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C-A OPERATIONS PROCEDURES MANUAL

15.3.5.6 Westinghouse Motor-Generator Set Monthly Preventative Maintenance Checks

(Booster/AGS Ring Power Supply Systems Group Procedure EPS-W-006)

Note: This document was formerly a C-A Group Procedure. The content of the group procedure was reviewed by the Technical Supervisor. All approvals and/or issue dates of the original group procedure are maintained for present use.

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: _____ Signature on File _____
 Collider-Accelerator Department Chairman Date

M. Bannon

Booster/AGS Ring Power Supply Systems
Group Procedure EPS-W-006
Revision 00

15.3.5.6 Westinghouse Motor-Generator Set Monthly Preventative Maintenance Checks

- 1.0 LOTO all power sources before any maintenance is performed.
 - 1.1 WB-52 racked out and LOTO (when working on brush rigging)
 - 1.2 Exciter Power Supply LOTO (when working on brush rigging)
 - 1.3 Brake power supply LOTO (when working on brush rigging)
 - 1.4 If working on lift pumps LOTO FDS-A11-NE5
 - 1.5 If working on hydraulics for liquid rheostat LOTO FDS-DP-A44-1-FS-#4 also secure 120VAC power in rack in Speed Room which powers Servo Motor up on Liquid Rheostat Bridge.

2.0 Brush Rigging Motor

Note:

**Check Brush P/N – Helwig Carbon 697 P/N 11-151025-120-6-03
or Westinghouse P/N W100 (120A532G12)**

- 2.1 Remove all brushes from their holders
- 2.2 Clean off brush holder and rings with air gun.
- 2.3 Inspect brush wear surface for any uneven wear or any other unusual signs on the wear surface. If anything is found, bring it to the attention of your supervisor, mechanical and electrical engineer.
- 2.4 Check brush wearing. Minimum brush length = $_1.250$ ". If brushes worn more than $\frac{1}{2}$ there original length- replace new brushes are in locker on the loft.
- 2.5 Clean carbon build-up in brush rigging area with simple green. Alconox and water mixture.
 - Only clean the build-up of carbon and dirt off the surface of the slip ring. Do not wipe off the light film of carbon which was deposited on the ring because this is the lubricating film which keeps the brushes lubricated and help reduce the wearing of both the brushes and the slip rings.
 - Thoroughly clean **the sides of the rings** of any oil and dirt build-up.
 - Thoroughly clean the Micarta dividers separating each brush assembly.
 - Clean the floor area around brush rigging
 - Clean the motor covers (north and south)
 - Clean the inside motor (the rotor) with brushes and a vacuum then wipe the rotor as best you can with a damp rag (using the simple green, Alconox water mixture.) Then blow it out with air as best you can. Clean floor & motor cover areas using the Simple Green, Alconox & water mixture plus a Scotchbrite pad.

3.0 Generator

Note:
Check Brush P/N – Carbone C-1170 WLI

- 3.1 Remove all brushes from their holders.
- 3.2 Clean off brush holder and rings with air gun.
- 3.3 Inspect brush wear surface for any uneven wear or any other unusual signs on the wear surface. If anything is found, bring it to the attention of your supervisor, mechanical and electrical engineer.
- 3.4 Check brush wearing minimum brush length = $_1.250''$. If brushes worn more than $\frac{1}{2}$ there original length-replace new brushes are in locker on the loft.
- 3.5 Clean carbon build-up in brush rigging area with simple green Alconox and water mixture with Simple Green, Alconox, and water mixture.
 - Only clean the build-up of carbon and dirt off the surface of the slip ring. Do not wipe off the light film of carbon which was deposited on the ring because this is the lubricating film which keeps the brushes lubricated and help reduce the wearing of both the brushes and the slip rings.
 - Thoroughly clean the sides of the rings of any oil and dirt build-up.
 - Thoroughly clean the Micarta Divider separating the two brush assemblies.
 - Clean the floor area around brush rigging.
 - Clean the generator covers (North and South)
 - Clean the inside generator (Rotor) with brushes and a vacuum then wipe the rotor as best you can with a damp rag (using the Simple Green, Alconox water mixture) then blow it out with air as best you can.
 - Clean floor and motor cover areas using the Simple Green, Alconox, and water mixture plus a scotchbrite pad.

4.0 Tachometer

Note:
Check Brush P/N – 10104 13426 00 GE 245 Brush Grade BP20

- 4.1 Clean out tachometer using air gun.
- 4.2 Check brush wearing, minimum brush length=_____ inch. If brushes worn more than $\frac{1}{2}$ there original length-replace new brushes are in locker on the loft.

5.0 Oil Leaks

- 5.1 Check for oil leaks and dirt build up around the MG set and clean up around each pedestal areas. We must try to keep the build-up of oil and dirt on machine to a minimum since it is an open machine and air is sucked into the machine from around the set.

6.0 MG Room Clean Up

- 6.1 Vacuum up MG Room of any dirt and debris. Keep room as clean as possible. (The cleaner the room the cleaner the MG set will stay.)

7.0 Electrolyte Level and Specific Gravity Test

- 7.1 The electrolyte level should be checked daily and water added as needed. (Water is added by first sending it through the demineralizer and letting it run outside for approx. 5 mins. then add it to the tank until water level is correct.)
- 7.2 When water is added it is to be documented on the computer in the file for monitoring how often water is added to liquid rheostat.
- 7.3 At least once a month the specific gravity of the water should be checked and then recorded on the computer what the specific gravity is and if it is incorrect then we must add soda ash until the specific gravity reading is correct.(reading should be specific gravity=1.017)
- 7.4 Check specific gravity and water temp and record on log sheet for specific gravity monthly checks.

8.0 Exciter Power Supply

- 8.1 Open power supply and check for any water leaks or sweating pipes/hoses. If sweating pipes/hoses are found, wrap them with pipe insulation.

9.0 Brake Power Supply

- 9.1 Open power supply and check for any water leaks or sweating pipes/hoses. If sweating pipes/hoses are found, wrap them with pipe insulation.

10.0 Liquid Rheostat Hydraulics/Chain Drive Mechanism

- 10.1 Inspect hydraulic lines and hoses
- 10.2 Inspect linear position sensor
- 10.3 Inspect Moog valve for leakage
- 10.4 Inspect chain and bridge operation
- 10.5 Inspect hydraulic oil filter clean/replace when necessary

Note:

Mr. Viorel may have book on this unit which has filter part number or if it is one that is taken out and cleaned (with kerosene) then put back in refer to book for proper procedure on how to check. If book is not available this maintenance day we will do it next time.

11.0 MG Set Oil System Filter Check

- 11.1 Follow the filter maintenance procedure on how to drain filter from bottom to remove any water, sludge or silt from the bottom of filter canister. After oil has run out for a few seconds take an oil sample in a separate jar.
- 11.2 If there is time replace the Barksdale Pressure Switch on the output of the filter with a new lower pressure switch (P/N CD2H-H18SS, 4-18 psi adj. range)

12.0 Air Intake Filter Media Check

12.1 Each week check the filter media on the intake side of the 3 blowers used to cool down the mg room. If the media needs to be pulled down contact air conditioner men. If they do not respond that day pull the media down yourself if air flow is being restricted to the point where it will not cool down mg room properly. Record in maintenance book each time media is checked and when it is pulled down and new media is in front of intake.

To: Siemens Operators

Procedure: Westinghouse MG Set Monthly Maintenance

Please sign and date that you have read and understand the following procedure.

NAME: _____ DATE: _____

NAME: _____ DATE: _____