

[To customers who have used Mitsubishi elevators and escalators for a long time]

Even if they are maintained appropriately, it is inevitable that elevators and escalators will break down and deteriorate when used for a long time.

Deterioration stemming from long-term use further increases the chance that the equipment used in elevators and escalators will break down.

Depending on what breaks down, elevators and escalators may not start, people may be trapped inside, and other unexpected disasters may occur. Therefore, we recommend modernization before it is too late.

If you decide to continue using your elevators and escalators because of your circumstances, carry out appropriate inspections and, where necessary, replacements of all the equipment. Equipment that requires special caution is described below.

For details, contact your maintenance company or our local agent.

* Components not listed in this document may also need to be repaired and replaced.

* Components may be discontinued for some models.

[Elevator components]

See pages 2 to 5.

Information on the Maintenance Manual for Elevator Main Components is available on the Mitsubishi website.

Also refer to this manual. (https://www.mitsubishielectric.com/elevator/maintenance/model_manual_select.html)

[Escalator components]

See page 6.

Information on the Maintenance Manual for Escalator Main Components is available on the Mitsubishi website.

Also refer to this manual. (https://www.mitsubishielectric.com/elevator/maintenance/model_manual_select.html)

1. Elevators

(1) Components common to all models

| Component | Inspection points and replacement guidelines |
|-------------------------------------|--|
| Battery for emergency power supply | Drop in voltage or capacity |
| Stabilized power supply | Deterioration of electric insulator in electrolytic capacitor, electric circuit, wiring component, etc. |
| Lighting fixture | Deterioration of electric insulator in electric circuit, wiring component, etc. |
| Intercom system | Deterioration of electric insulator in electric circuit, wiring component, etc. |
| Electromagnetic contactor and relay | Heat, odor, noise, discoloration, accumulation of dust or scrap metal, and decreased resistance of insulation resistor |
| Reactor and transformer | Noise and decreased resistance of insulation resistor |
| Wire and cable | Disconnection, contact failure of connecting terminal, cracks in sheath, and decreased resistance of insulation resistor |
| Blower | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor |
| Main rope | See the information on the Mitsubishi website. |
| Car door hanger system | Rattling of shaft part; roller cracks, detachment, and wear; and noise due to roller detachment |
| Car door shoe | Noise, surface wear, and mounting bracket deformation |
| Car door connecting rope | Rope breakage, wear, and kinks and rope wire breakage |
| Car door link | Noticeable shaft part or bearing part rattling, wear, or rust |
| Door motor | Noise when opening/closing door, vibration, and decreased resistance of insulation resistor |
| Car door switch | Increased resistance of contact resistor |
| Diffuser of fan in car | Mounting boss breakage and resin whitening and cracks |
| Landing door hanger system | Rattling of shaft part; roller cracks, detachment, and wear; and noise due to roller detachment |
| Landing door shoe | Noise, surface wear, and mounting bracket deformation |
| Landing door link | Noticeable shaft part or bearing part rattling, wear, or rust |
| Landing door connecting rope | Rope breakage, wear, and kinks and rope wire breakage |
| Landing door interlock device | Noticeable shaft part or bearing part rattling, wear, or rust and operating status of latch, hook, and switch |
| Resistor in operating panel | Abnormal resistor value and rust, corrosion, cracks, and damage in resistor body and soldered parts |

(2) High speed elevators (minimum rated speed: 120 m/min)

✓ : The component is installed in the model.

| Component | Inspection points and replacement guidelines | Model | | |
|--|---|---|---|---|
| | | DC variable voltage control system (ward leonard) | DC variable voltage control system (thyrista leonard) | Inverter control |
| Phase advance capacitor (low voltage type) | Case swelling and oil leakage | ✓ | ✓ | |
| Main circuit electrolytic capacitor (control panel) | Drop in capacity and explosion proof valve swelling | | | ✓ |
| Main circuit electrolytic capacitor (car station) | Drop in capacity and explosion proof valve swelling | | | ✓ (VFDH, VFEH, VFGH/A) |
| Hydraulic clasper (for hydraulic brake) | Oil leakage | | | ✓ (VFDH, VFEH, VFGH/A) |
| Printed circuit board (with electrolytic capacitors) | Deterioration of electrolytic capacitor | ✓ | ✓ | ✓ |
| Traction machine | Body (brake) | See the information on the Mitsubishi website. | | |
| | Driving motor | ✓ | ✓ | ✓ |
| Noise filter | Abnormal heat, discoloration, and case swelling and breakage | | | ✓ |
| Snubber circuit components | Abnormal heat, discoloration, and case swelling and breakage | | | ✓ |
| Selenium rectifier | Paint peeling and abnormal heat | ✓ | | |
| Selector motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | | |
| Brake coil | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | ✓ | ✓ |
| Hydraulic pump motor (for hydraulic brake) | Abnormal vibration, noise, odor, oil leakage, and decreased resistance of insulation resistor | | | ✓ (VFDH, VFEH, VFGH/A) |
| Car door toothed belt | Abnormal opening/closing of the door; abnormal vibration; noise; installation part looseness, wear, and rust; and belt part cracks and wear | | | ✓ (belt-driven door operator system) |

| | | |
|----------------------|---|--|
| High speed elevators | DC variable voltage control system (ward leonard) | GL-RWBL (rototrol), GL-DMN, GL-DMS, GL-TFH, GL-TFN |
| | DC variable voltage control system (thyrista leonard) | GL-SMN/SMH, GL-SHM/SHH, GL-TLCM/TLCH |
| | Inverter control | VFML, VFMW/HW, VFMWA/HWA, VFDH, VFEH, VFGH, VFGHA |

* Check the control system on the nameplate attached on the control panel.

(3) Low speed elevators (maximum rated speed: 105 m/min)

✓ : The component is installed in the model.

| Component | Inspection points and replacement guidelines | Model | | | |
|--|---|---|------------------------------------|----------------------------|---|
| | | 1 speed alternating current control system/ 2 speed alternating current control system | DC variable voltage control system | AC feedback control system | Inverter control |
| Phase advance capacitor (low voltage type) | Case swelling and oil leakage | ✓ | ✓ | ✓ | |
| Main circuit electrolytic capacitor (control panel) | Drop in capacity and explosion proof valve swelling | | | | ✓ |
| Main circuit electrolytic capacitor (car station) | Drop in capacity and explosion proof valve swelling | | | | ✓ (excluding the VFCL/VFCLA) |
| Printed circuit board (with electrolytic capacitors) | Deterioration of electrolytic capacitor | | ✓ | ✓ | ✓ |
| Traction machine | Body (brake) | See the information on the Mitsubishi website. | | | |
| | Driving motor | ✓ | ✓ | ✓ | ✓ |
| Noise filter | Abnormal heat, discoloration, and case swelling and breakage | | | | ✓ |
| Snubber circuit components | Abnormal heat, discoloration, and case swelling and breakage | | | | ✓ |
| Selenium rectifier | Paint peeling and abnormal heat | ✓ | ✓ | | |
| Ribbon resistor | Cracks, deformation, discoloration, and abnormal resistor value | ✓ | | | |
| Selector motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | ✓ | ✓ (ACEE-1, ACEE-2) | |
| Brake coil | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | ✓ | ✓ | ✓ |
| Car door toothed belt | Abnormal opening/closing of the door; abnormal vibration; noise; installation part looseness, wear, and rust; and belt part cracks and wear | | | | ✓ (belt-driven door operator system) |

* Low speed elevators 1 speed alternating current control system/2 speed alternating current control system
 DC variable voltage control system
 AC feedback control system
 Inverter control

AC-1, AC-2(R)
 GD-CL, DCFE, DCFP
 ACEE-1, ACEE-2, AC-E1LE, AC-E2LE, AC-E4LP
 VFCL, VFCLA, VFDL, VFDLA, VFEL, VFEL, VFGL, VFGLC, VFGL

* Check the control system on the nameplate attached on the control panel.

(4) Compact elevators and hydraulic elevators

✓ : The component is installed in the model.

| Component | Inspection points and replacement guidelines | Model | | |
|--|---|--|------------------|---|
| | | Compact elevators | | Hydraulic elevators |
| | | AC feedback control system | Inverter control | |
| Phase advance capacitor (low voltage type) | Case swelling and oil leakage | ✓ | | ✓ |
| Main circuit electrolytic capacitor (control panel) | Drop in capacity and explosion proof valve swelling | | ✓ | ✓ |
| Main circuit electrolytic capacitor (car station) | Drop in capacity and explosion proof valve swelling | | ✓ | ✓ (HVJ only) |
| Printed circuit board (with electrolytic capacitors) | Deterioration of electrolytic capacitor | ✓ | ✓ | ✓ (HVA, HVJ) |
| Traction machine | Body (brake) | See the information on the Mitsubishi website. | | |
| | Driving motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | ✓ |
| Hydraulic pump motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | | | ✓ |
| Noise filter | Abnormal heat, discoloration, and case swelling and breakage | | ✓ | |
| Snubber circuit components | Abnormal heat, discoloration, and case swelling and breakage | | ✓ | |
| Selector motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ (ACEE-3 only) | | ✓ (excluding the HVA and HVJ) |
| Brake coil | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor | ✓ | ✓ | |
| Car door toothed belt | Abnormal opening/closing of the door; abnormal vibration; noise; installation part looseness, wear, and rust; and belt part cracks and wear | ✓ (manufactured in June 1988 or later) | ✓ | ✓ (HVA and HVJ belt-driven door operator system) |

* Compact elevators AC feedback control system ACEE-3, AC-E3LE

 Inverter control VFDR, VFGR

Hydraulic elevators HVC, HVB, HVE, HVE-G, HVA, HVJ

* Check the control system on the nameplate attached on the control panel.

2. Escalators

(1) Components common to all models

| Component | Inspection points and replacement guidelines |
|-------------------------------------|--|
| Stabilized power supply | Deterioration of electric insulator in electrolytic capacitor, electric circuit, wiring component, etc. |
| Lighting fixture | Deterioration of electric insulator in electric circuit, wiring component, etc. |
| Electromagnetic contactor and relay | Heat, odor, noise, discoloration, accumulation of dust or scrap metal, and decreased resistance of insulation resistor |
| Reactor and transformer | Noise and decreased resistance of insulation resistor |
| Wire and cable | Disconnection, contact failure of connecting terminal, cracks in sheath, and decreased resistance of insulation resistor |
| Driving motor | Abnormal vibration, noise, odor, and decreased resistance of insulation resistor |
| Drive chain | Chain elongation, rust, cracks, and breakage |

(2) Model-specific components

✓ : The component is installed in the model.

| Component | Inspection points and replacement guidelines | Model | |
|--|--|---------------------------|---|
| | | Types D, EP, K, ES, and G | Types A, N, and J; spiral escalator; and moving walk |
| Phase advance capacitor (low voltage type) | Case swelling and oil leakage | ✓ | ✓ |
| Main circuit electrolytic capacitor | Drop in capacity and explosion proof valve swelling | | ✓ (types A, N, and J) |
| Selenium rectifier | Paint peeling and abnormal heat | ✓ | ✓ (types A, N, and J) |
| Noise filter | Abnormal heat, discoloration, and case swelling and breakage | | ✓ (types A, N, and J) |
| Snubber circuit components | Abnormal heat, discoloration, and case swelling and breakage | | ✓ (types A, N, and J) |
| Brake (without bushing) | Bearing part wear | ✓ | ✓ (types N and J and spiral escalator) |
| Printed circuit board (with electrolytic capacitors) | Deterioration of electrolytic capacitor | | ✓ (types A, N, and J) |
| Drum brake | Body | | |
| | Brake coil | ✓ | ✓ (type A and moving walk) |
| Disc brake | See the information on the Mitsubishi website. | | ✓ (types N and J and spiral escalator) |
| Speed reducer oil seal | Oil leakage from shaft part | | ✓ |
| Step chain | Chain elongation, rust, cracks, and breakage | ✓ | ✓ (types N and J and spiral escalator) |
| Step drive roller | Wear, cracks, detachment, and bearing damage (deterioration of grease) | ✓ | ✓ (excluding the moving walk) |
| Step following roller | Wear, cracks, detachment, and bearing damage (deterioration of grease) | ✓ | ✓ (excluding the moving walk) |
| Pallet link drive roller | Wear, cracks, detachment, and bearing damage (deterioration of grease) | | ✓ (moving walk only) |