

**FANUC AC SERVO MOTOR series**

**OPERATOR'S MANUAL**

**B-54764E/01**

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- The appearance and specifications of this product are subject to change without notice.

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Should you wish to export or re-export these products, please contact FANUC for advice.

In this manual, we endeavor to include all pertinent matters.

There are, however, a very large number of operations that must not or cannot be performed, and if the manual contained them all, it would be enormous in volume.

It is, therefore, requested to assume that any operations that are not explicitly described as being possible are "not possible".

Cautions on actual operation and maintenance are written in this manual. It is recommended to handle or check servo motor according to this manual.

### 1. Acceptance

Immediately upon the receipt of servo motor, check the following items.

- Whether the motor is exactly the specified one—type, detector, etc..
- Whether there is any mechanical damage sustained in transit.
- Whether there is any loosened screw or play.
- Whether the rotating part can be normally turned by hand.
- In case of motor with brake, whether brake is normal.

Every servo motor undergoes strict inspection before shipment, therefore any special receipt inspection may not be required. If receipt inspection is particularly needed, however, it is advisable to refer to the specifications regarding the wiring of servo motor and detector, current, and voltage, so as to make the inspection without any mistake.

### 2. Storage

- Don't leave the received motor outdoors, but preserve it indoors.
- Avoid storing it at the following place.
  - Extremely high or low humidity.
  - Radical change of temperature.
  - Dust.
  - Stationary vibration.
- Before mounting or operation, please check bearings and insulation.

### 3. Mounting

Note the following items when mounting the servo motor to machine.

- (1) The water-proof structure of servo motor is not so strict. If cutting oil, lubricating oil, etc. penetrate into the inside of the motor, these may cause poor insulation, short-circuit of the coil. Therefore, due care should be taken so that the motor body will be kept away from such liquids as cutting oil and so on.
- (2) When mounting the servo motor on the gear box where liquid lubrication is performed, if the lip of the oil seal is always exposed to oil, there is a possibility that the oil may penetrate little by little into the inside of the motor in the course of a long time. Therefore the height of the oil level must be lower than the oil seal lip. When the servo motor is mounted with the output shaft upward, mount another oil seal at machine side so as to make the structure where the oil which passed through the first oil seal can directly flow outside.
- (3) The servo motor is coupled with the load through the direct coupling, gears, timing belt or such. In any case the force exerted on the motor shaft must not exceed the values shown in the following table, therefore due care should be taken for the operating condition, mounting method, and mounting accuracy.

Motor model	Permissible radial load
1-0, 2-0	25 kg
0, 5	75 kg
10, 20, 30, 30R	450 kg

- The values of permissible radial loads are the ones when the load is imposed on the end of the shaft. The values in this table indicate the maximum permissible loads which are the sum of the constant force always exerted on the shaft owing to the mounting method (e.g., the force given by the tension of the belt when the belt coupling is used) and the force generated by the load torque (e.g., the force transmitted from the gear face).
- As a rule, axial load to the shaft should be avoided. Servo motor contains precise detectors, so excess axial shock may give damage to detectors.
- In case of fitting the key, set the motor shaft on wooden material and hammer the key so as not to give great shock to bearings.

#### 4. Wiring

Make the wiring between the servo motor and the control circuit without any mistake, just as specified in the specifications. (See the connection diagram in maintenance manual or description.) A mistake made in the wiring may cause runaway or abnormal oscillation and may give damage to the motor or the machine. When the wiring is completed, measure the insulation between the power line and the motor frame before turning on the power. The measurement should be made with a 500V megger. Further, check the insulation between the signal lines and the motor frame with a multi-tester. Be sure not to use a megger especially for measuring the insulation of the signal lines for the pulse coder.

#### 5. Operation and maintenance

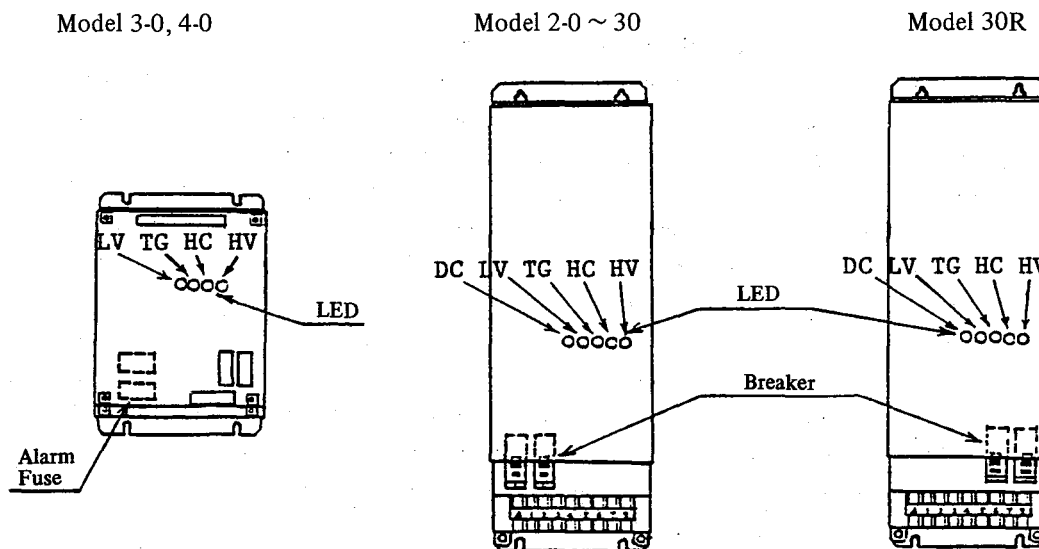
As a rule, AC servo motor is free from periodic maintenance, because wearing parts are not included. But bearings or detectors are precise parts, so false operation or handling might cause failure or trouble. Please check following items at every chance.

- Bearing; unusual noise, vibration.
- Motor temperature; unusual temperature of motor surface.
- Insulation of winding to the motor body; more than 1 Mohm by 500 VDC megger.  
(Don't check signal line by a megger, detector will be destroyed by high voltage.)

#### 6. Trouble & inquiry

When the trouble happened, please confirm the following condition and inform our service station.

- (1) Servo unit
  - (a) Alarm fuses are blown or not, breaker is on or not.
  - (b) Which alarm indicating LED lights on or not.



- (2) Motor
  - (a) Motor type, No. in the nameplate.

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