



WARREN

Fire Damaged Machinery Appraisal and Repair

Machinery and Equipment Damage Appraisal Guideline No. 100

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Machinery and equipment exposed to fire may have damage from heat, smoke or water. Depending on the proximity of the machinery and equipment with respect to the fire, the equipment may have a combination of any or all three types of damage. The following signs may be useful in identifying the type of damage and method or repair.

Remember: *Time is important and changes everything. Respond quickly to mitigate the loss.*

Fire Damage: Heat

Signs of:

- Paint is blistered
- Metal is deformed
- Plastic is deformed
- Wiring insulation is melted
- Belts are charred brittle or burned

Repairability:

- Repairability is questionable. Replacement of heat damage parts may be necessary.
- Check seals on interior of metal parts whose paint is blistered. Replace as required. Hydraulic and air cylinders are of particular concern. Also check wiring that is inside of heat damaged conduit.
- Perform hardness tests on deformed metal to determine its strength properties. Heating anneals metal and its strength may be compromised. If strength is acceptable, straighten deformations.
- Replace deformed plastic parts.
- Replace damaged wiring.
- Replace damaged belts.
- Clean smoke and water damage as noted below.
- Repaint and restore surfaces as required.

- **Fire Damage: Smoke**

Signs of:

- Paint is blistered
- Exterior surfaces are sooty.
- Metal is not warped.
- Plastic is not deformed.
- Wiring insulation is not melted.
- Belts are not charred brittle or burned.
- Unfinished metal surfaces may be rusting.

Repairability:

- Repairability is probable if timely repairs are performed. Replacement of smoke damaged parts is probably not necessary.
- Be especially concerned about rusting if burning of chloride containing items has occurred (PVC pipe, certain upholstery, carpets, etc.). Chlorides in the smoke combine with water to form hydrochloric acid, which is extremely corrosive. Sulfur and water have a similar effect.
- If possible, move all exposed machinery to a temperature and humidity controlled environment to limit corrosion.
- If the machinery cannot be moved, try to install temporary barriers to shield the damaged machinery from the outside elements.
- Coat surfaces with a preservative to prevent oxygen from reaching untreated surfaces and rusting from occurring.
- Note that covering bare metal machinery with a tarp and leaving outside for a long period of time, especially in hot humid environments may cause excessive rusting, often worse than leaving uncovered.
- Protect electronics with surface preservative sprays.
- Clean the machine thoroughly. There are numerous restoration companies that know how to do this work well.
- Treat cleaned bare metal surfaces as required by grinding, polishing, painting, application of a light oil or leaving the surface in the "as cleaned" condition, depending on the condition and application.