

## Paint

### Back-To-Basics: Dirt Nibs In Paint



When reviewing paint maker information and I-CAR courses, you will see the acknowledgement of dirt nibs and the reality of not being able to eliminate them.

Per I-CAR curriculum: "During the refinish process, defects such as dust nibs or other debris in the paint can occur."

Per PPG **Technical Tips: Making Polishing Easier With These Best Practices:** "While no painter wants to buff every job, often times it is necessary to remove minor imperfections from a newly finished repair."

Per BASF **Fundamental Automobile Refinishing Concepts:** "While refinishing automotive panels with zero dirt inclusions is possible in theory, it rarely happens in practice. Following best-practices, for cleanliness in paint-processing areas and equipment maintenance can minimize this problem and should be adhered to, but in the overwhelming majority of repairs, some dirt is inevitable."

You might look at OEM production painting and believe dust inclusion does not happen at that level.

In the BMW 2023 ColorSystem Manual, BMW states: "During production the vehicles are painted in a "clean-room" environment to minimize dirt inclusions in the finish. Although the environment is considered ultra-clean, dirt inclusions are still unavoidable. Every vehicle undergoes vehicle de-nib (fine sanding) and polish procedure to remove dirt inclusions at the factory to ensure the highest level of quality paint finish and appearance."

Sometimes going back-to-basics can make the difference in a quality repair and a failed repair. Refinishing defects can take many forms and be influenced by the technician, environment, product selection, or equipment maintenance to name a few. Let's look at dirt nib inclusion during the refinishing processes.

There has been improvement in the reduction of dirt nib inclusion during the refinishing process due to acknowledging the necessity of a clean environment. Paint booth maintenance, vacuum sanders, technician role separation, paint suits, etc. all aid in the reduction of dirt nib inclusion but do not eliminate them completely.

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Nissan/Infiniti has a De-Nib & Polish And Finish Sand & Polish position statement. Per the document:  
"After refinishing any outer panel, it may be necessary to nib sand (or de-nib) any particles found within the final finish followed by polishing affected areas...Nissan also completes these same processes in the manufacturing environment due to intrusive dirt or debris found in the production environment."

In a collision repair facility, dirt nib inclusion can be caused by many factors. Dust, dirt, and other debris can be stirred up with air movement, carried in by a painter, dislodged from an air hose, and even become attracted to a panel with static electricity. Following industry best practices, paint maker instructions, and standard operating procedures will aid in the reduction of dirt nib inclusions but there is no conceivable way to eliminate them completely.

Paint

## Back-To-Basics: Environmental Considerations For Refinishing



**S**ome refinishing defects are controllable. However, refinishing defects that are influenced by the environment may not be controlled. Let's take a look at environmental impacts on both solvent-borne and waterborne refinishing processes, like temperature and humidity.

Temperature affects refinish materials in multiple ways. The first is that if it is too warm, it will accelerate the flash and cure time of the refinish material. This can lead to many refinishing defects, like solvent popping and dry spray, for example.

If the temperature is too cold, it will decelerate the flash and cure time of the refinish material, which can lead to runs and sags.

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Humidity can also have an impact on refinishing. When the air is too humid, it slows the evaporation process in both waterborne paint and solvent-borne paints. This may cause poor curing, sagging, puddling (also called water splashing), and solvent popping.

Water splashing occurs in waterborne paint when the humidity is high and the first coat starts dimpling from the overspray of the next coat. It looks similar to rain drops hitting a puddle.

When it's humid, water molecules in the air get trapped under the refinish coating and may cause blistering or bubbling. Humidity can also greatly affect the ability to cure because of moisture trapped in the coating.

Temperature and humidity can't always be controlled in the repair facility, so it's important to know what the weather will be like and to plan accordingly. For example, making sure to select proper reducers or hardeners that are compatible with the ambient temperature.

Panel

## Back-To-Basics: Repair Tolerances

**S**ometimes going back-to-basics can make the difference between a quality repair and a failed repair. When it comes to straightening and repairing a vehicle back to specification, there are a few things to keep in mind.

Repairing a vehicle to the proper specifications helps to ensure that all panels, suspension, drivetrain parts, etc. fit properly. This will help ensure any required alignments and/or calibrations can be completed. Newer vehicles have a tighter tolerance than what you may see on older vehicles of the same model. In the past, the often heard “+/- 3 mm or +/- 5 mm” is no longer accurate for all vehicles. Vehicle makers often provide specific measurements that need to be met and not a repair tolerance range. Measuring points of a vehicle should be checked often during the repair process, as well as test fitting panels.

Newer vehicles are often constructed with non-adjustable door hinges, suspension mounting locations, and sensor mounting locations. This means that if the rest of the vehicle is not repaired to OEM measurements or specifications, the non-adjustable components may not fit properly, function as designed, or may affect the operation of other systems. Always follow OEM procedures and use up-to-date measuring systems/software to help ensure a complete, safe, and quality repair.

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## Panel

### Back-To-Basics: Three-Dimensional Measurements And Welding With Loaded Suspension

Sometimes going back-to-basics can make the difference between a quality repair and a failed repair. When it comes to welding body panels to the vehicle, there are a few things to keep in mind that can have a huge effect on the quality and the outcome of the repair.

A loaded measurement is when the vehicle is resting on the suspension. An unloaded measurement is when the vehicle is lifted in the air off the suspension. There may also be different measurements based on whether or not the engine is in, or out of the vehicle. This is because the weight of the engine can affect height measurements in the front. This vehicle flexibility can also affect the three-dimensional measurements of exterior panels when checking for fit. It is important to look in the body repair manual or the measuring system for specifications on when the vehicle can be measured with loaded/unloaded suspension and engine.

If the correct vehicle measurements are not followed, it may cause gaps to be wide at one point and narrow at another. If the panels are adjusted while the vehicle is flexed, once the suspension is loaded again the panel



gaps could change. If the wrong measurements are used, it is also possible that weld-on panels will dent or buckle once the suspension is loaded or the engine is installed.

Always follow OEM procedures and recommendations to ensure a complete, safe, and quality repair.

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