Rectifier Clinic

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Preventive Maintenance Checks

Winter is a perfect time to implement programs and changes that are more difficult to start at other times of the year. Humidity is usually lower so that equipment failure is less frequent. Doors are not open as much, reducing the amound of dirt and debris being blown into equipment. Fewer employees are taking vacations, so there is time to develop new procedures.

Checking your rectifier periodically can help avoid unscheduled downtime. True preventive maintenance programs require sophisticated predictors of mean-time-between failure (MTBF) for all components, as well as the equipment to measure some of the reliability factors. Lacking the resources or knowledge to use this approach, most finishers can still benefit from a simpler plan, using a checklist to verify the status of each factor (see checklist).

The checklist is designed so that most of the checks are visual inspection by a person with a modicum of knowledge of the equipment, preferably someone from maintenance, although this is not mandatory. Some of the tests involve the use of a multi-meter or a current tong—tools every shop should have at a minimum. Other items requiring more skill, experience, or sophisticated tests can be added as desired.

The frequency should be 3-4 times a year on most items—less frequently on some and more frequently on others as ambient conditions or other circumstances dictate. Copies may be filed by rectifier, line, date, or loaded into a electronic file for tracking trends. ***P&SF***

Rectifier Maintenance Checklist

Rectifier I.D.			OK	Acceptable Condition For Operating—No Obvious Problems
Size/type			Imm	Defective, Needs Immediate Attention
Location			Fut	Non Critical Defect, Repair Or Replace When Convenient
Item	Condition			Guidelines For Checking
	OK	Imm	Fut	
Main Transformer				Dirt In Coils, Arcing, Wire Insulation
Diode Stack				Discoloration, Loose Connections, Arcing, Pigtails Missing
Tapswitches				Arcing, Loose Connections, Stuck, Will Not Hold Position
Powerstat				Discoloration, Arcing, Brushes Sticking Or Worn
Cooling Fan (Air)				Clogged Screen, Motor Slow Or Hot, Blade Cracked
Fan Overload				Loose Wires, Soft Resets
Cooling Lines (Water)				Leaks, Flow, Solenoid Operating, Plugged Lines
Thermals				Arcing, Dirt, Loose Wires
Scr Stack				Discoloration, Corroded Wires, Arcing, Loose Connections
Firing Boards				Dirt, Corrosion, Loose Wires, Discolored Components
Stepdown Transformer				Discoloration, Arcing, Loose Connections
Main Contactor				Chattering, Overheating, Loose Wires
Remote - Start/stop				Sticking, Arcing, Loose Wires
Remote - Meters				Cracked, Broken, Needle Sticking, Loose Wires
Remote - Pots				Stuck, Loose, Erratic Control, Loose Wires
Incoming Line Balance-AC				Current Draw Under Load Balanced Between Phases
Outgoing Voltage-DC				Voltage At Bus Agrees With Meter And Voltage At Tank
Shunt				Discoloration, Loose Connections, Clean Wire Connections