



LIFT-U, DIVISION OF HOGAN MFG., INC

## **Loading System**

An automatically-controlled, power-operated ramp system compliant to requirements defined in 49 CFR Part 38, Subpart B, §38.23c shall provide ingress and egress quickly, safely, and comfortably, both in forward and rearward directions, for a passenger in a wheelchair from a level street or curb. The ramp shall be a fold out design and located at the (Front or Rear) door. Ramp model type must have a proven revenue service of 24 months minimum.

When the system is not in use, the passageway shall appear normal. In the stored position of the ramp, no tripping hazards shall be presented and resulting gaps shall be minimized. In the deployed position, the platform's inboard surface adjacent the aisle shall be level with the bus floor to permit easier passenger transition to/from the bus aisle. The ramp slope, when measured at the street or curb level shall be a maximum of 1:6. Ramp width shall be a minimum of 30 inches and its sloped surface length shall be a minimum of 70 inches. To minimize sidewalk encroachment, the portion of the ramp extending out of bus shall be no greater than 48 inches. The ramp shall have a minimum rated capacity of 900 lbs.

The controls shall be simple to operate requiring only two switches; a power on switch with indicator lamp and a three position spring-loaded momentary switch for stow and deploy. No complex phasing operations are required, and the loading system operation shall be under the surveillance and complete control of the operator. If the loading system and controls are located at the rear doors, a switch shall be provided in the operator's area to disable the loading system. The bus shall be prevented from moving during the loading and unloading cycle by a throttle and brake interlock system. The wheelchair loading system shall not present a hazard, nor inconvenience any passenger. The loading system shall be inhibited from retracting or folding when a passenger is on the ramp/platform.

A passenger departing or boarding via the ramp shall be able to easily obtain support by grasping the passenger assist located on the doors or other assists provided for this purpose. The platform shall be designed to protect the ramp from damage and persons on the sidewalk from injury during the extension/retraction or lowering/raising phases of operation. Therefore, the ramp shall include object detection; wherein during powered deployment or stowage, should the ramp encounter an obstruction, the drive mechanism is disabled and all ramp motion stops. Releasing the operator switch shall automatically reset ramp functionality. Also during powered deployment the ramp shall decelerate before it contacts the sidewalk or roadway. The loading platform shall be covered with a replaceable or renewable, nonskid material and shall be fitted with devices to prevent the wheelchair from rolling off the sides during loading or unloading.

Deployment or storage of the ramp shall require no more than 15 seconds. The ramp shall be electrically powered and operated and require no hydraulics. The ramp control module shall be packaged in a sealed enclosure and must withstand being submerged under water. The device shall function without failure or adjustment for 500 cycles or 5,000 miles in all weather conditions on the design operating profile when activated once during the idle phase. For corrosion resistance, all major ramp components including the ramp plate shall be manufactured from stainless steel. Aluminum shall not be used to avoid galvanic corrosion. The ramp shall withstand a 2,000-hour salt spray test, as per ASTM B117. After the salt spray test the ramp shall operate normally without the need of any repair or lubrication.

A manual override system shall permit unloading a wheelchair and storing the device in the event of a primary power failure. The manual operation of the ramp shall not require more than 20 lbs of force. During powered operation, if the operator removes pressure from the control switches, or if during manual operation the operator physically releases the ramp platform, the ramp shall not be allowed to "free fall" to prevent potential injury to passengers or persons on the sidewalk.

The ramp shall be a self-contained unit having all drive system components located within the interior of the ramp assembly and shall include easy access from the interior of the vehicle to facilitate service. The ramp unit shall be replaceable within 30 minutes by a 3M mechanic.

LIFT-U, Division of Hogan Mfg., Inc.  
P.O. Box 398  
Escalon, CA 95320  
209.838.2400