



Service Manual

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EDM

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Hashida Giken

Osaka, Japan

L I S T No. 3 4 9 8



## Warning

Potential fire, electrical, and/or falling object hazard

- Inspection is to be done in correspondence with this manual
- Analysis, modification, or repair of any part in the device is forbidden
- Inspection is to be done with the power switched off.
- Use of this device is to be done only with the authorized 100VAC power supply



## Caution

Risk of injury and/or mechanical failure

- Do not turn off the power when the door is in motion
- Do not turn on the power when there is a person or object in the vicinity of the door.

## 1. Scope

This manual is written for the purpose of maintaining proper functionality of the EDM automatic door system so as to allow for the continued safe passage of pedestrians and vehicles, etc. Guidelines for the proper maintenance of the system are outlined in this manual.

## 2. Inspection and Maintenance

Regular inspection of this automatic door system is to be conducted quarterly.

### 6 – 1 Components to be inspected

- 1) Automatic door system (drive system and electronic components)
- 2) Sensors
- 3) Door

### 6 – 2 Frequency of inspection for special components

The frequency of inspection for certain components varies due to their impact on safety, as well as their relative rates of wear and fatigue. The inspection schedule for these parts is outlined in Table 1 below.

Table 1

| Criterion for inspection                                      | Inspection Frequency |
|---|----------------------|
| Components important for maintaining safety and functionality | Every 3 months       |
| Components with low rate of malfunction                       | Twice per year       |
| Components that must be checked for wear and fatigue          | Once per year        |

### 6 – 3 Items for inspection and evaluation procedures

Refer to Table 2 for evaluation criteria.

### 3. Maintenance

The following procedures are to be done in order to ensure the safe and proper functionality of the EDM automatic door system.

1) Adjustment

Adjust settings (brake power, door hold-open time, etc.) and reposition parts if necessary.

2) Secure fasteners

All bolts and fasteners are to be tightened securely.

3) Clean moving parts

Rollers and rails are to be cleaned of any dirt.

4) Part replacement

Replace parts that are likely to fail before the next inspection.

### 4. Repair

Repair is to be done as determined necessary and in accordance with the results of the inspection.

1) Part Replacement

Parts showing signs of wear are to be identified and replaced if deemed necessary.

### 5. Regular Part Replacement

Determining the lifetime of certain parts can be difficult by judging their appearance or by taking measurements, and as such they are to be replaced at regular intervals based on their frequency of use or by the lifespan of that particular component.

Table 2

| Item for Inspection          |                                       | Inspection Method         | Inspection Interval |       |       | Condition for Maintenance                     | Maintenance Procedure |
|------------------------------|---------------------------------------|---------------------------|---------------------|-------|-------|---|-----------------------|
|                              |                                       |                           | 3 mo.               | 6 mo. | 1 yr. |   |                       |
| Door and Sash                | Sensor cover fasteners                | Visual, screwdriver, etc. | ○                   |       |       | Loose bolts                                   | Tighten bolts         |
|                              | Obstruction inside guide rail         | Visual                    | ○                   |       |       | Obstruction present                           | Clean                 |
|                              | Damage to door                        | Visual                    | ○                   |       |       | Damaged                                       | Repair, replace       |
|                              | Check door sticker                    | Visual                    | ○                   |       |       | Defect present                                | Repair, replace       |
|                              | Abnormal sound                        | Listen                    | ○                   |       |       | Abnormality present                           | Adjust                |
|                              | Clearance between door and sensor     | Visual                    | ○                   |       |       | Clearance has changed by 1mm or more          | Adjust                |
|                              | Door clearance in open position       | Visual                    | ○                   |       |       | Vertical clearance has changed by 1mm or more | Adjust                |
|                              | Clearance between door and door frame | Visual                    | ○                   |       |       | Clearance has changed by 1mm or more          | Adjust                |
|                              | Clearance between door and guide rail | Visual                    | ○                   |       |       | Clearance has changed by 1mm or more          | Adjust                |
| Hanger and Rail              | Door stroke                           | Measure                   | ○                   |       |       | Change of $\pm 10\text{mm}$                   | Adjust                |
|                              | Dust/dirt inside rail                 | Visual                    | ○                   |       |       | Present                                       | Clean                 |
|                              | Rail fasteners                        | Visual, wrench, etc.      |                     |       | ○     | Loose   | Tighten               |
|                              | Rail wear                             | Visual, touch, etc.       |                     |       | ○     | Unevenness detected                           | Repair, replace       |
|                              | Dirt/dust on roller                   | Visual                    | ○                   |       |       | Present                                       | Clean                 |
|                              | Roller fasteners                      | Visual, wrench, etc.      |                     | ○     |       | Loose   | Tighten               |
|                              | Wear or damage of roller              | Visual                    | ○                   |       |       | Damaged or worn                               | Repair, replace       |
|                              | Stopper fasteners                     | Visual, wrench, etc.      |                     | ○     |       | Loose   | Tighten               |
|                              | Retainer clearance                    | Thickness gauge           | ○                   |       |       | Unsuitable clearance                          | Adjust                |
| Drive Related Components     | Manual operation of door              | Open and close by hand    | ○                   |       |       | Unsmooth operation                            | Adjust                |
|                              | Abnormal sound                        | Listen                    | ○                   |       |       | Abnormality                                   | Adjust                |
|                              | Main drive unit fasteners             | Visual, wrench            |                     | ○     |       | Loose   | Tighten               |
|                              | Rubber shock isolators                | Visual                    |                     | ○     |       | Deformation present                           | Repair, replace       |
|                              | Idler pulley fasteners                | Visual, wrench            |                     | ○     |       | Loose   | Tighten               |
|                              | Sprocket or pulley fasteners          | Visual, wrench            |                     | ○     |       | Loose   | Tighten               |
|                              | Wear in belt, chain, or wire          | Visual                    |                     | ○     |       | Damaged or deformed                           | Repair, replace       |
| Belt, chain, or wire tension | Visual, touch                         |                           | ○                   |       | Loose | Tighten                                       |                       |

| Item for Inspection | Inspection Method  | Inspection Interval       |                       |                       | Condition for Maintenance | Maintenance Procedure                     |                 |
|---------------------|--|---------------------------|-----------------------|-----------------------|---------------------------|---|-----------------|
|                     |  | 3 mo.                     | 6 mo.                 | 1 yr.                 |                           |   |                 |
|                     |  |                           |                       |                       |                           |   |                 |
| Control             | Opening/Closing Speed  | Visual                    | <input type="radio"/> |                       |                           | Inappropriate setting                     | Adjust          |
|                     | Hold-open timer  | Visual                    | <input type="radio"/> |                       |                           | Inadequate timer setting                  | Adjust          |
|                     | Brake  | Visual                    | <input type="radio"/> |                       |                           | Unsmooth operation                        | Adjust          |
|                     | Door position sensor   | Visual, screwdriver       | <input type="radio"/> |                       |                           | Loose                                     | Tighten         |
|                     | Power switch   | Check operation           | <input type="radio"/> |                       |                           | Abnormality upon turning switch on or off | Repair, replace |
|                     | Control equipment installation                               | Visual, screwdriver, etc. |                       |                       | <input type="radio"/>     | Loose                                     | Tighten         |
| Sensor              | Detection range  | Measure                   | <input type="radio"/> |                       |                           | Range is less than 70% of door width      | Adjust          |
|                     | Sensor operation   | Confirm operation         | <input type="radio"/> |                       |                           | Unexpected behavior                       | Repair, replace |
|                     | Sensor fasteners   | Visual, wrench, etc.      | <input type="radio"/> |                       |                           | Loose                                     | Tighten         |
|                     | Dirt/dust on sensor  | Visual                    | <input type="radio"/> |                       |                           | Present                                   | Clean           |
| Circuit             | Wire supports  | Visual, wrench, etc.      |                       | <input type="radio"/> |                           | Loose                                     | Tighten         |
|                     | Connection of wires  | Visual, gently pull wires |                       | <input type="radio"/> |                           | Loose                                     | Reconnect       |
|                     | Cracked or worn wires  | Visual                    |                       |                       | <input type="radio"/>     | Damage, wear present                      | Repair, replace |
|                     | Check power source voltage                                   | Voltmeter, DMM            |                       |                       | <input type="radio"/>     | Out of nominal range (AC100V ± 10V)       | Repair, replace |
|                     | Insulation resistance (AC100V and motor circuit)             | Ohmmeter, DMM             |                       |                       | <input type="radio"/>     | Over 10MΩ                                 | Repair, replace |
| Other               | All fasteners  | Visual, wrench, etc.      |                       | <input type="radio"/> |                           | Loose                                     | Tighten         |
|                     | Signs of wear in all components                              | Visual                    |                       | <input type="radio"/> |                           | Wear, damage present                      | Repair, replace |
|                     | General door operation (normal operation and reverse motion) | Visual                    | <input type="radio"/> |                       |                           | Irregular behavior                        | Adjust          |