

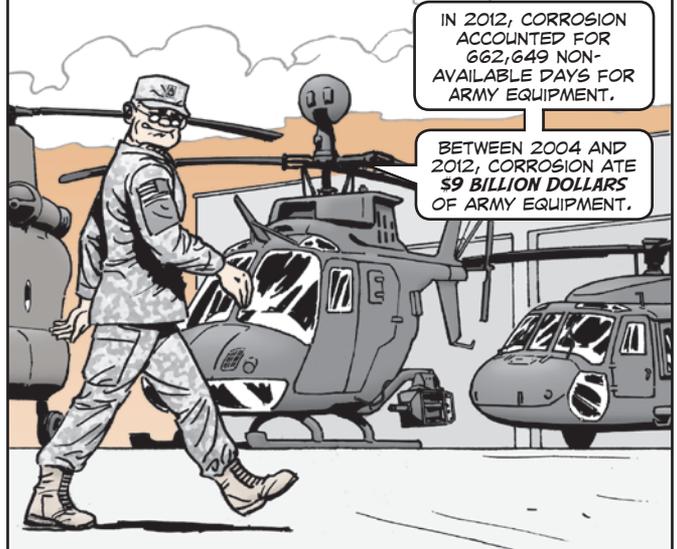
TAKE THE BITE OUT OF CORROSION

THE ARMY HAS A FOE THAT FIRES NO WEAPON BUT IT IS AN ENEMY THAT CAN STILL LEAVE REPAIR PARTS AND EQUIPMENT IN RUINS.

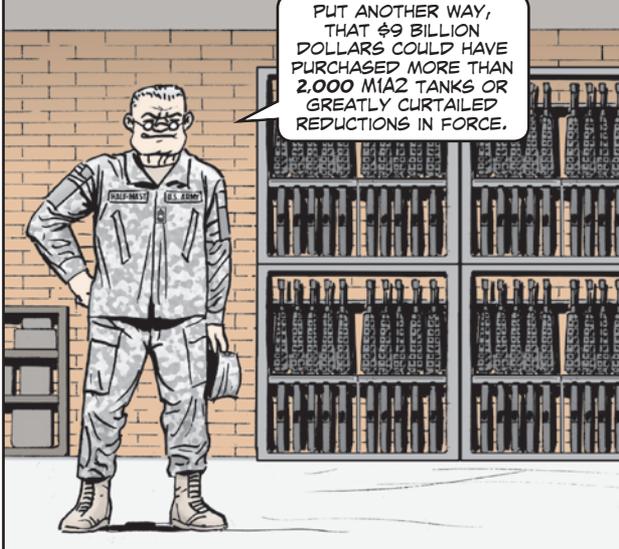


IN 2012, CORROSION ACCOUNTED FOR 662,649 NON-AVAILABLE DAYS FOR ARMY EQUIPMENT.

BETWEEN 2004 AND 2012, CORROSION ATE \$9 BILLION DOLLARS OF ARMY EQUIPMENT.

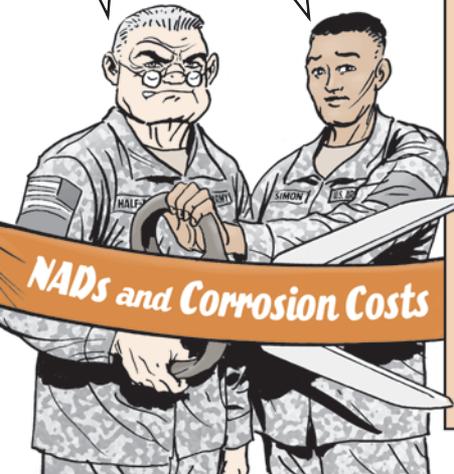


PUT ANOTHER WAY, THAT \$9 BILLION DOLLARS COULD HAVE PURCHASED MORE THAN 2,000 M1A2 TANKS OR GREATLY CURTAILED REDUCTIONS IN FORCE.



CORROSION IS A RELENTLESS FOE; WORKING 24/7 TO RUST AND ROT YOUR EQUIPMENT.

YOU HAVE THE ABILITY TO CUT BOTH NADs AND CORROSION COSTS!



NADs and Corrosion Costs

Corrosion can never be defeated in the sense that it can never again challenge equipment readiness. It is a constant force of nature. Heat, cold, moisture, arid conditions, salts, acids, and electrochemical reactions all feed corrosion's natural erosion of the metals used in Army equipment.

Preventive measures such as painting exposed metals, or using corrosion prevention compounds or lubricants can reduce corrosion. These coatings work well until they crack from heat or are gouged, dinged and scratched, exposing minute portions of metal. Once the elements of corrosion find a way to metal, corrosion will begin to eat away at steel, aluminum, and alloys.

So how do you tell whether corrosion is at work and how do you recognize the type of corrosion so you can attack and correct it?

THERE ARE NINE BASIC TYPES OF CORROSION.

HERE'S WHAT THEY ARE...

...ALONG WITH SOME HELPFUL ADVICE.

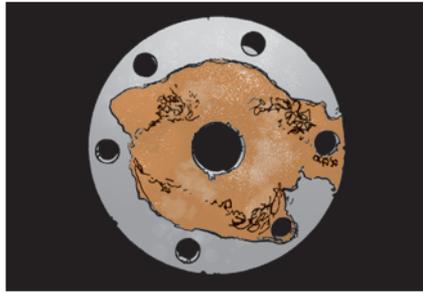


UNIFORM (or general attack):

Affects a large area of exposed metal surface, like rust on steel or iron. It gradually reduces the thickness of the metal until it fails. Uniform corrosion is electrochemical, but it is also manageable and preventable.

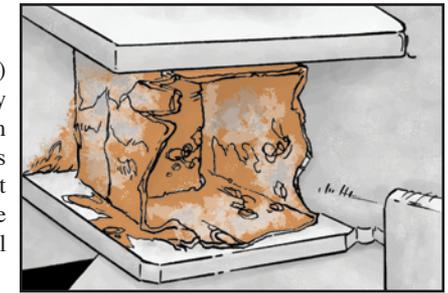
CREVICE:

Occurs in crevices created under rubber seals, gaskets, bolt heads, lap joints, dirt or other surface deposits. It will develop anywhere moisture or other corrosive agents are trapped and unable to drain or evaporate. Much of the damage can be hidden under small surface corrosion.



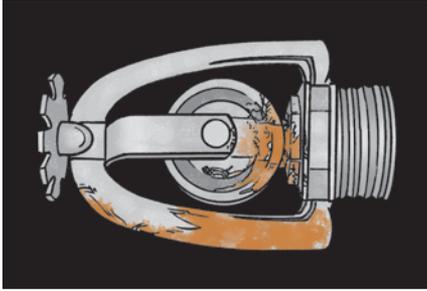
EROSION:

Results when a moving fluid (or gas) flows across a metal, particularly when solid particles are present in the fluid. Corrosion actually occurs on the surface of the metal, but the moving fluid washes away the corrosion and exposes a new metal surface, which also corrodes.



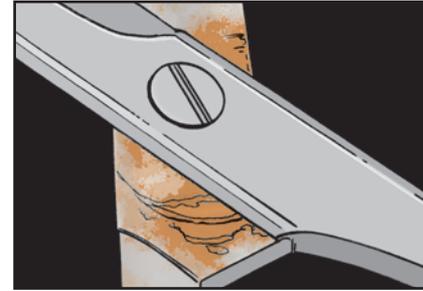
SELECTIVE LEACHING:

One element, usually the anodic element of an alloy, corrodes away, leaving the cathodic element. This can create holes in metal. A common type occurs in brass as zinc is corroded away, leaving the remaining copper porous.



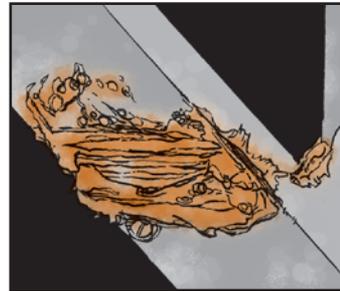
FRETTING:

Occurs between two pieces of weight-bearing metal in contact with each other. It's usually identified by a black powder corrosion product or pits on the surface. It can be found as pits and grooves in rotation or impact machinery and bolted assemblies.



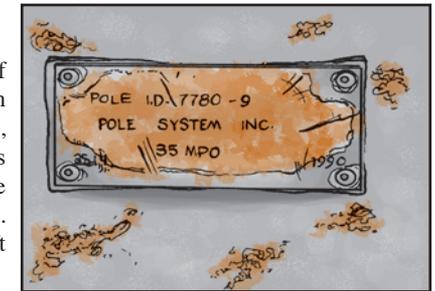
INTERGRANULAR:

Metal deterioration caused by electrochemical corrosion of the bonds between or across the grain boundaries of a metal. The metal will appear to be peeling off in sheets, flaking, or being pushed apart by layers. A particular type of intergranular corrosion is exfoliation.



GALVANIC:

Occurs when two different kinds of metal come in electrical contact with each other, like steel bolts on aluminum, for example, and electrolyte introduces negative and positive ions. One of the metals suffers faster deterioration. This is a common problem on aircraft because of their mix of metals.



PITTING:

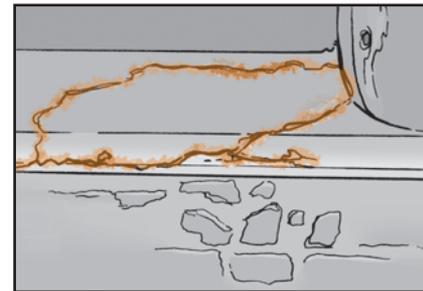
This can result from conditions similar to those for crevice corrosion. Pits can develop on various materials due to their composition. Rifle bores are big victims of pitting. Pitting is difficult to detect, it can burrow deep into metal creating structural weakness.



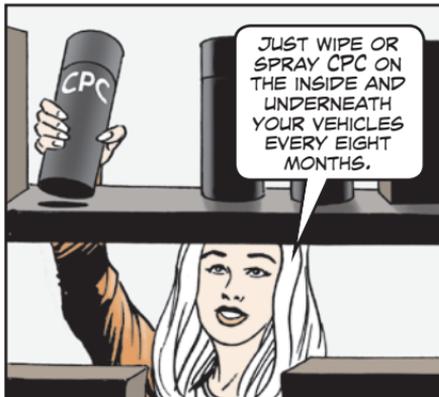
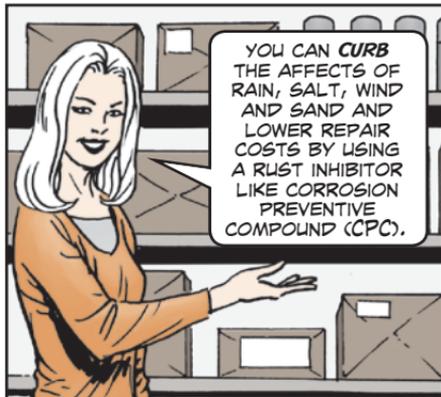
STRESS:

Term used to describe corrosion cracking caused by extreme stress along grain boundaries which subject the metal to further corrosion. It can lead to metal fatigue failure. If you'd like this as an 8 1/2 x 11 chart, go to our blog:

<https://halfmastpsmag.wordpress.com/>



Reach for Rust Inhibitor



CPC won't harm painted surfaces, plastics, rubber, glass or wiring, but it'll make them shine for a week or two. That defeats the purpose of camouflage, so keep it off exterior paint on your equipment.

CPC is petroleum-based and contains no hazardous material. Nevertheless, the headshed recommends that you wear a respirator, goggles and gloves when applying it because it could irritate your respiratory tract or skin.

Counteract Corrosion

YOU CAN CUT BACK ON EQUIPMENT CORROSION BY...

- Painting or lubing unprotected surfaces.
- Keeping your equipment clean.
- Applying lube orders instructions for preventing rust.
- Keeping drain holes unclogged so water will not collect on or in your equipment.

Helpful Pubs

TB 43-0213, CORROSION PREVENTION AND CONTROL (CPC) FOR TACTICAL VEHICLES, COVERS HEAVY TACTICAL VEHICLES (SUCH AS THE HEMTT, HET, AND PLS), MEDIUM TACTICAL VEHICLES (SUCH AS THE FMTV AND ASV), HMMWVS, AND A VARIETY OF HEAVY, MEDIUM AND LIGHT TACTICAL TRAILERS.

For more corrosion prevention info, check out these websites:

DOD Corrosion: <https://www.corrdefense.org/>

Eyeball a copy on LOGSA's ETM Online website:

<https://www.logsa.army.mil/etms>

