

SNO-WAY®

SNOW & ICE CONTROL EQUIPMENT

TROUBLESHOOTING GUIDE

**STRAIGHT BLADE, 29VHD & "R" SERIES
AND UTV SNOW PLOWS**

ProControl and ProControl II

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TABLE OF CONTENTS

	Page
INTRODUCTION	2
Troubleshooting - Quick Reference.....	4
SAFETY	3
TROUBLESHOOTING GUIDES	4
Troubleshooting - Straight and R Series Plows	4
Troubleshooting - 29VHD Plows	11
Troubleshooting - UTV Plows	15
Troubleshooting - ProControl	19
Troubleshooting - ProControl II	20

INTRODUCTION

This manual was written for troubleshooting a new Sno-Way® plow. Refer to the Table of Contents for listings of specific models covered.

We require that you read and understand the contents of this manual COMPLETELY, especially the chapter on SAFETY, before attempting any procedure contained in this manual.

Record the Power Pack Model Number, Power Pack Serial Number, Controller Serial Numbers, Blade Model Number, Blade Serial Number and the Pump Serial Number of the plow for quick reference if dealer assistance will be requested.

The Power Pack Serial Number is located on the A-Frame (driver's side near the front) or on the pump platform under the pump cover. The Blade Serial Number is located on one of the middle ribs of the blade. This plate contains the information that your Dealer will require to answer questions or to order replacement parts, if needed, for your unit.

Whenever service is necessary, your local dealer knows your plow best and is interested in your complete satisfaction. Return your snowplow to your local dealer for maintenance service or any other assistance you may require. If you are unable to do so, this troubleshooting guide should help you determine the problem. However, before attempting the servicing of your plow, you should possess good mechanical abilities and a total understanding of the mechanism.

PLEASE: Before calling for parts and service, be certain that:

1. You have read this guide carefully and are certain that all of the suggestions pertaining to your problem have been attempted.
2. You have the following available:

Troubleshooting Quick Reference

1. Before continuing through guide check connections on all power and ground wires and make sure the control is functioning properly.
2. After removing any valve from the valve block make sure the port is free from all metal shavings before reinstalling.
3. Any adjustments done to reliefs on the power unit over factory pressure settings WILL VOID warranty.
4. A 9V battery can be used to check if the coils are functioning properly. Place the two tabs on the coil onto the positive and negative sides of the 9V battery. If the coil is good this will magnetize the coil.
5. Functions are ground switched. Power should be present at all coils when plow power is plugged in and the control is turned on. To check a function you are looking for a solid ground coming from the control receiver.
6. To check if a ground is present, use a test light connecting the wire lead from the test light to the ground wire in question on the plow. touch the test light to the motor solenoids top post that the main battery harness is connected to. If the test light has a ground path during the plow operation it will light up. If it does not light up there is no ground path.

NAME PLATE DATA	
POWER PACK MODEL NUMBER	_____
POWER PACK SERIAL NUMBER <small>(Located on A-Frame)</small>	_____
CONTROLLER SERIAL NUMBERS:	
TRANSMITTER S.N.	_____
RECEIVER S.N.	_____
BLADE MODEL NUMBER	_____
BLADE SERIAL NUMBER <small>(Located on Blade Frame)</small>	_____
PUMP SERIAL NUMBER	_____
(FILL IN)	

We reserve the right to make changes or improve the design or construction of any part(s) without incurring the obligation to install such parts or make any changes on any unit previously delivered.

SAFETY

BEFORE ATTEMPTING ANY PROCEDURE IN THIS BOOK, READ AND UNDERSTAND ALL THE SAFETY INFORMATION CONTAINED IN THIS SECTION. IN ADDITION, ENSURE ALL INDIVIDUALS WORKING WITH YOU ARE ALSO FAMILIAR WITH THESE SAFETY PRECAUTIONS.

For your safety Warning and Information Decals have been placed on this product to remind the operator to take safety precautions. It is important that these decals are in place and are legible before operation begins. New decals can be obtained from Sno-Way or your local dealer.

REMEMBER The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of injury to operator or bystanders and/or damage to equipment.

NEVER operate plow when under the influence of alcohol, drugs or other medications that could hamper your judgement and reactions. An accident may result in serious injury or death to other persons or yourself.

ALWAYS operate vehicle in a well-ventilated area. The carbon monoxide in exhaust gas is highly toxic and can cause serious injury or death.

NEVER allow hands, hair or clothing to get near any moving parts such as fan blades, belts and pulleys. Never wear neckties or loose clothing when working on the vehicle.

NEVER wear wrist watches, rings or other jewelry when working on the vehicle or individual equipment. These things can catch on moving parts or cause an electrical short circuit that could result in personal injury.

ALWAYS wear safety goggles when working on the vehicle to protect your eyes from battery acid, gasoline, and dust or dirt from flying off of moving engine parts.

ALWAYS be aware of and avoid contact with hot surfaces such as engine, radiator, and hoses.

ALWAYS wear safety glasses with side shields when striking metal against metal! In addition, it is recommended that a softer (non-chipable) metal material be used to cushion the blow. Failure to heed could result in injury to the eye(s) or other parts of the body.

NEVER allow children or unauthorized person to operate this unit.

NEVER exceed 45 m.p.h. when snow plow is attached to vehicle. Braking distances may be increased and handling characteristics may be impaired at speeds above 45 m.p.h.

ALWAYS lock the vehicle when unattended to prevent unauthorized operation of the plow.

ALWAYS check the job site for terrain hazards, obstructions and people.

NEVER exceed 10 m.p.h. when plowing. Excessive speed may cause serious injury and damage of equipment and property if an unseen obstacle is

encountered while plowing.

ALWAYS position blade so it does not block path of headlamps beam. Do not change blade positions while traveling. An incorrect plow position blocking headlamp beam may result in an accident.

ALWAYS check surrounding area for hazardous obstacles before operating this unit.

ALWAYS inspect the unit periodically for defects. Parts that are broken, missing or plainly worn must be replaced immediately. The unit, or any part of it should not be altered without prior written approval of the manufacturer.

ALWAYS insert the cylinder lock when plow is not in use. If the cylinder lock is not installed, the plow blade could inadvertently drop and cause injury.

ALWAYS shut off the vehicle engine, place the transmission in Neutral or Park, turn the ignition switch to the "OFF" position, firmly apply the parking brake of the vehicle and turn "OFF" the plow controller before attaching or detaching the blade from the vehicle or when making adjustments to the blade.

ALWAYS inspect lift system bolts and pins whenever attaching or detaching the plow, and before traveling. Worn or damaged components could result in the plow dropping to the pavement while driving, causing an accident.

ALWAYS keep hands and feet clear of blade and A-Frame when attaching or detaching plow.

NEVER place fingers in A-frame or mount lug holes to check alignment when attaching snow plow. Sudden motion of the plow could severely injure a finger.

NEVER stand between the vehicle and blade or directly in front of blade when it is being raised, lowered or angled. Clearance between vehicle and blade decreases as blade is operated and injury or death can result from blade striking a body or dropping on hands or feet.

NEVER work on the vehicle without having a fully serviced fire extinguisher available. A 5 lb or larger CO² or dry chemical unit specified for gasoline, chemical or electrical fires, is recommended.

NEVER smoke while working on the vehicle. Gasoline and battery acid vapors are extremely flammable and explosive.

NEVER use your hands to search for hydraulic fluid leaks; escaping fluid under pressure can be invisible and can penetrate the skin and cause injury! If any fluid is injected into the skin, see a doctor at once! Injected fluid MUST be surgically removed by a doctor familiar with this type of injury or gangrene may result.

REMEMBER it is the owner's responsibility for communicating information on the safe use and proper maintenance of this machine.

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Motor will not run/ motor runs slow	Fuse Blown	Check the circuit breaker / 250A fuse at your battery as well as the 10A fuse on the pump harness. If either fuse has blown check over all electrical wiring to determine why the fuse blew and replace fuse
	Motor solenoid failed	Replace Motor solenoid.
	Motor seized	Remove and replace motor, torque motor bolts between 50 to 60 inch pounds.
	Motor brushes worn	Replace motor.
	Seal between motor and pump damaged allowing oil to enter motor housing	Remove the motor. Drain oil from the reservoir. Loosen the clamp and remove the reservoir. Remove the 4 Allen screws and remove the pump from the base block. Remove pump seal and replace. If the motor can be salvaged, clean out motor and reassemble. If the motor can not be salvaged replace motor.
Motor continues to run and will not shut off	Wires shorted out	Check all wires starting at solenoid working your way back to the vehicle.
	Solenoid shorted internally	Replace solenoid.
	Receiver shorted internally	Test the brown wire on the small post of the solenoid so see If the wire has a continuous ground without function. Replace receiver.
Blade will not lift (motor runs)	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Breather cap plugged	Remove and replace breather cap.
	Coil on valve (F)	Check if there is magnetism on coil (F). If there is not swap coil with the coil (A). If the problem moves to the angle function the coil is bad and needs to be replaced.
	Lower valve (F) stuck	Chck valve to make sure there is magnetism on the ""F"" coil. Remove the "F" valve and swap it with the "E" valve. If the blade lifts your valve was stuck closed. Remove and replace the valve.
	Raise cylinder binding	Check all linkages in the bell crank area. Replace any damaged components.
	Pick up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick up tube screen. Clean or replace if necessary.
	Worn/failed pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work remove hydraulic fluid and tank. Replace pump.
(continued)		

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Blade will not lift (motor runs) (continuation)	Pick up tube is not submerged in fluid	Remove hydraulic fluid and tank. Turn pick up tube so it is angled down to the bottom of the tank.
	Down pressure valve (E) stuck open	Check valve to make sure there is not magnetism on the "E" coil. Remove the "E" valve and swap it with the "F" valve. If the blade lifts, your valve was stuck open. Replace the valve.
	Raise Valve (C) not functioning	Check "C" coil for magnetism. Remove the "C" valve and inspect. Make sure the lower part of the valve moves free and there is no debris causing the valve to stick. If stuck and can't be freed up replace valve.
Blade lifts slowly	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Breather cap plugged	Remove and replace breather cap.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Pick up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick up tube screen. Clean or replace if necessary.
	Improper oil viscosity for outside air temperature/ Ice in hydraulic tank	Change oil with Sno-Way hydraulic fluid.
	Weak system pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work remove hydraulic fluid and tank. Replace pump.
	Low vehicle battery voltage	Check voltage at both the battery and at the solenoid during function. The battery may show 12V when the plow is not under load. If the voltage drops below 9V when operating the plow, trouble shoot power system on your vehicle.
Plow lifts but does not hold - New plow first action	Dirt in check valve	Cycle raise and lower system to flush debris.
	Dirt in lower valve (B)	Cycle raise and lower system to unstick valve.
Plow lifts but does not hold - second action	Dirt or Debris in check valve	Cycle raise and lower system to unstick valve if this does not work replace valve.
	Lower valve (B) stuck	Check valve to make sure there is not magnetism on the "B" coil. Remove the "B" valve and swap it with the "F" valve. If the blade lifts your valve was stuck open. Replace the valve.
	Seals, O-ring(s) on lower valve (B) damaged	Remove the lower valve (B) and inspect the O-rings to see if they are damaged. If damaged replace the O-ring if there is one available. If not replace the valve.
	(continued)	

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Plow lifts but does not hold - second action (continuation)	Ground available at lower coil (B) without activation	Test the control receiver to see if there is a ground signal sent to the lower coil (B) without activation. This can be done using a Sno-Way control test (99101028). If you do not have a test box remove the two wires off of the (B) coil and check to see if the blue with the white trace wire has a ground signal coming from it. The control will need to be turned on. Tap the raise function to make sure the control is not in the float or down pressure mode as this would send ground to the wire. If the ground is present the receiver (black/ yellow box on snow plow) will need to be replaced. You should also check the OHM reading on the (B) coil as well as the other coils on the valve block. If the OHM reading on the (B) coil does not read the same as the other coils replace the coil as well.
	Piston seals leaking (Internal) on raise cylinder	Raise the plow up in the air and support the blade with a hydraulic floor jack. Remove the hose off of the rod side of the lift cylinder. Slowly lower the floor jack and watch to see what direction the fluid flows from the lift cylinder. If the fluid sucks into the lift cylinder the seals are good. If the fluid flows out of the lift cylinder, fluid is leaking past the seals and the cylinder needs to be replaced.
Unit will not lower (Gravity) (Down pressure off)	Plugged breather cap	Remove and replace breather cap.
	Low or no current available at lower coil (B)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated the blue with the white trace wire the coil may be weak. Swap coil with another coil on the valve block. If the problem moves to a different function replace coil.
	Lower valve (B) sticking or stuck	Swap out the (B) valve with the (E) valve. If the plow lowers the valve is sticking and should be cleaned or replaced.
	Lower coil (B) inoperative	Check to see if the blue with the white trace wire has a ground signal. If it does and the coil is not magnetized, the coil needs to be replaced.
	Raise cylinder damaged allowing movement in one direction only	Visually inspect bell crank assembly and lift cylinder. If it is damaged remove and replace.
Unit will not apply Down Pressure (Down Pressure switch ON)	Lower valve (B) sticking or stuck	Remove the lower valve (B) and swap it out with the (E) valve. If down pressure engages, the (B) valve is sticking and will need to be cleaned or replaced.
	Inoperative down pressure, pressure switch	Remove the yellow and the brown wires from the pressure switch. Using a continuity tester check for continuity across the two prongs of the pressure switch. If the switch does not have continuity the switch has failed and need to be replaced.
	Down Pressure relief valve setting too low	The motor will be starting and stopping rapidly or running constantly. The down pressure relief valve can be adjusted. It is recommended that you take the plow to your local Sno-Way dealer to determine if the adjustment is set to the proper pressure setting. To adjust remove the top cap of the down pressure relief valve. Using an Allen wrench turn the set screw inside the valve clockwise 1/4 turn until the motor cycling stops for a minimum of 45 sec. If this can not be achieved the relief valve is damaged and needs to be replaced.
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TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Unit will not apply Down Pressure (Down Pressure switch ON) (continuation)	Valve (E) sticking or stuck closed	Check to make sure there is magnetism on coil (E). If there is remove (E) valve and swap it with valve (F). If down pressure now works the valve is sticking and needs to be cleaned or replaced.
	Valve (F) sticking or stuck open	Check to make sure there is not magnetism on coil (F). If there is remove (F) valve and swap it with valve (E). If the motor stops running and the down pressure now works the valve is sticking and needs to be cleaned or replaced.
	Broken wire/ open circuit in down pressure electrical circuit	Check wiring harness to make sure the connection had not been severed or shorted on to a different ground causing the pressure switch or float / raise (F) valve to stay open.
Blade will not angle (motor runs)	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Low or no current available at angle coil (A or D) BAD GROUND	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated from the red (A) or green (D) wire one of the coils may be weak. Swap the coil with another coil on the valve block. If the problem moves to a different function replace coil.
	Angle coil (A or D) inoperative	Check to see if the red (A) or green (D) wire has a ground signal. If it does and the coil is not magnetized the coil needs to be replaced.
	Angle cylinder binding or bent	Visually inspect cylinder. If it is damaged replace cylinder.
	Pick-up tube not submerged in fluid	Add fluid to the fill line. See maintenance section of owners manual.
	Pilot operated check valve sticking or stuck closed	Remove pilot check valve and inspect both cartridges and piston. If the valve has external springs make sure they both are not damaged and installed properly. Clean valves and re install.
	Angle valve (A or D) not operating	Swap the (A or D) valve out with the (C) raise valve and see if the angle function works. If the problem moves to the raise function replace valve.
Unit angles very slowly	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Pivot bolt too tight clamping a-frame to swing frame	Loosen pivot bolt slightly to free up swing frame movement.
	Improper oil viscosity for outside air temperature/ Ice in hydraulic tank	This will effect all functions. Replace hydraulic fluid with Sno-Way hydraulic fluid.
	Damaged cylinder	Visually inspect cylinder. If it is damaged replace cylinder.
	Cylinder packing improperly torqued or dry (For ST, MT & HT plows ONLY)	Turn the Gland nut counter clockwise about 1/4 turn. If this does not fix the issue replace cylinder.
	(continued)	

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Unit angles very slowly (continuation)	Crossover relief valve pressure setting too low	All other problems should be addressed before moving to the cross over relief valve. If the cross over relief valve is not set properly you will also notice the plow not holding angle when plowing. If this is the case replace cross over relief valve.
Unit angles in one direction	Angle coil (A or D) inoperative	Check to see if the red (A) or green (D) wire has a ground signal. If it does and the coil is not magnetized the coil needs to be replaced.
	Low or no current available at angle coil (A or D)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated from the red (A) or green (D) wire one of the coils may be weak. Swap the coil with another coil on the valve block. If the problem moves to a different function replace coil.
	Angle valve (A or D) not operating	Swap the (A or D) valve out with the (C) raise valve and see if the angle function works. If the problem moves to the raise function replace valve.
	Angle cylinder binding or bent	Visually inspect cylinder. If it is damaged replace cylinder.
	Crossover relief valve sticking or stuck	Remove cross over relief valve and inspect. Clean if possible or replace crossover relief valve.
Unit does not hold angle Note: This problem is usually noted when pushing snow.	Cross over relief valve pressure setting too low, sticking or stuck	Replace crossover relief valve.
	Pilot check valve has debris or damaged piston	Remove pilot check valve and inspect both cartridges and piston. If the valve has external springs make sure they both are not damaged and installed properly. Clean valves and re install.
Fluid leaking at power unit	Hydraulic fittings not torqued properly (too tight, too loose)	Inspect fitting tighten if too loose. If too tight inspect hose fitting for cracks. Check O-rings on fittings on valve block to see if they are damaged. Replace hoses or O-ring if they are available.
	O-rings between valve block and base are worn/ missing or not seating properly	If the oil is leaking from between the top valve block and the base, remove the screws that hold the top valve block to the base. Check the O-rings. If they are damaged replace and seat properly.
	O-rings between base and the reservoir worn or not seating properly	Drain the oil out of the reservoir. Remove the tank. Inspect the O-ring on the base block. If it is damaged or not seated properly re seat or replace the O-ring.
	Reservoir over-full	Oil will leak out of the breather cap if this is the problem. Remove hydraulic fluid down to the fill line on the reservoir.
	Pump shaft seal leaking	This can be determined if there is oil leaking from the motor housing. Remove the motor. Drain the oil out of the reservoir and remove. Remove the pump from the base. Remove the pump seal. Install new seal. Reinstall all components removed.
	Valve block cap screw loose	Tighten cap screw.
	Reservoir fasteners loose	Tighten reservoir fastener or replace if damaged.

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Wing does not hold position	Ground signal at retract coil (J or K) without activation	Test the control receiver to see if there is a ground signal sent to the wing retract coils (J or K) without activation. This can be done using a Sno-Way control test box (99101028). If you do not have a test box remove the two wires off of the (J or K) coils and check to see if the white (J) or green with the white trace (K) wire has a ground signal coming from it. The control will need to be turned on. If the ground is present the receiver (black/yellow box on snow plow) will need to be replaced. You should also check the OHM reading on the (J or K) coils as well as the other coils on the valve block. If the OHM reading on the (J or K) coil does not read the same as the other coils replace the coil as well.
	, Valve J or K sticking or stuck	Swap the J and the K valves. If the problem moves clean or replace the valve.
	Relief valve setting too low	Wing does not hold pressure under small load. Replace relief valve.
	Relief valve sticking or stuck	Remove relief valve and inspect. Clean if possible or replace.
Wing does not extend	Hydraulic fluid low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Low or no current available at wing extend coil (G or H),	Check wiring harness to make sure the connection had not been severed. If ground is present when operated from the Orange (G) or Violet (H) wire one of the coils may be weak. Swap the coil with another coil on the valve block. If the problem moves to a different function, replace coil.
	Wing extend coil (G or H) Inoperative	Check to see if the orange (G) or violet (H) wire has a ground signal. If it does and the coil is not magnetized the coil needs to be replaced.
	Wing extend valve (G or H) not operating	Swap the (G or H) valve out with one of the angle valve (A or D) and see if the wing extend function works. If the problem moves to the angle function replace valve.
Wing does not retract	Return spring not properly tensioned	Adjust spring tension.
	Low or no current available at wing retract coil (J or K)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated from the white (J) or green with black trace (K) wire one of the coils may be weak. Swap the coil with another coil on the valve block. If the problem moves to a different function replace coil.
	Wing retract coil (J or K) inoperative	Check to see if the white (J) or green with black trace (K) wire has a ground signal. If it does and the coil is not magnetized the coil needs to be replaced.
	Wing retract valve (J or K) stuck or not operating	With the plow on the ground, swap the (J or K) valve out with one of the float/ DP valve (B) and see if the wing retract function works. If the problem moves to the DP function, replace valve.

TROUBLESHOOTING GUIDE

Straight and "R" Series Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Blade wing(s) will not move	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Pickup tube not submerged in hydraulic fluid	Fluid level is low fill with Sno-Way hydraulic fluid up to fill line on reservoir.
	Wing relief valve pressure setting too low	The wing will not hold pressure when plowing. Replace relief valve.
	Wing cylinders bound or frozen	Push plow wings against a curb to try and free up the cylinders. If they do not move replace cylinders.

TROUBLESHOOTING GUIDE

29VHD Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Motor will not run	Fuse blown	Check the circuit breaker / 250A fuse at your battery as well as the 20A fuse on the pump harness. If either fuse has blown check over all electrical wiring to determine why the fuse blew and replace fuse.
	Motor solenoid failed	Replace Motor solenoid.
	Motor seized	Remove and replace motor, torque motor bolts between 50 to 60 inch pounds.
	Motor brushes worn	Remove and replace motor, torque motor bolts between 50 to 60 inch pounds.
	Seal between motor and pump damaged allowing oil to enter motor housing	Remove the motor. Drain oil from the reservoir. Loosen the clamp and remove the reservoir. Remove the 4 Allen screws and remove the pump from the base block. Remove pump seal and replace. If the motor can be salvaged, clean out motor and reassemble. If the motor can not be salvaged replace motor.
Motor continues to run and will not shut off	Wires shorted out at solenoid	Check wires and recrimp.
	Solenoid shorted internally	Replace solenoid.
	Receiver shorted internally	Test the brown wire on the small post of the solenoid so see if the wire has a continuous ground without function. Replace receiver.
Blade will not lift (motor Runs)	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Breather cap plugged	Remove and replace breather cap.
	Lower valve (B) stuck in the "lower" position	Check valve to make sure there is not magnetism on the "B" coil. Remove the "B" valve and swap it with the "F" valve. If the blade lifts your valve was stuck open. Replace the valve
	Raise cylinder binding	Check all linkages in the bell crank area. Replace any damaged components.
	Pick up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick up tube screen. Clean or replace if necessary.
	Worn/failed pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work remove hydraulic fluid and tank. Replace pump.
	Pick up tube is not submerged in fluid	Remove hydraulic fluid and tank. Turn pick up tube so it is angled down to the bottom of the tank.
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TROUBLESHOOTING GUIDE

29VHD Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Blade will not lift (motor Runs) (continuation)	Down pressure valve (E) stuck open	Check valve to make sure there is not magnetism on the "E" coil. Remove the "E" valve and swap it with the "F" valve. If the blade lifts your valve was stuck open. Replace the valve.
	Raise valve (C) not functioning	Check "C" coil for magnetism. Remove the "C" valve and inspect. Make sure the lower part of the valve moves free and there is no debris causing the valve to stick. If stuck and can't be freed up replace valve.
Blade lifts slowly	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Breather cap plugged	Remove and replace breather cap.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Pick up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick up tube screen. Clean or replace if necessary.
	Improper oil viscosity for outside air temperature/ Ice in hydraulic tank	Change oil with Sno-Way hydraulic fluid.
	Weak system pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work remove hydraulic fluid and tank. Replace pump.
	Low battery voltage	Check voltage at both the battery and at the solenoid during function. The battery may show 12V when the plow is not under load.
Plow lifts but does not hold - New plow first action	Dirt in check valve	Cycle raise and lower system to flush debris.
	Dirt in lower valve (B)	Cycle raise and lower system to unstick valve.
Plow lifts but does not hold - second action	Dirt or Debris in check valve	Cycle raise and lower system to unstick valve. If this does not work, replace valve.
	Lower valve (B) stuck	Check valve to make sure there is not magnetism on the "B" coil. Remove the "B" valve and swap it with the "F" valve. If the blade lifts your valve was stuck open. Replace the valve.
	Seals, O-ring(s) on lower valve (B) damaged	Remove the lower valve (B) and inspect the O-rings to see if they are damaged. If damaged replace the O-ring if there is one available. If not replace the valve.
	(continued)	

TROUBLESHOOTING GUIDE

29VHD Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Plow lifts but does not hold - second action (continuation)	Ground available at lower coil (B) without activation	Test the control receiver to see if there is a ground signal sent to the lower coil (B) without activation. This can be done using a Sno-Way control test (99101028). If you do not have a test box remove the two wires off of the (B) coil and check to see if the blue with the white trace wire has a ground signal coming from it. The control will need to be turned on. Tap the raise function to make sure the control is not in the float or down pressure mode as this would send the ground signal to the wire. If the ground is present the receiver (black/yellow box on snow plow) will need to be replaced. You should also check the OHM reading on the (B) coil as well as the other coils on the valve block. If the OHM reading on the (B) coil does not read the same as the other coils replace the coil as well.
	Piston seals leaking on raise cylinder	Raise the plow up in the air and support the blade with a hydraulic floor jack. Remove the hose off of the rod side of the lift cylinder. Slowly lower the floor jack and watch to see what direction the fluid flows from the lift cylinder. If the fluid sucks into the lift cylinder the seals are good. If the fluid flows out of the lift cylinder fluid is leaking past the seals and the cylinder needs to be replaced.
Unit will not lower (Down pressure off)	Plugged breather cap	Remove and replace breather cap.
	Low or no current available at lower coil (B)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated from the blue with the white trace wire the coil may be weak. Swap coil with another coil on the valve block. If the problem moves to a different function replace coil.
	Lower valve (B) sticking or stuck	Swap out the (B) valve with the (E) valve. If the plow lowers the valve is sticking and should be cleaned or replaced.
	Lower coil (B) inoperative	Check to see if the blue with the white trace wire has a ground signal. If it does and the coil is not magnetized the coil needs to be replaced.
	Raise cylinder damaged allowing movement in one direction only	Visually inspect lift cylinder. If it is damaged replace lift cylinder.
Driver side blade wing moves in one direction only	Low or no current available at extend coils (A, D, K)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated at all wires. Swap the coil with another coil on the valve block not (A, D, K). If the problem moves to a different function, replace coil.
	Low or no current available at retract coil (D)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated at all wires. Swap the coil with another coil on the valve block not (A, D, K). If the problem moves to a different function, replace coil.
	Valve (L) sticking or stuck	Swap out the (L) valve with the (K) valve. If the wing problem moves the (L) valve is sticking and should be cleaned or replaced.
	Valve (D) sticking or stuck	Remove the (D) valve and swap it out with the (A) valve. If the wing now extends and retracts the valve needs to be cleaned or replaced.
	(continued)	

TROUBLESHOOTING GUIDE

29VHD Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Driver side blade wing moves in one direction only (continuation)	Extend and retract hoses are routed incorrectly/ reversed	Due to the regen circuit the hoses being switched will allow the wing to extend in both the extend and the retract function. The hoses must be routed correctly to ensure proper function. See owners manual for proper port routing.
	Pilot check valve has debris or damaged piston, wing will not retract	Remove pilot check valve and inspect both cartridges and piston. If the valve has external springs make sure they both are not damaged and installed properly. Clean valves and reinstall.
Passenger side blade wing moves in one direction only	Low or no current available at extend coils (G, H, L)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated at all wires. Swap the coil with another coil on the valve block not (G, H, L). If the problem moves to a different function, replace coil.
	Low or no current available at retract coil (H),	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated at all wires. Swap the coil with another coil on the valve block not (G, H, L). If the problem moves to a different function, replace coil.
	Valve (H) sticking or stuck	Remove (H) valve and swap out with the (G) valve. If the wing now extends and retracts, the valve needs to be cleaned or replaced.
	Extend and retract hoses are routed incorrectly/ reversed	Due to the regen circuit the hoses being switched will allow the wing to extend in both the extend and the retract function. The hoses must be routed correctly to ensure proper function. See owners manual for proper port routing.
Blade wing(s) will not move	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Pickup tube not submerged in hydraulic fluid	Fluid level is low. Fill with Sno-Way hydraulic fluid up to fill line on reservoir.
	Crossover relief valve pressure setting too low	The wing will not hold pressure when plowing. Replace relief valve
	Wing cylinders bound or frozen	Push plow wings against a curb to try and free up the cylinders. If they do not move replace cylinders.
Blade wing(s) will not hold	Wing relief valve pressure setting too low	Swap out wing relief valves on valve block. If the problem moves to the other wing, remove and replace relief valve.
	Cross over relief valve pressure setting too low, sticking or stuck	Swap wing cross over relief valves on valve block. If the problem moves to the other wing, remove and replace cross over relief valve.
Driver side wing will not hold pressure	Crossover relief valve pressure setting too low, sticking or stuck	Replace crossover relief valve.
	Wing relief valve pressure setting too low	The wing will not hold pressure when plowing. Replace relief valve.
	Pilot operated check valve sticking or stuck closed	Remove pilot check valve and inspect both cartridges and piston. If the valve has external springs make sure they both are not damaged and installed properly. Clean valves and reinstall.

TROUBLESHOOTING GUIDE

UTV Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Motor will not run/ motor runs slow	Fuse Blown	Check the 10A fuse on the pump harness. If the fuse has blown check over all electrical wiring to determine why the fuse blew and replace fuse.
	Motor solenoid failed	Replace Motor solenoid.
	Motor seized	Remove and replace motor, torque motor bolts between 50 to 60 inch pounds.
	Motor brushes worn	Replace motor.
	Seal between motor and pump damaged allowing oil to enter motor housing	Remove the motor. Drain oil from the reservoir. Loosen the clamp and remove the reservoir. Remove the 4 Allen screws and remove the pump from the base block. Remove pump seal and replace. If the motor can be salvaged, clean out motor and reassemble. If the motor can not be salvaged replace motor.
Motor continues to run and will not shut off	Wires shorted out	Check all wires starting at solenoid working your way back to the vehicle.
	Solenoid shorted internally	Replace solenoid.
	Receiver shorted internally	Test the brown wire on the small post of the solenoid so see If the wire has a continuous ground without function. Replace receiver.
Blade will not lift (motor Runs)	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Breather cap plugged	Remove and replace breather cap.
	Coil on valve (A)	Check if there is magnetism on coil (A). If there is not, swap coil with the coil (B). If the problem moves to the Float function, the coil is bad and needs to be replaced.
	Raise valve (A) stuck	Remove and inspect (A) valve. If the valve is stuck closed, replace the valve.
	Raise cylinder binding	Inspect the cylinder, a-frame & lift bar. Replace any damaged components.
	Pick-up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick-up tube screen. Clean or replace if necessary.
	Worn/failed pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work, remove hydraulic fluid and tank. Replace pump.
	Pick-up tube is not submerged in fluid	Remove hydraulic fluid and tank. Turn pick-up tube so it is angled down to the bottom of the tank.

TROUBLESHOOTING GUIDE

UTV Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Blade angles when raise function is activated	Ground available at coil (C) during raise function	Test the control receiver to see if there is a ground signal sent to coil (C) during raise function. Remove the green wire from the coil (C). If problem goes away, the receiver (black/yellow box on snow plow) will need to be replaced. To confirm that the receiver needs to be replaced, use a Sno-Way control test box (99101028).
	Valve (C) not functioning correctly	Remove the "C" valve and inspect. Make sure the lower part of the valve moves free and there is no debris causing the valve to stick. If stuck and can't be freed up, replace valve.
Blade lifts slowly	Hydraulic fluid level low	Fill hydraulic fluid up to the fill line on the reservoir using Sno-Way hydraulic fluid.
	Breather cap plugged	Remove and replace breather cap.
	Improper main system pressure relief valve setting	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw to the proper main system pressure for the series of plow. This can be found in the back of your owners manual or online at SNOWAY.com.
	Pick up tube filter plugged	Remove hydraulic fluid from the tank. Remove the tank and observe the pick up tube screen. Clean or replace if necessary.
	Improper oil viscosity for outside air temperature/ Ice in hydraulic tank	Change oil with Sno-Way hydraulic fluid.
	Weak system pump	Using a 3000 psi gauge plumbed into the gauge port (GP), run plow over relief. Adjust main pressure relief screw. If the pressure will not raise and the angle functions work, remove hydraulic fluid and tank. Replace pump.
	Low vehicle battery voltage	Check voltage at both the battery and at the solenoid during function. The battery may show 12V when the plow is not under load. If the voltage drops below 9V when operating the plow, trouble shoot power system on your vehicle.
Plow lifts but does not hold - New plow first action	Dirt in lower valve (B)	Cycle raise and lower system to unstick valve.
Plow lifts but does not hold - second action	Lower valve (B) stuck	Check valve to make sure there is not magnetism on the "B" coil. Remove the "B" valve and swap it with the "F" valve. If the blade lifts your valve was stuck open. Replace the valve.
	Seals, O-ring(s) on lower valve (B) damaged	Remove the lower valve (B) and inspect the O-rings to see if they are damaged. If damaged replace the O-ring if there is one available. If not replace the valve.
	(continued)	

TROUBLESHOOTING GUIDE

UTV Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Plow lifts but does not hold - second action (continuation)	Ground available at lower coil (B) without activation	Test the control receiver to see if there is a ground signal sent to the lower coil (B) without activation. This can be done using a Sno-Way control test box (99101028). If you do not have a test box, remove the two wires off of the (B) coil and check to see if the blue with the white trace wire has a ground signal coming from it. The control will need to be turned on. Tap the raise function to make sure the control is not in the float or down pressure mode as this would send the ground signal to the wire. If the ground is present the receiver (black/yellow box on snow plow) will need to be replaced. You should also check the OHM reading on the (B) coil as well as the other coils on the valve block. If the OHM reading on the (B) coil does not read the same as the other coils replace the coil as well.
	Piston seals leaking on raise cylinder	Raise the plow up in the air and support the blade with a hydraulic floor jack. Remove the hose off of the base side of the lift cylinder. Slowly lower the floor jack and watch to see what direction the fluid flows from the lift cylinder. If the fluid sucks into the lift cylinder the seals are good. If the fluid flows out of the lift cylinder fluid is leaking past the seals and the cylinder needs to be replaced.
Unit will not lower	Plugged breather cap	Remove and replace breather cap.
	Low or no current available at lower coil (B)	Check wiring harness to make sure the connection had not been severed. If a ground is present when operated from the blue with the white trace wire the coil may be weak. Swap coil with another coil on the valve block. If the problem moves to a different function, replace coil.
	Lower valve (B) sticking or stuck	Remove and inspect valve (B). If it does not actuate, replace the valve.
	Lower coil (B) inoperative	Check to see if the blue with the white trace wire has a ground signal. If it does and the coil is not magnetized, the coil needs to be replaced.
	Raise cylinder damaged allowing movement in one direction only	Visually inspect lift cylinder. If it is damaged replace lift cylinder.
Blade will not angle either direction (motor runs)	Hydraulic fluid level low	Fill hydraulic fluid up to the line on the reservoir using Sno-Way hydraulic fluid.
	Angle cylinder binding or bent	Visually inspect cylinder, If it is damaged, replace cylinder.
	Pick-up tube not submerged in fluid	Add fluid to the fill line. See Maintenance section of owners manual.
	Crossover relief valve sticking or stuck	Remove crossover relief valve and inspect. Clean if possible or replace crossover relief valve.
Unit angles very slowly	Hydraulic fluid level low	Fill hydraulic fluid up to the line on the reservoir using Sno-Way hydraulic fluid.
	Pivot bolt too tight clamping a-frame to blade frame	Loosen pivot bolt slightly to free up blade frame movement
	(continued)	

TROUBLESHOOTING GUIDE

UTV Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Unit angles very slowly (continuation)	Improper oil viscosity for outside air temperature/ Ice in hydraulic tank	This will effect all functions. Replace hydraulic fluid with Sno-Way hydraulic fluid.
	Damaged cylinder	Visually inspect cylinder. If it is damaged, replace cylinder.
	Crossover relief valve pressure setting too low	All other problems should be addressed before moving to the cross over relief valve. If the cross over relief valve is not set properly, you will also notice the plow not holding angle when plowing. If this is the case, replace crossover relief valve.
Unit does not hold angle. Note: This problem is usually noted when pushing snow.	Crossover relief valve pressure setting too low, sticking or stuck	Replace crossover relief valve.
	Pilot check valve has debris or damaged piston	Remove pilot check valve and inspect cartridges. If the valve has external springs make sure they both are not damaged and installed properly. Clean valves and reinstall.
Fluid leaking at power unit	Hydraulic fittings not torqued properly (too tight, too loose)	Inspect fitting and tighten if too loose. If too tight, inspect hose fitting for cracks. Check O-rings on fittings on valve block to see if they are damaged. Replace hoses or O-ring if they are available.
	O-rings between base and the reservoir worn or not seating properly	Drain the oil out of the reservoir. Remove the tank. Inspect the O-ring on the base block. If it is damaged or not seated properly, reseal or replace the O-ring.
	Reservoir over-full	Oil will leak out of the breather cap if this is the problem. Remove hydraulic fluid down to the fill line on the reservoir.
	Pump shaft seal leaking	This can be determined if there is oil leaking from the motor housing. Remove the motor. Drain the oil out of the reservoir and remove. Remove the pump from the base. Remove the pump seal. Install new seal. Reinstall all components removed.
	Reservoir fasteners loose	Tighten reservoir fastener or replace if damaged.
Blade angles right during left function	Coil (A) inoperative	Check for magnetism. If there is no magnetism, switch coil (A) with coil (B). If left angle works, replace coil.
	Valve (A) stuck closed	Remove and inspect valve (A). If it can not be cleaned and actuated, replace valve.
Blade raise during left function	Coil (C) inoperative	Check for magnetism. If there is no magnetism, switch coil (C) with coil (B). If left angle works, replace coil.
	Valve (C) stuck closed	Remove and inspect valve (C). If it can not be cleaned and actuated, replace valve.
Nothing happens during left function (motor runs)	Pilot Check Cartridge failure	Replace pilot check cartridge.
Blade angles left during right function	Valve (A) stuck open	Remove and inspect valve (A). If it can not be cleaned and actuated, replace valve.

TROUBLESHOOTING GUIDE

UTV Snow Plows		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Nothing happens during right function (motor runs)	Coil (C) inoperative	Check for magnetism. If there is no magnetism, switch coil (C) with coil (B). If left angle works, replace coil.
	Valve (C) stuck closed	Remove and inspect valve (C). If it can not be cleaned and actuated, replace valve.

ProControl			
PROBLEM	PROBABLE CAUSE		CORRECTIVE ACTION
LCD screen displays a fault	Audible Alert	LCD Screen Display	Description
	Short Beep (1/4 second)	Recharge Battery	ProControl battery failure, Replace battery.
		No screen display and back lights flashing	ProControl battery failure, Replace battery.
	Long Beep (1/2 second)	Battery low	ProControl battery low charge controller.
		Relay fault	Positive 12 volt supply not sensed at motor start solenoid (BROWN wire).
		Lost signal	Transmitter/Receiver communication has failed. Radio communication lost to plow due to low voltage delivered to receiver.
		No receiver	Radio communication lost to plow. If wireless, the handheld transmitter needs to be paired to the receiver. If wired, communication wires from the handheld to receiver have failed. Inspect wires and repair if necessary.
	No Tone	(--:--:--)	Real time clock failure, Replace control.
		(--:--:--)	Calendar failure, Replace control.
	LED light on receiver is RED	Failure to receiver board	
No LED light on receiver	Failure to receiver board		Replace receiver.

TROUBLESHOOTING GUIDE

ProControl II		
Transmitter		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Light Indication	Description	
Back light ON	Transmitter is turned ON	Turn transmitter ON.
Back light flashing	Control error	Check wiring. Unplug and reconnect receiver. If still flashing, contact dealer as control may be faulty.
DP light flashes 4 times	Communication established with plow receiver	Control ready to operate.
DP light flashes alternately with back light 4 times	Communication lost with plow receiver	Control will try to reestablish communication.
Plow Receiver		
PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Light Indication	Description	
RED flashing LED	Receiver has power and no communication with transmitter	Transmitter is turned OFF. Turn ON transmitter to operate plow.
GREEN flashing LED	Receiver has power and communication with transmitter	Control is ready to operate plow.
LED flashes Green 1 time and then flashes RED on power up	Receiver configured for Straight Plow	Light indication.
LED flashes Green 2 times and then flashes RED on power up	Receiver configured for Wing Plow	Light indication.
LED flashes Green 3 times and then flashes RED on power up	Receiver configured for V-Plow	Light indication.

NOTES

NOTES

SNO-WAY® INTERNATIONAL, INC.

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SNOW & ICE CONTROL EQUIPMENT

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