



SnowDogg[®] XP Series















OWNER'S MANUAL

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XP INSTALLATION/REFERENCE MANUAL

 WARNING
Many newer trucks are equipped with air bags. DO NOT under any circumstances disable or remove or relocate any sensors or other components related to the operation of the air bags.
 WARNING
Always follow the vehicle manufacturers recommendations relating to snowplow installation. For recommended vehicle models refer to the SnowDogg Application Chart and Selection Guide.
 WARNING
Vehicles equipped with air bags are designed such that the air bags will be activated in a frontal collision equivalent to hitting a solid barrier (such as a wall) at approximately 14 mph or more, or, roughly speaking, a frontal perpendicular collision with a parked car or truck of similar size at approximately 28 mph or more. Careless or high speed driving while plowing snow, which results in vehicle decelerations equivalent to or greater than the air bag deployment threshold described above, would deploy the air bag.
 WARNING
Make sure plow is properly attached before moving vehicle.
 WARNING
Do not move plow while servicing or place body parts between or under plow parts while moving plow.

 WARNING
When transporting, position plow so as not to block vision or plow headlights.
 WARNING
DO NOT change blade position when traveling.
 WARNING
DO NOT exceed 40 mph when transporting plow.
 WARNING
Do not exceed 10 mph when plowing.
 WARNING
Always lower blade when vehicle is not in use.
 WARNING
Read this manual carefully before operating this snowplow.
 CAUTION
Vehicle application recommendations are based on the following:
<ul style="list-style-type: none"> • The vehicle with the snowplow installed must comply with applicable Federal Motor Vehicle Safety Standards (FMVSS). • The vehicle with the snowplow installed must comply with the vehicle manufacturer's stated gross vehicle and axle weight ratings (found on the driver-side door corner post of the vehicle) and the front and rear weight distribution ratio. In some cases, rear ballast may be required to comply with these requirements. • In some cases there may be additional limitations and requirements. • Available capacity decreases as the vehicle is loaded with cargo or other truck equipment, or snowplow accessories are installed. • If there is uncertainty as to whether available capacity exists, the actual vehicle as configured must be weighed.

WELCOME!

Congratulations on your purchase of a SnowDogg plow! The SnowDogg plow by Buyers Products is a heavy-duty, professional grade plow built for your toughest plowing applications. By using this manual for maintenance and safety instructions, you can be sure to optimize the life of your plow.

Your dealer can provide expert assistance and service and is the first line of support. They have first hand knowledge of your plow and the conditions in your area.

Be sure to register your plow after purchase at www.snowdoggplows.com. The required information is shown on the Registration Data Sheet. Registration is required to activate your two year warranty.

REGISTRATION DATA SHEET
Owner's Information

Name: _____

Company: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

Purchased From: _____

Purchase Date: _____

Plow Model: _____

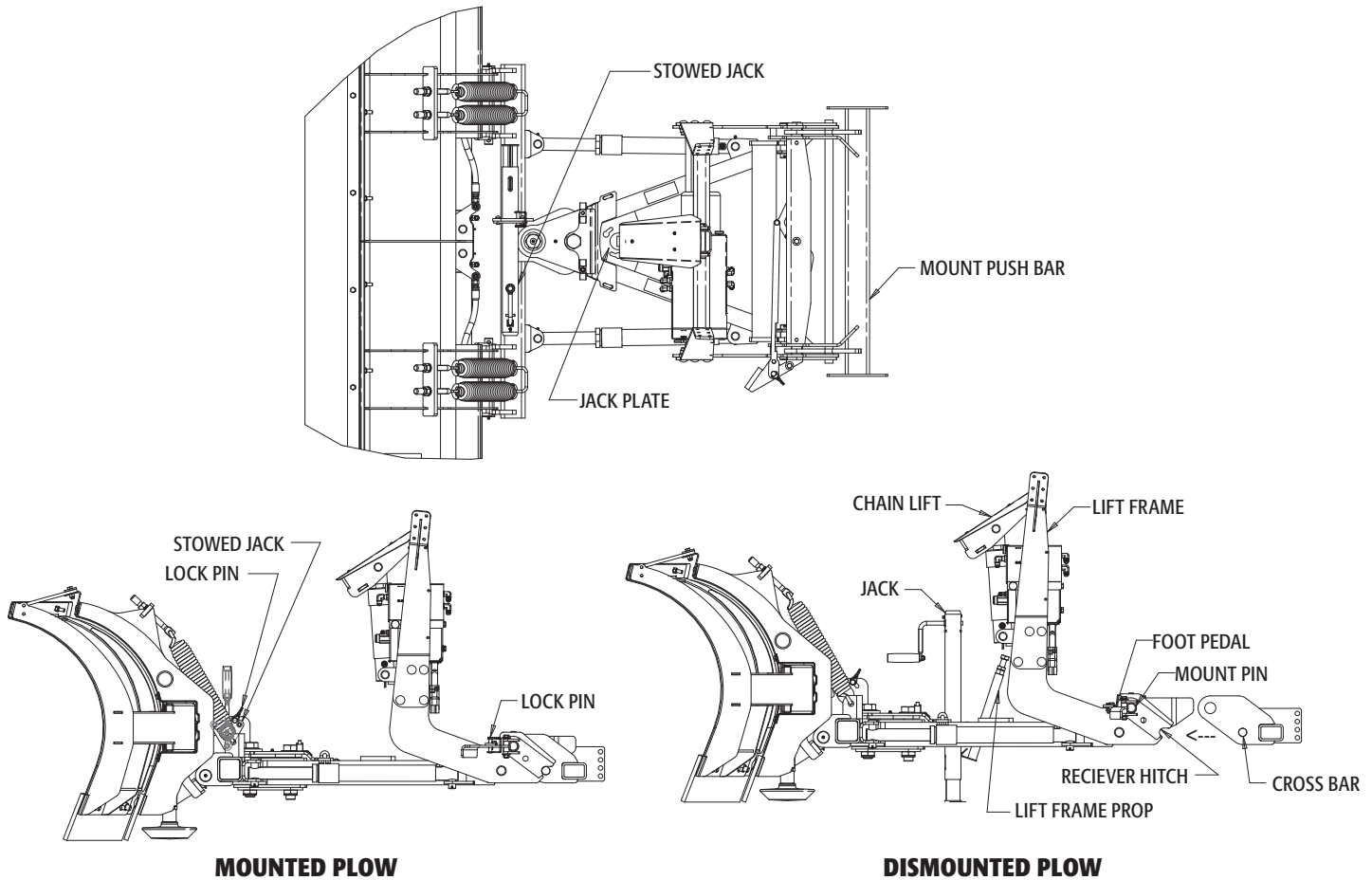
Plow Serial#: _____

HPU Serial #: _____

Truck Model: _____

Truck Year: _____

Register your plow at www.snowdoggplows.com to activate your two year warranty.



Mount/Dismount Instructions

Snowplow Mounting (fig. above)

- 1.** Check that the pins are fully retracted. The foot pedal should be pushed towards the truck and will lock in the retracted position.
- 2.** Drive in to the plow so that the cross bar on the mount engages with the receiver notch on the plow. Depending on the plow height the jack may need to be lowered or raised to fully engage.
- 3.** Pull the foot pedal away from the truck to release the pins.
- 4.** Push up on the lift frame to engage the pins. To verify the lift frame is fully connected, check to see that the gold pins are visible from each side. Insert the lock pin (or padlock) through the foot pedal and pedal linkage.
- 5.** Retract the jack enough to allow its removal. Rotate the jack to disengage from the jack mount plate.
- 6.** Stow the jack on the stow plate located on the driver's side moldboard and insert the lock pin. The

jack may also be stored in the truck for added theft prevention.

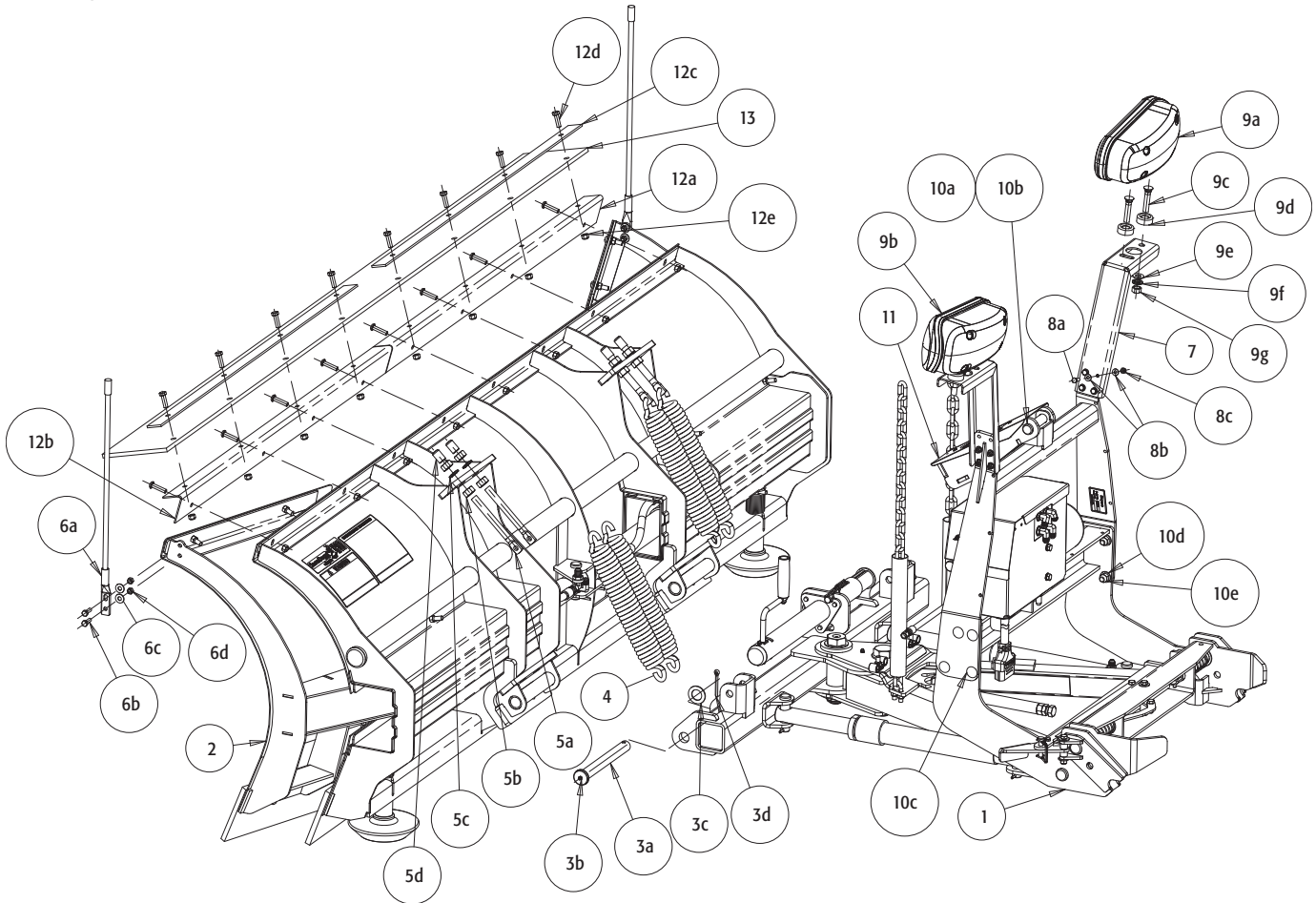
- 7.** Connect both the lighting & hydraulic control connectors.

Snowplow Dismount (fig. above)

- 1.** Put the plow in float by holding the down button for 1 second.
- 2.** Press down on the chain lift to retract the lift cylinder. The chain must have slack for ease of plow removal.
- 3.** Install the jack into the jack mount plate. This will raise the lift frame prop.
- 4.** Extend the jack enough to remove weight from the plow mount pins.
- 5.** Push on the foot pedal and the lift frame towards the vehicle simultaneously. The pins will retract and the lift frame will rotate forward to rest on the lift frame prop.
- 6.** Disconnect the lighting and hydraulic connectors
- 7.** Back away from the snowplow

INSTALLATION

SnowDogg snowplows are shipped almost completely assembled to minimize the amount of time from box to plowing. The illustrations are representative only and may differ from your hardware. Please see the parts diagrams for specific part numbers.



ITEM	QTY.	PART NO.	DESCRIPTION
1	1		LIFT FRAME ASSEMBLY
		16019000	XP Lift Frame
2	1		MOLDBOARD ASSEMBLY
		16020920	XP810 Moldboard Assembly
3	1	16101100	TRIP PIN HARDWARE KIT
3a	2		Trip Pin
3b	2		Grease Fitting, 1/4-28
3c	2		Washer, Flat, 1", Zn
3d	2		Pin, Cotter, 1/4 x 2, Zn
4	4	16101200	TRIP SPRING
5	1	16101210	TRIP SPRING HARDWARE KIT
5a	4		Eyebolt, 5/8-11 x 8, SST
5b	8		Nut, 5/8-11, SST
5c	4		Washer, Lock, 5/8, SST
5d	4		Cap, Black Vinyl
6	1	16122100	BLADE GUIDE KIT
6a	2		Blade Guide, Orange, 24"
6b	4		Screw, Cap Hex 5/16-18 x 1, Zn
6c	4		Washer, 5/16 Flat, Zn
6d	4		Nut, Nylock, 5/16-18, Zn
7	2	16111510	LIGHT BRACKETS
8	1	16111512	LIGHT BRACKET HARDWARE KIT
8a	8		Screw, Cap Hex 1/4-20 x 1-1/4 Zn
8b	16		Washer, Flat 1/4 Zn

ITEM	QTY.	PART NO.	DESCRIPTION
8c	8		Nut, Nylock, 1/4-20 Zn
9	1	16160700	LIGHT KIT
9a	1		Ps Side Light
9b	1		Ds Side Light
9c	4		Bolt, Plow Flathead, 1/2-13 x 2.5 Zy
9d	4		Washer, Spherical, Zy
9e	4		Washer, Flat, 1/2 Zy
9f	4		Washer, Lock, 1/2 Zy
9g	4		Nut, 1/2-13 Zy
10	1	16101102	LIFT FRAME HARDWARE KIT
10a	2		Clevis Pin, 7/8" x 4"
10b	2		Cotter Pin, 3/16 x 2"
10c	8		Carriage Bolt, 1/2-13 x 1.5 SS
10d	8		Washer, Flat, 7/16 SS
10e	8		Nut, Nylock, 1/2-13 SS
11	1	16111400	CHAIN LIFT
12	1	16122412	DEFLECTOR BRACKET KIT
12a	1		Bracket, PS, Deflector Mount
12b	1		Bracket, DS, Deflector Mount
12c	2		Clamp Strip, XP Deflector
12d	8		Screw, Socket Button, 3/8-16 x 1.25, SST
12e	8		Nut, Nylock, 3/8-16, SST
13	1	16120157	DEFLECTOR, RUBBER, 90"

SNOWPLOW ASSEMBLY

1. Flip up the upper lift frame and secure using eight 1/2" x 1-1/2" stainless steel hex cap screws, nuts and washers (10c/d/e).
2. Attach the chain lift to the upper lift frame and lift cylinder using two 7/8" x 4" clevis pins and cotter pins (10a/b).
3. Attach the moldboards to the lift frame kit using the hinge pin, washer, and cotter pin as shown. Check that the moldboards rotate freely around the hinge pin.
4. Install the two cylinder rods to each moldboard half with the clevis pins, washers and cotter pins as shown.
5. Install the snow deflectors (if desired) by loosening the fasteners on the top of the moldboard. The end two fasteners will need to be removed to slide the deflector between the black painted retainer strip & the stainless steel skin. It may be necessary to clamp the skin in place to allow insertion of the deflector. After the deflectors are in place replace and tighten all fasteners.
6. Install deflector as shown.
7. Connect hoses to mold board fittings. The hoses and fitting are color coded - verify that each hose is connected to the correct fitting. Finger tighten the swivels and turn an additional 1/4 turn with a wrench. This will correspond to a torque of ~20ft-lbs. **DO NOT OVERTIGHTEN THE SWIVELS.**
8. Install the blade guides using the included hardware kit.
9. Install the lights with the light kit hardware. Do not route the plow side light harness yet as the Passenger and Driver side light connection will vary depending on the truck side installation. Do not tighten the light hardware yet, as they will need to be aimed.
10. The plow may now be set into mounting configuration – install the jack and level the plow to the proper height for mounting to the truck.

VEHICLE SPECIFIC MOUNT INSTALLATION

1. Mount the truck undercarriage as shown in the undercarriage installation instructions. As with the plow, all the fasteners should be checked on a regular basis.

VEHICLE SPECIFIC HEADLIGHT ADAPTER INSTALLATION

1. It may be necessary to remove vehicle headlights to access the truck light harness connectors.
2. Install the vehicle specific headlight adapters per included installation instructions.
3. Be sure to route wires and harnesses away from hot surfaces or moving parts.

CAUTION

For safety reasons, the blade drops very slowly on the plow as shipped. To adjust the drop speed of the blade use a flat blade screwdriver and turn the lowering speed adjustment on the front of the hydraulic power unit counter clockwise. Turn it clockwise to slow the blade drop speed. Do this only while the blade is dropped, and tighten the jam nut after adjusting.

HARNESS INSTALLATION

The SnowDogg has two separate harnesses for ease of installation and troubleshooting – a control harness and a light harness. They can be mounted separately. In the case of trucks with central hydraulics or existing auxiliary lights, either harness can be omitted without affecting the functionality of the other system.

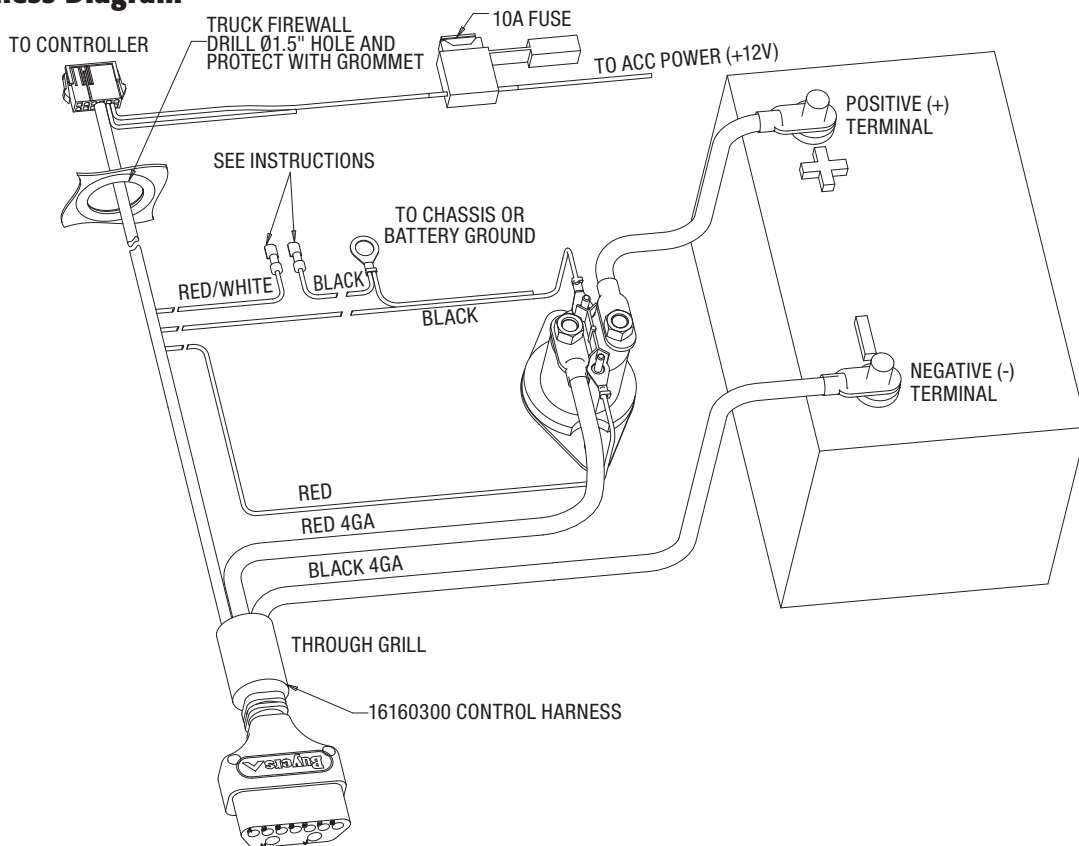
CAUTION

Keep all connectors greased with dielectric grease on a regular basis to minimize corrosion & potential damage or wear to the pins. It is critical that all electrical connections be tight and secure. Loose connections on the plow circuit can cause overheating, component failure, or intermittent operation.

Control Harness

The plow side control harness has been preinstalled. The truck side control harness is routed through the grill, by the battery, and through the firewall to the controller. It is preferable when possible to keep the plow connector on the drivers side to make mount/dismount easier and faster.

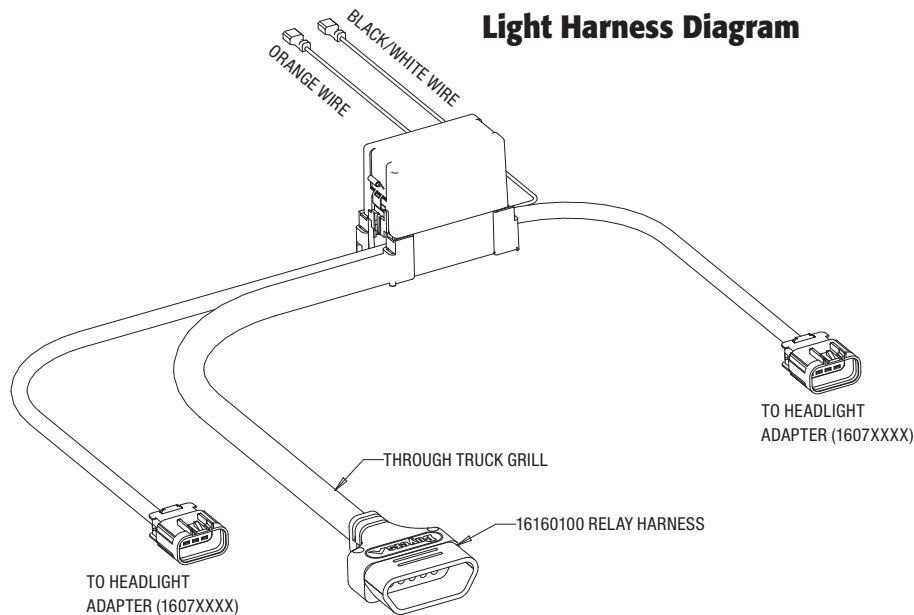
Control Harness Diagram



1. Route the CONTROL HARNESS through the truck grill, by the battery, and through the firewall. Some trucks will require drilling a $\varnothing 1.50$ " hole through the firewall, while some will have holes provided (usually plugged). Check your truck Owner's Manual for details. If the hole is drilled it is critical that a grommet be used to prevent damage to the wire harness.
2. Mount the MOTOR RELAY in a convenient and secure location on the battery side of the vehicle using the included self tapping screws.
3. The small RED WIRE from the CONTROL HARNESS is connected to a small terminal of the MOTOR RELAY.
4. The small BLACK WIRE from the CONTROL HARNESS has two leads – one is connected to the other

- small terminal of the MOTOR RELAY. The other is connected directly to vehicle/chassis ground.
- 5.** The large (4 gage) BLACK WIRE on the CONTROL HARNESS must be connected directly to the NEGATIVE (-) battery terminal. A BATTERY TERMINAL ADAPTER may be required.
 - 6.** The large (4 gage) RED WIRE on the CONTROL HARNESS is connected to one of the large terminals on the MOTOR RELAY.
 - 7.** The shorter red BATTERY CABLE is used to connect the other large terminal of the MOTOR RELAY with the POSITIVE (+) terminal on the battery. A BATTERY TERMINAL ADAPTER may be required.
 - 8.** The CONTROLLER CONNECTOR is routed through the firewall. Wait to complete RELAY HARNESS installation before further steps.
 - 9.** Connect the handheld controller and locate in a convenient location for the operator using the included mounting bracket or Velcro.
 - 10.** Male spade connectors on the BLACK and RED/WHITE wires will be connected to the LIGHT HARNESS in the next step.

Light Harness



- 1.** Route the RELAY HARNESS through the grill (drivers side preferably) and place the RELAY MODULE close to either the drivers or passenger side headlight (whichever is convenient).
- 2.** A VEHICLE SPECIFIC HEADLIGHT ADAPTER for your plow should be installed between the OEM HARNESS and HEADLIGHT on both the passenger and driver sides. The BROWN wire from the adapter should be spliced into the PARKING light circuit. The PURPLE wire from your adapter should be spliced into the TURN signal circuit.
- 3.** Route and connect the 8-pin connectors on the RELAY HARNESS to the VEHICLE SPECIFIC HEADLIGHT ADAPTERS. There is a LONG and SHORT cable on the RELAY HARNESS. The LONG cable is for the far side of the vehicle. Both CABLES are identical. LEFT and RIGHT turn signals will be determined prior to routing the LIGHT HARNESS on the plow.
- 4.** The ORANGE and BLACK/WHITE wires on the RELAY HARNESS are connected to the RED/WHITE and BLACK wires on the CONTROL HARNESS. Connect them as shown below – see the application guide for specific information on your vehicle. In the case of a standard ground vehicle (switched hot), connect the wires as shown below for standard configuration. In the case of a switched ground vehicle, locate the gray wire with male/female disconnected fittings (already connected). Disconnect the two halves. The male quick connect end of the wire will not be used and may be taped off. The female end will be connected to the RED/WHITE wire from the

16160300 harness. Connect the other wires as shown. It is recommended that heat shrink tubing be put over these connections once complete to seal against corrosion.



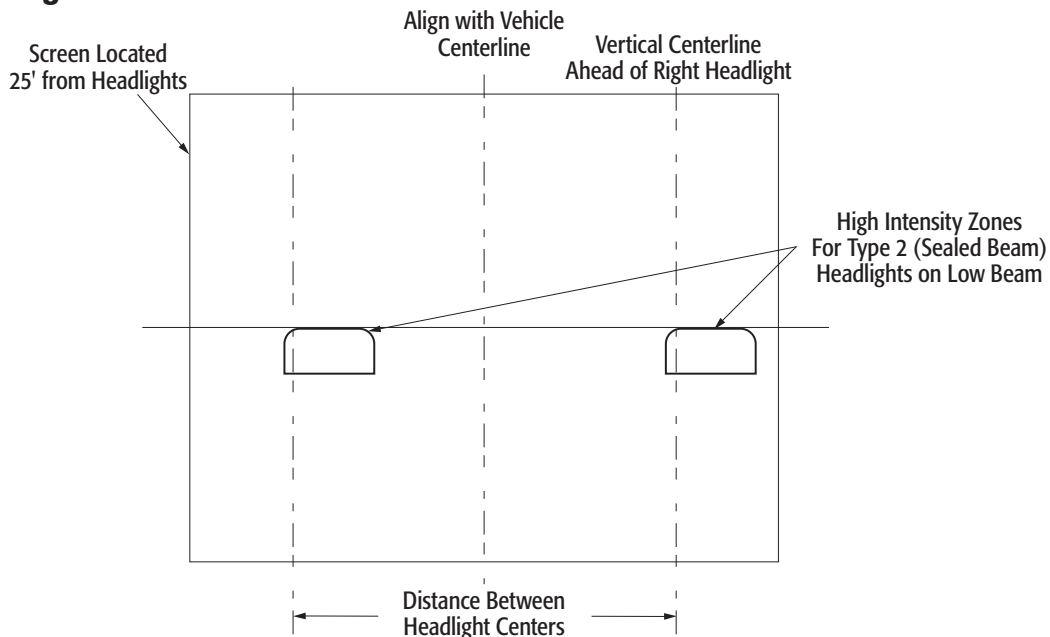
5. Connect the FUSED POWER LINE to an OEM approved +12V IGNITION SWITCHED source (10A)

Light Aiming

1. Place the vehicle on a level surface 25 feet in front of a matte-white screen, such as a white wall or garage door.
2. The snowplow should be mounted, with the blade raised in transport position.
3. Check that the truck is in normal operating condition with no flat tires, failed suspension components, and no passengers.
4. Mark the vertical centerline of the vehicle headlights on the screen (a line matching the height the of headlights from the ground). Mark the horizontal centerline of the vehicle headlights on the screen (lines matching the headlight center to center distance).
5. The high intensity zone of the low beams should be just below the horizontal line and the right of the vertical lines (see diagram below). Adjust the headlight aim as required.

NOTE: Snowplow installers must certify that installation conforms to federal motor vehicle safety standards.

Light Aiming Diagram



Your plow and truck are now ready for operation. The hydraulic system has been filled at the factory and should be fully operational. It is possible that agitation due to the shipping has introduced some air into the oil. When operating the plow for the first time some oil may exit the vent (by the coils). This should stop once the plow is cycled and operational. *Check all plow and light functions. If something is not working correctly, reread the installation directions to make sure a step was not missed and check the schematics.*

STORAGE

1. Before disconnecting the plow from your vehicle, fully compress the lift cylinder
2. Disconnect the plow from your vehicle
3. Coat all electrical connection points with dielectric grease
4. Repair/touch up any chipped paint or rusted areas
5. Apply a coat of oil or grease to all exposed chrome (on angle and lift cylinders)
6. Grease all grease fittings on trip pins and king pin

REMOVAL FROM STORAGE

1. Check all fasteners and hydraulic fittings for tightness.
2. Replace any cracked hydraulic hoses
3. Coat all electrical connection points with dielectric grease
4. Connect plow to vehicle

MAINTENANCE

The SnowDogg line of plows has been simply designed for reliable service. In order to ensure the reliability of your plow, observe the following maintenance items and regularly inspect:

- Fasteners and retaining devices for proper installation and tightness.
- Hydraulic cylinders for damage, pitting or leakage
- Hydraulic hoses for wear, damage or leakage. Replace any damaged hose.
- All electrical connections for corrosion – apply dielectric grease as required
- Cutting edge wear
- Plow shoe wear
- Greasable fittings (2x trip pins and king pin)

HYDRAULIC SYSTEM

- All SnowDogg plows use SnowDogg brand Low-Temperature Hydraulic Fluid (P/N 16150010) available from SnowDogg dealers.
- The reservoir should be filled through to top port until oil reaches the top port.
- Recheck and tighten all fittings and valves every season or as necessary. Vibration due to normal use can cause fittings to loosen.
- Loctite or Teflon tape should not be used on any fittings or hoses. The only plugs where pipe sealant may be used are the reservoir plugs.
- The reservoir should be drained and refilled every season to ensure that the oil remains free of water and contaminants. If contaminants are known to be present, it is recommended that the reservoir be removed and cleaned.

With proper maintenance and care your SnowDogg plow will provide years of trouble free service!

Figure A - Lift Frame Diagram

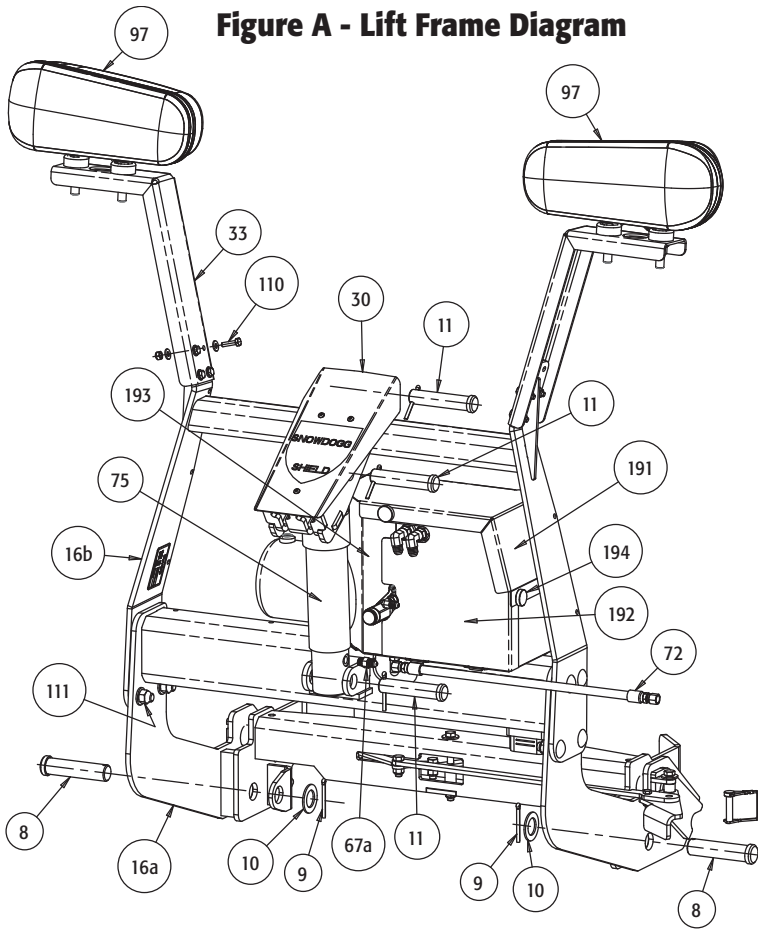


Figure B - Linkage Detail Diagram

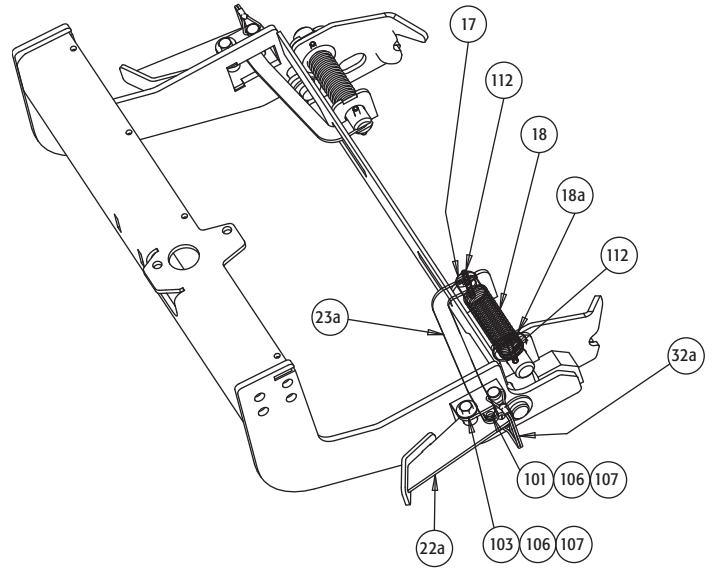


Figure C - Moldboard Diagram

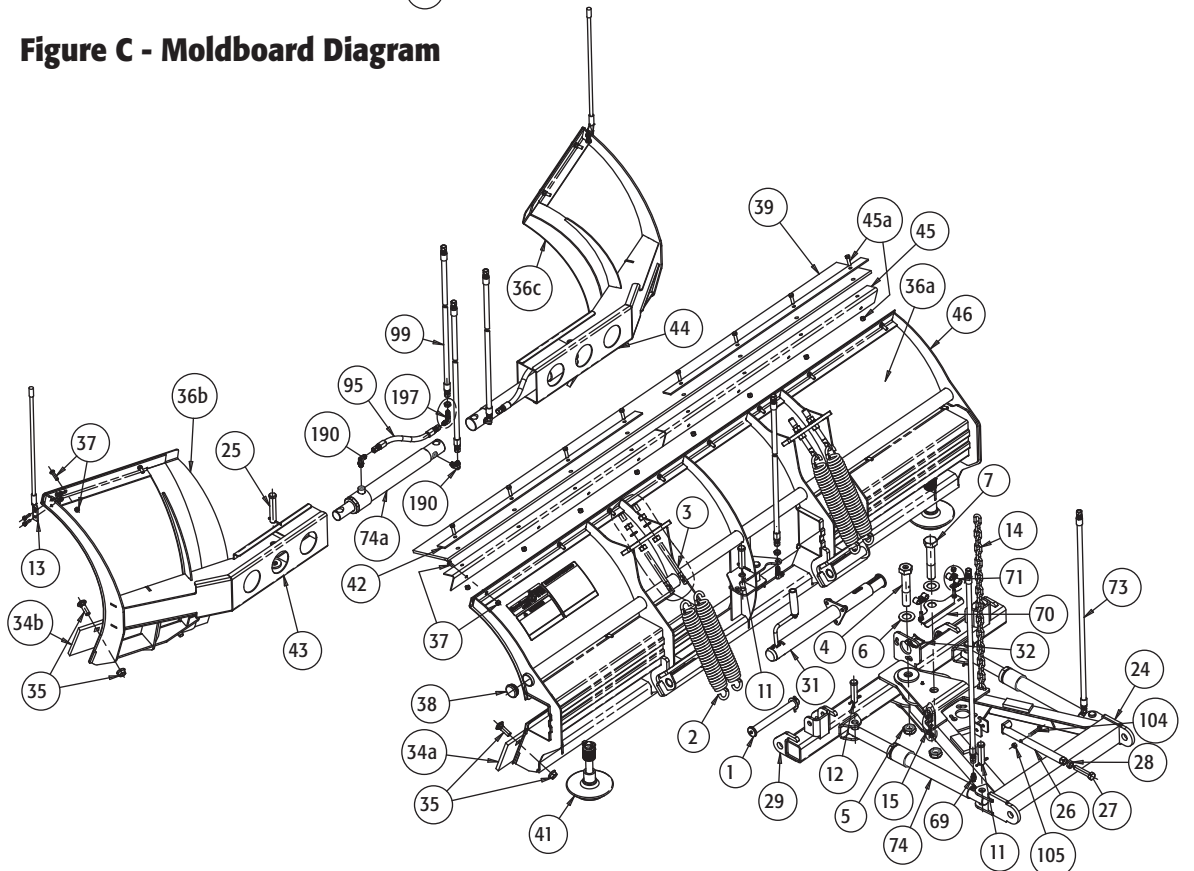


Figure D - Hydraulic Power Unit Diagram

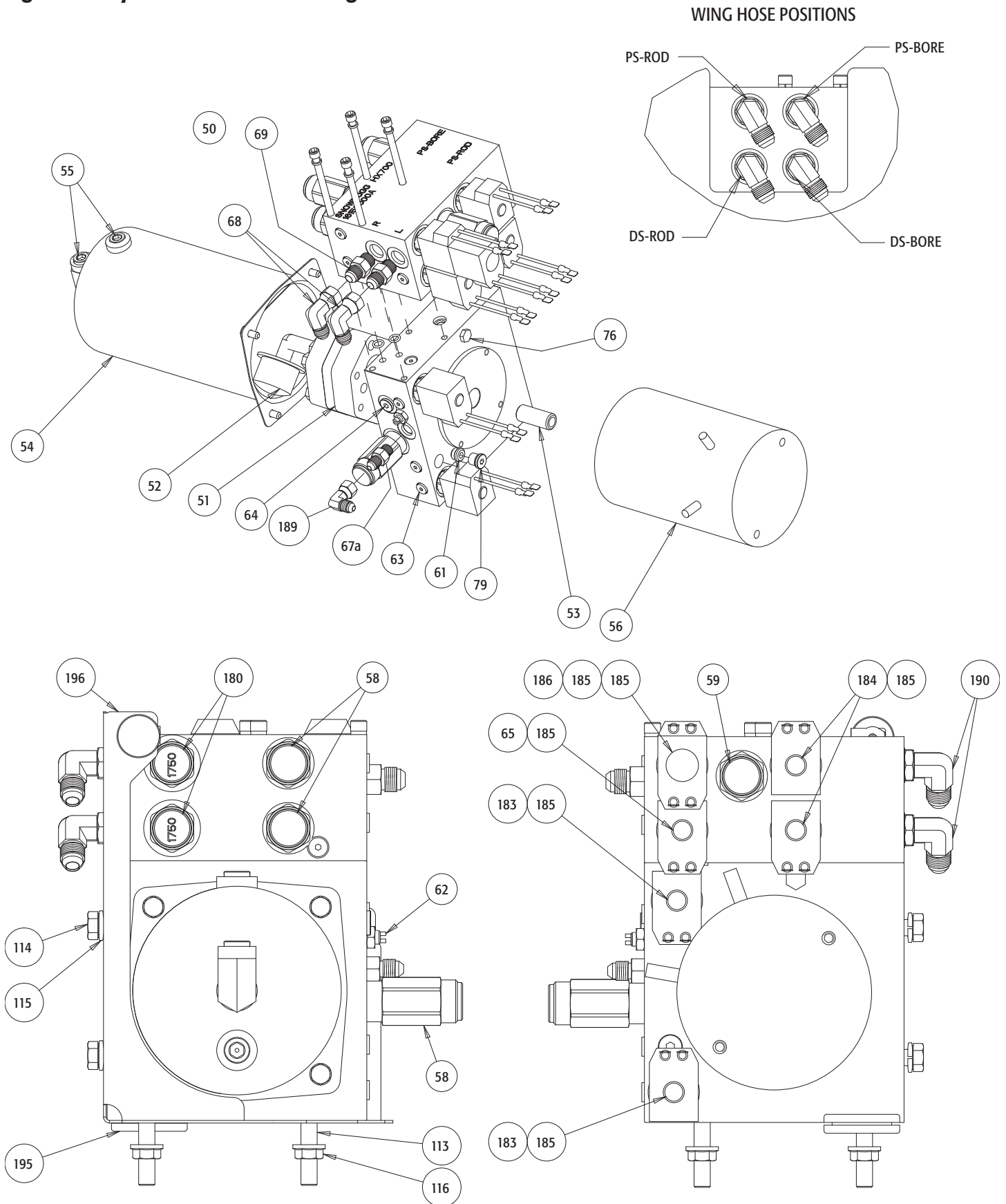


Figure D - Hydraulic Power Unit Wiring Diagram

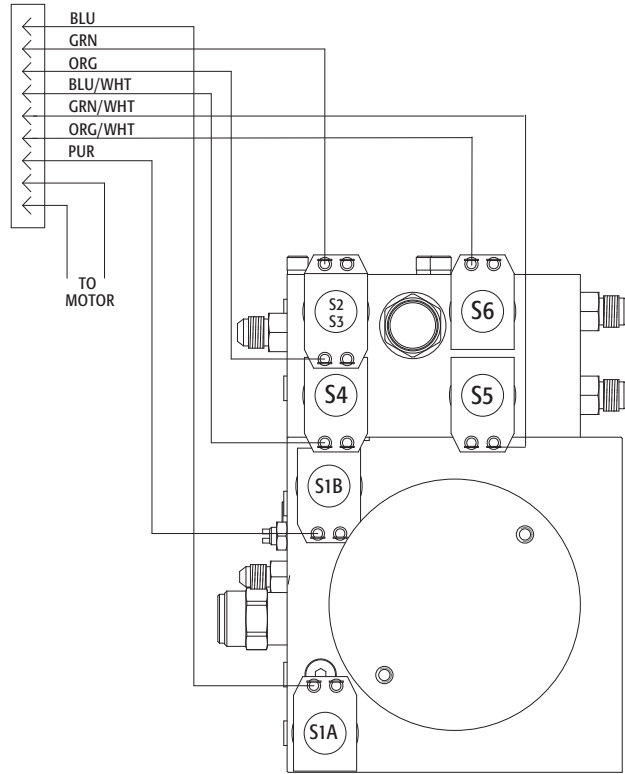
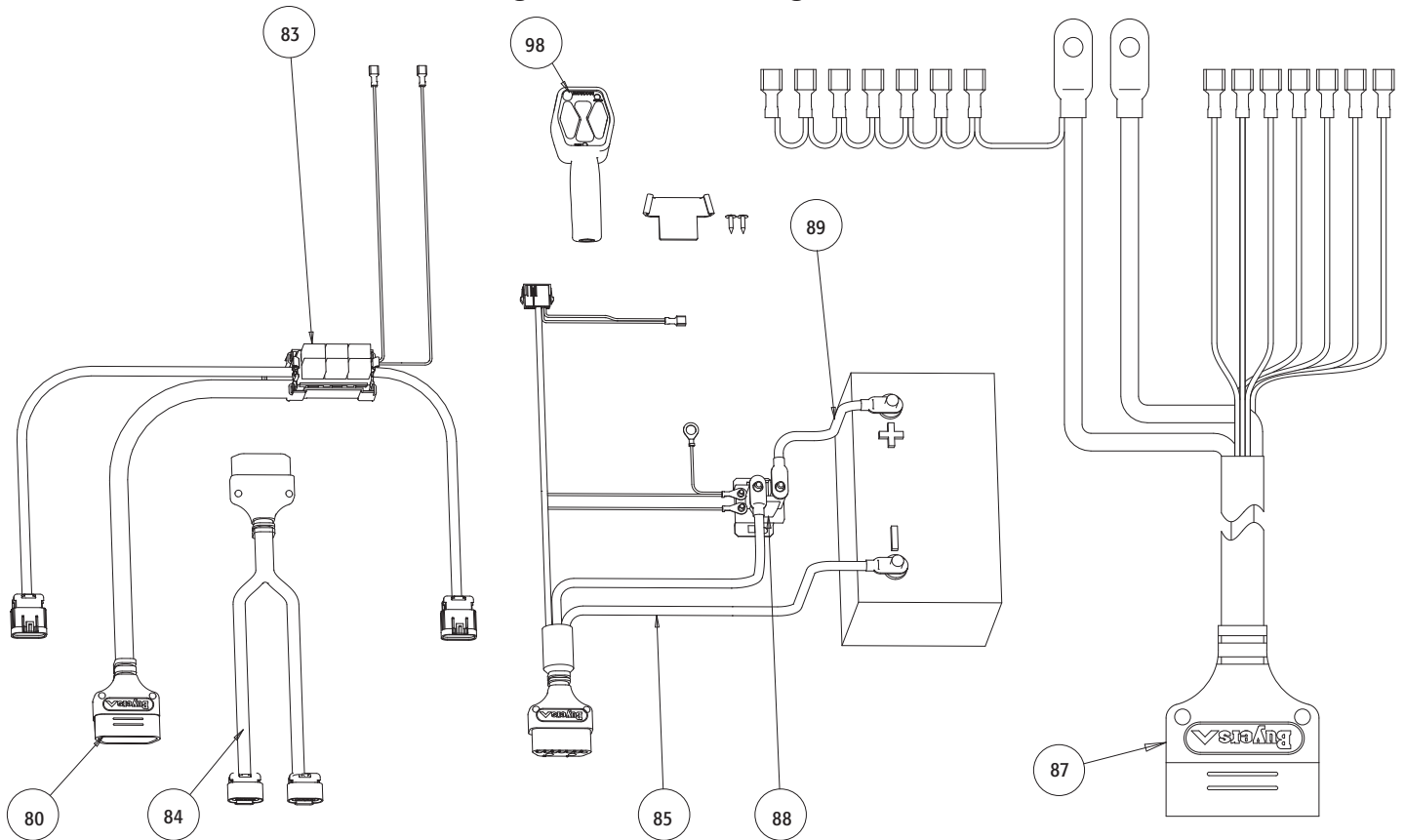


Figure E - Harness Diagram



Parts List

ITEM	PART NO.	QTY	DESCRIPTION
FIGURE A - LIFT FRAME DIAGRAM			
8	16102100	2	Clevis Pin, 1"x4"
9	16102102		Cotter Pin, 3/16"x2"
10	16102104	2	Washer, 1"
11	16102122	3	Clevis Pin Kit, 7/8" x 4"
16a	16110100	1	Lower Lift Frame, Assembled w/ Linkages
16a	16111612	1	Lift Frame, Lower Weldment
16b	16111620	1	Lift Frame, Upper Weldment
30	16111400	1	Chain Lift Arm (assembled)
30	16111402	1	Chain Lift Cover, w/screws
30	16111406	1	Chain Lift Fastener Kit
32	16111120	1	Snapper Pin, 1-5/8in
32a	16111124	2	Snapper Pin, 2-1/2in
33	16111510	2	Bracket, Light
67a	16151325	1	Fitting, Cyl Lift Port
72	16153100	1	Hose, Lift (1/4"x18")
75	16154200	1	Cylinder, Lift (2"x6")
75	16154202	1	Packing Kit, 2" w/Wiper Seal
75	16154204	1	Gland Nut, 2", w/Wiper Seal
97	16160700	1	Light, Plow, Pair
97	16160710	1	Light, Plow, DS
97	16160712	1	Light Housing Only, DS
97	16160720	1	Light, Plow, PS
97	16160722	1	Light Housing Only, PS
97	16160730	2	Hardware Kit, Light Mounting (1 set)
97	16160732	2	Seal, Light Lens to Housing
97	16160734	2	Harness, Light Internal
97	16160740	2	Bulb, H1 High Beam
97	16160742	2	Bulb, H7 Low Beam
97	16160744	2	Bulb, Park/Turn, Amber
110	16111512	1	Light Bracket Fastener Kit (8 Screws/Washers/Nuts)
111	16101014	1	Lift Frame Upper/Lower Fastener Kit
191	16152120	1	Cover, Top, HV600 HPU
192	16152125		Cover, DS Front, XP
193	16152124	1	Cover, PS Front, V
194	16152126	3	Screw, Thumb, HPU Cover

FIGURE B - LINKAGE DETAIL DIAGRAM

17	16111102	2	Pin, Mount Locking
18	16111104	2	Spring, Mount Locking Pin
18a	16111116	2	Washer, Flat
22a	16111117	2	Foot Pedal, Dual
23a	16111115	2	Linkage, Dual Pedal
32a	16111124	2	Snapper Pin, 2-1/2in
101	16101001	2	Screw, Cap, 3/8-16 x 1.00 SST
103	16101003	2	Screw, Cap, 3/8-16 x 3.00 ZN
106	16101006	4	Nut, Nylock 3/8-16 SST
107	16101007	6	Washer, Flat 3/8 SST
112	16111118	4	Roll Pin, 1/4x2.00

FIGURE C - A-FRAME & MOLDBOARD DIAGRAMS

1	16101100	1	Pin, Trip, HD/EX/XP (Pair)
1	16101516	1	Grease Fitting, 1/4-28 Threaded
2	16101200	4	Spring, Trip
3	16101210	2	Spring Mount Eye Bolt Kit (set of 4)
4	16101120	1	Bolt, Pivot w/grease fitting, HD/EX/TE/XP
4	16101515	1	Grease Fitting, Press
4	16101516	1	Grease Fitting, 1/4-28 Threaded
5	16101122	2	Nut, Pivot/Angle Stop Bolt
6	16101124	4	Washer, Pivot/Angle Stop Bolt
7	16101140	1	Bolt, Angle Stop
9	16102102		Cotter Pin, 3/16"x2"
11	16102142	4	Clevis Pin Kit, 7/8" X 3-1/4"

ITEM	PART NO.	QTY	DESCRIPTION
13	16122100	1	Blade Guide Assembly (pr)
14	16103000	2	Chain, Lift
15	16103020	2	U-Bolt Kit, Lift Chain w/nuts
24	16101515	1	Grease Fitting, Press
24	16111200	1	A-Frame, HD/EX/TE/XP
25	16102199	2	Clevis Pin Kit, 7/8 X 4-1/2, W/cotter
26	16111210	1	Prop Stand Assembly (with lift bolt/nut)
27	16111212	1	Bolt, Prop Stand
28	16111214	1	Nut, Jam 5/8-11
29	16111300	1	Sector, HD/EX/XP
31	16111310	1	Jack, A-frame
31	16111312	1	Cap for Jack
32	16111120		Snapper Pin, 1-5/8in
34a	16120920	1	Cutting Edge, XP810 Center
34b	16120922	2	Cutting Edge, XP810 Wing
35	16120114	1	Cutting Edge Fastener Kit (set of 10)
36a	16121920	1	Skin, XP810 Center, SST
36b	16121922	1	Skin, XP810 DS Wing, SST
36c	16121924	1	Skin, XP810 PS Wing, SST
37	16120110	1	Skin Fastener Kit (set of 10)
38	16120120	2	Cap, Crosstube
39	16120157	1	Deflector, Rubber, MD/HD/TE/EX75, XP810
41	16121100	2	Shoe Assembly
41	16121120	16	Shoe, Washer (1/8")
41	16121140	2	Shoe, Linch Pin
42	16120266	2	Clamp Strip, XP810
43	16122420	1	Moldboard Weldment, XP810 DS Wing
44	16122430	1	Moldboard Weldment, XP810 PS Wing
45	16122412		Deflector Bracket Kit w/Hardware
45a	16122414		Deflector, Hardware Only
46	16122410	1	Moldboard Weldment, XP810 Center
69	16151324	2	Fitting, Mfd/Cyl Angle Straight
70	16111140	1	Bracket, Hose Anchor, SST
71	16111142	2	Clamp Kit, Hose
73	16153110	2	Hose, Angle (3/8"x36")
74	16154100	2	Cylinder, Angle (1-1/2"x12")
74	16154212	2	Packing Kit, 1-1/2" w/Wiper Seal
74	16154214	2	Gland Nut, 1-1/2", w/Wiper Seal
74a	16154300	2	Cylinder, Double Acting (1-1/2"x12")
74a	16154302	2	Seal Kit for 16154300
95	16153140	2	Hose, Wing Retract, 3/8" X 13"
99	16153130	4	Hose, Wing Cylinder, 3/8" x 60"
104	16101004	1	Screw, Cap, 3/8-16 x 2.00 ZN
105	16101005	1	Nut, Nylock 3/8-16
190	16152346	4	Fitting, Elbow, 3/8" JIC M/F
197	16151340	2	Fitting, Bulkhead Elbow, 3/8"

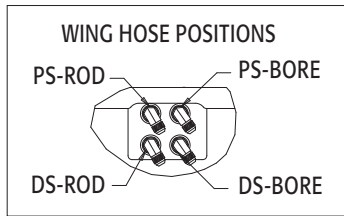
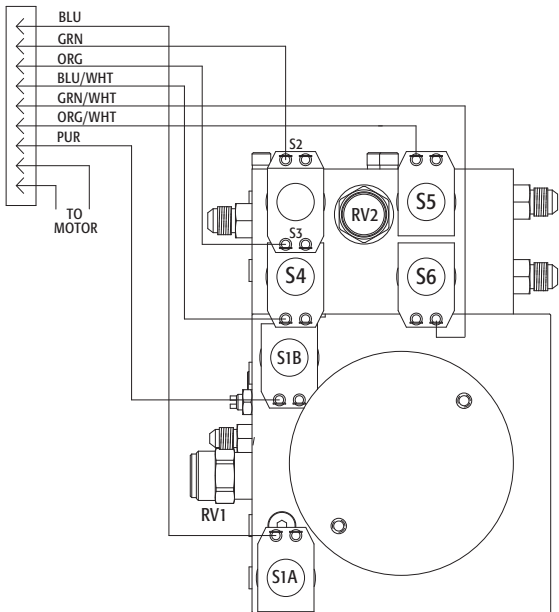
FIGURE D - HYDRAULIC POWER UNIT DIAGRAM

50	16152104	1	Manifold O-ring/Fastener Kit
50	16153000	1	Hydraulic Power Unit, XP
51	16151100	1	Pump, Gear
51	16159116	1	Seal, Shaft
52	16151102	1	Inlet Strainer
53	16152004	1	Spline Coupler
54	16151110	1	Reservoir Kit (Res/Bolts/Seal/Cap)
54	16159114	1	O-ring, Reservoir
55	16151112	2	Plug, Reservoir, 3/8" NPT
56	16151200	1	Motor, 1.6kW
58	16151302	3	Valve, Main Relief
59	16151304	1	Valve, Angle Cross Over Relief
61	16151308	1	Valve, Lift Check
61	16900010		Tool, Lift Check Valve Removal
62	16151310	1	Valve, Lowering Speed

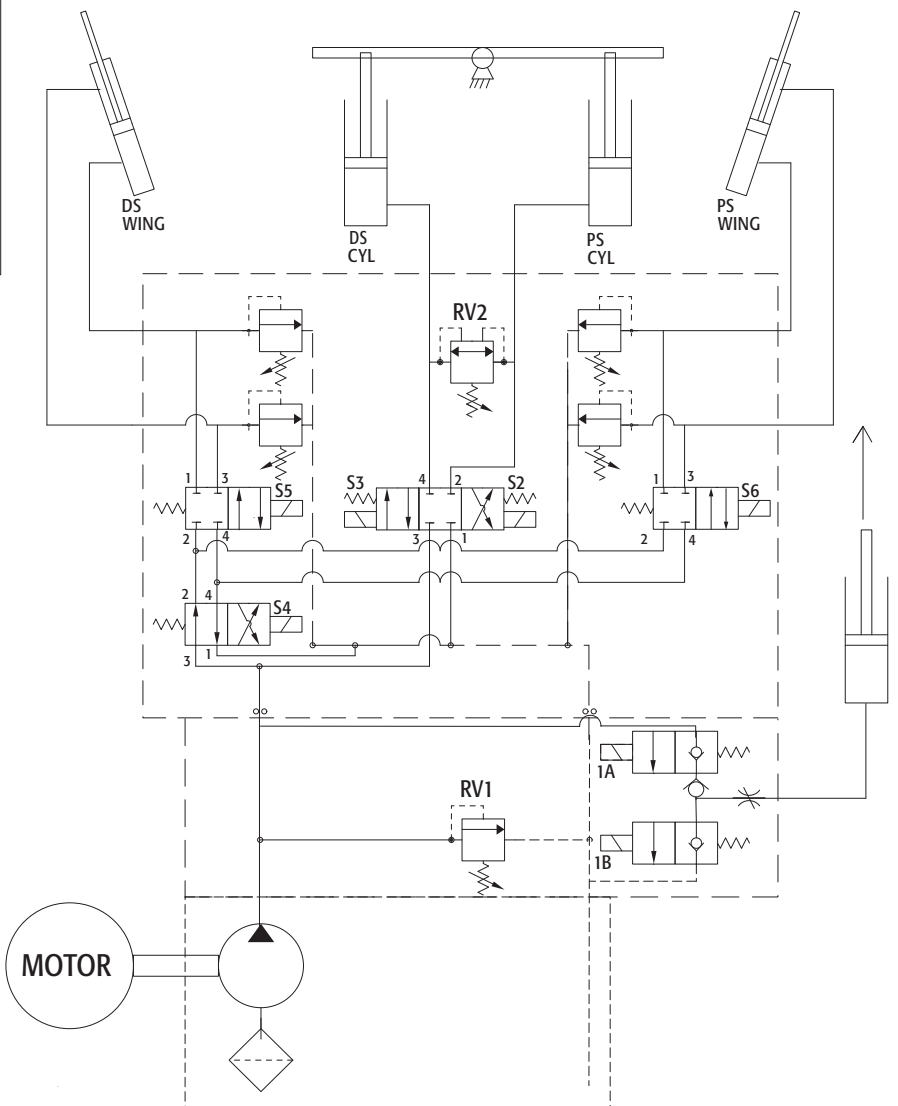
ITEM	PART NO.	QTY	DESCRIPTION
63	16152016	28	Plug, -2 SAE, (1/8")
64	16152018	1	Plug, -4 SAE, (1/4")
65	16151316	1	Valve, 4-WAY/2-POS Solenoid
67a	16151325	1	Fitting, Cyl Lift Port
68	16151322	2	Fitting, Mfd Angle/Lift Elbow
69	16151324	2	Fitting, Mfd/Cyl Angle Straight
76	16151326	1	Breather, Vent
79	16152332	1	Plug, Lift Check Valve
113	16101016	2	Stud, 3/8-16 X 2, ZN
114	16101017	2	Screw, Cap, 3/8-16 x 3/4, ZN
115	16101018	2	Washer, Lock, 3/8, ZN
116	16101019	2	Nut, Serrated Flange, 3/8-16, ZN
180	16151336	2	Valve, Relief, 1750 PSI Differential
183	16151312	2	Valve, S1A/S1B Solenoid
184	16151332	2	Valve, S5/S6 Solenoid
185	16152336	7	Coil, w/flying leads
186	16151334	1	Valve, S2/S3 Solenoid
189	16151321	1	Fitting, Manifold Lift Port 90 Deg Swivel
190	16152346	4	Fitting, Angle Port/Cyl 90°
195	16152128	1	Grommet, HPU Tray
196	16152130	1	Fitting, Mfd Angle/Lift Elbow

FIGURE E - HARNESS DIAGRAM

80	16160100	1	Harness, Truck Relay
80	16160110	1	Repair Connector, 16160100 Grill Connector
80	16160112	2	Repair Connector, 16160100 Adapter Connector
80	16160116	1	Plate, Mounting, Relay Harness
80	16160510	1	Cap, 16160100/16160300
83	16160114	6	Relay, Light, Individual
84	16160200	1	Harness, Plow Light
84	16160512	1	Cap, 16160200/16160400
85	16160300	1	Harness, Truck Control
85	16160310	1	Repair Connector, 16160300 Grill Connector
85	16160510	1	Cap, 16160100/16160300
87	16160402	1	Spring Cage (Kit of 2), Power terminals
87	16160512	1	Cap, 16160200/16160400
87	16162400	1	Harness, Plow Control XP
88	16160410	1	Relay, Motor
89	16160500	1	Cable, Battery
98	16160610		Harness, Controller Extension (36")
98	16160620	1	Mount Kit, SnowDogg Controller
98	16162600	1	Controller, Expanding Plow



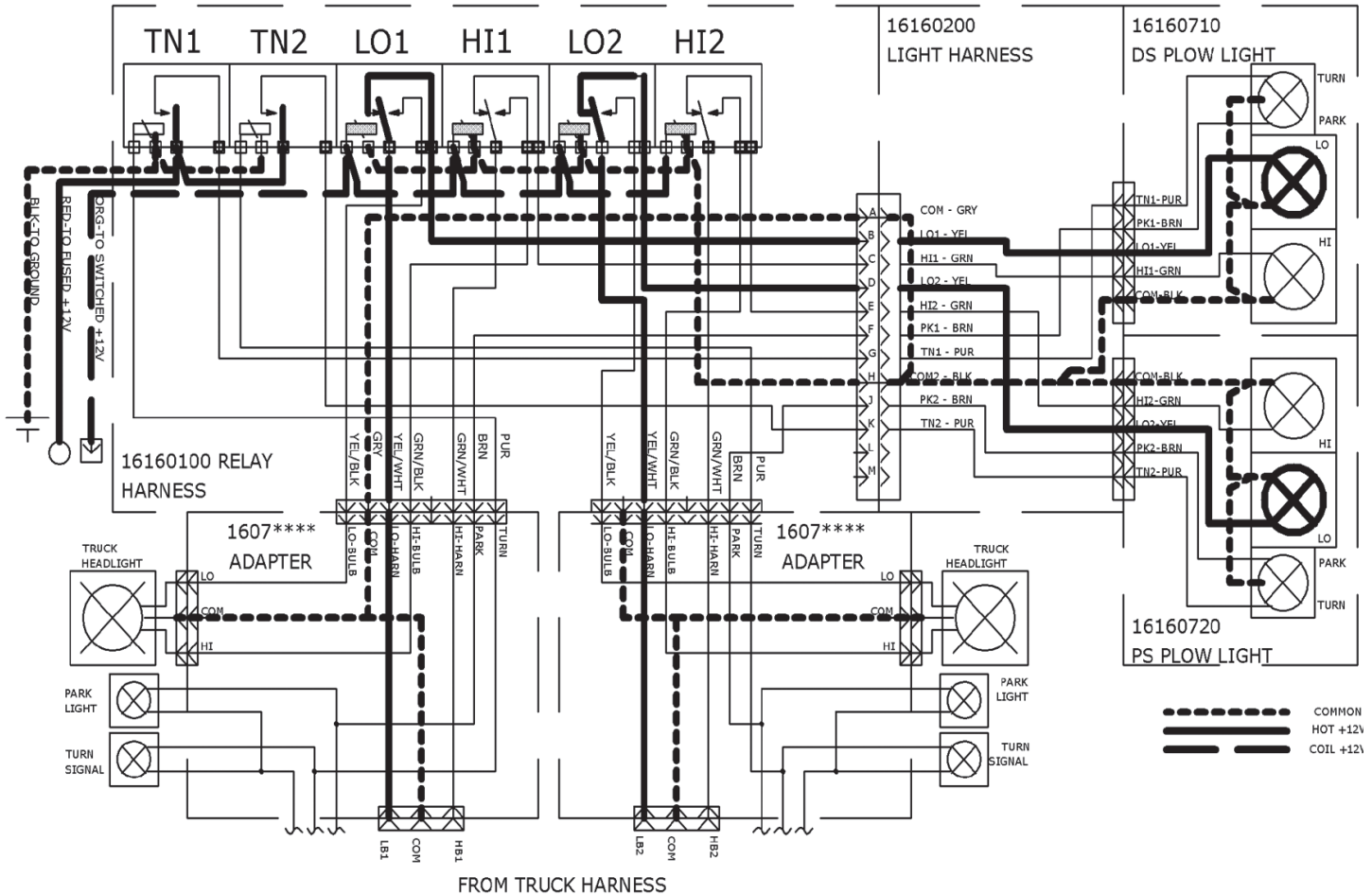
SOL	MOTOR	S1A	S2	S3	S4	S5	S6	S1B
UP	■							
DOWN								■
FLOAT								
LEFT	■							
RIGHT			■					
LEFT IN					■			
LEFT OUT						■		
RIGHT IN							■	
RIGHT OUT								■
BOTH IN					■			
BOTH OUT						■		



NOTE
 Full schematics and pin out information can be found online at www.snowdogplows.com under Tech Support in the 16992930 service manual.

LIGHTING SCHEMATIC

PLOW CONNECTED
LOW BEAMS ON



METHOD OF OPERATION

Headlights

The SnowDogg relay isolation module diverts switched power or ground for the plow high and low beams from the truck harness to the snowplow lights when the plow is connected. There is no additional draw from the plow lights. The plow headlights common uses the vehicle headlight harness common (+12V or ground) which is supplied through the light gray wire. When the plow is disconnected power flows through the relay common to normally closed contacts to the truck headlights.

NOTE

If the red/white wire is hooked straight to battery +12V, it will draw current at all times, draining the battery.

PROPER OPERATION OF LIGHTS

Plow Parking Lights: On simultaneously with the Truck Parking Lights

Plow Turn Signals: On simultaneously with the Truck Turn signals / isolated by relays

Plow Headlights: On INSTEAD of Truck headlights. Truck and Plow headlights should NEVER be on at the same time.

NOTE

Full schematics and pin out information can be found online at www.snowdoggplows.com under Tech Support in the 16992900 service manual.

TROUBLESHOOTING

Disconnect the RELAY MODULE CONNECTOR for the following steps.

The controller will not detect most electrical faults with the relay module connected.

SYMPTOM/DIAGNOSTIC	RESULT	FIX
PUMP MOTOR NOT RUNNING WHEN UP, LEFT OR RIGHT PRESSED		
Status light blinks ONCE	Continuity Problem	Check RED WIRE/MOTOR RELAY
Check voltage at MOTOR terminals with UP, LEFT, or RIGHT buttons pressed	If voltage present - MOTOR is bad	Replace MOTOR
Check cable continuity between MOTOR RELAY and MOTOR	If no continuity, check cable, connections, and replace if necessary	Replace/repair cable or connections
Check control signal to MOTOR RELAY (small wires to motor relay) with UP, LEFT, or RIGHT buttons pressed	If voltage present and no click is heard when buttons are pressed, MOTOR RELAY is bad	Replace MOTOR RELAY
Check ground continuity between between control ground at MOTOR RELAY and battery ground	If no continuity, check cable, connections, and replace if necessary	Replace/repair cable or connections
PLOW WON'T MOVE AT ALL, MOVES "JERKILY", VERY SLOWLY, OR CHATTERS		
Check fluid level in reservoir	Fluid should be visible in elbow fitting.	Add fluid
Air in fluid	Bleed air from system	Slightly loosen fittings to angle cylinders and move the plow wings. Tighten fittings while fluid is escaping. Do this over an absorbent mat, or hold a rag over fitting to absorb excess fluid.
OIL IS LEAKING FROM CYLINDERS		
	Packing is loose	Tighten gland until leak stops
	Rods are pitted	Polish rods with fine steel wool
		Replace cylinder
OIL SPRAYS OUT OF VENT PORT IN POWER UNIT		
Air in Fluid	Bleed air from system	Slightly loosen fittings to angle cylinders and angle the plow. Tighten fittings while fluid is escaping. Do this over an absorbent mat, or hold a rag over fitting to absorb excess fluid.
Check fluid level	Fluid should be visible in elbow fitting.	Remove fluid if necessary - in most cases the problem will subside as entrapped air dissipates.
PLOW WON'T DROP		
Status light blinks 8 times	Continuity Problem	Check PURPLE WIRE/S1B COIL
Check voltage at S1B VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections
Check DROP SPEED control valve	DROP SPEED valve should be several turns from fully closed	Open DROP SPEED valve
Check S1B VALVE for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove S1B VALVE and check free movement of poppet, clean any chips/debris from poppet seat Replace S1B VALVE
Check LIFT LOCK valve for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove LIFT LOCK valve and check free movement of poppet, clean any chips/debris from poppet seat Replace LIFT LOCK valve
PLOW WON'T LIFT		
Status light blinks 2 times	Continuity Problem	Check BLUE WIRE/S1A COIL
Check voltage at S1A VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections
Check S1A VALVE for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove S1A VALVE and check free movement of poppet, clean any chips/debris from valve Replace S1A VALVE
PLOW WON'T ANGLE		
Status light blinks 3 times	Continuity Problem	Check GREEN WIRE/S2 COIL

TROUBLESHOOTING, continued

SYMPTOM/DIAGNOSTIC	RESULT	FIX
Status light blinks 4 times	Continuity Problem	Check ORANGE WIRE/S3 COIL
Check voltage at S2 or S3 VALVE coils	If no voltage present, check cable and connections	Replace/repair cable or connections
Check S2/S3 VALVE for contamination	Spool must move freely, and sleeve area must be clear of any debris	Remove S2/S3 VALVE and check free movement of spool, clean any chips/debris from valve Replace S2/S3 VALVE
LEFT AND RIGHT WING WON'T RETRACT		
Status light blinks 5 times	Continuity Problem	Check BLUE/WHT WIRE/S4 VALVE
Check voltage at S4 VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm BLUE/WHT wire at S4
Check S4 VALVE for contamination	Spool must move freely, and sleeve area must be clear of any debris	Remove S4 VALVE and check free movement of spool, clean any chips/debris from valve Replace S4 VALVE
LEFT WING WON'T EXTEND OR RETRACT		
Status light blinks 7 times	Continuity Problem	Check ORANGE/WHT WIRE/S5 VALVE
Check voltage at S5 VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm ORANGE/WHITE wire at S5 VALVE
Check S5 VALVE for contamination	Spool must move freely, and sleeve area must be clear of any debris	Remove S5 VALVE and check free movement of spool, clean any chips/debris from valve Replace S5 VALVE
RIGHT WING WON'T EXTEND OR RETRACT		
Status light blinks 6 times	Continuity Problem	Check GREEN/WHT WIRE/S6 VALVE
Check voltage at S6 VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm GREEN/WHITE wire at S6 VALVE
Check S6 VALVE for contamination	Spool must move freely, and sleeve area must be clear of any debris	Remove S6 VALVE and check free movement of spool, clean any chips/debris from valve Replace S6 VALVE
PLOW DRIFTS WHILE PLOWING SNOW		
Air in Fluid	Bleed air from system	Slightly loosen fittings to angle cylinders and angle the plow. Tighten fittings while fluid is escaping. Do this over an absorbent mat, or hold a rag over fitting to absorb excess fluid.
Check CHECK VALVES for contamination	Poppet must move freely, and seat and piston area must be clear of any debris	Remove CHECK valves and clean Replace CHECK valve
Check RELIEF valves for contamination	Poppet must move freely, and seat must be clear of any debris	Remove RELIEF valves and clean Replace RELIEF valves

PLOWING TIPS

- Know the area you are plowing. Be aware of all hidden obstacles (pipes, drains, berms, etc.)
- Plow with the storm, do not let snow accumulate
- Always lower the plow blade when parking to minimize the risk of the plow dropping and to reduce the load on the truck suspension.
- When transporting the plow – monitor coolant temperature. If the truck is running hot, adjust the plow position to allow additional airflow to the radiator.
- Plowing at high speeds increases the potential for damage to your plow AND your truck

Limited Warranty

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COVERAGE

Buyers Products Company warrants to the original purchaser of a Buyers Products SnowDogg® brand snowplow that they will be free from defects in materials and workmanship for a period of two (2) years after the date of original purchase. Buyers Products warrants accessories, service parts, and components purchased separately to be free of defects in materials and workmanship for a period of one (1) year after date of original purchase.

These warranties are exclusive and in lieu of all other express and, except to the extent prohibited by applicable law, all implied warranties, including but not limited to the implied warranties or merchantability and fitness for a particular purpose, are limited in duration to the duration of this warranty.

Buyers Product's Liability is expressly limited to repair or replacement of defective parts. Buyers Products shall not be liable for consequential, incidental or contingent damages whatsoever, even if damages are caused by the negligence or fault of Buyers Products.

This warranty gives you specific legal rights. Additional purchaser's rights may vary from state to state.

WHAT IS NOT COVERED

The warranty does not apply to:

- ...parts not furnished by Buyers Products or damage resulting from same.
- ...parts modified without authorization or damage resulting from same.
- ...expendable parts (cutting edges, fluids, etc.).
- ...damage resulting from failure to install, maintain or operate the product per the owner's manual, installation instructions, or application guides.
- ...damage to vehicle and/or frame of vehicle resulting from plow attachment.

WARRANTY PROCEDURE

If any part is proven to be defective within that warranty period, Buyers Products will, at its sole discretion, repair or replace said part at its expense FOB Cleveland, OH. Labor will be credited to authorized dealers as determined by published rate charts.

Buyers Products obligation shall be limited to such repair or replacement and shall be further contingent on Buyers Products receiving written notice of the alleged defect and proof of original purchase within ten (10) days of its discovery as well as the return of the allegedly defective part to Buyers Products.

To obtain service, the purchaser must return the defective snowplow to an authorized SnowDogg Dealer with proof of purchase and applicable maintenance records. All transportation costs to and from the dealer will be the responsibility of the purchaser. SnowDogg dealers may be located on-line at www.snowdoggplows.com.

Buyers Products
9049 Tyler Blvd.
Mentor, OH 44060

Contact Your Dealer for Service and Technical Support

Buyer Products Co.
9049 Tyler Blvd.
Mentor, Ohio 44060