



# EBLING SIDEKICK BACK BLADE OWNERS MANUAL

Part # AA07-0027



**EBLING BACK BLADE**



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## 1 INTRODUCTION

You have just purchased one of the best back blades available in the snowplow industry today. Your new Ebling Back Blade has been designed and built to provide many years of durable service. Used properly, it will increase your productivity and allow you to plow more snow more efficiently than ever before.

This manual provides safety, operation, and maintenance information for your new Ebling Back Blade. Please read this manual before operating the unit, and follow the instructions and recommendations to keep your back blade in top operating condition all winter long. Failure to do so may affect your warranty coverage.

Ebling Snowplows and your local dealer will be your sources for replacement parts and service as they become necessary over the life of your back blade. Feel free to contact us for maintenance, service, replacement parts, or any other assistance we can provide. We are here for you!

## 2 SAFETY PRECAUTIONS

Improper installation or operation of your back blade could cause injury, equipment damage, and/or property damage. Please read and understand the information in this manual before installing, operating, or making adjustments to this equipment.

Throughout this manual, safety-related information and precautions are noted by one of the two safety symbols below, based on the severity of potential injury as defined.



**WARNING:** Indicates a hazard that, if not avoided, could result in death or serious injury.



**CAUTION:** Indicates a hazard that, if not avoided, may result in minor or moderate injury, or lead to equipment damage and/or property damage.



### 3 BACK BLADE FEATURES

#### 3.1 Back Blade Mounts Directly To Factory Hitch

The Ebling Back Blade is attached to the plow vehicle using the factory installed hitch. It is also attached to the plow vehicle using 2 ratchet style straps to keep the sidekick backblade from any unnecessary movement while plowing or transporting.



Figure 1

Back Blade Mounts Directly To Factory Hitch



**CAUTION:** Do not cut, drill, weld, or otherwise modify the hitch receiver on the vehicle. Doing so may affect the safety integrity of the hitch receiver and will void the warranty.

#### 3.2 Hook Up To Frame

2 ratchet style straps are included with the Sidekick Backblade. The ratchet side of this is bolted to the insert crossbar. The strap half of the ratchet with a hook gets hooked to a hole on both sides of the frame where it will not interfere with factory components. If the plow needs to be removed from the vehicle frequently, this is much easier to use than a chain style found on some other plow brands.



Figure 2

Ratchet Strap Hook Up

### 3.3 Moldboard & Wings

The Ebling Back Blade moldboard is designed and constructed to be one of the most rugged in the industry. The Sidekick moldboard, which includes many of the same design features as the Ebling hydraulic and fixed wing moldboards, is adjustable to 84", 90" & 96" widths to provide the capability for multiple plowing applications. The fixed wings are bolted securely to the sides of the moldboard. The fixed wing length is 18" as measured from the rear of the moldboard.

### 3.4 Cutting Edges

Unless you ordered custom cutting edges for your back blade, the standard moldboard cutting edge is made from durable carbon steel, and the wing cutting edges are tough, durable polyurethane material as standard.

Maintaining proper alignment of your back blade is important to be able to get maximum life out of the cutting edges. When maintained properly, the wing cutting edges will wear evenly along with the moldboard cutting edge. The upper linkage arms are set for the proper initial alignment at the time of installation, but over the life of the cutting edges, depending on the wear you observe due to the plowing application, site conditions, and operator plowing methods, the upper arms may need to be adjusted to allow more even wear of the cutting edges. Refer to the *Back Blade Maintenance* section of this manual for additional details on making alignment adjustments to the back blade.



## 4 ELECTRICAL SYSTEM & CONTROLS

The Ebling Back Blade is powered by the plow vehicle's electrical system. Refer to the following sections of this manual for specific information regarding the back blade electrical system:

1. *Back Blade Maintenance* section: Fuse replacement, recommended maintenance items.
2. *Operating The Back Blade* section: Controller functions and detailed operating procedures.
3. *Specifications* section: Electrical system technical specifications.
4. *Schematics* section: Electrical connection diagrams.

### 4.1 Controller

The Ebling Back Blade comes standard with an in-cab controller. The standard controller for the Sidekick model is shown in Figure 3. The standard controller comes "loose", ready for you to mount in your preferred position in the cab of your vehicle.



Figure 3  
Standard Sidekick Controller

The standard Sidekick controller includes a main power ON/OFF switch and the lever to control the RAISE & LOWER function. The power circuit runs through and is controlled by the vehicle ignition switch, and is also protected by a circuit breaker. Regardless of the main power switch position, power to the back blade controller is off whenever the vehicle ignition switch is off. When the vehicle ignition switch is on, the main power switch allows you to turn power off to the back blade hydraulic unit, so that back blade movement is prevented when the plow is not in use. The RAISE/LOWER lever controls raising and lowering the back blade. This is a momentary-contact type switch, such that the function is powered only when the



control lever is held in the position desired, so the raising or lowering motion stops as soon as the control lever is released or when the maximum movement is reached. Refer to the *Back Blade Operation* section of this manual for additional information on operating your back blade.



**WARNING:** Always switch the ON/OFF switch to the OFF position whenever the back blade is not in use to prevent inadvertent movement of the back blade.



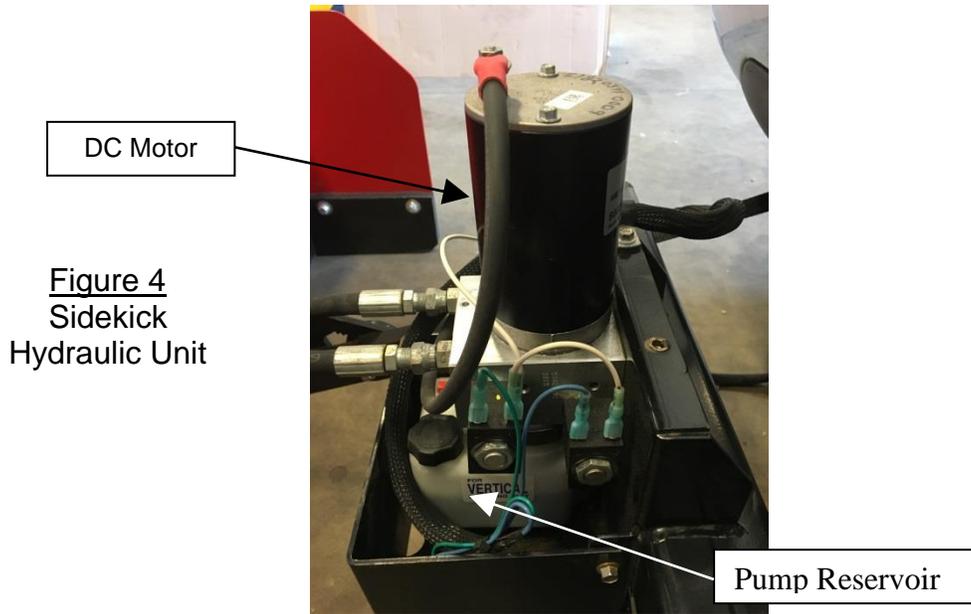
**CAUTION:** Release the RAISE/LOWER switch once the maximum back blade travel is reached. Continuing to hold the switch in the RAISE or LOWER direction after maximum blade travel is reached will cause excessive current draw on the pump motor and may overheat system components.



**WARNING:** If the back blade hits you or drops on you it could cause serious injury. Be aware of the operating envelope of the blade, and stay clear of the back blade when operating the remote controls.

## 5 HYDRAULIC SYSTEM

The back blade standard hydraulic system is powered by an electric motor. The hydraulic pump delivers a controlled flow of oil for fast, smooth raising and lowering of the plow. A typical power unit is shown in Figure 4.



Refer to the following sections of this manual for specific information regarding the back blade hydraulic system:

1. *Back Blade Maintenance* section: Recommended hydraulic fluid type, filling instructions, and maintenance procedures.
2. *Specifications* section: Hydraulic system technical specifications.
3. *Schematics* section: Hydraulic plumbing connection diagrams.

## 6 MOUNTING BACK BLADE TO VEHICLE



**WARNING:** Always inspect all back blade components and fasteners for wear and/or damage before mounting back blade onto vehicle. Worn or damaged parts may fail unexpectedly, which could cause serious injury.



**CAUTION:** Due to limited visibility of rear of vehicle from the driver's seat, it is recommended that steps 1-3 be completed with an observer at the rear of the vehicle to provide assistance, not by yourself. Make sure observer stands at a safe position to avoid pinch/drop points. If you must do this by yourself, use extreme care.



1. Back plow vehicle into position close to the back blade so that the hitch insert is 3” to 4” from factory hitch. (see Figure 5).

Figure 5  
Hitch insert lined  
up with factory hitch



2. Route the back blade wiring harness according to your plowing preference, and then connect the plugs to the mating receptacles on the vehicle.
3. Verify that the height of the crosstube insert matches the factory hitch height. If the height matches (refer back to Figure 5), then skip step 4.  
**NOTE:** Adjustment is not normally necessary unless the vehicle height is substantially different than when the back blade was last removed from the vehicle.
4. If minor height adjustment is necessary, complete steps 10 & 11 at this point, and then use the in cab RAISE/LOWER switch to raise or lower the crosstube insert to the correct height for engagement into the factory hitch.  
**NOTE:** If a major height adjustment is necessary, it is recommended to perform the adjustment manually, with help from an assistant, before attempting to engage the crosstube insert in the factory hitch (the arm angle will be too extreme for proper engagement using hydraulics only).
5. Back vehicle up slowly to engage the crosstube insert in the factory hitch until the hitch pin hole lines up
6. Insert the hitch pin and secure with hitch pin clip
7. Remove the safety snap pin from the plow stand.
8. Loosen the T-bolt and remove the plow stand by removing stand foot.



Figure 6  
Plow Stand Stored On  
Crossbar Stand Mount

9. Store the stand and the foot in the stand receptacle on the crossbar tube.
10. Turn the vehicle ignition key to the ON or ACCESSORY position.
11. Actuate the ON/OFF switch on the in-cab controller to the ON position.
12. Actuate and hold the remote RAISE/LOWER switch to raise the back blade, and release the switch when the back blade reaches the fully-raised position.



**CAUTION:** Release the RAISE/LOWER switch once the maximum back blade travel is reached. Continuing to hold the switch in the RAISE or LOWER direction after maximum blade travel is reached will cause excessive current draw on the pump motor and may overheat system components.

Verify that the back blade does not block the view of the vehicle's tail lights from the rear of the vehicle.



**CAUTION:** The back blade plow mount is designed to accommodate nearly all OEM equipment, but some after-market lighting may not fully comply with this requirement. If the view of the vehicle's tail lights is blocked, you will need to modify the lighting or contact Ebling & Son, Inc. to obtain a lift cylinder modification to resolve this situation.



13. Check the alignment of the back blade to the plow vehicle before operating the back blade to plow snow. Refer to the *Maintenance* section in this manual for instructions on checking alignment and making adjustments, if required.

## 7 OPERATING THE BACK BLADE



**WARNING:** Always switch the ON/OFF switch to the OFF position whenever the back blade is not in use to prevent inadvertent movement when the back blade is not in use.

1. Actuate the vehicle ignition switch to the ON or ACCESSORY position.
2. Actuate the main power ON/OFF switch to the ON position to turn power on to the back blade hydraulic unit.
3. To raise or lower the blade, actuate and hold the RAISE/LOWER control lever in the desired direction. Movement occurs only when the control lever is actuated, and movement will stop as soon as the control lever is released.



**CAUTION:** The back blade RAISE/LOWER function does not have a “float” position like many front plows do. The RAISE/LOWER function is designed to utilize hydraulic down pressure for better scraping and clean-up, and as such the position of the blade will be maintained when the control lever is released, it will not “float” to follow the terrain being plowed.



**CAUTION:** The hydraulic system operating pressure is sufficient in many cases to raise the rear wheels of the plow vehicle off the ground. As such, be aware that using a lowered blade position that raises the vehicle even partially will reduce traction on the vehicle’s rear wheels.



**CAUTION:** Release the RAISE/LOWER control lever once the maximum blade travel is reached. Continuing to hold the control lever in the RAISE or LOWER direction after maximum blade travel is reached will cause excessive current draw on the pump motor and may overheat system components.



4. When finished operating the back blade, raise the back blade to the fully raised position for transporting, and then actuate the main power switch to the OFF position to prevent inadvertent movement when the back blade is not in use.

## 8 TRANSPORTING & DRIVING CONSIDERATIONS

1. Before transporting the back blade to and from plowing jobs, always put the back blade into the proper transport condition as follows:
  - Raise the back blade to the fully-raised position to prevent the bottom of the plow from striking the pavement when encountering potholes or other road obstacles.
  - Verify that the main power switch is in the OFF position to prevent inadvertent back blade motion during transporting.



**WARNING:** Always switch the ON/OFF switch to the OFF position whenever the back blade is not in use to prevent inadvertent movement when the back blade is not in use.

2. Always drive defensively and be aware of the additional size and weight of the equipment that you are transporting with regard to turning radius, passing clearance, braking distance, etc.



**WARNING:** Always lower the back blade when the vehicle is parked to prevent the blade from dropping unexpectedly due to hydraulic pressure changes or damaged system components. Keep clear of the blade's drop zone at all times. Failure to observe these safety precautions could result in serious personal injury.

## 9 PLOWING CONSIDERATIONS

1. Before plowing at a site, make sure you are aware of any obstructions that could be hidden beneath the snow, such as curbs, sidewalk edges, bumper stops, low shrubs, or other landscaping obstacles. Marking hard-to-see obstructions or other hazards before plowing season can help identify them when they are covered with snow.



**WARNING:** Always wear your seat belt when plowing snow. Striking a hidden obstruction could cause the vehicle to stop or swerve suddenly, which could result in serious personal injury if you are not wearing your seat belt.

2. Plow at a reasonable speed given the overall site layout and the weather conditions at time of plowing.



**CAUTION:** Your back blade is designed to pull snow, so using your back blade to push snow with the vehicle in reverse is not recommended.

3. When entering or exiting a driveway (or any other sloped surface with a valley) with the back blade raised, be aware of the difference in blade position with respect to the vehicle tires. If the valley is deep enough, the bottom of the back blade may scrape the pavement as the vehicle passes through the low spot.
4. When entering or exiting a driveway (or any other sloped surface with a valley) with the back blade lowered, consider raising the plow slightly to reduce the down pressure as the vehicle passes through the low spot, in order to maintain traction on the vehicle rear wheels. This will also help to minimize the wear on the leading corners of the wing cutting edges.

## 10 REMOVING BACK BLADE FROM VEHICLE

1. Move vehicle into position where back blade is to be removed. A flat area with sufficient maneuvering room is recommended for back blade removal and more importantly, for ease of re-attaching the back blade later.
2. Actuate the vehicle ignition switch to the ON or ACCESSORY position.
3. Actuate the ON/OFF switch on the in-cab controller to the ON position.
4. Actuate and hold the RAISE/LOWER switch to lower the back blade to the ground. Release the switch as soon as the back blade contacts the ground and the weight is off the vehicle.



**CAUTION:** Releasing the switch before the pump begins to raise the rear of the vehicle is important for ease of pulling the vehicle out once the crosstube insert is unpinned. If the rear of the vehicle is raised a significant amount, it may drop unexpectedly or bind the crosstube insert in the factory hitch.



5. Disconnect the back blade wiring harness and coil the harness around the power unit for storage.

**NOTE:** Re-apply dielectric grease to the harness and vehicle plug electrical terminals for anti-corrosion protection.

6. Install plug cover on vehicle power plug.
7. Remove the plow stand from its storage position on the cross tube.
8. Loosen the T-bolt and remove foot from stand and reassemble stand to usable position on crosstube, then re-tighten the T-bolt.
9. Remove the hitch pin from the factory hitch and disconnect both ratchets straps from frame.
10. Pull the vehicle ahead slowly to dis-engage the crosstube insert. The plow will stay in place on the plow stand with the insert at the proper height for re-attachment.



**CAUTION:** Due to limited visibility of rear of vehicle from the driver's seat, it is recommended that steps 1-3 be completed with an observer at the rear of the vehicle to provide assistance, not by yourself. Make sure observer stands at a safe position to avoid pinch/drop points. If you must do this by yourself, use extreme care.

**NOTE:** When completed correctly, the back blade removal process will make the re-attachment procedure much easier. Unless the vehicle height changes substantially, the crosstube insert should be at the correct height for re-engagement in the factory hitch by having already removed the back blade at that same vehicle height.

11. Store the hitch pin separately, or replace the hitch pin in the crosstube insert, and replace the pin clip for safekeeping.
12. Disconnect the controller wire harness in the cab, if desired, and store the controller in a safe location.

## 11 OFF-SEASON STORAGE

1. Choose your off-season storage location carefully. A flat, dry, out-of-the-way surface is recommended, and storing the blade inside out of the weather is preferable to outside storage when possible.
2. Remove back blade from vehicle per the procedures outlined in section 10, *Removing Back Blade From Vehicle*.
3. Complete the steps on the *Post-Season Checklist* in Section 12.3 of this manual.



## 12 BACK BLADE MAINTENANCE

### 12.1 Pre-Season Checklist

It is recommended that you complete the following list before the snow season to make sure your equipment is in top working condition prior to plowing:

1. Inspect entire blade assembly for worn or damaged parts, especially cutting edges and moving parts.
2. Replace any worn or damaged parts.
3. Check all mounting points on back blade and vehicle, and make sure all cotter pins are still in place.
4. Check all fasteners and re-tighten to proper torque as necessary.
5. Check all cutting edges for amount of wear, and replace cutting edges as necessary.
6. Touch up painted surfaces as necessary to protect the metal and maintain back blade finish and appearance. Touchup paint is available from Ebling & Son or your local dealer.
7. Check hydraulic system for leaks and cracked or damaged hoses, tighten fittings and replace hoses as necessary.
8. Drain hydraulic system and re-fill with the recommended hydraulic fluid. Refer to *Annual Hydraulic Fluid Change* later in this section for instructions and recommended fluid types.
9. Clean and tighten all electrical connections, and apply dielectric grease to prevent corrosion.
10. Inspect and test vehicle battery, and re-charge or replace as necessary.

### 12.2 In-Season Periodic Maintenance

The following items should be checked frequently during the plowing season:

1. Check all fasteners for wear; re-tighten to proper torque as necessary.
2. Check all hydraulic connections for leaks, re-tighten and repair as necessary.
3. Check hydraulic fluid reservoir and add fluid as necessary to keep full.
4. Check all electrical connections to make sure they are clean, tight, and corrosion-free. Re-apply dielectric grease as necessary for anti-corrosion protection.
5. Check condition of all cutting edges to make sure they are wearing evenly. Re-align back blade and/or replace cutting edges as necessary. Refer to section 12.8, *Back Blade Alignment* for alignment instructions.



### 12.3 Post-Season Checklist

It is recommended that you complete the following preventive maintenance items prior to storing your back blade for the off-season:

1. Wash the back blade with a good automotive-grade detergent to clean off road grime and salt build-up.



**CAUTION:** Before spraying the hydraulic unit reservoir, remove the breather cap and replace it with red threaded plug found on reservoir tank to prevent water from entering the reservoir and contaminating the hydraulic fluid. Tighten snugly, do not over-tighten. Re-install the breather cap when finished washing. Store red plug on reservoir for future use.

2. Touch up painted surfaces as necessary to protect the metal and maintain back blade finish and appearance. Touchup paint is available from Ebling Snowplows or your local dealer
3. Lubricate all mounting points (all clevis pins) with a general purpose lithium base grease.
4. Cover the back blade with a tarp to prevent dust and dirt accumulation, and to keep the back blade dry if stored outside.

### 12.4 Hydraulic System Adjustments

1. Hydraulic Connections – Refer to the hydraulic connection diagram at the back of this manual for identifying each of the hydraulic hose connections on the back blade and at the valve manifold on the hydraulic power unit. When fitting and/or hose replacement becomes necessary, make sure replacements are installed according to this connection diagram.
2. System Relief Pressure – the factory relief pressure setting is 500 psi. The relief pressure setting cannot be adjusted.

### 12.5 Hydraulic System Fluid Level

1. The hydraulic fluid level must be checked with the vehicle on a level surface and the back blade fully raised (so that lift cylinder is fully retracted).
2. Proper “full” fluid level in the fluid reservoir is about 1” down from the top of the reservoir (see Figure 7).



Figure 7  
Hydraulic Fluid Level

Reservoir Full  
Level 1" From Top

3. To fill the fluid reservoir, unscrew the breather cap and add fluid to 1" from top of reservoir. For fluid recommendations, see section 12.6, *Annual Hydraulic Fluid Change*.



**CAUTION:** Do not mix different types of hydraulic fluid. Some fluids are not compatible and, if mixed, may cause equipment damage and/or performance problems.

4. Re-install the breather cap and tighten snugly. Do not over-tighten.

## 12.6 Annual Hydraulic Fluid Change



**CAUTION:** The fluid change should be done at the beginning of each plowing season (reference the *Pre-Season Checklist* included in this manual) to prevent the use of fluid that contains condensation build-up from the off-season.

1. Raise the back blade to the fully raised position (so that lift cylinder is fully retracted).



2. Place safety blocks underneath the back blade to prevent it from inadvertently dropping to the ground while you are working on it.



**WARNING:** If the back blade hits you or drops on you it could cause serious injury. Be aware of the operating envelope of the blade, and stay clear of the back blade when operating the remote controls.

3. Remove the top and bottom of pump cover. Position a container to collect the used oil underneath the fluid reservoir.
4. Loosen the fluid reservoir hose clamp and carefully slide the reservoir downward to unseal it from the pump manifold and allow the fluid to drain out.
5. Remove the reservoir completely from the pump manifold block and wipe it out with a clean cloth to remove any contamination and clean it.



**CAUTION:** Remove the reservoir carefully to avoid damaging the suction tube and suction filter inside the reservoir cavity.

6. Remove the suction filter and clean it to remove any contamination.
7. After cleaning the suction filter and reservoir, if you suspect you might have a serious fluid contamination problem, contact Ebling & Son for additional instructions before completing the remaining fluid change steps.
8. Re-install the suction filter.
9. Re-install the fluid reservoir and tighten the hose clamp.
10. Fill the fluid reservoir with fresh hydraulic fluid to 1" below top of reservoir **WITH PLOW IN RAISED POSITION. If level is set with plow in lowered position fluid will be forced out of vent when plow is raised.**

**NOTE:** Use of the following fluid is recommended:

- S.A.M. (Snowplow Aftermarket Manufacturing) Blue Low-Temp Fluid



**CAUTION:** Do not mix different types of hydraulic fluid. Some fluids are not compatible and, if mixed, may cause equipment damage and/or performance problems.

11. Dispose of the used hydraulic fluid properly per local ordinance requirements.

## 12.7 Electrical System

1. The main power circuit is protected by a circuit breaker, typically mounted under hood. If you are installing your back blade, refer to the separate *Back Blade installation instructions* provided with your back blade.



2. The control circuit wiring harness (deutsch plug to the in-cab controller) is protected by an inline mini-blade type 15-amp fuse.



**CAUTION:** If an electrical problem occurs that requires fuse replacement, the replacement fuse must be the same type and amperage as the original fuse. Use of a fuse with a higher amperage rating could damage the system and may cause a fire.

3. Refer to the electrical diagrams at the back of this manual for the electrical system power, control harness, controller, and pump connection diagrams.

### **12.8 Back Blade Alignment**

1. Front-To-Back Alignment – The upper linkage arm adjustment is set at the time of installation to provide the proper amount of upward angle on the wing cutting edges that will offset the friction force that will work to align the blade once the cutting edges contact the pavement and the blade moves forward. Depending on the plowing application, site conditions, and operator plowing methods, over the life of the cutting edges the upper arms may need to be adjusted periodically to provide more even wear of the wing cutting edges. If you observe the front surfaces of the wing cutting edges to be “rounding off” or wearing more rapidly than the rest of the cutting edge, then the upper arms need to be adjusted to compensate for the uneven wear. To adjust the upper arms:
  - With the blade in the fully lowered position, observe the angle of the wing cutting edge bottom surfaces to determine the approximate amount and direction of correction needed.
  - Take any pressure off the lowered blade.



Figure 8  
Upper Linkage Arm  
With Toothed Washer



- For each arm, loosen the arm bolt and the toothed washer, then adjust the arm length as needed by repositioning the toothed washer with the corresponding position and the upper arm.

**NOTE:** If the wing cutting edge leading corners are too low, lengthen the arms.  
If the wing cutting edge leading corners are too high, shorten the arms.

- Reposition the toothed washer and snug up bolt to hold it in the desired place.
- Adjusting both arms at the same timeworks best.
- Raise and lower the back blade a few times, re-check the level, and re-adjust, if necessary, until the desired alignment is achieved.
- Tighten the arm bolt on both sides.

## 13 SPARE PARTS & EMERGENCY PREPARATION

1. In addition to a kit containing the most common emergency items (flashlight, first aid kit, fire extinguisher, hand tools, etc.), it is recommended that you carry the following spare parts in case of breakdown while plowing with your back blade:
  - 15-amp fuses, mini-blade type
  - Hydraulic fluid
  - Hydraulic hoses



2. The spare parts listed above are available from Ebling Snowplows or your local dealer.
3. Other spare/replacement parts may be deemed necessary based on your past experience or your particular plowing application. Make sure you are as prepared as possible before you get caught out in the middle of a snowstorm!

## **14 BACK BLADE SERVICE**

1. If you have followed all of the guidelines and instructions in this manual and still cannot correct problems with the operation of your back blade, contact Ebling Snowplows or your local dealer for troubleshooting and repair information.
2. When you purchased your plow, you were issued a contact number for Ebling Snowplows 24-hour emergency service, which is available 24 hours a day during the snow plowing season.
3. If service becomes necessary, it is recommended that you have your back blade serviced at Ebling Snowplows or your local dealer. Failure to use an authorized service center could affect the warranty coverage on your back blade.

## **15 WARRANTY**

Ebling Snowplows offers a limited warranty for all snowplows and accessories. Refer to the warranty document provided with your back blade for warranty information.



## 16 BACK BLADE SPECIFICATIONS

TECHNICAL SPECIFICATIONS - FIXED WING MODELS			
MODEL NUMBER	Sidekick	FW21X90	FW21X96
Vehicle Application Guideline	1/2, 3/4, 1-Ton & SUVs	3/4-Ton, 1-Ton Pickups	
Blade Height	21"	21"	21"
Blade Width	84", 90" or 96"	90"	96"
Wing Length (from rear of plow)	18"	24"	24"
Plow Weight	382 lbs.	590 lbs.*	610 lbs.*
Plow Finish	Powdercoat	Powdercoat	Powdercoat
Moldboard Cutting Edge (Std.)	1/2" x 6" Steel	1/2" x 6" Steel	1/2" x 6" Steel
Wing Cutting Edges (Std.)	1" x 6" Poly	1 1/2" x 6" Poly	1 1/2" x 6" Poly
Linkage Arm Clevis Pins	5/8 dia x 2 1/2"	3/4 dia x 2-3/4"	3/4 dia x 2-3/4"
Lift Cylinder Bore Diameter	2"	2.25"	2.25"
Lift Cylinder Stroke	6.5"	8.5"	8.5"
Lift Cylinder Clevis Pin	5/8 dia x 3-1/2"	3/4 dia x 3-1/2"	3/4 dia x 3-1/2"
Hydraulic Unit Motor	12 VDC	12 VDC	12 VDC
Hydraulic Pump Displacement	.054cu.in./rev	0.125 cu.in./rev	0.125 cu.in./rev
Hydraulic System Relief Pressure	500 psi	2,300 psi	2,300 psi
Pump Delivery (at 2,300 psi)	1.0 gpm	1.2 gpm	1.2 gpm
Hydraulic Reservoir Capacity	1 quart	1 quart	1 quart
Total System Fluid Capacity	1.5 quarts	1.5 quarts	1.5 quarts

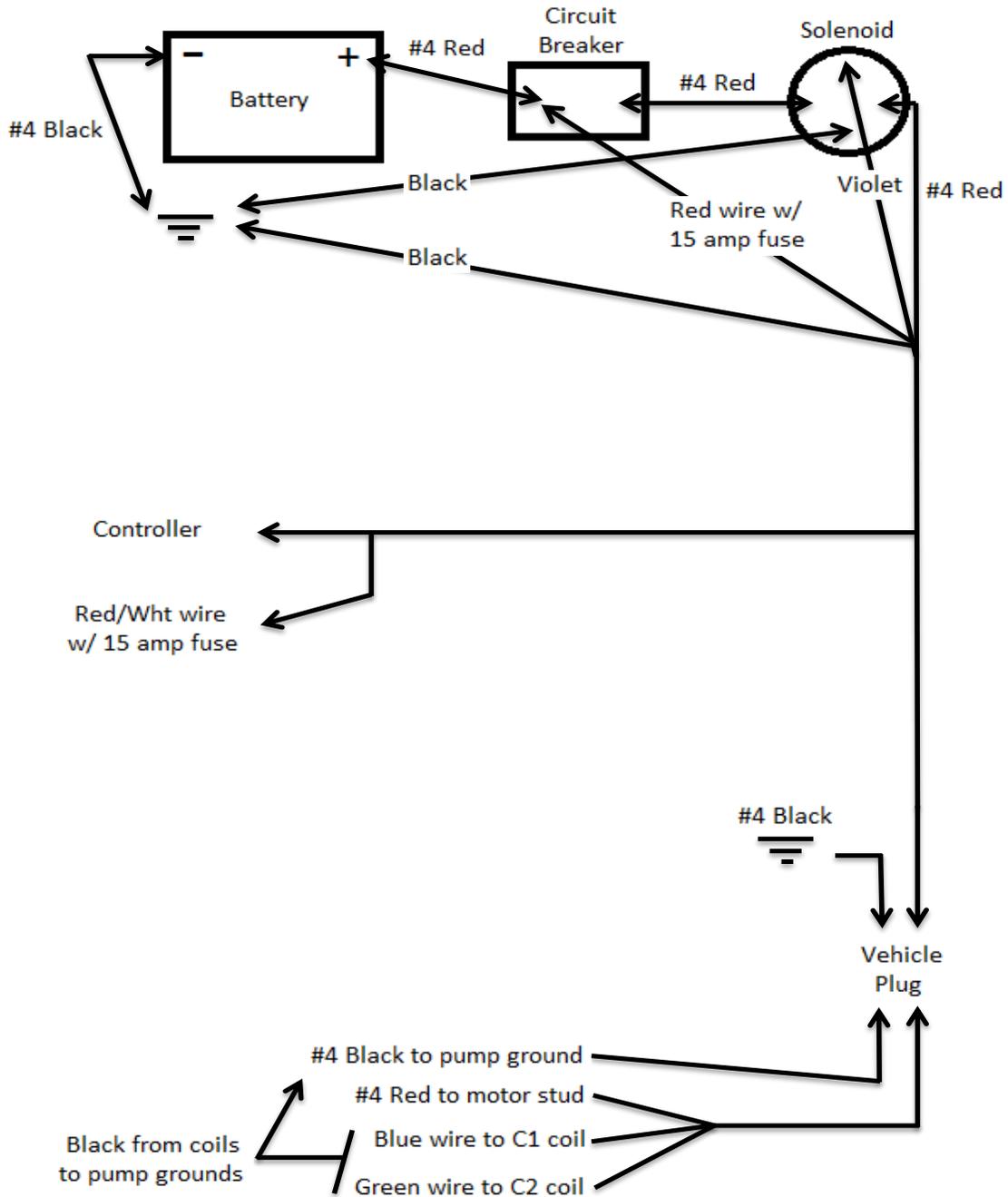
\* Estimated weight, does not include truck mount

## 17 SCHEMATICS

For your reference, the following pages contain the hydraulic plumbing and electrical wiring connection diagrams for your back blade.

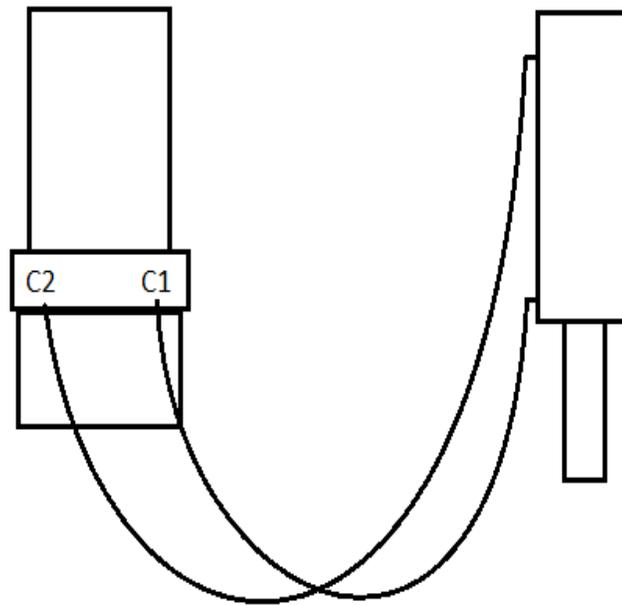


## 17.1 Electrical Power Connections





## 17.2 Plow Side Hydraulic Connections

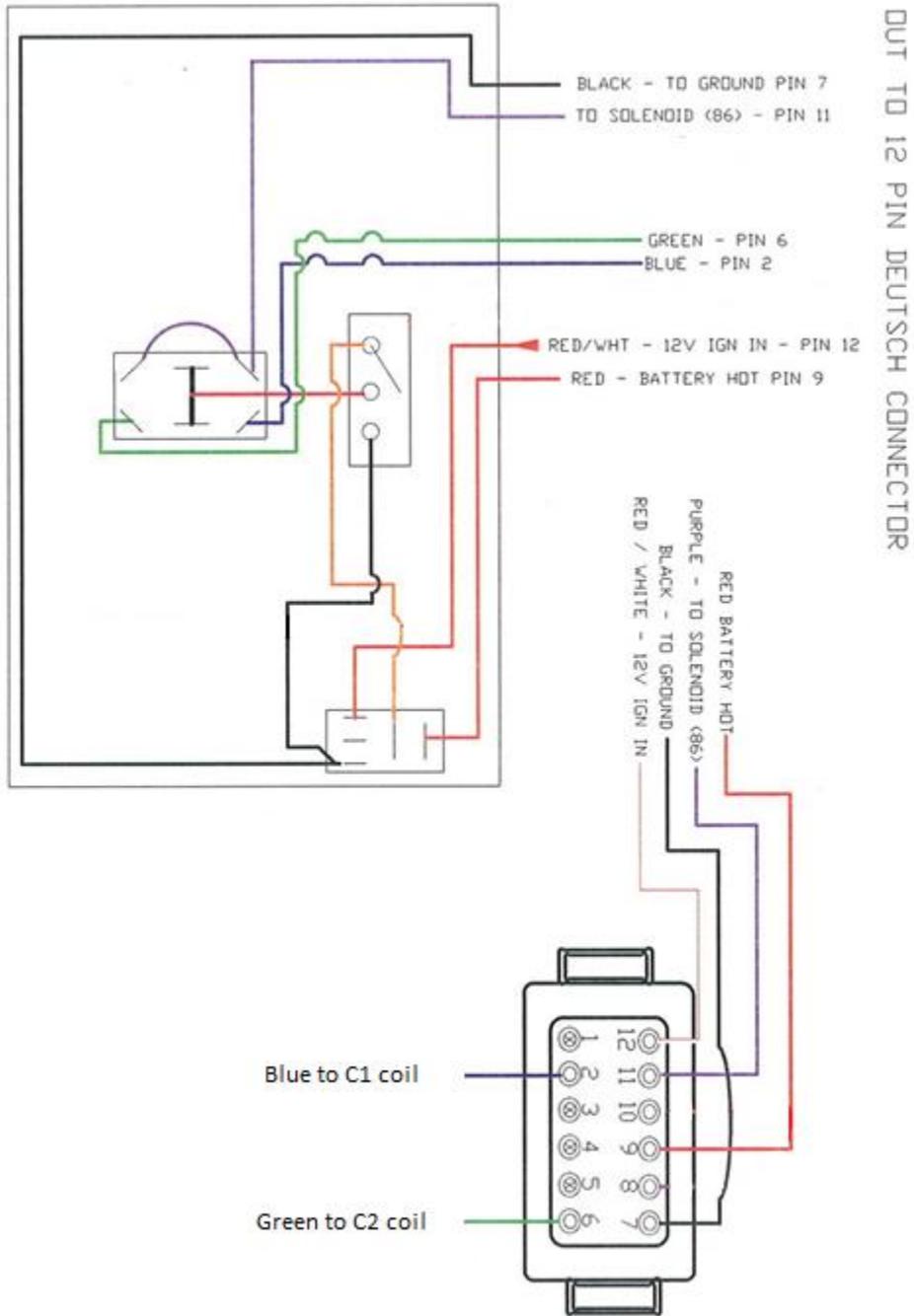


C1 Port to Live End Of Lift Cylinder

C2 Port to Dead End Of Lift Cylinder

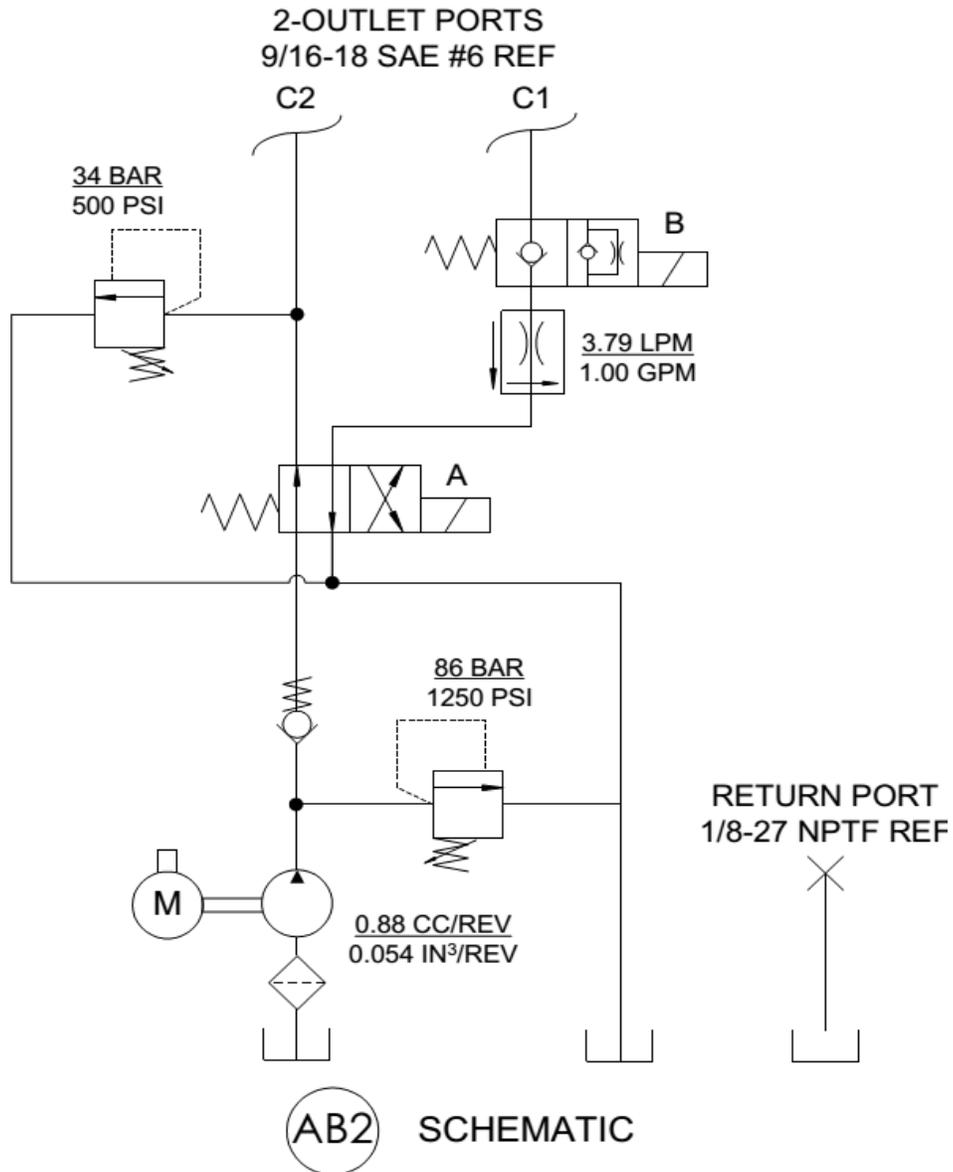


### 17.3 Controller Switch Wiring





## 17.4 Hydraulic Schematic





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