Mobile Mechanic Workstation

For more information:

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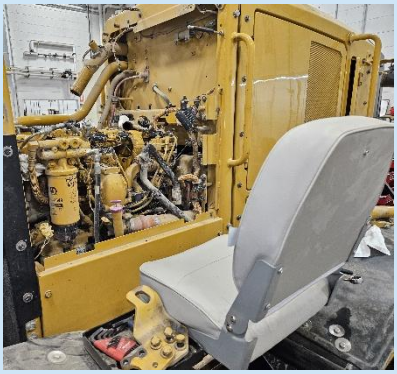

What was the challenge you set out to solve?

Accessibility for in-depth maintenance and repairs to the engine compartment on heavy equipment, especially motor graders, is very challenging. Most motor graders have a narrow catwalk adjacent to the engine compartment. There is very little room to safely stand or kneel. Standing on the catwalk means most of the work area is down near your leg level, so the mechanic is bent over or in a crouched position on this catwalk for hours on end, creating extreme fatigue. There also is no secure location to place tools and parts.

How did you develop and implement your solution?

The Mobile Mechanic Workstation (MMW) is a comfortable swivel chair on a heavy duty, stable base. The height of the chair can be adjusted for different work applications. A transport handle / jack-wheel can be used to move the workstation between jobs. There are tool / parts trays next to the seat for secure and readily accessible storage.

What did it take to make this solution a reality?

After some measurements and sketches, the first model took approximately 8 hours to prototype and build. Once a successful model was built and tested, a second unit took a little less time to construct. The first MMW was built using basic shop tools, welder, metal saw, pipe bender, and iron worker. Most flat steel, pipe, and square tubing were already on stock from excess materials from other projects. A boat seat and swivel were purchased from Amazon.

What was the cost of implementation?

Labor – 8 hours @ $45 / hour = $360, Steel – $100, 4 Wheels – $35, Boat Seat + Swivel = $75. Total = $570.

What was the impact and results of your efforts?

Fatigue was drastically reduced on engine repairs. Lower back, neck, and leg pain from the physical strain of being bent over is virtually eliminated. The reduction in fatigue also increases productivity, because the mechanic can work longer on a task without feeling uncomfortable from being in a bent-over or crouched position. The repair becomes less mentally straining because of the reduced likelihood of slipping off the foot rail and falling from the machine. Tools and parts are held securely on shelves next to the seat, which reduces trips back and forth, and less items dropped on the floor. The frequency of climbing on and off the machine is reduced, lowering the chances for trip/fall injuries.

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