

**Statement of Work**  
**Generator Service Contract**

I) GENERAL INFORMATION:

The United States Mission in South Africa requires professional services and contractor cost proposals to perform monthly preventive maintenance and servicing of the facilities emergency generator system over a one year contract term.

II) EQUIPMENT INSTALLED:

The U.S. Mission, South Africa has many residential emergency generator systems throughout the city of Pretoria. As the mission in Pretoria is continually adapting due to multiple variables, the number of generators servicing the Embassy residence increases from time to time and also has the potential to decrease. The vast majority of residential units, with the exception of 4 properties, are SDMO manufactured generator units. The sizes of the units installed vary from 33, 44, 65, 88, 110 and 165 KVA. At the time of development for this statement of work, 138 generators are installed at embassy possessed residential properties in Pretoria.

III) GENERAL REQUIREMENTS:

The contractor shall provide all supervision, labor, tools, equipment and material to carry out all preventive maintenance and service of the equipment listed in section II above, and as outlined in this Scope of Work (SOW). This includes all filters, oil, grease, coolant, and other consumables. The contractor is also available for removal from site and disposal of all used engine oil, old filters, rags, and maintenance associated trash.

IV) SCOPE OF WORK

The following work must be done at minimum requirements:

## GENERATOR – SEMI ANNUAL

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### MAINTENANCE PROCEDURES:

1. Perform walk around inspection.
2. Inspect and wipe down the generator.
3. Check electrical connections for evidence of looseness or overheating.
4. Check engine oil level.
5. Check coolant level.
6. Check the jacket water heater for proper operation if applicable.
7. Check radiator hoses for wear and cracks. Plan for replacement if necessary.
8. Inspect copper grounding rods. Change if necessary.
9. Engine Air Pre-cleaner, clean.
10. Engine Air Cleaner Service Indicator-Inspect.
11. Check fuel level.
12. Drain water and sediment from the day tank. Clean fuel strainer.
13. Check space heater.
14. Perform a 30 minute (1 hour for units 165 kva) system operational test under full load conditions.
  - Operation for indication of defects of possible malfunctions.
  - Inspect the annunciator panel for proper operation.
  - After unit has operated for 30 minutes (1 hour for large units), log the information to show at least the following information: engine and generator speed in RPM, voltage, amperes, frequency, power factor, engine temperatures, engine oil pressure, hour meter readings.
15. Inspect safety devices.
16. Test safety shut-off controls.
17. Measure and record stator winding temperature.
18. Measure and record bearing temperature.
19. Test for vibration at various loads on the load bank.
20. Check charging system for proper operation.
21. Check battery electrolyte level.
22. Determine specific gravity of starting batteries. Add distilled water if necessary. Clean terminals. Set charge rater after generator has been operated.
23. Note any exhaust, oil, coolant, or fuel leakage. Plan for correction.
24. Cold down and stop the unit.
25. Note condition indicators for air and fuel filters. Clean or change filter if installed gauges or operating conditions show necessity.
26. Drain the exhaust condensate trap.
27. Return the unit to service.
28. Set it on AUTO or REMOTE

## GENERATOR – ANNUAL

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### MAINTENANCE PROCEDURES:

1. Perform a walk around inspection
2. Inspect and wipe down the generator.
3. Check electrical connections for evidence of looseness or overheating.
4. Rotating Rectifier-Check.
5. Speed Sensor-Clean/Inspect
6. Starting Motor-Inspect
7. Stator Lead-Check
8. Perform CM-003 (Insulation Test, Motor)
9. Check coolant level.
10. Cooling System Coolant Sample (Level 2) - Obtain
11. Belts-Inspect/Adjust/Replace
12. Check the jacket water heater for proper operation.
13. Check radiator hoses for wear and cracks. Plan for replacement if necessary.
14. Inspect copper grounding rods, replace if necessary.
15. Radiator-Clean
16. Water Pump-Inspect
17. Engine Air Pre-cleaner-Clean
18. Engine Air Cleaner Service Indicator-Inspect
19. Engine Air Cleaner Element (Dual Element) - Clean/Replace
20. Engine Air Cleaner Element (Single Element) - Clean-Replace
21. Clean fuel level.
22. Drain water and sediment from the day tank. Clean fuel strainer.
23. Check space heater.
24. Bearing (Ball) Lubricate
25. Bearing (Spherical Roller) - Lubricate
26. Crankshaft Vibration Damper-Inspect
27. Engine-Clean
28. Engine Crankcase Breather-Clean
29. Engine Mounts-Check
30. Engine Oil Sample-Obtain

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31. Check engine oil level for excessive usage, change oil filter
  32. Pre-lube Pump-Inspect
  33. Engine Protective Devices-Check
  34. Engine valve Lash Inspect/Adjust
  35. Fan Drive Bearing-Lubricate
  36. Fuel Control Linkage -Check/Lubricate
  37. Fuel injector Inspect/Adjust
  38. Fuel System Primary Filter-Clean/Inspect/Replace
  39. Fuel System secondary Filter-Replace
    - Perform a 30 minute system operational test under full load conditions.
      - Operation for indication of defects of possible malfunctions.
      - Inspect the annunciator panel for proper operation.
      - After the unit has operated for 25 minutes, log the operation to show at least the following information: engine and generator speed in RPM, voltage, amperes, frequency, power factor, engine temperatures, engine oil pressure, hour meter readings.
  41. Inspect safety devices.
  43. Measure and record stator winding temperature.
  44. Measure and record bearing temperature.
  45. Test for vibration at various loads on the load bank.
  46. Open covers and complete CM-002 (infrared testing) on all conductors and connections. Note: for the test to be effective unit needs to be loaded to at least 40% of full load current. Correct identified deficiencies while unit is de-energized. (Perform with unit running).
  47. Check charging system for proper operation.
  48. Check battery electrolyte level.
  49. Determine specific gravity of starting batteries. Add distilled water if necessary. Clean terminals. Set charge rate after generator has been operated.
  50. Note any exhaust, oil, coolant, or fuel leakage. Plan for correction.
  51. Cool-down and stop the unit.
  52. Drain the exhaust condensate trap.
  53. Re-accomplish CM-0002 on any problem areas.
  54. Return the unit to service.
  55. Set it on AUTO or REMOTE

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Prior to the start of work, the contractor must submit for review the work sheets and/or check lists that will be used for performing maintenance service.

The Embassy Generator Program Manager and Facility Manager must immediately be made aware of any condition discovered that could result in equipment failure.

Test and inspection report shall be submitted within three days of completing work.

Emergency Service with a four-hour response time must be available 24 hours per day, 365 days a year.

END OF STATEMENT OF WORK

