Form No. 3352-115

Model 41355 Sprayer
Model 41360 Mount
Model 41363 Mount

Set-Up Manual
Installation Instructions
Operators Manual

Print Date 4/19/05

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TORO

Workman 200 spray System
MODEL NO. 41363

INSTALLATION INSTRUCTIONS

ENCLOSED BOOM MOUNT KIT

Note: Determine the left and right sides of the traction unit from the operator's position.
Note: Use No. 2 general purpose Lithium base grease to lubricate the attachment.

Loose Parts:

Description	Qty.	Use
Center boom assembly	1	Assemble the center boom
Boom mount assembly	1	
Bolt, 1/2 x 3 inch	6	
Locknut, 1/2 inch	16	
Castor arms, straight	2	
Carriage bolt, 1/2 x 3 inch	4	
Wheel assembly	2	
Castor fork, long	2	
Axle bolt, 1/2 x 7-1/2 inch	2	
Spring	2	
Cotter pin	2	
Bolt, 1/2 x 1-1/4 inch	4	
Castor arms, curved	2	Assemble the left and right booms
Carriage bolt, 1/2 x 4-1/2 inch	4	
Locknut, 1/2 inch	6	
Castor fork, short	2	
Wheel assembly	2	
Axle bolt, 1/2 x 7-1/2 inch	2	
Nylon bushing, flagged	8	
Pivot retainer washer	2	
Breakaway retainer collar	2	
Jam nut	2	
Castor arms, curved	2	Assemble the left and right booms
Carriage bolt, 1/2 x 4-1/2 inch	4	
Locknut, 1/2 inch	6	
Castor fork, short	2	
Wheel assembly	2	
Axle bolt, 1/2 x 7-1/2 inch	2	
Nylon bushing, flagged	8	
Pivot retainer washer	2	
Breakaway retainer collar	2	
Jam nut	2	
Flow monitor mount extender bracket	1	Install the flowmeter
Bolt, 1/2 x 1-1/4 inch	2	
Locknut, 1/2 inch	2	
Flowmeter bracket mount, angle	1	
Flowmeter bracket mount, straight	1	
Flowmeter	1	
Bolt, 1/4 x 2 inch	2	
Locknut, 1/4 inch	2	
Hose clamps	3	
U-bolt	3	
Locknut, 3/8 inch	6	
Actuator link	2	Install the flowmeter
Bolt, 1/2 x 8-1/2 inch	2	
Actuator assembly	2	
Bolt, 1/2 x 5 inch	2	
Bolt, 1/2 x 2 inch	2	
Locknut, 1/2 inch	2	

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WARNING

This attachment may cause the overall gross vehicle weight (GVW) to be exceeded when used in combination with other attachments.

- **Exceeding the GVW can reduce handling, braking and stability which can increase the risk of injury or death.**
- **Always reduce payloads to maintain vehicle weight within gross vehicle weight rating.**
- **See the Operator's Manual for more information.**

Assembling the Center Boom

1. Lay out the center, left and right boom extensions.
2. Locate the center boom and boom mount assembly. Install the boom mount to the center boom using 6 bolts (1/2 x 3 inch) and 6 locknuts (1/2 inch).

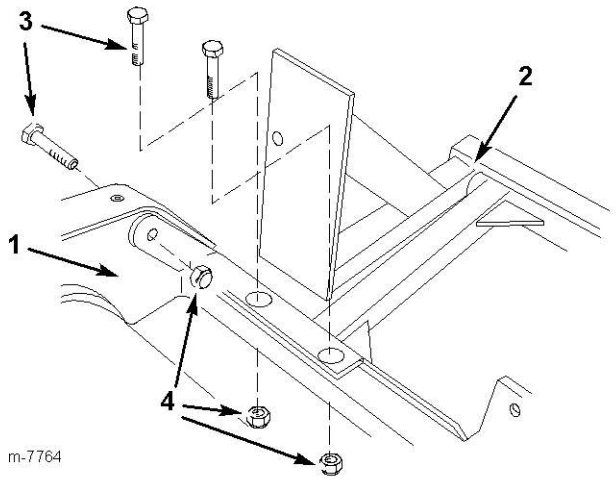


Figure 1
Left side shown

1. Center boom
2. Boom mount assembly
3. Bolt, 1/2 x 3 inch
4. Locknut, 1/2 inch

3. Install the straight castor arms into the bumper strips of center boom section using two carriage bolts (1/2 x 3 inch) and two locknuts (1/2 inch).
4. Install the wheel assembly to the long castor fork using an axle bolt (1/2 x 7-1/2 inch) and locknut (1/2 inch) (Fig 2).

Important: Make sure to use the castor fork with the long shaft when assembling the center boom castor wheels.

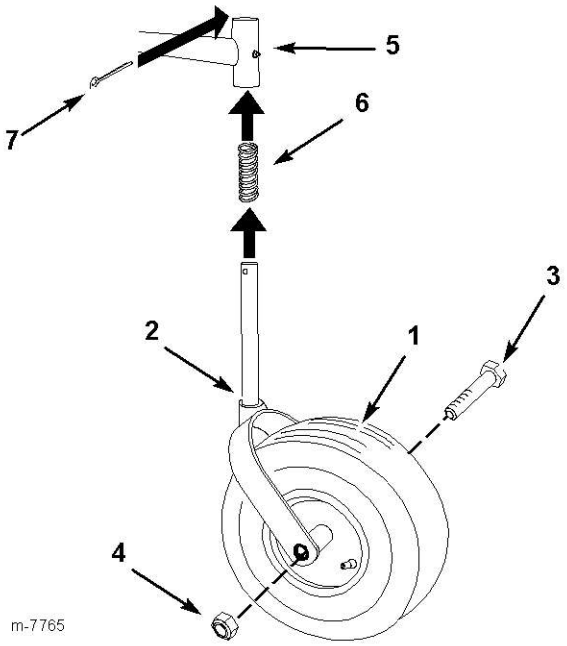


Figure 2

1. Wheel assembly
2. Castor fork, long
3. Axle bolt, 1/2 x 1-1/2 inch
4. Locknut, 1/2 inch
5. Castor arm, straight
6. Spring
7. Cotter pin

5. Place the spring over the castor fork assembly shaft and install it to the straight castor arm. Secure the assembly to the arm with a cotter pin (Fig 2).

See appropriate installation section for instructions on attaching the boom to the workman unit.

Assembling the Left & Right Booms

1. Open the extension boom hoods.
2. Install the curved castor mounts to the left and right booms as shown in Figure 4 using two carriage bolts (1/2 x 4-1/2 inch) and 4 locknuts (1/2 inch).

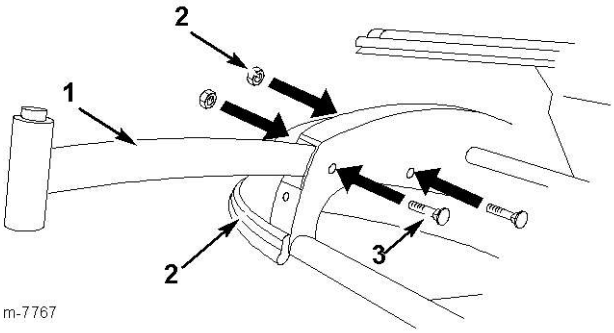


Figure 4
Right boom extension shown

1. Castor arm, curved
2. Boom extension
3. Carriage bolt, 1/2 x 4-1/2 inch
4. Locknut, 1/2 inch

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3. Install the wheel assembly to the short castor fork using an axle bolt (1/2 7-1/2 inch) and locknut (1/2 inch) (Fig 2).

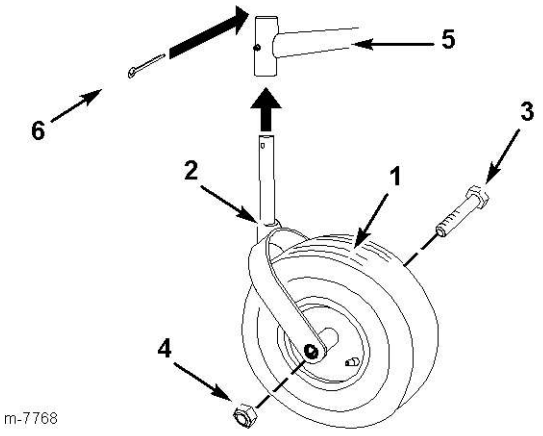


Figure 5

1. Wheel assembly
2. Castor fork, short
3. Axle bolt, 1/2 x 1-1/2 inch
4. Locknut, 1/2 inch
5. Castor arm, straight
6. Cotter pin

4. Install the left and right boom to the center boom as shown in Figure 5.

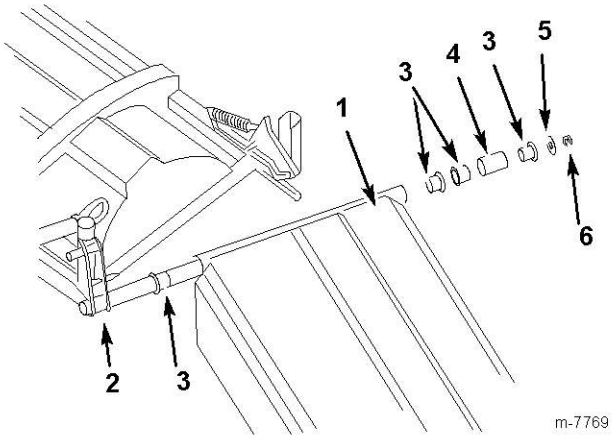


Figure 6

Right side shown

1. Extension boom, right
2. Pivot joint
3. Nylon bushing, flagged
4. Breakaway retainer collar
5. Pivot retainer washer
6. Jam nut

5. Route the boom hose from the left and right booms as shown. Be sure to route through the eyelet and leave enough length in the hoses to allow for storage position without kinking.

Note:

On boom extension wings large castor forks should lead forward (small castors on rear of boom).

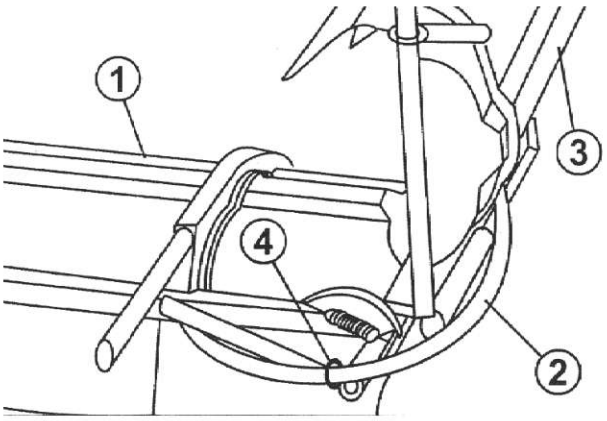


Figure 7

1. Boom center section
2. Extension boom feed hose
3. Boom extension
4. Retainer ring

Installing the Flowmeter

Install the flowmeter to the Workman Sprayer frame using one of the following procedures:

Installing the Flowmeter without an Electric Hose Reel Kit

1. Use the hole in the tab of the extender bracket as a template to mark a spot in the frame to drill a hole.
2. Drill a 1/2 diameter hole at the spot marked.

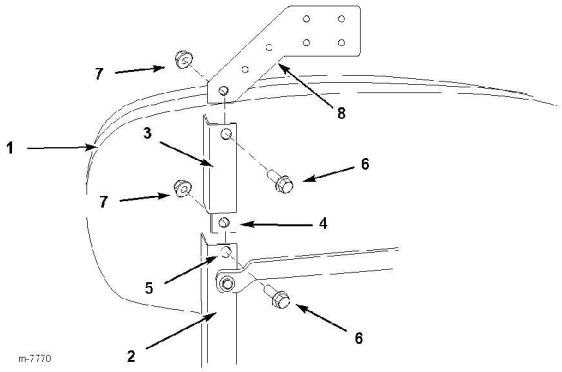


Figure 8

1. Tank
2. Frame
3. Extender bracket
4. Tab, extender bracket
5. Drill 1/2 inch hole here, use lower hole in bracket as template
6. Bolt, 1/2 x 1-1/4 inch
7. Locknut, 1/2 inch
8. Flowmeter mount bracket

3. Secure the extender bracket to the frame using a bolt (1/2 x 1-1/4 inch) and locknut (1/2 inch).
4. Install the flowmeter mount bracket to the extender bracket using a bolt (1/2 x 1-1/4 inch) and locknut (1/2 inch). Make sure the extends toward the center of the machine.

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5. Install the flowmeter to bracket with two bolts (1/4 x 2 inch), and two locknuts (1/4 inch) as shown in Figure 9.

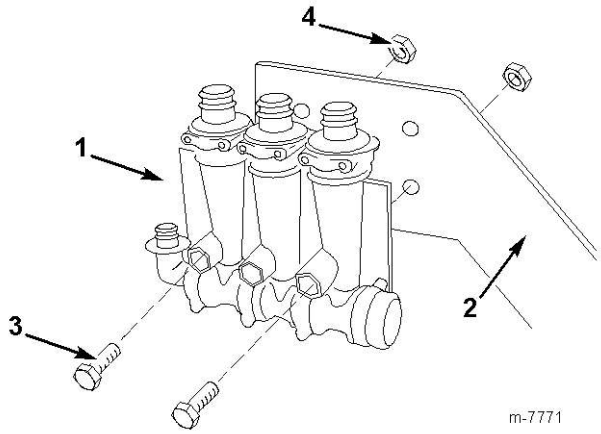


Figure 9

1. Flowmeter
2. Mount bracket, flowmeter
3. Bolt, 1/4 x 2 inch
4. Locknut, 1/4 inch

6. Connect the three hoses from the center boom to the corresponding valves in the flowmeter. Use a hose clam to secure each hose.

7. Connect the center boom supply hose to the flowmeter at the 90 degree elbow barb. Use a hose clamp to secure the hose.

8. Leaving enough length in the lines to avoid kinks or folds, secure the lines to the machine frame using one u-bolt and two locknuts.

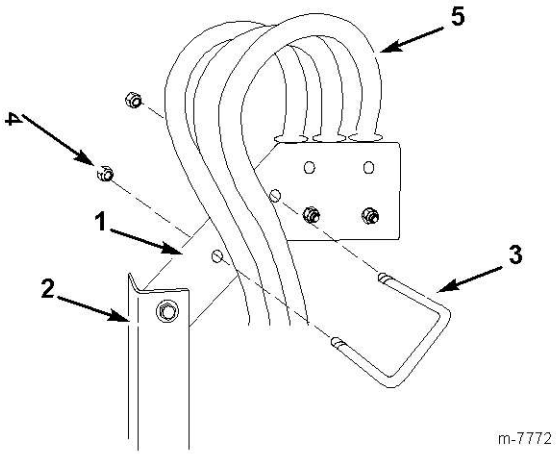


Figure 10

1. Flowmeter mount bracket
2. Extender bracket
3. U-bolt
4. Locknut, 3/8 inch
5. Hoses, length left to avoid kinks

Installing the Flowmeter with an Electric Hose Reel Kit

1. Use the electric hose reel mounting frame to mount the flowmeter bracket to the machine. secure the bracket with two U-bolts and four locknuts (3/8 inch).

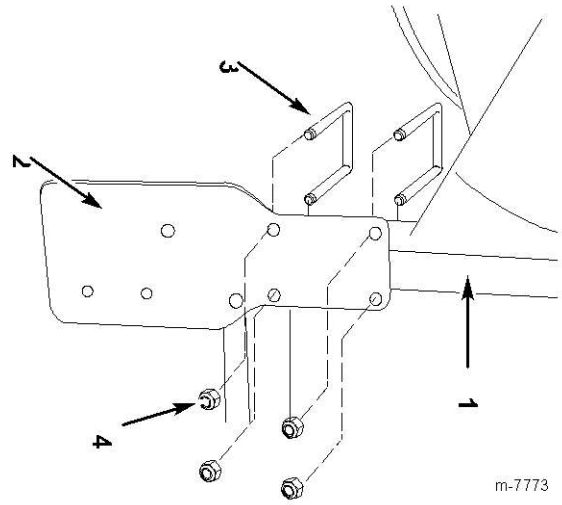


Figure 11

1. Electric hose reel mounting frame
2. Flowmeter bracket
3. U-bolt
4. Locknut, 3/8 inch

2. Install the flowmeter to bracket with two bolts (1/4 x 2 inch), and two locknuts (1/4 inch) as shown in Figure 12.

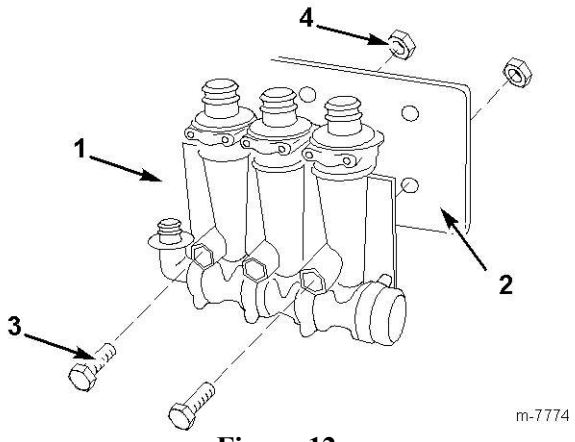


Figure 12

1. Flowmeter
2. Flowmeter bracket
3. Bolt, 1/4 x 2 inch
4. Locknut, 1/4 inch

3. Connect the three hoses from the center boom to the corresponding valves in the flowmeter. Use a hose clamp to secure each hose.

4. Connect the center boom supply hose to the flowmeter at the 90 degree elbow barb. Use a hose clamp to secure the hose.

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5. Leaving enough length in the lines to avoid kinks or folds, secure the lines to the machine frame using one u-bolt and two locknuts.

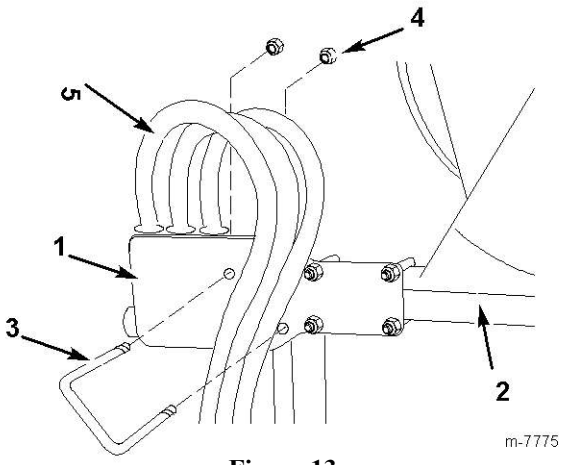


Figure 13

1.Flowmeter mount bracket
2.Electric hose reel mounting frame
3.U-bolt
4.Locknut, 3/8 inch
5.Hoses, length left to avoid kinks

Making the Hose Connections

1. Connect the boom feed hose from the center control valve to the Flowmeter previously installed.
2. Install the left and right boom extension hoses to the left and right control valves respectively.

Installing the actuators

Use the following instructions to install one boom extension actuator and then repeat them for the opposite side.

1. Install the actuator link to the boom extension as shown in Figure 14 using the bolt (1/2 x 8-1/2 inch).

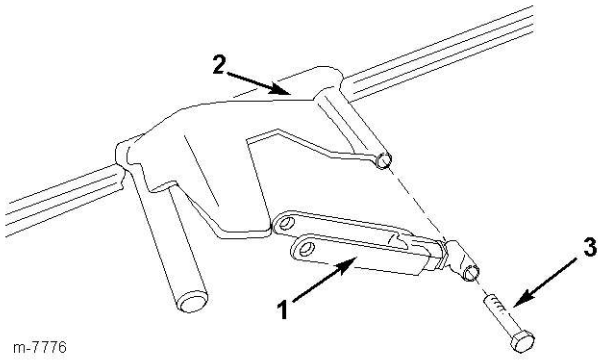


Figure 14
Right side shown

1. Actuator link
2. Boom extension
3. Bolt, 1/2 x 8-1/2 inch

2. Install the actuator assembly to the breakaway pivot mount using a bolt (1/2 x 5 inch) as shown in Figure 15. Connect the 6 inch extension harness to each of the actuators

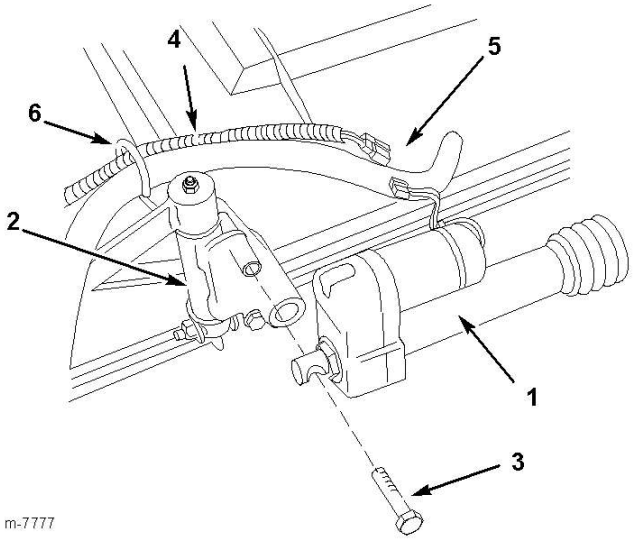


Figure 15

1. Actuator Assembly
2. Breakaway pivot mount
3. Bolt, ½ x 5 inch
4. Six foot extension harness
5. Connect here
6. Retainer ring

3. Locate the boom lift connections on the machine's electrical harness. The connectors for the left are marked with orange and blue wires, and the right are marked by the yellow and green wires.
4. Make sure to route the wiring along the boom feed hose and through the retainer ring (Fig 15).
5. Power the actuator to extend the rod to reach the link (Fig 16).
6. Secure the actuator assembly to the link using a bolt (1/2 x 2 inch) and locknut (1/2 inch) as shown in Figure 16.

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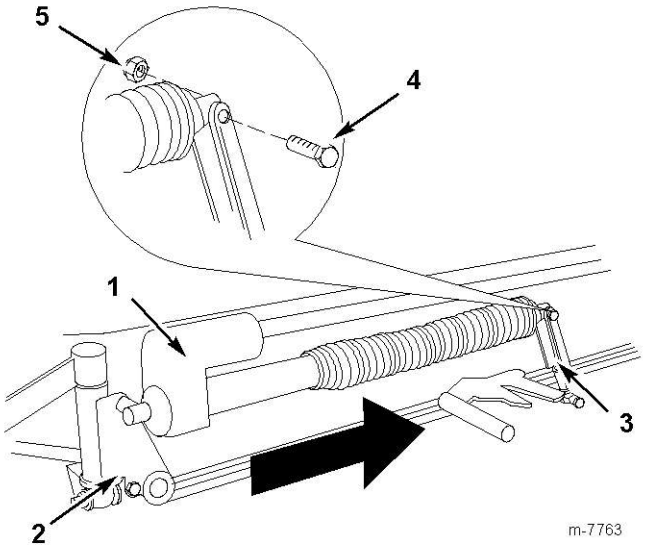


Figure 16
Right side shown

1. Actuator
2. Breakaway pivot joint
3. link
4. Bolt
5. Locknut

7. Use the plastic ties to secure any loose wiring to the center boom frame and boom extensions.

8. Use the Up/Down switches to raise the boom extension to the upright position until the Stop on the front corner of the boom extension just makes contact with the center boom contact pad (Fig. 17).

9. Measure the length of the Actuator and adjustment link . It should be 30-1/8 inch, + 1/16 inch from the center of the actuator assembly bolt to the center of the actuator link bolt (Fig. 17).

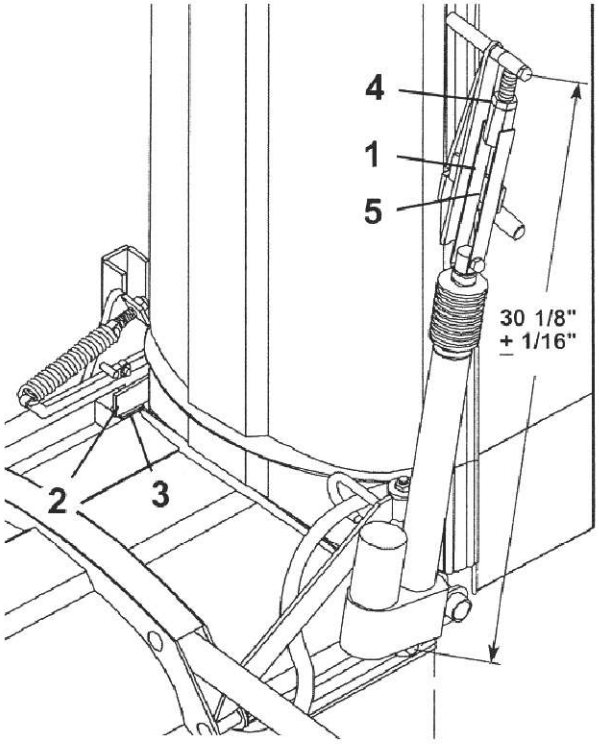


Figure 17
Right side shown

1. Actuator link
2. Stop, boom extension
3. Contact pad, center boom
4. Jam nut
5. Actuator link stop

10. If the length of the assembly needs to be corrected, remove the bolt and locknut connecting the actuator link to the actuator arm, loosen the jam nut and rotate the actuator link to adjust the length.

11. Install actuator link to actuator arm using the bolt and locknut removed previously. Tighten the jam nut to secure the assembly and ensure the link rests square on the actuator link stop (Fig. 17).

Important: If the length of the actuator assembly is less than specified above the frame can bend when the actuator is fully contracted. If the length is greater than specified above, the boom can be damaged due to excessive movement when in the transport position.

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BOOM EXTENSION FEED HOSE ROUTING:

CAUTION

- Use proper lifting procedures when lifting the Extension Boom into the forward fold position.\
- Failure to follow proper lifting procedures could result in personal injury.
- Follow the Forward Fold Instructions Decal located near the end of the Boom Extension.
- Also read and understand the instructions in the OPERATORS MANUAL.

1. Fold the Right and Left Boom Extensions forward following the Boom Forward Fold Instruction Decal located near the ends of the Boom Extensions. Also refer to the Forward Fold Instructions in OPERATORS MANUAL.
2. Route Right and Left Boom Feed Hoses as shown in FIG. 6 through ring at wing pivot joint and through Boom Center Section (FIG. 7) ensuring that there is adequate hose length at the Boom Extension Pivot Joint so that the hose is not stretched.
3. Unfold the booms and insert into Breakaway Latches to put in field position.

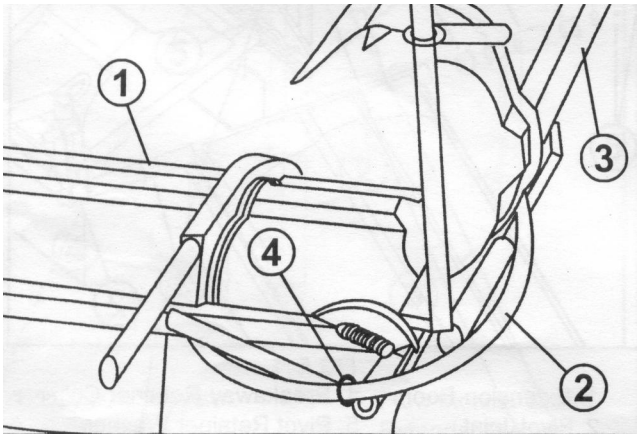


FIG. 6

1. Boom Center Section
2. Extension Boom Feed Hose
3. Boom Extension
4. Retainer Ring

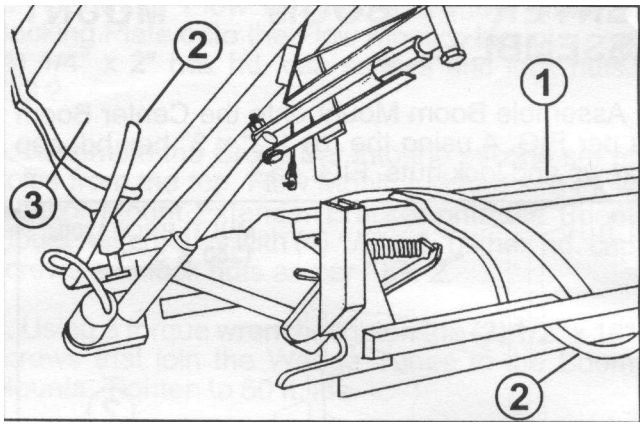


FIG. 7

1. Boom Center Section
2. Boom Extension Feed Hose
3. Boom Extension

HOSE CONNECTIONS:

CAUTION

- Chemicals are hazardous and can cause personal injury!
- Securely tighten all sprayer hose clamp connections during initial set-up to prevent leaks and hose blow-offs while spraying system is in operation.

NOTE: When installing on the WORKMAN®, the Flow Monitor Extender bracket is not used and the center boom feed hoses from flow monitor can be trimmed 17"

1. Connect the 3 hoses for the Center Boom to the Center Flow Monitor through hose retainer clamp (not available on booms with serial #'s below 90160) on mounting bracket so that the monitor indicators correspond to the Spray Nozzles on the Center Boom (i.e. left nozzle on left flow indicator, etc.).
2. Leaving a gentle loop in hoses, to relieve stress from the hose / flow monitor connection and hose restriction, secure hoses with Retainer Clamp or tie hoses together and secure to lower part of Flow Monitor Mount.

NOTE: The Boom Control Valves must be installed on the sprayer before the rest of the hose connection step can be completed.

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The Boom hose connection will depend on the type of Control Valve system used on the Sprayer. Refer to the applicable SPRAY SYSTEM SET-UP AND PARTS MANUAL for the Control Valve installation.

SPRAYERS WITH ELECTRIC CONTROL VALVE SYSTEM:

1. Connect the 34" length of 3/4" Hose included with the Boom to the inlet on the Center Boom Flow Monitor and the other end to the outlet on the center Valve. Secure with Hose Clamps.

2. Connect the Boom Feed Hoses for the Left and Right Boom Extensions to the outlets on the Control Valves so that the Boom Feed Hoses supply the corresponding boom sections controlled by the Boom Control Switches / Control Valves. Secure with Hose Clamps.

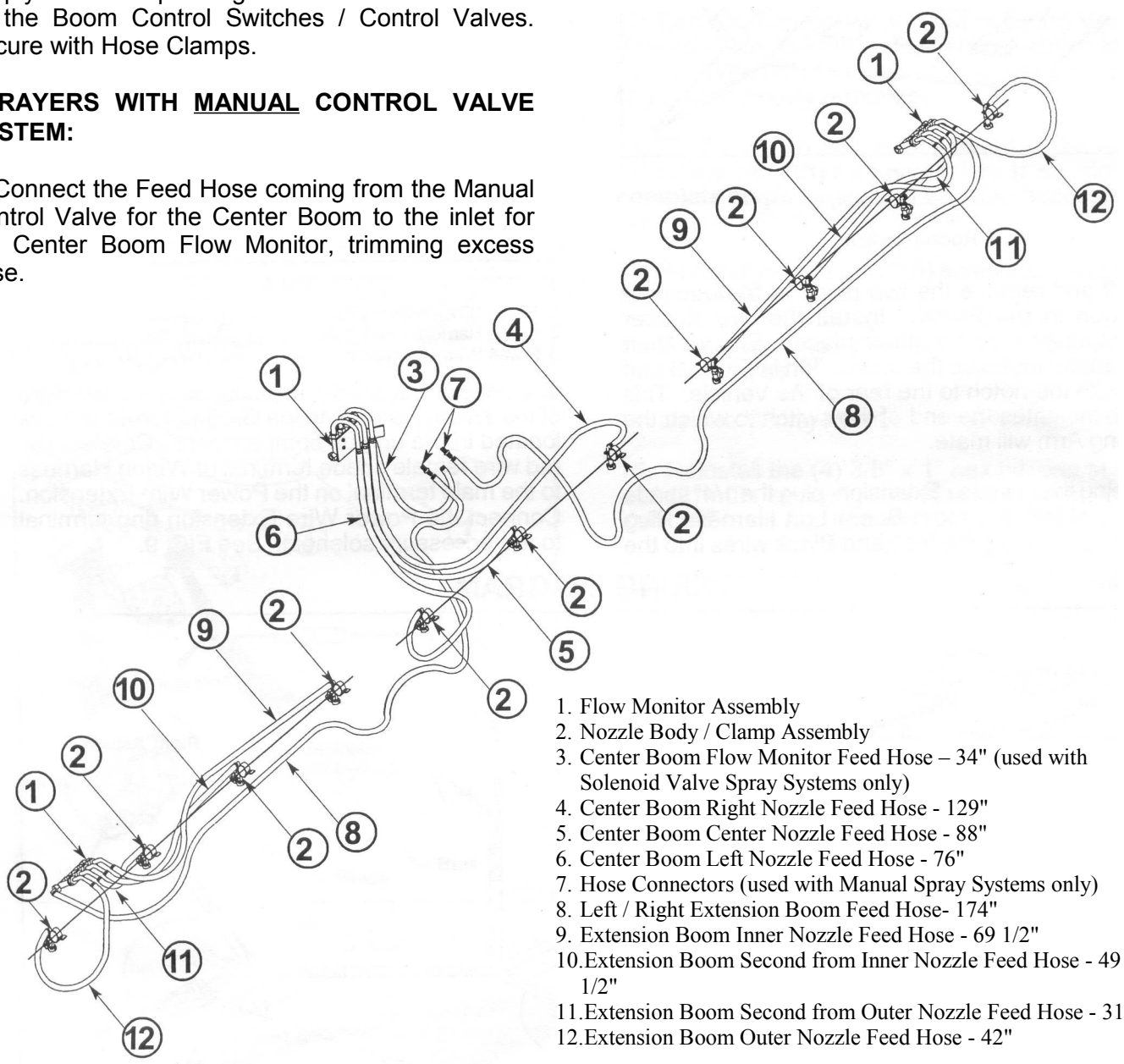
SPRAYERS WITH <u>MANUAL</u> CONTROL VALVE SYSTEM:

1. Connect the Feed Hose coming from the Manual Control Valve for the Center Boom to the inlet for the Center Boom Flow Monitor, trimming excess hose.

2. Insert the (2) 3/4" Hose Connectors supplied with the Boom into the Feed Hoses coming from the Left and Right Booms. Secure with Hose Clamps. Connect the Hoses coming from the Left and Right Boom Control Valves to the Hose Connectors, trimming excess hose, but allowing enough hose length for boom movement. Secure with Hose Clamps.

NOTE: If Flow Monitors are equipped with Swivel Nuts they should be tightened at this time. Be careful not to overtighten.

PLUMBING DIAGRAM



1. Flow Monitor Assembly
2. Nozzle Body / Clamp Assembly
3. Center Boom Flow Monitor Feed Hose – 34" (used with Solenoid Valve Spray Systems only)
4. Center Boom Right Nozzle Feed Hose - 129"
5. Center Boom Center Nozzle Feed Hose - 88"
6. Center Boom Left Nozzle Feed Hose - 76"
7. Hose Connectors (used with Manual Spray Systems only)
8. Left / Right Extension Boom Feed Hose- 174"
9. Extension Boom Inner Nozzle Feed Hose - 69 1/2"
10. Extension Boom Second from Inner Nozzle Feed Hose - 49 1/2"
11. Extension Boom Second from Outer Nozzle Feed Hose - 31"
12. Extension Boom Outer Nozzle Feed Hose - 42"

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FOAM MARKER OPTION:

Follow the instructions included with the FOAM MARKER KIT *except* for the applicable steps as follows:

1. Drill a 3/8" hole in the plastic shroud 1" over from the Boom Extension Feed Hose on each Boom Extension. Fig. 16

NOTE: Remove silicone plug from nozzle tube if present.

2. Route Foam Marker hose through Nozzle Tube on each Boom Extension.

3. Install Punched Hole Boom Caps to Nozzle Tubes

4. Connect Foam Marker Boom Feed Hoses coming from Compressor to the Boom Hoses using 1/4" - 3/8" Hose Connectors and Hose Clamps supplied with the **ENCLOSED BOOM MOUNTING KIT**.

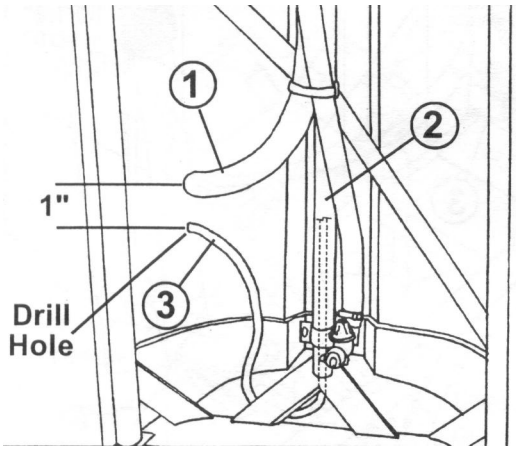


FIG. 16

1. Boom Extension Feed Hose
2. Nozzle Tube
3. Foam Marker Hose

5. Route the Foam Marker Hoses with the Right and Left Boom Feed Hoses and Actuator Wiring Harness to the front of the Center Boom, securing Foam Marker Hose to Boom Feed Hose and wiring with Plastic Ties, ensuring that Ties **do not** squash Hoses.

SECURING HOSE AND WIRING:

1. Tie Boom Feed Hose, Foam Marker Hose and Actuator Wiring Harness together with Plastic Ties every 8 - 10" ensuring that Ties do not squash Hose. At the Boom Extension pivot-fold joint ensure that the hose does not collapse or interfere with boom movement in the field, vertical transport or forward fold transport positions. Where Hoses and wiring go through Center Boom, secure to boom frame so hoses cannot interfere with spray pattern or boom operation.

2. Tie and secure all other hose and wiring so that it will not interfere with boom operation.

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DRIFT SEAL INSTALLATION:

NOTE: If the Enclosed Boom must be transported at highway speeds to the end use location the Drift Seal should be <u>installed at the end use location</u> to prevent wind damage.

1. Assemble the Drift Seal sections into the Retainer Molding slots located on the lower edge of the Boom. The longer pieces will be easier to install if a light lubricant such as liquid soap or a silicone based product (i.e. Armour All) is used. (FIG. 14) The end of the Drift Seal at the Hood opening should be flush with the Drift Seal Retainer Molding.

2. Screw (12) #10 x 2" Drift Seal Retainer Screws into ends of curtain, setting head of screw flush with Retainer Molding. Where screws can not be used, crimp the end of the Retainer Molding 1/8" using Vice Grip pliers with tape on jaws to prevent scuffing of the molding.

G.V.W. OVERLOAD WARNING DECAL INSTALLATION:

IMPORTANT: When the ENCLOSED BOOM is installed on a WORKMAN® SPRAY SYSTEM the CAUTION Decal Part #94-8609 must be applied in up to 3 locations to warn the operator of possible Vehicle overload conditions. A Vehicle overload condition could lead to serious injury or death.

1. The WARNING Decal must be applied in (3) locations as shown in FIG. 18. Apply (1) Decal on <u>each</u> side of the rear Spray Tank Band and (1) Decal on the Hose Reel, if so equipped.

BEFORE OPERATING:

IMPORTANT! Grease inside surfaces of Transport Pin Receivers. Also grease Castor Fork Bushings, Wheel Bushings and Boom Mount.

Refer to the Operators Instructions for proper operating procedures.

Insert SET-UP AND PARTS MANUAL and OPERATORS MANUAL into Vehicles Manual holder.

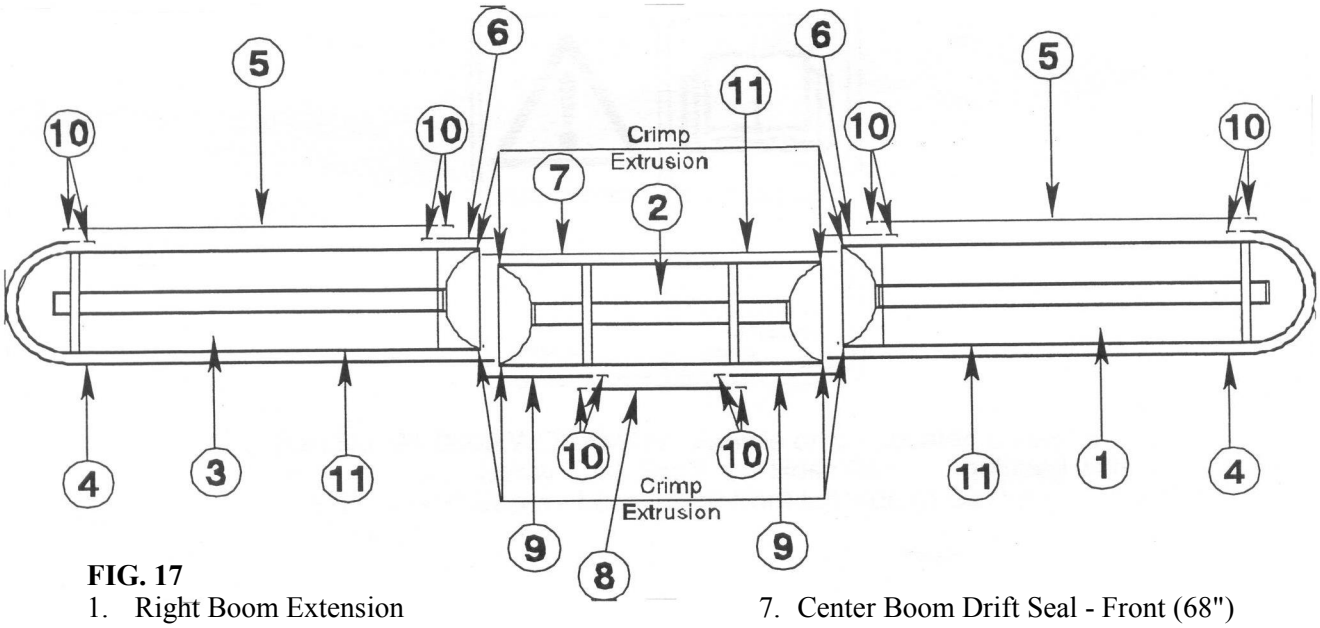


FIG. 17

1. Right Boom Extension
2. Center Boom
3. Left Boom Extension
4. Boom Extension Drift Seal - Rear (113")
5. Boom Extension Drift Seal - Hood (65-1/2")
6. Boom Extension Drift Seal - Front (7-1/2")
7. Center Boom Drift Seal - Front (68")
8. Center Boom Drift Seal - Hood (30-3/8")
9. Center Boom Drift Seal - Rear (19")
10. Retainer Screw
11. Retainer Molding

Print Date 4/19/05

⚠ CAUTION

- This attachment may cause the overall gross vehicle weight to be exceeded when used in combination with other attachments
- Exceeding the gross vehicle weight can cause injury or death due to reduced handling, braking and stability.
- Always reduce payload to maintain vehicle weight within gross vehicle weight rating.
- See OPERATOR'S MANUAL for additional information.

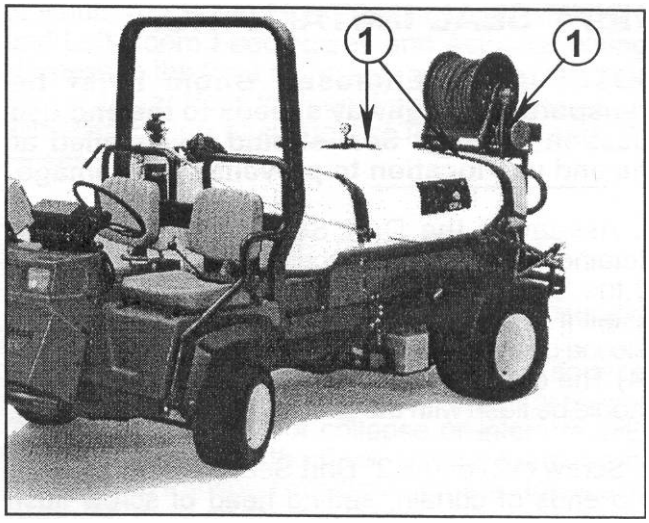


FIG. 18
1. Decal

NOTES

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MULTI-PRO® 1200/1250 & 5600/5700 BOOM FRAME ASSEMBLY:

MULTI-PRO® 1200/1250

1. Remove Stop Pins in Boom Mount Assemblies. Apply a heavy coating of grease to the tubes of the two Boom Mount Assemblies and insert them into the Vehicle Frame until Angle Gusset bottoms out against Vehicle Frame. (See FIG. 1)

MULTI-PRO® 5600

1. Apply a heavy coating of grease to the tubes of the two Boom Mount Assemblies and insert them into the Vehicle Frame, as shown in FIG. 1, until the Stop Pins hit the frame tube.

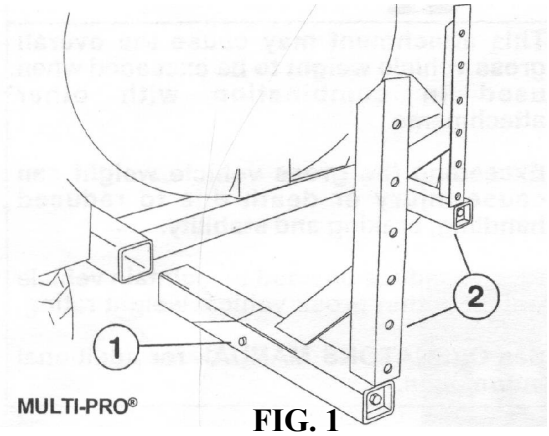


FIG. 1

1. Stop Pin 2. Boom Mount Assemblies

NOTE: Note the position of the angle member of the Right and Left Boom Mount Assemblies in relation to the tube member. They must be positioned as shown for the mounting of the Cross Support Angle.

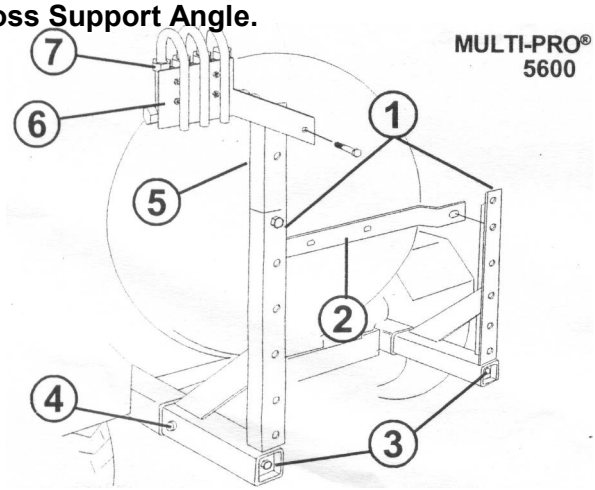


FIG. 2

1. Boom Mount Asm.
2. Cross Bar
3. Wedge Screws
4. Stop Pin
5. Flow Monitor Mount Extender Bracket
6. Flow Monitor Mount
7. Flow Monitor

2. Assemble Flow Monitor and Flow Monitor Backing Plate onto the Flow Monitor Mount using (4) 1/4" x 2" hex hd. cap screws and lock nuts. FIG 2.

3. Assemble the Cross Bar into the second set of holes from the top, Flow Monitor Mount and Flow Monitor Mount Extender Bracket onto the Boom Mount Assemblies with (4) 1/2" x 1-1/4 hex hd. cap screws and lock nuts as per FIG. 2.

4. Using a torque wrench, tighten the (2) 1/2" x 18" screws that join the Wedge Tubes to the Boom Mounts. Tighten to 50 ft. lbs.

WORKMAN® SPRAY SYSTEM BOOM FRAME ASSEMBLY:

1. Attach the two Boom Mounting Angles onto the rear of the Tank Saddle Extensions using (4) 1/2" x 1-1/4" hex hd. cap screws and lock nuts as shown in FIG. 3.

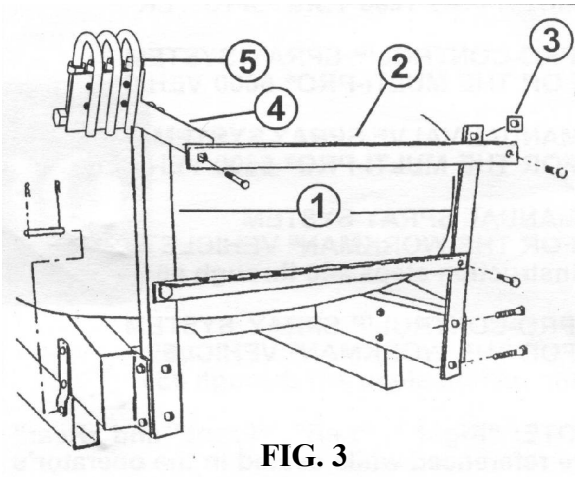


FIG. 3

1. Boom Mounting Angles
2. Upper Cross Support & Angle
3. Spacer
4. Flow Monitor Mount
5. Flow Monitor

2. Assemble Flow Monitor and Flow Monitor Backing Plate onto the Flow Monitor Mount using (4) 1/4" x 2" hex hd. cap screws and lock nuts. FIG. 3.

3. Assemble the Upper Cross Support Angle, Flow Monitor Mount and Spacer onto the Boom Mount Assemblies with (2) 1/2" x 1-1/4 hex hd. cap screws and lock nuts as per FIG. 3.

4. Assemble the Lower Cross Support Angle onto the Boom Mounting Angles using (2) 1/2" x 1-1/4" hex hd. cap screws and lock nuts.

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CENTER BOOM MOUNT ASSEMBLY:

1. Assemble Boom Mount onto the Center Boom as per FIG. 4 using the (6) 1/2" x 3" hex hd. cap screws and lock nuts. FIG. 4a.

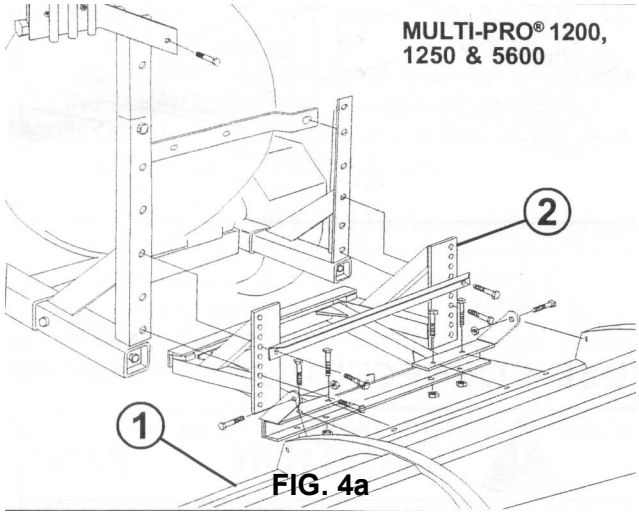


FIG. 4a

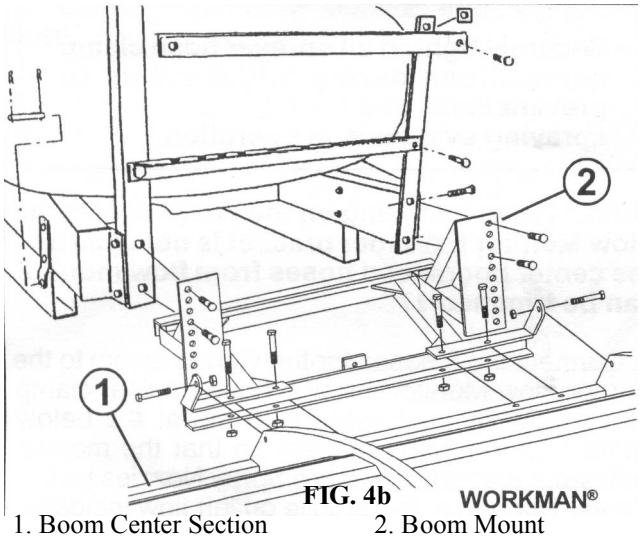


FIG. 4b

1. Boom Center Section 2. Boom Mount

2. Assemble the (2) straight Castor Mounts into Center Boom section, using (4) 1/2" x 3" carriage hd. bolts and lock nuts, ensuring that bolt heads are on the “hood opening” side. Assemble (2) Wheels onto (2) Castor Forks with the long shafts using (2) 3/4" O.D. x 6" bushings and (2) 1/2" x 7-1/2" hex hd. cap screws. Assemble Castor Forks onto Castor Arms using a spring and cotter pin on each castor. (Refer to Page 14)

3. The Boom Mount has several holes to accommodate different sprayers. To determine the correct mounting holes to use, ensure that the Center Boom and the sprayer are on a level surface approximately as the Boom will be attached. Block up the Center Boom Section so that the appropriate holes align.

The holes used to attach the Boom Mount to the Boom Mount Assemblies should be as follows:

MULTI-PRO® 1200/1250 - Align the inner holes of the Boom Mount with the matching holes on the Boom Mount Assemblies. Secure with (4) 1/2" x 2-1/4" hex hd. cap screws and lock nuts. (FIG. 4a)

MULTI-PRO® 5600 - Align the outer holes of the Boom Mount with the matching holes on the Boom Mount Assemblies. Secure the two bottom holes with 1/2" x 1-1/4" hex hd. cap screws and lock nuts. Align the Cross Support Angle with the upper set of holes in the Boom Mount and secure with two 1/2" x 1-1/4" hex hd. cap screws. See FIG. 4a.

WORKMAN® SPRAY SYSTEM - Align the bottom hole in Boom Mount Angles with the seventh and tenth holes from the bottom on the Boom Mount. Secure with (4) 1/2" x 1-1/4" hex hd. cap screws and lock nuts. (FIG. 4b)

NOTE: When set up the Boom should be level from front to back when the sprayer has half a tank of water. If the Boom is not level the Boom Mount should be moved up accordingly.

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WIRING HARNESS INSTALLATION

The Wiring Harness Installation will depend on the Vehicle and type of Sprayer. Refer to the applicable installation instructions.

MULTI-PRO® 5600 WIRING HARNESS INSTALLATION:

1. Remove the Panel Assembly from the Center Console Assembly. See FIG. 8.

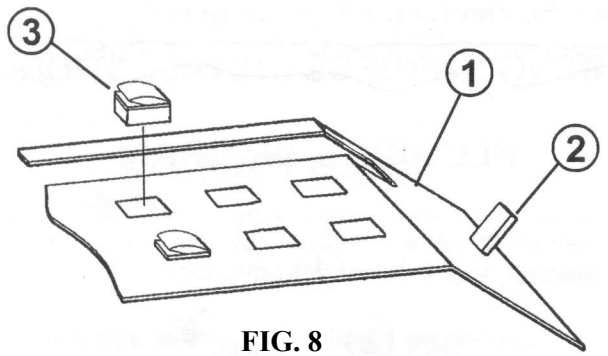


FIG. 8
1. Panel Assembly
2. Latch
3. Rocker Switch

2. Lift and remove the two plugs at the boom lift position in the Panel. Install the two Rocker Switches provided in their place. Ensure their orientation matches the orientation in FIGS. 8 and 11b with the notch to the rear of the Vehicle. This notch indicates the end of the switch to which the locking Arm will mate.

3. Using the Harness Extension, plug the 1/4" spade Terminal into the main Boom Loft Harness Plug Connector. Plug the Red and Black wires into the center sockets. Insert the Green / White Wires into the corner sockets with the Green or White wire. Plug the remaining Yellow / Blue Wires into the other corner sockets, (these sockets will have a Blue or Yellow wire). Repeat this step for the other Plug. Connect the Connector Housing to their respective Switches in the Panel (Yellow / Green to L.H. Switch & Blue / White to R.H. Switch). See Fig. 12.

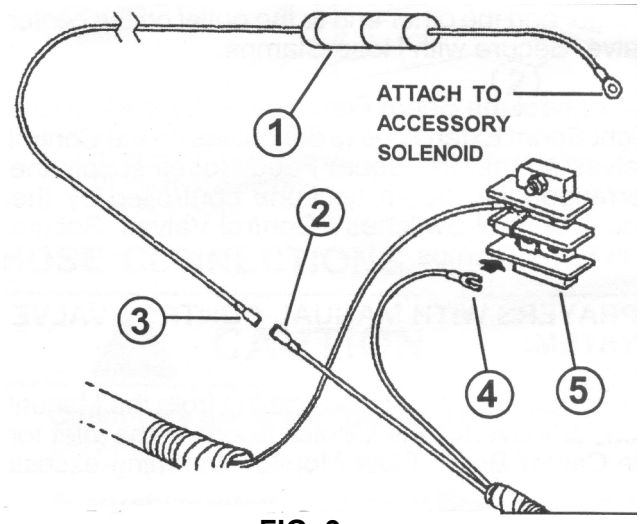
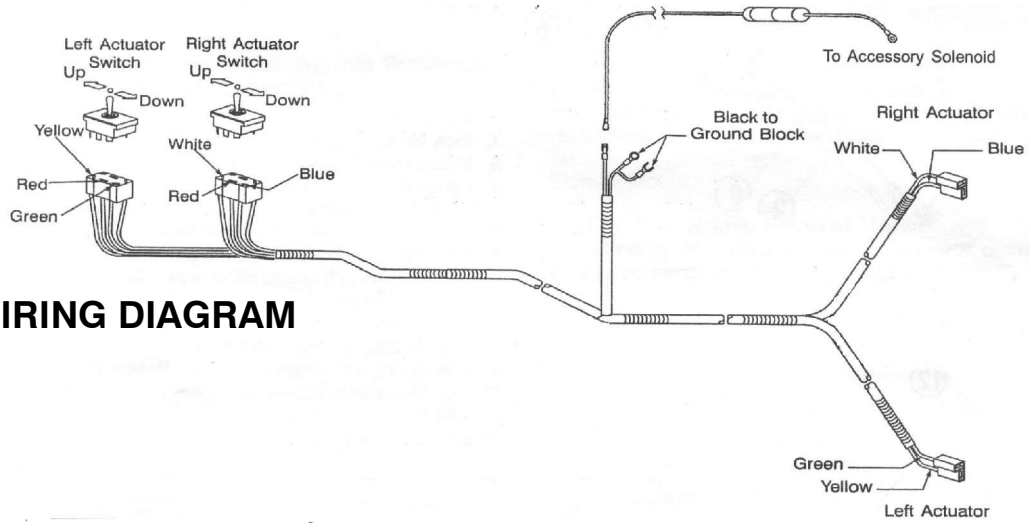


FIG. 9

4. Connect the Spade Terminal on the black wire of the Wiring Harness to the Ground Terminal Block located in the engine compartment. Connect the red wire female spade terminal of Wiring Harness to the male terminal on the Power Wire Extension. Connect the Power Wire Extension ring terminal to the accessory solenoid. See FIG. 9.

WIRING DIAGRAM



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5. Route the Boom Lift Harness to the rear of the Vehicle along the right side of the main frame, following the main wiring harness through the cable rings.
6. Reinstall the Panel Assembly to the Center Console Assembly.
7. From the Back of the Vehicle, route the leads for the Right and Left Boom Actuators along the Boom Feed Hoses and out where the actuators will be located.

WORKMAN® WIRING HARNESS INSTALLATION WITH THE WORKMAN® SPRAY SYSTEM:

1. Raise the Tank and Skid Assembly and support with the Strut Support Rod.
2. Remove the (4) 3/8" x 1" hex hd. cap screws and (2) nuts securing the Radiator cover to the Vehicle Frame and remove Radiator Cover.
3. Unplug the Wire Harness Connectors from both Headlights.
4. Remove (15) screws and washers securing Front Hood to Vehicle Frame and remove Hood.

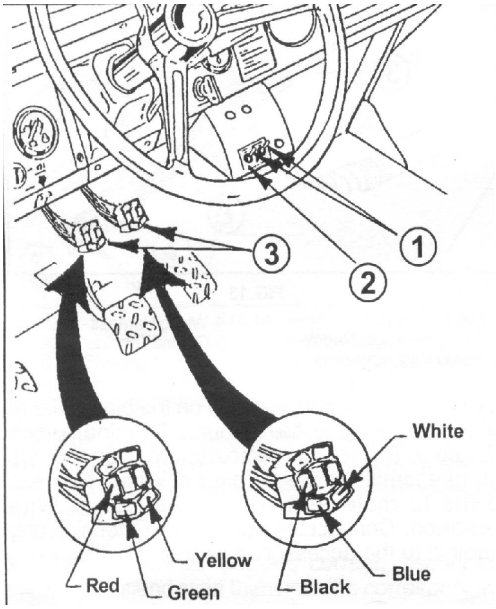


FIG. 10

1. Switches 2. Decal 3. Connectors

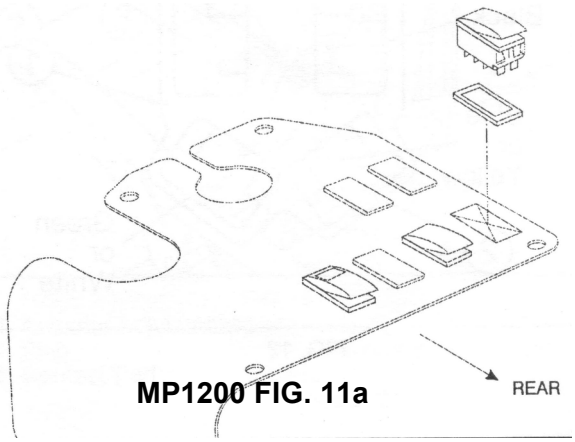
5. Affix SPRAY BOOM CONTROL Decal around lower left holes of Switch Bracket as per FIG. 10.
6. Install the Switches in the lower left holes of the Switch Bracket, using the nuts included with the Switches. Install the protective rubber Boots.
7. Plug the (2) connectors for the Actuators onto the (2) Switches.
8. Route the Wiring Harness through the opening in the floorboard and along the left side of the Vehicle's Main Frame to the rear of the vehicle.
9. From the back of the Vehicle, route the leads for the Right and Left Boom Extensions along the Boom Feed Hoses and out to where the actuators will be located.
10. Connect the Red Wire Female Spade Terminal of Wiring Harness to the to Male Terminal on the Power Wire Extension. Connect the Power Wire Extension Ring Terminal to the starter solenoid located on left side of engine. See FIG. 9.
11. Remove cap screw and nut securing Vehicle Ground Wires to Frame. Re-secure, adding black Ground Wire from Wiring Harness with cap screw and nut previously removed.

NOTE: It may be necessary to leave the Hood off to mount other accessories. If so, do not complete steps 13-14 until all other accessories are installed.

12. Reinstall Hood using (15) screws and washers removed earlier.
13. Reconnect the Wire Harness connectors to both Headlights.
14. Secure Wiring Harness to the Vehicle Frame.
15. Reinstall the (4) 3/8" x 1" hex hd. cap screws and (2) nuts securing the Radiator cover to the Vehicle Frame and remove Radiator Cover.

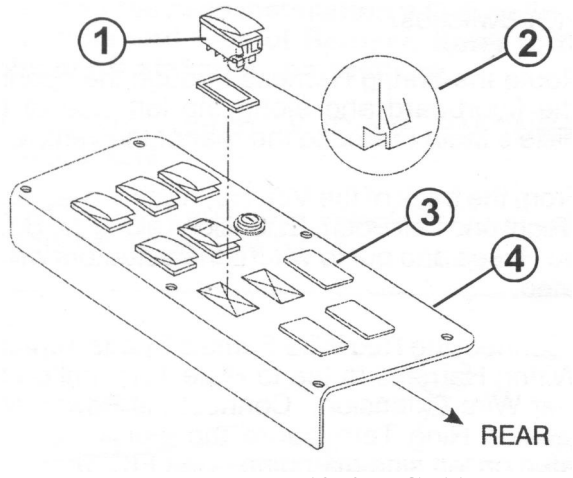
MULTI-PRO® 1200 & 1250 WIRING HARNESS INSTALLATION:

1. Remove the screws and lift the Spray Control Panel to expose the bottom side. See FIG. 11a or 11b.



MP1200 FIG. 11a

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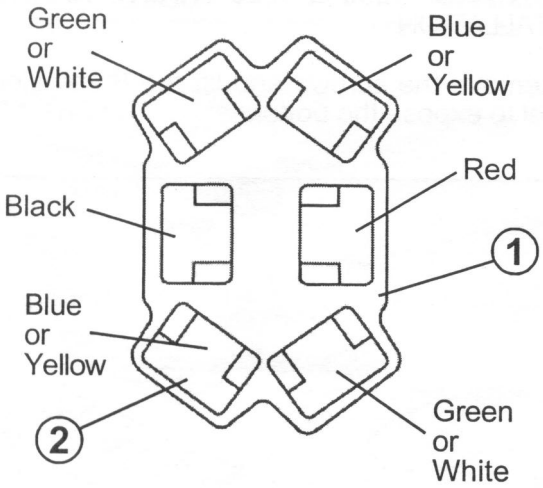


MP1250 FIG. 11b

1. Rocker Switch
2. Notch (at back) Control Panel
3. Plug
4. Spray

2. Lift and remove the two plugs from the Spray Control Panel on the vehicle and install the two Rocker Switches provided in their place. Insure their orientation matches the orientation in Fig. 11a or 11b with the notch to the rear of the Vehicle. This notch indicates the end of the switch to which the locking Arm will mate.

3. Using the Harness Extension, plug the 1/4" spade Terminal into the main Boom Lift Harness Plug Connector. Plug the Red and Black Wires into the center sockets. Insert the Green / White Wires into the corner sockets with the Green or White wire. Plug the Remaining Yellow / Blue wires into the other corner sockets, (these sockets will have a Blue or Yellow wire). Repeat this step for the other Plug. Connect the Connector Housing to their respective switches in Spray Control Panel (Yellow/Green to L.H. Switch & Blue/White to R. H. Switch). See FIG. 12.



4. Reinstall the Spray Control Panel to the Seat Base and secure with the screws removed earlier.

5. Route the Wiring Harness to the rear of the Vehicle along the right side of the main frame.

6. From the back of the Vehicle, route the leads for the Right and Left Booms along the Boom Feed Hoses and out to where the actuators will be located.

7. Route the Power Wire to the accessory solenoid and Ground Wire to the Ground Terminal Block.

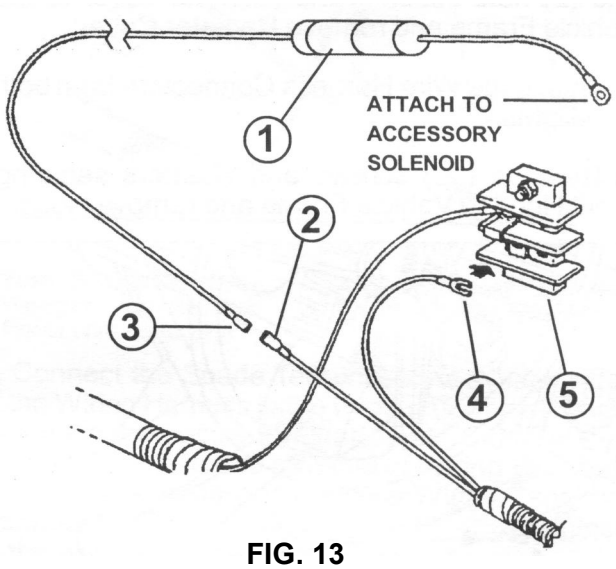


FIG. 13

1. Fuse - 30 Amp Slow Blow
2. Wiring Harness - Red Wire
3. Power Wire - Extension
4. Wiring Harness - Black Wire
5. Ground Terminal Block

8. Connect the spade terminal on the black wire of Wiring Harness to the Ground Terminal Block located in the engine compartment. Connect the red wire female spade terminal of Wiring Harness to the to male terminal on the Power Wire Extension. Connect the Power Wire Extension ring terminal to the accessory solenoid.

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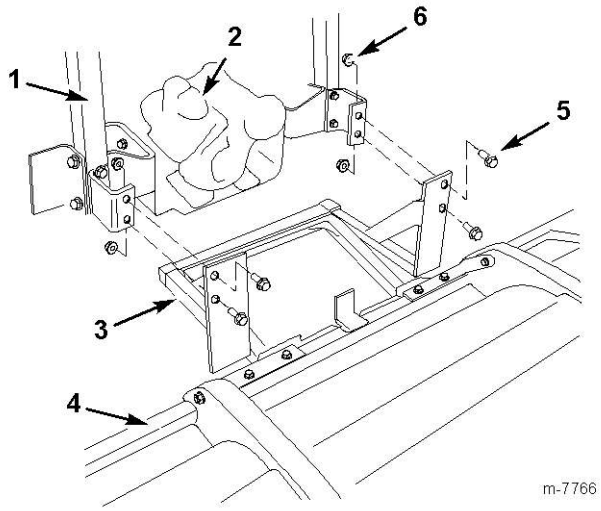


Figure 3

1. Vehicle frame
2. Pump assembly
3. Boom mount frame
4. Center boom assembly
5. Bolt, 1/2 x 1-1/4 inch
6. Locknut, 1/2 inch

6. Move the center boom assembly into position behind the machine. Lift the assembly up into alignment with the mounting holes in the machine frame (Fig. 3).
7. Install the Center Boom to the Workman Sprayer the points shown using four bolts (1/2 x 1-1/4 inch) and four locknuts (1/2 inch) in the holes marked (Fig. 3).

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TORO

MODEL NO. 41355 & 41360
200000101 CE and up

OPERATOR'S MANUAL

ENCLOSED BOOM

for the MULTI PRO® 1200, 1250, 5600 and WORKMAN® Vehicles

To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of this equipment read and understand the contents of this manual before the vehicle engine is ever started. Pay particular attention to the SAFETY INSTRUCTIONS highlighted by the triangular safety alert symbol.

The safety alert symbol means CAUTION, WARNING, or DANGER — personal safety instruction. Failure to comply with the instruction may result in personal injury.

FOREWORD

You have purchased a product from the industry leader in maintenance excellence. Its future performance and dependability are of prime importance. TORO is also concerned about future use of the product and of safety to the user. Therefore, this manual must be read by you and those involved with the ENCLOSED BOOM to assure that safety, proper set-up, operation and maintenance procedures are followed at all times. The major sections of the manual are:

1. SAFETY INSTRUCTIONS 2. OPERATING INSTRUCTIONS 3. BEFORE SPRAYING
4. MAINTENANCE AND STORAGE

Safety, mechanical and some general information in this manual are emphasized. DANGER, WARNING and CAUTION identify safety messages. Whenever the triangular safety symbol appears, it is followed by a safety message that must be read and understood. For more details concerning safety, read the Safety Instructions on this page and page 2.

IMPORTANT identifies special mechanical information and NOTE identifies general information worthy of special attention. These instructions are provided as a guide for the safe operation and maintenance of this equipment. However, the operator's personal safety, as well as the persons in the work area, will depend on the careful actions and good judgement of the operator. To reduce the potential for injury or death, comply with the following safety instructions.

SAFETY INSTRUCTIONS

Keep this Operator's Manual in the plastic tube behind the operator seat.

It is very important that all persons operating this equipment have easy access to these instructions at all times!

Carefully read and follow the "Set-up" Instructions that are provided with this equipment and the Safety Instructions in the MULTI-PRO® 1200, 1250, 5600 or WORKMAN® Vehicle Manual and Spray Systems Operators Manual.

BEFORE OPERATING

1. Operate this machine only after reading and understanding the contents of this manual.

A replacement manual is available by sending complete model and serial number to: **The Toro Company**, 8111 Lyndale Avenue South, Bloomington, MN 55420-1196

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SAFETY INSTRUCTIONS

1. Operate this machine only after reading and understanding the contents of this manual.
A replacement manual is available by sending complete model and serial number to: **The Toro Company**, 8111 Lyndale Avenue South, Bloomington, MN 55420-1196

2. Learn how to operate the Sprayer and how to use the controls properly. DO NOT let anyone operate this equipment without first receiving thorough instructions.

3. Keep all shields, safety devices and decals in place. If a shield, safety device or decal is malfunctioning, illegible or damaged, repair or replace it before operating the machine.

4. Chemicals can injure persons, animals, plants, soils or other property. To eliminate environmental damage and personal injury.

A. Select the proper chemical for the job.
B. Follow manufacturer's iinstructions on chemical container labels. Apply and handle chemicals as recommended.
C. Handle and apply chemicals with care. Wear goggles and other necessary protective equipment. Handle chemicals in well ventilated areas. Never smoke while handling chemicals

5. Drive the Vehicle slowly.

NOTE: If installing this boom on a WORKMAN® be aware that the boom adds additional weight to the sprayer. Refer to the BEFORE OPERATING Section of this manual for maximum tank fill capacities.

WHILE OPERATING:

1. DO NOT OVERLOAD THE VEHICLE. Failure to position loads carefully can result in their shifting or tipping over. Distribute loads evenly, keeping them as low as possible to prevent them from becoming too top-heavy.

2. Make certain everyone is clear of the machine before starting the engine to move the vehicle or to engage the sprayer pump drive.

3. This attachment adds extra height to the vehicle when the booms are in the raised position. Drive the vehicle safely:

A. Always SLOW the vehicle when approaching and while making a turn

B. Always SLOW the Vehicle when driving in unfamiliar areas or over rough terrain.

C. Always SLOW the Vehicle when changing direction of travel or preparing to stop.

D. When turning or driving on slopes, always SLOW the Vehicle, then turn the Vehicle to prevent loss of control and possible upset.

E. DO NOT make sudden or dharp turns. DO NOT suddenly change direction of travel on an incline, ramp, grade, slope or similar surface.

F. Always adjust the vehicle speed to allow for existing conditions such as wet or slick surfacecs, low visibility, etc.

G. Be especially careful when driving a heavily loaded vehicle down an incline or slope. Drive the vehicle UP and DOWN the face of the slopes, inclines or grades whenever possible. DO NOT DRIVE across the face if at all possible. There is a risk of upsetting the vehicle, which can result in serious injury or death.

4. Before backing up, look to the rear and assure no one is behind. Back up slowly.

5. Watch out for traffic when near or crossing roads. Always yield the right of way to pedestrians and other vehicles.

6. If equipment begins to vibrate abnormally, stop immediately. Shut off the vehicle engine and disengage all power. Repair all damage before commencing operation.

7. Before servicing or making any adjustments to the Sprayer:

A.Stop the vehicle and set the parking brake.

B. Shut off the vehicle's engine and remove key from ignition.

C. Disengage all power and wait until all moving parts have stopped.

D. In order to avoid electrical shock, inspect the area overhead for wires before raising booms.

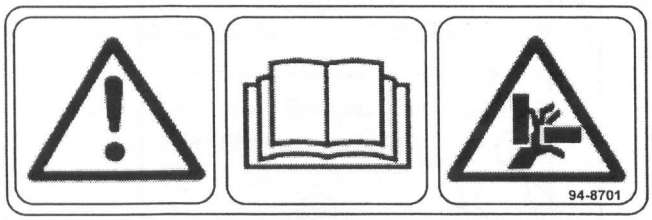
E. Always use caution while operating the booms near low clearance areas.

8. Keep all nuts, bolts and other fasteners tightened securely. Replace any shields removed during servicing or adjustments.

9. To assure optimum performance and continued safety of this product, always use genuine TORO replacement parts and accessories. Replacement parts and accessories made by other manufacturers may affect the product's operation, performance or durability. Such use could also void the warranty of The Toro Company.

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SAFETY, INSTRUCTION AND IDENTIFICATION DECALS



Part No. 94-8701
Located on Center Section Ends and on Boom Extension Hoods near Actuator Link.



Part No. 92-2660 Used on WORKMAN only. Located on the Switch Bracket



Part No. 94-8702 Located on Boom Extension curved Castor Wheel Mount



Part No. 94-8609 WORKMAN® Vehicle only - Located on either side of the rear Spray Tank Band and Hose Reel, if equipped with one. Enclosed Boom - Located on front left side of Center Section.



Serial Plate - Located on front left of center boom section.

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BEFORE OPERATING

WARNING

- **This attachment may cause the overall gross vehicle weight to be exceeded when used in combination with other attachments**
- **Exceeding the gross vehicle weight can cause injury or death due to reduced handling, braking and stability.**
- **Always reduce payload to maintain vehicle weight within gross vehicle weight rating.**
- **See the OPERATOR'S MANUAL for additional information.**

MAXIMUM PAYLOAD

NOTE: The following applies to the WORKMAN® Vehicle only.

1. Only fill the spray tank to 175 U.S. gallons (662L) total. When using an ENCLOSED BOOM with the WORKMAN®.

2. If the WORKMAN® vehicle is equipped with a Hose Reel reduce the spray tank capacity an additional 20 U.S. gallons to 155 U.S. gallons (587L) total.

OPERATING INSTRUCTIONS

OPERATION

BOOM EXTENSION BREAKAWAY:

1. The Breakaway Latch is spring loaded to provide the required tension to keep the extension rigid until severe impact dislodges it.

2. If the Extension Boom releases too easily the tension can be increased by tightening the nut. See FIG. 1

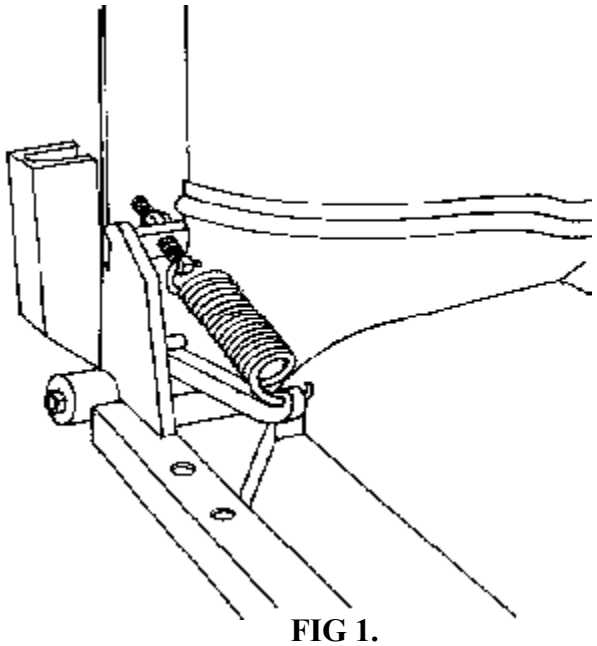


FIG 1.

1.Breakaway Latch 2. Tension Adjuster

TRANSPORTING BOOM IN VERTICAL POSITION:

1. Use the Up/Down switches to raise or lower the right or left booms.

CAUTION

- **Improper Boom Extension lifting or lowering procedure could cause personal injury or death to the operator or a bystander.**
- **When lifting the Boom Extensions, always be aware of your surroundings. Do NOT operate near bystanders or other equipment. Be aware of overhead power lines which could cause electrical shock.**
- **On slopes the Boom Extensions should only be lowered with the vehicle facing up or down the slope**
- **Do not attempt to lower Boom Extensions on a slope with the Enclosed Boom oriented parallel to slope (vehicle perpendicular) for they can drop suddenly.**

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BOOM EXTENSION FORWARD FOLD:

CAUTION

- **Use proper lifting procedures when lifting the Extension Boom into the forward fold position**
- **Failure to follow proper lifting procedures could result in personal injury.**
- **Follow the Forward Fold Instructions Decal located near the end of the Boom Extension.**
- **Also read and understand the instructions in OPERATORS MANUAL.**

CAUTION

- **Chemical residue may be on the Boom Extension.**
- **Chemicals are hazardous and can cause personal injury.**
- **Wear appropriate safety equipment when forward folding Boom Extension.**

NOTE: The actuators must be fully extended for the booms to fold forward.

1. Stand at the end of the boom facing the center of the machine. Grasp the Castor Arm and give a pull towards the rear. This will release the breakaway.

2. Grasp the Castor Arm and lift to rotate back to stop.

3. Use your other hand to grasp the bottom of the shroud and lift the boom to chest height.

4. Walk with the boom towards the sprayer. Insert the transport pin into the receiver. Be sure to secure the safety clip to the forward loop. See FIG. 2.

WARNING

- **Failure to secure the Safety Clip to the Safety Clip Anchor while transporting the Extension Booms in forward fold could allow the Boom Extension transport pin to come out of the pin receiver and the Boom Extension to be unsecured.**
- **An unsecured Boom Extension could cause personal injury or death to a bystander or other machine operator.**
- **Ensure that the Safety Clip is secured to the Safety Clip Anchor.**

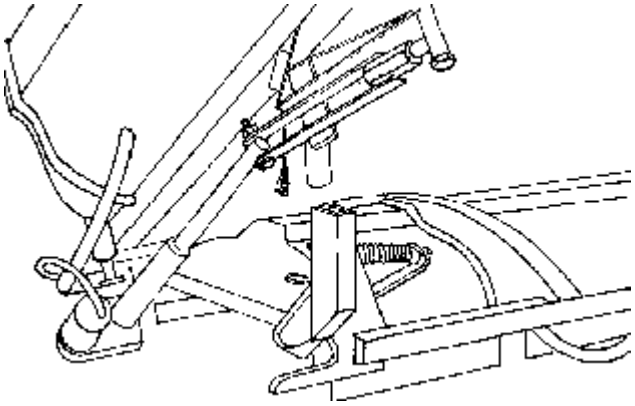


FIG 2.

1. Pin Receiver
2. Transport Pin Anchor
3. Actuator
4. Safety Clip
5. Safety Clip

NOTE: A pictorial Forward Fold instruction Decal is located on the Boom Extension Castor Arm Mount

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FLOW MONITOR:

1. Each boom section has a flow monitor mounted in the operator's view. The monitors have sight tubes; each tube contains a weighted ball that floats when there is flow to the corresponding nozzle.
2. When there is flow, all the floating balls should be at the same level. If a ball is lower than the others, this indicates a clogged nozzle. See FIG. 3.

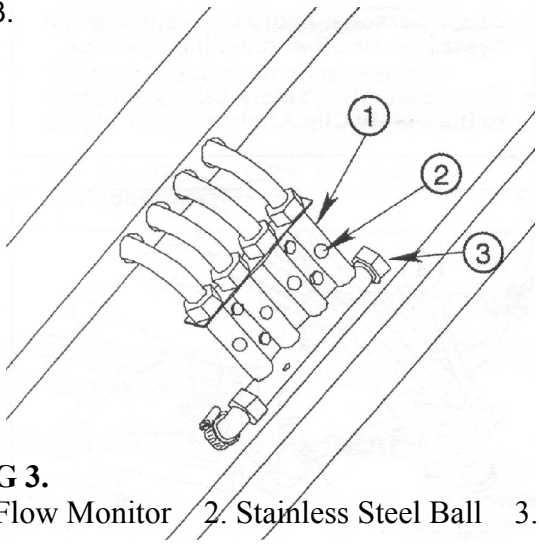


FIG 3.
1. Flow Monitor 2. Stainless Steel Ball 3. Cap

3. If all the balls cannot be made to come up to the same level, check the flow in the lines to see if the flow is equal in all lines.

IMPORTANT: Freezing temperatures will damage the monitors if the water is not drained completely!

4. To drain the Flow Monitor remove the cap on the end of the Flow Monitor.

MAINTENANCE

BOOM EXTENSION ADJUSTMENT:

After every 200 operating hours or annually, check movement of Extension Boom while in vertical transport position.

IMPORTANT: The Electric Boom Extension Lifts must be properly adjusted to operate correctly. Improper adjustment could damage the Boom.

1. Use the Up/Down switches to raise the Boom to the upright position until the Stop on the front corner of the Boom Extension just makes contact with the contact pad on the Center Boom.

2. Measure the length of the Actuator and Adjustment Link . It should be 30-1/8" ± 1/16" from the center of the Actuator Bolt to the center of the Adjustment Link Bolt. (FIG. 4)

CAUTION

- **The adjustment of the Electric Boom Extension Lifts requires that the Actuator be separated from the Actuator Adjustment Link which leaves the Boom Extension unsupported.**
- **An unsupported Boom Extension could fall and cause personal injury or death.**
- **Use additional support for the Boom Extension when adjusting the Electric Boom Extension.**
- **It is recommended that the Boom Extension Electric Lift adjustments be done with two people.**

1. Use the Up/Down switches to raise the Boom to the upright position until the Stop on the front corner of the Boom Extension just makes contact with the contact pad on the Center Boom.

2. Measure the length of the Actuator and Adjustment Link . It should be 30-1/8" ± 1/16" from the center of the Actuator Bolt to the center of the Adjustment Link Bolt. (FIG. 4)

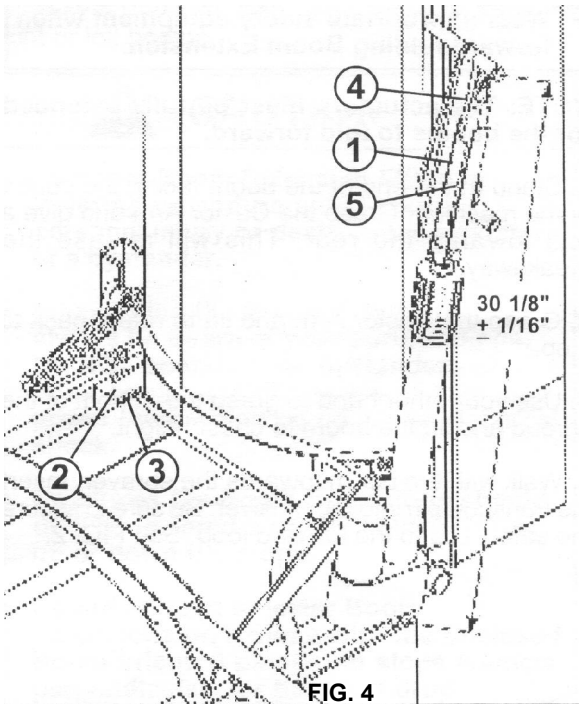


FIG. 4
1. Actuator Adjustment Link
2. Stop
Stop
3. Contact Pad
4. Jam Nut
5. Actuator Link

3. If the measurement is incorrect, remove the hex hd screw that attaches the Actuator Adjustment Link to the Actuator, loosen the Jam Nut and rotate the Adjustment Link to change the length to the specification. Replace the hex hd screw and nut ensuring that the Adjustment Link can pivot freely. Retighten the Jam Nut, ensuring that the Link rests squarely on the Actuator Link Stop in the raised position.

NOTE: If the Actuator has less than the above specification this will bend the frame of the Extension Boom when the Actuator is fully contracted. More than specification will cause excessive movement during vertical transport.

4. Re-torque the wing retainer lock nuts to 15 ft. lbs. If no torque wrench is available, tighten till snug.

CAUTION

Chemicals are hazardous and can cause personal injury!

Securely tighten all sprayer hose clamp connections during regular intervals to prevent leaks and hose blow-offs while spraying system is in operation.

1. Tighten Hose Clamps every 200 hours, or annually.

GENERAL MAINTENANCE

Daily: Grease fittings onBoom Mount, Castor Mounts and Castor Wheels .

STORAGE

FLUSH BOOM AFTER USE:

1. Flush the entire system with a solution that will chemically neutralize the liquid in the monitors. Mix accordong to manufacturers directions. This will dissolve most residue remaining in the monitor.

NOTE: The flow monitors will discolor if proper flushing procedures are not adhered to.

2. The flow monitor is susceptible to discoloration if exposed to direct sunlight for several years. To reduce the effect of sunlight, store the monitor indoors or cover when not in use.

IMPORTANT: Freezing temperatures will damage the monitors if the water is not drained completely. See FLOW MONITOR Operating Instructions for draining procedure.

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BEFORE SPRAYING

IMPORTANT: The Enclosed Boom nozzle bar is fixed at 15" height and 20 inch spacing. Use only Flat Fan 110⁰ tips to maintain proper calibration.

NOZZLE SELECTION
See the SPRAY NOZZLE SELECTION CHART to be sure that your spray nozzles have the capacity necessary to achieve the application rate selected.

To select the proper nozzle, you need to know:
1. Recommended chemical application rate in gallons per acre, gallons per 1000 sq. ft. or liters per hectare.
2. Average Vehicle speed in Miles per hour or kilometers per hour.
3. Nozzle spacing (20 inches or 50 centimeters.)
With this information you can calculate the volume per minute per nozzle, using the formulas below.
US FORMULA:

$$\text{G.P.M. (Per Nozzle)} = \frac{\text{G.P.A x M.P.H. x 20 ins.}}{5940}$$

TU (Turf) FORMULA:

$$\text{G.P.M. (Per Nozzle)} = \frac{\text{G.P.K x M.P.H. x 20 ins.}}{137}$$

SI (METRIC) FORMULA:

$$\text{L/min (Per Nozzle)} = \frac{\text{L/ha x km/h x 50 cm}}{60{,}000}$$

Use G.P.M. (L/min) and Pressure to select appropriate nozzle from chart on page 9.

EXAMPLE (US FORMULA)
Application Rate = 75 Gallons/Acre
Vehicle Speed = 4 M.P.H.
Nozzle Spacing = 20 inches

$\frac{\text{75 G.P.A. x 4 M.P.H. x 20}}{5940}$ = 1.00 G.P.M. (per nozzle)

With 1.00 G.P.M. and a pressure of 40 P.S.I. you would select Nozzle No. 94-8718

EXAMPLE (TU FORMULA)
Application Rate = 1.70 Gal./1000 sq. ft.
Vehicle Speed = 4 M.P.H.
Nozzle Spacing = 20 inches

$\frac{\text{1.70 G.P.K. x 4 M.P.H. x 20}}{137}$ = 1.00 G.P.M. (per nozzle)

EXAMPLE (SI FORMULA)
Application Rate = 907 L/hectare
Vehicle Speed = 5 km/h
Nozzle Spacing = 50 cm

$\frac{\text{907 L/ha x 5 km/h x 50}}{60{,}000}$ = 3.78 L/min. (per nozzle)

With 3.78 G.P.M. and a pressure at 275 kPa you would select nozzle No. 94-8718

SYMBOL DEFINITIONS:

GPM	**- Gallons per minute**
L/min	- Liters per minute
dl/min	- Deciliter per minute
PSI	- Pounds per square inch
kPa	- Kilopascal
GPA	- Gallons per acre
L/ha	- Liters per hectare
ml/ha	- Milliliter per hectare
GPK	- Gallons per 1,000 sq. ft.
mm	- Millimeters
cm	- Centimeters
dm	- Decimeters
m	- Meter
MPH	- Miles per hour
km	- Kilometers
km/h	- Kilometers per hour
US	- Volume per ACRE
SI	- Volume per HECTARE
TU	- Volume per 1,000 sq. ft.

LIQUID CONVERSIONS:
U.S. Gallons x 128 = Fluid Ounces
U.S. Gallons x 3.785 = Liters
U.S. Gallons x 0.83267 = Imperial Gallons
U.S. Gallons x 8.34 = Pounds (Water)

LENGTH:
1 millimeter (mm) = 0.039 inch
1 centimeter (cm) = 0.393 inch
1 meter (m) = 3.281 feet
1 kilometer (km) = 0.621 mile
1 inch = 25.4 millimeters; 2.54 centimeters
1 mile = 1.609 kilometers

PRESSURE:
1 psi = 6.89 kPa

AREA:
1 square meter = 10.764 sq. feet
1 hectare (ha) = 2.471 acres; 10,000 sq. meters
1 acre = 0.405 hectare; 43,560 sq. ft.
1 sq. mile = 640 acres; 258.9 hectares

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SPRAY NOZZLE SELECTION CHART

TORO Part No.	Nozzle Number Color-Code	Pressure (PSIG)	Capacity 1-Nozzle (GPM)	APPLICATION RATES FOR NOZZLES 20" SPACING							
				GALLONS PER ACRE				GALLONS PER1000 SQ. FT.			
				3 MPH	4 MPH	5 MPH	6 MPH	3 MPH	4 MPH	5 MPH	6 MPH
94-8714	XR11004VS 110⁰ Red	20	.28	28	21	17	14	0.64	0.48	0.39	0.32
		30	.35	34	26	20	17	0.78	0.60	0.46	0.39
		40	.40	40	30	24	20	0.92	0.69	0.55	0.46
		50	.45	44	33	27	22	1.01	0.76	0.62	0.51
94-8715	XR11005VS 110⁰ Brown	20	.36	35	26	21	17.5	0.80	0.60	0.48	0.40
		30	.44	42	32	26	21	0.96	0.73	0.60	0.48
		40	.50	50	37	30	25	1.15	0.85	0.69	0.57
		50	.56	56	42	33	28	1.29	0.96	0.76	0.64
94-8716	XR11006VS 110⁰ Gray	20	.43	42	32	25	21	0.96	0.73	0.57	0.48
		30	.52	52	39	31	26	1.19	0.90	0.71	0.60
		40	.60	60	45	36	30	1.38	1.03	0.83	0.69
		50	.67	66	50	40	33	1.52	1.15	0.92	0.76
94-8717	XR11008VS 110⁰ White	20	.57	56	42	34	28	1.29	0.96	0.78	0.64
		30	.70	68	51	41	34	1.56	1.17	0.94	0.78
		40	.80	80	59	48	40	1.84	1.35	1.10	0.92
		50	.90	88	66	53	44	2.02	1.52	1.22	1.01
94-8718	XR11010SS 110⁰ Stainless	20	.71	70	53	42	35	1.61	1.22	0.96	0.80
		30	.87	86	64	51	43	1.97	1.47	1.17	0.99
		40	1.0	100	74	59	50	2.30	1.70	1.35	1.15
		50	1.1	110	83	66	55	2.53	1.91	1.52	1.26
94-8719	XR11015SS 110⁰ Stainless	20	1.1	106	79	63	53	2.43	1.81	1.45	1.22
		30	1.3	128	96	77	64	2.94	2.20	1.77	1.47
		40	1.5	148	111	89	74	3.40	2.55	2.04	1.70
		50	1.7	166	125	100	83	3.81	2.87	2.30	1.91

TORO Part No.	Nozzle Number Color-Code	Pressure (kPa)	Capacity 1-Nozzle (L/min)	APPLICATION RATES FOR NOZZLES 50 cm SPACING			
				LITERS PER HECTARE			
				5 km/h	6 km/h	8 km/h	10 km/h
94-8714	XR11004VS 110⁰ Red	150	0.56	134	112	84	67
		200	0.64	155	129	97	77
		275	0.76	181	151	113	91
		350	0.85	205	171	128	102
94-8715	XR11005VS 110⁰ Brown	150	1.40	335	279	209	167
		200	1.61	387	322	242	193
		275	1.89	453	378	283	227
		350	2.13	512	426	320	256
94-8716	XR11006VS 110⁰ Gray	150	1.67	402	335	251	201
		200	1.93	464	387	290	232
		275	2.27	544	453	340	272
		350	2.56	614	512	384	307
94-8717	XR11008VS 110⁰ White	150	2.23	536	447	335	268
		200	2.58	619	516	387	309
		275	3.02	726	605	453	363
		350	3.41	819	682	512	409
94-8718	XR11010SS 110⁰ Stainless	150	2.79	670	558	419	335
		200	3.22	773	645	483	387
		275	3.78	907	756	567	453
		350	4.26	1023	853	640	512
94-8719	XR11015SS 110⁰ Stainless	150	4.18	1008	840	630	504
		200	4.84	1176	980	735	588
		275	5.67	1368	1140	855	684
		350	6.40	1536	1280	960	768

NOTE: If drift control is the primary concern operate at lower pressures (25-30 psi) and use a larger nozzle size. This will result in a larger overall droplet size which is less likely to drift.

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The TORO Promise
A One Year Limited Warranty

The Toro Company promises to repair your Model 41355 ENCLOSED BOOM for the MULTI-PRO® 1200, 1250, 5600 and WORKMAN Vehicles if defective in materials or workmanship. The following time periods from the date of purchase apply special warranty terms, on certain components, may be offered through The TORO Company by the component manufacturer.

Commercial Products . . . . . 1 Year
The cost of parts, labor and transportation are included.

If you feel your TORO Product is defective and wish to rely on the TORO Promise, the following procedure is recommended:

1. Contact your Authorized TORO Distributor or Commercial Dealer (the Yellow Pages of your telephone directory is a good reference source).
1. The TORO Distributor or Commercial Dealer will advise you on the arrangements that can be made to inspect and repair your product.
2. The TORO Distributor or Commercial Dealer will inspect the productand advise you weather the product is defective and, if so, make all repairs necessary to correct the defect without an extra charge to you.

If for any reason you are dissatisfied with the distributor's analysis of the defect or the service performed, you may contact us.

Write:

TORO Commercial Products Service Department
8111 Lyndale Avenue South
Bloomington, MN 55420-1196

The above remedy of product defects through repair by an authorizedTOTO Distributor or Commercial Dealer is the purchaser's sole remedy for any defect.

THERE IS NO OTHER EXPRESS WARRANTY. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE EXPRESS WARRANTY.

Some States do not allow limitations on how long an impled warranty lasts, so the above limitation may not apply to you.

This Warranty applies only to parts or components which are defective and does not cover repairs necessary due to normal wear, misuse, accidents, or lack of proper maintenance. Regular, routine maintenance of the unit to keep it in proper operating condition is the responsibility of the owner.

All warranty repairs reimbursable under the TORO Promise must be performed by an Authorized TORO Commercial dealer or Distributor using TORO approved replacements parts.

Repairs or attempted repairs by anyone other than an Authorized TORO Fdistributor or Commercial Dealer are not reimbursable under the TORO Promise. In addition, these unauthorized repair attempts may result in additional malfunctions, the correction of which is not covered by warranty,

THE TORO COMPANY IS NOT LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THE PRODUCT INCLUDING ANY COST OR EXPENSE OF PROVIDING SUBSTITUTE EQUIPMENT OR SERVICE DURING PERIODS OF MALFUNCTION OR NON-USE.

Some states do not allow the exclusion of incidental or consequential damages, so the above 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.

COUNTRIES OTHER THAN THE UNITED STATES OR CANADA

Customers who have purchased TORO products exported from the United States or Canada should contact their TORO Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the TORO importer. If all other remedies fail, you may contact us at The Toro Company.

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