

## Automotive Underbody Use Case for 3arm Ergonomic Lift Assist Devices



The automotive industry involves a lot of underbody shot work to tighten bolts or drive screws on the underside of vehicles. Performing these tasks manually, especially on an assembly line, means an employee is holding a tool at or above shoulder level repeatedly over long periods of time. The employee must also deal with tool torque and contorting to work on hard-to-reach places when doing underbody shots.

Performing underbody shot work manually has many negative ramifications:

- **Reduced safety.** Operator fatigue or inattention to tool placement can result in accidents and injuries to employees, as well as damage to tools and products.
- **Long-term injuries.** Employees may develop physical damage over time due to the repetitive overhead motion and torque.
- **Inconsistent quality.** Quality of work will vary from one employee to another, and even with the same employee at different times of day. Inconsistency can lead to reduced productivity, and it limits engineers' ability to quantify specific assembly line processes.
- **Increased costs.** Employee injuries, damaged tools and products, inconsistent quality and inefficient processes equate to additional, often avoidable expenses.

## How 3arm Improves Automotive Underbody Processes

Automotive manufacturers have the option of installing an industrial lift assist arm along their assembly lines to perform underbody shot work. With the 3arm ergonomic lift assist devices, manufacturers gain the following benefits:

### Increased safety

A lift assist arm holds the weight of the tool, taking that off the operator. Assemblers and their peripheral surroundings do not risk the potential of tools damaging people, equipment or products. This is better for safety, and it reduces expenses which could be incurred from damage to expensive tools and equipment. 3arm ergonomic lift assist arms can be equipped with tool trigger-activated brakes to lock down the arm during use, further ensuring safety to the operator and others in the area. In an assembly line, 3arm can tap into the computer that controls the tools, so once the power goes to the tool, it goes to the 3arm lift assist device as well and locks everything up.



### Better ergonomics

With the lift assist arm handling the tool, the weight and stress on the operator is reduced. This prevents repetitive injuries and potential accidents from fatigue and operator wear. The lift assist arm holds the tool weightlessly and absorbs rotational torque. With the mounting solutions and accessories to expand reach and mobility, 3arm devices can improve operator ergonomics for the most challenging assembly environments, whether the operators work down in a bay or need to reach into tight or awkward places to tighten bolts.

### Consistent and reliable quality

Using a lift assist arm to hold the tool, and letting the 3arm absorb the weight of the tool and the torque of the action, leads to a more reliable process and consistent quality. The torque-absorption capability of 3arm devices prevent an operator from over-driving shots, ensuring consistency on the assembly line.



## Better processes

You can plan for a consistent, repetitive process with 3arm in terms of movement, timing and more. Engineers can reduce takt time and improve processes for each pitch on an assembly line. The more repetitive and efficient your operators can be, the better the takt time. The use of 3arm lift assist arms on the assembly line allow engineers to build poka-yoke into their lean manufacturing and ensure as few errors in the production process as possible.

## Increased productivity

Using a lift assist arm, operators can do multiple shots at the same time, which speeds up the process. This, coupled with the improved

consistency and better processes, leads to improved productivity – resulting in cost savings. The 3arm can quickly produce far more value than its initial cost.

## Reduced costs

The same factors that contribute to increased productivity translate to cost savings: improved safety and lower rate of operator injury, less damage to equipment and products, and increased consistency. Using an ergonomic lift assist device from 3arm can make your automotive underbody assembly line process more automated and seamless, reducing takt time and saving money.

