CUSHMAN™

Owner's Guide

MINUTE MISER



628808

ISSUED OCTOBER 2012 **REVISED DECEMBER 2012**

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Read all of this manual to become thoroughly familiar with this vehicle. Pay particular attention to all Notices, Cautions, Warnings, and Dangers.

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CUSHMAN

MODEL: MINUTE MISER
TYPE: 3 WHEEL ELECTRIC POWERED TRUCK
MODEL YEAR: 2013
Part No: 628520



PRODUCT SPECIFICATION

CONFIGURATION HIGHLIGHTS

Speed Control: Solid State 250 amp controller

- **Direction Selector:** Dash mounted (Forward-Neutral-Reverse)
- **Batteries:** Four, Six Volt Deep Cycle

Battery Charger: 24 Volt On-Board. Fully Automatic line compensating. Underwriters Laboratories (U.L.) Recognized, and CE Marked

- **Input:** 100 – 240 Volt, 50/60 Hz, 12/6A
- **Output:** 24 Volt, 25A, 20A@100V

Motor: 24 Volt DC series wound, brazed armature, solid copper armature. 8.25 hp (6.15 kW) @ 1570 rpm
Drive Train: Direct motor shaft connected to transaxle pinion shaft
Electrical System: 24 Volt DC, four, 6 volt deep cycle batteries (115 minute minimum, 225 amp-hour @ 20 hr. discharge rate)
Transaxle: Differential with helical gears
Brakes: Dual rear wheel mechanical drum brakes. Integrated park brake
Convenience: Seat back folds down to accommodate single rear facing passenger
Steering: Steering tiller. Optional steering wheel

PRODUCT OVERVIEW

Dimensions	
Overall Length	85.0 in (216 cm)
Overall Width	30.0 in (76 cm)
Overall Height (Tiller)	39.0 in (99 cm)
Overall Height (Steering Whl)	46.0 in (117 cm)
Wheel Base	48.0 in (122 cm)
Front Wheel Track	N/A
Rear Wheel Track	25.5 in (65 cm)
Gnd Clearance @ Differential	4.0 in (10 cm)
Cargo Deck Width	23.0 in (58 cm)
Cargo Deck Length	29.0 in (73 cm)
Cargo Deck Depth	4.0 in (10 cm)
Cargo Deck Material	Plywood

Vehicle Power	
Power Source	24 Volts DC
Motor Type	Series Wound
Max. Horsepower (kW)	8.25 hp (6.15 kW) @ 1570 rpm
Electrical System	24 Volt
Batteries (Qty, Type)	Four, 6 Volt Deep Cycle
Key or Pedal Start	Pedal Start
Battery Charger	24 VDC, 100-240 VAC On-Board, UL & CE
Speed Controller	Solid State 250 Amp Rated
Drive Train	Motor Shaft Direct Drive
Transaxle	Differential with Helical Gears
Gear Selection	Dash Mounted Forward-Neutral-Reverse
Rear Axle Ratio	14.78:1

Performance	
Capacity	2 Persons (Seat Back Down)
Dry Weight	440.0 lb (200 kg) (Without Batteries)
Curb Weight	690.0 lb (314 kg)
Cargo Deck Load Capacity	300 lb (140 kg)
Vehicle load capacity	550 lb (250 kg)
Outside Clearance Circle	10.8 ft (3.3 m)
Intersecting Aisle Clearance	54.0 in (137 cm)
Speed (Level Ground)	10 mph ± 0.5 mph (14 kph ± 0.8 kph)

Steering & Suspension	
Steering	Direct Handlebar to Front Fork
Front Suspension	Torque Block
Rear Suspension	Coil Springs & Single Shock Absorber
Service Brake	Rear Wheel Mechanical Drum
Parking Brake	Single Point Latch
Front Tire	4.80 x 8 (Load Range B)
Rear Tires	4.80 x 8 (Load Range B)

Body & Chassis	
Frame & Body	Welded steel with DuraShield™ powder coat
Body & Finish	Diamond plate pattern. Polyester primer/Acrylic
Standard Color	Safety Yellow

Noise & Vibration	
Noise	Sound pressure; continued A-weighted equal to or less than 70 db(A)
Vibration, WBV	Highest RMS value of weighted acceleration is less than 2.5 m/s
Vibration, HAV	Highest RMS value of weighted acceleration is less than 2.5 m/s The uncertainty of measurement is 0.12 m/s

Approved Type E and EE vehicles are certified for 5% grade max.
Some items shown may be optional equipment

Measurement methods were applied per the ISO 2631 and ISO 5349 standards under conditions of typical vehicle surfaces.

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(decals) and literature are available from your authorized dealer or from service parts.

STARTING AND DRIVING

⚠ WARNING

To reduce the possibility of roll - back which could result in severe injury or vehicle damage, do not release the service brake until motor has started.

All vehicles are equipped with an *interlock system* that disables the controller and prevents the vehicle from being operated or moved while the charger is connected. Disconnect the AC charger cord from the vehicle charger pigtail and properly store the cord prior to moving the vehicle.

To operate the vehicle:

- Operator is to be properly seated facing forward with feet on the floor.
- Apply the pressure to the brake pedal, place the key in the key switch and turn it to the ON position.
- Move the direction selector to the direction desired.
- Release the park brake.
- Slowly depress the accelerator pedal to start the motor. Release the brake pedal when the motor starts.
- When the accelerator pedal is released, the motor controls the deceleration. To stop the vehicle more quickly, depress the **service brake pedal**.

NOTICE

When the direction selector is in the reverse position, a warning signal will sound to indicate that the vehicle is ready to run in reverse.

Starting Vehicle On A Hill

⚠ WARNING

To reduce the possibility of roll-back which could result in severe injury or vehicle damage, do not release the service brake until motor has started

⚠ CAUTION

Do not hold vehicle on hill by using accelerator and motor. Leaving motor in a stalled condition for more than 3 - 4 seconds will cause permanent damage to motor.

To reduce the possibility of permanent damage to the drive system, it is important to prevent excessive roll-back when starting the vehicle on a hill.

Place left foot on brake pedal and release the park brake. Depress accelerator with right foot and release the brake pedal by lifting the left foot.

Coasting

⚠ WARNING

To reduce the possibility of severe injury or death from coasting at above recommended speeds, limit speed with service brake.

On steep hills or ramps it is possible for vehicles to coast at faster than normal speeds encountered on a flat surface. To prevent loss of vehicle control, speeds should be limited to no more than the maximum speed on level ground. limit speed by releasing the accelerator pedal and applying pressure to the brake pedal. Severe damage to the drive train components due to excessive speed may result from driving the vehicle above specified top speed. Damage

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ROUTINE MAINTENANCE

⚠ CAUTION

To prolong vehicle life, some maintenance items must be serviced more frequently on vehicles used under severe driving conditions such as extreme temperatures, extreme dust/debris conditions, or frequent use with maximum load.

To access the powertrain for routine maintenance, remove the load bed. For major repair, refer to the appropriate Technician's Repair and Service Manual.

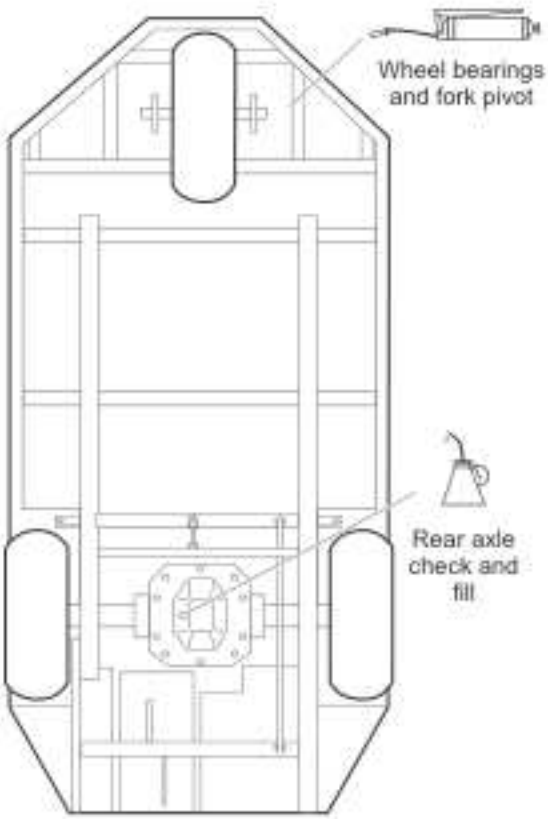
Some service procedures may require the vehicle to be lifted. Refer to LIFTING THE VEHICLE for proper lifting procedure and safety information.

Lubrication Points

⚠ CAUTION

Use maximum of three pumps of grease for each grease fitting - Over greasing may damage grease seals.

Putting more than three pumps of grease in a grease fitting could damage grease seals and cause premature bearing failure.



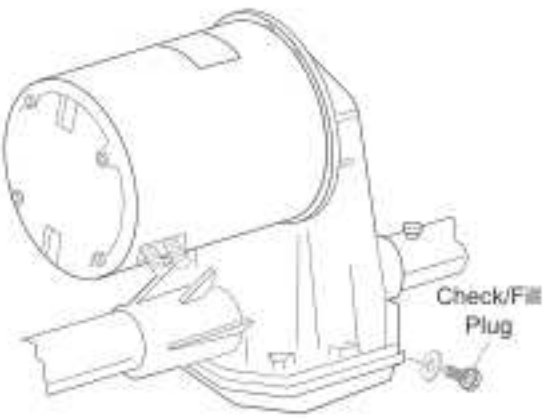
View from underside of vehicle

Tire Inspection

Tire condition should be inspected per the Periodic Service Schedule. Inflation pressures should be checked when the tires are cool. Be sure to install the valve dust cap after checking or inflating.

REAR AXLE

The only maintenance required for the first five years is the periodic inspection of the rear axle for lubricant leakage. Unless leakage is evident, the lubricant need only be replaced after five years. Refer to the Service and Repair Manual for the fluid replacement procedure.



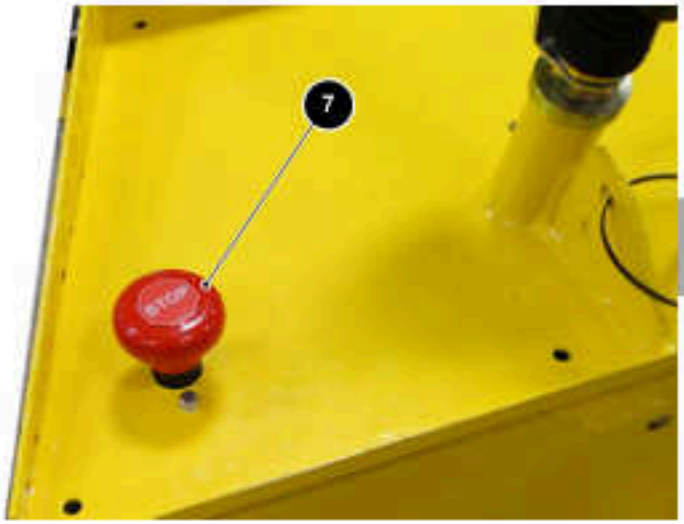
Checking The Lubricant Level

With the vehicle on level ground, clean the area around the check/fill plug and remove plug. The correct lubricant level is just below the bottom of the threaded hole. If lubricant is low, add as required. Add lubricant slowly until lubricant starts to seep from the hole. Install the check/fill plug. In the event that the lubricant is to be replaced, the vehicle must be elevated and the oil pan removed or the oil siphoned out through the check/fill hole.

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7. Emergency Stop Switch (CE Vehicles ONLY)

The emergency stop switch is located on the front deck panel to the left of the handlebar. Pushing in on this switch will disconnect all electrical power to the vehicle motor.



8. Accelerator Pedal

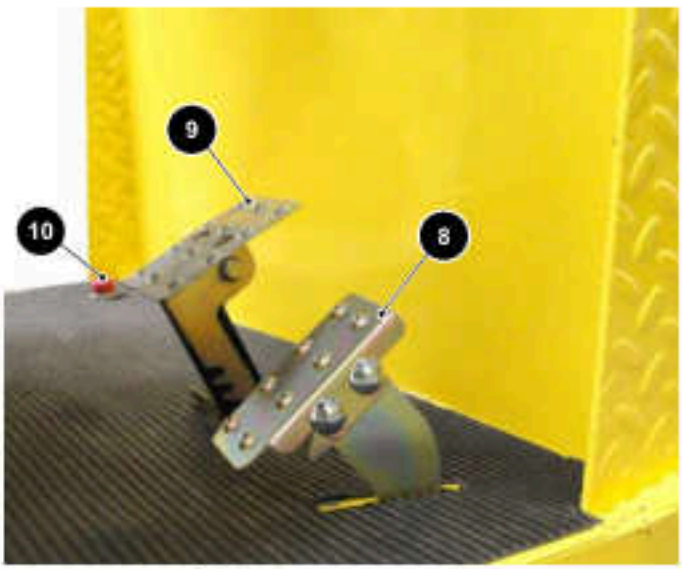
The accelerator pedal is used to control the speed of the vehicle.

9. Combination Brake and Parking Brake Pedal

The pedal functions as a service brake to slow or stop the vehicle. Once the vehicle has stopped, the parking brake can be engaged by pressing on the front edge of the pedal, a catch plate beneath the floor will latch into a notch on the pedal. To release the parking brake, press the whole brake pedal.

10. Horn

To sound the horn, step on the red button located on the floor.



11. Fold Down Seat Back

The seat back folds down to allow the transport of a single rear facing passenger. Lift upwards on the seat back and pivot the cushion downward until the support bars rest on the rear body. When returning the seat back to the upright position ensure that the catch pins drop into the latch slots.

12. Cargo Bed Tie Down Holes

There are four holes located in the frame of the cargo bed, two along each side, these holes are for use with cargo straps with hooks on each end or cargo nets with hooks used for securing items to the deck during transport.

13. Headlight (if equipped)

A halogen headlight is available as an option or standard on the Type EE Vehicles.

14. Tail Light

The tail light is connected to the light switch on the control panel.



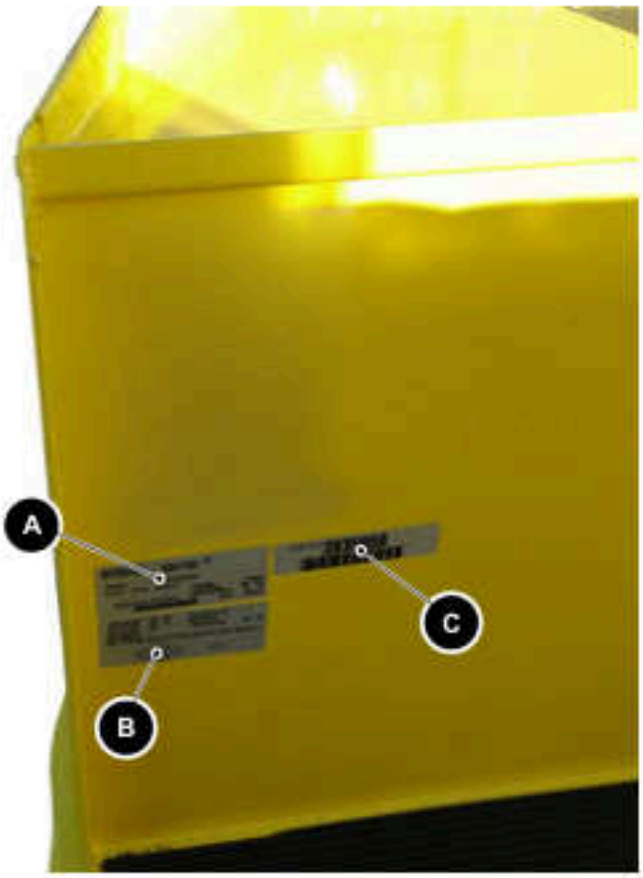
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SERIAL NUMBER LOCATION

There are serial number labels in several locations on the vehicle. Design changes take place on an ongoing basis. In order to obtain correct components for the vehicle, the manufacture date code, serial number and vehicle model must be provided when ordering parts.



Serial and Manufacturing Number Label

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Part A of the Supplemental Information Label is located on the lower front panel on the driver's left side. This label contains the vehicle type if applicable, the Model, Date Code, Serial Number, Gross Vehicle Weight (GVW), Vehicle Weight with Batteries and Horse Power.

Part B of the Supplemental Information Label is located just below Part A. This label contains the Rated Capacity With Operator, Vehicle Weight Without Batteries, Maximum Battery Weight, System Voltage, Maximum Draw Bar Weight and UL, FM or CE certification mark, if applicable.

Serial Number Bar Code Label

Part C is the smaller label containing the Serial Number and a Bar Code is located on the front panel.

TYPE EE VEHICLES

This vehicle is available as Type EE. Type EE vehicles meet all requirements of Type E and provide additional safeguards against inherent fire and electrical hazards as specified per U.L. 583.

Additional components on Type EE vehicles are:

- Headlight
- Terminal boots on battery, motor, solenoid and circuit breaker connections
- Ground strap
- Hasp and staple for padlock on seat and deck
- EE decal, one on each side of the vehicle body

BEFORE INITIAL USE

Read the Owner's Guide for this vehicle, pay particular attention to the CAUTIONS, WARNINGS and DANGERS shown in this manual. Read and follow the safety label on the instrument panel. Be sure you understand how to operate the vehicle, its equipment as well as how to use it safely. Maintaining good, safe performance depends to a large extent on the operator.

⚠ WARNING

Hydrogen gas is generated as a natural part of the lead acid battery charging process. A 4% concentration of hydrogen gas is explosive and could cause severe injury or death. Charging must take place in an area that is adequately ventilated (minimum of 5 air exchanges per hour).

To reduce the chance of battery explosion that could result in severe injury or death, never smoke around or charge batteries in an area that has open flame or electrical equipment that could cause an electrical arc.

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