

# Division 14

## Section 14450 – Vehicle Lifts

### 1. SCOPE

1.1 General scope: This specification establishes the minimum performance, design, fabrication, installation and test requirements for a non-scissors, dual platform, direct acting subterranean vehicle parking lift.

### 2. SUBMITTALS AND RELATED WORK

2.1 Provisions: The general provisions of the contract, including General Requirements, apply to the work specified in this section.

2.2 Product Data: Submit (3) three copies of manufacturer's specifications and installation instructions at the time of order. Furnish (1) one copy of installation instructions to the installer.

2.3 Maintenance Data: Submit manufacturer's owner's manual, maintenance and service data; including the address of nearest authorized service representative.

2.4 Shop drawings: Submit general arrangement drawings detailing fabrication and installation of parking lift. Includes plans, elevations and details showing layout and types of equipment required. Show anchor points and accessory items.

#### 2.5 Related Work

2.5.1 Work to be done by others: All electrical work, concrete work, modification to building structure, excavation, underground piping, pit curb angles and other embedded items.

2.5.2 Work to be done by the mechanical installer: Install the parking lift complete less the above exceptions. This includes off loading lift at site, setting lift in pit, and lagging lift to floor. Also includes locating hydraulic power unit, connecting hydraulic lines, and operating lift under its own power.

### 3. PRODUCTS

3.1 Model \_\_\_\_\_ 4Post subterranean parking lift is cited for type, quality, function, operation, capacity, size and construction required. Provide complete with electrical controls, safety features and other accessories as specified.

### 4. MANUFACTURER

4.1 General specification covers a non-scissors, direct acting, dual platform, mechanically synchronized subterranean parking lift as designed and manufactured by Autoquip Corp.

### 5. REQUIREMENTS

5.1 System description: The extent of the parking lift is as shown on the drawings and/or as specified herein.

#### 5.2 Characteristics

##### 5.2.1 Performance Characteristics

5.2.1.1 Capacity: The parking lift shall have a minimum lifting capacity of 7,000 / 14,000 pounds.

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5.2.1.2 Axle Loads: The parking lift shall have a minimum axle load capacity of 4,000 pounds over the ends of the platform or the canopy. A minimum axle load capacity of 2,000 pounds over the sides of the platform.

5.2.1.3 Vertical Travel: The parking lift shall have a minimum vertical travel of \_\_\_\_\_ inches.

5.2.1.4 Lowered Height: The parking lift shall have a maximum lowered height of 24 inches.

5.2.1.5 Raised Height: The parking lift shall have a maximum raised height of \_\_\_\_\_ inches.

5.2.1.6 Up Speed: The parking lift shall have a minimum raising speed of \_\_\_\_\_ seconds.

5.2.1.7 Down Speed: The parking lift shall have a minimum lowering speed of \_\_\_\_\_ seconds.

## 5.2.2 Physical Characteristics

5.2.2.1 Carriage Platform: The parking lift minimum size platform shall be 96 inches wide x 216 inches long. The platform deck will be constructed of seamless, smooth steel plate with a minimum thickness of 1/4". The carriage platform must have a minimum of 4 landing legs extending to the pit floor to support platform in lowered position. Replaceable UHMW or equivalent wear-resistant pads shall be installed on each corner of the carriage to provide horizontal stabilization throughout the lift travel.

5.2.2.2 Canopy Platform: The canopy platform shall be same dimensions as the carriage platform, also constructed of seamless, smooth steel plate with a minimum thickness of 1/4". Canopy shall have a solid bevel toe guard on the sides and ends that is 8 inches in length and slope inward at approximately 30 degrees from vertical.

5.2.2.3 Canopy Support Posts: The parking lift shall have a minimum of four (4) structural steel square tubing support posts which mount to the top of the carriage platform and support the canopy platform. These support posts must be of sufficient cross-section to support the weight of the canopy and its load with a minimum of 3:1 factor of structural safety.

5.2.2.4 Mechanical Synchronization System: The lift shall include a mechanical synchronization system mounted beneath the carriage platform. This system shall consist of two (2) solid steel shafts for side-to-side synchronization, and two (2) sets of two (2) #80 fixed-end chains to synchronize end-to-end (one set per side). System must include provisions to adjust tension in each chain.

5.2.2.5 Corner Guides: The lift system shall include four (4) corner guides constructed of structural steel angle which mount between the basement floor and garage floor at each corner of the lift.

5.2.2.6 Maintenance Devices: The lift shall include four (4) maintenance devices which store in, and are supported by, structural steel members located above the carriage deck when engaged and resting on the garage floor.

5.2.2.7. Cylinders: The lift shall be equipped with four (4) vertically mounted, heavy duty, high-pressure, direct acting, ram style hydraulic cylinders that have a design bursting pressure that is at least 3 times the maximum design operating pressure. They shall have chrome plated rods to prevent rusting,

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and be provided with hydraulic velocity fuses to fully arrest the descent of the lift in the unlikely event of a catastrophic failure of the hydraulic hosing. Cylinders must have trunnion mounts which attach to the carriage platform. Cylinder rods must extend downward and activate against the floor.

5.2.2.8. Hydraulic Power Unit (HPU): Power unit shall be electric hydraulic located external to the lift, and shall incorporate overload protection to prevent the lift from raising if loaded to more than 115% of the rated capacity. All hosing shall be SAE-100R2 double wire braided.

5.2.2.9. Hose Reel: System must be provided with a constant-tension hose reel mounted to the lower level beneath the lift to feed high pressure hose to the lift cylinders as they travel up and down.

#### 5.2.3 Electrical Requirements

5.2.3.1 Operator Controls: Controls shall consist of one (1) wall mount NEMA 1 constant pressure (press and hold) "up/down" pushbutton station.

5.2.3.2 Motor Control Panel: Control panel shall consist of a magnetic motor starter, overload protection and control transformer all mounted and pre-wired inside a NEMA 1 enclosure which is mounted and pre-wired to the hydraulic power unit. Control voltage shall be 24 VAC. Control panel must be UL listed.

5.2.3.2 Power Source: Distribution panels and circuit breakers shall be furnished and installed by the purchaser. The purchaser shall furnish and install all necessary wiring and equipment for power distribution to the system, including a method for locking out the power for maintenance and repair activities.

### 6. QUALITY ASSURANCE PROVISIONS

6.1. Lift Design and Manufacturing: To comply with applicable portions of OSHA 29CFR1910.

6.2. Electrical: National Electric Code (NEC).

6.3 Welding of ferrous steel: Metal arc welding shall comply with the provisions of the applicable portions of the "Code for Welding in Building Construction" (AWS D1.0-63) or MIL-STD-2213 of the American Welding Society. Surfaces to be welded shall be free from tears, cracks, scale, slag, rust, paint, grease or other foreign matter or defects that would adversely affect the quality and strength of the weld. Welds shall be sound throughout and there shall be no cracks in any weld or pass. Before welding over previous weldment, all slag shall be removed and the weld and adjacent base metal shall be brushed clean. Welds shall be free of visible defects such as, but not limited to, excess metal, slag inclusions, spatter, porosity, incomplete penetration, undercutting and gas pockets. All craters shall be filled to the full cross section of the weld.

6.4 Welding of cast iron: The welding or brazing of cast iron, malleable or otherwise, to other cast iron of any type, or to other ferrous or nonferrous alloys will not be acceptable.

6.5 Inspections: The system shall be inspected to verify that it meets all requirements of sections 1, 2, 3, 4, and 5 of this specification. These inspections shall be completed as part of the installation start-up. Testing and inspection will be performed by the manufacturer or approved manufacturer's representative.

6.5 Interchangeability: Corresponding units and replaceable assemblies, subassemblies and parts having the same part number shall be physically and functionally interchangeable per the manufacturer's recommendation and design limits.

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