

# Quick Set-Up Instructions for Optimum Series TW160 & TW225



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## I. System requirements for sprayer use on Workman®

### A. High output auxiliary hydraulics installed on vehicle

1. Provides optimum hydraulic performance and cooling while spraying



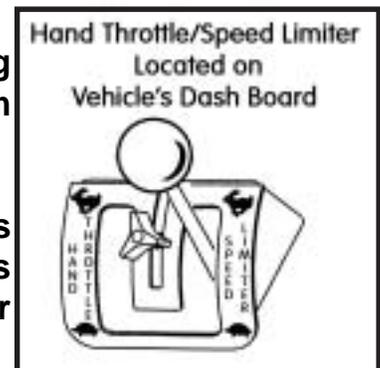
### B. Speedometer/tachometer installed on vehicle



1. Recommended for accurate spraying especially when using manual or motorized boom controls
2. When using computerized flow controls this gives ultimate control and accuracy as well as manual back-up in the event of a sensor component failure

### C. Governor or throttle lock installed on vehicle

1. Recommended for accurate spraying especially when using manual or motorized boom controls
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## II. Service and prep Workman®

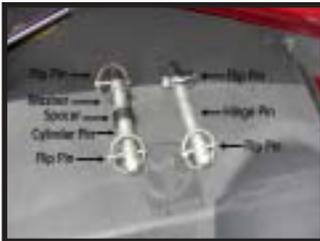
### A. Check tire pressure

### B. Check hydraulic fluid level

### C. Consult the vehicle's manual for recommended service and procedures

### III. Remove utility box or any accessories mounted to the rear chassis area

**A. Keep the four attachment pins and hardware for use when mounting the sprayer**



1. Two hinge pins and four flip pins

2. Two lift cylinder pins, two spacers, four flat washers and four flip pins



### IV. Uncrate sprayer

**A. Remove top portion of shipping crate**



1. Use a reciprocating saw to cut the vertical support boards just above the base of the skid (do not hit the sprayer with the blade)

**B. Carefully lift the top portion off without hitting or damaging anything**

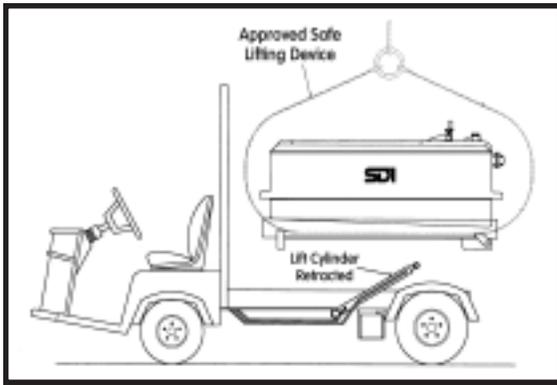
**C. Remove the strapping and wood blocks from the sprayer frame and base skid**

**D. Move the skid and sprayer to the area with an approved safe lifting device for vehicle mounting**

### V. Mounting sprayer to Workman®

**A. Using an approved safe lifting device and methods raise sprayer above shipping skid and discard skid**

**B. Use a 4-point lifting device for best control**



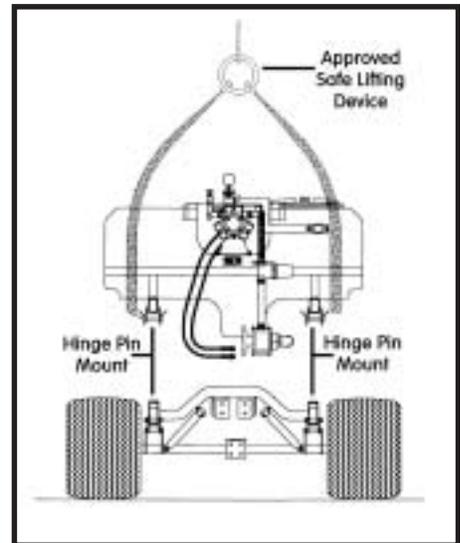
1. If using straps or chains with hook ends be sure to attach the lifting eyebolts to the sprayer's metal frame and not to the fiberglass tank flange

2. Do not forget to compensate for an unbalanced load (a sprayer with or without accessories may be heavier at one end compared to the other)

**3. DO NOT STAND UNDER THE SUSPENDED SPRAYER AT ANY TIME FOR ANY REASON (personal injury or even Death could occur if the sprayer falls on you or others)**

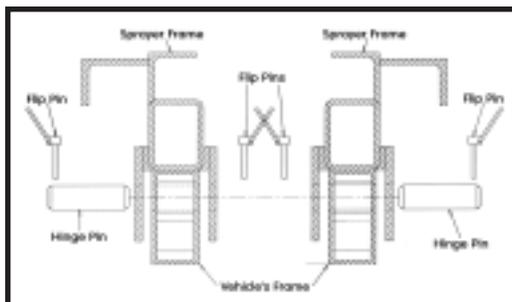
***C. Back the utility vehicle under the raised sprayer and position so the vehicle's rear hinge/pin mounts line up with the same on the sprayer's frame***

1. Set the vehicle's parking brake once you are in position and turn the vehicle off



***D. Lower the sprayer carefully onto the vehicle's chassis***

1. Be sure to keep all hoses and wires clear from the frame to eliminate any pinch damage



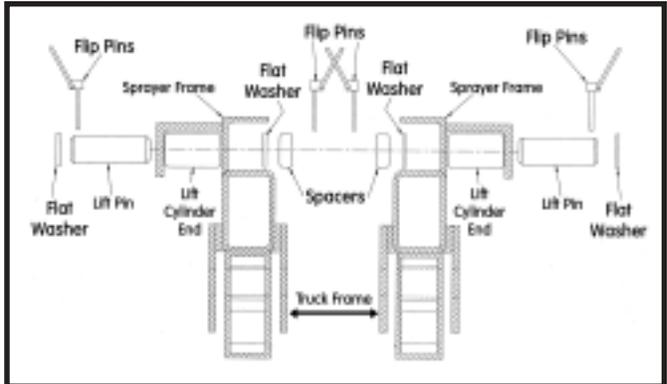
2. Insert the left and right rear hinge pins and secure with the flip pins (see illustration)

3. Remove the lifting straps from the front and rear of the sprayer or any other items used to hoist sprayer onto the vehicle

4. Locate and prepare the pin assemblies for attaching the side frame lift cylinders to the sprayer's frame

5. Raise by hand the left or right side lift cylinder assembly and position so the pin tube on the end of the cylinder ram is lined up between the slots on the sprayer's lift cylinder mount area

6. Insert the lift pin through the slot on the inside of the sprayer's frame using a flip pin, spacer and flat washer (see illustration)



7. Push pin through cylinder pin tube and out through slot until it stops

8. Attach flat washer and flip pin to secure lift ram to sprayer's frame

9. Repeat steps 5 thru 8 for the remaining side

10. If the lift cylinder pin end will not line up to the slots on the sprayer's mount, it may be necessary to extend or retract the cylinder's ram to fit (use caution while doing this step to avoid damaging the bottom of the sprayer's tank)



11. Once installed, you will be able to use the Workman's® hydraulic dump/lift cylinder control lever to raise and lower the sprayer for access to the engine compartment for service operations (remember to always use the "Bed Safety Support" while sprayer is raised)

12. The "Bed Safety Support" is located/stored on a holder on the back of the Workman's® R.O.P.S.

13. NEVER RAISE A LOADED SPRAYER OR USE LIFT CONTROLS WHILE SPRAYING! This action is extremely DANGEROUS and could upset the moving vehicle and cause serious injury or worse!

14. Always make sure the sprayer is tightly secured to the Workman's® frame by pushing the lift control lever forward until you hear the system go into relief bypass (1 to 2 seconds max.) then release the lever and engage the "Hydraulic Lift Lock" to secure the sprayer's position until such time as you need access to the engine compartment when you then release the lock (keep the sprayer in the down and locked position at all times)

## ***E. Attaching the hydraulic hoses***



1. Locate and identify the two hydraulic hoses at the rear of the sprayer and attached to the spray pump's drive motor (one marked pressure the other marked bypass/return)

2. The pressure hose is installed with a flow regulator valve at the hydraulic drive motor (this is pre-set at the factory to control the pump's speed and should not be adjusted without consulting SDI's Technical Department first) Warranty will be void if damage occurs from unauthorized tampering

3. The Auxiliary Hi-Output Hydraulics ports are located on the coupler bracket on the left side of the rear differential housing

4. The top coupler is for the bypass hose (returns hot hydraulic oil from the pump drive motor back through the cooler before return to the hydraulic oil reservoir)

5. The bottom coupler (P⇒) is for the pressure hose which supplies power to the pump drive motor (this line uses a flow regulating valve to limit pump drive motor speed)

6. When attaching the hydraulic hose connections be sure that the locking collar on the female coupler snaps back into place to lock the nipple into position (a quick tug on the hose will verify a good connection or the need to reattach)

## ***F. Testing the hydraulic connections***

1. This step can be bypassed until all the accessories have been installed on the sprayer and you are ready to wet test the unit or proceed as follows:

2. Locate the bottom load valve below the suction strainer and turn the yellow handle so the arrow is pointing up at the suction strainer and pump (this allows air to circulate through the pump during the dry running to prevent a starved suction condition on the diaphragms)



3. Set the parking brake and start the vehicle's engine and allow to idle

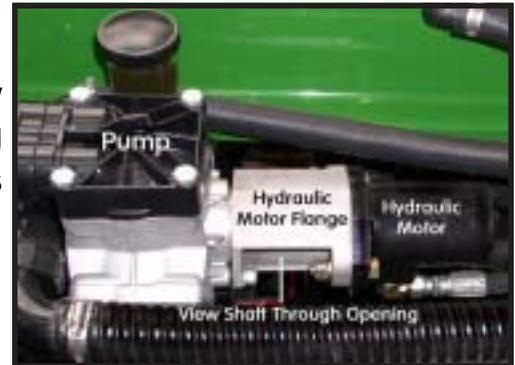


4. Locate the auxiliary hydraulics on/off switch on the vehicle's dash (two possible locations: to the left of the steering wheel or below and left of the speedometer)

5. Turn the auxiliary hydraulics power switch to "ON"

6. The on/off rocker switch illuminates a green indicator light when the auxiliary hydraulics is operational

7. The pump should be turning now (you can view the pump shaft turning through the opening on the pump's hydraulic motor coupling flange)



8. If the shaft is not turning, turn the auxiliary hydraulics switch off and recheck the hydraulic hose connections (consult the factory if the problem persists)

9. If pump shaft turns, place auxiliary hydraulics switch in the off position and proceed to accessories installation

## VI. Spray Booms

### A. Economy Wet Boom- Manual Lift Only (Dealer Assembled)

1. Boom packaged in one box
2. See individual installation sheet

### B. Windbreaker 2000 Shielded Wet Boom-Manual/Electric Lift (Dealer Assembled)

### **C. Optimum Turf Boom-Manual/Electric Lift (Factory Assembled Boom)**

#### **1. Remove top of shipping crate**



a) Use a reciprocating saw to cut the vertical support boards just above the base of the skid (do not hit the boom, nozzles or hoses)

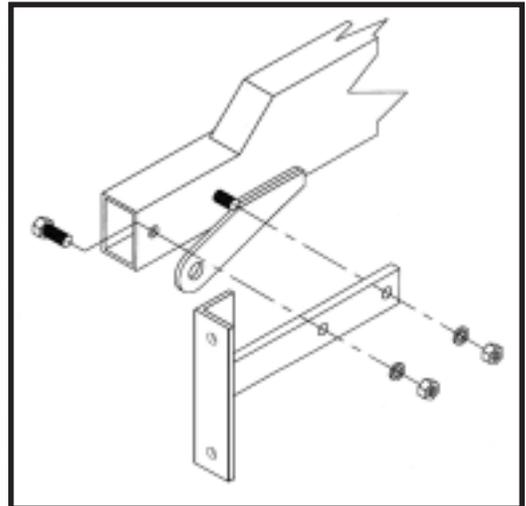
b) Carefully lift the detached top section without damaging any components

2. Locate the completion box containing the boom mounting (T-brackets and hardware)

a) Attach the T-brackets to the rear of the sprayer's frame with the supplied hardware

b) The brackets flat arms mount to the inside of the sprayer's frame and the upright angle mounts must face in towards each other

c) Two of the mounting bolts are already welded into position on the tubular section of the frame



d) Insert the other two bolts into the frame and then attach the T-brackets with the supplied hardware

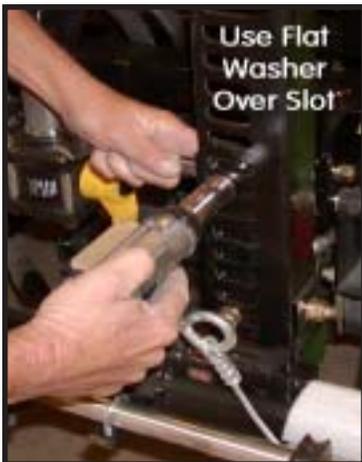
e) Tighten all four fasteners securely

3. Attach an approved safe lifting device to the center lift ring on the Optimum Turf Boom's top crossbar



4. Raise the boom up slowly until the approved safe lifting device has the boom suspended above the shipping skid (use caution while raising the boom to the hanging position to avoid damaging the nozzle bodies on the center boom section)

5. Move boom and vehicle together and align the lowest set of slotted holes in the boom's uprights to the lowest holes in the T-brackets



6. Using supplied hardware insert bolts through the brackets from the inside and add the flat washer, lock washer and nut over the upright's slots and properly tighten

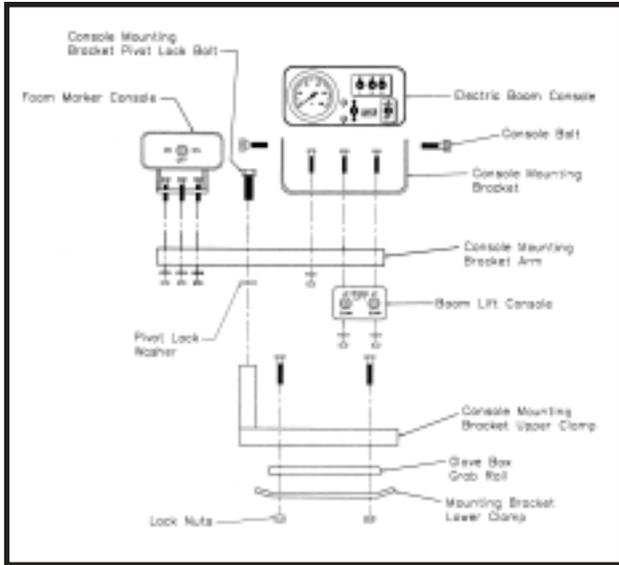
7. This will place the boom's nozzles at the maximum height from the ground and insure proper nozzle coverage and overlap

8. The level of the outer wing sections are pre-adjusted at the factory and set with the swag anchor cable assemblies (adjust the eye bolt to correct any leveling issues)



## VII. Boom Controls

**A. Requires control adapter mounting bracket (P/N 81-408) for attaching the boom and accessory controls to the vehicle's glove box grab rail**



1. Bracket has three main pieces: Console mounting bracket arm (pivots), mounting bracket upper clamp (supports bracket arm) and mounting bracket lower clamp (holds upper clamp to grab rail)

2. Attach mounting bracket upper and lower clamp assemblies on to the grab rail of the glove box (position the vertical support tube to the left side to position controls closest to the operator)

3. Attach hardware and secure the brackets into position on the grab rail

4. Use 1/2" x 1 1/2" hex bolt to attach the pivoting bracket arm to the upright support (the final position can be locked in once all control boxes have been attached)

5. Attach the boom control console and any other accessory control boxes to the pivoting arm (see illustration for locations)

6. Once all necessary control boxes have been attached to the pivot arm, position the pivot arm so the controls are in easy view and reach for the operator (tighten the 1/2" hex bolt to lock the position)

### ***B. Manual Boom Controls (MCVM2)***

1. Kit packaged in one box

a) Box contains: Manual control assembly, 3/4" supply hose, 1" bypass hose and hardware bag

2. See individual installation sheet

### ***C. Motorized Boom Controls (EC-VM400)***

1. Kit packaged in two boxes

a) Box 1 contains: Console, harness, power lead, tubing bag and hardware bag

**b) Box 2 contains: Complete motorized valve assembly, 3/4" hose and hardware bag**

**2. See individual installation sheet**

#### ***D. Computerized Boom Controls***

**1. Kit packaged in three boxes**

**a) Box 1 contains: Raven console w/18' harness and manual**

**b) Box 2 contains: Motorized valve assembly, 3/4" poly valve, flow meter, 3/4" hose and hardware bag**

**c) Box 3 contains: computerized speed sensor w/cable, adapter power cable, mounting bracket and hardware bag**

**2. See individual installation sheet**

### **VIII. Boom Lift**

#### ***A. ELA KIT-2 (Outer Boom Lift for OTB and Windbreaker)***

**1. Kit packaged in two boxes**

**a) Box 1 contains: switch box and harness assembly**

**b) Box 2 contains: two actuators and hardware bag**

**2. See individual installation sheet**

#### ***B. ELA KIT-1 (Center Lift for Windbreaker)***

**1. Kit packaged in one box**

**a) Box contains: switch box, harness, one actuator, mounting A-frame and hardware**

**2. See individual installation sheet**

## **IX. Ground Contour Boom Wheels**

### **A. GC-OTB10 or GC-OTB20 (for OTB Boom use only)**

- 1. Kit packaged in one box**
  - a) Box contains left and right wheel assemblies and hardware**
- 2. See individual installation sheet**

## **X. Foam Marker**

### **A. 81-FM3 (Quick Foam Marker)**

- 1. Kit packaged in one box**
  - a) Box contains mounted compressor/solution tank assembly, switch box, power lead harness, 50' twin line tubing, two foam generator assemblies, 8 oz. bottle (160:1 foam concentrate) and hardware.**
- 2. See individual installation sheet**

## **XI. Hose Reel and Mounting Kit**

### **A. HR200 (Manual Rewind with 200' 1/2" Fitted Spray Hose)**

- 1. Reel packaged in one box**
  - a) Box contains hand crank reel, swivel and 200' 1/2" fitted spray hose**

### **B. HR200E (Electric Rewind with 200' 1/2" Fitted Spray Hose)**

- 1. Reel packaged in one box**
  - a) Box contains power rewind reel with 1/2 HP 12 Volt DC motor, swivel and 200' 1/2" fitted spray hose**

### **C. 81-134A (Tank Top Reel Mount Kit)**

- 1. Kit packaged in one box**
  - a) Box contains (4) rubber well nuts, 3/4" ball valve, 1/2" fitted feed hose, gun holder tube and plumbing/hardware bag**
- 2. Located in hose reel box when ordered with hose reel**
- 3. See individual installation sheet**

## **XIII. Additional Miscellaneous Options**

### **A. See individual product sheets for information**

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