Rubber casing breaks from UV damage
Rubber casing breaks from wildfire damage
Plastic casing breaks from UV damage
Plastic casing breaks from wildfire damage
Metal band clamp rusts away, destroying seal between cover and case
Pressure plate spring decaying – MORE SENSITIVE!
Pressure plate spring – broken (mine not deactivated)
Striker spring decaying
Striker pin decaying
Mineral deposits forming between spring and striker, leading to seizing
Silt deposition, leading to blockage of striker channel
Silt deposition, leading to blockage of pressure plate plunger
Silt deposition, leading to blockage of striker window in pressure plate
Silt deposition, leading to clogging of striker spring
Water-based degradation of initiator charge
Mine inactivation

**Figure 1.** Hypothetical breakdown timeline for a landmine. Failures in the mine’s exterior casing are shown in green, and interior failures in grey.

### 2.1. PMN

The PMN has a Bakelite exterior, with a rigid rubber housing that covers the pressure plate to the top. This cover is held in place by a metal band (when new—this is commonly rusted away in emplaced mines). A Bakelite piston is spring-loaded from the bottom against the pressure plate, and is pressed downward when triggered. In its resting position, this piston blocks a spring-loaded metallic striker, holding it in its armed state. As such, a weakened piston spring will increase the sensitivity of the PMN. When the pressure plate is pushed downward, the striker aligns with an opening in the piston, allowing it to spring forward. The metal striker has a sharp firing pin along the front edge, which strikes an initiator/detonator, which in turn triggers the main explosive. If the spring around the firing pin weakens over time, it may not strike the detonator with enough force to fire the mine; if the spring gains a thick deposition layer (e.g., rust, mineral deposits) it may stick to the striker, slowing or preventing its motion and preventing detonation. If the tip of the striker degrades, it may no longer be sharp enough to trigger the initiation explosive.