

## Preventive Maintenance the FITCAL Way

By Paul Ravinski

The importance of preventive maintenance cannot be overemphasized. The entire Grinding room depends upon each machine running when it is needed and upon its operating efficiency. It therefore is vitally important that machine operators and repairmen maintain their machines properly. To achieve this, you first have to understand the true meaning of preventative maintenance.

### Preventive Maintenance.

Preventive maintenance is a systematic series of operations performed at regular intervals on equipment to eliminate major break-downs and unwanted interruptions in service, and to keep the equipment operating at top efficiency. To understand what is meant by preventive maintenance, it is necessary to distinguish between preventive maintenance, troubleshooting, and repair.

The prime function of preventive maintenance is to prevent break-downs and, therefore, the need for repair. On the other hand, the prime function of troubleshooting and repair is to locate and correct existing defects.

### Important Techniques.

Even though it is rugged equipment, many of

**A FITCAL checklist, shown in plastic sleeve on this AL805, is a tried and true, easy way to remember six basic maintenance operations every grinding shop should do to prevent breakdowns and interruptions in service.**



the parts used in grinding machinery require routine preventive maintenance and careful handling. Hit-or-miss maintenance techniques don't work. Specific instructions are needed. The easiest way to assure preventative maintenance is happening in your grinding shop is to attach a checklist right to the machine. Make it visible (see above photo of a checklist attached to an AL805 grinding machine).

**FITCAL** is a tried and true acronym that is easy to remember. It lays out the six basic maintenance operations as follows:

**F-Feel**  
**I-Inspect**  
**T-Tighten**  
**C-Clean**  
**A-Adjust**  
**L-Lubricate**

The first two operations establish the need

for the other four. For example, the carbide encountered while grinding saws and tools gets into your machine no matter how much care is taken to prevent it, causing corrosion of exposed surfaces and parts. Feeling and Inspecting your machine daily will tell you if it is necessary to tighten, clean, and adjust, or lubricate your machinery before it becomes undependable and subject to breakdown when it is most needed.

### FEEL Operation.

The feel operation is used most often to check rotating machinery, such as blower motors, drive motors, bearings, and bushings, and to determine whether electrical circuit components are overheated.

Feeling indicates the

need for lubrication and the existence of circuit defects requiring correction. The Feel is applicable to preventive maintenance of grinding machinery so feel your motors and spindles for excessive heat or vibration

### INSPECT Operation.

Inspection is the most important operation in the preventive maintenance program.

A careless observer will overlook the evidences of minor trouble. Although these defects may not interfere with the performance of the equipment, valuable time and effort can be saved if they are corrected before they lead to major break-downs. Make every effort to become thoroughly familiar with the indications of a normal functioning machine in order to be able to recognize the signs of a defective machine.

Inspection consists of carefully observing all parts of the equipment, noticing the color, placement, and state of cleanliness.

Inspect for the following conditions:

(1) Color: Overheating can be indicated by discoloration, blistering, or bulging of the parts or surface of the machine. Leakage of hydraulic oil

and oxidation of metal contact surfaces are also identifiable by changes in color.

(2) Placement: Check that all leads and cabling are in their original positions, connected securely and not frayed.

(3) Cleanliness: **This is the #1 problem we see in American Grinding shops.** Accumulation of carbide or steel, especially between electrical parts, connections, and joints will eventually freeze moving parts and cause rust and corrosion to form.

## TIGHTEN Operation.

Check tightness of belts, bolts, fittings, wire connectors and plugs. Caution: Screws, bolts, and nuts should be tightened carefully. Fittings and belts tightened beyond the pressure for which they are designed will be damaged and broken.

## CLEAN Operation.

Clean your machines faithfully. This is one of the most important rules. A dirty machine will be prone to early failures. If you have a



**A FITCAL checklist (shown above) records the six key preventive maintenance operations every grinding shop should perform: FEEL, INSPECT, TIGHTEN, CLEAN, ADJUST, LUBRICATE**

full cabin machine and aren't using Oil coolant, consider it. Machines running oil coolant are much easier to keep clean.

## ADJUST Operation.

Adjust drive belts, grinding wheel belts, feed fingers etc.

## LUBRICATE Operation.

Lubrication refers to the application of grease or oil to the bearings and shafts of motors or other rotating parts, sliding surfaces, and wherever minimum wear due to friction is desirable. Check levels of hydraulic and auto lube reservoirs.



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