SECTION 144500
VEHICLE LIFTS
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MOD35S

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Heavy Duty Vehicle Lifts including safety equipment, controls and accessories of the following types:
   1. Modular inground axle engaging lifts 2 and 3 post MOD35 series.

1.2 RELATED SECTIONS

A. Section 14 45 00 - Vehicle Lifts.

B. Section 23 05 00 - Common Work Results for HVAC.

C. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

A. ALI: Automotive Lift Institute.

B. ANSI/ALI ALCTV: Safety Requirements for the Construction, Testing, and Validation of Automotive Lifts.

C. International Standards Organization (ISO): ISO 9001 Quality management systems - Requirements.

D. Underwriters Laboratories Inc. (UL): UL201 - These requirements cover garage equipment, rated not more than 600 volts, for use in accordance with the National Electrical Code, NFPA 70.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. 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 manual.
   4. Operations manual.
   5. Maintenance manual.
   6. Safety manual.

C. Shop Drawings: Template drawings and load reactions for lift application.

D. BIM Models: Manufacturer's Building Information Model for lifts.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Factory trained authorized company, company insured for completed operations of installing lift.

B. In addition to the other requirements outlined herein, the lift or lifts, shall comply with all applicable requirements of ANSI standards. "Safety Requirements for the Construction, Care and Use of Automotive Lifts " as published by the American national Standards Institute. The lift company Quality Management System shall be ISO9001 certified.

C. Lift and all components shall be new. Used or refurbished lift and components not acceptable.

1.6 PROJECT CONDITIONS

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

1.7 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard warranty for failures due to defective materials and workmanship. Manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Rotary Lift, which is located at: 2700 Lanier Dr.; Madison, IN 47250; Toll Free Tel: 800-640-5438; Tel: 812-273-1622; Fax: 800-578-5438; Email:lkendall@vsgdover.com; Web:www.rotarylift.com

B. Substitutions: Not permitted.

2.2 HEAVY DUTY MODULAR INGROUND AXLE ENGAGING LIFTS 2 AND 3 POST MOD35 SERIES

A. Two Post Inground Lift Model MOD235: As manufactured by Rotary Lift.
   1. Capacity: 70,000 lb (31752 kg).
   2. Lifting cylinder assemblies: 2.
   3. Movable lifting cylinder assemblies: 1.

B. Lift Characteristics/Construction Features:
   1. Lifting Units: Lift shall consist of two or three individual modular lifting assemblies in line with the longitudinal axis of the vehicle, each lifting cylinder so equipped as to engage the axle and suspension, as specified herein. Each modular lifting assembly, including the hydraulic system, shall be housed in a totally contained, environmentally safe containment. The movable post shall be equipped with automatic shutter-plate covers that move with the post so as to keep the trench opening covered at all times. All trench cover plates, including recess covers shall be permanently attached to the floor openings for safety of the technician (trip hazard). The modular lifting system shall be a variable speed computer controlled equalization system to ensure vehicle stability based upon direct post height measurement. The operation of the lift shall be electro hydraulic.

C. Movable Post Modular: The movable post shall be equipped with a carriage assembly with permanent lubricated bearing wheels for smooth and proper movement in the structural channel track. The casing of the movable post shall be coated with EnviroGuard to a minimum 1/10 inch (2.5 mm) thickness for ultimate durability and maximum protection against deterioration due to electrolysis and/or harsh contaminates for ultimate durability and

maximum protection against deterioration due to electrolysis and/or harsh contaminates.

1. Recessed track properly sized for movable post to provide proper engagement for vehicles ranging in wheel bases specified by fleet demand. The track shall have a pocket location to house the saddle and adapter assembly when lift is in the lowered position providing an unobstructed clear floor. The recess shall allow the superstructure and adapters to be stored completely below grade. When lowered, no part of the saddle or its adapters shall interfere with the drive over clearance of the bay. It shall not be necessary to remove adapters to achieve full drive over clearance and it shall not be required to remove or reposition the adapters in order to close the pit covers. All openings in the floor and gaps between floor and superstructure must be covered when the lift is down. Wheelbase adjustment shall be accomplished by a high efficiency system utilizing a 1/2 hp explosion proof electric motor, protected by a slip clutch.
2. Moveable superstructure shall be of a low profile design.
3. Piston Design, Capacity, and Rise:
    a. 2-Stage piston with chrome surface not exposed to fluids in the containment.
    b. Minimum Full Rated Capacity: 35,000 lbs (15,876 kg).
    c. Rise: 70 inches.
    d. Lift locks: The lift lock shall be rated at same capacity as the corresponding jacking unit. The lock leg shall be a two-stage telescoping. The lock leg shall be equipped with 18 locking positions. The locking latch shall be spring-loaded to the lock position and shall be released at the control console. The locking latch shall be gravity activated with a spring-loaded assist. Release mechanism shall be an air cylinder to minimize potential hydraulic leaks. Hydraulically operated or electrically operated safeties are not acceptable.
4. Electro-Hydraulic Power Unit: The moveable modular unit shall be equipped with a 5 HP, explosion proof 3-phase motor. (All Models Bio-Fluid Compatible) The hydraulic system shall be completely housed within the modular containment unit.
5. Modular Containment: The containment shall be coated internally and externally with EnviroGuard minimum coating of 1/10 inch (2.5 mm) thickness for ultimate durability and maximum protection against deterioration due to electrolysis and/or common environmental - shop fluids. EnviroGuard shall be an impermeable shell that is watertight, encapsulated against corrosion and electrolysis. All units shall be tested against electrolysis by way of a 30,000-volt stray current test. Parts treated with the EnviroGuard coating shall be warranted against corrosion or electrolysis for a prorated period of 10 years. The Containment shall be equipped with a Liquid Detection System that shall relay visual notification to the lift control system upon detection of liquid accumulation in the containment. Fluids must be removed upon detection with optional automatic evacuation kit to an environmental location. Fluids can also be remove manually. The containment shall be equipped with a standard evacuation pipe.

D. Stationary Post Modular (Reference Model Number MODX35-S) shall include: The stationary post shall be of the same design construction and rise as the moveable post.

1. Stationary Frame: The stationary frame unit will provide integral wheel chocks at floor level in order to accurately locate vehicle Wheel chocks shall be embedded below grade on both sides of the stationary module. No part of the wheel spotting system shall protrude above the floor surface to minimize trip hazards. The spotting dish shall be provided on both sides of the module
2. The recess shall allow the superstructure and adapters to be stored completely below grade. When lowered, no part of the saddle or its adapters shall interfere with the drive over clearance of the bay. It shall not be necessary to remove adapters to achieve full drive over clearance or to close the pit covers. The recess area shall have cover doors to close over the opening when lift is not in use.
3. Lift locks: The lift locks shall be of the same design and construction as the moveable post.

4. Electro-Hydraulic Power Unit: The power unit shall be of the same construction and design as the moveable post.

E. Stationary Modular Containment: The stationary modular containment shall be of the same design as the moveable post containment (refer to shop drawings for size exceptions)

F. Controls Wall Mount with Pedestal Option: The control system shall be a variable speed computer controlled equalization system to ensure vehicle stability based upon direct post height measurement and shall be in a wall mounted enclosure with remote control to minimize shop floor footprint and maximize workspace. Complete lift features are operable at the remote control to maximize shop productivity and visibility of the vehicle during operation. The remote control shall include the following features and functions.
   1. The remote control shall be equipped with a joystick for infinitely variable speed control of fore and aft movement of the piston and up down operation of the lift. The joystick shall permit fine adjustment of the lifting carriage or moveable piston to permit accurate alignment of axles, unloading of wheels, and reinstallation of drive-train components. The joystick control shall be equipped with protective guard to prevent accidental engagement of the control when not in use.
   2. The control system shall actively monitor all lifting assemblies in relation to each other based on actual jack height measurement. The equalization shall be accomplished through variable motor speed. Systems that do not use motor speed manipulation are susceptible to contamination, reduced accuracy and increased maintenance.
   3. The remote control shall be equipped with technology allowing system communication through the use of a digital display that shows Fault Codes, and site specific presets.
   4. The system shall provide the ability for the following facility required settings: Up to 25 memorized wheelbase locations as required by fleet. Up to 25 memorized height requirements locations as required by facility.
   5. Programming features are limited to service operation and can be accomplished at the remote control. Service menus are not accessible in normal operation to prevent unauthorized program modifications.
   6. The control system shall indicate to the operator when the lift is fully lowered to prevent damage to the vehicle, the lift and to eliminate tire damage.
   7. The remote control shall indicate to the operator which lifting pistons are activated, when the moveable piston is moving fore and aft, when the moveable post is in its "home" position and when each piston is fully recessed below grade.
   8. Automatic operational positioning shall be accessed from a single button press once a vehicle profile has been selected.
   9. Remote Control shall be of durable construction but still allow one hand operation in a compact design that provides important information on a digital display.

G. Controls Console Floor Mounted in Bay Only: The VEC equalized controls shall be in a surface mounted console 4 feet 3-7/32 inches (1300 mm) high by 2 feet (610 mm) wide. The control shall include the following features and functions.
   1. The control panel shall be equipped with a joystick type control for fore and aft movement of the piston and up down operation of the lift. The joystick control shall be equipped with a locking ring to prevent accidental engagement of the control when not in use. The joystick shall permit fine adjustment of the lifting carriage or moveable piston to permit accurate alignment of axles, unloading of wheels, and reinstallation of drive-train components
   2. The VEC equalization shall monitor all jacking assemblies in relation to each other. The equalization shall be accomplished through variable motor rotation without the use of flow metering valves.
   3. The lift control panel shall be equipped with Inbay Technology allowing system communication using an LCD Screen. The LCD screen shall provide onboard; Operation Training, Operation Manual, Preventive Maintenance reminders, Fault Codes, and site specific presets.

4. The system shall provide the ability for the following facility required settings: Up to (10) memorized wheelbase locations as required by fleet. Up to (4) memorized height requirements as required by facility.
5. The control system shall indicate to the operator when the lift is fully lowered to prevent damage to the vehicle, the lift and to eliminate tire damage.
6. The control system shall indicate to the operator which lifting pistons are activated, when the moveable piston is moving fore and aft, when the moveable post is in its "home" position and when each piston is fully recessed below grade.
7. The control system shall be compliant with the requirements of ANSI, ALI, UL201 and all other applicable NEC requirements.
8. The remote control (Optional) shall be compliant with the requirements of ANSI, ALI, UL201 and all other applicable NEC requirements for operational positions.

H. Saddle and Adapter Kit: The lift shall include a Saddle and Adapter Kit designed to properly engage and lift specified vehicles.
1. The lift superstructure shall include sliding adapters that include both types of essential adapters; flip up and pinned stackable inserts which can be to engage axles at different heights as standard equipment.
2. Flip-up adapters, ideal when lifting low profile vehicles, shall be built into the sliding adapter and optimize ease/speed of axle engagement. When the axle is obstructed by leaf springs, steering components or accessory equipment the use of included pinned, stackable adapters may be necessary.
3. The included height extensions shall be constructed of lightweight aluminum and using a single pin to allow for easy placement. Stackable height adapters shall be anodized for resistance to corrosion at pinning location. Stackable adapters and height extensions shall pivot 360 degrees to permit maximum flexibility when cradling vehicle axles or frames.
4. A unique saddle and adapter package that is optimized for most vehicles in a Generic Municipal, School bus, Heavy Truck, or Transit/Low Profile application. Generic adapter packages may require additional customization by the manufacturer.

I. Optional Accessories:
1. Automatic Fluid Evacuation System that is pneumatically operated. Fluid displacement 4GPM at 90PSI. Refer to drawings.

J. Control Panel:
1. 230V Control Panel.

K. Recessed track properly sized for movable post to provide proper engagement for vehicles ranging in wheel bases:
1. From _____ inches minimum to _____ inches maximum.

L. Lift shall be 3rd party certified by ETL testing laboratory and labeled with the ETL/Automotive Lift Institute (ALI) label that affirms the lifts meet conformance to all applicable provisions of American National Standard ANSI/ALI ALCTV and in compliance with IBC chapter 30.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until supporting structures have been properly prepared.

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

3.2 INSTALLATION

A. Install in strict accordance with manufacturer instructions and in proper relationship with adjacent construction. Test for proper operation and retest if necessary until satisfactory results are achieved.

3.3 PROTECTION

A. Protect installed products until completion of project.

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

END OF SECTION