



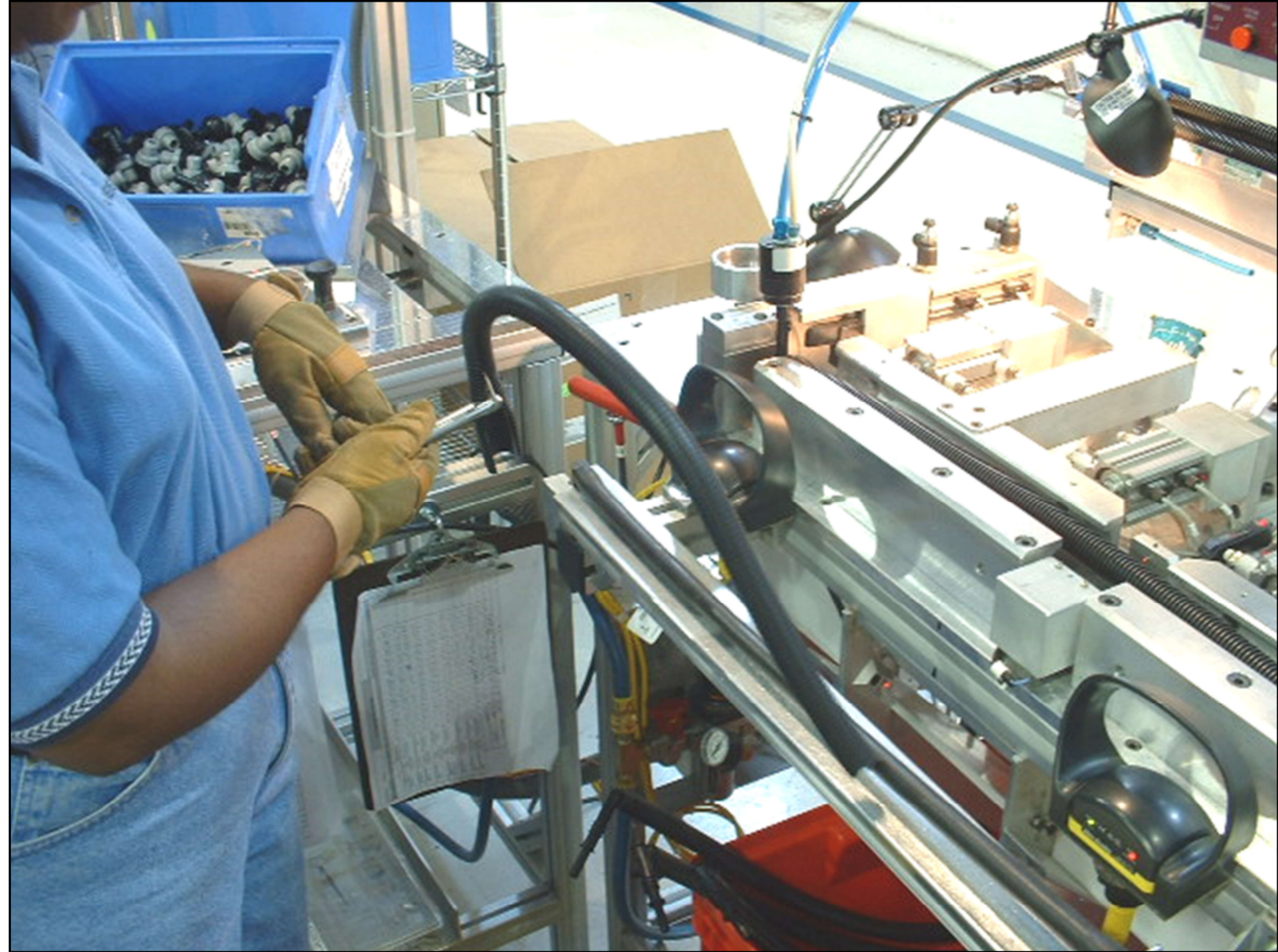
This is a operation improvement involving the installation of a protective convoluted plastic sheath along the length of a vehicle vacuum powered servo break hose that connects the inlet manifold to the break servo unit.

Current condition was that the sheath was installed using a hand held tool that splayed the convoluted plastic sheath open and then the operator would press down on the sheath along the length of the hose using both hands. This method was very labor intensive, slow and caused operator repetitive strain injuries. Fatigue is less of repetition of operation and more poor process design, so I set about re-designing how this protective sheath could be installed effortlessly, faster and with greater accuracy.

After a few prototypes I invented a method that worked, it was repeatable and could be reproduced effortlessly, faster and with greater accuracy of the protective sheath equally aligned and centered on the vacuum hose and it shaved off 10 seconds on cycle time. That may not sound like much, but when you are making 1000 one thousand pieces of these a day or more, that adds up to a significant time savings...

Lean is about hitting singles ever day, you don't have to swing for the fence just small sustained continuous improvements...





Current state: Picture showing operator preparing to install the protective sheath.





Current state: Getting the starting point of pressing the protective sheath over and down on to the hose was difficult enough.



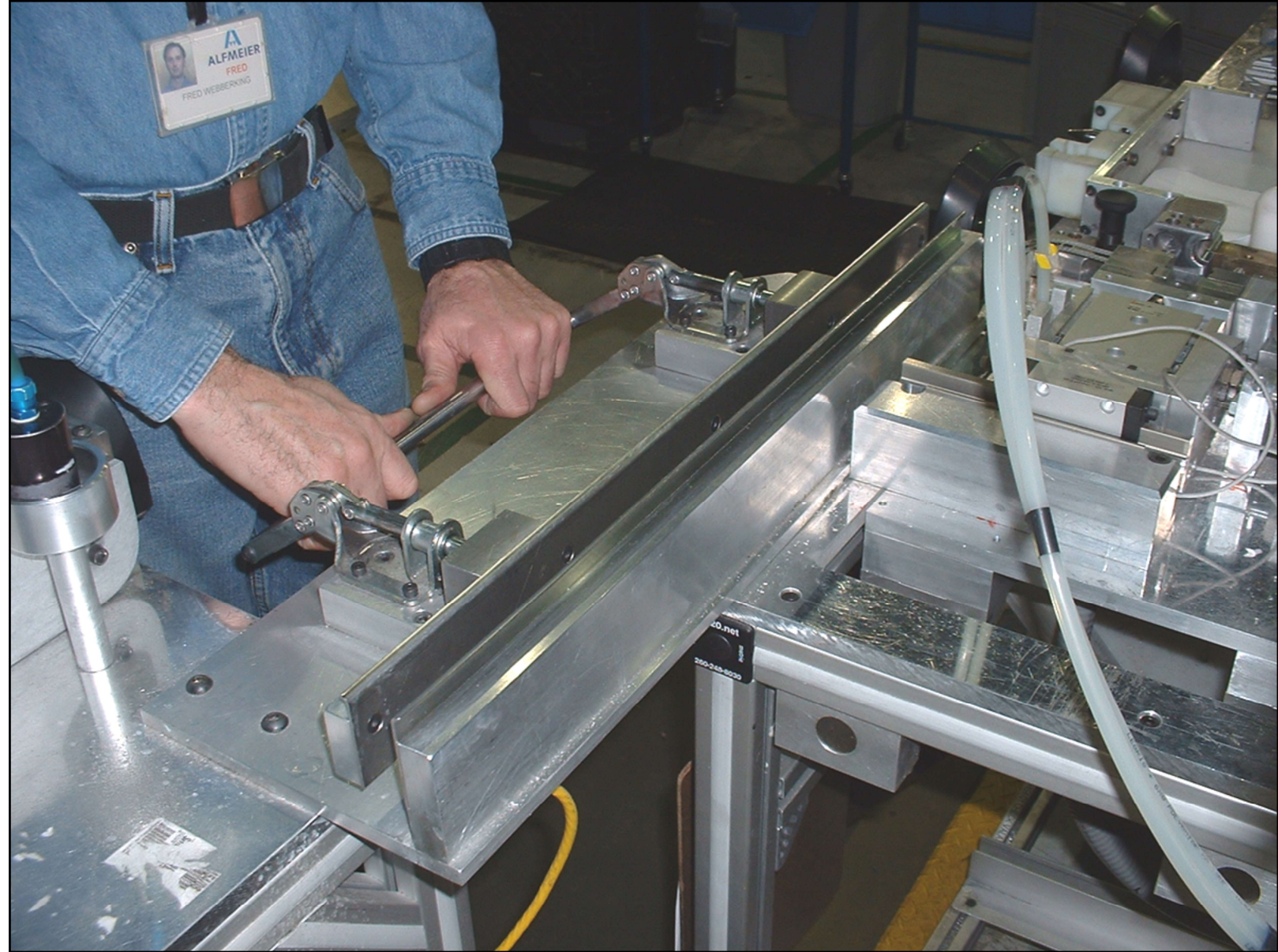
Future state: This was my prototype which I made myself...





Future state: My prototype worked great, so I designed and had made the production version you see here. Starting position - Close spreader.





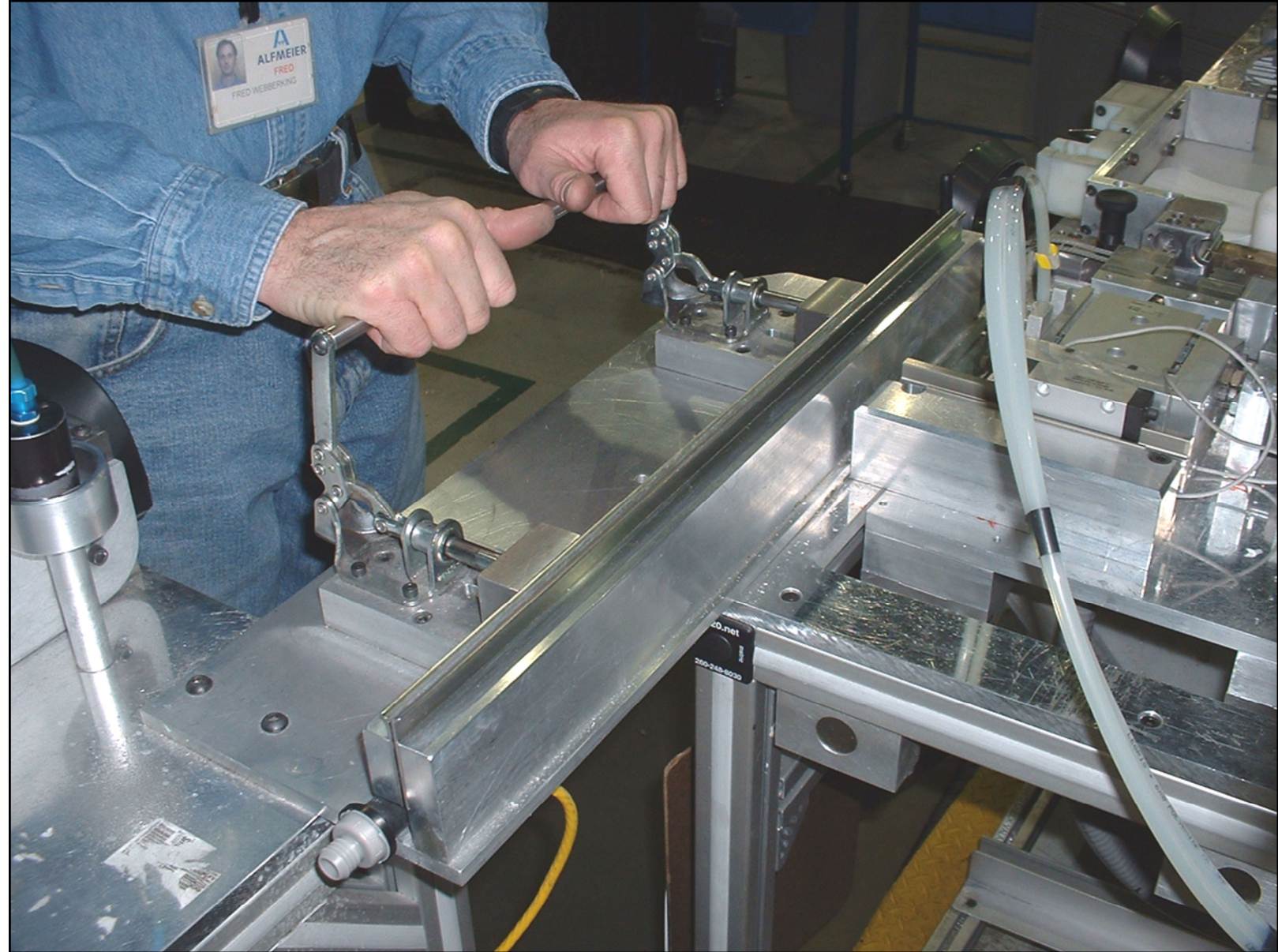
Future state: Open spreader.





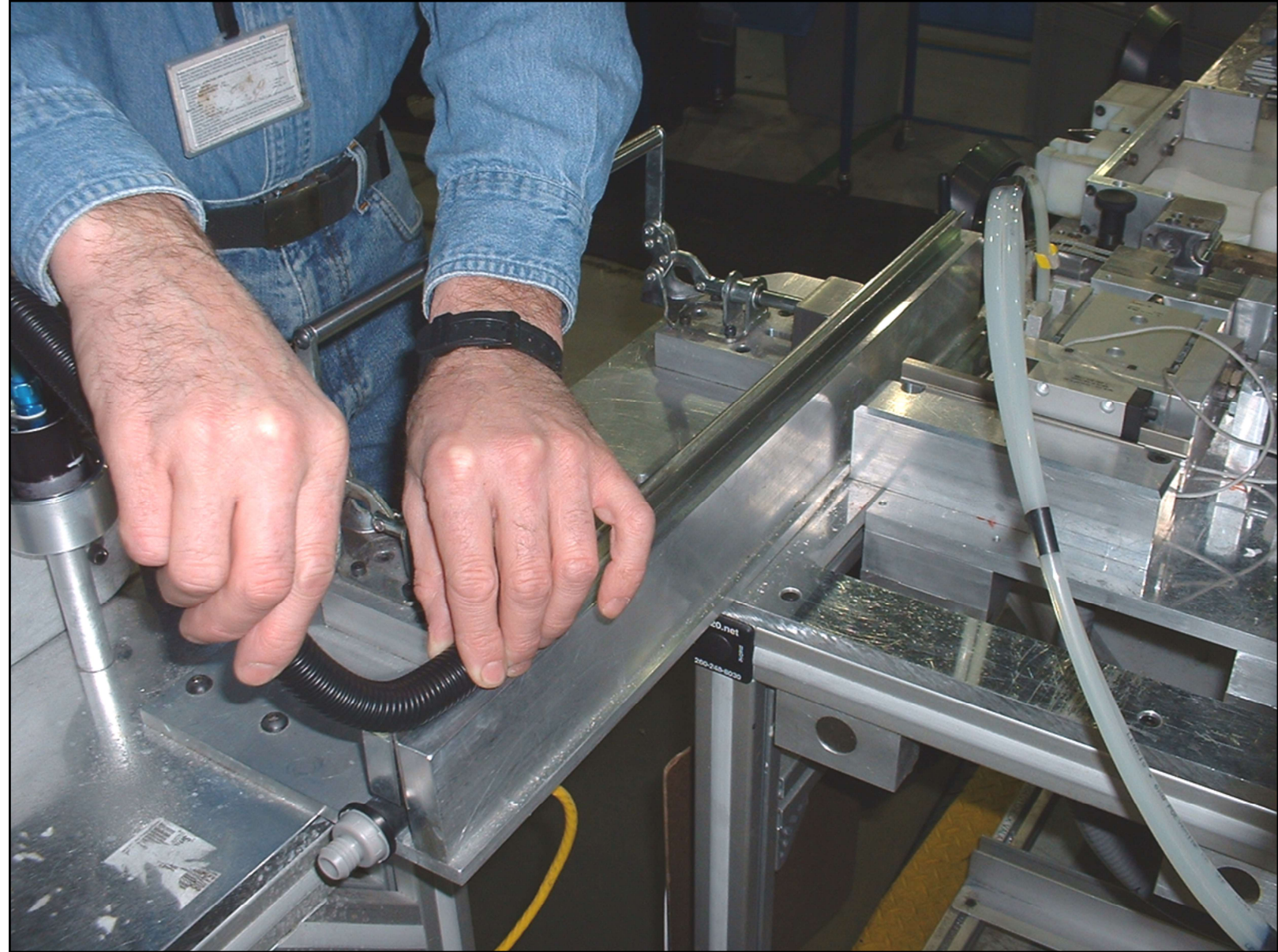
Future state: Install vacuum hose.





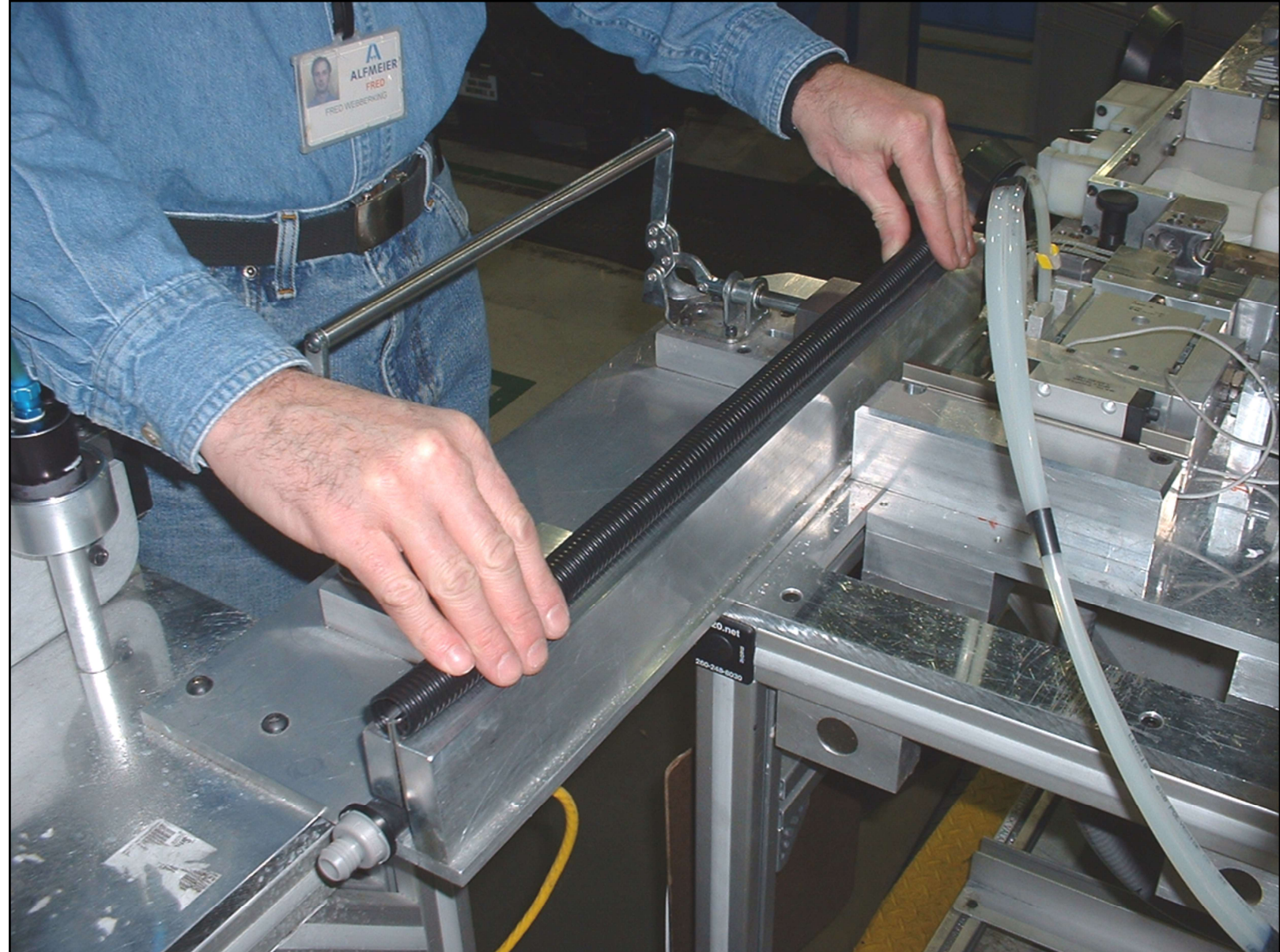
Future state: Close spreader.





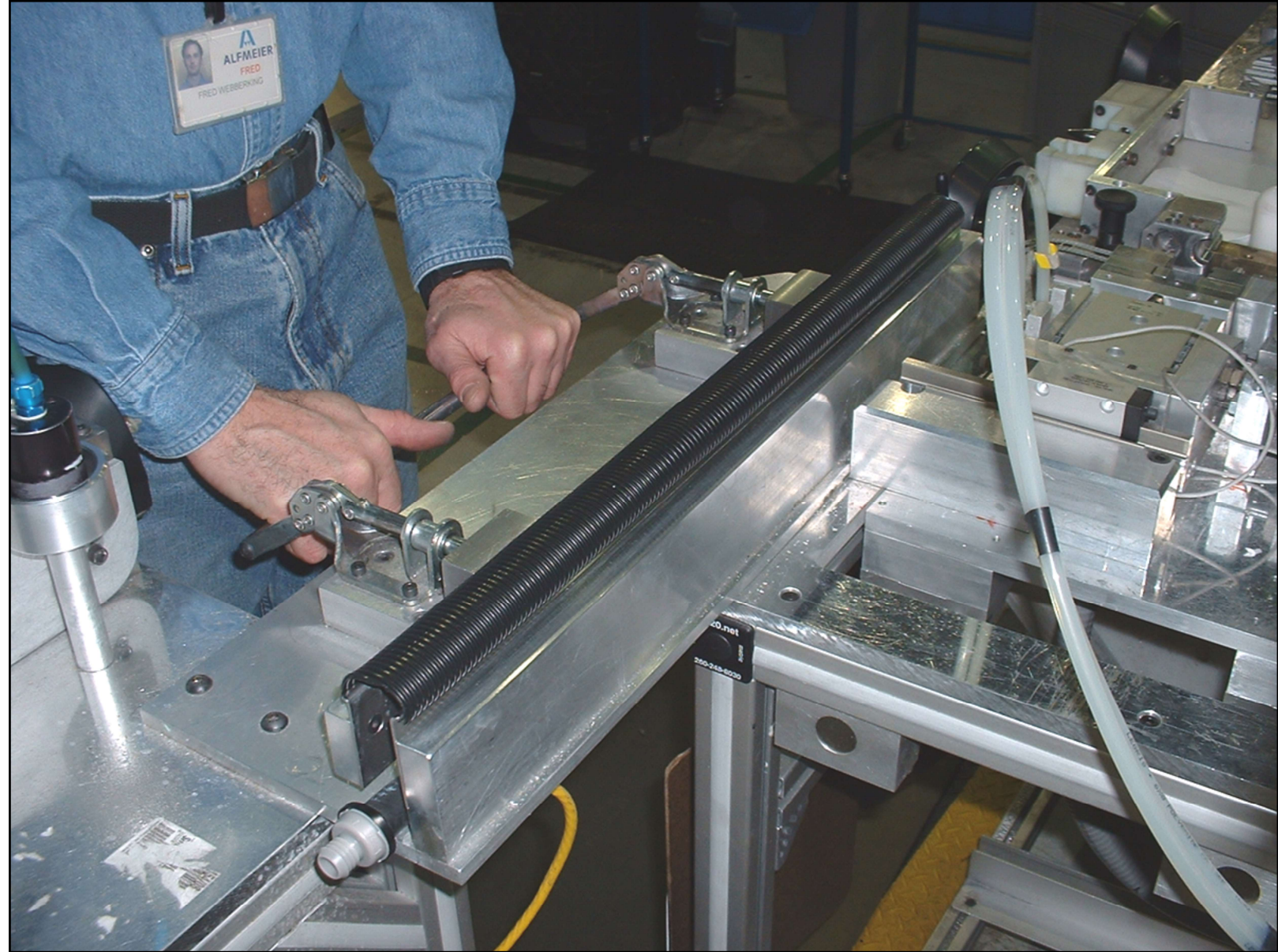
Future state: Install protective sheath.





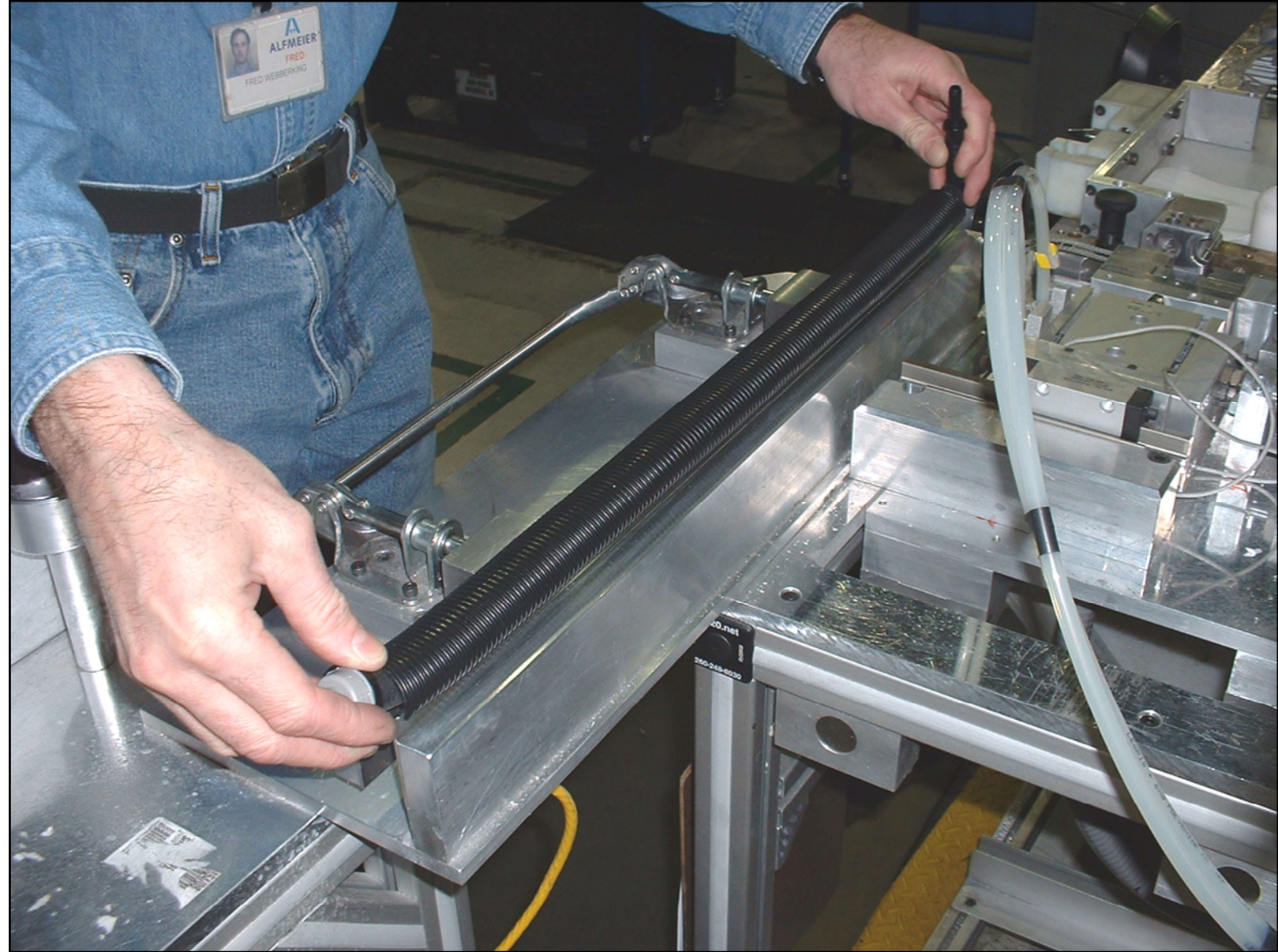
Future state: Protective sheath installed.





Future state: Open spreader to splay open the protective sheath.





Future state: Pick up vacuum hose, align and begin to pull upwards.





Future state: Continuing to pull upwards.





Future state: Snap, it's done...

People have told me I should have applied for a patent on this as many industries use this design of plastic sheath and use the hand tool method to install it on the hose albeit a car truck brake vacuum hose or whatever other application. I screwed up I guess, didn't the same thing happen to the guy that invented the intermittent wiper?

Imagine now if you had all of your employees from every department - sales, marketing, logistics distribution engineering, product development, production, finance, purchasing maintenance, customer service - of your business value streams looking for and identifying waste in everything they do every day and finding ways to either eliminate it, simplify it, reduce it or incorporate it as did here. The cumulative results of that can be astounding...