



Repair Manual

Ride-On Ultra SE Spreader Sprayer

DOCUMENT ID: U005M



MODEL

Model# ULTRA SE A1A

Serial # _____

FOR TECHNICAL SUPPORT

Direct all inquiries to:

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For additional instructions please call 800.346.2001, or your local distributor (below)

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INTRODUCTION

This manual contains information on repair of the Ride-On® Ultra Spreader Sprayer safely. For technical support, parts orders, or warranty inquires, please call Perma Green Supreme, Inc. at 800.346.2001 or your local distributor (on page 1).

All information in this publication is based on the latest product information available at the time of printing. Perma Green Supreme, Inc. reserves the right to make changes without notice and without obligation.

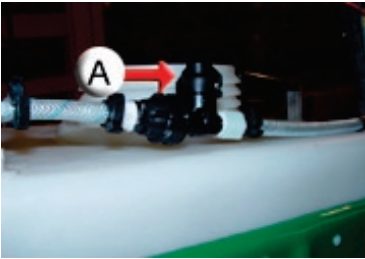
This manual should be considered a permanent part of the machine. Record the serial number for ordering parts and when making technical or warranty inquiries.

Clean Pressure Unloader Valve

TOOLS

none

- 1 Unscrew 10 PSI pressure cap (A)
- 2 Clean or replace (if needed) the rubber diaphragm
- 3 Rinse cap/diaphragm under running water
- 4 Replace cap (hand tighten only)



Replace Pump

TOOLS

3/8" nut driver

Pliers

- 1 Loosen hose clamps and disconnect hoses from pump
- 2 Unplug electrical connector from pump
- 3 Unscrew the (4) 10-24 nuts from the pump using 3/8" nut driver
- 4 Remove pump
- 5 Remove pump wiring harness including pump switch and replace with new harness
- 6 Put on new pump assembly on leg bolts
- 7 Tighten the (4) 10-24 nuts
- 8 Plug wiring harness together
- 9 Reconnect hoses
- 10 Re-run wiring harness and connect

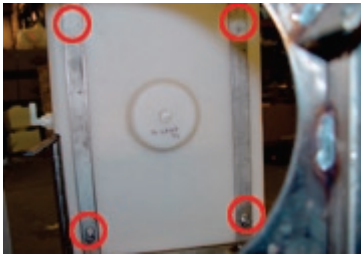


Replacing Weed Control Tank

TOOLS

7/16" socket
7/16" wrench
Pliers

- 1 With 7/16" socket or 7/16" wrench, remove the (4) tank bolts. If the tank threads strip out, use a pry bar to force the tank loose
- 2 Remove 3/8" clear hose from back of tank
- 3 Remove the (2) hose clamps and then remove the 1/4" braided hose
- 4 Remove tank
- 5 Set new tank in place
- 6 Reinstall in the (4) tank bolts
- 7 Reconnect all hoses



Cleaning Nozzle Parts

TOOLS

none

- 1 Unscrew pressure cap from top of each nozzle assembly
- 2 Clean or replace diaphragm
- 3 Unscrew nozzle caps to remove strainer screen, nozzle tip and gasket
- 4 Examine parts and either clean by running under water, or replace as needed
- 5 Reinstall nozzle assemblies



Replacing the Hopper

TOOLS

7/16" nut driver
3/8" wrench
1/8" Allen wrench
Phillips head screwdriver
Pliers

- 1 Remove the (4) 7/16" nuts
- 2 Remove shoulder bolt connecting the slide plate to the hopper linkage
- 3 Lift hopper off frame
- 4 Remove right side pattern adjusting cable
- 5 Install new hopper on frame
- 6 Replace and tighten the (4) 7/16" nuts
- 7 Replace the shoulder bolt
- 8 Replace the right-side pattern adjusting cable

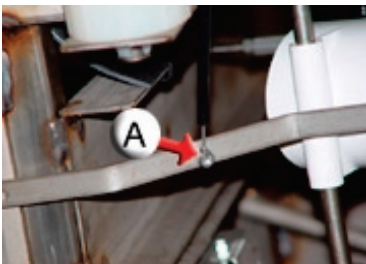


Replace Deflector Lever & Cable

TOOLS

7/16" nut driver
3/8" wrench
Phillips head screwdriver

- 1 With 1/4" wrench, loosen stop nut (A) to allow you to disengage wire from control arm
- 2 With 7/16" wrench and Phillips screwdriver, remove and replace lever (B)
- 3 Re-engage wire and tighten stop nut



Replacing the Shut-Off Plate Guide

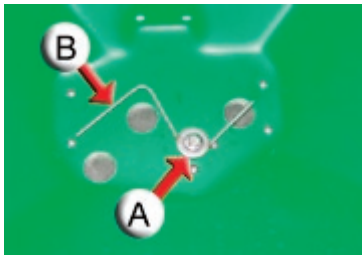
TOOLS

Flathead screwdriver

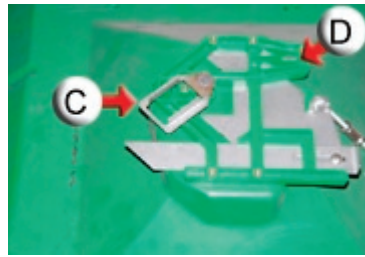
Phillips screwdriver

Hammer

- 1 Remove spring clip (A)
- 2 Remove agitator arm (B)
- 3 With Phillips screwdriver, remove the (6) 10-24 screws
- 4 Remove agitator cam (C) and main slide plate (checking for wear) from shut off plate guide (D)
- 5 Clean bottom of hopper, agitator cam and main slide plate (removing dirt and grit)
- 6 Install cam and main slide plate onto new shut-off plate guide
- 7 Replace and tighten the (6) 10-24 screws
- 8 Replace agitator arm
- 9 Replace spring clip



Top View



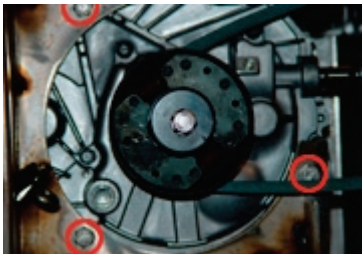
Bottom View

Engine Removal & Installation

TOOLS

- (2) 1/2" wrench
- 1/2" nut driver
- 1/4" wrench
- 1/4" Allen wrench
- Flathead screwdriver

- 1 Tip machine on its front end (nose)
- 2 Remove the 3 engine bolts with the 2) 1/2" wrenches
- 3 Remove spinner sleeve from engine
- 4 Remove drive belt
- 5 Remove throttle cable from engine
- 6 Remove starter plug connecting to engine
- 7 Remove kill wire plug from engine
- 8 Tip machine back upright
- 9 Remove engine making sure spinner shaft comes loose from engine
- 10 Install new engine on frame
- 11 Top machine on front end (nose)
- 12 Line up spinner shaft
- 13 Install the 3 engine bolts
- 14 Connect kill wire
- 15 Connect wiring harness
- 16 Tip machine back upright
- 17 Connect throttle cable
- 18 Connect drive belt (start at clutch pulley first)

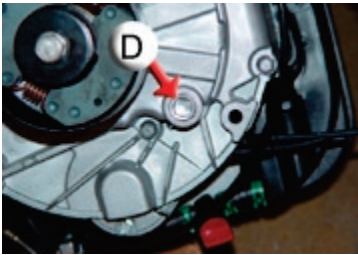


Change Engine Oil

TOOLS

3/8" socket extension
Flat oil/collection pan

- 1 Top nose on its front end (nose)
- 2 Using 3/8" socket extension, loosen ONLY the drain plug (D)
- 3 Place wheels back on ground
- 4 Slide flat oil pan under and remove drain plug
- 5 After completely drained, reinstall drain plug
- 6 Refill with oil (22 oz. or .65 liters) SAE 30, 5W-30, or 10W-30 depending on temperature



Replacing the Drive Belt

TOOLS

none

- 1 Push clutch pulley arm to left front side of machine and hold
- 2 Take old belt off starting from transaxle pulley first
- 3 Put on new belt starting by slipping over clutch pulley first, then transaxle pulley
- 4 Release clutch arm

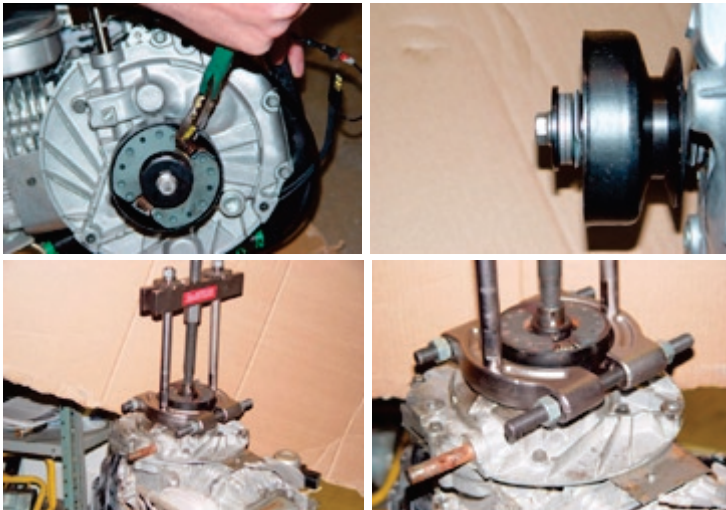


Clutch Removal & New Installation

TOOLS

- 9/16" socket wrench
- Channel locks
- Flathead screwdriver
- Pulley puller
- Anti-seize formula (hardware store)

- 1 Remove drive belt
- 2 With channel locks, grab between spring and pad of clutch
- 3 With 9/16" socket, remove bolt from clutch
- 4 Remove lock washer, hardened cap washer, (2) spacer bushings, and seal
- 5 Remove clutch with pulley puller positioned around drive belt pulley
- 6 Clean shaft, apply anit-seize to shaft, and install new clutch assembly
- 7 Install clutch seal
- 8 Install (2) spacer bushings
- 9 Install hardened cap washer, lock washer, and bolt
- 10 Tighten down 9/16" bolt
- 11 Replace drive belt



Remove / Replace Idler Pulley

TOOLS

5/16" Allen wrench
9/16" wrench

- 1 Remove idler pulley using 5/16" Allen wrench and 9/16" wrench
- 2 Replace with new idler pulley assembly
- 3 Tighten bolts
- 4 Pack top of bearing with grease and replace seal



Replacing Clutch Arm

TOOLS

7/16" nut driver
Pliers

- 1 Remove eye bolt with 7/16" nut driver and disconnect the spring
- 2 Remove 3/8" hair pin from the pivot pin
- 3 Push in 3/8" clevis pin all the way through, which will remove clutch arm
- 4 Line up new clutch arm with clutch arm bracket
- 5 Push in clevis pin and lock in with 3/8" hair pin
- 6 Install spring
- 7 Apply thread locker and tighten the eye bolt with 7/16" nut driver

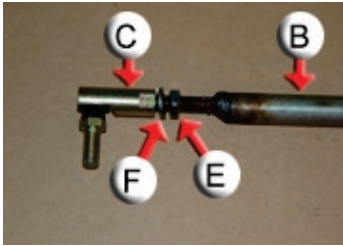


Replacing Shift Rod Ends

TOOLS

- 1/2" wrench
- 7/16" wrench

- 1 Using 7/16" wrench, hold ball end and undo the lock nut with 1/2" wrench
- 2 Replace with new rod end
- 3 Retighten lock nut



Replacing the Transaxle

TOOLS

- (2) 1/2" wrench
- 13/16" socket
- 1/2" socket
- Wrench
- 7/16" wrench

- 1 Remove shifter from transaxle using 1/2" & 7/16" wrenches
- 2 Remove tires using 3/16" socket
- 3 Remove the (4) bolts using the (2) 1/2" wrenches
- 4 Remove the (2) self tapping screws with 1/2" wrench
- 5 Unplug electrical harness from transaxle
- 6 Remove transaxle assembly
- 7 Set new transaxle assembly in place. Replace the (4) bolts and loosely snug nuts
- 8 Loosely snug the (2) self tapping screws
- 9 Plug in wiring harness
- 10 Tighten the (4) bolts & (2) screws
- 11 Hook up shift linkage to transaxle
- 12 Replace tires

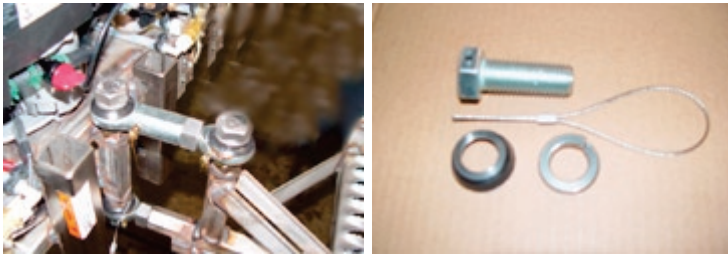


Replacing the Articulating Joints

TOOLS

- 1 1/8" wrench
- Flathead screwdriver

- 1 Remove the top (2) 3/4" bolts, lock washers and seals
- 2 Replace the top articulating assembly
- 3 Re-install the seals, lock washers and 3/4" bolts
- 4 Apply thread locker and tighten the top (2) bolts
- 5 Cut wire cable and remove bottom bolt
- 6 Remove bottom male articulating joint
- 7 Install new articulating joint
- 8 Apply thread locker and tighten bottom bolt
- 9 Replace safety wire and clamp
- 10 Grease articulating joints



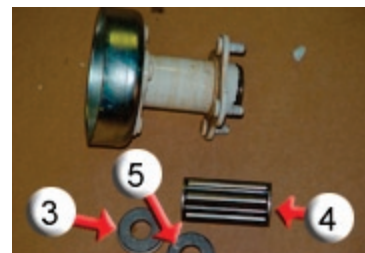
Replacing Caged Roller Bearings

TOOLS

- Hammer

WARNING: SPLIT RIMS MAY SEPARATE VIOLENTLY! COMPLETELY RELEASE TIRE PRESSURE BEFORE REMOVING LUG NUTS

- 1 Remove Tire, Rim & hub from axle
- 2 With hammer, drive the outside bearing retainer into the hub forcing the inside retainer and bearing out of the hub
- 3 Place new retainer on inside. Lightly tap in place
- 4 Put in new roller bearing
- 5 Install a new retainer on outside
- 6 Grease bearing



Brake Adjustment

TOOLS

7/16" wrench

- 1 Top machine on its front end (nose)
- 2 Turn wheels and feel for even drag. To tighten brakes, use 7/16" wrench on inner nut to extend the brake adjusting bolt.
- 3 To loosen brakes, use 7/16" wrench on inner nut to shorten the brake adjusting bolt and loosen the brake band around the brake drum.



Changing the Battery

TOOLS

3/8" wrench

Phillips screwdriver

- 1 Remove hood by removing the (4) 10-24 nuts
- 2 Unplug battery from main wiring harness
- 3 Using Phillips screwdriver and 3/8" wrench, remove the (2) 10-24" nuts from screws
- 4 Remove and replace battery
- 5 Reinstall the (2) 10-24 screws and nuts
- 6 Plug in battery to main wiring harness
- 7 Reinstall hood

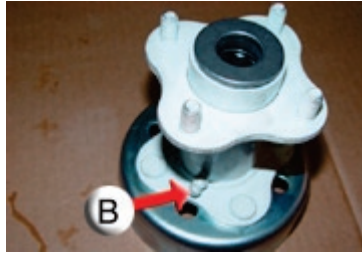
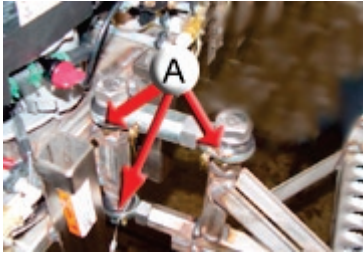


Greasing the Machine

TOOLS

Grease gun

- 1 There are 5 grease fittings on the Ride-On Ultra
- 2 There are 3 fittings located on the articulating linkage
- 3 There is 1 grease fitting on each of the 2 rear wheel hubs



Winterizing the Machine

TOOLS

Perform these steps in the next hundred hour segment from your Preventative Maintenance Log

- 1 Low pressure wash and rinse machine thoroughly
- 2 Blow dry
- 3 Spray machine down with WD-40, paying particular attention to moving parts such as bearings and linkages
- 4 Flush and drain the tank and pump
- 5 Add RV anti-freeze to tank and run through the entire spray system
- 6 Change engine oil and air filter. Drain gas or run engine until empty
- 7 Remove battery and store in a warm area NOT IN CONTACT WITH CONCRETE