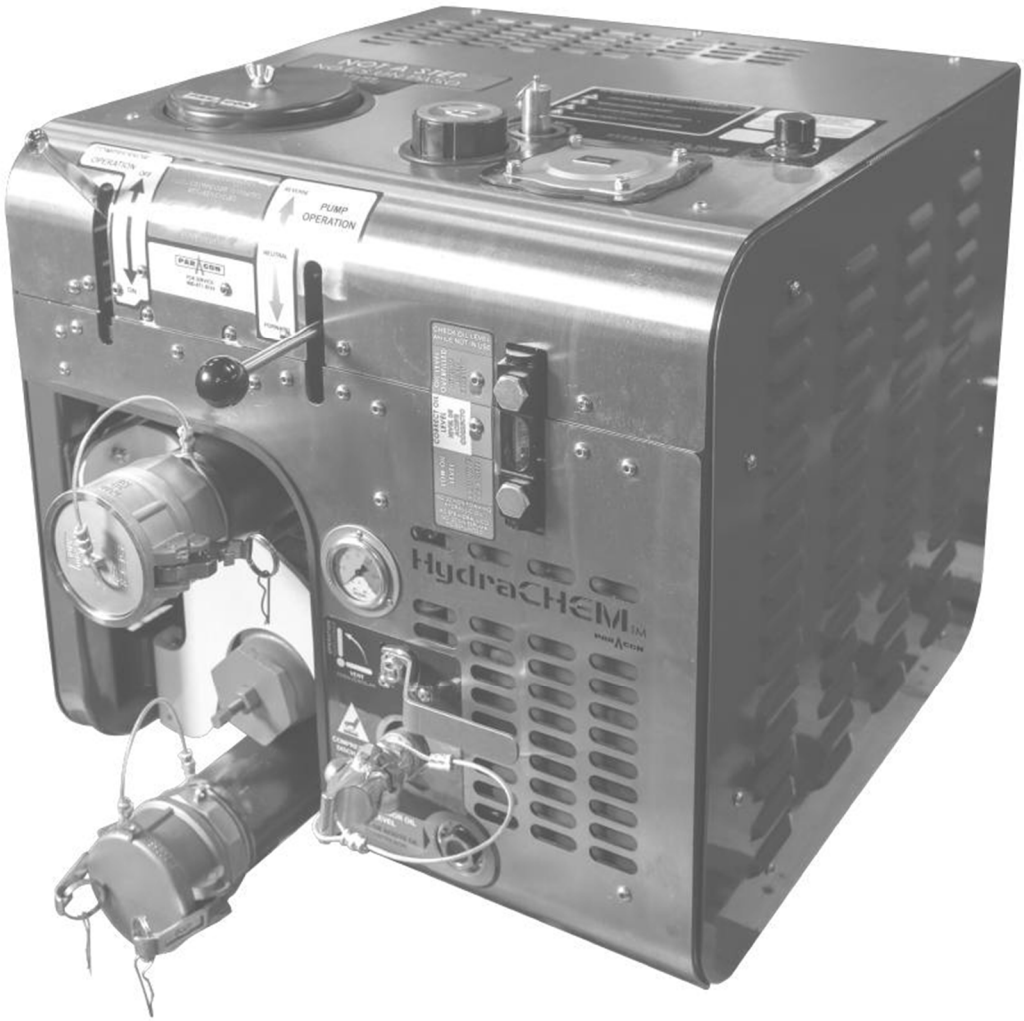
Installation and Operation Manual



HydraCHEM™
180

Models:
HydraCHEM 180

PARAGON®

PRGMAN-06
Version: A
January 25, 2024

Congratulations
on your new Paragon purchase

Table of Contents

Safety Notice

This manual is designed to be read to its entirety prior to installation or operation of this product.

Do NOT install or operate prior to reading this manual completely - injury or property damage can occur.

Use adequate protection and safety equipment while preforming the steps indicated in this manual.

Protect against hazards involved during the installation and operation of this equipment.

Failure to read this manual completely or heed these warnings could result in serious bodily injury or loss of life.

For equipment covered specifically or indirectly in this operation manual, it is important that all personnel observe the appropriate safety precautions to minimize the risk of injury.

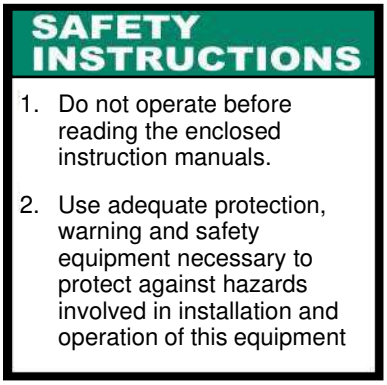
DO NOT....

- Attempt to install equipment with the truck engine running
- Allow the truck engine to be started while personnel are under the vehicle or working on any equipment
- Place any body part over any pneumatic (or hydraulic) leak or outlet while the equipment is in operation
- Engage or disengage driven equipment by hand from under the vehicle while the engine is running
- Use tools or equipment that are in poor or non-working condition
- Remove, obscure, cover, or paint over any warning labels

DO....

- Read and Understand all original equipment manufacturers manuals before installation or operation of any equipment installed in the HydraCHEM
- Follow all safety rules and regulations as it applies to the equipment provided
- Immobilize truck wheels with suitable chocks before working under the truck
- Block any raised equipment before working on or under the equipment
- Obtain proper training on tools and equipment that are required
- Ensure all tools and components are in good working condition
- Use all tools and equipment for its intended purpose only
- Repair any leaks promptly
- Remain a safe distance away from any moving components during operation

Safety Notice



NOTICE

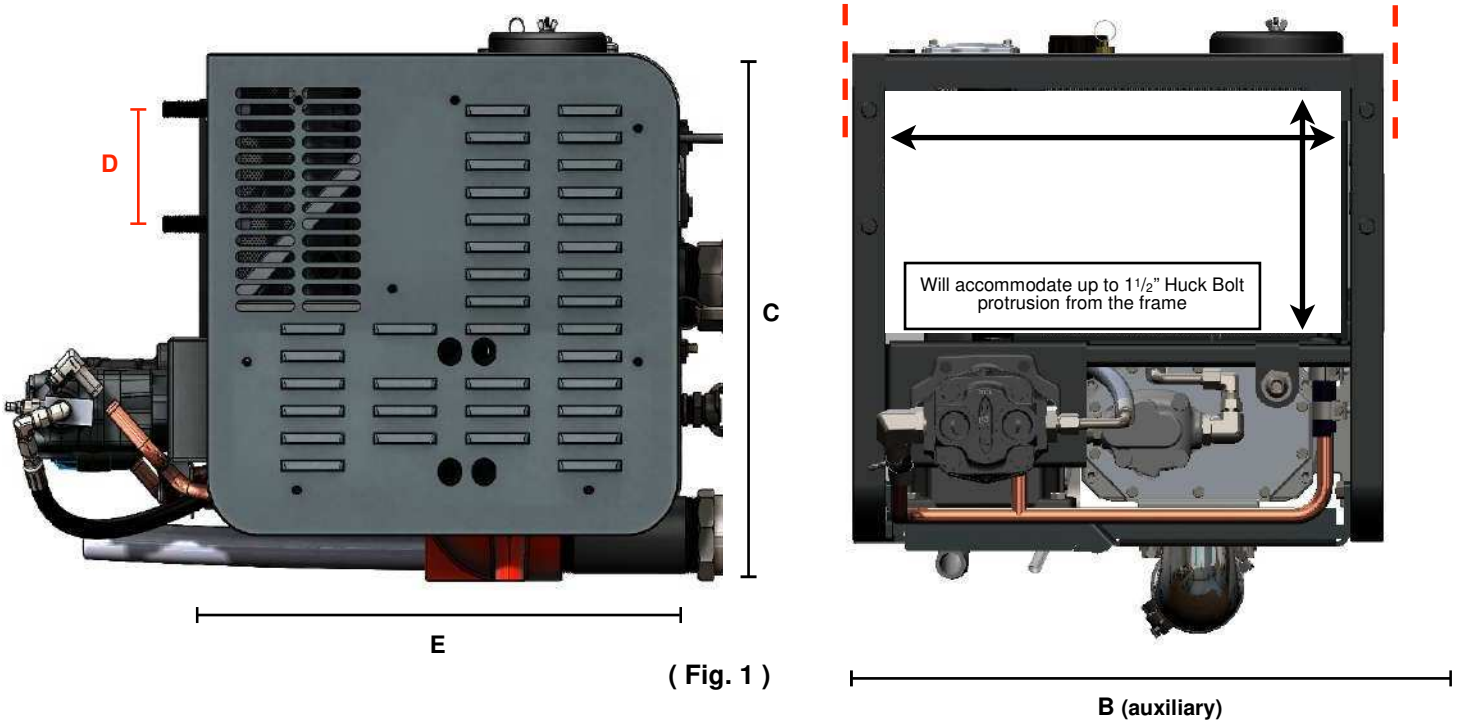
- Safety instruction tags and labels were attached to your unit prior to shipment. **DO NOT** remove, obscure, or cover in any manner
- Failure to heed these warnings could result in serious bodily injury to personnel operating or maintaining this equipment.

Pre-Installation Checklist

CAUTION: It is the installer's responsibility to ensure that the HydraCHEM is mounted in a location providing proper clearance from any heat source(s).
Paragon recommends 12" from any exhaust opening, 6" from any other heat source(s).

- ☐ Verify no signs of damage to any equipment prior to installation
- ☐ Verify correct Power Take-Off matches paperwork.
- ☐ Verify correct Hydraulic Pump matches paperwork
- ☐ Shell Tellus S2 V 32 Non-Foaming Oil.
  (volume is dependent on installation location, typically 5~6 gallons)
- ☐ Pre-plan hydraulic hose routing prior to installation to prevent complications during the installation process.
- ☐ HydraCHEM Unit
  - Check orientation and frame rail space prior to installation (Fig. 1 & Fig. 5)
  - Stand off mounting brackets are available for additional clearances.
  - The HydraCHEM will accommodate up to 1-1/2" Huck bolt protrusion between the mounting areas.

Dimensions					
Model	**A**	**B**	**C**	**D**	**E**
HydraCHEM 180	24½"	27¾"	25⅞"	5¼"	24⅜"



(Fig. 1)

Initial Installation

Power Take Off & Hydraulic Pump

- Mount Power Take-Off, and brace hydraulic pump per manufacturers instructions.
- Mount hydraulic pump to Power Take-Off unit using the fasteners supplied by manufacturer.
- See PTO owner's manual for additional items.

Mounting the HydraCHEM

Note: Position in a location where all panels can be removed for service.

1. Drill $^{13}/_{16}$" diameter holes.
   The template is located in the shipping carton. (Fig. 2)

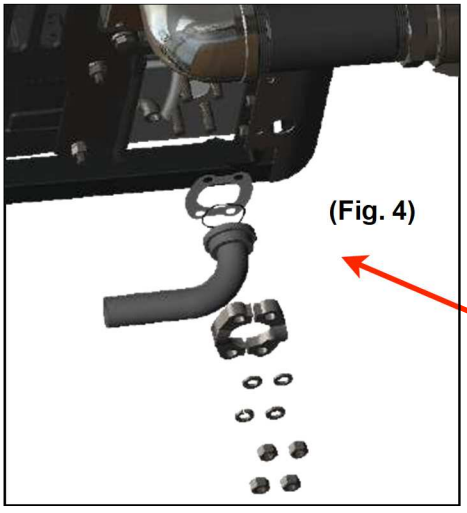
(Fig. 2)

2. Lift only by indicated balance points. (Fig. 3)

3. Use the (4) $^{3}/_{4}$" flat washers and (4) $^{3}/_{4}$" x 10 Nylock nuts supplied to mount the HydraCHEM.
   Torque to 120 ft-lbs

4. Use Code 61 Gasket (P/N: 526-003) in combination with suction connection fitting and hardware provided. (Fig. 4)

(Fig. 3)



(Fig. 4)

Do Not use power tools to tighten suction fitting.

DO NOT exceed 55 ft-lbs of Torque

MUST be torqued evenly

Initial Installation *(continued)*

Hydraulic Hoses & Fittings

1. DO NOT use thread tape or pipe dope on hydraulic NPT connections; this will contaminate the hydraulic system. Use a hydraulic sealant for all NPT connections (Loctite number 545 or similar).

2. High Pressure and Suction hoses are customer supplied, and will need to be measured to fit according to system drawings and installation locations

3. High pressure hoses must have a pressure rating equal or higher than the hydraulic system relief valve setting of 2500 psi (3000 psi for Auxiliary units)

4. The suction hose must be capable of operating in 28” Hg vacuum service and routed below the hydraulic motors (Fig. 5)

5. Ensure Code 61 Gasket (P/N: 526-003, Fig. 4) is installed in combination with suction connection fitting and hardware provided before installing the suction hose.

6. Ensure all hydraulic hoses are properly supported and are not allowed to pull or hang from fitting connection points.
   Note: T-bolt style clamps are recommended for Suction Hose to Code 61 connection.

Note: Always double check Power Take-Off / Hydraulic Pump manuals for rotation to determine suction and pressure port location.

Orientation

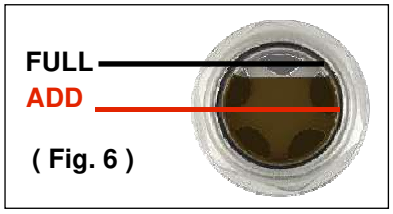
- Ensure all hoses are supported and the suction line is routed below the hydraulic motors.
- Ensure that the suction hose is not in contact with items that could cause chafing.

CAUTION: *DO NOT* Allow hydraulic hoses to rest on the hydraulic motors as this can cause damage to hoses over time

Initial Start Up

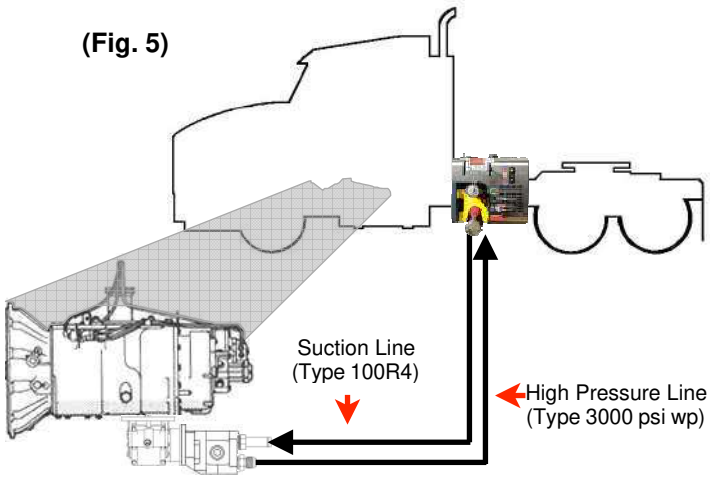
Pre-Initial Start Up

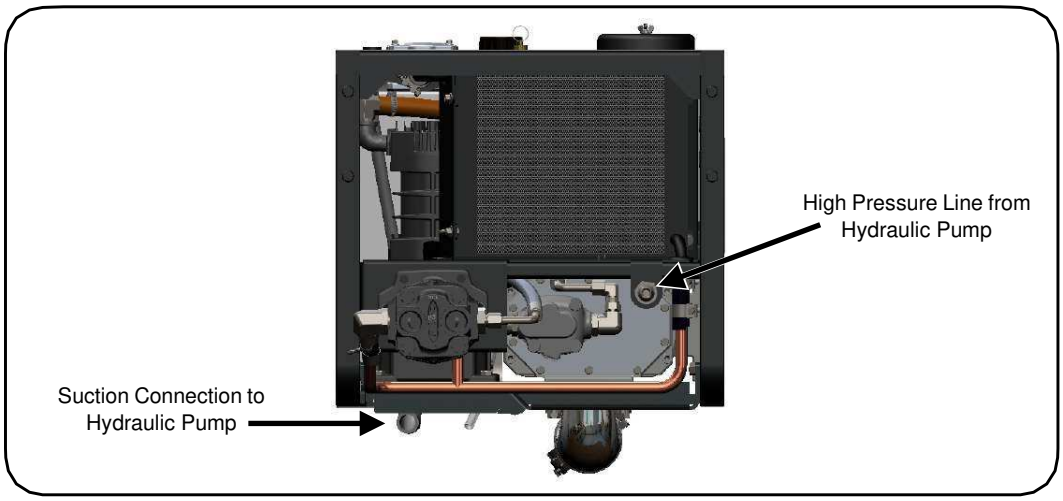
- ☐ Check the P40 oil level after installation and before bleeding the hydraulic system. **(Fig. 6)**
- ☐ Ensure the air lever is in the “Vent” position.
- ☐ Ensure the compressor operation lever is in the “Off” position.
- ☐ Ensure all grommets are in place.
- ☐ Ensure all covers are in place prior to operation.
- ☐ Ensure all panel fasteners are in place.
- ☐ Ensure the hydraulic control handle is in the neutral position.
- ☐ Ensure the compressor operation handle is in “off” position.
- ☐ If equipped, ensure the auxiliary operation control is in the “HydraCHEM” position.
- ☐ Ensure all dust caps/plugs are in place.
- ☐ Double check all filter caps and fill caps to ensure they are tight.



(Fig. 6)

(Fig. 5)





Initial Start Up *(continued)*

Bleeding the Hydraulic System

1. Ensure all cover panels are installed and the hydraulic hoses are connected.
2. Remove red hydraulic fill cap. **(See Fig. 7)**
3. Use Shell Tellus S2 V 32 (or equivalent ISO 32) non-foaming hydraulic oil.
4. Fill HydraCHEM with hydraulic fluid until sight glass reaches half way if equipped with a level gauge, if equipped with two sight glasses, the bottom sight glass must be completely full and the top must be empty. **It is recommended that the oil be filtered while being added (a clean paint filter will suffice).**
5. Replace fill cap.
6. Ensure the HydraCHEM pump operation handle is in neutral, the air compressor operation handle is in "off" position and the auxiliary control is in the "HydraCHEM" position.
7. Check all hoses and connections for leaks, installation must be free from leaks before continuing
8. Start the truck engine.
9. Engage the PTO. **(See PTO Owner's Manual)**
10. Run for 2 - 3 seconds to eliminate air from the system.
11. Remove dust caps from the chemical pump and slowly engage the chemical pump to remove air from this circuit, do not run for longer than 15 seconds dry.
    Note: If equipped with gear pump, introducing WD-40, vegetable oil, or similar lubricants into the inlet will prevent dry running the pump during the bleeding process.
    Note: Ensure lubricant used is chemically compatible with the type of service the unit will be performing in the future.
12. Remove Universal Pneumatic Connector (Chicago Fitting) Plug and slowly engage the compressor to operation mode.
13. Run for 5-10 seconds to eliminate air from the system and return the compressor operation lever and the chemical pump control to the "Off" position.
14. Disengage PTO. **(See PTO Owner's Manual)**
15. Check hydraulic fluid level; return to correct oil level as noted in step 4 (repeat steps 9-14 as needed).
16. If equipped, engage the Auxiliary circuit and operate all control circuits one at a time until air has been removed.
    Note: Take all safety precautions as specified by the equipment manufacturer.
17. Perform a final check for any signs of leakage.
18. Verify oil level is correct as per step 4.
19. Unit is ready for service.

(Fig. 7)


Pneumatic Relief Valve
P40 Oil Fill Cap
P40 Air Filter Cover
NOT A STEP
NO ES UN PASO
HYDRAULIC OIL FILTER
Hydraulic Oil Fill Cap
Hydraulic Filter Cap
Universal Pneumatic Connector Plug
COMPRESSOR DISCHARGE
DESCARGA DE COMPRESOR
COMPRESSOR OIL LEVEL
NIVEL DE ACEITE DE COMPRESOR
P40 Oil Sight Glass
CHECK OIL LEVEL WHILE NOT IN USE
OIL LEVEL OVERFILLED
NIVEL DE ACEITE EXCESIVO
CORRECT OIL LEVEL
NIVEL DE ACEITE CORRECTO
LOW OIL LEVEL
BAJO NIVEL DE ACEITE
ISO 32 NON FOAMING HYDRAULIC OIL
ACEITE HIDRAULICO ISO 32 SIN ESPUMA NO ESPUMOSO
BOTTOM SIGHT GLASS SHOULD REMAIN FULL
VIDRIO INFERIOR DEBE PERMANECER LLENO
Hydraulic Oil Sight Glass

Initial Start Up *(continued)*

Setting the Chemical Pump Relief Valve

Product Pump	Factory Relief Valve Setting
G150	100 PSI

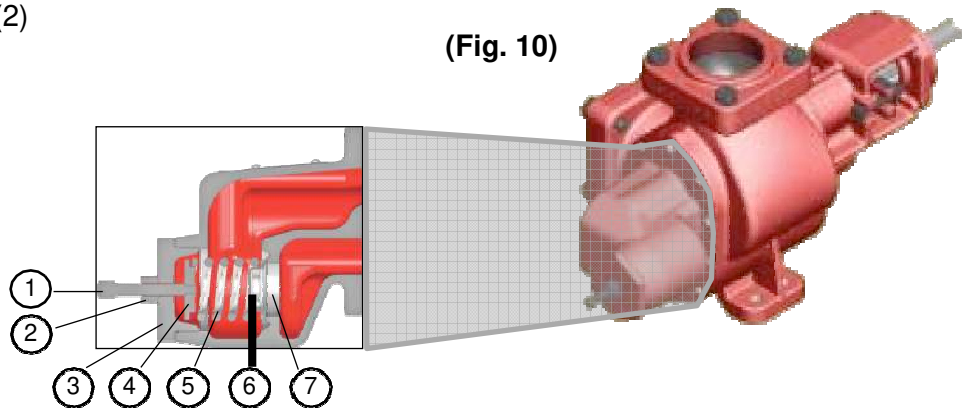
If the above pressures are incorrect for your application, follow the directions below to alter the delivery Relief Valve pressure.

CAUTION: DO NOT adjust the pressure rating or tamper with the chemical pump while it is in operation.

G150 Pump Adjustable Relief Valve Only (Fig. 10)

1. Loosen locknut (item 2).
   - To increase the pressure setting - turn Adjusting Screw (item 1) clockwise.
   - To decrease the pressure setting - turn Adjusting Screw (item 1) counterclockwise.
2. Re-tighten locknut. (2)

(Fig. 10)



Operation

Before operation:

- **Ensure all controls are in "NEUTRAL" and/or "OFF" positions.**
- **Air Control Valve is in "VENT" position.**
- **Ensure the truck is running.**

1. Engage the PTO according to the manufacturer's directions.
2. Set the engine speed for the desired application.
3. Connect all chemical hoses, air lines, and hydraulic trailer lines per your company's procedures.
   - To operate the HydraCHEM Chemical Pump:
     - Slowly move the handle to the correct position desired, the controls are variable speed.
   - To operate the HydraCHEM Air Compressor:
     - Slowly move the proper control handle to the fully open position until it reaches its travel stop.

     Note: Do not force the handle beyond its limitations - throttle stop is preset at the factory (travel distance may vary).

     - Slowly close the Air Control Valve to begin generating tank pressure.

     Note: The Chemical Pump and Air Compressor can be operated simultaneously.
4. When desired function is complete:
   - **Return all controls to "NEUTRAL" and/or "OFF" positions**
5. Select new function or continue to shut down the hydraulic system.
6. Disconnect and store chemical hoses, air lines and hydraulic trailer lines per company handling procedures.
7. Disengage the PTO according to the manufacturer's directions.

Performance Specifications

	Vane Pump	G-Series Pump		Lobe Pump
	VP150 Pump	**G125**	**G150**	**RTPe Series**
Max Flow Rates	157 GPM	128 GPM	165 GPM*	198 GPM*
Max Operating Temperature	300 F	250 F	250 F	230 F
Max Differential Pressure	125 PSI	125 PSI	125 PSI	145 PSI

GPM Flow Rates can vary, depending on viscosity and unloading conditions

Compressor	
25 PSI	36 PSI
35 CFM	29 CFM
105 GPM	67 GPM

Maintenance Schedule

After use, cleaning and lubrication are required to prevent pump components from seizing.

See product pump manual for proper clean out procedures.

It is recommended that all product pumps are cleaned at a tank wash station after each use.

If equipped with a gear pump: To lubricate the product pump, remove both inlet and outlet dust covers, spray an aerosol lubricant into the pump inlet while in operation, and watch for vapors on the outlet side of the pump.

NOTE: Always check chemical compatibility before introducing the lubricant.

Continue for 30 seconds or until vapors are seen exiting the outlet.

Interval	Item
Daily	**P40 Air Compressor** Check Oil level before operating the compressor **(see Fig. 6)** **Hydraulic System** Check Oil level before operation. **** Correct level is to the center of the sight glass when hydraulic system is cold, and not in operation.**
Weekly	**Product Pump** Must be operated for 15 seconds and lubricated **(G150 only)** **Product Pump** Visually inspect the system. (Pump connections and mounting bolts)
3 Months	**General** Inspect hydraulic motor couplings for damage, replace as needed **Hydraulic System** Change Hydraulic Oil Filter **** An oil analysis is recommended to determine the lifetime of the oil remaining**
6 Months	**P40 Air Compressor** Change Oil Change Air Filter Element **Hydraulic System** Change Hydraulic Oil **** An oil analysis is recommended to determine the lifetime of the oil remaining** **Power Take-Off Unit** Grease the Power Take-Off / Hydraulic Pump Splines
Yearly	**General** Inspect Chemical Pump for wear (replace components as needed) Inspect Hydraulic Pump splines for wear **P40 Air Compressor** Change Relief Valve

Service Items

(Fig. 11)

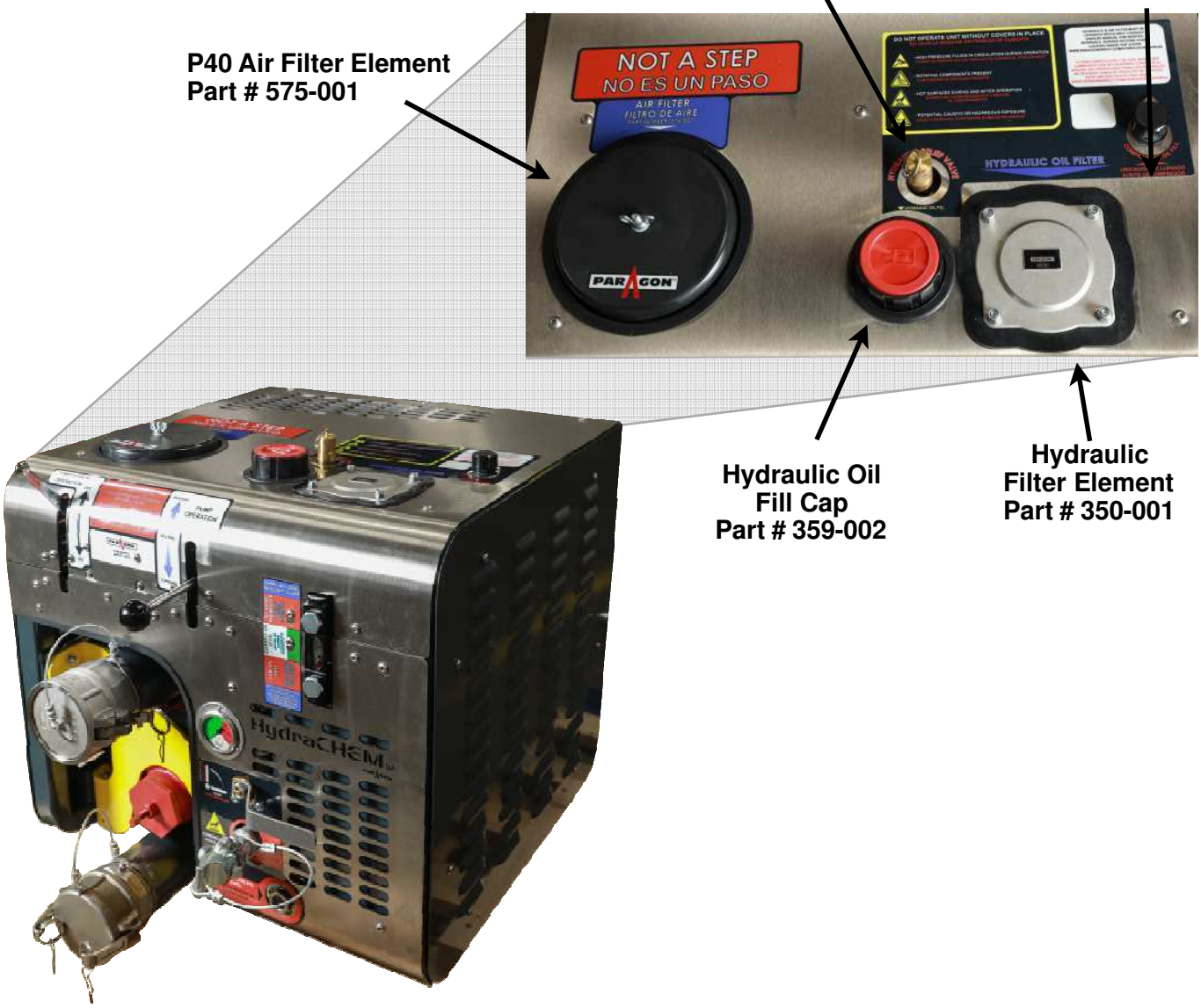
6 month maintenance kit: Part # 621-032
Includes:
- **P40 Air Filter Element**
- **P40 Oil (1 qt.)**
- **Hydraulic Filter Element**

P40 Oil Fill Cap
Part # 522-008

P40 Oil
Part # 409-003

Pneumatic Relief Valve

P40 Air Filter Element
Part # 575-001



Hydraulic Oil
Fill Cap
Part # 359-002

Hydraulic
Filter Element
Part # 350-001

Warranty

Subject to the terms and conditions hereinafter set forth in General Terms of Sale, Paragon Tank Truck Equipment LLC (the Seller) warrants products and parts of its manufacturer, when shipped and its work (including installation and start-up) when performed, will be of good quality and will be free from defects in material and workmanship. This warranty applies only to Seller's equipment, under use and service of products, for a period as stated in the table below. Due to the varying condition of installation and operation, all performances claims are subject to a plus or minus 5% variation. (Non-standard materials are subject to a plus or minus 10% variation)

THIS WARRANTY EXTENDS ONLY TO BUYER AND/OR ORIGINAL END USER, AND IN NO EVENT SHALL THE SELLER BE LIABLE FOR THE PROPERTY DAMAGE SUSTAINED BY A PERSON DESIGNED BY THE LAW OF ANY JURISDICTION AS A THIRD PARTY BENEFICIARY OF THIS WARRANTY OR ANY OTHER WARRANTY HELD TO SURVIVE SELLER'S DISCLAIMER.

All accessories furnished by seller but manufactured by others bear only that manufacturer's standard warranty.

All claims for defective products, parts, or work under this warranty must be made in writing immediately upon discovery and, in any event within one year from the date of the shipment of the applicable item and all claims for defective work must be made in writing immediately upon discovery and in any event within one year from date of completion thereof by Seller. Unless done with prior written consent of Seller, any repairs, alterations, or disassembly of Seller's inspection and warranty. Installation and transportation costs are not included and defective items must be held for Seller's inspection and warranty. Installation and transportation costs are not included and defective items must be held for Seller's inspection and returned to Seller's Ex-works upon request.

THERE ARE NO WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE.

After Buyer's submission of claim as provided above and its approval, Seller shall either repair or replace its product, part, or work at the original Ex-works point of shipment, or refund an equitable portion of the purchase price.

The products and parts sold hereunder are not warranted for operation with erosive or corrosive materials or those which may lead to build up of materials within the product supplied, nor those which are incompatible with the materials of construction. The Buyer shall have no claim whatsoever and no product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action nor for problems resulting from build-up of material within the unit nor for problems due to incompatibility with the materials of construction.

Product Type	Warranty Duration
New	18 months from date of shipment, or 12 months after initial startup date, whichever occurs first.
Remanufactured	12 months from date of shipment, or 12 months after initial startup date, whichever occurs first.
Repair	12 month from date of shipment, or remaining warranty period, whichever is greater.

Any improper use, operation beyond capacity, substitute of parts not approved by Seller, or any alteration or repair by others in such manner as in Seller's judgement affects the product materially and adversely shall void this warranty.

No employee or representative of Seller other than an Officer of the Company is authorized to change this warranty in any way or grant other warranty. Any such change by an Officer of the Company must be in writing.

The foregoing is Seller's only obligation and buyer's only remedy for breach of warranty, and except for gross negligence, willful misconduct and remedies permitted under the General Terms of Sale in the sections on **CONTRACT PERFORMANCE, INSPECTION AND ACCEPTANCE,** and the **PATENTS CLAUSE** hereof, the forgoing is **BUYER'S ONLY REMEDY HEREUNDER BY WAY OF BREACH OF CONTRACT TORT OR OTHERWISE, WITHOUT REGARD TO WORK WHETHER ANY DEFECT WAS DISCOVERED OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT OR WORK.** In no event shall Buyer be entitled to incidental or consequential damages. Any action for breach of this agreement must commerce within one year after the cause of action has occurred.

Paragon Tank Truck Equipment LLC.
www.paragondirect.com