



Anne Galamb (DENR-DAQ Environmental Specialist, on left) asks questions to Tim Moore (CSXIT's Field Maintenance Manager, on right) about CSXIT's "Big Red" loaded container handler.

## Company Overview

CSX Intermodal Terminals, Inc., based in Jacksonville, Florida, is one of the nation's leading intermodal terminal operators, providing rail-to-truck and truck-to-rail transloading services. The company operates 40 terminals across the eastern United States and Canada. In North Carolina alone, CSX has major rail yards in Hamlet and Rocky Mount, TRANSFLO terminals (transferring products between railcars, trucks and containers) in Charlotte, Raleigh, Wilmington and Winston-Salem, and an intermodal terminal (operated by CSX Intermodal Terminals, Inc., or CSXIT) in Charlotte. CSXIT moves a broad portfolio of products across the country in a way that minimizes the effect on the environment, reduces traffic on an already congested highway system, and minimizes fuel consumption and transportation costs.

## The Loaded Container Handler

CSXIT's intermodal terminal in Charlotte owns and operates different types of container handlers, such as their 1999 Taylor THDC-954 "Big Red" loaded container handler, used to load and unload railcars. The function of a loaded container handler is to place a container on a rail car or chassis to be transported, or to stack containers on top of each other. They lift containers using a four point top pick loaded container attachment which has a twistlock interlock system that is designed to secure compatible containers.

## Implementation

In 2013, CSXIT was awarded a Mobile Source Emission Reduction Grant (MSERG) that went toward replacing the engine of the 1999 Taylor THDC-954 "Big Red" loaded container handler from a 1999 Cummins M11 diesel with a Tier 0 rating to a 2012 Cummins M11 diesel engine with a Tier 3 rating. The handler was chosen to have its engine replaced to decrease its emissions, increase its efficiency, and reduce CSXIT's carbon footprint. The handler's engine replacement has also led to the additional improvements and benefits:

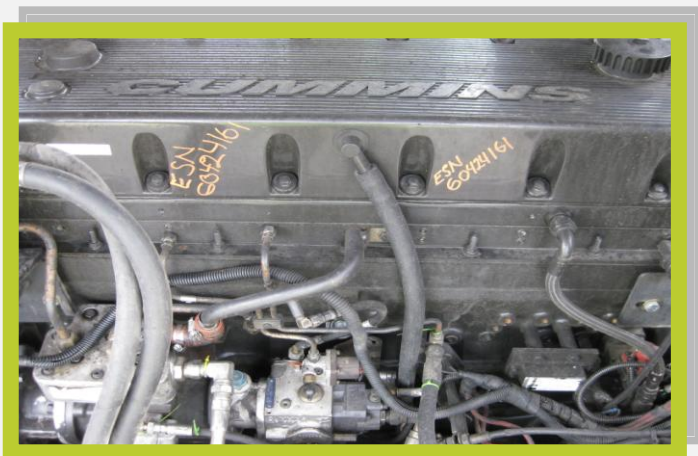
- The Tier 3 engine has an estimated fuel economy of 5.0 gallons of fuel per hour, as compared to the old Tier 0 engine's estimated fuel economy of 5.5 gallons of fuel per hour.
- With the estimated annual hours of use being 3,000 hours, there is an estimated reduction of 1,500 gallons of fuel used per year.
- The maintenance interval for the new engine is twice the interval for the old engine. This results in over 40 gallons less waste oil each year.
- There is less maintenance needed, therefore there are less repair costs and less time the loaded container handler is decommissioned.
- The engine is now more reliable and possesses newer technology.

## Adjustments and Conclusion

CSXIT did not encounter any major problems related to the engine replacement project, and they would recommend this type of project to similar companies and organizations. Tim Moore, on behalf of CSXIT, says they are constantly looking for ways to be more efficient and reduce costs and emissions, such as using technology to insert an auto-shut off feature after 10 minutes of being idle for various machinery and looking into using natural gas. CSXIT plans to use the "Big Red" container handler for the remainder of the machine's life and would consider replacing other handler engines in the future.



The four point top pick loaded container attachment with twistlock interlocks on the four corners is used to move loaded containers from one location to another.



With its Tier 3 rating, the new 2012 Cummins M11 diesel engine will run cleaner and more efficiently than its Tier 0 counterpart.

"Doubling the engine maintenance interval will result in over 40 gallons less waste oil each year."

- William Traub, Equipment Maintenance Director

### Emission Reductions

Nitrogen Oxides (tons/yr)	Fine Particulate Matter (tons/yr)	Carbon Monoxide (tons/yr)
0.8831	0.0761	0.3477