INSTALLATION & OWNER'S MANUAL

POLY "V" PLOW

8'-2" version (p/n: 1SPVTP821)
9'-2" version (p/n: 1SPVTP921)

The contents of this envelope are the property of the owner.
Be sure to leave with the owner when installation is complete.

APPROXIMATE INSTALLATION TIME: 2 to 3 HOURS

TOOLS REQUIRED:

Set of standard sockets (3/8" drive)
Set of standard open end wrenches
Wire snips or side cutters
Drift pin or alignment pin
One 3/8" Drive Ratchet
Hammer

NOTICE

Curtis Cabs, blades and general accessories add additional weight to the base vehicle. All Curtis accessory weights are listed in product brochures. Deduct the accessory's total weight from the vehicle's rated capacity and never exceed the vehicle's rated capacity including driver and passenger.

(revised: 3/29/2010)

1. MOLDBOARD ASSEMBLY

NOTE: see pages 18 and 19 (available service parts) for clean line drawings of all major components if necessary.

1.1 Per fig. 1.1, orient the four main components as shown. The moldboard assemblies are to be face down on the ground. The tabs on the A-Frame are all pointing up in the photo as noted. The jack stand on the A-Frame is in the folded up (closed) position as shown.

1.2 Per fig. 1.2, slide one of the large moldboard assemblies into the opposite mating half so all the center tubing sections and lower cutting edges line up as shown.

1.3 Per fig. 1.3, with assistance install the A-Frame weldment and the long center hinge pin as shown. The A-Frame tabs and the head of the center pin are up top in this view again. Wiggle the A-Frame assembly while an assistant pushes the center hinge pin all the way down until the head bottoms out. Pivot and rest the A-Frame weldment against the angle stop weldment on the driver's side as shown. Install one 1/4-20 x 1-3/4" long hex head bolt and locknut through the hole in the lower section of the center hinge pin where shown. See figure 1.3.1 for an enlarged view of the 1/4" bolt. Tighten the bolt.

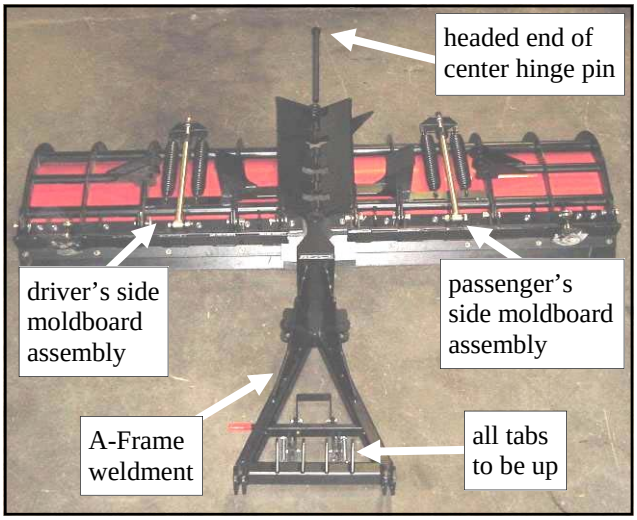


Fig. 1.1 (view of main components)

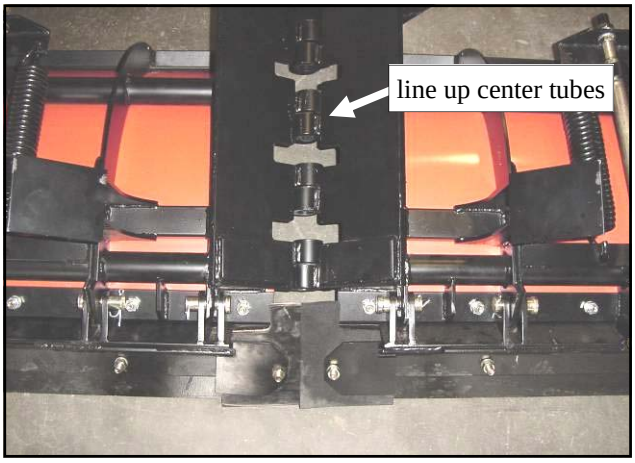


Fig. 1.2 (view of moldboard halves)

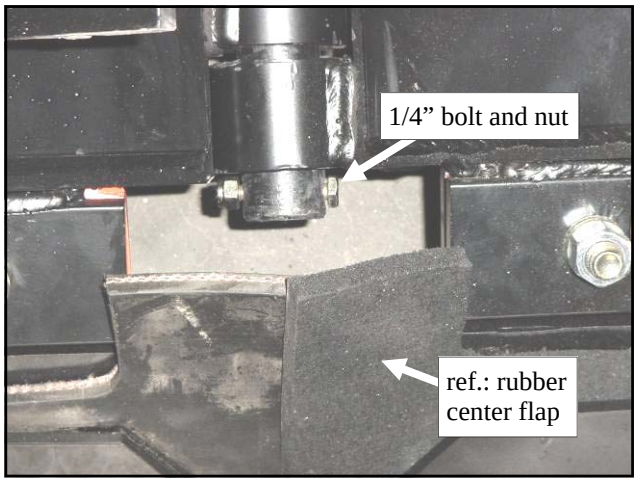


Fig. 1.3.1 (enlarged view of 1/4" bolt)

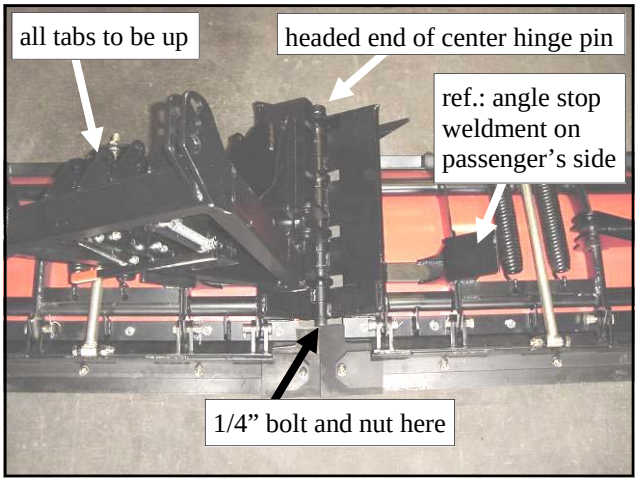


Fig. 1.3 (view of A-Frame assembly)

2. HYDRAULIC CYLINDERS

2.1 Fig. 2.1 shows three hydraulic cylinders. The left-most cylinder shown is a small, single-acting cylinder (1-1/2" diameter x 10" stroke). On this unit, install a 45 degree fitting at location "A". Use a suitable paste type pipe sealer on the threads (i.e.: 3M, Great White, etc.), **do not use Teflon tape.** Leave this one fitting loose, final orientation will be determined in step 8.6 on page 9. The next two, large cylinders are both double-acting (2" diameter x 10" stroke). On these units, install 90 degree fittings at locations "B" and "C". Use a suitable paste type pipe sealer on the threads (i.e.: 3M, Great White, etc.), **do not use Teflon tape.** The final orientation is to have the fittings pointing towards each other as shown. In the photo, fitting "B" is to point down and fitting "C" is to point up. Tighten these four 90 degree fittings.

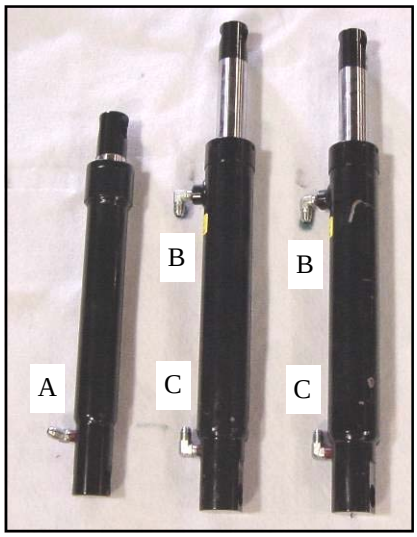


Fig. 2.1 (view of hydraulic cylinders)

2.2 Per fig. 2.2, tip the entire assembly back 90 degrees so the A-Frame contacts the ground as shown.

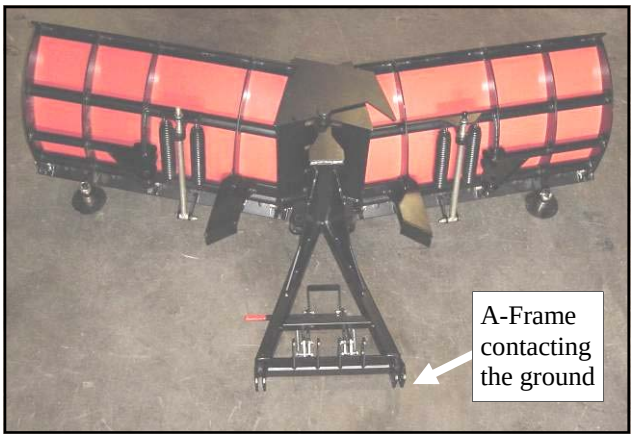


Fig. 2.2 (view from back side)

2.3 Per fig. 2.3, install one of the two double-acting hydraulic cylinders (with two 90 degree fittings) to the passenger's side moldboard assembly as shown. In the photo, the ram end is towards the right, outboard side and the main stationary body is towards the center of the "V" plow. Install a 1" diameter x 3" long clevis pin on the ram end oriented so the head is up as shown. Install a cotter pin in the lower receiving hole of the clevis pin. On the other end of the cylinder, use a 1" diameter x 3-1/2" long clevis pin oriented so the head is up as shown. Install a cotter pin in the lower receiving hole of the clevis pin.

2.4 Per fig. 2.4, repeat step 2.3 for the driver's side. The ram end is to be outboard on the driver's side (on the left in the photo). The ram end uses a 3" long clevis pin. The other end (the stationary end) of the cylinder uses a 3-1/2" long clevis pin. Install cotter pins in both places.

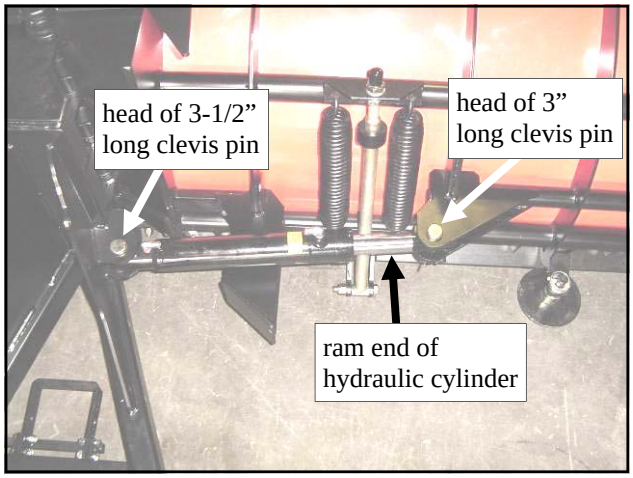


Fig. 2.3 (view of passenger's side hydraulic cylinder)

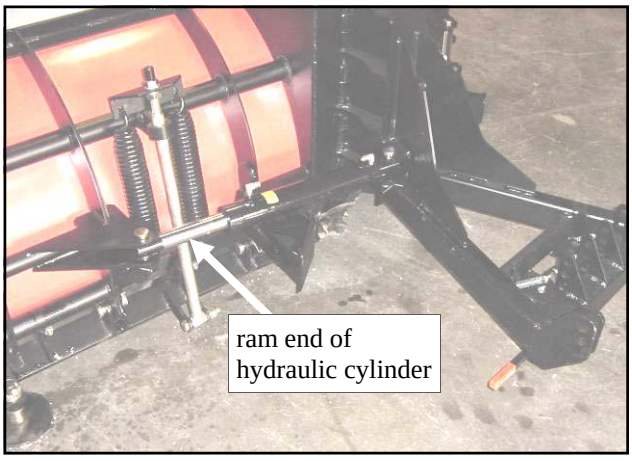
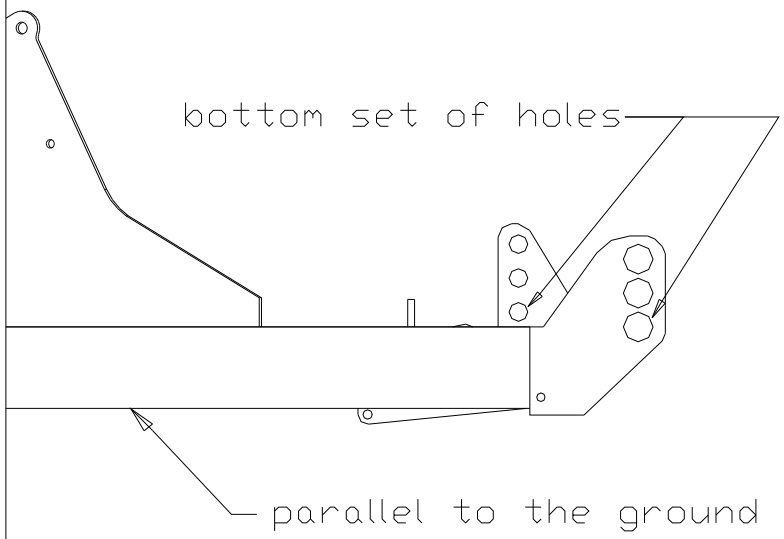
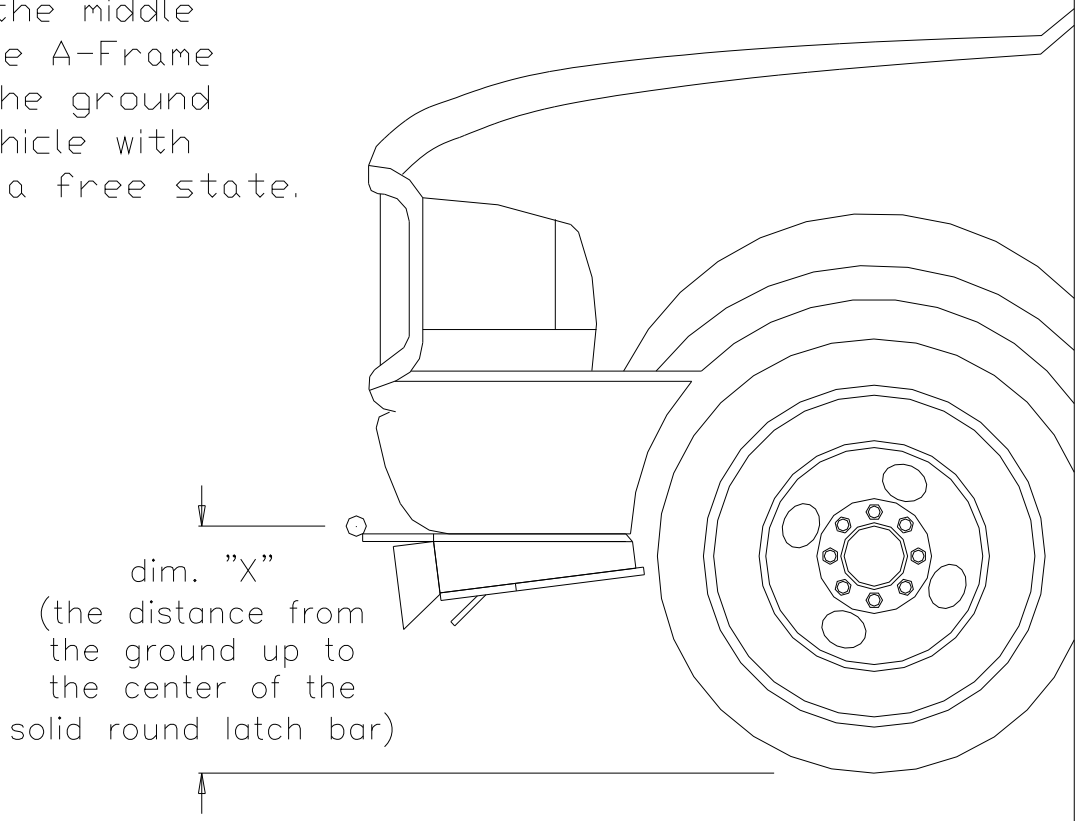


Fig. 2.4 (view of driver's side hydraulic cylinder)

Per steps 3 and 4 on the next page, use the bottom set of holes if dim. "X" is 17" or less. This is the most common set-up. If dim. "X" is greater than 17", the middle or upper set of holes will need to be utilized. Try the middle holes first. The goal is to have the A-Frame weldment reasonably parallel with the ground once the plow is attached to a vehicle with the plow resting on the ground in a free state.





Note: the assumption is made that the appropriate mount kit has already been installed on the vehicle per the installation manual that came with the mount kit.

Note: due to great variations in suspension, tires, age of vehicle, etc., it may be necessary to use the middle or top set of holes even though it's not a common set-up.

3. LOWER SPRING CANS

NOTE: the vehicle height is the determining factor to decide which set of holes to use. The lowest set of holes works for most applications. If necessary, use the middle or upper set of holes. Whichever set of holes are used for the spring cans (usually the lowest set of holes in most instances), that must also be the same set of holes (lowest) for step 4.1 below (the Lift Frame assembly). Other examples: middle and middle or upper and upper. See the sketch on the previous page. The goal is to have the A-Frame end up reasonably parallel with the ground once it's hooked up to a vehicle for plowing (i.e.: the plow resting on the ground in a free state).

3.1 Per fig. 3.1, install the two lower spring cans to the A-Frame tabs as shown. The lower spring cans are the smaller tubes with the drainage holes in the side. Using the following hardware, mount them to the lowest set of holes on the A-Frame tabs as shown: two 5/8-11 x 4-1/2" long hex head bolts and two 5/8-11 locknuts. Bolt heads to be outboard as shown. Snug up the bolts, do not tighten fully.

3.2 Per fig. 3.1, install the two, large springs (2" O.D. x 8" long) in the two lower spring cans as shown.

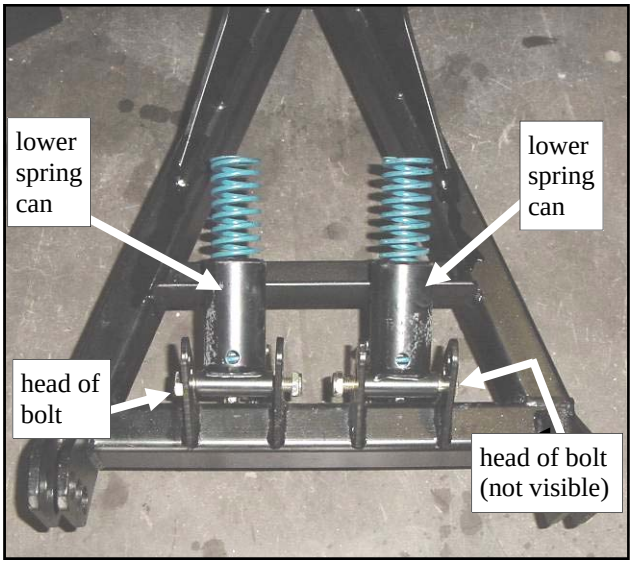


Fig. 3.1 (view of lower spring can assemblies)

4. LIFT FRAME

4.1 Per fig. 4.1, install the lift frame assembly to the A-Frame assembly oriented as shown. Fig. 4.2 also shows the orientation. With assistance, line up the lower holes in the lift frame assembly to the lowest set of the three hole pattern in the A-Frame assembly. Install two clevis pins (1" diameter x 4" long) so the heads are outboard as shown. Install one of the two large washers (1-3/4" outside diameter) adjacent to the inboard cotter pin hole then install one cotter pin through the hole in the clevis pin. Repeat for the opposite side.

4.2 Per fig. 4.2, temporarily pivot the lift frame assembly backwards and rest the forks of the lift frame assembly against the ground as shown.

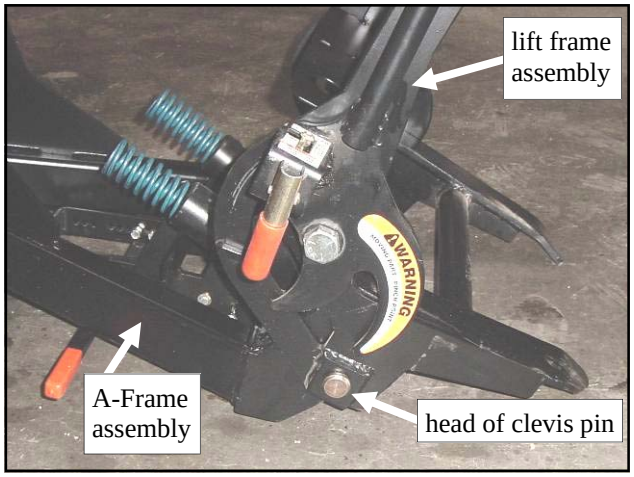


Fig. 4.1 (view of lift frame pinned to A-Frame)

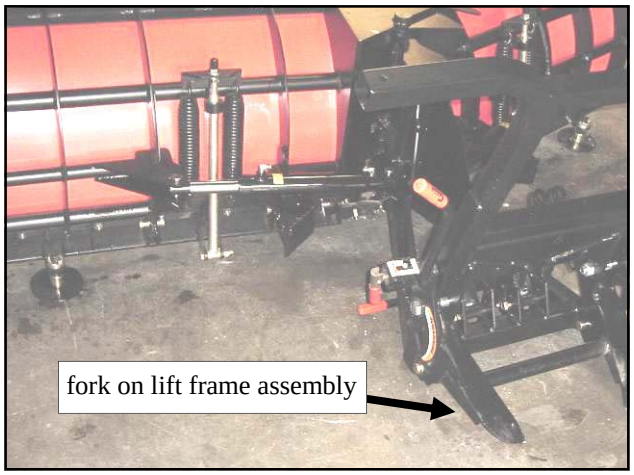


Fig. 4.2 (view of lift frame installed)

5. UPPER SPRING CANS

5.1 Per fig. 5.1, install the two upper spring cans to the lift frame tabs as shown. Use the following hardware: two 5/8-11 x 4-1/2" long hex head bolts and two 5/8-11 locknuts. Orient the bolts so the heads are inboard as shown. Note: the long inboard relief slots in the welded-on brackets are to assist in the insertion of the bolts. Load the bolt in on an angle as necessary (as shown). Rotate the hex head for maximum clearance. Tap with a hammer if necessary to get past the other welded-on bracket. Snug up the bolts, do not tighten fully.

5.2 Fig. 5.2 shows both upper spring cans installed with the bolt heads inboard (closest to each other).

5.3 Per fig. 5.3, lift the lift frame up in order to rotate the jack stand down 90 degrees as shown. Pivot the lift frame back down so the forks rest on the ground as shown.

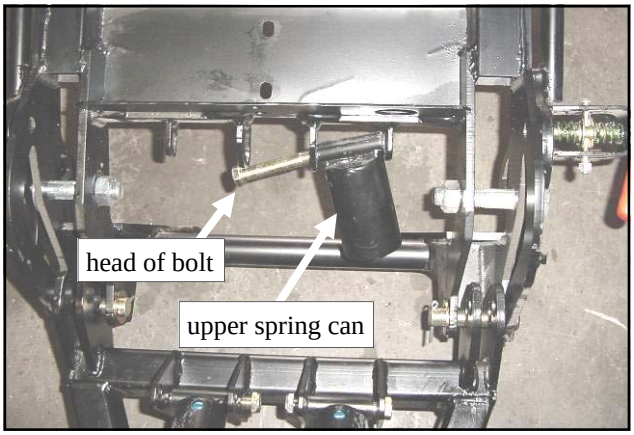


Fig. 5.1 (view of upper spring can bolt insertion)

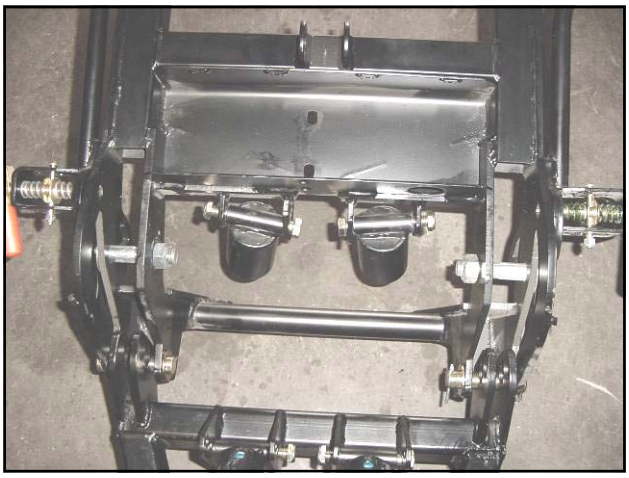


Fig. 5.2 (view of both upper spring cans installed)

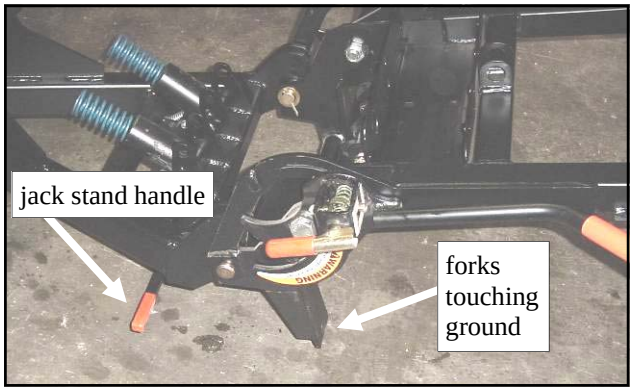


Fig. 5.3 (view from driver's side)

6. PUMP

6.1 Per fig. 6.1, place the pump assembly on the large mounting bracket on the front of the lift frame as shown (hydraulic hoses on the passenger's side and wiring harness on the driver's side). Per figures 6.1 and 6.1.1, install the following hardware into factory installed threaded inserts (two on the bottom side and two on the back side as shown): four 3/8-24 x 3/4" long hex head bolts, four flat washers, and four star washers. Use caution to avoid cross-threading the threads in the aluminum block. Start the bolt engagement by hand. Tighten all four bolts.

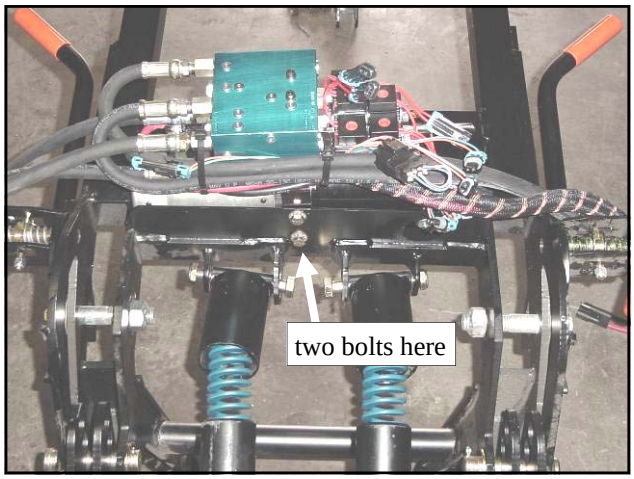


Fig. 6.1 (view taken from the front of the plow)

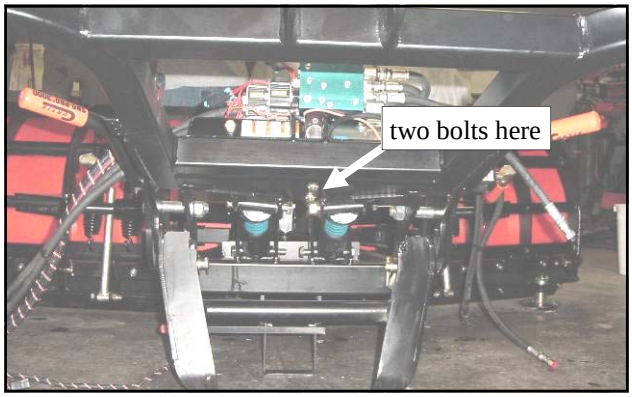


Fig. 6.1.1 (view taken from the vehicle side of the lift frame)

7. LIFT ARM

7.1 Fig. 7.1, attach the lift arm as shown with the slots pointing towards the pump. Use a 1" diameter x 6" long clevis pin and a cotter pin to connect the lift arm to the brackets on the top of the lift frame weldment.

7.2 Per fig. 7.2, attach the final hydraulic cylinder (small, single-acting) to the front section of the lift arm making sure that the ram end of the cylinder is up or towards the right as shown in the photo. Note: the 45 degree fitting should be towards the passenger's side. Use a 1" diameter x 2-1/2" long clevis pin and cotter pin.

7.3 Per fig. 7.2, attach the bottom (stationary) end of the cylinder using a 1" diameter x 3" long clevis pin and cotter pin.

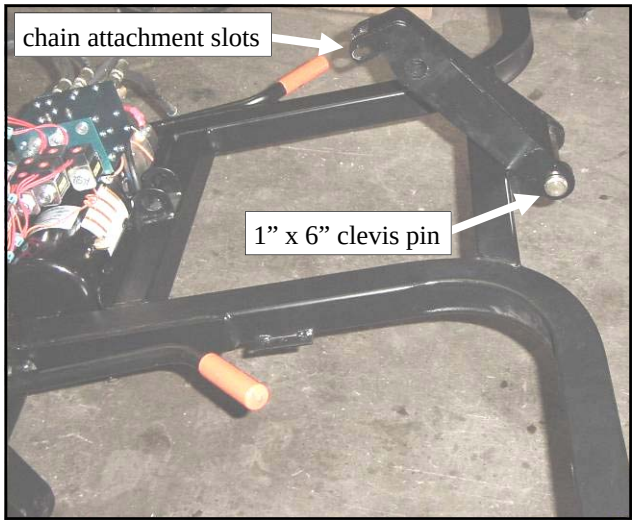


Fig. 7.1 (view of lift arm)

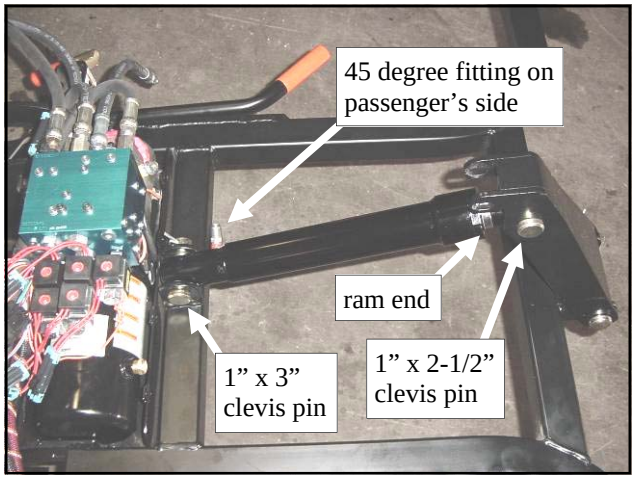


Fig. 7.2 (view of lift cylinder)

8. CHAINS and HOSES

8.1 Using the supplied chain shackles, attach the very first link on one end of each length of chain to the hole provided in the A-Frame vertical plate as shown in figure 8.1. The excess chain links will be towards the main middle lift cylinder as shown.

8.2 Per fig. 8.1 and with assistance, rotate the entire lift frame assembly forward towards the moldboard assembly while rotating and guiding the upper and lower spring cans and springs to come together as a closed unit (i.e.: the exposed portion of the large spring will be inside the large upper spring can).

8.3 Per fig. 8.1, have an assistant push the lift frame assembly forward (lean into it) to collapse the springs a little. At this time, use the last two chain shackles to connect the chains to the slots in the lift arm as shown. Select the link that will make the chain as short as possible (a little slack is okay). The chain may need adjusting once the cylinder is put through it's range of motion several times so leave the last two cotter pins in the upper chain shackles in place but not bent over yet. Reference: step 12.4 on page 14 is when the final chain length will be determined.

8.4 Per fig. 8.4, attach two of the hydraulic hoses to the passenger's side hydraulic cylinder where shown. The hose ports are stamped right into the aluminum block of the manifold. Find the hose associated with port WB and connect it to the ram (outboard) end of the passenger's side hydraulic cylinder. Find the hose associated with port WA and connect it to the stationary end of the passenger's side hydraulic cylinder. **For the driver's side,** (see fig. 8.4.1) find the hose associated with port WD and connect it to the ram (outboard) end of the driver's side hydraulic cylinder. Find the hose associated with port WC and connect it to the stationary end of the driver's side hydraulic cylinder.

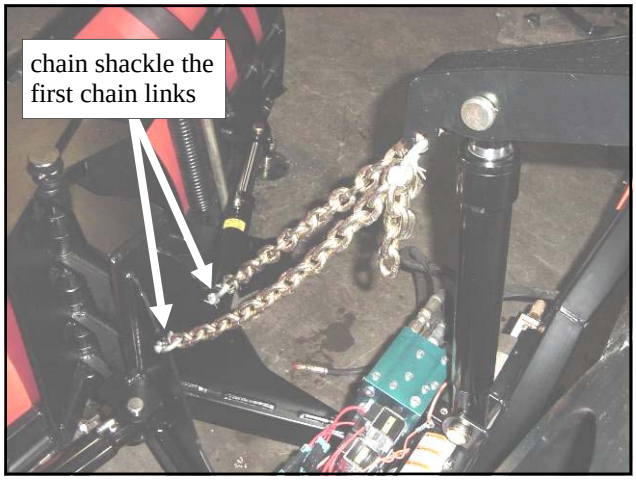


Fig. 8.1 (view from driver's side)

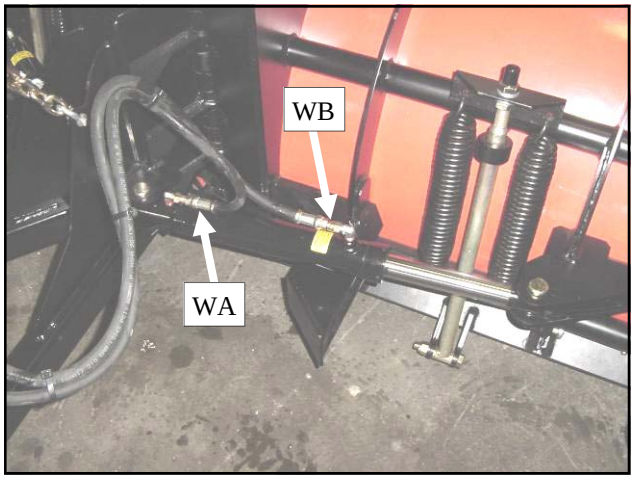


Fig. 8.4 (view from passenger's side)

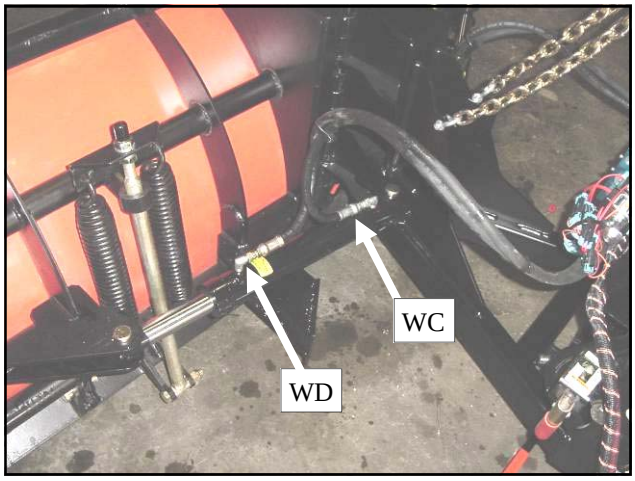


Fig. 8.4.1 (view from driver's side)

8. HOSES (cont'd.)

8.5 Per fig. 8.5, the hydraulic hoses are to be P-clamped and cable tied up and out of the way as shown. Note: area "B" where the arrow is pointing is where the angle stop weldment will rotate to and bottom out on the outside surface of the A-Frame. **Keep this area clear.** Per fig. 8.5.1, use two 5/8" diameter P-clips, one 1/4-20 x 3/4" long hex head bolt, and one 1/4-20 locknut to attach the two driver side hydraulic hoses to the existing hole in the upright portion of the A-Frame as shown. Note the orientation of the hoses in reference to area "B" (up and away from area "B"). Also per fig. 8.5.1, install 3 cable ties around the two hoses to keep them neatly together as shown. Repeat for passenger's side.

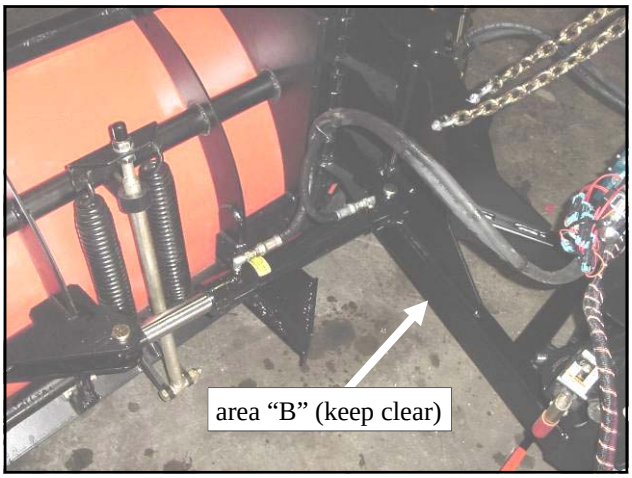


Fig. 8.5 (view of driver's side)

8.6 Per fig. 8.6, orient the pump cover as shown. Feed the "lift" hydraulic hose (the shortest hose, and the only one left) through the rubber grommet in the pump cover and connect to the 45 degree fitting on the lower portion of the single-acting lift frame hydraulic cylinder. The hose ports are stamped right into the aluminum block of the manifold. Confirm that this last hose is associated with port L. Tighten the 45 degree fitting at this time. On the other end of the pump cover, place the loose factory installed protective grommet that is on the wiring harness into the open-ended slotted cutout in the sheet metal pump cover. Leave the pump cover loose and unbolted until step 12.5 on page 14.

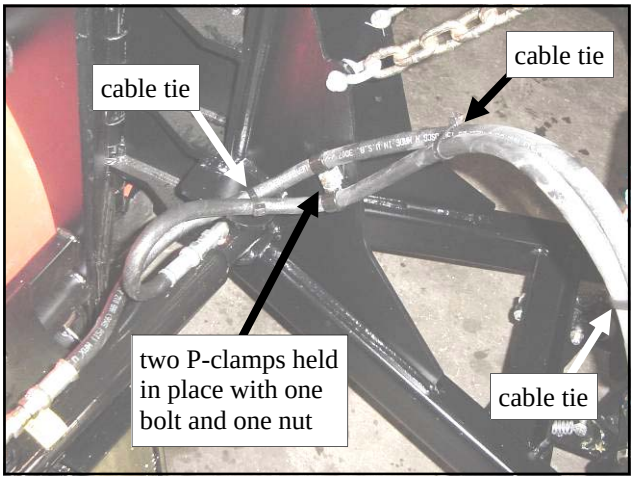


Fig. 8.5.1 (view of driver's side)

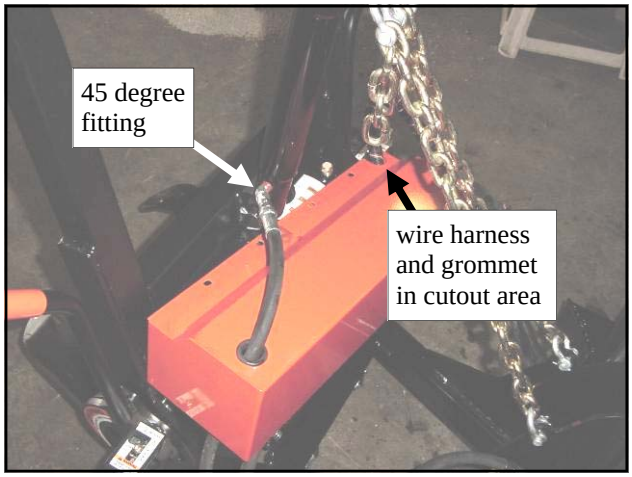


Fig. 8.6 (view of passenger's side)

9. LIGHTS and WIRE HARNESS

9.1 Per fig. 9.1, install one thick rubber washer inside one steel cup washer as shown (with the rubber showing out the bottom).

9.2 Per fig. 9.2, loosely bolt the passenger's side head light to the top of the lift frame tubing facing forward. The above mentioned rubber washer assembly should be oriented so the exposed rubber face is down and sitting on top of the lift frame tubing with the cupped portion of the steel up to function as a swivel feature for aiming the lights in step 13 on page 15. Repeat for driver's side.

9.3 Per fig. 9.3, install the single large P-clamp on the driver's side as shown using a 1/4-20 x 3/4" long hex head bolt and locknut to hold the large, heavy portion of the wiring harness. Note: the bolt can be installed in any of the three holes in the bracket that is welded onto the side of the lift frame approximately where shown.

9.4 Per fig. 9.4, install the plug storage holder oriented so it's towards the front of the lift frame. Use the following hardware into the factory installed threaded insert in the bottom wall of the lift frame tubing on the driver's side: one 1/2-13 x 1" long hex head bolt and one 1/2" star washer. Use caution to avoid cross-threading the factory installed threaded insert. Start the thread engagement by hand. Tighten the bolt fully.

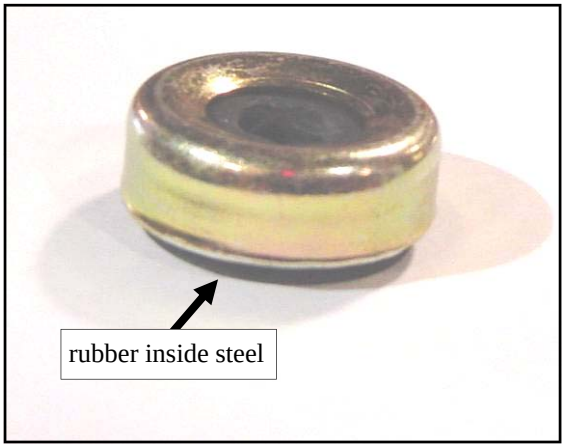


Fig. 9.1 (view of steel and rubber washer)

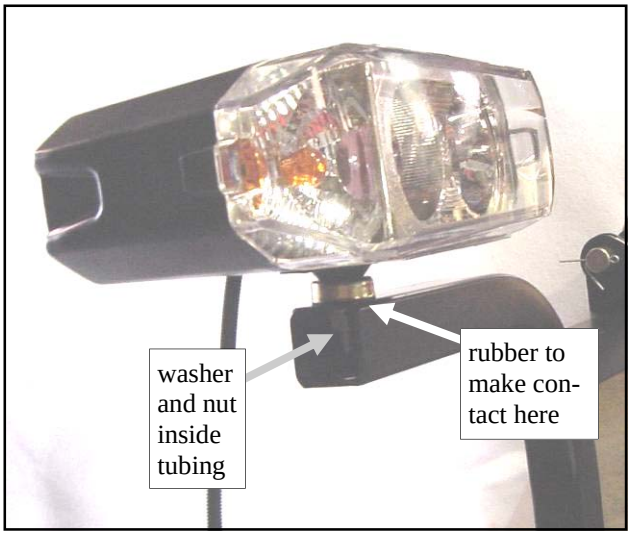


Fig. 9.2 (view of passenger's side)

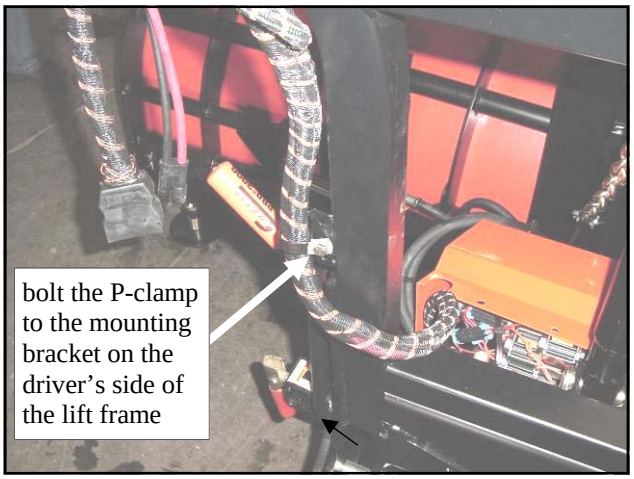


Fig. 9.3 (view of driver's side)

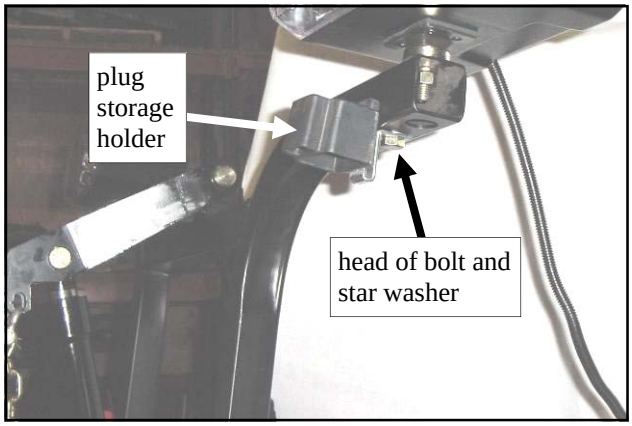


Fig. 9.4 (view from front of driver's side)

9. WIRE HARNESS (cont'd.)

9.5 Per fig. 9.5, attach the wiring harnesses to the back side of the lift frame as shown using the supplied large cable ties.

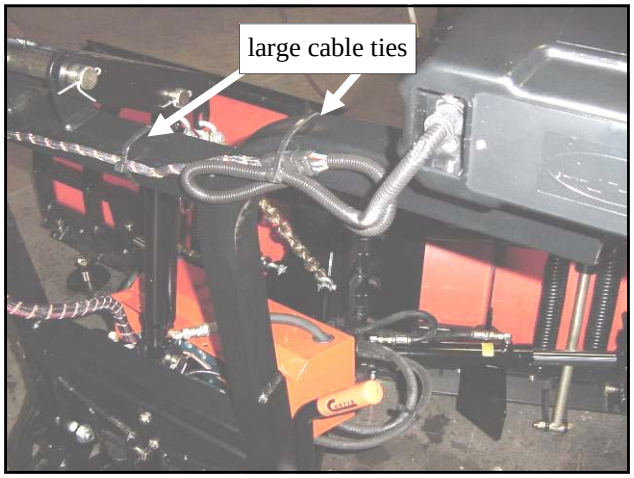


Fig. 9.5 (view showing back side of lift frame)

10. BLADE MARKERS

10.1 Per fig. 10.1, install the supplied orange blade markers to the outboard surface of the outermost rib on each side. The driver's side is shown. Repeat for passenger's side. The upper portion of the ribs have holes for the supplied 5/16" hardware. Tighten bolts.

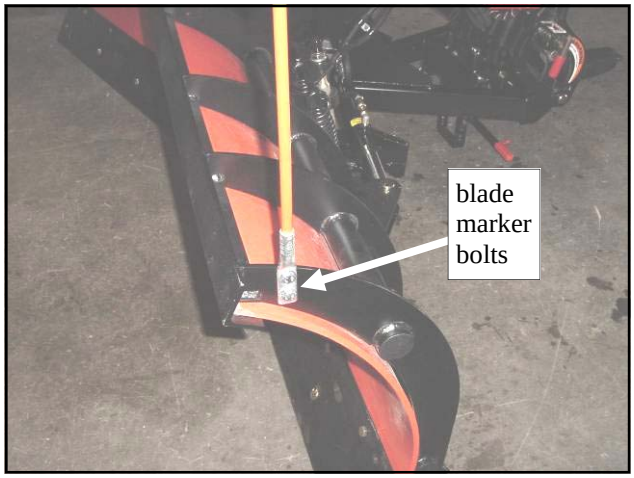


Fig. 10.1 (view of driver's side)

11. ATTACH PLOW TO VEHICLE

11.1 Per fig. 11.1, rotate the latch hook handle fully towards the front of the plow as shown. Driver's side shown. Repeat for passenger's side. Per fig. 11.1.1, a white arrow indicates the projected path of the solid round bar stock on the vehicle mounting weldment as it will be guided into place then securely latched in place.

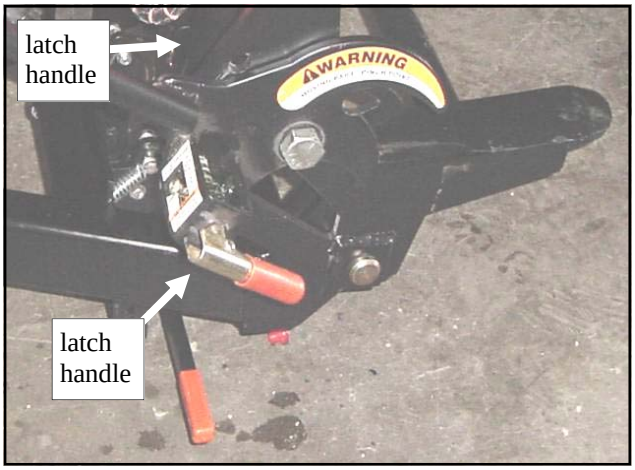


Fig. 11.1 (view of driver's side)

Fig. 11.1.1 (enlarged view of driver's side)

11. VEHICLE ATTACHMENT (cont'd.)

11.2 Per fig. 11.2, line up the front of the vehicle central with the back of the plow (within approximately 2" left to right). Drive forward enough to engage the latch hook on each side of the vehicle. Once fully engaged, rotate each latch handle up 90 degrees as shown in figure 11.2.1. Engage the locking mechanism by pushing the short handle in towards the center of the pump and then rotating it 90 degrees as the label indicates. See figure 11.2.2 for an enlarged view of the locking mechanism.

11.3 Per fig. 11.3, fold away the jack stand by pivoting the handle towards the plow.

11.4 The next page shows a detailed wiring diagram. Make connections to the battery, etc. as shown.

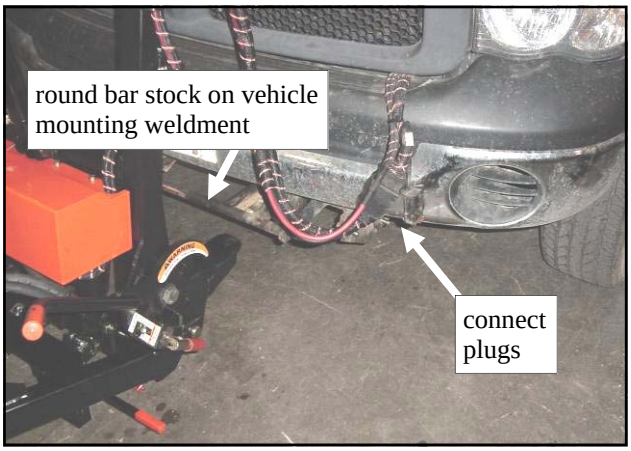


Fig. 11.2 (view of driver's side)

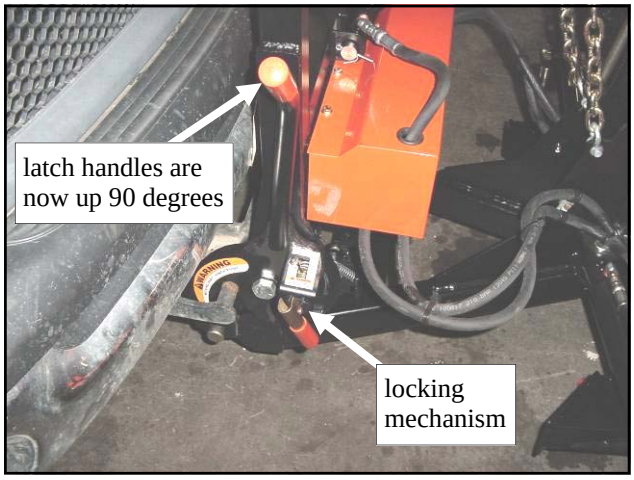


Fig. 11.2.1 (view of passenger's side)

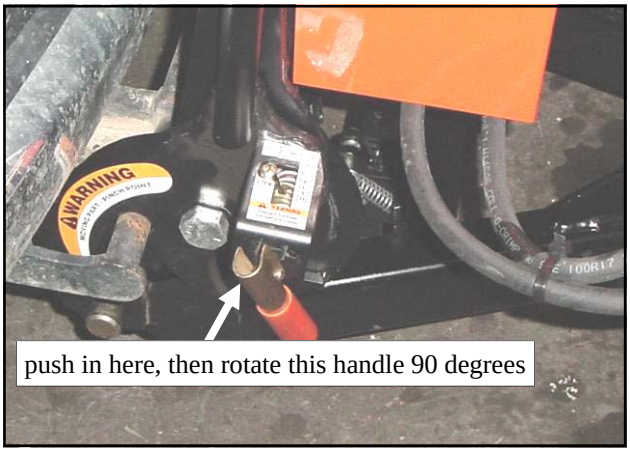


Fig. 11.2.2 (view of passenger's side)

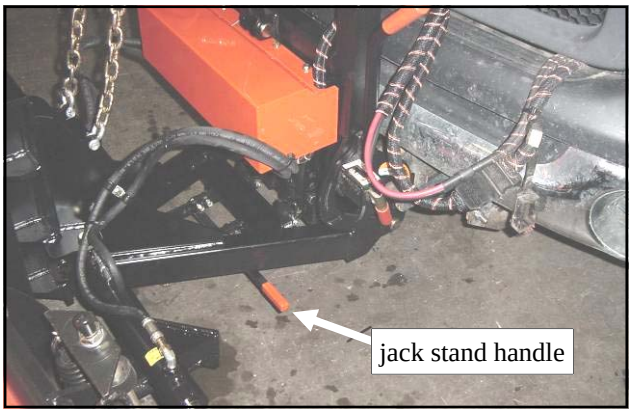
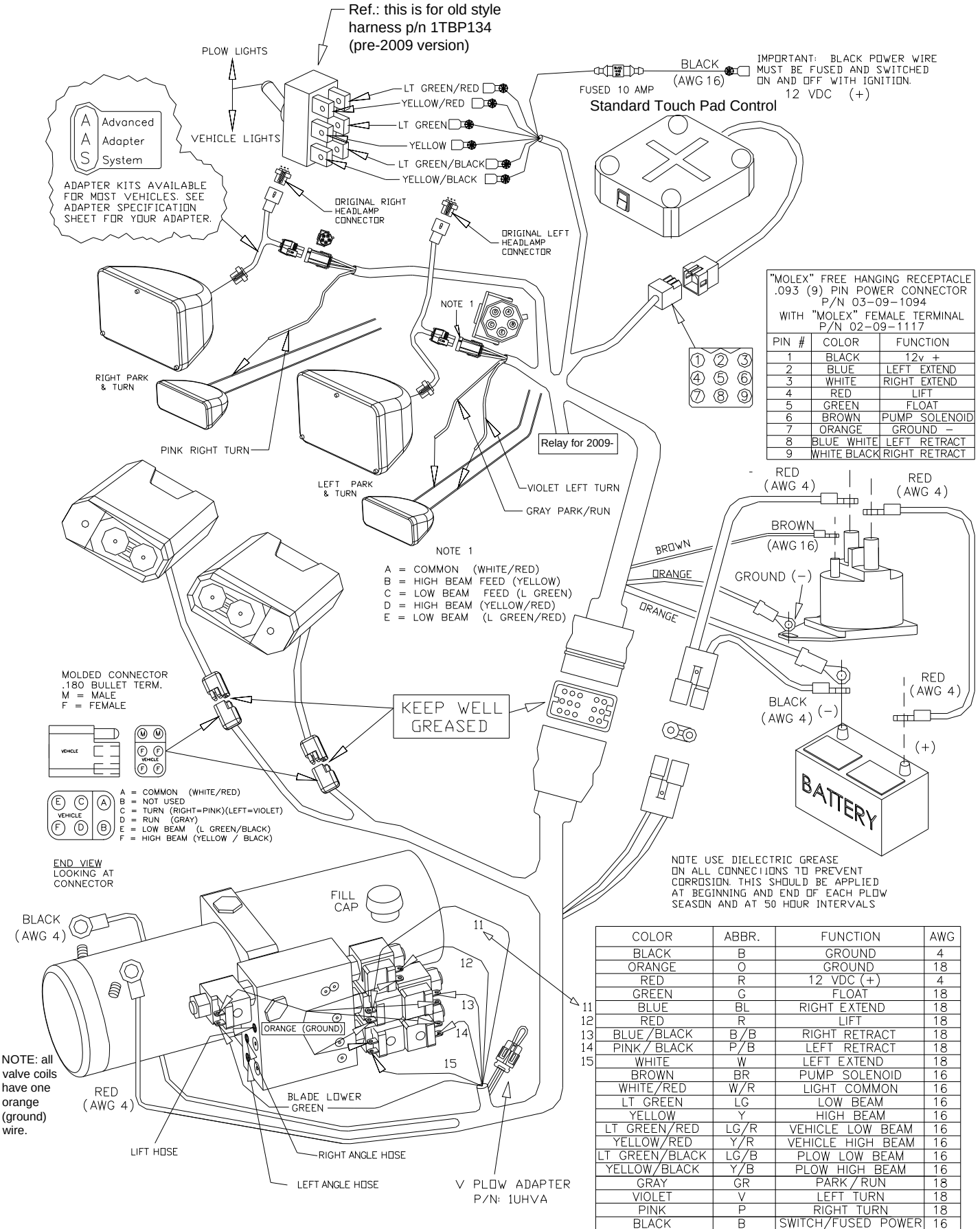


Fig. 8.2.1 (view of driver's side)

ELECTRICAL DIAGRAM

Make all electrical connections per the sketch below.



"MOLEX" FREE HANGING RECEPTACLE .093 (9) PIN POWER CONNECTOR P/N 03-09-1094
WITH "MOLEX" FEMALE TERMINAL P/N 02-09-1117

PIN #	COLOR	FUNCTION
1	BLACK	12v +
2	BLUE	LEFT EXTEND
3	WHITE	RIGHT EXTEND
4	RED	LIFT
5	GREEN	FLOAT
6	BROWN	PUMP SOLENOID
7	ORANGE	GROUND -
8	BLUE WHITE	LEFT RETRACT
9	WHITE BLACK	RIGHT RETRACT

	COLOR	ABBR.	FUNCTION	AWG
	BLACK	B	GROUND	4
	ORANGE	O	GROUND	18
	RED	R	12 VDC (+)	4
	GREEN	G	FLOAT	18
11	BLUE	BL	RIGHT EXTEND	18
12	RED	R	LIFT	18
13	BLUE/BLACK	B/B	RIGHT RETRACT	18
14	PINK/BLACK	P/B	LEFT RETRACT	18
15	WHITE	W	LEFT EXTEND	18
	BROWN	BR	PUMP SOLENOID	16
	WHITE/RED	W/R	LIGHT COMMON	16
	LT GREEN	LG	LOW BEAM	16
	YELLOW	Y	HIGH BEAM	16
	LT GREEN/RED	LG/R	VEHICLE LOW BEAM	16
	YELLOW/RED	Y/R	VEHICLE HIGH BEAM	16
	LT GREEN/BLACK	LG/B	PLOW LOW BEAM	16
	YELLOW/BLACK	Y/B	PLOW HIGH BEAM	16
	GRAY	GR	PARK/RUN	18
	VIOLET	V	LEFT TURN	18
	PINK	P	RIGHT TURN	18
	BLACK	B	SWITCH/FUSED POWER	16

12. PREP THE CYLINDERS (important)

12.1 Move or rotate the driver's side of the loose pump cover to access the fill plug for the hydraulic fluid. See figure 12.1 for the location of the fill plug.

12.2 Fill the pump reservoir with hydraulic fluid. Allow a minimum of 15 minutes to properly perform the following two **very important** steps (steps 12.3 and 12.4 below).

12.3 With the "V" plow on the ground, extend and retract the driver's side hydraulic cylinder fully 10 times. Repeat for the passenger's side (10 times fully).

12.4 Lift the "V" plow off the ground fully 5 to 6 times. Top off the hydraulic fluid during this step. All air must be out of the system for proper functioning of the plow. Adjust (shorten) the lift chain at this time if it has developed enough slack to be tightened up one or two more links. Bend the two cotter pins on the upper chain shackles at this time.

12.5 Per fig. 12.5, secure the pump cover in place using the following hardware: four 1/4-20 x 5/8" long hex head bolts, four 1/4" lock washers, and four 1/4" flat washers. These will engage into factory installed weldnuts on the lift frame. Use caution to avoid cross-threading the factory installed weldnuts. Start the bolt engagement by hand. Tighten all four bolts.

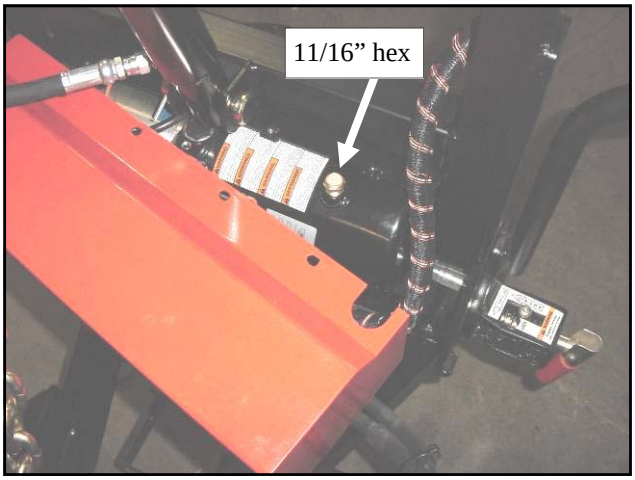


Fig. 12.1 (view of driver's side)

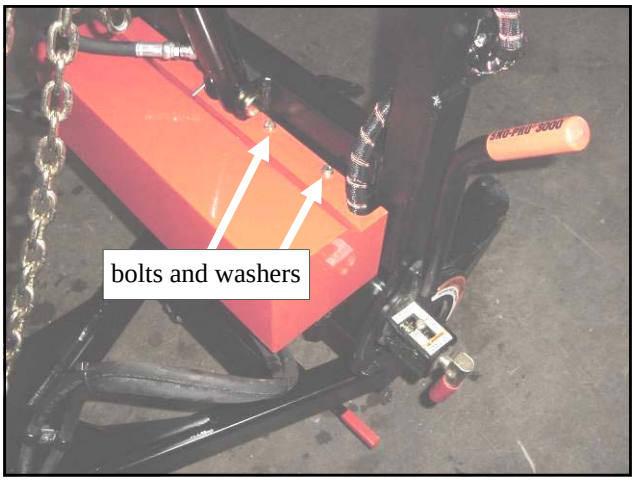


Fig. 12.5 (view of driver's side)

13. PLOW LIGHT BEAM AIMING

13.1 Remove ice or mud from under fenders if applicable. Check that no tire is noticeably deflated. Check springs for sag or broken leaves. Check functioning of any “level-ride” control. Check plow light lens and aiming system for loose or broken parts. Check bulbs for burn-outs and for proper beam switching. Stabilize the suspension by rocking the vehicle sideways.

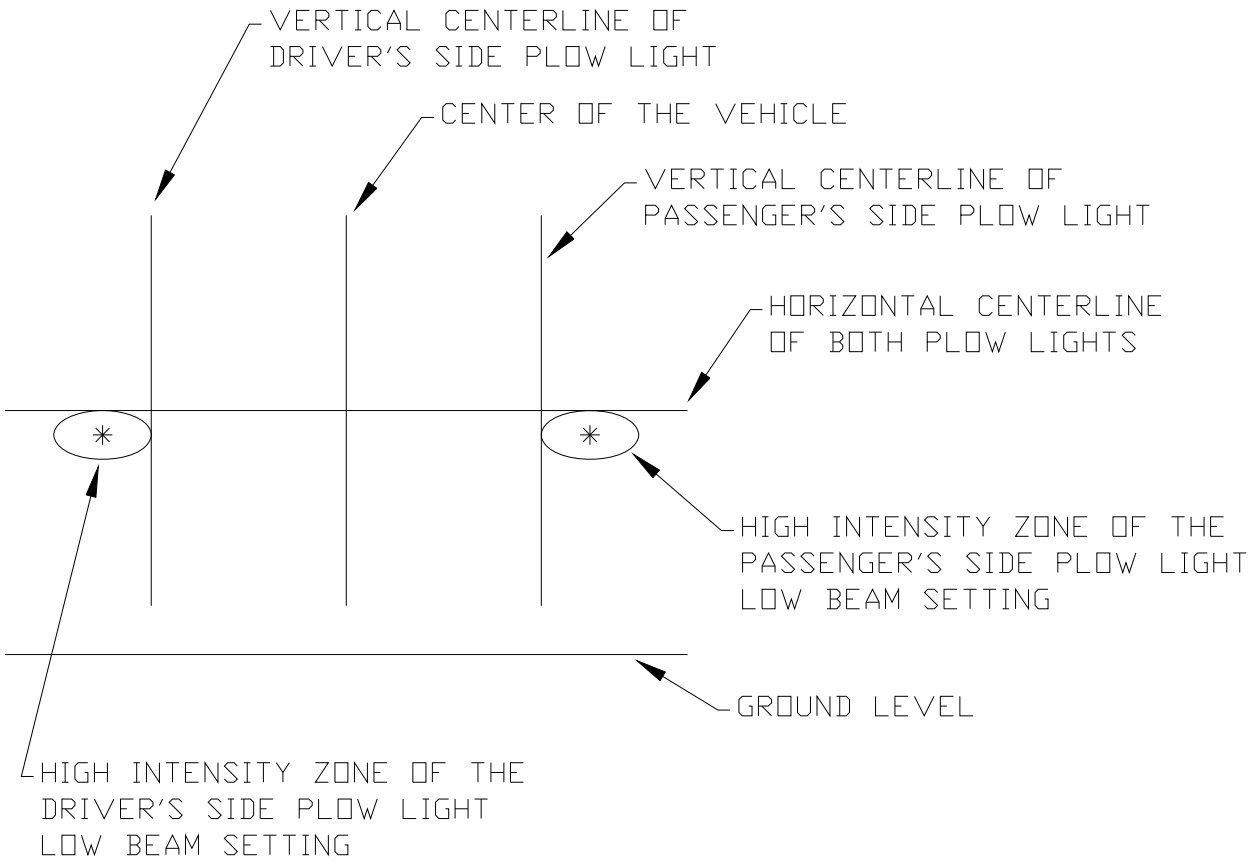
13.2 The vehicle should be ballasted for snow plowing with a driver. The snow blade should be in place on the vehicle and in the raised position.

13.3 On a level surface, park the vehicle so the front clear lens of the plow lights are 25 feet away from a large surface that is perpendicular to the ground such as a garage door, etc.. The long, front-to-back centerline of the vehicle should be perpendicular to this large surface (i.e.: a garage door, etc.).

13.4 Below are specifications from the Society of Automotive Engineers (SAE) pertinent to headlamp aiming per specification #SAE J599.

13.5 Mark or tape 3 vertical lines on the “garage door” that accurately represent the center of the vehicle and the center of each of the plow lights. Mark or tape one horizontal line on the “garage door” that accurately represents the center of the plow lights from the ground up.

13.6 The correct aim for the plow lights is to have the high intensity zone of the low beam setting (the brightest area which is shown as ovals in the diagram below) be adjacent to the horizontal and vertical lines as shown below (just below the horizontal line and just outboard of the vertical lines).



14. FINISHING TOUCHES

14.1 Per fig. 14.1, once the lights have been properly aimed and the 1/2" hex nuts in the end of the lift frame tubing have been tightened, press the supplied 2" square plastic plugs into the ends of the tubing and the 1-1/8" round plastic plugs into the nut access hole on the underside of the lift frame tubing. Repeat for driver's side.

14.2 Per fig. 14.2, the plug storage holder can be used as shown when the plow is not attached to a vehicle.

14.3 Per fig. 14.3, with the plow in position on the vehicle, set the jack stand height so it clears the ground by approximately half an inch (1/2"). If the height is correct as shipped from the factory, simply tighten the four bolts (2 per side) in the existing holes. If adjustment is needed, remove the loose bolts and select the appropriate set of holes then tighten all four bolts (2 per side).

15. TROUBLE SHOOTING

15.1 If any of the three (3) hydraulic cylinders are performing too slowly, there may still be air in the system. Repeat steps 12.3 and 12.4 on page 14. This is a very important step for removing all the air in the system.

15.2 For electrical trouble shooting, see more detail on pages 21 through 24.

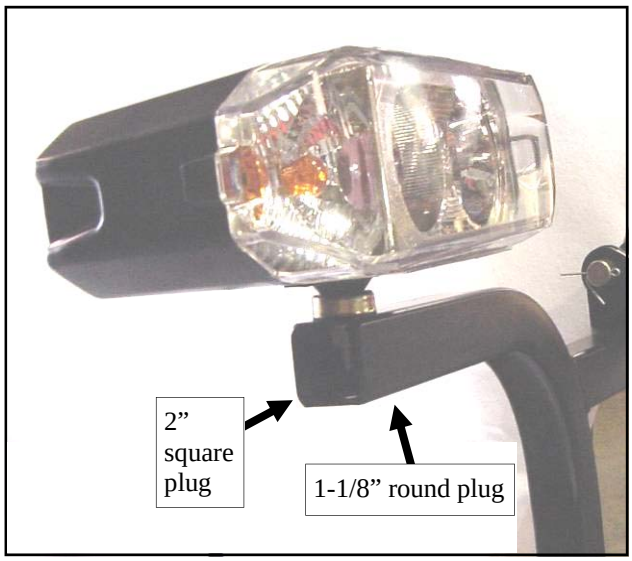


Fig. 14.1 (view of passenger's side)

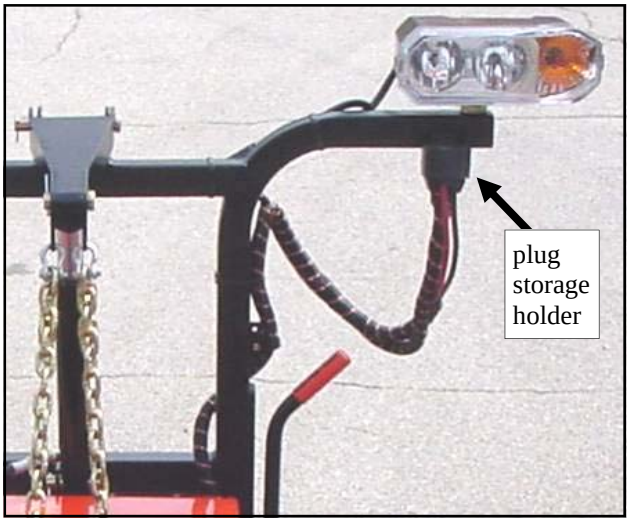


Fig. 14.2 (view of driver's side)

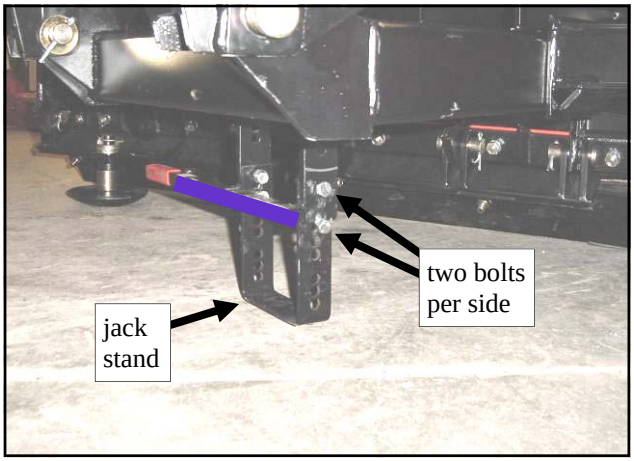


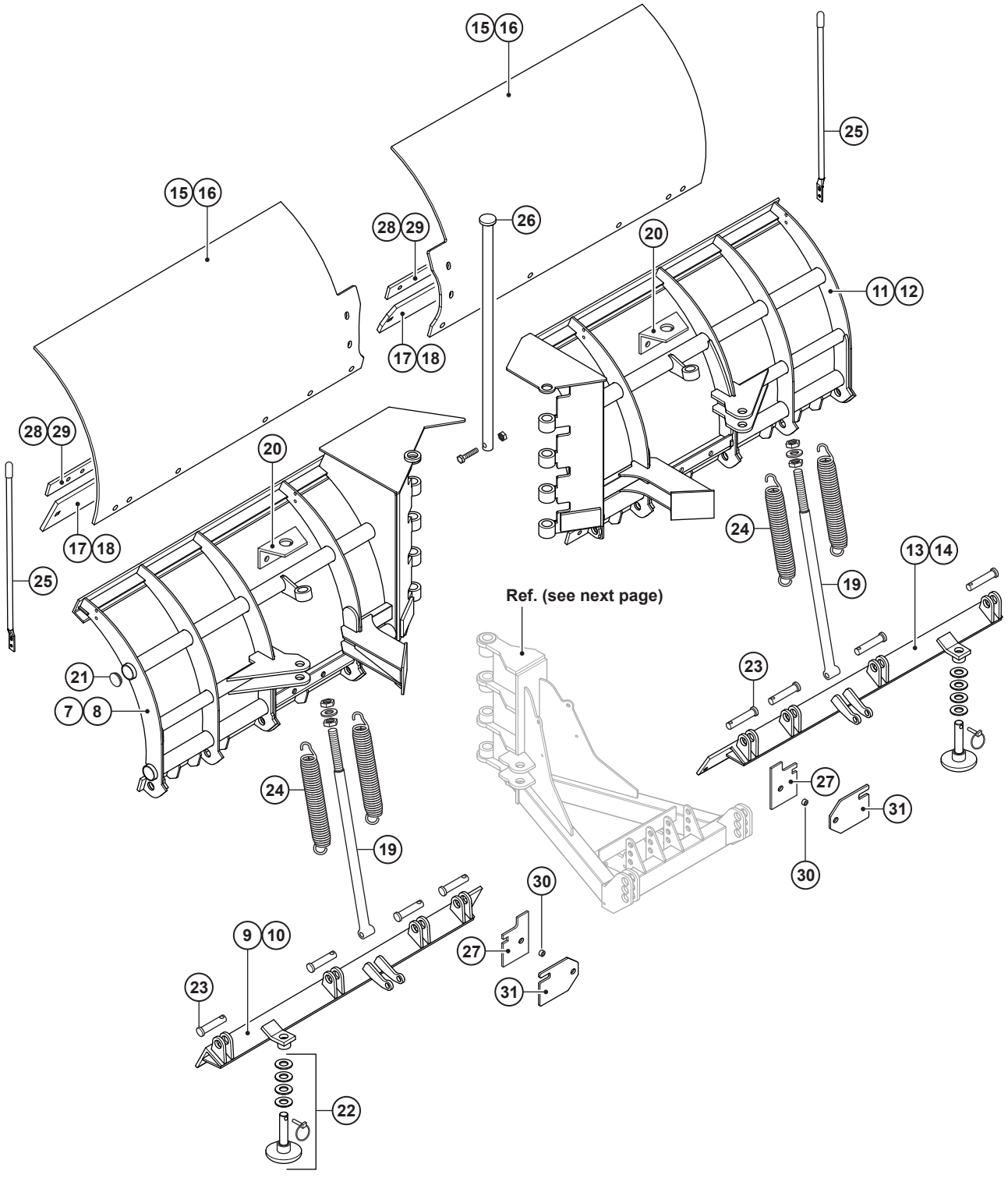
Fig. 14.3 (view from passenger's side)

		1SPVTP_MB	
		MOLDBOARD &COMPONENTS	
Ref #	Item #	ITEM DESCRIPTION	QTY
1	1TBP21VP8	8'- 2" POLY MOLDBOARD V-PLOW	1
2	1TBP21VP9	9'- 2" POLY MOLDBOARD V-PLOW	1
3	1TBP21VP8L	MOLDBOARD WITH TRIP EDGE-8.2' POLY V-PLOW DRIVERS SIDE	1
4	1TBP21VP9L	MOLDBOARD WITH TRIP EDGE-9.2' POLY V-PLOW DRIVERS SIDE	1
5	1TBP21VP8R	MOLDBOARD WITH TRIP EDGE-8.2' POLY V-PLOW PASSENGERS SIDE	1
6	1TBP21VP9R	MOLDBOARD WITH TRIP EDGE-9.2' POLY V-PLOW PASSENGERS SIDE	1
7	1TBP21VP8L-M	MOLDBOARD-8.2 POLY V PLOW DRIVERS SIDE	1
8	1TBP21VP9L-M	MOLDBOARD-9.2 POLY V PLOW DRIVERS SIDE	1
9	1TBP21VP8L-T	TRIP EDGE ANGLE-8.2' POLY VPLOW DRIVERS SIDE	1
10	1TBP21VP9L-T	TRIP EDGE ANGLE-9.2' POLY VPLOW DRIVERS SIDE	1
11	1TBP21VP8R-M	MOLDBOARD-8.2 POLY V PLOW PASSENGER SIDE	1
12	1TBP21VP9R-M	MOLDBOARD-9.2 POLY V PLOW PASSENGER SIDE	1
13	1TBP21VP8R-T	TRIP EDGE ANGLE-8.2' POLY VPLOW PASSENGERS SIDE	1
14	1TBP21VP9R-T	TRIP EDGE ANGLE-9.2' POLY VPLOW PASSENGERS SIDE	1
15	1TBP124-46	SKIN POLY 8.2' 3/8" THICK POLYETHYENE,REV.B	2
16	1TBP124-52	SKIN POLY 9.2' 3/8" THICK POLYETHYENE,REV.B	2
17	1TBP49V3	CUTTING EDGE, 8'-2" POLY V-PLOW REV.D	2
18	1TBP49V4	CUTTING EDGE, 9'-2" POLY V-PLOW REV A	2
19	1TBP142	SPRING ADJUSTMENT ROD - TRIP EDGE	2
20	1TBP143	SPRING ADJUSTMENT ROD TOP ANGLE - TRIP EDGE	2
21	1TBP166	1 3/4" ROUND END PLUG, V-PLOW	4
22	1TBP50	SKID SHOE (CAST DUCTILE IRON)	2
23	1VP14	1" x 2-1/2" CLEVIS PIN	8
24	1TBP33	TRIP SPRING	4
25	1TBP37	BLADE MARKER KIT (SET OF 2)	1
26	1VP10	MOLDBOARD HINGE PIN, V-PLOW	1
27	1VP3A	CUTTING EDGE CENTER FLAP,3/8 RUBBER, 7.75" X 6.25", REV.B	2
28	1TBP21VP8-BSB	BOTTOM SKIN BAR-46.375" LONG POLY V PLOW	2
29	1TBP21VP9-BSB	BOTTOM SKIN BAR-52.375" LONG POLY V PLOW	2
30	1VP20	CENTER FLAP BUSHING	2
31	1VP81	CENTER FLAP PLATE	2

Note: reference numbers refer to the illustration on the next page.

1SPVTP_MB - V-Plow Moldboard and Components

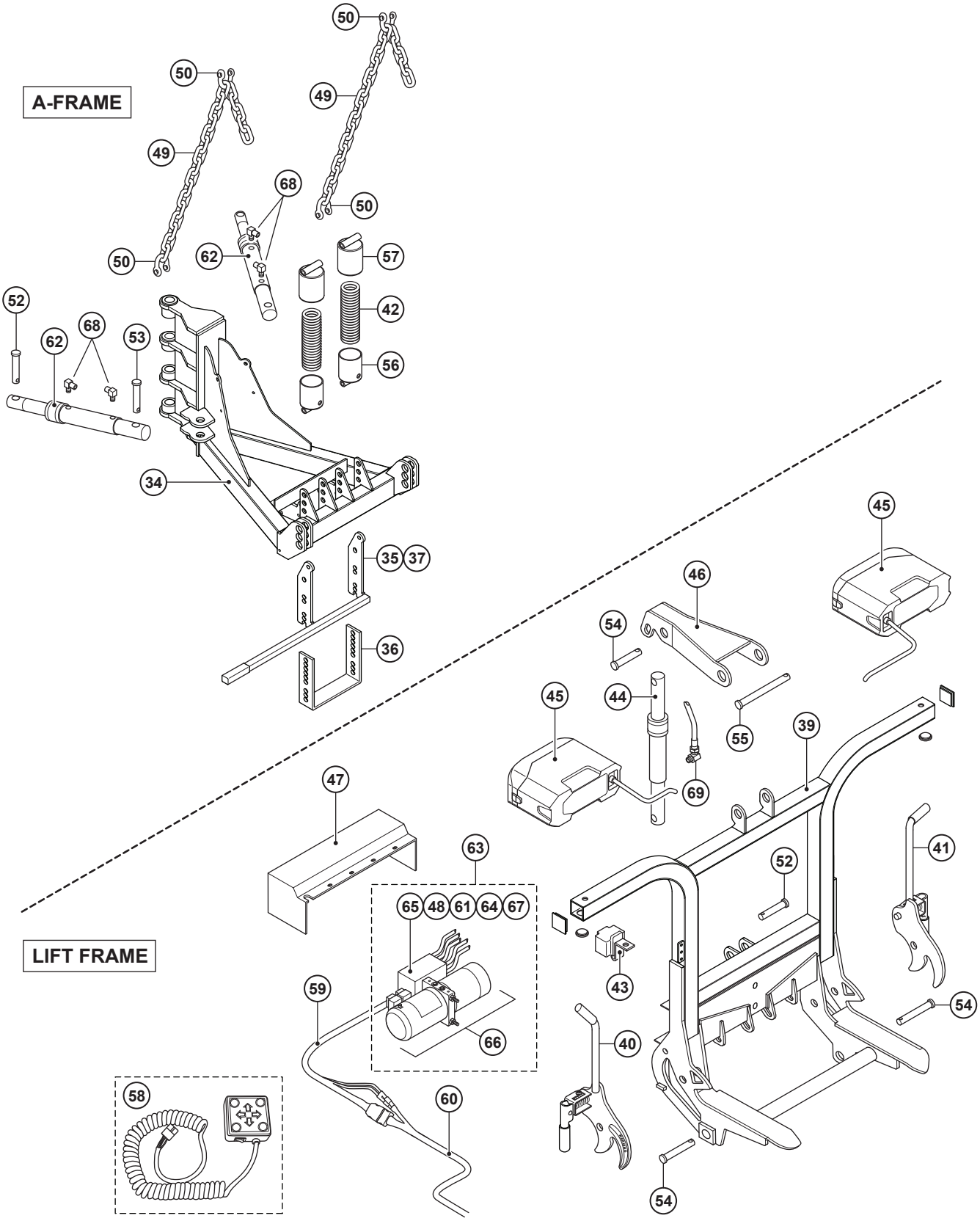
1. *1TBP21VP8 8'-2" Poly Moldboard V-Plow Complete*
2. *1TBP21VP9 9'-2" Poly Moldboard V-Plow Complete*
3. *1TBP21VP8L 8'-2" Poly Moldboard V-Plow Drivers Side Moldboard w/Trip Edge Complete*
4. *1TBP21VP9L 9'-2" Poly Moldboard V-Plow Drivers Side Moldboard w/Trip Edge Complete*
5. *1TBP21VP8R 8'-2" Poly Moldboard V-Plow Passengers Side Moldboard w/Trip Edge Complete*
6. *1TBP21VP9R 9'-2" Poly Moldboard V-Plow Passengers Side Moldboard w/Trip Edge Complete*



1SPVTP_PP - V-Plow Lift Frame, A-Frame and Other Parts

(32) *PP#1VPTP - V-Plow Poly Trip Edge Plow Package #1 Complete* (33) *1TBP29VTP - V-Plow Poly Trip A-Frame Complete*

(38) *1TBP38V - V-Plow Poly Trip Edge Lift Frame including Latch Hooks Complete*



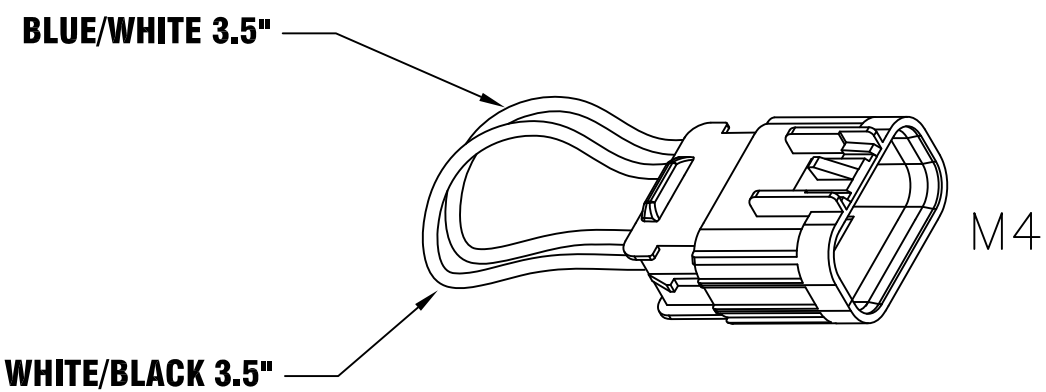
		1SPVTP_PP	
		PLOW PACKAGE INCL. LIFT FRAME, AFRAME AND OTHER PARTS	
Ref #	Item #	ITEM DESCRIPTION	QTY
32	PP #1VPTP	PLOW PACKAGE #1, V-PLOW POLY TRIP EDGE	1
33	1TBP29VTP	A-FRAME, V PLOW POLY TRIP COMPLETE	1
34	8SV-VPPAF-B5	A-FRAME, V PLOW POLY TRIP -FRAME ONLY	1
35	1TBP106V	JACK LEG W/HEIGHT ADJUSTMENT V-PLOW	1
36	1TBP106V1	JACK STAND - V PLOW	1
37	1TBP106V2	TUBE, 1" OD X 5/16 WALL X 3/8 LONG, JACK STAND PIVOT BUSHING	2
38	1TBP38V	LIFT FRAME, V-PLOW INCL. LATCH HOOKS	1
39	8SV-VPPLF-B5	LIFT FRAME, V-PLOW -FRAME ONLY (BLACK)	1
40	1TBP114	DRIVER'S SIDE LATCH HOOK	1
41	1TBP115	PASSENGER'S SIDE LATCH HOOK	1
42	1CP39	SPRING, BLUE DIE, 2" x 8" COMMERCIAL PLOW	2
	1CPMK-HWK	HARDWARE KIT - CURTIS PLUG MOUNT	1
43	1FKP2	PLUG MOUNT BRACKET FOR THE 2 PC HARNESS	1
44	1TBP27	10" ANGLE PISTON - 1-1/2" X10" STROKE SINGLE ACT HYD CYL	1
45	1TBP39B	LIGHT KIT (SET OF 2)	1
46	1TBP40V	LIFT ARM - V-PLOW	1
47	1TBP58V	PUMP COVER FOR V-PLOW	1
48	1TBP61A	12V MOTOR SOLENOID	1
49	1TBP30C	5/16" X 26" CHAIN	2
50	1TBP31	5/16" ANCHOR SHACKLE	4
51	1VP14	1" x 2-1/2" CLEVIS PIN	1
52	1TBP73	1" X 3" CLEVIS PIN	3
53	1TBP145	1" X 3-1/2" CLEVIS PIN	2
54	1TBP23	1" X 4" CLEVIS PIN	2
55	1TBP92	1" X 6" CLEVIS PIN	1
56	1TBP-LWRCAN	LOWER SPRING CAN V-PLOW	2
57	1TBP-UPRCAN	UPPER SPRING CAN V-PLOWS	2
58	1TP1VA	TOUCH PAD CONTROL, V-PLOW, DOUBLE ACTING CYLINDER	1
59	1UHP	UNIVERSAL HARNESS PLOW SIDE	1
60	1UHT	UNIVERSAL HARNESS-TRUCK SIDE	1
61	1UHVA	V-PLOW ADAPTER (V-PLOW ONLY)	1
62	1VP1	CYLINDER, 2" x 10" STROKE DOUBLE ACTING, V-PLOW	2
	1VPP-HWB	HARDWARE KIT,8.2/ 9.2 POLY V- PLOW	1
63	1TBP59AP1-B	V-PLOW POWER UNIT COMPLETE MANIFOLD/HARNESSES/HOSES	1
64	1TBP200	STEEL SAE BOSS ADAPTER CONN. MALE ORING, FEMALE PIPE	5
65	1TBP59AP2V	MANIFOLD BLOCK ASSEMBLY,V-PLOW COMPLETE WITH VALVES & COILS	1
66	1TBP59AP4	ELECTRIC/HYDRAULIC POWER UNIT ONLY, COMMERCIAL & V-PLOW	1
67	1TBP63B	RESERVOIR CAP - SNO-PRO 3000 INTERNAL (3/8" BRONZE)	1
	1TBP98K	DRIVER'S EXTEND HOSE 60" (WC PORT ON MANIFOLD)	1
	1TBP98L	DRIVER'S RETRACT HOSE 63" (WD PORT ON MANIFOLD)	1
	1TBP98M	PASSENGER'S EXTEND HOSE 45" (WA PORT ON MANIFOLD)	1
	1TBP98N	PASSENGER'S RETRACT HOSE 50" (WB PORT ON MANIFOLD)	1
	1TBP98O	HYDRAULIC HOSE - 19" (LIFT) 3/8"	1
68	1TBP98G	90 DEGREE ELBOW	4
69	1TBP98H	45 DEGREE ELBOW FOR LIFT PISTON	1

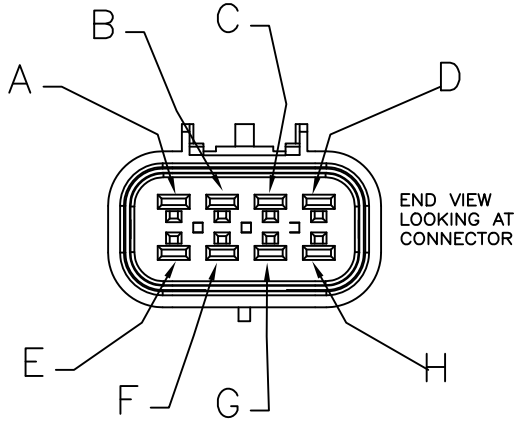
PACKARD GT 280 CONNECTOR P/N 15326655
TERMINAL 15304731 (M) SEAL P/N 12191223
CAVITY PLUG 15305170

M4

PIN #	COLOR	FUNCTION	AWG
A	BLUE/WHITE	L Retract	18
B	WHITE/BLACK	R Retract	16
C	Cavity Plug	N/A	N/A
D	Cavity Plug	N/A	N/A
E	Cavity Plug	N/A	N/A
F	WHITE/BLACK	R Retract	16
G	BLUE/WHITE	L Retract	18
H	Cavity Plug	N/A	N/A

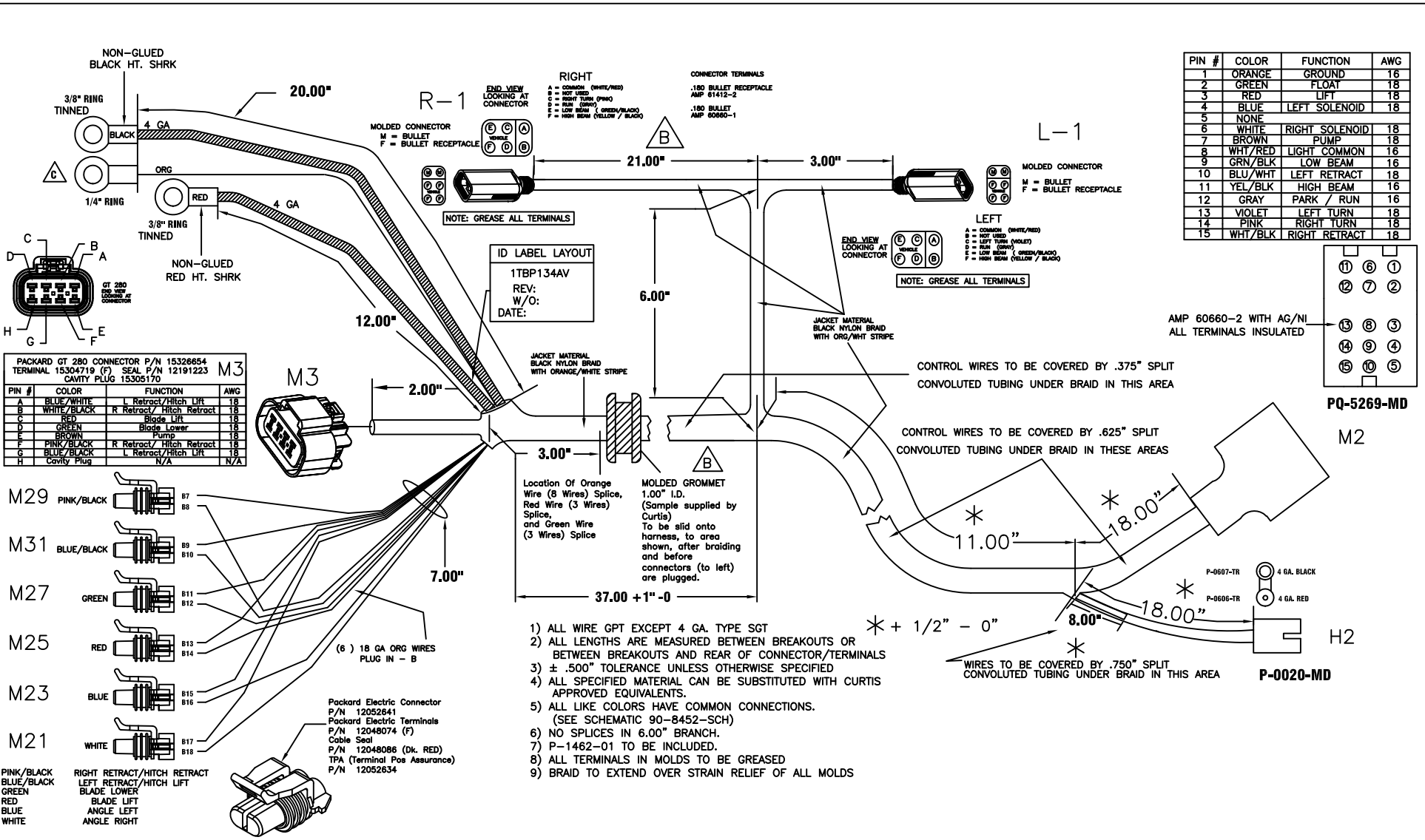
JUMPER JUMPER





Packard Electric Connector
P/N 15326655
Packard Electric Terminals
P/N 15304731 (M)
Cable Seal
P/N 12191223 (TAN)
CAVITY PLUG 15305170

1) ALL WIRE GPT
2) ALL LENGTHS ARE MEASURED BETWEEN BREAKOUTS OR BETWEEN BREAKOUTS AND REAR OF CONNECTOR/TERMINALS
3) ± .500" TOLERANCE UNLESS OTHERWISE SPECIFIED
4) ALL SPECIFIED MATERIAL CAN BE SUBSTITUTED WITH CURTIS APPROVED EQUIVALENTS.

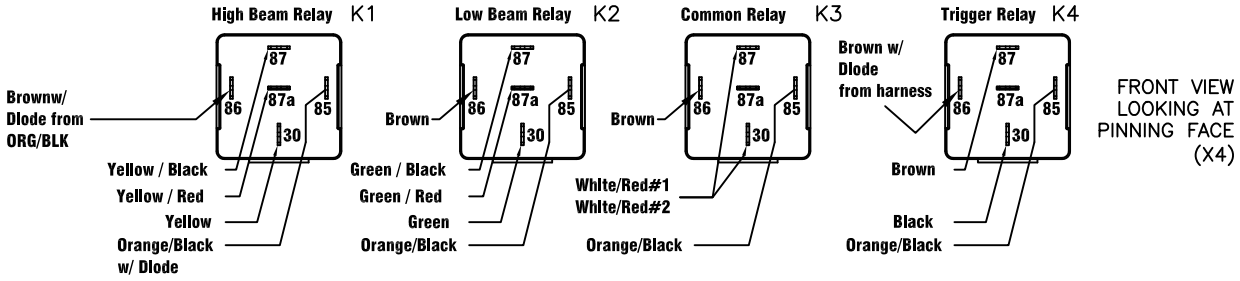


PACKARD GT 280 CONNECTOR P/N 15326654
TERMINAL 15304719 (F) SEAL P/N 12191223
CAVITY PLUG 15305170 M3

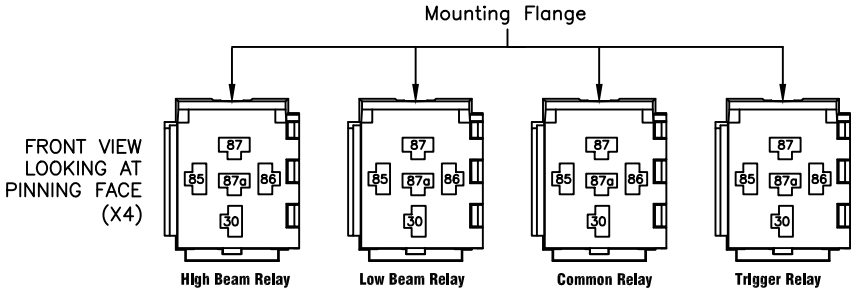
PIN #	COLOR	FUNCTION	AWG
A	BLUE/WHITE	L Retract/Hitch Lift	18
B	WHITE/BLACK	R Retract/ Hitch Retract	18
C	RED	Blade Lift	18
D	GREEN	Blade Lower	18
E	BROWN	Pump	18
F	PINK/BLACK	R Retract/ Hitch Retract	18
G	BLUE/BLACK	L Retract/Hitch Lift	18
H	Cavity Plug	N/A	N/A

PIN #	COLOR	FUNCTION	AWG
1	ORANGE	GROUND	16
2	GREEN	FLOAT	18
3	RED	LIFT	18
4	BLUE	LEFT SOLENOID	18
5	NONE		
6	WHITE	RIGHT SOLENOID	18
7	BROWN	PUMP	18
8	WHT/RED	LIGHT COMMON	16
9	GRN/BLK	LOW BEAM	16
10	BLU/WHT	LEFT RETRACT	18
11	YEL/BLK	HIGH BEAM	16
12	GRAY	PARK / RUN	16
13	VIOLET	LEFT TURN	18
14	PINK	RIGHT TURN	18
15	WHT/BLK	RIGHT RETRACT	18

1) ALL WIRE GPT EXCEPT 4 GA. TYPE SGT
2) ALL LENGTHS ARE MEASURED BETWEEN BREAKOUTS OR BETWEEN BREAKOUTS AND REAR OF CONNECTOR/TERMINALS
3) ± .500" TOLERANCE UNLESS OTHERWISE SPECIFIED
4) ALL SPECIFIED MATERIAL CAN BE SUBSTITUTED WITH CURTIS APPROVED EQUIVALENTS.
5) ALL LIKE COLORS HAVE COMMON CONNECTIONS. (SEE SCHEMATIC 90-8452-SCH)
6) NO SPLICES IN 6.00" BRANCH.
7) P-1462-01 TO BE INCLUDED.
8) ALL TERMINALS IN MOLDS TO BE GREASED
9) BRAID TO EXTEND OVER STRAIN RELIEF OF ALL MOLDS



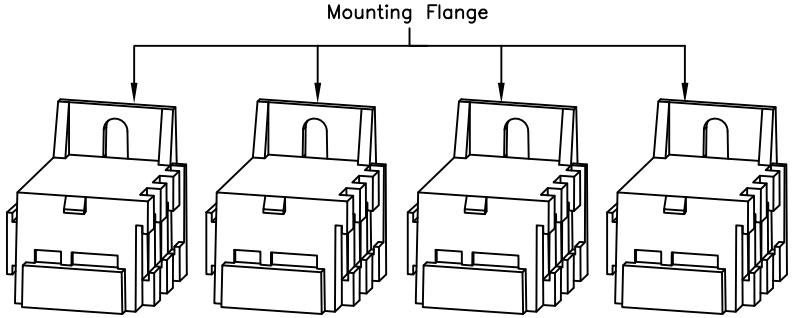
For technical questions about this harness, Contact Ludington Technologies: 906–485–4333

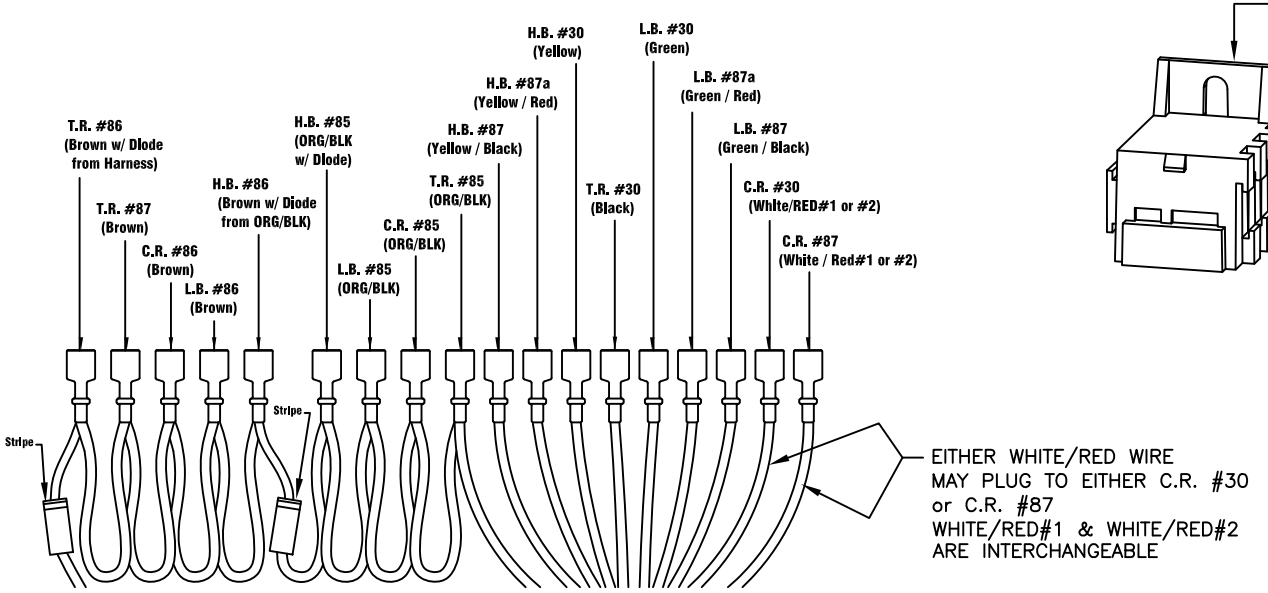


All Terminals Plug To Relay Connectors (X4 Shown Below)

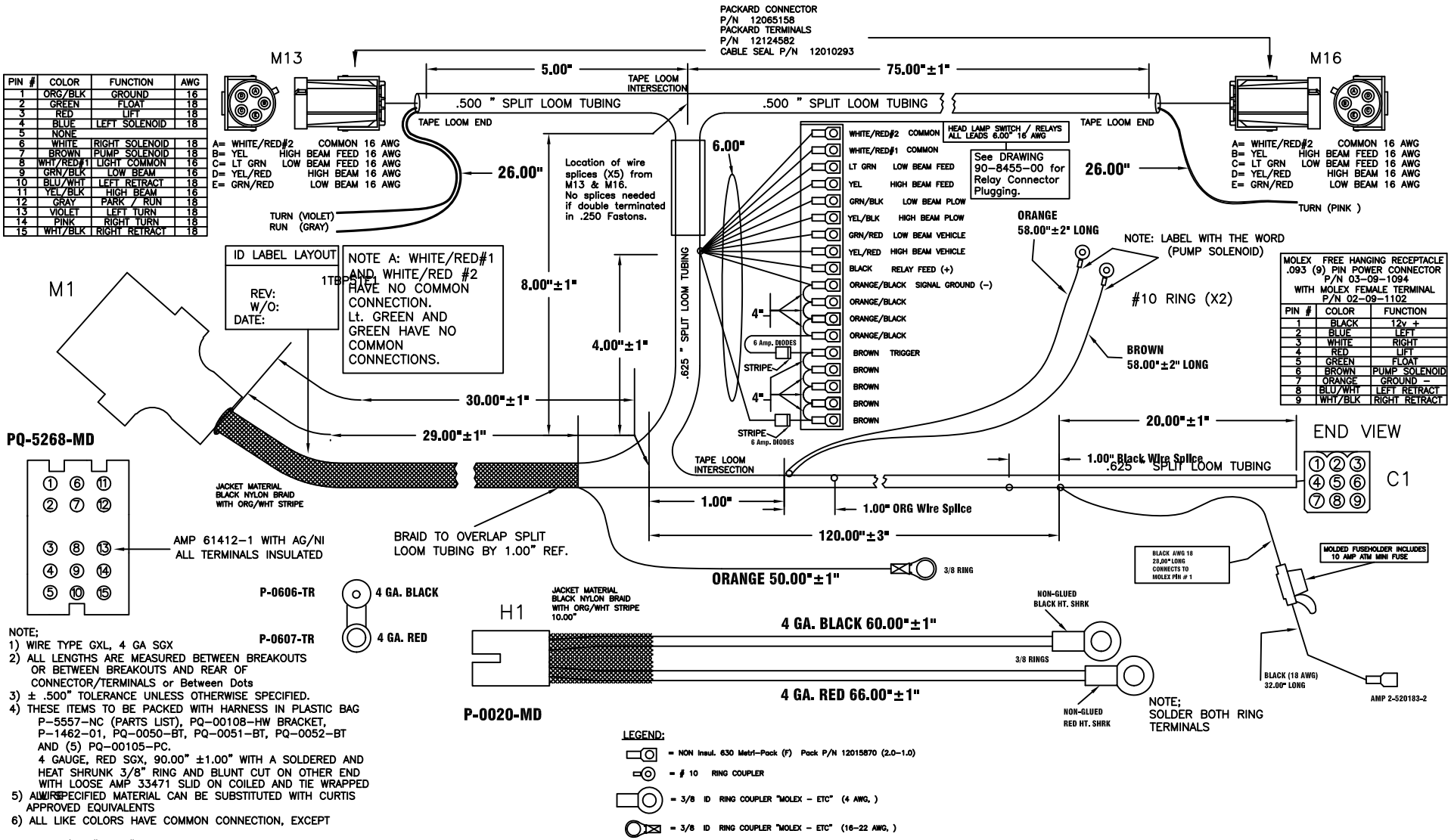
Relay Connector
P/N 12033871
TPA
P/N 12033872

No Markings on Relay Connectors
–Use Markings on Relays to Determine Proper Plugging of Relay Connectors





Vehicle Side Harness
Plow Headlights / Vehicle Headlights Terminals



PIN #	COLOR	FUNCTION	AWG
1	ORG/BLK	GROUND	16
2	GREEN	FLOAT	18
3	RED	LIFT	18
4	BLUE	LEFT SOLENOID	18
5	NONE		
6	WHITE	RIGHT SOLENOID	18
7	BROWN	PUMP SOLENOID	18
8	WHT/RED#1	LIGHT COMMON	16
9	GRN/BLK	LOW BEAM	16
10	BLU/WHT	LEFT RETRACT	18
11	YEL/BLK	HIGH BEAM	16
12	GRAY	PARK / RUN	18
13	VIOLET	LEFT TURN	18
14	PINK	RIGHT TURN	18
15	WHT/BLK	RIGHT RETRACT	18

NOTE;
1) WIRE TYPE GXL, 4 GA SGX
2) ALL LENGTHS ARE MEASURED BETWEEN BREAKOUTS OR BETWEEN BREAKOUTS AND REAR OF CONNECTOR/TERMINALS or Between Dots
3) ± .500" TOLERANCE UNLESS OTHERWISE SPECIFIED.
4) THESE ITEMS TO BE PACKED WITH HARNESS IN PLASTIC BAG P-5557-NC (PARTS LIST), PQ-00108-HW BRACKET, P-1462-01, PQ-0050-BT, PQ-0051-BT, PQ-0052-BT AND (5) PQ-00105-PC.
4 GAUGE, RED SGX, 90.00" ±1.00" WITH A SOLDERED AND HEAT SHRUNK 3/8" RING AND BLUNT CUT ON OTHER END WITH LOOSE AMP 33471 SLID ON COILED AND TIE WRAPPED
5) ALL SPECIFIED MATERIAL CAN BE SUBSTITUTED WITH CURTIS APPROVED EQUIVALENTS
6) ALL LIKE COLORS HAVE COMMON CONNECTION, EXCEPT
WHITE/RED#1 & #2, Lt. GREEN & GREEN- SEE NOTE A. (ALSO SEE SCHEMATIC 90-8451-SCH)
7) CONTROL WIRE MOLD BOOT TO BE ATTACHED OVER BRAID
8) ALL TERMINALS IN MOLDS TO BE GREASED
9) BRAID TO EXTEND OVER STRAIN RELIEF OF ALL MOLDS
10) APPLY HEAT SHRINK OVER ALL DIODES