Series 6200
Pneumatic Chemical Injection Pump
Operating Manual

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Congratulations! You have chosen the finest, most versatile chemical injection pump made; designed to exacting specifications for long life, reliable performance, and low maintenance. To ensure proper operation and to maximize the Series 6200's durability, please read and follow this manual. Failure to correctly install and maintain the pump is the primary cause of premature pump failure and voids the product warranty.

NOTE:	This IOM applies to the CheckPoint 6212 Pneumatic Chemical Injection Pump, part number P621277Q3.

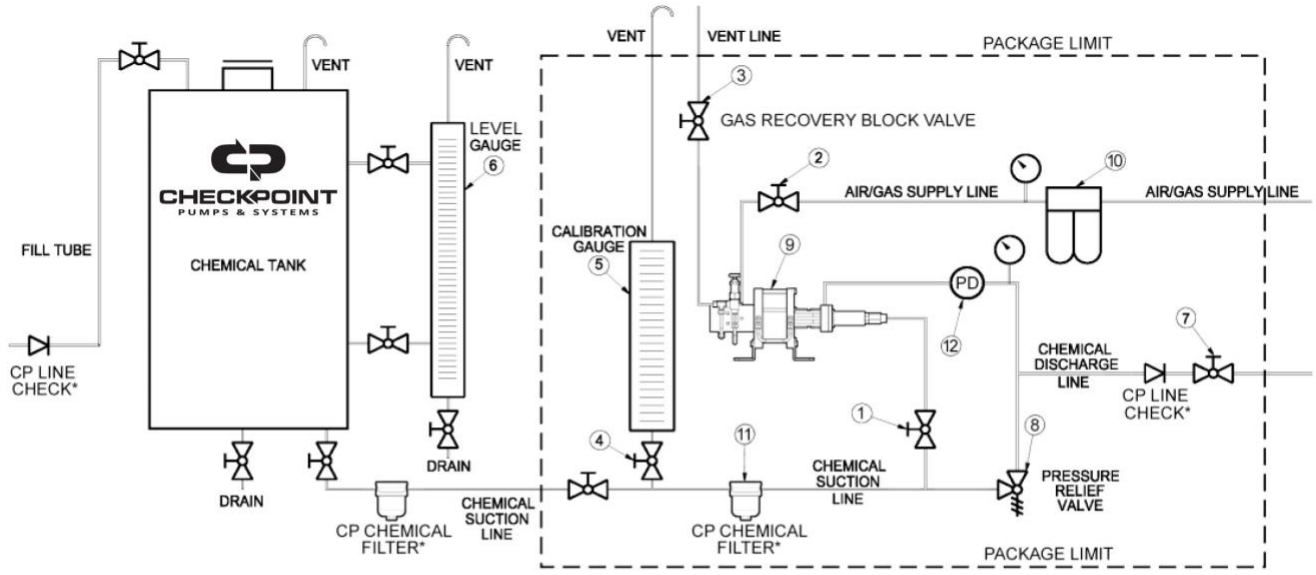
NOTE:	Important illustrations, graphs, and charts are located throughout this manual, with cutaway drawings of the pump in the back.

1. PUMP INSTALLATION

1.1 Process Design & Setup

1.1.1 Before installation, please inspect the pump carefully for any possible in-transit damage. If the pump appears damaged, call your authorized CheckPoint distributor or call CheckPoint customer service directly at (800) 847-7867 or (504) 340-0770 to confirm damaged condition. If we determine that damage has occurred in transit, you will need to file a claim with the carrier.

FIGURE 1: TYPICAL INSTALLATION SCHEMATIC



CheckPoint packages are available for the 6212 that contain all necessary components as indicated within the Package Limit line. We can supply packages that contain ALL the components, including the tank, mounted on a single skid with or without full leak containment.

1. Suction line block valve	*4. Calibration gauge block valve*	*7. Discharge line block valve*	*10. Regulator/Lubricator/Filter*
2. Air/Gas supply block valve	*5. CP Calibration gauge**	*8. PRV - discharge line*	*11. CP Chemical Filter**
3. Gas recovery block valve	*6. Tank gauge*	*9. CP 6212 Chemical pump**	*12. Pulsation Dampener*

All items in Figure 1. can be purchased from CheckPoint. Call today for our latest prices on pumps, gauges, packages and other components.
**CheckPoint OEM products*

1.1.2 Referring to Figure 1 above, ensure that all necessary components are present in your injection system and in good working order. All the components shown above are recommended by CheckPoint to maximize productivity

and life of the pump in typical field or plant use. CheckPoint is available to answer your process questions or to help design and build a package system utilizing components appropriate for your application.

NOTE:	In Figure 1, the secondary chemical filter, vent line, and pressure regulator are optional under certain conditions but are highly recommended.

1.1.3 CheckPoint recommends horizontal mounting for the Series 6200 model pumps where possible. However, you may also mount the pump in other orientations, subject to the condition that the chemical head should be no higher than level with the motor.

CAUTION:	**If the pump chemical head ("wet end") is above the motor, gravity and plunger action will eventually pull chemical into the pneumatic motor, causing damage to the motor and atomizing chemical into the surrounding air.**

1.1.4 Either a suction-side calibration gauge or a discharge flow meter are the only means through which you can accurately set the flow rate of the pump. Many variables, including temperature, chemical viscosity, supply air pressure, etceteras, preclude the use of tables, graphs, or formulas to determine the speed of the pump. Also, without a calibration gauge or flow meter, it cannot be determined if the pump is primed and functioning normally. For instructions on the proper use of a suction-side calibration gauge, please read section 3.1.1 Setting Pump Speed Using a Calibration Gauge on page 8 for more information. The proper placement of a calibration gauge (labeled #5) is shown in Figure 1. CheckPoint offers a complete range of accurate and durable calibration gauges and discharge-side flow meters suitable for 6212 pump service.

NOTE:	It is necessary to attach a vent tube to the top of all calibration gauges, chemical tanks, and tank level gauges. The height of the top of each vent tube should always be greater than the highest possible liquid level in the system, and the tube should have means to prevent water entry, such as a 180 degree bend.

1.1.5 The Series 6200 does not require flooded suction or positive chemical pressure to prime, and can therefore be mounted above the chemical container. For a chemical with average viscosity, the pump will pull air out of the chemical line and prime from up to twelve feet above the liquid level in the tank. This feature is dependent upon proper adherence to all points made in Paragraph 1.1.6 below.

1.1.6 ALL COMPONENTS AND PIPEWORK BETWEEN THE CHEMICAL TANK AND THE SUCTION CHECK VALVE OF THE PUMP MUST BE 100% BUBBLE-TIGHT AND FULLY COMPATIBLE WITH THE CHEMICAL AND WITH EACH OTHER. FAILURE TO ADHERE STRICTLY TO THIS DIRECTIVE WILL LEAD TO LOSS OF PRIME AND DAMAGE TO THE PLUNGER SEAL AND PLUNGER. SPECIFICALLY:

1.1.6.1 Any fitting or screw-on joint without Teflon™ tape or other acceptable sealant may allow air at atmospheric pressure to enter the suction tubing, even if no chemical leakage is visible.

1.1.6.2 Dissimilar metals in the suction side of the injection system may react with each other, creating gas bubbles that will be carried into the pump head. All suction components, tubing, pipe, fittings, and valves must be composed of similar metals. 316L SS, and Hastelloy C are the only metals CheckPoint uses in our packages for suction side components. There are other acceptable choices; the key is that whatever metal is selected must be used in the entire suction side of the system.

1.1.6.3 Incompatibility between the chemical and the components in the suction side of the injection system may create gas bubbles that will be carried into the pump head. Some chemicals, for example, require Hastelloy™ or PVC fittings and tubing, while other chemicals may only require 316 SS.

1.1.7 The pump may be mounted to a skid or other surface in a number of ways, however, clamping around the outside of the pump can permanently affect the cylindricity of the air motor, voiding the product warranty. This method also reduces accessibility during maintenance and troubleshooting and is therefore not recommended. CheckPoint ships the 6212 with pre-drilled feet, and this is the recommended method for mounting the pump.

1.1.8 Always check to ensure that all process block valves (labeled as nos. 2, 3 & 7 in Figure 1) are closed prior to disconnecting or re-installing any chemical injection pump. There should always be a block valve placed between a properly installed pump and the process flow, the gas supply, the chemical supply, and the gas recovery outlet (labeled #3). Conversely, while the pump is running, all such block valves should always be open.

1.1.9 The pump suction line should be sized appropriately to the flow rate to avoid cavitatation. A general rule of thumb is to size the suction line such that instantaneous flow velocity through the line does not exceed 2 feet per second at any point. For multiple pump installations, for extremely viscous chemicals, and for chemicals with low vapor pressures, additional allowances may be needed. Contact CheckPoint or your authorized CheckPoint distributor for design assistance.

1.1.10 TO AVOID OVER-PRESSURING CHEMICAL DISCHARGE LINES, CHECKPOINT REQUIRES PLACING A PROPERLY TESTED AND CALIBRATED PRESSURE RELIEF VALVE BETWEEN THE DISCHARGE PORT OF THE PUMP AND THE PROCESS FLOW. THE RELIEF VALVE DISCHARGE CAN BE RUN TO A TEE UPSTREAM OF THE PUMP'S CHEMICAL SUCTION CHECK VALVE. FAILURE TO USE A PRV IS INHERENTLY UNSAFE AND MAY LEAD TO CATASTROPHIC FAILURE OF PROCESS EQUIPMENT DUE TO EXCESSIVE PRESSURE. CHECKPOINT IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY OVER-PRESSURIZED CHEMICAL. CheckPoint offers a range of pressure relief valves suitable for use with the 6212 pump.

CAUTION:	**When using a pressure relief valve, the chemical tank MUST BE properly vented to atmosphere to avoid the possibility of over-pressurizing the tank if the pressure relief valve actuates.**

1.1.11 Pulsation dampeners may be required in your installation depending on a variety of factors. Consult with CheckPoint if you have any concerns about pulsation.

1.2 Connecting The Chemical Supply

1.2.1 Clean suction lines and check chemical containers to ensure that they are free of all foreign matter, sand, sludge, or chemical buildup.

NOTE:	Removing foreign debris from suction lines and chemical containers will substantially extend the life of the packing and other components of the pump. Even a new chemical tank can contain debris that can be carried into the pump and damage it.

NOTE:	CheckPoint recommends using filtration to ensure a maximum particulate size of 140 microns. Multiple stages of filtration should be considered, depending upon the initial cleanliness level of the fluid media being pumped, to prevent cavitation and an increase in maintenance.

NOTE:	If premature scoring of the pump plunger or early packing failure is observed during operation, a likely cause is abrasive particles carried into the pump through the suction plumbing. Use of a pre-suction in-line chemical filter such as the CheckPoint Series FSTS and/or a ceramic or Hastelloy™ plunger is recommended if symptoms continue. Call CheckPoint for appropriate filter element sizing criteria.

CAUTION:	**Substantial scoring of the plunger can lead to severe leakage of chemical into the surrounding environment.**

1.2.2 Connect the chemical suction line to the suction check valve on the pump head. (See illustrations in the Parts List). The suction check valve is a male ¾" NPT. Care must be taken not to over-tighten NPT connections. For more information regarding the procedure for properly making NPT connections, please refer to the CheckPoint NPT connection procedure, available on request.

NOTE:	Always apply Teflon™ tape or other appropriate thread sealant to the check valve threads prior to attachment to prevent leakage.

NOTE:	Never re-locate the suction check valve away from the chemical head. To operate properly, the check valve must remain directly attached to the chemical head. (This may sound like common sense, but it happens more often than you would think.)

1.2.3 Connect your discharge line to the pump discharge port. (See illustrations in the Parts List). The discharge port is female 3/8" NPT. Note that there is no external discharge check valve on the 6212 pump, it is internal to the chemical head. Care must be taken not to over-tighten NPT connections. For more information regarding the procedure for properly making NPT connections, please refer to the CheckPoint NPT connection procedure, available on request.

1.2.4 Open the process block valve, allowing the process pressure to reach the chemical head. Correct any leakage observed.

CAUTION:	**The 6212 pump chemical head is rated for a maximum working pressure of 10,000 PSIG. If the discharge line is inadvertently blocked for any reason, the pump can generate pressures in excess of 10,000 PSIG. A relief valve MUST be *placed between the discharge port and the process flow to prevent this condition.* To predict the maximum pressure that can be developed by your pump, use the formula: [supply air pressure] x [amplification ratio] = [discharge pressure]. To find the amplification ratio for your pump, please see Figure 2 on page 7.**

NOTE:	Always open the process block valve (shown as number 7 in Fig 1) prior to operating the pump. Operating the pump with a closed block valve can generate enough pressure to rupture the discharge line, damage process equipment and the chemical head itself, and reduce the life of the pump.

1.3 Connecting The Supply Gas

1.3.1 Gas supply to the pump should be clean compressed air or natural gas at 50 PSIG minimum, 150 PSIG maximum. "Clean" means free of abrasive dust, sand or other grit that could abrade the seals inside the pump. If using natural gas, it must be free of most production enhancement chemicals and certain distillate products, especially salts and certain aromatics that can attack the motor end seals and/or the metallic elements in the air motor.

NOTE:	In warmer climates, it is not necessary to remove water and certain other liquids from the supply gas. The pump will not stall no matter how much liquid reaches the air/gas inlet. However, large slugs of liquid will slow the pump action substantially. In cold climates, there is high risk of liquids freezing inside the motor. Also, certain chemicals will degrade seals in the motor, so the supply gas must be specified as part of the ordering process so that CheckPoint can supply the correct seals for your application and/or advise appropriate gas conditioning equipment. CheckPoint offers a range of gas regulator/filter/lubricators ideal for 6212 pump applications.

CAUTION:	**Always use a gas pressure regulator if the possibility of supply pressures in excess of 150 psig exists. Allowing higher gas pressures to enter through the air/gas inlet will most probably result in damage to the motor seals.**

1.3.2 Liquids may also be used as a driver fluid, but pump speed will vary widely with the liquid viscosity. Call CheckPoint for performance data for the liquid you intend to use.

1.3.3 Blow the supply gas line clean to remove all foreign matter and debris.

NOTE:	Take care to prevent debris in the supply gas line from entering the main spool housing and switching valves, where it could accelerate seal wear and damage the main switching valve components.

NOTE:	In situations where sand, dirt, and other particulate matter may be carried in with the supply gas, a filter and/or a scrubber is recommended. CheckPoint can supply gas conditioning equipment suitable for your application.

1.3.4 Connect the supply gas line to the 1/2" Female NPT connection on the housing. To ensure positive injection, the supply gas pressure should be a minimum of 50 PSIG and a maximum of 150 PSIG, set according to the following formula:

$$\textbf{REQUIRED GAS INLET PRESSURE} = \frac{[\text{DISCHARGE PRESSURE}]}{[\text{AMPLIFICATION RATIO}]} \times 1.3$$

1.3.5 Faster pump speeds can be obtained by increasing the gas inlet pressure from the minimum required by the formula above.

NOTE:	To find the Amplification Ratio for your pump, please see Figure 2 below.

NOTE:	If the above formula yields a result of < 50 PSIG, use 50 PSIG as your supply pressure.

FIGURE 2: AMPLIFICATION RATIO TABLE, 6212

PLUNGER DIAMETER (IN)	AMPLIFICATION RATIO

0.750	**64**

2. GAS RECOVERY SYSTEMS - INSTALLATION

2.1.1 The exhaust gas can be exhausted directly to atmosphere, or can be recovered to a lower pressure gas system. If vented directly to atmosphere, CheckPoint supplies the pump with a muffler to reduce exhaust noise.

2.1.2 If recovering the exhaust gas, connect the gas recovery line from the process to the open 3/8" tubing connector on the pump. The pressure in the recovery line ("recovery pressure") must be lower than the supply pressure. To calculate the recovery pressure given your supply pressure in PSIG, use the following formula:

$$\textbf{RECOVERY PRESSURE} = \text{SUPPLY PRESSURE} - \frac{\text{[DISCHARGE PRESSURE]}}{\text{[AMPLIFICATION RATIO]}} - 30\ \text{PSIG}$$

2.1.3 For gas recovery systems, the maximum recovery pressure, based on a supply pressure of 150 PSIG (the maximum allowable supply pressure) is given by:

$$\textbf{MAXIMUM RECOVERY PRESSURE} = 120\ \text{PSIG} - \frac{\text{[DISCHARGE PRESSURE]}}{\text{[AMPLIFICATION RATIO]}}$$

2.1.4 For more information on how to set up a recovery system for your 6200 pump, please contact CheckPoint or an authorized distributor.

3. PUMP OPERATION

3.1 Setting The Pump Stroke Rate

3.1.1 Setting Pump Speed Using a Calibration Gauge

The following directions are for setting the pump speed using a calibration gauge. There are a variety of calibration gauges available, including a complete line of appropriately-sized CheckPoint gauges for every CheckPoint pump. To ensure that your pump is working as it should and that chemical is being delivered at the rate you need, it is important to use a calibration gauge or a discharge-side flow meter.

3.1.1.1 Most calibration gauges are designed to read properly when one full minute of pumping has taken place. However, if the liquid level drops too fast to allow for a full minute, shorter periods are acceptable. Try to size the gauge so that at least a 30 second test can be made, however, or a loss of accuracy will result.

3.1.1.2 Proper gauge placement and plumbing is important. Please refer to Figure 1 for appropriate valving and placement, and for reference numbers as used in this section. The calibration gauge is labeled as number 5.

3.1.1.3 With the pump either running or stopped, open the Gauge Fill Valve (shown as #4 in Figure 1). The gauge should begin to fill. Continue filling until the chemical level is at or near the top markings on the gauge, then close the Gauge Fill Valve.

3.1.1.4 Now ensure that the CheckPoint pump is running. Take note of the level of chemical in the gauge using the appropriate scale for the volume units you want to measure the pump's output in. Usually the gauge will show liters on one scale and quarts or gallons on the other. It is best to write down the number so that you can calculate flow accurately.

3.1.1.5 Open the Gauge Fill Valve (#4), and simultaneously close the Chemical Supply Valve (shown as #1 in Figure 1). This isolates the pump and gauge so that the pump is being supplied chemical directly from the gauge.

3.1.1.6 The level in the gauge should begin to fall. (If it does not, or if the level seems to go down and then back up with each stroke, refer to troubleshooting in *Section 5.1 on page 11*). When the liquid level in the gauge gets near the bottom of the gauge, or when one minute has expired (whichever comes first), stop timing, note the ending level on the gauge, and reopen the Chemical Supply Valve.

3.1.1.7 Write down the amount of time in seconds and the final gauge reading, then close the Gauge Fill Valve.

NOTE:	Failure to reopen the Chemical Supply Valve will result in the pump quickly depleting the remaining chemical in the gauge and running on air, necessitating pump re-priming.

NOTE:	In cases where the chemical flow rate is extremely low, you may need to time for longer than one minute to allow an adequate amount of chemical to move out of the gauge.

3.1.1.8 The pumping volume (in the units specified on the gauge scale) will be given by the following equation:

$$\textbf{PUMPING VOLUME} = \frac{[\text{END READING}] - [\text{BEGINNING READING}]}{[\text{DURATION OF READING IN SECONDS}]} \times 60$$

NOTE:	To ensure accurate stroke rate measurement, allow sufficient measurement duration. Where possible, allow at least thirty seconds of gauge drawdown.

NOTE:	At extremely slow stroke rates, only a small turn of the speed control valve is required to alter the stroke rate, so if readjusting the rate of the pump, it is helpful to turn the valve only a small increment (a couple of angular degrees) at a time.

FIGURE 3: VOLUME FACTOR TABLE, SERIES 6200

PLUNGER DIAMETER (IN)	VOLUME FACTOR
0.750	0.869

FIGURE 4: GENERAL CONVERSION TABLE

TO CONVERT:	TO:	MULTIPLY BY:
GALLONS	QUARTS	4.00
LITERS	QUARTS	1.058
CUBIC INCHES	QUARTS	0.0173
MINUTES	DAYS	0.000694

4. AIR/GAS CONSUMPTION

If emissions are a concern, refer to Section 2 for details on how to use the gas recovery feature of your CheckPoint pump.

Use the following equation along with the appropriate gas consumption factor from Figure 5 to calculate air/gas consumption.

Gas Consumption [SCFM] @ 68F = Chemical Flow Rate [GPH] * Gas Supply Pressure [PSIA] * English Gas Consumption Factor

Gas Consumption [Nm3/Hr] @ 0C = Chemical Flow Rate [LPH] * Gas Supply Pressure [BARA] * SI Gas Consumption Factor

NOTE:	Gas supply pressure value must be absolute pressure, not gauge pressure (Absolute pressure = gauge pressure + atmospheric pressure). For reference, the Earth's atmospheric pressure at sea level is approximately 1 atm or 14.696 psi or 1.0133 bar.

NOTE:	This is a theoretical consumption rate that will vary depending on gas density and other actual field conditions. Air/Gas consumption can be minimized by using the minimum supply pressure required to achieve the target application. Please contact CheckPoint for assistance estimating optimal supply pressure and associated consumption rate for a particular application.

FIGURE 5: GAS CONSUMPTION FACTORS

		GAS CONSUMPTION FACTOR	
PUMP SERIES	PLUNGER DIAMETER [IN]	ENGLISH SCFM @ 68F	SI METRIC NM3/HR @ 0C
6212	3/4	0.0123	1.0860

5. PUMP MAINTENANCE

The CheckPoint Series 6200 is designed to provide trouble-free operation for many years with little adjustment, lubrication, or other routine maintenance. However, like any other device, proper maintenance can extend the life of the product. This can include periodic cleaning of the gas and chemical inlets, and lubrication.

5.1 Lubrication

The CheckPoint Series 6200 motor was designed to run under "stone-dry" internal conditions in the motor end. However, regular lubrication will maximize the life of the pump and thus add value to your investment. In addition to minimizing friction within the pump, lubrication flushes out foreign debris, further reducing wear and tear on the mechanism.

5.1.1 ***Periodic Lubrication*** To lubricate the pump periodically, block off and then disconnect the air/gas supply line by unscrewing the fitting at the pump air/gas inlet. Introduce a light silicone-based lubricant or multigrade motor oil into the air/gas inlet. Reconnect the air/gas supply line and reintroduce gas pressure. Lubricant will become evenly distributed throughout the motor end of the pump within a few cycles.

5.1.2 ***Continuous Lubrication*** Lubricator bottles can be placed anywhere in the gas supply line prior to the pump's air/gas inlet. Set the lubricator rate as low as possible, one to two drops per minute, unless cold conditions dictate more in order to prevent freezing of the gas supply. CheckPoint offers both a small and a large in-line lubricator; call CheckPoint or your authorized CheckPoint distributor for details.

5.1.3 ***Recommended Lubrication Type*** A light hydraulic oil bearing the designation ISO 3448 viscosity no. 20-32 should be used. If atmospheric or other supply air/gas conditions present exhaust freezing issues, an antifreeze type lubricant such as Kilfrost may be used.

6. TROUBLESHOOTING

6.1 Pump runs, but chemical does not discharge at the correct rate

6.1.1 ***Suction check valve may be clogged with debris*** To flush, open speed control valve fully, allow pump to cycle at this maximum rate for at least 60 seconds, then return to the original setting. If no improvement is noted after three repetitions, remove the suction check valve from body of pump, blow out with air or water pressure, or rebuild if necessary, and reinstall.

NOTE:	CheckPoint FailSafe™ check valves do not need replacement when they do not check properly. A simple rebuild kit is available to replace the O-rings, which should correct all but the most severe check problems. If corrosion of the valve seat, retainer and/or poppet is apparent, a different type of check valve material is indicated.

NOTE:	Always replace Teflon™ tape or other appropriate thread sealant on check valve threads during reinstallation to avoid chemical leakage and/or air getting into the chemical head.

6.1.2 ***Pump may have lost prime/become "air locked"*** Check to ensure that there are no leaks in any process lines, particularly upstream of the pump in the chemical suction lines. If the pump is getting any air through the suction side, the pump will possibly lose prime. Please carefully read section 1.1.6 and its subparagraphs for more details. A common source of air in the supply is the block valve ahead of the suction check. Check this valve to make sure the stem packing is tight and that the materials of construction are compatible with the chemcial being pumped. Check also that the pump's packing is not leaking. Finally, on pumps supplying chemical into gas lines, it is possible that the discharge port may be leaking, allowing gas under pressure to "back into" the chemical head.

6.1.3 ***Check valves may have been re-located away from the chemical head of the pump*** The checks must stay directly attached to the head in order to facilitate chemical movement.

6.1.4 ***Chemical may be obstructed from entering the pump*** Plumbing upstream of the chemical head may have blockage preventing chemical from getting to the suction check valve. A common example is an in-line chemical filter becoming clogged with debris. Solution is to clean out suction plumbing and clean or replace chemical filter.

6.1.5 ***Calibration gauge may be reading incorrectly due to clogged air vent*** If the calibration gauge is not reading correctly, the user may be fooled into thinking the chemical is not getting into the process. Check for an obstruction in the gauge or in the air vent atop the gauge.

6.2 Pump does not stroke

6.2.1 ***Pump speed control valve may not be turned on*** Open the speed control valve fully (counterclockwise) until pump actuates. Then set desired stroke rate as described in *Section 3.1.2*.

6.2.2 ***Air/Gas supply pressure may be too low to overcome the chemical discharge pressure*** In many cases, a faulty pressure gauge or regulator is at fault. See *Section 1.3.4* on page 7 to determine the minimum supply pressure for your discharge pressure.

6.2.3 ***Gas recovery pressure is too high relative to gas supply pressure (Gas Recovery applications only)*** In pumps where the exhaust gas is being recovered, the pump not only has to overcome the chemical discharge

pressure but also the gas recovery pressure. Refer to *Section 2.1.1* on page 8 to determine the appropriate recovery pressure.

6.2.4 ***Pump switching valve may be clogged or "gummed-up" with paraffin or trash*** Disconnect air/gas supply, then pour any type of oil or solvent into the pump air/gas inlet. Re-connect air/gas supply and open speed control valve. Repeat two to three times if necessary. When pump is running normally, reset pump stroking rate as described in *Section 3.1.2*.

6.2.5 ***Spool may be swollen*** Occasionally, certain types of chemicals that are introduced into the motor through the air/gas inlet may be absorbed by the standard spool material, causing it to swell. If, after removal of the housing with the spool still inside, the spool will not move within the housing, call CheckPoint to order a replacement spool made of a different material.

6.2.6 ***After a repair, alignment screw may have been incorrectly reinstalled*** If care is not taken to replace the alignment screw finger tight prior to tightening by wrench, it may be that it has been screwed into the plastic spool rather than into the alignment slot in the spool. Normally this can be corrected by removal of the alignment screw and replacement after properly repositioning the clock position of the spool inside its housing.

6.2.7 ***Seals may be worn in the motor*** If the pump has been in service for some time, the motor seals may have worn to the point where the pump can no longer switch. If air leakage is constant during stall, worn or damaged seals are indicated. Performing an overhaul on the motor and replacing all seals is required.

6.3 Pump strokes erratically

6.3.1 ***Supply pressure may be fluctuating*** Check supply pressure with an accurate pressure gauge to ensure constant supply pressure. If fluctuations are observed, replace gas pressure regulator, or, if none exists, add a pressure regulator ahead of the air/gas inlet.

6.4 Chemical leakage from packing

6.4.1 ***Packing may be worn*** However, prior to replacing the packing, it is important to determine if wear is premature. Common causes of prematurely worn packing are:

6.4.1.1 ***Chemical may be attacking packing elastomer material*** The packing will appear swollen or badly damaged once removed from the packing gland if it is being attacked by the chemical. Contact CheckPoint or your authorized CheckPoint distributor. If the chemical has recently been changed or if the pump has just been placed in service, there is a good chance that new packing materials are needed to do the job.

6.4.1.2 ***Chemical may be attacking plunger material*** The plunger will be severely worn, pitted, or corroded when inspected.

6.4.1.3 ***Chemical may have abrasives suspended in it*** The plunger will appear scored and the packing will appear severely worn if trash in the chemical is indicated. CheckPoint offers high performance chemical filters appropriate for 6212 applications.

6.5 Other problems

If you are experiencing an operating problem not listed above, or if none of the above troubleshooting actions solves your operating problem, please contact your authorized CheckPoint distributor, or call CheckPoint directly at (800) 847-PUMP or (504) 340-0770, to determine appropriate next steps. Once CheckPoint has had the opportunity to help you troubleshoot your problem, please keep in mind the following regarding repairs:

6.5.1 ***CheckPoint offers exchange programs to keep you in service*** We will ship you a rebuilt pump, which you will be able to install prior to sending us your existing pump. When we do receive your pump, we will tear it down,

rebuild it, and report back to you any problems we uncovered. We offer a fixed-price exchange plan, an actual-cost plan, and a consigned exchange plan that allows you to stock rebuilt pumps and be charged only when you use them. Please contact CheckPoint to learn more about this unique service.

6.5.2 ***Nothing beats factory-direct repairs*** Although the Series 6200 has been designed to be easy to operate and to repair, the best way to ensure continued reliable service is to have your pump repaired at the factory. This is the only way to ensure you always get the quality and reliability you invested in when you purchased the product.

6.5.3 ***Remember that after you repair your CheckPoint pump, it should perform as well as it did when it was new*** If it doesn't, call us to determine what can be done to restore the pump to "like-new" performance.

6.5.4 ***Training sessions are available*** Please call us to set one up.