

Elevator Management State Tables

[mint.elevator.td.8](#)

Version 3.3.2

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This model was created by Leon Starr at

M O D E L I N T E G R A T I O N , L L C

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Accessible Shaft Level

	External	Stop request	Floor calling	Stop serviced	Serviced floor request	Internal	Stop registered	Floor request registered	Wait for service	All requests cleared	Opposite floor call pending	Check stop request
NOT REQUESTED		Registering stop	Registering floor call	CH-1	CH-1		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
REQUESTED		Registering stop	Registering floor call	Clear stop request	Clear floor request		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
Registering stop		CH-BEE	CH-BEE	CH-BEE	CH-BEE		Requesting service	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Registering floor call		CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	Requesting service	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Requesting service		CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	REQUESTED	CH-BEE	CH-BEE	CH-BEE
Clear floor request		CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	Clear stop request
Clear stop request		CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	NOT REQUESTED	REQUESTED	CH-BEE

Comments

Comment	Description
1	Transfer only sends this signal to a requested ASLEV. So, something is out of sync and horribly wrong if this happens.
BSG	Blind to Self Generated. Self generated event in other state cannot be seen here.
BEE	Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.

Floor Service

	External	Cabin arrived	Cancel	Internal	Middle floor	Top or bottom floor
WAITING FOR CABIN		Check bank level type	CH-1		CH-BSG	CH-BSG
HOLDING SERVICE DIRECTION		CH	COMPLETED		CH-BSG	CH-BSG
COMPLETED		CH	CH		CH-BSG	CH-BSG
Check bank level type		CH-BEE	CH-BEE		HOLDING SERVICE DIRECTION	COMPLETED

Comments

Comment	Description
1	<i>Transfer cannot be out of sync with the floor service. It is the source of both external events.</i>
BSG	<i>Blind to Self Generated. Self generated event in other state cannot be seen here.</i>
BEE	<i>Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.</i>

R53 // Shaft

	External	Transfer completed	Service requested	Internal	No destination	Transfer created	Dest change evaluated
NO TRANSFER		CH-1	Searching for new destination		CH-BSG	CH-BSG	CH-BSG
TRANSFER IN PROGRESS		Searching for new destination	Searching for alternate destination		CH-BSG	CH-BSG	CH-BSG
Searching for new destination		CH-BEE	CH-BEE		NO TRANSFER	TRANSFER IN PROGRESS	CH-BEE
Searching for alternate destination		CH-BEE	CH-BEE		CH-BEE	CH-BEE	TRANSFER IN PROGRESS

Comments

Comment	Description
1	<i>There is no Transfer instance in this state, so one cannot complete</i>
BSG	<i>Blind to Self Generated. Self generated event in other state cannot be seen here.</i>
BEE	<i>Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.</i>

Transfer

	External	Execute	Destination change request	Cabin redirected	Ready to move	Cabin at destination	Door closed	Requests cleared	Internal	Wait for cabin	Stationary update	Cabin dispatched	Redirect requested	Update in motion	Call in progress	Wait to clear	Reversal checked
CREATED		Creating or updating transfer	CH-1	CH-2	CH-3	CH-2	IGN-4	CH-5		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
WAITING FOR CABIN		CH-6	Changing destination before cabin moves	CH-7	Dispatching cabin	CH-8	IGN-4	CH-9		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
CABIN IN MOTION		CH-10	Request redirect	Match new destination of cabin	CH-11	Check for cabin reversal	CH-12	CH-9		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
CALL IN PROGRESS		CH-10	IGN-13	CH-14	CH-15	CH-16	Canceling floor service	CH-9		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
WAITING FOR REQUESTS TO CLEAR		CH-10	IGN-13	CH-14	CH-15	CH-16	IGN-17	Delete		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
Creating or updating transfer		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		WAITING FOR CABIN	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Changing destination before cabin moves		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	WAITING FOR CABIN	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Dispatching cabin		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CABIN IN MOTION	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Request redirect		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CABIN IN MOTION	CH-BEE	CH-BEE	CH-BEE	CH-BEE
Match new destination of cabin		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CABIN IN MOTION	CH-BEE	CH-BEE	CH-BEE
Check for active floor service		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CALL IN PROGRESS	WAITING FOR REQUESTS TO CLEAR	CH-BEE
Check for cabin reversal		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	Check for active floor service
Canceling floor service		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	WAITING FOR REQUESTS TO CLEAR	CH-BEE
Delete		CH-DS	CH-DS	CH-DS	CH-DS	CH-DS	CH-DS	CH-DS		CH-DS	CH-DS	CH-DS	CH-DS	CH-DS	CH-DS	CH-DS	CH-DS

Comments for this table are on the next page

Transfer Comments

Comment	Description
1	<i>Execute event is sent from same state of Shaft that creates the Transfer. This event is also sent from Shaft, in a future state, so it will always be detected after transitioning out of this state.</i>
2	<i>Cabin hasn't been directed to move yet.</i>
3	<i>Cabin hasn't yet been directed to the state where this event would be sent.</i>
4	<i>Doors may open and close while waiting to hear back from the Cabin. But we don't care about closing unless we are waiting for floor service to expire after arrival.</i>
5	<i>Transfer hasn't directed that they be cleared yet.</i>
6	<i>Execute event is sent from same state of Shaft that creates the Transfer. So this event can't happen unless a whole new Transfer is created.</i>
7	<i>Cabin hasn't been requested to redirect.</i>
8	<i>The Cabin is stationary, so it can't be arriving anywhere.</i>
9	<i>We haven't yet tried to clear any stop or floor call requests yet, and they can't clear themselves alone. (Even an administration clear would have to first delete this instance of transfer).</i>
10	<i>Execute event is sent from same state of Shaft that creates the Transfer. So this event can't happen unless a whole new Transfer is created.</i>
11	<i>The Cabin has already reported this and cannot get back to a state where it can report it again without direction from this instance of Transfer, which won't be triggered.</i>
12	<i>The doors cannot be open when a cabin is moving. So, if we hear that they are just closed in this state, something has gone very wrong!</i>
13	<i>Shaft may have picked a destination, but we can't go there now. We will retrigger the search when this Transfer is deleted, so there is no danger of missing a request.</i>
14	<i>This event can only be sent from the cabin when it is moving. But it can't be moving in this state.</i>
15	<i>This event can only be sent from the cabin just before it begins moving. And it can't advance beyond that without direction from this instance. At this point the cabin has finished moving.</i>
16	<i>The cabin has already arrived.</i>
17	<i>Not likely to happen, but we just don't care at this point. There is no critical synchronization with the door once the call in progress has been canceled.</i>
BSG	<i>Blind to Self Generated. Self generated event in other state cannot be seen here.</i>
BEE	<i>Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.</i>
DS	<i>Deletion occurs in this state, so no events can be detected.</i>

Cabin

	External	Try redirect	Arrived at floor	New transfer	Doors secure	Go	Internal	Transport in progress	Transport unavailable	Already there	Prepare to move	Change requested
MOVING		Changing destination	PICKUP DROPOFF	CH-1	CH-2	CH-3		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
PICKUP DROPOFF		IGN-4	CH-5	Are we already there?	CH-6	CH-7		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
SECURING DOORS		CH-8	CH-5	CH-9	READY TO GO	CH-10		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
READY TO GO		CH-8	CH-5	CH-9	CH-11	Requesting transport		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
OUT OF SERVICE		CH-12	CH-12	CH-12	CH-12	CH-12		CH-BSG	CH-BSG	CH-BSG	CH-BSG	CH-BSG
Requesting transport		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		MOVING	OUT OF SERVICE	CH-BEE	CH-BEE	CH-BEE
Changing destination		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	CH-BEE	CH-BEE	MOVING
Are we already there?		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE	CH-BEE	PICKUP DROPOFF	SECURING DOORS	CH-BEE

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Cabin Comments

Comment	Description
1	<i>The transfer has already directed the cabin to move and it only does it once, so it can't happen again.</i>
2	<i>This is a serious 'out of sync' error. The doors must be secure (closed and locked) while the cabin is moving.</i>
3	<i>The transfer has already directed us to go and it only does this once during its lifecycle.</i>
4	<i>Possible if Transfer requests redirect just as arrival occurs. We can safely ignore because when the Transfer completes it will trigger another search for service.</i>
5	<i>Cabin is already stopped.</i>
6	<i>This only happens in response to lock requested in Securing Doors state. And we don't leave that state until the event happens.</i>
7	<i>Transfer can't send this event until after we advance to the Locking Transfer state</i>
8	<i>We have a new Transfer and it can't ask for a redirect until we get moving again.</i>
9	<i>Transfer already exists and won't be deleted until we get through another move cycle.</i>
10	<i>No, the whole point is to hold here until the transfer acknowledges that door is in the Locked state and the cabin is stationary.</i>
11	<i>Doors can't get back to the state where they report this until we've gone through another move cycle and have been locked again.</i>
12	<i>Final state. Interacting instances should verify in service status before sending any events.</i>
BSG	<i>Blind to Self Generated. Self generated event in other state cannot be seen here.</i>
BEE	<i>Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.</i>
DS	<i>Deletion occurs in this state, so no events can be detected.</i>

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Door

	External	Door opened	Door closed	Door blocked	Passenger open	Passenger close	Lock	Unlock	Delayed	Time to close	Internal	Open delay canceled	Hold released	Can't close door	Keep trying
OPENING		OPEN	CH-1	CH-2	IGN-3	CLOSING	IGN-4	CH-5		CH-DAC		CH-BSG	CH-BSG	CAN'T CLOSE	CAN'T CLOSE
OPEN		CH-6	CH-7	CH-8	IGN-9	Cancel open delay	IGN-4	CH-5		HOLDING OPEN		CH-BSG	CH-BSG	CH-BSG	CH-BSG
HOLDING OPEN		CH-6	CH-7	CH-8	IGN-9	IGN-10	IGN-4	CH-5		CH-DAC		CH-BSG	CLOSING	CH-BSG	CH-BSG
CLOSING		CH-11	CLOSED	OPENING	OPENING	IGN-12	IGN-4	CH-5		CH-DAC		CH-BSG	CH-BSG	CH-BSG	CH-BSG
CLOSED		CH-13	CH-14	CH-15	OPENING	IGN-16	LOCKED	CH-20		CH-DAC		CH-BSG	CH-BSG	CH-BSG	CH-BSG
LOCKED		CH-17	CH-14	CH-15	IGN-17	IGN-16	CH-18	OPENING		CH-DAC		CH-BSG	CH-BSG	CH-BSG	CH-BSG
CAN'T CLOSE		CH-19	CH-19	CH-19	CH-19	CH-19	CH-19	CH-19		CH-DAC		CH-BSG	CH-BSG	CH-BSG	CH-BSG
Cancel open delay		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE		HOLDING OPEN	CH-BEE	CH-BEE	CH-BEE
Count block		CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE	CH-BEE		CH-BEE		CH-BEE	CH-BEE	CAN'T CLOSE	OPENING

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Door Comments

Comment	Description
1	<i>Door is opening, so it should not detect 'closed'.</i>
2	<i>Block can only be reported while closing the door. (door jams while opening are not modeled, in this release anyway)</i>
3	<i>The passenger can hit the open button all they like at this point, but it will be ignored since the door is, in fact, opening now.</i>
4	<i>There's nothing to do at this point, but we assume the lock attribute will be set and we will check it later, so the event info is not lost.</i>
5	<i>Cabin is not able to progress to a state where it can send this event while we are opening the door.</i>
6	<i>The door is already open.</i>
7	<i>The door is open and cannot instantaneously be closed.</i>
8	<i>Makes no sense if the door is open.</i>
9	<i>Door is already open, so this is ignored.</i>
10	<i>Passenger is simultaneously requesting hold open and close. Open overrides, so we just ignore.</i>
11	<i>If we are closing, there's no way to become open.</i>
12	<i>We're already closing, so just ignore.</i>
13	<i>The door is closed and cannot instantaneously be open.</i>
14	<i>The door is already closed.</i>
15	<i>You can't block a closed door.</i>
16	<i>The door is already closed, so just ignore.</i>
17	<i>The whole point of this state is to ensure the door is not opened. It cannot open while locked.</i>
18	<i>The cabin is synched so that it won't issue another lock request before unlocking.</i>
19	<i>Presumably the shaft is out of service and no events will be issued until it is back in service again.</i>
20	<i>Cabin can't send an unlock before a lock, which would have put us in the LOCKED state</i>
BSG	<i>Blind to Self Generated. Self generated event in other state cannot be seen here.</i>
BEE	<i>Blind to External Events. This transient state reacts to its own self generated event only. So it should never see a non-self generated event.</i>
DS	<i>Deletion occurs in this state, so no events can be detected.</i>
DAC	<i>Delay always canceled. This is a delayed event that is canceled on any path that enters the current state.</i>

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