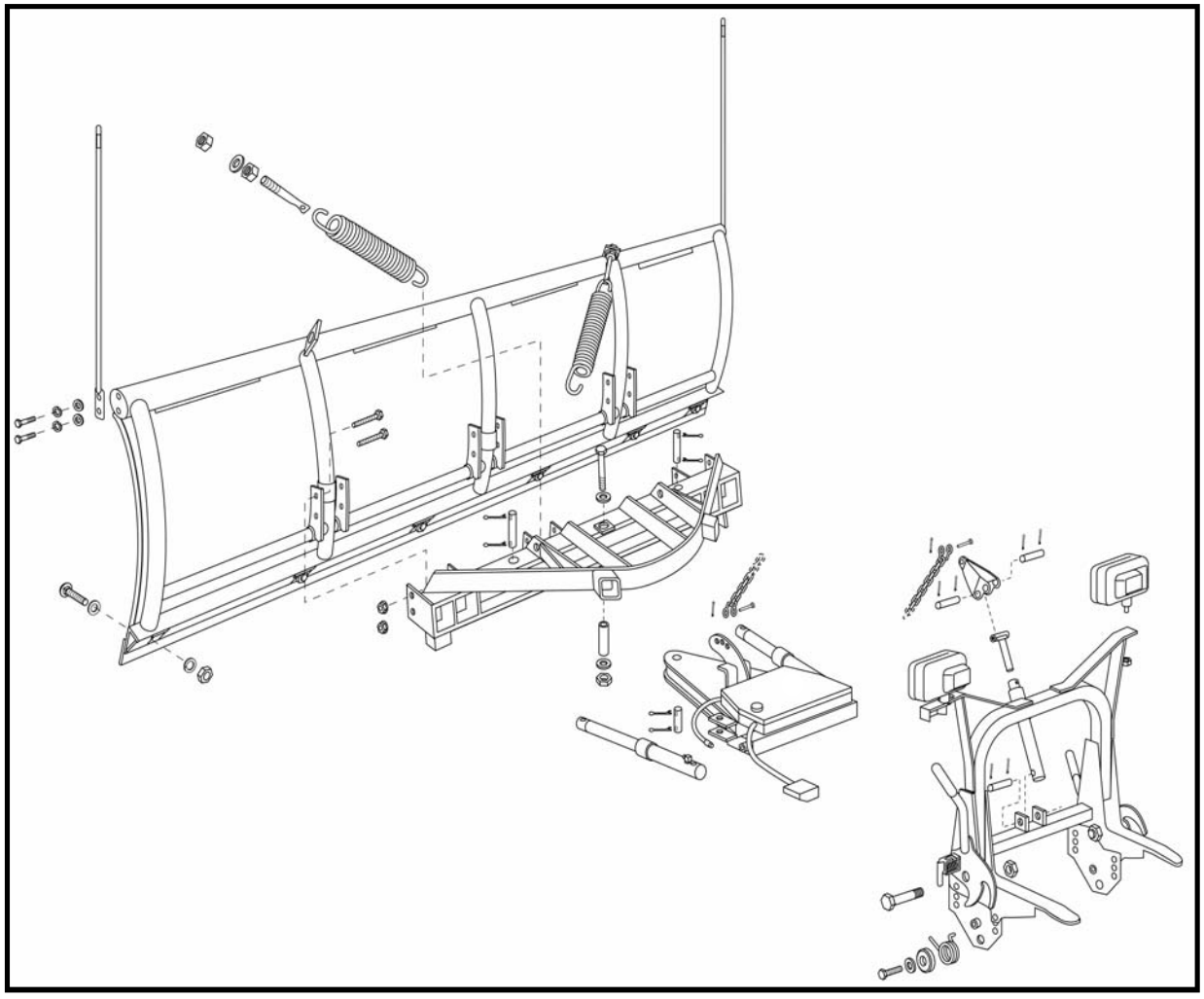
CURTIS SNOWPLOWS

HOME –PRO 3000

HITCH-N-RUN SYSTEM™

INSTALLATION MANUAL



⚠ Curtis Tractor Cab, Inc. and/or Curtis International, Inc. reserves the right to change product design or specifications without notice or liability. Curtis snowplows should only be used on vehicles with the manufacturers maximum front and total weight ratings. Additional “Helper Springs”, “Air Shocks” or similar devices may be required to prevent the vehicle from “bottoming” while carrying the plow. The added weight of the plowing equipment may impair the operation and control of the vehicle.

Curtis Plows are simple by design. Our unit utilizes an A-frame assembly for mounting the electric/hydraulic unit. This exclusive Curtis feature eliminates the need for hydraulic quick disconnects and also "Hides-Away" our power unit. Our A-frame assembly takes the weight of the power unit off of the lift frame assembly and allows for increased airflow to the radiator.

Curtis uses state of the art techniques for fit and consistency such as an automated conveyor system, robotic welding, high definition plasma and hydraulic press brakes. We feel these techniques are very important for overall quality and serviceability.

To help our customers understand the loads being imposed on their vehicles as well as the importance of ballast in some applications, we also incorporate computer modeled weight distributions. Some vehicles may require "Helper Springs", "Air Shocks" or similar devices to compensate for the added weight of the plowing equipment. This information is available upon request. From all of us at Curtis, thank you for choosing our products.

Before You Start...

⇒ Install any additional required equipment (Snow Tires, Helper Springs, Lights, etc.) first.
⇒ Read and understand this manual before beginning the installation.
⇒ Check carton contents prior to beginning installation.
⇒ Work in an organized area large enough to pull vehicle up to snowplow for final attachment.
⇒ Have your tools ready prior to installation. This will speed up the assembly time.

CAUTION Always disconnect vehicle battery when working with vehicle-side wiring.

CAUTION	There are many heavy components that make-up the plow assembly. Be sure to handle them with care and use proper tooling and equipment when needed.

Please take note to this symbol as an alert to a heavy component. Two people will be required for steps referenced by this symbol.

Required Tools:

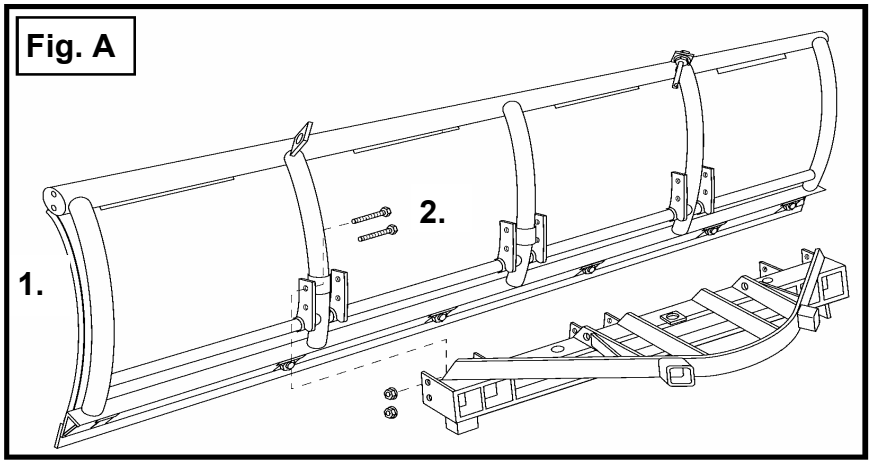
⇒ 1/2" Dr. Ratchet
⇒ 3/8" Dr. Ratchet
⇒ 15/16" Deep Socket & Wrench
⇒ 3/4" Socket & Wrench
⇒ 5/8" Wrench
⇒ 9/16" Socket
⇒ 9/16" Wrench (2)
⇒ 1/2" Socket & Wrench
⇒ Pliers or Vise-Grips
⇒ Wire Cutters
⇒ Hammer or Mallet
⇒ 10" or 12" Adjustable Wrench
⇒ Low Temperature Grease

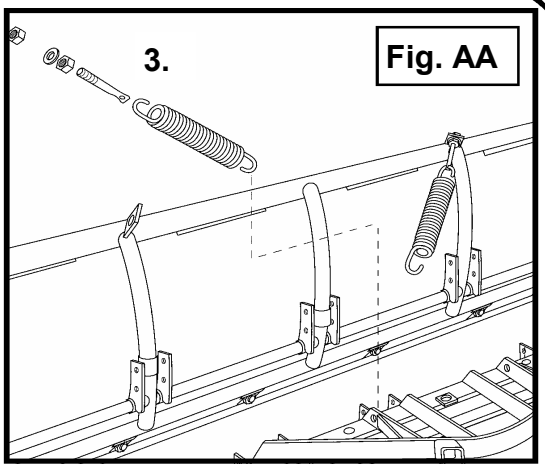
Check Carton Contents Upon Delivery:

Plow Package #1: (Box 1 of 3)
Trip Frame
Lift Frame Assembly

Plow Package #2: (Box 2 of 3)
A-Frame Assembly with Angle Pistons
Light Kit (set of 2)
Hardware Box #1
Hardware Box #2
Truck-Side Harness w/ Plug Storage Holder
Blade Markers (set of 2)

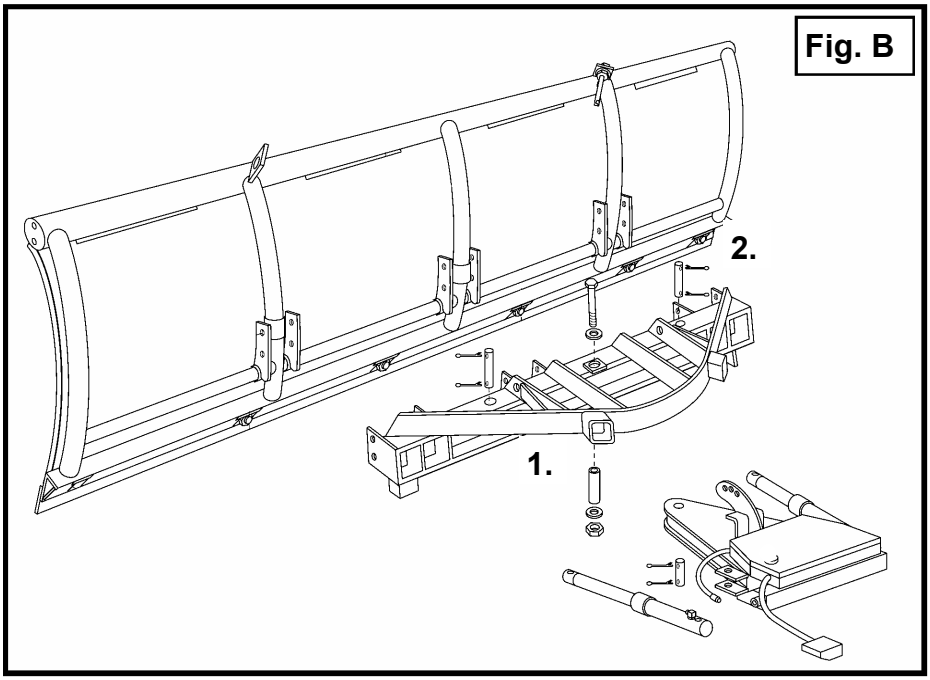
Moldboard: (3 of 3)
Complete with Cutting Edge

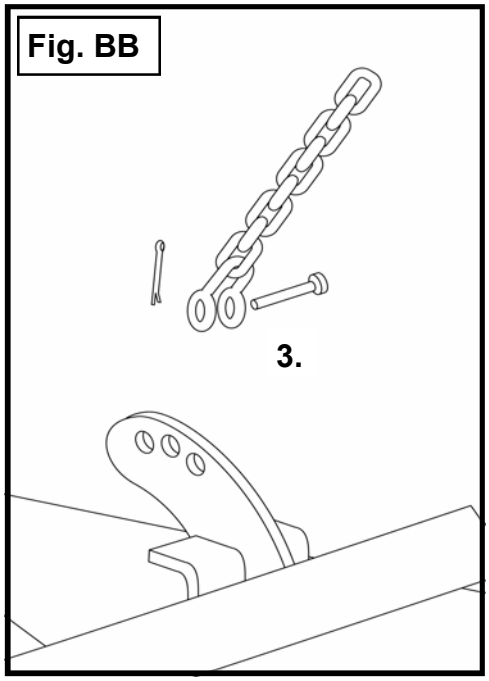




Section A

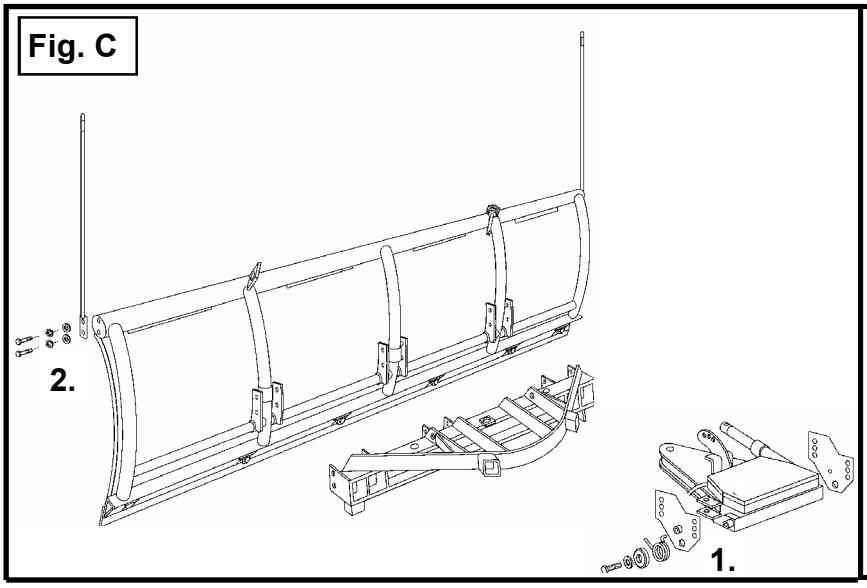
1. Lay Moldboard on its face, be sure to place cardboard underneath the top tube to prevent paint damage.
2. Using (12) 3/8”-16 X 1” Bolts and (12) 3/8”-16 Lock Nuts, Attach Trip Frame loosely to the six Moldboard pivot bracket as shown in Fig. A.
3. Attach (2) Trip Springs to Trip Frame as shown in Fig. AA. Thread (1) 5/8” Jamb Nut half way onto each Spring Eyebolt. Slide a 5/8” Lock Washer onto each Spring Eyebolt and then insert each Eyebolt into the corresponding hole in each spring bracket on the Moldboard. Thread (1) 5/8” Lock Nut onto each Eyebolt. Tighten the Lock Nuts to increase tension on the Springs until there is enough space in between the coils to slide a piece of paper. Tighten each 5/8” Jamb Nut and Lock Washer against each Moldboard spring bracket to lock the Eyebolts. Tighten the (12) 3/8”-16 Lock Nuts to 31 ft.lb.

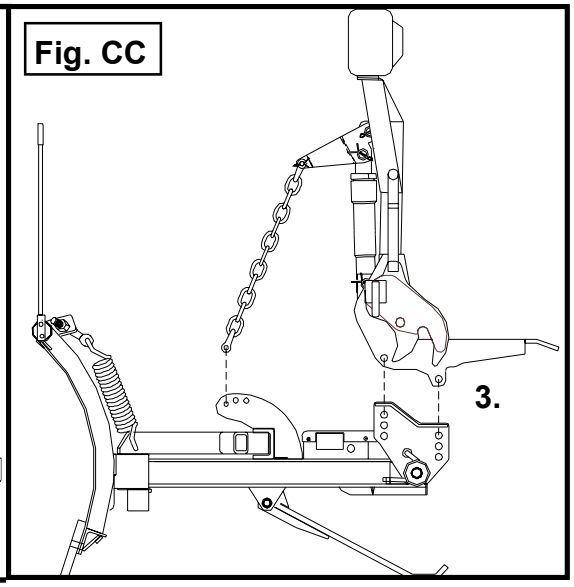




Section B

1. With Moldboard still on its face, lift the A-frame assembly (with assistance; the A-frame is very heavy) over the Trip Frame and lower it into the center section of the Trip Frame. Install (1) 1” x 3 7/8” Hollow Pin through the Trip Frame and A-frame as shown in Fig. B. Install (1) 1/2”-13 X 5” Bolt and Flat Washer down through the 1” X 3 7/8” Hollow Pin. Fasten loosely using 1/2” Flat Washer and 1/2”-13 Lock Nut under the bottom of the Trip Frame.
2. Swing the A-frame either left or right and align the hole in the Angle Cylinder Ram with the corresponding hole in the Trip Frame. Install (1) 1” x 4 1/8” Hollow Pin through the Trip Frame and the Angle Cylinder Ram. Secure the Hollow Pin with (2) 3/16” x 2” Cotter Pins. Swing the A-frame to the opposite side and repeat alignment and pinning procedure. Swing the A-frame back to the center position and tighten the 1/2” -13 Lock Nut to 75 ft.lb.
3. Attach one end link of the Lift Chain to the end hole in the chain bracket on the A-frame as shown in Fig. BB using (1) 5/16” Chain Shackle supplied in Plow Hardware Bag.



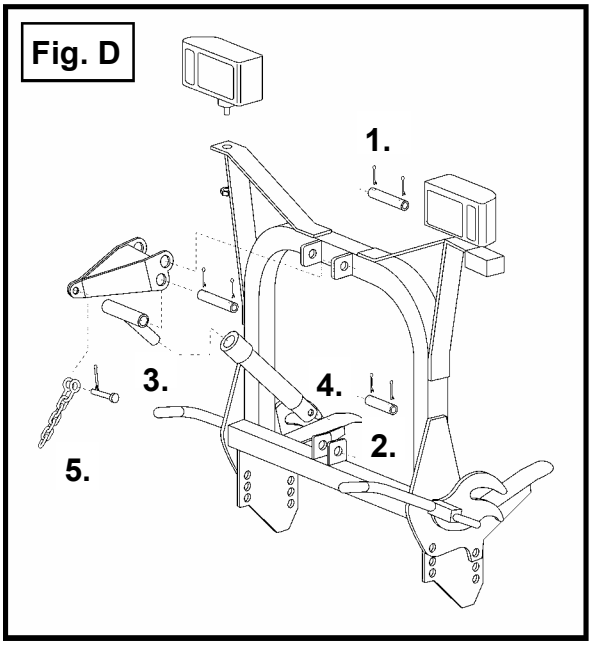


Section C

1. Locate both Lift Frame Side Plates (left & right) and slide one on each side of the A-frame hinge pin as shown in Fig. C. Slide the Torsion Springs (left & right) over the hinge pins with the 90 deg. bent ends inside the hole in the Spring Keeper on the corresponding Side Plate. The straight spring legs should be resting on the A-frame spring stop. Install Torsion Spring Bushings inside the Torsion Springs and over the hinge pins. Fasten loosely using (1) 1/2"-13 x 1" Patch Bolt and 1/2" flat washer screwed into each hinge pin to secure the assemblies.
2. Using the A-frame as a lever, grasp the A-frame near the Side Plates at the top of the assembly and pull back, raising the Moldboard to the vertical position. Attach a Blade Marker at each end of the Moldboard top tube using the hardware supplied with the Blade Markers.
3. Attach the Lift Frame assembly to side plates, as shown in Fig. CC using (4) 5/8"-18 x 1 3/4" Bolts and 5/8-18 Lock Nuts. To provide proper clearance, 5/8" Bolts must be installed from the inside of the Side Plates out, with the Lock Nuts located on the outsides of the Lift Frame. Tighten 5/8" gr.8 fasteners to 225 ft/lbs. and the 1/2" Patch Bolts to 55 ft/lbs.

   Important Installation Tip: The side plates have (3) sets of holes that can be used for mounting, refer to Page 6 for information on determining hole locations. Installing the Lift Frame in the improper holes will effect the attachment and removal of the plow to the vehicle.

Section D

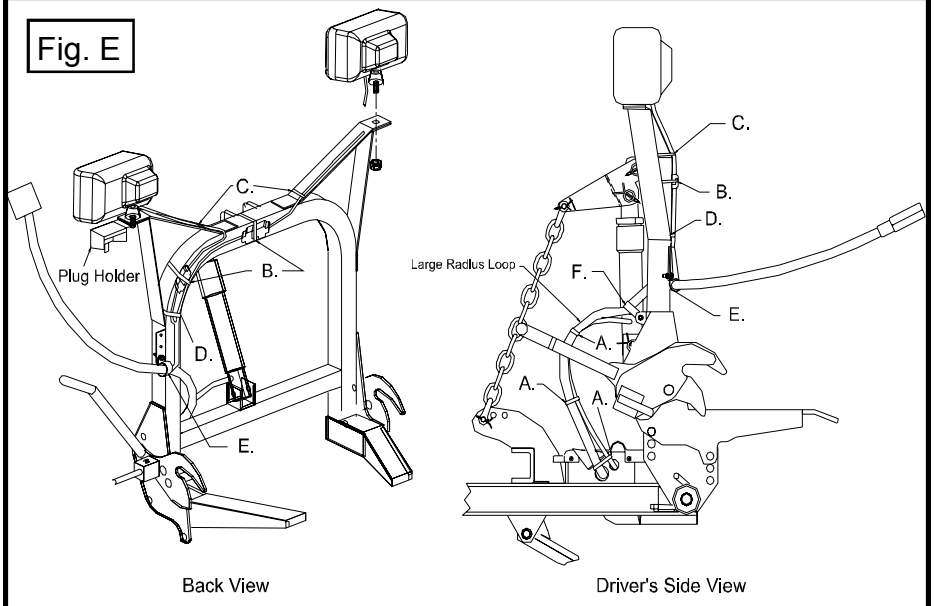


1. Attach the Lift Arm onto the upper mounting ears of the Lift Frame as shown in Fig. D. Align the pivot holes and use (1) 1" x 4 1/8" Hollow Pin and (2) 3/16" x 2" Cotter Pins.
2. Attach the lower pivot of the Lift Cylinder to the Lift Frame using (1) 1" x 3 3/8" Hollow Pin and (2) 3/16" x 2" Cotter Pins.

   NOTE: The hose port on the Lift Cylinder must face to the front.
3. Insert the rod end of the Lift Cylinder Adapter into the hollow end of the Lift Cylinder ram. Line up the pivot hole in the Lift Cylinder Adapter with the middle pivot holes in the Lift Arm. Attach using (1) 1" x 3 3/8" Hollow Pin and (2) 3/16" x 2" Cotter Pins.
4. Install a 45 deg. Elbow in the hose port on the Lift Cylinder. Tighten the Elbow so that it faces to the left hand side and front of the Moldboard. The Lift Hose should now be connected to the 45 deg. Elbow and tightened.

   NOTE: Use (2) 9/16" wrenches when tightening the Lift Hose to avoid twisting the hose.
5. Attach the loose end of the Lift Chain to the hole in the end of the Lift Arm using (1) 5/16" Chain Shackle.

Fig. E



Harness Routing And Wire Tie Placement

3. Adjust the Plow Lights using the steps described below in the section entitled “Plow Light Beam Aiming”.

NOTE: The routing of the Harness and location of each Harness Clip & Wire Tie is very important so that it will “flex” properly when the plow is raised and lowered. Failure to properly route and secure the Harness may result in severe damage to it

⚠ CAUTION	Always ensure that headlamps are adjusted properly.

Section E

1. Mount the Plow Lights and Harness Plug Holder (as shown in figure E) using hardware supplied with the Plow Light Kit.

2. Secure the Harness to the Lift Frame (as shown in figure E) using the supplied Harness Clips, Bolts, Nuts and Wire Ties .

- **A.** If the Harness and Lift Cylinder Hose are not pre-wrapped together with Hose Wrapping, Tie them together using 3 Wire Ties 4” apart starting at the “A” Frame exit.
- **B.** Plug the Plow Light Connectors into the Harness & Wire Tie to the Lift Frame Hoop at each plug.
- **C.** Wire Tie the pigtail from each plow light to the Upper Plow Light Brackets of the Lift Frame.
- **D.** Tie both branches of the Harness to the Hoop just above the Driver’s side lower Plow Light Bracket.
- **E.** Place a Harness Clip over the Harness and attach using a 1/4” Bolt and Lock Nut to one of the three holes (depending on the position of the Side Plates) at the rear of the Driver’s side Lift Frame post.
- **F.** Place a Harness Clip over the Harness & attach using a 1/4” Bolt & Lock Nut to the front tab of the Driver’s side Lift Frame post.

Plow Light Beam Aiming

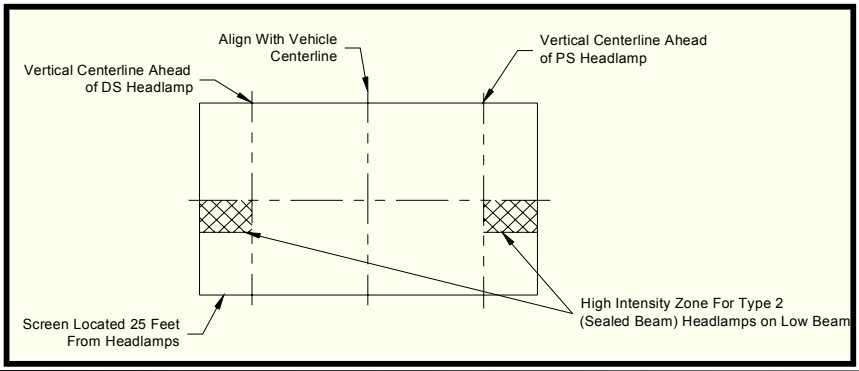
1. Place vehicle on a level surface 25 feet in front of a matte-white screen, such as a garage door. The screen should be perpendicular to both the ground and the vehicle centerline.

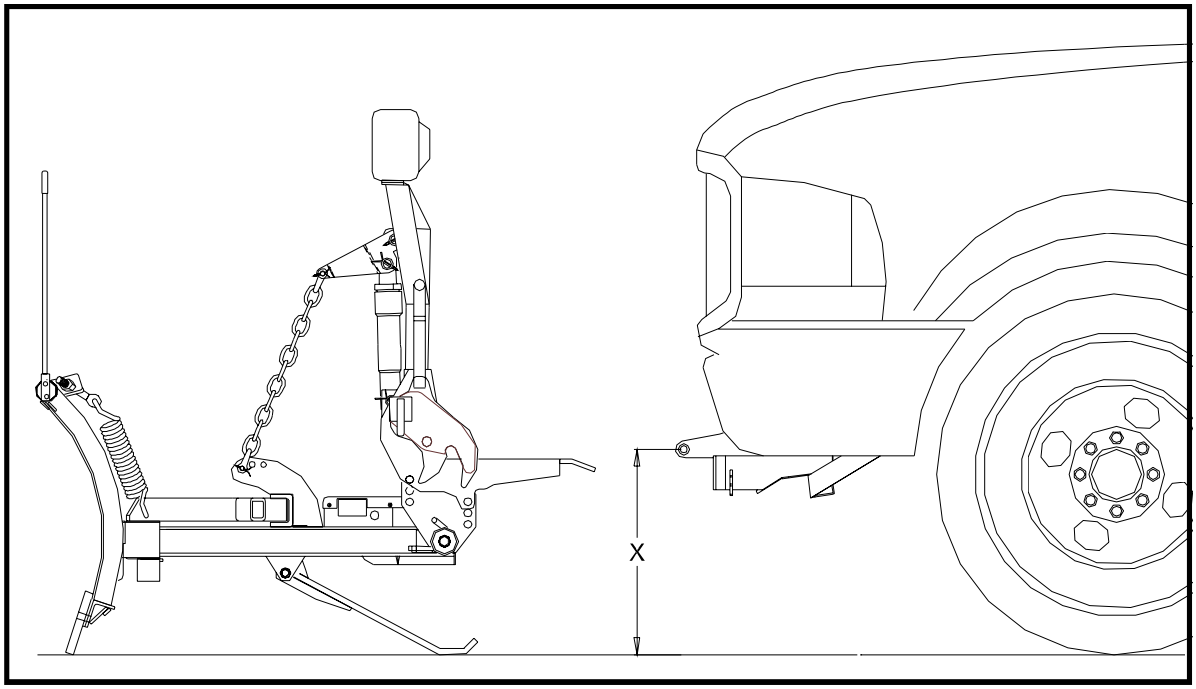
2. The vehicle should be ballasted for snow plowing with a driver. The snowplow blade should be in place and in the raised position.

3. Below are points listed by the Society of Automotive Engineers (SAE) pertinent to headlamp aiming in specification #SAE J599.— Remove ice or mud from under fenders.— See 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 burnouts, and proper beam switching.— Stabilize suspension by rocking vehicle sideways.

4. Mark or tape the vertical centerline of the Plow Lights and the centerline of the vehicle on the screen. Mark or tape the horizontal centerline (distance up from floor) of the Plow Lights on the screen.

5. The correct visual aim for Type 2 Plow Lights (see number on face of sealed beam) is with the top edge of the high intensity zone of the lower beam below the horizontal centerline and the left edge of the high intensity zone on the vertical centerline (see diagram below).



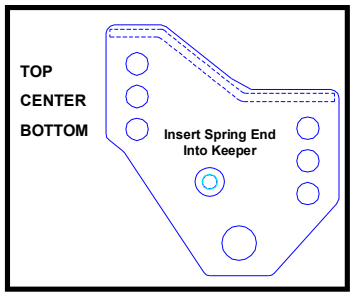


Lift Frame Side Plate Installation Procedure:

1. Install Mount Kit on vehicle referring to the Mount Kit installation instructions. Wire vehicle referring to pages 7 & 8 for detailed Harness & Control System installation information.
2. With vehicle parked on level ground and properly ballasted for snow plow use, measure the distance from the ground up to the centerline of the latch bar on the receiver as shown.
3. Once "X" dimension is determined, use the application chart below to determine which hole locations to use when attaching the Lift Frame to the Side Plates.

Important:

This is a general guideline to help make the assembly process easier. Due to great variations in suspension, tires, age of vehicle etc. it may be necessary to change the Side Plate positions after Plow assembly is attached to the vehicle.



Side Plate Application Chart

If "X" is 16 3/4" and Above use **Top** holes.

If "X" is between 15 3/4" to 16 1/2" use **Center** holes.

If "X" is below 15 1/2" use **Bottom** holes.

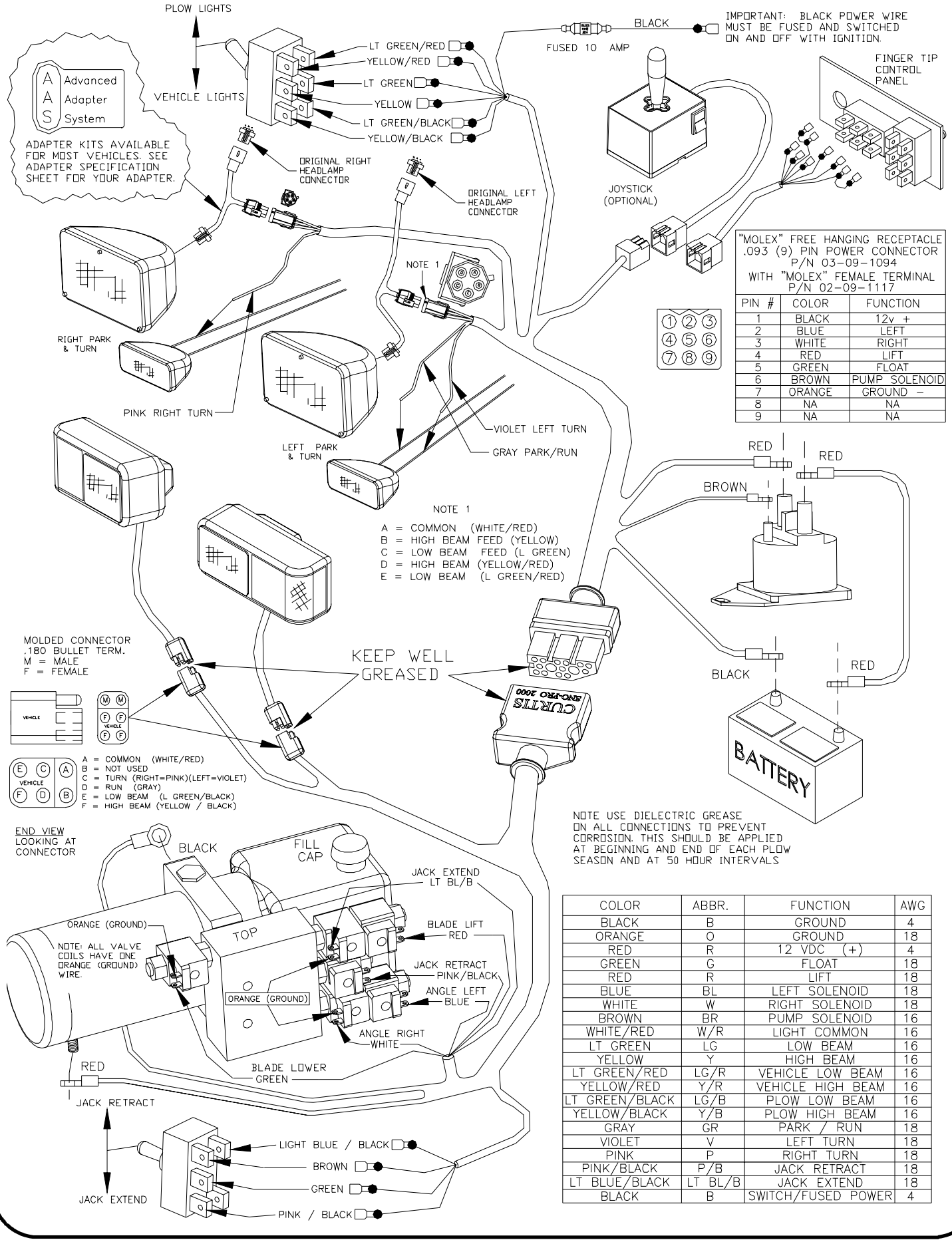
Vehicle to Plow Initial Set-up

Once vehicle Mount Kit and Harness installations are complete, raise the Plow Assembly to the same level as the Mount Kit Receiver. To accomplish this, drive truck close to Plow Assembly and attach the Harness Plug. Put "in-cab" Control System into the "float" position and raise the Plow Assembly using the A-Frame Jack Switch to align the rear of the Lift Frame with the Mount Kit Receiver. If necessary, readjust the Side Plate positions.

Jack Adjustment Procedure:

With the Lift Cylinder & Jack fully retracted, top off the Pump Reservoir. It may be necessary to run the Jack for 10 cycles as a break-in period. During the break-in period check carefully that the Jack RETRACTS FULLY AGAINST THE BELLY PAN OF THE A-FRAME. If the Jack Leg Does Not retract fully, remove the A-Frame Cover and manually adjust the tension on the Jack Return Spring using a 1 1/8" open end wrench. The Jack Return Spring is located forward of the pump in the A-Frame pump cavity. A 3/4" hex nut holds tension on the spring. If more tension is required, tighten the hex nut against the spring. When adjusting the spring tension, use full turn increments and test the function of the jack leg after each turn. DO NOT over tighten the return spring.

CURTIS HOME-PRO 3000 HARNESS LAYOUT



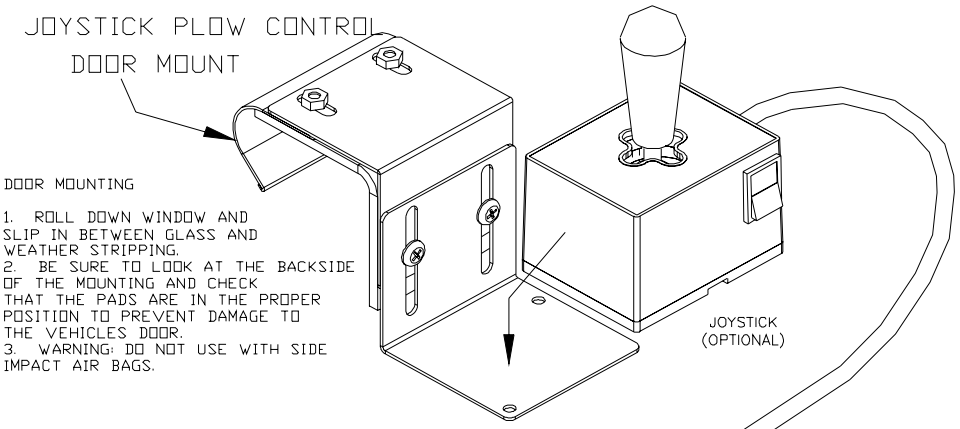
"MOLEX" FREE HANGING RECEPTACLE .093 (9) PIN POWER CONNECTOR P/N 03-09-1094
WITH "MOLEX" FEMALE TERMINAL P/N 02-09-1117

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

NOTE USE DIELECTRIC GREASE ON ALL CONNECTIONS TO PREVENT CORROSION. THIS SHOULD BE APPLIED AT BEGINNING AND END OF EACH PLOW SEASON AND AT 50 HOUR INTERVALS

COLOR	ABBR.	FUNCTION	AWG
BLACK	B	GROUND	4
ORANGE	O	GROUND	18
RED	R	12 VDC (+)	4
GREEN	G	FLOAT	18
RED	R	LIFT	18
BLUE	BL	LEFT SOLENOID	18
WHITE	W	RIGHT SOLENOID	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
PINK/BLACK	P/B	JACK RETRACT	18
LT BLUE/BLACK	LT BL/B	JACK EXTEND	18
BLACK	B	SWITCH/FUSED POWER	4

CURTIS HOME-PRO 3000 CONTROL DETAIL



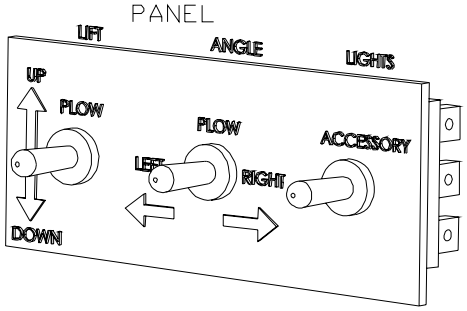


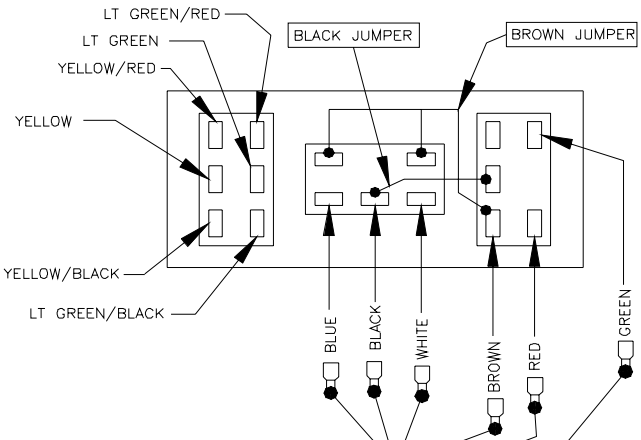
FIGURE 1

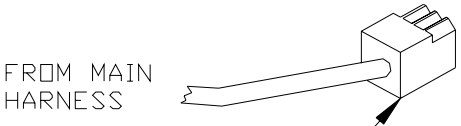
END VIEW LOOKING AT CONNECTOR

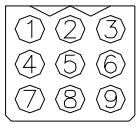
"MOLEX" FREE HANGING PLUG
.093 (9) PIN POWER CONNECTOR
P/N 03-09-2092
WITH "MOLEX" MALE TERMINAL
P/N 02-09-2116

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

REAR VIEW OF THE FINGER TIP CONTROL PANEL







END VIEW LOOKING AT CONNECTOR

"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
3	WHITE	RIGHT
4	RED	LIFT
5	GREEN	FLOAT
6	BROWN	PUMP SOLENOID
7	ORANGE	GROUND −
8	NA	NA
9	NA	NA

PANEL ASSEMBLY AND SWITCH MOUNTING

1. REMOVE ALL OF THE COMPONENTS FOR THE SWITCH PANEL.
2. APPLY THE LABEL TO THE FRONT OF THE PANEL ORIENTED AS SHOWN IN FIGURE 1.
3. MOUNT THE YELLOW SWITCH IN THE UP/DOWN POSITION. MOUNT IT SO THE MOMENTARY CONTACT POSITION IS UP.
4. MOUNT THE BLACK SWITCH HORIZONTALLY REFERENCE THE REAR VIEW TO GET PROPER LEFT/RIGHT ORIENTATION.
5. MOUNT THE LIGHT SWITCH IN THE ACCESSORY POSITION.

WIRING THE PANEL

1. VIEWING THE PANEL FROM THE REAR CONNECT THE WIRES AT THE LOCATIONS INDICATED.
2. FOR THE JUMPER CABLES USE THE PIGGYBACK SPADE FITTINGS SUPPLIED THE JUMPER CABLES SHOULD BE THE SAME COLORS AS THE MAIN WIRE THEY ORIGINATE FROM.

PANEL MOUNTING

1. WE RECCOMEND A LOCATION CLOSE TO THE CENTER OF THE DASH UNDER THE ASH TRAY. MOUNT AWAY FROM ANY LOCATION DIRECTLY FORWARD OF THE DRIVER OR PASSENGERS SO THERE IS NO POSSIBILTY OF HITTING IT IN CASE OF A ACCIDENT. BE SURE TO LOOK AT THE BACKSIDE OF ANY LOCATION THAT MAY BE USED. CHECK FOR WIRING, AIR BAGS, OR ANY OTHER SUCH INTERFERENCE.

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