

FUJITEC

ELEVATOR MODERNIZATION

FOR ROYAL SUPERDYNE (ACVV) Models



Necessity of →→→→→→→→

Modernization

Even with periodic maintenance, it is generally difficult to maintain optimal elevator performance beyond the original service life. As user requirements and social needs change over time, the original elevator performance itself no longer meets the needs of the times.

Under such circumstances, owners and managers are now **requested to maintain elevator safety and security** from the standpoint of elevator users.

▶▶ Security

With old elevators, there is a growing risk for failure or accidents, which may trigger more unexpected trouble. By modernizing, electrical systems that have higher risks for failure due to age, while usable parts remain unchanged, will be replaced and upgraded. For durable goods such as elevators, we do not recommend makeshift repairs.

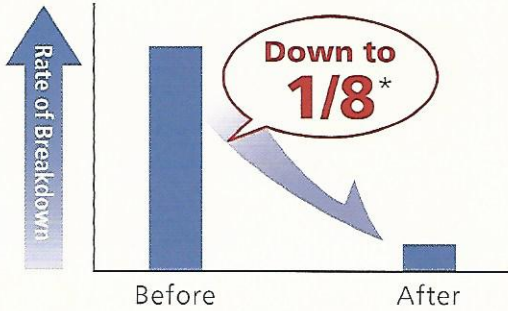
▶▶ Safety

Based on manufacturer's product information (*1) including design concept at the time of manufacturing, we study the effect on the entire system and how remaining portions interact with upgraded portions; thus minimizing failure risk after modernization. In addition, various safety devices, systems and functions that are standard features in the latest elevator models will be added.

(*1) If any elevator maintenance or modernization work had been consigned or outsourced to a third-party other than Fujitec or any of its affiliated companies, the original design may have been modified. In this case, consult a Fujitec sales representative.

►► Improvement in Operation Performance

Breakdown Rate varies greatly from pre- and post modernization.
(Survey by Fujitec)



* For Plan C, D or E (See page 6.)

* Excluded is malfunction due to nuisance and vandalism.

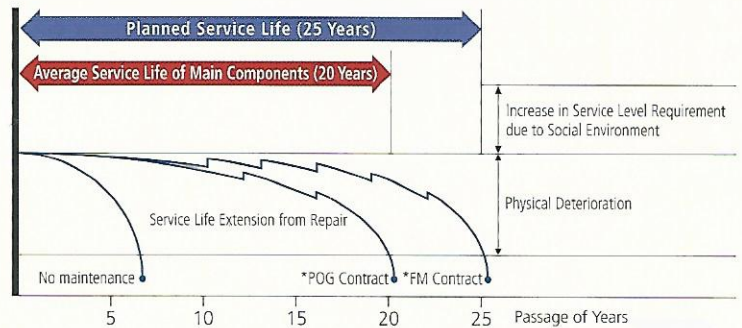
►► Recommended Elevator Modernization Schedule

An old elevator is inferior to the latest one in terms of safety, comfort, reliability and energy savings, as well as in design. In order to make in-building travel safer and more comfortable and to enhance the value of a building or property, elevator modernization is indispensable.

The average elevator replacement cycle is 20 to 25 years.

Elevators which have passed 20 years of service since installation are recommended to be modernized to meet the standards or specifications of latest models.

Service Life and Modernization



* POG Contract = Parts, Oil, Grease Contract

* FM Contract = Full Maintenance Contract

Equipment
Renewal
Energy saving



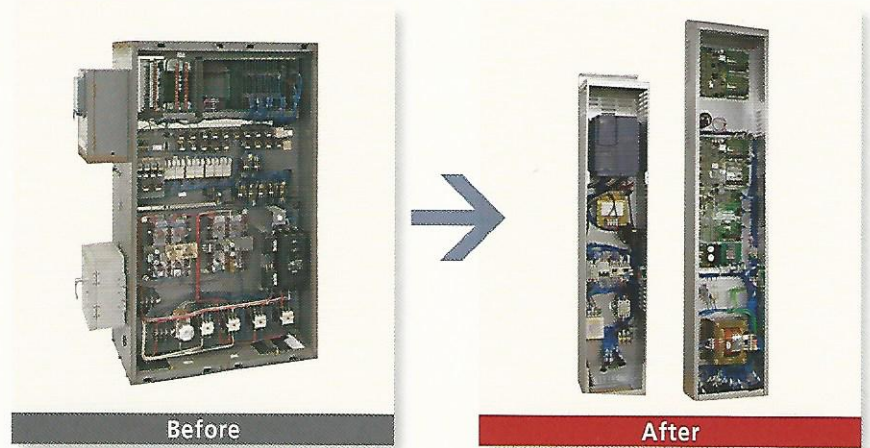
1 Safety and Security

Being Trouble-free is the Best Solution

Just replacing deteriorated parts is not enough to eliminate the risk for failure or accidents. The replacement or repair of deteriorated parts do nothing more than to partially or temporarily stop deterioration from age and usage.

On the other hand, through modernization, older or antiquated microcomputer-controlled systems are replaced with the latest high-performance microcomputer-controlled systems.

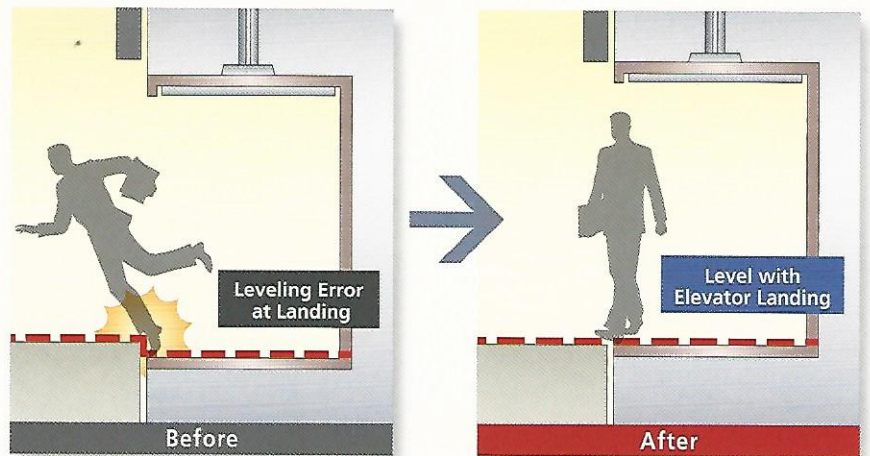
Therefore, basic elevator performance will be brought to the latest standards, and safety. In addition, comfort and cost effectiveness will be dramatically enhanced.



* This is just an example; actual model may differ.

Prevent Tripping due to Leveling Error

The latest inverter control ensures excellent landing precision.



Prevent Accidents Caused by Closing Doors

Multibeam Sensor Option

Infrared beams along the full opening height of the doors will create an invisible beam curtain. Interrupting any of the beams will cause the closing doors to stop and reopen. Through the use of multi-infrared beams, the sensor features high detectability of a moving person or object while the door is closing.

* Only two beams are available for some elevator models.



Daily Essential Inspection

Brake inspection operation will be automatically performed once every day, late at night or early in the morning; when there are few passengers in order to diagnose brake performance.

The elevator detects abnormalities, ensuring appropriate preventative maintenance.

* Please note that the above operation will not apply to Plan A. (See page 6.)

2 Comfort, Function Improvements, Energy Savings

Smooth Ride

The Latest Inverter Control(VVVF) Enhances Ride Quality

The latest inverter control system ensures the best traveling performance. Much smoother operation and dramatically improved ride quality will be obtained.

Noise Reduction in Machine Room

VVVF-controlled motors dedicated especially to elevator operation will minimize motor-generated noise. Owing to this large reduction of the noise, a level of noise in surrounding areas of machine rooms is much lowered in comparison of that caused by conventional ACVV-controlled motors.

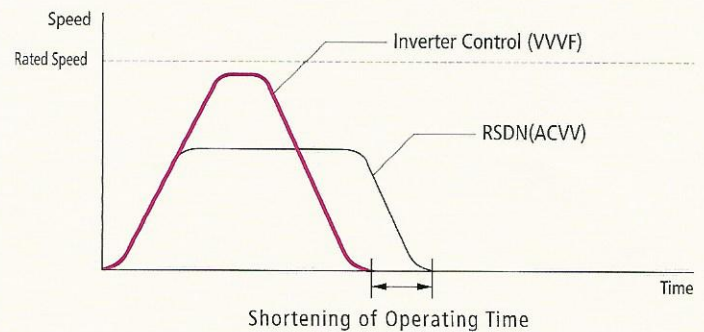
Improved Handling Capacity

Optimal Control Shortens Operating Time

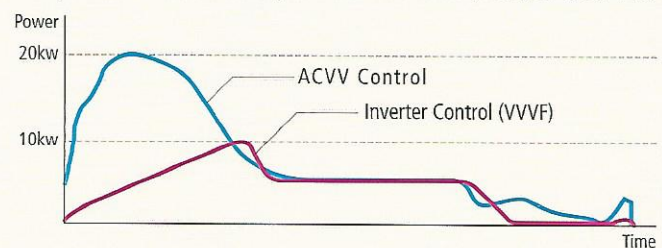
Optimal speed control will be performed in such cases as travelling only one floor in order to shorten operating time.

* Note: This will not apply to Plan A.

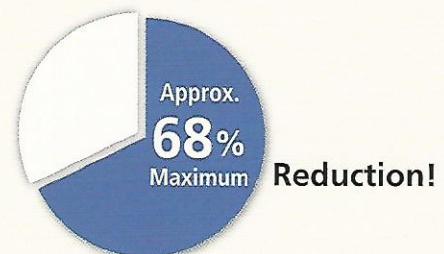
● Comparison of Operating Time: Inverter Control (VVVF) vs. RSDN (ACVV)
(In the event of traveling only one floor in which rated speed cannot be attained)



● Comparison of Power Consumption: Inverter Control (VVVF) vs. RSDN (ACVV)



● Power Consumption Reduction Percentage by Modernization



Saving Energy and Eco-Friendly

High Cost Efficiency

The latest inverter control meticulously controls the traction motor to meet the speed changes at the time of acceleration and deceleration, thus lowering power consumption by a maximum of about 68 percent (Comparison based on existing Fujitec models).

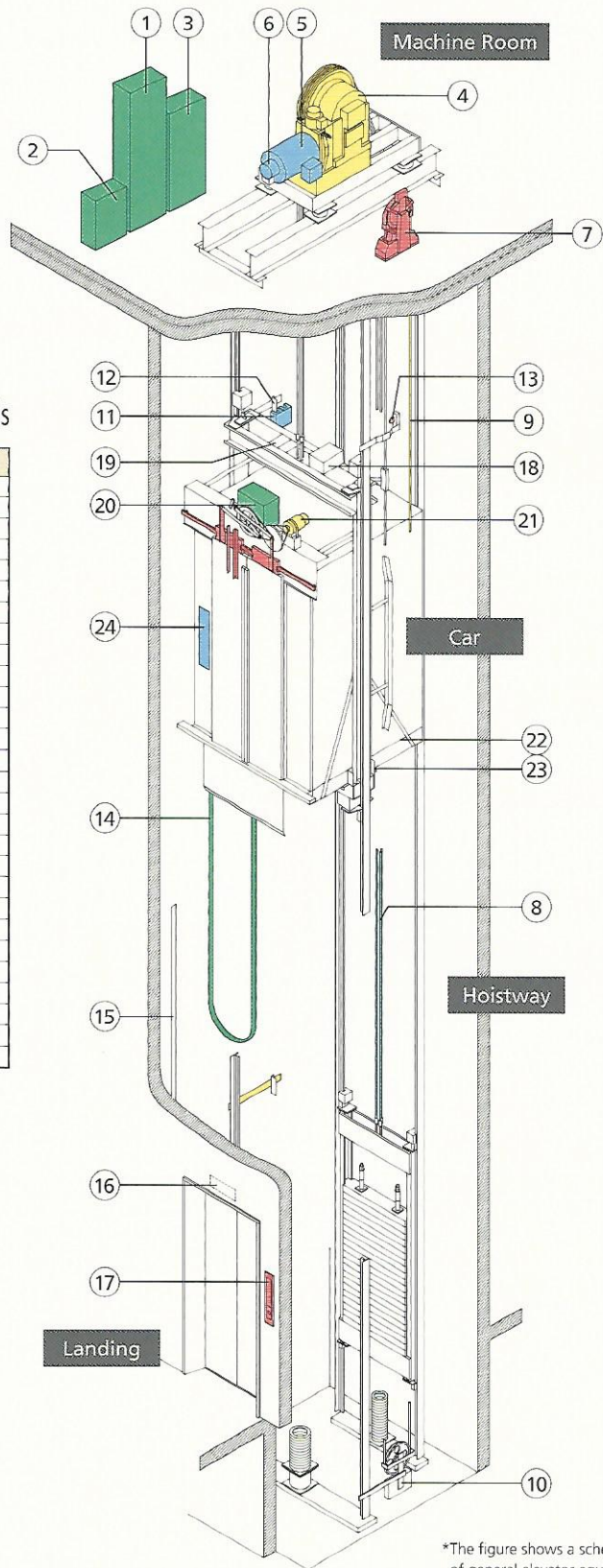
As a result, this will enable your elevator to be reborn as "an Eco-Elevator," which will contribute to the reduction of CO₂ emissions.

Modernization Menu

What is an Elevator Control Panel?

The Control Panel (COP) is a device located in an elevator machine room on the rooftop of a building and controls elevator operation and speed. So-called elevator's brain, the COP is an important device. But with the passage of service years, deterioration appears earliest in the COP

[Layout of Main Elevator Equipment]



Modernization Menu

Standard Package of Modernization for ROYAL SUPERDYNE (ACVV) Models

No.	Equipment	Plan A	Plan B	Plan C	Plan D	Plan E
1	COP	*2	●	●	●	●
2	Sub COP		★	★		
3	Inverter BOX	★				
4	Machine					
	Machine body				*1	●
	Brake	*1	*1	*1	*1	●
	Main Sheave					●
5	Motor					
	Motor body	●	●	●	●	●
	Coupling	●	●	●	●	●
6	Encoder	★	★	★	★	★
7	Governor					●
8	Main Rope					●
9	GV. Rope				●	●
10	Tension Pulley					●
11	IR		●	●	●	●
12	IR Plate					●
13	Limit SW.				●	●
14	Travelling Cable			●	●	●
15	HWY Cable				●	●
16	Interlock SW				●	●
17	HPI, Hall Bottom				●	●
18	Car Top JB,			●	●	●
19	Car Top Service SW.			●	●	●
20	Door Drive Unit[DR13]		●	●	●	●
21	Door Motor		●	●	●	●
22	Load Weighing				●	●
23	Load Cell	*3	*3	*3	*3	*3
24	COB			●	●	●

(Note)

●:Replace. ★:Additional.

*1:Overhaul is required.

*2:Modification is required.

*3:An addition may be required by elevator type.

*The figure shows a schematic diagram of general elevator equipment.

Standard Package of Modernization for ROYAL SUPERDYNE (ACVV) Models

Plan A (Inverter Control)

An inverter will be installed for the speed control unit. Elsewhere, existing parts, except motor, will be reused. The package minimizes parts replacement, aiming at price reduction and shorter work time.

Plan B (Simple COP Replacement)

The COP, motor and IR switches will be upgraded and an inverter will be installed for the door. Existing parts will be reused elsewhere. To reuse non-distributed control type of landing fixture devices (HB and HIN), Sub COP will be added as a measure.

Plan C (COP Replacement)

The COP, motor and electrical devices in the vicinity of the car will be upgraded. To reuse non-distributed control type of landing fixture devices (HB and HIN), Sub COP will be added as a measure.

Plan D (Control Upgrade with Traction Machine Re-use)

A set of electrical systems will be modernized to improve quality and performance.

Plan E (Control Upgrade with Traction Machine Replacement)

In addition to a set of electrical systems modernization, traction machine will be replaced with the latest drive unit so as to improve ride quality.

- * HB : Hall Button
- * HIN: Hall Indicator
- * COP: Control Panel

Comparison of Product Packages

	Plan A	Plan B	Plan C	Plan D	Plan E
Low Cost	⊙	○	○	△	△
Short Work Time	⊙	○	○	△	△
Stable Parts Supply	○	⊙	⊙	⊙	⊙
Increased Reliability and Safety with Modernization of Electrical Systems	△	○	○	⊙	⊙
Securement of Safety due to Overhaul of Brake	⊙	⊙	⊙	⊙	⊙ Replace traction machine.
Increased Door Performance and Safety Enhancement	—	⊙	⊙	⊙	⊙
Failure Risk Reduction	△	○	○	⊙	⊙
Increased Leveling Accuracy	⊙	⊙	⊙	⊙	⊙
Flight Time Reduction	—	⊙	⊙	⊙	⊙
Power Consumption Reduction	○	⊙	⊙	⊙	⊙

⊙: Excellent ○: Good △: Fair

- * For landing or in-car fixture devices and in-car lighting devices consult Fujitec sales representatives.
- * Specifications and features are subject to change without notice.