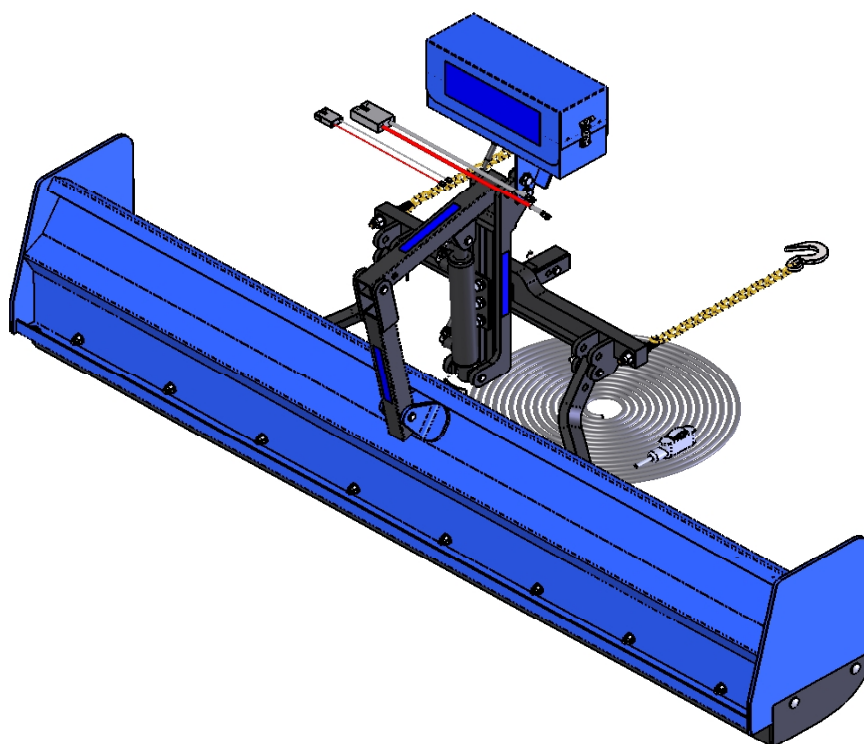




# Pull Plow



Installation Instructions  
Operation Instructions  
Detailed Parts Lists



**Congratulations!** By purchasing this Daniels Pull Plow, you can now benefit by owning the latest in state-of-the-art snow plowing equipment. After a few experiences with the Pull Plow, you will likely wonder how (or why) you ever worked without one.

While your first Pull Plow installation may take longer, most installations can be done by two people in just a few hours. It takes most operators 2 or 3 uses to realize the efficiency of using a Daniels Pull Plow. When used in conjunction with a front plow, and with a little practice, operators have realized improved time savings of up to 50 percent.

Please take a moment to fill out the owner's registration form. A registration form may be found at the rear of this Operator's Manual. Completing this document will activate your warranty and allow Daniels and your dealer to provide you with important updates regarding your Pull Plow.

### **Before you begin**

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**IMPORTANT! – It is important to completely read and understand this operator's manual for your Daniels Pull Plow prior to installation and use. Failure to do so may lead to damage to property, severe personal injury and/or death.**

Prior to installing the Daniels Pull Plow, there are a few basic requirements your vehicle must meet:

- It must have four-wheel drive (preferably 3/4 or 1 ton rating).
- It must have a 2" square receiver hitch.

Strongly recommended;

- The vehicle should be equipped with a minimum 100 amp alternator and a heavy duty battery or batteries.

### **The Daniels Pull Plow is shipped as three basic pieces:**

- Pull Plow Moldboard
- Carton with 12-volt hydraulic power unit, cord and switch, hydraulic cylinder and all additional mounting brackets and components.
- T-bar mount



## **Installation of Daniels Pull Plow is very simple.**

All that is needed are common hand tools. There is no need for welding. The installer only needs to supply the following:

- 2 Quarts Dexron Automatic Transmission Fluid
- Teflon thread sealing tape
- Wood block (6" X 6" X 12")
- Common hand tools, though an impact wrench will speed things along.

**CAUTION:** Prior to starting the installation process, make sure appropriate safety equipment is available and good safety practices are observed. Provide a fire extinguisher, wear safety glasses and remember to chock wheels before climbing under any vehicle. Clean up any spilled liquids promptly, and avoid direct contact with transmission fluids. Read and follow all safety precautions on fluid containers.



## **Pre-Installation Checks and Measurements**

Prior to installation of the Pull Plow, a FRONT PLOW should be mounted on the truck and be in the UP position. The truck should be positioned on a level surface with brakes set and wheels chocked.

**Important: Failure to observe this step could result in insufficient down pressure on the Pull Plow in normal operation when the front plow is raised.**

The measurement from the BOTTOM of the square receiver tube to the ground **MUST BE at least 17 inches**. Most late-model vehicles meet this requirement with no modifications necessary. If this measurement is less than 17 inches, the weight of the Pull Plow may lower the truck rear to a point that may adversely affect its performance. This condition is best corrected by modifying the truck by installing leaf springs, higher profile tires, or air assist bags.

All part numbers referenced in these instructions corresponds to the Part Diagram List and detailed Part Diagrams at the end of this manual.





## ASSEMBLY OF THE HYDRAULIC CYLINDER

1. Secure the pull plow hydraulic cylinder (16159) in a vise, using shop rags to prevent scratching of the painted surface. Place the cylinder so the two hydraulic ports are facing upwards. Do not over-tighten the vise.
3. Using an adjustable wrench, install and tighten the elbow fittings onto the hydraulic cylinder so the fittings point approximately 30 degrees off the cylinder centerline, towards the piston end of the cylinder (see photo).





### ADJUSTABLE LIFT ASSEMBLY INSTALLATION

1. Mount the Daniels T-Bar Mount (89070) into the vehicle's hitch receiver. If the mount bottoms out in the receiver (very rare), it may be necessary to cut 1" off the stock to be able to line up with one of the two holes, and to position the stock as close to the bumper as possible.

**NOTICE\*** - For best fit into most receiver hitches a shim has been added to the top and bottom of the 2" X 2" square stock to provide the tightest fit possible. If you have difficulty inserting the T-bar into your hitch due to the shims remove one or both of them by grinding off the tack welds.





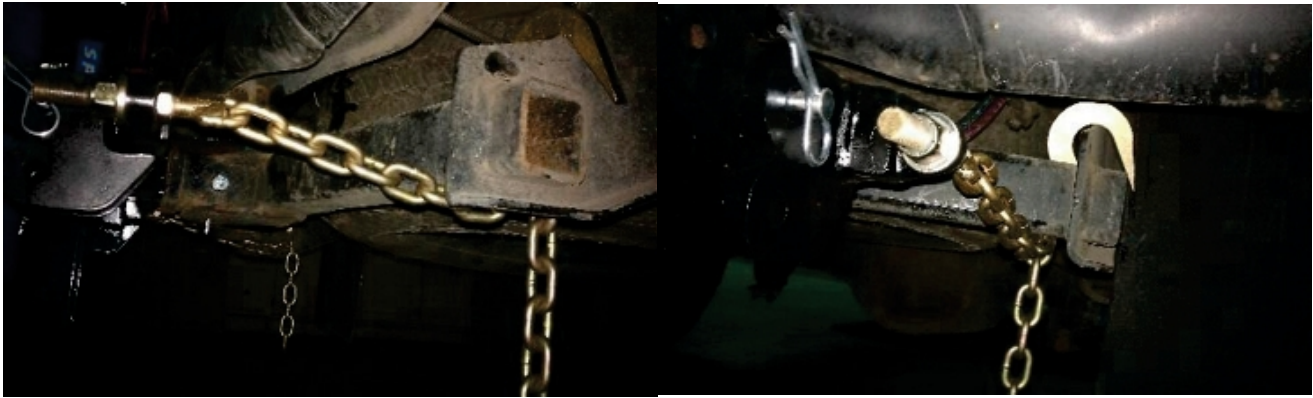
2. Secure the T-Bar mount with a 5/8" X 3-1/2" pin and self-locking hair pin.
3. Assemble the chain mount parts from the included kit to both sides of the T-bar as shown.

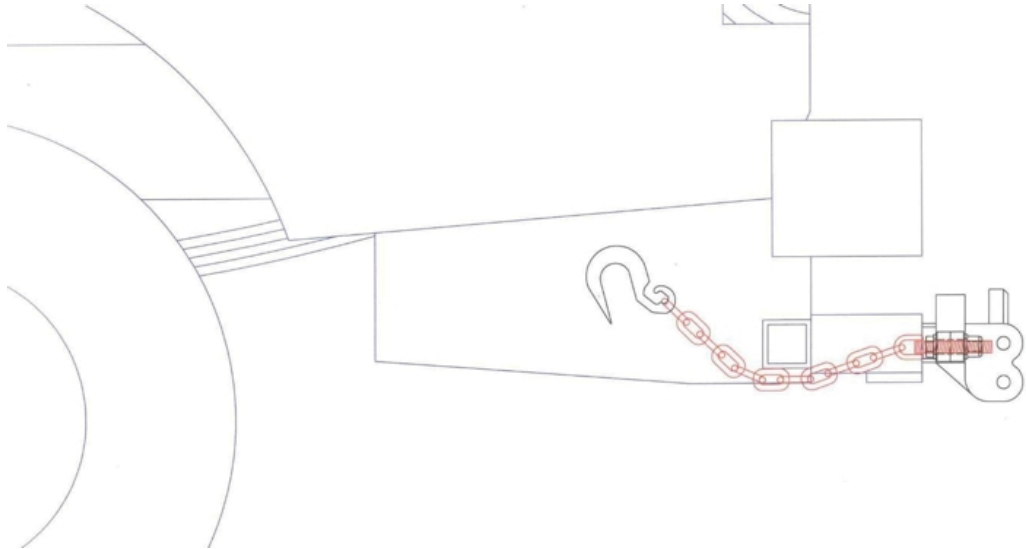




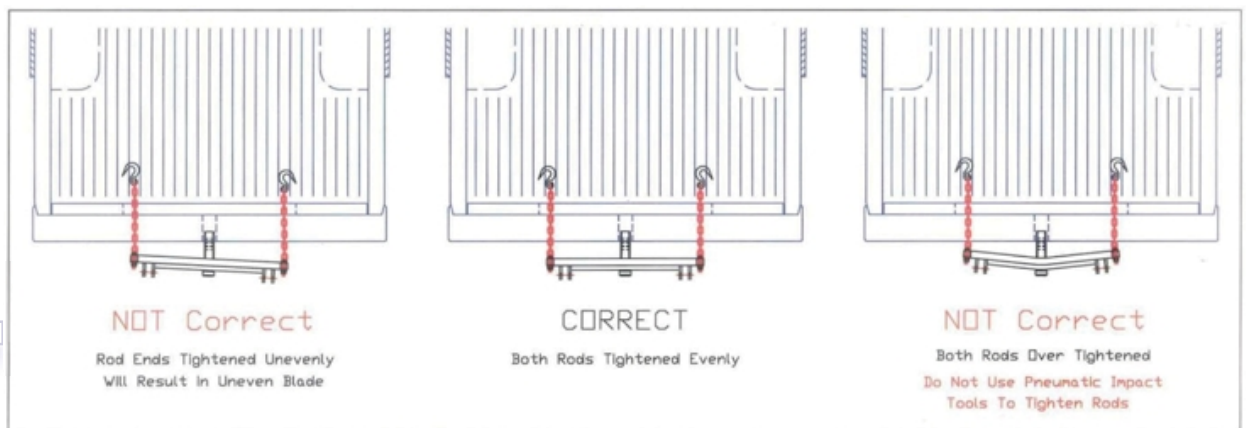


4. Place the chain under the hitch and locate a secure point on the vehicle frame to attach the side support hooks. If a hole in the frame is used, it is important to make sure the hole is large enough to allow the hook to be fully inserted so when tension is applied the load is put on the center point of the hook and NOT the tip or point of the hook. Drill a new hole or open up an existing hole in order to fully insert the hook if needed. Use the pictures and diagram below as examples of a secure hook mount.





5. Once the hooks are firmly placed in suitable frame locations, tighten the threaded rods through the mount hole on the ends of the T-Bar evenly, making sure the hitch adapter remains parallel with the truck's rear bumper. The threaded rods should be hand tightened with a wrench, keeping the primary weight-bearing load on the receiver tube. **DO NOT** over tighten! **DO NOT** use pneumatic impact tools to tighten the rods. Use the Diagram below as a guide for correct tightness.



6. Tighten the retaining / jam nuts to ensure the threaded rods do not loosen over time. It is recommended that an anti-seize compound is used on the threads to reduce corrosion.



7. Place a 12" wooden block under the T-Bar mount as shown.

**Important:** If a front plow will be used with the Pull Plow, but is not mounted to the truck during installation of the Pull Plow, adjustments to the Pull Plow will need to be made after the front plow is installed and raised in the up position.

8. Set the adjustable hydraulic lift assembly (89065) on the wooden block and secure it to the T-Bar Mount with three 5/8" X 2" grade 8 bolts and lockwashers, installed through the 3-hole sandwich plate (89005).

9. Tighten with a 15/16" wrench. Remove the wooden block. The assembly should look like that in the following photo at this time.







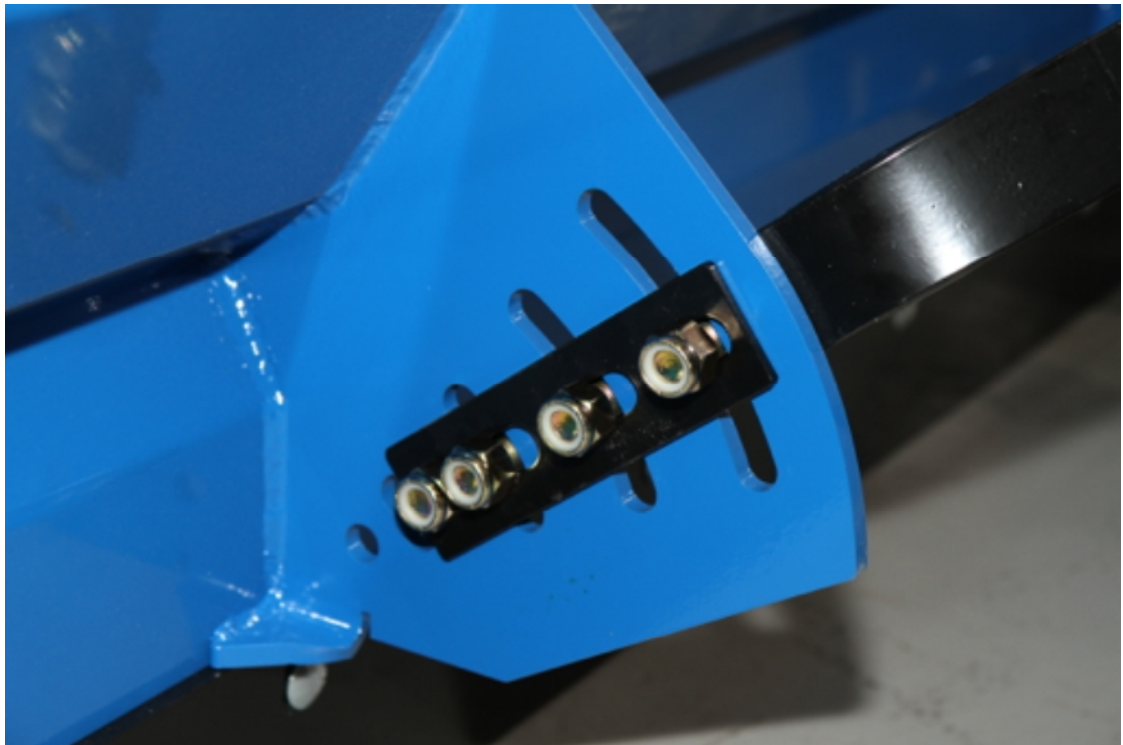
10. Mount the hydraulic cylinder, rod end up, to the adjustable lift assembly with the hydraulic elbow fittings on the left side (see photo). Pin the cylinder to the bottom of the lift assembly with a 5/8" x 3 1/2" clevis pin and cotter pin.
11. Attach the horizontal lift arm (89050) to the top of the lift assembly, with a 5/8" X 5" clevis pin and cotter pin.
12. Place the rod end of the cylinder between the ears on the horizontal cylinder lift arm, and attach with a 5/8" X 3" pin and cotter pin. Your assembly should now look like the one in the picture.



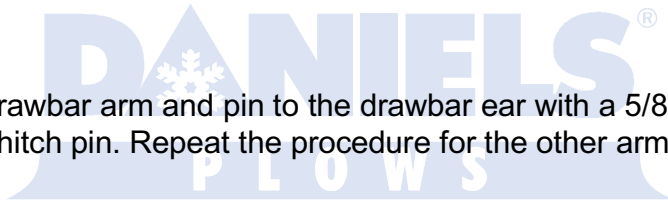


### ASSEMBLY OF DRAWBAR ARMS TO THE PULL PLOW

1. Move the Pull Plow to the rear of the truck. The drawbar arms (89025 or 89030) will be mounted to the **INSIDE** of the plates on the plow. Determining which holes to use to attach the drawbar arms to the radius plates on the plow and to the drawbar ears is dependent upon the type of receiver hitch (drop-style hitch or in-line hitch) and the height of the receiver hitch. In most cases the bottom hole is the right choice. The simplest way to determine which hole is appropriate for your truck is to temporarily mount one of the drawbar arms to the radius plate on the plow in the bottom hole of the radius plate, move the plow to the rear of the truck, and determine if the bracket hole on the back of the plow is directly under the hole on the horizontal lift arm. If so, the bottom hole is the correct choice. If not, the second hole from the bottom of the radius plate is the correct option.
2. The drawbar arms are installed with the straight, 4-hole end towards the Pull Plow. Insert a 5/8" X 2-1/2" bolt into the bottom hole on one of the drawbar arms, and into the bottom or second hole of the radius plate on the plow, as determined in Step 1. Place the sandwich plate (89040) over the bolt, install a 5/8" lock nut, and finger tighten. Install the remaining three bolts through the curved slots and the sandwich plate and secure with 5/8" lock nuts. **Do not fully tighten the bolts at this time.**







3. Lift the drawbar arm and pin to the drawbar ear with a 5/8" X 3-1/2" pin. Secure with hair pin / hitch pin. Repeat the procedure for the other arm.



4. Tighten all nuts securely with a 15/16" wrench.
5. Pin the vertical lift arm (89055) to the back of the plow with a 5/8" X 3-1/2" pin, and secure with a cotter pin.





6. Pin the vertical plow lift arm to the horizontal lift arm with a 5/8" X 3-1/2" pin. Secure with a self-locking hairpin. The unpainted part of the cylinder push rod should be exposed no more than 1-1/2". If not, slight adjustment to the height of the adjustable lift assembly will be necessary to assure adequate lift and down pressure on the plow for best operation. Lower the assembly to increase cylinder rod exposure, and raise the assembly to decrease exposure.

7. Refer to the photo below for the correct set up geometry. Utilize either of the two holes at the end of the Horizontal Lift arm to make sure the vertical plow lift arm is straight up and down. If not, it may be necessary to move the plow mounting bolts to a different set of holes in the radius plate as described in Step #1 of this section.

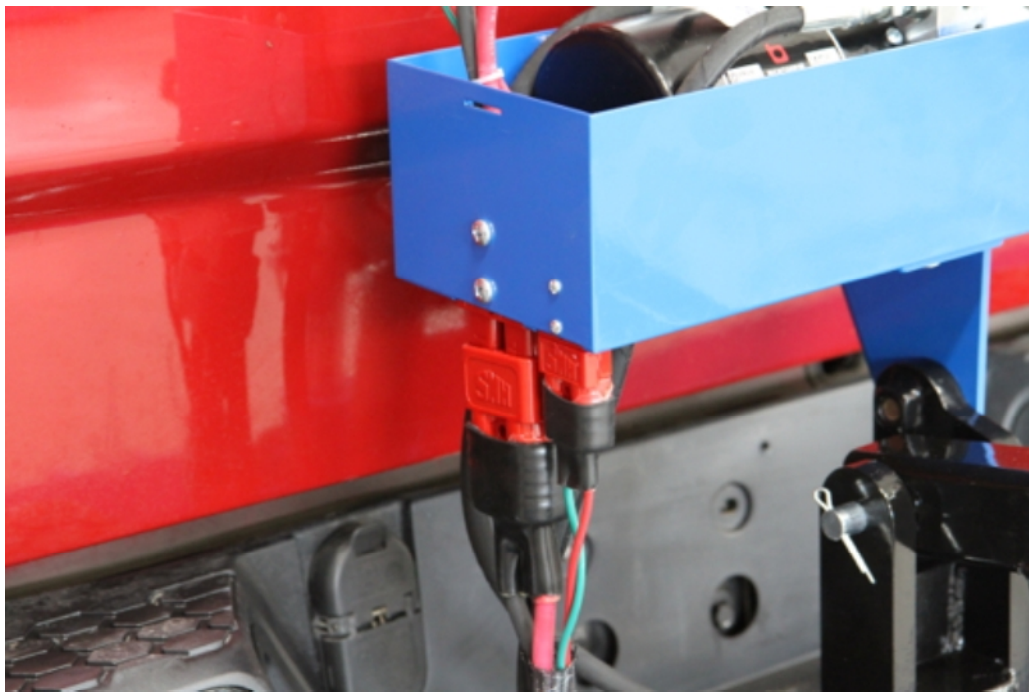


# DANIELS<sup>®</sup>

## P L O W S

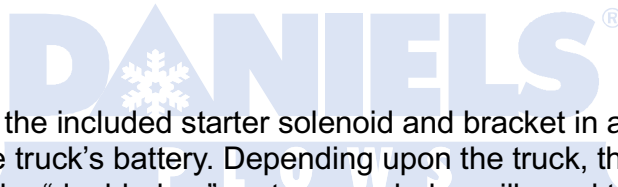
### WIRE HARNESS INSTALLATION

1. Unwrap the wire harness and place on the ground underneath your truck with the quick-connectors at the rear by the plow assembly.

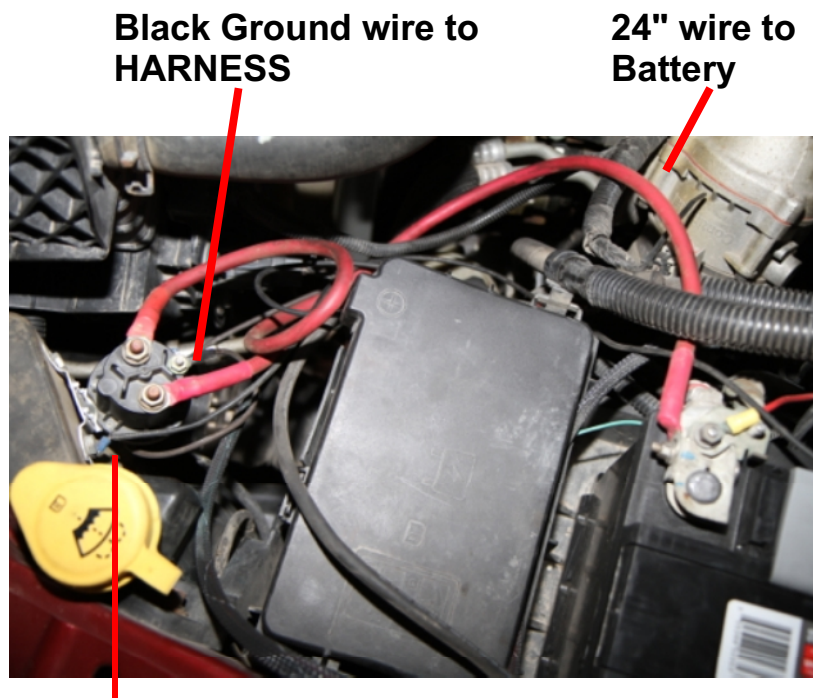


2. Attach the quick-connects to the fitting on the bottom of the plow-mounted power unit, passing the harness under, around or through the rear bumper as you wish. Secure the harness to the frame of the truck using zip-ties, leading from the rear of the truck to the engine compartment. Try to find places to run the harness that minimize exposure to the elements and debris that might get kicked up by the tires, as well as heat from the exhaust system.
3. Once the harness is secured to the frame, disconnect the quick-connect fittings before making other electrical connections.
4. Thread the harness up through the engine compartment to an area near the battery and location where the included starter solenoid is to be installed, and secure it to a suitable bracket or frame member, being sure to keep the harness away from any moving engine parts, belts, and the exhaust manifold.





5. Install the included starter solenoid and bracket in a secure location no more than 18" from the truck's battery. Depending upon the truck, there may be an existing bracket that can be "doubled up", or two new holes will need to be drilled for the bracket. It is important that the bracket is grounded. If you are not sure of a good ground, we recommend the addition of a grounding wire (see step 11).
6. Attach one end of the 24" red wire to one of the larger posts on the starter solenoid as shown.
7. Attach the other end of the red wire to the positive terminal on the truck battery.
8. Attach the red lead from the plow wiring harness to the other open larger terminal on the starter solenoid.
9. Attach the black lead from the plow wiring harness to the negative terminal on the truck battery.
10. Connect the brown (or tan) lead wire from the plow wiring harness to the remaining open terminal on the starter solenoid.
11. Should there be any doubts about the integrity of the ground, run a 10 gauge wire (not included) from one of the mounting screws on the solenoid bracket to the negative terminal of the battery. Zip-tie any loose wires to each other or brackets for a neat appearance.
12. Refer to the wiring diagram near the end of the manual to confirm your connections are correct.



**Ground Solenoid**



### CONTROL SWITCH INSTALLATION

1. Determine a suitable location on the truck's firewall to pass the switch portion of the wiring harness from the engine compartment into the truck's cab. This may be through a boot along the steering column, or through a hole covered from the factory with a plug. If a hole must be drilled, select an area with no obstruction on either side, and drill a 1/8" pilot hole to verify the exact location before drilling a larger hole with a hole saw. Provide a boot or grommet to protect the harness from sharp edges.
2. The smaller wire on the harness needs to be connected to a key-powered fuse in the truck's fuse box. The fuse box may be located in the engine compartment or inside the cab, depending upon truck model. Consult your truck owner's manual to locate an appropriate key-powered fuse location.
3. From inside the cab, use the separate switch connector instructions (provided in switch packaging) to connect the switch quick-connect fitting to the switch wires on the harness.
4. Plug the switch quick-connect fitting into the corresponding quick-connect fitting on the wiring harness.
5. Mount the switch in the cab. Switch mounting options include:
  - a. Any convenient position on the dash or front plow control pedestal
  - b. Laying loose on the seat





### START-UP AND INITIAL INSTALLATION

1. Fill the pump reservoir with one quart of **red automatic transmission fluid**, such as Dexron. Be sure to replace the reservoir cap securely.
2. Check to be sure tools, parts and hoses are clear of the plow, and that other persons in the area are warned that the plow is about to be activated.
3. Connect the quick-connect couplings from the wire harness to the power unit and cycle the system using the in-cab switch up and down until the reservoir can empty.
4. Observe the movement of the plow and its lift components to ensure no interference or binding is taking place when raising or lowering the plow.
5. Refill the reservoir with the plow **in the down position**, taking care to not overfill. Install the reservoir cap and wipe up any spillage.
6. Cycle the system until the plow moves smoothly in both directions. Raise the plow to its fullest height and lower to the ground with full downward pressure. Make a visual check for fluid leaks at all connection points.
7. Be sure that all hardware is tightened securely and that all pins are installed properly and secured.
8. Attach the power unit cover by aligning the notch on the left side and securing with the rubber latch on the right side.



## PULL PLOW OPERATION

**Note:** Many operators remove the truck tailgate and install a floodlight facing toward the rear of the truck when using their pull plow. This helps visibility when working at night or in tight quarters.

All hardware should be checked for proper tightness before each use, and after making any adjustments or repairs.

In operation, the truck should be configured in the same manner as when the plow was installed. Making changes such as adding a front plow, changing tire size or adding weight with sand, salt, or other cargo will affect the performance of the Pull Plow, and adjustments may be required.

When operating the Pull Plow, you will have adequate down-pressure for good scraping results with the front plow in the up position. For maximum down-pressure and best results, however, lower the front plow. This transfers weight to the rear of the truck and lowers the rear of the truck.

If adjustment of downward pressure is necessary or desired, i.e., as the cutting edge wears down over time, the following steps should be followed:

1. Raise the front plow, if equipped.
2. Remove the upper pin from the vertical lift arm and swing the arm down onto the plow.
3. Using a 15/16" wrench, loosen the three bolts attaching the lift assembly and slide the lift assembly up or down about 1/2"; up to decrease downward pressure and down to increase downward pressure. Also loosen the bolts connecting the drawbar arms to the radius plates to ensure the Pull Plow remains level to the ground.
4. Tighten all bolts, and reconnect the lift arm.



## REMOVING THE PLOW

When plowing is completed, the Daniels Pull Plow can be easily removed:

1. Lower the plow to the ground, stopping the pump before downward pressure is applied to the plow.
2. Disconnect electric quick-connects at the power unit.
3. Disconnect the vertical lift arm from the horizontal lift arm and swing it down.
4. Remove the pins holding the drawbar arms to the drawbar ears on the T-bar, and slide the plow away from the rear of the truck.
5. Loosen and disconnect the turnbuckles and hooks from under the truck.
6. Pull the hitch assembly pin from the hitch receiver and slide the assembly out, making sure hydraulic connector fitting stay off the ground and clean.
7. Secure electric quick-connects behind the truck's bumper using zip-ties.

## STORING AND OFF-SEASON MAINTENANCE

The hydraulic cylinder should be stored in the fully collapsed position, with the connections covered or connected to keep out contaminants.

If you have more than one Daniels Pull Plow, we recommend that each plow be marked to ensure that it is re-installed onto the vehicle to which it was originally mounted. The license or vehicle numbers are good identifying methods.

Check the condition of the scraper bar (cutting edge). If the scraper bar is worn to less than 2", replace the bar. The scraper bar is not reversible.

Inspect wear surfaces and pivot pins for wear and replace if necessary.



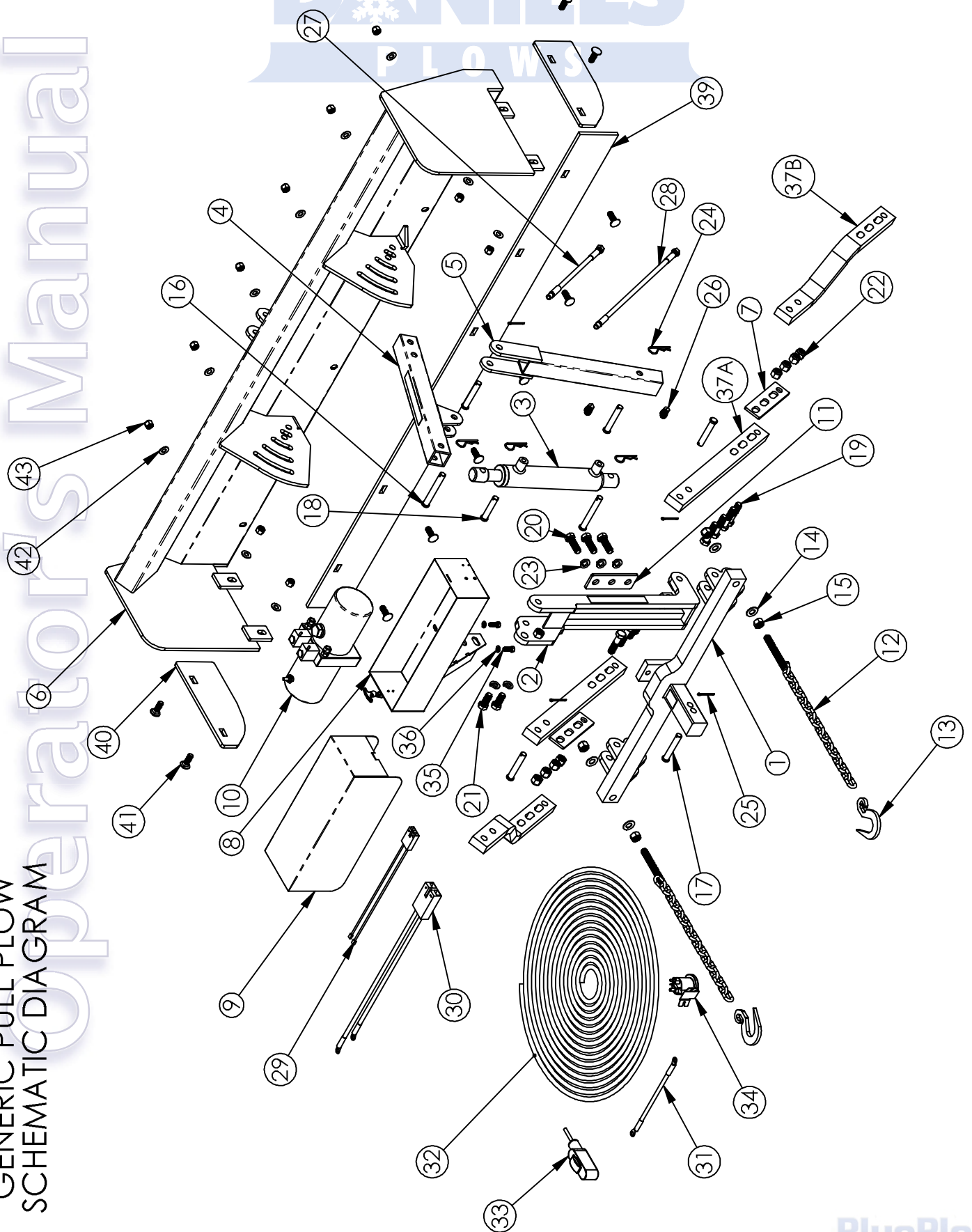


### TIPS FOR SAFE AND PRODUCTIVE PLOWING

- If possible, perform a pre-season check of the areas to be plowed, observing obstructions such as drains or manholes which could be damaged by the plow, or could damage the plow or vehicle.
- Check the vehicle before each use to ensure that all controls, lighting and safety equipment is in place and functioning properly.
- Constantly be aware of others in the area. This includes vehicle traffic and pedestrians.
- Be cautious and courteous when travelling or plowing across public roads. Remember – normal rules of the road apply, snowplowing equipment does not have the right-of-way.
- Plow at safe speeds to maintain full vehicle control.
- Use care when backing up to doors, walls or vehicles to avoid collision.
- Never plow in reverse with the pull plow in the down position.
- When moving alongside an object, such as a building, wall or vehicle. Be aware of the width of your vehicle. This is especially important with plows on both ends of a vehicle where a turn in either direction could cause the plow to swing and hit something nearby.
- Make sure the plow is adjusted correctly, with sufficient down-pressure, to provide clean scraping of snow and ice from the surface.

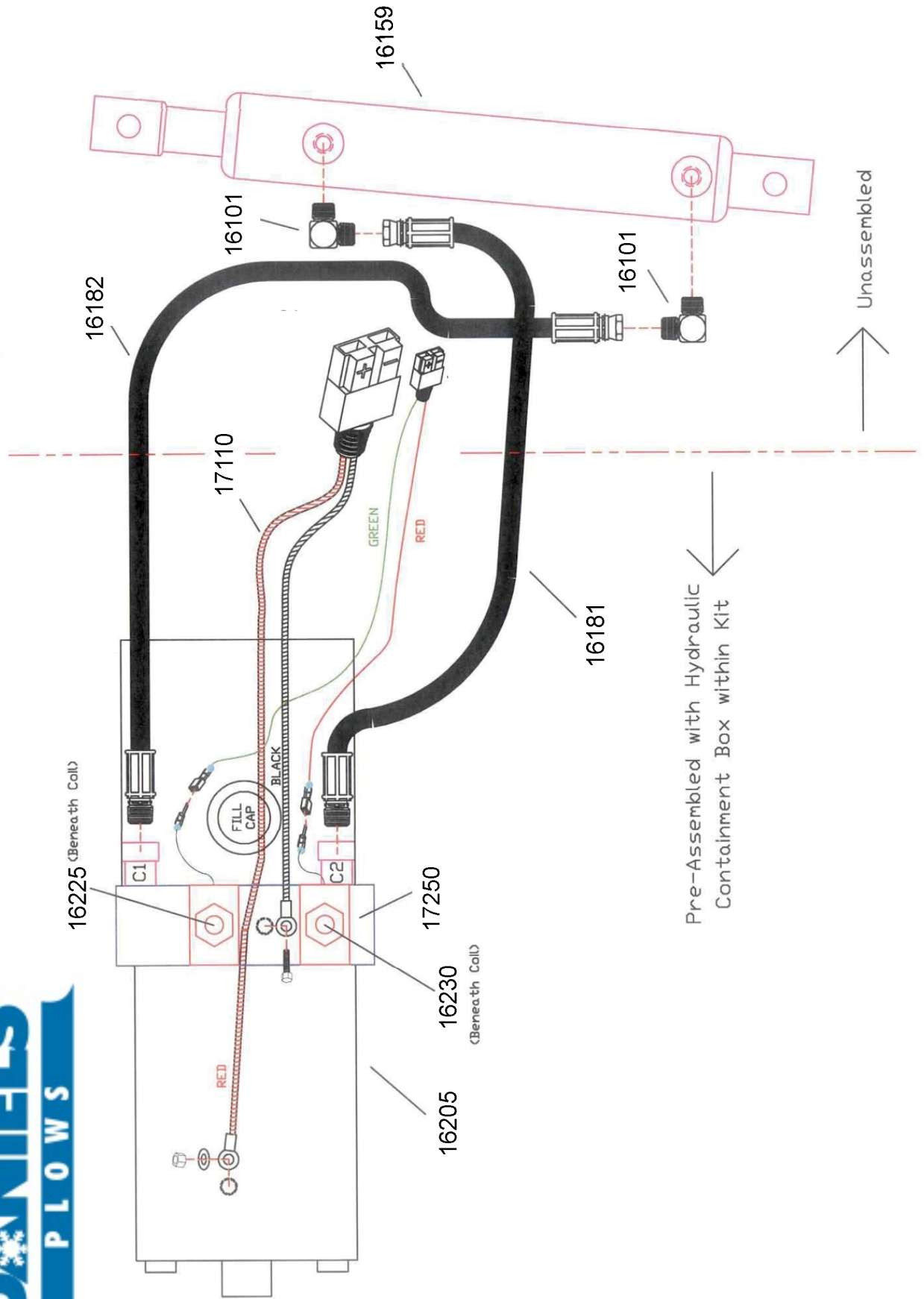
# GENERIC PULL PLOW SCHEMATIC DIAGRAM

Operator's Manual



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	89070	T-BAR MOUNT	1
2	89065	HYDRAULIC LIFT ASSEMBLY	1
3	16158	HYDRAULIC CYLINDER FOR PULL PLOW W/ NITRIDE ROD	1
4	89050	HORIZONTAL LIFT ARM	1
5	89055	VERTICAL LIFT ARM	1
6	----	MOLD BOARD WELDMENT - 72" (72001), 80" (80001), 90" (90001), 96" (96001) OR 102" (102001)	1
7	89040	SANDWICH PLATE - 4 HOLE / SLOT	2
8	99010	HYDRAULIC BOX TRAY	1
9	99005	HYDRAULIC BOX LID ASSEMBLY	1
10	16205	MONARCH POWER UNIT - CURRENT MODEL	1
11	89005	SANDWICH PLATE - 3 HOLE	1
12	99092	THREADED ROD MOUNT WITH CHAIN	2
13	99098	CHAIN MOUNT HOOK	2
14	18730	HEAVY CHAIN MOUNT WASHER	4
15	99095	5/8"-11 NUT, HOT DIP GALVANIZED, GRADE 2	2
16	18530	CLEVIS PIN 5/8 X 4-1/2, ZINC	2
17	18525	CLEVIS PIN 5/8 X 3-1/2, ZINC	5
18	18520	CLEVIS PIN 5/8 X 3, ZINC	1
19	18235	HEX HEAD BOLT 5/8"-11 X 2-1/2, GR8 HCS	8
20	18230	HEX HEAD BOLT 5/8"-11 X 2, GR8 HCS	3
21	18220	HEX HEAD BOLT 5/8"-11 X 1-1/2, GR8 HCS	2
22	18435	LOCK NUT NYLON 5/8"-11, GR8 USS	10
23	18820	LOCK WASHER FOR 5/8" BOLT, ZINC	5
24	18567	REUSABLE COTTER PIN 1/8" X 1-1/2, ZINC	4
25	18601	COTTER PIN, 1/8" SHAFT X 2-15/16 LONG	4
26	16101	HYDRAULIC FITTING ELBOW, 1/4" MALE PIPE, 5000 PSI	2
27	16181	CONTAINMENT BOX HOSE 28	1
28	16182	CONTAINMENT BOX HOSE 35	1
29	17200	SMALL HARNESS PLUG	1
30	17230	LARGE HARNESS PLUG	1
31	17231	RED WIRE - POSITIVE TERMINAL FOR PULL PLOW	1
32	17110	PULL PLOW WIRE HARNESS	1
33	17270	PUL PLOW SWITCH	1
34	17310	SOLENOID	1
35	18160	HEX HEAD BOLT, 3/8"-16 X 1, GRADE 8	2
36	18810	SPLIT LOCK WASHER, 3/8"	2
37A	89025	DRAWBAR ARM - FOR PLOW SIZES 72"/80"/90"	2
37B	89030	DRAWBAR ARM - FOR PLOW SIZE 96"/102"	2
39	----	MAIN CUTTING EDGE: 72" (72010), 80" (80010), 90" (90010), 96" (96010), 102" (102010)	1
40	99091	SIDE WEAR EDGE	2
41	18101	CARRIAGE BOLT 1/2"-13 x 1-1/2", GRADE 8	10
42	18720	FLAT WASHER, 1/2" SAE	10
43	18425	LOCK NUT, NYLON 1/2"-13	10

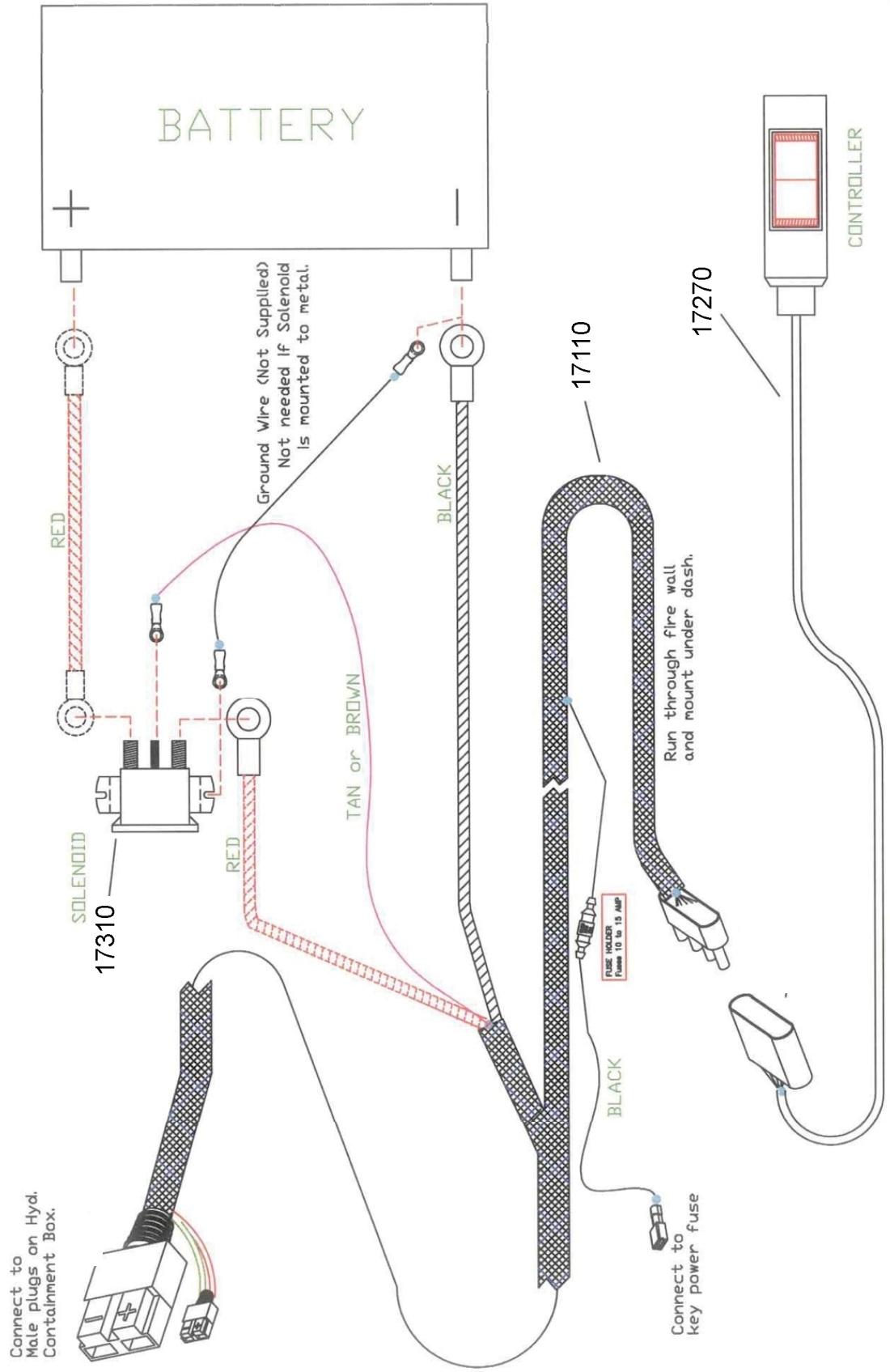
### POWER UNIT PRE-ASSEMBLY DIAGRAM





# WIRING DIAGRAM

## WIRING DIAGRAM FOR PULL PLOW WITH HYD. CONTAINMENT BOX





## Trouble Shooting

**Use the examples below to resolve a question you are having. If the problem you are experiencing is not listed or you have attempted to remedy the issue with the directions given and not been successful please contact your dealer for support.**

Prior to performing any work on the unit it may be beneficial and an important safety factor to relieve all pressure from the hydraulic system. To relieve the pressure from the Pull Plows hydraulic system, first locate the motor start solenoid. If installed properly the motor start solenoid should be located within 18" of the truck's battery as listed in Step 5 of the Wire Harness Installation section of this manual. On the motor start solenoid remove the brown (tan) wire which is attached to the center terminal on the solenoid. This is also the smallest diameter terminal on the solenoid. After the wire is disconnected activate the switch located in the cab. This will release the valves and the pressure on the system without starting the motor.

### **1) The Pull Plow drifts down. (Won't stay up)**

The Daniels Pull Plow is a power up and power down unit. The check valves in the supplied Monarch power units provide a positive lock in the up position to eliminate drifting. If your Pull Plow will not stay up there are three most common reasons.

1A) First: Be sure that the 1/4" hydraulic hoses from the manifold on the power unit are routed correctly. The longest hose from the C1 port on the power unit must go to the bottom port of the cylinder. The check valves do not provide a positive lock in the down position. The hydraulics will slowly bleed through when the plow is in the down position. If the hoses are reversed and not correctly installed the positive lock will not be in the up position and the hydraulics will bleed through allowing the drift down.

1B) Second: There may be a bad cylinder. If the packing material within the cylinder has flaws it will allow fluid to pass which will cause the Pull Plow to drift down. To help determine if there is a cylinder issue, examine the external surface of the cylinder for any signs of leaks around the seals or ports. Also, with the cylinder extended look for signs of pitting or damage to the rod which can cause excessive wear on the internal seals.

1C) Third: The main relief valve in the power unit may not be properly sealing and allowing hydraulic fluid to pass through the unit. This can be caused by debris in the fluid that has settled around the relief port and not allowing a proper seal of the spring and ball. Drain and flush the power unit of fluid to attempt to remove the debris. Always inspect removed fluid for signs of debris.





**2) The Pull Plow will only function in one direction or works intermittently.**

This issue could be caused by a hydraulic or electrical issue.

2A) First: Confirm that the unit is properly grounded. A bad ground has been determined to be the most common cause of problems. Check the connection of the motor start solenoid to the truck frame or body. The best solution is to add the ground wire as described in step 11 of the Wire Harness installation section of this manual.

2B) Second: The check valves in the power unit may not be fully opening or closing. This could be due to the coils not being fully energized. To determine if power is reaching the coils hold a screwdriver or other metal tool to the top of each coil while another operator activates the Pull Plow switch in the cab. One of the coils should magnetize and pull the screw driver to the top of the coil when the switch is activated and the opposite coil attract when activating the switch the other direction. If one or both of the coils does not magnetize check the electrical connections. If the connections are determined to be good a coil may have gone bad or the truck battery is not supplying enough volts to fully energize the coil which pulls the valve to open or close it.

The other cause of a valve not fully opening or closing may be a build up of debris or sludge on the valve itself. To remedy this problem remove the jam nut from the top of the coil on the valve stem and slide the coil off of the valve. At the base of the valve stem there is a hex head which is used to unscrew and remove the valve from the manifold block of the power unit. Remove the valves. Inspect each valve for a build up of debris on the screens or damage to the o-rings. The removed valve can now be easily cleaned with a solvent fluid and a soft brush to remove the debris or sludge from the valve which will allow it to move more freely and fully open and close. If significant build up is evident on the valve the valve can also be disassembled for a more thorough cleaning. Follow the steps below for disassembling the valve as well as using the following picture for a guide.



1) Place the valve in a vise. Make sure you use a protective covering such as a leather strap and place the vise onto the hex head of the valve. DO NOT clamp on to the stem of the valve where the coil slides over. To prevent damage to the valve to DO NOT over tighten the vise. A firm but light grip is all that is needed.

2) After the valve is properly placed in the vise with the screens and o-rings exposed use a pair of pliers with a protective covering such as a leather strap to grip the valve between a set of screens and turn the valve counter clockwise to loosen the valve end from the hex head and coil stem. Be careful when removing the valve so that no internal parts are lost. The picture below shows what the disassembled valve will look like so it can be reassembled properly.

3) The valve, spring, screens and valve shaft can now be cleaned to remove debris and sludge prior to reassembly.

4) Reassemble the valve making sure all the parts are replaced in the same order and tighten the valve shaft body back into the hex head base and stem.







- 5) When reassembling the valves into the power unit hand tighten the valve into the manifold of the power unit and lightly tighten with a wrench.

**DO NOT OVER TIGHTEN.**

- 6) Replace the coil over the stem of the valve and replace the jam nut to hand tight. DO NOT over tighten which may cause damage to the valve coil stem.

2C) Third: The Pull Plow switch may be defective. It is possible that connections to the rocker switch inside the electrical housing could be touching causing a disruption to the electric flow or cause electric flow to incorrect terminals. If you have another functioning Daniels Pull Plow swap the switches to determine if the problem is resolved by the replacement of the switch or follows the switch to the other unit.

### **3) The Pull Plow functions slowly.**

A slow but properly functioning unit is usually due to slow hydraulic fluid flow. There are four common solutions.

- 3A) First: Valves may not be fully opening or closing. The valves can be removed and cleaned as described in example #2.

3B) Second: The hoses from the power unit to the cylinder may have debris which is blocking the flow of fluid. Drain the fluid and flush the system. Catch all drained fluid in a container and properly dispose of the fluid. After draining inspect the fluid for contaminants or debris.

3C) Third: If hydraulic quick connects are used with your model of Pull Plow or they have been added to your hydraulic lines replace these quick disconnects. It has been found that many flow issues are due to quick disconnects that are not functioning properly. This problem has been found to exist with new fittings as well as old. Eliminating the quick disconnects and routing the hoses directly into the cylinder ports will determine if they are the cause of the problem.

3D) Fourth: Contaminated fluid can, through time, build up debris on the suction screen inside the reservoir can. This build up of debris will limit the amount of fluid that is able to pass and can dramatically slow the function of the unit. To correct this problem, drain the fluid from the power unit and flush the system. Catch all drained fluid in a container and properly dispose of the fluid. After draining inspect the fluid for contaminants or debris. After the fluid is removed from the power unit remove the reservoir can from the end of power unit. This will expose the pump and suction tube inside. Use caution when removing the tank so the o-ring seal is not torn or damaged. The suction tube in the tank will have a screen which can now be easily removed and cleaned. Note: If the screen is clogged with debris there must be a source of the debris. Most likely there is additional debris in the fluid and if the system is not drained and flushed the screen will likely be clogged again, repeating the problem.



### **Daniels Plows, Inc. Warranty Information**

Daniels Plows warrants to the original purchaser of a Daniels snow plow that the snowplow sold by Daniels will be free of defects in workmanship and material for 24 months from the date of delivery.

In the event any Daniels snowplow fails to comply with this warranty during the warranty period, and purchaser notifies Daniels in writing of the defect and provides proof of the original purchase date, Daniels, at its sole and absolute discretion shall authorize its designated representative to repair or replace the defective part(s), or shall correct such nonconformity by shipment of parts from the factory in repair or replacement of the defective part(s) provided that the snowplow has been stored, installed, operated and maintained in accordance with Daniels' instructions, has not been subject to abuse or misuse, including but not limited to any modification to or installation of the snowplow by anyone other than Daniels or an authorized Daniels representative, has not been subject to any repair work or replacement parts not authorized in writing by Daniels, and has not been used in any way other than its intended purpose. This warranty does not apply to any "wear parts" such as cutting edges, springs, wear shoes and curb guards.

The purchaser's remedy in respect to any defect in the snowplow or any loss or damage arising directly or indirectly from any defect, nonconformity or defective workmanship in the snowplow is limited to providing the repair or replacement of parts thereof. The snowplow or the applicable part thereof must be returned to Daniels by purchaser F.O.B. unless, in Daniels' sole discretion, Daniels authorizes its designated representative to repair or replace the part at the designated representative's site. The snowplow or the applicable part thereof will be returned to purchaser by Daniels F.O.B. In any event, labor charges shall not be included in this warranty and shall be due and payable by purchaser immediately upon receipt of invoice. Field replaceable spare parts supplied by Daniels are warranted for the later of the unexpired portion of the snowplow warranty or 30 days.

The foregoing warranties set forth are exclusive and no other warranty is expressed or implied. Daniels specifically disclaims all other warranties whether statutory, express or implied, including all warranties of merchantability and fitness for particular purpose and all warranties arising from course of dealing or usage of trade, including but not limited to the acts or omissions of dealers, distributors, agents, contractors, suppliers and any tier or other designated representatives of Daniels.

Attachment of a snowplow to motor vehicles is at the risk and expense of the purchaser. Compliance with applicable motor vehicle regulations is the responsibility of the installer. Daniels does not assume any liability for any damage to a motor vehicle resulting from the attachment or from the use of a snowplow. Daniels does not assume any liability for the cost of modification of the snowplow or the vehicle required to attach the snowplow.

Daniels, and any of its agents, contractors, suppliers and any tier shall not be liable in contract, in tort (including negligence and strict liability), or otherwise for damage or loss of property, loss of profits or revenue, loss of use of equipment or cost of capital, claims of purchaser or any and all of its' customers, vendees, etc., or for any special, indirect, incidental, or consequential damages whatsoever. Corrosion by weather and its elements, such as salt, is not covered by Daniels Warranty.

The attached warranty registration form must be completed and returned to Daniels by purchaser to activate this warranty. If you feel that the Daniels Pull Plow or any part of the plow is eligible for warranty replacement contact Daniels for the proper warranty procedure.



## Warranty Registration

In order to qualify for the 24 month warranty, please go to [www.danielsplows.com/warranty](http://www.danielsplows.com/warranty) to register.

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