

REV-V

FOLDING VEE PLOW

OWNER'S MANUAL

Important safety and operation instructions inside

Read thoroughly before operating

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PREFACE

Congratulations on the purchase of your new Craig Manufacturing Ltd. product. This manual provides safety, operation, and maintenance information. To keep your product in good condition, please read this manual and follow all recommendations. Failure to do so may invalidate your warranty.

When parts or service are necessary contact Craig at 1-800-565-5007 for genuine Craig Parts. Before using your product, make sure your machine is equipped with all the OEM recommended requirements for your product application.

CRAIG FACTORY ORIGINAL PARTS



The best way to ensure equipment reliability is to use only genuine Craig Manufacturing Ltd. Factory Original Parts. Our parts department can help you not only find the right part for your application but also offers advice and support for the repair. Using aftermarket non-approved parts can alter your product's performance characteristics and may affect your warranty.

To help ensure that correct parts are ordered, please record the serial number of your product. Over time serial tags can become tarnished or difficult to read. Please supply this serial number to your dealership when ordering parts and it will ensure the correct part gets ordered.

Serial: _____

Machine: _____

Model: _____

In-Service Date: _____

Purchased From: _____



Never let anyone operate this unit without reading the "SAFETY INSTRUCTIONS" and "OPERATION INSTRUCTIONS" sections of this manual.

NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

INTRODUCTION

As the new owner and/or operator of the Craig folding vee plow we require you take the time to read this Operator's Manual carefully before commencing work.

FOLLOW THE SAFETY INSTRUCTIONS

- Carefully read all the safety information contained in this manual.
- Make sure all safety decals are securely fitted in the cab.
- Immediately replace any safety decals that are missing or damaged.
- Before starting work make sure you have a copy of this Operator's Manual in the cab and are familiar with all the safety procedures and instructions contained in this manual.

INFORMATION FOR THE USER

The user of the Craig attachment is obliged to ensure that the equipment is always in safe working order in accordance with accident prevention regulations, Occupational Safety and Health regulations or any other official instructions.

ENHANCED WARRANTY FOR ELIGIBLE PRODUCTS

Craig offers an enhanced warranty from 12 months (or 2,000 hours which ever comes first) to 36 months (or 6,000 hours) for **eligible products**. To take advantage of this enhanced warranty the eligible product must be registered within 30 days of receiving the product. You can register your product at the following website:

<https://www.craigattachments.com/product-registration/>

Refer to the contents of this manual to remedy faults and contact Craig at 1-800-565-5007 if you require assistance. Notice that unauthorized modifications to this equipment is prohibited and will void warranty.

SAFETY INSTRUCTIONS



This is an alert symbol. It indicates an imminent or potential hazard. Signal words “DANGER”, “WARNING”, and “CAUTION” qualify this alert symbol into the following categories:



Hazardous situation which, if not avoided, WILL result in death or serious injury



Hazardous situation which, if not avoided, COULD result in death or serious injury



Hazardous situation which, if not avoided, could result in minor or moderate injury

The signal word “**NOTICE**” indicates important information that, if not followed, could result in severe damage to equipment or property.

SAFETY PRECAUTIONS BEFORE OPERATION

The primary responsibility for safety with this product falls to the operator. Make sure the product is operated only by trained individuals that have read and understood this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer, or Craig Manufacturing Ltd. Keep this manual available for reference.



WARNING!



Read Manual Prior to Installation, Operation or Maintenance

Improper installation, operation, and/or maintenance of your Craig Manufacturing Ltd. attachments can cause death or bodily injury, property damage, or damage to your equipment. Read and understand this manual and all labels before operating or doing any work on the equipment. NEVER allow anyone to operate this unit without first reading the safety and operating instructions. Failure to do so may affect your warranty.

Read your machines owner's manual and always be aware of capacities and heights of all materials moved are within the machines stated operational capacity.

Understand All Safety Decals and Statements

Become familiar with and inform users about all safety decals and safety statements in all manuals and on the back of the attachment prior to operating or working on this product. Know and follow all national occupational safety regulations, local laws, and other professional guidelines. As well as all good work practices when working on or with this product. Know your equipment capabilities and operations.

Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from your local dealer.

SAFETY INSTRUCTIONS**WARNING!**

Inspect all equipment prior to operating and ensure all components are in proper working order. Check hardware for tightness and that all guards and safety devices are in place. Know all decals and check for legibility. Replace anything damaged, worn or missing. Make sure operator cab is clean and free of any distracting objects or spills.

Be aware of overhead or buried utilities. Contact your local utilities to locate any underground lines or other hazards.

Make sure all levers, pedals, switches, or other controls are in neutral position prior to starting the engine.

Before exiting the machine, for any reason, follow the "MANDATORY SHUT DOWN PROCEDURE".

MANDATORY SHUT DOWN PROCEDURE

1. Stop the machine on level ground.
2. Lower the attachment to the ground.
3. Move throttle to the idle position.
4. Disengage all power to the attachment.
5. Apply the brakes.
6. Turn off the engine and remove the key.

Never use your attachment as a work platform or personnel carrier

Never lift, move, or swing an attachment over anyone.

Do not use attachment for lifting materials outside of its purpose. This attachment is not a lifting device unless approved for your jurisdiction.

Never perform any work on the attachment unless you are authorized and qualified to do so. Work in pairs. Always read the operator service manuals before any repair is made. Wear proper PPE.

**Personal Protective Equipment (PPE) Required**

Remove ignition key and immobilize the machine during installation, inspection, or service. Always follow safe work practices when installing, servicing, or inspecting your product by wearing

only snug-fitting clothing, removing jewelry, and securing long hair. Wear safety goggles to protect your eyes from hydraulic fluid, sparks, dirt, and dust. Always have a fire extinguisher rated BC on hand for flammable liquid and electrical fires. Lastly, always lift with your legs, and use lifting equipment when applicable.

SAFETY INSTRUCTIONS**WARNING!****CRUSH HAZARD – DO NOT work under or around raised arm or attachment.**

Lower or Support Unstable/Raised Equipment. NEVER trust that the hydraulic system will not fail. ALWAYS lower booms and attachments to the ground before leaving the cab or operator's station. DO NOT work under or around attachments or heavy items not supported by stands, blocks or safety chains. Furthermore, it is important to use chains and/or stands to steady unstable attachments or heavy components that may fall if being disconnected.

**Skin Injection Hazard**

- Relieve pressure before working on system
- Wear gloves & eye protection
- Detect leaks with wood or cardboard
- NEVER use hands to detect leaks
- Fluid injected in skin must be surgically removed

Hydraulic Safety

Always inspect hydraulic components before operating your product. Replace any damaged or worn parts immediately. Temperature changes can change hydraulic pressure, which allow the cylinders to drop unexpectedly, causing injury or damaging hydraulic components.

Hydraulic fluid under pressure can cause bodily harm. If you suspect a hydraulic leak note the following:

- The high pressure of the hydraulic lines can cause leaks that can puncture flesh. Therefore, it is important to keep uncovered body parts such as face, eyes, and arms away from a suspected leak.
- Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities. If injured by leaking hydraulic fluid, see a doctor immediately. Hydraulic fluid could have injected into the wound, and it may not be known.
- Before disconnecting hydraulic lines, wait until the fluid cools down. Hot hydraulic fluid can cause severe burns.
- Always wear protective clothing, such as gloves and safety glasses, and use a piece of cardboard when searching for hydraulic leaks. **DO NOT USE YOUR HANDS.**

Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could occur. Never work under a raised attachment. Check the weight of the attachment and use handling equipment of sufficient capacity.

Always tag "DO NOT OPERATE" until all problems are corrected.

SAFETY INSTRUCTIONS**WARNING!**

Lubricants may contain toxins, cause adverse health effects or be hazardous to the environment. Ensure environmentally safe disposal. Observe all safety labels.

Do Not Alter Attachment

Any alterations to this product could affect the safety and performance of the attachment. When making repairs, use only Craig Manufacturing Ltd. parts, and follow the provided procedures. If the parts and procedures are not used the warranty is void and any alterations may cause the attachment to become unsafe. Any modifications must be authorized in writing by Craig Manufacturing Ltd.

Safe Transport

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough terrain and slopes.
- When transporting on a trailer, secure attachment using tie downs in recommended locations to maintain attachment stability.
- When driving on public roads use safety lights, reflectors, and slow-moving vehicle signs to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches or excavations, because a cave-in could occur.

Keep attachment close to the ground when engaging/disengaging attachments!

It is possible to drop an attachment during engaging and disengaging procedures. Therefore, it is best to make sure the attachment is kept close to the ground. Visually check that the attachment is securely locked before operating. Follow the procedures outlined in the operation section of this manual. If coupler is not functioning properly, it must be checked/repared by a qualified service technician prior to use. Failure to do so could result in serious injury or death.

SAFETY INSTRUCTIONS**CAUTION!****Remove Paint Before Welding or Heating**

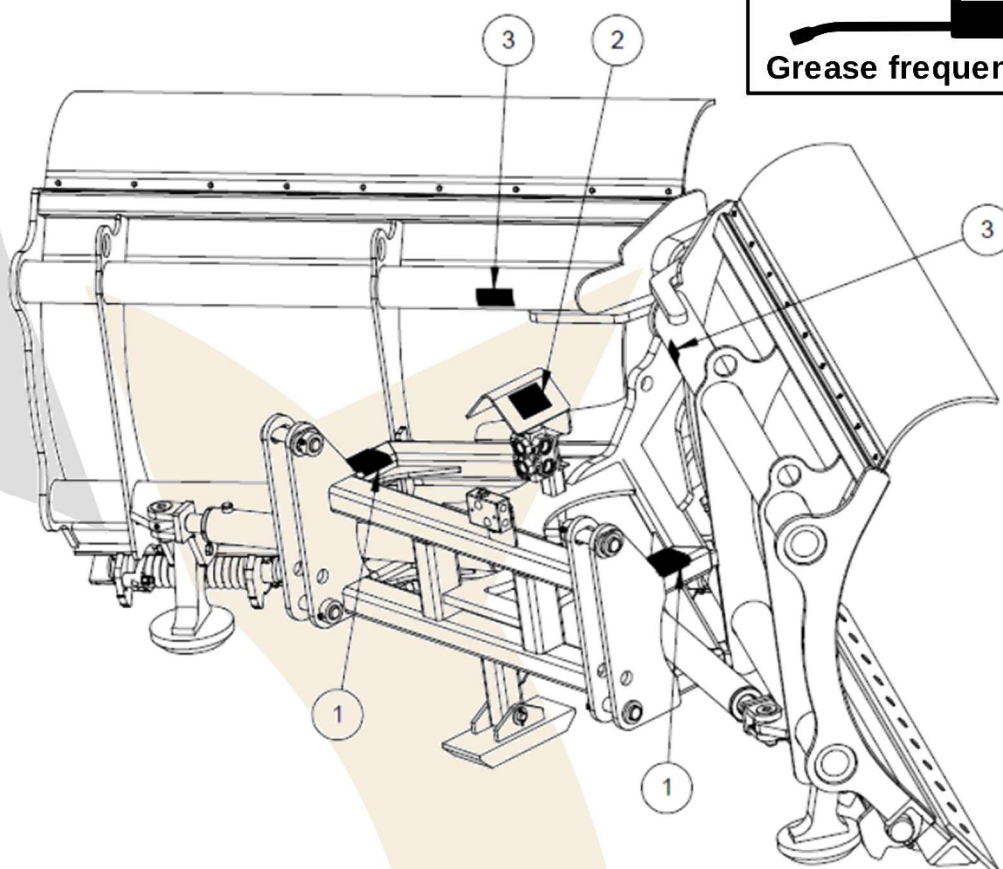
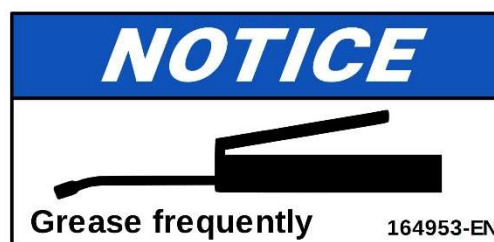
When paint is heated by welding, or by using a torch, hazardous fumes/dust can be generated. Therefore, it is important to do all work in a well-ventilated area and dispose of paint and solvent properly. **TURN OFF ENGINE AND DISCONNECT BATTERY PRIOR TO WELDING.** Refer to machine's owner's manual for procedure.

When removing paint:

- It is important to wear an approved respirator when sanding or grinding paint.
- If you use a paint stripper or solvent, remove the stripper with soap and water.
- Remove solvent or paint stripper containers and other flammable material from the welding/heating area.
- Allow fumes to disperse at least 15 minutes before welding or heating.

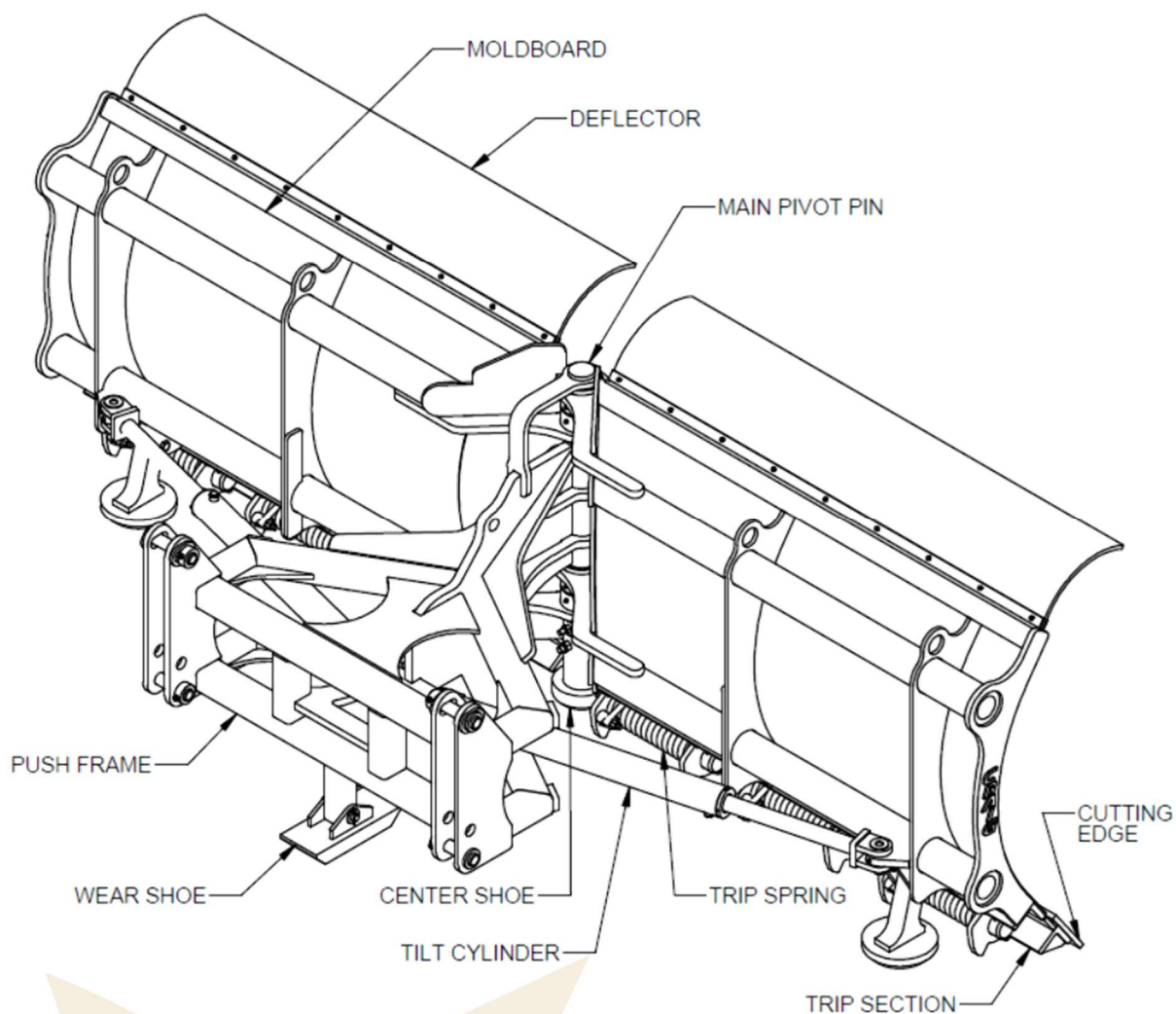
DECALS

Item	Part #	Description	Quantity
1	164958-XX	Decal, pinch point hazard	2
2	493215-XX	Decal, pressure setting	1
3	164953-XX	Decal, grease frequently	2



INSTALLATION INSTRUCTIONS

NOMENCLATURE



NOTE: YOUR PRODUCT MAY NOT APPEAR EXACTLY AS SHOWN

INSTALLATION INSTRUCTIONS

TERMINOLOGY

Cutting Edge:	The consumable wear component located on the bottom of the base edge. Cutting edge must be replaced periodically to protect the moldboard.
Moldboard:	The working face of the snow plow.
Trip:	The ability of a snow plow to temporarily give way under the pressure of an obstacle. This can be accomplished by a variety of designs, often with the use of springs.
Push Frame:	The portion of the moldboard support frame that remains rigidly secured to the machine hook-up
Tilt Cylinder:	The hydraulic cylinders that can be actuated to articulate/rotate the plow moldboard.
Main Pivot Pin:	The large pin that acts as the pivot point for the two halves of the moldboard.
Wear Shoes:	The replaceable runners located under the push frame and moldboard. Properly adjusted wear shoes protect the push frame from abrasion and extend cutting edge life.
Center Shoe:	The replaceable wear pad located under the main pivot pin

ACCESSORIES AND OPTIONS

Rubber Deflector Kit:	Includes a twelve-inch-wide, half-inch thick heavy-duty rubber deflector and all necessary mounting hardware. Attaches to the top of the Moldboard.
Carbide Edge:	Superior wear resistance intended for short passes such as ramp clearing. Prolonged passes can generate heat and premature wear.
High Visibility Kit:	Includes two high visibility flag sticks, two square feet of conspicuity tape and all necessary mounting hardware.
Salt Saver Edge:	Craig's live edge option that hugs the profile of the road for better cleaner roads, reducing the amount of salt/sand needed for snowy roads. Features a forged steel edge with carbide inserts. Helps to reduce in-cab noise and vibration.
Trip edge:	An edge assembly that has its own set of springs at the base of the moldboard that allows just the edge to trip over an obstacle.

INSTALLATION INSTRUCTIONS

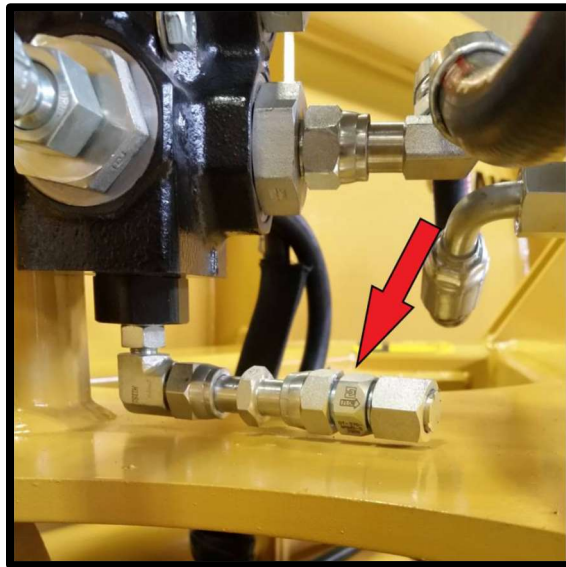
INSTALLATION AND REMOVAL

Read all safety precautions before installing the attachment. Refer to the machine's owner's manual for additional information. If a coupler system is involved ensure that the coupler is working properly before use. In addition, refer to the manufacturer for the coupler owner's manual to familiarize yourself with its proper procedures and operations. Craig coupler owner's manuals can be found by going to:

www.craigattachments.com/technicaldocuments

DIVERTER VALVE

The small port/line on the bottom of the diverter valve used with this, is a case drain line. This line must be plumbed to tank to ensure the longevity of the valve.

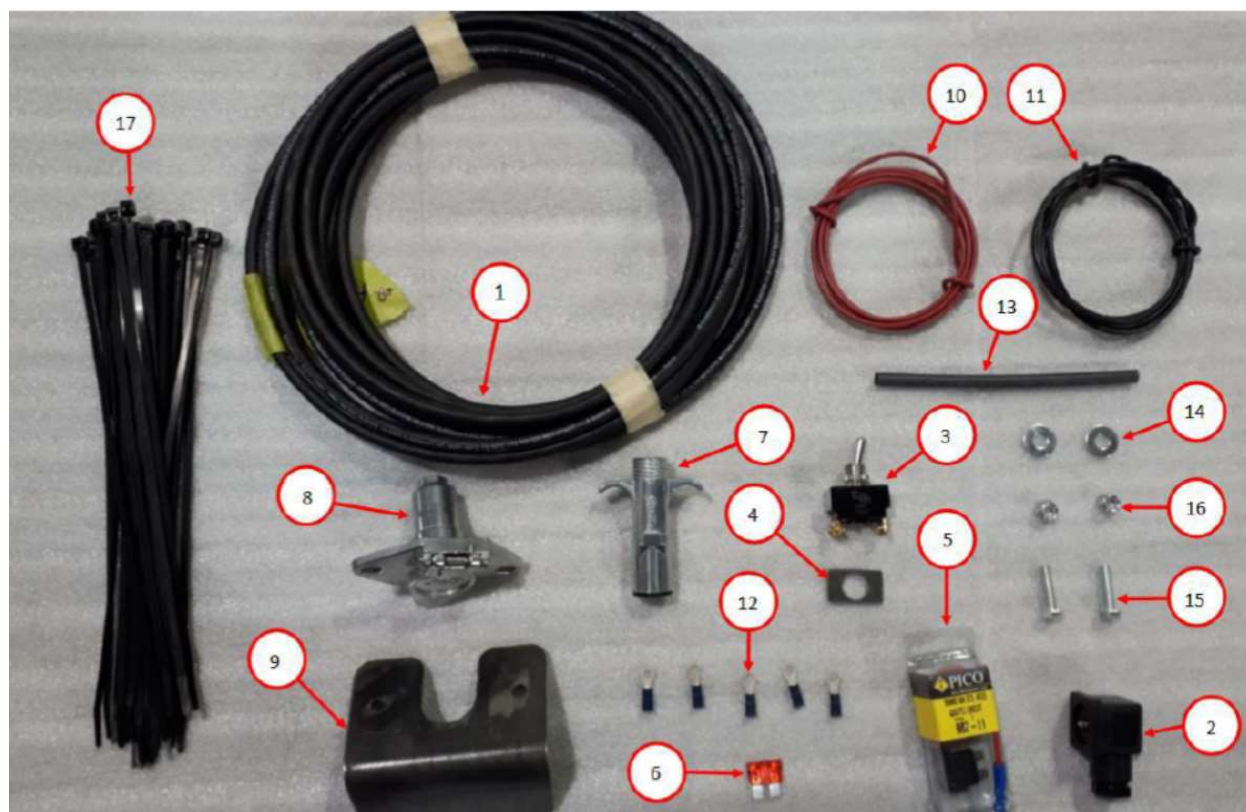


INSTALLATION OF DIVERTER CONTROL KIT

This is a set of generic installation instructions to install a control kit that operates a diverter valve on a Craig attachment. Therefore, some assembly and judgement are required to install the kit appropriately. Before following these instructions, make sure the machine is off and the attachment is safely on the ground. If there are any questions during the installation, please call Technical Support at 1-800-565-5007.

GENERIC DIVERTER CONTROL KIT

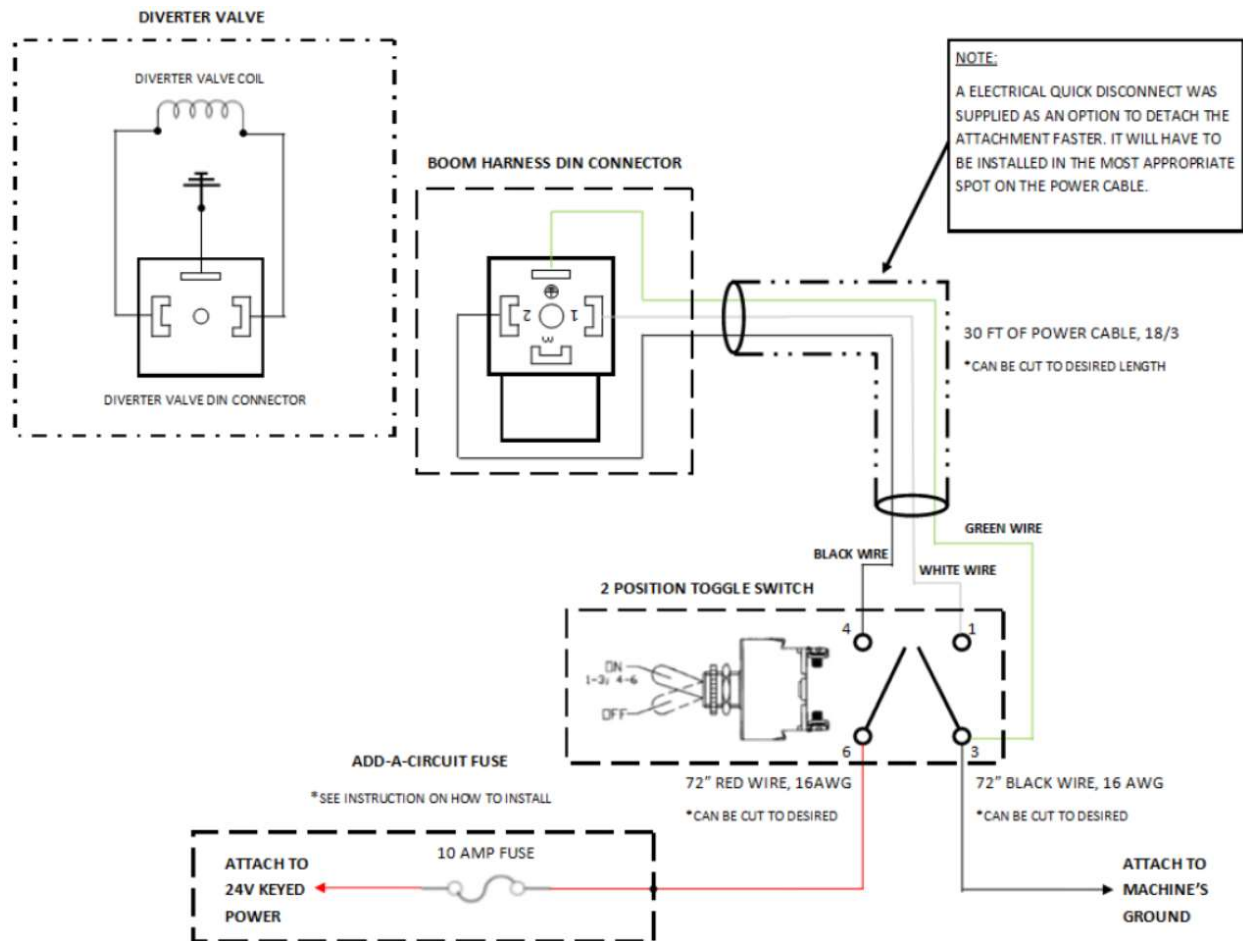
INSTALLATION INSTRUCTIONS



ITEM NO.	DESCRIPTION	QUANTITY
1	POWER CABLE, 3 STRAND	360"
2	DIN CONNECTOR	1
3	SWITCH, TOGGLE – ON/FF	1
4	SWITCH SPACER PLATE	1
5	ADD-A-CIRCUIT, STD FUSE	1
6	FUSE, 10 A	1
7	ELECTRICAL QUICK DISCONNECT, MALE	1
8	ELECTRICAL QUICK DISCONNECT, FEMALE	1
9	BRACKET/FEMALE ELECTRICAL Q/D	1
10	WIRE, RED	72"
11	WIRE, BLACK	72"
12	RING TERMINAL END, 1/8" HOLE	6
13	SHRINK TUBE, 1/4"	1
14	FLATWASHER, 1/4"	2
15	HCS, 1/4 UNC X 1, GR. 5	2
16	LOCK NUT, 1/4 UNC, NYLON, GR. 2	2
17	TIE WRAPS	25

ELECTRICAL WIRING DIAGRAM

INSTALLATION INSTRUCTIONS



INSTALLATION INSTRUCTIONS

WIRING BOOM HARNESS DIN CONNECTOR

The first step is to wire up the DIN connector that will connect the boom harness to the diverter valve. Use the Electrical Wiring Diagram to follow how this connector is wired. Take the DIN connector and unscrew the cap from the bottom port. Be careful not to lose the washer that is sitting inside the DIN connector. Also, pull the front face out of the DIN connector housing. Push one end of the power cable that was supplied in the kit through the bottom port, the washer, and grommet, then up through the housing of the DIN connector.



Figure 1: Disassembled
DIN Connector

Next, cut the outer sheath of the power cable to expose the 3 wires. There should be a white wire, a black wire, and a green wire. It only needs to be cut back enough to spread the wires to fit into the three terminals in the DIN connector. On the front face of the DIN connector, you can see the 4 terminals are numbered. (See Figure 2) Strip the ends of the wire exposing the copper and following both Figure 2 and Figure 3 and the Electrical Wiring Diagram on page 2 connect each wire to the appropriate terminal. The white wire should go to terminal 1, the black wire should go to terminal 2, and the green wire should go to the ground terminal.

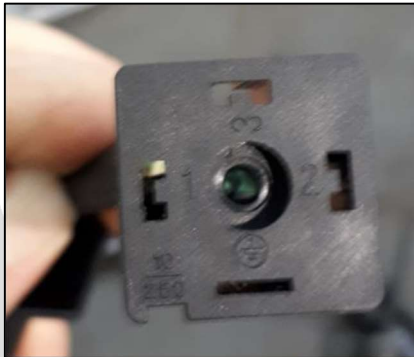


Figure 2: Front Face of DIN
Connector

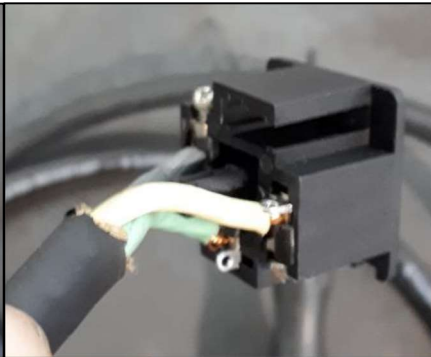


Figure 3: Terminals on DIN
Connector



Figure 4: DIN Connector
Attached to Diverter Valve

Once all the wires are secure, pull the excess of power cable back out through the housing and press the front face back into the DIN connector housing. Make sure the ground terminal is opposite to the bottom port. This is because the DIN connector must connect to the diverter valve like what is shown in Figure 4. Once everything fits, push the grommet and washer up into the bottom port and screw the cap back in.

INSTALLATION INSTRUCTIONS

ROUTING THE BOOM HARNESS

The best way to route the boom harness is to follow the existing hosing. In spots where there is not much movement of the hose, zip tie the boom harness directly to the hose. In spots where there is slack in the hose, make sure the boom harness has just as much slack.

The boom harness must go from the diverter valve on the attachment to the spot inside the cab where the switch will go. If the length of power cable supplied for the boom harness seems too long, feel free to cut it to a more appropriate length.



*Figure 5: Boom Harness
Routed on Hoses*

WIRING TOGGLE SWITCH IN CAB

Use the Electrical Wiring Diagram on page 2 to follow how this switch is wired.

The first thing that should be done is the position of the toggle switch should be determined. This is up to the installer on the best placement of the toggle switch.

Once a suitable spot has been determined route the boom harness up through the cab into the desired toggle switch location.

Cut the outer sheath of the power cable and separate the 3 wires. Make sure there is enough slack to allow each the wires to

reach the terminals on the switch. Put one of the ring terminal ends on each of the 3 wires on the boom harness. Using Figure 6, and the Electrical Wiring Diagram, connect each of the ring terminals on the appropriate terminals on the toggle switch. Each of the terminals on the toggle switch are numbered. Make sure the white wire goes to terminal 1, the black wire goes to terminal 4, and the green wire goes to terminal 3.



Figure 6: Toggle Switch Wiring

INSTALLATION INSTRUCTIONS

The switch now must be wired to the machine's ground and to 24V keyed power. The supplied red wire and black wire will be used for this purpose.

Connect one of the ring terminals to the end of the red wire and the black wire. Connect each of the ring terminals on the appropriate terminals on the toggle switch. Make sure the red wire goes to terminal 6, the black wire goes to terminal 3 with the green wire where the fuse box is. Once it is found, wire the black wire coming from terminal 3 on the switch to the ground

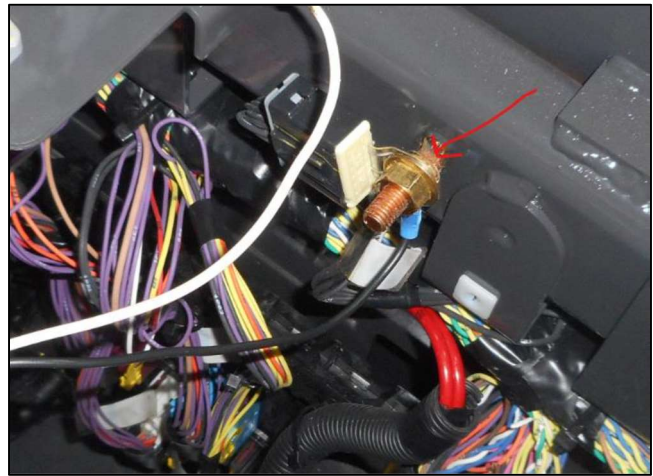
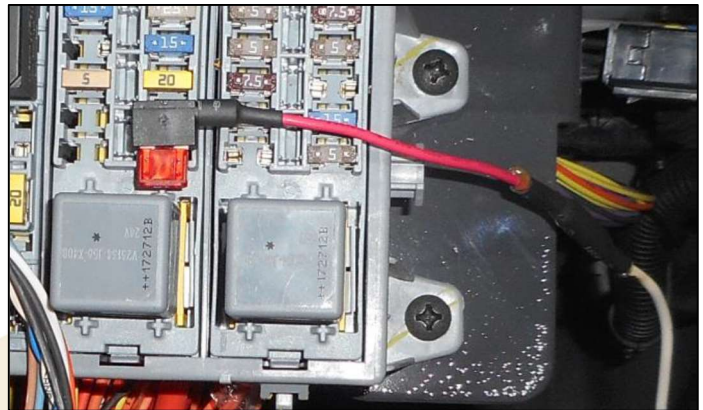


Figure 7: Loader's Ground Stud

stud. Best way is to use an appropriately sized ring terminal end and attach it to the end of the black wire and bolt the ring terminal to the ground stud as shown in Figure 7. If the black wire seems too long, feel free to cut it to a more appropriate length before connecting it to the ground stud.

WIRING ADD-A-CIRCUIT FUSE

In this kit is an add-a-circuit fuse which provides a much easier way to tap into the machine's 24V keyed power. Find the machine's fuse box and wire the red wire from the switch to the fuse box. The add-a-circuit fuse will be set up like in Figure 8, so cut the red wire to an appropriate length to allow the add-a-circuit fuse to be attached to the end of the red wire. Using a portion of the shrink tube supplied,



attach the end of the red wire to the end of the wire on the add-a-circuit fuse. Now, find a 10 AMP fuse in the fuse box that is supplied by 24V keyed power. Generally, the rear windshield wiper fuse meets these requirements. While the machine is off, pull the fuse out of the fuse box and insert the fuse into the empty terminal of the add-a-circuit fuse. Another 10 AMP fuse is supplied in this kit and should be placed in the other empty terminal. Put the add-a-circuit fuse into the fuse box where the 10 AMP fuse was removed from.

Figure 8: Add-A-Circuit Fuse in Fuse Box

INSTALLATION INSTRUCTIONS

FINISHING TOGGLE SWITCH PLACEMENT

Now that the switch is all wired, turn the machine on and make sure everything is working appropriately. If everything is working as it should, the switch can now be secured in the spot chosen. If one of the machine's dashboard switch locations is empty and is planned to be used for this switch, a switch spacer plate was included to allow the switch to fit more easily. (See Figure 9)

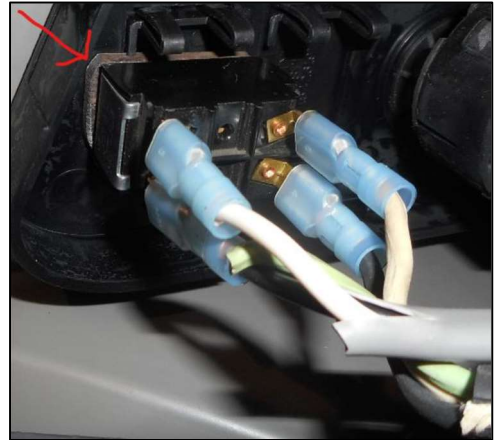


Figure 9: Switch Spacer Plate

OPTIONAL: INSTALLING ELECTRICAL QUICK DISCONNECT

This kit comes with an electrical quick disconnect and a bracket to mount the female electrical quick disconnect on the machine. The purpose is to allow the attachment to be disconnect from the machine more easily, and it is up to the installer whether it is necessary to install or not. Make sure the machine is off when making changes the boom harness.

Best to wait to install this quick disconnect until all the wiring is completed. That is because this quick disconnect will have to be placed somewhere along the length of the power cable. The location is up to the installer. Generally, the best location is wherever the hydraulic quick disconnects are for the attachment. (See Figure 10)

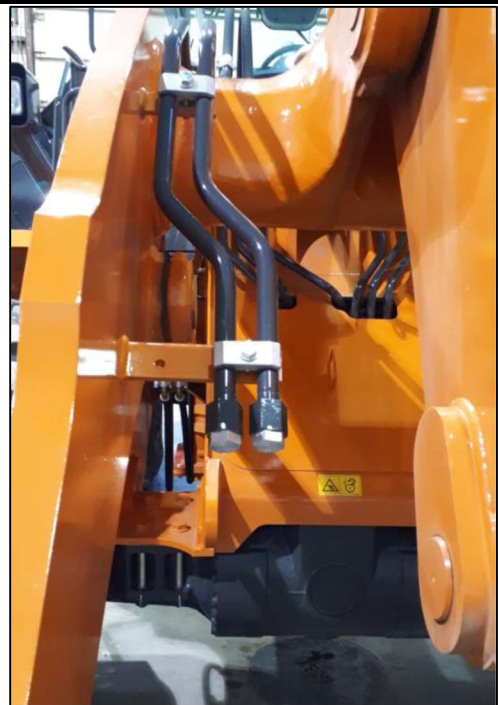


Figure 10: 3rd Function Quick 'disconnects.

INSTALLATION INSTRUCTIONS

NOTE: A bracket was sent in this kit that allows the female quick disconnect to be bolted to the bracket (see Figure 11), and the bracket to be tacked to the most appropriate location on the loader. The male end will have to be wired to the attachment side of the power cable, and that allows the male quick disconnect to be pulled out of the female and left with the attachment.

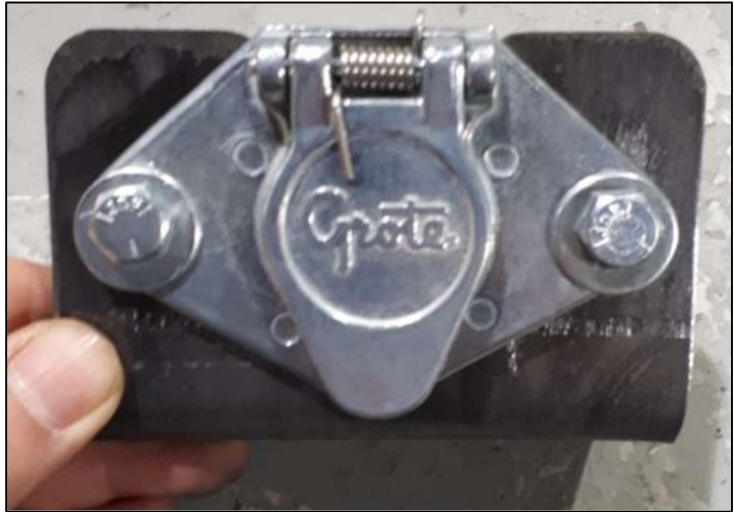


Figure 11: Female Quick Disconnect on Bracket

Once the best location has been found, tack weld the bracket in place. Then, cut the power cable and wire the female quick disconnect to the toggle switch side of the power cable, and wire the male quick disconnect to the attachment side of the power cable. The disconnects are the same as what you would find on a trailer and wire the same way. Make sure the wires on the male quick disconnect will connect to the same wires on the female quick disconnect

Once the installation of the electrical quick disconnect has been completed, turn the machine on and make sure the attachment functions correctly.

NOTE: It is suggested to fill the electrical quick disconnect with dielectric grease. This will help preserve and protect the electrical quick disconnect.

OPERATION INSTRUCTIONS

INTENDED USE

Craig Folding Vee Plows are intended for low to mid speed road use under harsh conditions. Use outside of this scope is considered misuse.



Operator and maintenance personnel must be trained and familiar with the entire manual. The operator is responsible for safety. If there is any portion of this manual or function you do not understand, contact your local authorized dealer, or Craig Manufacturing Ltd.

PRIOR TO OPERATION

- Inspect machine and all equipment prior to use. Refer to “MAINTENANCE” section and perform all periodic inspections and maintenance.
- Ensure operator cab is clean and free of distracting objects or spills.
- No passengers allowed.
- Make sure all levers, pedals, switches, or other controls are in neutral position prior to starting the engine.

OPERATION

- The operator should be familiar with all controls. Refer to the machine owner's manual for further operation instructions.

PLOWING SNOW

Plowing snow on road systems can be dangerous. Drive defensively and adjust your plowing speed to meet changing conditions. Passenger vehicles often do not have the same traction as your machine. Assume that their stopping and steering capabilities will be reduced.

While operating your snow plow be aware of obstacles that may catch your moldboard such as bridge joints, manholes, railroad tracks, and broken pavement.

DEEP SNOW

Deep snow requires plowing at lower speeds using a lower gear to push the snow plow. If the snow is too deep you may need to use a Vee Plow configuration to open the initial windrows which can then be plowed by conventional reversible moldboard configuration.

NOTICE

NEVER ram snow with a reversible plow. Doing so may damage the plow and you're your warranty.

OPERATION INSTRUCTIONS

ICE

NOTICE

Your Craig plow is not designed to lift ice. Use chemical ice-melt products to deal with these conditions. Applying too much down pressure in an attempt to lift ice may damage the pivot point between your swing frame and push frame. THIS TYPE OF DAMAGE IS NOT COVERED UNDER WARRANTY

BACKING UP

NOTICE

ALWAYS lift your plow from the ground before backing up. Your plow is not designed for back dragging. DOING SO MAY VOID YOUR WARRANTY.

SETTING WEAR SHOES

The wear shoes on your plow are meant to take most of the weight of the plow. Craig recommends setting shoe height with the plow and machine on a flat shop floor. This way shoes can be set so the cutting edge is slightly off the ground. This will ensure that the shoes take most of the load and wear when compared to the moldboard cutting edge.

TRIP SPRINGS

One-way plows are of the trip link style and use compression springs to provide the plow with the ability to hop over obstacles. The springs are under tension and are held tight with a 1-1/4" locknut. The trip springs are preloaded with tension during assembly and are not intended to be adjustable. In the event that a spring breaks, replace the spring and retighten the nut back to its original position.

CROSS PORT RELIEF/CUSHION VALVE

There is a cushion valve on the push frame of the REV-V series plow. This valve is intended to relieve the cylinders when pressures spike from hitting obstructions such as curbs or frozen banks, thus "cushioning" the plow upon impact. Craig recommends setting the relief on the machine's 3rd spool to 200psi less than the cushion valve. Set relief to 1600 psi. This will ensure that the hydraulic circuit will always relieve before damaging the plow.

Due to the operation of the diverter valve, the cushion valve can only relieve pressure spikes on the side of the plow that is activated.

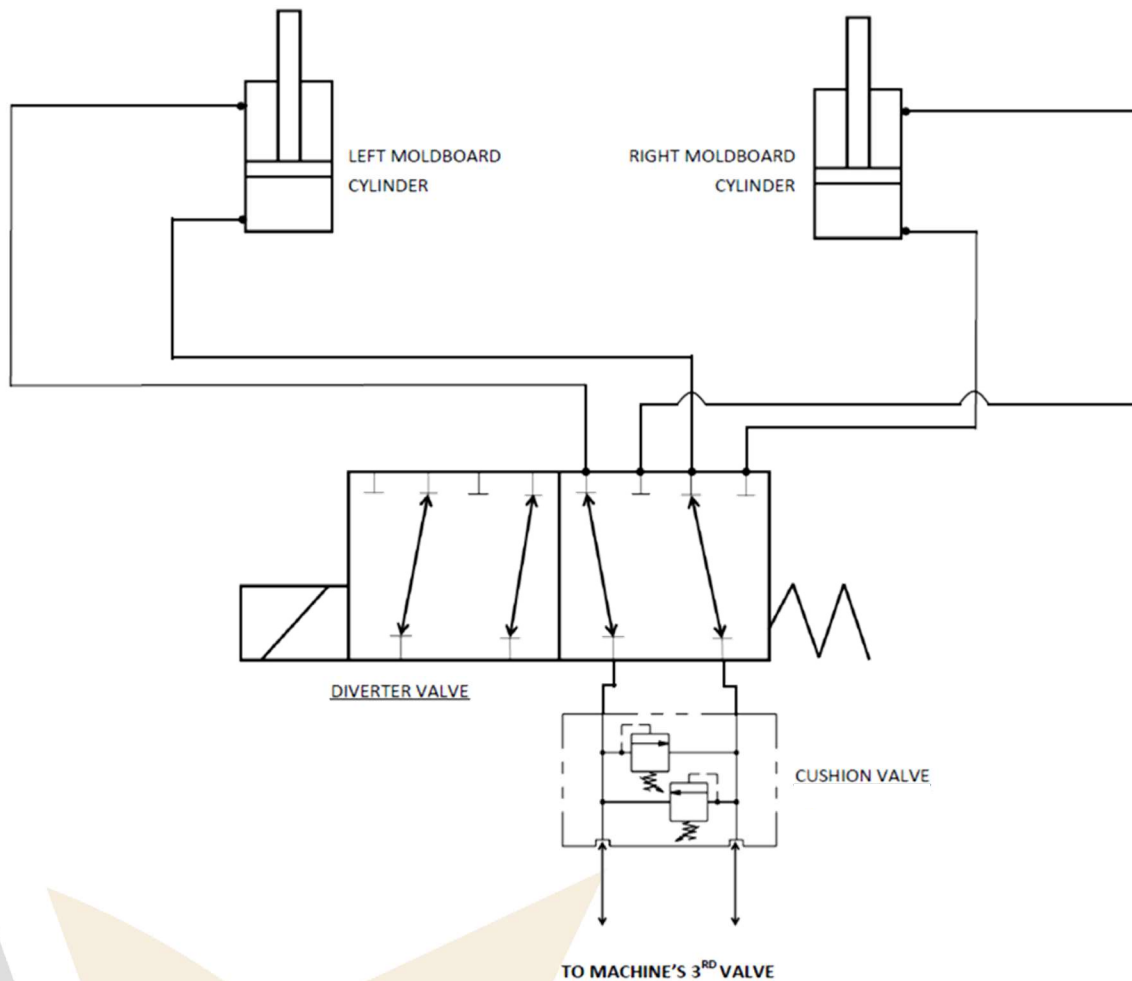
NOTICE

To avoid damage, please have the diverter valve set to the side of the plow most likely to impact an object (usually the right side from driver's perspective).

OPERATION INSTRUCTIONS

HYDRAULICS

Set hydraulic pressure to 1600 psi max. A flowrate of 10 GPM should give 3-6 seconds time for the cylinder to extend. See hydraulic diagram below:



TROUBLESHOOTING

Problem	Possible Cause	Remedy
Cracks in steel structure or weld	Overloading or side loading	Immediately stop use and contact Craig Tech Support at 1-800-565-5007
Cylinder is slow or fails to actuate	Leaking hose or fittings	Check for pinched hose or damaged fittings. Refer to safety instructions for proper procedure to check for leaks.
	Insufficient hydraulic flow	Recommended flow is 10 GPM
Excessive wear on pins	Lack of grease	Ensure all pins are greased regularly. Replace any worn parts.

MAINTENANCE

GENERAL INFORMATION

It is the operator's responsibility to inspect all equipment daily. Regular maintenance is necessary to prolong the life of the equipment, avoid costly shutdowns, and keep things running optimally.



Operator and maintenance personnel must be trained and familiar with the entire manual. Refer to the "SAFETY INSTRUCTIONS" section and follow the "MANDATORY SHUTDOWN PROCEDURE" prior to doing any work on the machine.

PERIODIC MAINTENANCE TABLE

Procedure	Daily	Weekly
Clean attachment of snow/debris prior to inspection, especially around cylinder.	X	
Inspect all equipment for damage, worn parts, cracked welds, etc. If a crack is found in either the steel structure or welds, the attachment must be removed from the machine and Craig Contacted immediately. <i>Contact Craig Tech Support (1-800-565-5007) for recommended weld procedures.</i>	X	
Check pins and bushings for play or wear. Replace if worn	X	
Check cutting edge for wear. When the cutting edge needs to be replaced, also replace all bolts, nuts and lock washers with new ones.	X	
Check trip springs and linkage and that the bolts are tight, not missing or worn. Adjust the spring if it is loose by screwing the locknuts back tight against the spring. This complete assembly should be greased daily, especially the shaft that is inside the spring. Replace the spring if it is broken or cannot be tightened anymore by the locknuts.	X	
Hardware - replace missing or damaged bolts/fasteners, tighten as necessary	X	
Check for kinked/pinched or worn hoses. <i>Repair/reroute as necessary</i>	X	
Hoses - check for leaks. <i>Repair/tighten as necessary</i>	X	
Decals - replace worn or missing	X	
Lubricate grease points	X	
Ensure daily checks are completed		X

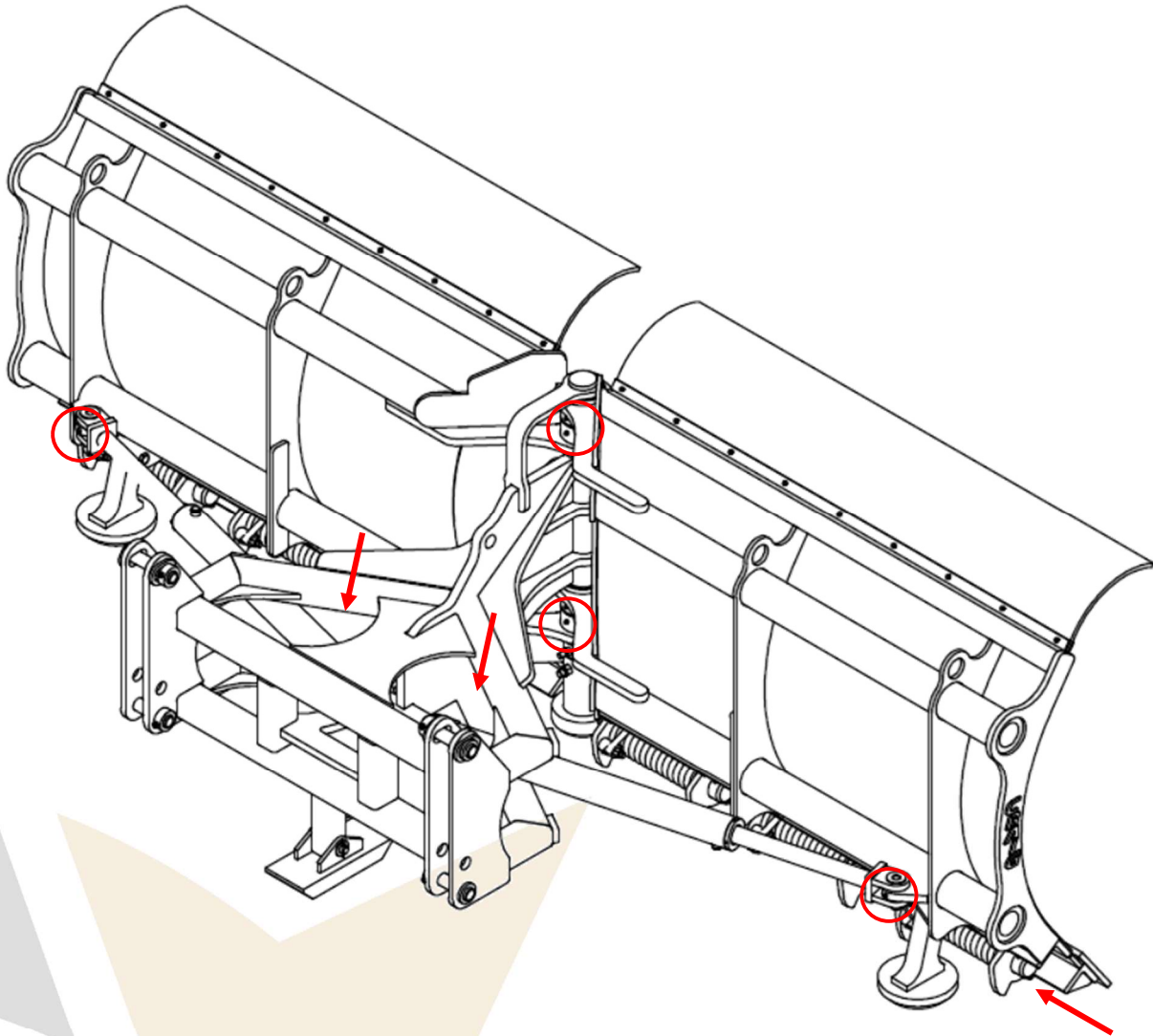
NOTICE

DO NOT weld the trip linkage solid or inhibit the movement of the trip linkage. DO NOT remove the wear shoes. Severe damage or injury may occur.

MAINTENANCE

LUBRICATION

REV-V plows have several grease points. Greasing the pivot points on your attachment daily with use will help to ensure smooth operation over its lifetime.



If your plow has crank style wear shoes, there are also grease fittings on each of these. A proper greasing technique involves pumping grease onto the fitting until you can visibly see the grease coming out around the joint. It is important to have grease come out into the gap in the joint because it protects the area surrounding from dirt getting in and causing abrasive wear on the metal surfaces in the joint. If a trip edge is installed, the complete trip spring assembly should be greased daily, especially the shaft that is inside the spring.

MAINTENANCE

TECHNICAL SUPPORT

If you have followed the maintenance instructions contained in this manual, you should have years of trouble-free operation from your Craig attachment. Should you encounter any issue or have any questions about your attachment please contact us at 1-800-565-5007 and ask for technical support.

READING PRODUCT TAG

Craig Manufacturing Ltd. stamps a blue serial tag onto every attachment. The tag is often located on the rear of the attachment in the upper left corner. The information contained on this tag will be required for parts and support. Craig serial numbers begin with a "T" followed by the year then month of construction. For example, T1203 would denote the year 2012 and 03 the month of March.

STORAGE

**WARNING**

Disconnection from the machine and installation must be done by a qualified technician. NEVER trust that the hydraulic system will not fail. ALWAYS lower booms and attachments to the ground before leaving the cab or operator's station. DO NOT work under or around attachments or heavy items not supported by stands, blocks or safety chains. Furthermore, it is important to use chains and/or stands to steady unstable attachments or heavy components that may fall if being disconnected.

END OF SEASON

- Thoroughly clean the snow plow of salt and grime.
- Store your plow off the ground. Laying the plow on a simple set of 4" x 4" blocks can keep your plow from sitting in water or damp ground.
- Inspect for damage and order any replacement parts.
- Tighten all hardware and make sure there are no loose connections.
- Paint all replacement parts.
- Paint any bare surfaces to prevent rust.
- Lubricate all grease points. Refer to maintenance section.
- Apply penetrating oil/rust inhibitor to trip assembly.
- Coat exposed portions of cylinder rods with grease.
- Seal hydraulic system from contaminants.
- Secure all hoses in a manner that prevents potential damage during transport.
- Replace any illegible or missing decals.
- Store unit inside a clean, dry area to prolong life.

BEGINNING OF SEASON

- Review entire operator's manual.
- Clean equipment
- Install any replacement parts.
- Secure all fasteners.
- Check hydraulic hoses for damage and replace as necessary.
- Replace missing or illegible decals.
- Refer to installation section for important information.
- Fully understand this manual and the prime mover operator's manual and take proper precautions prior to testing.

SPECIFICATIONS

TORQUE CHART - COURSE THREAD

Nominal Dia. (in.)	Threads per inch	SAE J429 Grade 5				SAE J429 Grade 8			
		Clamp Load (lbs.)	Tightening Torque (ft-lbs)			Clamp Load (lbs.)	Tightening Torque (ft-lbs)		
			Lubricated K = 0.15	Thread- locker K = 0.17	Zinc & Dry K = 0.20		Lubricated K = 0.15	Thread- locker K = 0.17	Zinc & Dry K = 0.20
1/4	20	2029	6.3	7.2	8.5	2864	9.0	10.1	11.9
5/16	18	3342	13	15	17	4719	18	21	25
3/8	16	4940	23	26	31	6974	33	37	44
7/16	14	6777	37	42	49	9568	52	59	70
1/2	13	9046	57	64	75	12771	80	90	106
9/16	12	11599	82	92	109	16375	115	130	154
5/8	11	14408	113	128	150	20340	159	180	212
3/4	10	21322	200	227	267	30101	282	320	376
7/8	9	29436	322	365	429	41556	455	515	606
1	8	38616	483	547	644	54517	681	772	909
1 1/4	7	53786	840	952	1121	87220	1363	1545	1817
1 3/8	6	64096	1102	1249	1469	103939	1786	2025	2382
1 1/2	6	77991	1462	1657	1950	126473	2371	2688	3162

Refer to serial tag on the attachment for identification. NOTE: your serial tag may not appear exactly as shown below.


CRAIG MANUFACTURING LTD
 96 MCLEAN AVE, HARTLAND, NB, E7P 2K5
 1-800-565-5007 CRAIGATTACHEMENTS.COM

SERIAL NUMBER	PART NUMBER
MACHINE	MANUFACTURE DATE
WEIGHT LBS KG	SAFE WORKING LOAD (SWL) LBS KG
WORKING PRESSURE (MAX) PSI MPA	WORKING PRESSURE (MIN) PSI MPA

MADE IN CANADA
 PATENT NO.10,400,419 B2

PARTS

To provide you with the most UP-TO-DATE part information, parts diagrams for this attachment have been moved to our Portal website. Please use these diagrams and parts lists to locate your replacement parts.

<https://portal.craigattachments.com/>

When servicing your attachment, remember to use only original manufacturer replacement parts. Substitute parts may not meet the standards required for safe and dependable operation.

To facilitate parts ordering when contacting any of our branches, please have the product serial number or product part number for your attachment ready to ensure that you receive the correct parts for your attachment.

The product serial number and product part number for your attachment should be recorded in the space provided in this manual. This information may be obtained from the serial number identification plate located on your attachment.

NOTE: Most parts orders (in stock) received by 12:00pm (Atlantic Standard Time) can be shipped the same day or following business day.

WARRANTY

To provide you with the most UP-TO-DATE warranty information, warranty procedures, technical documents, product terms, and product registration, please go to our website at:

<https://www.craigattachments.com/>

NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. In the bottom-left corner, there is a decorative graphic element consisting of overlapping geometric shapes in light grey and pale yellow. The overall appearance is that of a clean, unused page from a notebook or a template for writing.

NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. In the bottom-left corner, there is a decorative graphic consisting of overlapping geometric shapes in light gray and light beige colors. The overall appearance is that of a clean, unused piece of stationery or a template for writing.



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