

Take A Ride On The Mocs Express

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Background

For approximately 10 years, UTC has used the Mocs Express, a train body on a jeep frame, for football games and other events. In recent years, the train has fallen into a state of disrepair. For example, the smokestack was held in place with bungee cords and the fog lights were attached to the front of the train with duct tape. The hood of the train was unstable and had a problem of opening on inclines. Also, the operators needed to make announcements through a public address (PA) system.

Purpose

The design team's goal was to repair the Mocs Express to increase its capability to promote school spirit.

Design/Method

The major systems focused on during the Mocs Express train's renovations were the smokestack, the PA system, and the hood. To aid in creating designs for the train's problems, the team used decision matrices, objective trees, function node trees, sketches and computer modeling.

Results

The smokestack was designed to be stabilized by replacing the current mounting bracket with two cross-beams connected in the center. The solution for the PA system consisted of a control box mounted inside the cabin. Additionally, a microphone was attached to the PA system to project announcements. To secure the hood, a latch was installed on each side of the train. These were attached to the underside of the hood, while the tension brackets were attached to the cabin. This design removed the possibility of the hood opening unexpectedly.

Conclusions

All the implemented solutions met the expectations set at the beginning of the project of the customer. This was expressed by the customer's approval.