How to Set a P. M. Programme & Get It Moving

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Let us picturise a large plant in which it is easy to locate the Maintenance Engineer with pants unpressed and eyes rendered due to all night's work on breakdowns.

I remember having met a maintenance engineer who boasted that he spends 20 hours a day in the works. Another of the same type said that he has changed thousands of bearings in a year. But neither of this is maintenance.

In fact it was the early methods of maintaining the equipment which used to be repaired or overhauled only when breakdown occurs and such Engineers are today rightly called 'Breakdown Engineers'.

Similarly the early methods of simply flooding the machines with oil and or Grease are gone.

In fact great strides have been made in the fields of Preventive Maintenance in the last few years resulting in high and higher productivity so much so that a P.M. revolution is taking place today.

Though knowing dangerously little about Preventive Maintenance, to-day every Manager or employer while engaging a Maintenance Engineer fulfills a customary ritual "You will have to introduce and implement a P. M. Programme".

And most of the PM programmes end before they see light of the day and the rest fail half way, a very few succeed indeed.

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How to get a PM programme and get it moving is the vital question?

PM programme must be based on 3 Broad Principles.

Firstly, a separate organisation is a MUST FOR IT.

Secondly, to start with, initially a Mini-Programme or a minimum basic Programme should be planned.

Thirdly, least paperwork should be involved.

I know of organisations who wanted regular maintenance crew to implement the PM programme but have failed, as most parents do while teaching their own children.

In another organisation, the Managers insisted on implementing a complete and elaborate PM programme initially which could go only for a while. The organisation has to be oriented gradually to a PM programme otherwise it rejects the new activity like a heart transplant.

In an organisation the Managers insisted that Engineers should keep 6 different types of Registers recording Maintenance activity and one register was kept to find out as to what is written where. After these Registers get filled up they found a place on top of Almirahs and finally were sent for re-pulping.

The PM Organisation & Records: The organisation should be functional, with clear-cut responsibilities depending on the size of the plant. A suggestive PM Cell should be as follows:

Cell Engineer

Lubrication Supervisor Oilman	Spare Parts Supervisor Draftsman.	Overhauling Supervisor Fitters, Helpers, riggers.

The number of cells, and number of personnel in each cell shal depend on the size of plant, type and number of personnel available, type of organisation, Location etc.

RESPONSIBILITIES :

Cell Engineer : (1) to collect equipment data (2) to collect spare parts sizes, (3) to get the drawings of spare-parts made (4) to keep inventory of spares, their consumption figures (5) to prepare lubrication schedule and check its implementation (6) to decide on types of lubricants etc. (7) to modify parts and keep modification and downtime record.

All these data can be kept on one single Card for each equipment, as per Annexture 'A', which should be modified to suit your plant.

Lubrication Supervisor : to inspect equipment and to follow the oilmen with checklists for lubrication which should be made as per Annexture 'B'. The supervisor must sign on checksheets and insert dates when lubrication is done, against each machine in the list.

PREVENTIVE MAINTENANCE RECORD

Annexture 'A'

A. EQUIPMENT SPECIFICATIONS :

Equipment — Location
Maker — Address
Supplier — Supplier's Ref.
Our Order No. — Sl. No.
Maker's Ref. — Weight
Commissioned On — Capacity
Drg. No. — Overall Dimensions :
Instructions :

B. DRIVE :

1. Motor :
Maker — Address
Type — Sl. No. — Frame Size — Model
HP/KW — Volts — Amps. — Phase — Cycles
R.P.M. — Temp. Rise

2. Starter :
Maker — Address
Type — Volts — Amps.

3. Chain Pulley : No. of Belts — Belt Size — Flat/V. Belts.
Dia of Driving Pulley — Dis of Driven Pulley

4. Gear Box :
Maker — Address
Type z z — Model — H.P. — Input Speed — Output Speed

5. Compressed Air :

C. SPARE PARTS RECORD :

S. No.	DESCRIPTION	Part No.	Size Drg. No.	Origin	Regd. Yearly	CONSUPTION 1970	1971	1972
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								

D. LUBRICATION & MAINTENANCE SCHEDULE:

LEGEND

C : Check
Q : Quarterly
O : Overhaul
W : Weekly
M : Monthly
D : Daily
H : Half Yearly
Y : Yearly

Sl. No.	PART	LUBRICANT USED	SCHEDULE		Hours of operation per 24 hrs.
		IOC	Lubrication	Maintenance	

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

DUE WEEK

Equipment: **Area** **M/c. No.**

E. MODIFICATION & DOWNTIME RECORD:

DATE	DEFECTS	MODIFICATIONS	HRS. SPENT	REMARKS

Spare Parts Supervisor: To prepare list of spares required, to prepare parts drawings to modify parts drawings to avoid repetetive failures, to keep inventory of spares, control quality of spares, to mark, label, identify and store spares systematically, and to develop suppliers of spares.

Overhauling Supervisors: to prepare overhauling schedules, to organise and supervise repair of units, to use PART techniques in handling major repair work, to keep record of work done, man hours spent and material and services used, to workout costs of each job completed.

P. M. Office: The PM Engineer and Supervisors MUST be provided with a separate office, equipped with filling cabinets, drawing boards, wall charts, Factory layout drawings, and spare parts store.

In absence of an Office a P.M. Engineer use to move with all the PM records in his pockets, which use to go for washing with his dress.

The PM office is the Nerve Centre of the plant and do not think it a Superfluous requirement.

MINI P. M. PROGRAMME: A mini programme or minimum basic programme should be planned out depending on initial resources available. First start with only Lubrication Schedule — start lubrication with a Check-chart as per annexture 'B'.

In a trial, undertaken in a large chemical plant, surprisingly enough about 70 per cent of the breakdowns were eliminated due to implementation of the lubrication schedule only.

This single PM activity gives tremendous boost to the productivity of the plant.

Only after satisfactory implementation of the lubrication schedule, other activities like collection of spare parts sizes, drawings, consumption, modification etc. should be gradually introduced, one by one.

LUBRICATION RECORD

Month .....

S. No.	EQUIPMENT	SCHEDULE	WEEK			
			1	2	3	

It may take years to get a PM programme moving and do not get impatient with it.

There may be initial setbacks, and results may not be apparent for a long time to come but they will, ultimately.

PM is an investment and not a reckless expenditure. Only those PM programmes succeed where the management has

1. left to the Engineers to plan and implement the PM Programme.
2. not interfered in the planning of implementation of the programme.
3. supported the PM Programme and has made resources available, for planning and implementation of the PM Programme, in proper time.

Like religion, faith is esential in PM Programme, without which it cannot succeed.