Annex A: Terms of Reference

Maintenance of Caterpillar DE110-GC diesel generators
The United Nations High Commissioner for Refugees in Ukraine invites qualified generator maintenance service providers to submit their proposals for establishment of a Framework Agreement for the maintenance of Caterpillar DE110-GC diesel generators in Kyiv, Vinnytsia and Dnipro.

<table>
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<tr>
<th>No</th>
<th>Model</th>
<th>Location</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Caterpillar DE110-GC</td>
<td>26, Malinovskogo street, Vinnytsia</td>
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<td>2</td>
<td>Caterpillar DE110-GC</td>
<td>17, Lamana street, Dnipro</td>
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<td>3</td>
<td>Caterpillar DE110-GC</td>
<td>75, Zhylianska street, Kyiv</td>
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List of works for annual maintenance of diesel generators

1. Maintenance period: 1 time per year (*up to reaching regulatory works for 200 run hours)
2. Response time to an emergency call: 2 working days (48 hours) (in case of force majeure, the call time may be increased)

* Regulatory works upon reaching 200 working hours are carried out according to separate provisions and service specifications

General overview

1. Visual inspection of the engine, generator, switch and control panel
2. Checking connections for oil, water and fuel leaks. If necessary, eliminate malfunctions
3. Control of the level of coolant, oil and fuel
4. Checking the degree of battery charge. Cleaning the battery
5. Checking the operation of the coolant heater Checking the separator for separating water from fuel
6. Checking the separator for separating water from fuel

Fuel system

7. Checking the fuel level in the main tank
8. Checking the serviceability of the fuel transfer pump
9. Inspection of fuel pipelines and connections

Cooling system

10. Checking the air cleaner element for sufficient air supply to the engine. If necessary, its cleaning
11. Inspection of the radiator from the outside, if necessary, cleaning
12. Checking the level of coolant (antifreeze)
13. Inspection of connection nozzles
14. Checking the belts of the battery charger generator

Lubrication system

15. Replacement of motor oil
16. Replacement of oil filter

Exhaust system

17. Inspection of the tightness of the connections of the exhaust system

Dynamo

18. Output voltage and frequency control
19. Checking the insulation for the absence of a short circuit in the windings of the generator
20. Checking the power circuits of the generator
21. Checking the control and control chains of the generator
22. Checking the operation of the "emergency stop" system to block the start
### Automatic panel
- 23 Checking the control and operational chains of the panel
- 24 Verification of alert systems
- 25 Checking the control buttons
- 26 Inspection of automatic switchers and fuse holders

### Switching equipment for automatic switching of AVR
- 27 Checking the control and operational chains of AVR
- 28 Checking the AVR power chains
- 29 Checking the actuation of power contactors
- 30 Checking the installed programming registers

### Additional services
- 31 Emergency call for possible restart of the generator
- 32 Generator repair after detected miss functions

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### Regulatory work upon reaching 200 running hours

#### General overview
- 1 Visual inspection of the engine, generator, switch and control panel
- 2 Checking connections for oil, water and fuel leaks. If necessary, eliminate malfunctions
- 3 Control of the level of coolant, oil and fuel
- 4 Checking the degree of battery charge. Cleaning the battery
- 5 Checking the operation of the coolant heater
- 6 Checking the separator for separating water from fuel

#### Fuel system
- 7 Checking the fuel level in the main tank
- 8 Checking the serviceability of the fuel transfer pump
- 9 Inspection of fuel pipelines and connections
- 10 Replacement of fuel filter

#### Cooling system
- 11 Checking the air cleaner element for sufficient air supply to the engine. If necessary, its cleaning
- 12 Inspection of the radiator from the outside, if necessary, cleaning
- 13 Checking the level of coolant (antifreeze)
- 14 Inspection of connection nozzles
- 15 Checking the belts of the battery charger generator
- 16 Coolant replacement

#### Lubrication system
- 17 Replacement of motor oil
- 18 Replacement of oil filter

#### Exhaust system
- 19 Inspection of the tightness of the connections of the exhaust system

#### Dynamo
- 20 Output voltage and frequency control
- 21 Checking the insulation for the absence of a short circuit in the windings of the generator
- 22 Checking the power circuits of the generator
23 Checking the control and control chains of the generator
24 Checking the operation of the "emergency stop" system to block the start

Automatic panel
25 Checking the control and operational chains of the panel
26 Verification of alert systems
27 Checking the control buttons
28 Inspection of automatic switchers and fuse holders

Switching equipment for automatic switching of AVR
29 Checking the control and operational chains of AVR
30 Checking the AVR power chains
31 Checking the actuation of power contactors
32 Checking the installed programming registers

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<td>3</td>
<td>Maintenance by specialists</td>
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<tr>
<td>3</td>
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<td>Air filter</td>
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