PIERCE

CHEVY/GM 1988-1998 SHORT BED

2-TON DUMP HOIST

(SOME 1999-2001)

Installation Instructions & Owner's Manual

Please thoroughly read all instructions before beginning installation.

For technical help, call the tech support office at 800-658-6301

Monday-Friday 8:00AM to 5:00PM Central Time

WWW.PIERCEARROWINC.COM

DK2UCSBKPD Parts Listing

- 1 PM-3551 Hydraulic Pump (power down option will contain PM-319 Hydraulic Pump)
- 1 Scissor Assembly (Contains black scissor frame and hydraulic cylinder)
- 1 Upper Frame (Red, 16.25" x 18.5")
- 1 Lower Frame (Red, 7" x 20.25")
- 1 Lower Frame Support Bracket (Red, 7" Angle)
- 1 Lower Frame Cab Support (Gray Primer, 2" x 48" Flat Bar)
- 1 Fuel Filler Pipe (8" x 10" galvanized pipe)
- 1 Parts Box
 - Installation/Owner's Manual
 - Electrical/Hydraulic/Hardware Bag

<u>Electrical</u>

- 20' #4 Black Wire
- 20' #4 Red Wire
- 6x 5/16" Battery Eye
- 1x 200 Amp Breaker
- 1x 2-Button Pendant Control

Hydraulic

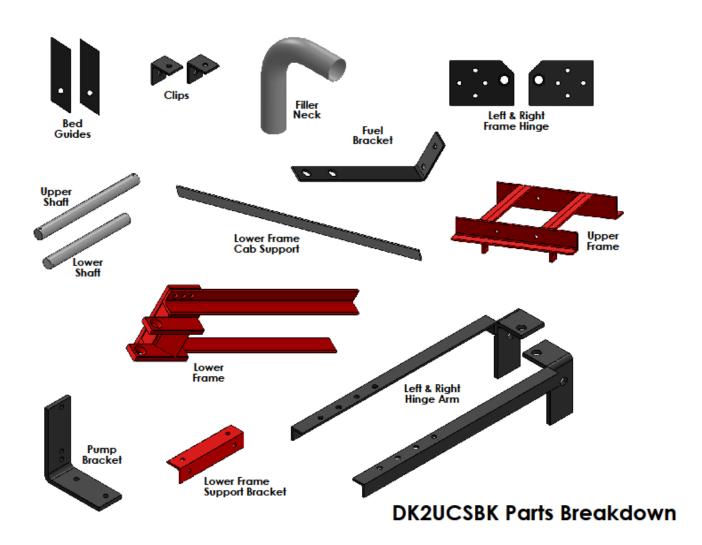
- 1x 5' Hydraulic Hose
- 1x 7' Hydraulic Hose
- 1x 90° ¼" Pipe Pump Fitting (Standard only with gravity down kits)
- 2x 90° O-Ring Pump Fitting

<u>Hardware</u>

- 2x Hex Screw, 5/8"-11 x 2-1/2" Grade 8
- 2x Flat Washer, 5/8"
- 2x Lock Nut, 5/8"-11 Grade 8
- 24x Hex Screw, 3/8"-16 x 1" Grade 8
- 30x Lock Nut, 3/8"-16 Grade 8
- 8x Tap Bolt, 3/8"-16 x 3"
- 14x 3/8" Flat Washer
- 4x Cotter Pin, 1/8" x 2"
- 2x 1/8" Cable Clamp
- 2x Rubber Bumper
- 1x 3" Hose Clamp
- 2x 2-1/4" Hose Clamp
- 2x Hex Screw, ½"-13 x 2"
- 2x Lock Nut, ½"-13
- 1x Scissor Support Cable

Steel Parts Assortment

- 2x Frame Hinge (Black, 5" x 4", w/Welded Pipe)
- 2x Bed Hinge (Black, 5.5" x 24")
- 2x Clips (Black, 2" x 2" x 1.5")
- 1x Lower Shaft (15/16" x 8.75")
- 1x Upper Shaft (15/16" 10-1/8")
- 2x Guides (Black, Parallelogram, 6" x 1.5")
- 1x Pump Bracket (Black, L-Bracket, 7" x 6")
- 1x Filler Bracket (Black, L-Bracket 4" x 12")



Important Safety Rules

- Follow all safety rules provided with the power tools used to install your kit.
- Use correctly sized lifting equipment to raise the bed of your truck.
- Always have a backup device in place when working under the bed on your truck. This is in addition to the primary hoist or prop mechanism.
- Wear safety glasses.
- Use UL rated grounded electrical cords and tools.
- Your gas tank is located very close to the scissors and other kit components. Cover with a fireproof tarp and do not allow any sparks in this area. Clean any spills with water.
- Check bed clearance after the hinges are installed to ensure that the bed will not hit the cab during operation.
- Always level the load in your bed.
- > Be sure no one is close enough to be injured when you dump the load from your bed.
- ➤ Do not exceed the cargo capacity as listed by the truck manufacturer. The kit will lift a level, evenly distributed load of 4000 lbs., including the weight of the bed.
- Dump the load in your truck when your truck is level.
- Grease pins and all moving components monthly.
- ➤ Tow trailers only with an appropriated classified receiver hitch. Do not use the bumper for any towing.

Tools and Equipment

Hacksaw or reciprocating saw

Welder or weld shop availability

Correctly rated hoist or lifting device

Cutting torch

Portable electric drill and various sized drill bits

Various Sockets, wrenches, and a 3/16" Hex Key

Tape measure

C Clamps and vise grips

Safety glasses

Welders mask/helmet

1 gallon of automatic transmission fluid

INSTALLATION OVERVIEW

Read all safety rules. Check the parts list. Disconnect the battery. Remove your bumper. Remove the gas filler from the bed. Disconnect or remove wiring between the frame and the bed. Remove or shorten any spare tire lowering device that would interfere with bed rotation. Remove the bolts holding the bed to the frame. It is not necessary to completely remove your bed. It must be raised high enough in the rear to install the hinges safely. Install the hinges per the directions provided later in this manual. Install the upper frame between the two bed cross members located directly above the main frame. The main frame cross member is located near the front spring hangers for the rear suspension. The left to right position for the upper frame should be as close to the truck centerline as possible, but offset enough that the scissor assembly and lower frame will clear the gas tank by ½" or more. See the directions provided later. The scissor assembly will extend rearward toward the rear end. Always check clearance of brake lines and electrical components to prevent any accidental damage. The position of the scissor assembly will be adjusted up and down by either moving the scissor assembly fore or aft. When the bed is down, the scissor assembly is about level. We provide a cable to support the back end of the scissor to prevent excess movement up/down when your truck hits bumps.

INSTUCTIONS FOR 1988-1998 CHEVY/GM SHORT BED HOIST

NOTE*

This kit fits all 1988-1998 GM and Chevrolet short bed trucks. However, some 1999-2001 models were produced using the channel frame used in 1988-1998 trucks. These models will use the DK2UCSBK. If you are not sure, look at your rear wheel well. Just forward of the rear wheel on the side of the main frame is a 3" or 3.5" diameter hole where the round cross member is welded to the main frame. If you have this frame, please call to report this issue so corrective action may be taken.

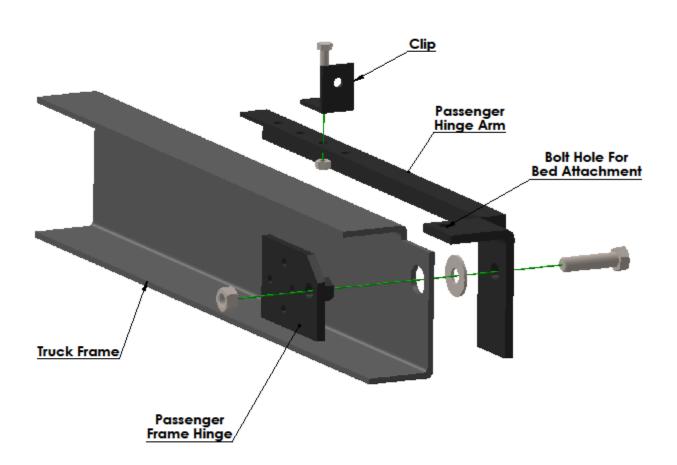
REAR HINGES:

Remove the gas filler assembly from the bed. Mark the original position of the bed on the frame. Remove the spare tire lowering mechanism from the bumper. Remove the rear bumper. Disconnect the wiring to the bed. Remove the bed to frame bolts.

Note: There is a raised lip about 3" square that surrounds the rearmost bed to frame bolt. The outer lip, running lengthwise, prevents the hinge arm from fitting level on the bottom of the bed. Hammer that outer lip flat.

When installed, the bed should remain in its original factory location. Use the bed to determine the mounting holes. Raise the rear of the bed 6 to 12 inches above the frame. Attach the hinge arm to the bottom of the bed at the rearmost bed to frame mounting hole. You may use the factory bolt here. The long arm of the hinge arm will extend along the outside of the chassis frame. The long leg of the hinge arm has four holes along the top edge. One clip will install on each arm, on the top, where the back edge of the clip can mount against the rearmost bed cross member. Lower the bed so the hinge arm rests on the frame in its original factory position. Mark on the frame at the front edge of the hinge arm, and at the back edge of the hinge arm. Raise the rear of the bed again. Cut a rectangular piece off the top of the chassis frame, from the front mark to the rear mark. That will be ½" down, and 2.5" forward, horizontally. You may find this cut reaches the end of the frame. This cut provides a recess for the top of the hinge arm so it does not hold the bed up from the original position. The pivot hole is in the vertical portion of the hinge arm, just outside the frame. Be sure the hinge arm is aligned with the centerline of the truck and not rotated left or right. Mark through the pivot hole on the frame, the point at which the pivot bolt will pass through the frame to enter the pivot hole in the hinge arm. The hinge will fit inside the frame with the welded pipe projecting from the inside of the frame, through the frame, aimed exactly at the pivot hole. A clearance cut must be made in the frame for the welded pipe to pass through the frame. With the weld around the pipe, a 3/4" radius cut around your mark is required. This cut will usually extend off the rear edge of the frame, so only a semicircle cut is necessary. Now place the hinge on the inside of the frame with the welded pipe extending

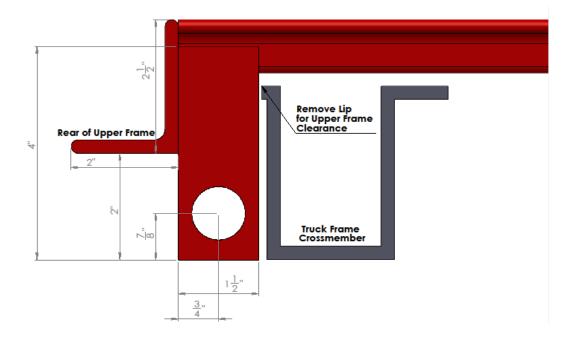
through the semicircular cut straight toward the pivot hole in the hinge arm. Install the pivot bolt and nut loosely. Tighten until the clearance is gone, but not clamping. Mark the hinge bolt locations on the frame. Remove the hinge, drill the hinge holes, and mount the hinge. Install the pivot bolt and self-locking nut. If there is excessive clearance between the welded pipe on the hinge and the pivot hole on the hinge arm, that clearance can be reduced by installing 5/8" washers. The pivot bolt should be tight enough to remove the clearance and loose enough for the bed to freely rotate. The hinge arm should rotate without hitting the bolt heads securing the hinge to the frame. All pivot points should be heavily greased at final assembly. Reconnect the wiring.



UPPER FRAME:

*Before installing, you must make some alterations to the truck frame cross member.

The upper frame installs between the front bed cross member and the second bed cross member. The main frame cross member passes under the bed so close to the second bed cross member that an 8"-12" wide notch must be made in the rear lip of the main frame cross member to allow room for the hinge bracket. The upper frame hinge will extend downward through the notch made. The notch should be cut so that when the scissor assembly is attached to the upper frame bracket, the scissor will be as close to the truck centerline as possible, but still clearing the adjacent fuel tank by at least ½".



The entire upper frame/scissor/lower frame will be parallel to the truck centerline, offset to the passenger side, enough to clear the fuel tank. The upper frame attaches to both bed cross members using four 3" bolts, passing horizontally through the upper frame angle, both front and rear walls of the bed cross member, and through a washer. It is easy to crush the hollow bed cross members if the bolts are overtightened. Self-locking nuts are provided so they will not work loose.

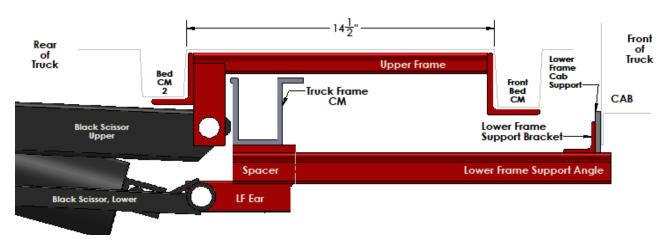
SCISSOR ASSEMBLY:

Attach the top section of the scissor assembly to the upper frame hinge using the longer (15/16" x 10-1/8") shaft. Secure with the provided cotter pins. When the scissor assembly installed, it extends rearward, above the differential. Relocate any brake lines on the differential to the side, just below the top, just in case the scissor should ever contact the differential. Temporarily block the scissor assembly high enough so that it will never contact the differential, even if the truck is loaded to the suspension stops.

LOWER FRAME:

Attach the lower frame to the bottom half of the scissor assembly using the shorter (15/16" x 8.75") shaft. Secure with the provided cotter pins. Apply a rearward force and lift the lower frame to the main frame cross member. Since the scissor/upper frame connection is not adjustable, the only adjustment to the scissor position above the differential is the location of the lower frame. Determine install location of the lower frame using the set of holes on the lower frame closest to the scissor mounting tabs. Check for clearance on the rear of the scissor to the differential. If it is too close, use the second set. If it is still too close, use the third set. Mark the main frame cross member through the holes in the lower frame for drilling. Two ½" bolts will connect the lower frame mounting pad to the main frame cross member. The front two angles of the lower frame extend forward, under the cab.

The support angles will attach to the cab using the lower frame support bracket, attached to the lower frame cab support. Start by attaching the lower frame support angle to the lower frame support bracket just behind the cab, with a $\frac{1}{4}$ " gap to allow placement of the lower frame cab support. Place the lower frame cab support between the cab and the lower frame support bracket. Center the lower frame cab support on the cab. Mark and drill six 3/8" holes, two of which must be through the lower frame support bracket, spaced across the cab support to evenly distribute the weight. Attach using 3/8"- 16×1 " bolts and locknuts.



RUBBER BUMPER PADS:

The bed should contact these for a quieter operation. Clean off the desired location on the truck or bed frame, near the front of the bed. Remove the adhesive back, and attach the rubber bumper pads.

FUEL FILLER:

The fuel filler can be shortened and left in place at the front of the bed. Simple, but requires raising the bed a short distance to add fuel. The alternative is to install the filler in the wheel well, as high as possible and clear of the wheel. You will need to use the 8" x 10" fuel filler pipe and both 2-1/4" hose clamps to extend the filler neck to the wheel well.

Cut the rubber hose between the fuel tank and the filler so there is enough hose at the tank end for the short end of the elbow to enter the hose 1.5" and clamp with a hose clamp. Attach the filler and remaining hose to the long end of the rear wheel well so the filler cap extends just past the two holes in the L-bracket. You must shorten the hose for an exact fit. The filler should be in the upper forward part of the wheel well opening, at an angle to meet a fuel pump nozzle from a fuel pump. The filler must be located so the tire will not touch it at any point. Use the supplied 3" hose clamp to pass through the holes in the L-bracket and around the filler. The vent hose must also be extended from the tank to the filler. The third small vent hose can be relocated to the back of the cab where it will not interfere with movement of the bed when dumping.

SUPPORT CABLE:

There is some slack in the scissor assembly when installed. The provided cable can go under the scissors, attaching to both left and right main longitudinal frame members. Alternatively, a ¼" x 2" flat bar (not included) can be welded to both left and right frame members toward the end of the scissors furthest from the lower frame. A covering of rubber or hose will prevent rattles. This supports the weight of the scissors and unloads the hinge pins, as well as keeps the scissor assembly from hitting the differential.

PUMP:

It is recommended that the pump mount to the outside of the right frame, just forward of the rear spring hanger (This is only recommended, not required. The pump can mount to any "safe" location) using the 8" x 7" L-bracket. The pump should be mounted level, with the vent/filler up, using (2) 3/8"-16 x 1" screws.

You may have to remove the magnetic coil in order to attach the adapter fitting to the pump body. Install the pump fitting and attach the hydraulic hose. Attach the opposite end of the hydraulic hose to the base end of the hydraulic cylinder.

On power down kits, the pump will have (2) ports. The port marked C1 is the high-pressure port. The port marked C2 is the low pressure (return) port. If the pump ports are not labelled, the port on the left-hand side (with the motor pointing towards you, and the reservoir pointing away from you) is the high-pressure port, and the port on the right side is the low-pressure (return) port

The pump's reservoir is supplied with a temporary plastic plug in the fill opening. Fill with up to 1.5 gallons of automatic transmission fluid (Actual amount will vary by pump supplied). After filling the reservoir, install the vented plastic plug into the fill opening. The vented plug is packed in the pump box.

GUIDES:

The guides are the 2 parallelogram shaped pieces that attach to the bed and provide alignment of the bed to the truck, side to side. They attach to the front of the bed and contact the frame, either inside or outside. They also prevent any side to side movement when the bed is down. The bottom of the guides are pointed, so be sure that they do not contact anything other than the edge of the left and right frames.

WIRING:

Wired pendant control:

The power wire (green) on the pendant control will connect to the large power terminal on the solenoid. The "start" wire (black) will connect to the small terminal on the solenoid. The "down" wire (white) will connect to the small terminal on the magnetic coil on the C1 port.

On power down pumps, the "up" wire (red) will connect to the magnetic coil on the C2 port.

*To install a wireless remote, refer to the manufacturer's installation instructions.

Optional In-Cab Toggle Switch Wiring:

Mount the switch in the dash, or somewhere convenient from the driver's seat. The switch will mount in a $\frac{1}{2}$ " hole. Orient the switch so it moves up and down, vertically. Using the 18/3 ribbon wire, connect the brown wire to the center terminal on your toggle switch. The yellow wire will mount to the top terminal, and the green wire will connect to the bottom terminal.

Positive:

Mount the circuit breaker as close as possible to the battery. Cut the #4 gauge red

wire so there is enough cable to reach from the battery's positive terminal to the circuit breaker with a little slack. Connect the short cable to the positive terminal and the circuit breaker terminal marked "BAT LINE". Using the remainder of the red wire, connect from the circuit breaker terminal marked "AUX LOAD" to the large terminal on the pump solenoid. Be sure that the red wire does not rub on anything that has a sharp edge, generates heat, or has moving parts.

Negative:

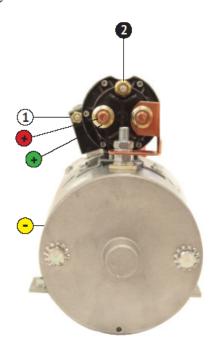
Connect the #4 gauge black wire to the mounting bolt on the side of the pump labelled "GND". Route the black wire back to the battery. Connect the black wire directly to the negative terminal of the battery. The ground wire MUST be attached as described to the pump and to the battery. Do NOT cut the black wire short and ground to the frame.

NOTE* Be sure not to connect any wire to the solenoid terminal that has a large copper buss bar connecting to the single pump motor terminal. Do not allow any wiring to touch the buss bar, or it's connections. It is NOT a ground, it is the final connection to the motor.



BUCHER PUMP

PM319 Bucher Pump



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CATEGORY

PUMP

PART NO.

PM319

PRODUCT DESCRIPTION

Bucher Pump

WIRING DESCRIPTION

This chart depicts wiring from a Bucher PM319 pump to the Pierce CP271MTE.

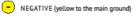
NOTE: Place breaker as close to battery as install allows. Use #4 gauge cable for all connections. Use a 5/16-18" x 3/4" bolt for the ground connection. Wiring not included.

WIRING CHART

Connect the wires to the corresponding signs.





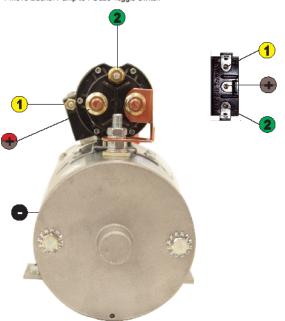






BUCHER PUMP

Pm319 Bucher Pump to PS525 Toggle Switch



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CATEGORY PUMP

PART NO. Pm319, PM3196P

PRODUCT DESCRIPTION

Bucher Pump to Toggle Switch

WIRING DESCRIPTION

This chart depicts wiring from a Bucher PM319 pump to the Pierce PS525 Toggle Switch.

NOTE: Place breaker as dose to battery as install allows. Use #4 gauge cable for all connections. Use a 5/16-18" x 3/4" bolt for the ground connection. Wiring not included.

WIRING CHART

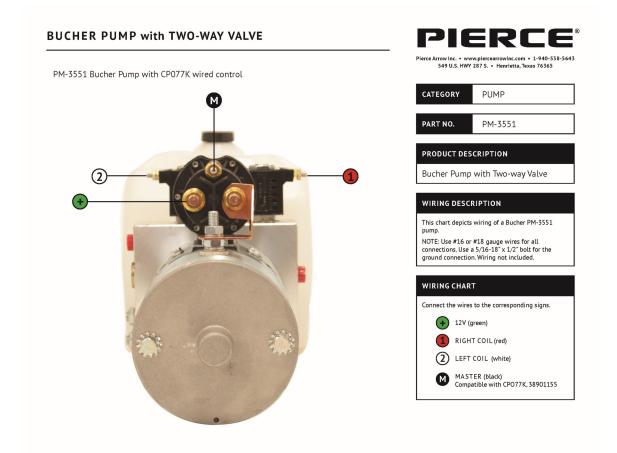
Connect the wires to the corresponding signs.

POSITIVE (red #4 Cable and Brown)

NEGATIVE (Black #4 Cable)

1 DOWN (Yellow)

2 UP(Green)



REAR BUMPER:

The rear bumper is only decorative and provides no function when the hoist kit is installed. Trailers should NOT be towed by the bumper. If there is no receiver hitch, the bumper brackets should be welded to the hinge arms so the bumper will rotate with the bed. The warning label provided with the kit should be applied to the bumper where it is clear and visible.

TOWING:

Receiver hitches should be removed before installing your hoist kit. Upon completion, raise the bed to the highest point, place your receiver hitch near the frame where it is clear of the bed and bumper. You will need to cut and modify the receiver hitch to fit in this new, closer to the front, location. The receiver should be reinforced and welded in place. Note that any modification to the receiver hitch MUST result in a unit that is as strong as in its original configuration. A longer ball mount must be purchased or fabricated from a 2" x 2" flat bar. Check for clearance; This way the bed cannot be inadvertently raised and damaged by the ball mount.

Alternate options:

- Leave receiver hitch in the original location. Remove the OE bumper.
- Leave receiver hitch in the original location. Remove the OE bumper. Fabricate a 1/3 length bumper for the left and right, attach to the hinge arms. The center 1/3 is open to clear the receiver hitch.
- Leave the receiver hitch in the original location. Remove the OE bumper. Install a 2" x 4" rectangular tube just above the receiver hitch and weld it to the frame. It will be a stationary bumper. The 2" dimension is up/down, the 4" dimension is left/right. This choice results in the strongest bumper system and does not interfere with any towing function.

MAINTENANCE:

- Grease all pins, scissor assembly and hinges monthly.
- Fluid should be changed yearly. Once the reservoir is drained, remove
 the reservoir. Using a mild solvent, clean the screen filter on the suction
 tube. While the reservoir is off, clean out any debris. Re-install the
 reservoir, making sure to lubricate the sealing o-ring with hydraulic oil
 before seating to assist in re-installation. Tighten all screws/ clamps.
- Check wiring, all connections, terminals and battery yearly. Corrosion
 will cause voltage drops. When corrosion is found, remove any
 corroded wire and replace any terminals when necessary. If any wire is
 found frayed or cut, it must be replaced.

TROUBLESHOOTING:

- Bed will not lift:
 - First, check your voltage at the pump. Make sure that there is 12V at the solenoid terminal. Operate the pump and check the voltage again. Power should stay near 12V, but should not drop below 12V. If this is not achieved, check all wiring and all connections.
 - On Power down pumps, make sure that the pump is plumbed properly. The PM-3551 pump has two hydraulic ports. The port labelled C1 should be plumbed to the base end of the cylinder. The port labelled C2 should be plumbed to the rod end of the

cylinder.

Pump is slow

- First, check your voltage at the pump. Make sure that there is 12V at the solenoid terminal. Operate the pump and check the voltage again. Power should stay near 12V, but should not drop below 12V. If this is not achieved, check all wiring and all connections.
- Check suction tube filter for blockage (refer to maintenance).

Leaks

- Upon installation, there may be a bit of fluid seeping from the cylinder vent. This is not a leak, but merely residual fluid from pressure testing the cylinder.
- If fluid is leaking from any fittings or hose, simply tighten the fitting. DO NOT use pipe thread sealant tape on any fittings. Only use pipe thread sealant paste. Tape can break loose and cause blockages in the hydraulic system.

In the event you need any assistance please call 800-658-6301

Official Pierce Arrow Inc. Product Limited Warranty

Pierce Arrow Inc. warrants that the goods, equipment, and merchandise manufactured by Pierce Arrow Inc. are free from defects in material and workmanship. The limited warranty includes replacement or repair of defective mechanical and electrical parts for a period of two years from the date of shipment by Pierce Arrow Inc.

OBTAINING PIERCE WARRANTY SERVICE

Pierce Arrow Inc. must be notified of any defect before repair or replacement may be granted. The merchandise must be delivered by the purchaser to Pierce Arrow Inc. in Henrietta, Texas at the purchaser's expense. Any repairs not made by Pierce Arrow Inc. are not covered by the limited warranty and are the responsibility of the purchaser. Pierce Arrow Inc. reserves the right to repair or replace defective parts or products in its sole discretion. The cost of any repairs not covered by the warranty will be charged to the purchaser.

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The Pierce Arrow Inc. limited warranty does not cover purchaser's cost of labor, transportation, shipping damages, installation or removal costs, down time, loss of profit or goodwill, or any other special, incidental, indirect, or consequential damages, concerning or related to any product or part, whether based upon negligence, strict liability, breach of contract, breach of warranty, misrepresentation, or any other legal theory. Merchandise manufactured by Pierce Arrow Inc. is not designed or intended for the movement of people and are not to be used in the operation of elevators or other improper uses. Any improper use of the product may void the warranty.

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When placing an order with Pierce Arrow Inc., the terms and conditions provided for payment, shipping, delivery and claims create an agreement between the purchaser and Pierce Arrow Inc. The agreement is to be performed in Clay County, Texas.

RETURNS

No returns are accepted without prior authorization. All items must be returned in their entirety. Please contact a sales representative for authorization. Upon authorization, returns must be shipped freight prepaid and may be subject to a 15% restocking fee. Please do not send returns COD. No returns will be accepted later than 30 days from the date of invoice.

DAMAGED GOODS

Pierce Arrow Inc. is not responsible for, and has no liability for:

Damage arising during shipment, damage arising during purchaser's assembly, installation, or construction of or with the products, and damage arising from accident, misuse or any use for which the equipment was not intended, improper or unauthorized repair, or weather or road conditions.

CLAIMS

Claims for breakage or damages during shipment must be made to the carrier at the time of delivery. If a signature is required, you must notify the driver and sign that there was damage. You must notify Pierce Arrow Inc. of the damage promptly so that a claim can be filed.