

## LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS

Installation and maintenance

# LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS

This manual concerns the alternator which you have just purchased.

We wish to draw your attention to the contents of this maintenance manual.

## SAFETY MEASURES

Before using your machine for the first time, it is important to read the whole of this installation and maintenance manual.

All necessary operations and interventions on this machine must be performed by a qualified technician.

Our technical support service will be pleased to provide any additional information you may require.

The various operations described in this manual are accompanied by recommendations or symbols to alert the user to the potential risk of accidents. It is vital that you understand and take notice of the different warning symbols used.

### WARNING

Warning symbol for an operation capable of damaging or destroying the machine or surrounding equipment.



Warning symbol for general danger to personnel.



Warning symbol for electrical danger to personnel.

## WARNING SYMBOLS

We wish to draw your attention to the following 2 safety measures which must be complied with:

**a) During operation, do not allow anyone to stand in front of the air outlet guards, in case anything is ejected from them.**

**b) Do not allow children younger than 14 to go near the air outlet guards.**

A set of self-adhesive stickers depicting the various warning symbols is included with this maintenance manual. They should be positioned as shown in the drawing below once the machine has been fully installed.

## WARNING

The alternators must not be put into service until the machines in which they are to be incorporated have been declared compliant with Directives EC and plus any other directives that may be applicable.

Note: LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

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## 1 - RECEIPT

### 1.1 - Standards and safety measures

Our alternators comply with most international standards.

See the EC Declaration of Incorporation on the last page.

### 1.2 - Inspection

On receipt of your alternator, check that it has not suffered any damage in transit. If there are obvious signs of knocks, contact the transporter (you may be able to claim on their insurance) and after a visual check, turn the machine by hand to detect any malfunction.

### 1.3 - Identification

The alternator is identified by means of a nameplate fixed on the machine (see drawing).

Make sure that the nameplate on the machine conforms to your order.

The machine name is defined according to various criteria, for example :

LSA 36 L7 A1/2

- LSA : name used in the PARTNER range
- 36 : machine type
- L7 : model
- A : excitation system (ACC)
- 1/2 : winding number / number of poles

### 1.3.1 - Nameplate

So that you can identify your machine quickly and accurately, we suggest you write its specifications on the nameplate below.

### 1.4 - Storage

Prior to commissioning, machines should be stored :

- away from humidity (< 90%); after a long period of storage, check the machine insulation (section 3.2.1). To prevent the bearings from becoming marked, do not store in an environment with significant vibration.

### 1.5 - Application

These alternators are mainly designed to produce electricity in the context of applications involving the use of generators.

### 1.6 - Contraindications to use

Use of the machine is restricted to operating conditions (environment, speed, voltage, power, etc) compatible with the characteristics indicated on the nameplate.

LEROY-SOMER ALTERNATEURS PARTNER ALTERNATORS	
LSA <input type="text"/> Date <input type="text"/>	
N <input type="text"/> <input type="text"/> Hz	
Min-1/R.P.M. <input type="text"/> Protection <input type="text"/>	
Altit. <input type="text"/> m Masse / Weight <input type="text"/>	
Rlit AV/D.E bearing <input type="text"/>	
Rlit AR/N.D.E bearing <input type="text"/>	
<b>PUISSANCE / RATING (S1)</b>	
kVA <input type="text"/> CosØ/P.F. <input type="text"/>	
kW <input type="text"/> <input type="text"/>	
Voltage <input type="text"/> Amps <input type="text"/>	
kVA <input type="text"/> CosØ/P.F. <input type="text"/>	
kW <input type="text"/> <input type="text"/>	
Voltage <input type="text"/> Amps <input type="text"/>	
Temp. <input type="text"/> Phase <input type="text"/>	
Made in France - 1 024 959/a	
Conforme à C.E.I 60034-1. According to I.E.C 60034-1.	

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## 2 - TECHNICAL CHARACTERISTICS

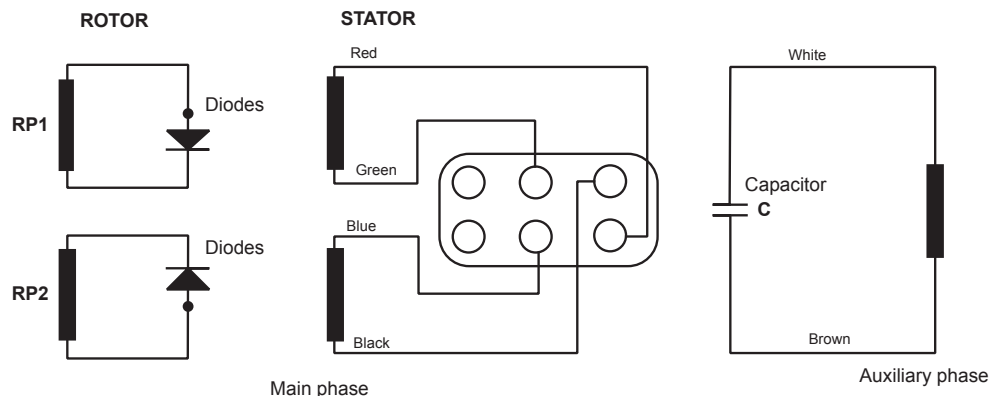
### 2.1 - Electrical characteristics

The LSA 36 single-phase alternator is a machine without sliprings or brushes. It is self-excited by an auxiliary phase with capacitor (ACC system). Interference suppression conforms to standard EN 55011, group 1, class B.

### 2.2 - Mechanical characteristics

- Aluminium frame
- Steel or aluminium shields
- Protected ball bearings, greased for life
- Mounting arrangement :

- Single-bearing with cone: SAE J 609a B ext 6
  - Single-bearing with cone: VAIT 23 & 30
  - Single-bearing with SAE disc : IM 1201 (MD 35)
  - Twin bearing with IEC flange : IM 1001 (B 34)
  - Drip-proof machine, self-cooled
  - Degree of protection: IP 23
- For horizontal mounting: 90° in relation to its original position, the degree of protection is IP 21
- Speed of rotation: 3000 min<sup>-1</sup> or 3600 min<sup>-1</sup> according to the frequency of use
  - Clockwise



## 3 - INSTALLATION

Personnel undertaking the various operations indicated in this section must wear personal protective equipment appropriate for mechanical and electrical hazards.

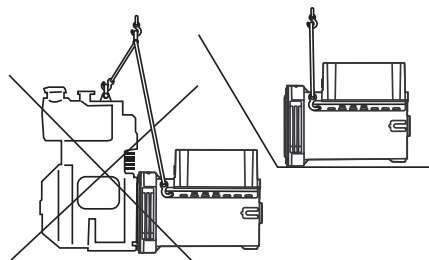
### 3.1 - Assembly



All mechanical handling operations must be undertaken using suitable equipment and the machine must be horizontal. During this operation, do not allow anyone to stand under the load.

### 3.1.1 - Handling

The generously-sized lifting rings are for handling the alternator alone. They must not be used to lift the genset. The choice of lifting hooks or handles should be determined by the shape of these rings. Choose a lifting system which respects the integrity and the environment of the machine.



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## 3.2 - Coupling

### WARNING

Before coupling the machines, check that they are compatible by checking the dimensions of the alternator cone, the flywheel and its housing, the flange, coupling discs and offset.

### 3.2.1 - Assembly of the single-bearing version SAE J 609a B ext 6 (see section 5.3.1)

1 - Mount the flange adapter (265) on the engine, screw tightening torque (see section 4.6.2).

2 - Mount the rotor (4) and stator (1) assembly on the flange adapter using the 4 screws (31) torque (see section 4.6.2).

3 - Screw the tie rod (13) onto the engine shaft, tighten the nut to the required torque (see section 4.6.2) and insert the plug (53).

### 3.2.2 - Assembly of the single-bearing disc version IM1201 (see section 5.3.2)

### WARNING

When coupling the alternator to the prime mover, the holes of the coupling discs should be aligned with the flywheel holes by cranking the engine.

Do not use the fan to turn the alternator rotor.

- Fix the tapered shaft disk kit on the engine flywheel.

- Fit the flange adaptor on the engine tightening torque (see section 4.6.2).

- Mount the rotor assembly (4) and stator (1) on the flange adaptor using 4 screws (31) torque (see section 4.6.2).

- Screw the tie rod (13) onto the engine shaft, tighten the nut to the required torque (see section 4.6.2) and insert the plug (53). After tightening the disc screws, check that there is lateral play on the crankshaft.

### 3.2.3 - Assembly of the twin bearing version IM 1001 (see section 5.3.3) (B34, B4)

#### 3.2.3.1 - Pulley and belt coupling

The slide rails used to tighten the belts must be installed before fitting the alternator.

The tensioning screws must only be applied to the metal parts, and located with care.

Max. recommended radial force 85 kg for a DE bearing life of 10,000 hours.

Bearings used:

- DE 6206 - C 3 protected 120°C

- NDE 6204 - C 3 protected 120°C

- Shaft diameter: Ø 28 mm

- Shaft length: 60 mm

Please follow manufacturers recommendations carefully for the belt and pulley dimensions.

#### 3.2.3.2 - Twin bearing alternator

- Semi-flexible coupling

Careful alignment of the machines is recommended, checking that the lack of concentricity and parallelism of both parts of the coupling do not exceed 0.1 mm.

#### 3.2.4 - Location

Ensure that the ambient temperature in the room where the alternator is placed does not exceed 40°C for standard power ratings (for temperatures > 40°C, apply a derating coefficient). Fresh air, free from damp and dust, must be able to circulate freely around the air intake grilles on the opposite side from the coupling. It is essential to take precautions to prevent the recycling of hot air and exhaust fumes from the alternator air intake.

## 3.3 - Checks prior to first use

### 3.3.1 - Electrical checks



**Under no circumstances should an alternator, new or otherwise, be operated if the insulation is less than 1 megohm for the stator and 100,000 ohms for the other windings.**

There are 2 possible methods for restoring the above minimum values.

a) Dry out the machine for 24 hours in a drying oven at a temperature of 110 °C (without the regulator).

b) Blow hot air into the air intake, having made sure that the machine is rotating with

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the exciter field disconnected.

**Note :** Prolonged standstill: In order to avoid these problems, we recommend the use of space heaters, as well as turning over the machine from time to time.

Space heaters are only really effective if they are working continuously while the machine is stopped.

### WARNING

Ensure that the alternator has the degree of protection matching the defined environmental conditions.

### 3.3.2 - Mechanical checks

Before starting the machine for the first time, check that:

- all fixing bolts and screws are tight,
- the cooling air is drawn in freely,
- the protective grilles and housing are correctly in place,
- the standard direction of rotation is clockwise as seen from the shaft end (phase rotation in order 1 - 2 - 3).

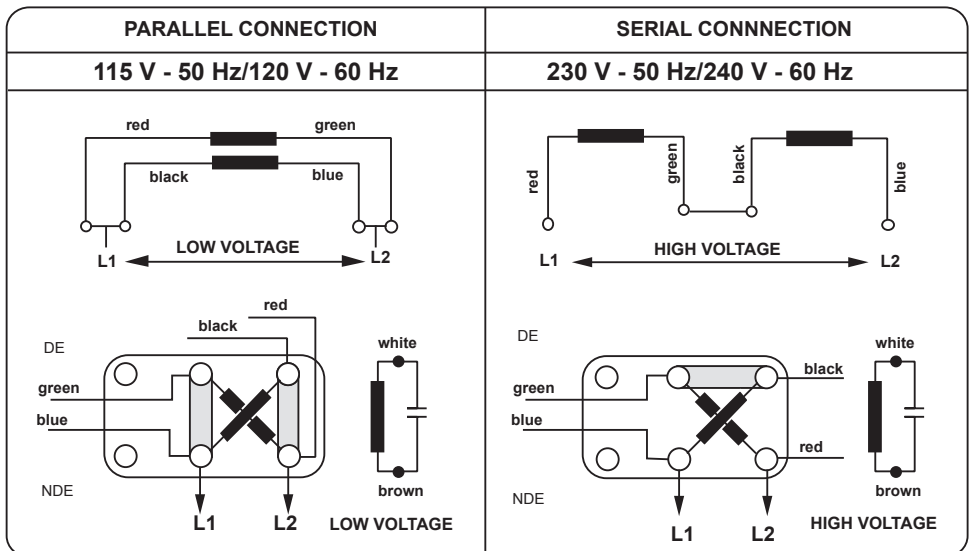
For anti-clockwise rotation, swap 2 and 3.  
- the winding connection corresponds to the site operating voltage (see section 3.4).

### 3.4 - Terminal connection diagrams

To modify the connection, change the position of the stator cables on the terminals. The winding code is specified on the nameplate.



Any intervention on the alternator terminals during reconnection or checks should be performed with the machine stopped.



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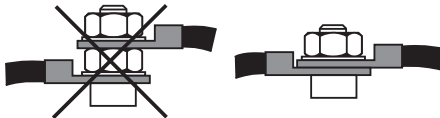
### 3.4.1 - Connection checks



**Electrical installations must comply with the current legislation in force in the country of use.**

Check that:

- The residual circuit-breaker conforms to legislation on protection of personnel, in force in the country of use, and has been correctly installed on the alternator power output as close as possible to the alternator. (In this case, disconnect the wire of the interference suppression module linking the neutral).
- Any protection devices in place have not been tripped.
- There is no short-circuit phase-phase or phase-neutral between the alternator output terminals and the generator set control cabinet (part of the circuit not protected by circuitbreakers or relays in the cabinet).
- The machine should be connected with the busbar separating the terminals as shown in the terminal connection diagram.



### 3.5 - Commissioning



**The machine can only be started up and used if the installation is in accordance with the regulations and instructions defined in this manual.**

The machine is tested and set up at the factory. When first used with no load, make sure that the drive speed is correct and stable (see the nameplate). With the regreasable bearing option, we recommend greasing the bearings at the time of commissioning (see 4.2.2).

On application of the load, the machine should achieve its rated speed and voltage; however, in the event of abnormal operation, the machine setting can be altered (follow the adjustment procedure in section 3.6). If the machine still operates incorrectly, the cause of the malfunction must be located (see section 4.4).

### 3.6 - Setting up



**The various adjustments during tests must be made by a qualified engineer. Ensure that the drive speed specified on the nameplate is reached before commencing adjustment. After operational testing, replace all access panels or covers.**



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### 4 - SERVICING - MAINTENANCE

#### 4.1 - Safety measures

Serviceing or troubleshooting must be carried out strictly in accordance with instructions so as to avoid the risk of accidents and to maintain the machine in its original state.



All such operations performed on the alternator should be undertaken by personnel trained in the commissioning, servicing and maintenance of electrical and mechanical components, who must wear personal protective equipment appropriate for mechanical and electrical hazards.

Before any intervention on the machine, ensure that it cannot be started by a manual or automatic system and that you have understood the operating principles of the system.



**Warning :** During and after running, the alternator will reach temperatures hot enough to cause injury, such as burns.

#### 4.2 - Routine maintenance

##### 4.2.1 - Checks after start-up

After approximately 20 hours of operation, check that all fixing screws on the machine are still tight, plus the general state of the machine and the various electrical connections in the installation.

##### 4.2.2 - Bearings

The bearings are greased for life: approximate life of the grease (depending on use) = 20,000 hours or 3 years. Monitor the temperature rise in the bearings, which should not exceed 90°C above the ambient temperature. Should this value be exceeded, the alternator must be stopped and checks carried out.

#### 4.2.3 - Electrical servicing

Commercially-available volatile degreasing agents can be used.

#### WARNING

**Do not use:** trichlorethylene, perchlorethylene, trichloroethane or any alkaline products.



**These operations must be performed at a cleaning station, equipped with a vacuum system that collects and flushes out the products used.**

The insulating components and the impregnation system are not at risk of damage from solvents. Avoid letting the cleaning product run into the slots.

Apply the product with a brush, sponging frequently to avoid accumulation in the housing. Dry the winding with a dry cloth. Let any traces evaporate before reassembling the machine.

#### 4.2.4 - Mechanical servicing

#### WARNING

**Cleaning the machine using water or a highpressure washer is strictly prohibited. Any problems arising from such treatment are not covered by our warranty.**

Degreasing: Use a brush and detergent (suitable for paintwork).

Dusting: Use an air gun.

If the machine is fitted with air inlet and outlet filters, the maintenance personnel should clean them routinely at regular intervals. In the case of dry dust, the filter can be cleaned using compressed air and/or replaced if it is clogged.

After cleaning the alternator, it is essential to check the winding insulation (see section 3.3).

#### 4.3 - Fault detection

If, when commissioned, the alternator does not work normally, the source of the malfunction must be identified (see sections 4.4 and 4.5).

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### 4.4 - Mechanical faults

Fault		Action
Bearing	Excessive overheating of one or both bearings (bearing temperature 80°C above the ambient temperature) (with or without abnormal bearing noise)	- If the bearing has turned blue or if the grease has turned black, change the bearing - Bearing not fully locked - End shields incorrectly aligned (flanges not properly fitted)
Abnormal temperature	Excessive overheating of alternator frame (more than 40° C above the ambient temperature)	- Air flow (inlet-outlet) partially clogged or hot air is being recycled from the alternator or engine - Alternator operating at too high a voltage (> 105% of Un on load) - Alternator overloaded
Vibrations	Too much vibration	- Misalignment (coupling) - Defective mounting or play in coupling
	Excessive vibration and humming noise coming from the machine	- Stator short-circuit
Abnormal noise	Alternator damaged by a significant impact, followed by humming and vibration	- System short-circuit - Broken or damaged coupling - Broken or bent shaft end - Shifting and short-circuit of main field - Fan fractured or coming loose on shaft - Irreparable damage to rotating diodes

### 4.5 - Electrical faults

Fault	Action	Effect	Check/Cause
No voltage at no load on start-up	Apply 6 V DC to one of the capacitors for 1 second	The alternator builds up and its voltage is still correct when the battery is removed	- Lack of residual magnetism - Check the capacitor voltage (approximately 10 to 15 V at the auxiliary winding terminals, with the capacitor disconnected)
		The alternator builds up but its voltage does not reach the rated value when the battery is removed	- Check whether there is a break in the capacitor circuit or one of the capacitors
		The alternator builds up but its voltage disappears when the battery is removed	- If the voltage is too low, the diodes are faulty
Voltage too low	Check the drive speed	Correct speed	- Disconnection of the auxiliary winding - Rotating diodes burnt out - Main field winding short-circuited - Check the resistance
		Speed too low	Increase the drive speed
Voltage too high	Reduce the speed		Genset speed too high
Voltage correct at no load and too low when on load			- Speed drop too great when on load - Check the speed - Genset overloaded - Short-circuit in the revolving field coil. Check the resistance

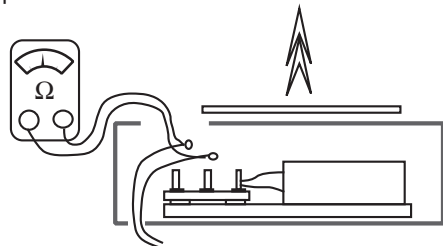
#### 4.5.1 - Measurement of STATOR winding resistances



During this procedure, make sure that the alternator is stopped and disconnected from any external load.

- Unscrew the 4 cover fixing screws.
- Disconnect the capacitor wires in order to read the auxiliary phase resistance.

- Disconnect the wires from the winding to the terminal block in order to read the main phase resistance.



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Resistances $\Omega$ 2P Stator	Stator main winding			
	50 Hz		60 Hz	
	110V	230V	120V	240V
LSA 36 L15	0.24	0.96	0.19	0.76
LSA 36 L25	0.245	0.98	0.192	0.77
LSA 36 L35	0.2	0.8	0.175	0.7
LSA 36 L5	0.165	0.66	0.13	0.52
LSA 36 L7	0.155	0.62	0.122	0.49
LSA 36 L8	0.127	0.51	0.102	0.41
LSA 36 L10	0.107	0.43	0.082	0.33
LSA 36 L12	0.087	0.35	0.065	0.26

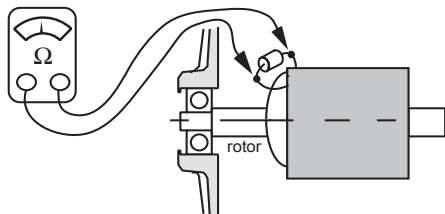
Resistances $\Omega$ 2P Stator	Stator auxiliary winding	
	50 Hz	60 Hz
LSA 36 L15	2.5	1.58
LSA 36 L25	2.55	1.61
LSA 36 L35	2.21	1.47
LSA 36 L5	2.19	1.21
LSA 36 L7	2.07	1.13
LSA 36 L8	1.47	0.98
LSA 36 L10	1.17	0.71
LSA 36 L12	0.99	0.75

### 4.5.2 - Measurement of ROTOR winding resistances



During this procedure, make sure that the alternator is disconnected from any external load.

- Unscrew the 4 fixing screws (31) on the flange adapter (265).
- Remove the stator carefully (1) taking care not to damage the windings (110).

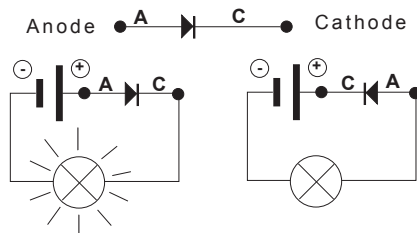


Resistances $\Omega$ 2P Rotor	Rotor winding 50 / 60 Hz		
	RP1	RP2	Total
LSA 36 L15	2.75	2.75	5.5
LSA 36 L25	2.82	2.82	5.64
LSA 36 L35	3.01	3.01	6.02
LSA 36 L5	3.40	3.40	6.80
LSA 36 L7	3.42	3.42	6.85
LSA 36 L8	3.90	3.90	7.81
LSA 36 L10	4.26	4.26	8.53
LSA 36 L12	4.53	4.53	9.07

### 4.5.3 - Checking the diodes

- Proceed in the same way as for reading the rotor resistance by unsoldering a single side of the diodes.

A diode in good working order should allow the current to flow only in the anode-to-cathode direction.



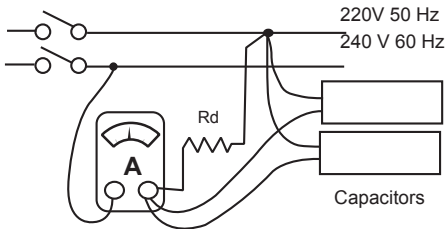
### 4.5.4 - Checking the capacitors



During this procedure, make sure that the alternator is disconnected from any external load.

- Unscrew the 4 cover fixing screws.
- Disconnect the capacitor wires and connect it to an A.C. supply in series with a switch and an ammeter.

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Rd: discharging resistor (5000  $\Omega$  - 20W)

The currents are indicated at  $\pm 10\%$

Capacitor (... $\mu$ F - 450V - 3000H)				
	50 Hz	220V	60 Hz	240 Hz
2 Pole	$\mu$ F	I (A)	$\mu$ F	I (A)
LSA 36 L15	40	7	40	8
LSA 36 L25	40	7.5	40	8.5
LSA 36 L35	40	8.5	40	9.1
LSA 36 L5	45	10.1	45	11.1
LSA 36 L7	45	9.5	45	10.5
LSA 36 L8	45	9.1	45	10.3
LSA 36 L10	60	11.7	60	12.7
LSA 36 L12	2 x 40	16.5	60	14

### 4.6 - Disassembly, reassembly (see sections 5.3.1, 5.3.2 & 5.3.3)

#### WARNING

Cette opération ne doit être faite pendant  
During the warranty period, this operation should only be carried out in an LEROY-SOMER approved workshop or in our factory, otherwise the warranty may be invalidated. Whilst being handled, the machine should remain horizontal (rotor not locked in position). Check how much the alternator weighs (see section 4.7) before choosing the lifting method.

#### 4.6.1 - Tools required

To fully disassemble the machine, we recommend using the tools listed below:

- 1 ratchet spanner
- 1 torque wrench
- 1 8 mm/13 mm socket
- 1 TORX T20 bit
- 1 puller

#### 4.6.2 - Screw tightening torque

See section 5.3.

#### 4.6.3 - Access to diodes

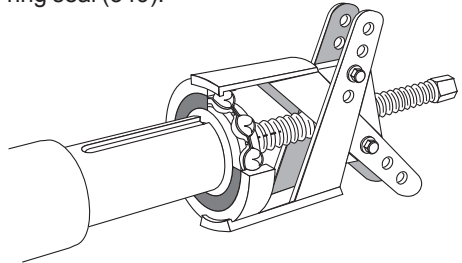
- Unscrew the 4 fixing screws (31) on the flange adapter (265).
- Remove the stator carefully (1) taking care not to damage the windings (110).

#### 4.6.4 - Access to connections and capacitors

Unscrew the 4 fixing screws (49), then remove the cover.

#### 4.6.5 - Replacing the NDE bearing

- Unscrew the 4 fixing screws (31) on the flange adapter (265) for the single-bearing version or on the shield (30) for the twin bearing version.
- Remove the stator (1), taking care with the windings.
- Extract the antifriction bearing (70) using a puller with a central screw (see drawing).
- Replace the antifriction bearing and the 'O' ring seal (349).



#### 4.6.6 - Replacing the DE bearing

- Loosen the tie rod (13).
- Remove the 4 fixing screws (31) from the DE bearing (30).
- Remove the stator assembly from the rotor (take care with the windings and the diodes). Extract the bearing assembly (30) + and the shaft extension (23) from the rotor (4) by knocking the end of the tie rod (13) with a mallet.
- Remove the circlip (412).
- Knock out the shaft extension (23) and the bearing (60) from the shield (30).
- Remove the circlip (284).
- Extract the ball bearing (60) using a puller.
- Replace the antifriction bearing.

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### 4.6.7 - Disassemble the rotor with helical bevel

- Unscrew the 4 fixing screws (31) on the flange adaptor (265).

Remove the stator carefully (1) taking care not to damage the windings.

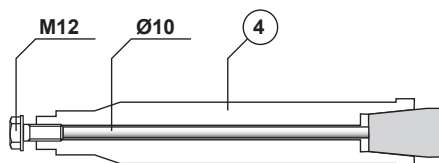
- Unscrew the armature rod (13) and remove it from the rotor (4).

- Insert a  $\varnothing 10$  tie rod into the rotor (4).

- Position it in contact with the face of the motor shaft extension, (determine the length of the tie rod which should be 10 mm less than the rotor).

- Using an M12 screw, remove the rotor assembly (4).

**WARNING** : in the VAIT 30 version, M14 thread in the motor cone.



### 4.6.8 - Complete reassemble

- Simply reverse the disassemble procedure.

**WARNING**

**NOTE:** When performing the various maintenance operations, check that the 'O' ring seal is present in the stator housing.

### 4.7 - Table of weights

(values given for information only)

LSA 36	Total weight (kg)
L15	22
L25	22
L35	25
L5	28
L7	38
L8	31
L10	32.5
L12	34

## 5 - SPARE PARTS

### 5.1 - First maintenance parts

Emergency repair kits are available as an option.

They contain the following items:

Designation	Code
Kit: capacitor + 2 clamps	-
Kit: cover + plain faceplate + 4 screws	ALT 036 KO 001
Kit: complete prewired faceplate	ALT 036 KU 084
Kit: SAE J 609a Bext6 flange + 4 screws	ALT 036 KG 005
Kit: VAIT flange + 4 screws	-
Kit: motor coupling fixing screws	ALT 036 LV 001
Kit: diodes	ALT 036 KD 001
Kit: SAE 5, 6 1/2 flange + rod + coupled disc	ALT 036 KG 001
Kit: B3 flange with fitted bearing + flange	ALT 036 KG 002
Kit: B34 flange with fitted bearing + flange	-
Kit: single-bearing	ALT 036 KB 002
Kit: two bearing	ALT 036 KB 001

### 5.2 - Technical support service

Our technical support service will be pleased to provide any additional information you may require.

When ordering spare parts, you should indicate the complete machine type, its serial number and the information given on the nameplate.

Address your enquiry to your usual contact.

Part numbers should be identified from the exploded views and their description from the parts list.

Our extensive network of service centres can dispatch the necessary parts without delay.

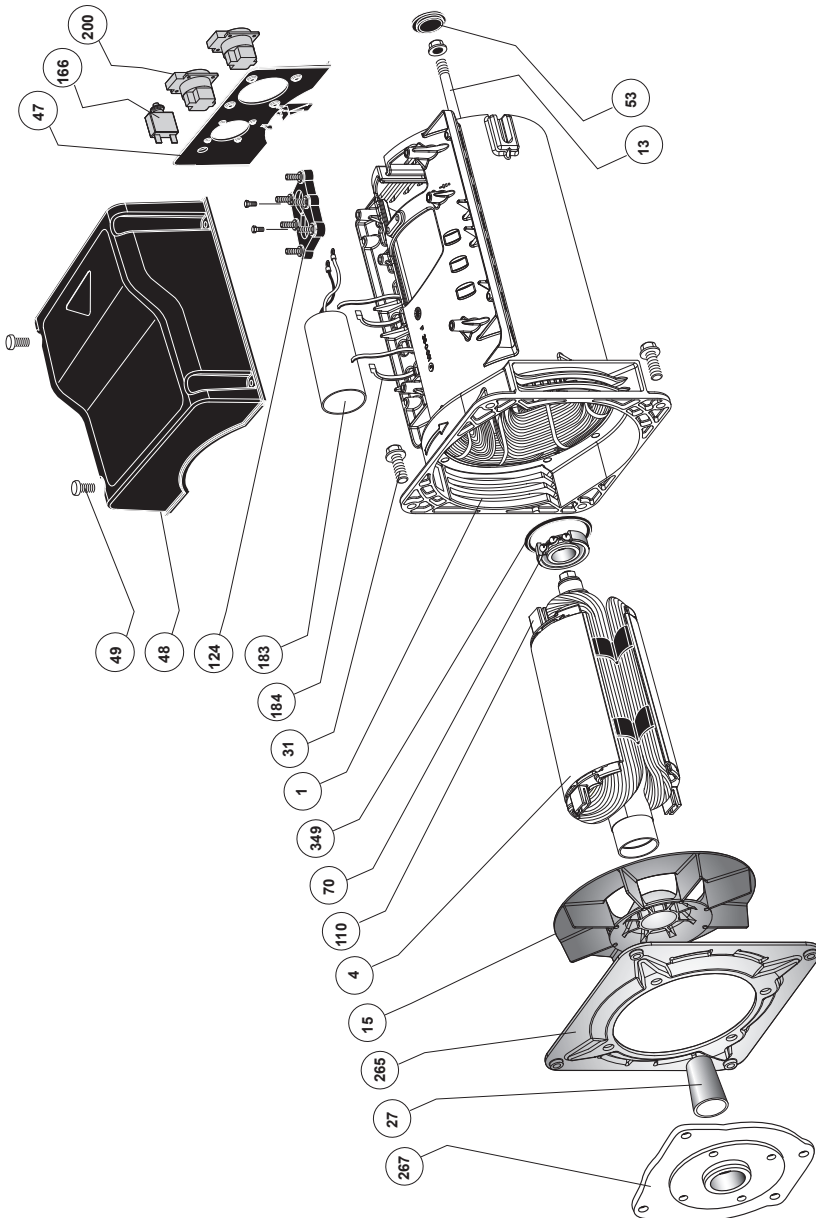
To ensure correct operation and the safety of our machines, we recommend the use of original manufacturer spare parts.

In the event of failure to comply with this advice, the manufacturer cannot be held responsible for any damage.

# LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS

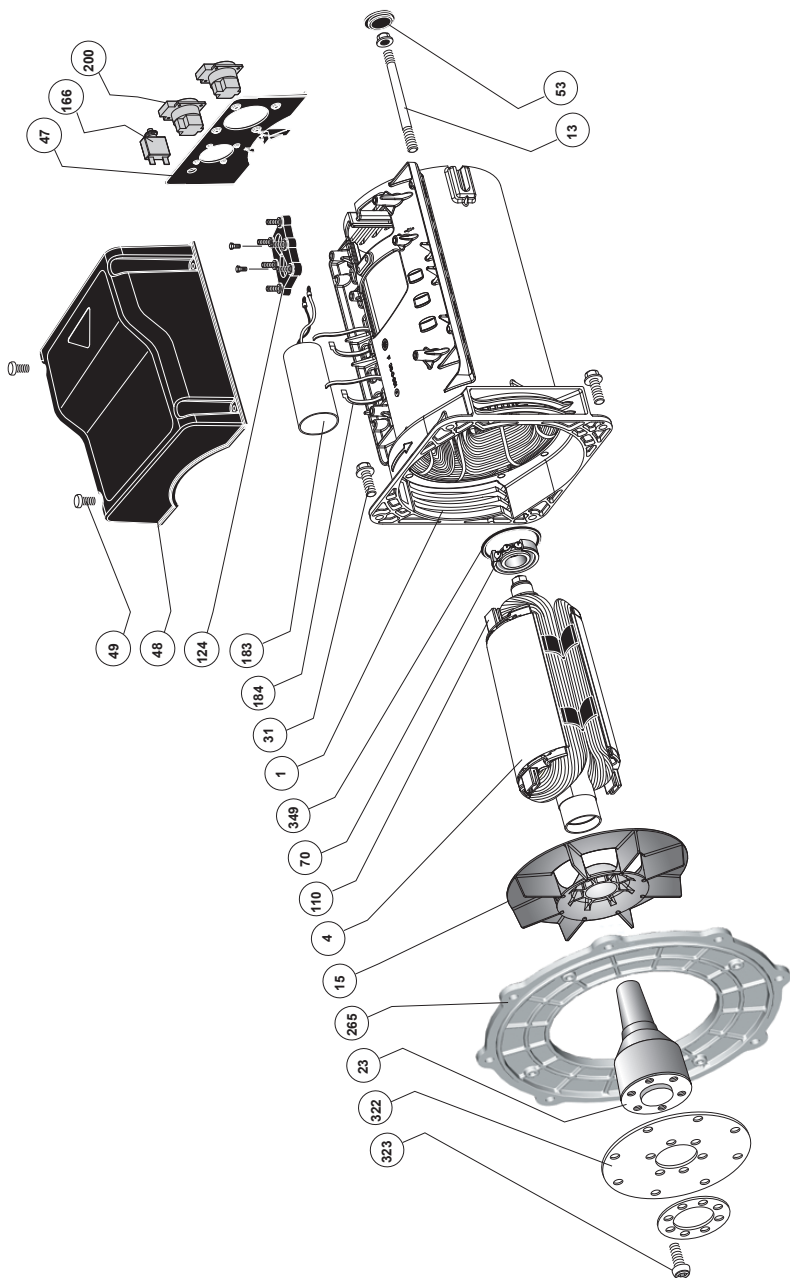
## 5.3 - Exploded view, parts list and tightening torque

### 5.3.1 - Single-bearing with cone



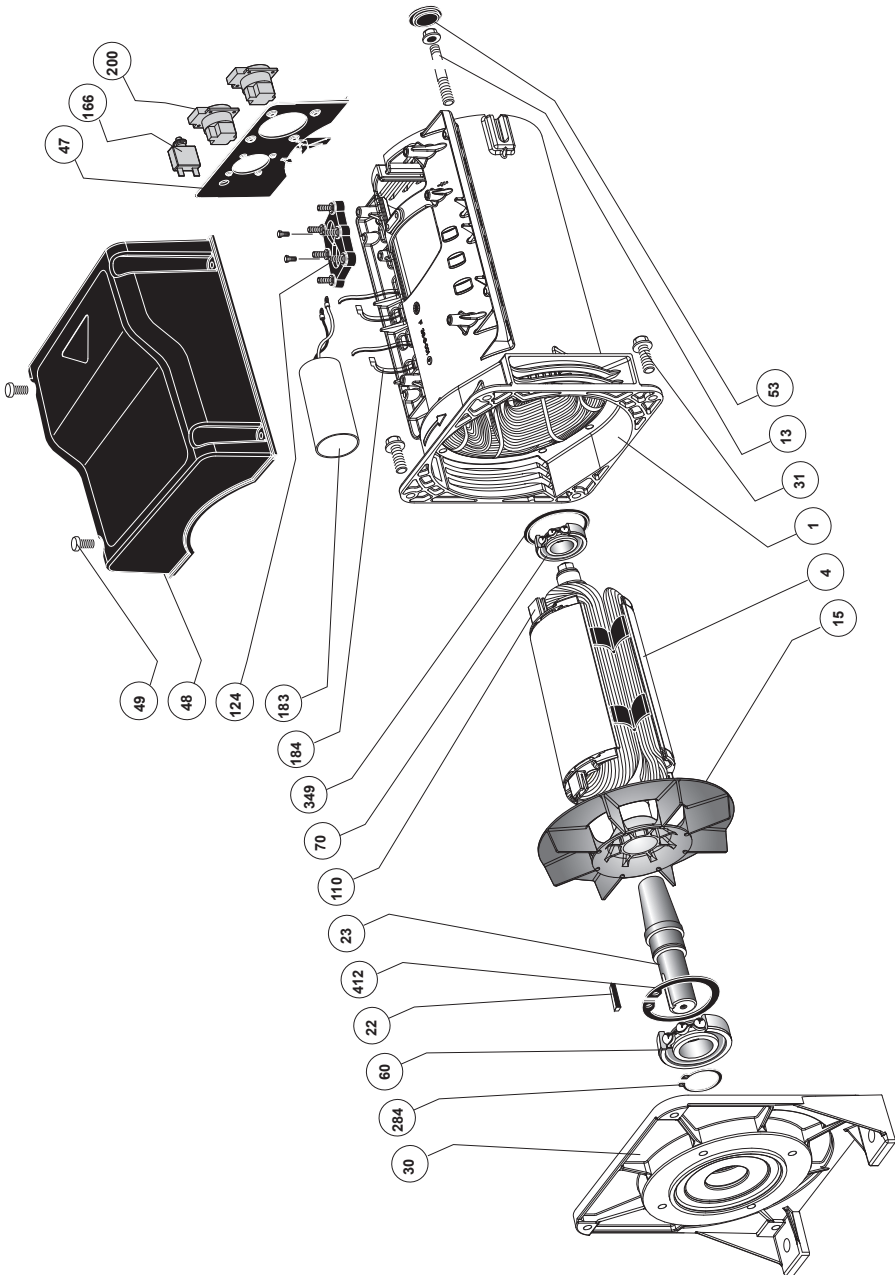
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## 5.3.2 - Single-bearing with disc



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## 5.3.3 - Two-bearing





## LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS

Ref.	Qty	Description	Screw Ø	Torque N.m	Ref.	Qty	Description	Screw Ø	Torque N.m
1	1	Stator assembly	-	-	70	1	Non drive end bearing	-	-
4	1	Rotor assembly	-	-	110	2	Diode	-	-
13	1	Tie rod + nut SAE J609	5/16 - UNF	17	124	1	Terminal block	-	-
		Tie rod SAE VAIT 23	M8	17	166	1	Circuit-breaker	-	-
		Tie rod VAIT 30	M14	17	167	1	Diode voltmeter (optional)	-	-
15	1	Fan	-	-	183	-	Capacitor	-	-
22	1	Key	-	-	184	-	Clamp	-	-
23	1	Shaft extension	-	-	200	-	Single-phase socket depending on kit	-	-
27	1	Bevel gearbox	-	-	201	-	3-phase socket depending on kit	-	-
30	1	DE shield	M8	20	265	1	Flange adaptor	-	-
31	4	Fixing screws	-	-	267	1	Connecting flange adaptor	-	-
		Flange screws SAE J609	3/8-16 UNC	40	284	1	Circlip	-	-
		Flange adaptor screws	M8	26	286	3	12/24 V terminals (optional)	-	-
		Flange adaptor screws (VAIT)	M8	20	322	1	Driving disc	-	-
47	1	Faceplate	-	-	323	6	Bolt	-	-
48	1	Cowling	-	-	324	1	Clamping washer	-	-
49	4	Cover screws	M5	4	349	1	'O' ring seal	-	-
53	1	Plug	-	-	412	1	Circlip	-	-
60	1	Drive end bearing	-	-					

# LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS

## Electric Power Generation Division

## Declaration of CE compliance and incorporation

This Declaration applies to the generators designed to be incorporated into machines complying with the Machinery Directive Nr 2006/42/CE dated 17 May 2006.

MOTEURS LEROY-SOMER  
Boulevard Marcellin Leroy  
16015 ANGOULEME  
France

MLS HOLICE STLO.SRO  
SLADKOVSKÉHO 43  
772 04 OLOMOUC  
Czech Republic

MOTEURS LEROY-SOMER  
1, rue de la Buelle  
Boite Postale 1517  
45800 St Jean de Bray  
France

Declares hereby that the electric generators of the types LSA 36 – 37– 40 – 42.2 – 43.2 – 44.2 – 46.2 – 47.2 – 49.1 – 50.2 – 51.2, as well as their derivatives, manufactured by Leroy Somer or on Leroy Somer's behalf, comply with the following International Standards and Directive :

- EN and IEC 60034 -1 and 60034 -5
- ISO 8528 – 3 “ Reciprocating internal combustion engine driven alternating current generating sets.  
Part 3. Alternating current generators for generating sets ”
- Low Voltage Directive Nr 2006/95/CE dated 12 December 2006.

Furthermore, these generators, designed in compliance with the Machine Directive Nr 2006/42, are therefore able to be incorporated into Electrical Gen-Sets complying with the following International Directives :


- Machinery Directive Nr 2006/42/CE dated 17 May 2006
- EMC Directive Nr 2004/108/CE dated 15 December 2004, as intrinsic levels of emissions and immunity are concerned

### WARNING :

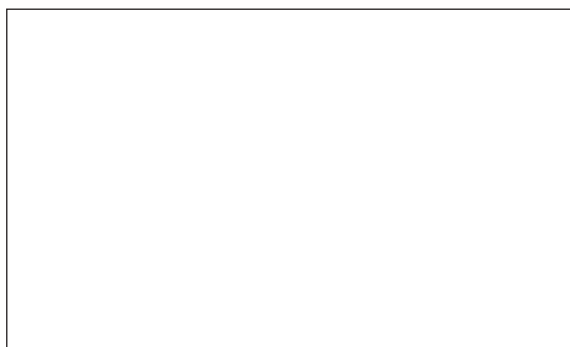
The here above mentioned generators should not be commissioned until the corresponding Gen-Sets have been declared in compliance with the Directives Nr 2006/42/CE et 2004/108/CE, as well as with the other relevant Directives.

Leroy Somer undertakes to transmit, in response to a reasoned request by the national authorities, relevant information on the generator.

**Technical Managers**  
P Betge – J.Begué



# **LSA 36 - 2 POLES - SINGLE-PHASE ALTERNATORS**



[www.leroy-somer.com](http://www.leroy-somer.com)