



# Common repair mistakes

## and how they can be avoided

As the collision repair industry continues to grow and progress, so do repair techniques and how they are applied. Care must be taken to ensure repairs of the highest quality are executed so that vehicles run safely. Here are some common repair mistakes and how they can be avoided.

Improper measurement will create confusion and incorrect repair. Height (datum) cannot be checked when using tape measures and trammels – only three-dimensional measuring will correctly reveal height issues. If a rail is high or low, it will measure short and is often referred to as the pendulum effect.

For example, let's assume one front rail has gone high in an accident. It will put the front end out of square. If a technician used only a tape or a trammel, they would assume that the front is across and actually exacerbate the problem by pulling the front end across. In reality, all that is required is for the rail to come down and the front will square itself.

How would we put together a repair plan for this? The only quick check for height, apart from using the old-style gun sight gauges, is to lay some straight bars across the area of concern and visually line them up with other horizontal body lines such as the windscreen or rear screen bottom edges. Checking the vertical gaps between guards and doors or the rear tub to body on a utility are visual indicators, but the most accurate method is to use 3D measuring.

Not measuring the entire structure will also lead to a misdiagnosis. As we know, accident energy is transferred through the whole vehicle. For example, imagine a car doing 60kph



running into a brick wall. Due to kinetic energy, the front end stops very quickly but the rear end still has energy and tries to push forward. It meets with resistance and the energy is absorbed by the rear end going high. (What's the last thing that goes through a bug's mind as it hits the windscreen?) If the entire structure is not measured, damage will be missed, the estimate will be incomplete and valuable repair time missed.

When carrying out 3D measuring, ensure the centre section is correct. We are relying on the first four points to create the true datum and centre line plans. Try other points if necessary and confirm by comparing three good points to see where an issue may lie. If an incorrect centre section is used, it will affect all height and width measurements, resulting in a misdiagnosis. Once the centre section is verified, then measure and check

the undamaged end and confirm if there is any indirect damage. Lastly, measure and check the damaged end, working your way back towards the centre section to verify where the damage has stopped. These areas will define blocking and anchoring points. *Let's look back on what the key steps are to ensuring a proper repair:*

- 1.** Analyse the damage. Measure the structure properly and thoroughly. Know the materials you are dealing with and what can be repaired and what has to be replaced.
- 2.** Diagnose the damage and locate the direct, indirect and collateral damage. Understand the direction of impact and where the collision energy was transferred.
- 3.** Plan the repairs. A repair plan for structural damage can be written on a printed data sheet and must consider all necessary blocking, anchoring and pulling angles. Creating a repair plan makes the technician look and think about all these factors. The repair plan can then be discussed with other technicians for advice and to assist training younger team members.

Mistakes are a part of a learning process, but armed with the knowledge above, you will be able to avoid making a mistake and continue to complete safe and solid repairs.



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