

Passenger Lift Services Ltd

# Hazard Rating / Risk Assessment Document

For

Access & Mega Under-floor Tail Lifts

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# SAFETY HAZARD RATING

## SECTION ONE

### HAZARDS OF LIFT OPERATION

# HAZARD RATING NUMBER SYSTEM

THE RISK IMPOSED BY SOME PARTICULAR HAZARD CAN BE TAKEN AS INCREASING:

- 1) WITH THE LIKELIHOOD THAT THE HAZARDOUS EVENT WILL ACTUALLY OCCUR,
- 2) WITH THE FREQUENCY OF EXPOSURE TO THAT EVENT,
- 3) WITH POSSIBLE CONSEQUENCES OF THAT EVENT,
- 4) WITH THE NUMBER AT RISK.

For risk calculations, numerical values are assigned to each of these factors, then an overall risk score is computed as the product of these separate factors. The numerical values, although arbitrarily chosen, are self-consistent and together they provide a realistic but relative score for the overall risk.

## **TABLE 1: PROBABILITY OF EXPOSURE TO / CONTACT WITH HAZARD (PE)**

0 =	IMPOSSIBLE: CANNOT HAPPEN UNDER ANY CIRCUMSTANCES
1 =	UNLIKELY: THOUGH CONCEIVABLE
2 =	POSSIBLE: BUT UNUSUAL
5 =	EVEN CHANCE COULD HAPPEN
8 =	PROBABLE: NOT SURPRISED
10 =	LIKELY: ONLY TO BE EXPECTED
15 =	CERTAIN: NO DOUBT

## **TABLE 2: FREQUENCY OF EXPOSURE TO HAZARD (FE)**

0.1 =	INFREQUENT
0.2 =	ANNUALLY
1.0 =	MONTHLY
1.5 =	WEEKLY
2.5 =	DAILY
4 =	HOURLY
5 =	CONSTANTLY

**TABLE 3: MAXIMUM PROBABLE LOSS (MPL)**

- 15 = FATALITY
- 8 = LOSS OF 2 LIMBS / EYES OR SERIOUS ILLNESS (PERMANENT)
- 4 = LOSS OF 1 LIMB / EYE OR SERIOUS ILLNESS (TEMPORARY)
- 2 = BREAK – MAJOR BONE OR MINOR ILLNESS (PERMANENT)
- 1 = BREAK – MINOR BONE OR MINOR ILLNESS (TEMPORARY)
- 0.5 = LACERATION / MILD ILL HEALTH EFFECT
- 0.1 = SCRATCH / BRUISE

NOTE: DAMAGE LOSSES (e.g. BASED ON COST) CAN ALSO BE INCLUDED ABOVE.

**TABLE 4: NUMBER OF PERSONS AT RISK (NP)**

- 1 = 1 – 2 PERSONS
- 2 = 3 – 7 PERSONS
- 4 = 8 – 15 PERSONS
- 8 = 16 – 50 PERSONS
- 12 = MORE THAN 50 PERSONS

$$\text{HAZARD RATING NUMBER} = \text{PE} \times \text{FE} \times \text{MPL} \times \text{NP}$$

**TABLE 5: FINAL SCORE CALCULATION**

<b>RISK</b>	<b>HRN</b>	<b>ACTION TIMETABLE</b>
ACCEPTABLE ACTION	0 – 1	ACCEPTABLE RISK / CONSIDER
VERY LOW	1 – 5	ACTION WITHIN 1 YEAR
LOW	5 – 10	ACTION WITHIN 3 MONTH
SIGNIFICANT	10 – 50	ACTION WITHIN 1 MONTH
HIGH	50 – 100	ACTION WITHIN 1 WEEK
VERY HIGH	100 – 500	ACTION WITHIN 1 DAY
EXTREME	500 – 1000	IMMEDIATE ACTION

Type of Risk	Risk Calculation					Comments / Action
	Hazard	PE	FE	MPL	NP	
Lack of Stability						
Platform Tilting	0	0.1	0.5	1	0	
Unintentional Movements	1	0.2	1	1	0.2	
Non-Slip Surface	5	1	0.1	1	0.5	
Loss of Mechanical Strength	1	0.2	1	1	0.2	
Wheel Chairs Rolling	2	0.2	2	1	0.8	
Slip Trip & Fall						
Between Platform & Floor	2	0.2	0.5	1	0.2	
Between Lift & Vehicle Edge	2	0.2	0.5	1	0.2	
Between Platform & Arms	1	0.1	0.5	1	0.05	
Ramp Stop & Floor	5	0.2	0.1	1	0.1	
Bridging Plate & Vehicle Floor	2	0.2	0.5	1	0.2	
Unhealthy Postures						
Working Area	2	0.2	0.5	1	0.2	
Manual Effort	5	0.2	0.5	1	0.5	
Location of Control Positions	2	1	0.1	1	0.2	
Location of Lift Mechanisms	2	0.1	0.5	1	0.1	
Secure Footing	5	1	0.1	1	0.5	
Dangerous Environments						
Location of Control Positions	2	1	0.1	1	0.2	
Exhaust Gases	2	0.2	0.5	1	0.2	
Position Related to Road	2	0.2	1	1	0.4	
Pedestrians	1	0.2	0.1	1	0.02	
Uneven Ground	10	2.5	0.1	1	2.5	Longer ramp stop where poss'
Weather Conditions	1	0.1	0.5	1	0.05	
Visibility of Lift Mechanisms	2	0.2	1	1	0.4	
Correct Working Light	5	1	0.1	1	0.5	
Uncontrolled Movements						
Rack & Pinion Drive	1	0.2	0.1	1	0.02	
Arm Cylinder Motion	2	1	0.1	1	0.2	
Powered Ramp Stop	1	0.2	0.5	1	0.1	

Inadequate View of Moving Parts						
Working Area	2	0.2	0.1	1	0.04	
Visibility of Platform	1	0.1	0.5	1	0.25	
Location of Control Devices	1	0.1	0.1	1	0.4	
Visibility of Arms	2	0.2	0.1	1	0.04	
Adequate Space for Operation	5	1	0.1	1	0.5	
Mechanism Overload						
Loading Control	5	1	0.1	1	0.5	
Pressure Limiting Devices	1	0.1	1	1	0.1	
Electrical Circuit Protection	1	0.1	1	1	0.1	See Annex A
Operators Instructions	1	0.2	0.1	1	0.02	
Overload Signaling	2	0.2	0.1	1	0.04	
Fire / Explosion Hazards						
Electrical Box	2	0.1	0.1	1	0.02	
Electrical Switches	1	0.1	0.1	1	0.01	
Hydraulic Fluid	1	0.1	0.1	1	0.01	
Faulty Fuses	2	0.1	0.1	1	0.02	
Mental Handicap of Passengers						
Operators Instructions	5	1	0.1	1	0.5	
Attendants Competence	2	1	0.5	1	1	Action Within 1 Year
Other Hazards: (please list)						
					0	
					0	
Notes:						

# SAFETY HAZARD RATING

## SECTION TWO

### HAZARDS OF LIFT PRODUCT

Type of Risk	Risk Calculation					Comments / Action
	Hazard	PE	FE	MPL	NP	
Finger Trap						
Between Platform & Arms	2	0.1	1	1	0.2	
Between Cylinder & Arms	2	0.1	1	1	0.2	
Between Platform Aluminium	5	0.2	0.1	1	0.1	
Between Bridge Plate & Aluminium	1	0.1	1	1	0.1	
Bottom of Handrail Holder	1	0.1	0.5	1	0.05	
Foot Trap						
Between Platform & Floor	2	0.2	1	1	0.4	
Between Lift & Vehicle Edge	1	0.1	1	1	0.1	
Between Platform & Arms	1	0.1	1	1	0.1	
Ramp Stop & Floor	5	1	0.1	1	0.5	
Hose Burst	1	0.1	0.5	1	0.05	
Hand Damage						
Sharp Edge of Aluminium	2	1	0.1	1	0.2	
Sharpe Edge of Stainless Steel	1	1	0.1	1	0.1	
Hand Rails	2	1	0.1	1	0.2	
Ramp Stop Handle	1	0.1	0.1	1	0.01	
Box Lock	2	0.1	0.1	1	0.02	
Fluid Leak						
Hoses at Side of Platform	5	1	0.1	1	0.5	
Hoses at Back of Carriage	5	0.2	0.1	1	0.1	
Trailing Hoses	2	0.1	0.1	1	0.02	
Hoses to Pump	2	0.1	0.1	1	0.02	
Hydraulic Motor	2	0.1	0.1	1	0.02	
Hydraulic Pump	8	1	0.1	1	0.8	
Hand Pump	8	1	0.1	1	0.8	
Cylinders	2	0.2	0.1	1	0.04	
Drive Systems (Under Power)						
Rack & Pinion Drive	0	0.1	1	1	0	
Arm Cylinder Motion	2	0.1	1	1	0.2	
Powered Ramp Stop	1	0.1	1	1	0.1	

Product Hazards						
Leakage	10	0.2	0.1	1	0.2	
Fumes	1	0.1	0.5	1	0.05	
Corrosive	8	0.2	0.1	1	0.16	See Annex B
Toxicity	0	0.1	0.1	1	0	
Electrical	2	0.2	0.1	1	0.04	
Product Temperature Hazards						
Pump	2	0.2	0.1	1	0.04	
Hydraulic Motor Overheat	1	0.1	0.1	1	0.01	
Flow Regulators	2	0.1	0.1	1	0.02	
Relays	5	0.2	0.1	1	0.1	
Switches	5	0.2	0.1	1	0.1	
Fire / Explosion Hazards						
Electrical Box	2	0.1	0.1	1	0.02	
Handset curly cable	1	0.1	2	1	0.2	
Electrical Switches	1	0.1	0.1	1	0.01	
Hydraulic Fluid	1	0.1	0.1	1	0.01	
Faulty Fuses	2	0.1	0.1	1	0.02	
Back Injuries						
Pulling Out Lift	2	0.1	2	1	0.4	
Operating Lock	2	0.1	1	1	0.2	
Other Hazards: (please list)						
					0	
					0	
Notes:						