STAMFORD®

Alternator Service Guide

Introduction

Scheduled service and repair are vital to the reliable operation of your alternator and the safety of those who come in contact with it.

The service activities included in this guide are intended to maximise the life of the alternator, but will not vary, extend or change the terms of the manufacturer's standard warranty or your obligations in that warranty.

Each service interval should be used as a guide only, and developed on the basis that the alternator was installed and is operated in accordance with the manufacturer's guidelines. If the alternator is located and/or operated in adverse or unusual environmental conditions, the service intervals may need to be more frequent. The alternator should be continually monitored between service to identify any potential failure modes, signs of misuse, or excessive wear and tear.

Disclaimer

This guide contains guidance and instructions for servicing and maintenance of the alternator only.

Before operating the alternator, refer to the Installation, Service and Maintenance manual to make sure that all personnel who work on the equipment have access to the manual and all additional documentation supplied with it. Misuse and failure to follow the instructions, and the use of non-approved parts, may invalidate the product warranty and lead to potential accidents.

The manual is an essential part of the alternator and should be available to all users throughout its life.

This guide states service intervals and key components to inspect throughout the life of the alternator. Refer to the full instructions in the Installation, Service & Maintenance manual when servicing the alternator.

This guide is written for skilled electrical and mechanical technicians and engineers, who have prior knowledge and experience of generating equipment of this type. If in doubt, please seek expert advice or contact your local Cummins Generator Technologies subsidiary.

Notice

Information in this guide was correct at time of going to print. It may be superseded due to our policy of continuous improvement.

Please visit:

www.stamford-avk.com
for latest documentation.

Safety Precautions

Safety Information and Notices

Danger, Warning and Caution panels are used in this manual to describe the sources of hazards, their consequences and how to avoid injury. Notice panels emphasize important or critical instructions.

DANGER

Danger indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

WARNING

Warning indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.

CAUTION

Caution indicates a hazardous situation which, if not avoided, COULD result in minor or moderate injury.

NOTICE

Caution indicates a hazardous situation which, if not avoided, COULD result in minor or moderate injury.

General Guidance

NOTICE

These safety precautions are for general guidance and supplement your own safety procedures and all applicable laws and standards.

Skill Requirements of Personnel

Service and maintenance procedures must only be carried out by experienced and qualified engineers, who are familiar with the procedures and the equipment.

Risk Assessment

A risk assessment has been performed on this product by Cummins, however a separate risk assessment must be performed by the user/operating company to establish all personnel-related risks. All affected users must be trained on the identified risks. Access to the Power PlanUGenerator Set during operation must be restricted to persons who have been trained on these risks.

Personal Protective Equipment (PPE)

All persons operating, servicing, maintaining or working in or with a power plant or a generator set must wear appropriate Personal Protective Equipment (PPE) Recommended PPE includes:

- Ear and Eye Protection
- Head and face protection
- Safety footwear
- Overalls that protect the lower arms and legs

Ensure that all persons are fully aware of the emergency procedures in case of accidents.

Noise

⚠ WARNING

Noise from a running alternator can cause serious injury by permanent hearing damage.
To prevent injury, wear appropriate personal protection equipment (PPE).

Maximum A-weighted noise emissions depend on alternator type. Contact the supplier for application-specific details.

Electrical Equipment

DANGER

Live electrical conductors can cause serious injury or death by electric shock and burns.
To prevent injury and before removing covers over electrical conductors, isolate the generator set from all energy sources, remove stored energy and use lock out/tag out safety procedures.

All electrical equipment can be dangerous if not operated correctly. Always install, service and maintain the alternator in accordance with this manual. Work that requires access to electrical conductors must comply with all applicable local and national electrical safety procedures for the voltages involved and any site specific rules. Always use genuine branded replacement parts.

Lock Out/Tag Out

WARNING

Reconnected Energy Source
Accidental reconnection of energy sources during service and maintenance work can cause serious injury or death by electric shock, burns, crushing, severing or trapping.
To prevent injury and before starting service and maintenance work, use appropriate lock out/tag out safety procedures to keep the generator set isolated from energy sources. Do not defeat or bypass the lock out/tag out safety procedures.

Lifting

DANGER

Falling mechanical parts can cause serious injury or death by impact, crushing, severing or trapping.
To prevent injury and before lifting:

- **Check the capacity, condition and attachment of lifting equipment (crane, hoists and jacks, including attachments to anchor, fix or support the equipment).**
- **Check the capacity, condition and attachment of accessories for lifting (hooks, slings, shackles and eye bolts for attaching loads to lifting equipment).**
- **Check the capacity, condition and attachment of lifting fixtures on the load.**
- **Check the mass, integrity and stability (e.g. unbalanced or shifting center of gravity) of the load.**

WARNING

Falling mechanical parts can cause serious injury or death by impact, crushing, severing or trapping.
To prevent injury and before lifting the alternator:

- **Do not lift the complete generator set by the alternator lifting fixtures.**
- **Keep the alternator horizontal when lifting.**
- **Fit drive end and non-drive end transit fittings to single bearing alternators to keep the main rotor in the frame.**

Do not remove the lifting label attached to one of the lifting points.

Alternator Operating Areas

⚠ WARNING

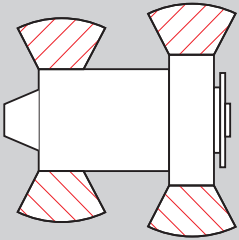
Debris ejected during catastrophic failure can cause serious injury or death by impact, severing or stabbing.

To prevent injury:

- **Keep away from the air inlet and air outlet when the alternator is running.**
- **Do not put operator controls near the air inlet and air outlet.**
- **Do not cause overheating by running the alternator outside rating plate parameters.**
- **Do not overload the alternator.**
- **Do not run an alternator with excessive vibration.**
- **Do not synchronize parallel alternators outside the specified parameters.**

Always wear suitable PPE when working in the hatched areas shown in the diagram or directly in-line with any air inlet/outlet.

Make sure this consideration is captured in your risk assessment.



Hazard Warning Labels

⚠ WARNING

Safety Cover Removed

A hazard exposed when a safety cover is removed can cause serious injury or death.

To prevent injury:

- **Fit the safety labels at the locations shown on the back of the label sheet supplied.**
- **Observe the safety labels.**
- **Refer to the service manual before removing covers.**

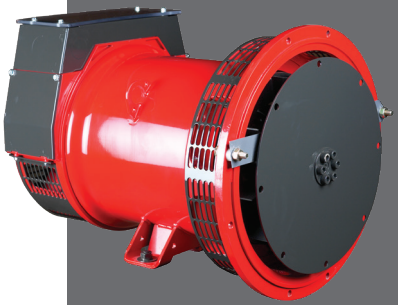
The generator set manufacturer is responsible for fitting the self-adhesive hazard warning labels supplied with the alternator.

Replace labels that are missing, damaged or painted over.

Hazard Warning Labels - continued

P0/P1
Alternator

P0/P1
Alternator



Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

P0/P1 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR set up
- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (P0/P1 test for LV)
- Insulation resistance of rotor, exciter and EBS
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer
- Connections and cabling

P0/P1 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P0/P1 test for LV)
- Insulation resistance of rotor, exciter and EBS
- Temperature sensors while alternator is running

Bearings

Inspect

- Condition of bearings

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

P0/P1 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P0/P1 test for LV)
- Insulation resistance of rotor, exciter, and EBS
- Temperature sensors while alternator is running

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

P0/P1 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P0/P1 test for LV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P0/P1 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the P0/P1 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C107 (P0/P1 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051C115 P0/P1 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit

Frame	Part Number	Description
P0/P1	45-1161	Heater Kit UL 230V
P0/P1	45-1162	Heater Kit UL 115V
P0/P1	45-1163	Heater Kit UL 24V
P0/P1	45-1164	Heater Kit UL 12V

P0/P1 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P0/P1 test for LV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and EBS

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings

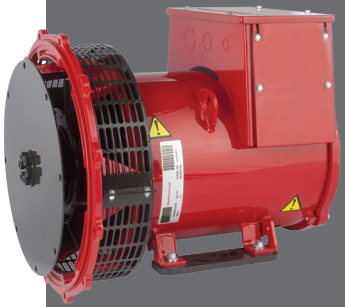
Terminal Box

Inspect

- All alternator/customer connections and cabling

S0/S1
Alternator

S0/S1
Alternator



Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

S0/S1 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- Initial AVR set up
- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S0/S1 test for LV)
- Insulation resistance of rotor, exciter and auxiliary

Bearings

Inspect

- Condition of bearings

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S0/S1 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Function of auxiliaries

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S0/S1 test for LV)
- Insulation resistance of rotor, exciter and auxiliary

Bearings

Inspect

- Condition of bearings

Cooling

Inspect

- Condition of fan

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S0/S1 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S0/S1 test for LV)
- Insulation resistance of rotor, exciter, and auxiliary
- Temperature sensors while alternator is running

Bearings

Inspect

- Condition of bearings

Cooling

Inspect

- Condition of fan

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S0/S1 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S0/S1 test for LV)

Bearings

Inspect

- Condition of bearings

Cooling

Inspect

- Condition of fan

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S0/S1 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the S0/S1 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C107 (S1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A054N489 (S0 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit

Frame	Part Number	Description
S0/S1	A054K278	Heater Kit UL 12V
S0/S1	A054K280	Heater Kit UL 24V
S0/S1	A054K282	Heater Kit UL 115V
S0/S1	A054K284	Heater Kit UL 230V

S0/S1 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S0/S1 test for LV)
- Insulation resistance of rotor, exciter and auxiliary

Bearings

Replace

- Bearings

Cooling

Inspect

- Condition of fan

Test

- Condition of Air filter

Rectifier

Replace

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

UC22/UC27
Alternator

UC22/UC27
Alternator

Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

UC22/UC27 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR set up
- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (UC22/UC27 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors
- Three phase rectifier (if fitted)

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

UC22/UC27 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (UC22/UC27 test for LV/MV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Rectifier

Inspect

- Diodes and varistors
- Three phase rectifier (if fitted)

Terminal Box

Inspect

- All alternator/customer connections and cabling

UC22/UC27 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (UC22/UC27 test for LV/MV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Rectifier

Inspect

- Diodes and varistors
- Three phase rectifier (if fitted)

Terminal Box

Inspect

- All alternator/customer connections and cabling

UC22/UC27 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (UC22/UC27 test for LV/MV
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors
- Three phase rectifier (if fitted)

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

UC22/UC27 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the UC22/UC27 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C212 (UC22 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051C216 (UC22 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit
A051C218 (UC27 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit
A051C222 (UC27 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit

Frame	Part Number	Description
UC22/UC27	A053N107	Heater Kit UL 110-125V
UC22/UC27	A053N108	Heater Kit UL 220-260V

UC22/UC27 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (UC22/UC27 test for LV/MV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings

Test

- Temperature sensors while alternator is running

Terminal Box

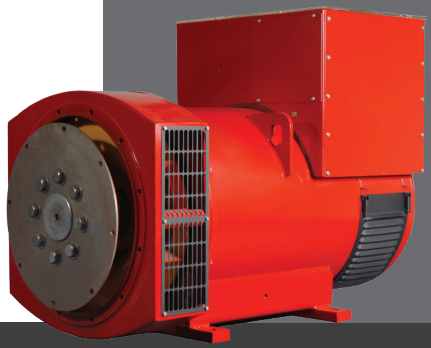
Inspect

- All alternator/customer connections and cabling

HC4/HC5/HC6

Alternator

HC4/HC5/HC6
Alternator



Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

HC4/HC5/HC6 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (HC4/HC5/HC6 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

HC4/HC5/HC6 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (HC4/HC5/HC6 test for LV/MV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

HC4/HC5/HC6 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (HC4/HC5/HC6 test for LV/MV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Test

- Temperature sensors while alternator is running

Replace

- Bearing greasee

Clean

- Grease exhaust and trap

Terminal Box

Inspect

- All alternator/customer connections and cabling

HC4/HC5/HC6 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (HC4/HC5/HC6 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Test

- Temperature sensors while alternator is running

Replace

- Bearing grease

Clean

- Grease exhaust and trap

Terminal Box

Inspect

- All alternator/customer connections and cabling

HC4/HC5/HC6 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the HC4/HC5/HC6 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Frame	Part Number	Description
HC4	A053M965	Heater Kit UL 220-260V
HC4	A053M957	Heater Kit UL 110-125V
HC5/HC6	A053N002	Heater Kit UL 220-260V
HC5/HC6	A053M968	Heater Kit Ul 110-125V

Kit Number	Contents
A051C225 (HC4 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051C230 (HC4 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit
A051C232 (HC5 1 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051Z125 (HC5 1 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Re-grease NDE Bearing Kit ■ Cartridge and Cap
A051C234 (HC5 2 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit ■ Cartridge and Cap
A051Z131 (HC5 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Regrease DE and NDE Bearing Kit ■ Cartridge and Cap
A051C237 (HC6 1 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit ■ Cartridge and Cap
A051Z133 (HC6 1 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Re-grease NDE Bearing Kit ■ Cartridge and Cap
A051C243 (HC6 2 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit ■ Cartridge and Cap
A051Z137 (HC6 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Regrease DE and NDE Bearing Kit ■ Cartridge and Cap

HC4/HC5/HC6 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of Windings

Test

- Insulation resistance of all windings (HC4/HC5/HC6 test for LV/MV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings (sealed & re-greasable
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

Terminal Box

Inspect

- All alternator/customer connections and cabling

S4/S5/S6
Alternator

S4/S5/S6
Alternator

Commission | Post Commission 6 Month Service | 1,000 Hour 1 Year Service | 10,000 Hours 2 Year Service | 30,000 Hours 5 Year Service

S4/S5/S6 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

S4/S5/S6 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S4/S5/S6 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Bearings

Test

- Temperature sensors while alternator is running

Replace

- Bearing grease

Clean

- Grease exhaust and trap

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S4/S5/S6 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Test

- Temperature sensors while alternator is running

Replace

- Bearing grease

Clean

- Grease exhaust and trap

Terminal Box

Inspect

- All alternator/customer connections and cabling

S4/S5/S6 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the S4/S5/S6 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Frame	Part Number	Description
S4	A053M965	Heater Kit UL 220-260V
S4	A053M957	Heater Kit UL 110-125V
S5/S6	A053N002	Heater Kit UL 220-260V
S5/S6	A053M968	Heater Kit UL 110-125V

Kit Number	Contents
A051C225 (HC4/S4 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051C230 (HC4/S4 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE and NDE Bearing Kit
A051C232 (HC5/ S5/S5D 1 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051Z125 (HC5 / S5 1 RE-GREASABLE Bearing 30,000 Hour Service Kit	■ Rectifier Service Kit ■ Regrease NDE Bearing Kit ■ Cartridge and Cap
A051C234 (HC5 / S5 2 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Sealed DE and NDE Bearing Kit ■ Cartridge and Cap
A051Z131 (HC5 / S5 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Regrease DE and NDE Bearing Kit ■ Cartridge and Cap
A051C237 (HC6/S6/S6L1D G-H Core 1 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Sealed DE and NDE Bearing Kit ■ Cartridge and Cap
A051C243 (HC6/S6/S6L1D G-H Core 2 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Sealed DE and NDE Bearing Kit ■ Cartridge and Cap
A059R029 (S6L1D C-F Core 2 SEALED Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Sealed DE and NDE Bearing Kit ■ Cartridge and Cap
A051Z133 (HC6/S6 1 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Regrease NDE Bearing Kit ■ Cartridge and Cap
A051Z137 (HC6/S6 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Regrease DE and NDE Bearing Kit ■ Cartridge and Cap

S4/S5/S6 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of Windings

Test

- Insulation resistance of all windings
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings (sealed & re-greasable
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

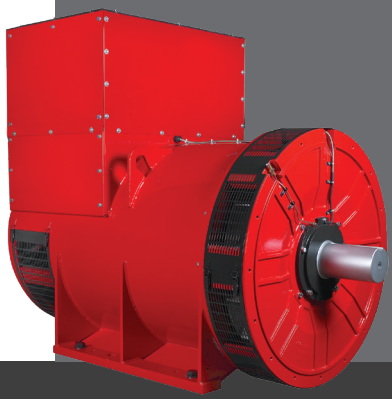
Terminal Box

Inspect

- All alternator/customer connections and cabling

P7
Alternator

P7
Alternator



Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

P7 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

P7 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P7 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P7 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P7 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the P7 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C251 (P7/S7 LV & S7 HV 1 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit ■ Cartridge and Cap
A051Z145 (P7/S7 LV & S7 HV 1 SEALED Bearing 30,000 HourService Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit ■ Cartridge and Cap
A051C255 (P7 A-E core/S7 LV C-F core 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE Bearing Kit ■ Cartridge and Cap
A051C257 (P7 F-G core/S7 LV G-J core & S7 HV G-J core 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE Bearing Kit ■ Cartridge and Cap

Frame	Part Number	Description
P7 A-F	A053N003	Heater Kit UL 220-260V
P7 A-F	A053M969	Heater Kit UL 110-125V
P7 G-H	A053N109	Heater Kit UL 220-260V
P7 G-H	A053M999	Heater Kit UL 110-125V

P7 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings (Sealed & re-greasable)
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

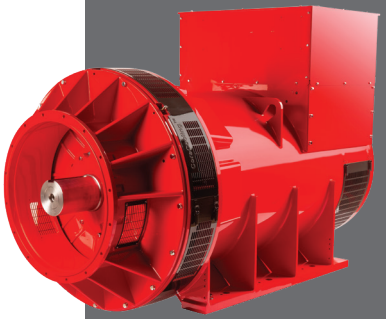
Terminal Box

Inspect

- All alternator/customer connections and cabling

S7
Alternator

S7
Alternator



Commission	Post Commission 6 Month Service	1,000 Hour 1 Year Service	10,000 Hours 2 Year Service	30,000 Hours 5 Year Service

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

S7 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S7 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Rectifier

Inspect

- Diodes and varistors

Terminal Box

Inspect

- All alternator/customer connections and cabling

S7 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P7 test for LV/MV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and varistors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S7 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the S7 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C251 (P7/S7 LV & S7 HV 1 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit ■ Cartridge and Cap
A051Z145 (P7/S7 LV & S7 HV 1 SEALED Bearing 30,000 HourService Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit ■ Cartridge and Cap
A051C255 (P7 A-E core/S7 LV C-F core 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE Bearing Kit ■ Cartridge and Cap
A051C257 (P7 F-G core/S7 LV G-J core & S7 HV G-J core 2 RE-GREASABLE Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ DE Bearing Kit ■ Cartridge and Cap

Frame	Part Number	Description
S7 C-G	A053N003	Heater Kit UL 220-260V
S7 C-G	A053M969	Heater Kit UL 110-125V
S7 H-J	A053N109	Heater Kit UL 220-260V
S7 H-J	A053M999	Heater Kit UL 110-125V
S7 HV	A053M999 A064T028	Heater Kit UL 110V Heater Kit UL 240V

S7 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (S7 test for LV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and varistors

Bearings

Replace

- Bearings (Sealed & re-greasable)
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

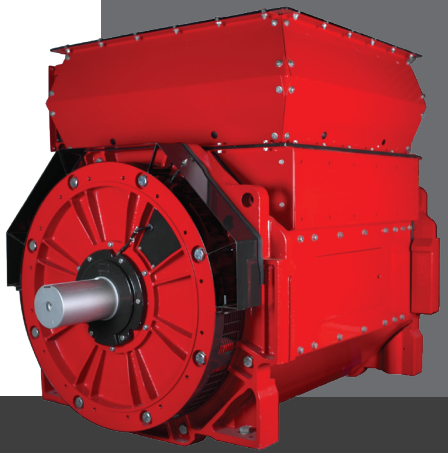
Terminal Box

Inspect

- All alternator/customer connections and cabling

P80
Alternator

P80
Alternator



Commission

Post Commission
6 Month Service

1,000 Hour
1 Year Service

10,000 Hours
2 Year Service

30,000 Hours
5 Year Service

P80 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

P80 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P80 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P80 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

P80 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the P80 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A051C282 (P80 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A051C285 (P80 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Bearing Kit Frame R, S, & T
A051C291 (P80 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Bearing Kit Frame X, Y, & Z

Frame	Part Number	Description
P80	45-1029	Heater Kit UL

P80 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and surge suppressors

Bearings

Replace

- Bearings (sealed & re-greasable)
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

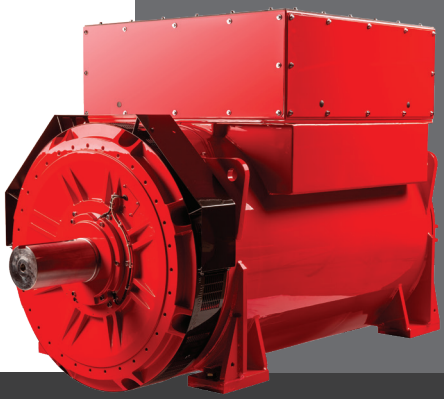
Terminal Box

Inspect

- All alternator/customer connections and cabling

S9
Alternator

S9
Alternator



Commission	Post Commission 6 Month Service	1,000 Hour 1 Year Service	10,000 Hours 2 Year Service	30,000 Hours 5 Year Service

S9 Alternator

Commission

Alternator

Inspect

- Alternator rating
- Bedplate arrangement
- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts and earth bonds
- Guards, screens, warning and safety labels
- Maintenance access

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Synchronisation settings

Test

- Initial AVR and PFC set up
- AVR and PFC settings settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Air flow (rate and direction while alternator is running)
- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings
- Customer settings for temperature sensors

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings
- Customer settings for temperature sensors

Test

- Temperature sensors while alternator is running

Terminal Box

Inspect

- All alternator/customer connections and cabling

S9 Alternator

Post Commission 250 Hours/6 Months

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Insulation resistance of rotor, exciter and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S9 Alternator

1,000 Hours/1 Year Service

Alternator

Inspect

- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Insulation resistance of rotor, exciter, and PMG
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S9 Alternator

10,000 Hours/2 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Inspect

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Clean

- Air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running

Rectifier

Inspect

- Diodes and surge suppressors

Bearings

Inspect

- Condition of bearings

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust and trap (Re-greasable bearings only)

Replace

- Grease for re-greasable bearings

Terminal Box

Inspect

- All alternator/customer connections and cabling

S9 Alternator 30,000 Hours/5 Year Service Kits

For the 30,000 hour service interval we recommend replacing several components in order to optimise the alternator's performance.

For the S9 alternator, the kits detailed in this table contain all parts necessary to execute the maintenance and repairs.

Kit Number	Contents
A065P433 (S9 1 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ NDE Bearing Kit
A065P434 (S9 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Bearing Kit Frame A - D
A065P435 (S9 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Bearing Kit Frame E - F
A065P436 (S9 2 Bearing 30,000 Hour Service Kit)	■ Rectifier Service Kit ■ Bearing Kit Frame G - H

Frame	Part Number	Description
S9	A059S757	F9 Heater Kit

S9 Alternator

30,000 Hours/5 Year Service

Alternator

Inspect

- Coupling arrangement
- Environmental conditions and cleanliness
- Complete machine damage, loose parts, and earth bonds
- Guards, screens, warning and safety labels

Test

- Ambient temperature (inside and outside)
- Electrical nominal operating conditions and excitations while alternator is running
- Vibration while alternator is running

Controls and Auxiliaries

Replace

- Anti condensation heater

Test

- AVR and PFC settings while alternator is running
- Customer connections of auxiliaries
- Function of auxiliaries
- Synchronisation while alternator is running

Cooling

Inspect

- Condition of fan

Test

- Condition of air filter

Windings

Inspect

- Condition of windings

Test

- Insulation resistance of all windings (P80 test for MV/HV)
- Temperature sensors while alternator is running
- Insulation resistance of rotor, exciter and PMG

Rectifier

Replace

- Diodes and surge suppressors

Bearings

Replace

- Bearings (sealed & re-greasable)
- Bearing grease

Test

- Temperature sensors while alternator is running

Clean

- Grease exhaust & trap (re-greasable bearings only)

Terminal Box

Inspect

- All alternator/customer connections and cabling

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