



Pressure Gauge (c)

Inlet Flow Valves (m)

Regulator PSI (y)

Regulator Knob (a)

Air Inlet Quick-Release Fitting (z)

Vent Draincocks (d)

Outlet Flow Valves (l)

Cover Clamps (e)

Turn-Down Bolt TDB(o)



TDB Components



TDB Seal (p)

Harvard Element (q)  
(Actual Element May Be Different)



Outlet (g)

Drains (f)

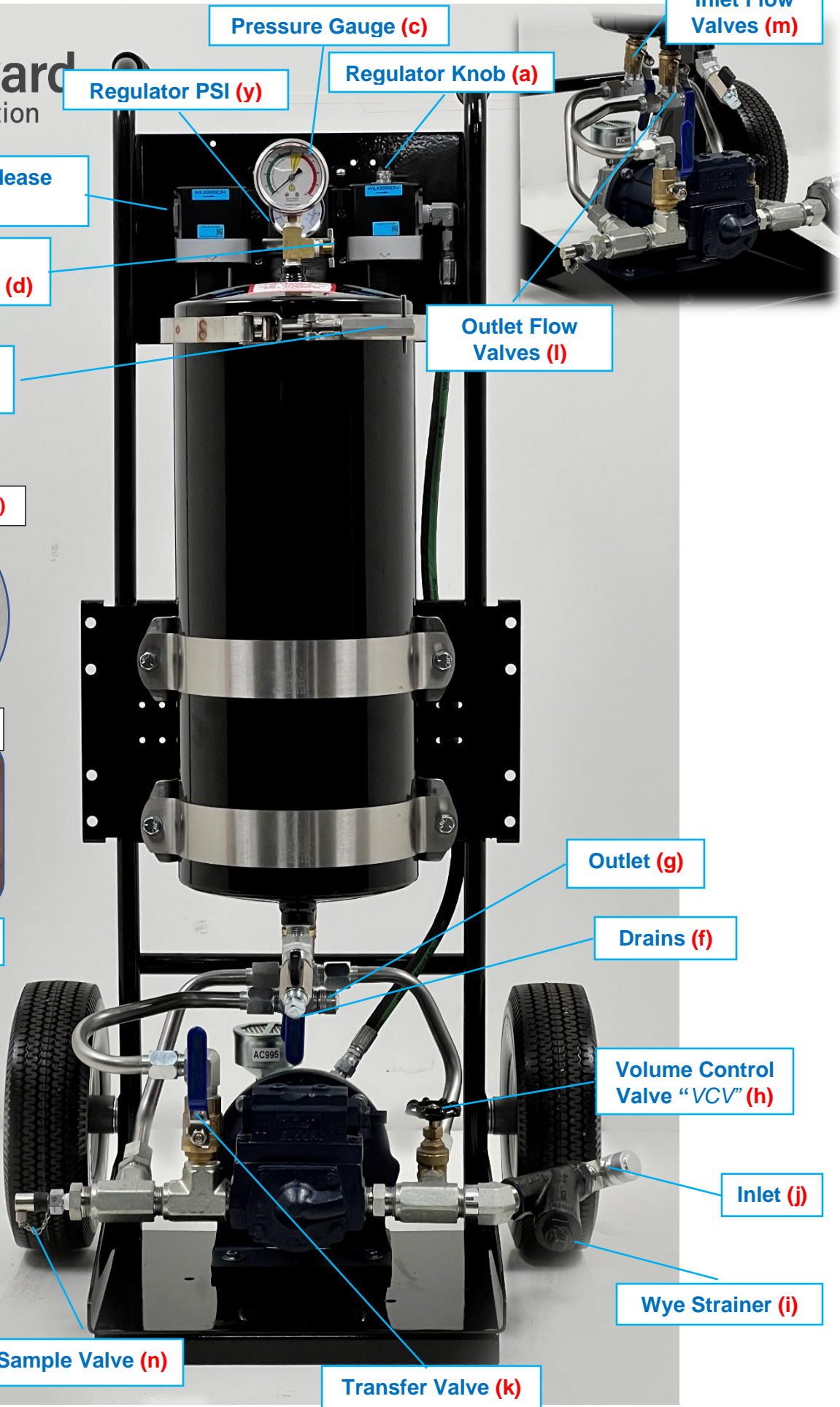
Volume Control Valve "VCV" (h)

Inlet (j)

Wye Strainer (i)

Sample Valve (n)

Transfer Valve (k)



# 900033 Manual

Unless otherwise specified, system does not come with elements already installed.

## Pre-Operating Instructions

- 1). Connect the inlet and outlet hoses to the inlet(j) and outlet(g) fittings, respectively.
- 2). Connect or insert the inlet line to the fluid to be cleaned, and the outlet line to the fluid to be determined.
- 3). Connect the air supply to the air inlet quick-release fitting(z)

*Note: You must use an air supply system that meets CFM requirements, this motor has max CFM of 78.*

- 4). Install the new element(q) and seal(p) per “Element Change Procedure” instructions.

## Operating Instructions

- 1). Open the inlet(m) and outlet(l) flow valves.
- 2). Verify the transfer valve(k) is closed
- 3). Open the volume control valve(h) (VCV).

**WARNING:** Never start the motor while the valves are closed. Damage to the motor may result and void warranty!

- 4). Turn the regulator knob to start the operation(a) we recommend turning the regulator knob until the regulator psi gauge(y) is at 60.

- 5). Slowly close the volume control valve(h) until the pressure gauge(c) is at or above 20 PSI.

*-For low-viscosity fluids, the VCV(h) may need to be completely closed to operate properly*

*-For high-viscosity fluids, the VCV(h) may need to be fully opened to operate properly*

- 6). Rotate the vent draincock(d) to bleed/release air; close when air released fully & oil bleeds.

*In transfer mode, fluid bypasses the filter element(s). To operate in transfer mode, close inlet flow valves(m) and the outlet flow valves(l), volume control valve(h) and open the transfer valve(k).*

## Element Change Procedure

- 1). Turn the system off by rotating the regulator knob(a) to the closed position.
- 2). Use a suitable container to catch the fluid; position container under the drain port(f).

*Each housing can hold up to 5 gallons of fluid.*

- 3). Remove the drain cap(f) and open the drain valves(f) at the bottom of the housing and open the vent draincock(d).
- 4). Remove the cover clamp(e) and cover.
- 5). Remove the turndown bolt, turning it counter clockwise(o).
- 6). Lift the element, using the handle or the element lifter, and allow it to drain out in a suitable container.
- 7). Close the drain valve(f), and reinstall the drain plug.
- 8). Install the new element(q), orienting them so that the end with the handle is up.
- 9). Replace the turn-down bolt seal(p), replacement seal comes with each new element.
- 10). Reinstall the turn-down bolt(o). Screw them clockwise until they come to a definite stop.
- 11). Reinstall the covers and cover clamp(e), and then close the vent draincock(d).
- 12). Your elements have been changed. See the “Wye Strainer Cleaning Instructions” Before operating system.

## Wye Strainer Cleaning Instructions

- 1). Place a small container under the wye strainer port to catch the oil from the inlet line. The container should be able to hold the full volume of oil that is in the inlet line.
- 2). When the system is off, remove the wye strainer bolt(i) using a 15/16” wrench
- 3). Pull the screen out of the wye strainer port(i).
- 4). Clean all debris out of the screen.
- 5). Replace the cleaned screen in the wye strainer port(i).
- 6). Replace the wye strainer(i) drain bolt and tighten using a 15/16” wrench.
- 7). The wye strainer(i) has now been cleaned. See the “Operating Instructions” to run the system.

## Sampling Procedure

- 1). Remove the sampling port cap(n).
- 2). Place a container beneath the sample valve to catch the oil flow. The container should hold at least one quart of fluid (.95 L)
- 3). Push in on the sample valve(n) to allow a steady stream of oil from the sample port(n).

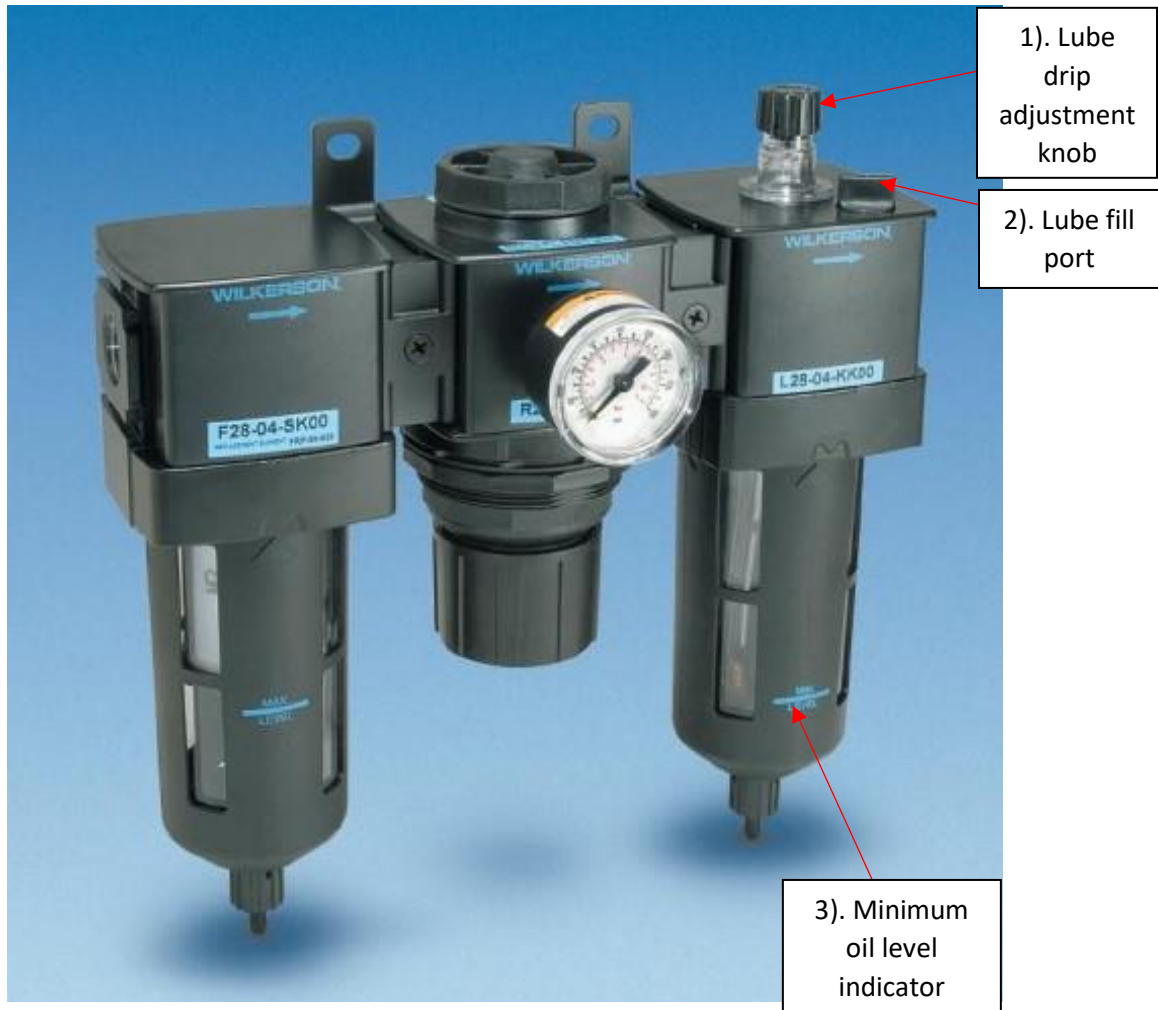
**WARNING: Opening the sample valve knocks particles into the oil. To avoid contaminating the sample, push and hold the sample valve for several seconds before filling the sample bottle in order to flush the sample port.**

- 4). Open the sample bottle and fill it from the stream of oil.

**Keep the sample bottle upside down and the cap on until the moment you are ready to take the sample, once full quickly replace the cap.**

- 5). Stop pushing the sample port(n) to close the valve.
- 6). Replace the sample valve(n) cap.
- 7). Complete the sample information sheet and send the sample into the lab to be tested.

## Pneumatic Motor Lube Drip Set-Up



- 1). To adjust the lube drip disbursement, turn the knob to adjust for more drip or less drip, the drip should be set so that the motor is getting about 1 drop of oil every 1-2 minutes of running time.
- 2). To add more lube, remove the lube fill port, fill with pneumatic oil, and then replace the lube fill port.
- 3). Be sure to refill the pneumatic oil when the oil level is at or below the oil level indicator.
- 4). Use any Pneumatic Air Tool Lubricant (Like one below is SAE 5W)



# System Troubleshooting Guide

## Common Problem Areas

| Issue                                       | Probable Cause  | Probable Solution  |
|---|---|--|
| <b>Motor will not start?</b>                | <ol style="list-style-type: none"> <li>Needs more air pressure</li> <li>Faulty regulator</li> <li>Ran motor without oil</li> </ol>    | <ol style="list-style-type: none"> <li>Turn the regulator knob to increase air pressure</li> <li>Replace air regulator</li> <li>Keep air regulator self-lubricating tank above the fill line</li> </ol>                    |
| <b>Motor will not stay running?</b>         | <ol style="list-style-type: none"> <li>Air compressor not compatible with CFM requirements – Max CFM of 78</li> </ol>                 | <ol style="list-style-type: none"> <li>Use bigger air compressor or a dedicated air compressor that meets CFM requirements</li> </ol>  |
| <b>Pump flow rate decreases noticeably?</b> | <ol style="list-style-type: none"> <li>Suction lost or blocked</li> <li>Wye strainer plugged</li> <li>Element clogged/full</li> </ol> | <ol style="list-style-type: none"> <li>Check supply source</li> <li>Clean wye strainer (see <b>system specific operating manual</b>)</li> <li>Replace the element (see <b>system specific operating manual</b>)</li> </ol> |

## Replacement Parts Guide

| See Diagram Above for Part Location | Part Description                                  | Factory Part Number |
|-------------------------------------|---|---------------------|
|                                     | Pump <b>5 GPM (not flow rate)</b>                 | 2204                |
|                                     | Motor <b>1 ¾ HP Pneumatic (Air)</b>               | 3956                |
|                                     | Pump & Motor Combo <b>Ships assembled</b>         |                     |
| <b>c.</b>                           | Pressure Gauge <b>0-100 PSI Gauge</b>             | 841                 |
| <b>p.</b>                           | Turn-Down-Bolt Seal <b>Buna-N</b>                 | 448                 |
| <b>o.</b>                           | Turn-Down-Bolt <b>Carbon Steel</b>                | 593                 |
|                                     | Air Regulator <b>Filter/Regulator/Lube</b>        | 3962                |
|                                     | Cover Gasket O-Ring <b>Buna-N</b>                 | 433                 |
| <b>q.</b>                           | 1002 Filter Element <b>Viscosity Iso 10-32</b>    | 1002                |
| <b>q.</b>                           | 1004 Filter Element <b>Viscosity Iso 46-150</b>   | 1004                |
| <b>q.</b>                           | 1006 Filter Element <b>Viscosity Iso 220-320</b>  | 1006                |
| <b>q.</b>                           | 1008 Filter Element <b>Viscosity Iso 460-1000</b> | 1008                |

# Flow Diagram for 900033

