

# Cost-effective Rollover Protective Structure (CROPS)

for Wheeled Agricultural Tractors

Ford 3000 SERIES

TESTING INFORMATION

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DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health



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Static testing of a fully assembled NIOSH CROPS was performed at the NIOSH Division of Safety Research laboratories in Morgantown, West Virginia, and in accordance with testing criteria outlined in SAE J2194. The main purpose of the static laboratory testing was to simulate field upset in a controlled and repeatable environment (SAE J2194). The static loading sequence consisted of four tests: (1) longitudinal loading, (2) 1st vertical crush loading, (3) transverse loading, and (4) 2nd vertical crush loading. During any of the four phases of static testing, the CROPS cannot be altered (e.g., bolts tightened, material repairs) and cannot touch or enter the operator clearance zone.

During the static laboratory testing, the loads were applied slowly over time, with the applied force and corresponding displacement collected. From these measurements, the energy absorbed by the CROPS was calculated (see graphs).

The photos show the condition of the tested CROPS at the beginning and the end of each of the four static tests.

*CROPS Testing Information, Ford 3000 Series*

**Ford 3000 Longitudinal Test**



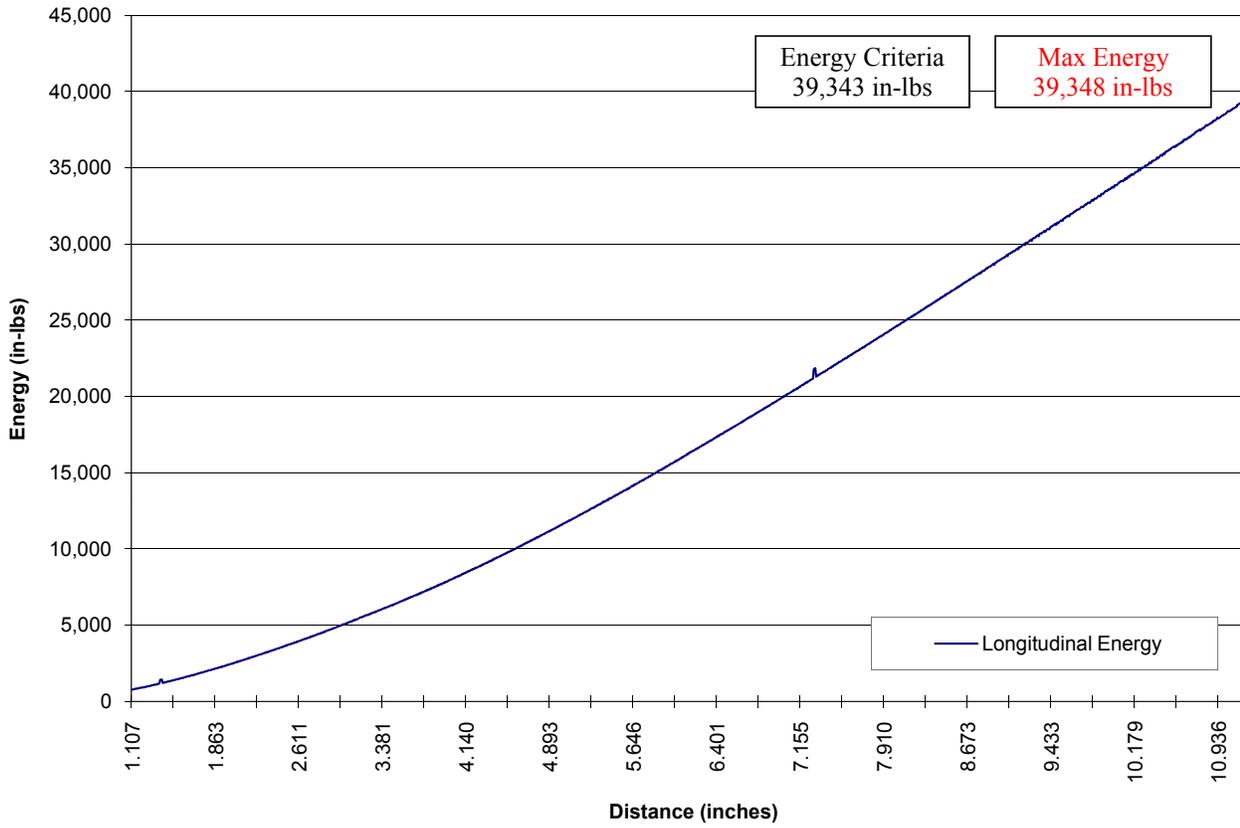
**Ford 3000 Longitudinal Test**



# CROPS Testing Information, Ford 3000 Series

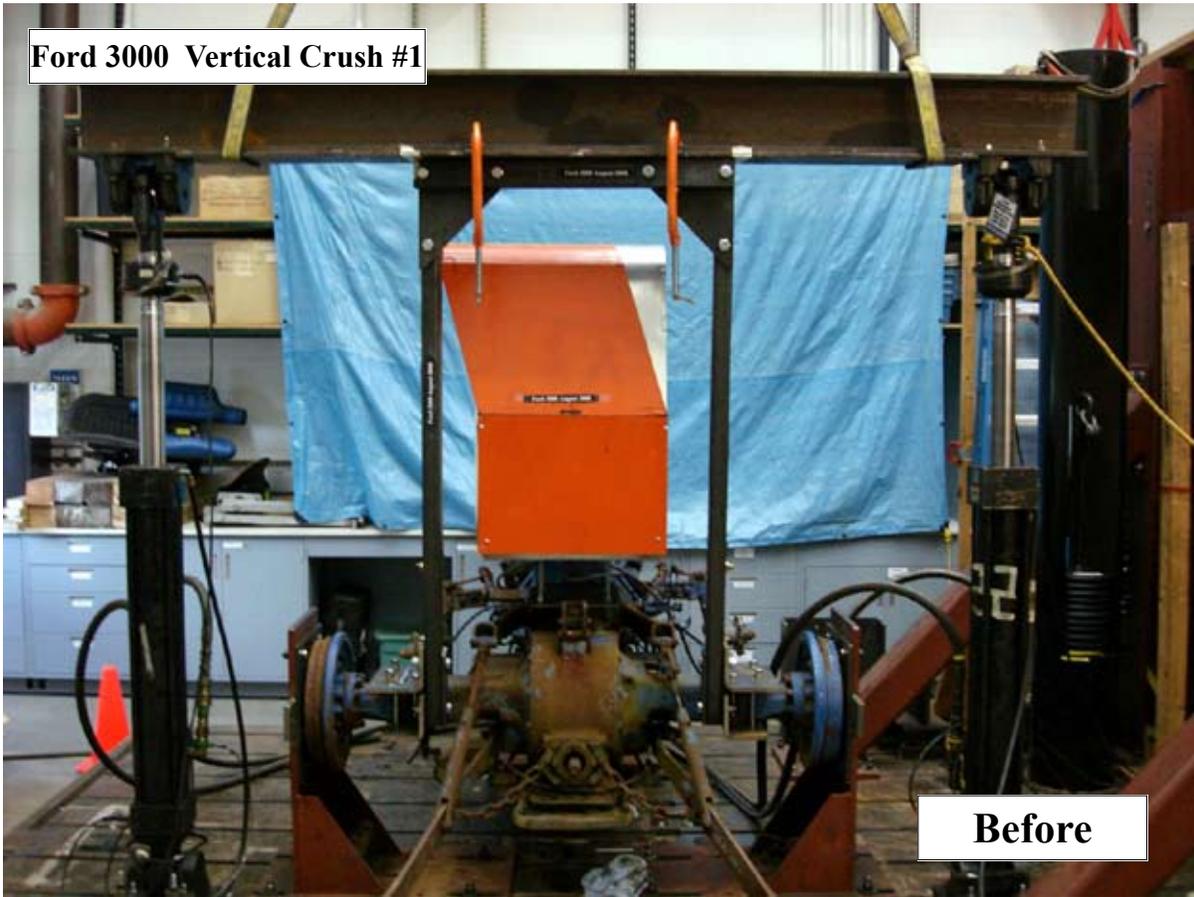
CROPS Lab Testing August 2008 Ford 3000 Series

## Ford 3000 Longitudinal Test



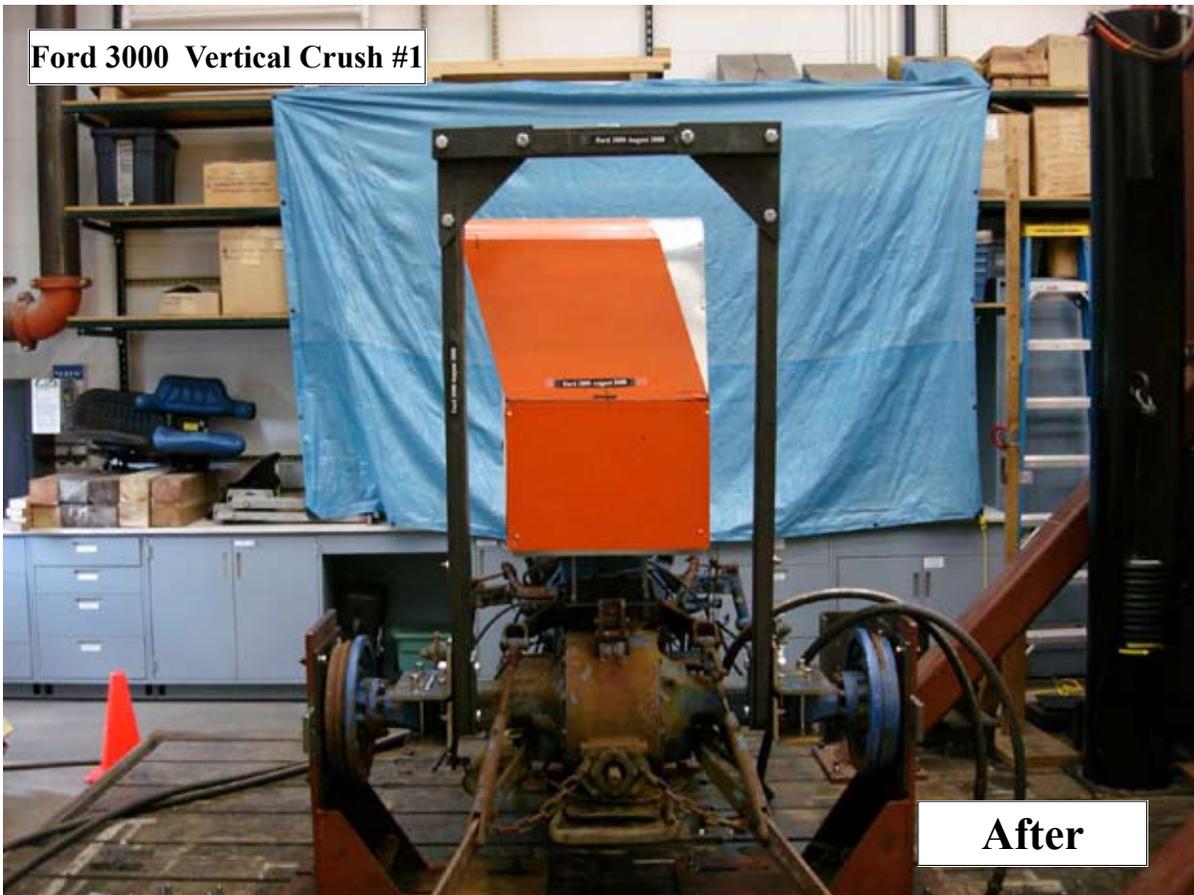
*CROPS Testing Information, Ford 3000 Series*

**Ford 3000 Vertical Crush #1**



**Before**

**Ford 3000 Vertical Crush #1**

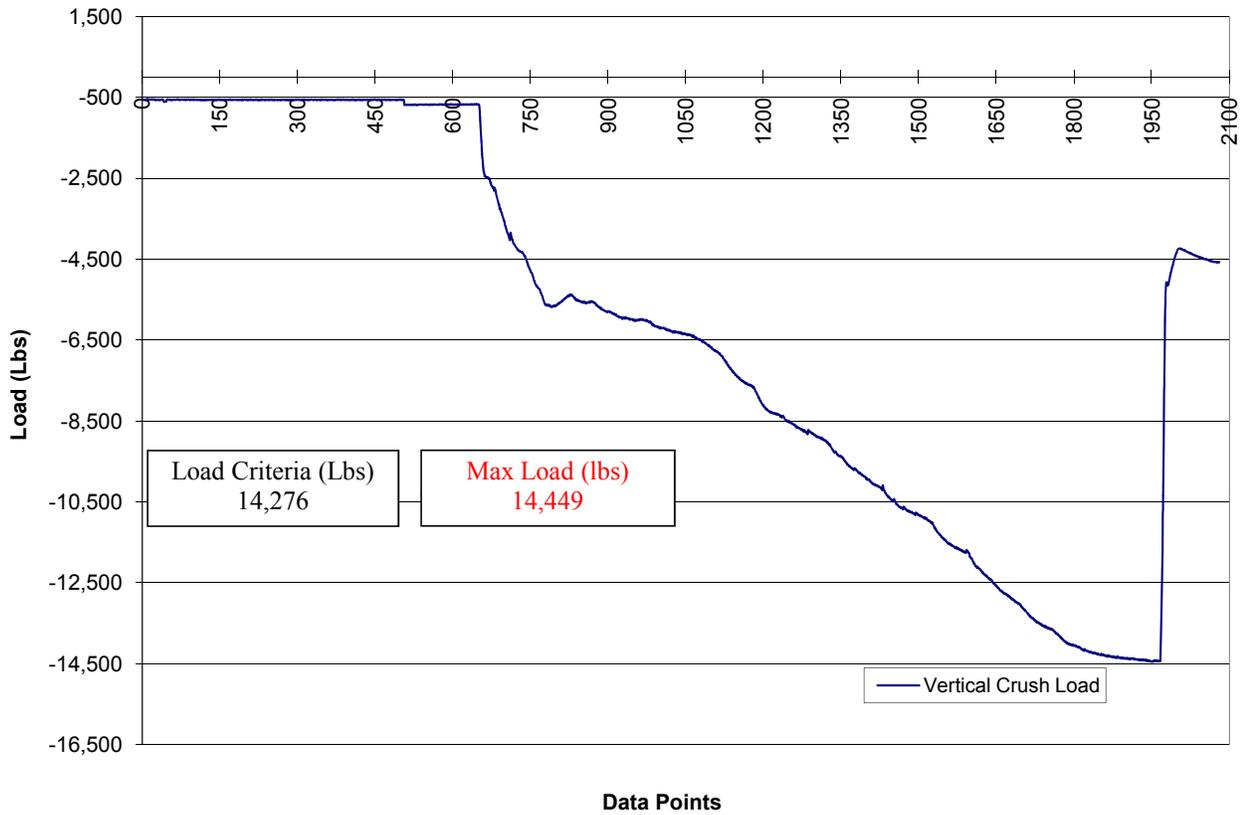


**After**

# CROPS Testing Information, Ford 3000 Series

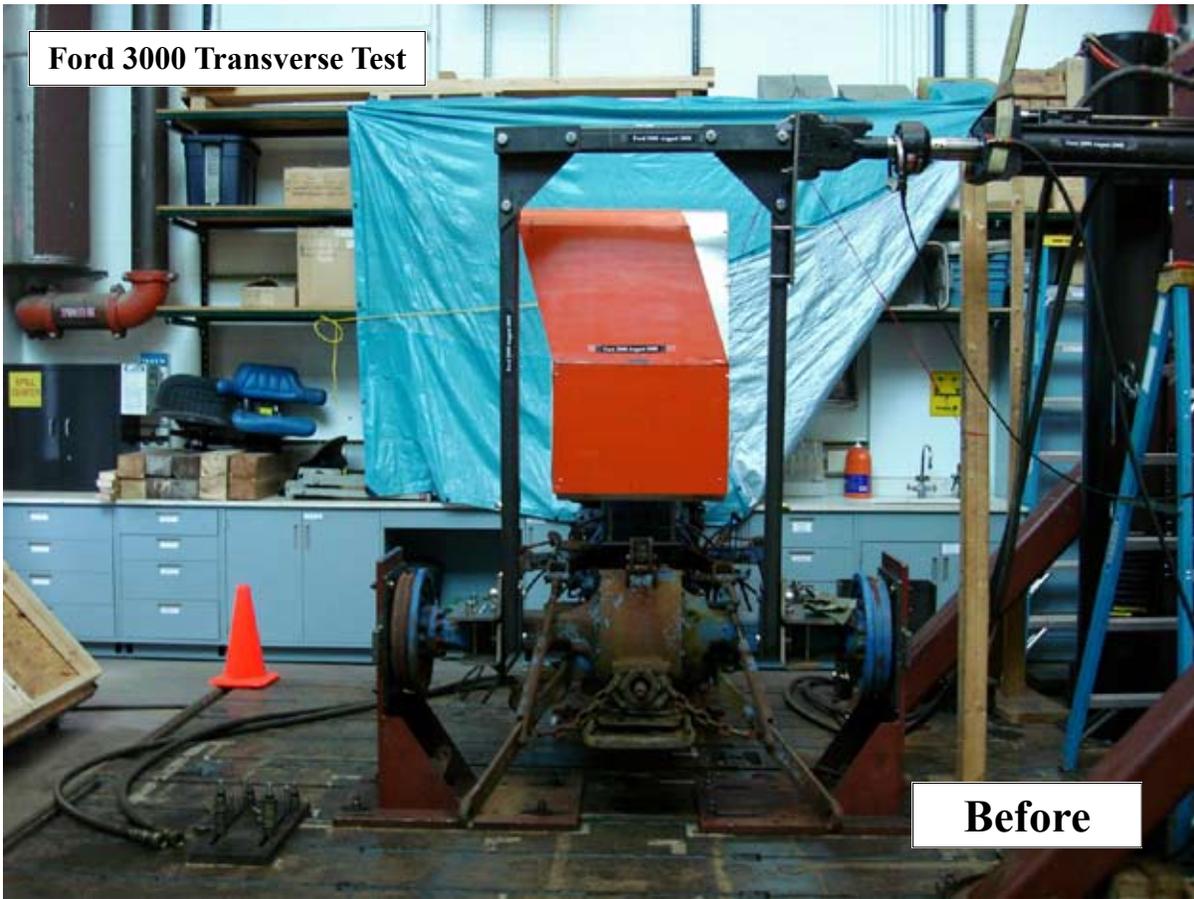
CROPS Lab Testing August 2008 Ford 3000 Series

## Ford 3000 Vertical Crush #1



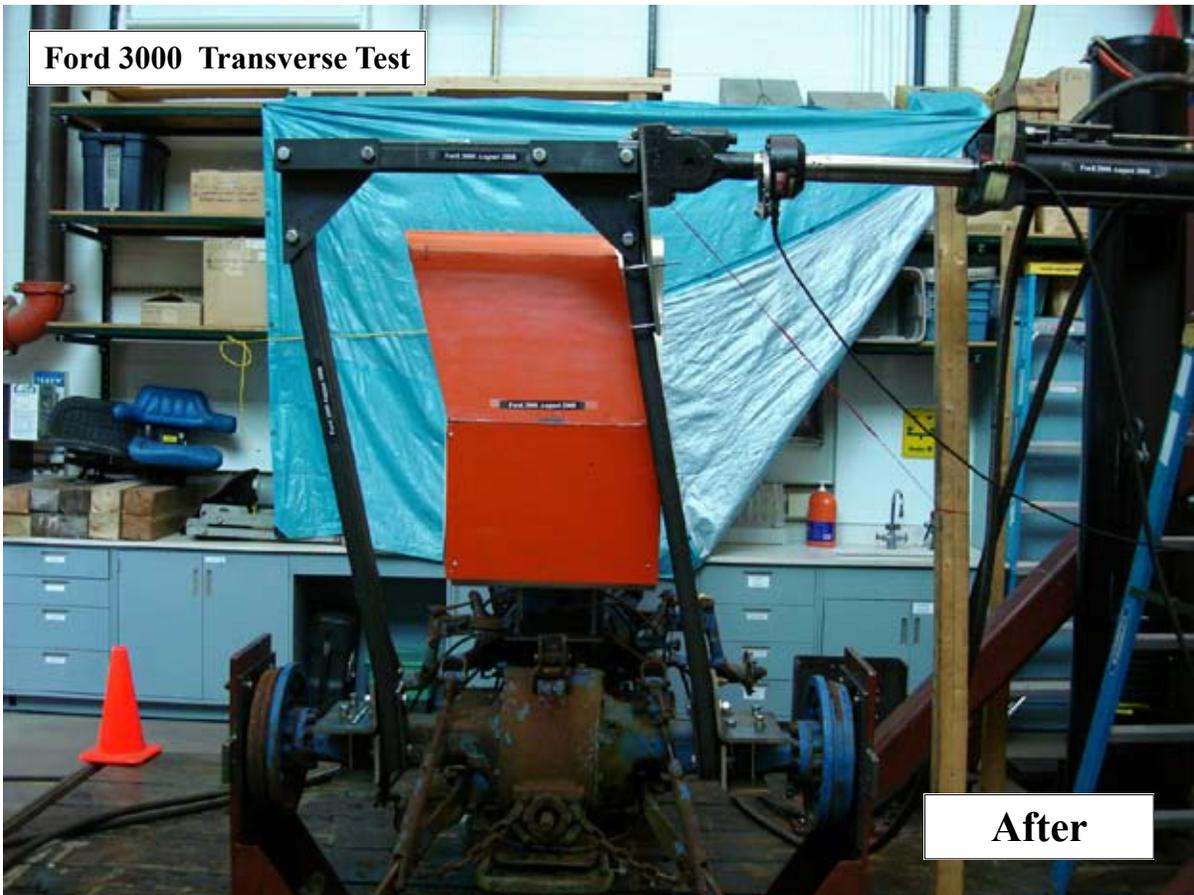
*CROPS Testing Information, Ford 3000 Series*

**Ford 3000 Transverse Test**



**Before**

**Ford 3000 Transverse Test**

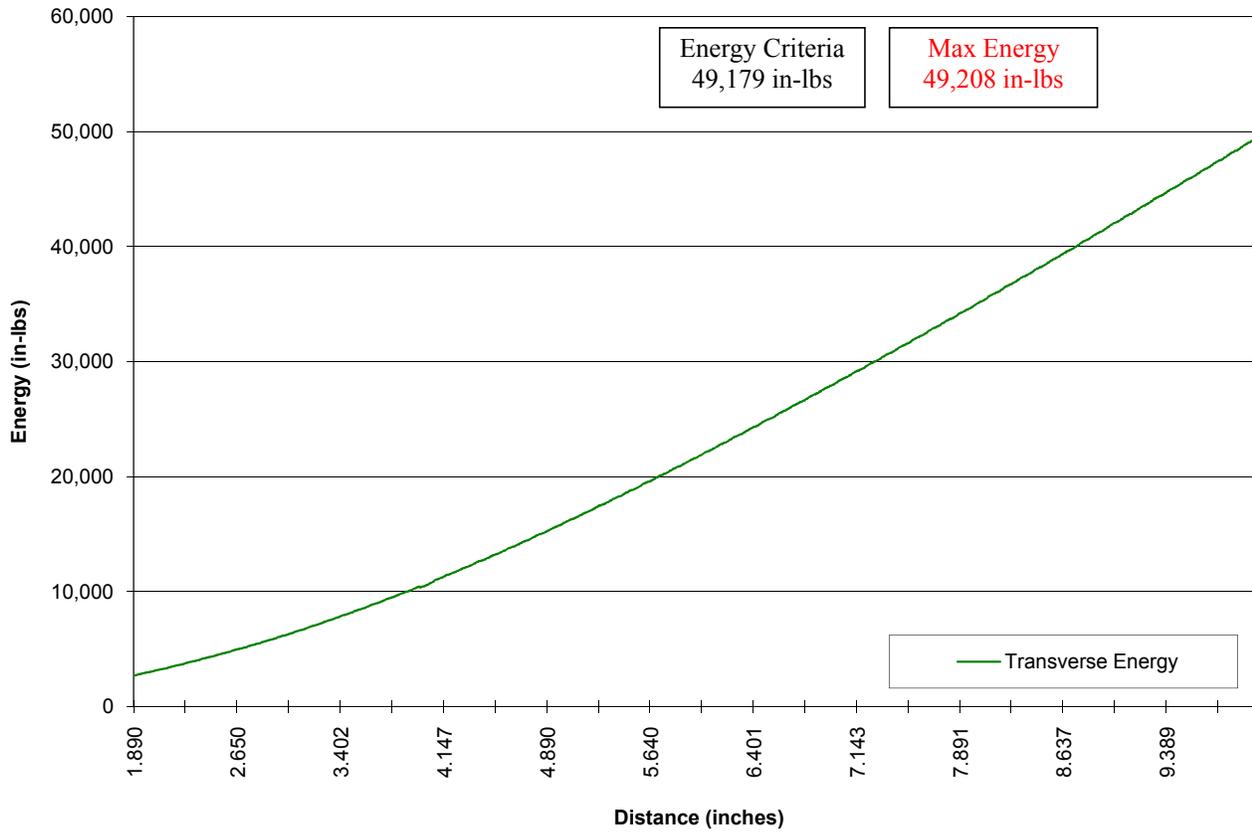


**After**

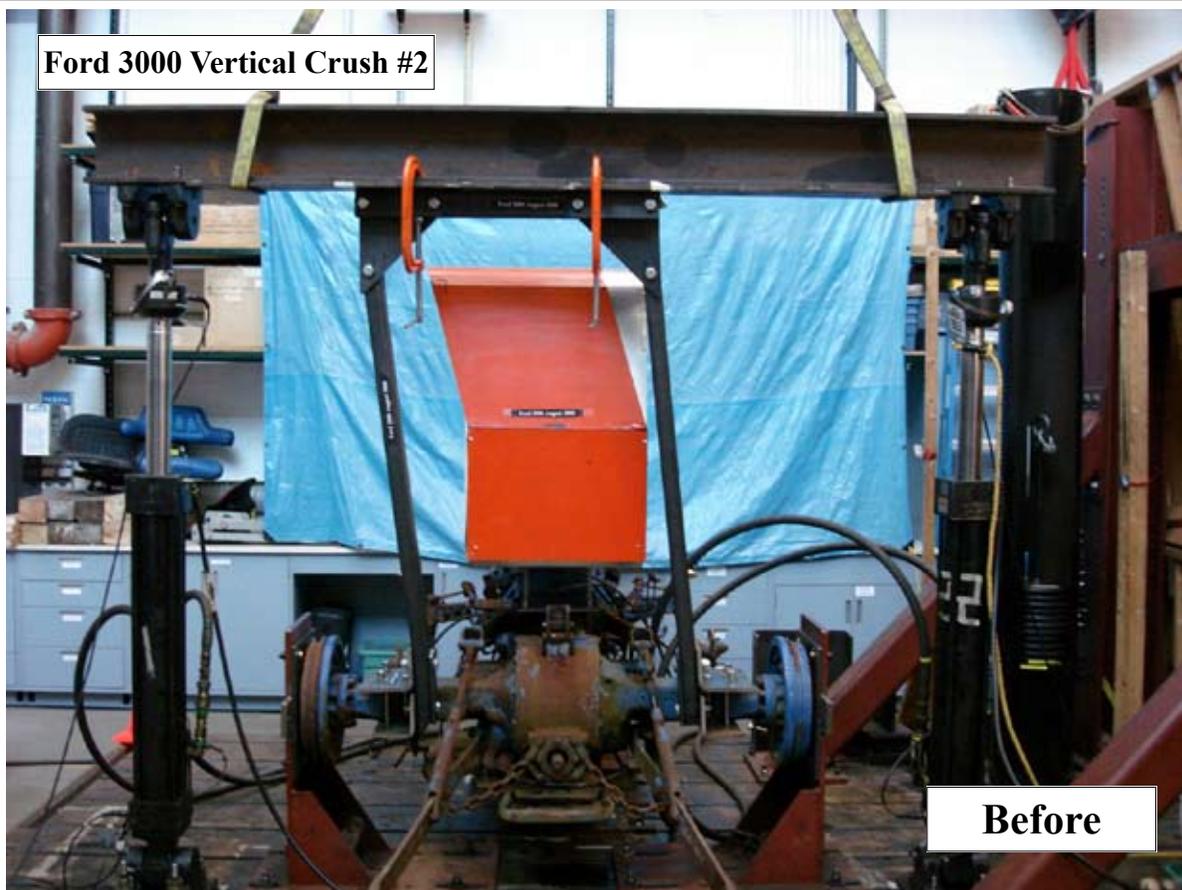
# CROPS Testing Information, Ford 3000 Series

CROPS Lab Testing August 2008 Ford 3000 Series

## Ford 3000 Transverse Test



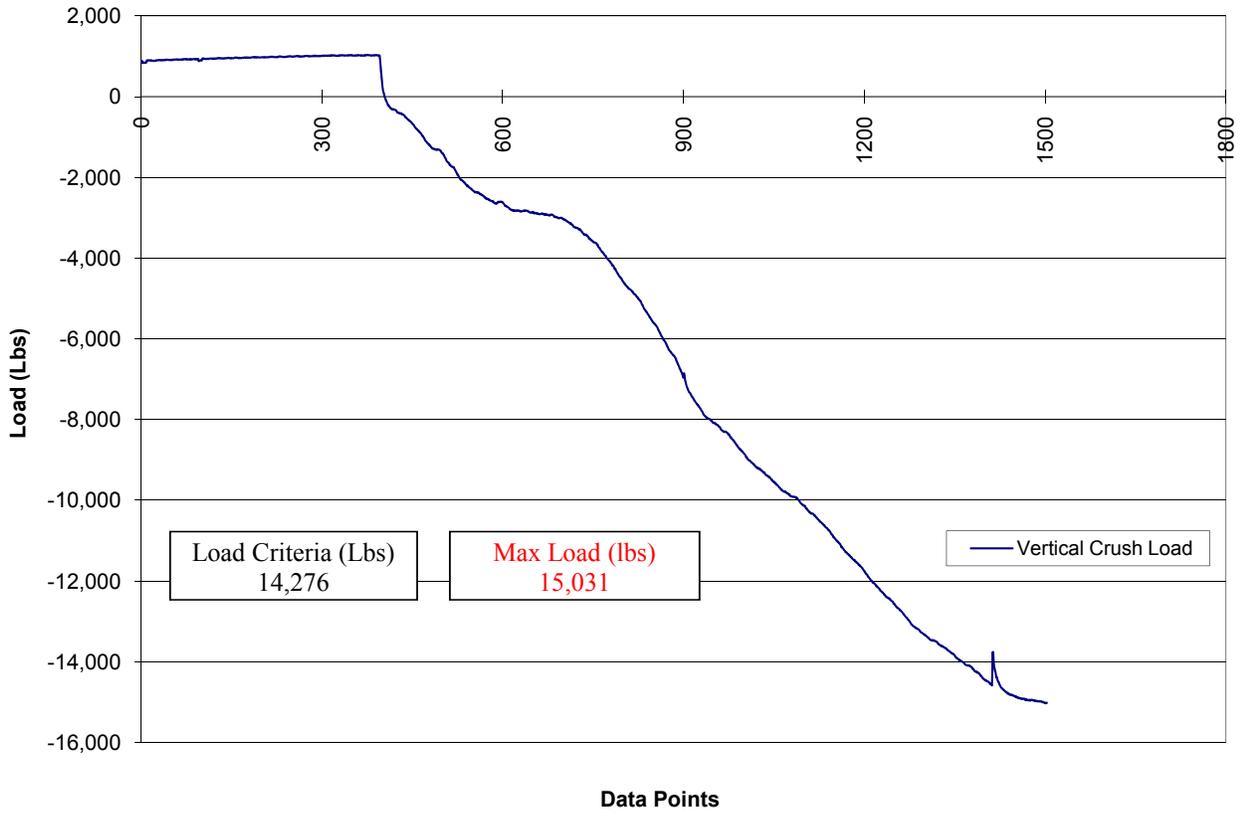
*CROPS Testing Information, Ford 3000 Series*



# CROPS Testing Information, Ford 3000 Series

CROPS Lab Testing August 2008 Ford 3000 Series

## Ford 3000 Vertical Crush #2





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