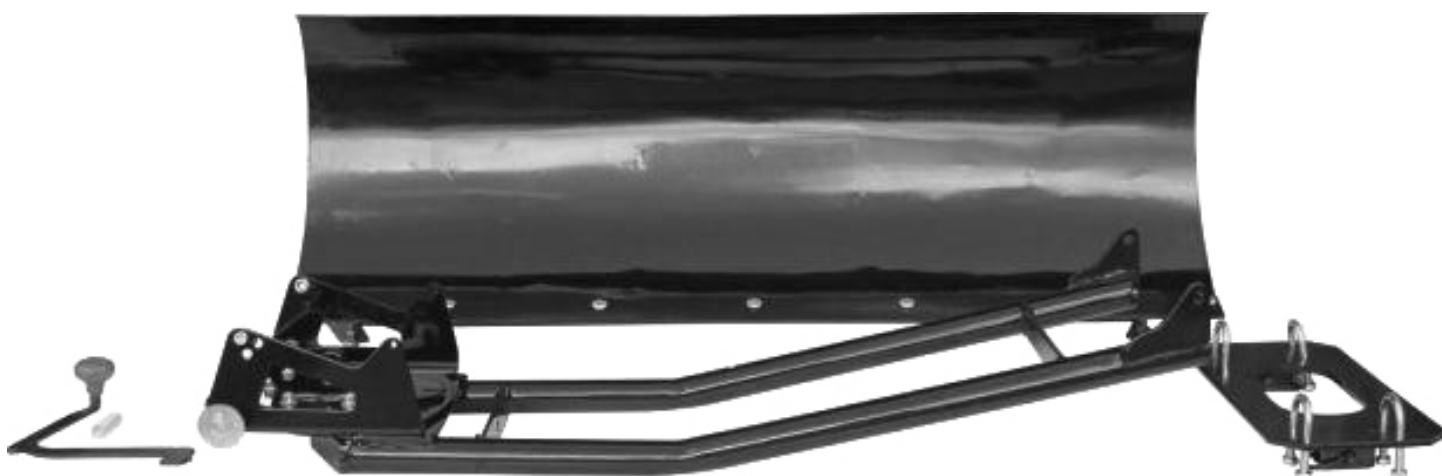


Multi-National

P A R T S S U P P L Y

ASSEMBLY/OPERATOR'S MANUAL AND USER'S GUIDE



UNIVERSAL

4ft / 5ft / 6ft - 1.2m / 1.5m / 1.8m

ATV SNOW PLOW

AND MOUNTING SYSTEM

Part Numbers: PLW1000, PLW1010 and PLW1020

Read the Multi-National Parts Supply Operator's manual
before installing, servicing or operating your Snow Plow.

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CUSTOMER MUST RECEIVE A COPY OF THIS OWNERS MANUAL AT TIME OF SALE.

SAVE THESE INSTRUCTIONS!

Important safety instructions are included in this manual.

Need assistance or have any questions?

We are happy to help!

Visit our website at

www.multinationalparts.com

for more information

-OR-

Call us at

519-603-4836

Product and Parts Ordering: Mon-Fri, 8:30AM-5PM (EST)

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Introduction

Thank you and congratulations on your purchase of a Multi-National Part Supply ATV Snow Plow and mounting system. When it comes to high quality at the lowest prices – Multi-National Parts Supply products reign supreme.

With proper care, knowledge and safe use, this product should serve you with satisfaction for years to come.

We strongly urge you to spend quality time with the Operator's Manual. It includes details on product components, optimal installation and safe operation.

Safety

WARNING

Serious injury or death can result if you do not follow the proper safety protocols, instructions and procedures outlined in this manual.

WARNING

- Read all labels carefully. Read this manual carefully. Follow the installation, service and operating procedures as listed.
- Follow all operator safety instructions and age restrictions found in your ATV/UTV Owner's Manual.
- Never use ATV Snow Plow and Mounting System for any purpose other than plowing snow.
- Never operate your Snow Plow and Mounting System without proper instruction.
- Never operate your vehicle when the Snow Plow or Mounting System is not properly attached or the pins are not fully engaged.
- Never exceed 5mph (8km/h) when plowing.
- Never exceed 5mph (8km/h) when transporting plow.
- Never lower blade when vehicle is in motion.
- Never change blade position when operating the winch or in motion.
- Never stand on, ride on or lift persons on the Snow Plow or Mounting System.
- Never operate on steep inclines or unsafe terrain.
- Never insert body parts near or between the Snow Plow, Mounting System and vehicle during operation or service.

WARNING

- Never use Snow Plow and Mounting System unless the vehicle ballast and tire pressure standards are met.
- Never exceed GVWR (Gross Vehicle Weight Rating).
- Never position Snow Plow as to block vision when transporting.
- Never operate your vehicle and Snow Plow without wearing a helmet and all applicable protective equipment.
- Never operate your vehicle and Snow Plow without both hands on the handlebars.
- Never service your Snow Plow without removing the ignition key and unplugging your Plow where applicable.
- Remember the installation of Snow Plow and/or Mounting System may affect your vehicle warranty.

Operating Tips

Learn the area you are plowing. Make note of changes in terrain, curbs, pipes, watermain valves, manholes, etc. Failure to properly consider these variables can result in damage to your vehicle, plow or property.

Do not let excessive snowfall accumulate and be mindful of ice piles. It is best to plow during a storm and before freezing to prevent over-straining your vehicle, plow or mounting components.

Do not ram blade into snow piles. Engage slowly, gradually and mindfully.

Drive slowly over rough terrain as jarring movement could cause damage to your winch or Snow Plow.

When storing and parking your vehicle always lower the blade as this will remove the risk of a falling plow and reduce the load on the winch and suspension system.

It is possible, albeit rare, that the position of the Snow Plow blade can limit airflow to your radiator. Be mindful of airflow and operating temperature and adjust plow slightly up or down if this occurs.

Perform regular inspections on your plow, mounting components and hardware before use to ensure safe operation and maximum longevity of your Snow Plow, Mounting System and winch.

Winch

General Installation and Usage

We recommend using a Multi-National Parts Supply Electric Winch to operate your Snow Plow. Failure to use a proper winch could result in damage to your vehicle or personal injury. Never use an underpowered winch. Never use a winch or winch cable that is showing signs of decay.

Winches are sold separately. In this manual we have included basic information on winch installation, use, maintenance and troubleshooting for your convenience and safety.

Battery and Wiring

Be sure you are using adequate battery and wiring for this application. We recommend a minimum 12V battery in good condition at 14Ah or equivalent with a wire gauge not less than 8mm.

Basic Installation & Mounting Requirement

1. Select a mounting site, either on an adequately robust bumper or directly on the frame of your vehicle. Be sure the location you select can withstand significant force. You must account for an additional safety factor as you should never stress your vehicle or components to their maximum capacity.
2. Align the winch with your desired installation location and mark for drilling 4 holes on the base of the winch. Drill these holes at a correct diameter for the winch you are using. Common bolt size for a standard size winch is M10 x 1.25 however some winches may vary. Be sure to double check your specific model before drilling.
3. Always use hardened steel bolts to mount your winch. Remember – overbuilding keeps you safe.

Basic Winch Use

1. Some winches may operate differently although they all follow a similar convention. To pull out your cable, depending on your winch type either turn the gear handle (typically clockwise) or pull the release knob to disengage the lock and allow for free spin. Pull out the cable length you require. Always leave a minimum of 5 turns of cable on the winch spool to prevent the cable from pulling out entirely.
2. Turn the shifting gear handle (typically counter clockwise) to the indicated mark or push the release knob back in. You will commonly hear a clicking/knocking sound when the gear is re-engaged. Pull on the cable to be sure it has locked. If you didn't hear the click, turn the handle or drum slowly until you hear the click.

Winch

Basic Operation and Safety Tips

⚠ CAUTION

- Never use your winch on a low battery and never use your winch until your battery is depleted.
- It is recommended to leave your machine running during winch use in order to provide continual recharge for your battery.
- Keep hands, clothing, hair and jewelry clear of the winch assembly during use, including the drum and cable. It is recommended to keep a minimum of 30cm / 1ft away from all components to prevent accidents.
- Cables can be replaced and it's not expensive! If your cable becomes worn, frayed, kinked or damaged in any way replace the cable before use.
- Never touch the shifting gear handle or release knob to engage/disengage the winch during use.
- As you reel-in the winch the diameter of the spool increases. This has an effect of gradually accelerating the speed at which your line returns to the vehicle. As your cable hook approaches the cable guide on your winch it will be moving relatively fast. It is recommended that you do not hold your retract button at this stage, instead, press the button using intermittent steps to retract it to its final resting position.
- Do not operate your winch for more than 1.5 minutes continually as your battery can become overloaded and the winch motor can become hot.
- Do not operate the power switch when the drum can no longer rotate as it can destroy the motor.
- A standard ATV or vehicle winch IS NOT rated for use as a hoist.

⚠ CAUTION

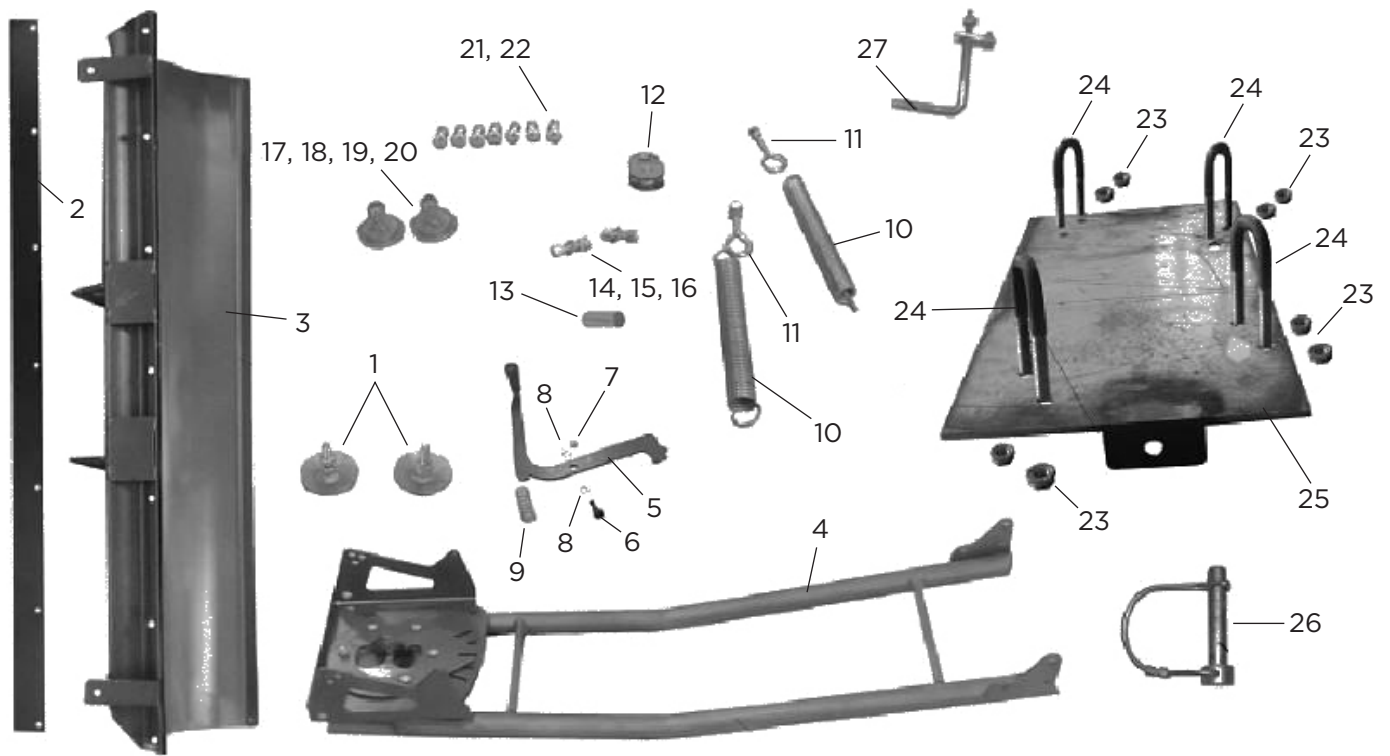
- Regularly clean your winch cable and drum, and reapply cable lubricant at this time.
- Do not use a winch in applications where the slope is more than 40°, right-angle obstacle height should be less than 6cm (2.4in) of the vehicle wheel radius.

Winch

Troubleshooting Your Winch

Problem	Possible Cause	Corrective Action
Motor does not operate or runs only in one direction.	<ol style="list-style-type: none"> 1. Battery cable connections are not solid. 2. Switch assembly is not properly connected. 3. Defective switch assembly. 4. Defective motor. 5. Water has entered the motor. 6. At extreme temperatures the gear fluid can solidify and the gear can lock. 	<ol style="list-style-type: none"> 1. Inspect all cable connections, tighten nuts. 2. Be sure the switch assembly has been fully inserted into the connector. 3. Replace switch assembly. 4. Check for voltage at armature with switch engaged. If voltage is registered, replace motor. 5. Allow to drain until dry. 6. Heat the winch motor to a temperature above -25°C (-13°F). Running the winch without a load for 1 minute will warm the motor. (Warning - Run the winch cable out and then back in, never continue to retract your winch when the winch is already fully retracted).
The motor operates but the drum does not turn.	<ol style="list-style-type: none"> 1. Clutch is not engaged. 	<ol style="list-style-type: none"> 1. Adjust the clutch handle to the correct position. 2. Be sure to adjust the shifting gear handle or drum slowly to ensure it engages properly in its slot.
Motor operates but with insufficient power or line speed.	<ol style="list-style-type: none"> 1. Winch operating time is too long. 2. Battery current or voltage is low. 3. Battery cable connections are loose or corroded. 4. Defective motor. 	<ol style="list-style-type: none"> 1. Let your winch cool down before continuing use. It is recommended not to operate your winch for more than 1 minute continuously. 2. Charge your battery completely and frequently. Leave your machine running during operation of winch. 3. Tighten and clean connections. Replace if needed. 4. Repair or replace motor.
Winch cable is not reeling smoothly and easily.	<ol style="list-style-type: none"> 1. Cable was not spooled well during reeling. 2. Debris caught in the cables or cable guide (fairlead). 3. Snow or ice buildup on the cable and/or guide. 	<ol style="list-style-type: none"> 1. Be sure your cable is spooling systematically and evenly. Unsmooth or poor spooling can be a sign of worn cable. Always be sure to monitor your winch is spooling correctly with each use and that both your cable and cable guides are in good condition. 2. Cables can sometimes reel in debris which can get caught in the cable and/or cable guide. Be sure to keep all parts well lubricated and to regularly inspect for debris. 3. During the winter, snow and/or ice can build up on the cables and guides. Be sure to check regularly, keep clean and well lubricated.
The cable does not pull out.	<ol style="list-style-type: none"> 1. Shifting gear handle is not in free spool "out" position. 	<ol style="list-style-type: none"> 1. Set the shifting gear handle to the assigned free spool "out" position. If it is already in free spool then it is possible it has not engaged correctly; return the shifting gear handle to locked position and then slowly set it back to free spool. If problem persists, have inspected and repaired by qualified technician.

Blade and Mount System Part List



#	Description	Quantity	Notes
1	Blade Guide	2	Contains: 4xnut (GB/T 6170-2000)
2	Wear Blade	1	
3	Snow Plow Blade	1	
4	Arm Tube Assembly	1	
5	Pivot Handle / Lever	1	Contains: Rubber sheath
6	Pivot Handle / Lever Step Bolt	1	
7	Nut (M8)	2	(GB/T 6187.1-2000)
8	Washer (10)	1	(GB/T 97.1-1985)
9	Pivot Handle / Lever Return Spring	1	
10	Plow Spring	2	
11	Adjusting Eyebolt	2	Contains: Adjusting nut and washer
12	Roller Assembly	1	Contains: Pin shaft and cotter pin
13	Hook Protective Cover	1	
14	Bolt (M10x25)	2	(GB/T 70.1-2000)
15	Washer (10)	2	(GB/T 97.1-1985)
16	Nut (M10)	2	(GB/T 6187.1-2000)
17	Primary Bushing (Ø13xØ50x5.5)	2	
18	Secondary Bushing (Ø13xØ38x5.5)	2	
19	Bolt (M12x1.5x38)	2	(GB/T 5783-2000)
20	Nut (M10)	2	(GB/T 6187.2-2000)
21	Bolt (M10x25)	7 / 8 / 10	For 4ft/5ft/6ft (1.2m/1.5m/1.8m) (GB/T 794-93)
22	Nut (M10)	7 / 8 / 10	For 4ft/5ft/6ft (1.2m/1.5m/1.8m) (GB/T 6187.1-2000)
23	Nut (M8)	8	(GB/T 6187.2-2000)
24	U-Bolt	4	
25	Mounting Plate	1	
26	Safety Bolt	2	Contains: Pin and releasable hook
27	Limiter Brackets	2	

Snow Plow Assembly Procedure

Your Snow Plow has been chiefly pre-fabricated to provide you maximum quality and save you effort during installation. Four areas remain for your completion:

- A. Assembling the Snow Blade.
- B. Attaching the Snow Blade to the Arm Tube Assembly.
- C. Installing the Mounting Plate on your Vehicle.
- D. Attaching the Completed Snow Blade and Arm Assembly to the Mounting Plate.

NOTE

Install all hardware loose at first. Once you have installed all hardware correctly, tighten fully.

NOTE

We offer this plow with 3 different blade sizes – 4ft (1.2m), 5ft (1.5m) and 6ft (1.8m). Assembly procedure is the same across all models unless otherwise stated. The pictures and descriptions outlined in this manual are of the 4ft (1.2m) variation.

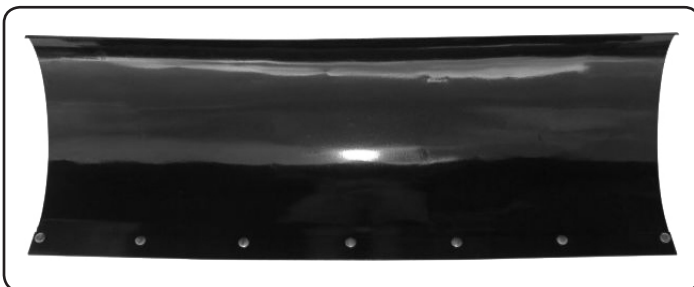
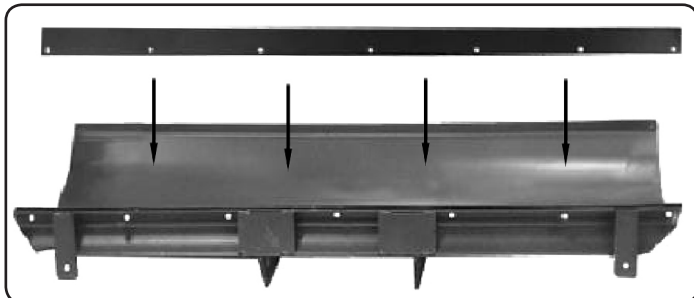


Snow Plow Assembly Procedure

A) Assembling the Snow Blade

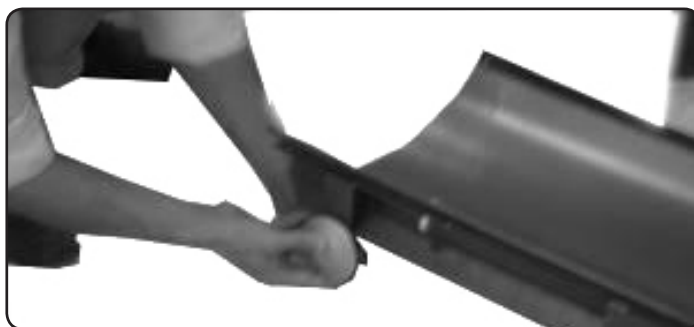
Step 1: Attaching the Wear Blade to the Snow Plow

Both the wear blade and the plow have a series of pre-drilled holes (the number of holes depends on the plow size purchased - 7 holes for 4ft/1.2m, 8 holes for 5ft/1.5m and 10 holes for 6ft/1.8m).



Accurately line up the Wear Blade holes to those of the Snow Plow Blade. Set it firmly and insert the 7/8/10 bolts (M1025, GB/T 794-93) and 7/8/10 nuts (M10, GB/T 6187.1-2000). Tighten.

Step 2: Attaching the Blade Guiding Plates to the Plow Blade.



Insert the blade guides facing downwards through the feet at the base of the Plow Blade. Adjust the height of the guides to be level with

the plow blade. Be sure left and right guides are at the same level. Tighten the upper and lower M12 (GB/T 6170-2000) nuts.



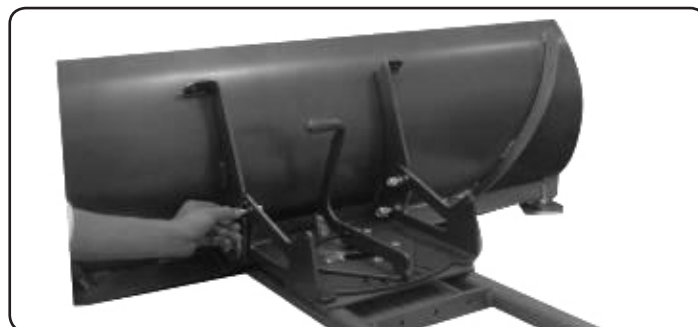
B) Attaching the Snow Blade to the Arm Tube Assembly

Step 1: Attaching the Plow Blade to the Rotating Plate



Secure each in place with a M12x1.5x38 (GB/T 5783-2000) bolt and a M12x1.5 (GB/T 6187.2-2000) nut. Tighten. Test the Plow Blade to ensure it can rotate freely at this stage.

Step 2: Centering the Rotating Plate

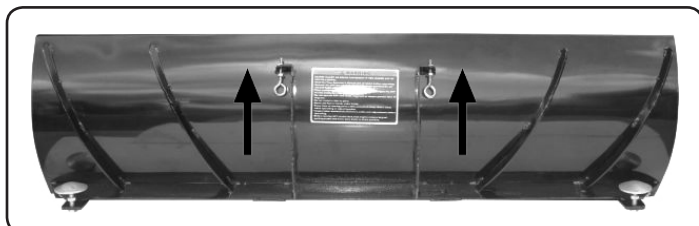


Set the Plow Blade on to the rotating plate module of the Arm Assembly, lining up the brackets. Secure each in place with a M12x1.5x38 (GB/T 5783-2000) bolt and a M12x1.5 (GB/T 6187.2-2000) nut. Tighten. Test the Plow Blade to ensure it can rotate freely.

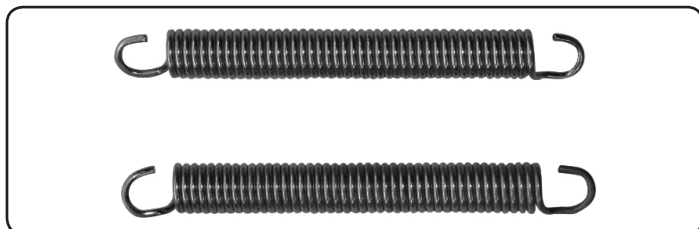
Snow Plow Assembly Procedure

Step 3: Connecting the Springs

Insert the adjusting eyebolts through the horizontal holes at the top of the plow mounting frame. Secure them loosely with the attached M8 (GB/T 6170-2000) nut and washer.



Connect the Plow Springs through the holes at the rear of the rotating plate.



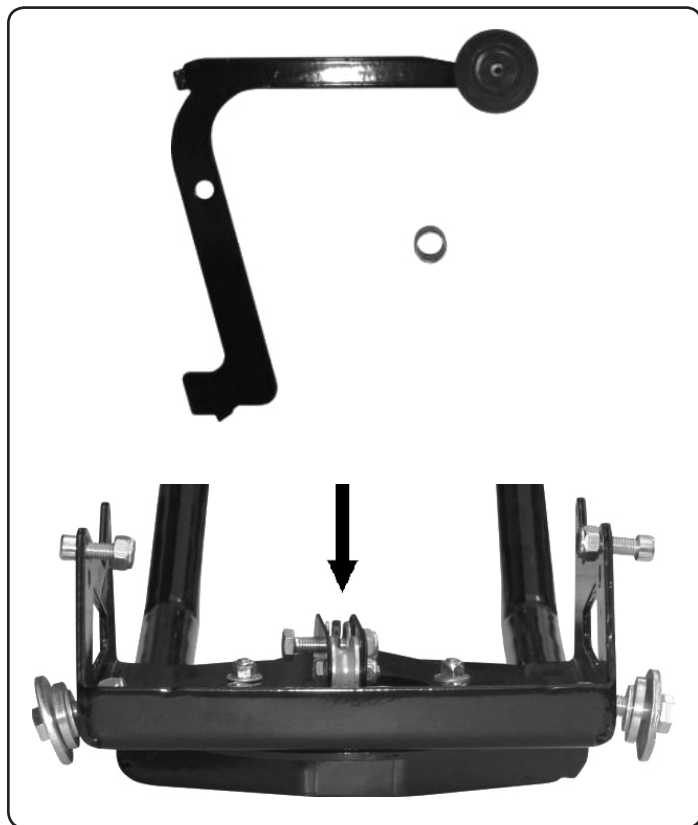
Attach the other end of each Plow Spring to the adjusting eyebolts. Tighten the eyebolts until there is proper tension on the Plow Springs.



Step 4: Installing the Pivot Handle/Lever

Place the Pivot Handle into the slot provided. Insert the Pivot Handle Step Bolt through the Pivot Handle.

Secure it in place using the accompanying M8 (GB/T 6187.1-2000) nut and size 10 (GB/T 97.1-1985) washer on either side.



Attach the return spring.



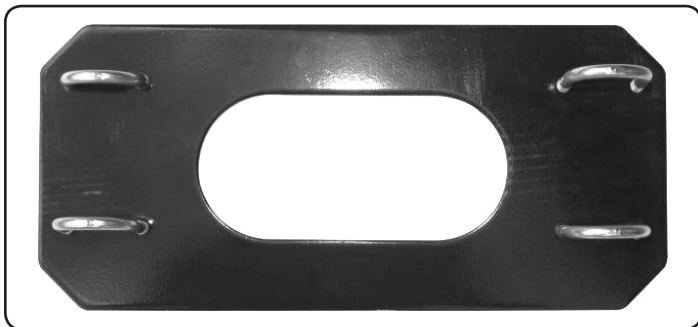
Ensure the Pivot Handle moves fluidly and returns to the original position with the help of the return spring after being engaged.

Snow Plow Assembly Procedure

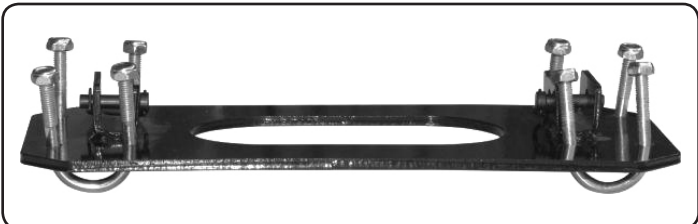
C) Installing the Mounting Plate on your vehicle

Step 1: Attaching the Mounting Plate

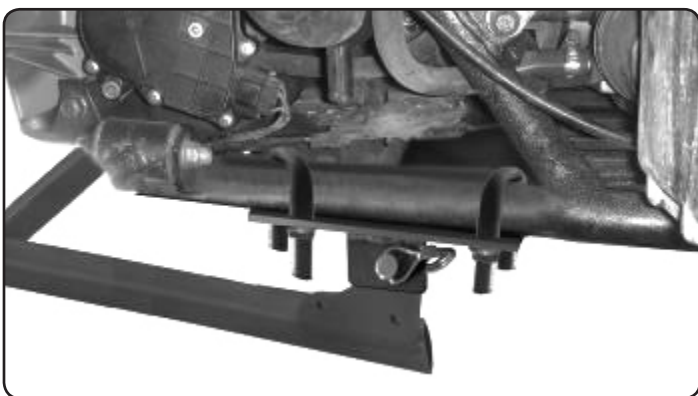
The default U-Bolt hole distance is set for a frame approximately 13.4in (34cm) wide.



Identify the width of your frame and the required U-Bolt hole spacing on the mounting plate. Some vehicles may require you to drill new holes in the mounting plate. The reinforced steel mounting plate is overbuilt and left blank for this purpose.



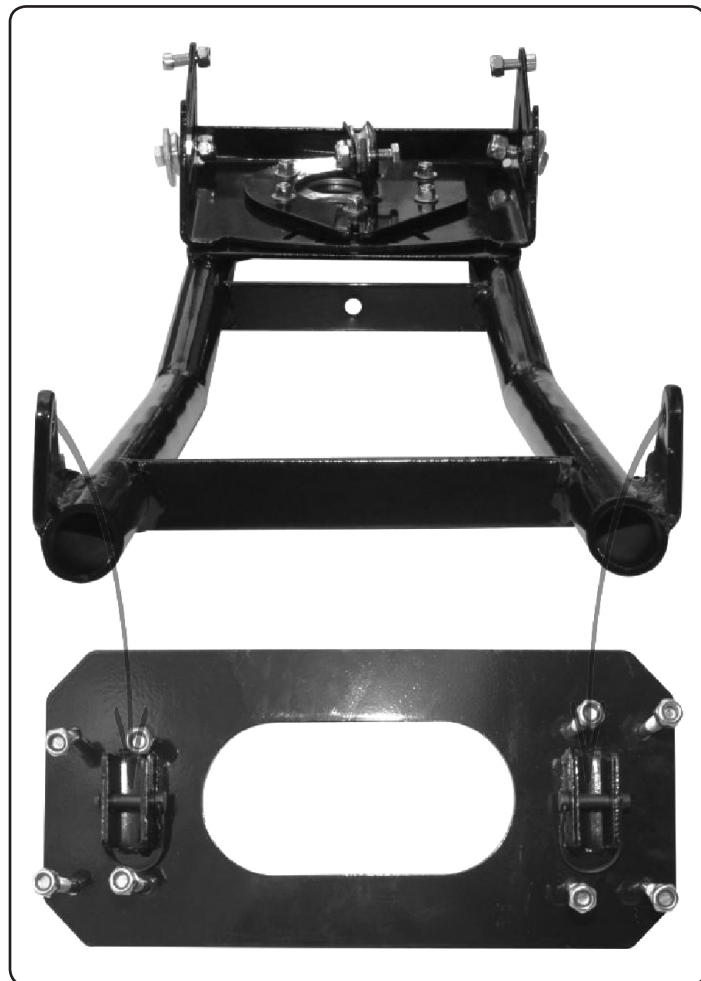
Attach the 4 U-Bolts to the frame and insert the Mounting Plate with the Plow Arm mounting tabs facing downwards. Secure in place using 8 M8 (GB/T 6187.2-2000) nuts.



D) Attaching the Completed Snow Blade and Arm Assembly to the Mounting Plate

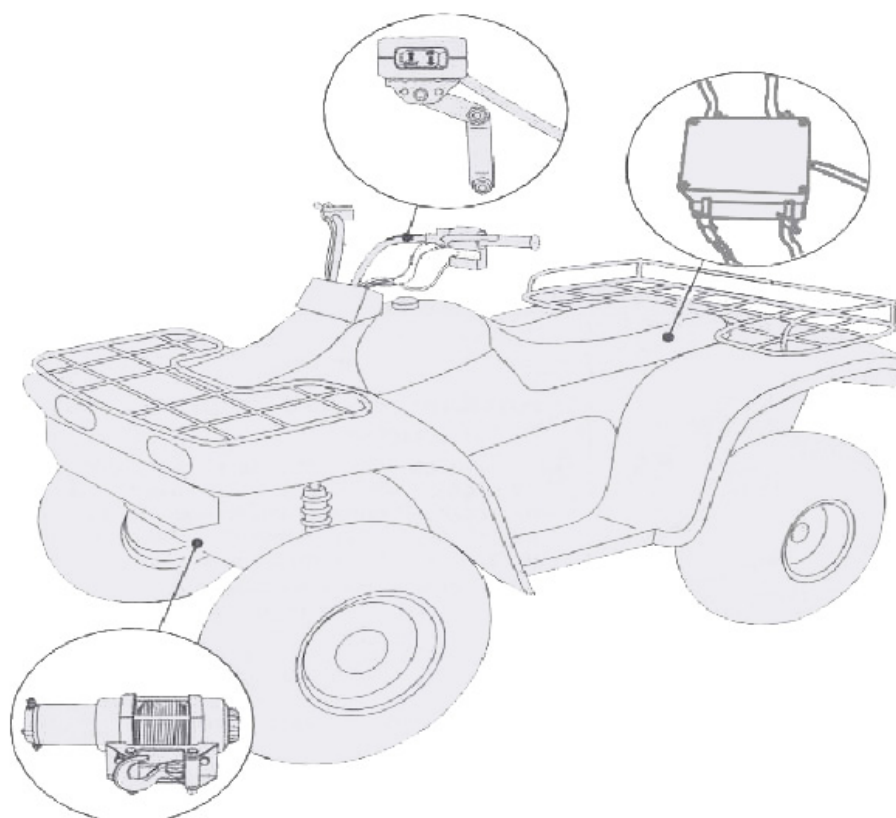
Step 1: Mounting the Assembly Arms

Remove the safety bolts from the mounting plate. Set the Plow Arm tabs into the brackets of the mounting plate and insert the safety bolts into place.

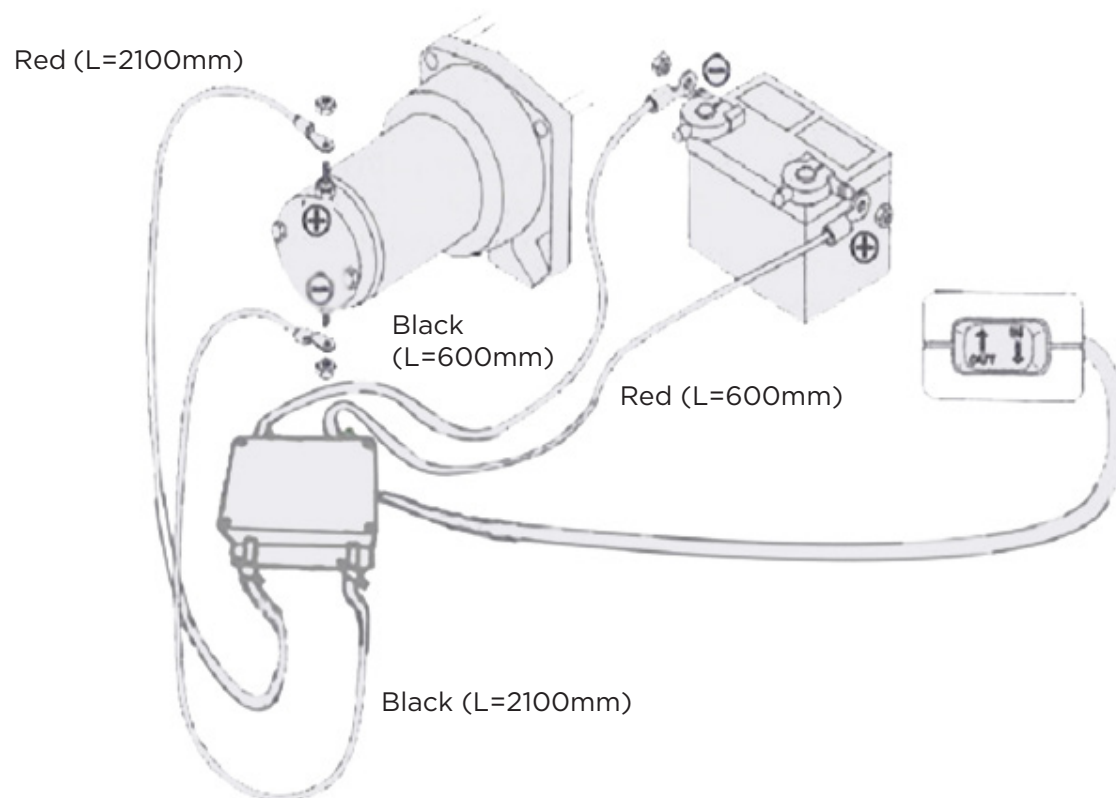


Winch and Electrical Control Installation

Common Vehicle Winch Component Diagram



Common Winch Electrical Circuit Diagram



Winch and Electrical Control Installation

Connecting the Winch Electricals

Step 1: Mount your winch control switch to the handlebar.

Step 2: Remove the seat and choose a suitable location to mount the winch control relay. It can often find room inside the battery box.

Step 3: Clean your contacts and securely connect your wires according to the Electrical Circuit Diagram.

Connecting the Winch to the Snow Plow

Step 1: Turn the control switch to the 'out' position and pull out an appropriate length of cable to reach the pulley wheel.

Step 2: Remove the cotter pin from the roller and wrap the winch cable around the roller. Reinsert the cotter pin.



Step 3: Attach the winch hook to the bumper or suitable area of the utility racks. Use a protective sleeve to avoid damaging your surface finish.



Step 4: Turn the control switch to the 'in' position and cautiously reel in the cable until the Snow Plow assembly begins to lift. Pay close attention to the winch, cable and clip, as well as all components and hardware of the Snow Plow assembly at this stage to ensure there are no unforeseen issues.

Set the blade down and lift; repeat several more times to ensure the electrical control system and plow lift mechanism is working properly.

