

COLLISION REPAIR ELEMENTS

FC101L03

This course is a must for anyone involved in automotive collision repair at any level. It explains the various methods of vehicle construction and the individual terminology used. The student will address the important issues of collision energy management and energy transfer, as well as the effects of the impact on the various design methods and the various types of construction materials. The changing design of the various structural parts is featured, as is the effect of the collision impact on almost every part of the vehicle structure. Repair issues, such as the type and location of damage and the shape of the part feature heavily in the decision to repair or replace. Advanced joining methods will be discussed and specific requirements for multi material vehicles. Pre and Post Scanning, Calibration and Post Efficiency are all impacting collision repairs as never before impacting on a technicians understanding of collision repair.

Course Content

Module 1—Vehicle Construction and Terminology

This module identifies the different types of vehicle structures, including Unibody, space frame and full framed vehicles. This module also identifies parts of a unitised structure and how vehicles are assembled, including the types of materials used for vehicle construction. In addition, the student will learn how heat affects different strengths of metal and the importance of restoring vehicle dimensions as well as advanced joining technologies being introduced in vehicle construction.

Module 2— Collision Energy Management

This module explains how a vehicle absorbs collision energy to protect occupants and how to identify areas of a vehicle specifically designed to absorb collision energy. The student will also learn about direct and indirect damage. Information on how part shape affects reparability and how to make repair versus replace decisions will be discussed.

Module 3—Repair Issues

The final module identifies the new processes of scanning, types of damage that affect repair decisions and introduces the student to kink vs. bend. Sectioning of structural and non-structural components is discussed as well as repairing where little access is provided. Information on ADAS and the importance of calibration, alternative fuels and new refinish technologies are provided.

Recommendations

This class provides an overall insight into modern vehicles and their design improvements. It is strongly recommended that students have an understanding of collision repairs. Courses that are helpful include:

- Corrosion Protection (CPS01)
- Steel Unitized Structures, Technologies and Repair (SPS07)

Course Highlights

Points: 1

Estimated Duration: 4 Hours

Format: Classroom & Virtual Classroom

Meets the I-CAR ProLevel 1 training requirements for the following roles:



ESTIMATOR



STRUCTURAL TECHNICIAN



NON-STRUCTURAL TECHNICIAN



ASSESSOR

After completing this course, you will be able to:

- Identify the different types of vehicle designs and vehicle construction material
- Identify the various types of manufacturing processes for body panels, vehicle structures and technologies
- Identify control and reference points to properly position parts or assemblies
- Understand collision energy management
- Identify and analyse the types of damage
- Understand Scanning and ADAS requirements

