

7 Tech Notes

PATCHING A FLAKE EFFECT CLEAR GEL COAT

Recommended Procedure

Patching a Flake Effect Clear Gel Coat

Background:

Gel coat repairs are commonly needed due to damage from de-molding or mishandling of parts, damage during assembly, pre-release, porosity, contamination, laminate air voids, mold defects, and in-field use.



Flake effect gel coats can be difficult to patch and require more expertise and time than solid color gel coats. These types of repairs are typically more visible unless the entire area can be re-sprayed. This procedure was developed when a total re-spray is not possible or practical.

Flake effect gel coated parts are prepared via a three step coating process: (1) Clear gel coat layer (upper), (2) Clear plus flake layer (middle), (3) Base gel coat color layer (lower).

The increased difficulty in repairing a flake effect gel coat arises if the surface damage extends into the clear/flake layer, the base color layer, or the laminate structure. The sanding and buffing process discolors and abrades the flakes, resulting in a highly visible contrast in the patched area. This patching guideline describes a process to repair the flake effect gel coat without abrading and discoloring the flake. The resulting repair, while tedious to perform, is visually superior to standard patching procedures.

If a repair is needed in the upper clear layer only, the patching procedure described in Tech Note 3 – Patching a Gel Coat, usually can be followed. If a repair is needed in the flake layer or deeper, carefully following the procedure described below, will generally yield acceptable results.

Whenever possible, the same batches of gel coat that were used to make the part should be used to make the patch to ensure the closest possible color match.

Refer to Interplastic Corporation Tech Note 3 – Patching a Gel Coat for detailed information on surface preparation, patch aid usage, repair spray-up, and final sanding and buffing.

This procedure does not describe repairs to the laminate itself, which must be done before repairing the gel coat layers.



A typical flake effect clear gel coat composite is made by spraying onto a mold a clear layer, a clear plus flake layer, a base color layer, and a base color layer.

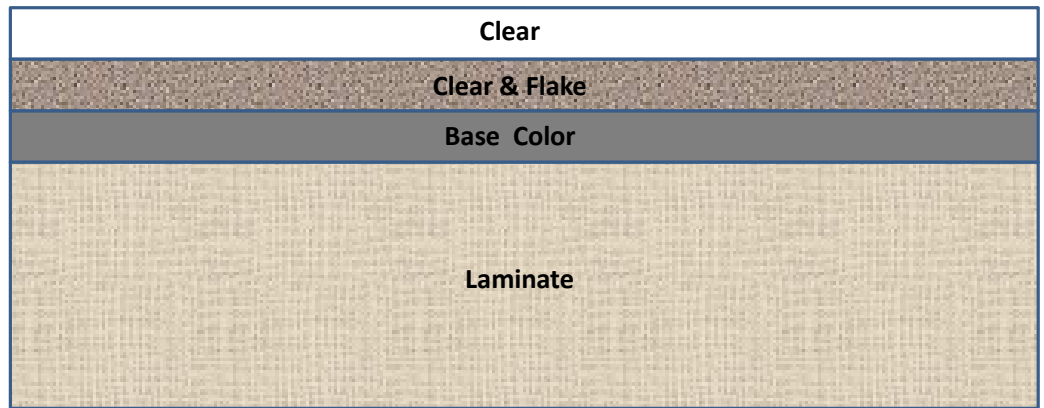


Fig. 1 –Cross Sectional View of a Typical Flake Effect Clear Gel Coated Laminate

Repairs to the upper clear layer can be made following the procedure outlined in Tech Note 3 – Patching a Gel Coat

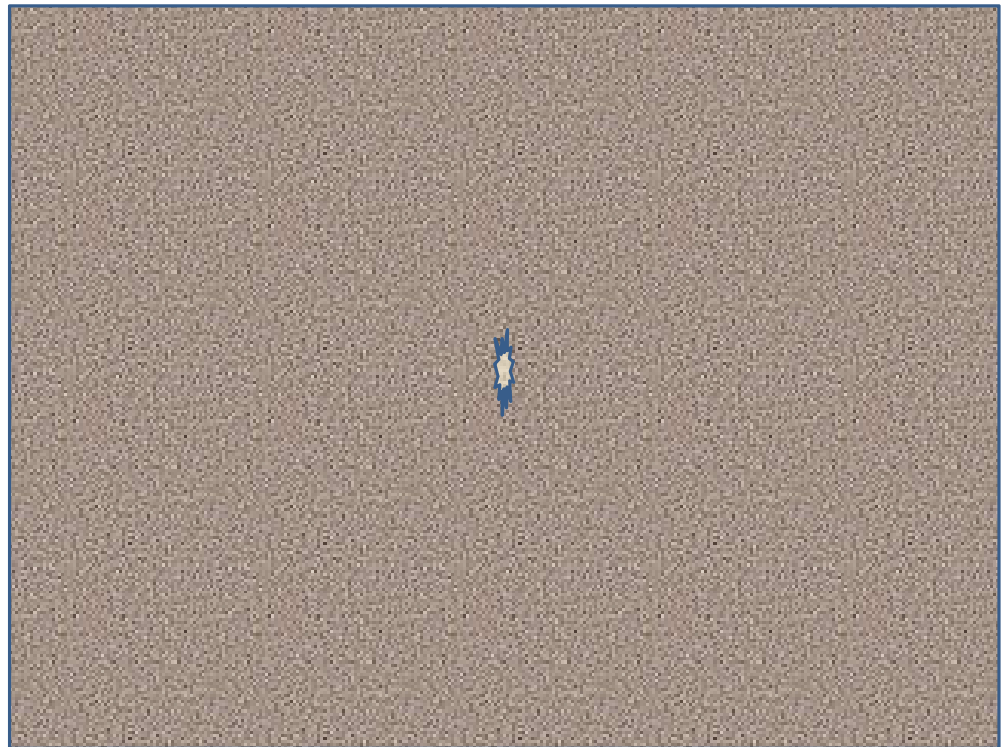


Fig. 2a - Flake Effect Panel with Gel Coat Defect Needing Repair

Procedure:

Tape off the area that needs to be repaired.

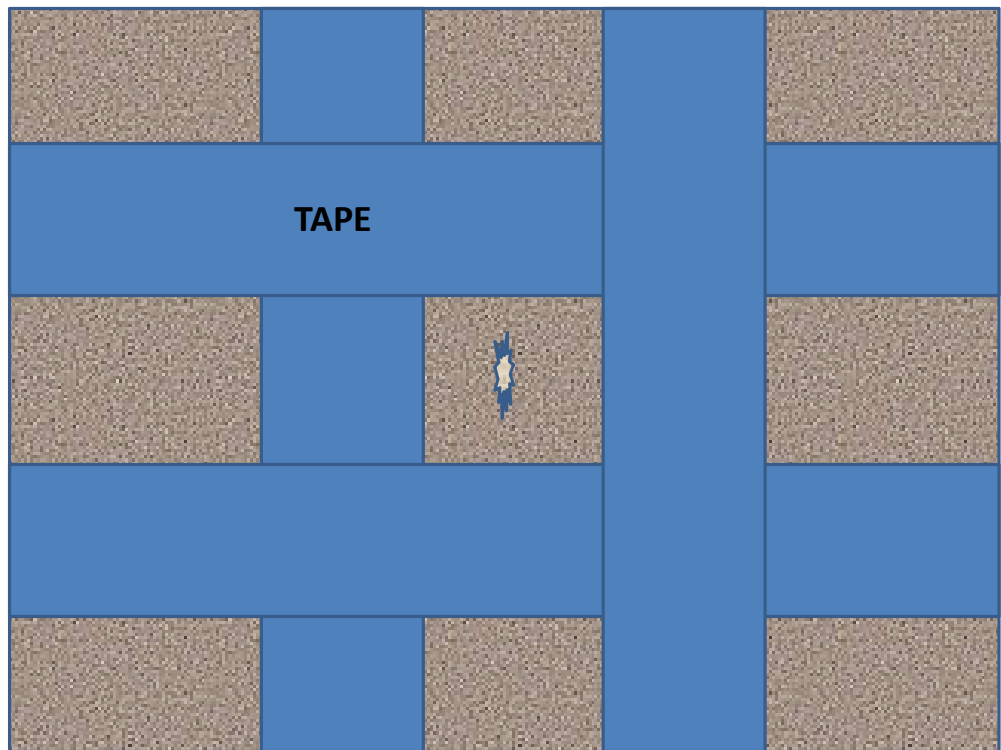


Fig. 2b - Mask Off Repair Area

Carefully route, sand by hand, or use a detail sander to remove material straight down to the laminate with little to no wall slope.

The objective is to create a repair area like the cross sectional view shown in figure 3.

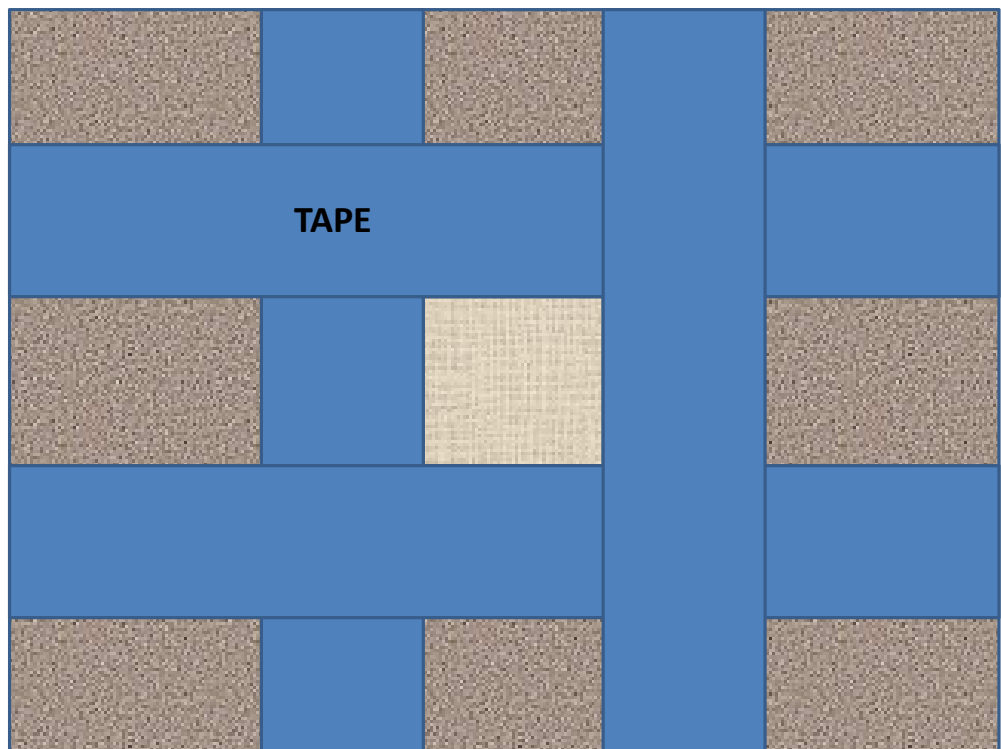


Fig. 2c - Sand Straight Down to Laminate

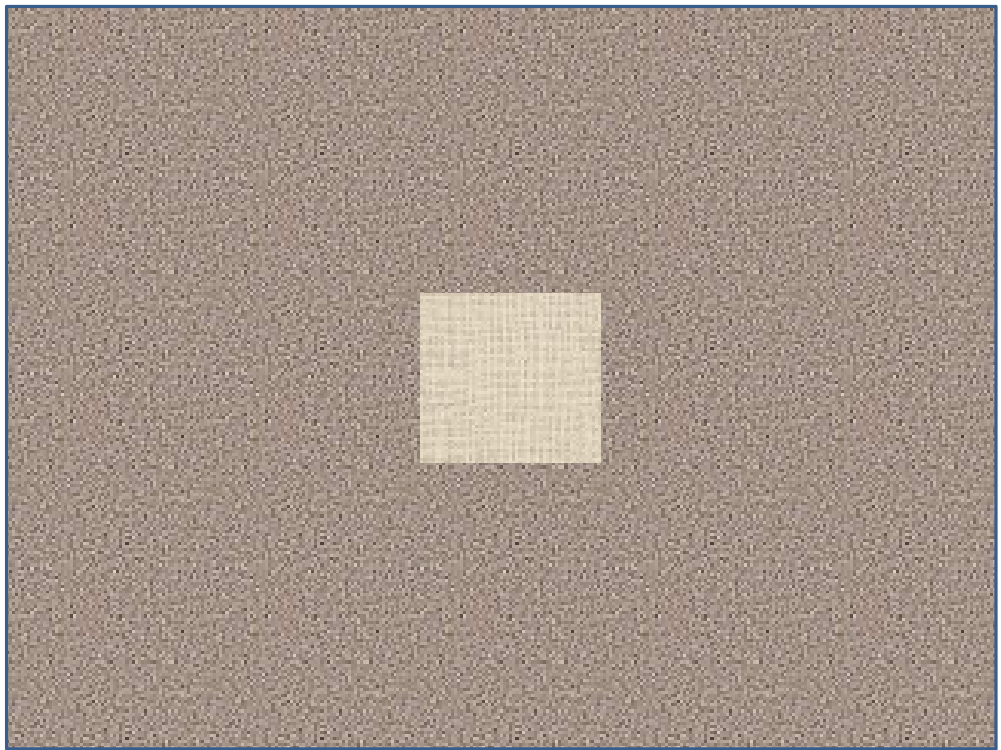


Fig. 2d - Remove Tape

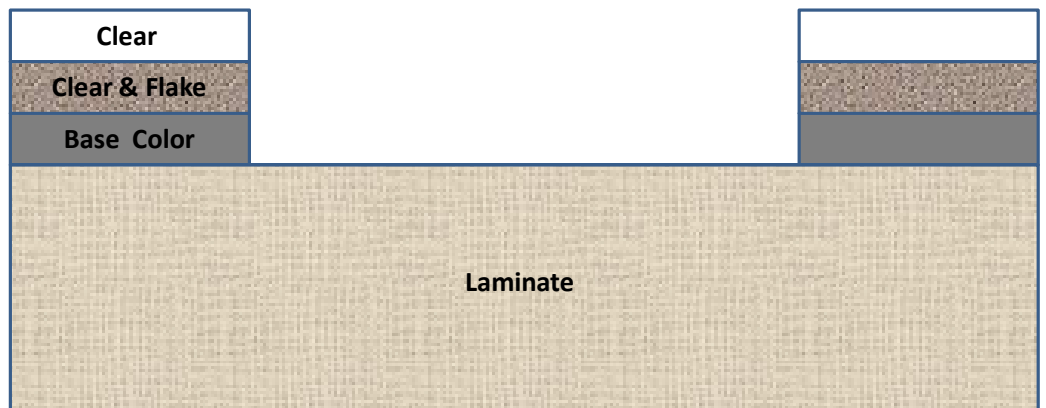


Fig. 3 – Cross Sectional View of Sanded Area

Tape off an area 1/8" to 1/4" back from the 1st sanded area to prevent the base color gel coat from bleeding past the clear plus flake layer when still wet.

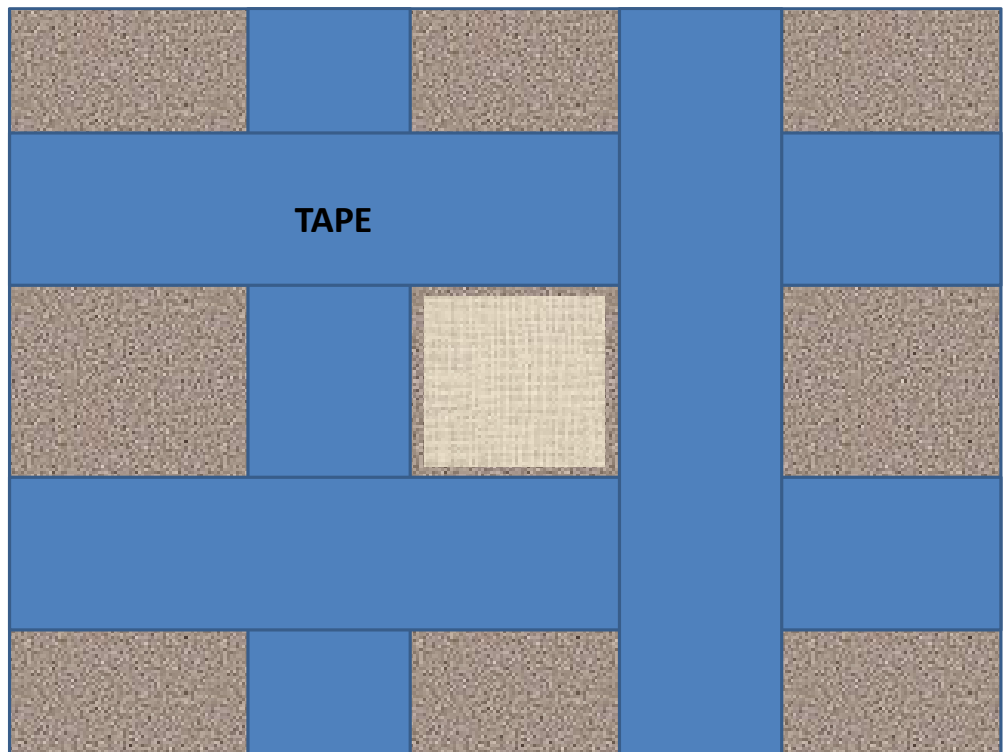


Fig. 4a - Mask Off 1/8" to 1/4" Inch Past 1st Sanded Area

Carefully route, sand by hand, or use a detail sander to remove material straight down with little to no wall slope until all the flake is removed along the edge, leaving the base color layer still intact.

The objective is to create a repair area like the cross sectional view shown in figure 5.

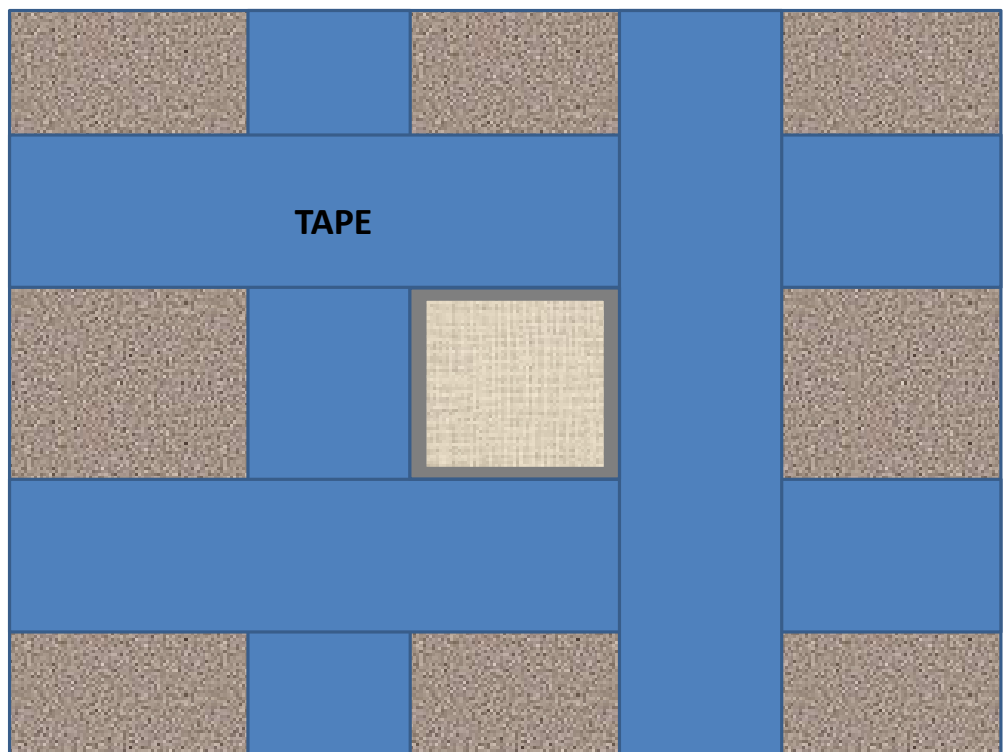


Fig. 4b - Remove Flake Layer on Edge Down to Base Color Layer

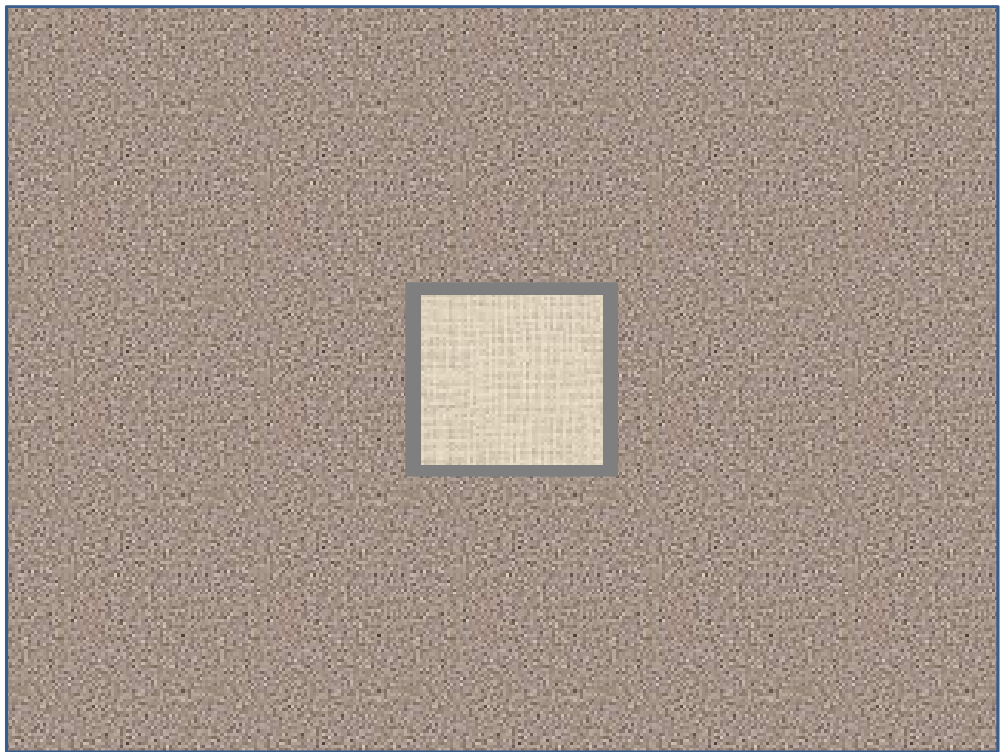


Fig. 4c - Remove Tape

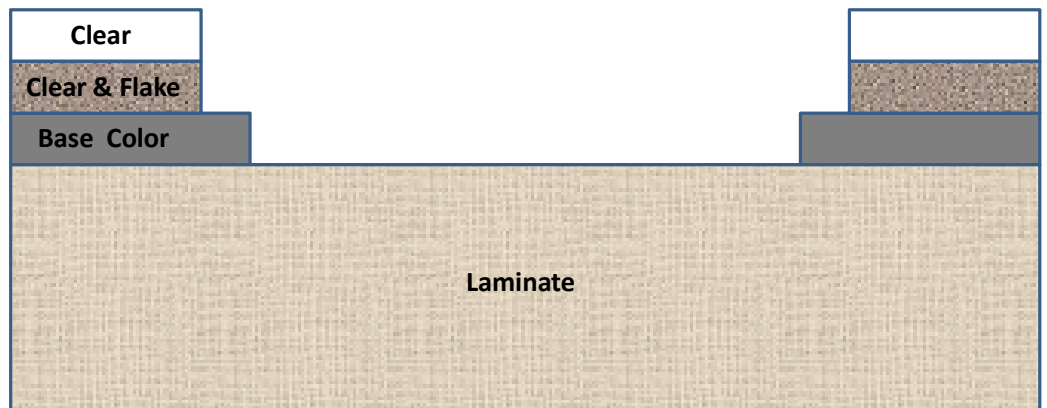


Fig. 5 – Cross Sectional View of Sanded Area

Using 400 grit sandpaper, sand the area surrounding the repair. This will give the surface a tooth that is critical for patch adhesion. Remove all sanding dust and solvent wipe the area to be repaired.

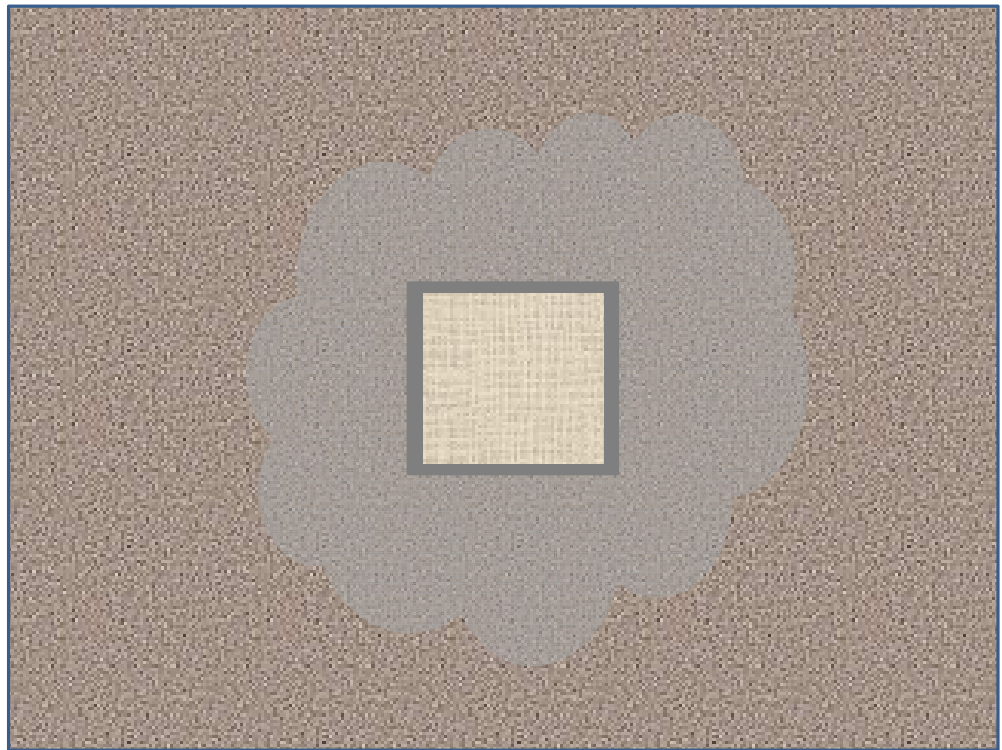


Fig. 6a - Sand Surrounding Area with 400 Grit Paper for Patch Adhesion & Remove Dust

Carefully mask off only the area that was sanded down to the laminate to prepare for application of the base color.

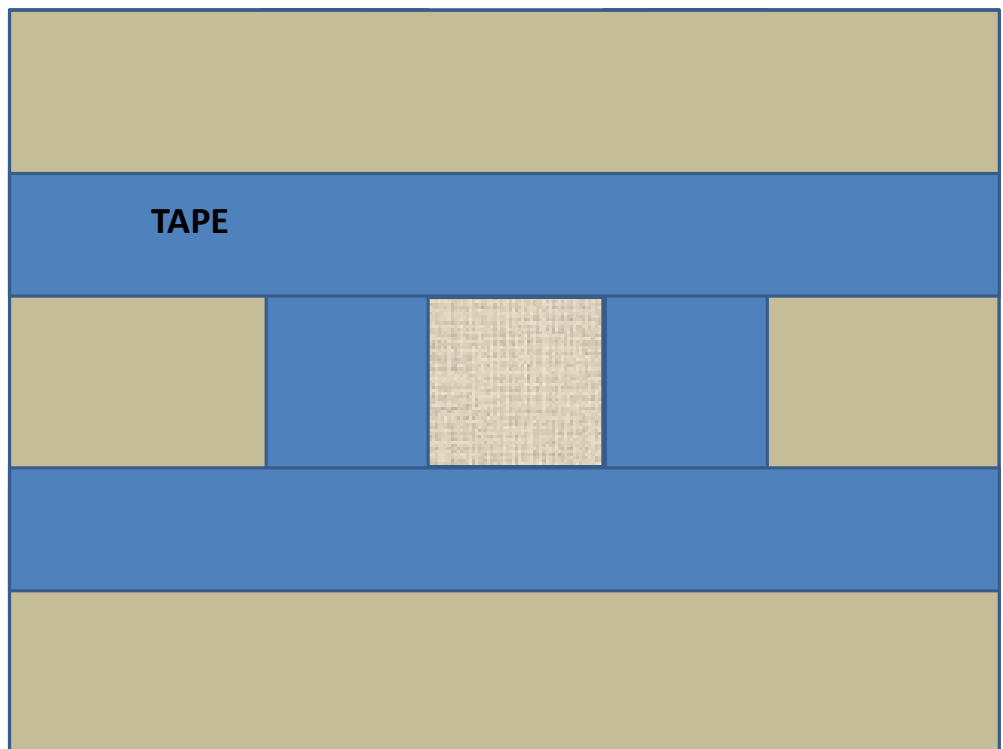


Fig. 6b - Mask off Area that was Sanded Down to the Laminate for Base Color Spray

Apply the base color to the same thickness of the original layer by spraying or brushing. Do not use a thinning additive that contains wax. The wax will impair the adhesion of the next layer.

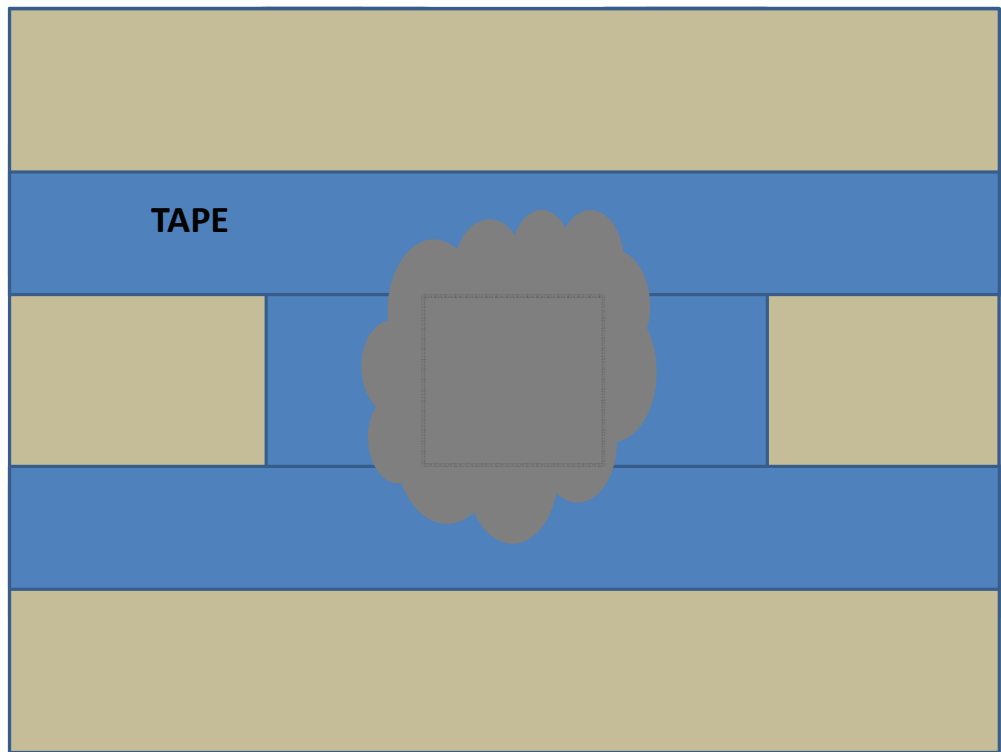


Fig. 6c - Spray Base Color to Match Thickness of Original Layer

Carefully remove the tape without smearing the tapeline.

The objective is to create a repair area like the cross sectional view shown in figure 7.

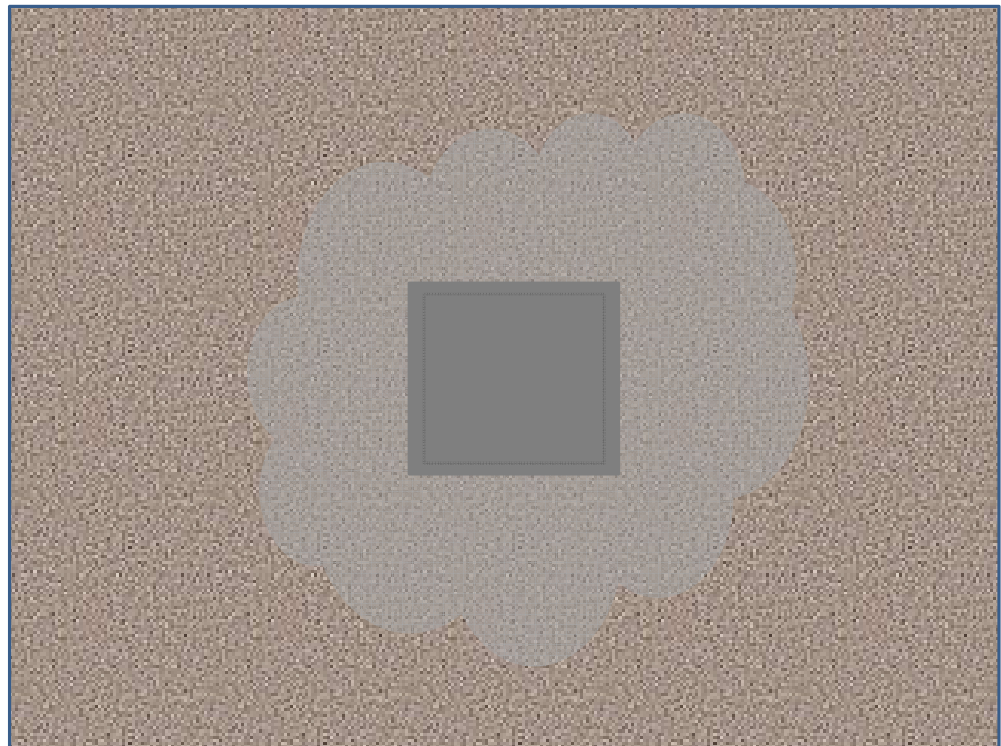


Fig. 6d - Remove Tape



Fig. 7 – Cross Sectional View of Sprayed Area

Carefully mask off the area that was sanded down to the base color to prepare for application of the clear plus flake layer.

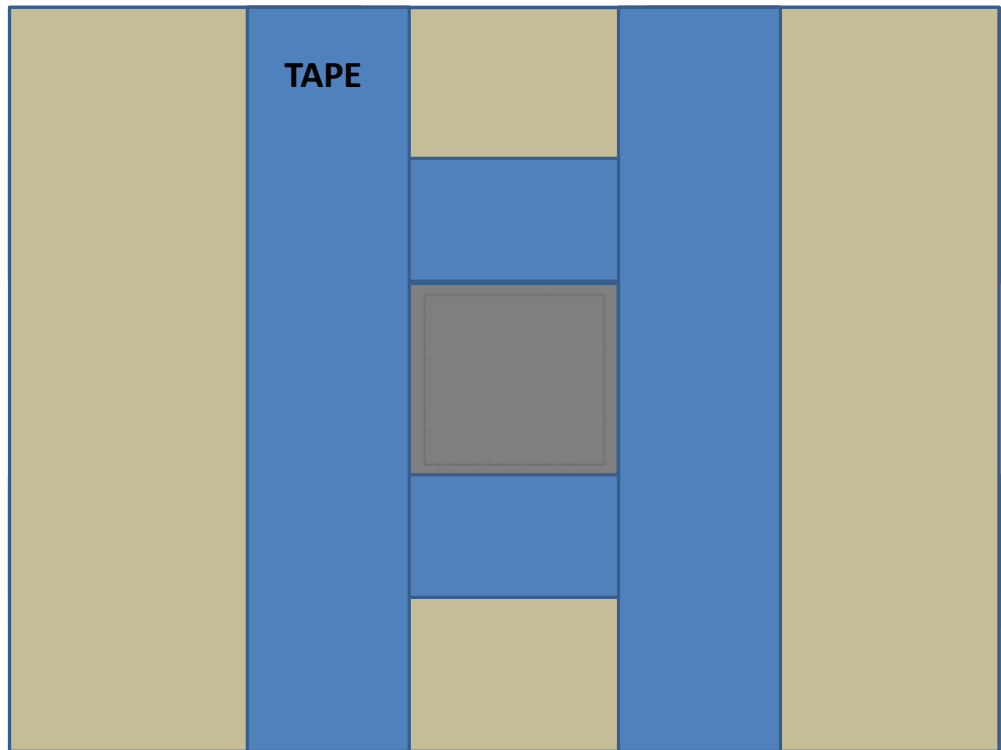


Fig. 8a - Mask off Area that was Sanded Down to the Base Color For Clear & Flake Spray

Apply the clear gel coat plus flake to the same thickness of the original layer by spraying or brushing. Do not use a thinning additive that contains wax. Make sure that the flake concentration in the clear is the same as in the original layer.

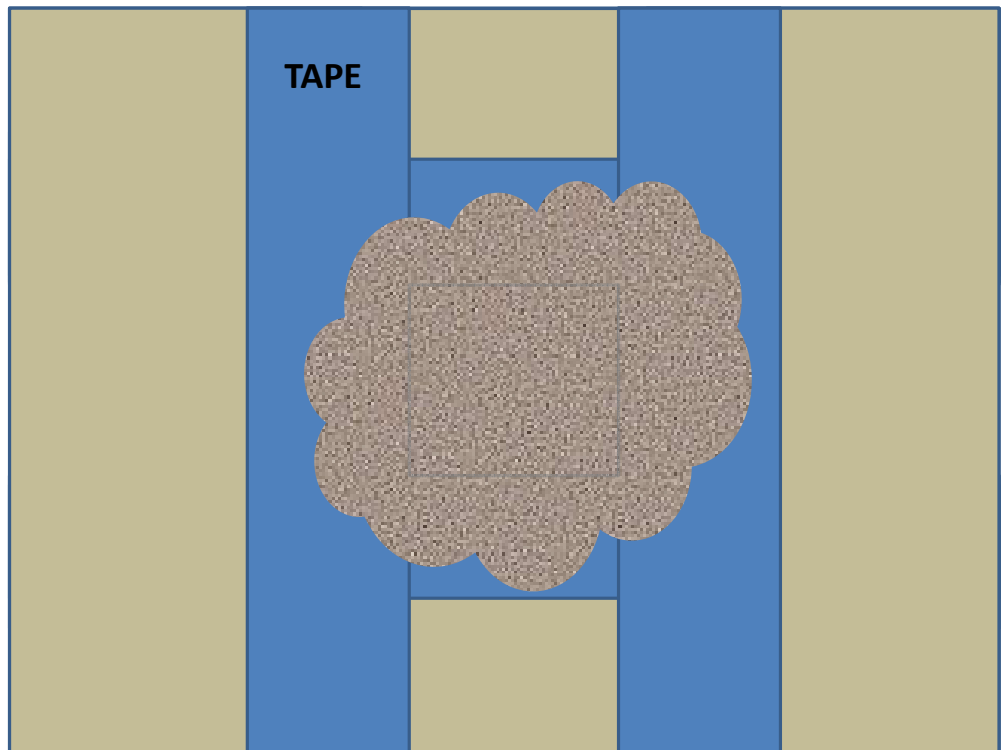


Fig. 8b - Spray Clear Plus Flake to Match Thickness of Original Layer

Carefully remove the tape without smearing the tapeline.

The objective is to create a repair area like the cross sectional view shown in figure 9.

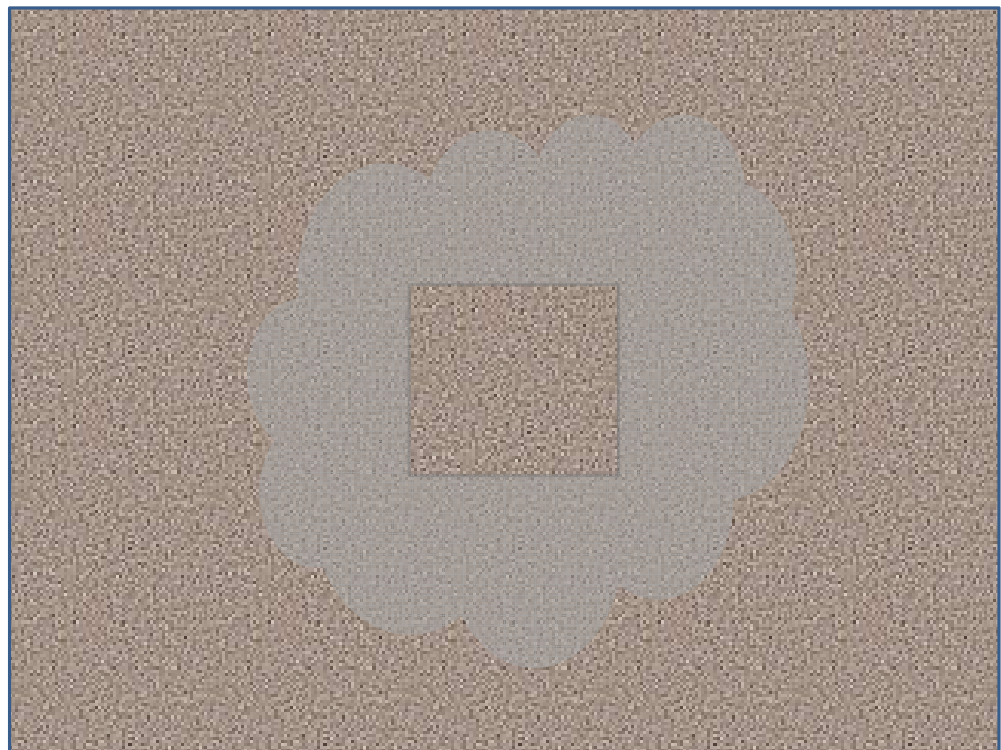


Fig. 8c - Remove Tape



Fig. 9 – Cross Sectional View of Sprayed Area

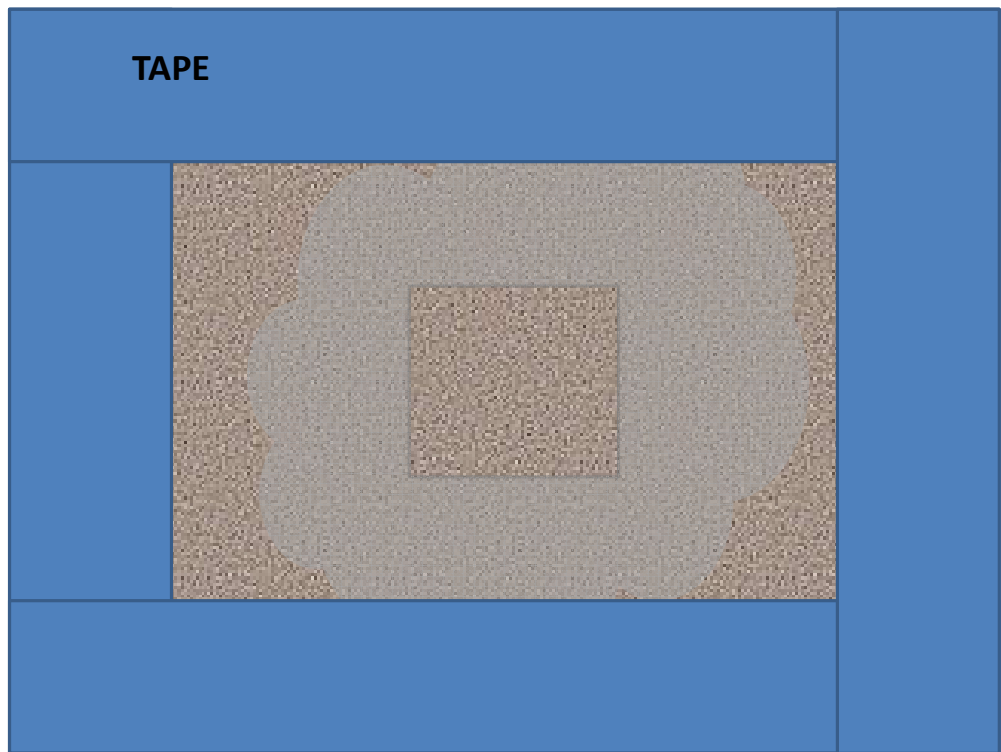


Fig. 10a - Mask off Area Sanded For Clear Plus Patch Aid Spray

Apply the clear gel coat plus patch aid by spraying. Use of Interplastic Corporation's C-100-VUU patch aid at 10 to 30% will allow the use of a touch-up gun to spray and will improve the cure, the gloss restoration, and the color match in the final patch.

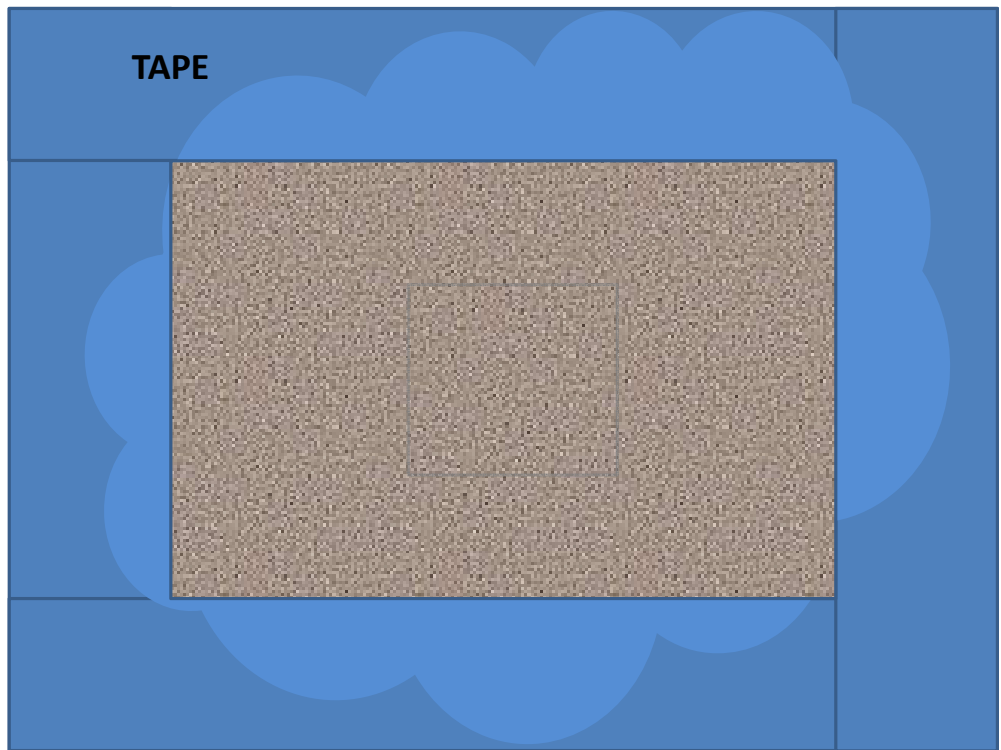


Fig. 10b - Spray Clear Plus Patch Aid

Remove the tape and allow the patch to cure a minimum of two hours at 70F or higher before working the patch.

The objective is to create a repair area like the cross sectional view shown in figure 11.

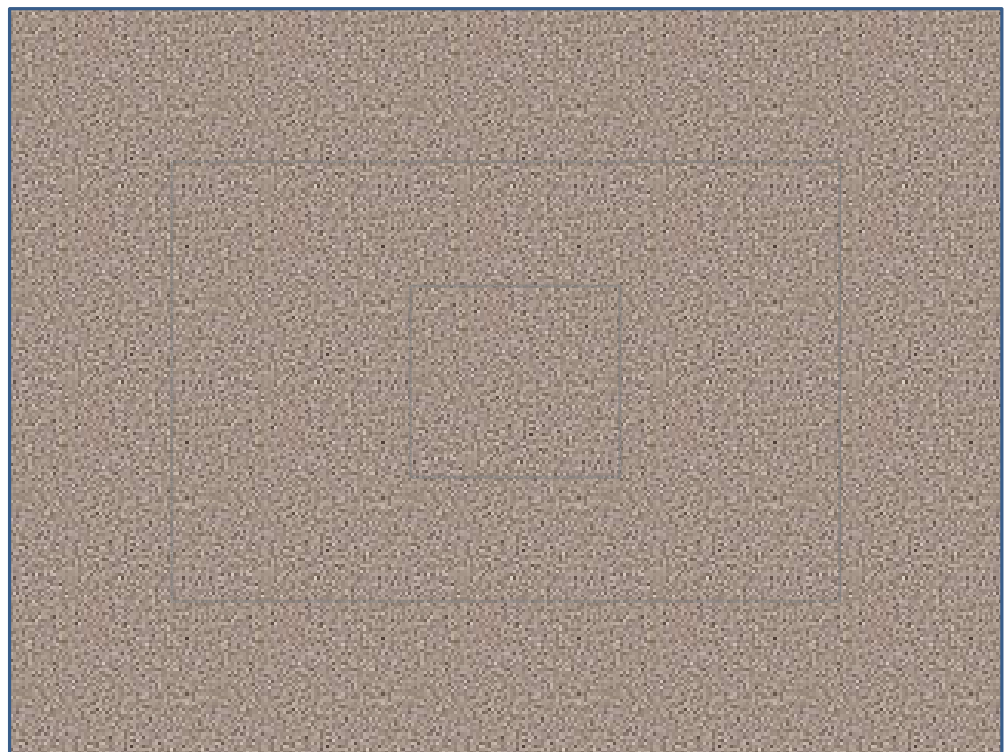


Fig. 10c - Remove Tape and Allow Patch to Cure at Least 2 Hours

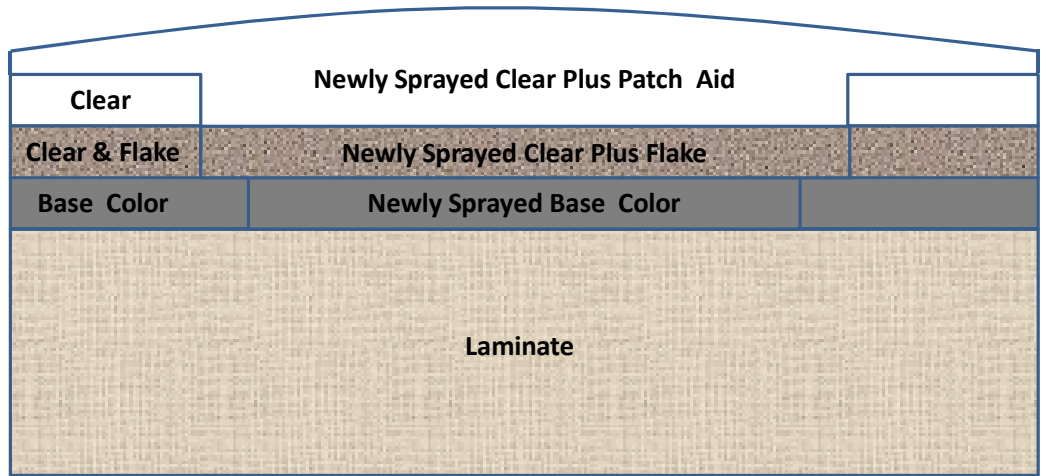


Fig. 11 – Cross Sectional View of Sprayed Area

Sand and buff the patched clear gel coat to blend it with the original area and match the gloss. Refer to Tech Note 3 – Patching a Gel Coat for more detailed information on sanding and buffing.

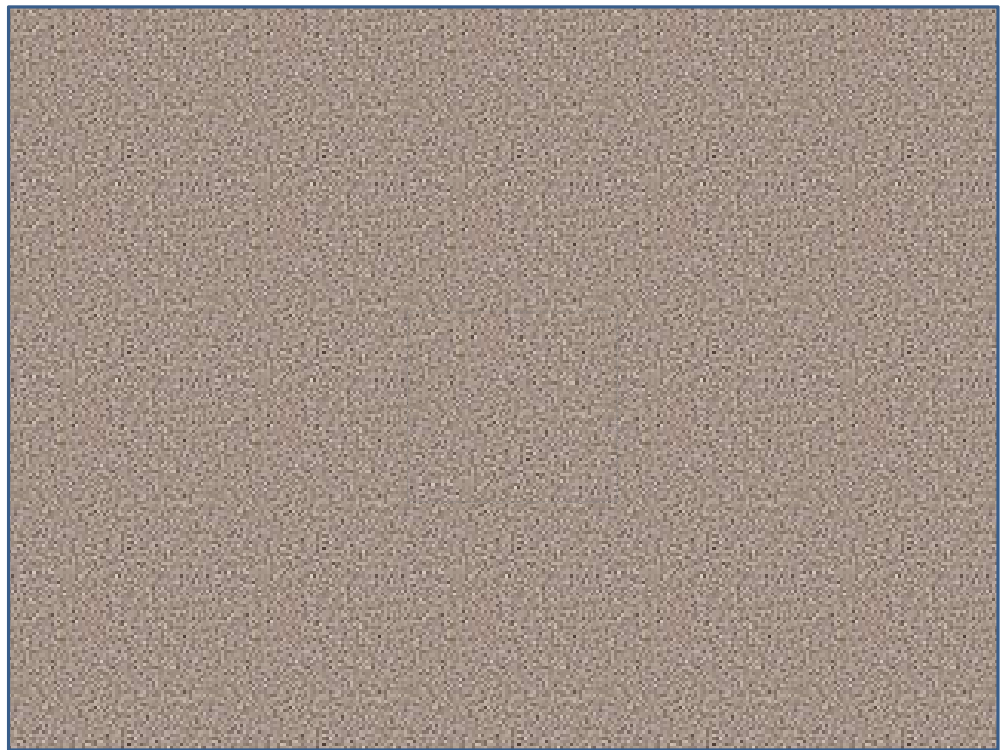


Fig. 11 - Sand and Buff to Complete the Repair