SHOP STAFFING PROGRAM

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We, in Virginia, are in the process of developing an equipment management system using in-house computer programmers and the existing computer data system. The shop staffing program must draw its informational data from other areas of an equipment management system. It is necessary for our shop foremen and district managers to have available the shop staffing and work standard system to properly assign and utilize maintenance employees and more efficiently manage the equipment maintenance work load. All of this begins with a good work order system.

Work Order

We believe the heart of an equipment management system is a comprehensive work order system and we are concentrating our efforts in this area. Some areas we believe must be addressed in order to have a good shop staffing program are as follows:

- The work order must identify the equipment number, other identifying data and the shop location.

- The reason/cause for the work being scheduled is required (i.e., PM, accident, breakdown, betterment, overhaul, factory recall, vandalism, state inspection, processing equipment, or warranty work); whether the unit is operable or inoperable must also be indicated.

- The use of the work order will allow the maintenance work to be identified by a number of repair codes each of which is subdivided into specific tasks. Examples are preventive maintenance, tune-up, brakes, engine, power train, etc.

- Each task will have its own work hour standard developed over time and each class of equipment will have an average annual work hour requirement for each unit.

It is necessary that job standards be developed for each job task in the Equipment Management System. The work order system can compile these data to provide the average standard, which should cover a 12-month period. This standard will give analysis value for evaluating work performance.

Actual hours worked by all mechanics at each activity will be used to calculate the actual standards. These will be reviewed, particularly the lowest area locations, to determine if they are correct; then they will be compared with higher ones to determine use of proper procedures and skills of individual employees. Training will be required in some instances.

We also need the average standard, by class code using total hours and by units, to use in developing budgets.

Total hours used in each category will be averaged for each class code of equipment (i.e., pickups, dump trucks, graders, loaders, and mowers). This will provide for man-hour budgeting.

- The work order must be completed and entered into the system, when an equipment unit is reported down or needing repair, for the shop scheduling program to become effective in an up-to-the minute situation.

The shop foreman must enter immediately in the system, even before the mechanical inspection, the need for man-hours by the repair codes believed to be correct. This will total man-hours required, list the type of work skills required, and provide an accurate method of noting downtime when the block unit "inoperable" is checked. This also will provide the foreman with a summary of emergency repairs required.

- The "work-required" section should be completed in detail and the foreman or supervisor should inspect the unit to identify all the work required.

Any work noted at this time or during actual performance of repairs should be added to the work order.

- The mechanic ID number, work hours, and repair codes must be entered for each task.

- Daily entry at the source is a necessity.

This will permit one-day itemizing of the data for management review.

Scheduling

Maintenance work should be a balance of preventive maintenance, scheduled maintenance, and nonscheduled maintenance. Nonscheduled maintenance must be programmed as it comes to the shop to minimize downtime. The use of a good PM program with scheduled servicing will tend to reduce the breakdown of equipment and increase planned maintenance.

The shop loading concept must have a system of identifying work that should be given the highest priority. This will allow the assignment of resources to the most important need in the operating forces.

- You may want to establish a simple priority system for each task.

- PM and scheduled maintenance are considered the base work load.

Service and PM work is the base schedule of production and should represent more than 50% of average daily work.

Servicing should have a high ranking.

- Whether the unit is operable or not should be a basis for priority.

Any inoperable unit, needed for production, has a high priority.

- Any unit within an unsafe condition has a high priority.

- Seasonal repair work will have a low priority.

- Breakdown, overhaul, accident and betterment shall be based on need.

- During peak periods some work will be backlogged, requiring other decisions (i.e., overtime, hourly employees, transfer of mechanics for work, and use of commercial facilities).

Shop Loading

We hope to provide our foremen and supervisors with the data necessary to assign available mechanics to the work that has been received at each shop.

- This requires knowledge of the number of mechanics and their respective repair skills. These skills, matched with the individual task work standards, provide a means for determining the work load and preparing a schedule of completion.

- The daily work schedule of each shop, which lists each mechanic and the skills of each with each unit-work task, provides an easily understood log of assignments for the week.

- List each mechanic, with skills, and block out each time segment of the work day.

This requires the retention of hours for the inevitable breakdown unit. This report may include a total small shop schedule or only the schedule of a section of a larger shop.

Backlogs

A daily equipment repair schedule for each shop will provide a means of logging in each unit and highlighting each task along with the man-hours required.

We will also maintain a work order status report by shop location to provide up-to-date status of each work order listing: work order number, ID number, description, standard hours, actual hours, date received, date assigned, and mechanic number. When a task is completed the "date assigned" changes to "date completed".

Equipment units undergoing commercial or warranty repairs will have a computer-driven status report available listing: work order number, ID number, description, purchase order number, estimated hours, date dispatched, elapsed days, and a note giving dealer name and telephone number.

Suspended Work on Equipment

Some way must be devised to note all units that remain unrepaired because of unavailable parts, high cost, or other reasons.

An exception report titled "suspended" will be available for this purpose. Listings on the report include work order number, ID number, description, standard hours, actual hours, date received, date suspended, mechanic number, and a notation indicating the reason for suspension.

It is important that the shop foreman maintain a sharp lookout for problems in expediting parts procurement, mechanic hours available or other problems that may create further delays.

The use of a daily board listing of these items will keep everyone informed. Communication is the essence of positive effort--let everyone that needs to know -- know!

Staffing Levels

The shop staffing level can be developed by multiplying the average maintenance hours by unit class by the number of units in the class. Add all the hours computed for each class and you have the total mechanic hours required. This figure needs to be factored by an appropriate utilization factor.

A utilization factor can be developed for each shop over the year. Actual hours charged to productive work determine the utilization factor. Unassigned time would include vacation, sick leave, special nonequipment tasks, and time when no job was assigned although the mechanic was available.