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APPLICABLE TO NWSI 30-4104

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Facilities Engineering

Facilities Management, NWSPD 30-41

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SOUTHERN REGION BACKUP POWER GENERATOR MAINTENANCE PROGRAM

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OPR: W/SR42 (M. DeGeorge)

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SUMMARY OF REVISIONS: This supplement supersedes National Weather Service Southern Region Supplement 04-2005 dated January 14, 2011, applicable to NWSI 30-4104. The primary changes are:

Changed all entries of Emergency Power Generator (EPG) to Backup Power Generator (BPG)

Section 2.3 – Updated responsibilities for contract documentation.

Section 2.4 - Deleted requirement for FET to perform all Government

Purchase Card purchases.

Section 3.1.2 – Add Local FET can perform Annual Maintenance.

Section 3.1.3 – Corrected Spelling.

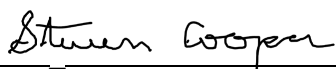
Section 3.1.5 – Revised setting ATS exercise time.

Section 3.3.1 – Removed no longer available reference.

Section 3.4.1- Correct section number and update references.

Section 5.-Upadted to Contractor Office Representative (COR).

Section 6.-Replaced TPS with UPS and deleted exercise requirement already covered in previous section.



April 21, 2020

Steven G. Cooper

Date

Director, Southern Region

<u>Table of Contents:</u>	<u>Page</u>
1. Description of BPG System	3
2. Responsibilities.....	3
3. Maintenance.....	3
4. Training.....	4
5. Contract Administration.....	4
6. Operational Policy	4
7. Statements of Work.....	5
8. Attachment "A" Monthly BPG Inspection Report.....	6
9. Attachment "B" Annual BPG PM Checklist.....	7
10. Attachment "C" Annual BPG Quality Control Report.....	8

1. Description of BPG System.

This supplement covers all Backup Power Generators (BPG) at the Weather Forecast Office (WFO), collocated WFO/ River Forecast Center (RFC), WSR-88D Radar Data Acquisition (RDA) sites, Automated Surface Observing Systems (ASOS) sites, and NOAA Weather Radio (NWR) sites. The BPG system may consist of the following components:

Engine

- Generator and Switch Gear
- Automatic Transfer Switch (ATS)
- Intake and Exhaust System
- Battery - Charger and Heater
- Engine heater
- Aboveground Fuel Storage Tank
- Day Tank and Pump
- Remote Status Panel

2. Responsibilities

2.1. The Meteorologist-in-Charge (MIC) and/or Hydrologist-in-Charge (HIC) is responsible for ensuring all maintenance tasks are performed. These tasks include corrective maintenance (CM), monthly inspections, annual preventative maintenance (PM), and quality control inspections to keep each Backup Power Generator (BPG) in their County Warning Area in proper working condition. The MIC/HIC, in coordination with the Facilities Engineering Technician (FET) and Electronics System Analyst (ESA), determines the most efficient and effective methods for accomplishing all maintenance tasks.

2.2 The FET provides technical expertise and knowledge necessary to assist the MIC/HIC and the Regional Headquarters in the maintenance, replacement, and repair of BPG systems. The FET is responsible for troubleshooting problems, formulation of Service Maintenance Agreements, and repair contracts by providing statements of work, locating contractors, and obtaining bids. In addition, during their periodic visits, the FET will perform applicable PM and repair as required, review/assist with the Monthly Inspection Checklists, perform annual quality assurance inspections, and oversee/review any work performed by a contractor.

2.3. The FET will prepare all contract documents for services and repairs which are over the Government Purchase Card limit for services and will forward to Southern Region Headquarters. If FET is unavailable the WFO staff may prepare and submit documents.

3. Maintenance.

3.1 All preventative and corrective maintenance shall be documented in Engineering Management Reporting System (EMRS) by the person who oversees the service or repair. For continuity and familiarity with the BPG system, the same annual preventive maintenance contractor should be used to perform corrective maintenance.

3.2 WFO Backup Power Generators.

3.2.1 Monthly Inspections. Monthly inspections of all local WFO/RFC BPG systems are required. The Monthly Inspection Checklist (Attachment A-1) shall be filled out by the MIC/HIC designee and kept on file at the WFO. A copy of each checklist shall be sent to the FET upon completion.

3.2.2 Annual Preventative Maintenance and Inspection. Annual PM and inspection outlined in

Attachment B-1 shall be accomplished each year (or every 250 operating hours) by a certified BPG maintenance contractor or local FET. The contractor shall provide an itemized invoice documenting the service performed or fill out the Annual BPG PM and Inspection Checklist (Attachment B-1) to record the service. The FET will initiate an EMRS WS Form A-26 (Maintenance Record) for each WFO BPG in their area of responsibility and will fill out the Annual Quality Control Report (Attachment C-1).

3.2.3 Corrective Maintenance. All corrective maintenance shall be recorded in EMRS. A WS Form A-26 shall be created by the person initiating the corrective maintenance action required and closed by the person involved with restoring service

3.2.4 Resistive Load Run. As required by the appropriate Kohler or ONAN BPG documentation, the FET will contract an authorized BPG maintenance contractor to connect a resistive load bank and run the BPG under 100% load for no less than two hours. This action is required to prevent “wet stacking” typically caused by engines operating under 50% load capacity.

3.2.5 The ESA, in coordination with the FET, will set the BPG ATS for a weekly exercise cycle. If the ATS can't be set for a weekly exercise it will be noted in the BPG log and then set to exercise as frequently as allowed by the ATS programming.

3.3 NWR Backup Power Generators.

3.3.1 NWR BPG maintenance shall be performed in accordance with EHB 7 Section 4.4. and the appropriate Kohler Service Manual.

3.4 WSR-88D Backup Power Generators.

3.4.1 WSR-88D BPG maintenance shall be performed in accordance NWS EHB 6-503-2 and/or NWS EHB 6-552 for Kohler Gen Sets or NWS EHB 6-551-13 for Onan set.

3.5 ASOS Backup Power Generators.

3.5.1. ASOS BPG maintenance shall be performed in accordance with NWS EHB 11, ASOS Maintenance Note 67 Revision B.

4. Training.

4.1. The MIC/HIC, Facilities Program Manager, or FET Supervisor will ensure that his/her staff is trained and qualified to operate the equipment and perform BPG maintenance and repair to the extent necessary to fulfill the requirements contained herein.

5. Contract Administration.

5.1 During the performance of the generator maintenance service contract the COR or his/her designee will perform quality control oversight to ensure the service contractor is fulfilling all contract requirements. Anytime the contractor fails to comply with the contract, the COR will document the non-compliance and notify the Contracting Officer immediately.

6. Operational Policy.

6.1 The BPG, except for ASOS and NWR sites, is a part of a Backup Power System (BPS) which includes

the Uninterruptible Power Supply (UPS) at the WFO and RDA sites. The Southern Region operational policy is to allow the BPS to work as designed and automatically transfer to backup power if there is a loss of commercial power. If the UPS is out of service for any reason, or the office suffers a prolonged period of commercial power fluctuations, or any unforeseen power circumstances arise, the MIC/HIC or his/her designee may decide a manual transfer to the BPG until the situation passes.

7. Statements of Work.

7.1 A Statement of Work (SOW) will be provided by the FET upon request as a guide to be used in performing work covered under this supplement. If work is required other than preventive maintenance, an additional SOW will be prepared by the FET or Electronics and Facilities Branch to cover that work.

A
MONTHLY BPG INSPECTION REPORT

SITE ID:	MODEL:	SERIAL #:	
Date:			

Pre-Operational Checks

Engine:

Hoses & Belts, <i>(Pass, Fail)</i>				
Oil Level, <i>(OK, ADD)</i>				
Air Cleaner, <i>(Pass, Fail)</i>				
Block Heater, <i>(Pass, Fail)</i>				
Radiators Clean, <i>(Pass, Fail)</i>				
Coolant Level <i>(Pass, Fail)</i>				

Battery:

Terminal Condition, <i>(Pass, Fail)</i>				
Battery Charge Rate, <i>(Volts)</i>				

Operational Check

Three Phase Position L1-L2:

Volts				
Amps				
Hertz				

Three Phase Position L1-L3:

Volts				
Amps				
Hertz				

Three Phase Position L2-L3:

Volts				
Amps				
Hertz				

Engine:

Proper Operational Transfer, <i>(Pass, Fail)</i>				
Exhaust, Engine Noise, <i>(Pass, Fail)</i>				
Oil Pressure, <i>(PSI)</i>				
Oil Temperature, <i>(Fahrenheit)</i>				
Water Temperature, <i>(Fahrenheit)</i>				
Presence of Leaks, <i>(Pass, Fail)</i>				
Lamp Check, <i>(Pass, Fail)</i>				

Louvers:

Proper Operation, <i>(Pass, Fail)</i>				
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Post-Operational Checks

Fuel Level				
Engine Hours				
Initials / Position				

B
ANNUAL BPG INSPECTION CHECKLIST

ENGINE

General

- Change/clean crankcase breather
- Inspect air cleaner (replace as necessary)
- Drain condensate trap

- Inspect air intake system
- Inspect exhaust system
- Inspect engine starting system

- Inspect spark plugs/wires/distributor
- Clean battery terminals as needed
- Check electrolyte level (refill as needed)
- Check batt. charger for proper charging rate
- Change batteries (every three years)

Lubricating System

- Change oil and filter
- Inspect lube oil heater
- Change hydraulic governor oil
- Check for oil leaks

Coolant System

- Record antifreeze protection level
- Record DCA level
- Check coolant level (refill as needed)
- Inspect clamps and hoses
- Verify operation of engine block heater
- Inspect belt condition and tension
- Check for exterior leaks
- Verify operation of remote radiator motor
- Grease all lubrication points
- Change DCA coolant filter
- Drain and flush system - refill per manufacturers recommendation (every 3 years)

Fuel System

- Inspect fuel lines and hoses
- Inspect day tank and float assembly
- Check fuel transfer pump
- Check governor and linkage
- Check level of fuel in supply tanks

- Drain water from filter/tanks
- Change fuel filter(s)
- Adjust injectors and valves as necessary

Run engine and:

- Record oil pressure
- Record oil temp
- Record voltage
- Record water temperature
- Record amperes
- Record hours
- Test safety shutdown circuits/alarms
- Check rain cap operation
- Check for vibration or noise
- Inspect operation of intake louvers

GENERATOR

General

- Inspect/lubricate end bell bearing
- Inspect brushes, brush holders, and
- Inspect cooling screen and alternator
- Verify connections and insulation condition
- Verify operation of shunt trip
- Operate circuit breaker manually
- Clean vent screens
- Tighten all panels, electrical connections
- Check sub-base isolators and tighten lock- nuts

Load Bank Testing

- Perform resistive load bank test with no interruption of normal power supply (record results in comments section below)

With engine running and load on generator:

- Record voltage
- Record amperes
- Record RPM's
- Calibrate control meters as needed
- Verify operation of lamps on panel

Comments: _____
 Performed By: _____ Date: _____

C
ANNUAL QUALITY CONTROL REPORT
(Performed by FET)

Review WFO file to ensure Monthly Inspection Reports are up to date.

Review Monthly Inspection Reports for problems and discrepancies.

Ensure generator is set up to perform a weekly run.

Check engine coolant level.

Check block heater operation.

Drain water from fuel filter.

Drain exhaust condensation trap.

Check anti-freeze and DCA concentration.

Check air cleaner.

Participate in monthly inspection by local staff during generator run.

Comments: _____

For all discrepancies create an appropriate WS Form A-26 and enter into EMRS.

Performed By: _____ Date: _____