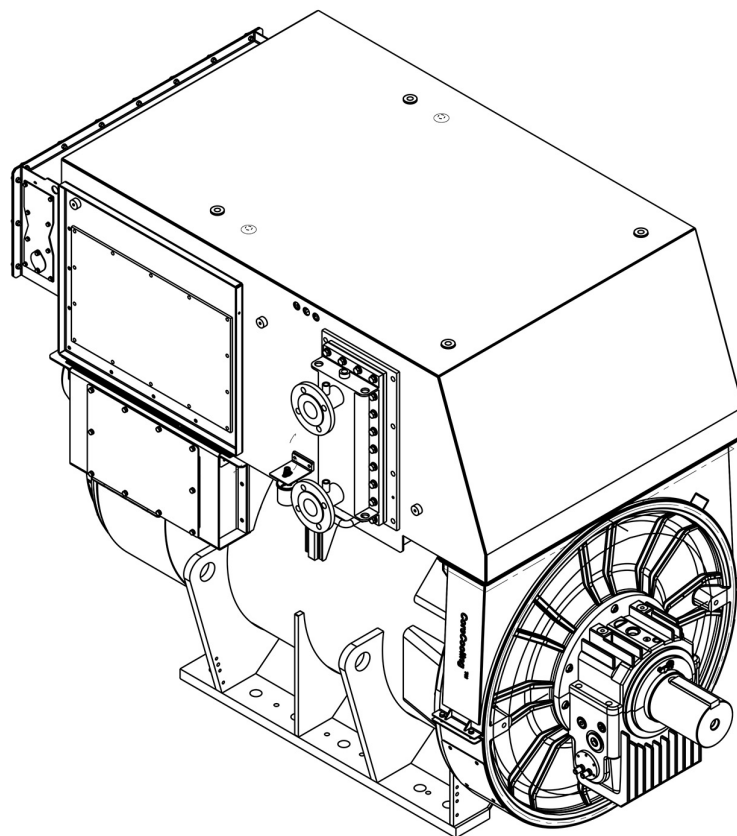


Water Coolers and Sleeve Bearings

# ADDENDUM TO OWNER MANUAL STAMFORD | AVK™ ALTERNATORS





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# 1 Foreword

## 1.1 General

This document is an important guide to the intended use and operation of the product(s) detailed on the front cover. Read the information and procedures in this document. The information and procedures must be obeyed at all times, failure to obey the information and procedures can be considered misuse and can lead to injury, loss or damage to personnel or equipment.

**TABLE 1. COMPANY ADDRESSES**

Company and European Authorized Representative Addresses	
Cummins Generator Technologies Fountain Court Lynch Wood Peterborough PE2 6FZ United Kingdom	Cummins Generator Technologies Bvd. Decebal 116A Craiova, Dolj 200746 Romania

## 1.2 Legal

The alternator is the intellectual property of Cummins Generator Technologies LTD (also referred to as 'CGT' or 'the manufacturer' or by the brand names 'STAMFORD®' or 'AvK®' within this manual).

STAMFORD®, AvK® and STAMFORD VITA™, MX321™ and MX322™ are registered trademarks of Cummins Generator Technologies LTD. All rights to the alternator, the principle of the machine, the related drawings etc. lie with Cummins Generator Technologies LTD and are subject to copyright law. Copying is only permitted with prior written approval. Copyright Cummins Generator Technologies. All Rights reserved. Cummins and the Cummins logo are registered trademarks of Cummins Inc.

## 1.3 The Manual

This addendum manual contains supplementary guidance and instructions for the installation, operation, servicing and maintenance of optional equipment and components.

Before installing, operating, servicing or repairing the equipment, read this manual and read the original manual(s) that were supplied with the equipment. Make sure that all personnel who work on the equipment have access to this manual, the original equipment manuals(s) and all related documentation supplied with the equipment. Misuse, failure to obey the instructions or use of non-approved parts, may invalidate the product warranty and lead to loss injury or damage.

This manual is an essential part of the equipment. Make sure that the manual is available to all applicable personnel throughout the life of it.

The manual is written for skilled electrical and mechanical technicians and engineers, who have prior knowledge and experience of equipment of this type. If in doubt, contact your local CGT subsidiary.

### NOTICE

Information in this manual was correct when published. It may be superseded due to our policy of continuous improvement. Visit [www.stamford-avk.com](http://www.stamford-avk.com) for the latest documentation.

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## 1.4 Manual Languages

The manuals for this product are available in the languages shown below, which can be found on the STAMFORD | AvK™ website: [www.stamford-avk.com](http://www.stamford-avk.com).

**TABLE 2. WATER COOLED / SLEEVE BEARING ADDENDUM MANUAL LANGUAGES**

Language, Manual Type and Document Part Number		
Arabic (ar-sa)	Addendum	A072Y751
German (de-de)	Addendum	A072Y715
English (en-us)	Addendum	A072V518
Spanish (es-es)	Addendum	A072Y694
French (fr-fr)	Addendum	A072Y711
Italian (it-it)	Addendum	A072Y716
Japanese (ja-jp)	Addendum	A072Y753
Polish (pl-pl)	Addendum	A072Y750
Portuguese (pt-pt)	Addendum	A072Y717
Russian (ru-ru)	Addendum	A072Y747
Swedish (sv-se)	Addendum	A072Y743
Chinese (zh-cn)	Addendum	A072Y746

## 2 Safety Precautions


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### 2.1 Safety Information and Notices used in this Manual

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

 <b>DANGER</b>
<i>Danger indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.</i>

 <b>WARNING</b>
<i>Warning indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.</i>

 <b>CAUTION</b>
<i>Caution indicates a hazardous situation which, if not avoided, COULD result in minor or moderate injury.</i>

<b>NOTICE</b>
Notice refers to a method or practice which can result in product damage, or to draw attention to additional information or explanations.

### 2.2 General Guidance

- These safety precautions are for general guidance. The information is intended to supplement your own safety procedures and applicable rules, laws and regulations.

### 2.3 Training and Skill Requirements for Personnel

Operation, installation, service and maintenance tasks and/or procedures can only be done by personnel, who:

- Have completed related, applicable and approved training.
- Know the equipment, understand the task(s) and procedure(s) and know the related hazards / risks.
- Know and obey site / location specific emergency procedures and applicable laws and regulations.

### 2.4 Risk Assessment

- The installer / operator / service / maintenance company must do a risk assessment to establish all related hazards and risks.
- During operation, access to the alternator must be restricted to personnel who are trained and who know all relevant hazards and risks. Refer to: [Section 2.3 on page 3](#).

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## 2.5 Personal Protective Equipment (PPE)

Personnel who install, operate, service or maintain the alternator must:

- Have access to the minimum recommended protective equipment (refer to the figure below). The protective equipment must be approved for the task or procedure.
- Know how to correctly use protective equipment, refer to: [Section 2.3 on page 3](#)
- Use protective equipment as directed by the risk assessment, refer to: [Section 2.4 on page 3](#).



FIGURE 1. MINIMUM RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE)

## 2.6 Tools and Equipment

All personnel must know how to use tools and equipment safely, refer to: [Section 2.3 on page 3](#).

All tools and equipment used, must be:

- Suitable for the task and procedure.
- Electrically insulated (not below the alternator output voltage), refer to: [Section 2.4 on page 3](#).
- In a serviceable condition for safe use.
- Included within the risk assessment, refer to: [Section 2.4 on page 3](#).

## 2.7 Safety Information Signs

Safety information signs are provided on the equipment to indicate hazards and emphasize instructions. Before operating the equipment:

- Personnel must know and understand alternator safety information signs and the associated hazards / risks.



FIGURE 2. EXAMPLE SAFETY INFORMATION SIGNS

Safety information signs vary depending on alternator specification.



## 2.8 Danger, Warning and Caution Notices

### DANGER

#### ***Falling Mechanical Parts***

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

- ***Check the capacity, condition and attachment of lifting equipment.***
- ***Check the capacity, condition and attachment of accessories for lifting.***
- ***Check the capacity, condition and attachment of lifting point(s) on the load.***
- ***Check the mass, integrity and stability of the load.***
- ***If available: Install drive end and non-drive end transit fittings to prevent movement and damage to bearings.***
- ***Keep the alternator horizontal when lifting.***
- ***Do not use alternator lifting points for lifting a complete generator set.***
- ***Do not use cooler lifting points for lifting the alternator or a complete generator set.***
- ***Do not remove the lifting label attached to one of the lifting points.***

### DANGER

#### ***Testing on Rotating Mechanical Parts***

***Rotating mechanical parts can cause serious injury or death by crushing, severing and trapping. To prevent injury and before removing safety covers for testing:***

- ***Take applicable precautions to prevent contact with uncovered rotating mechanical parts, refer to Safety Precautions Chapter.***
- ***Test on or near uncovered rotating mechanical parts, only if absolutely necessary.***
- ***Do not test on or near uncovered rotating mechanical parts alone: Additional personnel must be present, who know how to isolate energy sources and take action in an emergency.***

### WARNING

#### ***Coupling an Alternator***

***Moving mechanical parts during coupling can cause serious injury by crushing, severing or trapping. When coupling the alternator to a prime-mover or when installing large components, to prevent injury:***

- ***Personnel must keep limbs and body parts away from coupling surfaces during coupling and/or installing operations.***

### CAUTION

#### ***Hazardous Substances***

***Hazardous substances can cause minor or moderate injury. Prolonged or repetitive exposure to hazardous substances can cause serious medical conditions. To prevent injury:***

- ***Always read and obey the instructions provided by the product manufacturer.***
- ***Use, handle and store substances as specified by the product manufacturer.***
- ***Always wear appropriate personal protective equipment, refer to Safety Precautions Chapter.***

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## 3 Introduction

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### 3.1 Addendum Manual

This is an addendum to the original owner manual.

Read and obey with this manual and the original Owner and/or Installation, Service and Maintenance (ISM) manuals for the alternator and alternator prime-mover before:

- Installing, operating servicing or repairing the alternator.
- Installing / uninstalling a water cooler on the alternator.
- Installing / replacing a sleeve bearing.

### 3.2 Optional Components

This manual is written to provide information for STAMFORD | AvK™ alternators that include optional:

- Air-water coolers.
- Sleeve bearings.

Read and obey the manuals and technical information provided by the original manufacturer of the optional component(s), which will include:

- Safety information.
- Operating, maintenance and servicing information and procedures.
- Transportation information and procedures.
- Storage information and procedures.

#### NOTICE

Failure to obey the information from the original component manufacturer(s) can invalidate warranty and/or cause injury, loss or damage.

### 3.3 Low Voltage Ingress Protection

#### DANGER

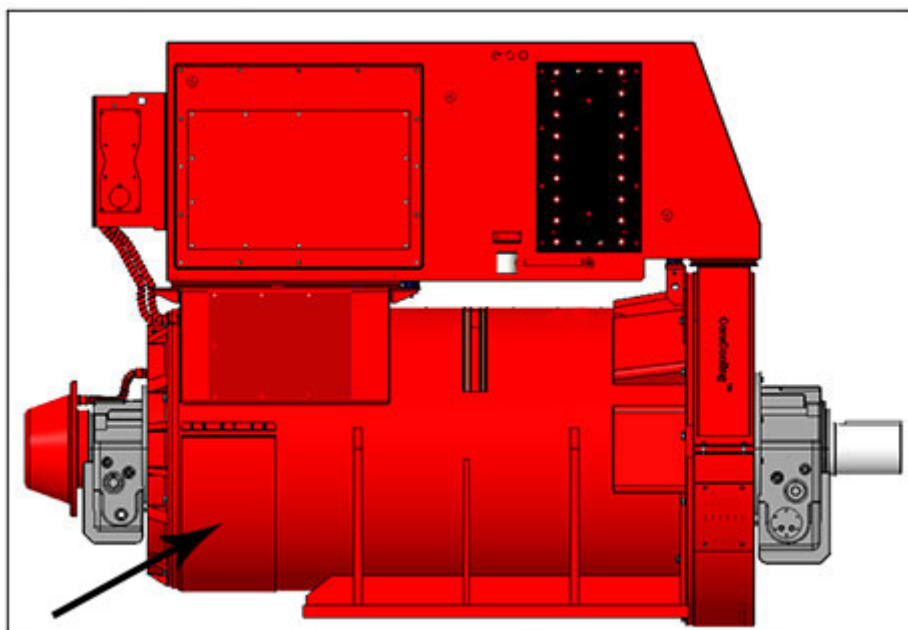
##### ***Testing on Rotating Mechanical Parts***

***Rotating mechanical parts can cause serious injury or death by crushing, severing and trapping. To prevent injury and before removing safety covers for testing:***

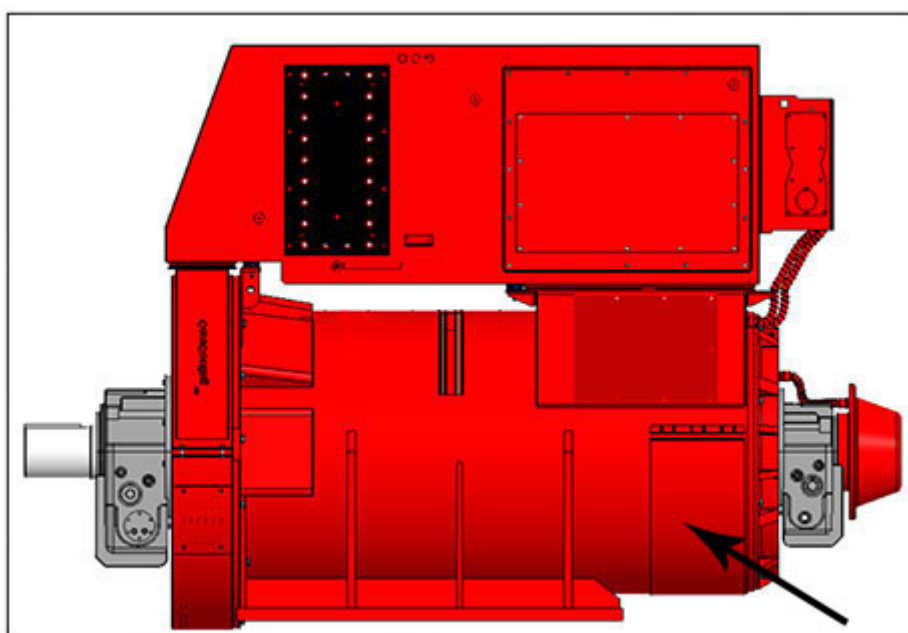
- ***Take applicable precautions to prevent contact with uncovered rotating mechanical parts, refer to Safety Precautions Chapter.***
- ***Test on or near uncovered rotating mechanical parts, only if absolutely necessary.***
- ***Do not test on or near uncovered rotating mechanical parts alone: Additional personnel must be present, who know how to isolate energy sources and take action in an emergency.***

For low voltage alternators ordered with a water cooler or sleeve bearing, the alternator has an ingress protection rating of either IP44 or IP54. The ingress protection is related to the specification and application of the alternator.

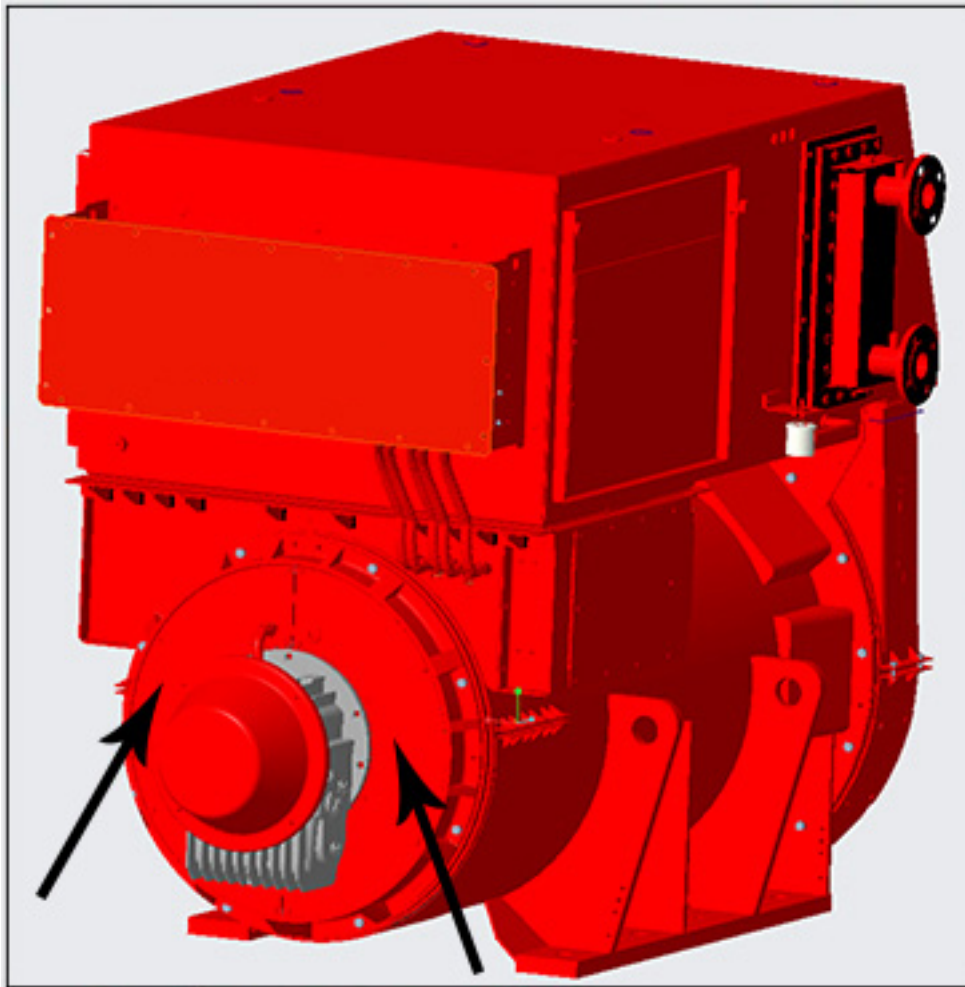
- Do not remove the access panels identified in the images below. Removing the access panels will affect the ingress protection level.
- If the panels must be removed for maintenance tasks, make sure the panels are re-installed before operating the alternator.
- Do not carry out modification work the body of the alternator/cooler that requires drilling/cutting additional holes. Modifications can affect the level ingress protection offered and/or the equipment warranty.
- If the body of the alternator/cooler must be modified by drilling or cutting additional holes, before starting modification work, contact STAMFORD | AvK™ customer services: [www.stamford-avk.com](http://www.stamford-avk.com).



**FIGURE 3. LEFT HAND SIDE ACCESS PANEL**



**FIGURE 4. RIGHT HAND SIDE ACCESS PANEL**



**FIGURE 5. NON DRIVE END ACCESS PANEL**

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## 4 Lifting, Storage and Transportation

### 4.1 Lifting Safety

#### **⚠ DANGER**

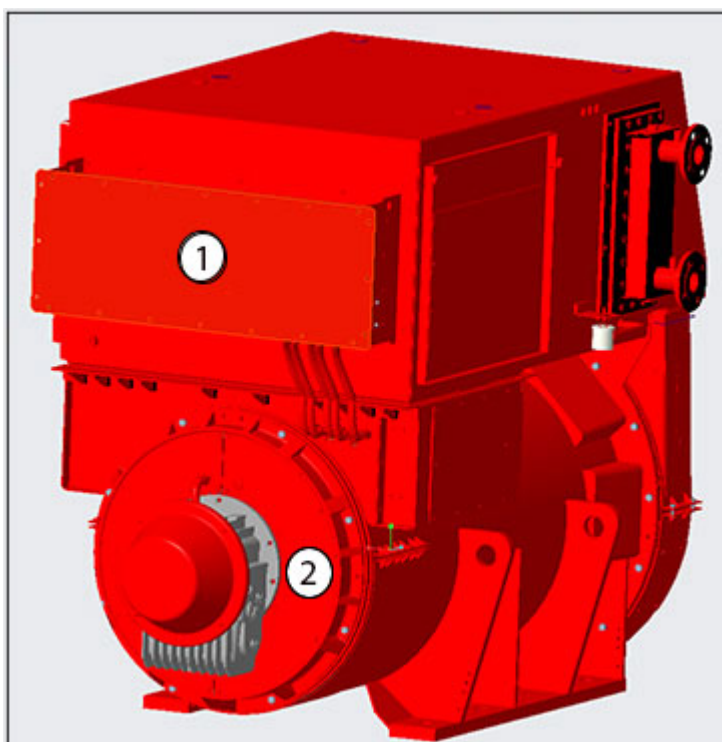
##### ***Falling Mechanical Parts***

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

- ***Check the capacity, condition and attachment of lifting equipment.***
- ***Check the capacity, condition and attachment of accessories for lifting.***
- ***Check the capacity, condition and attachment of lifting point(s) on the load.***
- ***Check the mass, integrity and stability of the load.***
- ***If available: Install drive end and non-drive end transit fittings to prevent movement and damage to bearings.***
- ***Keep the alternator horizontal when lifting.***
- ***Do not use alternator lifting points for lifting a complete generator set.***
- ***Do not use cooler lifting points for lifting the alternator or a complete generator set.***
- ***Do not remove the lifting label attached to one of the lifting points.***

For alternators fitted with Heng Qiang air-water coolers:

- If the automatic voltage regulator is mounted to the non-drive end, the automatic voltage regulator box (1) must be removed and disconnected before removing and lifting the non-drive end bracket (2). Refer to the figure below.

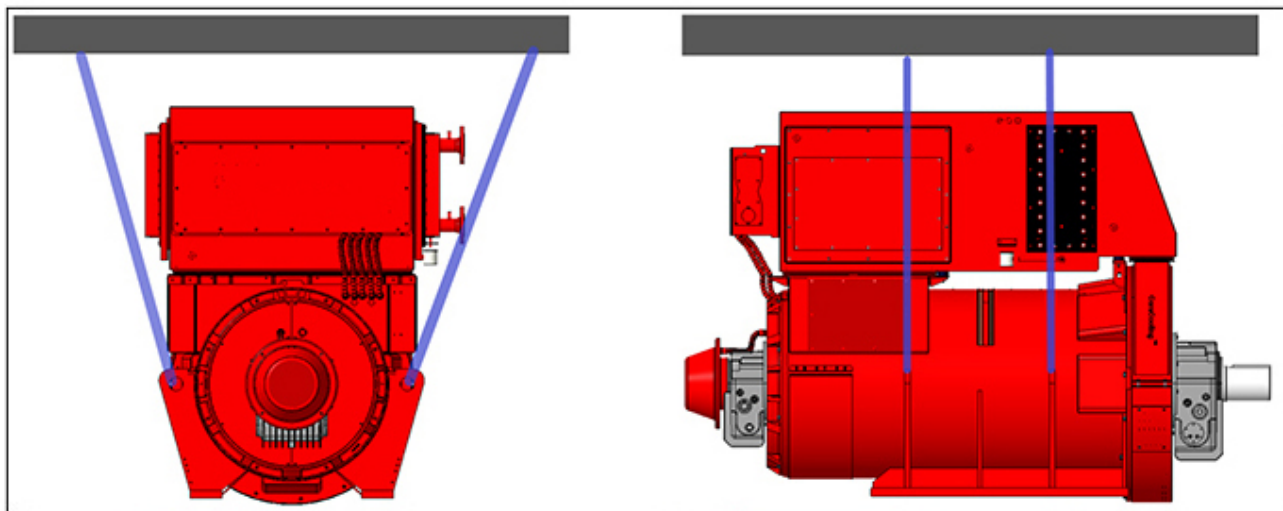


**FIGURE 6. AUTOMATIC VOLTAGE REGULATOR MOUNTED TO NON-DRIVE END**

The recommended lifting method for lifting an alternator fitted with a water cooler is using the four integrated lifting lugs and an appropriate lifting frame and lifting chains/straps.

The lifting chains/straps must be fitted between the lifting frame and alternator. The alternator must be kept horizontal when lifting.

Do not lift an alternator fitted with a water cooler using a two point lift method. Refer to the figure below for examples of the four point lifting method.



**FIGURE 7. CORRECT FOUR POINT LIFTING METHOD**

## 4.2 General Transport Guidance

Alternators vary in shape, size, weight, and center of gravity. For product information, refer to the general arrangement drawing, lifting label and transport information supplied with the alternator.

Before loading a vehicle, transporting a load and/or unloading a vehicle:

- Obey applicable rules and regulations relating to transport operations at all times.
- Make sure a sufficient number of applicably configured restraints are used to lash down/secure an alternator to a vehicle.
- Do not position lashing down/securing restraints on or over sensitive components that can be damaged by the restraint.
- Do not position lashing down/securing restraints on paintwork or information/warning labeling. Protect these areas if restrains must be placed over them.
- Before transportation or storage, apply an anti-corrosion agent to exposed machined surfaces.
- Before transportation or storage, cover exposed connection points with a sufficient cover, cap or packaging material.
- Before transportation or storage, if necessary, protect bearings from vibration using anti-vibration pads. Do not transport unprotected alternators over an uneven surface.
- Alternators should be supplied on a transport frame if necessary.
- Bearings should be protected from damage by using a transportation lock (if available) when necessary. If a transport lock is supplied with the bearing/alternator it must be installed before transportation.
- Bearings must be protected from corrosion using an applicable anti-corrosion agent.
- Read and obey industry best practice guidance.
- Consult with a transport specialist for advice if necessary.



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## 4.3 Transporting Alternators With Coolers

### NOTICE

When lifting, transporting and/or storing STAMFORD | AvK™ alternators with optional air-air or air-water coolers, refer to the manuals and technical information provided by the cooler manufacturer. If the information is missing, contact STAMFORD | AvK™ customer services for additional information: [www.stamford-avk.com](http://www.stamford-avk.com).

Minimum recommendations:

- Refer to the manuals and technical information for air-water coolers or contact STAMFORD | AvK™ customer services: [www.stamford-avk.com](http://www.stamford-avk.com).
- Refer to: [Section 4.2 on page 12](#)
- Do not use the lifting points on the cooler to lift the alternator.
- Protect the cooler from damage and/or corrosion as necessary.
- Drain the cooler (if applicable) before lifting, transport or storage.

## 4.4 Transporting Alternators With Sleeve Bearings

### NOTICE

When transporting and/or storing STAMFORD | AvK™ alternators with optional sleeve bearings, refer to the manuals and technical information provided by the sleeve bearing manufacturer or contact STAMFORD | AvK™ customer services for more information: [www.stamford-avk.com](http://www.stamford-avk.com).

Minimum recommendations:

- Refer to the manuals and technical information for the sleeve bearings or contact STAMFORD | AvK™ customer services for more information: [www.stamford-avk.com](http://www.stamford-avk.com).
- Before transporting, drain the oil from the sleeve bearing. Refer to the figure in: [Section 8.3.1 on page 25](#) for the location of the sleeve bearing oil fill/level/drain points.
- Protect the sleeve bearing from damage and/or corrosion as necessary. Refer to: [Section 4.2 on page 12](#)

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# 5 Installation

## 5.1 Installing an Air-Water Cooler

### NOTICE

Before installing an air-water cooler on to the alternator:

- Read and obey instructions in the alternator manual(s) and this addendum manual.
- For additional information, refer to the parts diagram and the parts list/torque setting table in [Section 9.1 on page 27](#).
- Remove corrosion protection and/or drying agents from components using an applicable method. For waste disposal, refer to the End of Life Disposal Chapter in the alternator manual.
- Remove air-water cooler from packaging and dispose of packaging. For packaging disposal, refer to the End of Life Disposal Chapter in the alternator manual .

### DANGER

#### ***Falling Mechanical Parts***

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

- ***Check the capacity, condition and attachment of lifting equipment.***
- ***Check the capacity, condition and attachment of accessories for lifting.***
- ***Check the capacity, condition and attachment of lifting point(s) on the load.***
- ***Check the mass, integrity and stability of the load.***
- ***If available: Install drive end and non-drive end transit fittings to prevent movement and damage to bearings.***
- ***Keep the alternator horizontal when lifting.***
- ***Do not use alternator lifting points for lifting a complete generator set.***
- ***Do not use cooler lifting points for lifting the alternator or a complete generator set.***
- ***Do not remove the lifting label attached to one of the lifting points.***

### WARNING

#### ***Coupling an Alternator***

***Moving mechanical parts during coupling can cause serious injury by crushing, severing or trapping. When coupling the alternator to a prime-mover or when installing large components, to prevent injury:***

- ***Personnel must keep limbs and body parts away from coupling surfaces during coupling and/or installing operations.***

**⚠ CAUTION**

**Hazardous Substances**

**Hazardous substances can cause minor or moderate injury. Prolonged or repetitive exposure to hazardous substances can cause serious medical conditions. To prevent injury:**

- **Always read and obey the instructions provided by the product manufacturer.**
- **Use, handle and store substances as specified by the product manufacturer.**
- **Always wear appropriate personal protective equipment, refer to Safety Precautions Chapter.**

**Air-Water Cooler Installation Procedure**

The tools and equipment needed to install the water cooler are:

- A crane / hoist with sufficient lifting capacity for the load.
- Lifting accessories such as support stands, shackles, slings or lifting chains etc. with sufficient lifting capacity for the load.
- 13 mm & 17 mm sockets and spanners.
- Torque wrench (50 Nm).
- Protective equipment as per risk assessment. Refer to: [Chapter 2 on page 3](#).

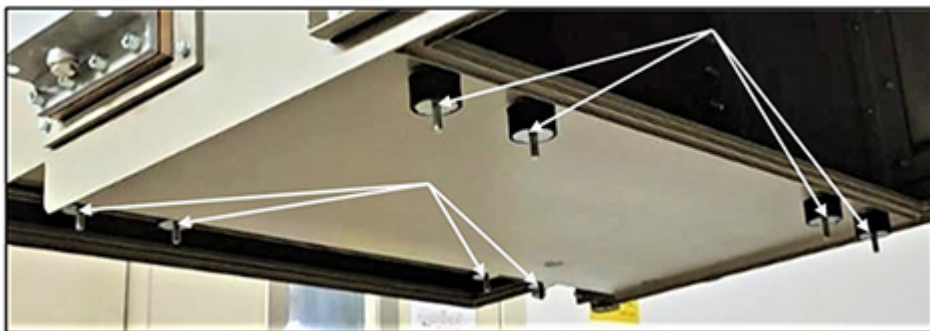
**Installing the air-water cooler on the alternator.**

Install the anti-vibration mounts on the air-water cooler:

1. Lift the water cooler using a suitable crane.
2. Add 1 x 6 mm thick flat washer to the top each of 8 x anti-vibration mounts (refer to [Figure 8 on page 16](#)).
3. Screw the anti-vibration mount, complete with 6 mm washer, in the threaded holes on the underside of the air-water cooler (refer to [Figure 9 on page 17](#)). The washers must be fitted between the anti-vibration mounts and the water cooler.
4. Do not work under an unsupported load. Support the air-water cooler with a suitable stand if access to the underside is required.



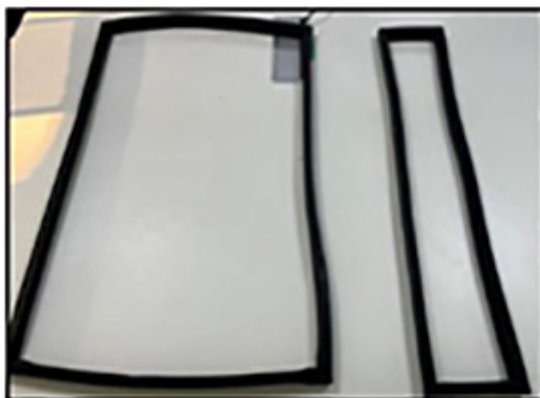
**FIGURE 8. FLAT WASHER FITTED TO TOP OF ANTI-VIBRATION MOUNT**



**FIGURE 9. 8 X ANTI-VIBRATION MOUNTS INCLUDING 6 MM WASHERS FITTED TO UNDERSIDE OF WATER COOLER.**

**Install the gaskets on the air-water cooler:**

1. Remove the film from the self-adhesive strip on each of the gaskets.
2. Fit the self-adhesive gaskets to the corresponding channels on the underside of the air-water cooler (refer to the figures below). Each water cooler requires 1 x large gasket and 1 x small gasket.
3. Do not work under an unsupported load. Support the air-water cooler with a suitable stand if access to the underside is required.



**FIGURE 10. GASKET SET**

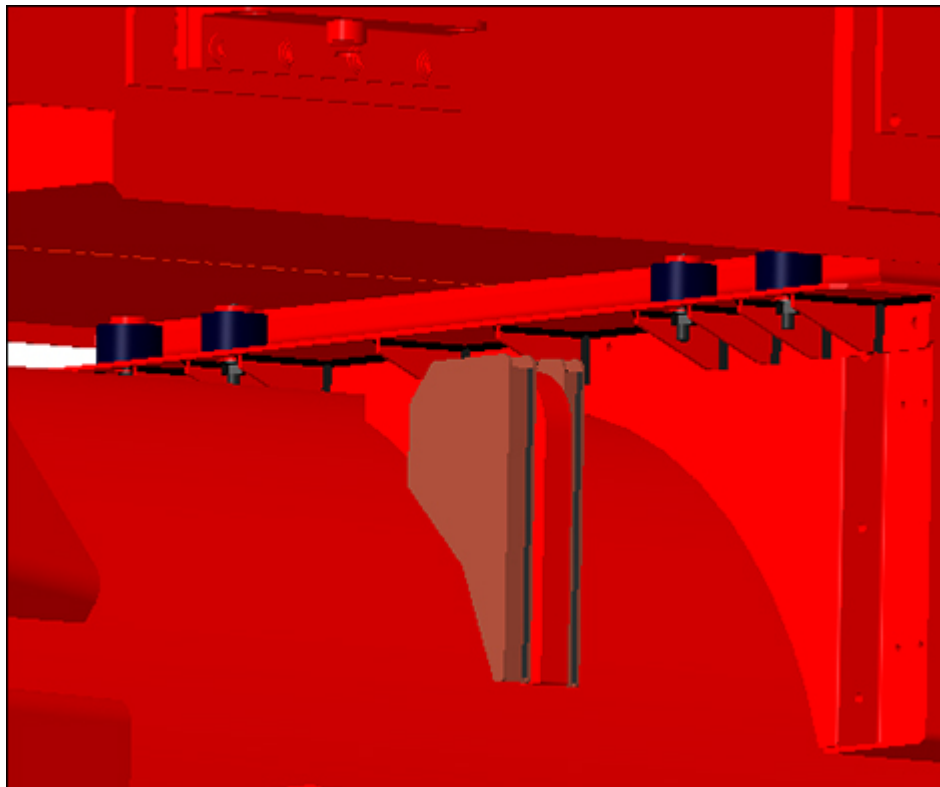


**FIGURE 11. FITTED GASKET**

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#### **Mounting the water cooler on the alternator:**

1. Using the crane/hoist, position the water cooler over the alternator. Align the anti-vibration mount studs with the holes on the water cooler support plate on the alternator (refer to [Figure 12 on page 18](#)).
2. Lower the water cooler into position.
3. Secure the water cooler to the alternator using: 8 x spring washers, 8 x flat washers and 8 x M10 nuts.
4. Torque the M10 nuts to 50 Nm.



**FIGURE 12. WATER COOLER LOWERED IN TO POSITION**

#### **Fit the ground wire between the water cooler and the alternator:**

1. Using the M8 bolt in the lower left corner of the rear panel of the water cooler, secure the ground wire between the water cooler and the alternator. Torque to 28 Nm (refer to [Figure 13 on page 19](#)).
2. The water cooler installation on the alternator is now complete.
3. Connect the water cooler to the cooling system and check for leaks and correct operation.



FIGURE 13. GROUND WIRE

## 5.2 Installing a Sleeve Bearing

### ⚠ WARNING

#### ***Coupling an Alternator***

***Moving mechanical parts during coupling can cause serious injury by crushing, severing or trapping. When coupling the alternator to a prime-mover or when installing large components, to prevent injury:***

- ***Personnel must keep limbs and body parts away from coupling surfaces during coupling and/or installing operations.***

### ⚠ CAUTION

#### ***Hazardous Substances***

***Hazardous substances can cause minor or moderate injury. Prolonged or repetitive exposure to hazardous substances can cause serious medical conditions. To prevent injury:***

- ***Always read and obey the instructions provided by the product manufacturer.***
- ***Use, handle and store substances as specified by the product manufacturer.***
- ***Always wear appropriate personal protective equipment, refer to Safety Precautions Chapter.***

The alternator will be supplied from the factory with the sleeve bearing installed. If the sleeve bearing must be replaced throughout the service-life of the alternator:

- Read the installation information supplied by the sleeve bearing manufacturer.
- Remove the sleeve bearing(s) from packaging and dispose of packaging. For packaging disposal, refer to: Alternator manual End of Life Disposal Chapter.
- Remove corrosion protection and/or drying agents from components using an applicable method. For waste disposal, refer to: Alternator manual End of Life Disposal Chapter.

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Before coupling the alternator to a prime mover:

- Check the sleeve bearing oil level, fill with the correct volume/type of oil. Refer to: [Section 6.3 on page 22](#)

For information and guidance on re-coupling the alternator to the prime-mover, refer to:

- The technical information and manuals for the alternator.
- The technical information and manuals for the prime mover.
- The technical information and manuals for the sleeve bearing.



# 6 Commissioning and Starting

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## 6.1 General

Before commissioning and/or starting a STAMFORD | AvK™ alternator:

Obey applicable rules, laws and regulations when installing/commissioning an alternator/generator set.

Read and obey:

1. The technical information applicable to the electrical installation and/or grid connection.
2. The alternator Owner Manual.
3. The alternator Installation, Service and Maintenance (ISM) Manual.
4. The manual and technical information relating to the prime-mover.
5. Check alternator and prime-mover for leaks/ damage.
6. Check alternator electrical connections, grid and/or earth connections as necessary. Refer to the alternator ISM Manual and installation/grid technical information.
7. Make sure there is no servicing and/or repair ongoing that could affect the operation of the alternator/generator-set.

During commissioning/starting and if a fault is detected such as leaks, raised temperatures, noise or excessive vibration:

- Shut down the alternator.
- Isolate energy sources. Use lock out tag out procedures, refer to: Alternator manual Safety Precautions Chapter.
- Investigate and identify the fault.
- Do not operate the alternator until the fault has been repaired and the alternator is in a safe and serviceable condition.

## 6.2 Air-Water Cooler

Before commissioning and/or starting the air-water cooler, refer to 'Before use/commissioning' information in the air-water cooler manual.

Minimum recommended before use/commissioning checks are:

1. Fill the air-water cooler with cooling fluid.
2. To prevent air-locks, make sure excess air is removed from the system.
3. Check the air-water cooler for leaks/damage.
4. Check the air-water cooler connection(s) to the cooling fluid circuit for correct connection.
5. Check the cooling circuit for leaks/damage and correct operational.
6. Make sure there is no servicing and/or repair ongoing that could affect the operation of the air-water cooler and/or the cooling fluid circuit.

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## 6.3 Sleeve Bearing

### CAUTION

#### ***Hazardous Substances***

***Hazardous substances can cause minor or moderate injury. Prolonged or repetitive exposure to hazardous substances can cause serious medical conditions. To prevent injury:***

- ***Always read and obey the instructions provided by the product manufacturer.***
- ***Use, handle and store substances as specified by the product manufacturer.***
- ***Always wear appropriate personal protective equipment, refer to Safety Precautions Chapter.***

Before commissioning and/or starting an alternator with a sleeve bearing, refer to the Before Use/Commissioning Information in the sleeve bearing manual.

Minimum recommended before use/commissioning checks are:

1. Check/fill sleeve bearing oil level as necessary. Refer to the manufacturer's information.
2. Make sure the sleeve bearing/alternator are carefully and correctly aligned to the prime-mover.
3. Check sleeve bearing for leaks/damage.
4. Check the sleeve bearing is connected to an external lubrication supply (if applicable).
5. Check the sleeve bearing lubrication supply for leaks/damage (if applicable).
6. Make sure there is no servicing and/or repair ongoing that could affect the operation of the sleeve bearing and/or the lubrication supply (if applicable).

# 7 Operation

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## 7.1 General

When operating a STAMFORD | AvK™ alternator, read and obey the alternator owner manual.

Minimum recommendations for a STAMFORD | AvK™ alternator with air-water coolers and/or sleeve bearings:

1. Read and obey the operation information in the original manuals for the cooler and sleeve bearing.
2. Make sure operational parameters of the cooler and/or sleeve bearing are not exceeded.
3. During operation, make sure the alternator/generator-set, cooler and/or sleeve bearing are monitored as necessary.

During operation and if a fault is detected. e.g. leak, raised temperatures, noise or excessive vibration:

- Shut down the alternator/generator set.
- Isolate energy sources. Use lock out tag out procedures. Refer to: Alternator manual Safety Precautions Chapter.
- Investigate and identify the fault.
- Do not operate the alternator until the fault has been repaired and the alternator is in a safe and serviceable condition.

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## 8 Service and Maintenance

### 8.1 Alternator Service and Maintenance

Refer to the original alternator Owner or ISM manuals for servicing intervals, technical information, spare parts, service parts and procedures.

For the latest alternator Owner or ISM manual, contact: STAMFORD | AvK™ customer services [www.stamford-avk.com](http://www.stamford-avk.com).

### 8.2 Air-Water Cooler Service and Maintenance

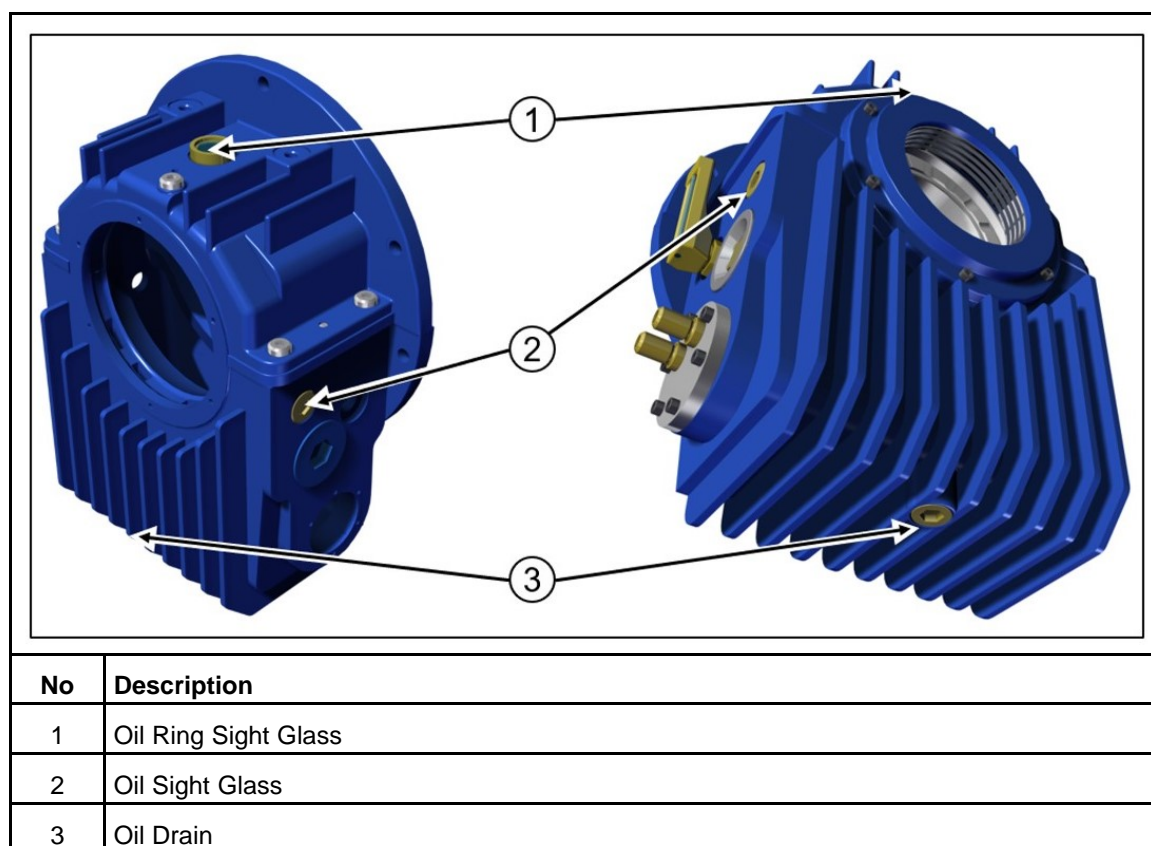
For technical information, service intervals, spare parts and maintenance on air-water coolers, contact STAMFORD | AvK™ customer services: [www.stamford-avk.com](http://www.stamford-avk.com).

### 8.3 Sleeve Bearing Service and Maintenance

For technical information, service intervals, spare parts and maintenance on sleeve bearings, contact STAMFORD | AvK™ customer services: [www.stamford-avk.com](http://www.stamford-avk.com).

#### 8.3.1 Oil Drain Points

TABLE 3. DRIVE END (DE) AND NON-DRIVE END (NDE) OIL DRAIN POINTS



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## 9 Parts Identification

### 9.1 Water Cooler Diagram and Parts List

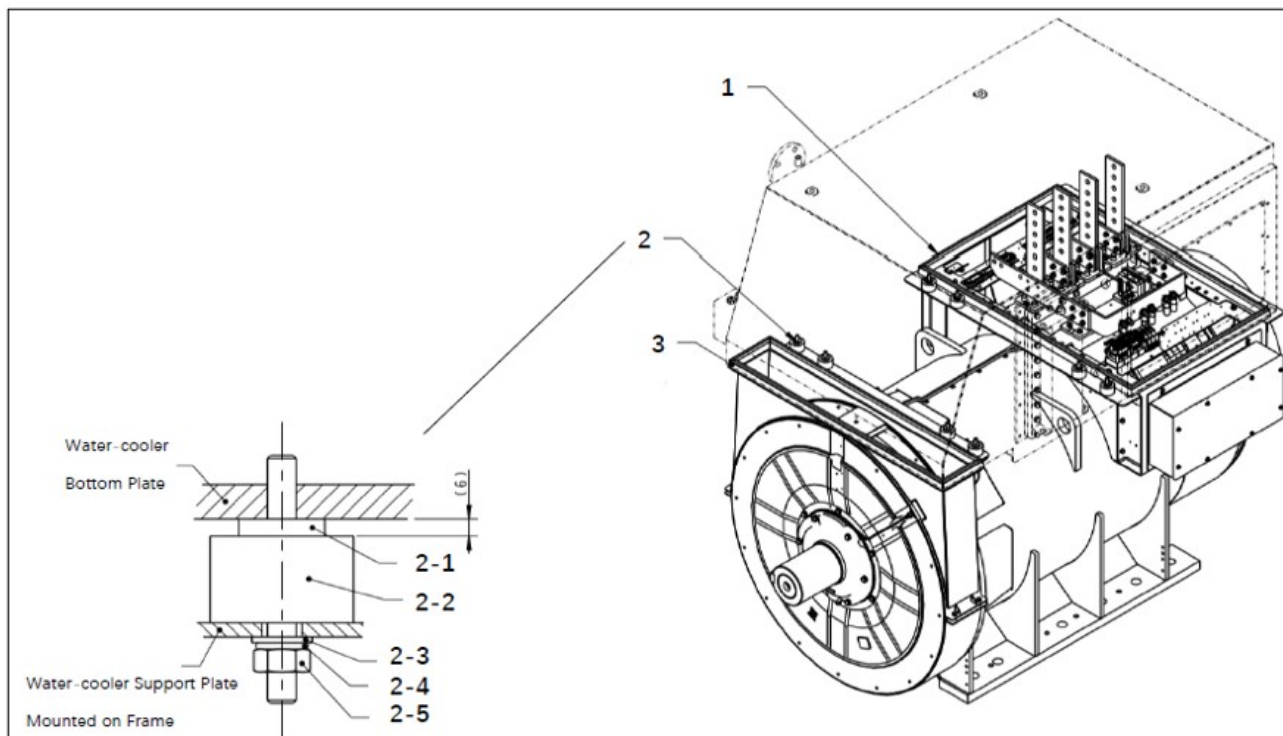


FIGURE 14. WATER COOLER PARTS DIAGRAM

TABLE 4. PARTS LIST AND TORQUE SETTING

Reference	Part ID Number	Component	Quantity	Torque (Nm)
1	A066C518	Gasket Seal - NDE	1	-
2-1	A073E205	6 mm Thick Flat Washer	8	50 Nm
2-2	A065X995	AVM	8	50 Nm
2-3	029-61109	M10 Flat Washer	8	50 Nm
2-4	028-31409	M10 Spring Washer	8	50 Nm
2-5	027-41109	M10 Lock Nut	8	50 Nm
3	A066C517	Gasket Seal - DE	1	-

For service parts, refer to the latest parts manual on the STAMFORD | AvK™ website: [www.stamford-avk.com](http://www.stamford-avk.com).

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# 10 Appendix

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## 10.1 References

For additional information refer to:

- The original Owner Manual for the alternator.
- The original Installation, Service and Maintenance Manual for the alternator.
- The technical drawings and schematics that were supplied with the alternator.
- The generator set manual and/or the manual for the prime mover.

For further information, contact Stamford | AvK™ customer services: [www.stamford-avk.com](http://www.stamford-avk.com).

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