Paint

General

The use of lacquers, synthetic enemals and combination finishes has made auto painting a highly developed specialized operation. Up to the spring of 1954, Porsche cars were finished in lacquer paints.

Through the development of synthetic enamels and their many advantages, a change over was made to these finishes.

In the springs of 1955 all colors, with the exception of the metallics, were synthetic enamels. Beginning 1956 all finishes were synthetic enamel. Laquer finishes are now available only on special order and of course at additional cost.

The type and color of the finish is found on a plate attached to the hinge post of each car. This plate shows the type of paint and identification code number.

The instructions contained in this section are primarily intended to assist in the spray painting of Porsche cars and are to be considered only as a guide. The instructions given by paint manufacturers for their product should be followed. The amount of thinner, nozzle size, air pressure, paint pressure and similar instructions should be in compliance with the manufacturer's specifications.

Shop Practice

The following are basic requirements for an auto paint shop:

- Spray paint chamber and dryer room must be kept dust free.
- The floor should be a grating under which a flow of water circulates to catch any falling dirt, dust, or overspray. In any case the floor must be wet.
- The paint sprayer must wear lint free overalls sprayed with tack spray so that dust will remain on the surface.
- Parts which must be masked should be covered with smooth non porous paper. Newspaper is not acceptable.
- Only masking tape which is heat resistant can be used when the paint is to be baked.
- Windows must not absolutely be covered with paper. Liquid masking material which can easily be peeled off can be used.
- Cars which have been on the road for some time must be cleaned so that no silicon or wax remain

Repair Procedure for Body Damage

Body repairs are individual cases and cannot be outlined in exact details. The descriptions which follow are merely suggestions to be used as a guide.

The individual shop must consider the examples, shown as typical cases.

37 BO

Front End Repair

A damaged Cabriolet

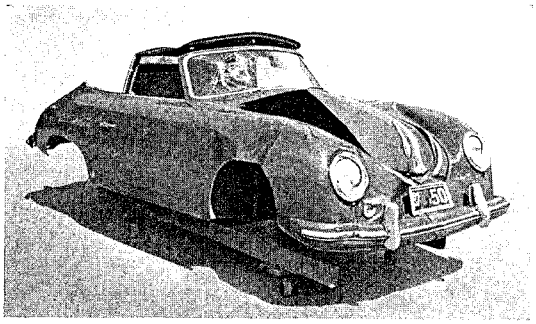

Fig. 172

The measurement of the frame (31 BO) disclosed that the distortion of the front suspension section was beyond the tolerances. This repair could only be performed by replacing the front chassis and body section.

Chassis and body section removed.

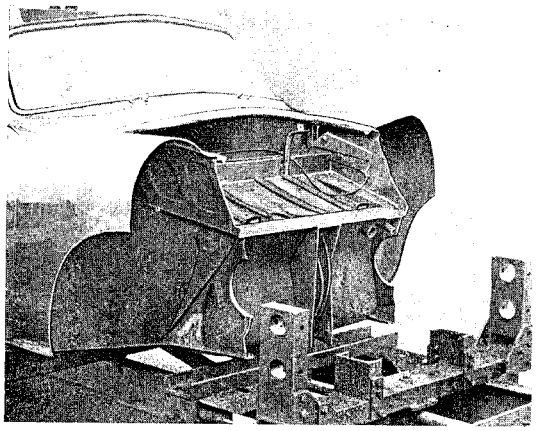

Fig. 173

The undamaged pedal wall and chassis sections were not removed while the section in front was entirely removed.

Front chassis section tacked in place in assembly jig.

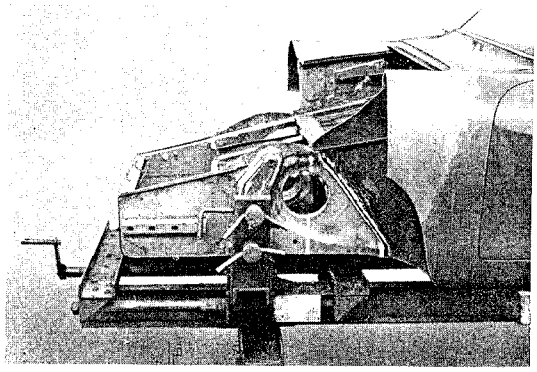

Fig. 174

The stubs of the cut off chassis section were bent inward sligthly to allow the new section to overlap. The front chassis and inner panel sections are then flame welded along the seams shown in white. After these seams are secure the body must be removed from the jig so that the bottom seams as well as the diagonal braces can be welded.
Front interior section tacked in place.

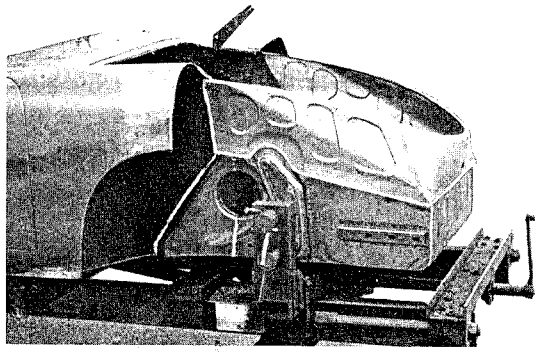

Fig. 175

The interior section is tacked in place and spot welded with calking compound in the seam around the lower edge. The vertical seam is flame welded.

Body with new front section.

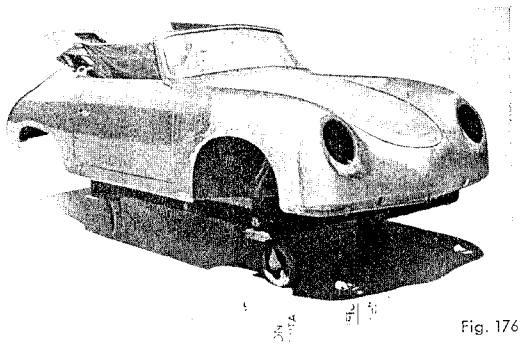

Fig. 176

After the body is removed from the alignment jig, the fitting of the skin section is performed with the aid of a new front hood and the two bumper brace holes. The hood serves as a pattern for the hood opening and the two bumper brace slots are used as levelling references. Two 30 x 5 x approx. 300 mm ($^3/_{16}$ x $1^3/_{16}$ x 12 in.) rods are to be inserted into the bumper brace sockets to serve as reference markers. The headlight sockets must be horizontally on the same level and equidistant from the car center.

The paint near the weld seams must be removed so that the joints can be covered with lead in order to smooth them into the body contours. The hood must then be aligned with the opening so that there is a uniform 3 mm ($^1/_8$ in.) gap around the entire hood.

Rear End Repair

38 B0

These two illustrations show the damage to the rear end, the roof and rear fenders. What cannot be seen, is the damage to the interior panels and possible chassis damage.

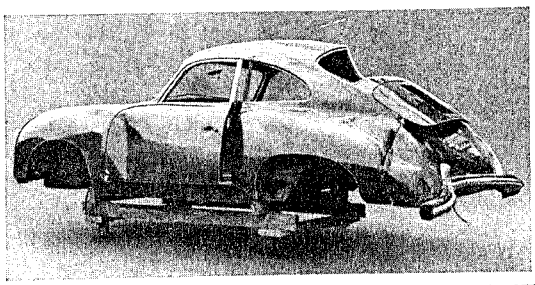

Fig. 177

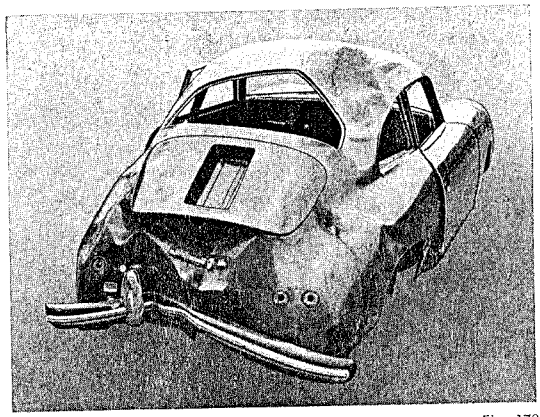

Fig. 178

The body after removal of the damaged parts.

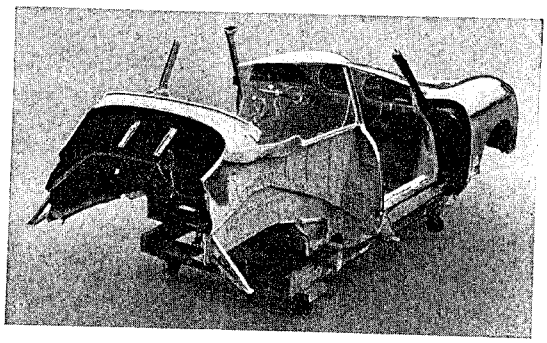

Fig. 179

The fenders were completely removed up to the door posts, first with thin shears along the door post and then by heating the metal red hot and removing the spot welded portion from the post, a spot at a time. The inner and outer rear sections were removed similarly. The top is removed best by cutting at the existing weld seams so that the posts are retained.

Installed interior rear section.

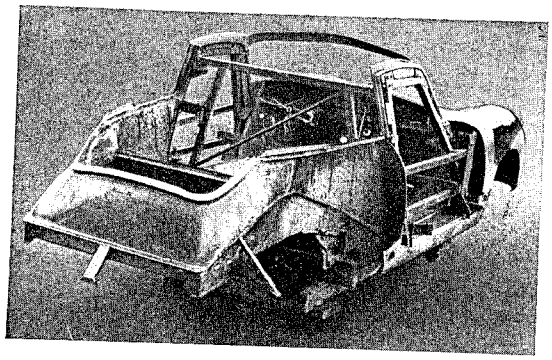

Fig. 180

The rear cross member has been installed and the rear interior panel spot welded to the body and cross member. The left and right roof frames were rebuilt with the aid of door templates specifically constructed for this purpose. The door post must be held firmly in place as shown in Fig. 180. The roof frame and interior sections are to be installed, spot welded together, and finally welded in place.

Reconstructed body.

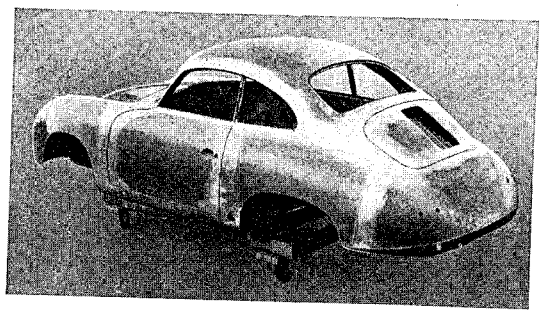

Fig. 181

After completing the welding of the frame sections the top, rear, and fender sections are spot welded in place. The rear hood opening is aligned to match the new hood so that a uniform gap of 3 mm (1/8 in.) extends around the entire hood. The skin sections are then welded in place and the seams hammered flat. All skin seams are tinned and filled with lead so that a smooth contour is obtained. These seams are clearly visible in Fig. 181.

on the old paint. Car polishes and waxes produce a surface film to which new paint will not adhere. A silicon remover or good car wash solution must be used to remove such coatings.

- If oven dried synthetic enamel is to be used and temperatures in excess of 90° C (195° F) will be reached in the drying oven, all rubber, fabric and interior parts as well as the radio and instruments must be removed.

Warning

Overspray dust of synthetic enamel together with overspray dust from lacquer paints will ignite by spontaneous combustion. For this reason it is not permitted that lacquer and synthetic enamel paints be sprayed in the same spray room.

Spraying Synthetic Enamel

There are three principal types of synthetic enamels:

Air drying

Due to its relatively poor durability, this type is used mainly for small touch-up work.

Oven dried at 80° C (175° F)

This type is considerably more durable but does not have the hardness of the 120° C type.

Oven dried at 120° C (250° F)

This type is generally used at automobil factories and larger repair shops. The finish after hardening is extremely durable and hard and in the case of repairs, cannot be distinguished from the original.

For this type of paint it is important that all temperature sensitive parts are removed from the body.

Lacquer and Enamel Primer

Both air drying and oven drying synthetic enamels can be applied over lacquer and synthetic enamel primer paint.

A — Synthetic Enamel Primer

— Remove old paint using paint remover.

— Thoroughly clean paint rests, paint remover, and rust traces from the body surface. Use only solvents designed for metal preparation to remove grease and paint rests. Do not use gasoline or other fuels.

Spraying Primer

— Using thinned primer, spray one uniform coat of 3 to 4 passes with the spray gun.
Air drying: 4 to 5 hours.
Oven drying: approx. 40 min. at 70 to 80° C (160 to 175° F).
(Allow primer to set 15 min. before placing in oven.)

— Smooth putty work using No. 240 wet sand paper.

— Spray two passes of spray filler over the entire body. Apply two to three coats as required.
Air drying: 6 to 8 hours.
Oven drying: approx. 60 min. at 70 to 80° C (160 to 175° F).
(Allow filler to set 15 min. before placing in oven.)

Sanding

— Wet sand the entire surface after the filler dried using No. 320 and finishing with No. 400.

— Wash primer dust from the surface and dry until all moisture is evaporated.

Spraying Paint

Prepare the car for spraying by draining all water from the seams and spaces and remove all dust using a tack cloth.

— Apply two coats of thinned synthetic enamel of the desired color using the type of paint best suited for the facilities and extent of spraying.

Do not apply too thick a coat of paint (max. 40 μ = .0016 in.).

Note

Metallic colors require an additional coat. The spray gun must be held at a slightly greater distance from the surface being sprayed to produce a dryer spray, preventing floatation of the metallic particles.

Air drying: 12 hours.

Oven drying: 1 to 1½ hours (allow paint to set 15 min. before placing in oven).

Note

Complete hardening of the paint surface occurs after several days. It is therefore important that the above mentioned drying time be extended as much as practical. The car should then be polished with a protective material which will prevent damage through moisture or abrasive dust. This polish should be applied with clean pure cotton and then polished with a new piece of cotton.

Do not use a buffer or polishing rags.

B — Lacquer Primer

When lacquer primers are used the drying temperature must not exceed 50° C (120° F).

Preparation

1. Remove old paint using paint remover.

2. Thoroughly clean the surface of paint rests, paint remover and rust traces.

   Use only solvents designed for metal preparation to remove grease and paint rests. Do not use gasoline or other fuels.

Spraying Primer

— Using thinned primer, spray one uniform coat of 3 to 4 passes with the spray gun.

Air drying: 2 to 3 hours.

Oven drying: approx. 30 minutes at 40 to 50° C (105 to 120° F).

— Apply body putty in thin coats where necessary. Air drying: approx. 4 hours.

Oven drying: approx. 1 hour at 40 to 50° C (105 to 120° F).

— Spray one coat of thinned filler primer.

Air drying: 6 to 8 hours.

Oven drying: 1 hour at 40 to 50° C (105 to 120° F).

Sanding

— Wet sand complete car.

First with No. 320 grade wet paper.
Finish with No. 400 grade wet paper.

— Clean and dry body until all moisture is removed.
— Areas which were sanded through should be resprayed with filler primer.

Air drying: 1 hour.

— Dry sand to a finish using No. 360 grade wet-or-dry paper.

Spraying Paint

Prepare car for spraying by draining all water from the seams and spaces where it may gather and remove all dust using a tack cloth.

Apply two coats of thinned synthetic enamel of the desired color using the type of paint best suited for the facilities and extent of spraying.

Do not apply too thick a coat of paint (max. 40 μ = .0016 in.).

Note

Metallic colors require an additional coat. The spray gun must be held at a slightly greater distance from the surface being sprayed to produce a dryer spray, preventing floatation of the metallic particles.

Air drying: 12 hours.

Oven drying: 1 to 1 1/1 hours (allow paint to set 15 min. before placing in oven).

Note

Complete hardening of the paint surface occurs after several days. It is therefore important that the above mentioned drying time be extended as much as practical. The car should then be polished with a protective material which will prevent damage through moisture or abrasive dust. This polish should be applied with clean pure cotton and then polished with a new piece of cotton.

Do not use a buffer or polishing rags.

Repainting

When repainting an entire car over the original paint, proceed as follows:

Preparing Surface

— Inspect old paint carefully for surface condition and hardness. Watch for cracks and areas which might peel off. Remove all paint in areas where the paint is not entirely in order.

— Clean the entire car using a cleaning agent to remove wax and silicon.

Spraying Primer

— In areas where old paint was removed, prepare the surface as described on page B 85.

— Wet sand the entire car using No. 320 grade paper and finish with No. 400 paper. Be careful that no unsanded areas remain appearing as glossy surfaces of old paint. The quality of the new paint is largely dependent on the cleanliness and preparation of the old surface. The surface should be cleaned using generous amounts of water. To prevent the formation of water marks, the surface must not be allowed to dry by itself but must be dried with a chamois carefully removing all traces of water. Remove water from all seams and crevasses with compressed air.

— Smooth out irregularities in the surface with filler as required

Air drying: 2 to 2½ hours.

Oven drying: 1 hour at 40 to 50° C (105—120° F).

— Wet sand refinished area with No. 360 paper and re-spray lightly with primer.

Air drying: 1 hour.

Oven drying: 30 min. at 40 to 50° C (105—120° F).

Spraying Paint

— Apply one uniform coat of the desired color. Do not exceed 40 μ = .0016 in. thickness.

Note

Metallic colors require an additional coat. The spray gun must be held at a slightly greater distance from the surface being sprayed to produce a dryer spray, preventing floatation of the metallic particles.

Air drying: 12 hours.

Oven drying: 1 to 1½ hours (allow paint to set 15 min. before placing in oven).

Note

Complete hardening of the paint surface occurs after several days. It is therefore important that the above mentioned drying time be extended as much as practical. The car should then be polished with a protective material which will prevent damage through moisture or abrasive dust. This polish should be applied with clean pure cotton and then polished with a fresh piece of cotton.

Do not use a buffer or polishing rags.

Air and Oven Drying Lacquer Paints

Preparation

— Remove old paint using paint remover.

— Thoroughly clean paint rests, paint remover and rust traces from the body surface.
Use only solvents designed for metal preparation to remove grease and paint rests. Do not use gasoline or other fuels.

Spraying primer

— Using thinned primer, spray one uniform coat of 3 to 4 passes with the spray gun.

Air drying: 2 to 3 hours.

Oven drying: approx. 30 minutes at 40 to 50° C (105 to 120° F).

— Apply body putty in thin coats where necessary.

Air drying: approx. 4 hours.

Oven drying: approx. 1 hour at 40 to 50° C (105 to 120° F).

— Spray one coat of thinned filler primer.

Air drying: 6 to 8 hours.

Oven drying: 1 hour at 40 to 50° C (105 to 120° F).

Sanding

— Wet sand complete car.

First with No. 320 grade wet paper.

Finish with No. 400 grade wet paper.

— Clean and dry body until all moisture is removed.

— Areas which were sanded through should be re-sprayed with filler primer.

Air drying: 1 hour.

— Dry sand to a finish using No. 360 grade paper and spray a light coat of primer.

Spraying paint

Spray a uniform coat of the desired color.

Air drying: approx. 6 to 8 hours.

Oven drying: 1 hour at 40 to 50° C (105 to 120° F).

Wet buff with electric buffer and wet polishing paste. Remove polishing paste and polish to high luster. Apply protective polish and finish by hand.