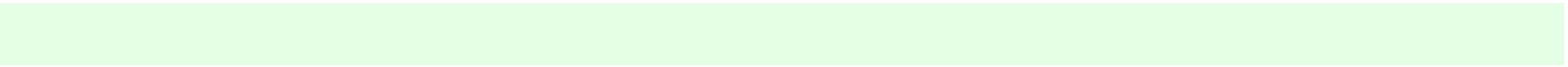


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GENERATOR COMMISSIONING CHECKLIST



GENERATOR COMMISSIONING PROCEDURE

Pre-Commissioning Preparation

1.1 Safety & Pre-Job Planning

- Wear appropriate Personal Protective Equipment (PPE).
- Ensure that all guards and covers are secured in place.
- Verify site readiness, ensuring access to authorized personnel only.
- Place "Do Not Use" or equivalent tags on starter switches before maintenance.
- Ensure fire safety by keeping flammable materials away and verifying the presence of fire protection equipment.
- Check that all required tools and test equipment are available.
- Review installation requirements and ensure compliance with relevant regulations.

Equipment & Site Preparation

2.1 Pre-Start Checks

- Verify proper installation of battery(s), ensuring correct size, polarity, and secure mounting.
- Ensure that the fuel supply and return lines are installed and leak-free.
- Check oil level and quality; top up as necessary.
- Verify coolant levels in both HT and LT circuits and ensure correct antifreeze concentration.
- Inspect and verify that the exhaust system is correctly installed and free from obstructions.
- Ensure that all rotating components are free of debris.
- Verify the proper installation of vibration isolators and removal of shipping blocks.
- Confirm that electrical and grounding connections are completed and secure.
- Verify that power is available for block heaters and battery chargers.
- Ensure pre-lube pump has ran for minimum 60 seconds

2.2 Fluid and Filtration System

- Check crankcase oil level and add as needed.
- Inspect the air cleaner, adapters, and clamps.
- Ensure all fluid connections are secure with no leaks.
- Inspect and record coolant properties, including DCA concentration and freeze point.

2.3 Electrical System Checks

- Verify battery charger DC wiring to battery or starter terminals.
- Confirm proper AC connection and correct settings for battery chargers.
- Verify operation of the engine water jacket heater and oil sump heater.
- Ensure correct wiring and functionality of alternator and control panel heaters.
- Visually inspect and verify generator output voltage.
- Confirm the correct neutral connection for the generator.

2.4 Mounting & Alignment

- Verify that the generator frame is secured to a level surface.
- Confirm adequate clearance for oil drainage and water supply availability.
- Check for flexible fuel, exhaust, electrical, and cooling connections.
- Ensure proper alignment of drive components where applicable.

2.5 Exhaust System Inspection

- Inspect exhaust flex connections for correct installation.
- Verify proper type and placement of mufflers and rain caps.
- Ensure that exhaust piping is correctly sized and supported.

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- Check that elbows are long-radius design where applicable.

2.6 Cooling System

- Check coolant level and add if necessary.
- Verify correct installation and operation of dampers and louvers.
- Inspect all hoses, clamps, and cooling circuit connections for leaks.

Commissioning Process

3.1 Initial Startup Checks

- Ensure ECM is energized before applying switched B+ or accessory voltage.
- Perform pre-lube cycle and confirm main oil passage pressure (minimum 30kPa for 60 seconds).
- Execute the fuel priming cycle.
- Check for any ECM alarms or faults before the first start.

3.2 First Engine Start Checks

- Record and monitor:
 - Oil pressure
 - Fuel pressure
 - Coolant temperature
 - Engine speed/stability at idle (1800 RPM, no load)
 - Any fluid leaks
 - ECM alarms/faults

3.3 Load Testing

- Define a load profile (e.g., step loading in 25% increments every 5 minutes).
- Monitor engine parameters at each step:
 - Oil pressure
 - Fuel pressure
 - Coolant temperature
 - Load stability
 - ECM alarms/faults
- Gradually reduce the load to idle and shut down.

3.4 Shut Down Checks

- Inspect for fluid leaks.
- Check ECM alarms or fault codes.
- Ensure all control settings return to standby mode.
- Perform post-operation inspection.

Additional System Verifications

4.1 Fuel & Speed Governing Systems

Diesel Systems:

- Inspect day tank piping and test transfer pump operation.
- Verify proper operation of day tank controls, sensors, and switches.
- Inspect and test base tank and its associated components.
- Bleed and prime the fuel system before operation.

4.2 Automatic Transfer Switch (ATS) Checks

- Verify all control wiring termination (remote start, load controls, etc.).
- Ensure correct voltage and current ratings for normal and emergency power connections.

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- Check that the ATS cabinet is free from debris and properly sealed.
- Perform final ATS system preparation and verification.

System Startup and Operational Testing

5.1 Main Breaker Off/Open Start-Up

- Start generator set using the local run selector switch.
- Record:
 - Oil pressure
 - Exhaust operation and rain cap movement
 - Coolant temperature
 - Battery charge rate
 - Fuel pressure
 - Frequency (Hz) and engine speed (RPM)
 - Output voltage (L-L, L-N)
 - Stability of voltage and frequency
 - Presence of unusual noises or vibrations

5.2 Normal Operation Testing

- Run the generator under expected site load conditions.
- Observe operation for a sustained period while monitoring all key parameters.
- Validate proper alternator excitation and AVR function.
- Ensure all system safety shutdowns and alarms function correctly.
- Confirm proper ventilation and cooling system function.

5.3 Final System Validation

- Complete post-operation checklist.
- Perform final system review and document findings.
- Verify site personnel training on generator operation and maintenance.
- Ensure all commissioning data is recorded and submitted for review.

Documentation & Handover

- Record all test results and commissioning data.
- Provide training to site operators on generator maintenance and operation.
- Submit final commissioning report, including:
 - Completed checklists
 - Recorded operational data
 - Any identified issues and corrective actions taken.