

What do we mean by Predictive Maintenance (PdM)

By Joel Levitt

An excerpt from his book *The Complete Guide to Preventive and Predictive Maintenance*

What do we mean by Predictive Maintenance? If we consult an authority, Merriam Webster Collegiate dictionary, we find the word predictive meaning “to declare or indicate in advance; *especially*: foretell on the basis of observation, experience, or scientific reason.” It is from the Latin *pre* (before) and *diction* also from the Latin *dicare* “to proclaim.” This fits closely with the maintenance concept of predictive.



The word ‘maintenance’ is somewhat more problematic since most of the definitions use the word, maintain. The third definition “the upkeep of property or equipment” works but does not shed much light. When we look up the word ‘maintain’ we hit pay dirt.

For the word ‘maintain,’ Merriam Webster Collegiate dictionary starts with “to keep in an existing state (as of repair, efficiency, or validity): preserve from failure or decline.” One of the other definitions takes a different stab at maintain as in “to sustain against opposition or danger: uphold and defend”

Our goal in maintenance is to keep our physical assets in an existing state. Prediction is a declaration in advance that something is going to happen. From the dictionary ‘Predictive Maintenance’ is a proclamation or declaration in advance based on observation to preserve (something) from failure or sustain it against danger.

From this definition we can see at a very basic level that:

- 1) **Any inspection activity on the PM task list is predictive.** The reasoning is that at its basis all inspections look at an asset and evaluate if there is wear going on that will result in impending failure. The inspector then declares that such and such bearing is squealing and is going to fail. That is clearly predictive by this definition.
- 2) **Predictive Maintenance is a way to view data and does not necessarily require buying a bunch of equipment.** The definition does not mention the means used. In fact it seems to be oriented toward reasoning and experience being applied to an observation. The important thing is the conclusion based on observation, judgment and reasoning that determines if an act is predictive. In modern terms we would say this is a data issue. How we reason from the data determines the predictive nature.

By common agreement in our usage of the phrase 'predictive maintenance' we mean maintenance activity that includes some instrument or technology. Properly any instrument can be used for predictive maintenance; if it is indeed used predictively (predictive maintenance is about how you use the data).

Why go through this dictionary exercise?

Its simple, I want to clear up the confusion about Predictive Maintenance. Predictive maintenance is not something you buy. Predictive Maintenance is a state of mind!

Route Maintenance in Buildings

By Joel Levitt

Route maintenance is one of the best ideas to improve the public perception of the maintenance department and reduce costs. In a maintenance route the building is divided into regions or sections. A route box (looks like a suggestion box) is installed in each section with short write-up forms or service request forms. A section leader or contact person is also designated.



Each section is assigned a time and day of the month (or week) for its route visit. For example the reception area might be assigned the second and the fourth Thursday of the month at 9 AM. That time and day should be repeatedly publicized. The dispatcher should remind any requestor of minor calls that comes in about the scheduled time and day or the route.

Be sure you can service the route at least 95% of the time. On the second and fourth Thursday mornings the route person rolls into the section, picks up the route box requests and checks in with the section leader. All minor work and local PM tasks are completed. Larger jobs are written up by the route person and turned in to the maintenance control point.

A successful route person should be personable with a friendly and professional manner, multi-skilled, able to work without close supervision, able to work with customers so they feel positive and satisfied.

The route person should fill out maintenance log sheets. This will help you sharpen your overall maintenance effort. A review of the log sheets will show you things that your route person needs to carry! The better equipped they are the more likely they can make the repair efficiently.

The route person's cart should be intensively studied by both the maintenance personnel and management. Consider the Phone Company or Gas Company. Tremendous thought goes into how to outfit a service person's truck. Next time you have an opportunity, ask the telephone installer or gas repair person how their truck is set-up and why. Apply the lessons to the route cart, van, (or even 5 gallon bucket!).

The more often they have the needed part with them the more money you save. When they can use items from stock they take the best price rather than the local neighborhood hardware store price (or waste time with P.O.'s and supply companies).

The route maintenance person for a typical building might be equipped with (if you operate a factory use the same concept but adapt the cart to suit your conditions): hand tools including: (screw driver set, pliers set, claw hammer, cutters, Allen wrenches, vice grips, key hole saw, hack saw, tape measure, utility knife, pipe wrenches, set of files, rasps, good flash light, batteries etc.), step ladder to reach ceiling

Electric tools such as: electric drill and bits, drop light, skill saw (battery powered is great, otherwise carry 100' extension cord, 3 prong adapter)

cleaning tools (Straw broom, whisk broom, dust pan, trash bags, mop, wringer, bucket, pick-up stick with nail end, rags, shovel, sponges, 5 gallon bucket, spray bottles, razor blade scraper, steel wool) cleaning supplies (furniture polish, all-purpose cleaner with TSP, spray deodorizer, spray tile cleaner, wax, wax applicator, wax stripper, toilet bowl cleaner, oven cleaner, metal polish, non-abrasive cleanser), rags, paper towels

silicone spray lube, WD40, spray paints, spray zinc, standard off white latex paints (or standard colors) with brushes and rollers, spackle, spackle knife, spackle tape, contact cement, latex and silicon caulk and gun,

Variety packs of fasteners, variety of nails, small hardware items, duct tape

Elect: lamps (ones you use), florescent replacement tubes, switches, outlets, switch, outlet & blank covers, electrical tape, fuses, fittings, outlet tester, neon tester, door hardware, lock sets, door bells, transformers, bell wire, smoke detectors, batteries, tags for writing dates of installation and testing

Window hardware, floor and ceiling tiles, threshold and entrance strips bug bombs, insecticide spray, can hornet/wasp killer, roach/ant traps faucet washers and seats (seat

tool), kitchen and bathroom faucets with flex lines toilet parts, closet seals, toilet seat parts, closet snake

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