

# **GREENMAN<sup>®</sup>**

## **SPRAYHAWK FOLDING BOOM SPRAYER**

**MODEL CD30E-200**

### **OPERATOR'S MANUAL**



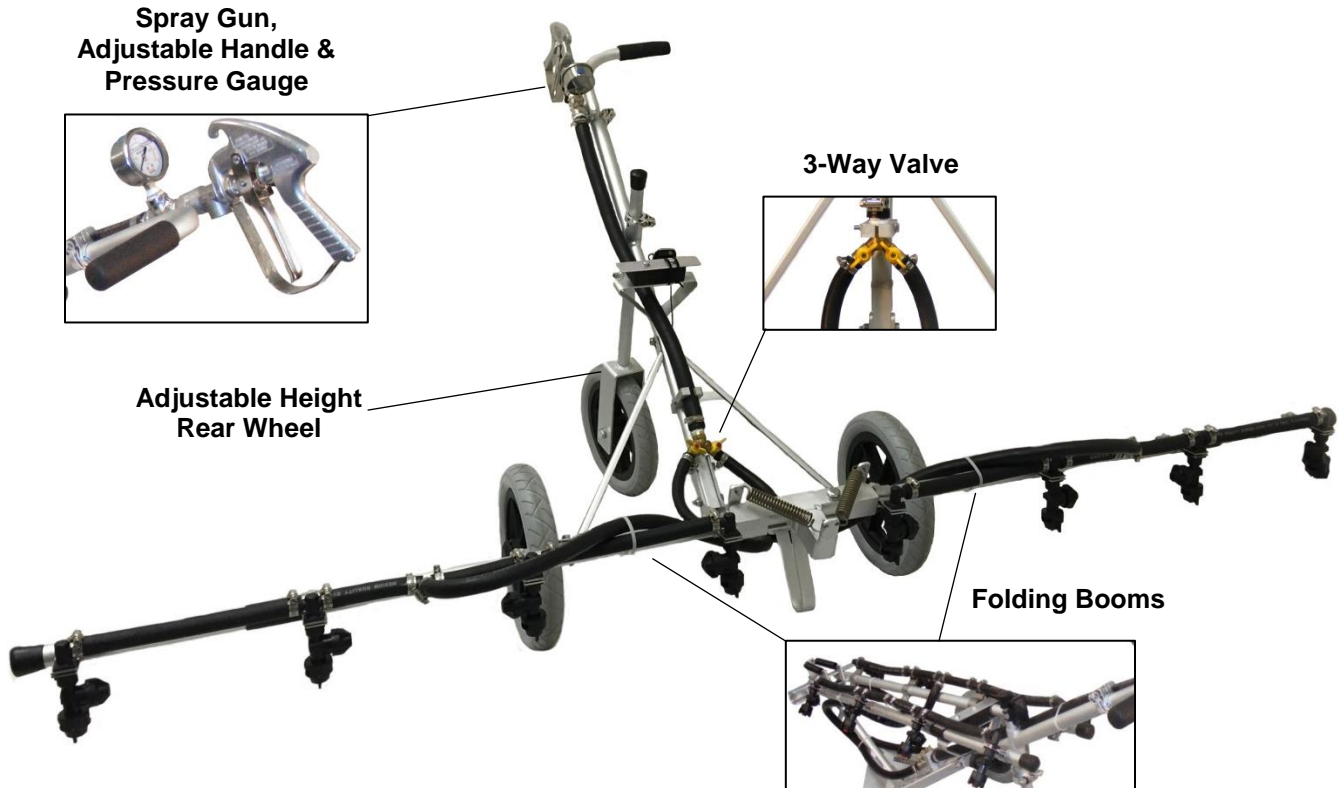
### Technical Information

Dimensions: 48" L x 76" W x 36" H

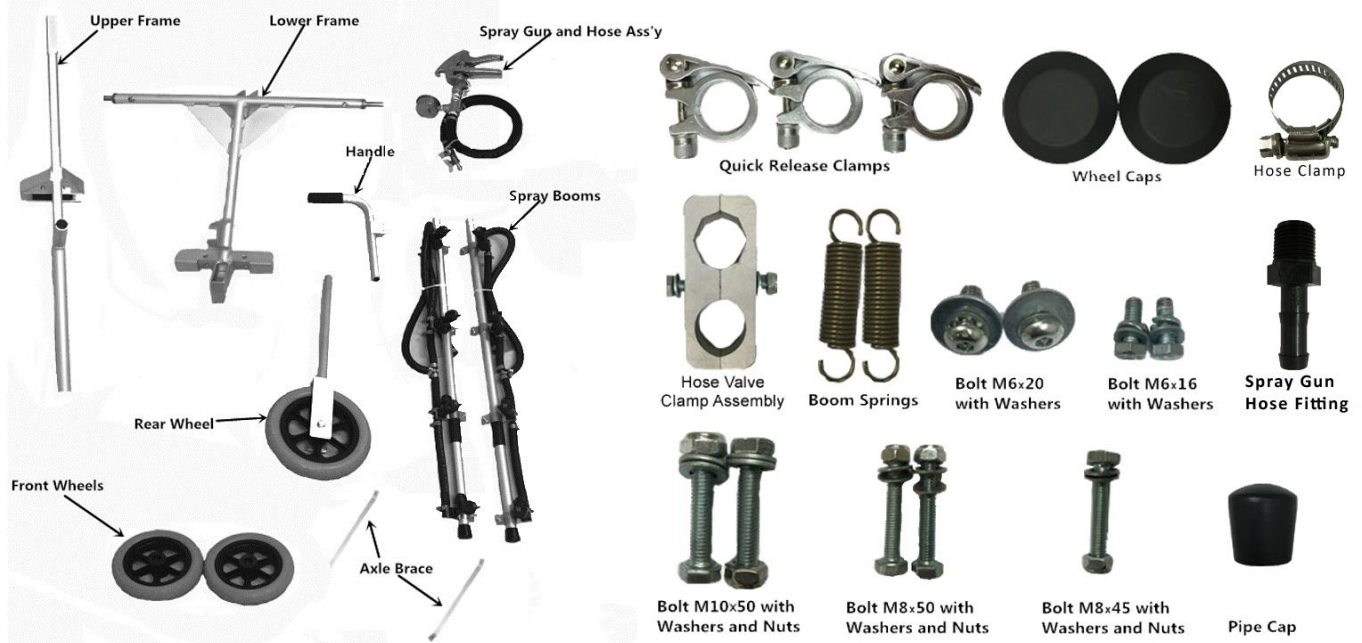
Weight: 29 lbs.

Nozzle Type: Tee Jet XR8004 / Flat Fan Style

### Product Feature Descriptions



### Identification of Main Components, Fasteners and Assembly Parts

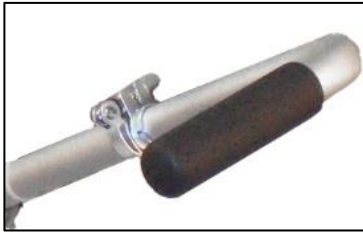


### Assembly Instructions

#### Tools Needed

- 10/12/14/17mm wrenches or two medium adjustable wrenches
- Standard screw driver
- 5mm hex head wrench

#### Step 1 – Handle

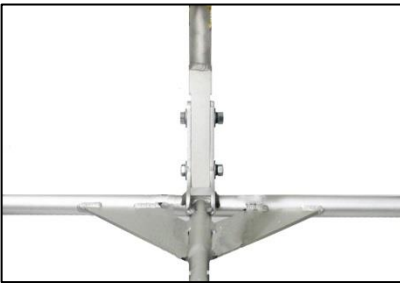


Attach handle to the upper frame using the quick release clamp.

NOTE: All clamps will need to be adjusted to achieve adequate tightness to secure components in position.



#### Step 2 – Upper & Lower Frame



Attach the upper frame to the lower frame using two (2) 8x50 bolts with washers and nuts.

#### Step 3 – Rear Wheel

Insert the rear wheel assembly into the upper frame and fasten using a quick-release clamp on each side.



#### Step 4 – Front Wheels

Install the front wheels on to the axles of the lower frame and fasten using two (2) 6x15 hex head bolts with washers.



#### Step 5

#### – Axle Braces

Install the axle braces on to the axle using two (2) 8x45 bolts with washers and nuts, and on to the upper frame using the 8x45 bolt with washers and nut.



#### Step 6 – Spray Gun

##### & Hose Assembly

Mount the spray gun on the upper frame using two (2) 6x16 bolts with washers. Route the hose valve clamp assembly as shown and secure with the clamp assembly.



#### Step 7 – Spray Booms



Attach the spray booms on the lower frame using the two (2) 10x50 bolts with washers and nuts.

Move the booms to folded position and install the boom springs using a standard screwdriver to extend and connect.



Connect boom hoses to valve assembly and secure to the frame using a tie strap.

#### Step 8 – Speedometer (Optional)

Note the location of the sensor magnet on a front wheel and attach the speed sensor to the axle within 5mm (1/4") using tie straps. Route the wire and display screen to the desired mounting location.



**SAFETY PRECAUTIONS**

These precautions are provided to help ensure operator, bystander and environmental safety.

The GREENMAN Spray Hawk is designed for use by professional grounds care maintenance staff with experience in applying chemical agents. Never allow children or untrained individuals to operate or be in close proximity of the unit while in operation.

Persons engaged in the handling, preparation or application of chemicals must follow accepted practices to insure the safety of themselves and others.

Wear protective clothing including: gloves; hat; respirator, eye protection and skin covering suitable for protection from chemicals being used. Bathe thoroughly after any exposure to chemicals, giving particular attention to eyes, nose, ear and mouth.

Clean equipment and materials in accordance with employer, municipal and state regulations, using only approved areas and drains.

Dispose of chemicals and rinse solutions by approved and legal methods.

Provide methods and materials for operators to wash eyes and hands immediately during the spraying process.

Provide methods and materials for control, safe dilution & neutralization of chemical spills during preparation, spraying, transporting and clean up. Always have a representative material safety data sheet (MSDS) on hand for chemicals being used.

**GENERAL OPERATING INSTRUCTIONS**

The liquid supply line from the pumping system attaches at the ½" NPT inlet coupling swivel on the shut off valve. The connected pumping system should have a pumping capacity of at least 7 GPM at 40 psi when using the 8004 tips. A good in-line strainer and a pressure regulator system capable of pressure adjustment below 125 psi, (the maximum operating pressure).

Set the desired spray height, with the handle held in the operating position. The usual tip height is approximately 9-10" above the ground when using the 80 degree tips.

*Note: The number of TeeJet flat spray nozzle tip indicates its pattern angle and its capacity at a pressure of 40 psi. For example, the 8004 tips as supplied standard on the Greenman Spray Hawk have an 80 degree spray pattern as indicated by the first two numbers. The last numbers indicate the capacity of the tips in GPM at a pressure of 40 psi (0.4 GPM). The XR designation indicates extended range with spray pattern distribution over a wide range of pressure (15-60 psi). For more information on TeeJet nozzles, visit their web site at [www.teejet.com](http://www.teejet.com).*

**GENERAL OPERATING INSTRUCTIONS (CONTINUED)**

The amount of material applied by the Spray Hawk is a combination of the following factors:

- Spraying speed.
- Differing capacity nozzle tips.
- Nozzle tip spacing.
- Spraying pressure.

Additionally, factors such as material specific gravity (heavier or lighter), chemical/water concentration ratio, worn or malfunctioning components such as worn jets or clogged screens, and changes in pressure can all cause variations in the rate of application.

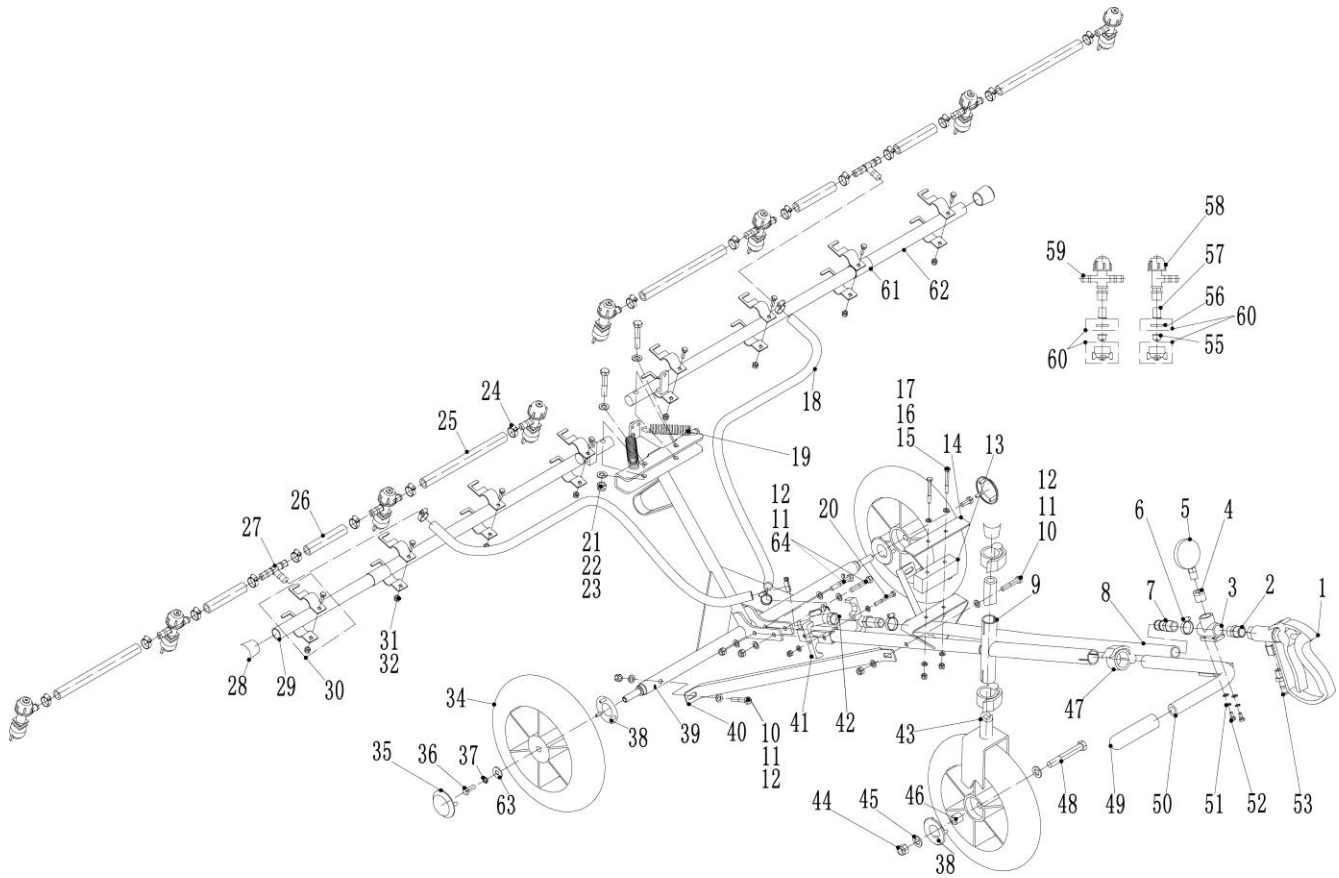
Spraying pressure is usually more important in relation to the type of application and the type of tip used, than to the rate of application. Since nozzle flow rate is almost proportional to the square root of pressure, it would take 4 times the amount of pressure to double the application rate. Usually boom application pressures will range from 15 to 60 psi with extended range tips. The average droplet size of the sprayed material as it leaves the nozzle is smaller as pressure is increased. A large capacity nozzle tip generally produce larger spray droplets than a smaller capacity tip. Depending on the material being applied, higher pressure may be desired to produce a finer spray. Alternatively, the chemical may not require finer droplets and higher pressure may result in unwanted spray drift and uneven coverage.

Fundamentally, the rate of application can be changed to an extent by changing pressure. However, a significant change is best achieved by installing a different capacity set of nozzle tips, or altering the spraying ground speed.

Helpful Tips:

- *Liquid loses pressure due to friction as it travels through the hose, from 1 to 3 PSI for each foot (30 cm) of hose length.*
- *Always be alert to the possibility of a plugged or damaged nozzle. Check nozzles output periodically to ensure flow is consistent and even amongst all nozzles.*
- *Always test the spray hawk using clean water, on a surface where the spray pattern is visible (such as a parking lot), prior to applying chemicals to the actual surface to be treated.*
- *Serious misapplication may result if the proper calibrations and mixtures are not identified prior to use.*

### PARTS INFORMATION



Ref. #	Part No.	Description	Qty	Ref. #	Part No.	Description	Qty	Ref. #	Part No.	Description	Qty
1	SH-101	SPRAY GUN	1	22	SH-122	LOCK NUT	2	44	SH-144	LOCK NUT	1
2	SH-102	FITTING, GUN	1	23	SH-123	WASHER	4	45	SH-145	WASHER	2
3	SH-103	THREE-WAY VALVE	1	24	SH-124	HOSE CLAMP	20	46	SH-146	SPACER, WHEEL	1
4	SH-104	COPPER FITTING (GUAGE)	1	25	SH-125	HOSE, 1/2"	4	47	SH-147	PIPE CLAMP	3
5	SH-105	PRESSURE GUAGE, OIL FILLED	1	26	SH-126	HOSE, 1/2"	4	48	SH-148	BOLT (WHEEL AXLE)	1
6	SH-106	HOSE CLAMP	2	27	SH-127	FITTING, THREE-WAY	2	49	SH-149	UPPER HANDLE GRIP	1
7	SH-107	FITTING	2	28	SH-128	SLEEVE, HANDLE	3	50	SH-150	UPPER HANDLE	1
8	SH-108	INLET PIPE	1	29	SH-129	SPRAY BOOM ASSY, LEFT	1	51	SH-151	WASHER, SPRING	2
9	SH-109	LOWER HANDLE ASS'Y	1	30	SH-130	CLAMP ASS'Y	8	52	SH-152	BOLT, HEX HEAD	2
10	SH-110	BOLT, HEX HEAD	3	31	SH-131	LOCK NUT	8	53	SH-153	FITTING	1
11	SH-111	WASHER	10	32	SH-132	BOLT	8	55	SH-155	SPRAY NOZZLE, TEEJET	8
12	SH-112	LOCK NUT	5	34	SH-134	WHEEL, W/BEARINGS	3	56	SH-156	GASKET	8
13	SH-113	RUBBER BLOCK	1	35	SH-135	DUST CAP OUTER, WHEEL	2	57	SH-157	FILTER	8
14	SH-114	UPPER BOARD ASSY	1	36	SH-136	BOLT, HEX HEAD	2	58	SH-158	BODY, SINGLE NOZZLE	2
15	SH-115	BOLT, HEX HEAD	2	37	SH-137	WASHER, SPRING	2	59	SH-159	BODY, TWO-WAY NOZZLE	6
16	SH-116	WASHER	8	38	SH-138	DUST CAP INNER, WHEEL	4	60	SH-160	COVER ASSY (W-GASKET)	8
17	SH-117	LOCK NUT	3	39	SH-139	AXLE ASSY	1	61	SH-161	PROTECTIVE COVER	8
18	SH-118	OUTLET PIPE	2	40	SH-140	SUPPORT ARM	2	62	SH-162	SPRAY BOOM ASSY, RIGHT	1
19	SH-119	SPRING	2	41	SH-141	HOSE RETAINING BRACKET	2	63	SH-163	WASHER	2
20	SH-120	BOLT, HEX HEAD	1	42	SH-142	BALL VALVE	1	64	SH-164	BOLT, HEX HEAD	2
21	SH-121	BOLT, HEX HEAD	2	43	SH-143	WHEEL MOUNTING BRACKET	1				

**LIMITED WARRANTY STATEMENT**

Greenman Golf & Turf Solutions hereby warrants the Greenman Walk-Behind Boom Sprayer model CD30E-200 to be free from defects in material or workmanship for a period of ninety (90) days after purchase. This warranty is limited to repair or replacement by Greenman Golf & Turf Solutions of such parts as appear upon inspection, to be defective in material and/or workmanship.

The above warranty is extended only to the first end user, and no warranty is made nor authorized to be made assignable on resale. Greenman Golf & Turf Solutions makes no warranty with respect to replacement parts not manufactured or sold by it. Such parts are subject to the warranty policy of their respective manufacturers. To obtain performance of any obligation under this warranty for failure during the applicable warranty period, contact Greenman Golf & Turf Solutions at: 1028 4th Street SW, Building A, Auburn WA 98001, (253) 333-3345.

Warranty coverage is conditioned upon the first end user furnishing Greenman Golf & Turf Solutions or its Authorized Service Dealer with adequate written proof of the original purchase date. Greenman Golf & Turf Solutions reserves the right to inspect the claimed defective part(s) to determine if the malfunction is the result of a defect covered by this warranty. This warranty will cover only defects arising under normal usage, and shall not apply, nor will Greenman Golf & Turf Solutions assume any responsibility, if the failure was caused by the following:

1. Misuse, abuse, or negligence.
2. Accident or physical damage.
3. Repairs made by unauthorized parties and/or with unauthorized parts.
4. Improper unit set up or altered components.
5. Failure to operate or maintain the unit in the manner specified by the owner's manual.

Inspection, service, cleaning and adjustments to normal maintenance items such as spray nozzles, diaphragms, etc. are not considered the responsibility of Greenman Golf & Turf Solutions under this warranty.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES, OBLIGATIONS, OR LIABILITIES. ANY IMPLIED WARRANTIES, OBLIGATIONS, OR LIABILITIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE APPLICABLE WARRANTY PERIOD FOR THE FIRST END USER. ANY ACTION FOR BREACH OF ANY WARRANTY HEREUNDER INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE MUST BE BROUGHT WITHIN A PERIOD OF SIX MONTHS FROM THE END OF THE APPLICABLE WARRANTY PERIOD.

Some states do not allow limitations on how long an implied warranty lasts, so the previously stated limitations may not apply to you. No agent, representative, dealer, or employee of Greenman Golf & Turf Solutions has the authority to increase or alter the obligations of this warranty.

IF THE PRODUCT IS USED PRIMARILY IN A COMMERCIAL OR RENTAL APPLICATION, GREENMAN GOLF & TURF SOLUTIONS WILL NOT BE LIABLE FOR GENERAL DAMAGES INCLUDING BODILY INJURIES, EXCEPT AS SET FORTH ABOVE, OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF USE, LOSS OF PROFITS, LOSS OF PRODUCTION, EXPENSE OF SUBSTITUTE EQUIPMENT OR OTHER COMMERCIAL LOSS OR DAMAGE. THE SAME LIMITATIONS SHALL APPLY TO A PRODUCT USED FOR CONSUMER PURPOSES WITH RESPECT TO ALL NON-PERSONAL INJURY, GENERAL INCIDENTAL AND CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.