

Movable Cam Assembly

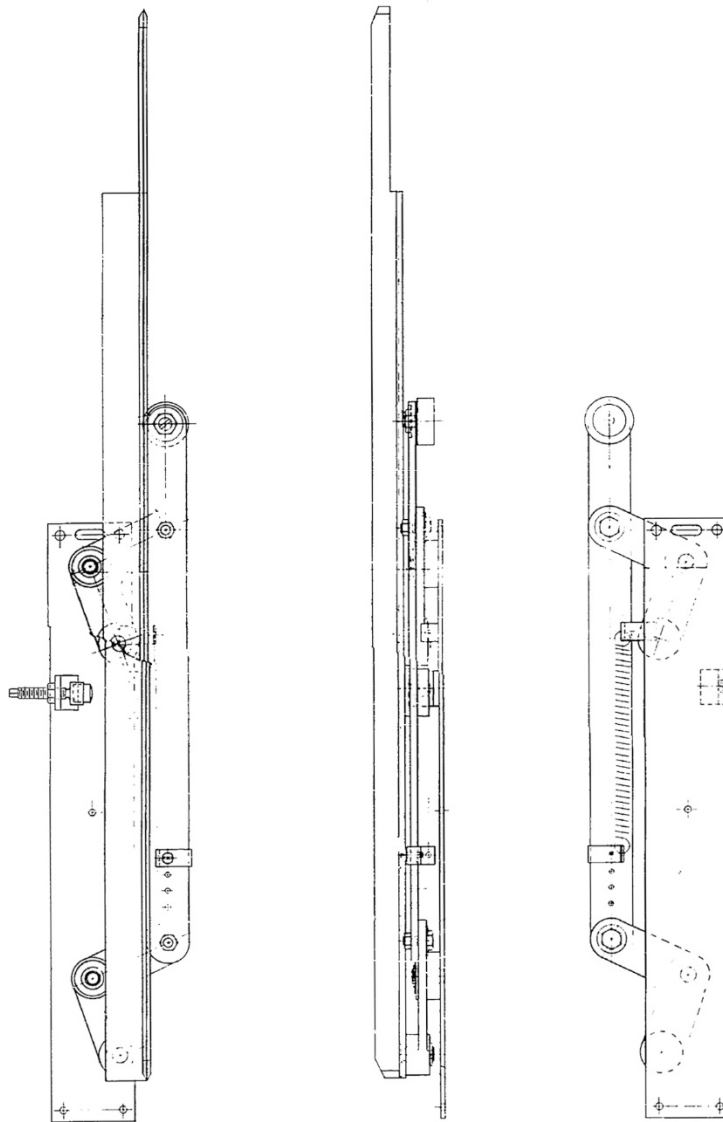
Types 6970F, A6970F,
B6970F, and C6970F

Spare Parts Leaflet

24-6970F

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Type 6970F W/O VINTAGE
Type A6970F W/O VINTAGE
Type B6970F W/O VINTAGE
Type C6970F W/O VINTAGE



OTIS

This document does not contain any
technical data subject to EAR or ITAR

SERVICE ENGINEERING

Otis Elevator Company

Bloomfield, Connecticut USA

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Leaflet Description

This leaflet provides spare parts information for types 6970F, A6970F, B6970F, and C6970F movable cam assemblies. Otis incorporated movable cam assemblies of this type for use with the earliest 6940 door locks. While the history for the reasons behind its use are a bit sketchy, it is very likely the following two reasons for its use (which today in 2018 or later are no longer valid) were of paramount importance in the 1950s, 60s, and 70s. The design of the 6940 door lock and the movement of the “pickup/unlocking” roller causes a lag of the hall door panel compared to the car door panel of about 3/4 in. to 7/8 in.

When old style Safety Shoes were being used by Otis as the “door protection means,” it is likely Otis desired to provide as much clear access as possible from the hall side, for a passenger to compress and deflect that safety shoe in order to provide for door re-open. The movable door vanes shown in this SPL would have provided for such optimal access by translating the hall door panel leading edge to end up “flush” with the position of the car door panel leading edge in the full open position. As the doors got closer to fully closed position, the design of the movable vane allowed for the hall door to then lead the car door again.

The other reason for the use of this door vane design could very well have been to accommodate the use of the early Otis balanced bridge detector door protection means. While not certain, it is very possible the balanced bridge detector, with the doors in the full open position, would “detect” or “pick up” the presence of the hall door hanging in front of (leading) the car door by ~ 7/8 in. if only a solid (non-movable) door vane was used. This movable door vane design would eliminate the presence of an object leading in front of the car door.

As stated above and as stated in the service replacement note on page 3, unless safety shoes are still in place, there would seem to be no reason to perpetuate the movable door vane design if a door crash occurs. A local decision with the building manager must be made prior to removal of the movable door vane, so there is no surprise of the new look to the full open door relationship, which often exposes the previously unseen portion of the cab return panel wrap. Car and Hall door relationship will no longer be “flush-flush” if the solid door vane (per page 5) is incorporated.

Leaflet Revisions

Date Revised	Subject Matter Expert	Reason for Revision
June 6, 2018	Brian Regan	New SPL
November 20, 2019	Peter Kelley	Revised history page

Related Drawings

Drawing No.	Title	Drawing No.	Title
6970F	6970F Movable Cam Assembly	A6970F	6970F Movable Cam Assembly
B6970F	Assembly 6970F Movable Cam	C6970F	Assembly Movable Cam

Related Documents

Document ID	Title
SPL 23-7770A	<i>Door Operator Type 7770R</i>
SPL 23-7782AA	<i>Harmonic Drive QL Operator</i>
SPL 23-10200A	<i>OVL-NAO, OVL-P, OVL-HPM Door Operators</i>
SPL 23-7770R	<i>Type 7770R Door Operator Elevonic® 101</i>

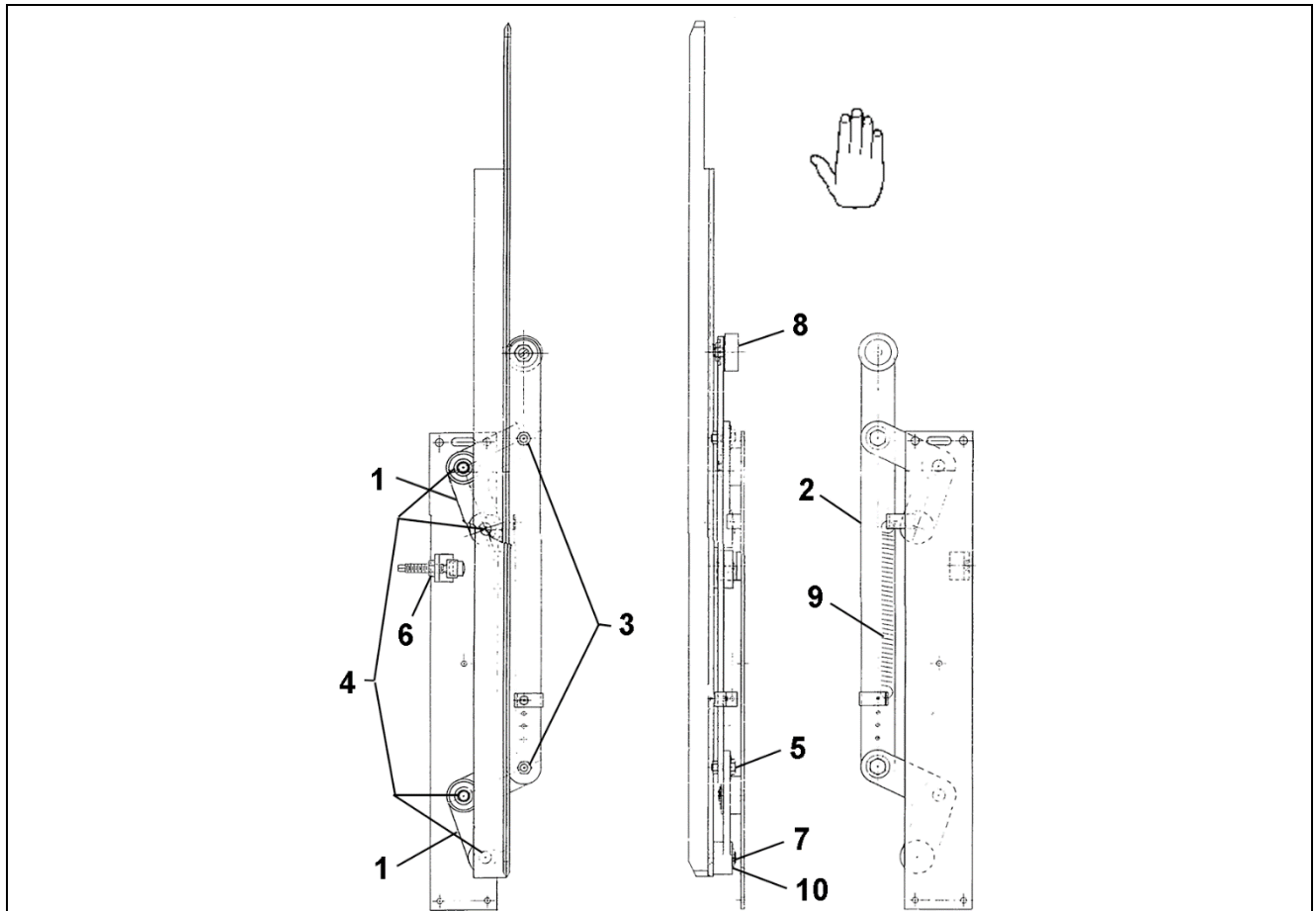
Subject Matter Expert

Name	Department
Peter Kelley	OSC Service Engineering

Movable Cam Assembly

Types 6970F and A6970F

24-6970F

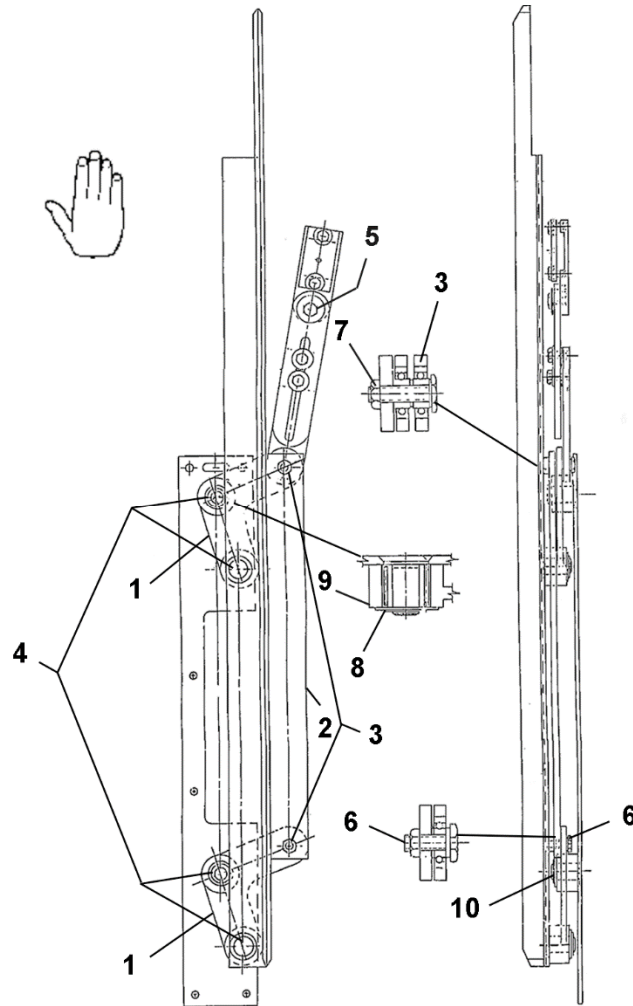


REF. No.	PART No.	DESCRIPTION
	6970F A6970F	
1	A307AG1	Assembly, Bellcrank w/ Bearings, for Right Hand Vane Assembly
	A307AG2	Assembly, Bellcrank w/ Bearings, for Left Hand Vane Assembly
2	A430CH1	Bar, ~19 in. Long, w/ 3/8 in. Fine Tapped Holes
3	207R2	Bearing, Ball, Kit w/ Spacer Washers
4	209A9	Bearing, Roller, Needle Machine
5	59A2	Bolt, Hex, 3/8, Special, Fine Thread, 1.25 in. Long (including head)
6	320AR1	Bumper, Rubber, 3/4 in. x 3/4 in. Diameter
7	172DE9	Ring, Retaining, 4 per Assembly
8	456CE4	Roller, 2 in. Dia. w/ Poly Tire, 1/2 in. Eccentric Stud
9	91B16	Spring, Extension, ~8.8 in. Long x 5/8 in. OD (special order; lead time involved)
10	127VB83	Washer, Flat, 1.5 in. OD, 4 per Assembly

NOTE: Should the sheet metal base along with its pivot axles or the long vane member itself experience damage, it is no longer cost effective to replace the entire movable (monkey motion) vane assembly – the recommendation is to change out to a fixed car door vane: AAA6940BZ3 or BZ4. Note unlocking zone requirements in your region. Consult TIP and local codes for more information. Be advised of the loss of translating motion of the vane once the change to fixed (non-movable vane) is done. Doors (hall and car) in full open position, will no longer be flush-flush, rather car door will lead the hall door by ~ 7/8 in.

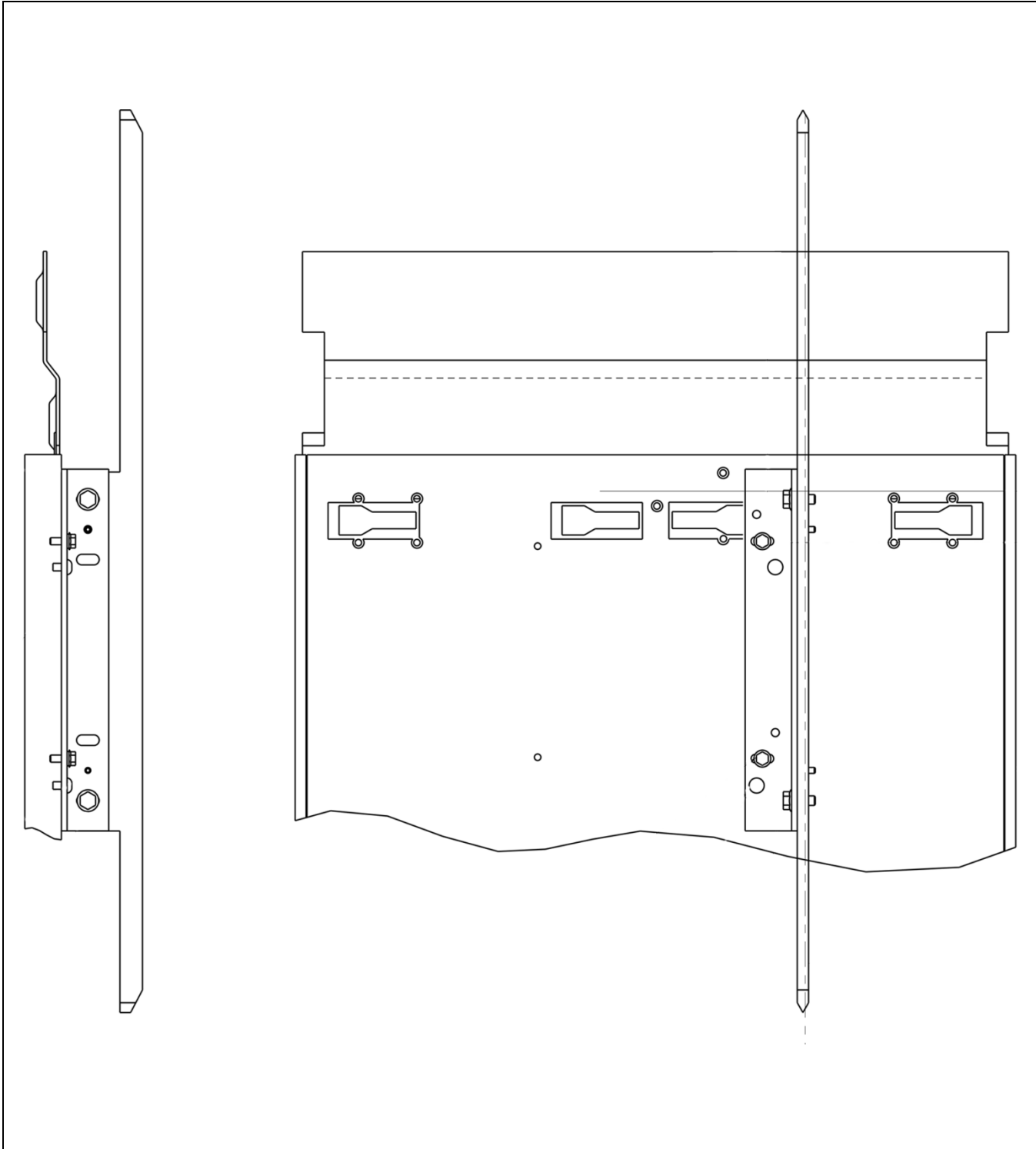
24-6970F

Movable Cam Assembly Types B6970F and C6970F



B6970F C6970F		
REF. No.	PART No.	DESCRIPTION
1	A307AG1	Assembly, Bellcrank w/ Bearings, for Right Hand Vane Assembly
	A307AG2	Assembly, Bellcrank w/ Bearings, for Left Hand Vane Assembly
2	A430CH1	Bar, ~19 in. Long, w/ 3/8 in. Fine Tapped Holes
3	207R2	Bearing, Ball, Kit w/ Spacer Washers
4	209A9	Bearing, Roller, Needle Machine
5	65EA4	Bolt, Hex, 3/8, Fine Thread, 23/32 Long (for last link)
6	59A2	Bolt, Hex, 3/8, Special, Fine Thread, 1.25 in. Long (including head)
7	59A6	Bolt, Hex, 3/8, Special, Fine Thread, 1.44 in. Long (including head)
8	172DE9	Ring, Retaining, 4 per Assembly
9	127VB52	Washer, Flat, 1/32 in. Thick, 2 per Assembly
10	127VB83	Washer, Flat, 1.5 in. OD, 4 per Assembly

* Part not shown.



AAA6940BZ	
PART No.	DESCRIPTION
AAA6940BZ3	Vane, Right Hand, 12 in. Long (ANSI Code Reduced 7 in. Unlocking Zone Purpose)
AAA6940BZ4	Vane, Left Hand, 12 in. Long (ANSI Code Reduced 7 in. Unlocking Zone Purpose)