February 23,1999 No. 21772

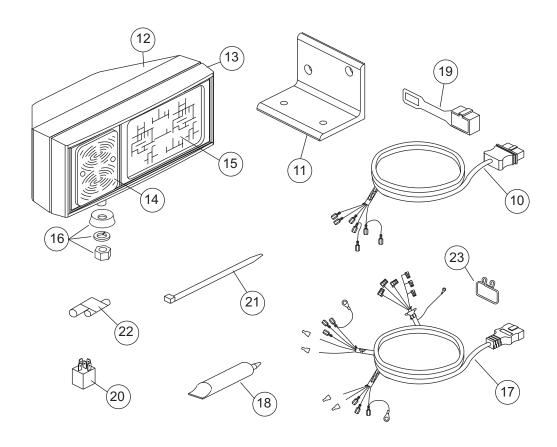
## International 4600 1989-94 4700, 4800, 4900 1989-19\_\_\_

# Parts List and Installation Instructions

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21311 Commercial Light Kit				
Part #	Qty	Description		
*	1	Plug –in Harness		
8324	6	Cable Tie – 3/16" x 14"		
21651	1	Split Rubber Grommet		
21288	1	Blade Terminal		
5972	1	Flasher, Heavy Duty		
* - available as part of kit only				



8430-1 Common Light Kit Parts List		21049 Parts Bag					
Ref #	Part #	Qty Req	Description	Ref #	Part #	Qty Req	Description
10	20680	1	9-Pin Vehicle Harness	18	8329K	1	Dielectric Grease Tube
			Commercials	19	8291	2	SEHP Plug Cover
11	20679	1	Motor Relay Mounting Bracket	20	8293	2	Headlamp Relay
12	8328	2	Headlamp (DS or PS)	21	3666	25	Cable Tie – 8"
13	6122	1	Bezel w/ Fasteners (DS or PS)	22	5776	3	Bullet Receptacle Connector
14	6123	1	Lens w/ Fasteners (DS or PS)				18-14 AWG - insulated
15	6728	2	2E1 Sealed Beam Light-Glass	ns	90106	2	3/8" x 1-1/4" Cap Screw
16	6128	1	Headlamp Swivel & Fasteners	ns	90352	2	3/8" Locknut
17	8246 or	1	9-pin Snowplow Harness – SEHP	ns	90315	2	3/8" Flat Washer
17	21293	1	9-pin Snowplow Harness – SEHP & Insta-Act® hydraulics	ns	21526	1	Convoluted Tubing, .75 ID, Black, 12" long
ns	6664	1	Sealed Beam Gaskets Set	23	20128	1	Wire Hook
ns	A6153	1	2E1Retainer Fingers				
ns	21049	1	Parts Bag				
	*8430 only ns = not shown			s = not shown			

#### **SAFETY INFORMATION**

Read this manual and labels on the snowplow before installing or operating the snowplow.

#### **A WARNING**

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

#### **A** CAUTION

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

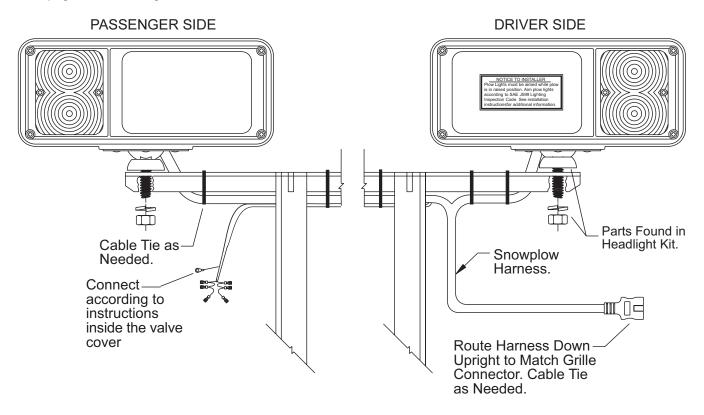
NOTE: Identifies tips, helpful hints and maintenance information the reader should know.

Torque all fasteners according to the torque chart. For proper fit, do not tighten fasteners until instructed to do so.

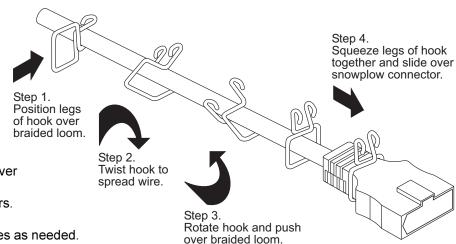
NC FASTENER TORQUE (FT-LB)					
DIAMETER-	GRADE				
THREADS					
PER INCH	G2	G5	G8		
1/4 - 20	6	9	13		
5/16 - 18	11	18	28		
3/8 - 16	19	31	46		
7/16 - 14	30	50	75		
1/2 - 13	45	75	115		
9/16 - 12	66	110	165		
5/8 - 11	93	150	225		
3/4 - 10	150	250	370		
7/8 - 9	150	378	591		
1 - 8	220	583	893		

#### SNOWPLOW LIGHT INSTALLATION

- Attach snowplow lamps with harness to the headgear with the park turn lamps toward the outside. Route the harness down the driver-side upright on the headgear.
- Remove the plastic cover from the valve and install the solenoid wires according to the instructions on the inside of the cover. With the harness strain relief in place, install the plastic valve cover.



- 3. Attach the snowplow cable assembly to the motor terminals. Connect the black and red striped wire to the positive terminal. Connect the black wire to the negative terminal. Connect the smaller black wire with the orange stripe to the negative terminal of the motor.
- 4. Slide the small pocket of cable boot, found in the hydraulic kit, over the ground clip for later off-truck storage of the harness connectors.
- 5. Secure the harness with cable ties as needed.
- 6. Install the wire hook as shown.



### VEHICLE HARNESS AND VEHICLE CABLE INSTALLATION

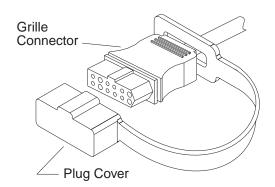
#### **A WARNING**

Disconnect battery before installing, removing or replacing electrical components such as the motor, motor relay or battery cables.

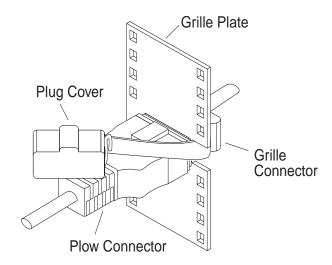
#### **A** CAUTION

Check for wires, hoses or any other obstructions on the passenger-side frame before drilling.

- Using the motor relay monting bracket as a template, mark the mounting hole location on the driver-side of the frame as shown page 6.
- Drill the two 13/32" mounting holes in the frame. Mount the motor relay mounting bracket to the driver-side frame using the 3/8x 1-1/4 cap screw, washer, and locknuts from the hydraulic kit.
- Stretch the rectangular opening of the plug cover strap over the grille connector end of the vehicle harness. Place the plug cover over the molded connector on the harness. Repeat for the vehicle cable assembly from the hydraulic kit.

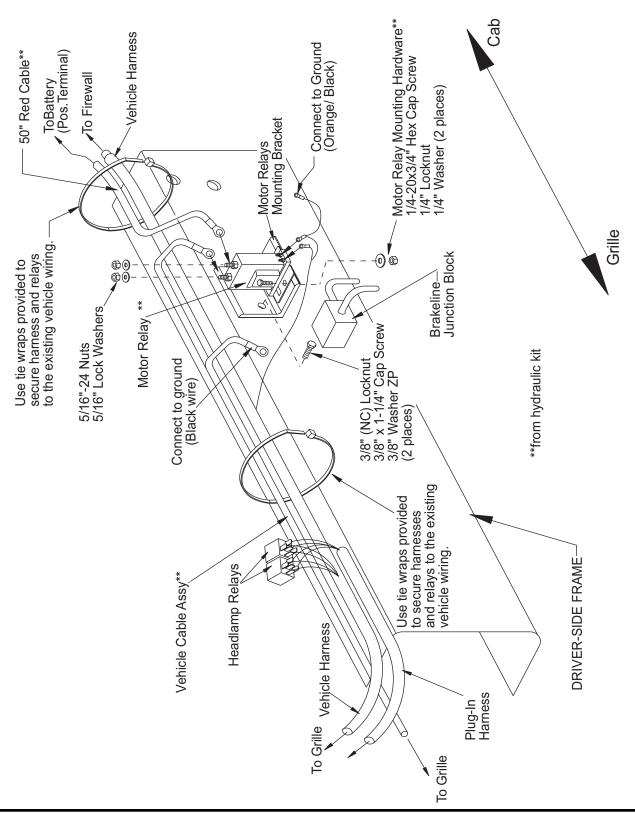


4. Find a place on the driver side of the grille to attach the vehicle harness connector within reach of the plow harness connector. Route the grille connector through the grille. Install the grille plate from the hydraulic kit by sliding it into the groove on the molded connector. Attach the grille plate to the grille with cable ties. 5. Route the vehicle harness from the grille down to the lower radiator support and along the inside edge of the support to the passenger side of the frame. Use existing holes and cable ties to secure the harness to the radiator support. Allow for a service loop where the vehicle harness passes from the tilt nose to the support. Continue routing the vehicle harness along the top of the passenger-side frame, past the shock tower to the fire wall. Do not secure with cable ties at this time.



- 6. Connect the vehicle harness to the motor relay (small ring terminals on brown/red and orange/ black wires) using #10-32 nuts and lock washers from the hydraulic kit. Connect the 24" orange/ black lead to ground. Clean away any paint or dirt to ensure a good ground connection. Use a cable tie to attach any extra cable to the radiator support bracket.
- Drill a 7/8" hole in a convenient location on the driver-side side fire wall free from any obstructions of any engine side and cab side.
- 8. Route the remaining half of the vehicle harness from the base of the fire wall to the drill hole. Feed the fuse holder, then the control cable, through the hole drilled. Inside the cab, route the control cable to the mounted control. Connect the red wire to a switched accessory line (on when the ignition switch is on) using fuse taps from the hydraulic kit or blade terminals and insulated receptacles. Plug the control into the vehicle harness.

#### INTERNATIONAL FRAME WIRING DIAGRAM



#### A CAUTION

Avoid any sharp, hot or moving parts when securing a harness to the vehicle.

 Use cable ties to attach the vehicle harness to the existing vehicle wiring with cable ties avoiding any sharp, hot, or moving parts. Place a rubber grommet into the hole in the firewall around the vehicle harness.

NOTE: Mount the control according to the instructions in the control kit.

- 10. Find a place on the passenger side of the grille to attach the vehicle cable assembly grille connector within reach of the snowplow cable connector. Route the grille connector through the grille. Install the grille plate by sliding it into the groove on the molded connector. Attach the grille plate to the grille with cable ties.
- 11. Route the vehicle cable through the selected location in the grille, across the bottom of the tilt nose to the driver side frame (allow for a service loop when vehicle cable assembly passes from tilt nose to the frame), along the top of the frame to the motor relay. Do not cable tie vehicle cable assembly at this time.
- 12. Connect the black/red stripe cable to one of the large motor relay terminals with one 5/16"-24 jam nut and lock washer. Split the vehicle cable as required to attach the black lead from the cable without a stripe to a ground bolt on the frame or the engine. When using the frame as a ground, remove any paint or dirt around the hole or bolt.
- 13. Attach the 50" battery cable from the hydraulic kit to the second large motor relay terminal with one 5/16"-24 jam nut and lock washer. Connect the other end to the "positive" battery terminal. Use a cable tie to attach the battery cable away from any sharp, hot or moving parts.
- Lubricate the grille connectors with dielectric grease. Save the tube for future lubrication of the grille connectors.

#### PLUG-IN LIGHT HARNESS INSTALLATION

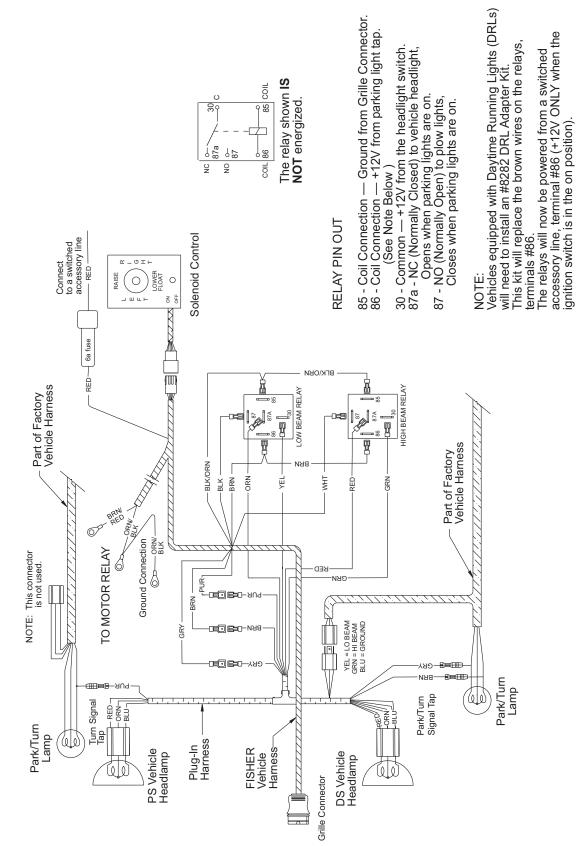
 Remove the passenger-side outer headlamp molding, bulb retainer and bulb. Route the end of plug-in harness (single female connector) into the passenger-side headlamp housing.

### NOTE: Loosening, or removal of the headlamp bulb alignment bracket may be necessary.

- Identify the passenger-side turn signal wire. Attach
  a black bullet receptacle to this wire. Insert the
  purple wire from the plug-in harness into the black
  bullet receptacle.
- Connect the plug-in harness female connector to the headlamp bulb. The orginal female connector from OEM harness is not used. Secure the unused connector with cable ties.
- 4. Reinstall the passenger-side bulb, bulb retainer and the outer headlamp molding.
- Route the plug-in harness along the existing vehicles wiring to the driver-side headlamp housing. Use a cable tie to attach the harness to the existing vehicle wiring as needed.
- Remove the driver-side outer headlamp molding, bulb retainer and bulb. Route the plug-in harness male and female connectors into the driver-side headlamp housing.
- 7. Identify the driver-side parking lamp and turn signal wires. Attach a black bullet receptacle connector to each wire. Insert the gray wire bullet into the turn signal black bullet receptacle, Insert the brown wire bullet into the parking lamp black bullet receptacle.
- Connect the plug-in harness male plug to the vehicle harness female connector removed from the headlamp bulb. Connect the plug-in harness female connector to the headlamp bulb. Reinstall the bulb, bulb retainer and the outer headlamp molding.

- Route the plug-in harness on the driver-side frame from the driver-side headlamp to the headlamp relays. Connect the relays as shown. Allow for a service loop when the plug-in harness passes from the tilt nose to the frame.
- Cable tie harnesses and relays to the vehicle wiring as needed; away from any sharp, hot or moving parts.
- 11. Replace the vehicle turn signal flasher if one is included in the plug-in harness.
- 12. Adjust headlamps according to instructions on Page 10.

#### **RELAY CONNECTIONS/ SYSTEM DIAGRAM**

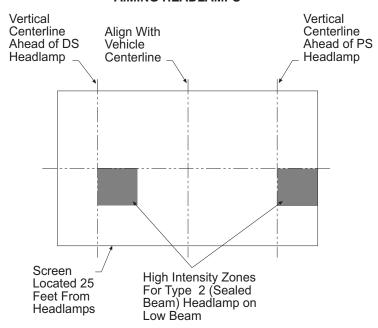


#### **HEADLAMP BEAM AIMING**

- Place vehicle on level surface 25 feet in front of a matte-white screen, such as a garage door. The screen should be perpendicular both to the ground and to the vehicle centerline.
- The vehicle should be equipped for normal operation, the snowplow blade should be in place and in raised position. Below are points listed by the Society of Automotive Engineers (SAE) pertinent to headlamp aiming in specification #SAE J599d:
- 3. Prepare vehicle for headlamp aim or inspection before checking beam aim, the inspector shall:
  - · Remove ice or mud from under fenders.
  - · See that no tire is noticeably deflated.
  - · Check springs for sag or broken leaves.
  - · See that there is no load in the vehicle other

- Check functioning of any "level-ride" control.
- · Check lens and aiming pad.
- Check for bulb burn out, broken mechanical aiming pads and proper beam switching.
- Stabilize suspension by rocking vehicle sideways.
- Mark or tape the vertical centerline of the headlamps and the vehicle itself on the screen. Mark the horizontal centerline of the headlamps on the screen (distance from ground to headlamp centers).
- 5. The correct visual aim for Type 2 headlamps (snowplow headlamps are Type 2; 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)

#### **AIMING HEADLAMPS**



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