

PART 1. GENERAL

- A. The general provisions of the Contract, including General and Supplementary Conditions, apply to the work detailed in this specification.

PART 2. REALTED WORK

- A. Site Work
- B. Concrete
- C. Mechanical
- D. Electrical

PART 3. QUALITY ASSURANCE

- A. Experience: The system shall be produced by a manufacturer of established reputation with a minimum of five (5) years experience supplying the specified equipment in similar applications.
- B. Installation: Provide a qualified manufacturer’s representative to supervise the work related to equipment installation, check out and start up.
- C. Training: Provide a technical representative to train Owner’s maintenance personnel in the operation and maintenance of specified equipment.

PART 4. SUBMITTALS

A. Product Data

- 1. Submit Product Data in strict accordance with the requirements of these specifications.
- 2. Restrict submitted material to pertinent data. For instance, do not include a manufacturer’s complete catalog when pertinent information is contained on a single page.

B. Engineering Drawings

- 1. Submittal engineering drawings must include the following:
 - a) Equipment general layout
 - b) Electrical layout
 - 1. Provide UL listing card or equivalent document of a Nationally Recognized Testing Laboratory from the company building the electrical panel(s) and attach with the electrical drawings indicating that the electrical panels will be built to the required standards (see section 11.10 Electric Control Panel).

- c) Mechanical layout
- d) Floor plan view
- e) Isometric view with bill of materials
- f) Any related in-ground electrical or mechanical installation

C. Operation and Maintenance Manual

1. Assemble and provide copies of manual in 8.5 x 11 inch format. Fold out diagrams and illustrations are acceptable. Manuals shall be reproducible by dry copy method.

D. Supplier Qualifications

1. The supplier shall have been regularly engaged in the design and supply of the type of equipment specified herein, for a period of not less than five (5) years.
2. The wash system, high pressure cleaning systems, pumping stations and all electrical controls shall be designed and supplied by one supplier.
3. All similar items shall be the products of one manufacturer.
4. The equipment specified herein is based on the system model Rainbow Ultima as supplied by InterClean Equipment, Inc. (800-468-3725) or engineer-approved equal.

E. Approved Equal Status

1. No deviations from these specifications will be allowed unless approved by the Owner in writing prior to bid closing.
2. All bidders with an "Approved Equal Status" shall submit the following with their bid package:
 - a) A complete list of three brush roll over systems manufactured and installed by the bidder. The list shall include all such installations made by the bidder in the last five (5) years, including the duration of service and application. Should the reference list have more than twenty-five (25) names, a list of the last twenty-five (25) installations shall suffice.
 - b) Provide the name of a contact person at each location that is familiar with the operation and maintenance of the wash system.
 - c) Based on the information supplied and discussions with the contact persons named, the engineer will determine the acceptability of the proposed supplier and the equipment.

PART 5. WARRANTY

- A. Warranty work specified herein is for one (1) year from the date of substantial completion against defects in materials. Defects shall include, but not be limited to:
 - 1. Operation: Noisy, rough or substandard operation
 - 2. Parts: Loose, damaged and missing parts
 - 3. Finish: Abnormal deterioration

PART 6. SCOPE OF WORK

- A. To furnish a completely automatic, three brush roll over vehicle wash system with high pressure which washes the front, roof, rear, sides of the Owner's specified vehicles.
- B. The supplier is to be responsible for the supply of necessary equipment, materials and service for the complete assembly and erection of the equipment so that it is ready for operation as per these specifications.

PART 7. WASH SYSTEM PERFORMANCE

- A. The equipment specified herein is based on the system model RAINBOW ULITMA as supplied by InterClean Equipment, Inc. (800-468-3725) or engineer approved equal.
- B. Regardless of the Owner's approval for any deviations and/or changes, the supplier is solely responsible for the performance of the supplied equipment per these specifications. All equipment and equipment functions must be built and designed to these specifications.
- C. Should the equipment not perform as per these specifications, the supplier shall modify, add and/or alter the equipment supplied at his own expense until the performance is satisfactory.
- D. The equipment offered shall be the latest standard product, modified as necessary to meet the requirements of this specification, of a type that has been commercially available and in satisfactory use for at least five years.
- E. Vehicles entering the wash area will stop just prior to the Ultima gantry. The driver shall be signaled to stop by a red traffic light on the gantry frame.
- F. The driver shall select the wash program on the main push button control box and the wash program starts.
- G. The Rainbow Ultima will start by applying detergent chemical to the vehicle from the front to the back.

- H. Once the gantry reaches the back of the vehicle the chemical application will stop and the High Pressure arch will start.
- I. When the gantry gets to the front of the vehicle and the majority of the grit and grime has been removed, then the brush will start. This is to prevent the brushes from grinding in the dirt into the paint of the vehicles and scratching them.
- J. The brushes move into the front of the vehicle. The front area of the vehicle is cleaned by overlapping side brushes and or the roof brush depending on the wash program selected.
- K. Brushes will automatically continue to wash the side of the vehicle working their way to the rear of the vehicle.
- L. Side brushes will move to back of the vehicle cleaning with an overlapping side brush and or top brush depending on the wash program selected.
- M. While the side brushes are scrubbing the sides of the vehicle and the machine travels to the rear the top brush will clean the top surfaces of the vehicle.
- N. The supplier is responsible to design the equipment to satisfactorily wash up to 10 vehicles per hour. The vehicle wash shall be able to remove all visible heavy dirt accumulation and most of the road film from the Owner's vehicles using only a mild alkaline detergent. The amount of detergent used per vehicle to remove road film shall not exceed 0.1 gallons. The evaluation of the system capability to remove road film shall be determined only after washing has been completed and the vehicles have dried.
- O. The vehicle wash system must be capable of washing specified vehicles up to 14' in height depending on the wash program selected, including the following:
 - 1. Cars, Pick-ups, Vans
 - 2. Buses, School buses
 - 3. Utility trucks with or without attached ladders and other equipment

PART 8. MECHANICAL INTERCONNECTING PIPING

- A. All field plumbing and mechanical work will be done by the Mechanical Contractor or General Contractor, including:
 - 1. Water and gas utilities up to and connecting to the equipment.
 - 2. Interconnecting piping between various equipment components located in the equipment room.

3. Interconnecting piping between the equipment located in the equipment room and the equipment located in the wash bay.
4. Furnish and installation of:
 - a) Backflow preventer
 - b) Grating for trench

PART 9. ELECTRICAL INTERCONNECTING WIRING

- A. All field electrical work will be done by the Electrical Contractor or General Contractor, including:
1. Electrical service up to and connecting to the equipment panel.
 2. Interconnecting wiring between various equipment components located in the equipment room.
 3. Interconnecting wiring between the equipment located in the equipment room and the equipment located in the wash bay.
 4. Furnish and installation of:
 - a) Underground conduits (if required) to be laid when concrete pad is being poured.

PART 10. WASH SYSTEM TECHNICAL SPECIFICATIONS

A. Gantry Structure

1. All main frames of the gantry shall be hot dipped galvanized steel. Aluminum frames are unacceptable. The frame structure of the gantry is to be enclosed with canvas splash guards. All motors and gearboxes contained on the gantry shall be protected from water infiltration. Floor rails are to be hot dipped galvanized. Gantry machine shall be equipped with anti-derailing protection devices. The gantry drive system shall be a direct drive system using a VFD drives.

2. Brushes

The gantry system shall be equipped with two vertical side brushes and one horizontal roof brush. The side brushes shall be suspended from the top and be of full length to cover the sides of the owners vehicles. The side brushes shall also be capable of washing the fronts and rears of the vehicles multiple times with overlapping movement. The wash system shall be capable of multiple wash programs to accommodate the various vehicles in the owners fleet. The side brushes shall also have a mirror detection system that will move the side brush away from mirrors to minimize any potential damage to the side mirrors. Brush pressure

shall be driven by electric motors with amperage sensing meters that will constantly monitor the amp draw and adjust the pressure on the vehicle's surface. Gantry system shall also have a built in over pressure safety alarm in the case of a malfunction or operator error. If the system senses the fault it will automatically shut down and announce the fault on the touch screen. Resetting the system shall be by resetting the alarm or breaker switch.

Bristles shall be polyethylene material that is "X" grooved to help facilitate water and chemical delivery to the vehicle surfaces. The tips of the brushes shall be flagged to provide a soft touch to reduce the effect of transference of the poly material onto the vehicle surfaces which gives the appearance of scratching. Each brush section shall have of a pliable plastic backing which is mounted to the 4-3/4 inch diameter hot dipped galvanized core. The wall thickness of the core shall be 0.16 inch minimum. Each brush will have a manifold to spray on a mixture of water and detergent. Spray manifolds to be stainless steel with stainless steel nozzles. Galvanized, aluminum, pvc, and brass are not acceptable for manifold and or nozzles.

Detergent injector for brushes shall be Inject-O-Meter, InterClean DM or engineer approved equal with adjustable chemical injection ratio from 1:20 to 1:100. The ratio of detergent delivery (by the injector) must be readable on the injector calibrated settings. The detergent injector must be of the positive displacement type.

3. The system shall have a water booster pump to ensure even water pressure.
4. The chemical spray components located in the equipment room must be assembled in a modular, wall-mounted assembly.
5. A water softener for the detergent arch is required to be included by the supplier if the domestic water exceeds 3 grains of hardness. Should the water softener not be needed, the supplier shall provide to the Owner testing results proving the water hardness is acceptable (3 grains or lower).

B. Supply cables, water lines and utility support.

A festoon system shall be supplied to carry the electric and water utilities to the gantry. All steel components of the festoon system shall be hot dipped galvanized.

C. High Pressure System

The high pressure manifold shall be on the gantry machine and shall consist of a galvanized manifold mounted onto pivoting swing frames to allow for manifold pivot during the wash process for enhanced cleaning. Top manifold mounted on contouring rotary head to contour the vehicle. High impact V-spray stainless steel nozzles. Required solenoid valves and control circuits are included. High Pressure water hoses are included and terminated to 1" female threaded connectors. Galvanized or pvc is not acceptable for the manifold. Brass or plastic is not acceptable for nozzles.

The High Pressure pump station consists of a 25hp pump with 90 GPM at 290 psi, for an application of water on the sides and top of the owner's vehicles. There is also a 528 gallon tank with solenoid valve, float switch and low level alarm to protect the pump.

E. Tire Guides

1. Tire guides shall be fabricated from 4 inch diameter galvanized steel pipe headings, supported at 5 foot intervals, to provide guide runs on both sides of the vehicle. There shall be two sets of tire guides one set at the entrance of the wash and one set at the home position of the gantry.
2. The system shall have an angled entry. The ends of the rails are capped and all headings are smoothly finished to prevent tire damage. Brackets supporting the pipe shall be made of a minimum 3/8" steel plate that is welded to concrete imbedded cleats or anchor bolted to the concrete.

D. Controls Panel and Components

1. The panel and controls must be built according to these specifications. No substitutions shall be allowed.
2. The industrial control panel shall be manufactured and evaluated in accordance with the Underwriters Laboratories, Inc. (UL) standard 508A (Industrial Control Panels). In addition, the panel shall be evaluated for high capacity short circuit withstand and shall bear the appropriate UL marks including the short circuit withstand value mark as part of the official UL label.
3. Electric panels that are not UL approved are not acceptable.

4. The industrial control panel shall be designed for operation on a 460 Volt, 3 Phase, 60 Hertz system, with a short circuit capacity of 25,000 amperes RMS Symm. Available at the incoming line terminals of the control panel.
5. The industrial control panel shall be designed to meet the requirements of the National Electric Code (NEC) Articles 430 and 670, and the National Fire Protections Association (NFPA) Standard 79 (Industrial Machinery).
6. System shall be supplied with a push button wash package selection panel. There shall be a minimum 8 buttons to allow owner to select on of the eight different wash packages.
7. A graphical user interface (touch screen) shall be supplied in order to set up different wash programs, monitor and report all system function in near real time to the owner. Screen display shall be 10 inch minimum. System to have capability of a minimum of eight different wash programs.
8. System shall record a total wash count and a wash count for each wash package.

PART 11. INSTALLATION

- A. Equipment shall be installed in accordance with manufacturer's supplied installation drawings.
- B. Equipment supplier shall undertake the commissioning of the system and make all required adjustments to ensure proper operation.
- C. The equipment manufacturer shall start up the system. The Owner shall have all operating personnel present during the start up and equipment training.
- D. The supplier shall arrange for an adequate amount of detergent to be available for the performance testing.
- E. The Owner's personnel shall be trained for a minimum of three (32) hours in the system's operation and maintenance.
- F. The supplier shall provide the Owner with the names and addresses of all local service and maintenance personnel to assist in future service.
- G. Manufacture shall provide the owner three sets of operation and maintenance manuals at time of training.

Utility Requirements

Water 1-1/2 inch cold water at 60 psi feed with back flow preventer to a mutually agreed to service point such as the pump room and or wash bay.

Electrical

55 FLA amps at 460 volt three phase to junction box located before the festoon system in wash bay.

Concrete pad with center drain, grating, and six inch overflow to oil/water separator and sanitary sewer.