SPECIFICATIONS - COMBINATION SEWER CLEANER

390-850

GENERAL

The machine is capable of removing stones, grit, grease, sludge and other debris from sanitary sewer and/or storm drain lines by the flushing action of high-pressure water. The high-pressure sewer cleaner operates independent of the vacuum system.

The machine includes an air conveying vacuum system to provide for the simultaneous removal of the debris flushed to the manhole by the high-pressure water system or for the removal of debris from sewers, sumps, catch basins, digesters, wet wells, bar screens, etc.

The machine is capable of being operated by one man, with all operating controls for high-pressure water pump, hose reel, and vacuum, located at the front of the machine for safety.

DEBRIS BODY

Debris storage body has a minimum usable liquid capacity of 9 yards

The debris body is round for maximum strength and constructed of 3/16 inch ASTM A242 Corten A steel for enhanced corrosion resistance.

The rear door shall be dished and flanged for maximum strength, full opening, hinged at the top with low profile and adjustable style hinges maintaining a 12' maximum overall height. There shall be 6" diameter liquid drain valve, knife and screen weldment inside for removing excess liquids. Drain will have 10 feet of 6 inch layflat hose.

The rear door shall be supplied with a debris deflector shield located inside the debris tank that encompasses 75 percent of the rear door. The debris deflector shield shall deflect material from rear door and aid in draining off excess liquids. A rear door safety prop shall be provided.

For ease of maintenance there shall be no hydraulic components located inside the debris body or rear door.

The debris body has five (5) externally mounted door locks that lock hydraulically. One manual T bolt is installed for operator safety. Hydraulic operated, heavy duty wedge style door locks shall be installed. The door locks shall be operated by two double acting hydraulic cylinders. The rear door shall also hydraulically open and close (raise and lower) by means of two double acting hydraulic cylinders. The unlocking-opening and the closing-locking operations shall be controlled by a single switch and sequence valve.

Dual steel weldments with stainless steel screen 8" x 28" each providing up to 1200 square inches of added filtration for the vacuum system shall be provided inside the debris tank. These weldments shall be removable and require no cutting or welding.

A double acting power up/power down hydraulic scissors lift mechanism will be provided to raise body to a minimum 50 degree angle. The scissors lift mechanism shall be designed to support a minimum of 24 inches of the debris tank width to provide stability and when dumping on uneven ground. The lift capacity of hydraulic scissors lift cylinder is 56,000 lbs.

Dump controls are located on curbside mid-ship of the unit, well forward of the dumping area for operator safety. A manual override system is provided in case of system failure.

The debris body has a five year warranty. A copyp of manufacturer's warranty statement shall be enclosed with bid. If pro-rated so state:

An internal polyethylene float device with external indicator is supplied to show when body is loaded to capacity.

AUTOMATIC VACUUM BREAKER

The automatic vacuum breaker assembly is located inside the body.

The automatic vacuum breaker assembly shall be controlled by an electric over hydraulic circuit. The entire system shall be replaceable via a bolt on assembly. The assembly shall consist of a 12" inlet and two 8" ports that provide air flow to the vacuum system.

A full indication activates an automatic vacuum breaker shut down system that completely shuts down 100 percent of the airflow to the vacuum system to prevent overfilling and wastewater discharge into the atmosphere.

The vacuum breaker system is automatically activated (closed) when the parking brake system is released to eliminate carryover during transit.

The system is controlled/activated, at the front hose reel control station. This enables the operator to pick up large debris with boom and place debris on the road surface. This system can be used for safety in the event suction must be shut off in case of an emergency.

CENTRIFUGAL COMPRESSOR

The centrifugal vacuum compressor shall be of 3 stage construction (i.e. 3-27" minimum diameter fans in tandem). The centrifugal compressor system shall operate independent of the high-pressure water system.

The compressor is driven by the chassis engine via a closed loop hydrostatic system using a variable piston pump and motor. This system shall include a heat exchanger for extreme ambient conditions and to maintain the pump suction oil temp at 160 deg. F. max. The heat exchanger shall be protected by a 30-micron filter and cold weather by pass valve. Hydrostatic loop filtration shall be accomplished by a 10 Beta micron return filter and a 10-micron Absolute (no bypass) charge filter.

To maximize long term durability by reducing the load on one side of the compressor, the compressor shaft shall extend through the compressor and shall be additional stabilized by using two high speed bearings, one at each side of the shaft. No exceptions will be allowed to this requirement.

A means of starting, stopping and varying the vacuum suction from operator station at the front of the machine is provided. A centrifugal separator located in the inlet chamber to the fans with cleanout box is provided. The separator removes particles from the air stream, thus enabling unit to vacuum wet or dry material. The separator is separate from the debris body. The centrifugal compressor (fan) system is capable of producing 90% vacuum with no airflow. This feature allows material to be vacuumed under the water surface, i.e. lift stations, plugged manholes, etc. Unit must be capable of vacuuming under water 16.6' (200") without air induction. A manometer/vacuum test may be required to demonstrate the system performance.

The centrifugal compressor shall have a 5 year non-prorated warranty.

VACUUM PICK UP HOSE

Shall be front loading, attached at the front of the machine in order to provide ease of positioning the machine over the manhole, as well as afford maximum safety for the operator.

The boom 8" will be mounted on a boom that will provide a minimum of 18' verticle lift utilizing dual hydraulic cylinder and 230 degree of boom rotation powered hydraulically for non-interrupted smooth movement. Boom to have a lift capacity of 500 lbs. at the front bumper.

The boom will be powered by an electric over hydraulic system: up/down by dual lift cylinders. The right/left movements shall be hydraulic via worm gear rotation.

Control of the boom is by means of a joystick control at the operator's station, requiring no cables at operator's feet for boom operation.

The boom shall hydraulically telescope a minimum of 10 ft. forward from the operators station. The height of the boom shall not change while the boom is being telescoped.

A manual override system shall be provided for right/left, and up/down functions in case of system failure.

A boom coverage chart shall be provided stating the square feet the boom covers.

8 inch diameter pipe extensions with clamps will be provided and carried on the truck as follows:

1 6-1/2' Catch Basin Nozzle

1 6' Aluminum Pipe Extension

1 5' Aluminum Pipe Extension

1 3' Aluminum Pipe Extension

WATER SUPPLY

The water tank shall have a minimum usable capacity of 850 U.S. gallons.

The water tanks shall be constructed of non-corrosive, non-metallic, durable, cross-linked polyethylene to eliminate rust, corrosion, and stress cracking.

The water tanks shall be mounted at and below the truck frame level to provide a low center of gravity for truck stability.

A 2-1/2 inch diameter x 25 feet long hydrant hose with hydrant wrench is supplied on the unit.

An anti-syphon fill device is installed on the unit.

Inspection ports shall be provided to fill or to add chemicals to the water system.

A sight gauge to indicate water level is located within sight of the operator station.

The water tanks are protected by a minimum of 11 gauge steel plating mounted below the water tanks for protection against road hazards when unit travels over the road, off the road or to land fills.

The water tanks carry a ten year replacement warranty.

HIGH-PRESSURE WATER PUMP

The high pressure water pump shall be rated to deliver smooth continuous pressure and flow through the entire flow range of the pump. The high pressure shall have smooth continuous flow for both the high pressure system and the hand gun system.

A continuous duty flow of between 50 g.p.m. and 80 g.p.m. and 2000 and 3000 p.s.i shall be provided.

High-pressure relief valves are provided for both the high-pressure system and hand gun system.

The water pump operates independently of the vacuum system and be powered by a pony motor.

The water pump is capable of running dry.

Controls for starting and stopping the water pump and to vary the flow and pressure shall be at the front hose reel operator's station.

The high-pressure water pump is equipped with a cold weather drain valve. The valve allows the operator to completely drain the high-pressure pump.

HOSE REEL ASSEMBLY

The hose reel assembly is mounted on the front of the vehicle. The hose reel shall have a minimum of 30" inside diameter with a capacity of 600' x 1" hose. The hose reel is hydraulically powered in both directions by means of a double chain and sprocket drive. The controls for operating the motor have a flow control device to regulate the rotational speed of the reel in both directions. All hydraulic hoses are behind a steel housing to protect operator from hydraulic oil if a hose fails. The hydraulic motor, chain, and sprockets have a protective cover or are mounted on the radiator side of the hose reel for operator safety. The hose reel articulates 180 degrees to the drivers side allowing operator to work in any position through this arc. This allows greater flexibility in truck placement for manholes located in tough areas and provides greater safety to the operator. Reel extends beyond the width of unit for greater flexibility for positioning reel over offset manholes, catch basins, etc. A hydraulically controlled outrigger leg is supplied that comes in contact with the ground at any one position. A warning light is located in the cab to warn the operator that the outrigger leg is not in its transported position prior to moving the unit. A manual bypass system for the hose reel assembly is provided to manually pull the reel assembly away from its transported position. This feature allows operator to check fluids without starting engines.

JET HOSE

600' x 1" jet rodder hose will be supplied rated for 3000 psi working pressure and 7500 psi burst pressure. A heavy duty hose guide with 25' of nylon rope will be provided. Nozzles shall be hardened steel with replaceable ceramic orifices as follows: 1) Chisel head penetrator & 1) standard sanitary.

MANHOLE CLEANING WATER SYSTEM (HAND GUN)

The high-pressure pump and independent water tank assembly supplied shall be used for manhole cleaning.

A smooth continuous flow of 20 g.p.m. and pressure of 600 p.s.i. shall be provided for ease of operation.

A hand gun pressure relief valve set at 600 p.s.i. shall be provided.

One full functioning hand gun with on/off hand control, replaceable nozzle tip, 12 inch extension, adjustable spray and 50' x 1/2" hose will be provided.

The hand gun will attach to the system via a quick couple connection at the curbside of the unit. To avoid being coiled at the operator's station a hand gun holder will be provided at the front bumper.

HYDRAULIC SYSTEM AND LUBRICATION

The hydraulic system has a 55-gallon capacity.

The hydraulic system shall incorporate a main shut off valve in case of hydraulic failure.

The hydraulic system shall incorporate hydraulic pressure relief valves and pressure gauges for ease of trouble shooting and maintenance.

The unit is equipped on the passenger side, mid-section of the module, a permanent weatherproof white vinyl lubrication chart that points out lubrication points on the module and specifies what type of lubrication and hydraulic fluids are required. The chart also specifies the frequency of each lubrication point.

Remote plumbed grease fittings are provided for the vacuum compressor, boom rotation, and water pump drive areas.

LIGHTING

The entire module electrical system is vapor sealed to eliminate moisture damage.

All wiring is color-coded, labeled and run in sealed terminal enclosures.

All module circuits are protected by circuit breakers.

Clearance lights and reflectors are furnished in accordance with D.O.T. requirements.

PAINT

Unit paint surface is shot blasted, primed and sanded prior to paint. Unit to be painted:

White

with DuPont Imron 5000 polyurethane paint.

Unit shall have reflective blue side and boom stripes and rear door chevrons.

Chassis shall be painted manufacturers standard white.

TRAINING AND MANUALS

Operator training will be conducted by a factory-trained representative for a minimum of one day at the time of delivery. 2 copy(ies) of the operating and maintenance manual for the sewer cleaner module shall be provided upon unit delivery. An operational video will be provided with the unit.

MOUNTING AND DELIVERY

The unit described will be mounted on a truck chassis acceptable to the body manufacturer at the factory of the body manufacturer.