe.
ANDALUSITE BLUE lower body—BLACK upper body-belt-molding—NIAGARA BLUE reveals—FRENCH GRAY stripe.

1928 MODEL A TUDOR SEDAN, COUPE AND SPORT COUPE*:

NIAGARA BLUE LIGHT lower body—NIAGARA BLUE DARK upper body—DUCHESS BLUE belt-molding and reveals—FRENCH GRAY stripe.
ARABIAN SAND DARK lower body—COPRA DRAB upper body-belt-molding—FRENCH GRAY reveals and stripe.
DAWN GRAY lower body—GUNMETAL BLUE upper body-belt-molding—DAWN GRAY reveals—STRAW stripe.
NIAGARA BLUE DARK lower body—NIAGARA BLUE LIGHT upper body-belt-molding—DUCHESS BLUE reveals—FRENCH GRAY stripe.
NIAGARA BLUE LIGHT entire body upper and lower—DUCHESS BLUE belt-molding and reveals—FRENCH GRAY stripe.
GUNMETAL BLUE lower body—BLACK upper body-belt-molding—FRENCH GRAY reveals and stripe.

1929 MODEL A TOWN CAR*:

THORNE BROWN lower body—BLACK upper body-belt-molding—THORNE BROWN reveals—ORANGE stripe.
BLACK entire body, upper and lower-belt-molding-reveals—GOLD stripe.
BREWSTER GREEN lower body—BLACK upper body-belt-molding—BREWSTER GREEN reveals—APPLE GREEN stripe.

1929 MODEL A TAXICAB*:

BALSAM GREEN lower body except hood and cowl which were black—BLACK upper body—MEDIUM CREAM belt-molding and rear reveals—BALSAM GREEN stripe over medium cream.
DUCHESS BLUE lower body except hood and cowl which were black—BLACK upper body—MEDIUM CREAM belt-molding and rear reveals—DUCHESS BLUE stripe over medium cream.

1929 MODEL A COMMERCIAL*:

ROCK MOSS GREEN entire body area—FRENCH GRAY stripe.

1928 TO 1931 MODEL A STATION WAGON*:

MANILA BROWN hood and cowl assembly only, no stripe—SPAR VARNISH on all wooden parts.

1929 MODEL A FORDOR AND TOWN SEDAN*:

BONNIE GRAY lower body—CHELSEA BLUE upper body-belt-molding—BONNIE GRAY reveals—STRAW stripe.
VAGABOND GREEN lower body—ROCK MOSS GREEN upper body-belt and molding—VAGABOND GREEN reveals—STRAW stripe.
ROSE BEIGE lower body—SEAL BROWN upper body-belt-molding—ROSE BEIGE reveals—STRAW stripe.
ANDALUSITE BLUE entire body upper and lower-belt-molding—NIAGARA BLUE LIGHT reveals—FRENCH GRAY stripe.

1929-1930 MODEL A CONVERTIBLE CABRIOLET*:

ANDALUSITE BLUE entire body including belt-molding—FRENCH GRAY stripe.
BRONSON YELLOW lower body—SEAL BROWN upper body-belt-molding and rear deck between moldings—BRONSON YELLOW reveals—ORANGE stripe.
MOLESKIN BROWN entire body upper and lower including belt-molding—TACOMA CREAM stripe.
ELKPOINT GREEN lower body—KEWANEE GREEN upper body-belt-molding—ELKPOINT GREEN reveals—APPLE GREEN stripe.

1928 MODEL A FORDOR AND TOWN SEDAN*:

BALSAM GREEN lower body-belt-molding and reveals—VALLEY GREEN upper body—OLD IVORY stripe.
COPRA DRAB (on cars prior to B-28) lower body—SEAL BROWN upper body-belt-molding—COPRA DRAB reveals—ORANGE stripe.
ROSE BEIGE lower body—SEAL BROWN upper body-belt and molding—ROSE BEIGE reveals—ORANGE stripe.
ANDALUSITE BLUE entire body upper and lower—ARABIAN SAND belt-molding—ANDALUSITE BLUE reveals—ORANGE stripe.

1930 MODEL A ROADSTER AND PHAETON*:

THORNE BROWN entire body including belt-molding—ORANGE stripe.
ELKPOINT GREEN lower body—KEWANEE GREEN belt-molding—APPLE GREEN stripe
COPRA DRAB lower body—CHICLE DRAB belt-molding—STRAW stripe.
ANDALUSITE BLUE entire body including belt-molding—FRENCH GRAY stripe.

1930 MODEL A TUDOR SEDAN*:

COPRA DRAB lower body—CHICLE DRAB upper body-belt-molding—COPRA DRAB reveals—STRAW stripe.
ELKPOINT GREEN lower body—KEWANEE GREEN upper body-belt-molding—ELKPOINT GREEN reveals—APPLE GREEN stripe.
ANDALUSITE BLUE lower body—BLACK upper body-belt-molding—ANDALUSITE BLUE reveals—FRENCH GRAY stripe.
THORNE BROWN entire body-belt-molding-reveals—ORANGE stripe.

1930 MODEL A SPORT COUPE*:

ELKPOINT GREEN lower body—KEWANEE GREEN upper body-belt-molding—ELKPOINT GREEN reveals—APPLE GREEN stripe.
ANDALUSITE BLUE lower body—BLACK upper body-belt-molding—ANDALUSITE BLUE reveals—FRENCH GRAY stripe.
COPRA DRAB lower body—CHICLE DRAB upper body-belt-molding—COPRA DRAB reveals—STRAW stripe.
THORNE BROWN entire body upper and lower-belt-molding-reveals—ORANGE stripe.

1930 MODEL A STANDARD COUPE*:

ANDALUSITE BLUE entire body upper and lower-belt-molding-reveals—FRENCH GRAY stripe.
ELKPOINT GREEN lower body—KEWANEE GREEN upper body-belt-molding—APPLE GREEN stripe.
COPRA DRAB lower body—CHICLE DRAB upper body-belt-molding—COPRA DRAB reveals—STRAW stripe.
THORNE BROWN entire body upper and lower-belt-molding—ORANGE stripe.

1930 MODEL A FORDOR SEDAN, 2 AND 3 WINDOW*:

THORNE BROWN entire body upper and lower-belt-molding-reveals—ORANGE stripe.
COPRA DRAB lower body—CHICLE DRAB upper body-belt-molding-reveals—STRAW stripe.

1930 MODEL A DELUXE SEDAN*:

ELKPOINT GREEN lower body—KEWANEE GREEN upper body-belt-molding—ELKPOINT GREEN reveals—APPLE GREEN stripe.
FORD MAROON lower body—BLACK upper body-belt-molding—FORD MAROON reveals—VERMILLION stripe.
ANDALUSITE BLUE lower body—BLACK upper body-belt-molding—ANDALUSITE BLUE reveals—FRENCH GRAY stripe.

1930 MODEL A TOWN SEDAN*:

FORD MAROON lower body—BLACK upper body-belt-molding—FORD MAROON reveals—VERMILLION stripe.
COPRA DRAB lower body—CHICLE DRAB upper body-belt-molding—COPRA DRAB reveals—STRAW stripe.

1931 MODEL A ROADSTER AND PHAETON*:

THORNE BROWN entire body including belt-molding—STRAW stripe
LOMBARD BLUE entire body including belt-molding—DUCHESS BLUE stripe.
CHICLE DRAB lower body—COPRA DRAB belt-molding—STRAW stripe.
KEWANEE GREEN lower body—ELKPOINT GREEN belt-molding—APPLE GREEN stripe.
BLACK entire body including belt-molding—APPLE GREEN stripe.

1931 MODEL A DELUXE ROADSTER AND PHAETON*:

WASHINGTON BLUE lower body—RIVIERA BLUE belt-molding—TACOMA CREAM stripe—TACOMA CREAM wheels.
STONE BROWN (after B-5-30) lower body—STONE GRAY belt-molding—TACOMA CREAM stripe—TACOMA CREAM wheels.
BREWSTER GREEN lower body—BLACK belt-molding—APPLE GREEN stripe—APPLE GREEN wheels. (after 9-30)
BLACK entire body including belt-molding—APPLE GREEN stripe—APPLE GREEN wheels.
LOMBARD BLUE entire body including belt-molding—DUCHESS BLUE stripe—DUCHESS BLUE wheels. (after 9-30)

1931 MODEL A CONVERTIBLE SEDAN*:

COPRA DRAB entire body-belt-molding—CHICLE DRAB reveals—STRAW stripe—STRAW wheels.
WASHINGTON BLUE entire body upper and lower—RIVIERA BLUE belt-molding—TACOMA CREAM stripe—TACOMA CREAM wheels.
BREWSTER GREEN entire body upper and lower-belt-molding-reveals—VERMILLION stripe—VERMILLION wheels.

1931 MODEL A FORDOR SEDAN, TUDOR SEDAN AND COUPE*:

THORNE BROWN lower body—BLACK upper body-belt-molding-reveals—STRAW stripe.
LOMBARD BLUE lower body—BLACK upper body-belt-molding-reveals—FRENCH GRAY stripe.
CHICLE DRAB lower body—COPRA DRAB upper body-belt-molding-reveals—STRAW stripe.
KEWANEE GREEN lower body—ELKPOINT GREEN upper body-belt-molding-reveals—APPLE GREEN stripe.
BLACK entire body including upper and lower body-belt-molding-reveals—APPLE GREEN stripe.

1931 MODEL A CONVERTIBLE CABRIOLET*:

BREWSTER GREEN lower body—BLACK upper body-belt-molding—BREWSTER GREEN reveals—APPLE GREEN stripe.
BRONSON YELLOW lower body—SEAL BROWN upper body-belt-molding and rear deck between moldings—BRONSON YELLOW reveals—ORANGE stripe.
MOLESKIN BROWN lower body—SEAL BROWN upper body-belt-molding and reveals—FRENCH GRAY stripe.
LOMBARD BLUE entire body including belt-molding-reveals—DUCHESS BLUE stripe.
KEWANEE GREEN lower body—ELKPOINT GREEN upper body-belt-molding and reveals—APPLE GREEN stripe—APPLE GREEN wheels.
BLACK entire body including belt-molding—APPLE GREEN stripe—APPLE GREEN wheels.
FORD MAROON entire body upper and lower—BLACK belt-molding-reveals—VERMILLION stripe—VERMILLION wheels.

1931 MODEL A DELUXE TOWN SEDAN, DELUXE COUPE AND VICTORIA SEDAN*:

FORD MAROON lower body—BLACK upper body-belt-molding—FORD MAROON reveals—VERMILLION stripe.
BREWSTER GREEN lower body—BLACK upper body-belt-molding—BREWSTER GREEN reveals—APPLE GREEN stripe.
CHICLE DRAB lower body—COPRA DRAB upper body-belt-molding-reveals—STRAW stripe.
KEWANEE GREEN lower body—ELKPOINT GREEN upper body-belt-molding—KEWANEE GREEN reveals—APPLE GREEN stripe.
BLACK entire body lower and upper-belt-molding-reveals—APPLE GREEN stripe.

*Chassis, shields, fenders, wheels (except were noted as otherwise) BLACK on all cars—engine green.

1932 FORD 4 AND 8 CYLINDER PASSENGER CARS*:

FORD MAROON entire body—BLACK belt-molding—GOLD stripe.
BREWSTER GREEN MEDIUM entire body—BREWSTER GREEN LIGHT belt-molding—SILVER stripe.
TUNIS GRAY entire body—OLD CHESTER GRAY belt-molding—TACOMA CREAM stripe.
OLD CHESTER GRAY entire body—TUNIS GRAY belt-molding—TACOMA CREAM stripe.
WASHINGTON BLUE entire body—BLACK belt-molding—TACOMA CREAM stripe.
BREWSTER GREEN LIGHT** (Sedans) lower body—BREWSTER GREEN MEDIUM upper body-belt-molding—BREWSTER GREEN LIGHT reveals—SILVER stripe.
WINTERLEAF BROWN entire body-belt-molding-reveals—TACOMA CREAM stripe.
*Color combinations optional on all body styles. Chassis, shields, fenders, and wheels BLACK on all cars.
**When changing colors for sedans use light shade for lower body ond dark shade for upper body. Wheel color would match with stripe when colored wheels desired. Exception: GOLD and SILVER.

1933 FORD V-8 PASSENGER CARS*:

BLACK entire body and molding—VERMILLION stripe—VERMILLION wheels on deluxe models—BLACK wheels on standard models.
BREWSTER GREEN MEDIUM entire body and molding—FRENCH GRAY stripe.
OLD CHESTER GRAY entire body—TACOMA CREAM stripe—TACOMA CREAM wheels on deluxe models—BLACK wheels on standard models.
EMPEROR BROWN MEDIUM entire body—TACOMA CREAM stripe—TACOMA CREAM wheels on deluxe models—BLACK wheels on standard models.
DUNCAN BLUE entire body—FRENCH GRAY stripe—BLACK wheels.
COACH MAROON entire body—VERMILLION stripe—VERMILLION wheels on deluxe models—BLACK wheels on standard models.

*Chassis, shields, fenders BLACK on all cars. Factory literature researched indicates that in some instances the entire moldings were done in stripe color, particularly open cars. Colors optional on all body styles.

1934 FORD V-8 PASSENGER CARS—STANDARD*:

BLACK entire body—TACOMA CREAM stripe—BLACK wheels.
DEARBORN BLUE entire body—TACOMA CREAM stripe—BLACK wheels.
CORDOBA GRAY entire body—TACOMA CREAM stripe—BLACK wheels.
VINEYARD GREEN entire body—FRENCH GRAY stripe—BLACK wheels.

1934 FORD V-8 DELUXE 3 WINDOW COUPE AND FORDOR SEDAN*:

BLACK entire body—TACOMA CREAM stripe—TACOMA CREAM wheels.
DEARBORN BLUE entire body—TACOMA CREAM stripe—TACOMA CREAM wheels.
CORDOBA GRAY entire body—TACOMA CREAM stripe—CORDOBA GRAY wheels.
VINEYARD GREEN entire body—FRENCH GRAY stripe—VINEYARD GREEN wheels.

1934 FORD V-8 ROADSTER, PHAETON, 5 WINDOW COUPE AND TUDOR SEDAN*:

BLACK entire body—TACOMA CREAM stripe—TACOMA CREAM wheels.
DEARBORN BLUE entire body—TACOMA CREAM stripe—TACOMA CREAM wheels.
CORDOBA GRAY entire body—STRAW stripe—CORDOBA GRAY wheels.
VINEYARD GREEN entire body—FRENCH GRAY stripe—VINEYARD GREEN wheels.

1934 V-8 CABRIOLET AND VICTORIA SEDAN*:

BLACK entire body—TACOMA CREAM stripe—BLACK wheels.
CORDOBA GRAY entire body—STRAW stripe—CORDOBA GRAY wheels.
VINEYARD GREEN entire body—FRENCH GRAY stripe—VINEYARD GREEN wheels.
COACH MAROON entire body—POPPY RED stripe—POPPY RED wheels.

1934 FORD V-8 COMMERCIAL CARS*:

VERMILLION entire body—MEDIUM CREAM stripe—MEDIUM CREAM wheels.
EMPEROR BROWN entire body—FORD MEDIUM MAROON stripe—FORD MEDIUM MAROON wheels.

*This is the first year bodies were painted completely with one body color including shields, fenders and tire cover. Chassis remained BLACK as did wheels on standard models.

1935 FORD V-8 PASSENGER AND COMMERCIAL CARS*:

BLACK entire body—APPLE GREEN stripe—APPLE GREEN wheels.
CORDOBA GRAY entire body—POPPY RED stripe—POPPY RED wheels.
GUNMETAL GRAY entire body—APPLE GREEN stripe—APPLE GREEN wheels.
DEARBORN BLUE entire body—POPPY RED stripe—POPPY RED wheels.
VINEYARD GREEN (C) entire body—APPLE GREEN wheels.
VERMILLION (C) entire body—VERMILLION wheels.
TACOMA CREAM (C) entire body—TACOMA CREAM wheels.

1936 FORD V-8 PASSENGER CARS*:

BLACK entire body—BLACK wheels—APPLE GREEN stripe.
GUNMETAL GRAY entire body—GUNMETAL GRAY wheels—POPPY RED stripe.
VINEYARD GREEN entire body—VINEYARD GREEN wheels—FRENCH GRAY stripe.
WASHINGTON BLUE entire body—WASHINGTON BLUE wheels—TACOMA CREAM stripe.
CORDOBA TAN entire body—CORDOBA TAN wheels—POPPY RED stripe.

1936 FORD V-8 COMMERCIAL CARS*:

BLACK entire body—APPLE GREEN stripe—BLACK wheels.
GUNMETAL GRAY entire body—APPLE GREEN stripe—BLACK wheels.
VINEYARD GREEN entire body—TACOMA CREAM stripe—BLACK wheels.
WASHINGTON BLUE entire body—TACOMA CREAM stripe—BLACK wheels.
CORDOBA TAN entire body—POPPY RED stripe—BLACK wheels.

*Colors optional on all body styles. Chassis remained BLACK.

Body and trim colors can be compounded by your antique auto store or Ditzler Automotive Finish Jobber by the formulas contained in this manual. Engine, chassis and related colors in lacquer and enamel can be secured from most of these firms from shelf stock.

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More complete details for body interior, trim, upholstery and hardware will be found in the following Polyprints titles available at your antique auto store:

PF-2, A-1 and A-5 for Model A Ford.
PF-2, V-32 (1932), V-33 (1933-34) and V-35 for 1935 and 1936 Ford cars.

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Color cards shown are of lacquer and are the same by name only for enamel . . . perfect color match of the two paints can not be expected. Using enamel on cars prior to 1934 would be for increased durability, such as for wheels.

PROPER CARE AND OPERATION OF SPRAY GUNS

Fig. 1—Cutaway view furnished by the DeVilbiss Co.

SPRAY guns are precision instruments. They are constructed as accurately and tested as carefully as precision tools and gauges. When completely assembled, each spray gun is tested for general operation and adjustment, for atomization and for spray pattern size and uniformity with the paint and accessory equipment for which the gun was designed. If given a reasonable amount of care, it will produce good results for years.

Neglect and carelessness are responsible for the majority of spray gun difficulties. Proper care of the gun requires but little time and effort. Thorough cleaning of gun and accessory equipment immediately after use, lubrication of bearing surfaces and packings at recommended intervals and proper care in handling (do not drop or throw gun) are important factors in the care of a spray gun.

To obtain the best results follow the outlined suggestions:

1. Do not immerse the gun in thinner as it destroys the lubricants in the packings. If necessary to immerse the nozzle, keep the thinner level below the packing. Do not use a wire, knife or hard implement to clean out air passages.

2. Lubricate air valve stem daily with a few drops of light oil.

3. Keep all packings, such as fluid needle packing, soft and pliant by occasional oiling. Packing boxes should be tightened with fingers only.

4. Never use caustic alkaline solutions for cleaning as they destroy aluminum alloy.

5. Clean spray gun and cup immediately after use by removing all excess material from cup. Place in cup a small amount of clean solvent, suitable for the material used, and spray through gun as usual. Repeat once or twice. Wipe parts clean and dry.

6. When replacing fluid tip, make certain it is tightened securely in position.

7. Keep the air vent in cup lid open and free of material accumulations at all times.

ADJUSTMENT

Provided (1) the gun is clean; (2) there is no leakage around glands and fittings; (3) that the material in the cup is thinned to the proper viscosity (recommended by the paint manufacturer); and (4) that you are using the correct air pressure at the gun, then the adjustment to obtain the desired width and shape of spray is merely a manipulation of the two knurled screws "A" and "B".

The screw "A" governs the shape of the spray; turning to the right or clockwise produces a round or conical spray while turning to the left produces a fan shape.

The screw "B" governs the amount of fluid going through the gun and should be regulated to conform with the type of material being sprayed and the width of spray desired. As the width of spray is increased more material must be allowed to pass through the gun to get the same coverage on the increased area.

CAUSES OF SPITTING

"C" Dried out packing around material needle valve permits air to get into fluid passageway and results in spitting. Back up knurled nut, place two drops machine oil in packing, replace nut and tighten only with fingers. In aggravated cases replace packing.

"D" Dirt between fluid nozzle seat and body or a loosely installed fluid nozzle will make a gun spit. Remove fluid nozzle, clean back of nozzle and nozzle seat in gun body with rag wet with thinner, replace nozzle and draw up tightly against body.

"E" A defective swivel nut on syphon cup or material hose can cause spitting.

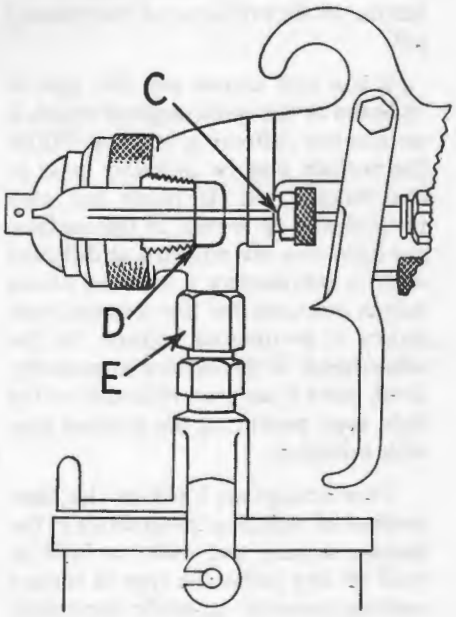


Figure 2

SANDING FOR GREAT LUSTRE

IN THE application of lacquer finishes, it is impossible to produce a surface that will have absolutely no inequalities. These inequalities will run all the way from the coarse "orange peel," produced by faulty adjustment or handling of the spray gun, to the microscopic nibs or pin points that are bound to occur even in the best regulated finishing room.

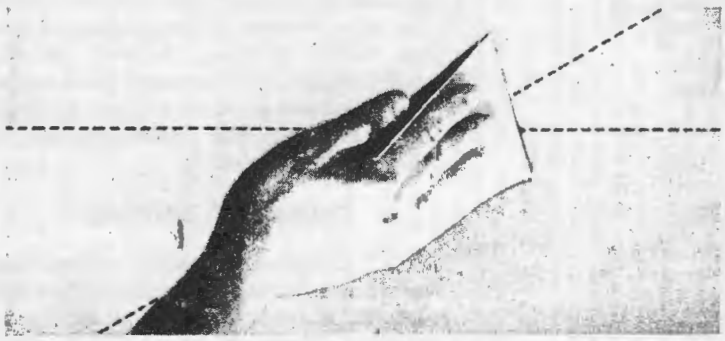


Figure No. 37

How to reduce these inequalities easily, quickly and at the lowest possible cost is a vital question in the finishing shop where any excess polishing time may mean the difference between a profit or a loss on the job. Not only that, but the polishing method may make a considerable difference in the brilliance of the finished job.

It is a well known fact that light is reflected at the same angle at which it strikes the reflecting surface. While the surface may be perfectly level to the naked eye, if there are any inequalities, or waves, in the surface, the light rays are reflected at different angles, producing a blurred effect which accounts for the reduced brilliancy of an uneven surface. On the other hand, if the surface is perfectly level, there is an even reflection of the light rays, producing the greatest possible brilliance.

This brings us back to the best method of reducing inequalities in the lacquer surface. and while we hold no brief for any particular type of surface rubbing material, scientific tests bring out some convincing facts. One method of smoothing lacquer surfaces is to make use of a rubbing compound applied with a heavy knit cloth like underwear while another is the use of 400 or 600 waterproof sandpaper.

The illustrations in Fig. 38 are greatly enlarged cross-sections of lacquer surfaces, showing just what happens in the use of these two methods. Figure A shows the application of loose rubbing material when applied with a cloth pad. It will be observed that while the high spots are being ground down, the loose material sinks into the depressions, producing some of the same grinding action in the low spots. This leaves a surface, after polishing, similar to the illustration in Figure C. The arrows in Figure E illustrate the unequal reflection of light from such a surface.

On the other hand, if waterproof sandpaper is used, it will be seen in Figure B that only the high spots are affected, producing a perfectly smooth plane surface, such as shown in Figure D. The arrows in Figure F illustrate the more even reflection of light, providing the greatest possible brilliancy in the final finish. The proper use of sandpaper results in a decided saving of time and labor in the final rubbing and polishing operation and a much better looking job.

PROPER SANDING METHODS

Sanding should be done in one direction only and preferably with a sanding block (rubber or felt). When done with the hand, hold the hand obliquely to the direction of sanding so that the pressure on the finger tips will not have a tendency to cut grooves in the finish (Figure 37). This may seem a little awkward at first but once you develop the habit of sanding in this manner it will seem perfectly natural and will give you a smoother job. If you can't sand this way, then use a small piece of sheet rubber between your hand and the paper to distribute the pressure from your finger tips. Use plenty of water and do not allow the material to pile up on the paper. Too much pressure is also to be avoided.

POWER SANDING

Large areas, whether curved or flat, can be sanded more economically and better with a power driven block sander. These sanders, of which there are two general types—rotating or reciprocating—are driven by air or electricity.

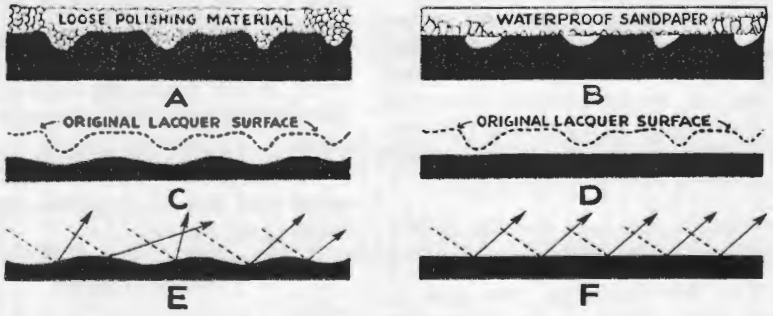


Figure No. 38

REFINISHING SCHEDULES—ACRYLIC LACQUER SYSTEMS

ACRYLIC LACQUER SYSTEM OVER BARE METAL

Operation	Methods and Materials

1. **Remove old finish** . . . Use one of the methods shown
2. **Clean entire surface** . . . Use DX-330 ACRYLI–CLEAN Wax & Grease remover.
3. **Sand the metal** . . . Use 220 paper.
4. **Remove rust** . . . Use PPG Metal Cleaning and Conditioning System and follow with Step 5 as soon as dry.
5 **Sand undercoats** . . . Water sand with 320 paper to get a smooth surface.
6. **Spot putty or glaze** . . . Use DFL-1 or DFL 17 Spot Putty for minor nicks and scratches.
7. **Sand undercoats** . . . Water sand with 320paper to get a smooth surface..
8. **Respray and primer surfacer** . . .To cover spots sanded through to the metal.
9. **Resand undercoats** . . . Touch up spots with 320 paper.
10. **Bow out all cracks.** . . . Use air hose
11. **Clean surface.** . . . Wipe off with DX 330 ACRYLI–CLEAN Wax and Grease Remover to remove any hand marks, etc.
12. **Apply DURACYRL color** . . . Spray from four to six wet coats depending on transparency of the color. Thin with DURACRYL Acrilic Lacquer Thinner (DTL-876) or better.
13. **Sand color coat** . . . Water sand acrylic with 600 paper.
14. **Touch up** . . . Respray spots that have been sanded through to surfacer.
15. **Resand color coat** . . . Water sand areas that have been touched up.
16. **Compound the finish** . . . Allow to dry a minimum of 24 hours to prevent a loss of gloss after compounding.
17. **Polish** . . .to obtain highest lustre.
18. **Wheels** . . . Spray with appropriate color in DITZCO or DELSTAR enamel.

ACRYLIC LACQUER SYSTEM OVER OLD ACRYLIC LACQUER OR ENAMELS

Operation	Methods and Materials

1. **Prepare old finish** . . . Clean with DX-330 ACRYLI-CLEAN® Wax & Grease remover. If old finish is enamel, sand thoroughly.
2. **Blow out cracks** . . . Use air hose.
3. **Clean Surface** . . . Use DX-330 ACRYLI–CLEAN Wax and Grease remover to remove hand marks, etc.
4. **Apply undercoats on bare metal parts** . . . See operations 4, 5, 6, 7, 8, 9, 10 and 11 on previous column.
5. **Apply DURACRYL color** . . . Spray four to six wet coats of DURACRYL color.
6. **Sand color coats** . . . Water sand with 600 paper.
7. **Compound color coats** . . . Allow to dry a minimum of 24 hours before compounding.
8. **Polish** . . . for highest lustre..
9. **Wheels** . . . Spray wheels with DITZCO or DELSTAR enamel in appropriate color.

1932 V-8 DeLUXE 3-WINDOW COUPE, MODEL B-520

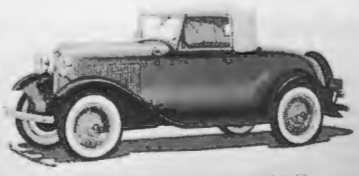
1932 V-8 DeLUXE PHAETON, MODEL B-36

1932 V-8 DeLUXE ROADSTER, MODEL B-40

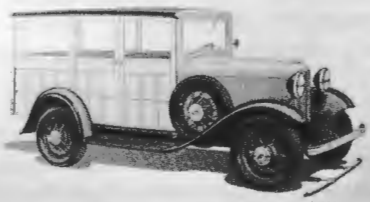
1932 V-8 DeLUXE 5 WINDOW COUPE, MODEL B-48

1932 V-8 DeLUXE SPORT COUPE, MODEL B-50

1932 V-8 DeLUXE TUDOR SEDAN, MODEL B-35



1932 V-8 DeLUXE CABRIOLET, MODEL B-65



1932 STANDARD STATION WAGON, MODEL B-150

1932 V-8 DeLUXE FORDOR SEDAN, MODEL B-180

1932 V-8 DeLUXE VICTORIA COUPE, MODEL B-190