SECTION 14 45 00

HEAVY DUTY VEHICLE LIFTS

Display hidden notes to Specifier by using "Tools"/"Options"/"View"/"Hidden Text".

\*\* NOTE TO SPECIFIER \*\* Stertil-Koni USA, Inc.; Heavy duty truck lifts and bus lift products.  
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This section is based on the products of Stertil-Koni USA, Inc., which is located at:  
 200 Log Canoe Circle  
Stevensville, MD 21666  
Toll Free Tel: 800-336-6637  
Tel: 410-643-9001  
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Email: [request info (lifts@stertil-koni.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Stertil-Koni+USA,+Inc.&coid=44815&rep=&fax=410-643-8901&message=RE:%20Spec%20Question%20(14450str):%20%20&mf=)  
Web: [www.stertil-koni.com](http://www.stertil-koni.com)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos44/arc44815.html) ] for additional information.  
Stertil-Koni is the global market leader in heavy duty truck lifts and bus lifts and is the preferred supplier to the world's leading companies in the truck and bus industries.  
Stertil-Koni USA is headquartered in Stevensville, Maryland with a North American production facility located in Streator, Illinois. The company is the official sponsor of National Lift Week.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Telescopic piston type in-ground lifts.
    2. Scissors style in-ground lifts.
    3. Heavy duty 4-post platform lifts.
    4. Two-post swing arm lifts.
    5. Vertical half-scissors platform lifts.
    6. Mobile column lifts (WEMU) Wheel Engaging Mobile Unit
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
    2. Section 23 05 00 - Common Work Results for HVAC.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ANSI/ALI ALCTV: 2011 - "Standard for Automotive Lifts - Safety Requirements for Construction, Testing and Validation".
    2. UL 201 - These requirements cover garage equipment, rated not more than 600 volts, for use in accordance with the National Electrical Code, NFPA 70.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. 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.
     3. 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.
     4. Operation and Maintenance Manual: Submit owner's manual to include system operation, maintenance and trouble shooting, spare part numbers, drawings and schematics.
     5. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: The lift company selling the product shall possess ISO-9001 certification and the proof of current certification shall accompany the bid.
     2. Installer Qualifications: For warranty validation, installation shall be performed by qualified factory authorized and trained personnel.
     3. Product Requirements:
        1. Design Standards and Certification: The lift shall be certified by ETL/Intertek to the ANSI/ALI ALCTV-current edition Standard for Automotive Lifts: Safety Requirements for Construction, Testing and Validation.
        2. 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 alignment of each lifting assembly. A microprocessor shall control all lift movement for ultimate operator safety and convenience. Troubleshooting codes shall facilitate service and repair.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store products in manufacturer's unopened packaging until ready for installation.
     2. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
  4. SEQUENCING
     1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
  5. PROJECT CONDITIONS
     1. 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.
  6. WARRANTY
     1. Manufacturer's Warranty: Provide manufacturer's limited 2 year parts and 1 year parts and labor warranty.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Stertil-Koni USA, Inc., which is located at: 200 Log Canoe Circle; Stevensville, MD 21666; Toll Free Tel: 800-336-6637; Tel: 410-643-9001; Fax: 410-643-8901; Email: [request info (lifts@stertil-koni.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Stertil-Koni+USA,+Inc.&coid=44815&rep=&fax=410-643-8901&message=RE:%20Spec%20Question%20(14450str):%20%20&mf=); Web: [www.stertil-koni.com](http://www.stertil-koni.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. TELESCOPIC PISTON TYPE IN-GROUND LIFTS

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + 1. Model:
       1. DIAMOND 64 as manufactured by Stertil-Koni USA Inc.
          1. General Description: Lift consists of two lifting units in line with the longitudinal axis of the vehicle, each lifting assembly equipped as to engage the axle and/or suspension as specified. One of the two lifting units is moveable fore and aft to affect variable spacing between lifting units and generally located for the front axle. The other lifting unit is fixed and generally located under the rear axle.
          2. Lifting Capacity:

Lift shall be capable of raising 64,000 lbs. (29,000 kg), 32,000 lbs. (14,500 kg) Fixed/ 32,000 lbs. (14,500 kg) Moveable.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 32,000 lbs (14,500 kg) on one unit and 0 lbs (0 kg) on the other unit.

* + - * 1. Travel range for the moveable piston assembly is as follows depending on selected model:

120 inches/3,048 mm (Diamond 64-10)

156 inches/3,962 mm (Diamond 64-13)

204 inches/5,182 mm (Diamond 64-17)

* + - 1. DIAMOND 70 as manufactured by Stertil-Koni USA Inc.
         1. General Description: Lift consists of two lifting units in line with the longitudinal axis of the vehicle, each lifting assembly equipped as to engage the axle and/or suspension as specified. One of the two lifting units is moveable fore and aft to affect variable spacing between lifting units and generally located for the front axle. The other lifting unit is fixed and generally located under the rear axle.
         2. Lifting Capacity:

Lift shall be capable of raising 70,000 lbs. (32,000 kg), 35,000 lbs. (16,000 kg) Fixed/ 35,000 lbs. (16,000 kg) Moveable.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 35,000 lbs (16,000 kg) on one unit and 0 lbs (0 kg) on the other unit

* + - * 1. Travel range for the moveable piston assembly is as follows depending on selected model:

120 inches/3,048 mm (Diamond 70-10)

156 inches/3,962 mm (Diamond 70-13)

204 inches/5,182 mm (Diamond 70-17)

* + - 1. DIAMOND 96 as manufactured by Stertil-Koni USA Inc.
         1. General Description: Lift consists of three lifting units in line with the longitudinal axis of the vehicle, each lifting assembly so equipped as to engage the axle and/or suspension as specified. Two of the two lifting units are moveable fore and aft to affect variable spacing between lifting units.
         2. Lifting Capacity:

Lift shall be capable of raising 96,000 lbs. (43,500 kg), 32,000 lbs. (14,500 kg) per lifting unit.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 32,000 lbs (14,500 kg) on one unit and 0 lbs (0 kg) on the other unit.

* + - * 1. Travel range for the moveable piston assembly is as follows depending on selected model:

120 inches/3,048 mm (Diamond 96-10-xx)

156 inches/3,962 mm (Diamond 96-13-xx)

204 inches/5,182 mm (Diamond 96-17-xx)

39 inches/990 mm (Diamond 96-3.25-xx)

* + - 1. DIAMOND 105 as manufactured by Stertil-Koni USA Inc.
         1. General Description: Lift consists of three lifting units in line with the longitudinal axis of the vehicle, each lifting assembly so equipped as to engage the axle and/or suspension as specified. Two of the two lifting units are moveable fore and aft to affect variable spacing between lifting units.
         2. Lifting Capacity:

Lift shall be capable of raising 105,000 lbs. (48,000kg), 35,000 lbs. (16,000 kg) per lifting unit.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 35,000 lbs (16,000 kg) on one unit and 0 lbs (0 kg) on the other unit.

* + - * 1. Travel range for the moveable piston assembly is as follows depending on selected model:

120 inches/3,048 mm (Diamond 105-10-xx)

156 inches/3,962 mm (Diamond 105-13-xx)

204 inches/5,182 mm (Diamond 105-17-xx)

39 inches/990 mm (Diamond 105-3.25-xx)

* + - 1. Dimensions:
         1. Moveable lifting unit height shall be no less than 73 inches (1,850 mm) as measured from the top of the bolster at full rise to the finished floor.
         2. Lifting Rate: 90 seconds; 45 inches (1,140 mm) per minute, minimum.
         3. Maximum depth below finished floor for any structural component shall be 72 inches (1830 mm) maximum.
         4. Moveable and fixed lifting units synchronization: 2 inches (50 mm).
      2. Lift units:
         1. Lifting units shall be hydraulically powered, telescopic piston assemblies, complete with an independent mechanical locking system.
         2. Telescopic piston is finished with a hard chrome plating for added surface strength, corrosion protection and to ensure a low coefficient of friction.
         3. Lift unit shall utilize pistons with a primary stage diameter of 8.5 inches (216 mm) and a secondary stage diameter of 7.5 inches (190 mm).
      3. Movable Lifting Unit(s):
         1. Moveable lifting unit(s) are be mounted in a hot dipped galvanized steel floor frame. Galvanized steel floor frame provides for a rigid connection between the floor frame and floor slab for maximum structural integrity.
         2. Moveable lifting unit floor frame is permanently attached to a steel containment box coated internally and externally with DiamondGuard. DiamondGuard coating.
         3. DiamondGuard is an elastomeric, polyurethane coating that provides corrosion protection with a dielectric strength of no less than 37,500 volts for protection against electrolysis. Coating is applied to a minimum thickness of 0.25 inches (6 mm) and provides an impermeable, seamless coating capable of withstanding vibration, expansion/contraction, flexing, abrasion or impact without damage
         4. Maximum depth below finished floor for the moveable lifting unit floor frame and containment box shall be no more than 69 inches (1752 mm).
         5. Moveable lifting unit floor frame and steel containment box shall be structural and have the option to be installed suspended from a thickened slab (grade beam) or on a load bearing foundation slab.
         6. Aluminum covers for the moveable lifting unit trench shall be anodized structural 6061/6005A-T61 aluminum extrusions. Covers are engineered to accept a 7,500 lbs (3,402 kg) point load on a contact area of 2 inches by 2 inches (50 mm by 50 mm) as well as a drive-over load (6 inches by 9 inches (150 mm by 230 mm tire contact area) of 13,500 lbs./6,124 kg. Covers shall be shaped to include a full-length interlocking hinge and shall fit together tightly and uniformly to promote smooth travel so as to prevent jamming and twisting. Covers shall be flush to finished floor level.
         7. Carriage for the moveable lifting unit and trench covers utilize a non-metallic slide assembly bearing on stainless steel for corrosion prevention.
         8. Hydraulically powered carriage drive for the moveable lifting unit shall utilize a rack and gear arrangement, on both the left and right side, for smooth and even fore-aft travel without binding.
         9. Rack shall be inverted and positioned under the load channel of the floor frame for the moveable lifting unit, where it is protected so as not to collect dirt, grease etc.
         10. All hydraulic and compressed air service lines shall be fed from the floor mounted control console to the moveable containment box through one PVC chase way.
         11. Low voltage electric service lines shall be fed from the floor mounted control console to the moveable containment box through one 3/4 inch rigid conduit installed to meet local requirements.
         12. Steel containment box for the moveable lifting unit shall be equipped with a pneumatic liquid detection device that shall inform the operator of accumulation of liquids in the box by illumination of a lamp on the floor mounted control console.
         13. Moveable containment box shall be equipped with a fixed suction tube to allow evacuation of liquids.
      4. Fixed Lifting Unit:
         1. Fixed lifting unit is mounted in a hot dipped galvanized steel floor frame. Galvanized steel floor frame will provide for and ensure a rigid connection between the floor frame and the floor slab for maximum structural integrity.
         2. Fixed lifting unit floor frame is permanently attached to a steel containment box coated internally and externally with DiamondGuard. DiamondGuard coating.
         3. DiamondGuard is an elastomeric, polyurethane coating that provides corrosion protection with a dielectric strength of no less than 37,500 volts for protection against electrolysis. Coating is applied to a minimum thickness of 0.25 inches (6 mm) and provides an impermeable, seamless coating capable of withstanding vibration, expansion/contraction, flexing, abrasion or impact without damage
         4. Maximum depth below finished floor for the fixed lifting unit floor frame and steel containment box shall be no more than 72 inches (1752 mm).
         5. Fixed lifting unit floor frame and steel containment box shall be structural and have the option to be installed suspended from a thickened slab (grade beam) or on a load bearing foundation slab.
         6. Unit shall be equipped with a pneumatic liquid detection device that shall inform the operator of accumulation of liquids in the box by illumination of a lamp on the floor mounted control console.
         7. Steel containment box for fixed lifting unit shall be equipped with a fixed suction tube to allow evacuation of liquids.
      5. Hydraulic System:
         1. System is comprised of a high pressure, low volume, telescopic pistons for each lifting unit - one in each containment box.
         2. Each pistons requires 5 gallons (19 Liters) of hydraulic oil for lifting to full height.
         3. High pressure seals shall be internal to the pistons where they are protected from salt, dirt, etc.
         4. Cylinders shall utilize Panolin bio-degradable, environmentally-friendly hydraulic fluid.
         5. Hoses shall be reinforced construction and JIC fittings throughout.
         6. Hoses feeding the front movable piston carriage are supported and contained by a cable carrier to prevent hoses from dragging or tangling.
         7. Lift is driven by individual power units, readily available as an off-the-shelf component. Units are located outside steel containment box or concrete trench, in a floor mounted control console, for ease of maintenance/repair. Lift do not require oil reservoirs below floor level.
      6. Adapters:
         1. Lift system shall include a variety of axle engaging accessory adapters designed to raise heavy vehicles by axles or chassis. Accessory adapters shall be easily removed for storage and/or change out.
         2. Adapter Adjustment: Minimum 13.5 inches (337 mm); Maximum 54 inches (1,372 mm).
         3. Bolster Width: 40 inches (1,016 mm) minimum.
         4. Bolster and base adapters for fixed piston shall recess below finished floor and be covered by cover doors when not in use. Cover doors shall be rated for similar loading (7,500 lbs / 3,402 kg) point load on a contact area of 2 inches by 2 inches (50 mm by 50 mm). Cover doors shall be stored in a recessed storage area located beside the bolster, to reduce the risk of tripping.
         5. Bolster for the moveable piston shall recess in a dedicated park position so that the top of the bolster is flush to finished floor level. Provide with covers rated for similar loading (7,500 lb. (3,402 kg) point load on a contact area of 2 inches by 2 inches (50 mm by 50 mm). Covers shall be installed and removed by hand from a storage area located below the bolster to reduce the risk of tripping.
         6. Base adapters shall be restrained to prevent over extension.
         7. Base adapter shall have at least a five-hole pattern that will allow every accessory adapter to be used in the reverse direction, allowing up to eight positions of the accessory adapter on the base adapter.
      7. Controls:
         1. Control system shall conform to all current NEC, UL 201 and OSHA codes.
         2. System shall be PCB operated and continuously monitor all operating functions and safety systems of the lifting units. Control system shall utilize ultrasonic sensors mounted on the oil reservoirs to constantly monitor the elevation of the lifting mechanisms to ensure synchronized operation.
         3. Control system shall have a provision to allow the operator to electronically restrict the maximum lifting height.
         4. System shall provide audio and visual feedback that communicates with the operator. System shall facilitate troubleshooting by providing no less than 44 fault codes displayed in numeric fashion on the PCB.
         5. Enclosure for electrical control components shall be IP 54 rated and have the following controls mounted on the front cover

Disconnect switch, 3 phase

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, moveable, or fixed lifting

Push buttons for hydraulic moveable carriage drive

LED lamps to inform the operator of which lifting assemblies are initiated for individual and/or synchronized operation.

* + - * 1. Control console shall be equipped with a main power disconnect switch. Main power disconnect shall be lock-out capable.
        2. Console access panels shall have key-hole slots and recessed handles for easy removal and installation.
        3. System shall include, on the control box face, a blue HOME indicator lamp. Lamp shall illuminate when all pistons are fully retracted to inform the operator that the bay is clear to allow entry and exit by the vehicle.
        4. System shall automatically prohibit horizontal movement of the moveable piston when the piston is raised to any height above 12 inches (305 mm) A.F.F.
        5. System shall have a provision to allow the operator to open the mechanical locks during rising to reduce noise emission.
        6. Lift shall operate at one of the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following two Control options if required from the following paragraphs and delete if not required.

* + - 1. Optional AWBP: Control system shall be equipped with an AWBP (automatic wheel base positioning) system that allows the operator to program not less than 16 wheelbase positions into the control system for reduced set up times. AWBP system includes a minimum 4 inch full color touch screen to allow the operator to select and program vehicle wheel bases. AWBP system shall allow the operator to store wheel base positions by vehicle brand and year or license plate for ease of use and safety. Additionally, the color LCD touch screen shall be utilized to display error messages and instructions. Once a vehicle has been selected, the moveable lifting unit shall travel to the pre-programmed position without interruptions or stops.
      2. Optional Wired Remote Control
         1. Lift control system shall be equipped with an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Remote control is connected to the control console through a multi-conductor cable with quick disconnect military-style DIN connector.
         3. Remote control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, front, or rear lifting

Push buttons for hydraulic moveable carriage drive

LED lamps to inform the operator of which lifting assemblies are initiated for individual and/or synchronized operation.

* + - * 1. Remote control shall be equipped with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting E-Stop and re-energizing the control system.
        2. Control box shall have a provision to disable the remote control during lowering when the bolster is below 12 inches (305 mm) A.F.F.
        3. Provide with a full set of backup controls located at the control console, to keep lift operational, should remote control or cable get damaged.
      1. Safety Devices:
         1. Each lifting unit shall be equipped with an independent mechanical locking rod with the first lock position at a minimum lock height of 8.25 inches (210 mm).
         2. Number of Mechanical Lock Stops: 21, minimum.
         3. Vertical height spacing between each lock stop: 3 inches (75 mm), maximum.
         4. Mechanical locking rod shall be solid, high strength steel with a nitro-carburized coating for strength and corrosion protection.
         5. Pneumatic mechanical locking release assembly shall incorporate a high strength steel latch. Assembly shall be easily accessible, to allow complete removal from floor level, for ease of maintenance.
         6. All push buttons shall be of momentary contact, dead man type.
  1. SCISSORS IN-GROUND LIFTS

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + 1. Model:
       1. ECO- 60 as manufactured by Stertil-Koni USA Inc.
          1. General Description: lift shall consist of two lifting units in line with the longitudinal axis of the vehicle, each lifting unit so equipped as to engage the axle and/or suspension as specified herein. One of the two lifting units will be movable fore and aft to affect variable spacing between lifting mechanisms. The other lifting unit shall be fixed.
          2. Lifting Capacity:

Lift shall be capable of raising 60,000 lbs. (27,216 kg), 30,000 lbs. (13,608 kg) Fixed/ 30,000 lbs. (13,608 kg) Moveable.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 30,000 lbs (13,608 kg) on one unit and 0 lbs (0 kg) on the other unit.

* + - * 1. Travel range for the movable lifting unit is as follows, depending on selected model:

120 inches (ECO 60-10)

156 inches (ECO 60-13)

204 inches (ECO 60-17)

* + - 1. ECO- 90 as manufactured by Stertil-Koni USA Inc.
         1. General Description: lift shall consist of three lifting units in line with the longitudinal axis of the vehicle, each lifting unit so equipped as to engage the axle and/or suspension as specified herein. Specific options of the three lifting units are as follows:

One movable and two fixed units in a line. The moveable can be in any position in the line.

Two movable units at each far end and a fixed center unit.

Two movable units in a line followed by a fixed unit at one end.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 90,000 lbs. (40,824 kg), 30,000 lbs. (13608 kg) Fixed / 30,000 lbs. (13,608 kg) Moveable / 30,000 lbs. (13,608 kg) Fixed/Moveable.

Unbalanced Loads, Moveable to Fixed: Lift shall be capable of raising 30,000 lbs (13,608 kg) on one unit and 0 lbs (0 kg) on the other unit.

* + - * 1. Travel range for the movable lifting unit is as follows, depending on selected model:

120 inches (ECO 90-10)

156 inches (ECO 90-13)

204 inches (ECO 90-17)

12 inches (ECO 90-01-XX)

39 inches (ECO 90-3.25-XX)

* + - 1. Dimensions:
         1. Lifting height shall be no less than 70 inches (1,780 mm) as measured from the bolster at full rise to the finished floor.
         2. Lifting Rate: 90 seconds; 45 inches (1,140 mm) per minute, minimum.
         3. Maximum depth below finished floor for any structural component or member: 34 inches (864 mm) maximum.
         4. Movable and fixed lifting unit synchronization: 2 inches (51 mm).
         5. Lift Units:

Lift units and continuous recess insert shall be completely removable with no lift components or structural framing permanently embedded in the concrete.

Lift unit shall be a hydraulically powered, mechanically articulating scissor lift, complete with a mechanical locking system.

All steel surfaces shall be powder coated.

By means of a centering link, the lifting unit structure shall articulate symmetrically about the center axis of the lift unit as it raises and lowers.

* + - 1. Movable Lifting Unit:
         1. Movable lifting unit shall relocate horizontally fore and aft while in the fully retracted position.
         2. When the entire travel frame insert has the covers in place and the lift is operational, it forms a continuous recess that shall meet the following design and performance criteria:

The movable lifting unit shall not be required to recess, or park, in only one "pocketed" location, providing increased productivity in servicing fleet vehicles of varying wheelbases.

The movable lifting unit may be recessed below finished floor at any position between the minimum and maximum dimensions of the travel range.

The movable lifting unit shall be capable of fore and aft travel while recessed below floor.

* + - * 1. Maximum depth below finished floor for the continuous recess insert, rear lifting unit or any fixed or movable component shall be 34 inches (864 mm).
        2. The movable steel box insert shall have an open floor design, mounted off the concrete floor of the trench to allow for the collection, cleaning and drainage of all liquids and solids that accumulate in the trench.
        3. Aluminum covers for moveable mechanism is anodized structural 6061 aluminum extrusions engineered to accept a 7,500 lb. (3,402 kg) point load on a contact area of 2 x 2 inches (50 x 50 mm) and shaped to include a full-length interlocking hinge. Covers shall fit together tightly and uniformly to promote smooth travel so as to prevent jamming and twisting. Covers shall be able to accept a 13,500 lb. (6,123 kg.) drive over load on a 6 x 9 inch (152 x 228 mm) contact area.
        4. Aluminum covers for the moveable mechanism are attached to UHMW slider blocks for reduced friction and increased longevity. These slider blocks shall keep the covers properly centered at all times. Horizontal grooves in the UHMW sliders shall, together with essentially half moon shaped guide rails in the end section of lift's steel box insert, securely guide the covers as they travel in and out of the recess.
        5. Aluminum covers for the moveable mechanism shall be flush with finished floor within a tolerance of less than 1/8 inch. Covers that are lower than the finished floor are not be acceptable.
        6. Movable lifting unit and the covers shall bear on and slide over UHMW surfaces for low friction and minimal maintenance.
        7. Hydraulically powered carriage drive shall utilize a rack and gear arrangement on both left and right sides for smooth and even fore-aft travel without binding.
        8. Rack shall be inverted and positioned under the load channel of the movable lifting unit insert where it is protected so as not to collect dirt, grease etc.
        9. All hydraulic and compressed air service lines are fed from control console to moveable lifting unit insert through one PVC chase way per unit.
        10. All low voltage, intrinsically safe electric service lines shall be fed from the control console to the moveable lifting unit insert through one 3/4 inch rigid conduit per unit, installed to meet local requirements.
      1. Fixed Lifting Unit:
         1. Fixed lifting unit shall be drop-in, and bolted in-place with eight 7/8 inch (22 mm) stainless steel anchors.
      2. Hydraulic System:
         1. System shall be comprised of high pressure, low volume, single acting, 7 inch (178 mm) diameter cylinders, one in each lifting unit.
         2. The hydraulic system shall be a power up / gravity down design. Lifts that rely on the power units to run during the lowering cycle shall not be acceptable due to increased power consumption.
         3. High pressure seals shall be internal to the cylinder, where they are protected from salt, dirt, etc.
         4. Combined, the two cylinders shall only require 7 gallons (26.5 l) of AW 15 hydraulic oil for lifting to full height.
         5. Each pistons requires 3.5 gallons (13.25 Liters) of hydraulic oil for lifting to full height.
         6. Each cylinder shall have a hose break velocity fuse (safety check valve) integrally mounted to prevent excessive loss of fluid from the cylinder.
         7. The hoses shall be of reinforced construction and utilize JIC fittings throughout.
         8. The hoses feeding the front movable lift carriage shall be supported and contained by a cable carrier to prevent the hoses from dragging or tangling.
         9. The lift shall be driven by two individual power units, readily available as an off-the-shelf component.
      3. Adapters:
         1. The lift system shall include a variety of axle engaging accessory adapters designed to raise heavy vehicles by the axles or chassis. The accessory adapters shall be easily removed for storage and/or change out.
         2. Adapter Adjustment: Minimum 13.25 inches (337 mm); Maximum 56 inches (1422 mm).
         3. Bolster Width: 40 inches (1016 mm) minimum.
         4. Bolster and Base Adapters for all lifting units shall recess below finished floor.
         5. Base adapters shall be restrained to prevent over extension.
         6. Removal of base adapters shall be accomplished by pulling-up a spring loaded pin and sliding the base adapter off the bolster.
         7. The base adapter shall have at least a five hole pattern that will allow every accessory adapter to be used in the reverse direction, allowing up to eight positions of the accessory adapter on the base adapter.
      4. Controls:
         1. The control system shall conform to all current NEC, UL 201 and OSHA codes.
         2. The control system shall be PCB operated and continuously monitor all operating functions and safety systems of the lifting units. The control system shall utilize intrinsically safe inclinometers to constantly monitor the elevation of the lifting units to ensure synchronized operation. Synchronization through flow control valves is not acceptable. Control systems that do not constantly monitor the elevation of all lifting units are not acceptable.
         3. The control system shall have a provision to allow the operator to electronically restrict the maximum lifting height.
         4. The control system shall provide audio and visual feedback that communicates with the operator. The control system shall facilitate troubleshooting by providing no less than 44 fault codes displayed in numeric fashion on the PCB.
         5. The enclosure for electrical control components shall be IP 54 rated and have the following controls mounted on the front cover

Disconnect switch, 3 phase

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, moveable, or fixed lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. The control console shall be equipped with a main power disconnect switch which interrupts all incoming power. Main power disconnect shall be lock-out capable.
        2. Console access panels shall have key-hole slots and recessed handles for easy removal and installation.
        3. The control system shall include, on the control box face, a blue HOME indicator lamp. This lamp shall illuminate when all lifting units are fully retracted to inform the operator that the bay is clear to allow entry and exit by the vehicle.
        4. The control system shall automatically prohibit horizontal movement of the moveable lifting unit when raised above 12 inches A.F.F.
        5. The control system shall have a provision to allow the operator to open the mechanical locks during rising to reduce noise emission.
        6. The lift, when fitted with the proper electrical motor, shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following two Control options if required from the following paragraphs and delete if not required.

* + - 1. Optional: Automatic Wheel Base Positioning
         1. The control system shall be equipped with an AWBP (automatic wheel base positioning) system that allows the operator to program not less than 16 wheelbase positions into the control system for reduced set up times. The AWBP system shall include a min. 4 inch color touch screen to allow the operator to select and program vehicle wheel bases. The AWBP system shall allow the operator to store wheel base positions by vehicle brand and year or license plate for ease of use and safety to avoid selection of the incorrect vehicle. Additionally, the color LCD touch screen shall be utilized to display AWBP related error messages and instructions. Once a vehicle has been selected, the moveable lifting unit shall travel to the pre-programmed position without interruptions or stops.
      2. Optional: Wired Remote Control:
         1. The lift shall be equipped with an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Remote control shall be connected to the control console through a multi-conductor cable with military-style DIN connector. Standard cable length shall be 35 feet. (10.6 m)
         3. Remote control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. Remote control shall be equipped with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting the E-Stop and re-energizing the control system.
        2. The control box shall have a provision to disable operation of the remote control during lowering when the bolster is below 12 inches A.F.F.
      1. Safety Devices:
         1. Each lifting unit shall be equipped with double lock jaw, gravity engaging, mechanical locks with the first lock position engaging at a minimum height of 18 inches (457 mm).
         2. Number of Mechanical Lock Stops: 12, minimum.
         3. Vertical height spacing between each lock stop: 6 inches (152 mm), maximum.
         4. The mechanical locks shall be made of high strength T-1 steel.
         5. All push buttons shall be of momentary contact, dead man type.
  1. HEAVY DUTY 4-POST PLATFORM LIFTS
     1. Model:

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + - 1. ST-4120 as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Four-post drive on type platform lift to elevate medium sized trucks, buses, and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system shall be surface mounted or flush mount recessed as indicated on the Drawings.

System consists of four vertical posts with crossbeams on which the platforms are located. The lift will rise from the action of hydraulic cylinders mounted in each post.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Prove lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

Provide in tandem configurations of two or more lifts as indicated on the Drawings.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 30,000 lbs (13,608 kg) when symmetrically loaded.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Provide system with jacking beams that are self-powered and air-hydraulic.

Jacking beam shall utilize tandem piston with a total capacity of up to 17,600 lbs.

Design 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.

* + - * 1. Lifting Height: Minimum of 74.5 inches (1,899 mm) from the finished floor to the top of the platforms. Platform dimensions shall be available in the following lengths:

14 feet, 9 inches (4.5 m)

20 feet, 4 inches (6.2 m)

26 feet, 3 inches (8 m)

* + - 1. ST-4175 as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Four-post drive on type platform lift to elevate medium sized trucks, buses, and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system shall be surface mounted or flush mount recessed as indicated on the Drawings.

System shall have no crossbeams either in the front or the rear of the platforms with complete open and free access between the platforms and no obstructions between the lifting posts. The lift will rise from the action of hydraulic cylinders mounted in each post.

Both platforms shall be adjustable no less than 11.875 inches (300 mm) for each platform.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Prove lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

Provide in tandem configurations of two or more lifts as indicated on the Drawings.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 50,000 lbs (22,727 kg) when symmetrically loaded.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Provide system with jacking beams that are self-powered and air-hydraulic.

Jacking beam shall be double telescopic piston with a total capacity of up to 35,200 lbs.

Design 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.

* + - * 1. Lifting Height: Minimum of 74.5 inches (1,899 mm) from the finished floor to the top of the platforms. Platform dimensions shall be available in the following lengths:

20 feet, 4.125 inches

26 feet, 10.75 inches

30 feet, 2.25 inches

33 feet, 5.5 inches

38 feet, 4.625 inches

* + - * 1. Width of the platforms shall be 27.5 inches (699 mm).
      1. ST-4250 as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Four-post drive on type platform lift to elevate medium sized trucks, buses, and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system shall be surface mounted or flush mount recessed as indicated on the Drawings.

System has no crossbeams either in the front or the rear of the runways with complete open and free access between the runways and no obstructions between the lifting posts. Lift will rise from the action of hydraulic cylinders that are mounted in each post.

Both platforms shall be adjustable no less than 3.875 inches (100 mm) for each platform.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Prove lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

Provide in tandem configurations of two as indicated on the Drawings.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 66,000 lbs (30,000 kg) when symmetrically loaded.

\*\* NOTE TO SPECIFIER \*\* Select one or both of the following paragraph options if required and delete if not required.

Provide system with jacking beams that are self-powered and air-hydraulic.

Jacking beam shall utilize tandem piston with a total capacity of up to 46,400 lbs.

Design 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.

* + - * 1. Lifting Height: Minimum of 74.5 inches (1,899 mm) from the finished floor to the top of the platforms. Platform dimensions shall be available in the following lengths:

20 feet, 4.125 inches

26 feet, 10.75 inches

30 feet, 2.25 inches

33 feet, 5.5 inches

38 feet, 4.625 inches

* + - * 1. Width of the platforms shall be 27.5 inches (699 mm).
      1. Drive Mechanism:
         1. Hydraulic lifting cylinders shall be of a piston type to prevent leakage in the case of piston damage. Pistons shall be mounted, one in each post.
         2. Each hydraulic cylinder shall be equipped with a hose burst check valve to prevent descent in the event of a major fluid leak.
         3. Each piston shall be chromium plated for low abrasion conditions and to prevent slip-stick problems.
         4. Lift system shall be driven by a single hydraulic gear pump appropriately sized to deliver proper PSI and GPM.
      2. Controls:
         1. Operating system shall have microprocessor-incorporated controls integrated within the printed circuit board to provide various safety and operational requirements.
         2. The lift system shall have all control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have at a minimum

System disconnect

"Power-on" pilot lamp

An "up" button

A "down" button

A "lock release" switch

If needed. Lighting switch

* + - * 1. Lift, when fitted with the electric motor, shall operate at: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)
        2. Control panel shall be rated IP 65
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each post. This safety device shall be totally independent from the lifting drive system.
         2. The lift system shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         3. Lift system shall have an automatic foot-guard protection.
         4. A locking "pawl and ratchet" system shall be used to insure proper and automatic locking at any position either in the ascent or descent mode. The locking bar shall engage against the locking pawl to restrict lowering of the crossbeam. The mechanical safety lock shall automatically engage when the lift is not operating (either in the descent or ascent mode.) A solenoid valve shall release the locking pawl when the lift is in the descent mode.
  1. TWO POST SWING ARM LIFTS
     1. Hydraulic 2-post vehicle lift.

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + - 1. Model: SK 2-16.33 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical double telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 16,000 lbs (7,200 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have double telescopic swing arms that rest 5.5 inches (140 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 35 and 72 inches.

* + - 1. Model: SK 2-16.EFA Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical double telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 16,000 lbs (7,200 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have double telescopic swing arms that rest 5.5 inches (140 mm) above finished floor.

Lift swing arms shall offset from lifting post to provide a useable contact distance from the column of between 19 and 56 inches..

* + - 1. Model: SK 2-20.22 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical single telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 20,000 lbs (9,090 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have double telescopic swing arms that rest 5.51 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 38 and 63 inches.

* + - 1. Model: SK 2-20.23 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 0,000 lbs (9,090 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 1 pair of single telescopic swing arms that rest 5.1 inches (130 mm) above finished floor and 1 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor.

Single telescopic lift swing arms shall provide a useable contact distance from the column of between 38 and 63 inches and the double telescopic lift swing arms shall provide a useable contact distance from the column of between 35 and 76 inches.

* + - 1. Model: SK 2-20.33 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical swing arms.

Lift shall include two sets of double telescopic swing arms

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 20,000 lbs (9,090 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 2 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 35 and 76 inches.

* + - 1. Model: SK 2-26.22 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical single telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 26,000 lbs (11,818 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have single telescopic swing arms that rest 5.1 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 38 and 63 inches.

* + - 1. Model: SK 2-26.23 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical swing arms.

Lift shall include one set of single telescopic swing arms and one set of double telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 26,000 lbs (11,818 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 1 pair of single telescopic swing arms that rest 5.1 inches (130 mm) above finished floor and 1 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 35 and 72 inches.

* + - 1. Model: SK 2-26.33 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system includes two sets of double telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 26,000 lbs (11,818 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 2 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 35 and 76 inches.

* + - 1. Model: SK 2-30.22 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical single telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 30,000 lbs (13,636 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have single telescopic swing arms that rest 5.1 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 38 and 63 inches.

* + - 1. Model: SK 2-30.23 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical double telescopic swing arms.

Lift includes one set of single telescopic swing arms and one set of double telescopic swing arms.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 30,000 lbs (13,636 kg) when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 1 pair of single telescopic swing arms that rest 5.1 inches (130 mm) above finished floor and 1 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor..

Single telescopic lift swing arms shall provide a useable contact distance from the column of between 38 and 63 inches and the double telescopic lift swing arms shall provide a useable contact distance from the column of between 35 and 76 inches.

* + - 1. Model: SK 2-30.33 Heavy-Duty Hydraulic Vehicle Lift as manufactured by Stertil-Koni USA Inc.
         1. General Description:

Two-post swing arm type lift to elevate medium sized trucks and other vehicles for inspection, maintenance, servicing and cleaning.

Lift system consists of two vertical posts with symmetrical swing arms.

Lift shall include two sets of double telescopic swing arms.

Lift will rise from the action of individual hydraulic cylinders, one mounted vertically in each column.

Lift shall be clear floor design with no obstructions at floor level.

Lift columns have an overall height of no more than 114 inches

\*\* NOTE TO SPECIFIER \*\* Select the following paragraph option if required and delete if not required.

Provide lift with a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, rated IP 65.

* + - * 1. Lifting Capacity:

Lift shall be capable of raising 30,000 lbs (13,636 kg when symmetrically loaded.

* + - * 1. Lifting Height and swing arm extension:

Lift shall have a minimum lifting height of 78 inches (1,981 mm) from the finished floor to the top of the frame contact pads.

Lift shall have 2 pair of double telescopic swing arms that rest 5.75 inches (130 mm) above finished floor.

Lift swing arms shall provide a useable contact distance from the column of between 35 and 76 inches.

* + - 1. Drive Mechanism:
         1. Hydraulic lifting cylinder shall be of a piston type to prevent leakage in the case of piston damage. One piston shall be mounted in each post.
         2. Each hydraulic cylinder shall be equipped with a hose burst check valve to prevent decent in the event of a major fluid leak.
         3. Each piston shall be chromium plated for low abrasion conditions and to prevent slip-stick problems.
         4. The lift system shall be driven by a single hydraulic gear pump appropriately sized to deliver proper PSI and GPM.
      2. Controls:
         1. The lift operating system shall have microprocessor controls within the printed circuit board to provide various safety and operational requirements.
         2. The lift system shall have all control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have as a minimum:

System disconnect.

"Power-on" pilot lamp.

An "up" button

A "down" button

A "lock release" button.

A lighting switch

* + - * 1. The swing arm lift, when equipped with the correct electric motor, shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase).
        2. Control panel shall be rated IP 65
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each post. The safety device shall be totally independent from the lifting system drive. The locking system shall enter its first locking location at 8 inches of extension.
         2. The lift safety system shall have a minimum of 52 locking positions throughout its lifting and lowering cycle.
         3. The lift system shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         4. A locking "pawl and ratchet" system shall be used to insure proper and automatic locking at any position either in the ascent or decent mode. The locking notches shall be integrated into the guide block and locking pawl shall be wedged between the guide block and post. The mechanical safety lock shall automatically engage when the lift is not operating (either in the decent or ascent mode.) A solenoid valve shall release the locking pawl when the lift is in the decent mode.
  1. VERTICAL HALF-SCISSORS PLATFORM LIFTS

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + 1. Vertical Half-Scissors Platform Lifts: Model SKY-200 Flush mount as manufactured by Stertil-Koni USA, Inc.
       1. General Description: Vertical half-scissors heavy-duty platform lift to elevate large trucks, buses, and other heavy-duty vehicles for cleaning. Lift shall rise in a vertical fashion and be specifically designed for wet environments.
          1. Lift system shall be flush mounted recessed as indicated on the Drawings.
          2. System shall be totally open floor design with no obstructions between lifting platforms and no crossbeams in the front or the rear of the platforms.
          3. Lift system shall incorporate a hydraulic driven cylinder in each half scissor.
          4. Maximum lifting height of the lift system shall be programmable to height specifications as requested by user.

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - * 1. Two 4 feet (1,219 mm) extensions shall be provided to increase the length of either end of the platform.
        2. Lift shall have a complete LED lighting system installed on the inner edge to illuminate work area when the vehicle is raised. LED lighting shall be 24V, and rated IP 65.
        3. Tandem configurations of two can be achieved in line.
      1. Lifting Capacity:
         1. Lift shall have a minimum nominal lifting capacity of 62,400 lbs. (28,364 kg).

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - 1. Jacking Beams: Provide system with jacking beam that is self-powered and air-hydraulic.
         1. Jacking beam shall be double telescopic piston with a total capacity of up to 35,200 lbs.
         2. Design 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.
      2. Dimensions:
         1. Lift shall have a minimum lifting height of 69 inches (1,753 mm) from floor to the top of the platforms when the lift rests on the floor and a minimum lifting height of 69 inches (1,753 mm) when the lift is flush mounted to the floor.
         2. Platform dimensions shall be available in the following lengths:

23 feet (7 m).

26 feet (8 m).

29-1/2 feet (9 m).

32-3/4 feet (10 m).

39-1/3 feet (12 m).

47-1/2 feet (14.5 m).

* + - * 1. Width of the platforms for all models shall be 30 inches (762 mm).
        2. Lowered height shall be a maximum of 16 inches (406 mm) for flush mounted and 14 inches (356 mm) for surface mounted.
        3. Concrete thickness shall be a minimum of 6 inches (152 mm).
        4. Installation uses 4 plates with 4 bolts per plate. Total installation shall not require more than 16 bolts for anchorage to floor.
      1. Drive Mechanism:
         1. System shall be hydraulic and permit lifting without any pulsation, jerks, or unsteady lifting. Hydraulic power unit is electrically-powered pump with flow control valves, and a fluid reservoir.
         2. Hydraulic lifting cylinders shall be piston type to prevent leakage in the case of piston damage.
         3. Rotating axles are stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Provide lift shall with a two-speed lowering option.
      2. Lift shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)
      3. Controls: Control panel shall be rated IP 6
         1. Operating system shall have microprocessor controls within the printed circuit board to provide various safety and operational requirements.
         2. System control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have as a minimum:

System disconnect.

"Power-on" pilot lamp.

An "up" button

A "down" button

Lock release button

If needed: Lighting switch.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Wired Remote Control:
         1. Provide an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Control shall be connected to the control console through a multi-conductor cable with military-style DIN connector.
         3. Control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, front, or rear lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. Provide remote control with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting the E-Stop and re-energizing the control system.
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each half scissor. 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.
         2. Each lifting device provided with a position measuring device identified as an inclinometer whose function it is to calculate and synchronize the height of the 4 lifting devices.
         3. System shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         4. System shall have an automatic foot-guard protection.
         5. Locking mechanism shall be activated in no less than 3 inches (76 mm) of lifting height.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Automatic pit cover system: Design shall incorporate an automated system to fill the floor recesses with a false floor as the lift rises. This system, shall be fully mechanical with no hydraulic/electric or pneumatic actuators, and shall be monitored by the control system. Only once the automatic pit covers have achieved full height and been verified to be mechanically locked in place will the lamp on the control box illuminate to inform the operator that the pit covers are properly deployed. Pit covers shall have a load rating of 3300 lbs. per cover system.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Special Finishes for wet environments shall be as follows:
         1. The following lift major subcomponents shall be hot galvanized: platforms, access ramps, wheel chocks and transition plates.
         2. The following lift major subcomponents shall be cold galvanized with a zinc rich primer second coat following be red finish coating to meet safety standards: upper and lower locking mechanisms and pull bar for scissors assembly.
         3. The following lift major subcomponents shall be coated with a three part mono pox coating designed and applied for submerged steel applications: leg assemblies
         4. The following lift major subcomponents shall be stainless steel: Control box enclosure with hinged cover for lamps and button
    1. Vertical Half-Scissors Platform Lifts: Model SKY-250 Flush mount as manufactured by Stertil-Koni USA, Inc.
       1. General Description: Vertical half-scissors heavy-duty platform lift to elevate large trucks, buses, and other heavy-duty vehicles for cleaning. Lift shall rise in a vertical fashion and be specifically designed for wet environments.
          1. Lift system shall be flush mounted recessed as indicated on the Drawings.
          2. System shall be totally open floor design with no obstructions between lifting platforms and no crossbeams in the front or the rear of the platforms.
          3. Lift system shall incorporate a hydraulic driven cylinder in each half scissor.
          4. Maximum lifting height of the lift system shall be programmable to height specifications as requested by user.

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - * 1. Two 4 feet (1,219 mm) extensions shall be provided to increase the length of either end of the platform.
        2. Lift shall have a complete LED lighting system installed on the inner edge to illuminate work area when the vehicle is raised. LED lighting shall be 24V, and rated IP 65.
        3. Tandem configurations of two can be achieved in line.
      1. Lifting Capacity:
         1. Lift shall have a minimum nominal lifting capacity of 78,000 lbs. (35,381 kg)

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - 1. Jacking Beams: Provide system with jacking beam that is self-powered and air-hydraulic.
         1. Jacking beam shall be double telescopic piston with a total capacity of up to 35,200 lbs.
         2. Design 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.
      2. Dimensions:
         1. Lift shall have a minimum lifting height of 69 inches (1,753 mm) from floor to the top of the platforms when the lift rests on the floor and a minimum lifting height of 69 inches (1,753 mm) when the lift is flush mounted to the floor.
         2. Platform dimensions shall be available in the following lengths:

23 feet (7 m).

26 feet (8 m).

29-1/2 feet (9 m).

32-3/4 feet (10 m).

39-1/3 feet (12 m).

47-1/2 feet (14.5 m).

* + - * 1. Width of the platforms for all models shall be 30 inches (762 mm).
        2. Lowered height shall be a maximum of 16 inches (406 mm) for flush mounted and 14 inches (356 mm) for surface mounted.
        3. Concrete thickness shall be a minimum of 6 inches (152 mm).
        4. Installation uses 4 plates with 4 bolts per plate. Total installation shall not require more than 16 bolts for anchorage to floor.
      1. Drive Mechanism:
         1. System shall be hydraulic and permit lifting without any pulsation, jerks, or unsteady lifting. Hydraulic power unit is electrically-powered pump with flow control valves, and a fluid reservoir.
         2. Hydraulic lifting cylinders shall be piston type to prevent leakage in the case of piston damage.
         3. Rotating axles are stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Provide lift shall with a two-speed lowering option.
      2. Lift shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)
      3. Controls: Control panel shall be rated IP 6
         1. Operating system shall have microprocessor controls within the printed circuit board to provide various safety and operational requirements.
         2. System control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have as a minimum:

System disconnect.

"Power-on" pilot lamp.

An "up" button

A "down" button

Lock release button

If needed: Lighting switch.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Wired Remote Control:
         1. Provide an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Control shall be connected to the control console through a multi-conductor cable with military-style DIN connector.
         3. Control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, front, or rear lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. Provide remote control with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting the E-Stop and re-energizing the control system.
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each half scissor. 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.
         2. Each lifting device provided with a position measuring device identified as an inclinometer whose function it is to calculate and synchronize the height of the 4 lifting devices.
         3. System shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         4. System shall have an automatic foot-guard protection.
         5. Locking mechanism shall be activated in no less than 3 inches (76 mm) of lifting height.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Automatic pit cover system: Design shall incorporate an automated system to fill the floor recesses with a false floor as the lift rises. This system, shall be fully mechanical with no hydraulic/electric or pneumatic actuators, and shall be monitored by the control system. Only once the automatic pit covers have achieved full height and been verified to be mechanically locked in place will the lamp on the control box illuminate to inform the operator that the pit covers are properly deployed. Pit covers shall have a load rating of 3300 lbs. per cover system.
      2. Special Finishes for wet environments shall be as follows:
         1. The following lift major subcomponents shall be hot galvanized: platforms, access ramps, wheel chocks and transition plates.
         2. The following lift major subcomponents shall be cold galvanized with a zinc rich primer second coat following be red finish coating to meet safety standards: upper and lower locking mechanisms and pull bar for scissors assembly.
         3. The following lift major subcomponents shall be coated with a three part mono pox coating designed and applied for submerged steel applications: leg assemblies
         4. The following lift major subcomponents shall be stainless steel: Control box enclosure with hinged cover for lamps and button
    1. Vertical Half-Scissors Platform Lifts: Model SKY-200 Surface mount as manufactured by Stertil-Koni USA, Inc.
       1. General Description: Vertical half-scissors heavy-duty platform lift to elevate large trucks, buses, and other heavy-duty vehicles for cleaning. Lift shall rise in a vertical fashion and be specifically designed for wet environments.
          1. Lift system shall be surface mounted recessed as indicated on the Drawings.
          2. Provide with a sectional access ramp system. Standard length of the access ramps shall be 77 inches overall. Access ramps have the option to be lengthened in increments of 19.75 inches as required.
          3. Lift includes fixed wheel chocks for the end of the lift opposite from the location of the access ramps.
          4. System is a totally open floor design with no obstructions between lifting platforms and no crossbeams either in the front or the rear of the platforms.
          5. System incorporates a hydraulic driven cylinder in each half scissor.
          6. Maximum lifting height of the lift shall be programmable to the height specifications as requested by user.

\*\* NOTE TO SPECIFIER \*\* Select the from the following optional paragraphs if required and delete if not required.

* + - * 1. Two 4 feet (1,219 mm) extensions shall be provided to increase the length of either end of the platform.
        2. Lift shall have a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, and rated IP 65.
        3. Tandem configurations of two can be achieved in line.
        4. Lift platforms and legs shall be galvanized for wash bay applications.
      1. Lifting Capacity:
         1. Lift shall have a minimum nominal lifting capacity of 62,400 lbs. (28,364 kg).

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - 1. Jacking Beams: Provide system with jacking beam that is self-powered and air-hydraulic.
         1. Jacking beam shall be double telescopic piston with a total capacity of up to 35,200 lbs.
         2. Design 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.
      2. Dimensions:
         1. Lift shall have a minimum lifting height of 69 inches (1,753 mm) from floor to the top of the platforms when the lift rests on the floor and a minimum lifting height of 69 inches (1,753 mm) when the lift is flush mounted to the floor.
         2. Platform dimensions shall be available in the following lengths:

23 feet (7 m).

26 feet (8 m).

29-1/2 feet (9 m).

32-3/4 feet (10 m).

39-1/3 feet (12 m).

47-1/2 feet (14.5 m).

* + - * 1. Width of the platforms for all models shall be 30 inches (762 mm).
        2. Lowered height shall be a maximum of 16 inches (406 mm) for flush mounted and 14 inches (356 mm) for surface mounted.
        3. Concrete thickness shall be a minimum of 6 inches (152 mm).
        4. Installation uses 4 plates with 4 bolts per plate. Total installation shall not require more than 16 bolts for anchorage to floor.
      1. Drive Mechanism:
         1. System shall be hydraulic and permit lifting without any pulsation, jerks, or unsteady lifting. Hydraulic power unit is electrically-powered pump with flow control valves, and a fluid reservoir.
         2. Hydraulic lifting cylinders shall be piston type to prevent leakage in the case of piston damage.
         3. Rotating axles are stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Provide lift shall with a two-speed lowering option.
      2. Lift shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)
      3. Controls: Control panel shall be rated IP 6
         1. Operating system shall have microprocessor controls within the printed circuit board to provide various safety and operational requirements.
         2. System control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have as a minimum:

System disconnect.

"Power-on" pilot lamp.

An "up" button

A "down" button

Lock release button

If needed: Lighting switch.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Wired Remote Control:
         1. Provide an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Control shall be connected to the control console through a multi-conductor cable with military-style DIN connector.
         3. Control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, front, or rear lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. Provide remote control with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting the E-Stop and re-energizing the control system.
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each half scissor. 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.
         2. Each lifting device provided with a position measuring device identified as an inclinometer whose function it is to calculate and synchronize the height of the 4 lifting devices.
         3. System shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         4. System shall have an automatic foot-guard protection.
         5. Locking mechanism shall be activated in no less than 3 inches (76 mm) of lifting height.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Automatic pit cover system: Design shall incorporate an automated system to fill the floor recesses with a false floor as the lift rises. This system, shall be fully mechanical with no hydraulic/electric or pneumatic actuators, and shall be monitored by the control system. Only once the automatic pit covers have achieved full height and been verified to be mechanically locked in place will the lamp on the control box illuminate to inform the operator that the pit covers are properly deployed. Pit covers shall have a load rating of 3300 lbs. per cover system.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Special Finishes for wet environments shall be as follows:
         1. The following lift major subcomponents shall be hot galvanized: platforms, access ramps, wheel chocks and transition plates.
         2. The following lift major subcomponents shall be cold galvanized with a zinc rich primer second coat following be red finish coating to meet safety standards: upper and lower locking mechanisms and pull bar for scissors assembly.
         3. The following lift major subcomponents shall be coated with a three part mono pox coating designed and applied for submerged steel applications: leg assemblies
         4. The following lift major subcomponents shall be stainless steel: Control box enclosure with hinged cover for lamps and button
    1. Vertical Half-Scissors Platform Lifts: Model SKY-250 Surface mount as manufactured by Stertil-Koni USA, Inc.
       1. General Description: Vertical half-scissors heavy-duty platform lift to elevate large trucks, buses, and other heavy-duty vehicles for cleaning. Lift shall rise in a vertical fashion and be specifically designed for wet environments.
          1. Lift system shall be surface mounted recessed as indicated on the Drawings.
          2. Provide with a sectional access ramp system. Standard length of the access ramps shall be 77 inches overall. Access ramps have the option to be lengthened in increments of 19.75 inches as required.
          3. Lift includes fixed wheel chocks for the end of the lift opposite from the location of the access ramps.
          4. System is a totally open floor design with no obstructions between lifting platforms and no crossbeams either in the front or the rear of the platforms.
          5. System incorporates a hydraulic driven cylinder in each half scissor.
          6. Maximum lifting height of the lift shall be programmable to the height specifications as requested by user.

\*\* NOTE TO SPECIFIER \*\* Select the from the following optional paragraphs if required and delete if not required.

* + - * 1. Two 4 feet (1,219 mm) extensions shall be provided to increase the length of either end of the platform.
        2. Lift shall have a complete LED lighting system installed on the inner edge to illuminate the work area when the vehicle is raised. LED lighting shall be 24V, and rated IP 65.
        3. Tandem configurations of two can be achieved in line.
        4. Lift platforms and legs shall be galvanized for wash bay applications.
      1. Lifting Capacity:
         1. Lift shall have a minimum nominal lifting capacity of 78,000 lbs. (35,381 kg).

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraph options if required and delete if not required.

* + - 1. Jacking Beams: Provide system with jacking beam that is self-powered and air-hydraulic.
         1. Jacking beam shall be double telescopic piston with a total capacity of up to 35,200 lbs.
         2. Design 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.
      2. Dimensions:
         1. Lift shall have a minimum lifting height of 69 inches (1,753 mm) from floor to the top of the platforms when the lift rests on the floor and a minimum lifting height of 69 inches (1,753 mm) when the lift is flush mounted to the floor.
         2. Platform dimensions shall be available in the following lengths:

23 feet (7 m).

26 feet (8 m).

29-1/2 feet (9 m).

32-3/4 feet (10 m).

39-1/3 feet (12 m).

47-1/2 feet (14.5 m).

* + - * 1. Width of the platforms for all models shall be 30 inches (762 mm).
        2. Lowered height shall be a maximum of 16 inches (406 mm) for flush mounted and 14 inches (356 mm) for surface mounted.
        3. Concrete thickness shall be a minimum of 6 inches (152 mm).
        4. Installation uses 4 plates with 4 bolts per plate. Total installation shall not require more than 16 bolts for anchorage to floor.
      1. Drive Mechanism:
         1. System shall be hydraulic and permit lifting without any pulsation, jerks, or unsteady lifting. Hydraulic power unit is electrically-powered pump with flow control valves, and a fluid reservoir.
         2. Hydraulic lifting cylinders shall be piston type to prevent leakage in the case of piston damage.
         3. Rotating axles are stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Provide lift shall with a two-speed lowering option.
      2. Lift shall operate at the following voltages: 208/230V (3 phase), 460V (3 phase), 575V (3 phase)
      3. Controls: Control panel shall be rated IP 6
         1. Operating system shall have microprocessor controls within the printed circuit board to provide various safety and operational requirements.
         2. System control voltage rated to a maximum of 24 VDC.
         3. Each control box shall have as a minimum:

System disconnect.

"Power-on" pilot lamp.

An "up" button

A "down" button

Lock release button

If needed: Lighting switch.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Wired Remote Control:
         1. Provide an ergonomic industrial remote control, rated for use in NEC Class 1, Div. 2, hazardous locations.
         2. Control shall be connected to the control console through a multi-conductor cable with military-style DIN connector.
         3. Control shall allow full function control of the lift, with the following:

Push/Pull E-Stop Button

Push buttons for Lift Raise, Lower and Unlock

Selector button for synchronized, front, or rear lifting

Push buttons for hydraulic moveable carriage drive

* + - * 1. Provide remote control with an emergency E-Stop button that de-energizes power to all outputs of the PCB. Re-activation of the control system requires resetting the E-Stop and re-energizing the control system.
      1. Safety Devices:
         1. An independent and fail-safe mechanical safety device shall be present on each half scissor. 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.
         2. Each lifting device provided with a position measuring device identified as an inclinometer whose function it is to calculate and synchronize the height of the 4 lifting devices.
         3. System shall incorporate a splash proof electrical system (IP 65) so that the lift can be used in a washroom environment without damage to electrical components.
         4. System shall have an automatic foot-guard protection.
         5. Locking mechanism shall be activated in no less than 3 inches (76 mm) of lifting height.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Automatic pit cover system: Design shall incorporate an automated system to fill the floor recesses with a false floor as the lift rises. This system, shall be fully mechanical with no hydraulic/electric or pneumatic actuators, and shall be monitored by the control system. Only once the automatic pit covers have achieved full height and been verified to be mechanically locked in place will the lamp on the control box illuminate to inform the operator that the pit covers are properly deployed. Pit covers shall have a load rating of 3300 lbs. per cover system.

\*\* NOTE TO SPECIFIER \*\* Select the following optional paragraph if required and delete if not required.

* + - 1. Special Finishes for wet environments shall be as follows:
         1. The following lift major subcomponents shall be hot galvanized: platforms, access ramps, wheel chocks and transition plates.
         2. The following lift major subcomponents shall be cold galvanized with a zinc rich primer second coat following be red finish coating to meet safety standards: upper and lower locking mechanisms and pull bar for scissors assembly.
         3. The following lift major subcomponents shall be coated with a three part mono pox coating designed and applied for submerged steel applications: leg assemblies
         4. The following lift major subcomponents shall be stainless steel: Control box enclosure with hinged cover for lamps and button
  1. MOBILE COLUMN LIFTS
     1. All Wheel Engaging Mobile units: Models ST 1064/1075/1085/1100 with ebright Smart Control System) as manufactured by Stertil-Koni USA, Inc.
        1. Models

\*\* NOTE TO SPECIFIER \*\* Select the Model required from the following paragraphs and delete those not required.

* + - * 1. ST 1064
        2. ST 1075
        3. ST 1085
        4. ST 1100
      1. General Description:
         1. A lifting system or set (consisting of up to 32 columns) for vehicles shall be composed of interchangeable columns. Size of the set shall be able to be configured by the operator at time of set up without need to modify the operating system. It shall be possible to operate up to 480 columns within any facility. With a set of up to 32 columns, it shall be possible to operate any single column, a pair of columns, or all columns together, at the same time.
         2. Each column shall operate from one of two power sources: either a VDC system consisting of two deep cycle (group 31) 12 VDC batteries combined to provide a stable 24 VDC power supply OR a VAC system which utilizes building supply voltage(Single phase/220 VAC or Three phase/208-575 VAC).
         3. Main power shall be fused between the primary power switch and the motor/control circuits to protect against overload.
         4. For WEMUs operating on 24 VDC, when fully charged, the on board battery power system shall be capable of following number of lifting cycles:

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs to show the product model(s) specified above and delete those not required.

ST 1064 battery-wireless as well as battery-cabled provide 25 lifting/lowering cycles at 100% of lifting capacity and 37 lifting/lowering cycles at 50% of lifting capacity.

ST 1075 battery-wireless as well as battery-cabled provide 22 lifting/lowering cycles at 100% of lifting capacity and 33 lifting/lowering cycles at 50% of lifting capacity.

ST 1085 battery-wireless as well as battery-cabled provide 19 lifting/lowering cycles at 100% of lifting capacity and 28 lifting/lowering cycles at 50% of lifting capacity and battery-regenerative (EARTHLIFTS) provide 25 lifting/lowering cycles at 100% of lifting capacity and 38 lifting/lowering cycles at 50% of lifting capacity.

ST 1100 battery-wireless as well as battery-cabled provide 16 lifting/lowering cycles at 100% of lifting capacity and 24 lifting/lowering cycles at 50% of lifting capacity and battery-regenerative (EARTHLIFTS) provide 20 lifting/lowering cycles at 100% of lifting capacity and 33 lifting/lowering cycles at 50% of lifting capacity.

* + - * 1. For WEMUs operating on VAC, there shall be no limitation for lifting cycles
        2. For WEMUs operating on 24 VDC, the 24 VDC on board power supply shall incorporate a built in recharging systems with a pictograph on the display so the operator can visually verify charging status. Recharging system shall operate as detailed below:

Battery/Cables and Battery/Wireless: Recharging system shall be a built in 110 VAC battery charger with indicator lamps. Battery charger shall be enclosed within a steel cabinet for protection from damage. Charger indicator lamp shall be easily visible through a sight glass mounted externally in the control cabinet. Indicator lamp shall be illuminated steady red when the system is recharging, green when batteries are fully recharged, and flashing green when the charger is providing a maintenance charge. It shall be possible to operate the lifting column while the battery charger is actively charging the batteries.

Battery/EARTHLIFTS (only 1085/1100 models): Primary recharging system utilizes a secondary circuit in the electric motor of the power unit that captures the gravitational energy available during the lowering cycle to allow generation of electrical energy and recharging of the batteries. Secondary recharging system shall be a built in 110 VAC battery charger with indicator lamps. Battery charger shall be enclosed within a steel cabinet for protection from damage. Charger indicator lamp shall be easily visible through a sight glass mounted externally in the control cabinet. Indicator lamp shall be illuminated steady red when the system is recharging, green when batteries are fully recharged, and flashing green when the charger is providing a maintenance charge. It shall be possible to operate the lifting column while battery charger is actively charging the batteries

* + - * 1. Base frame of the lifting column shall be of a rectangular design. Contact pattern to the foundation under the column shall be triangular in design to ensure uniform contact with the lifting foundation.
      1. Lifting Capacity, Each lifting column shall have a nominal rated capacity as detailed below:

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs to show the product model(s) specified above and delete those not required.

* + - * 1. ST 1064-14,000 lbs. (6364 KG)
        2. ST 1075- 16,500 lbs. (7500 KG)
        3. ST 1085- 18,500 lbs. (8409 KG)
        4. ST 1100- 22,000 lbs. (10,000 KG)
      1. Dimensions:
         1. Achieved lifting height of the column shall be no less than 73 inches (1,854 mm) when measured from the foundation on which the column rests to the top of the lifting fork.
         2. Column height shall not be greater than 97 inches (2,464 mm) when fully lowered and 143.5 inches (3,645 mm) when the carriage has achieved maximum height.
         3. Column lifting fork shall be:

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs to show the product model(s) specified above and delete those not required.

ST 1064/1075/1085- 14 inches in length

ST 1100- 12 inches in length

* + - 1. Tire Size:
         1. Wheel contact forks shall be adjustable by hand and freely accept tires with rim diameters between R10 and R22.5. Adjustable forks shall incorporate a mechanical locking device to ensure the fork cannot relocate/adjust during use.
      2. Pallet Jack Mechanism:
         1. Pallet jack mechanism shall have a gas shock incorporated into its design which shall serve two purposes. Primary purpose of the pallet jack gas shock shall be to serve as a safety mechanism to ensure that the mobile column is not lifting, while the pallet jack is extended. If the operator fails to lower the pallet jack after column positioning, as soon as the column experiences load during a lifting cycle, the gas shock will retract to lower the column to its foundation for stable lifting. The second purpose of the pallet jack gas shock shall be to dampen the impact of floor imperfections experienced while column is relocated.
      3. Wheels: Lifting column shall incorporate either fixed base frame wheels or retractable base frame wheel which utilize the design aspects detailed below.

\*\* NOTE TO SPECIFIER \*\* Edit the following two paragraphs to show the product model(s) specified above and delete those not required.

* + - * 1. On models with fixed base frame wheels, column shall be fitted with fixed front roller wheels fabricated from oil impregnated nylon so as to be non-destructive to the foundation on which the column rests. Floor pressure at the front roller wheel location shall be no greater than:

ST 1064- 6900 PSI

ST1075- 7980 PSI

ST1085/1100- 8700 PSI.

* + - * 1. On the models with retractable base frame wheels, the column shall be fitted with retractable front roller wheels fabricated from oil impregnated nylon so as to be nondestructive to the foundation on which the column rests. Front roller wheels shall be deployed by action of the pallet jack mechanism to ensure the column rises vertically. Floor pressure at the front roller wheel location shall be no greater than:

ST 1085/1100- 870 PSI.

* + - 1. Drive Mechanism:
         1. Drive system shall be hydraulic and shall permit lifting without any pulsation, jerks, or unsteady lifting. Lifting shall be smooth. The hydraulic power unit shall be an electrically-powered pump, flow control valves, and a fluid reservoir.
         2. Lifting carriage shall ride on durable, oil filled nylon guide rollers. Guide rollers shall require no lubrication and no maintenance.
         3. Each hydraulic cylinder shall be equipped with a hose burst check valve to prevent decent in the event of a major fluid leak.
      2. Controls: for all models(VAC and VDC)
         1. Various functions of the mobile lifting system shall be initiated from the control panels on the columns.
         2. Each control box shall include:

"UP" button.

"Down" button.

"Lock release" button.

"Confirm" button

Mushroom style emergency stop button

A high definition 7 inch LCD screen touch. Touch screen shall be specifically designed for a harsh workshop environment.

* + - * 1. LCD screen touch shall be capable of providing the following functions:

Column selection indicator: This area of the touch screen display shall inform the operator of which columns in the set have been selected for operation.

Battery charge indicator (VDC models only): This area of the touch screen display shall inform the operator of the charge condition of the battery power supply.

Column height indicator: This touch screen display shall inform operator of the height of the individual column. Operator shall have the ability to easily toggle between individual imperial or metric units of height measurement (inches or mm.). Column height indicator shall also provide on the touch screen a clear indicator if the column has been set to stop at a restricted lifting height. Indicator shall be displayed as a thick horizontal line in the height display region of the touch screen. As column rises, screen will mimic the column and display the lifting fork rising up towards the horizontal restricted height indicator bar. Once the lifting fork shown on the display arrives at the restricted height indicator bar, the column shall stop rising.

Column speed indicator: This area of the touch screen shall inform the operator of the speed of the lifting system. The speed indicator shall have the ability to adjust the lowering to 30% of full lowering speed.

Column fault code indicator: When a fault code has been registered by control system, the touch screen shall inform the operator of any fault codes affecting the lifting set. Control system shall have the ability to display 42 individual fault codes.

One-touch access to the Guide screen: This area of the touch screen provides to the operator access to the Guide screen. The Guide screen shall provide to all system users:

Calculator

One-touch access to the Information screen: This area of the touch screen provides to the operator access to:

Settings screen option (1): On this screen, operators shall have the ability to change the language displayed on the screen as well as the units of measure for height and weight (imperial or metric units).

Settings screen option (2): On this screen, operators shall have the ability to retract the mechanical locks during raising for reduced noise, as well as to set a restricted maximum lifting height.

Settings screen option (3): Area to allow for future expansion

Settings screen option (4): Portal to the Shop screen: access to this screen requires a PIN with details of the Shop Screen provide below.

Settings screen option (5): Portal to Information screen option: access to this screen requires a PIN with details of the Information

One-touch access to the Shop screen options (access to the Shop screen shall be generally provided to only maintainers and system administrators). Shop configuration screen provides access to Information Screen, which displays 9 options (access to the Information screen shall be generally provided to only maintainers and system administrators). Maintenance configuration screen shall allow manipulation of:

Screen 1:

Initiation of foot protection which guards against a crushing hazard during lowering. This safety system, when enabled, will stop lowering as the column reaches 18 inches above finished floor. At that time, the operator is provided a chance to inspect and ensure that there are no obstructions in the area of the vehicle and lifts. After confirmation that the vehicle and lift area is clear of obstructions, the operator simply needs to retract the mechanical safety locks again and compete the lowering cycle to bring the lift completely to the floor.

Ability to disable height difference monitoring to aid in trouble shooting. Once initiated, control option allows the maintainer to operate the lifting system outside normal safety limits. This system is only for use by the lift system maintainer during repair procedures. This system will automatically be disabled and the control system returned to default operating parameters after 10 minutes.

Ability to apply a set value to height monitoring system to aid in troubleshooting. Once initiated, this option substitutes a fixed value for the height monitoring device in a particular column. System is only for use by the lift system maintainer during repair procedures. This option will automatically be disabled and control system returned to default operating parameters after 2 minutes.

Screen 2

Ability to select wireless operating channel(VDC wireless models only): to minimize interference

Ability to view total lift system run time to properly plan for lift system maintenance.

Ability to view individual column motor run time to properly plan for lift system maintenance.

Screen 3 Area to allow for future expansion

Screen 4 (Safety Messages)-area to allow for future expansion

Screen 5 (Maintenance Messages)-area to allow for future expansion

Screen 6 (Back up and Restore)- ability to restore control system to default settings

Screen 7 (Software Version)- ability to review system operating information

Screen 8

Ability to establish column type

Ability to establish motor type, VDC or VAC

Ability to establish control system communication protocol

Ability to enable or disable weight measuring

Screen 9 (Battery Settings VDC models only):

Ability to establish at what voltage the system will display that the battery system is WEAK

Ability to establish at what voltage the system will display that the battery system is EMPTY

* + - * 1. All control panels have automatic synchronization through the full stoke of hydraulic cylinder with a maximum tolerance of 2 inches (50 mm). Control system will actively control hydraulic correction to maintain level synchronization, unless a column deviates more than 2.4 inches (60 mm) inches from any other column, at which point all motion halts.
        2. Each column shall be fitted with an individual analog height measuring device. Device shall ensure that the height of each column in the set remains synchronized at the height initiated by the operator. Height measuring device shall also allow, through single operation, that the operator can raise or lower any column to alternate heights within tolerances set by the ALI (Automotive Lift Institute) in its manual entitled "Lifting It Right".
        3. Wireless communication system shall utilize mesh-style wireless technology and be properly shielded from external interference in the workshop (wireless models only).
        4. Mobile column lift battery charger shall operate at the following voltages: 110VAC(VDC models only).
        5. Control panel shall be rated IP 65.
      1. Safety Devices
         1. An independent and fail-safe mechanical locking system shall be present on each columnand be totally independent from the lifting drive system.
         2. Increments on lifting carriage locking profile shall not be greater than 1.375 inches (35 mm) and the first locking position shall engage after no more than 5.0 inches (120 mm) of lifting.
         3. A locking "pawl and ratchet" system shall be used to ensure proper and automatic locking at any height and at all times. Locking notches shall be integrated into the lifting carriage. Locking pawl shall be mounted to the inside of the column and function as a wedge between the column and lifting carriage. Locking pawl design shall utilize gravity, with a spring assist, to ensure the locking pawl is always engaged into the locking ladder. Mechanical safety lock shall be automatically engaged at all times when lift is not operating.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until supporting structures have been properly prepared.
      2. If supporting structures preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions.
      2. Test for proper operation, and re-test if necessary until satisfactory results are obtained.
   4. PROTECTION
      1. Protect installed products until completion of project.
      2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION