Liquid Oxygen Cylinder Explosion

- Improper methods used to render scrap cylinder unserviceable
- Unsafe modifications to cylinder design

The incident described in the following presentation did not involve an Airgas company.

Accident Profile

- Two individuals (ages 42 and 60) found a liquid oxygen cylinder that had been removed from service and left at a scrap metal dealer
- The individuals were self-employed in scrap metal cutting operations and intended to use the cylinder in their work

Accident Profile

- The individuals had access to a liquid oxygen supplier where cylinder ownership would not be questioned
- Jury-rigging fill connections, the first attempt to fill the cylinder resulted in rapid venting through the Pressure Relief Device (PRD)

Accident Profile

- The PRDs were removed and plugged
- The cylinder was filled while onboard a pickup truck
- The cylinder, which had no vacuum, was now unable to vent excess pressure

Accident Profile

- While being transported down a busy highway, the pickup truck experienced a flat tire
- Shortly thereafter, the cylinder exploded with the results shown in the following slides

Pickup truck on which the cylinder was being transported

Pickup truck on which the cylinder was being transported

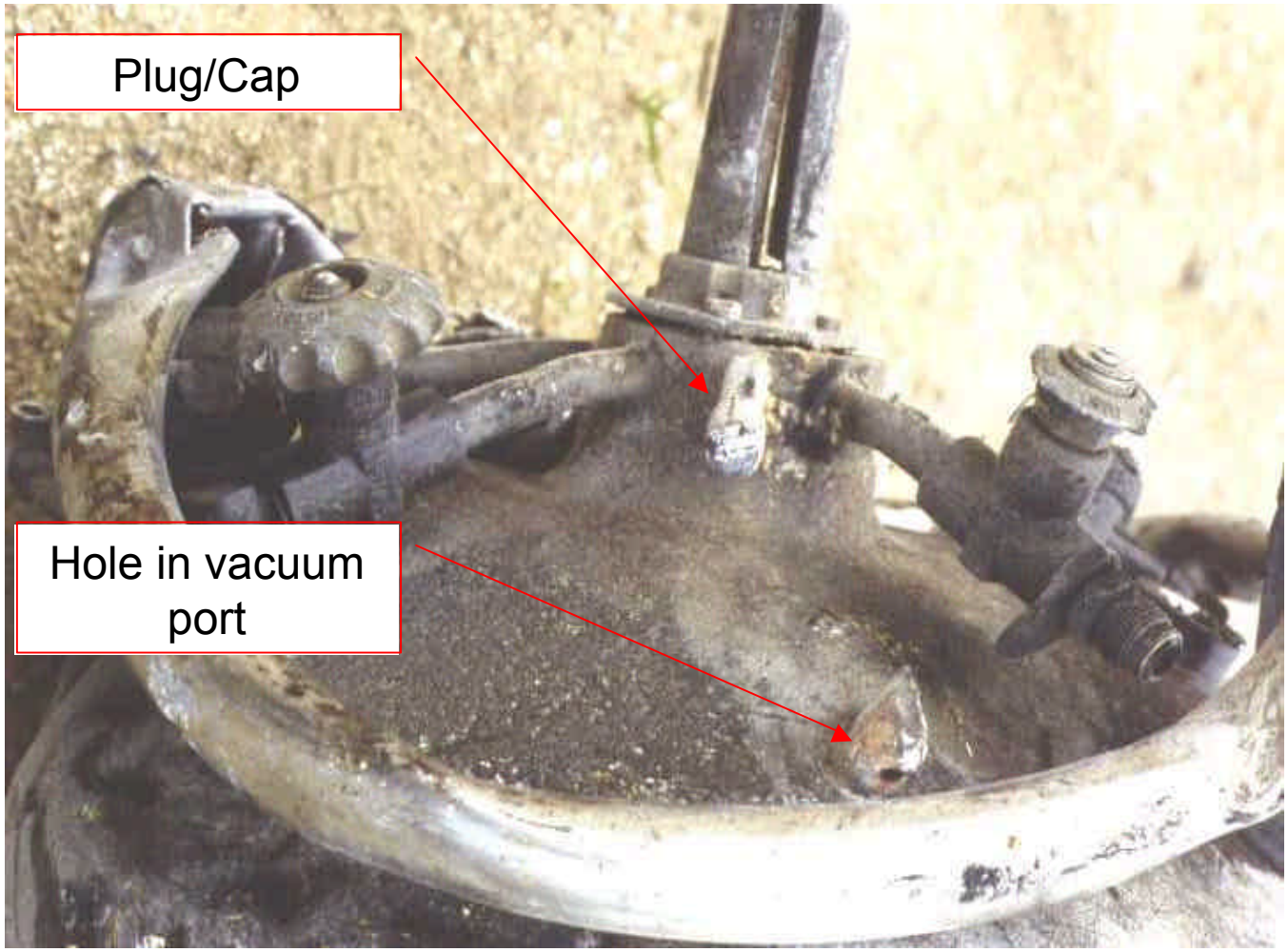
Pickup and cylinder remains

Cylinder top

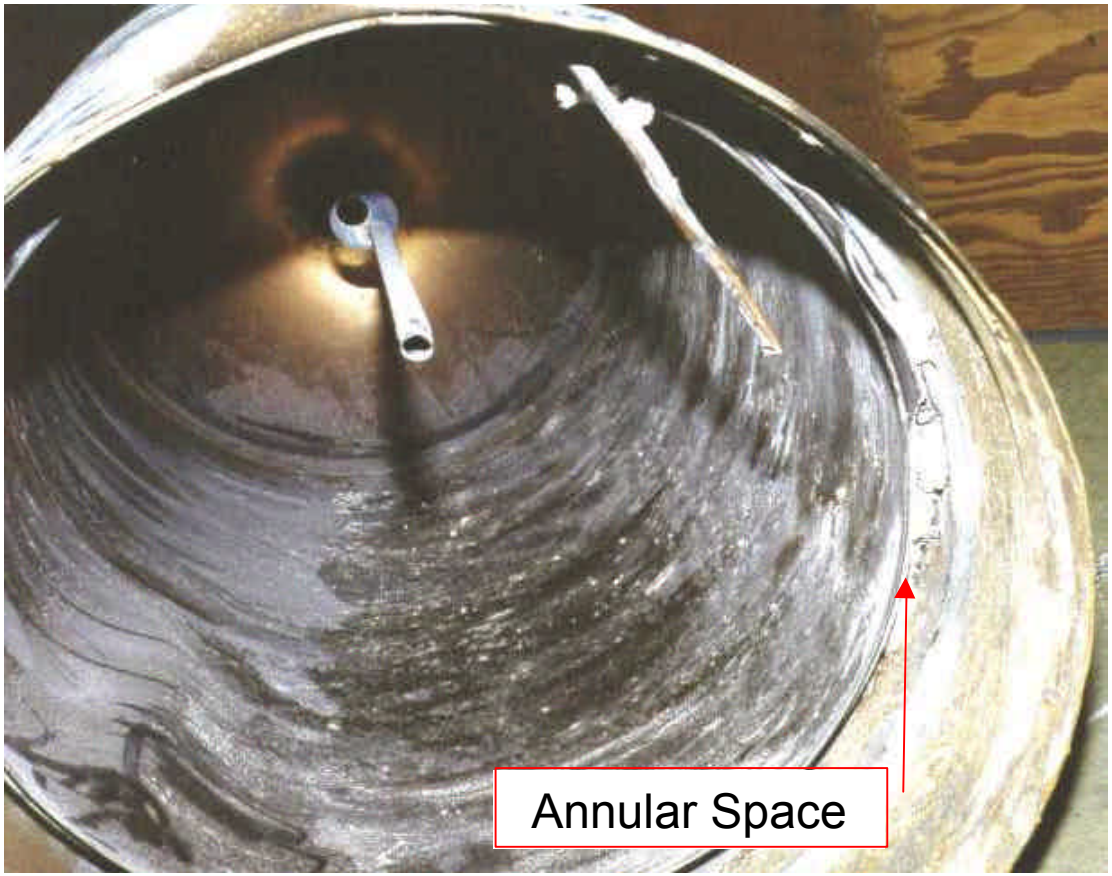
Cylinder outer shell, bottom

Cylinder bottom shell

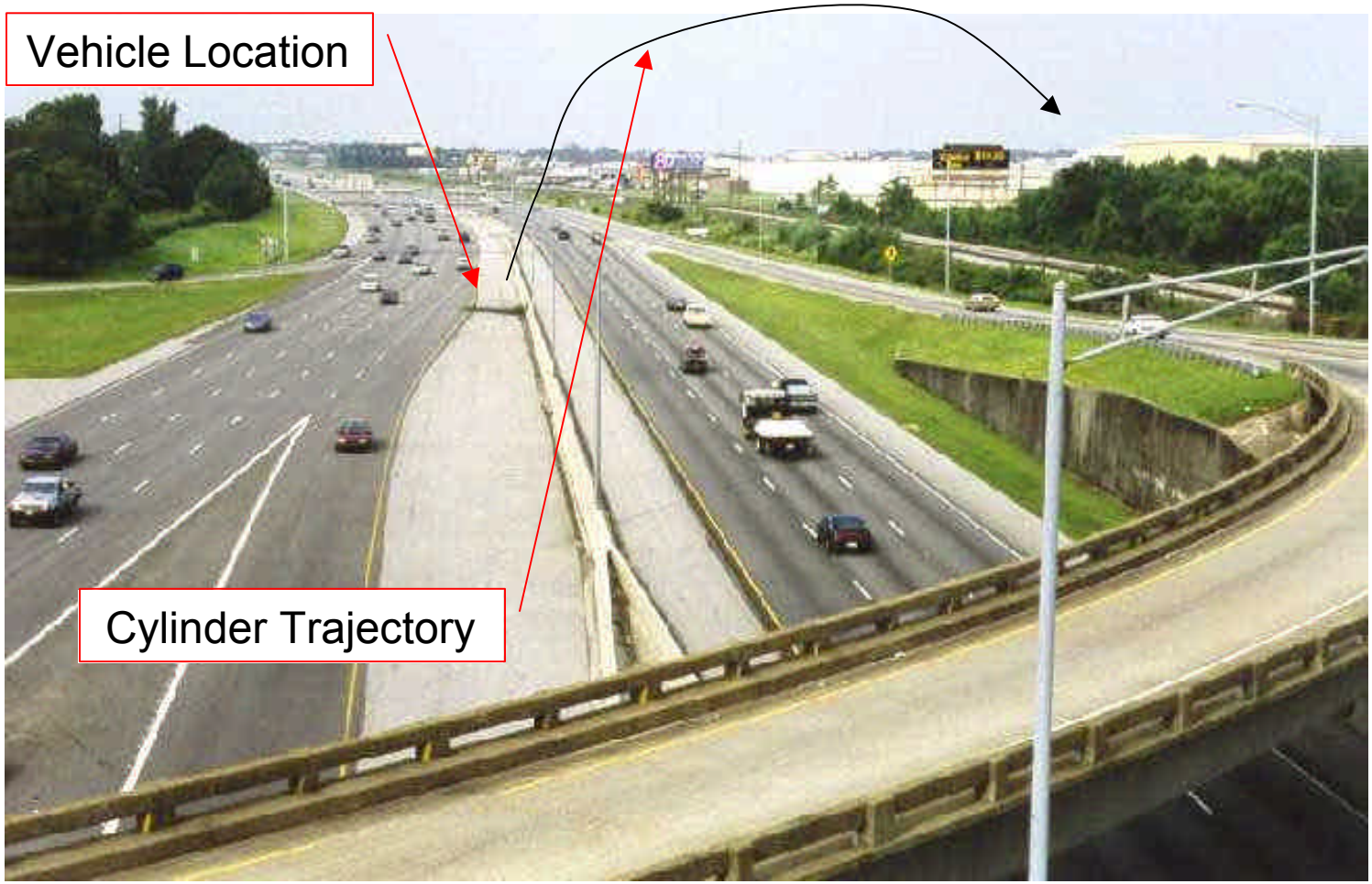
PRD location was plugged using a threaded cap


Plug/Cap
Hole in vacuum port

Both inner and outer shells separated at bottom welds

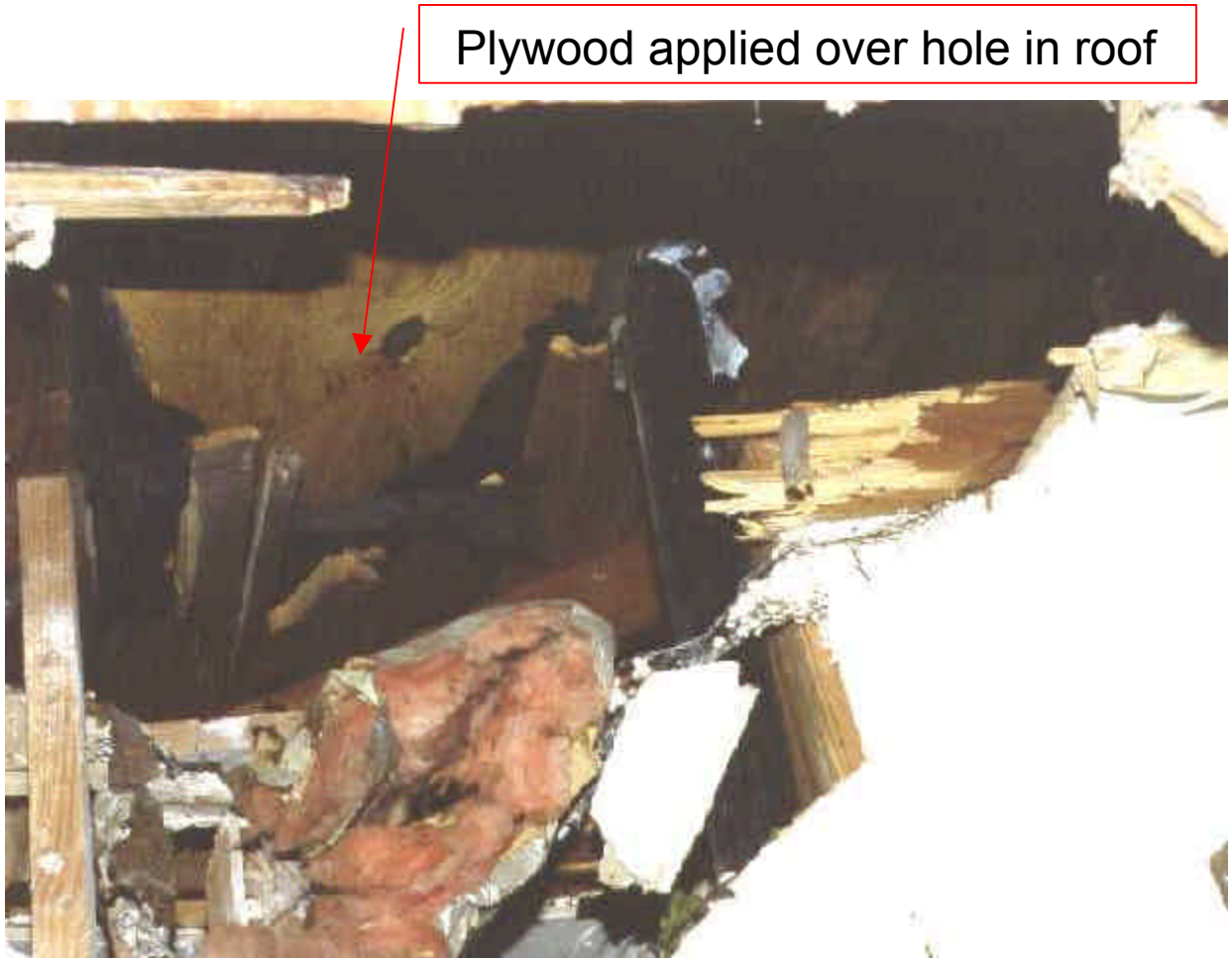


Cylinder exploded at 12:40 PM while transport vehicle was parked on busy Interstate highway



The blast blew one individual across 5 lanes of traffic. The other was blown approximately 40 feet. Both survived

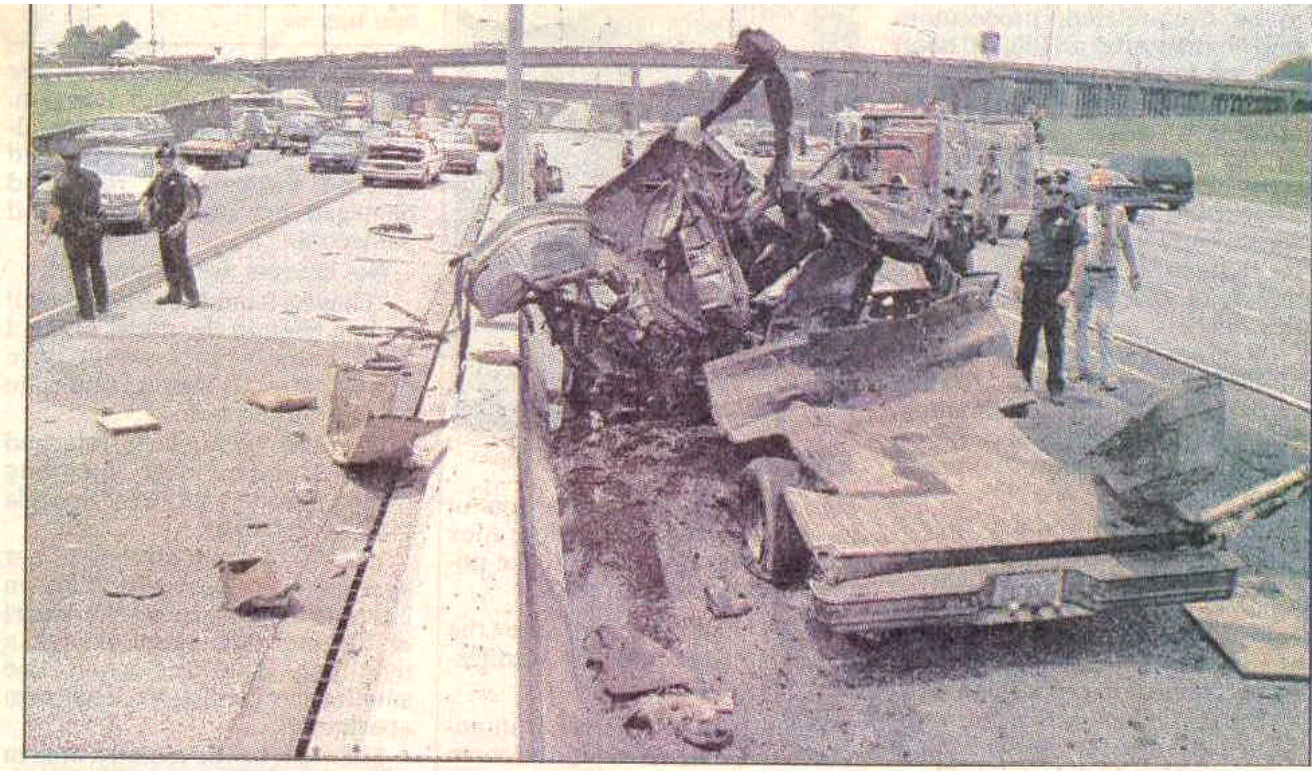
Cylinder flew approximately ¼ mile before plunging through the roof of an apartment, severing a main natural gas line and coming to rest in the living space



Despite heavy damage, no injuries to apartment tenants were reported

Apartment interior

Note that the media reported the event as a Butane cylinder explosion



Butane explosion on I-10 hurts two, hits apartment