



### **Model 2000 Trailer-Mounted Vacuum Leaf Loader Specifications**

This specification describes a convertible (right or left pick-up) trailer mounted power driven vacuum leaf loading machine. The machine is designed for one-person operation and capable of picking up leaves from curb sides, median strips, ditches, open spillways, and other areas. Further, the machine mulches the leaves and deposits them in the bed (hopper) of a tow vehicle.

Bidders must offer a regularly-manufactured machine and supply descriptive literature and complete technical specifications.

#### **POWER UNIT:** (Kohler KDI 2504 TCR Final Tier 4 Diesel- 74HP)

Type: In-Line 4 cylinder, 4-cycle, Turbo Diesel.

Displacement: 151 Cubic Inches

Gross Power: 74 HP Continuous at 2400 RPM.

Instruments: Curb side, in shock-mounted panel.  
Electronic Throttle with Digital Read Out  
Keyed On/Start/Off Switch.  
Digital Voltmeter - Tachometer - Hour Meter - Water temperature and Oil pressure with safety shut-off.  
Emergency Stop Button

Accessories: Electronic variable speed governor.  
Gear-driven Hydraulic Pump, 18.6 GPM at 1800 PSI.

Alternator: 72 Ampere.

Battery: 950 Cold Cranking Amps, 185 Minute Reserve.

Muffler: Longitudinal Internal to Engine Shroud

#### **RADIATOR SCREEN:**

A fixed pleated aluminum auxiliary screen provided, for additional protection to the radiator with no reduction of air flow. Radiator fan airflow is outward allowing a continuous cleaning function of the auxiliary screen.

#### **TRAILER FRAME:**

Overall dimensions are approximately 70" wide, 140" long, and 104" high. The trailer main frame is 34" wide by 121" long and fabricated of 9 pounds per foot 5" structural channel with a minimum of two 9-pound channel cross braces, one 1/2" angle cross brace and one 3/8" by 4" steel plate cross brace. Axle weight is balanced so the trailer

tongue can be lifted by one person and easily moved on level ground. The trailer tongue includes a screw type swing away parking stand. The tongue is telescopic with an 18" length adjustment, to facilitate various truck hitch locations. It also has a height adjustment of 14" to 46" above ground level and a 1-1/2" thick lunette ring for connection to a pintle or clevis hitch. Two 36" long 5/16" steel link safety chains are supplied. The trailer includes brake lights, turn signals, side reflectors, and male/female electrical connectors.

#### **AXLES AND TIRES:**

The single axle is tubular steel, 3" diameter. Springs are slipper-type rated at 5000 pounds per pair and fastened to the frame with high alloy heat treated bushings that require no lubrication. Tires are 7.00 x 15, 8-ply rating.

#### **HOSE SUPPORT:**

A hose support boom attaches to a tubular vertical support pipe by means of two 3/8" shackles that are welded to a tubular sleeve which allows the boom assembly to pivot for either right or left-hand leaf pickup. The horizontal arm is 4" x 1-1/2" structural rectangular tubing with a 1/8" thick wall. 1" standard pipe allows 29" horizontal movement of a roller assembly with two extension springs that facilitate operation of the suction hose and permit easy maneuverability.

#### **FAN DRIVE:**

The suction fan is direct driven by an 11-1/2" heavy duty over-center clutch with a 2-1/4" straight output shaft, coated with anti-seize material. The fan is positioned on the shaft by a 5/8" square by 4-1/4" long key and secured by a 1" - 14 by 2" long grade 5 bolt and split 'lock' washer. The 1" bolt clamps a 1/2" by 4" flat washer to the end of the P.T.O. shaft and the washer is secured to the fan hub with four 3/8"-16 by 1" socket head cap screws and split 'lock' washers. The clutch housing has a double lip seal. The clutch shaft has a sealed pilot bearing and two 2-1/4" I.D. tapered roller bearings, each with a basic rating of 3370 pounds radial and 2330 pounds thrust. The clutch handle is extended to provide easy access by the operator, thereby allowing engagement and disengagement of the fan while the engine is running.

#### **SUCTION FAN:**

The fan is 30" diameter, 8-1/4" wide at the tip and has six radial blades. The fan backing plate is 1/4" thick steel and the blades are 3/8" thick AR400 abrasion resisting alloy steel with 1/8" formed reinforcing welded to the back faces. The completed fan is stress relieved for two hours at 1100 degrees F. This treatment relieves stresses induced by welding and reduces the possibility of weld failure due to shock loads. The fan produces 24,200 C.F.M. of air movement through a 16" diameter by 10' long hose under normal working conditions.

#### **FAN HOUSING:**

The fan housing is 37" high, 39" long, and 10-1/2" wide, made of 1/4" steel plate. For added resistance to abrasive debris, the housing includes a two-piece replaceable liner made of 1/4" thick steel. To prevent worn liner sections from being drawn into the

rotating fan blades, the sections are secured by fourteen alloy steel flat head socket cap screws and elastic stop nuts. The fan housing is rigidly attached to the engine frame. To prevent severe engine and P.T.O. damage should large foreign objects be sucked into the blower housing, the back of the blower housing incorporates a safety band clamped to the P.T.O. housing. This diverts shock loads to the engine frame and away from the P.T.O. housing and engine block. Fan removal is accomplished by removing eleven bolts on the adaptor flange at the front of the housing. In order to change the fan, it is not necessary to remove the entire blower housing.

#### **FAN TO HOUSING EFFICIENCY:**

A high efficiency fan and housing design combines a 30" diameter fan and low fan tip clearance. This provides substantial engine horsepower reserve for picking up dense debris under adverse conditions and prevents engine stall-out. It also prevents excessive material build-up in the fan housing and produces the most efficient ratio of intake material to hopper air exhaust.

#### **DISCHARGE:**

The discharge duct is made of 12-gauge steel with a 143 square inch (11" by 13") rectangular opening at the blower housing and a gradual curve to a rubber transition cuff connecting the rectangular duct to a 16" diameter round hopper discharge pipe. The transition cuff allows the discharge pipe to move without binding when the tow vehicle turns corners or travels on uneven terrain. The discharge duct is supported by a 2-3/8" diameter tube with an adjustable cradle. The discharge duct has a smooth extension from the fan housing with no bends or turns that may create unusual wear or restrict normal material flow at the connecting point to the fan housing.

#### **INTAKE TYPE:**

Leaf pick-up is through a 16" diameter by 10' long heavy-duty rubber hose with a wax blooming rubber liner (which resists wear and build-up of material), an abrasive resistant cover, a wire reinforced 13" bend radius, and a weight of 7.5 pounds per foot. The hose has a bolted on 11-degree, 14-gauge steel fan housing adaptor. The hose is supported by a horizontal boom arm: 4" by 1-1/2" by 1/8" wall structural rectangular tubing. A 1" diameter standard pipe allows 29" of horizontal movement of a roller assembly with two hanger arm extension springs that permit ease of operation and aid hose maneuverability. A hose control handle assembly aids the operator in maneuvering the hose. The hose and intake assembly are convertible for right-hand or left-hand pick-up.

#### **PAINT:**

The engine and fan housing is thoroughly cleaned and given two coats of rust inhibiting primer and two coats of white finish. The trailer frame and axles are similarly primed and finished in black.

#### **DEVIATIONS:**

All deviations from and exceptions to this specification must be completely explained and included with the bid. Otherwise the purchasing authority will assume the proposed

machine to be exactly as described above and, after delivery, may return the machine for noncompliance with the specifications.

## **OPTIONAL EQUIPMENT**

### **WARNING BEACON:**

A 360-degree amber rotating beacon is fitted to the engine housing so that it is visible from the sides and rear of the unit. The beacon is connected to the starter switch to operate when the engine is running.

### **TRAILER BRAKES:**

Electric brakes are installed on the trailer. An electronic brake control is provided for mounting in the cab of the tow vehicle. A safety break away switch is mounted on the trailer.

### **HYDRAULIC HOSE SUPPORT:**

A 12-volt electric-hydraulic power unit provides up and down movement of the standard hose boom through a two-inch cylinder that is activated with push button switches mounted in a hand held pendant which can be mounted at the operator's station. The boom hydraulics are totally independent of any other hydraulic system such as a parking stand system.

### **HOSE QUICK DISCONNECT:**

The suction hose is connected to the blower housing adaptor without the use of bolts or wing nuts. The Quick Disconnect device includes a flange on the end of the suction hose, a split ring attached to the blower housing, and an over-center clamp for locking the split ring over the hose flange. A safety cover is also provided, for use when the suction hose is removed. The safety cover is similarly retained by the split ring and over-center clamp.

### **FLUID COUPLER:**

The suction fan is direct driven by a heavy-duty fluid coupler through a 2-1/4" diameter straight output shaft. The fan hub is coated with anti-seize material and is positioned on the shaft by a 5/8" square by 4-1/4" long key and secured by a 1"-14 by 2" long grade 5 bolt and split 'lock' washer. The 1" bolt clamps a 1/2" by 4" flat washer to the end of output shaft and the washer is secured to the fan hub with four 3/8"-16 by 1" socket head cap screws and split 'lock' washers. The housing has a double lip seal. The fluid coupler has a sealed pilot bearing and heavy-duty roller bearings. The fluid coupler provides smooth engagement as the engine RPM is increased from idle and disengages when the engine RPM is returned to idle.