



Snowplow Installation Instructions 9.5' MVP® Multiposition V Plow

⚠ CAUTION

Read this document before installing the snowplow.

⚠ CAUTION

See your WESTERN® outlet for application recommendations. The Selection List has specific vehicle and snowplow requirements.



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SAFETY

SAFETY DEFINITIONS

⚠ WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION

Indicates a situation that, if not avoided, could result in minor personal injury and/or damage to product or property.

NOTE: Identifies tips, helpful hints and maintenance information the owner/operator should know.

WARNING/CAUTION & INSTRUCTION LABELS

Become familiar with and inform users about the warning and instruction labels on the back of the blade.

Warning and Caution Label

⚠ WARNING

LOWER BLADE WHEN VEHICLE IS PARKED.

REMOVE BLADE ASSEMBLY BEFORE PLACING VEHICLE ON HOIST.

DO NOT EXCEED GVWR OR GAWR INCLUDING BLADE AND BALLAST.

⚠ CAUTION

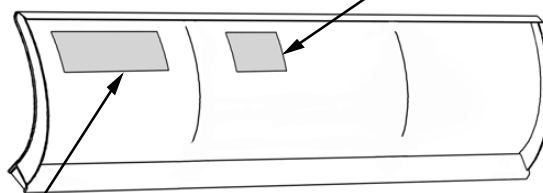
READ *OWNER'S MANUAL* BEFORE OPERATING OR SERVICING SNOWPLOW.

TRANSPORT SPEED SHOULD NOT EXCEED 45 MPH. REDUCE SPEED UNDER ADVERSE TRAVEL CONDITIONS.

PLOWING SPEED SHOULD NOT EXCEED 10 MPH.

SEE YOUR WESTERN OUTLET FOR APPLICATION RECOMMENDATIONS.

59900



Instruction Label

⚠ WARNING: TO AVOID PERSONAL INJURY, FOLLOW STEPS IN SEQUENCE.

INSTRUCTIONS
SYSTEM
UniMount®

Patents
4,280,062; 4,999,935
RE 35,700 & 5,420,480

REMOVING PLOW

STEP 1

- Adjust blade to straight position.
- Place cab control in "LOWER".
- Push lift channel down.
- Disconnect electrical plugs.
- Pull stand pin and lock pin to release stand from A-frame.

STEP 2

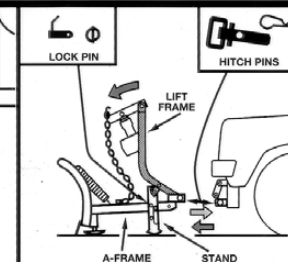
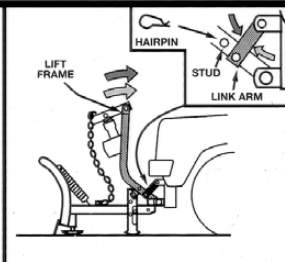
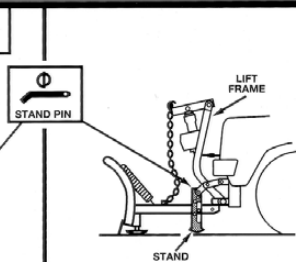
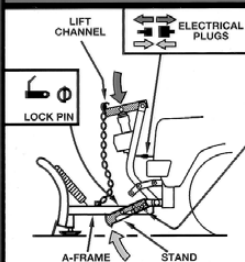
- Place stand shoe on ground. If necessary, raise stand slightly to align hole in stand with hole in lift frame. Insert stand pin to attach stand to lift frame.

STEP 3

- Remove hairpin from lift frame stud.
- Push lift frame toward vehicle to relieve tension on link arm, now slide link arm off stud.
- Repeat above steps on other side.

STEP 4

- Pull 2 hitch pins to release A-frame from vehicle. (Move lift frame to relieve hitch pin tension)
- Rotate lift frame toward blade.
- Use lock pin to lock stand to A-frame.
- Move plow away from vehicle.
- Install electrical covers.



- Rotate stand to storage position.
- Use stand pin and lock pin to attach stand to A-frame.
- Connect electrical plugs.

- Pull stand pin to release stand from lift frame.

- Rotate lift frame toward vehicle and swing link arm up to position link arm hole over lift frame stud. Now slide link arm onto stud.
- Install hairpin onto stud.
- Repeat above steps on other side.

- Remove electrical covers.
- Position plow close to vehicle.
- Pull lock pin to unlock stand from A-frame.
- Rotate lift frame toward vehicle to align hitch pin holes.
- Attach A-frame to vehicle using 2 hitch pins.

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MOUNTING PLOW

SAFETY

SAFETY PRECAUTIONS

Improper installation and operation could cause personal injury, and/or equipment and property damage. Read and understand labels and the *Owner's Manual* before installing, operating, or making adjustments.

WARNING

Lower blade when vehicle is parked. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this can result in serious personal injury.

WARNING

Remove blade assembly before placing vehicle on hoist.

WARNING

Keep well clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and blade or directly in front of blade. If the blade hits you or drops on you, you could be seriously injured.

WARNING

The driver shall keep bystanders clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and the blade or within 8 feet of a moving blade. A moving or falling blade could cause personal injury.

WARNING

Keep hands and feet clear of the blade and A-frame when mounting or removing the snowplow. Moving or falling assemblies could cause personal injury.

WARNING

Do not exceed GVWR or GAWR including blade and ballast. The rating label is found on driver-side vehicle door cornerpost.

CAUTION

Refer to the current selection list for minimum vehicle recommendations and ballast requirements.

CAUTION

To prevent accidental movement of the blade, always turn the ON/OFF switch to OFF whenever the snowplow is not in use. The control indicator light will turn off.

PERSONAL SAFETY

- Wear only snug-fitting clothing while working on your vehicle or snowplow.
- Do not wear jewelry or a necktie, and secure long hair.
- Wear safety goggles to protect your eyes from battery acid, gasoline, dirt and dust.
- Avoid touching hot surfaces such as the engine, radiator, hoses and exhaust pipes.
- Always have a fire extinguisher rated BC handy, for flammable liquids and electrical fires.

SAFETY

FIRE AND EXPLOSION

WARNING

Gasoline is highly flammable and gasoline vapor is explosive. Never smoke while working on vehicle. Keep all open flames away from gasoline tank and lines. Wipe up any spilled gasoline immediately.

Be careful when using gasoline. Do not use gasoline to clean parts. Store only in approved containers away from sources of heat or flame.

VENTILATION

WARNING

Vehicle exhaust contains deadly carbon monoxide (CO) gas. Breathing this gas, even in low concentrations, could cause death. Never operate a vehicle in an enclosed area without venting exhaust to the outside.

BATTERY SAFETY

CAUTION

Batteries normally produce explosive gases which can cause personal injury. Therefore, do not allow flames, sparks or lit tobacco to come near the battery. When charging or working near a battery, always cover your face and protect your eyes, and also provide ventilation.

Batteries contain sulfuric acid which burns skin, eyes and clothing.

Disconnect the battery before removing or replacing any electrical components.

CAUTION

Always disconnect the battery before removing or replacing electrical components such as a motor relay or battery cable.

HYDRAULIC SAFETY

WARNING

Hydraulic oil under pressure could cause skin injection injury. If you are injured by hydraulic oil, get medical attention immediately.

CAUTION




Do not mix different types of hydraulic fluid. Some fluids are not compatible and may cause performance problems and product damage.

- Always inspect hydraulic components and hoses before using. Replace any damaged or worn parts immediately.
- If you suspect a hose leak, DO NOT use your hand to locate it. Use a piece of cardboard or wood.

TORQUE CHART

CAUTION

Read instructions before assembling. Bolts should be finger tight until instructed to tighten according to the torque chart. Use standard methods and practices when attaching snowplow including wearing safety glasses during cutting, drilling and welding.

Recommended Fastener Torque Chart (Ft.-Lb.)			
Size	 SAE Grade 2	 SAE Grade 5	 SAE Grade 8
1/4-20	6	9	13
5/16-18	11	18	28
3/8-16	19	31	46
3/8-24	24	46	68
7/16-14	30	50	75
1/2-13	45	75	115
9/16-12	66	110	165
5/8-11	93	150	225
3/4-10	150	250	370
7/8-9	202	378	591
1-8	300	583	893
Metric Grade 8.8 (Ft.-Lb.)			
Size	Torque	Size	Torque
M 6	7	M 12	60
M 8	17	M 14	95
M 10	35	M 16	155
These torque values apply to mount assembly fasteners except those noted in the instruction.			

INSTALLATION INSTRUCTIONS

A-FRAME

1. Lay both wings face down (on cardboard) next to each other.
2. Push the blade wings together so that the holes in the hinges are aligned. **(See Figure 1.)**
3. Insert the A-frame hinges between the blade wings so that the holes in the A-frame hinges are aligned with the blade wing hinges. **(See Figure 1.)**
4. Insert the pivot pin through the hinges of the blade wings and the A-frame. **(See Figure 1.)**

NOTE: Greasing the pin before inserting it, rotating the A-frame from side to side, and lifting the blade wing ends off the floor will help to insert the pin.

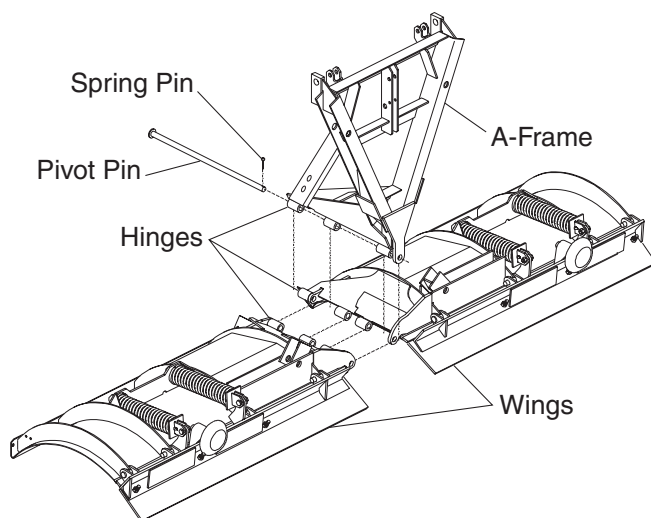


Figure 1

5. Install a 1/4" x 2" spring pin after inserting the pivot pin through all the hinges.
6. Position the rod ends of the two rams (found in hydraulics box) to the brackets on each of the blade wings.

Temporarily secure the rod end of each ram to the blade with a 1" x 4" rivet installed from the top down.

7. Swing the A-frame to one side.

Verify the threaded ports are facing toward the A-frame and position the base end of a ram into the channel on the side of the A-frame.

Temporarily insert 1" x 6" rivet from the top down.

8. Swing the A-frame to the other side and repeat step 7 to connect the other ram to the A-frame.
9. Temporarily insert the 3/8" x 1-1/2" U-bolt through the end link of the chain.

Insert the ends of the U-bolt into the holes in the upper angles of the A-frame and secure with locknuts. **(See Figure 2.)**

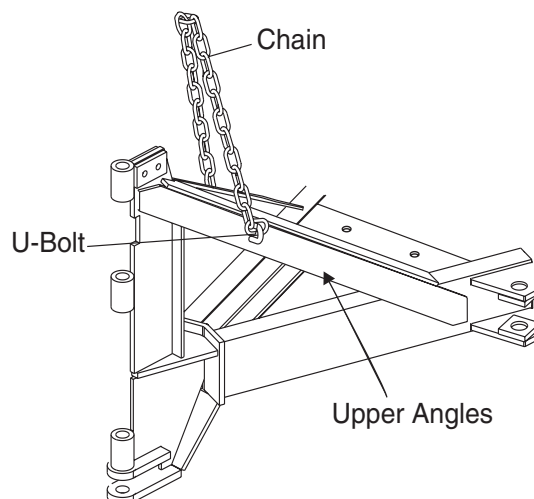


Figure 2

NOTE: The top of the chain will be attached to the lift channel at a later time.

INSTALLATION INSTRUCTIONS

RUBBER FLAP

NOTE: The rubber flap can not be installed unless the plow is attached to vehicle and in the raised position OR raised in a different manner to provide access to both front and rear of the cutting edge.

1. Using four 1/2" x 2" carriage bolts and 1/2" locknuts, install one mounting plate weldment to the back of each cutting edge. (See Figure 3.)
2. Adjust wings so that they are in line with each other or slightly forward in the scoop position.

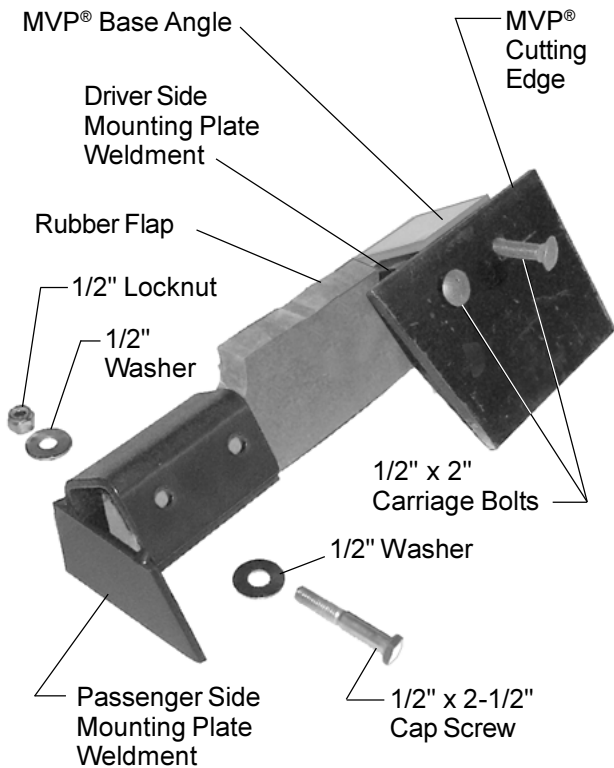


Figure 3

3. Place 1/2" washer on 1/2" x 2-1/2" cap screw and insert cap screw into a hole in the rubber flap. The rubber flap is mounted with the longest edge facing the ground.

Place rubber flap against rear inside surface of the mounting plate weldments and align holes in flap and weldments.

Insert the cap screw through the hole in the back plate of the mounting bracket. Add 1/2" washer and 1/2" locknut. Tighten locknut until washer slightly deforms the rubber flap surface.

4. Insert the second 1/2" cap screw through the rubber flap and mounting plate weldment using the same washer and locknut assembly as mentioned above.

STAND

(Refer to Figure 4 for steps 1-6.)

1. Position the stand next to the center bars of the A-frame with the long slot towards the rear or back of the A-frame.
2. Insert the 9/16" outside diameter spacer into the top end of the long slot in the stand.
3. Holding the spacer in place with a finger, insert the stand between the A-frame center bars and align the spacer with the small hole in the center bars.
4. Secure the spacer with a 3/8" x 2" bolt and locknut.
5. Hold the stand perpendicular to the A-frame. Align the short slot in the stand with the large hole in the center bars, and insert the 5/8" x 2" stand lock pin. Secure with a 3/16" linchpin.
6. Tip the snowplow assembly into the plowing position.

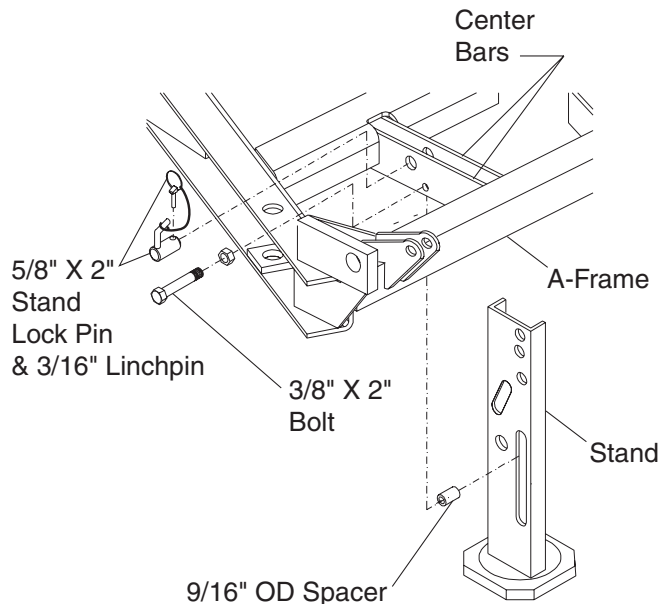


Figure 4
(8.5' MVP® Snowplow Shown)

INSTALLATION INSTRUCTIONS

LIFT FRAME

1. Lay the lift frame on the floor with the curve facing upwards and the ends of the side angles positioned next to the rear (wide end) of the A-frame.

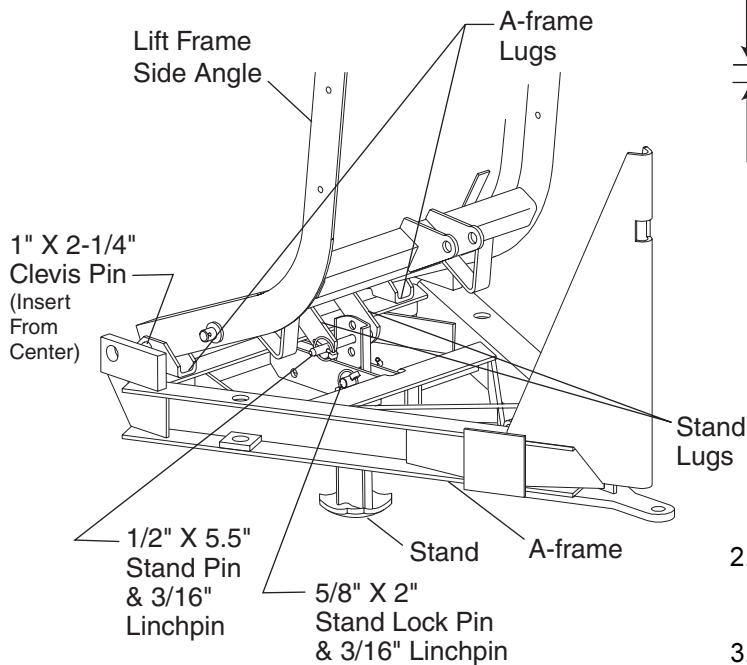


Figure 5
(8.5' MVP Shown)

Refer to Figure 5 for steps 2-4.

2. Raise the end of the lift frame and align the holes in the side angles between the inner pairs of lugs on the wide end of the A-frame.
3. Secure the lift frame to the A-frame lugs with two 1" x 2-1/4" clevis pins inserted from the inside towards the outside of the A-frame. Secure with cotter pins.
4. Rotate the lift frame to align the holes in the stand lugs to the bottom hole of the three hole pattern in the top of the stand. Secure with a 1/2" x 5.5" stand pin and a 3/16" linchpin.

CENTER DEFLECTOR

1. Slide the center deflector into place over the top of the hinge. (See Figure 6.)

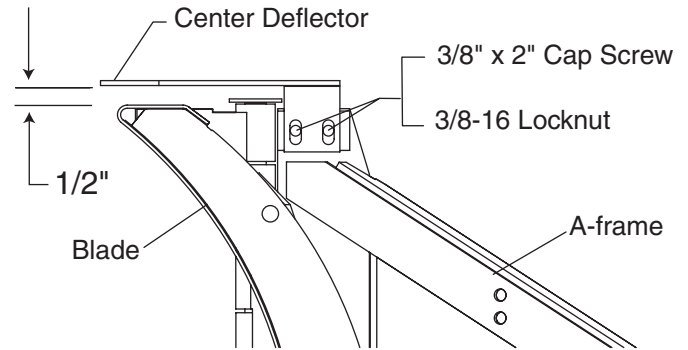


Figure 6

2. Fasten the center deflector to the A-frame using two 3/8" x 2" Grade 5 cap screws and two 3/8" locknuts.
3. Allow 1/2" clearance between the blade and the center deflector. Torque the two 3/8" fasteners on the center deflector to 31 ft-lb.

INSTALLATION INSTRUCTIONS

RUBBER DEFLECTOR

1. Align the holes in the bolting bar, rubber deflector, and the top curl of the blade. The notched edge of the rubber deflector goes towards the inside. The rubber deflector with the WESTERN® logo goes on the driver side. The bent side of the bolting bar goes towards the front. **(See Figure 7.)**
2. Insert a 5/16" x 1" bolt into each hole and attach a nut to each bolt.

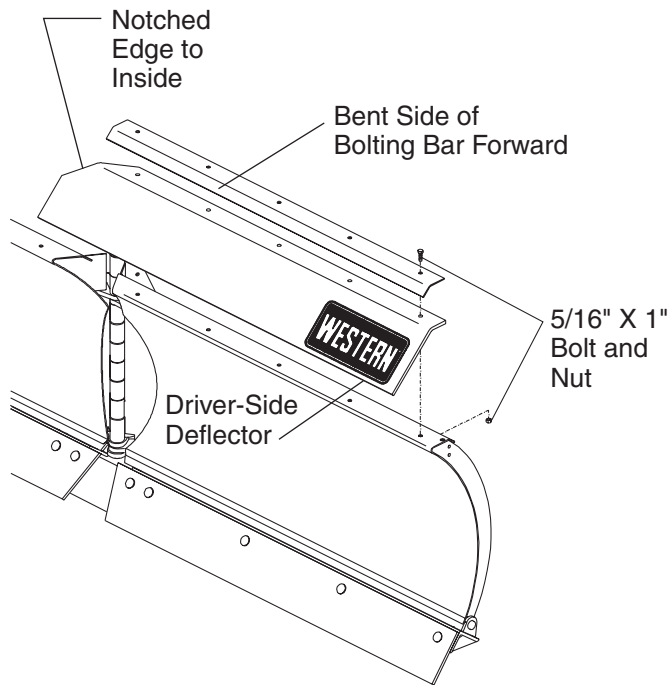


Figure 7

BLADE GUIDE ASSEMBLY

1. Insert the pointed end of the clamp into the coil of the blade guide rod.
2. Attach a blade guide rod to each outer rib using 5/16" x 1" cap screws and locknuts. **(See Figure 8.)**

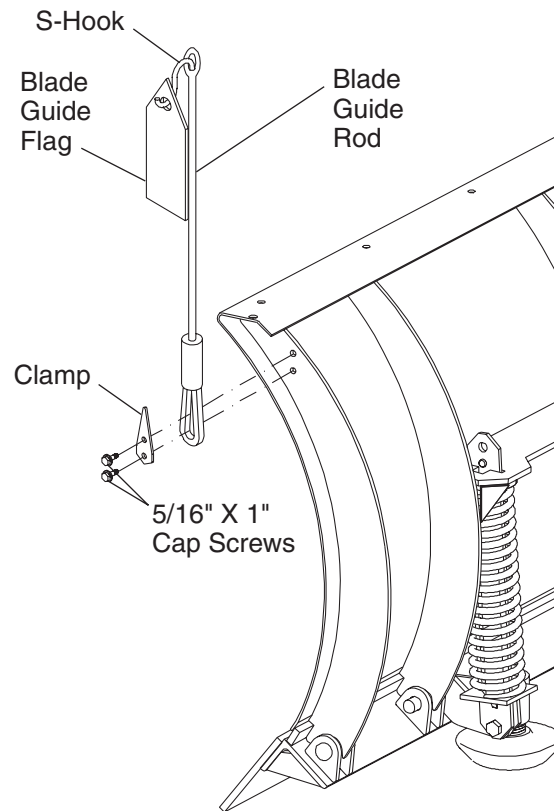


Figure 8

INSTALLATION INSTRUCTIONS

LIFT CHANNEL, HYDRAULIC UNIT, HYDRAULIC FITTINGS & HOSES ASSEMBLY

1. Place the hole end of the lift channel between the lugs of the upper U-bracket on the lift frame. Insert a 3/4" x 4-1/2" bolt and secure with locknut.
(Refer to Figure 12.)

Hoses and fittings are in the hydraulics box.

NOTE: Do not use any type of sealant or tape on the fittings or hoses.

Always use two wrenches to ensure proper tightening of fittings and hoses.

2. Remove the five 1/4" pipe plugs from the bottom face of the valve on the hydraulic unit.
3. Install four 45° swivel fittings into angle ram ports. Position fittings as shown.
4. Install one straight swivel fitting into the lift port.
(See Figure 9.)

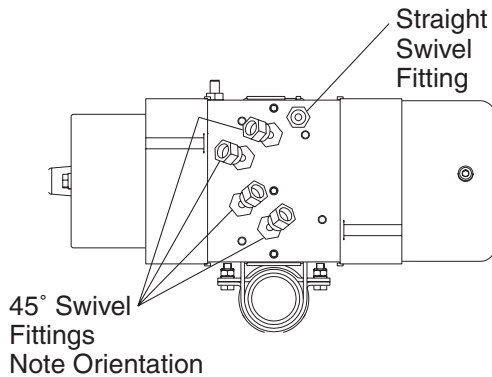


Figure 9

5. Position the cylinder mount brackets (found in hydraulics box) around the lift ram with the shorter legs of the mounting bracket (stamped "TOP") towards the top (rod end) of the lift ram.

The hole in the back bracket fits over the stud on the lift ram. **See Figure 10** for bracket placement on 9.5' MVP. Secure as shown in **Figure 12** with six 1/4"-20 x 3/4" bolts, 1/4" flat washers, and nylon locknuts. Torque to 9 ft./lb. (**See Figure 10.**)

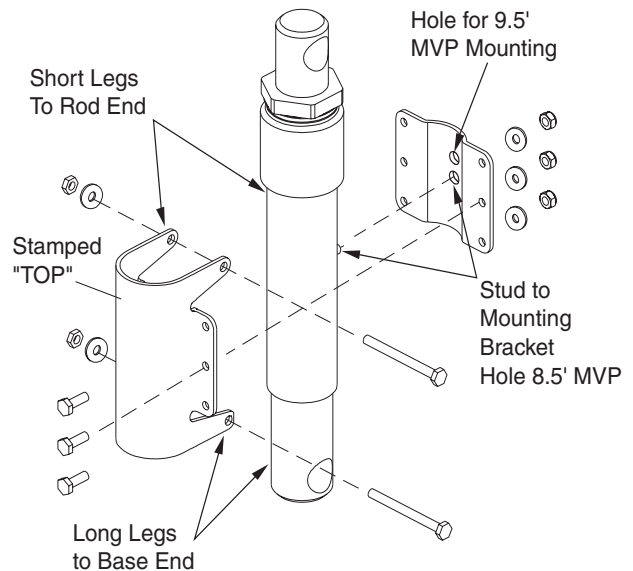


Figure 10

6. Attach the shorter legs of the bracket to the top of the hydraulic valve block. Secure with a 1/4"-20 x 2-3/4" bolt, 1/4" flat washer, and nylon locknut.
7. Attach the longer legs of the bracket to the bottom of the hydraulic valve block. Secure with a 1/4"-20 x 2-3/4" bolt, 1/4" flat washer, and nylon locknut.

(Continued on next page.)

INSTALLATION INSTRUCTIONS

LIFT CHANNEL, HYDRAULIC UNIT, HYDRAULIC FITTINGS & HOSES ASSEMBLY (Continued)

8. Attach 90° street elbow to the 18" hydraulic hose. Attach hose to base end of lift ram. Attach other end with 90° fitting to straight swivel fitting. **Verify there is no twist in the hose.** Twisting could damage the hose. (See Figure 11.)

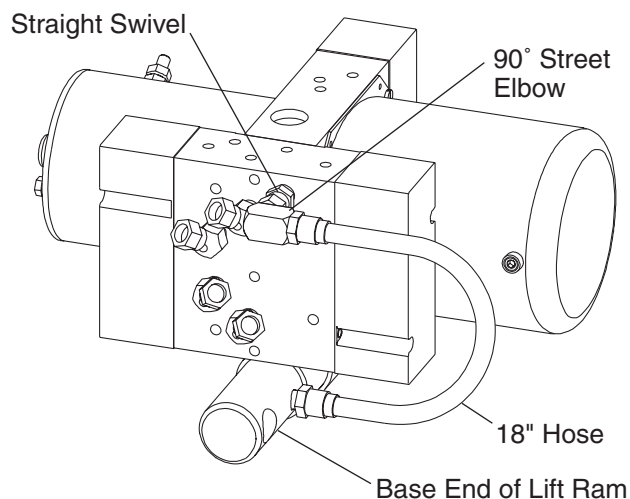


Figure 11

9. Position the hydraulic unit with the nameplate facing the blade. Place the base end of the lift ram into the hole of the bracket on the lift frame and secure with a 3/4" x 3-1/2" cap screw and locknut. (See Figure 12.)

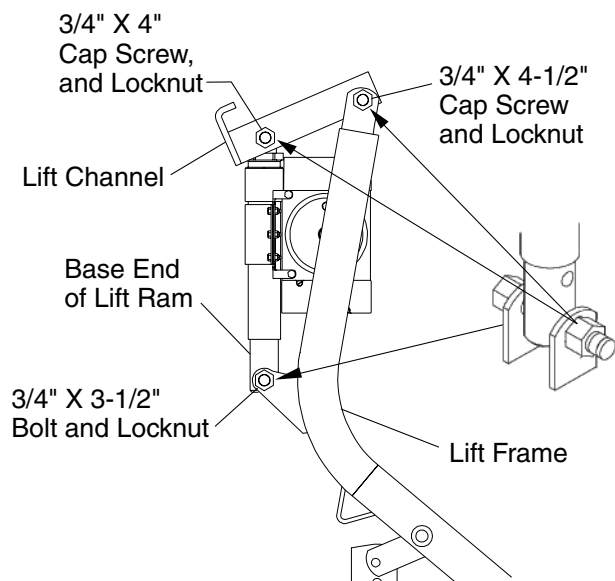


Figure 12
(8.5' MVP Shown)

10. Align the hole in the hydraulic unit lift ram with the hole near the hook on the lift channel and attach with a 3/4" x 4" cap screw and locknut.
11. **Remove 3/8" square-headed plug from reservoir and install reservoir filler plug.**

(Continued on next page.)

INSTALLATION INSTRUCTIONS

LIFT CHANNEL, HYDRAULIC UNIT, HYDRAULIC FITTINGS & HOSES ASSEMBLY (Continued)

12. Remove the 1" x 4" rivet from the rod end of the two rams and swing them away from the blade wings. Remove the pipe plugs from the threaded ports.
13. Install a 90° street elbow fitting into each port in the angling rams. Position fittings as shown in Figure 13.
14. Attach a 38" hose to the fitting on the rod end of each ram. (See Figure 13.)
15. Route rod end hoses in front of the lift frame to avoid pinched hoses. (See Figures 13 and 14.)

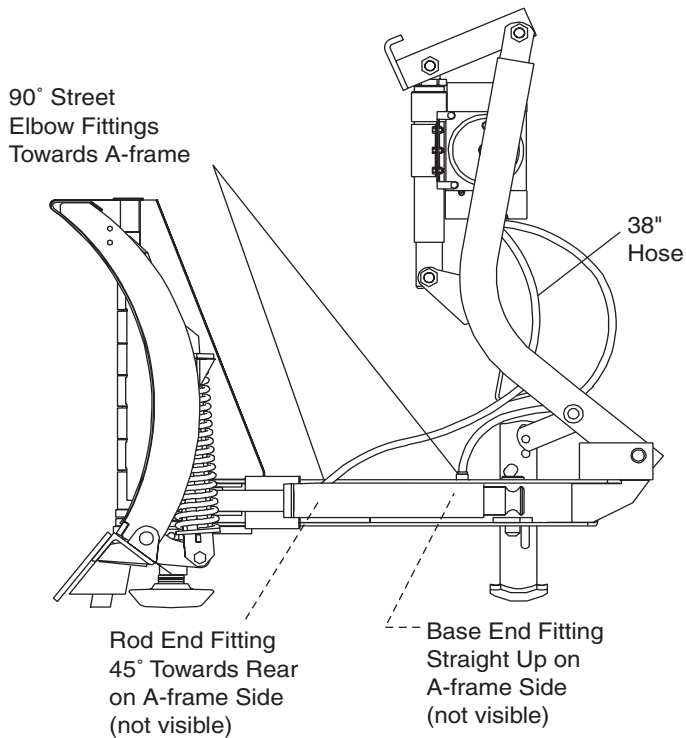


Figure 13
(8.5' MVP Shown after hose assembly and prior to installation of blade stops)

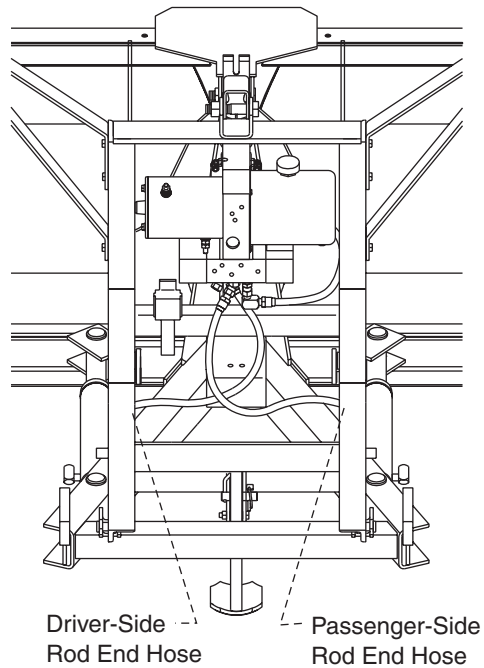


Figure 14
(8.5' MVP Shown after hose assembly and prior to installation of blade stops)

15. Attach the 38" hoses to the 45° swivel fittings on the hydraulic unit. (See Figure 15.)

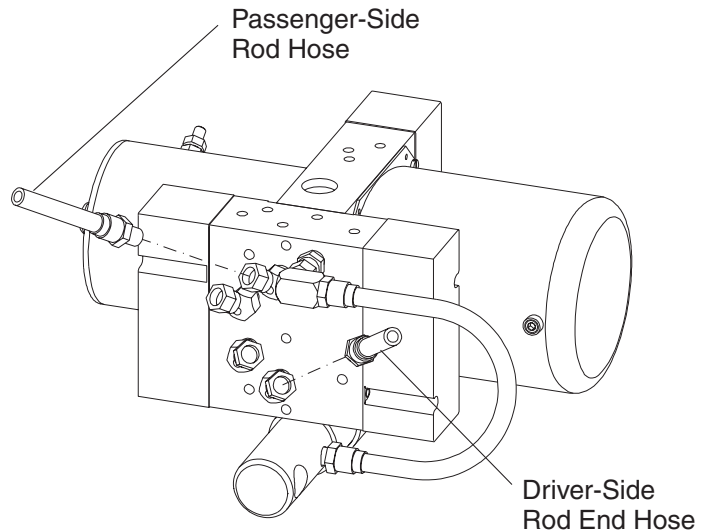


Figure 15

(Continued on next page.)

INSTALLATION INSTRUCTIONS

LIFT CHANNEL, HYDRAULIC UNIT, HYDRAULIC FITTINGS & HOSES ASSEMBLY (Continued)

16. Attach a 36" hose to the fitting on the base end of each ram. (See Figure 16.)
17. Route base end hoses in front of the lift frame to avoid pinched hoses. (See Figures 16 and 17.)

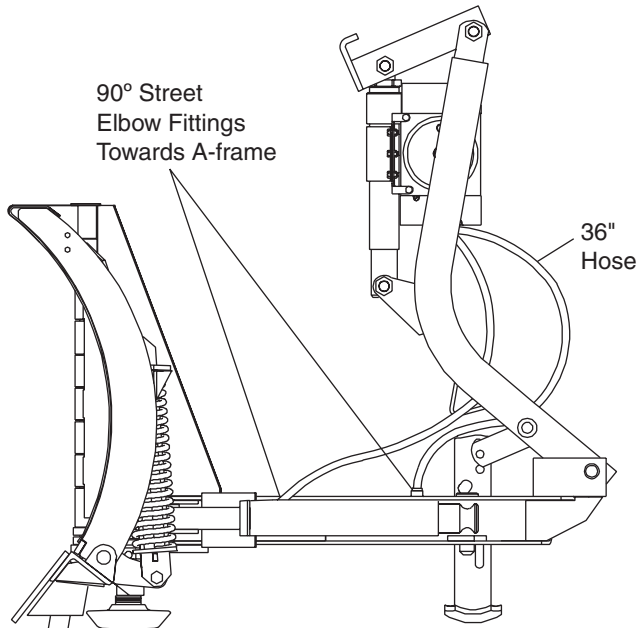


Figure 16
(8.5' MVP Shown after hose assembly and prior to installation of blade stops)

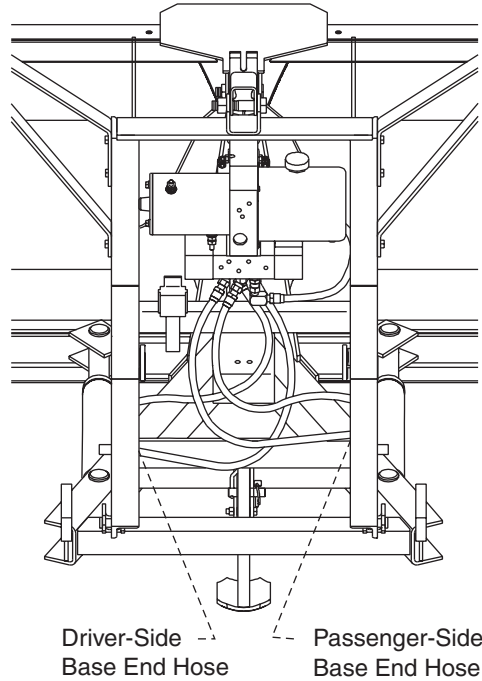


Figure 17
(8.5' MVP Shown after hose assembly and prior to installation of blade stops)

18. Attach to 45° swivel fittings on the hydraulic unit. (See Figure 18.)

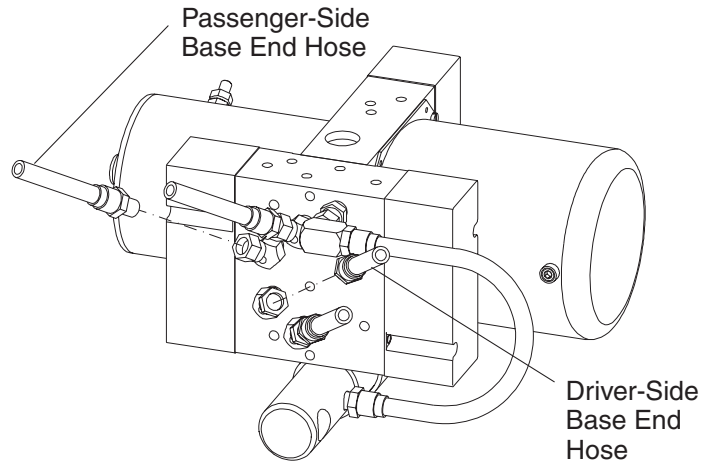


Figure 18

NOTE: After plow is attached to vehicle, adjust position of hydraulic fittings, if necessary, to eliminate any interference between hydraulic hoses and front of vehicle. Hoses must have smooth contours with no sharp bends.

INSTALLATION INSTRUCTIONS

BLADE STOPS

1. Remove 1" pins from ram ends and remove rams from plow assembly.
2. Temporarily install the blade stops on the A-frame with the 1" x 6" pivot pins included in the kit. Rotate the blade stop up against the A-frame channel iron and mark the location of the mounting hole that corresponds to the blade stop. **(See figure 19.)** After marking hole position, remove blade stops.
3. Drill a 17/32" hole in the A-frame channel iron at the location determined in step 1.
4. Position the angle cylinders, with fittings and hoses installed, in the blade stops as illustrated. **The hose fittings will be toward the A-frame.**
5. Install the blade stops to the rear angle cylinder anchor holes with the 1" x 6" pivot pins and 1/4" x 2" cotter pins.
6. Bolt the blade stops to the A-frame channel iron with 1/2" x 1-1/2" cap screws and locknuts.
7. Torque all fasteners according to the chart on page one.
8. Reattach rod end of ram to blade mounting hole using the 1" x 4" pivot pin and cotter pin provided.

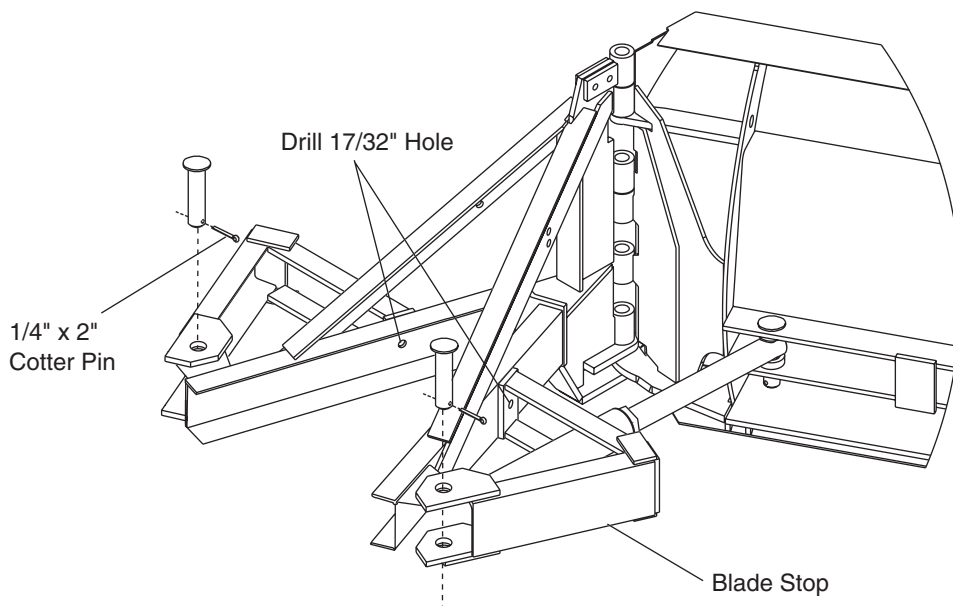


Figure 19

INSTALLATION INSTRUCTIONS

LIGHT BRACKETS/HEADLAMPS ASSEMBLY

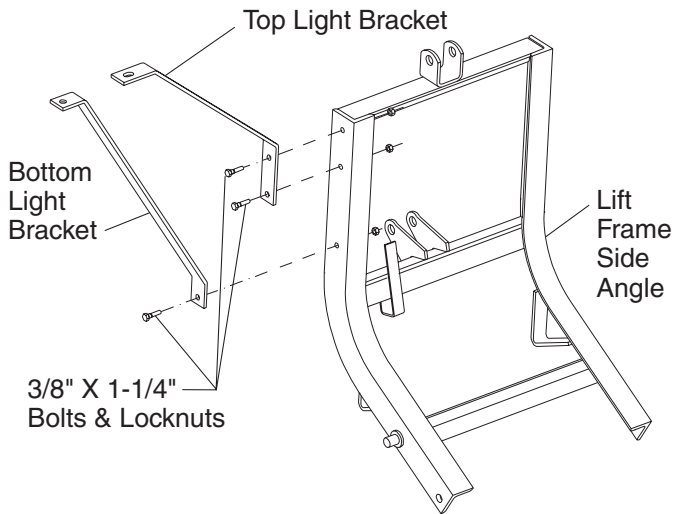


Figure 20
(8.5' MVP Shown)

Refer to Figure 20 for the following instructions.

1. Align the two holes of the two top light brackets with the top two holes in the lift frame side angles. Loosely attach with two 3/8" x 1-1/4" bolts and locknuts on each side.
2. Loosely attach the small hole end of each bottom light bracket to the lowest hole in each lift frame side angle with a 3/8" x 1-1/4" bolt and locknut on each side.
3. Assemble the headlamps with park/turn lens towards outside (found in the headlamp kit) to the light brackets placing the headlamp swivel above the bracket.
4. Loosely attach with lock washers and nuts below the brackets.

NOTE: Aim headlamps when the snowplow is attached to the vehicle and in the raised position.

5. Tighten the bolts that hold the light brackets to the lift frame.
6. Install vinyl caps on the headlamp mounting studs.

HYDRAULIC UNIT WIRING ASSEMBLY

Refer to Figure 21 on the top of the next page for the following instructions.

1. Route the wiring harness from the headlamps along the top light brackets and across the back of the lift frame to the driver side of the lift frame.
2. Use any excess harness to make a loop under each headlamp.
3. Secure the harness to each light bracket with two short cable ties and to the top angle of the lift frame with a long cable tie.
4. Remove the covers from the valve manifolds on the hydraulic unit.

NOTE: Temporarily remove the bolt securing the lift cylinder rod to the lift channel and tilt the hydraulic unit forward for easier removal and installation of valve covers.

5. Route the branch of harness with loose wires to the manifolds.

NOTE: Dielectric grease has been applied to coil terminals. DO NOT wipe off terminals.

6. Apply dielectric grease (P.N. 56099) (furnished in the hydraulics box) into the opening of each wire terminal before connecting to the coil terminals as shown on the label on the inside of each cover and in Figures 22, 23, and 24 on the next page.

NOTE: The strain reliefs must be inside the covers to prevent the connections from coming loose.

7. With each harness strain relief inside the cover at the slot, replace each cover and secure with screws.
8. While allowing slack in the harness to the hydraulic unit, secure the harness to the inside of the lift frame side rail with two long cable ties.

(Continued on next page.)

INSTALLATION INSTRUCTIONS

HYDRAULIC UNIT WIRING ASSEMBLY (Continued)

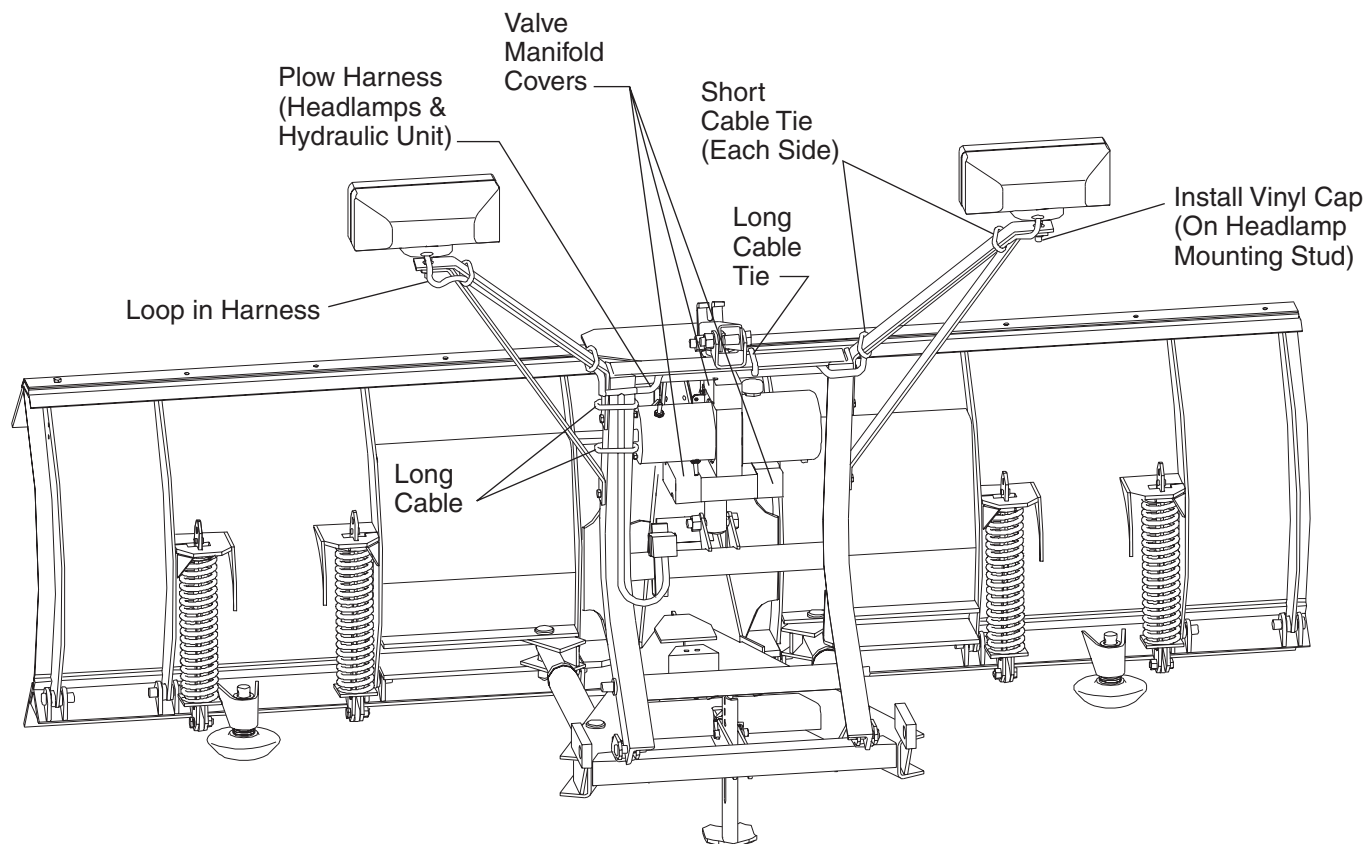


Figure 21
(8.5' MVP Shown)

Wire the solenoids according to the diagrams below (these diagrams are also found inside the solenoid covers). (See Figures 22, 23 and 24.)

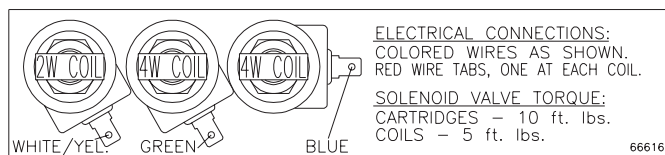


Figure 22

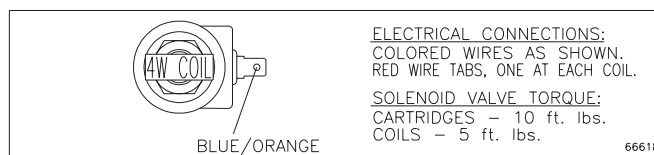


Figure 24

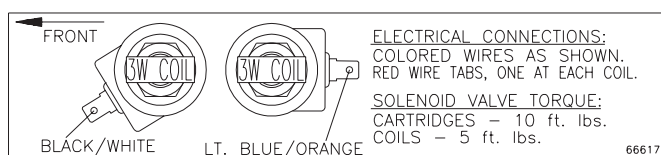


Figure 23

INSTALLATION INSTRUCTIONS

BATTERY CABLE ASSEMBLY

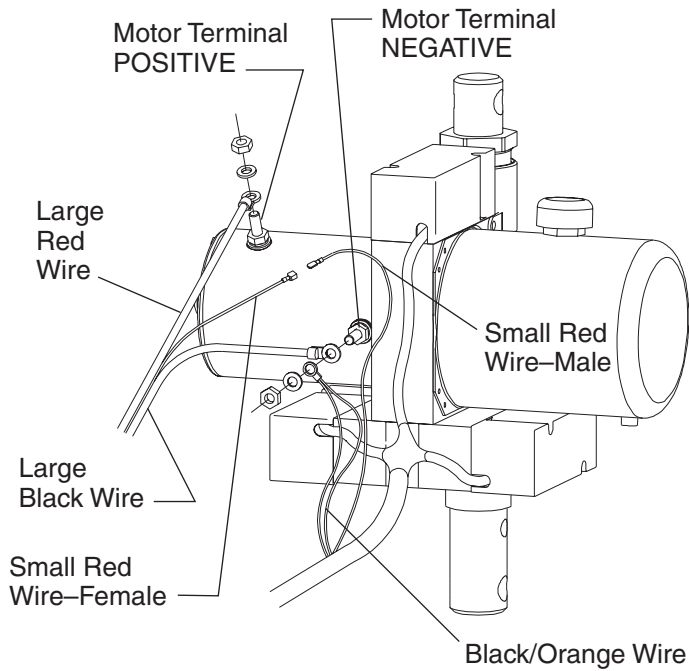


Figure 25

2. Attach the large black wire and the black/orange wire from the snowplow harness to the NEGATIVE (-) motor terminal on the hydraulic unit. Tighten nut to 50-60 in. lbs.
3. Attach the small red wires by connecting the male terminal to the female terminal.

NOTE: Retain dielectric grease tube for use during vehicle mount installation. Give the tube to the end user.

Refer to Figure 25 for the following instructions.

NOTE: Apply a light coating of dielectric grease to connectors before assembly.

**All parts installed in this section
are found in the hydraulics box.**

1. Attach the large red wire to the positive (+) motor terminal on the hydraulic unit. Tighten nut to 50-60 in. lbs.

INSTALLATION INSTRUCTIONS

VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION

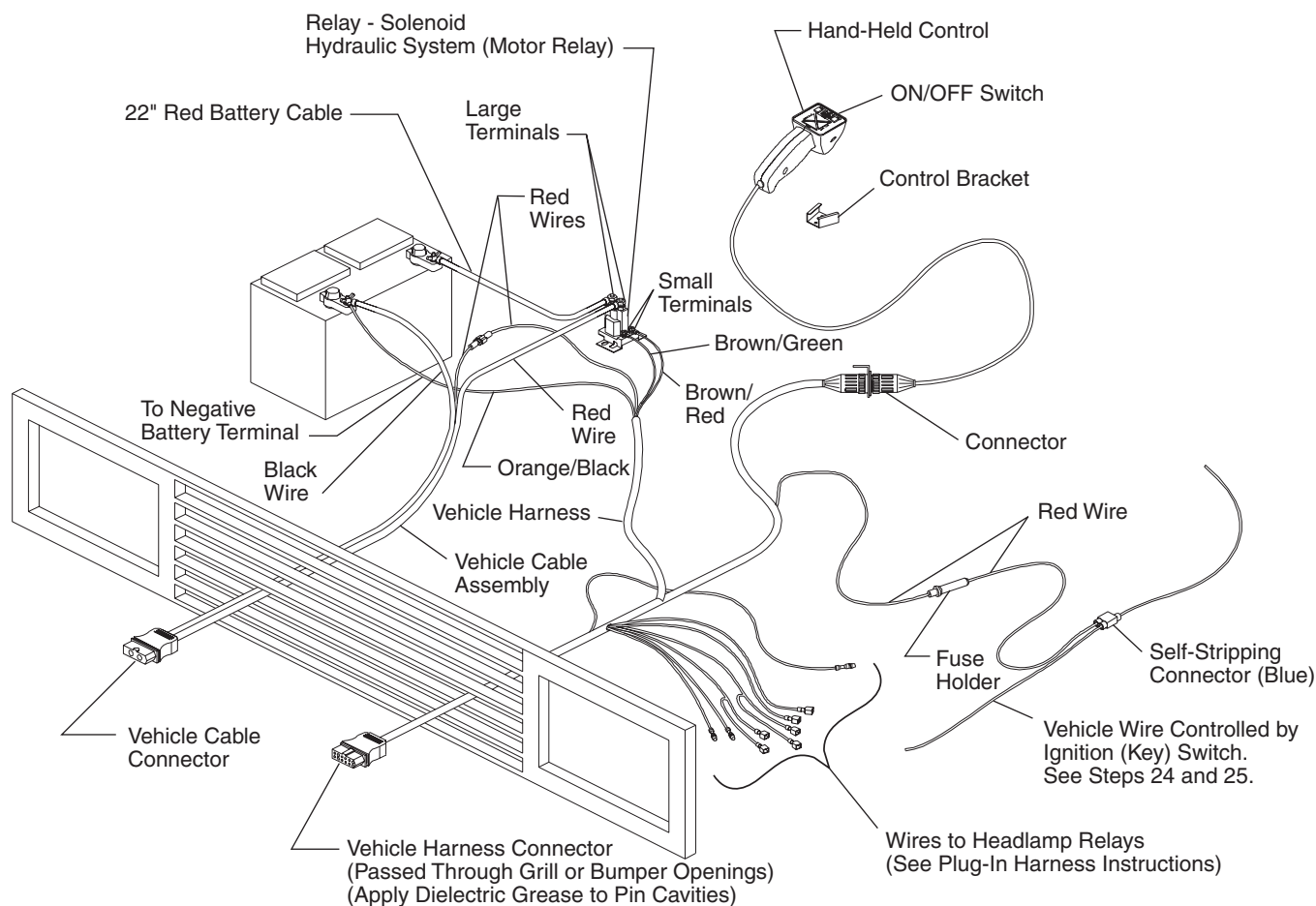


Figure 26

NOTE: Use dielectric grease to prevent corrosion on all connections. Fill receptacles and lightly coat ring terminals and blades before assembly.

NOTE: This is a “low side” drive electrical system for the hydraulic unit. With a “low side” drive system, positive is provided continuously to the solenoid coils, and the ground is switched on and off to control the solenoids.

1. Identify the wires for the parking lamp on the driver side and for the turn signals on both sides. Attach a black, self-stripping bullet receptacle connector (found in the headlamp kit) to each of these three wires.
2. Turn off the vehicle ignition and disconnect both the NEGATIVE (-) and POSITIVE (+) battery cables.

3. Find a location for the motor relay where it will be protected from road splash and will be within 18" of the vehicle primary battery.

NOTE: Motor relay terminals must be vertical or horizontal.

4. Using the motor relay mounting plate as a template, drill two 9/32" holes and mount the motor relay to holes using 1/4" X 3/4" bolts, washers, and locknuts.
5. Route the 22" red battery cable between a large motor relay terminal and the POSITIVE battery terminal avoiding sharp edges and hot or moving parts.
See vehicle harness and vehicle cable installation in mount box instruction for special battery connection information.

(Continued on next page.)

INSTALLATION INSTRUCTIONS

VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION (Continued)

6. Stretch the rectangular openings of the plug cover straps (found in the harness kit) over the connector ends of the vehicle cable assembly (found in the hydraulics box) and the 12-pin vehicle harness (found in the light kit). Place the plug covers over the molds on the harnesses.
7. Find a location in the vehicle grill or bumper opening on the battery side for routing the vehicle cable connector.

The best location is at least 10-1/2" from the center of the grill and at a convenient height for connecting the snowplow plugs. Allow the connectors of the harness and cable to hang out in front of the grill or bumper opening. Allow enough slack so it is easy to connect and disconnect the connectors.
8. Route the vehicle cable through the grill or bumper opening at the selected location and through or around the radiator bulkhead to the motor relay avoiding sharp edges, and hot or moving parts.
9. Attach the large red wire from the vehicle cable to the unused large motor relay terminal with a lock washer and 5/16"-24 jam nut.
10. Route the black wire from the vehicle cable to the existing terminal fastener on the NEGATIVE battery terminal. **DO NOT attach wire at this time.**
11. Find a location in the vehicle grill or bumper opening on the driver side for routing the vehicle harness. See Figure 26 on the previous page for routing the vehicle harness.
13. Route the vehicle harness through grill or bumper opening and around, or through radiator bulkhead.
14. Route the wires that break out of the vehicle harness to the area behind the driver-side headlamp. Route the rest of harness to the firewall.

⚠ CAUTION

Before drilling any holes, check both sides of the material for any wires, fuel lines, fuel tanks, etc., that may be damaged by drilling.

15. Drill a 5/8" hole through the firewall of the truck in a convenient location away from sharp edges and hot or moving parts.

Insert a rubber grommet into the hole.

16. Route the harness breakout with the orange w/black stripe, brown w/red stripe, brown w/green stripe, and red wires to the motor relay.
17. Install the brown w/red stripe and brown w/green stripe wires to the small terminals of the motor relay. Secure with #10 lock washers and 10-32 nuts.
18. Connect the black wire of the vehicle cable and the orange w/black stripe ring terminal of the vehicle harness to the NEGATIVE battery terminal.
19. Remove the packing material from the end of the harness near the fuse. This will expose 10 socket-type terminals. Push the fuse through the firewall hole and then carefully feed the end of the harness with the 10 terminals through to the cab.
20. Locate a connector bracket mounting position under the dash where it will not interfere with other equipment. Mount the connector bracket using #8 x 5/8" tapping screws and washers.

⚠ CAUTION

Do not alter, modify, or install additional components in shaded areas of Figure 27. Failure to comply may cause damage to the product or property.

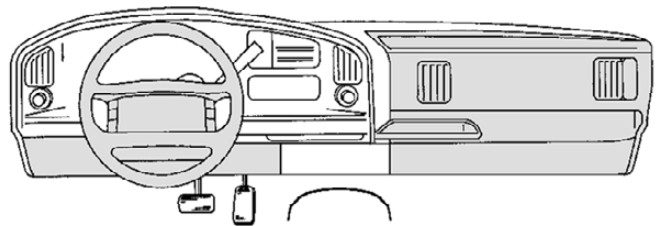


Figure 27

(Continued on next page.)

INSTALLATION INSTRUCTIONS

VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION (Continued)

21. Feed the vehicle harness through the bracket.
22. Insert each of the 10 socket-type terminals into the connector housing. **(See Figure 28.)**

Refer to the Table 1 for under-dash vehicle harness connector pin assignments.

NOTE: A “snap” will be felt as the terminals are successfully inserted. An extraction tool is provided for removal of pin terminals if necessary.

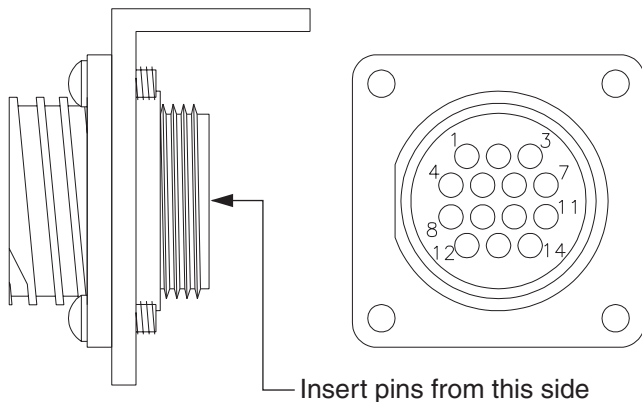


Figure 28

Wire Color	Pin No.
Light Blue With Orange Stripe	1
Blue With Orange Stripe	2
Black With White Stripe	3
Light Green	4
Light Blue	5
White With Yellow Stripe	6
Brown With Red Stripe	7
Red	8
Orange With Black Stripe	9
Brown With Green Stripe	10

Table 1

23. Secure the connector to the bracket with the provided #6-32 x 1/4" tapping screws and lock washers.
24. Locate an accessory wire that is controlled by the ignition switch (power is turned off when the ignition switch is in the OFF position).
25. Route the 10-amp fuse holder red wire to this location and trim excess length (leave the 10-amp fuse holder in the system).
26. Open the blue, self-stripping connector and place the end of the red wire against the inner groove stop (end of wire must not extend from the connector when it is closed) and the accessory wire in the outer groove. Close the connector over the wires using a pliers and snap the locking tab into place.

OPTION: Locate an unused fuse box terminal capable of carrying 10 amps and controlled by the ignition switch and attach a terminal (not furnished) to the red wire and plug into the fuse box.

27. Connect the female spade terminal on the small red wire from the vehicle cable to the male spade terminal on the red wire from the vehicle harness.
28. Reconnect the vehicle battery POSITIVE (+) and NEGATIVE (-) cables.

INSTALLATION INSTRUCTIONS

MOUNTING THE CABCOMMAND HAND-HELD CONTROL

1. Locate a convenient control mounting position in the cab that will not interfere with other equipment and will avoid unintentional activation of the snowplow.
2. Using the control bracket as a template, mark and drill three holes.

⚠ CAUTION

Do not alter, modify, or install additional components in shaded areas of Figure 29. Failure to comply may cause damage to the product or property.

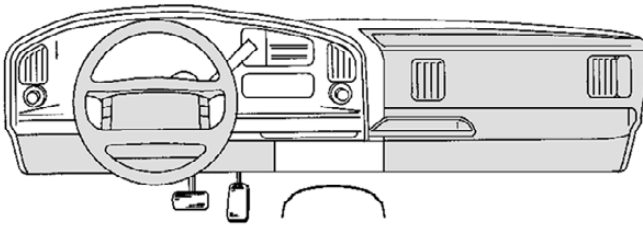


Figure 29

⚠ CAUTION

Before drilling any holes, check both sides of the material for any wires, fuel lines, fuel tanks, etc., that may be damaged by drilling.

3. Secure the control bracket to the truck inserting a #6 x 1" tapping screw and a #6 spring lock washer into each hole.

HEADLAMP HARNESS INSTALLATION

Specific instructions for the installation of the Plug-In Harness to the vehicle headlights and the headlamp switching relays will be found either in:

special instructions contained in the harness kit specified in the Selection List

or

in the installation instructions found in the mount box.

OPERATIONAL TEST AND ADJUSTMENTS

FILLING HYDRAULIC UNIT

NOTE: Mount plow assembly to vehicle.
(See label on back of blade for mounting instructions.)

⚠ WARNING

Keep well clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and blade or directly in front of blade. If the blade hits you or drops on you, you could be seriously injured.

Verify proper hydraulic hose routing. (See pages 10 and 11.)

1. Fill the reservoir to the dipstick level while in the Vee position with the snowplow lowered (lift ram retracted all the way).

SYSTEM CAPACITY

- Reservoir — 1-3/4 quarts
- Complete System — 2-3/8 quarts

USE

- WESTERN® High Performance Fluid to -25° F (-32° C)
- Automatic transmission fluid (ATF) DEXRON® III to -10° F (-23° C)
- Texaco 1537 Aircraft Hydraulic Oil for temperatures below -25° F (-32° C)

2. Turn ignition (key) switch to the ON or ACCESSORY position. Press the control power button. The control indicator light will turn on.
3. Turn the control ON/OFF switch to the ON position.
4. Hold the MODE button down for 2 seconds (the mode light will flash) to put the snowplow in single wing mode. The right and left buttons now work as toggles. For example, pressing the button once will retract the blade wing. Pressing the button again will extend the blade wing.
5. Extend and retract the driver-side wing several times. Return all rams to the retracted position. Refill reservoir.
6. Screw dipstick in completely to read fill level. Fill with fluid according to dipstick reading.
7. Extend and retract the passenger-side wing several times. Return all rams to the retracted position. Refill reservoir.

⚠ CAUTION

DO NOT raise blade as this may cause pump cavitation.

8. Screw dipstick in completely to read fill level. Fill with fluid according to dipstick reading.
9. Raise and lower the snowplow several times. Return to the lower position retracting the cylinders completely.
10. With angling cylinders and the lift cylinder retracted, refill the system through the fill hole. Use the dipstick to indicate the level. Fill to full.

⚠ WARNING

To prevent accidental movement of plow, always turn the solenoid control to the OFF position when not using the mounted plow.

OPERATIONAL TEST AND ADJUSTMENTS

BLADE DROP SPEED ADJUSTMENT

The quill on the bottom rear of the main block valve adjusts blade drop speed. (See Figure 30.)

1. Lower the blade to the ground before making adjustment.
2. Turn the quill IN (clockwise) to decrease drop speed.
Turn the quill OUT (counterclockwise) to increase drop speed.

NOTE: Turning the quill in too far can slow raise time.

3. Stand clear of the blade when checking adjustment

⚠ WARNING

Keep well clear of the blade when it is being raised, lowered or angled. Do not stand between the vehicle and blade or directly in front of blade. If the blade hits you or drops on you, you could be seriously injured.

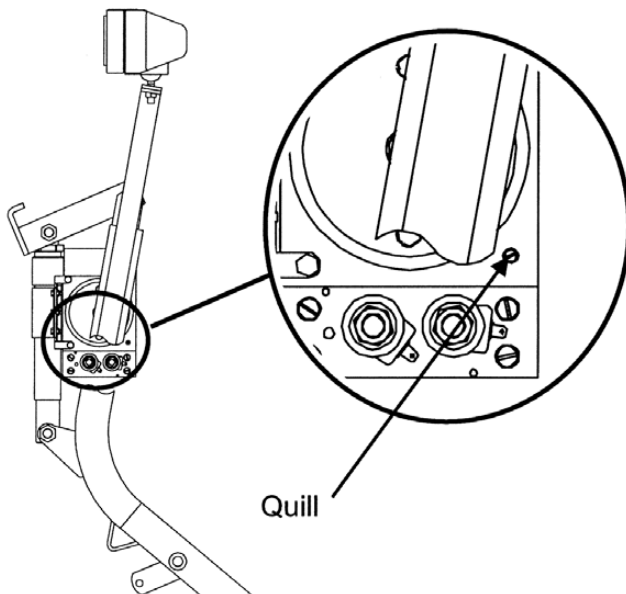


Figure 30

FINAL INSPECTION

1. Make sure all fasteners and hydraulic and electrical connections are tight.
2. Check ram packing nuts for oil leakage. If excessive leakage is observed, tighten the packing nut 1/4 turn after you feel the nut contact the packing.

NOTE: Do not over tighten packing nuts. Over tightening affects cylinder operation and shortens the life of the packing. A short period of normal operation will allow chevron packings to become saturated, and leakage will normally stop. A small amount of leakage is necessary to properly lubricate the cylinder rod.

COUPLING LUG HEIGHT CHECK

1. Mount plow to vehicle. (See label on back of blade or Owner's Manual for mounting instructions.) Add recommended ballast as found in Selection List.
2. With the blade on a level surface, slack in lift chain and rear ballast located behind rear wheels, the center of the coupling holes (hitch pin shaft) to level surface should measure 12" to 13". To obtain height, adjust spreader position. (See Figure 31.)

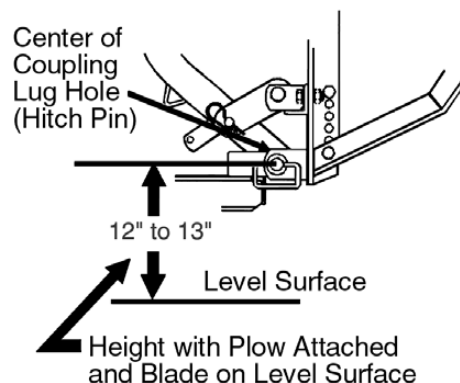


Figure 31

NOTE: Coupling height must be 12" minimum to allow stand to be pinned to frame.

3. Adjust chain slack with plow mounted to vehicle and lift channel pushed all the way down. To adjust, remove chain from hook, straighten chain and pull tight. Rehook it to the lift channel. After chain is hooked, it will have the correct amount of slack for blade "float". DO NOT remove chain from lift channel when removing plow from vehicle.

OPERATIONAL TEST AND ADJUSTMENTS

VEHICLE LIGHTING CHECK

1. Check the operation of vehicle and plow lights with plow mounted to vehicle and all harnesses connected.

Turn signals and parking lamps

<i>Parking lamps ON</i>	Both vehicle and plow parking lamps should be on at the same time.
<i>Right turn signal ON</i>	Both vehicle and plow right turn signal lamps should flash at the same time.
<i>Left turn signal ON</i>	Both vehicle and plow left turn signal lamps should flash at the same time.

Headlamps

Move vehicle headlamp switch to the ON position. Connecting and disconnecting the 12-pin plow plug from the vehicle harness connector should switch between vehicle and plow headlamps as follows:

<i>12-pin plow plug DISCONNECTED</i>	Vehicle headlamps should be on, plow headlamps off.
<i>12-pin plow plug CONNECTED</i>	Plow headlamps should be on, vehicle headlamps off.

Dimmer switch should dim whichever headlamps are operating. The high beam indicator on the dash should light when either set of headlamps is on high beam.

2. Connect plow plug to vehicle harness connector. Raise plow and aim plow headlamps according to SAE J599 Lighting Inspection Code (**See Service Bulletin SP 608**) and any state or local regulations.
3. Check aim of vehicle headlamps with plow removed.
4. When plow is removed from the vehicle, install plug covers on vehicle harness connectors and insert the plow plugs into the boot on the hydraulic unit.



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