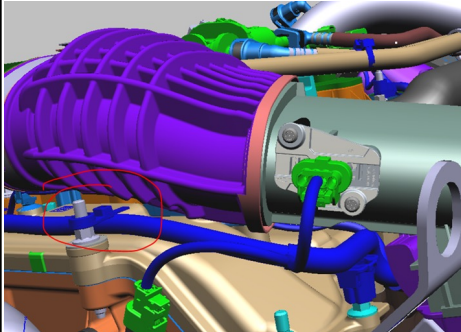


Wire Harness Retainer

Salima Ladha M.Eng., CCPE
sladha@ford.com

Ford Motor Company
Corporate Ergonomist
NJCHS Ergonomist



1

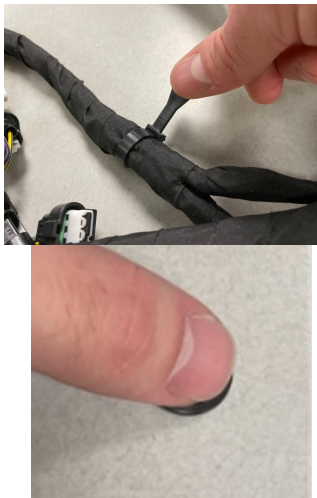
Concerns:

- (1) Force required to seat wire harness retainer on the stud
- (2) Mechanical Stress



Force

Retainer Effort to push to seat onto stud: 84.8N.
Ergo acceptable is 45N



Mechanical Stress

Stud jamming into the thumb

2

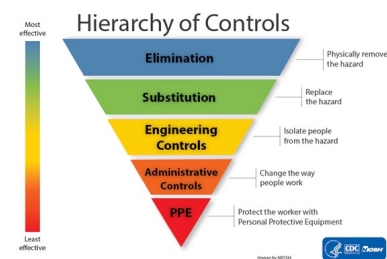
PPE

- Unique gloves (slightly more finger padding)
- Rubber thimbles
- Blue tape



Administrative Controls

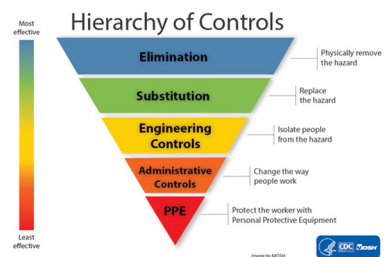
- Initially Job Rotation every hour then,
- Rotated every break



3

Engineering Controls

- Hand tools (various designs) to seat retainers



4

Substitution

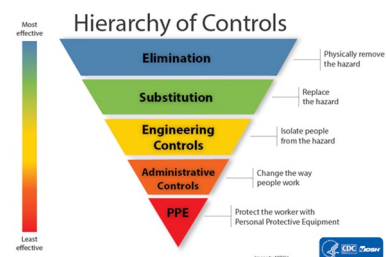
Interim Containment:

- The Retainer was replaced with an alternate existing retainer that was readily available in the "Ford retainer catalog".
- However,a "flat"/low profile retainer was required for wire harness clearance to other components, that are installed at the vehicle plant.



Permanent Containment

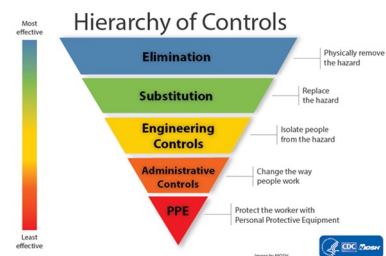
- A new retainer with wider surface area and lower force to install was designed, prototyped, tried out (successfully)
- Larger Retainer Force: 36.2N



5

Elimination

- Eliminated the redundant "seating" of retainers to double check that the retainer was fully seated.
- Eliminated waste



6