



SV670N Series Servo Drive Maintenance Guide



Industrial
Automation



Intelligent
Elevator



New Energy
Vehicle



Industrial
Robot



Rail
Transit



Data code 19011864 A01

Preface

Introduction

Thank you for purchasing the SV670N series servo drive developed by Inovance.

The SV670N series servo drive is a high-end servo drive designed based on global-leading standards and high-end application needs. It is featured with high speed, high precision, high performance, and tuning-free Function.

The servo drive covers a power range from 0.05 kW to 7.5 kW and carries EtherCAT communication interfaces to work with the host controller for a networked operation of multiple servo drives. The drive comes with the ITune function which supports adaptive stiffness level setting, inertia auto-tuning, and vibration suppression for easy use. The servo drive, together with an MS1 series high-response servo motor (with ultra-low, low or medium inertia) equipped with a 23-bit single-turn/multi-turn absolute encoder, serve to deliver a quiet and stable operation and accurate process control through the fully closed-loop function and internal process segment function.

The drive also offers dynamic braking. The drive aims to achieve quick and accurate position control, speed control, and torque control through high-performance solutions for automation equipment in such industries as electronic manufacturing, lithium batteries, manipulators, packaging, and machine tools.

This guide provides instructions on maintenance and repair of the equipment.

More Documents

Name	Data Code	Description
SV670N Series Servo Drive Selection Guide	19011851	Provides instructions on product selection, including the list of supporting components, technical data on the drive and motor, and the selection guide of cables.
SV670N Series Servo Drive installation Guide	19011862	Presents installation of the servo drive, including installation steps, , mechanical installation, and electrical installation.
SV670N Series Servo Drive Hardware Guide	19011853	Presents electrical design guidance of the equipment, description of terminals, required certificates and standards and solutions to common EMC problems.
SV670N Series Servo Drive Commissioning Guide	19011855	Presents servo commissioning, parameter descriptions, including the operating panel, commissioning software, commissioning procedure and a parameter list.
SV670N Series Servo Drive Function Guide	19011860	Presents functions and parameters, including function overview, basic servo functions, adjustment and parameter list.

Name	Data Code	Description
SV670N Series Servo Drive Communication Guide	19011865	Presents functions and parameters of the servo drive, including EtherCAT communication configuration, parameter description, and communication application cases.
SV670N Series Servo Drive Troubleshooting Guide	19011863	Introduces faults and fault levels, the troubleshooting process, warning codes and fault codes.
SV670N Series Servo Drive Maintenance Guide	19011864	Provides instructions on maintenance and repair of the equipment.
SV670N Series Servo Drive Safety Guide	19011861	Presents the safety function and related certifications and standards, wiring, commissioning process, troubleshooting, and functions.
SV670N Series Servo Drive Manual Package	PS00005527	Provides information on selection, installation, commissioning, function, troubleshooting and parameters of the equipment.

Revision History

Date of Revision	Version	Description
2022-07	A01	Updated the image on the front cover.
2022-04	A00	First release.

Document Acquisition

This manual is not delivered with the product. You can obtain the PDF version by visiting:

- <http://www.inovance.com>.
- Scan the QR code on the equipment to acquire more.

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1 Routine Maintenance

1.1 Routine Maintenance

Standard operating conditions:

Average annual ambient temperature: 30°C Average load rate: < 80% Daily operating time: < 20 h

1.1.1 Routine Checklist

Check the following items during routine inspection.

Table 1-1 Routine checklist

No.	Routine Checklist	Checked
1	The ambient temperature and humidity are normal. There is no dust or unwanted objects in the servo drive.	<input type="checkbox"/>
2	There is no abnormal vibration or noise.	<input type="checkbox"/>
3	The voltage of the power supply is normal.	<input type="checkbox"/>
4	There is no strange smell.	<input type="checkbox"/>
5	There are no fibers adhered to the air inlet.	<input type="checkbox"/>
6	There is no intrusion of unwanted object on the load end.	<input type="checkbox"/>

1.1.2 Routine Cleaning List

Check the following items during routine cleaning.

Table 1-2 Routine cleaning list

No.	Routine Cleaning List	Checked
1	Clean the dust on the equipment surface, especially the metallic dust.	<input type="checkbox"/>
2	Keep the front end of the servo drive and the connectors clean.	<input type="checkbox"/>

Note

- Cut off the power supply before cleaning. Clean the equipment with an air gun or a piece of dry cloth.
 - Do not use the gasoline, diluent, alcohol, acidic or alkaline detergent during cleaning to prevent enclosure discoloration or damage.
-

1.2 Periodic Inspection

1.2.1 Periodic Checklist

Table 1–3 Periodic checklist

No.	Item	Checked
1	The screws used to fix the couplings between devices are in place.	<input type="checkbox"/>
2	There is no sign of overheating.	<input type="checkbox"/>
3	Terminal blocks are in good condition without any sign of damage.	<input type="checkbox"/>
4	The clamping units of terminal blocks are in place.	<input type="checkbox"/>

1.2.2 Periodic Maintenance List

The electrical and electronic parts inside the servo drive may be mechanically worn out and degraded. To keep the servo drive and servo motor in good condition, perform parts replacement based on the replacement cycles listed in the following table. Contact Inovance or Inovance agent before replacement to double check whether the part needs to be replaced.

Object	Type	Standard Replacement Interval	Remarks
Drive	Power bus capacitor	About 8 years (ambient temperature: 30°C; load rate: 80%; uptime per day: 20 hours; standard environment ⁽¹⁾)	The standard replacement interval is for reference only. If any device/component works improperly before the replacement interval expires, replace it immediately.
	Fan	5 years (ambient temperature: 30°C; load rate: 80%; uptime per day: 20 hours; standard environment ⁽¹⁾)	
	Control circuit aluminum electrolytic capacitor	About 10 years (ambient temperature: 30°C; load rate: 80%; uptime per day: 20 hours; standard environment ⁽¹⁾)	
	Pre-charge relay	100000 operations (depending on the operating conditions)	
	Pre-charge resistor	20000 operations (depending on the operating conditions)	
	Dynamic brake relay	About 1000 times (rated motor speed; interval: 5 min; inertia: 20 times)	
	Dynamic brake resistor		

Object	Type	Standard Replacement Interval	Remarks
Motor	Bearing	3 to 5 years (20,000 h to 30,000 h)	
	Oil seal	5000 h	
	Encoder	3 to 5 years (20,000 h to 30,000 h)	
	Absolute encoder battery	Depends on the operating condition See the operation instructions for the encoder battery for details.	

Note

For standard environment, see section Requirements on Installation Environment in the relevant installation guide.

2 Parts Replacement

2.1 Replacing the Motor Flat Key



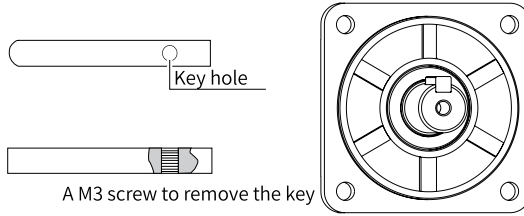
Caution

- Observe all the requirements presented in this chapter. Failure to comply may result in equipment fault or damage.
- Violent disassembly is not allowed. Take enough care during disassembly to prevent personal injury.

Standard MS1 series motors in flange sizes 60, 80, and 130 adopt C-type flat key that carries the disassembly hole. To disassemble the flat key, select a proper disassembly bolt (inner hexagon bolt recommended) based on the following table.

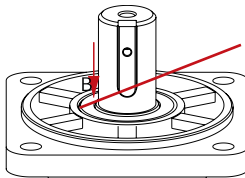
Specifications		
Motor	Dimensions of the Flat Key	Specifications of the Disassembly Bolt (Inner Hexagon Bolt)
Size 40	Type-A flat key—A3×3×14	No disassembly hole
Size 60	Type-C flat key—C5×5×16.5	M3 x 10 and above
Size 80	Type-C flat key—C6×6×25	M3 x 15 and above
Size 100	Type-C flat key—C8×7×35	M3 x 20 and above
Size 130	Type-C flat key—C8×7×35	M3 x 20 and above
Size 180	Type-C flat key—C10×8×64	M3 x 20 and above

- Tool needed: an Allen wrench
- Disassembly procedure:
 1. Select a proper disassembly bolt (inner hexagon bolt recommended) based on the motor model.
 2. Use an Allen wrench to screw down the screw until the A-A end of the flat key is detached from the keyway, as shown below. See the following figure.

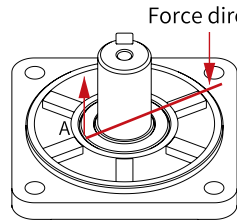


2.2 Removing the Motor Oil Seal

- Tools needed: a pair of needle-nose pliers, a pair of slip-proof gloves, and a piece of cotton cloth.
- Disassembly procedure:
 1. Put the cotton cloth onto the supporting point B to avoid the end cover from being scratched during disassembly.
 2. Secure the motor and use the needle-nose pliers to hold point A of the oil seal lip.
 3. Pry the oil seal out gradually against the supporting point B.



(Support point B is at the step of the extension)



(Support point A is at the outer lip of the oil seal)



19011864A01

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