

## -SPECIFICATION- ELECTRIC TAILGATE REPLACEMENT SPREADER

### **GENERAL**

Tailgate replacement, all electric spreader that utilizes the standard tailgate latches to mount directly to the dump box.

Unit shall have two handles per end to be utilized for easy lifting during installation/removal of the 147 lb tailgate unit.

Unit shall have a positive feed from the entire width of the dump box by means of a chain driven stainless steel feed auger.

Unit shall be designed to spread all free flowing granular materials, abrasives and chemicals of up to  $\frac{3}{4}$ " diameter.

The unit shall be complete and assembled, ready for operation after initial 4 hour installation.

The unit shall be removable in under 10 minutes by two persons.

The auger & spinner motor controller shall be lighted and provide independently variable speed control with built-in electrical overload protection.

### **AUGER HOUSING**

Housing shall be all aluminum & stainless steel for long life.

Housing shall be made of minimum 1/8" formed aluminum sheet with extrusions incorporated into the design for rigidity and strength.

Housing shall have lift-up rear access lid for quick removal of objects from auger, and to allow quick dumping of unwanted load.

Housing shall be easily removable by releasing 4 pins and disconnecting power cables.

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### **SPINNER CONSTRUCTION**

The spinner plate shall be 12" diameter and be constructed of 1/8" stainless steel plate with keyed hub. Spinner to be driven through a 90-degree, 2:1 ratio, bevel-gear reducer to double available motor torque and position motor horizontally for best road clearance.

The spinner motor shall be a Leeson WASHGUARD® type, or equivalent, 1/6 HP, 12V, Frame 31S, with 303 stainless steel shaft, white epoxy coated outer housing, enamel & polyester coated interior, equipped with a one-way stainless condensation drain, double sealed ball bearings, and motor shall be further enclosed in an extruded aluminum housing to protect from wheelsplash.

The spinner shall be variable speed with built-in motor overload protection.

The spinner shall have four stainless blades that result in a flat trajectory and uniform spreading pattern.

The complete spinner assembly shall be adjustable, to provide for various spreading patterns - left, right and center.

The entire spinner assembly shall be easily removable by disconnecting one Packard-style connector and two hairpin clips, then sliding unit from hanger bracket.

The spinner assembly shall remain horizontal to the road surface at all dump box angles without use of a separate leveling link.

### **AUGER FEED MECHANISM**

Material is fed to the discharge port by means of a single variable speed auger.

The dual diameter auger is constructed of 3/16" thick stainless steel flighting welded to a 2" Sched 40 stainless steel pipe.

The ends of the auger are supported by means of stainless steel stub shafts mounted to self-aligning steel ball bearings.

Self-aligning ball bearings shall be non-rusting food-grade industry type, sealed, and further protected from granules and liquids by means of a slinger and labyrinth chamber inboard of the bearings, so no material can follow the shaft out to the bearings. A cap shall be installed on the outside of the bearing to additionally seal out outside elements.

The auger shall be variable speed with built-in electrical overload protection.

The auger shall be driven by a 40:1 electric gearmotor with a two-sprocket chain drive.

## **ELECTRICAL CONTROL UNIT**

### **FEATURES**

In-cab Electronic Control Unit (ECU) shall be capable of handling 100 AMPS of current to the drive motors, and have lighted control buttons for easy night viewing.

The ECU eight segment display shall be capable of providing the following electrical operating parameters of the spreader: "BATTERY VOLTAGE", "SOLENOID VOLTAGE", "ELECTRONIC BOARD TEMPERATURE", "OPERATING STATUS", "SPINNER/AUGER AMP LEVELS".

All ECU connections at rear of ECU housing are plug-in style, and are sized & keyed in such a manner as to prevent accidental mis-connection of plugs.

The ECU shall provide internal motor overload protection by sensing motor current requirements.

The ECU will display a real-time current reading of both motors on the status readout.

ECU temperature operating range shall be - 40 to +185 degrees F.

Lighted touch key button will set variable Auger speed.

Lighted touch key button will set variable Spinner speed.

### **HARDWARE**

The ECU shall be connected to the vehicle battery with a factory-supplied wiring harness employing a replaceable 100 AMP main fuse and automotive type solenoid.

ECU power wires to be sized as follows: 12V Battery input - #6 ga; Auger motor – #5 ga; Spinner motor – #13 ga; Control Solenoid – #16 ga.

The rear wiring harness shall provide power from the ECU to the connectors for the Spinner & Auger at the factory-supplied stainless steel mounting plate.

Mounting plate receptacles to be Deutsch 100 AMP for the auger, and Packard Style for the spinner.

All necessary wiring harnesses and connectors shall be provided to complete installation of unit.

### **OPERATION**

A single key button labeled "MOTOR" shall turn both motors on and off simultaneously, and shall return both motors to operation at the last preset numerical setting to allow quick starting and stopping both motors simultaneously. Each motor shall have its own key button to select speed settings.

In the event of motor stall, the ECU will try to pulse-start the motor 5 times at successively higher current levels. If the jam cannot be cleared, the ECU will shut down both motors and will exhibit an "ERROR" message on the display readout. After clearing the jam, the "motor" button must then be disengaged & re-engaged and a new motor speed selected to restart the motor.

### **MOTOR DRIVES**

**AUGER DRIVE** - Auger motor shall be 1/2 HP, 12V, F.L.A. 40, non-ventilated, 40:1 ratio gearmotor enclosed in the formed aluminum auger housing. Gear reducer shall be 97% efficient straight-cut gear type.

**SPINNER DRIVE** - Spinner motor shall be 1/6 HP, frame 31S, F.L.A. 15, LEESON WASHGUARD®, non-ventilated motor, with double-sealed bearings, 303 stainless steel shaft, epoxy coating. Final drive to be a 2:1 ratio right-angle bevel-gear reducer with sealed bearings & stainless steel shaft. Entire drive to be protected from salt environment by an aluminum enclosure of extruded T5 alloy.