

Day 3 sample:

Day 3

Maintenance Planning and Scheduling 3 Day Course

Work Planning continued and
Work Scheduling



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This is the final day of presentations during which Work Planning is completed and Job Scheduling is explained in detail.

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<https://bin95.com/ppt-powerpoints/maintenance-planning-training.htm>

Day 3 sample:

Ted, have you ever thought about why things go wrong?

No one's asked me that question before.

How can we have no problems? What would that mean? It would mean all that we did would be exactly as it was meant to be. You wouldn't have a problem if things were going just the way you wanted them to go!

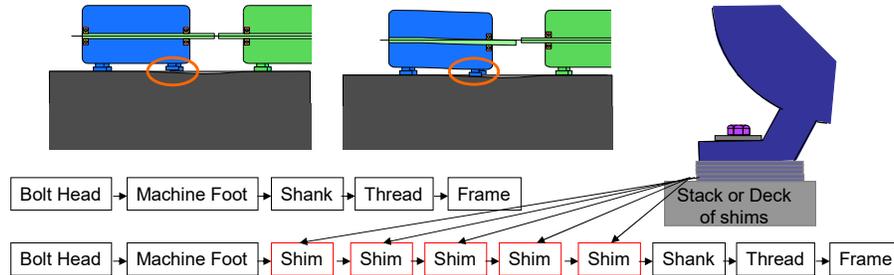
I can see that. You would only have problems if something happened that was unwanted.

Which then leads to the question of: *How do you stop problems starting?* Take a look at these.

What causes maintenance ... BIN95.com

The Trouble with Accepting a Defect

Soft-foot is an example of a defect regularly brought into companies, that then causes on-going problems



The shims have made the connection more unreliable. There are now more things to go wrong. They have added cost, additional maintenance and certainty of human error at some point in time.

IT DID NOT HAVE TO BE SO!

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Defects enter into organizations by the thousands a year, unless the organization has put up defences. Once the problem is in your operation, you have to deal with it. In the slide, a soft-foot defect has been accepted into the plant. To correct it now requires the use of shims to fill the gap. Though this solves the problem, the shims have caused additional work. They also represent additional risk to the equipment, since if they are lost, it is highly likely the foot will be bolted down into the base frame without them, producing in a distorted and deformed machine. The parts in the machine will become deformed, be highly stressed, and fail faster.

By adding shims we may have stopped the deformation, but we have also reduced the reliability of the connection. From what should have been a bolted connection series configuration of five or six steps, the addition of the shims has turned it into a series process of 10 or 11 components.

The best answer to the risk of defects entering your business, is to ensure they are stopped before they cross your border. Put into place the necessary methods and precautions that ensure only high quality, high accuracy work is in your machinery from the outset.

Day 3 sample:

There you go Ted, now you know how to help the guys get the job right every time!

It's so obvious now. The 3Ts really are a very powerful idea.

And they don't need to stop at the shopfloor. They will work for every job in an organization, at every level.

It's been a good hour today Joe, I really feel as if I've learnt something important.

With the lesson, goes the homework. Spend some time over lunch putting together a list of the steps you would use to do the planning of a maintenance job. Instead of meeting me tomorrow, spend the hour converting them into an ACE 3T procedure and show it to me when we meet next.

Okay, I like that. I can see that writing this procedure will bring a lot of clarity to the job, and give me the best chance to do it really well.

They wrap-up the session ...

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Day 3 sample:

DuPont KPI Expectations

Key Performance Indicators

	% Uptime	>90%
	Total Maintenance Cost (TMC) as a % of ERV	2% - 2.5%
* <u>Reliability of Equipment</u>	Reliability Professionals per Mechanic	1 : 12-18
	Mean Time Between Failure	Increasing >10% / year
	% Emergency Work	<10%
	Estimated Replacement Value (ERV) / Mechanic	\$5MM - \$8MM
	Training Days (Development/Refresher) / Mechanic	5 - 10 days / year
* <u>Quality & Speed of Execution/Response</u>	Maintenance Work Force Weeks Backlog	4 weeks
	% Planned Work	>80%
	Mechanics per Planner	20 - 27 : 1
	Schedule Compliance	>90%
* <u>Maintenance Costs</u>	Stores Investment as a % of ERV	<0.25%
	% Overtime	10% - 12%
	Maintenance Labour Cost as a % of TMC	20% - 25%
	Contractor Maintenance Labour Cost as a % of TMC	10% - 40%
* <u>Prediction of Failure</u>	% PPM Work	>20%
	% PPM Schedule Compliance	>95%
	% Emergency Work	<10%

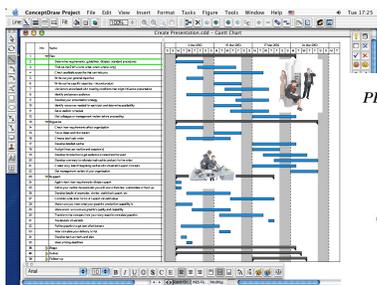
Measure yourself against these!

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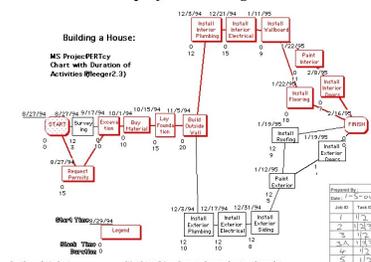


This list of KPIs is what DuPont used to rate the maintenance performance at their 170 + facilities around the world.

Display the Schedule and Responsibilities



PERT Chart Example for "Building a House"



Schedule Time and Resources

Activity	Start	Finish	Resources
1	8/22/74	9/11/74	Design
2	9/11/74	10/1/74	Obtain Permits
3	10/1/74	10/11/74	Excavate
4	10/11/74	11/1/74	Foundation
5	11/1/74	11/11/74	Install Plumbing
6	11/11/74	12/1/74	Install Electrical
7	12/1/74	12/11/74	Install Siding
8	12/11/74	1/1/75	Install Windows
9	1/1/75	1/11/75	Install Drywall
10	1/11/75	2/1/75	Install Flooring
11	2/1/75	2/11/75	Install Paint
12	2/11/75	3/1/75	Install Landscaping
13	3/1/75	3/11/75	Final Inspection

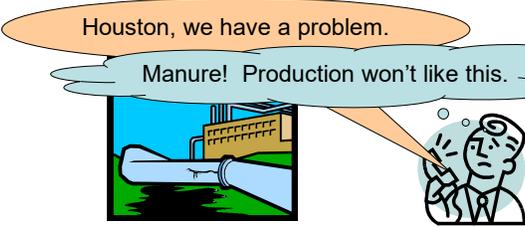
Show and tell people their responsibilities and tasks ...
 Give them feedback on their performance against plan ...
 so they can innovate, adapt or adjust when necessary.

Pencil and paper are enough
 to do good scheduling



Scheduling produces physical documents that guide people's decisions and actions. They are visual management tools and need to be displayed. Equally important is to use schedules to give feedback on performance against the plan. This lets people know how well things are going so that changes can be considered, approved and made if necessary.

Addressing On-site Issues and Changes in the Plan



'Emergency' Procedures

- Assess the impact ...
- Make it safe ...
- Contain consequences ...
- Rectify the problem ...
- Address the cause ...

**How does the issue affect the job plan? What will change?
Reschedule the work? Amend Work Order? Impact on Operation?**

**The unexpected must be the Exception, not the Rule, if you
want > 95% Schedule Compliance**



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At times a job does not go to plan from unintended, or unknown, complications that arise. The first consideration is to assess the impact of the disruption on the job and the knock-on consequence to Production. Address the issue as quickly as possible. Contain the damage, rectify the issue and then **act** to ensure it never happens again by adjusting your planning and scheduling procedures/checklists.