KAR LIFT SOLUTIONS
by OMER®

MASTER SPECIFICATIONS
VEHICLE LIFTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Mobile lifts.

B. Wireless mobile column lifts.

C. KAR Lift Pantograph Lifts.

D. Medium Pressure Piston style in ground lifts.

E. Parallelogram lifts.

1.2 RELATED SECTIONS

A. Concrete: Footings and foundations.

B. Basic Electrical Materials and Methods: Power and controls wiring.

1.3 SUBMITTALS.

A. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

B. Shop Drawings: Submit drawings showing full layout of all lifts with dimensions and details shown for services and conduits between lifts and the control consoles.

C. Operation and Maintenance Manual: Submit Owner's manual to include system operation, maintenance and trouble shooting, spare part number, drawings and schematics.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: The lift company selling the product shall have ISO-9001 certification and the proof of current certification shall accompany the bid.

B. Installer Qualifications: For warranty validation, installation shall be performed by qualified factory Authorized and trained personnel.

C. Product Requirements:

1. Design Standards and Certification: The lift shall be Certified by ETL to the

ANSI/ALI Standard for Automotive Lifts, ALCTV-2006: Safety Requirements for Construction, Testing and Validation.

2. The drive system shall permit lifting without any pulsation, jerks, or unsteady lifting. Lifting shall be smooth. System shall comprise an electrically powered pump, flow control valves, and a fluid reservoir. An electronic/hydraulic synchronization device shall ensure smooth alignment of each lifting assembly based on variances in vehicle weight. A microprocessor shall control all lift movement for ultimate operator safety and convenience. Troubleshooting codes shall facilitate service and repair.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

A. Manufacturer's Warranty: Lift system shall be warranted for a minimum period of one year for parts and 1-year labor. The hydraulic cylinder shall be warranted for a minimum of five years and guide rollers shall have a lifetime warranty; both of these extended warranties cover parts only.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: OMER NA, Inc., which is located at: 2300 Speers Rd Oakville; Toll Free Tel: 877-799-LIFT; Tel: 647-973-6637; Email: sales@karliftsolutions.com, or web site > http://www.karliftsolutions.com <

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of the specific tender document

1. Requests for changes on products, materials, equipment and methods of construction required by the contract documents by the Contractor after the award shall be considered requests for "substitutions", and shall follow the procedures outlined within the bid documents for Substitutions.
2. Any substitution of specified lift requiring modifications of foundation system detailed will be the responsibility of the Contractor.
3. The Contractor shall provide for any and all engineering and redesign of foundation system as a result of substitution.
4. Under no circumstances will extra payment be permitted as a result of additional work to accommodate any equipment substitution.

MOBILE LIFTS

OMER NA Battery Operated Wireless Mobile Column Lift Systems

4 Column System, Model KLS-18-4 Wireless &
6 Column System, Model KLS-18-6 Wireless

1. DESCRIPTION:

This description is for a heavy-duty, battery operated mobile lifting system with wireless communication, consisting of four (4 or 6) columns, which are capable of lifting 18,000 pounds per column or up to 72,000 lbs or 108,000 per set. Each lifting column shall be mobile and easily positioned to the tires/wheels of the vehicle for lifting. The heavy-duty mobile lifting system is described in such detail as to procure an item that is ready for installation and use.

(a) The lift must employ a STAINLESS STEEL **"Re-Circulating" Ball Electric lifting system.** HYDRAULIC LIFTING SYSTEMS WITH CYLINDERS, HOSES AND LEVELLING VALVES WILL NOT BE ACCEPTABLE.
(b) The lifting system must be manufactured in NORTH AMERICA.
(c) The lifting system shall have the capacity to lift heavy-duty vehicles with weights up to 72,000 lbs. with a 4-column or 108,000 lbs. with a 6-column Mobile Lifting System.
(d) Each column shall weigh no more than 1250 lbs permitting ease of movement during placement and storage of the lifts when not in use.
(e) The lifting height shall be a minimum of 69 inches.
(f) The same 4 or 6-column mobile lifting system must have the capacity and attachments to engage small sized tires as well. Using any 2-columns and the front and rear light truck adapter accessories, this system must be able to raise smaller type vehicles and trailers from frame engaging points front and rear. This will leave wheels and tires free for maintenance.
(g) This system shall have an Explosion Proof Rating of Class I, Division II.
(h) The lifting system specified shall provide a factory-direct service technician to setup the equipment and maintain the equipment.
(i) Repair parts availability within 48 hour.

2. REQUIREMENTS:

The mobile lifting system will be the standard product of the manufacturer and will be of heavy-duty quality, intended for continuous use. It is intended that the subject equipment, all components and accessories shall be a commercially available product of the manufacturer or his suppliers. It shall be of the manufacturer's current design and carried in stock or can be produced in a reasonable period of time. All parts shall be new and unused.

All lifting columns must be "backwards compatible" with earlier versions of like design so that column can be added at a later time if the system needs to be extended for higher capacities. The systems shall be extendable up to 8 columns.

3. SUPPORT COLUMN:

- The support column shall be a single, heavy-duty wide flange "H" beam, with a section module not less than 7 inches wide.
- The "H" Beam should be a solid, one-piece, hot-rolled steel column.
    - Welded or assembled columns are not permitted due to risk of mechanical failure of welding seams
- The flanges of the beam shall be precision-machined to allow smooth operation of the lift carriage rollers.
- Three quarter inch (3/4") diameter counter-bores on two-inch (2") centers shall be machined vertically into the web of the "H" beam, to provide an indent for operation of the mechanical safety lock.

3.1 LIFTING CARRIAGE:

- The lift carriage assembly shall form a box-like structure around the support column and be guided with four (4) bushings.
- The bearing shafts shall insert from the outside and provide for easy removal for inspection or replacement of bushings.

- Each carriage shall have a removable access panel on the front and rear for easy entry to all safety solenoids and switches. This will allow for easy maintenance.

• 3.2 SUPPORT BASE:

- The support base shall be mobile; complete with casters both rigid and swivel caster shall be provided.
- A hydraulic jack shall be mounted on the steering end and shall be capable of raising the base above the floor 4 inches (4") to provide adequate clearance when moving lifting post over uneven surfaces
- The hydraulic jack shall have a built-in bi-pass safety valve that provides for self-lowering if weight is applied to lift while jack is still in the raised position.
- A handle shall be attached to the steering mechanism and be spring-loaded to the vertical position.

3.3 MOTORS, BRAKES AND DRIVES:

- Each motor shall be a minimum of 2.0hp.
- The motor shall be equipped with a spring-loaded brake. This mechanism eliminates the need to engage a manual locking mechanism while working on the vehicle.
- The brake shall have a means for attaching a handle, which allows manual release of the brake for lowering of lift should an electrical power failure occur without disassembly of the motor or enclosures to perform intended function.
- The motor shall be sealed and self-lubricating.
- A reduction gearbox shall be provided for connecting the motor to the ball screw drive assembly.
- The motor/drive assembly must utilize a back drive mode, which recharges the batteries upon carriage decent, increasing the time intervals between recharge cycles.

3.4 RECIRCULATING BALL NUT DRIVE:

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- The Mechanical lifting drive shall be a re-circulating ball bearing.
    - Brass or bronze type nuts or "acme" threaded spindles are not acceptable due to:
        - Parasitic nature of design causes additional maintenance costs
        - Additional maintenance of cleaning spindle
    - Hydraulic lifting cylinders are not acceptable due to:
        - Inherent leaking of hydraulic fluid
        - Additional weight of columns reduces mobility of lifts
        - Difficulty to synchronize the lifting posts
        - Additional maintenance of fluid replacement
        - Inconsistent operation at lower temperatures
- The RECIRCULATING shall be the ball bearing type and shall be completely self-contained within the nut.
- There shall be no separate or external races on the nut for re-circulating the ball bearings.
- Lubrication of the ball screw shaft and nut shall not be necessary more than twice a year.
- A "Zerk"® type fitting shall be provided at the top of the nut to perform necessary lubrication.
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3.5 MECHANICAL SAFETY DEVICE:

- A redundant mechanical wedge-type safety device, independent of the ball screw shaft and nut, shall be provided.

- The safety device shall automatically wedge between the lifting carriage and the H-beam creating a secure, redundant measure of safety.
- A proximity switch shall be provided which automatically stops operation of all lifting posts when mechanical safety lock engages or if an obstacle comes in contact with the lifting carriage during descent

3.6 ELECTRICAL CONTROLS:

The following electrical controls shall be provided (all electrical components shall be watertight):

- All wiring shall be labeled with numbers corresponding to it on electrical/schematic to assist in troubleshooting.
- All switches will be watertight to prevent the entry of moisture.

LIFTING COLUMN CONTROLS

- Shall be mounted into a watertight plastic enclosure.
- All circuitry shall be on a printed circuit board (PCB) interfacing with all control wiring, motion detection and speed control.
- Each PCB will have self-diagnostic lights, indicating operation mode.
- The PCB shall be furnished with moisture protection.
- The Column Controls shall enable user defined operation between three (3) different modes of operation
    - Automatic Mode "A"
        - In automatic mode, all columns operated simultaneously, the LED display will indicate the "A" Mode
    - Single Mode "S"
        - LED Display shows indicate "S" when selector switch is in single column position allowing the use of a single, user defined, column.
    - Group Mode "G"
        - In-group mode the user defines which lifting columns of the system are used during operation, the LED display will indicate the "G" mode.
- When a safety device has been activated the LED Display shall be capable of showing the user a specific Error Code to assist the user in determining cause of shutdown.
- All up and down switches must be dead-man type, requiring constant pressure by an operator to raise or lower.
- UPPER POSITION & SYNCHRONIZATION PROXIMITY SWITCH
    - One no contact proximity switch per column shall ensure stopping of unit when carriages have reached their top position
    - The same switch shall ensure synchronization between all columns in lifting system.
- LOWER POSITION PROXIMITY SWITCH
    - No contact proximity switch stops the operation of unit when lift assembly has reached the fully lowered position.
- MECHANICAL SAFETY LOCK SWITCH
    - Switch shall be a no contact proximity switch and is actuated by the ball screw nut when the mechanical safety lock engages
    - If an obstruction blocks the lifting carriage from lowering, the proximity switch will shut the entire system off.
    - All switches shall be the water-resistant type.

3.6.1 LIFT CARRIAGE MOVEMENT DETECTOR:

A no-contact proximity switch shall be provided that detects the up and down movement of the lift carriage and if any of the following occurs, stops operation of all lifting posts:

- Lifting carriage does not move up or down
- Lifting carriage moves up or down faster or slower that other lifting posts by preset limit, this proximity switch shall momentarily stop the applicable column(s) and synchronize the columns during operation

3.6.2 WIRELESS COMMUNICATION:

- The lifts shall be free to move without any restriction from communication cables
- The Wireless Systems shall allow for up to eight columns to be selected on one communication channel
- Each lift system shall have a minimum of 10 communication channels that will allow for multiple sets of Battery Powered Wireless Mobile Column Lifts to be operated at the same time close to one-another without interference.
- Wireless communication will have an automatic frequency control (AFC) to insure that once the communication was established for a set of lifts, no other unit will interfere with the initial communication and will automatically select another channel.
- The Lifts will communicate on an ISM Band that will allow for a digital narrow-band channel filtering for precise and safe operation.
- For secure communication, the wireless system needs to be certified to Level SIL 2 according to IEC 61508 Standards for Secure Data Transfer, in order to avoid interference with any type of radio communication equipment. (Airport, Military, Emergency Services etc.)

3.6.3 Power source:

- Four Deep Cycle 12VDC Sealed Batteries combined to provide stable 48 VDC should power each column. The 48 VDC on board power supply shall incorporate a built in recharging system. The battery charger should be self contained and standard 110V outlets shall be sufficient to use for charging the batteries.
- The Battery Charger shall have multiple input voltages to ensure use capabilities if the lifting system is deployed overseas.
- Battery enclosure shall be located behind lifting column and shall provide for easy access to all batteries at ground level. Battery enclosures located at the top of the lifting column shall not be permitted.
- The main power shall be fused between the primary power switch and the motor/control circuits to protect against overload. Columns without input power fusing are not acceptable.
- When fully charged, the on board battery power system shall be capable of 25 lifting/lowering cycles at full capacity and 45 lifting cycles at half load. Lifting systems not capable of at least 20 lifting/lowering cycles at full capacity are unacceptable.

HEAVY DUTY PLATFORM LIFTS

PART 3

3.1 KARLIFT - PANTOGRAPH LIFT

1. Heavy-Duty Hydraulic Vehicle Lifts Model KAR-250 and K350 are manufactured OMER SPA.
2. Scope:
   a. A vertical half-scissors heavy-duty platform lift to elevate large trucks, buses, and other heavy-duty vehicles for the purpose of inspection, maintenance, servicing and cleaning. Lift shall rise in a vertical fashion. Mobile column type lifts, four post lifts, parallelogram lift, are not acceptable.

   b. The lift must be as true "PANTOGRAPH" DESIGN to maximize under runway FREE access and reduce lifting stress. Those lifts using **a "Y" design will not be acceptable.**

   c. The lifting legs must be manufactured using 50 mm – 2" XAR 400 thick steel bar. Legs using **multiple WELDS or tube design** are not acceptable.

   d. The lift must pivot from the floor mounted fixed pad without the need to

SLIDE relieve offloading stresses. Sliding mounts inherently product friction and wear. The lift must incorporate an AOS or equivalent shock absorbing system at each hinge to provide stress relief.

e. The runway will be manufactured using a "BOX" design versus plate welded to I Beams. Box design runways are inherently stronger and less susceptible to twisting.

f. The lift must be available in both the conventional Inclinometer based PLC synchronization AND for rough surface, the **"ELECTRONIC SENSOR FREE"** "**VOLUMETRIC"** hydraulic cylinder divider combined with mini torsion bar.

g. The 25 ton 55,000 lb. lifting platform must have a minimum lifting height of 79" from the concrete base to the top of the lifting platform. This design must be capable of a collapsed height not to exceed 360 mm or 14.2". Lifting requiring a higher collapsed height will require a deeper recessed pit or longer approach ramp.

h. The lift system shall be surface mounted or flush mounted recessed as indicated on the Drawings.

i. The lift system shall be totally open floor design with no obstructions between lifting platforms and no crossbeams either in the front or the rear of the runways.

j. Lift system shall incorporate a hydraulic driven cylinder in each half scissor. No chains, cables, slack cables, or pulleys are permitted.

k. The maximum lifting height of the lift system shall be programmable to the height specifications as requested by user.

l. Two 4 feet (1219 mm) extensions shall be provided to accommodate a modular length of 50' (15000 mm) for articulated vehicles.

m. Lift shall have a complete lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. Individual lamps shall utilize waterproof construction and shall contain ballast and starter assembly integrated within one operating unit. Lamps shall be installed in a recessed adjacent to main lifting platform so as to be protected from potential damage caused by falling objects.

n. The lift system shall have a jacking beam rated at 38,000 lbs. (17270 kg) or 52,000 lbs. (23630 kg) suitably rated to correspond to the latest 2006 ALI regulations. Jacking beam shall be double-piston, telescopic piston. The jacking beam shall be designed with a flow divider valve to maintain synchronization of pistons in raising and lowering mode; maximum pressure valve shall prevent lifting of loads if loads exceed rated capacity of jack; check valves in each piston shall prevent the accident descent of load.

3. Equipment:

a. The lift shall have a minimum nominal lifting capacity of:
   1) 55,000 lbs. (19958 kg).
   2) 72,000 lbs. (24948 kg)
   3) 83,600 lbs. (28305 kg).
   4) 118,000 lbs. (35381 kg).

b. The lifting capacity shall be determined by the following factors:
   1) The load distribution between the front and the rear axles.
   2) The location of the vehicle on the lift.
   3) The wheelbase of the vehicle.

c. The lift shall have a minimum lifting height of 79.6 inches (2022 mm) from floor to the top of the runways when the lift rests on the floor and no less than 69 inches (2022 mm) when the lift is flush mounted to the floor. Any equipment that does not have a minimum of 79 inches (2022 mm) lifting height shall not be acceptable.

d. The platform dimensions shall be available in the following dimensions:
   1) 23 feet (7 m).
   2) 26 feet (8 m).
   3) 30 feet (9 m).
   4) 33 feet (10 m).
   5) 39.5 feet (12 m).

6) 49.5 feet (14.5 m).

e. Width of runways for all models shall be MINIMUM of 30 inches (762 mm) or 37 inches (K350) 940 mm.

f. The collapsed height shall be maximum 14.2 inches (360 mm).

g. Concrete thickness shall be a minimum of 6 inches (152 mm). 4 simple plates shall accommodate installation with 5 bolts per plate. Total installation shall not require more than 20 bolts.

4. Safety Devices:

a. An independent and fail-safe mechanical safety device shall be present on each half scissor. This safety device shall be totally independent from the lifting drive system. A locking catch shall be free to engage all of the teeth of the locking strip attached to the half scissor.

b. Each lifting device shall be provided with two (2) separate leveling systems The synchronization system between the two runways can be, depending on the model, electro-hydraulic or electronic, ensuring maximum reliability under all conditions of employment. The result should therefore be perfect alignment (co planarity) of the system.

c. The lifts must be equipped with "new generation" safety devices designed by OMER. Using combination mechanical locks using 250mm XAR 400 plate steel, safety valves on each cylinder, pressure relief valve and a "Photo Cell Electric" sensor on the runway that maintains the runway synchronization within 50mm will ensure safety.

d. The lift system shall incorporate a splash proof electrical system (IP65).

e. The lift system shall have an automatic foot-guard protection. The lift must be equipped with limit switches so that the runway automatically stops at a safety height of 500 mm from the ground accompanied by a buzzer audible alarm.

f. Locking mechanism shall be activated in no less than 3 inches (76 mm) of lifting height

5. Controls:

a. The lift system shall utilize appropriately rated motors that operate at 208/220/460V, 3 phases, 60 Hz.

b. The lift shall have a two-speed lowering option.

c. Electrical enclosures for control components shall be rated IP 65 and shall include as a minimum:

1) System disconnects.
2) "Power-on" pilot lamp.
3) "Up" control and "down" control.
4) Lock release button.

6. Drive Mechanism:

a. The drive system shall be hydraulic drive and shall permit lifting without any pulsations, jerks or unsteady lifting. Lifting shall be smooth. Hydraulic system shall be comprised of an electrically powered pump, flow control valves, and a fluid reservoir.

b. Hydraulic lifting cylinders shall be of a piston type to prevent leakage in the case of piston damage.

c. All rotating axles shall be made of stainless steel.

B. ** NOTE TO SPECIFIER ** Ultra-shallow, high pressure / low volume, axle-engaging, hydraulic-mechanical in-ground lift Delete if not required.

3.2 OMER VEGA PARALLELOGRAM LIFTS

A. Parallelogram Lifts Model Vega 120 Series as manufactured by OMER SPA

B. Parallelogram Lifts model Vega 240 Series as manufactured by OMER SPA

1. Scope:

a. A parallelogram type platform lift to elevate large trucks, buses, and other

heavy-duty vehicles for the purpose of inspection, maintenance, servicing and cleaning. Installation of this type of lift shall require no above ground posts, pits, or special foundations. Above ground scissors, post, or mobile column type lifts are not acceptable.

b. The lift system shall be surface mounted or flush mounted recessed as indicated on the Drawings.

c. The lift system shall have a continuous base running from support leg to support leg to provide stability, rigidity and safety. Lift systems that do not have a continuous base are not acceptable.

d. The lift system with a continuous base shall not require any bolting to the floor or any additional means of fixation to the floor. The lift system shall therefore be considered portable. The lift system shall not depend on the floor as part of its structural integrity or means of fixation.

2. Equipment:

a. The lift shall have a minimum nominal lifting capacity of 50,000 lbs. (22680 kg) or 25 Tons. The dynamic lifting capacity shall be 1.4 times the nominal lifting capacity 70,000 lbs. (31752 kg) or 35 Tons.

b. The lift shall have a minimum lifting height of 77 inches (1956 mm) from floor to the top of the runways when the lift rests on the floor and no less than 63 inches (1600 mm) when the lift is flush mounted to the floor. Units that do not have a minimum of 77 inches (1956 mm) shall be considered non-responsive.

c. The lift safety system shall have a minimum of 11 locking positions throughout its lifting and lowering cycle.

d. The platform width shall be 30 inches (762 mm). Collapsed height shall be a maximum of 13 inches (330 mm).

e. The lift shall have a mechanical structure known as a torsion bar between the rear lifting legs to synchronize the upper runways for uneven load distribution. The lift shall be completely self-contained within its own structural integrity for lifting and shall not use the concrete floor as a means of anchoring for lift operation; bolting to the floor shall not be necessary to provide safe lifting operation.

f. The lift shall have emergency stop bars fitted on the outside of the upper platform and on an optional basis can be fitted inside and upon contact shall result in immediate cessation of lift lowering. The safety shop bars shall be Class I, Division I, approved for hazardous application.

1) In addition, the lift system shall have a photoelectric cell that provides for electronic synchronization. In the event that the two individual platforms are at height variance from one another, the photoelectric cell will identify the incremental difference and will automatically prevent further ascent of a load where the distribution of vehicle weight is disproportionate on one of the two runways. In this scenario, the lift system shall be designed so that the operator can activate a photoelectric cell override to be able to safely lower the lift.

3. Controls:

a. The lift operating system shall have push buttons switches, transformers, and controls contained in the main control panel.

b. The lift system shall utilize appropriately rated motors that operate at 208/230/460V, 3 phases, 60 Hz.

c. Electrical enclosures for control components shall be rated NEMA 12 and shall include as a minimum:

1) System disconnects.
2) "Power-on" pilot lamp.
3) "Up" control and "down" control.
4) "Mechanical lock down button".
5) "Photo-electric eye override" (to ensure that platform differential does not exceed 2 inches (51 mm)).

d. The lift system shall have a manual override for platform lighting when lift attains a minimum height of 22 inches (559 mm).

e. Lift shall have a complete lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. Lighting system shall be low voltage not to exceed 24 VAC.

4. Paint And Finish:

a. The lift system shall be painted using a heated powder coat painting system.

b. Wash bay applications. The lift system shall be completely galvanized for wash bay applications.

C. Parallelogram Lifts Model Vega 340 Series as manufactured by OMER SPA

1. Scope:
   a. A parallelogram type platform lift to elevate large trucks, buses, and other heavy-duty vehicles for the purpose of inspection, maintenance, servicing and cleaning. Installation of this type of lift shall require no above ground posts, pits, or special foundations. Above ground scissors, post, or mobile column type lifts are not acceptable.
   b. The lift system shall have a continuous base running from support leg to support leg to provide stability, rigidity and safety. Lift systems that do not have a continuous base are not acceptable.
   c. The lift system with a continuous base shall not require any bolting to the floor or any additional means of fixation to the floor. The lift system shall therefore be considered portable. The lift system shall not depend on the floor as part of its structural integrity or means of fixation.
2. Equipment:
   a. The lift shall have a minimum nominal lifting capacity of 75,000 lbs. (34020 kg) or 37.5Tons. The dynamic lifting capacity shall be 1.4 times the nominal lifting capacity 105,000 lbs. (47628 kg) or 52.5 Tons.
   b. The lift shall have a minimum lifting height of 77 inches (1956 mm) from floor to the top of the runways when the lift rests on the floor and no less than 63 inches (1600 mm) when the lift is flush mounted to the floor. Units that do not have a minimum of 77 inches (1956 mm) are not acceptable.
   c. The platform width shall be 30 inches (762 mm). Collapsed height shall be a maximum of 13 inches (330 mm).
   d. The platform dimensions width shall be 30 inches (762 mm); spacing between platforms shall be a minimum of 45 inches (1143 mm). Overall width shall be 104 inches (2642 mm). Overall length including drive on ramps shall be 702 inches (17831 mm). Drive-on ramps are not included in a flush mounted application. Collapsed height shall be a maximum of 13 inches (330 mm).
   e. The lift shall have a mechanical structure known as a torsion bar between the rear lifting legs to synchronize the upper runways for uneven load distribution. The lift shall be completely self-contained within its own structural integrity for lifting and shall not use the concrete floor as a means of anchoring for lift operation; bolting to the floor shall not be necessary to provide safe lifting operation.
   f. Safety Devices:
      1) The lift shall have emergency stop bars fitted on the outside of the upper platform and on an optional basis can be fitted inside and upon contact shall result in immediate cessation of lift lowering. The safety stop bars shall be Class I, Division I, approved for hazardous application.
      2) In addition, the lift system shall have a photoelectric cell that provides for electronic synchronization. In the event that the two individual platforms are at height variance from one another, the photoelectric cell will identify the incremental difference and will automatically prevent further ascent of a load where the distribution of vehicle weight is disproportionate on one of the two runways. In this scenario, the lift system shall be designed so that the operator can activate a photoelectric cell override to be able to safely lower the lift.
3. Controls:
   a. The lift system shall utilize appropriately rated motors that operate at 208/230/460V, 3 phases, 60 Hz.
   b. Electrical enclosures for control components shall be rated NEMA 12 and shall include as a minimum:
      1) System disconnects.
      2) "Power-on" pilot lamp.
      3) "Up" control and "down" control.
      4) "Mechanical lock down button".
      5) "Photo-electric eye override" (to ensure platform differential does not exceed 2 inches (51 mm)).

c. The lift system shall have a manual override for platform lighting when lift attains a minimum height of 22 inches (559 mm).
d. Lift shall have a complete lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. Lighting system shall have safety certification from a Third Party Testing Laboratory such as UL, CE, or TUV. Lighting system shall be low voltage not to exceed 24 VAC.

4. Paint And Finish:
a. The lift system shall be painted using a heated powder coat painting system.
b. Wash bay applications. The lift system shall be completely galvanized for wash bay applications.

D. Parallelogram Lifts Model Vega 450 Series as manufactured by OMER SPA

E. Parallelogram Lifts Model Vega 520 Series as manufactured by OMER SPA

PART 4EXECUTION

4.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

4.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

4.3 INSTALLATION

A. Install in accordance with manufacturer's instructions. Test for proper operation, and re-test if necessary until satisfactory results are obtained.

4.4 PROTECTION

A. Protect installed products until completion of project.

Touch-up, repair or replace damaged products before Substantial Completion

MEDIUM PRESSURE CASSETTE STYLE IN GROUND LIFTS

4.5 IN-GROUND LIFTS

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4.6 TELESCOPIC/ PLUNGER MEDIUM PRESSURE INGROUND LIFTS

A. In ground Lifts Model HVZ214BTRG as manufactured by JA BECKER & SOHN

B. In ground Lifts Model HVZ214/190BTRG as manufactured by JA BECKER & SOHN

C. In ground Lifts Model HVD214/190BTRG as manufactured by JA BECKER & SOHN
1. General Description:
a. The system shall be designed so as to incorporate one fixed ram and one moveable ram (within a set of two).
b. The system shall be designed so as to incorporate one fixed ram and two

moveable rams (within a set of three).

c. Depending on the axle spacing of the vehicle to be lifted there shall be maximum flexibility and the number of moveable and fixed rams shall be interchangeable for the benefit of the customer.
d. The lifting system shall utilize either a cast in concrete frame configuration or self-contained steel foundation cassettes.
e. The lifting system shall utilize single-stage lifting cylinders or telescopic lifting cylinders.
f. Flush mounted head plate(s). Fixed and/or movable ram.
g. Programmable height setting with four positions. - PHS.
h. Automatic wheelbase positioning with fourteen positions. - AWBP (For safety reasons: Programmable only through key switch.)
i. Ground position switches. - GPS. Drive-in/drive-out notification through red/green signal. Protecting against possible damage when lift is not totally lowered.
j. Ground position switches. - GPS.
k. Drive-in/drive-out notification through red/green signal. Protecting against possible damage when lift is not totally lowered.
l. Speed control. - NSS. Normal or slow speed lifting through rotary switch on the control panel.
m. Frames and trench covers hot dipped galvanized.
n. Additional support for passenger cars. (Available in painted or hot galvanized)
o. Saddle and adapter kits to permit access to non-standard axles, special axles, etc.
p. Rolling trench cover plates instead of sliding covers.
q. Rams (cylinder and oil tank) Icosit coated. Icosit is a two-component epoxy resin coating reducing electrolysis and deterioration.
r. Steel cassette for the fixed ram. Possible with plunger and telescopic versions.
s. Icosit coating on steel foundation boxes.
t. Steel cassette for the moveable ram.
u. Icosit coating on cassette for a moveable ram.
v. Water detection system in cassette for either ram.
w. Water evacuation system for either ram.

2. Lifting Capacity:
   a. Each piston shall be rated at no less than 32,000 lbs. (14515 kg) capacity.
3. Lifting Height:
   a. The lifting height of each piston shall be no less than 75 inches (1905 mm) as measured from the ground to the point of adapter contact.
4. Lifting Speed:
   a. The rate of lifting speed, independent from load conditions, shall be 50 inches (1270 mm) per minute in both the ascent mode and the descent mode.
5. Piston Diameter and Design:
   a. Piston diameter shall 8.4 inches (214 mm) for the primary stage piston and 7.4 inches (190 mm) for the secondary stage for telescopic pistons or 8.4 inches (214 mm) for single stage pistons
   b. Hydraulic system shall be medium pressure (maximum 800 psi (5516 kPa), medium volume (20 gallons (76 l)).
   c. Pistons shall be hard chromium plated, improving resistance to corrosion and extending lifespan.
6. Environment:
   a. Pistons shall be equipped with a 20 gallon (76 l) directly flanged power unit assembly, with 3 HP Motor.
7. Controls:
   a. The control panel shall be mounted to the wall in the lifting area as indicated.
   b. The control panel shall be equipped with a wire pendant explosion proof remote controller with a wire length of 32 feet (9.75 m).
8. Safety Devices:
   a. An independent solid steel locking bar with Nitro Carburized surfaces shall be present on each piston. This safety device shall be totally independent from the lifting drive. Locking increments shall be positioned every 3 inches with automatic self-locking. Unlocking shall only be possible when system

function is engaged. First lock shall be engaged within the first 12 inches (305 mm) of rise. The unit shall incorporate fully enclosed mechanical locks.

b. For safe operation, the operating system shall be equipped with load sensors. This system shall insure an automatic vehicle leveling during set-up.
c. Emergency release of the columns shall facilitate lowering of pistons manually.
d. A PLC shall allow pre-set lifting heights based on the particular need of the customer, which can be programmed on site (PHS).
e. Transverse positioning of moveable piston shall be accomplished through the activation of an explosion proof motor to any position designated by the operator through manipulation of the buttons on the control pendant.
f. The control system shall be outfitted with AWBP (automatic wheel base positioning) system that allows the operator to program 14 wheel base positions into the operating system for shorter set up times.

D. In ground Lifts Model HVZ214/22BTRG as manufactured by JA BECKER & SOHN

1. Scope:
   a. A heavy-duty, in ground electro-hydraulic lifting system to elevate large vehicles for the purpose of inspection, maintenance, servicing and cleaning.
   b. The lifting system shall utilize a cast in concrete frame.
   c. The lifting system shall be single-stage lifting cylinders.
   d. The moveable post trench shall be equipped with sliding floor plates to cover the moveable piston trench.
   e. Lift system shall operate at the following voltages: 208, 220, 230, 240, 460 volts at 60 Hertz.
2. Lifting Capacity:
   a. Each piston shall be rated at no less than 50,000 lbs. (22680 kg) capacity.
3. Lifting Height:
   a. The lifting height of each piston shall be no less than 75 inches (1905 mm) as measured from the ground to the point of adapter contact.
4. Lifting Speed:
   a. The rate of lifting speed, independent from load conditions, shall be 50 inches (1270 mm) per minute in both the ascent mode and the descent mode.
5. Environment:
   a. The lift shall be fitted into a cast concrete vault.
   b. On an optional basis the vault shall come equipped with a special water detection and/or evacuation system for water.
   c. All pistons shall be equipped with a 20 gallon (76 l) directly flanged power unit assembly, with 3 HP motor.
6. Controls:
   a. The various functions of the in-ground hydraulic lifting system shall be controlled from a wall mounted set of control panels. The lift shall be supplied with a Class 1/Division 1 rated stainless steel pendant style operating station.
7. Drive Mechanism:
   a. Automatic leveling will occur within increments not to exceed 2 inches (51 mm). Beyond 4 inches (102 mm) system shall shut off automatically for operator safety.
8. Safety Devices:
   a. An independent solid steel locking bar with Nitro Carburized surfaces shall be present on each piston. This safety device shall be totally independent from the lifting drive. Locking increments shall be positioned every 3 inches (76 mm) with automatic self-locking. Unlocking shall only be possible when system function is engaged. First lock shall be engaged within the first 12 inches (305 mm) of rise. The unit shall incorporate fully enclosed mechanical locks.
   b. For safe and unmistakable operation, the operating system shall be equipped with load sensors.
   c. Emergency release shall be possible in the event of power failure.
   d. The sliding trench cover plates shall be designed from a material capable of withstanding a maximum of 6,600 lbs (2994 kg) of load. The pit covers are activated by a traverse adjustment drive, tandem traction, clutch (or limit switch) operated motor supported by heavy-duty link chains.

E. In ground Lifts Model HVZ214BTRG as manufactured by JA BECKER.

END OF SECTION

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DQB