



SnowDogg[®] VMD Series















OWNER'S MANUAL

Table of Contents

1. Warnings/Vehicle Application	pg. 2
2. About the plow	pg. 3
3. Registration Information/Website	pg. 3
4. Snowplow Mounting/Dismounting	pg. 4
5. Mechanical Installation	pg. 5-6
6. Harness Installation	pg. 7-9
7. Storage and Maintenance.....	pg. 10
8. Parts Diagram and BOM	pg. 11-14
a. Lift Frame	pg. 11
b. Moldboard.....	pg. 12
c. Hydraulic Power Unit	pg. 13
9. Hydraulic/Electrical Operation	pg. 15-16
10. Troubleshooting	pg. 17-19
11. Snow Plowing Tips	pg. 19
12. Warranty.....	pg. 20

VMD 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: _____

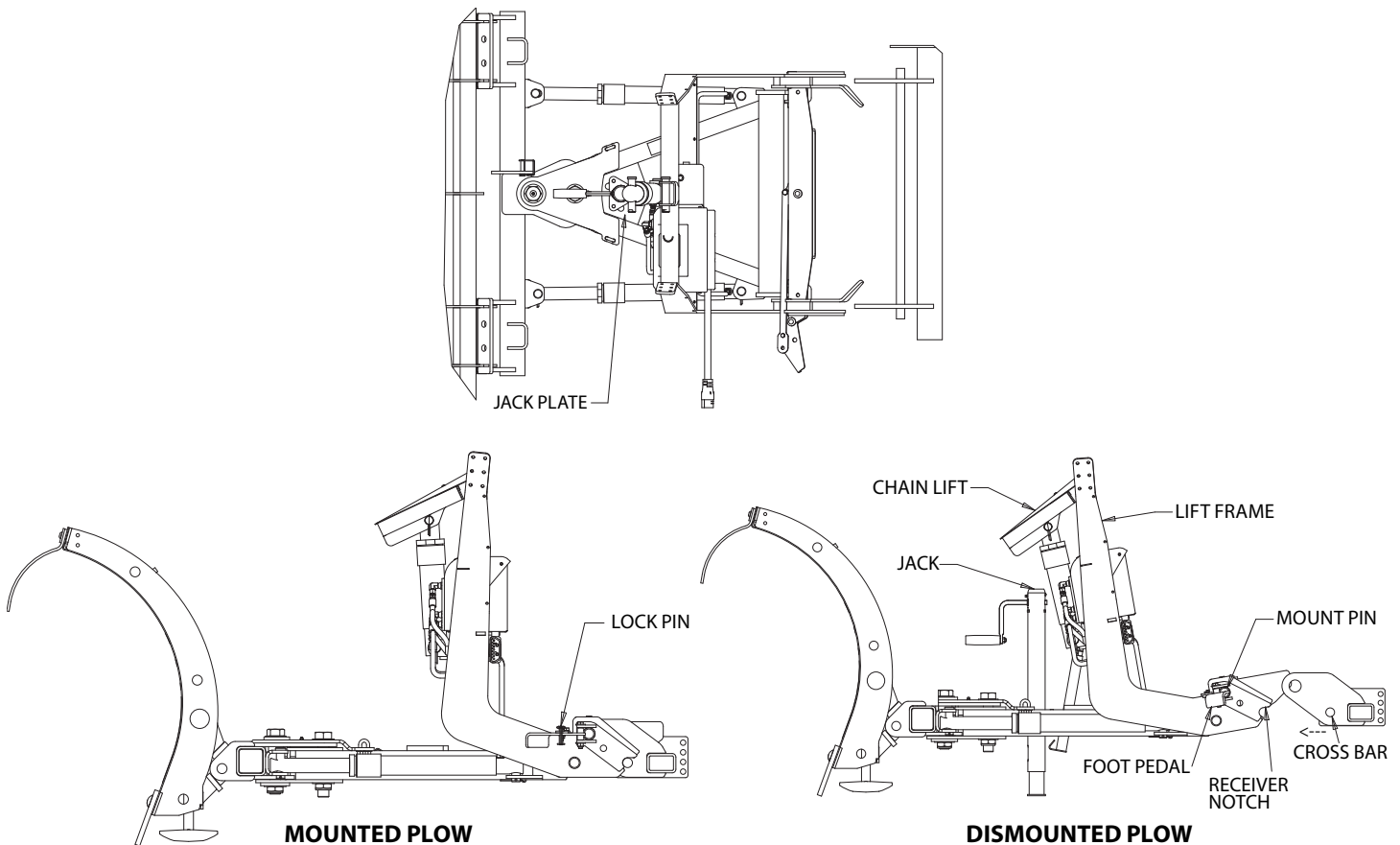
Plow Serial#: _____

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 pedals 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.

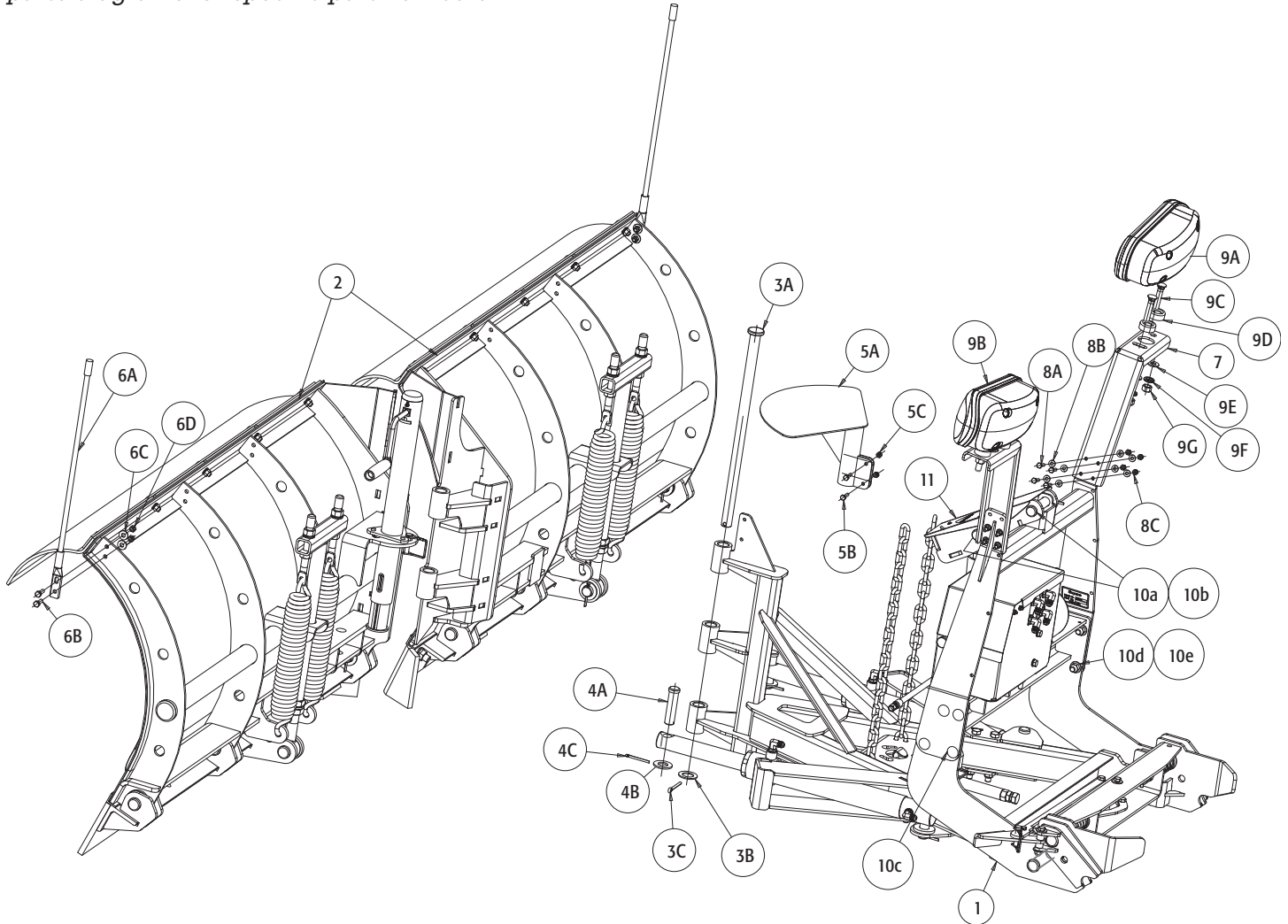
- 7.** Connect both the lighting & hydraulic control connectors.

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 pedals 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	16014000	VMD Lift Frame Assembly
2	1	16020710	VMD75 Moldboard w/ Deflector
3	1	16101170	Hinge Pin Kit, VX/VMD Plows
3a	1		Hinge Pin
3b	1		Washer, Flat, 1", Zn
3c	1		Pin, Cotter, 1/4" x 2", Zn
4	2	16102142	Clevis Pin Kit, VX Plows
4a	2		Clevis Pin, 7/8" x 3-1/4"
4b	2		Washer, Flat, 7/8", Zn
4c	2		Pin, Cotter, 3/16" x 2", Zn
5	1	16113262	Cover Kit, VMD Moldboard Hinge
5a	1		Cover Weldment
5b	2		Screw, Hex Cap, 1/4-20 x 1", SST
5c	2		Nut, Nylock, 1/4-20, SST
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	16112530	Light Brackets

ITEM	QTY.	PART NO.	DESCRIPTION
8	1	16111512	Light Hardware Kit
8a	8		Screw, Cap Hex 1/4-20 x 1-1/4 Zn
8b	16		Washer, Flat 1/4 Zn
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	16101104	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

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 the blade guides using the included hardware kit.
7. 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.
8. 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.
9. Grease the seven hinge pin tubes using a needle style grease gun tip. The grease hole is located in the front of each hinge pin tube.
10. Adjust the center cuttings. The gap between the two cutting edges should be between 1/4" - 3/8".

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.

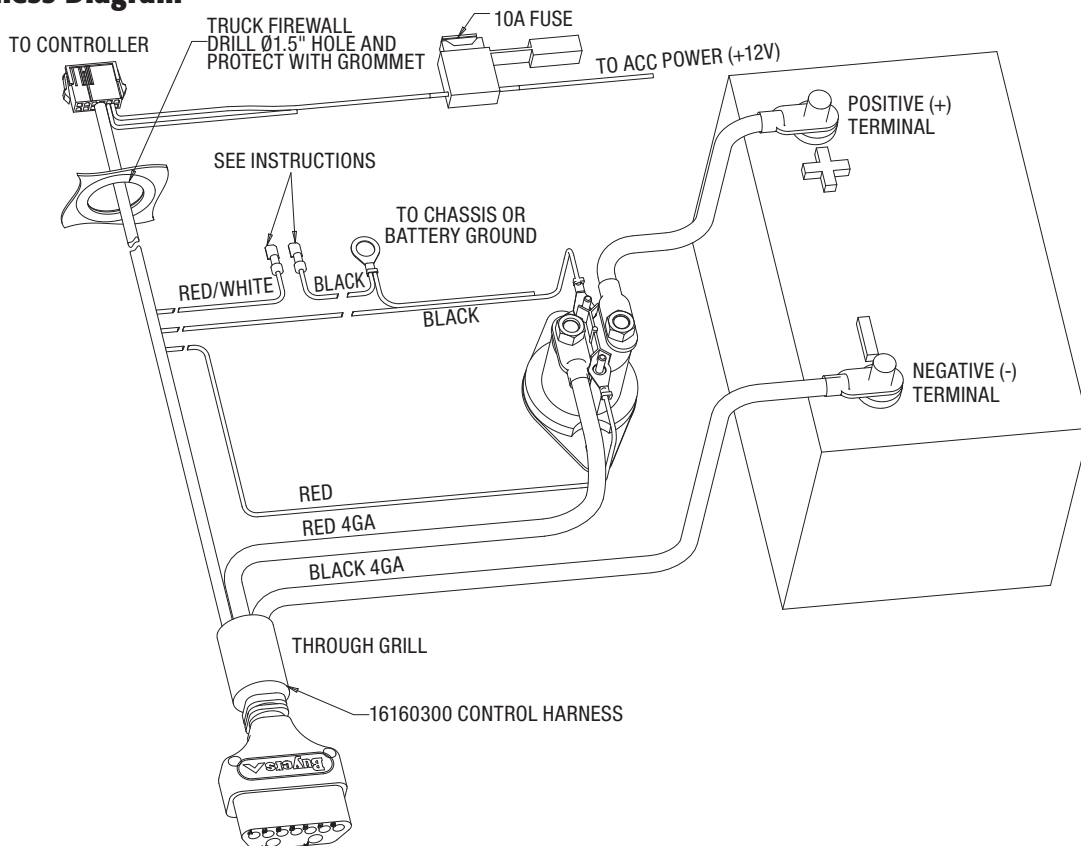
CAUTION

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.

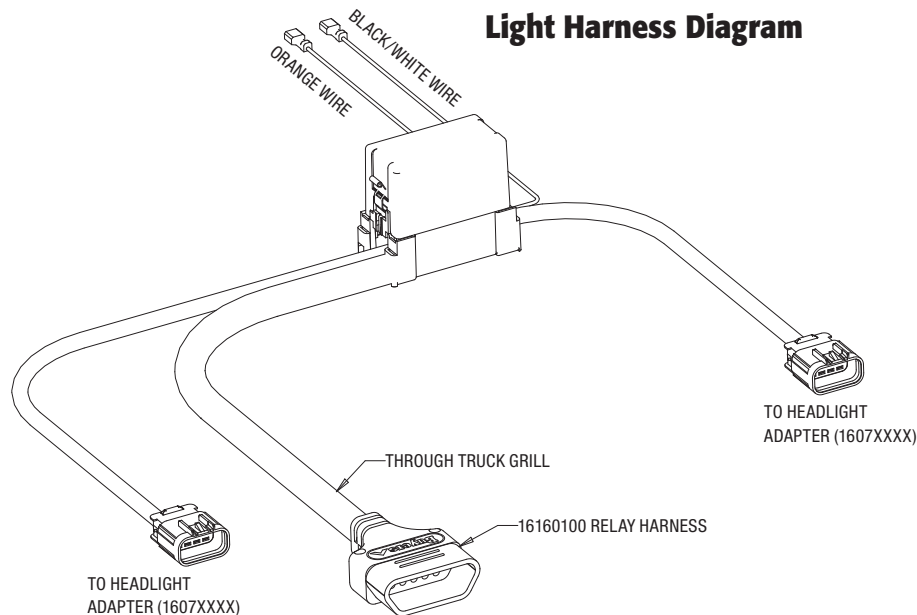
Control Harness Diagram



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.

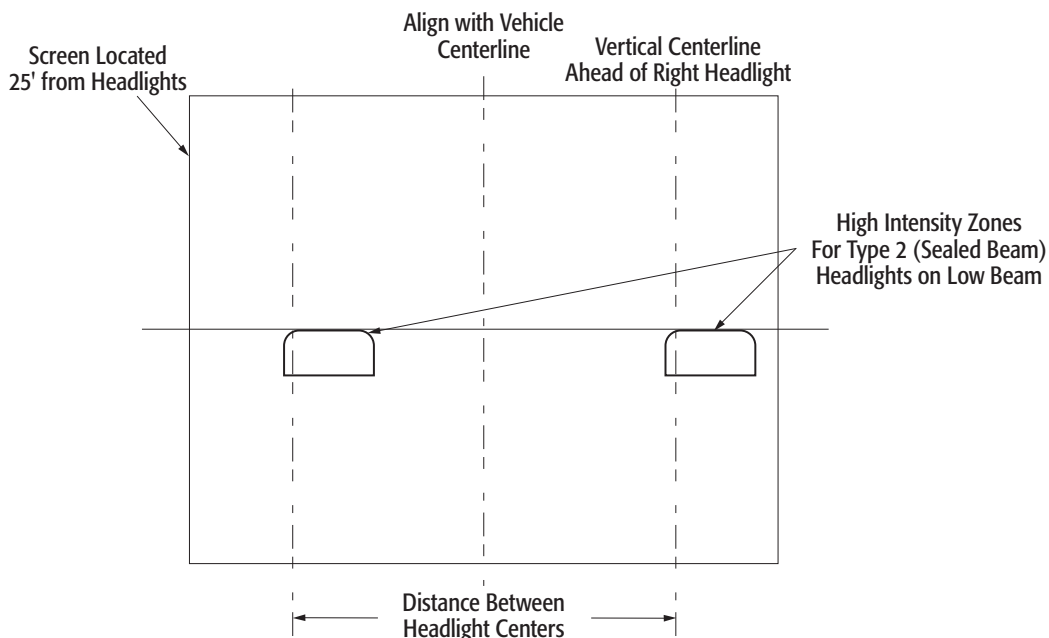


5. Connect the FUSED POWER LINE to an OEM approved +12V IGNITION SWITCHED source (10A)

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.

Light Aiming Diagram



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

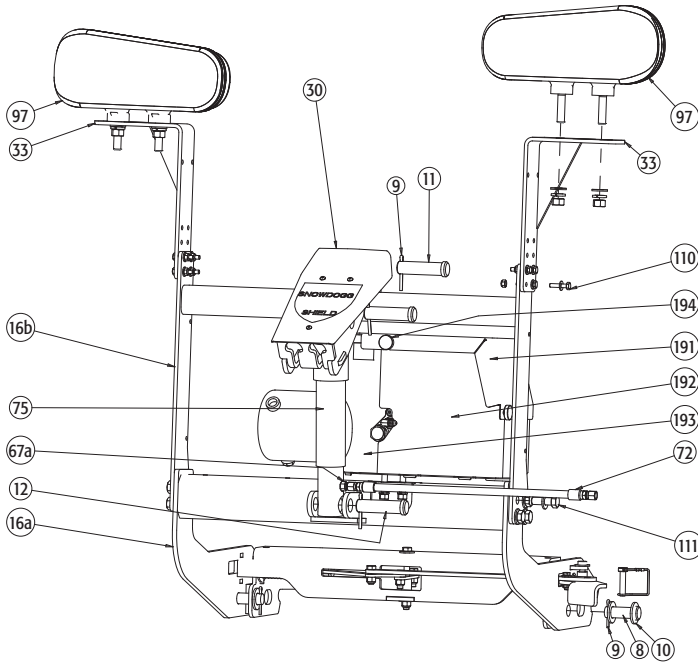


Figure B - Linkage Detail Diagram

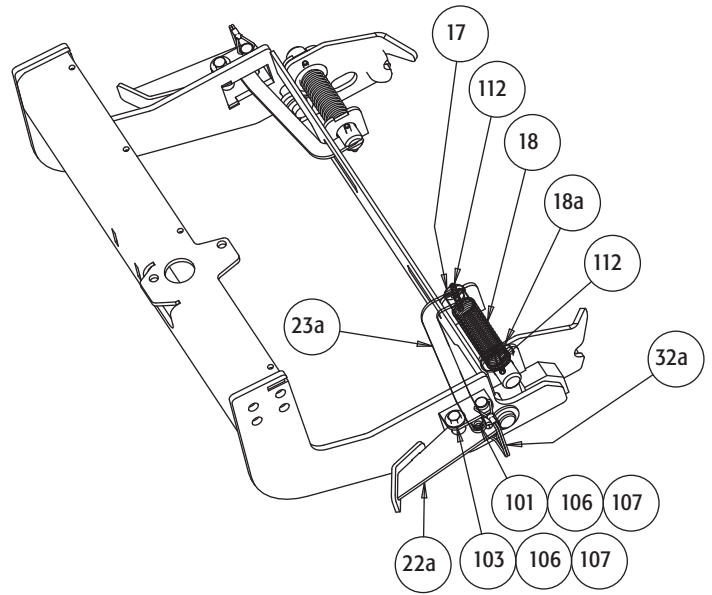


Figure C - A-Frame Diagram

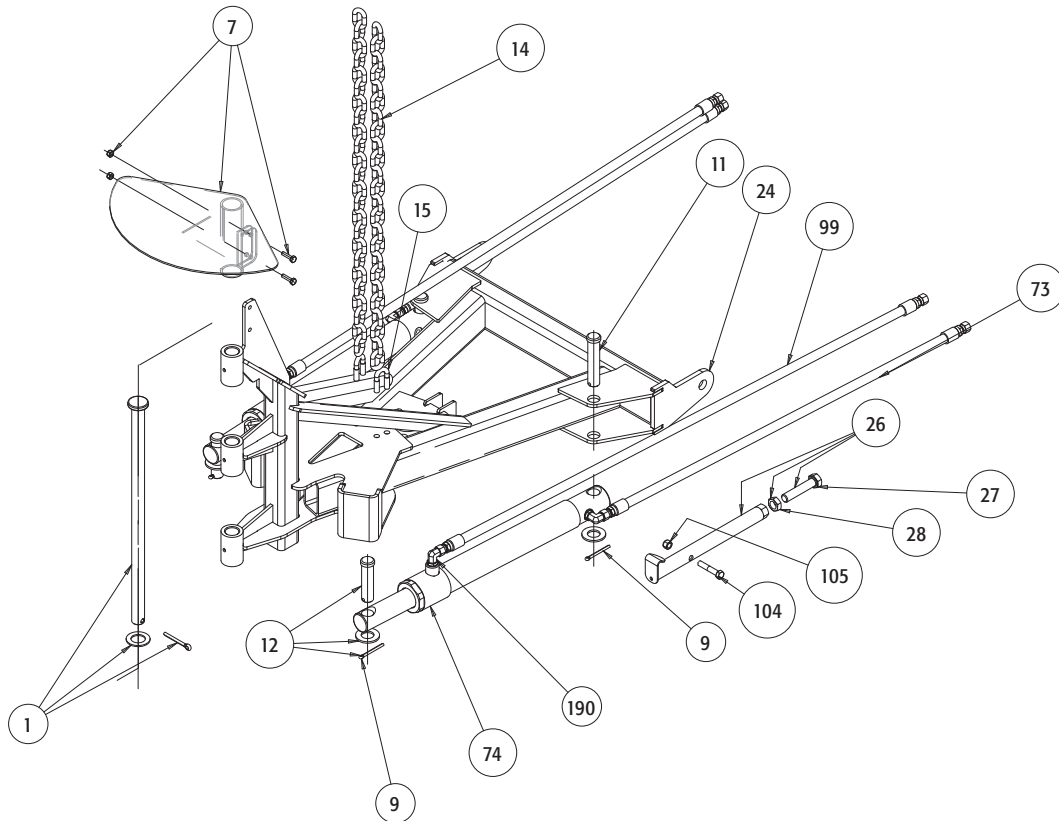


Figure C - Moldboard Diagram

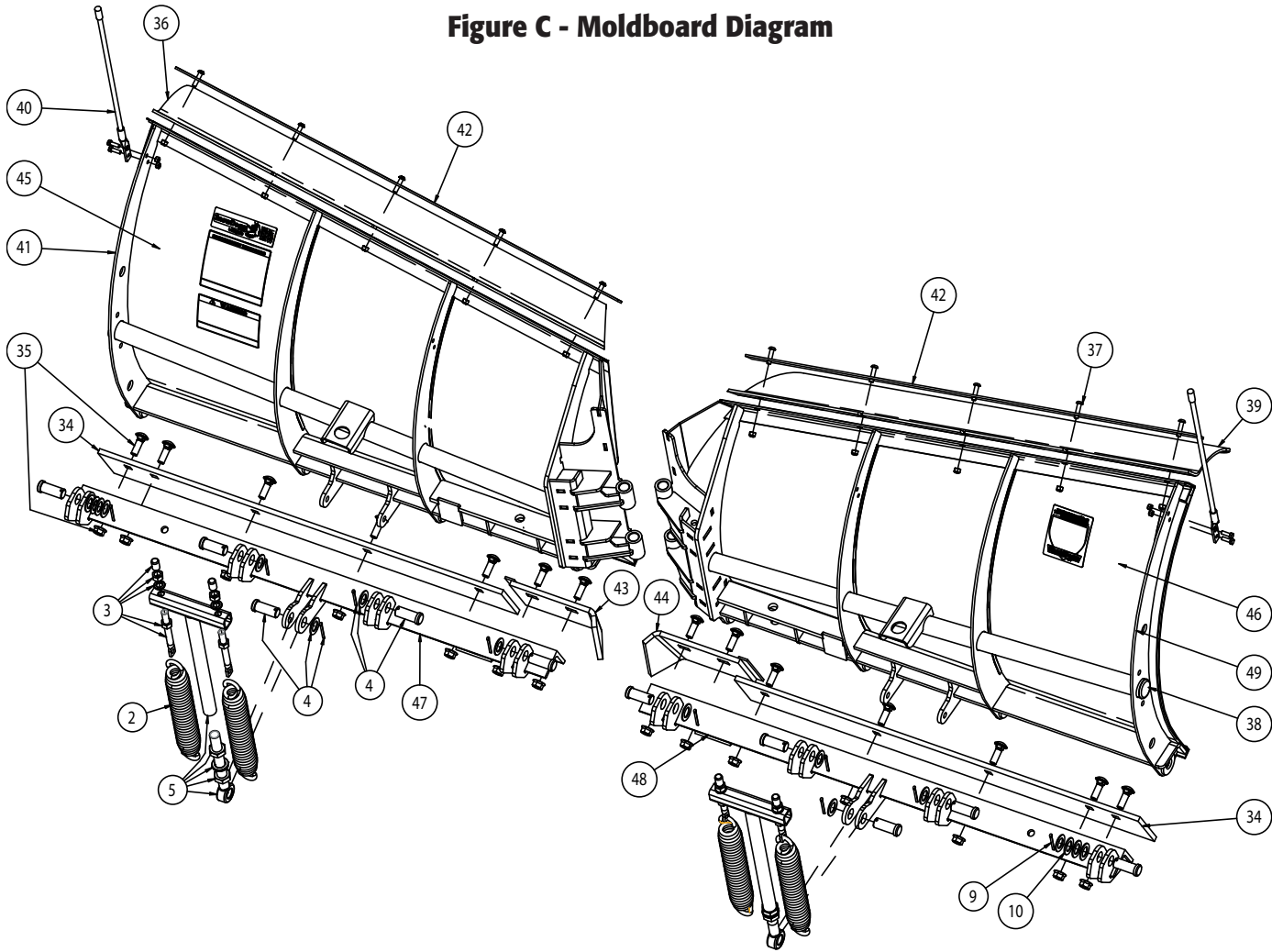


Figure E - Harness Diagram

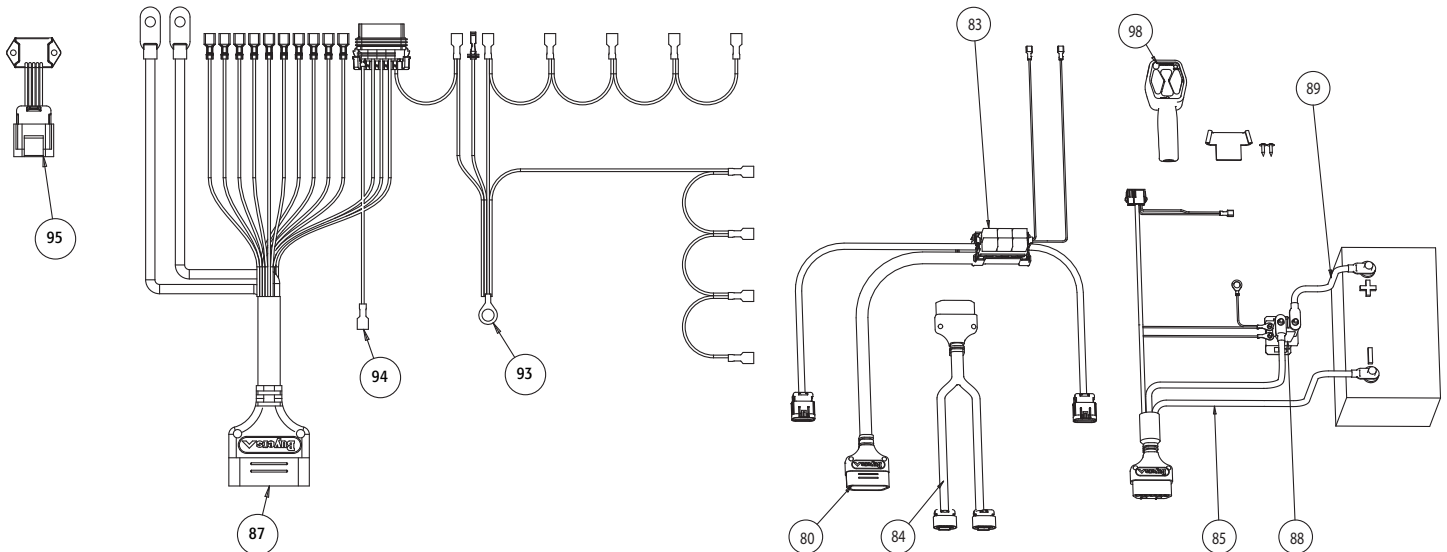


Figure D - Hydraulic Power Unit Diagram

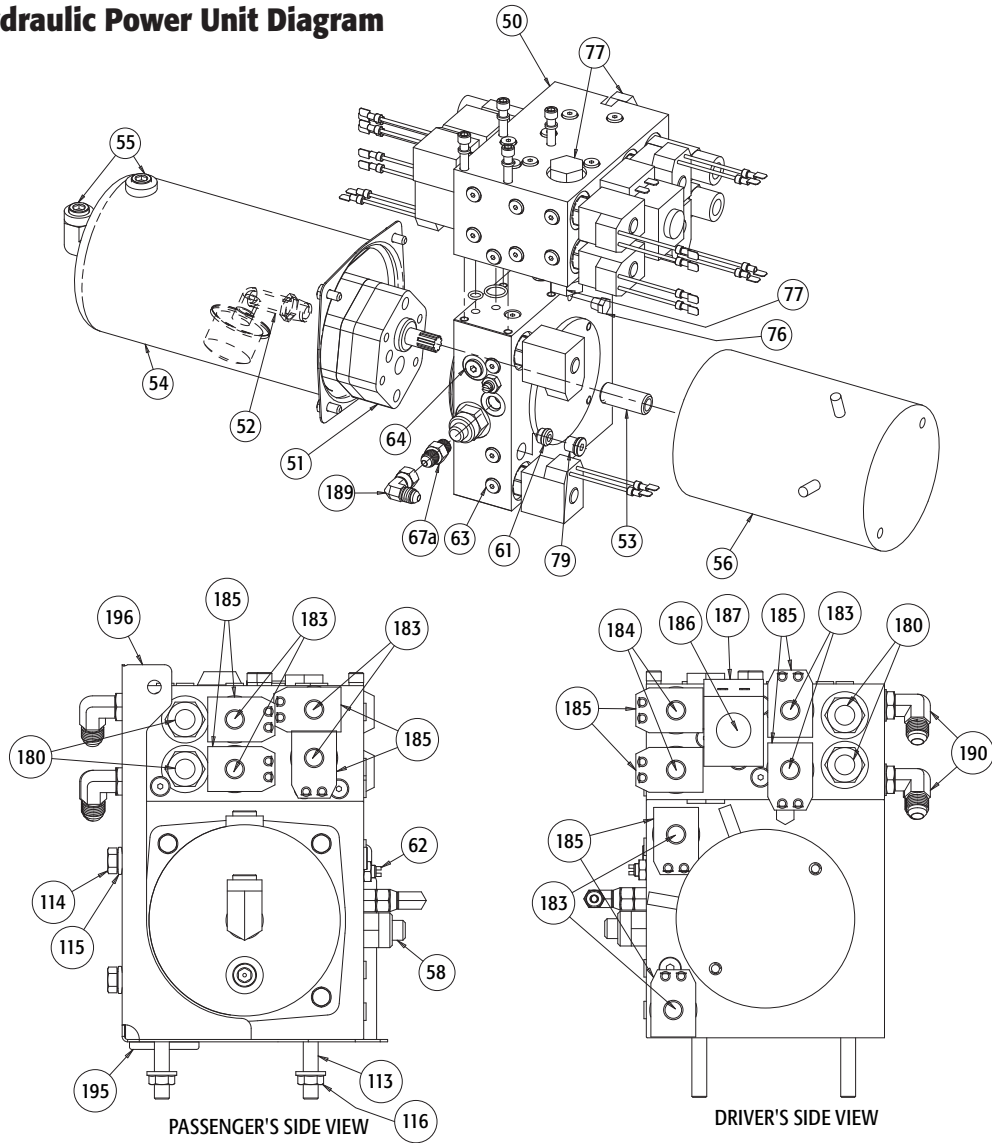
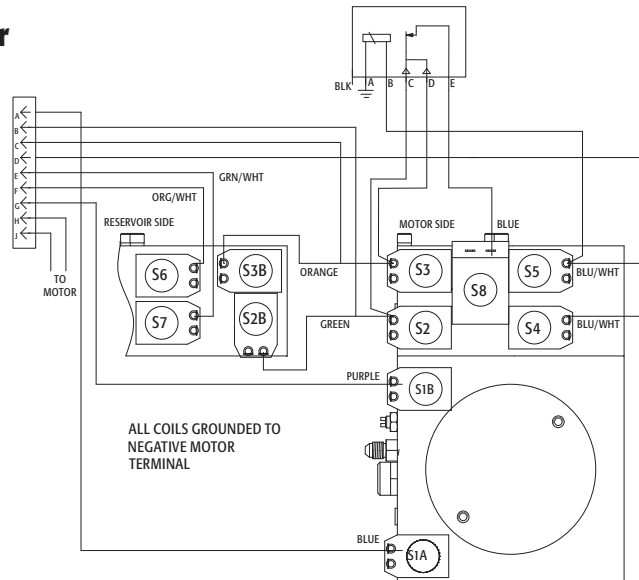


Figure D - Hydraulic Power Unit Wiring Diagram

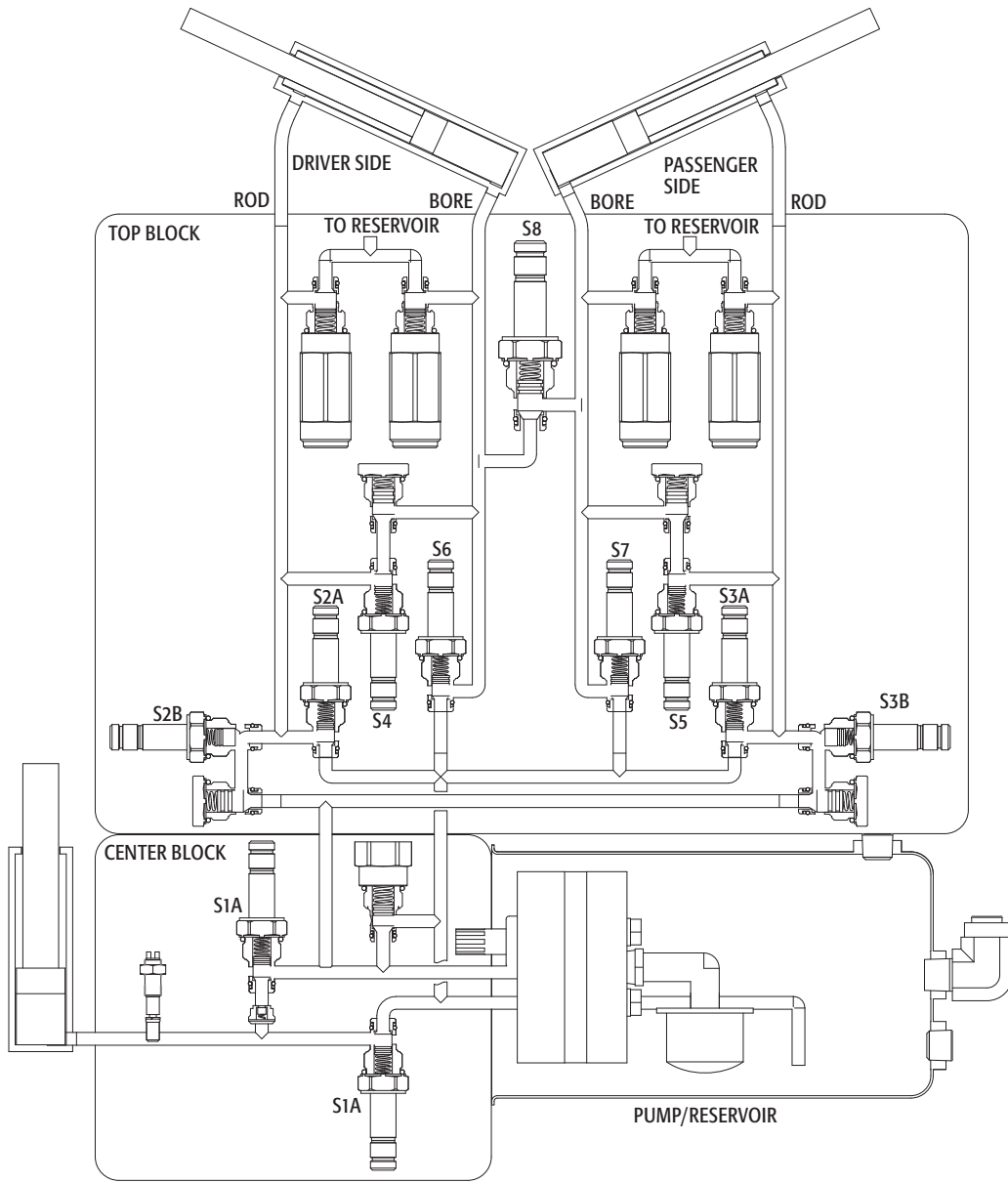


Parts List

ITEM	PART NO.	QTY	DESCRIPTION
FIGURE A - LIFT FRAME DIAGRAM			
8	16102110	2	Clevis Pin, 3/4"x2-1/8"
9	16102102		Cotter Pin, 3/16"x2"
9a	16102112	2	Cotter Pin, 5/32"x1-1/2"
10	16102104	2	Washer, 1"
11	16102122	3	Clevis Pin Kit, 7/8" x 4"
12	16102142	3	Clevis Pin Kit, 7/8" X 3-1/4"
16a	16110120	1	Lower Lift Frame, Assembled w/ Linkages, MD
16a	16112120	1	Lift Frame, Lower Weldment, MD
16b	16112110	1	Lift Frame, Upper Weldment, MD
30	16111400	1	Chain Lift Arm (assembled)
30	16111402	1	Chain Lift Cover, w/screws
30	16111406	1	Chain Lift Fastener Kit
32a	16111124	2	Snapper Pin, 2-1/2in
33	16112530	2	Bracket, Light, MD
67a	16151325	1	Fitting, Cyl Lift Port
72	16153100	1	Hose, Lift (1/4"x18")
75	16154212	1	Packing Kit, 1-1/2" w/Wiper Seal
75	16154214	1	Gland Nut, 1-1/2", w/Wiper Seal
75	16154220	1	Cylinder, Lift (1-1/2"x6")
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	16101012	1	Lift Frame Upper/Lower Fastener Kit, VMD
191	16152120	1	Cover, Top, HV600 HPU
192	16152122	1	Cover, DS Front, V
193	16152124	1	Cover, PS Front, V
194	16152126	3	Screw, Thumb, HPU Cover
FIGURE B - LINKAGE DETAIL DIAGRAM			
17	16112102	2	Pin, Mount Locking, MD
18	16112104	2	Spring, Mount Locking Pin, MD
18a	16102104	2	Washer, 1"
22a	16111113	2	Foot Pedal, Dual, MD/VMD only
23a	16111111	2	Linkage, Dual Pedal, MD
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	16101130	1	Pin, Hinge, V
2	16101200	4	Spring, Trip
3	16101210	2	Spring Mount Eye Bolt Kit (set of 4)
4	16102144	10	Clevis Pin Kit, Trip Angle
5	16120190	2	T-bar Kit, Trip Spring
7	16113262	1	Cover Kit, VMD Moldboard Hinge
9	16102102		Cotter Pin, 3/16"x2"
9	16102102		Cotter Pin, 3/16"x2"
10	16102104		Washer, 1"
11	16102122	2	Clevis Pin Kit, 7/8" x 4"
12	16102142	2	Clevis Pin Kit, 7/8" X 3-1/4"
14	16103000	2	Chain, Lift
15	16103020	2	U-Bolt Kit, Lift Chain w/nuts

ITEM	PART NO.	QTY	DESCRIPTION
24	16113220	1	A-Frame, VMD
26	16112210	1	Prop Stand Assembly (with lift bolt/nut), MD
27	16111212	1	Bolt, Prop Stand
28	16111214	1	Nut, Jam 5/8-11
31	16111310	1	Jack, A-frame
31	16111312	1	Cap for Jack
34	16120820	2	Cutting Edge, 34"x3/8", VMD75
35	16120114	1	Cutting Edge Fastener Kit (set of 10)
36	16120167	1	Deflector, Contoured, DS VMD75
37	16120110	1	Skin Fastener Kit (set of 10)
38	16120120	2	Cap, Crosstube
39	16120168	1	Deflector, Contoured, PS VMD75
40	16122100	1	Blade Guide Assembly (pr)
41	16122220	1	Moldboard Weldment, DS (VMD75)
42	16120268	2	Clamp Strip, VMD75
43	16120840	1	Cutting Edge, DS Center
44	16120850	1	Cutting Edge, PS Center
45	16121710	1	Skin, DS, VMD75, SST
46	16121712	1	Skin, PS, VMD75, SST
47	16122224	1	Trip Angle Weldment, DS (VMD75)
48	16122226	1	Trip Angle Weldment, PS (VMD75)
49	16122222	1	Moldboard Weldment, PS (VMD75)
73	16153110	2	Hose, Angle (3/8"x36")
74	16154300	2	Cylinder, Double Acting (1-1/2"x12")
74	16154302	2	Seal Kit for 16154300
99	16153120	2	Hose, Angle Cylinder Retract (3/8" x 48")
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
FIGURE D - HYDRAULIC POWER UNIT DIAGRAM			
50	16152012	1	Auxiliary Manifold (no valves / with plugs)
50	16152104	1	Manifold O-ring/Fastener Kit
50	16152000B	1	Hydraulic Power Unit, VX/VMD
51	16151100	1	Pump, Gear
51	16159116	2	Seal, Shaft
52	16151102	2	Inlet Strainer
53	16152004	2	Spline Coupler
54	16151110	2	Reservoir Kit (Res/Bolts/Seal/Cap)
54	16159114	2	O-ring, Reservoir
55	16151112	1	Plug, Reservoir, 3/8" NPT
56	16151200	1	Motor, 1.6kW
58	16151302	1	Valve, Main Relief
61	16151308	1	Valve, Lift Check
61	16900010	1	Tool, Lift Check Valve Removal
62	16151310	1	Valve, Lowering Speed
63	16152016	2	Plug, -2 SAE, (1/8")
64	16152018	2	Plug, -4 SAE, (1/4")
67a	16151325	2	Fitting, Cyl Lift Port
76	16151326	2	Breather, Vent
77	16152330	2	Valve, Check
79	16152332	1	Plug, Lift Check Valve
113	16101016	1	Stud, 3/8-16 X 2, ZN
114	16101017	1	Screw, Cap, 3/8-16 x 3/4, ZN
115	16101018	1	Washer, Lock, 3/8, ZN
116	16101019	1	Nut, Serrated Flange, 3/8-16, ZN
180	16152334	1	Valve, Angle Relief, 3000 PSI
183	16151312	1	Valve, S1A/S1B/S2B/S3B/S4/S5/S6/S7 Solenoid
184	16151330	1	Valve, S2A/S3A Solenoid
185	16152336	2	Coil, w/flying leads
186	16152340	2	Valve, S8 Solenoid
187	16152342	2	Coil, S8, Dual Spade
189	16151321	2	Fitting, Manifold Lift Port 90 Deg Swivel
190	16152346	2	Fitting, Angle Port/Cyl 90°
195	16152128	1	Grommet, HPU Tray
196	16152130	1	Tray, HPU

ITEM	PART NO.	QTY	DESCRIPTION
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	16161400B	1	Harness, Plow Control VX Complete
88	16160410	1	Relay, Motor
89	16160500	1	Cable, Battery
93	16161420B	1	Harness, Plow Control VX Ground Only
94	16161430	1	Harness, Plow Control VX S8 Only
95	16160448	1	Relay Module
98	16160610		Harness, Controller Extension (36")
98	16160620	1	Mount Kit, SnowDogg Controller
98	16161600	1	Controller, V-Plow



LOGIC TABLE

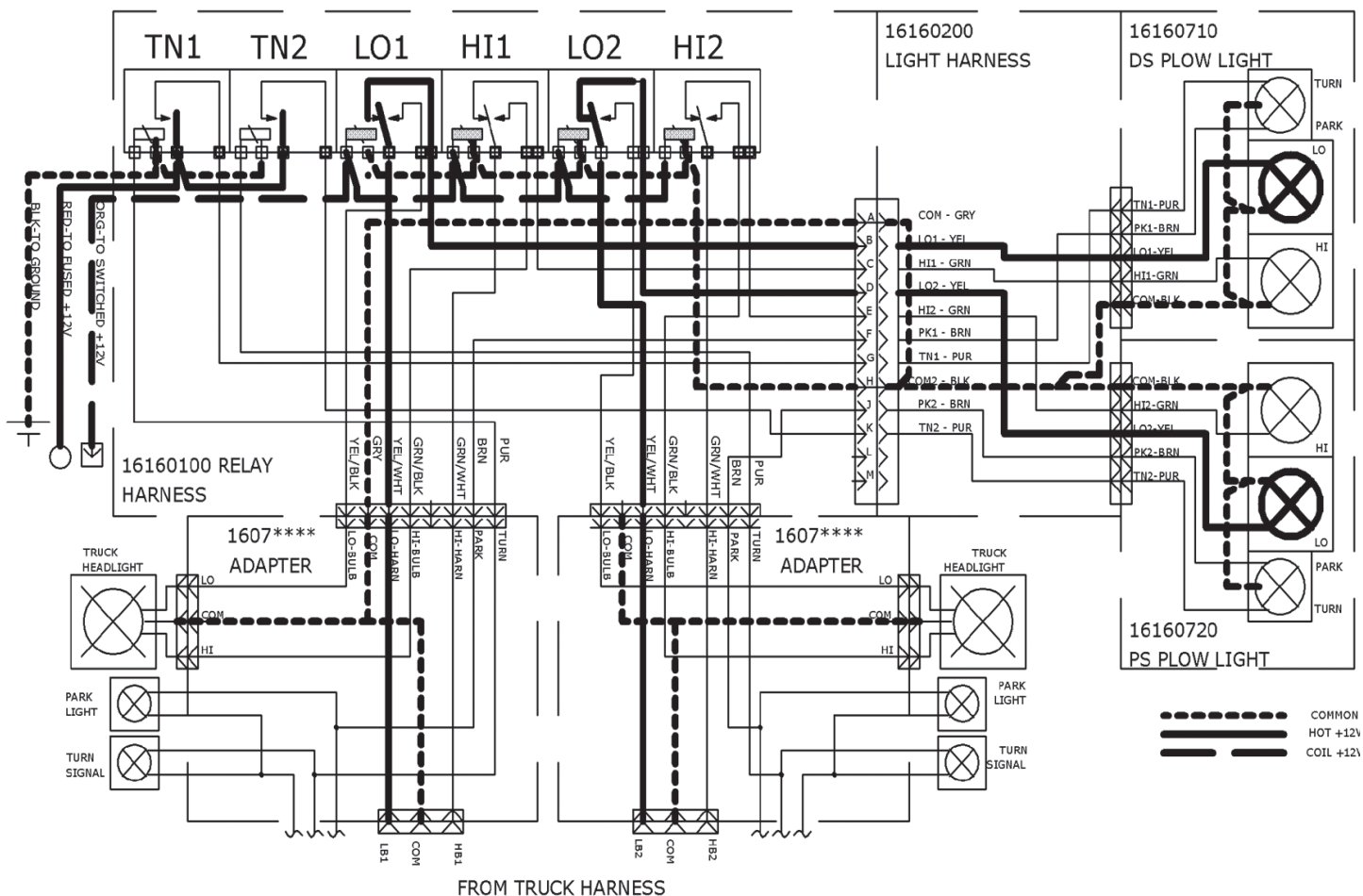
PIN	1	2	3	4	6	7	8	12			
ID	MOT	A	B		C		D	E	F	G	
SOL		S1A	S2A	S2B	S3A	S3B	S4	S5	S6	S7	S1B
UP											
DOWN											
FLOAT											
LEFTIN											
LEFTOUT											
RIGHTIN											
RIGHTOUT											
VEE											
SCOOP											
ANGLELEFT											
ANGRIGHT											

NOTE

Full schematics and pin out information can be found online at www.snowdoggplows.com under Tech Support in the 16992920 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.
PLOW WON'T MOVE AT ALL, MOVES "JERKILY", VERY SLOWLY, OR CHATTERS		
Check fluid level in reservoir	Fluid should be visible from fill cap - reservoir should be ~3/4 full	Add fluid
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.
OIL IS LEAKING FROM CYLINDERS		
	Packing is loose	Tighten gland until leak stops
	Rods are pitted	Polish rods with fine steel wool
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

TROUBLESHOOTING, continued

SYMPTOM/DIAGNOSTIC	RESULT	FIX
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
LEFT OR RIGHT WING WON'T EXTEND		
Status light blinks 5 times	Continuity Problem	Check BLUE/WHT WIRE/S4 and S5 COILS
Check voltage at S4 (LEFT) or S5 (RIGHT) VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm BLU/WHT wire at S4/S5 VALVES
Check S4/S5 VALVE for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove S4/S5 VALVE and check free movement of spool, clean any chips/debris from valve Replace S4/S5 VALVE
LEFT OR RIGHT WING WON'T RETRACT		
Status light blinks 6 times	Continuity Problem	Check GRN/WHT WIRE/S7 VALVE
Status light blinks 7 times	Continuity Problem	Check ORG/WHT WIRE/S6 VALVE
Check voltage at S6 (LEFT) or S7 (RIGHT) VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm ORG/WHT wire at S6 and GRN/WHT wire at S7
Check S6/S7 VALVE for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove S6/S7 VALVE and check free movement of spool, clean any chips/debris from valve Replace S6/S7 VALVE
"ANGLE LEFT" AND "ANGLE RIGHT" DON'T WORK		
Check voltage at S8 VALVE coil	If no voltage present, check cable and connections	Replace/repair cable or connections Confirm BLUE/BLK wire at S8 VALVE Replace RELAY MODULE
Check S8 VALVE for contamination	Poppet must move freely, and seat area must be clear of any debris	Remove S8 VALVE and check free movement of spool, clean any chips/debris from valve Replace S8 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

TROUBLESHOOTING, continued

SYMPTOM/DIAGNOSTIC	RESULT	FIX
WINGS SCOOP WHEN RIGHT OUT IS PRESSED		
Status light blinks 3 times Check S2A and S2B VALVES for contamination	Continuity Problem	Check GRN WIRE/S2A AND B COIL
Problem goes away when relay module is disconnected	Relay module is faulty	Replace RELAY MODULE
WINGS SCOOP WHEN LEFT OUT IS PRESSED		
Status light blinks 4 times Check S3A and S3B VALVES for contamination	Continuity Problem	Check ORG WIRE/S3A AND B COIL
Problem goes away when relay module is disconnected	Relay module is faulty	Replace RELAY MODULE

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