

Cost-effective Rollover Protective Structure (CROPS)

for Wheeled Agricultural Tractors

Ford 4000 SERIES

TESTING INFORMATION

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).

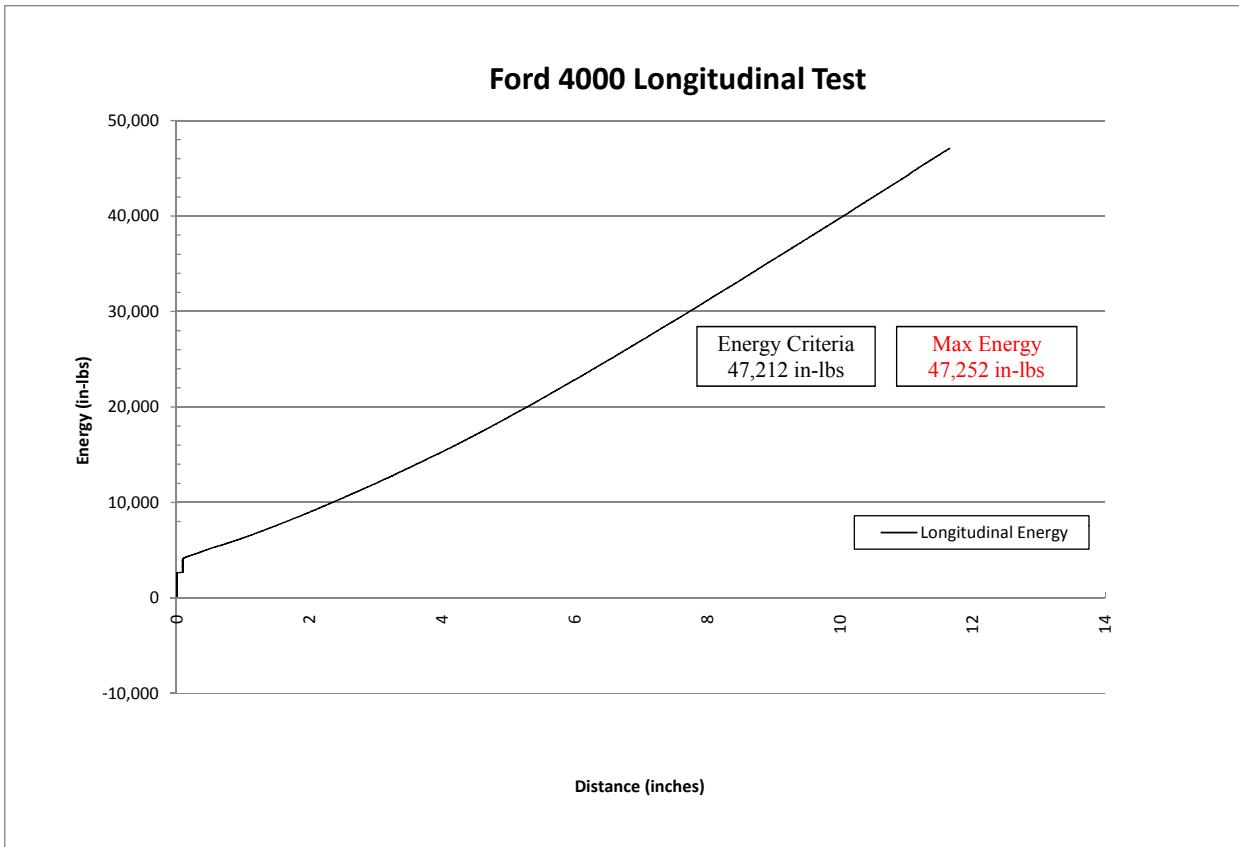
The photos show the condition of the tested CROPS at the beginning and the end of each of the four static tests.

CROPS Testing Information, Ford 4000 Series

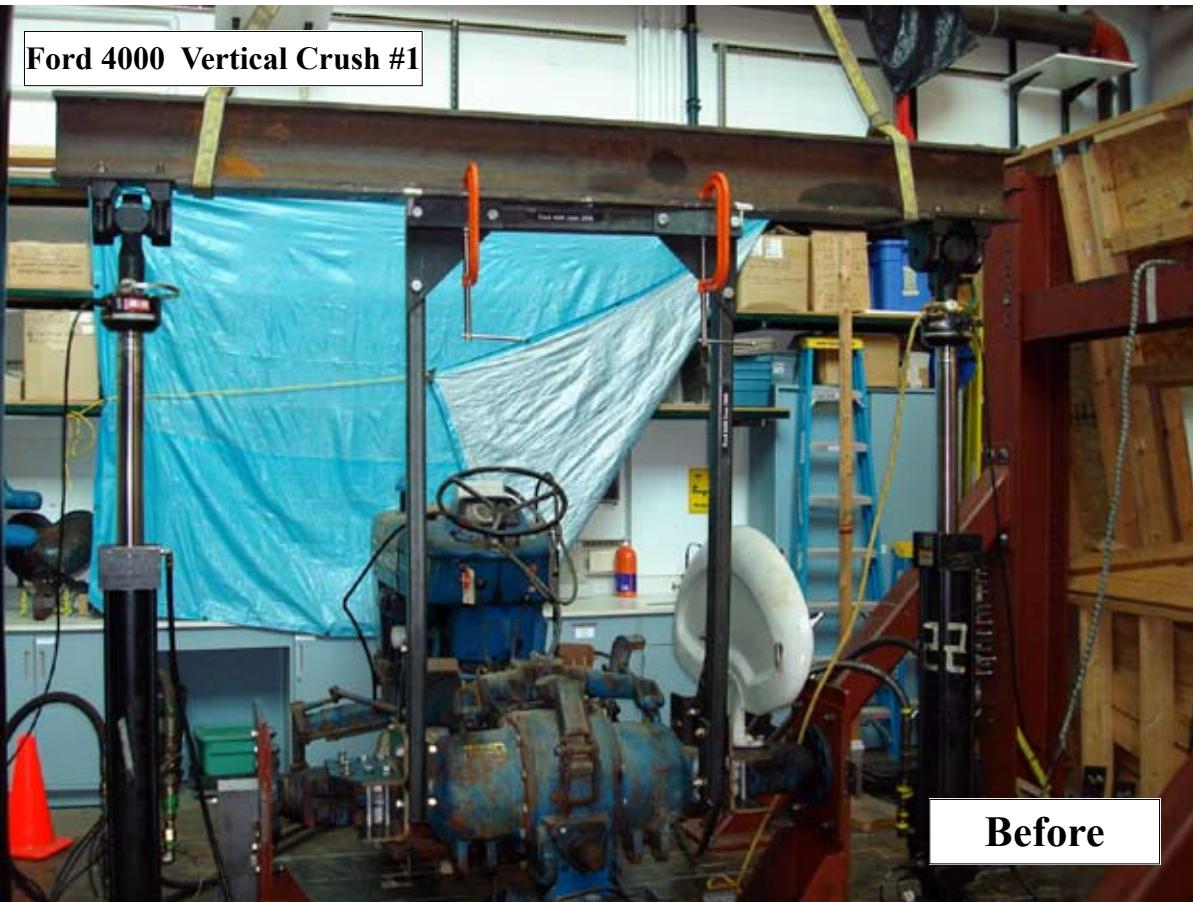


CROPS Testing Information, Ford 4000 Series

CROPS Lab Testing June 2008 Ford 4000 Series



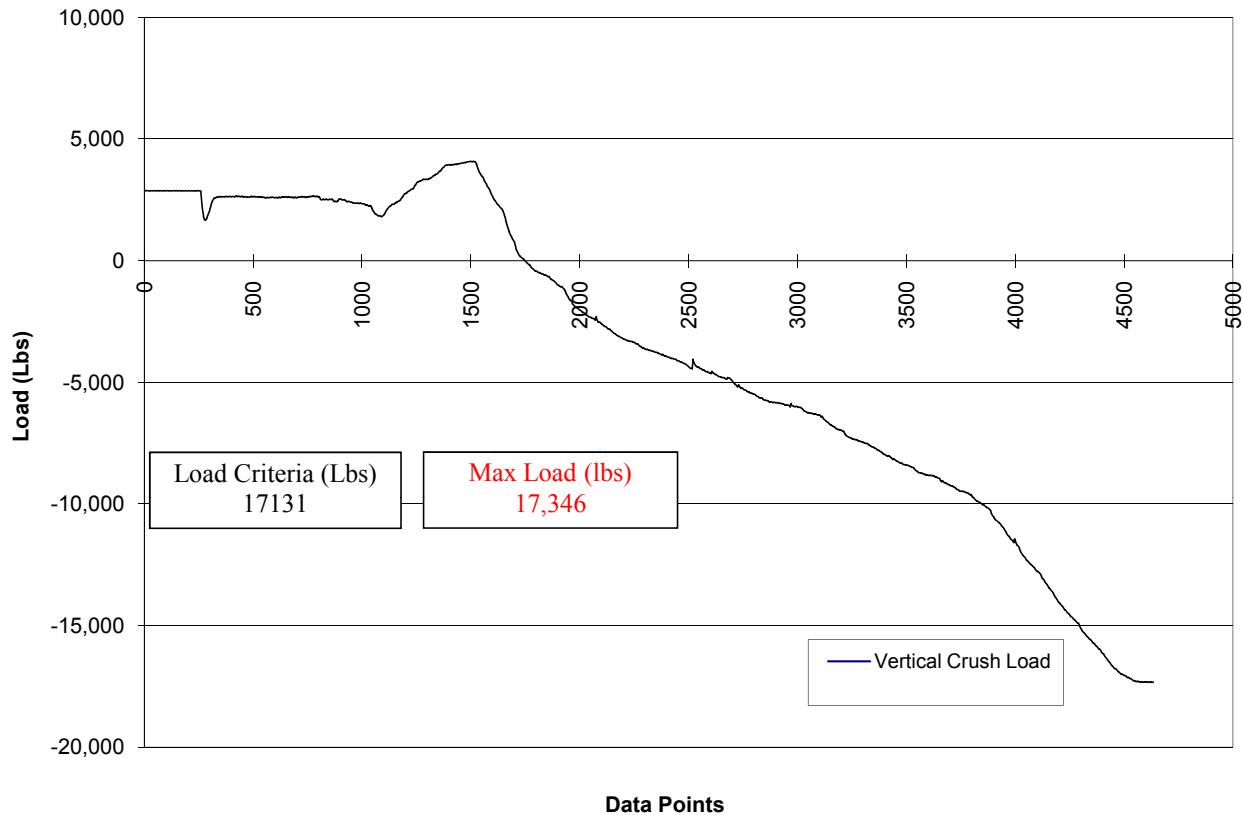
CROPS Testing Information, Ford 4000 Series



CROPS Testing Information, Ford 4000 Series

CROPS Lab Testing June 2008 Ford 4000 Series

Ford 4000 Vertical Crush #1



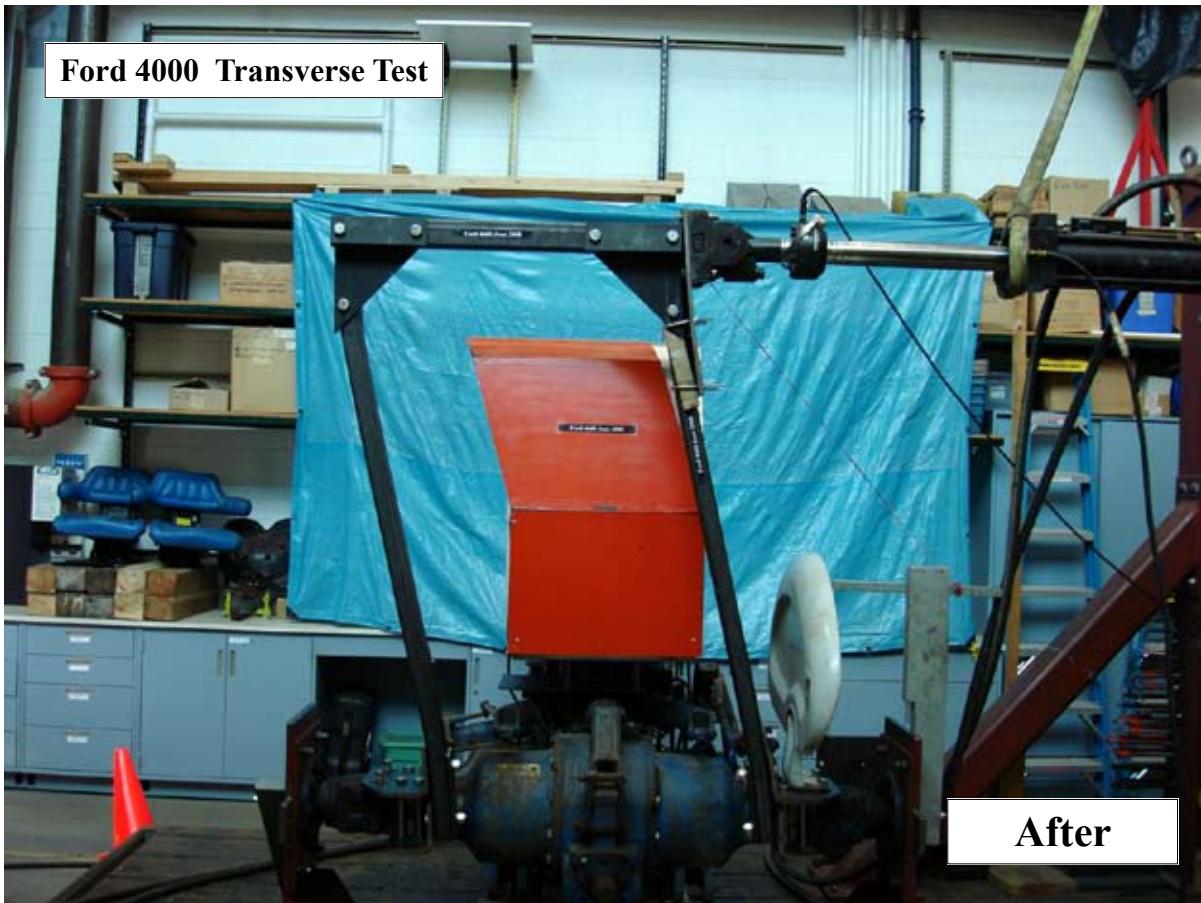
CROPS Testing Information, Ford 4000 Series

Ford 4000 Transverse Test



Before

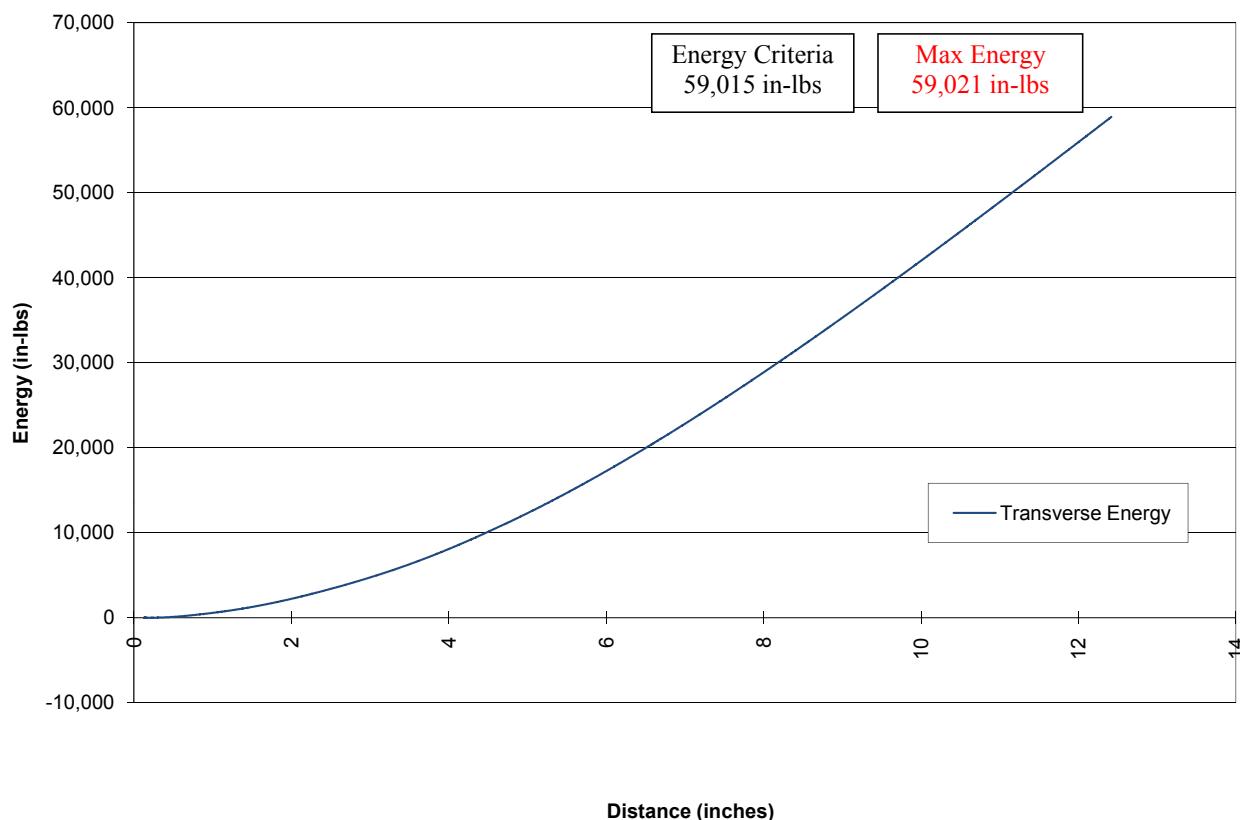
Ford 4000 Transverse Test



After

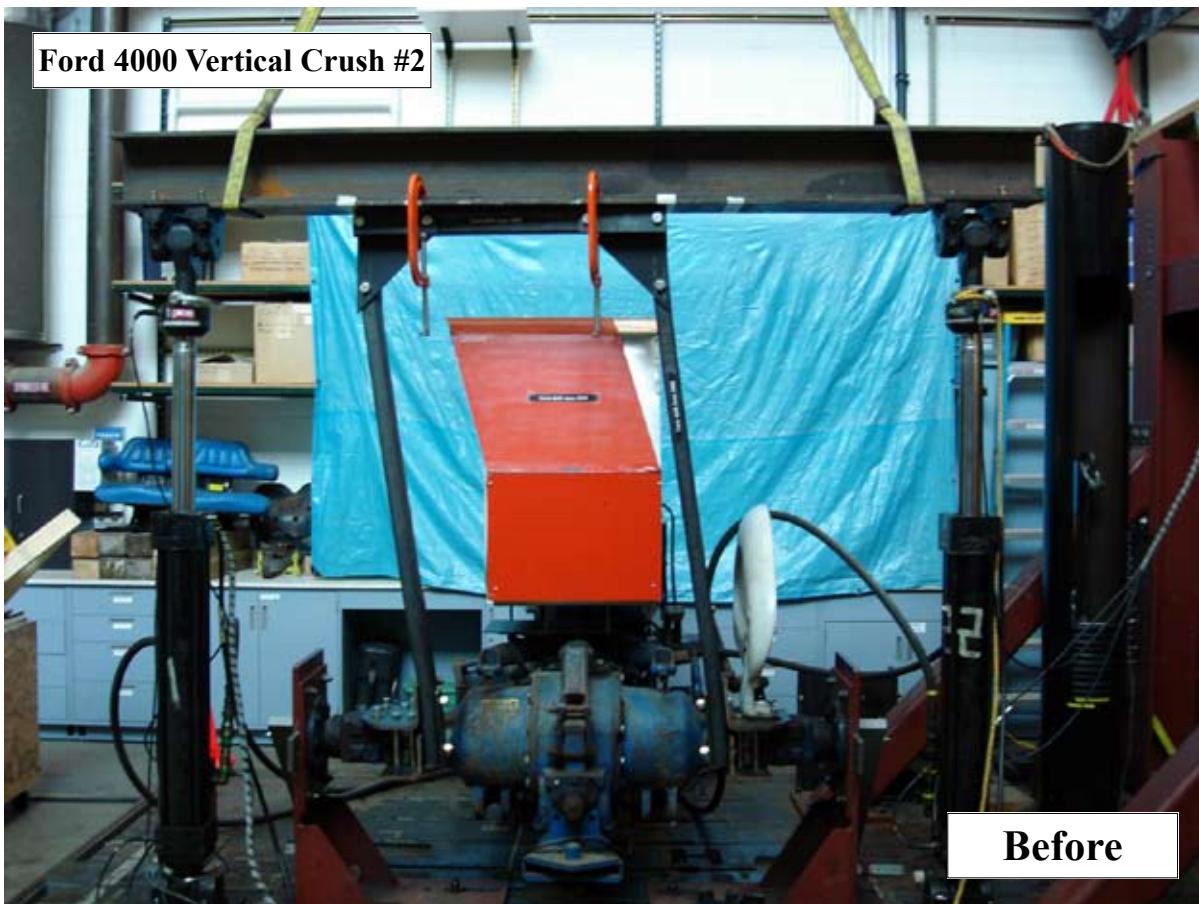
CROPS Lab Testing June 2008 Ford 4000 Series

Ford 4000 Transverse Test



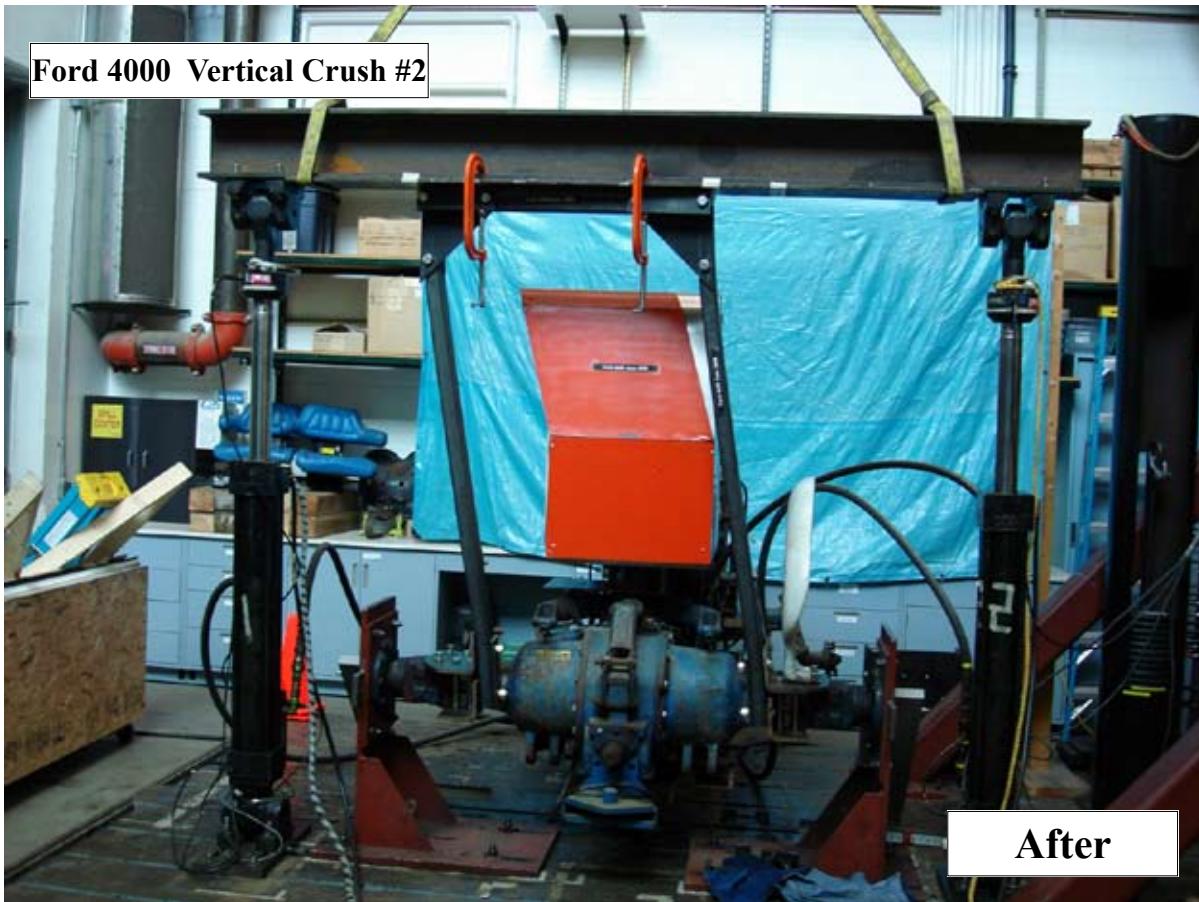
CROPS Testing Information, Ford 4000 Series

Ford 4000 Vertical Crush #2



Before

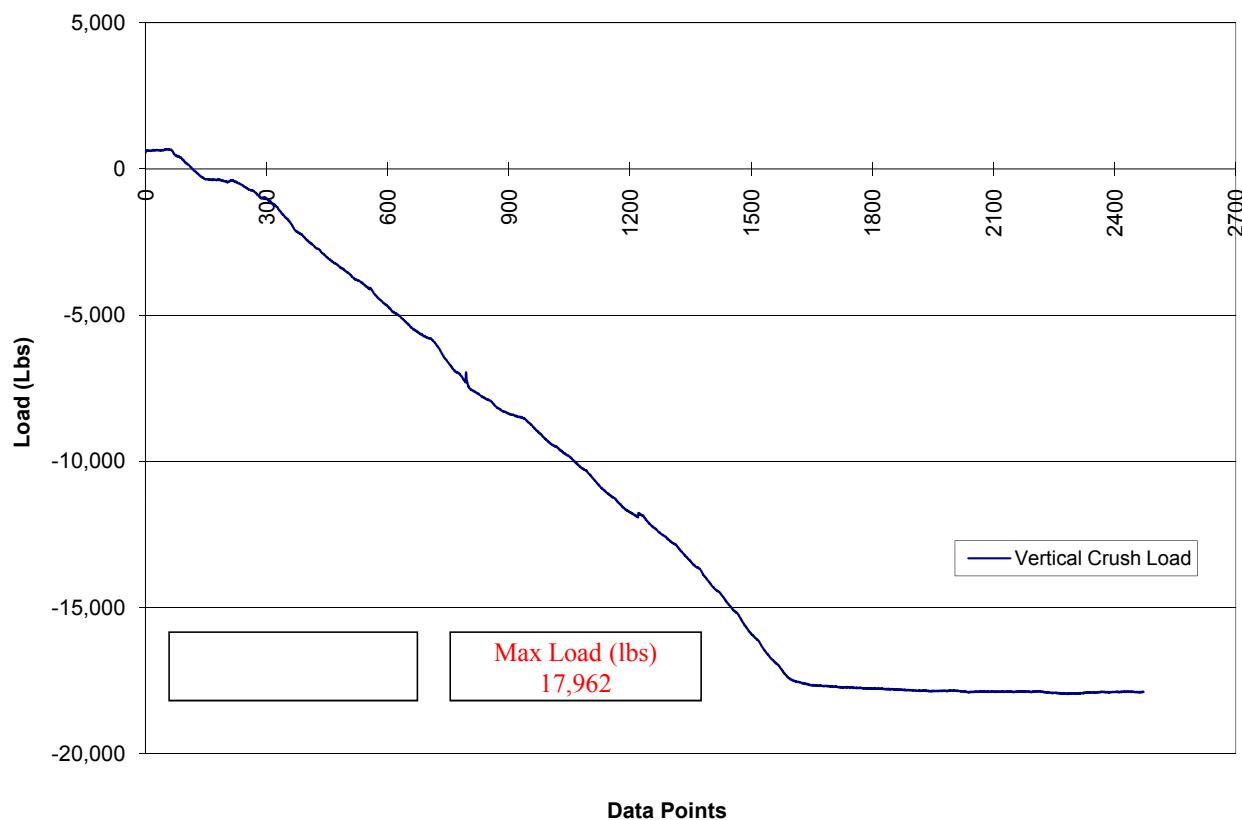
Ford 4000 Vertical Crush #2



After

CROPS Lab Testing June 2008 Ford 4000 Series

Ford 4000 Vertical Crush #2





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