Bennett Components

T140 Hydraulic High Flow Pumping Unit

Operation, Service, and Parts Manual

Only Trained Personnel May Work on This Equipment

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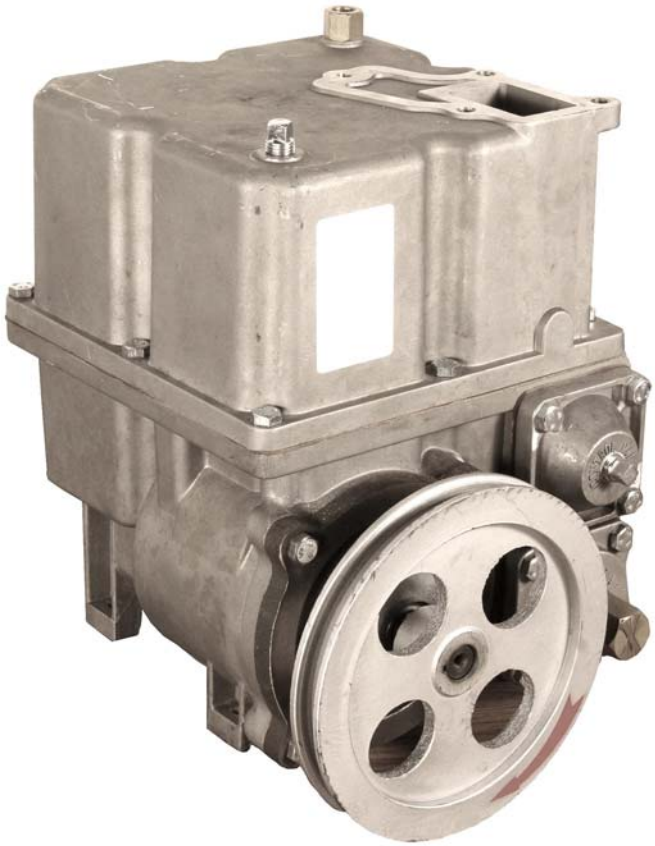

READ THIS BOOK This book has important information for safely servicing and operating this equipment. Keep this book and tell all service personnel to read this book. If you do not follow the instructions, you can cause bodily injury, death or damage to the equipment.

For new books, visit out web page at:
www.BennettPump.com

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IMPORTANT

Examine the shipment immediately upon arrival to make certain there has been no damage or loss in transit. Bennett Pump Company, as shipper, is not liable for the hazards of transportation. Please make damage claims directly to the truck line.

Safety Instructions

WARNING ADVERTISSEMENT ADVERTENCIA

For the safe installation of this equipment, read and understand all warning and cautions. Look for these warnings:

"DANGER" means: If you do not follow the instructions, severe injury or death will occur.

"WARNING" means: If you do not follow the instructions, severe injury or death can occur.

"CAUTION" means: If you do not follow the instructions, damage can occur to the equipment.

DANGER: Fire, explosion, injury or death will occur if fuel filters are changed by untrained personnel. Make sure only trained personnel change filters.

DANGER: To prevent injury to you from vehicles and onlookers, always place a barrier around this equipment before performing service or maintenance.

DANGER: Gasoline is flammable. NO SMOKING OR OPEN FLAME.

DANGER: Disconnect all power to this equipment and associated submerged pump(s) during installation, service or any maintenance, i.e., changing filters.

WARNING: You must have training in the installation, service or maintenance of this equipment (dispenser, pump, console, control box or submerged pump) before working on it. Maintenance repairs must be done by authorized personnel only. Warranty work may only be performed by Bennett certified technicians.

WARNING: To prevent electric shock, keep the electrical parts of the dispenser dry.

WARNING: Electronic components are static sensitive. Use proper static precautions (static straps) before working on the equipment.

WARNING: The emergency shut-off valve (also called the fire valve, shear valve or impact valve) must be closed when service or maintenance is performed on this equipment.

WARNING: You must have training in the operation and programming of this dispenser before using it. READ THIS MANUAL.

WARNING: Make sure this equipment is correctly grounded. Failure to do will cause injury or damage equipment or improper operation. Improper grounding voids the warranty.

WARNING: When anchoring the dispenser, always level the dispenser with shims before bolting to the island. DO NOT shim just the middle of the dispenser and bolt down.

WARNING: Do not operate this equipment as a dispenser unless it is completely assembled.

CAUTION: Do not drill holes in fuel dispensers. Holes can cause failure of the electronic equipment. The warranty will become void. Use only adhesive backed sign mounting brackets.

READ AND UNDERSTAND ALL WARNING LABELS ATTACHED TO THE DISPENSER

Product Specifications

Performance:

Maximum Flow.....140 LPM / 37 GPM
Maximum Operating Pressure.....3.45 Bar (50 PSI)
Power Requirements @ Maximum Flow & Pressure.....1.5 KW (2 H.P.)
Self Priming.....3 Meter (10') Lift Dry
.....8 Meter (26') Lift Wet
Minimum Required Lift.....0.3 Meter (1')
Operating Noise Level.....<83dBA @ 1 Meter (3.3')
OIML Air Separation.....<1.0% Error @ 100% Flow
Fuels.....Diesel Fuels & BioBlends to 20%
Operating Temperature Range.....-40°C to 55°C (-40°F to 131°F)

Features:

1 1/2" NPTF Threaded Inlet Port
Flanged Meter Outlet Manifold
Adjustable By-pass Valve
Range.....2 to 3.5 Bar (30 to 50 PSI)
Internal (cleanable) Stainless Steel 200 Mesh Strainer
Internal Check Valve
Integral Air Separation Device, NO AIR SWITCH Required
Atmospheric Vent with Overflow Shut Off Valve

Options:

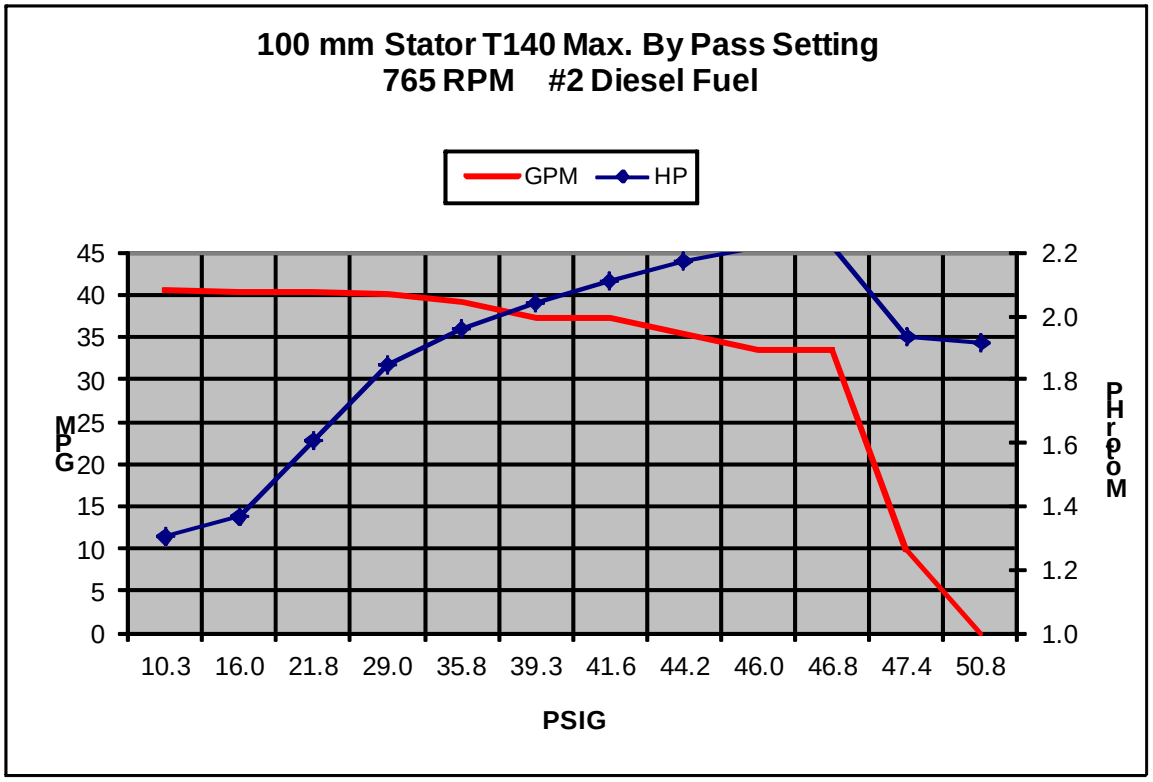
High Flow Meter with Integral Pulse Output.....107850
1 1/2" Meter Outlet Manifold with Satellite Port, Right Side.....107893
1 1/2" Meter Outlet Manifold with Satellite Port, Left Side.....109317
1 1/2" NPTF Loose Inlet Flanged Adapter with Gasket.....111503

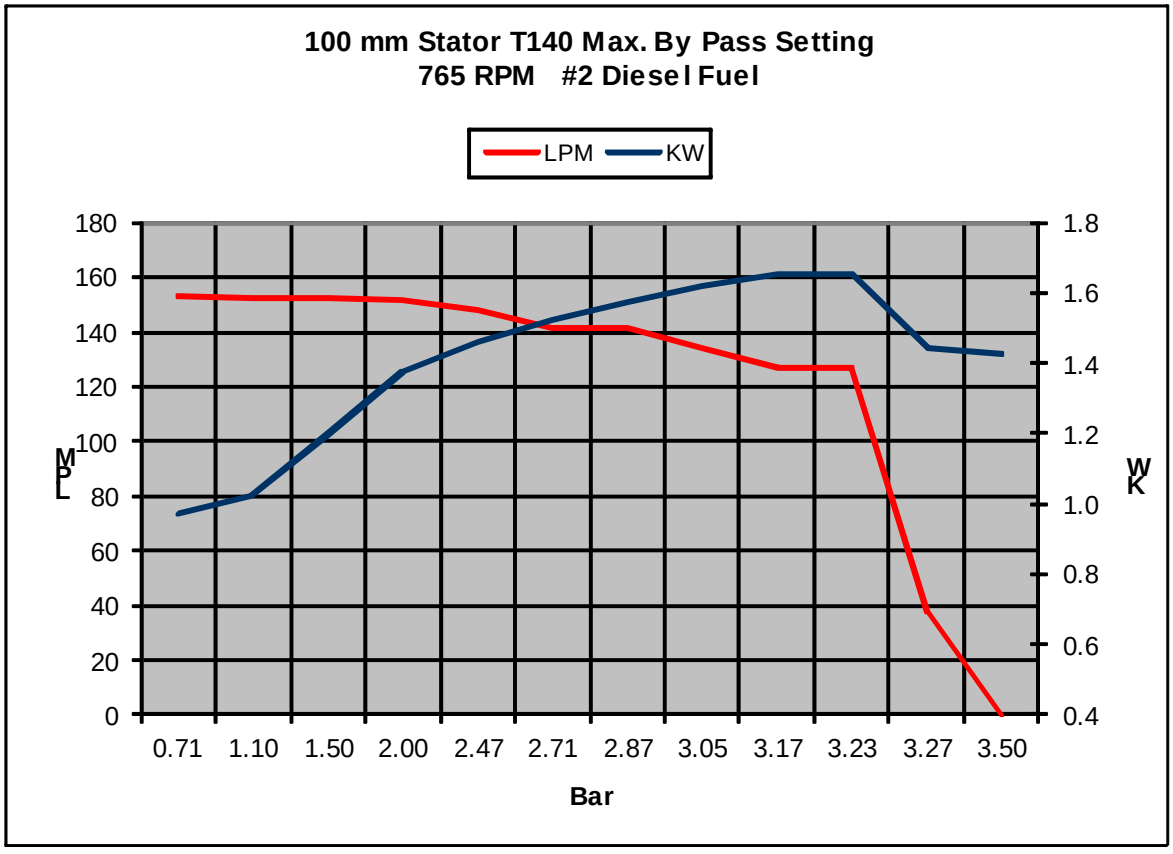
Approvals:

UL (US)

Product Specifications

Performance Charts:





Introduction

The T140 is the high flow pumping unit offered by Bennett Pump Company. This unit is a rotary vane pump with carbon blades that produces the performance suggested on page 4. The rotor is supported on both ends by roller bearings, which gives the rotor less friction as it draws the fuel from the tank.

If you are familiar with the T75 pumping unit you will notice that these two pumping units are very similar to each other. The major improvements are:

- Roller bearings for the rotor assembly
- Number of blades
- Size

With these improvements combined, we are able to produce the increased flow rate, yet keep the functions offered by the T75 pumping unit:

- Filtering
- Pumping
- Air elimination
- By-pass
- Outlet Control Valve

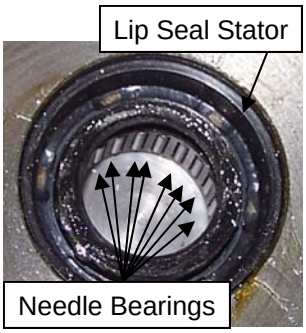


Figure 1

Improvements:

Roller Bearings for the Rotor:
To enable the rotor to turn more freely, with less friction, we inserted two types of roller bearings. Figure 1 shows the needle bearings used for the end of the rotor that gets inserted into the stator. As the rotor turns, not only the bearings rotate, but the whole assembly. This piece is pressed in place by a Lip Seal.

The other end of the rotor is held in center by a sealed ball bearing (see figure 2). This bearing assembly is located in the Rotor Cover. Figure 2 is shown with the bearing retainer removed. As the rotor turns the center part rotates with it.

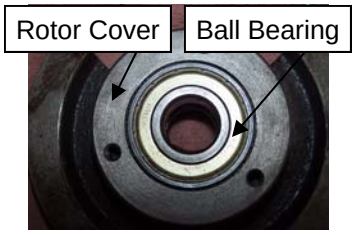


Figure 2

Number of Blades:
For us to offer a smoother and faster delivery we added (2) blades to the rotor assembly totaling (8) blades in all (see figure 3).

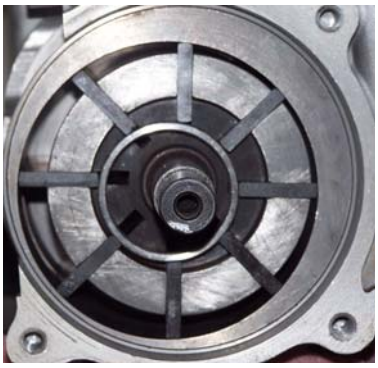


Figure 3

Introduction

Size:
To give us more product we enlarged the whole unit so that we can hold more product, giving us less friction and a more containment area. See figure 4 for measurements.

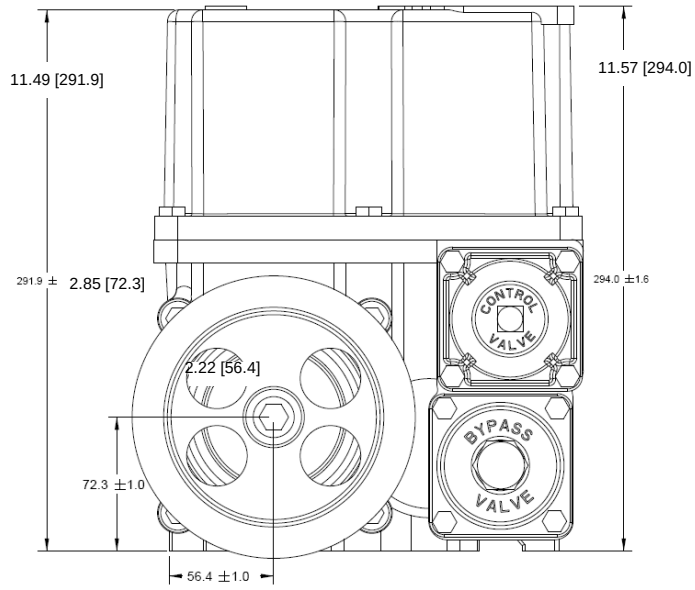


Figure 4

Theory of Operation

Flow of Liquid Through Pumping Unit, Air Eliminator and Meter:

The Type 140 Pumping Unit moves product from the storage tank to the vehicle or container in the following manner:

1. The fuel is drawn from the storage tank through the strainer screen or filter (1). See Figure 5.

2. The rotary vane pumping unit (2) pressurizes the fluid.

3. Fuel enters the centrifugal air separator assembly (3). Any air that is present is forced out the air tube along with a small amount of liquid into the atmospheric chamber.

4. When the liquid level in the chamber lifts the float and valve assembly (4), the liquid collected in the atmospheric chamber is returned to the pump intake. Air is then vented to the atmosphere through the vent tube (5).

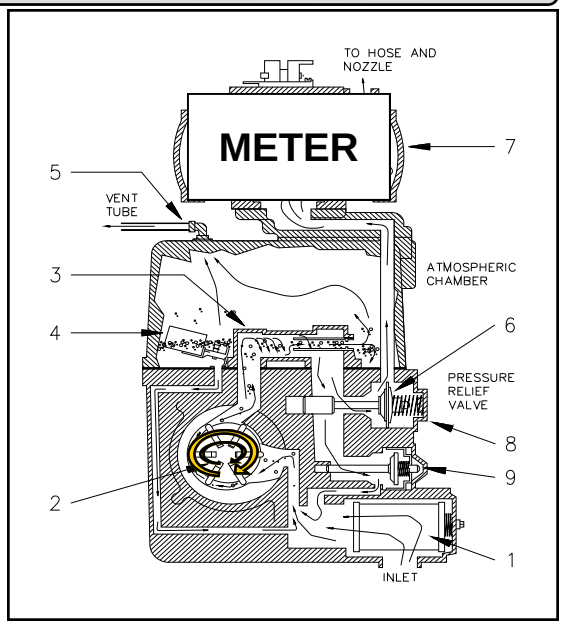


Figure 5

5. Air free fuel leaving the air separator opens the control valve (6) and is pumped into the meter (7). The control valve includes a built-in relief valve (8) which relieves excess pressure caused by hot weather expansion.

6. Whenever the nozzle is not fully opened, some liquid is relieved into the pump intake through the bypass valve (9).

Float and Air Separator:

Before gasoline can be accurately measured by the meter, air and vapors must be eliminated. The Type 140 pumping unit eliminates air and vapor by the use of the air separator and float assembly. The float assembly employed is as shown in Figure 6.

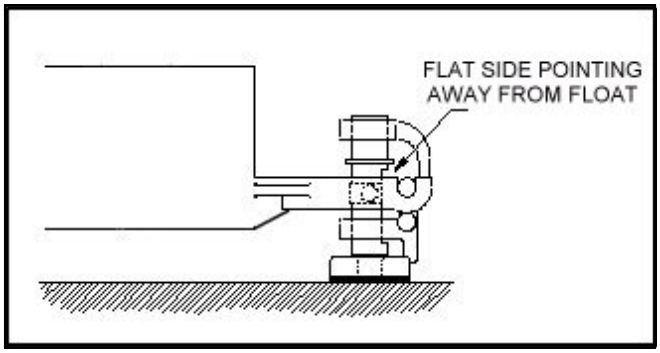


Figure 6

Theory of Operation

(Theory of Operation Continued from page 7)

Adjustable Bypass Valve:

The pumping unit uses an adjustable bypass valve assembly in order to limit the pumping unit pressure when the motor is running, but no fuel is being dispensed. The adjustable bypass assembly includes the valve spring and guide as well as a cover, adjustment screw and brass cap. See figure 7.

Figure 7

Control Valve:

The Type 140 pumping unit uses a control valve that aids in the elimination of air by producing a back pressure and is also used as a check valve for any fuel above it.

The control valve also contains a pressure relief valve. This valve ports excess hose pressure, which may result from the expansion of fuel in the hose during hot weather, to the air eliminator chamber. This action prevents hoses from bursting and helps to prevent pumping unit leaks.

See figure 8 for a breakdown of the control valve.

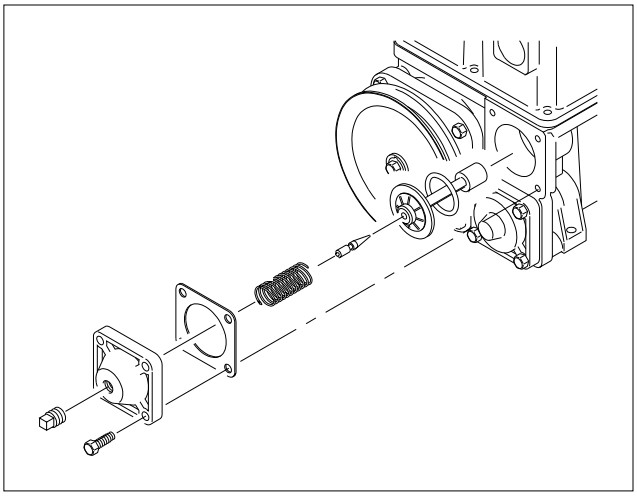


Figure 8

Troubleshooting

General Vacuum and Pressure Information:

The following components are normally associated with the pressure:

- Control Valve
- Meter
- Computer or pulser drive linkage
- Hose
- Nozzle

The components listed below are normally associated with vacuum:

- Blades
- Rotor/Stator
- Filter
- Bypass valve and seat
- Float (opened)
- Installation piping
- Tank vent pipe
- Angle check valve or foot valve
- Tank burial depth

Vacuum readings can change from installation to installation.

Calculating Vacuum:

An easy method of calculating vacuum is as follows:

1. An inch of mercury is required to lift gasoline 1-1/2 feet. Divide the total lift by 1-1/2 feet to obtain vacuum.

2. An inch of mercury is required to overcome the restriction of an angle check, foot valve, or vertical check valve.

3. An inch of mercury is required to overcome the restriction of 60 feet of piping.

4. Add the readings obtained in steps 1, 2 and 3 to determine the approximate vacuum reading at fast flow.

NOTE: Excessive vacuum indicates a restriction. Low vacuum indicates a leak.

Troubleshooting

(Troubleshooting Continued from page 9)

Vacuum Gauge Readings:

The following table shows normal vacuum gauge readings for a variety of lift verses run situations. These readings are in inches of mercury (in-hg).

Note: This table is showing a normal vacuum gauge reading for general lift verses run situations. It is important to use this as a guideline only because readings will vary depending on installation details.

Vertical Lift (Feet)	3	4	5	6	7	8	9	10
Horizontal Run - 0 Feet	3.0	3.6	4.3	4.9	5.5	6.1	6.8	7.4
Horizontal Run - 60 Feet	3.9	4.5	5.2	5.8	6.4	7.0	7.7	8.3

How to Use Vacuum and Pressure Gauge Readings to Troubleshoot Self-Contained Dispensers:

There are a variety of conditions that can contribute to no delivery or slow delivery. A pressure/vacuum gauge is an important tool in determining whether the problem is on the vacuum side or pressure side of the pump.

The vacuum gauge reading can help you determine if there are restrictions of flow in the suction piping system. It will also help you determine the ability of the pumping unit to pump.

To test the vacuum of the pump, follow this procedure:

1. Remove the pipe plug in the center of the strainer or filter cover. The cover is marked for easy identification.

2. Install the vacuum gauge.

3. Start the pump and open the nozzle to full flow for a true reading.

4. With the nozzle open, a normal vacuum reading is 6-8 inches of mercury for normal suction. See Figure 9.

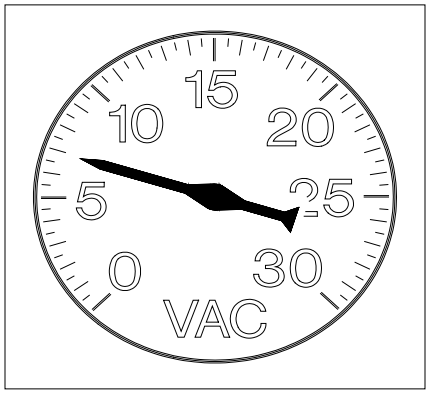


Figure 9

(Continued on page 12)

Troubleshooting

(Troubleshooting Continued from page 11)

To test the pressure of the pump, follow this procedure:

1. Remove the pipe plug in the center of the control valve cover. Covers are marked for easy identification.
2. Install the pressure gauge.
3. Start the pump and open the nozzle to full flow for a true reading.
4. With the nozzle open, a normal pressure reading is 16-18 pounds per square inch pressure.

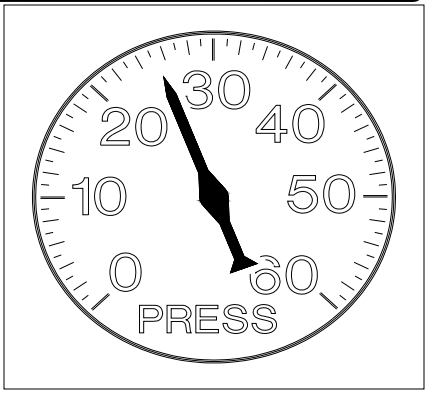


Figure 10

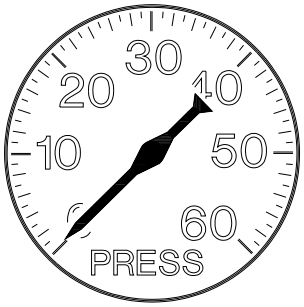
5. With the nozzle closed, a normal pressure reading is over 30 pounds per square inch pressure. See Figure 10.

The following examples are offered to help you determine the possible cause of a problem by knowing the gauge readings on the inlet (vacuum) and outlet (pressure) side of the pumping unit.

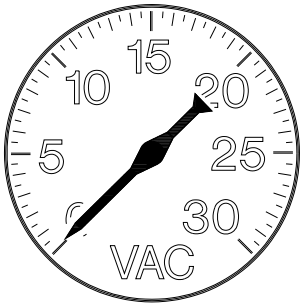
Note: Actual readings may vary slightly depending upon installation and environmental conditions.

SYMPTOM: NO FLOW

OUTLET OPEN



AT CONTROL VALVE COVER



AT STRAINER (OR FILTER) COVER

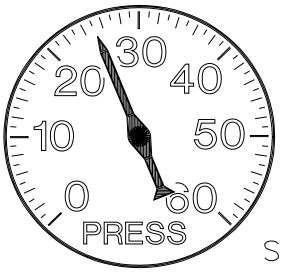
PROBABLE CAUSES:

CONTROL VALVE STUCK SHUT
BYPASS VALVE OPEN
ATMOSPHERIC FLOAT VALVE OPEN
STUCK ROTOR BLADES
BROKEN SUCTION LINE
STRAINER OR FILTER COMPLETELY PLUGGED OR IN BACKWARDS
EMPTY TANK

Figure 11

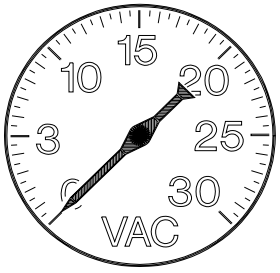
(Troubleshooting Continued from page 11)

SYMPTOM: NO FLOW



AT CONTROL VALVE COVER

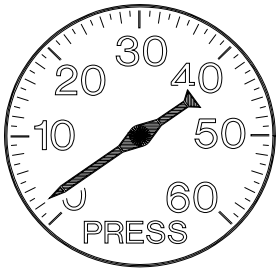
OUTLET OPEN



AT STRAINER (OR FILTER) COVER

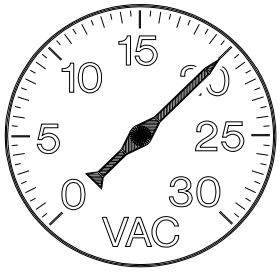
SEIZED METER
JAMMED COMPUTER OR GEAR BOX
COMPLETELY RESTRICTED
NOZZLE OR HOSE

SYMPTOM: SLOW OR NO FLOW – PUMP LABORING



AT CONTROL VALVE COVER

OUTLET OPEN



AT STRAINER (OR FILTER) COVER

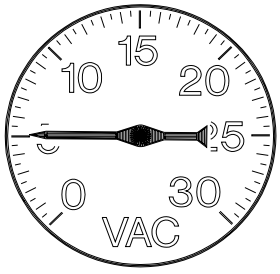
PROBABLE CAUSES:

SUPPLY LINE RESTRICTION
STUCK FOOT VALVE (IN TANK), ANGLE CHECK VALVE, OR VERTICAL CHECK VALVE
RESTRICTED TANK VENT

SYMPTOM: SLOW OR NO FLOW

AT CONTROL VALVE COVER

OUTLET OPEN



AT STRAINER (OR FILTER) COVER

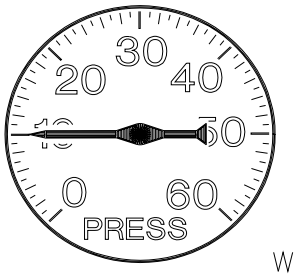
PROBABLE CAUSES:

CONTROL VALVE NOT OPENING FULLY
PUMP VAPOR LOCKED

Figure 12

(Troubleshooting Continued from page 12)

SYMPTOM: NO FLOW/SLOW DELIVERY

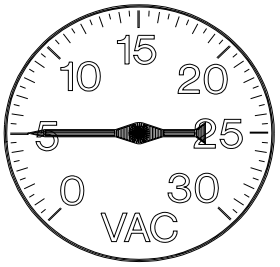


AT CONTROL VALVE COVER

OUTLET OPEN

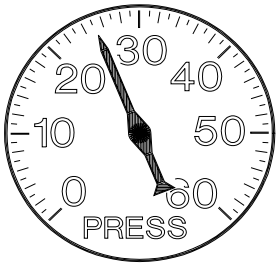
PROBABLE CAUSES:

WORN BYPASS VALVE OR ROTOR BLADES,
WORN ROTOR / STATOR
AIR LEAK IN SUCTION PIPE
DIRTY FILTER

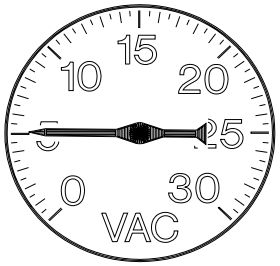


AT STRAINER (OR FILTER) COVER

SYMPTOM: SLOW FLOW



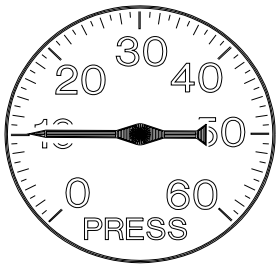
OUTLET OPEN



PROBABLE CAUSES:

PARTIALLY RESTRICTED NOZZLE OR HOSE
BIND IN COMPUTER, GEAR BOX, METER,
OR PULSER DRIVE LINKAGE

SYPTOM: NO FLOW/SLOW DELIVERY

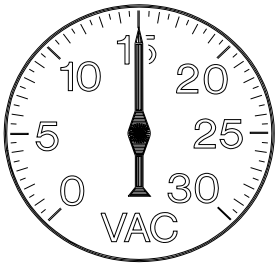


AT CONTROL VALVE COVER

OUTLET OPEN

PROBABLE CAUSE:

TANK BURIAL TOO DEEP (HIGH LIFT)



AT STRAINER (OR FILTER) COVER

Figure 13

Troubleshooting

(Troubleshooting Continued from page 13)

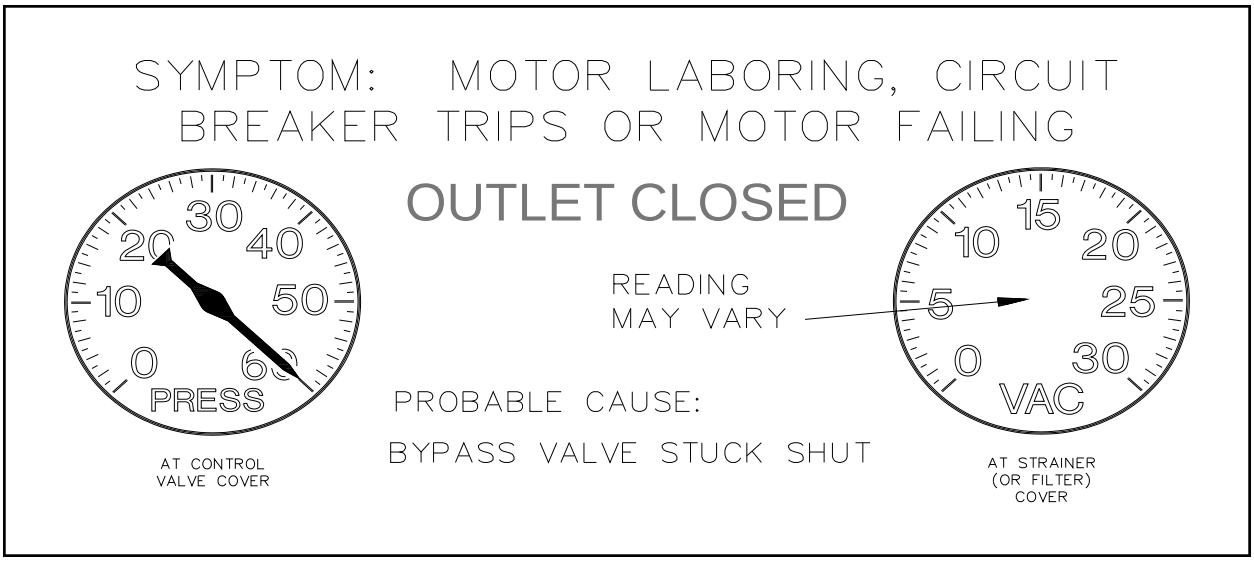


Figure 14

Troubleshooting

HOW TO CORRECT PROBLEMS ON PUMPING UNITS:

PROBLEM	CAUSE	ACTION
1. **The motor starts but the pump does not deliver fuel.**	a. The fuel supply is below the suction stub in the storage tank.	a. Fill the storage tank.
	b. The vent pipe is plugged in the storage tank.	b. Clean the vent pipe
	c. The strainer screen or filter assembly has an obstruction.	c. Remove obstructions from the screen or filter assembly.
	d. The bypass valve is not seating properly due to wear or obstruction.	d. Check the valve for an obstruction causing the valve to stay open, and/or replace the bypass valve.
	e. The v-belt is loose or broken.	e. Adjust or replace the v-belt.
	f. There is an obstruction in the atmospheric float valve.	f. Clean the float and valve area. Check for swelling and binding in the linkage.
	g. The pump is out of prime.	g. Check for a faulty foot valve in the storage tank or a faulty check valve in the suction line.
	h. The suction line is leaking.	h. Start the pump and open the nozzle. If bursts of air are felt while holding a finger on the vent tube, the suction line is damaged. Repair or replace.
	i. The intake line, foot valve, angle check valve, or vertical check valve have an obstruction.	i. Connect a vacuum gauge to the 1/4" plug on the filter cover. Turn the pump on and open the nozzle. A reading of 15 or more inches of mercury with no flow indicates a complete blockage in the suction line. Clean the line or replace.
	j. The suction stub in the storage tank is on the bottom of the tank.	j. Make sure there is a four inch clearance.
	k. The control valve has an obstruction.	k. Clean the control valve. It must slide freely in the valve cavity.
	l. The nozzle is not working.	l. Replace the nozzle.
	m. *Two pumps are connected to one storage tank with one suction line. There is a faulty check valve in one of the supply lines. *Not recommended.	m. Disconnect the vent tube on the idle pump. Install a short copper tube. Place the end of the copper tube in a container of liquid. If the liquid is drawn out of the container when the opposite pump is operated with an open nozzle, the line check valve is faulty. Replace the check valve.

Troubleshooting

PROBLEM	CAUSE	ACTION
2. **The pump runs, but delivery is slow.**	a. The fuel supply level is low.	a. Fill the storage tank.
	b. The vent pipe is partially obstructed.	b. Clean the vent pipe.
	c. The strainer screen or filter assembly has a partial obstruction.	c. Remove obstructions from the screen or filter assembly.
	d. The bypass valve is not seated properly.	d. Check the valve for an obstruction causing the valve to stay open.
	e. The v-belt is loose.	e. Adjust the v-belt.
	f. The voltage is too low.	f. Check the power supply voltage. The dispenser uses a 115 VAC, 60 cycle electrical circuit. Check for too many pieces of equipment on one electrical line.
	g. A blade or blades in the rotary pump will not move.	g. Check the rotor and blades for damage. Replace the blades and/or rotor, if necessary.
	h. An automatic nozzle has been installed.	h. Delivery speed will be reduced by 10-25%. If maximum speed is desired, replace with a standard nozzle.
	i. The motor is defective	i. Inspect the motor for loose connections. If no loose connections are found, the motor is defective. Repair or replace.
	j. There is a slow leak in the suction line or intake line.	j. Start the pump and open the nozzle. If bursts of air are felt while holding a finger on the vent tube, the suction line or intake line is damaged. Repair or replace.
	k. The intake line, foot valve, angle or vertical check valve is partially obstructed.	k. Connect a vacuum gauge to the 1/4” plug on the filter cover. Turn the pump on and open the nozzle. A reading of 11 to 13 inches of mercury with no flow indicates a partial obstruction in the suction line. Clean or replace the suction line components.
	l. The control valve is partially obstructed.	l. Check the valve for an obstruction. Replace if necessary.
	m. The nozzle check valve is sticking	m. Clean or replace the nozzle check valve.
	n. The hose is defective (flattened).	n. Replace the hose.

Troubleshooting

(Troubleshooting Continued from page 16)

PROBLEM	CAUSE	ACTION
3. The motor will not run.	a. The power is off. b. The motor is defective.	a. Check the circuit breaker in the station. b. Disconnect the power supply. Inspect the motor for loose connections. If none are found, repair or replace the motor.
4. The dispenser does not deliver an accurate amount of product.	a. There is an obstruction in the control valve. b. There is an obstruction in the air eliminator vent tube. c. The meter needs calibration.	a. Clean the control valve. It must slide freely in the valve cavity. b. Clean the vent tube. c. Check calibration test equipment for accuracy. Calibrate the meter.
5. There is fuel running out the vent tube opening when the pump is in operation.	a. There is an obstruction in the atmospheric float valve. The valve is being held closed. b. The suction chamber in the pump is flooded. *(Above ground tank) * Not recommended.	a. Clean the float and valve area. Make sure the float opens completely. b. Check the storage tank level. If it is higher than the pumping unit *(above ground tank), the condition will continue. Install Tokheim 52 valve. * Not recommended.
6. The computer jumps when the pump is turned on.	a. The control valve is not seated properly. b. There is an obstruction in the expansion relief dill valve. c. The gaskets are leaking. d. There is a worn nozzle. e. There is a leak in the hose. f. Temperature extremes cause the liquid to expand or contract.	a. Check the valve for an obstruction between the o'ring and the seat. Inspect the o'ring for damage. Replace the valve or o'ring, if needed. b. Check the valve by pulling the spring loaded seat. Clean any foreign matter from the valve. To install the dill valve in the control valve, use a valve tool. c. Replace worn gaskets. d. Replace the nozzle. e. Replace the hose. f. Problem will be solved when the pump begins to operate.

Troubleshooting

(Troubleshooting Continued from page 17)

Vapor Lock:

Vapor lock is a problem that results from ambient temperatures, vapor pressure of the product and the installation. It is not a characteristic of a pump.

Reasons for Vapor Lock:

Atmospheric Pressure of 14.7 PSI (Seal Level) presses on the liquid in the tank. See figure 15.

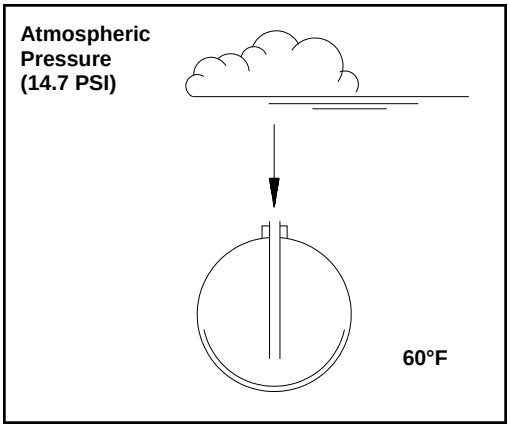


Figure 15

Vapor Pressure (the amount of pressure required to keep the product in a liquid form at 60°F) of today's product is approximately 10 PSI. See Figure 16.

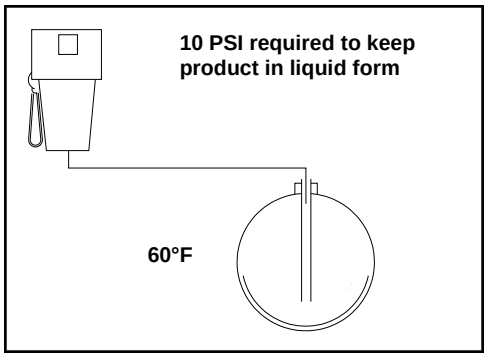


Figure 16

The difference between **Atmospheric Pressure** and **Vapor Pressure** is known as the **Working Pressure.** The Working Pressure is all that the pump can create without the product turning to vapor. See figure 17.

14.7 PSI - (Atmospheric Pressure)
-10.0 PSI - (Vapor Pressure)
4.7 PSI - (Working Pressure)

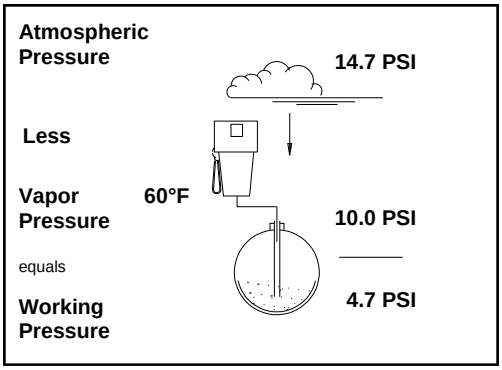


Figure 17

Troubleshooting

(Troubleshooting Continued from page

To **measure a pump's suction**, the Working Pressure must be converted to inches of vacuum. To do this, multiply the Working Pressure by 2. The result is the number of inches of vacuum that a pump can create before the product changes to a vapor. See figure 18.

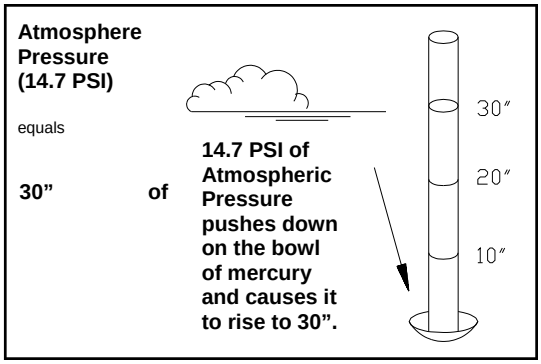


Figure 18

4.7 PSI Working Pressure = 9.4 inches of vacuum. See Figure 19.

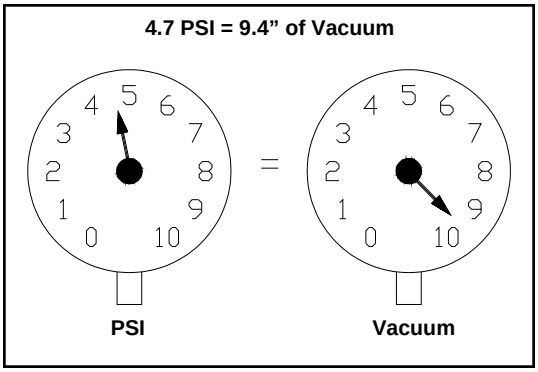


Figure 19

The **condition of installation** dictates how much suction a pump must create to pump the product.

A. It takes 1 inch of vacuum to lift gas 1.5 feet vertically. To determine the inches of vacuum required to lift the gas in a system, follow this procedure:

   Measure the distance from the top of the product in the tank to the center of the pumping unit. See Figure 21. Divide the distance by 1.5 to obtain the inches of vacuum required by the pump to lift the product.

   Example: 9 feet of lift requires 6 inches of vacuum by the pump.
   See Figure 20.

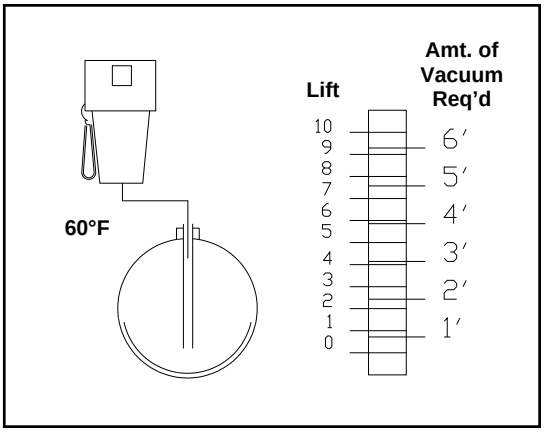


Figure 20

(Continued on page 20)

Troubleshooting

(Troubleshooting Continued from page 19)

B. It takes 1 inch of vacuum by the pump to overcome the restriction of an angle check or foot valve. (Not part of the pump, but a necessary part of the installation.)
See Figure 21.

C. It takes 1 inch of vacuum by the pump to overcome the restriction of 60 feet of horizontal piping from the tank to the pump.
See Figure 22.

To obtain the inches of vacuum to deliver product, simply add A, B and C.

A. 9 feet of lift..... .....6" of suction
B. Angle check or
foot valve ..... (+) 1" of suction
C. 60 feet
horizontal run..... (+) 1" of suction
TOTAL..... .....8" of suction

With 9.4" of suction to work with and only 8" of vacuum required, conditions are normal and the pump delivers product without vapor locking.

Remember this condition exits when the product is at 60°F.

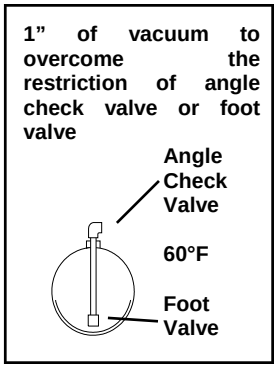


Figure 21

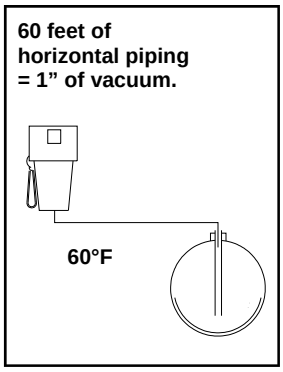


Figure 22

Using the same example as before, 8" of vacuum is still required to deliver product.

With **higher ambient temperatures**, the vapor pressure of the product changes. As mentioned above, the Vapor Pressure of today's product is 10 PSI at 60° F. At temperatures of 90°F or higher, it can go as high as 12 PSI. See figure 23.

(Continued on page 21)

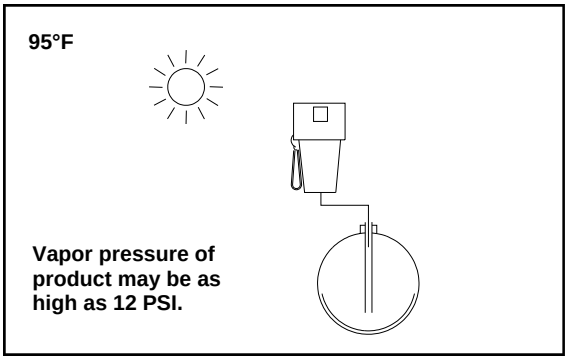


Figure 23

Troubleshooting

(Troubleshooting Continued from page 20)

Using the same formulas as before, the Working Pressure equal Atmospheric Pressure less the Vapor Pressure.

14.7 PSI - (Atmospheric Pressure)
- 12.0 PSI - (Vapor Pressure of the product)
2.7 PSI - (Working Pressure)

See figure 24.

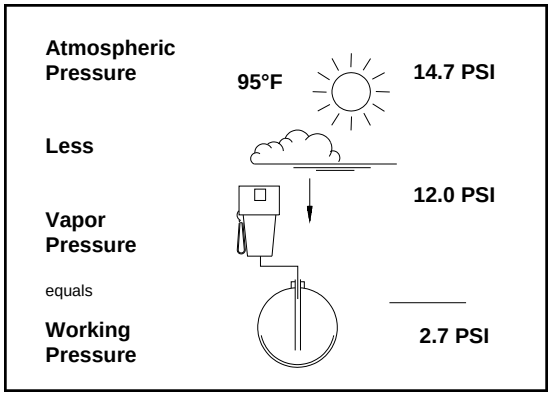


Figure 24

Multiplying the 2.7 Working Pressure by 2 equals 5.4 inches of vacuum that the pump can create before the product turns to vapor.

See figure 25.

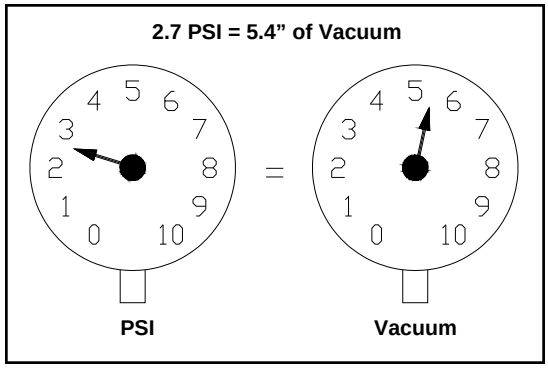


Figure 25

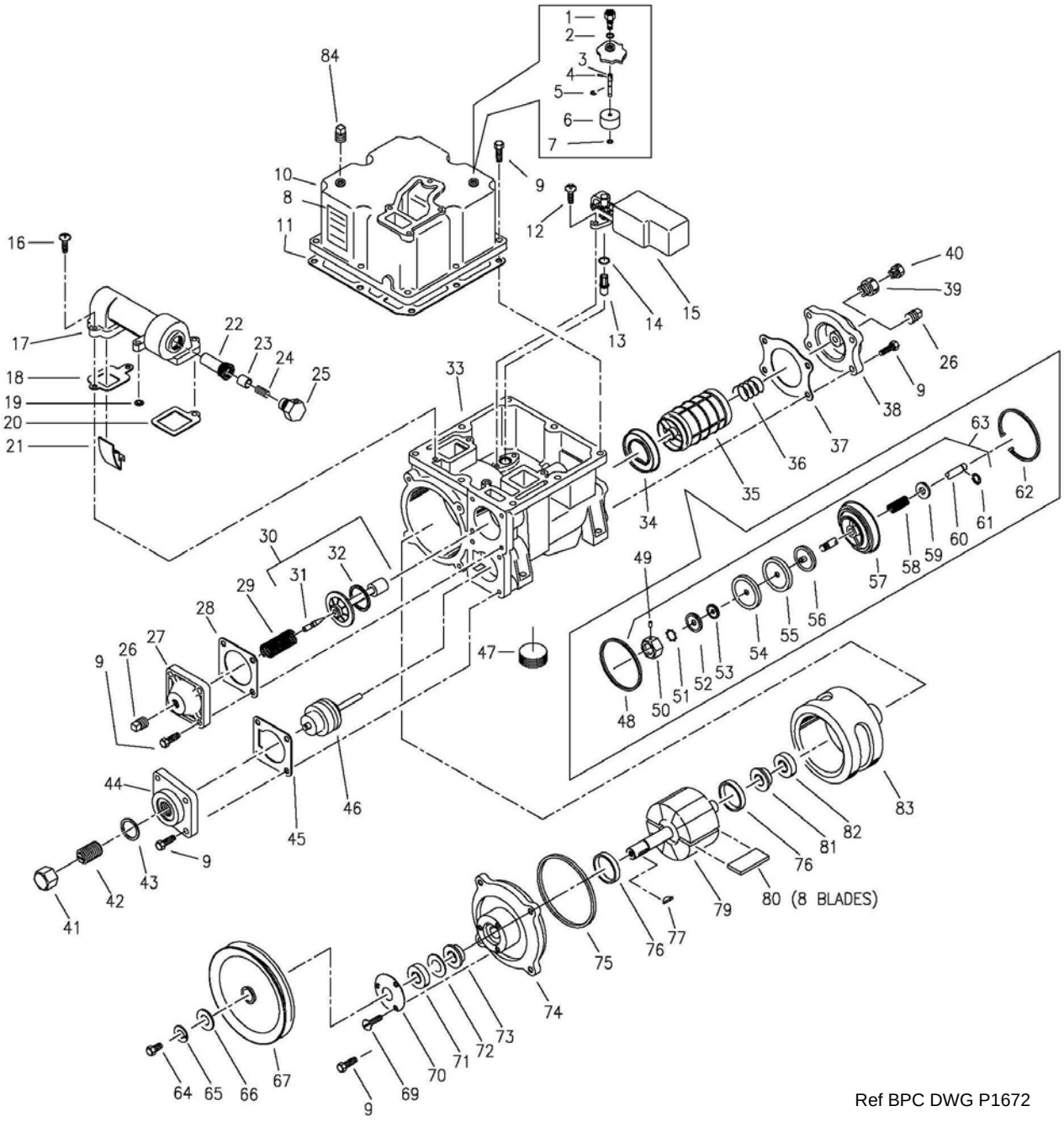
It still takes 8 inches of vacuum to deliver product, but with higher temperatures there is only 5.4 inches of vacuum to lift the product. **The result is Vapor Lock.**

As we have explained, the pump plays a very small part in vapor lock situations. Installation, the amount of product in the storage tank and the Vapor Pressure of the product are the main reasons for vapor lock.

Example: Have you ever heard of vapor lock in a diesel pump? No, because the Vapor Pressure of diesel is approximately 8 PSI.

The only real cure for vapor lock in hot climates is to keep the installation and pump cool.

Parts Breakdown



Ref BPC DWG P1672

Parts List

Not all parts are available for individual purchase. See Available Kits.

Note - If the part is not included in this list then it is not available for purchase through Bennett Pump Company.

Ref No.	Part Number	Description	Comment
1	110359	Housing, Air Valve Float Assembly	
2	108737	Gasket	
3	110360	Shaft	
6	108734	Float	
8	111694	Label Serial Number	
9	A479902	Bolt	M 8 - 1.25 x 25 mm
10	111058	Cover, Atmospheric Chamber	
11	111059	Gasket - Atmospheric Cover	
12	A480101	Bolt - Round Head	M 6 - 0.7 x 20 mm
14	111788	O-Ring	
15	109892	Atmospheric Float Assembly	
16	111051	Bolt - Round Head	
17	111741	Air Separator Body	
18	111047	Gasket, Inlet Separator	
19	111049	Gasket - Round, Outlet Separator	
20	111048	Gasket, Outlet Separator	
21	111050	Insert - Air Separator Inlet	
22	111046	Tube - Air Separator	
23	111636	Piston	
24	108725	Spring	
25	108728	End Cap	
26	A019902	Pipe Plug	1/4 - 18 NPT
27	111034	Cover, Control Valve	
28	111033	Gasket	
29	J325201	Spring	
30	111026	Control Valve Assembly	
31	111031	Pressure Relief Valve	
32	111032	O-Ring	
33	111004	Pump Body	
34	N160301	Filter Insert	
35	111055	Strainer	
36	N905001	Filter Spring	
37	111056	Gasket	
38	111057	Filter Cover	
39	109668	Screw - Air Test Valve	
40	109666	Adaptor - Air Test Valve	
41	111043	Cap Nut B.P.	
42	111042	Adjustment Screw B.P.	
43	A507901	Gasket B.P. Screw	
44	111041	Cover B.P.	
45	111040	Gasket Cover B.P.	

Parts List

Not all parts are available for individual purchase. See Available Kits.

Note - If the part is not included in this list then it is not available for purchase through Bennett Pump Company.

Ref No.	Part Number	Description	Comment
46	111035	Bypass Valve	
47	111647	Pipe Plug - 1 1/2" NPT	
48	111053	O-Ring	
62	111054	Retainer - Wire	
63	111052	Check Valve Assembly	
64	A479903	Screw	
65	A000301	Lock Washer	M 8 - 1.25 x 20 mm
66	111025	Washer	
67	111024	Pulley **See Text	
69	111023	Flat Head Screw	
70	111021	Bearing Retainer	
71	111020	Ball Bearing R.C. **See Text	
72	111019	Washer R.C.	
73	111018	Lip Seal R.C.	
74	111016	Rotor Cover	
75	111017	O-Ring R.C.	
76	111011	Throw Out Ring **See Text	
77	A199501	Woodruff Key #406	
78	A263101	Retaining Ring Rotor	
79	111012	Rotor & Shaft Assembly **See Text	
80	111015	Pump Blade	
81	111010	Lip Seal Stator	
82	111009	Needle Bearing **See Text	
83	111005	Stator **See Text	
84	111648	Pipe Plug 1/4"	

****For units built after January 2011 or serial number 1Nxxxxxx, the following parts are used for pumps manufactured with the 100mm stator.**

Ref No.	Part Number	Description	Comment
67	N106901	Pulley	100mm stator
71	115714	Ball Bearing R.C.	100mm stator
76	115711	Throw Out Ring	100mm stator
79	115735	Rotor & Shaft Assembly	100mm stator
82	115715	Needle Bearing	100mm stator
83	115718	100mm Stator	

Kits

Note - If the part is not included in this list then it is not available for purchase through Bennett Pump Company.

Inlet Check Valve (112164):

Part No.	Description	Quantity
112163	Instructions	1
111053	O-Ring	1
111052	Check Valve Assembly	1

Master Seal (112156):

Part No.	Description	Quantity
112155	Instructions	1
111017	Rotor Cover O-Ring	1
111040	Bypass Valve Cover Gasket	1
111033	Control Valve Cover Gasket	1
111056	Filter Cover Gasket	1
111059	Gasket - Atmospheric Cover	1
111010	Stator Lip Seal	1
111018	Rotor Cover Lip Seal	1

Over Flow Check Valve (112166):

Part No.	Description	Quantity
112165	Instructions	1
111874	Air Valve Sub Assembly	1
108734	Float	1
111537	C-Clip	2
111538	Gasket Valve	1
111059	Gasket - Atmospheric Cover	1

Shaft Seal (112160):

Part No.	Description	Quantity
112159	Instructions	1
111018	Rotor Cover Lip Seal	1

Sump Float (112162):

Part No.	Description	Quantity
112161	Instructions	1
109892	Float Valve Assembly	1
111788	O-Ring	1
Not Available	Non-Reversing Float	1

8 Blade (112168):

Part No.	Description	Quantity
112167	Instructions	1
111015	Blade	8
111018	Rotor Cover Lip Seal	1
Not Available	Non-Reversing Float	1

Kits

Note - If the part is not included in this list then it is not available for purchase through Bennett Pump Company.

Pumping Element - 8 Blade Field Rebuild (112170): **See Text

Part No.	Description	Quantity
112169	Instructions	1
111012	Rotor and Shaft Assembly	1
111015	Blade	8
A199501	Woodruff Key #406	1
111018	Rotor Cover Lip Seal	1
111010	Stator Lip Seal	1

Bypass Valve (112152):

Part No.	Description	Quantity
112151	Instructions	1
111035	Bypass Valve	1

Strainer (112154):

Part No.	Description	Quantity
112153	Instructions	1
111055	Strainer	1

Control Valve (112158):

Part No.	Description	Quantity
112157	Instructions	1
111026	Control Valve Assembly	1
J325201	Spring	1

****For units built after January 2011 or serial number 1Nxxxxxx, the following kits are used for pumps manufactured with the 100mm stator.**

Rotor & Bearing Rebuild 100mm (115731)

Part No.	Description	Quantity
115734	Instructions	1
115735	Rotor and Shaft Assembly (100mm)	1
115715	Needle Bearing (100mm)	1
115714	Ball Bearing (100mm)	1
111010	Lip Seal Stator	1
111018	Lip Seal Rotor Cover	1
113658	Plug (Insertion Tool)	1

Kits

Note - If the part is not included in this list then it is not available for purchase through Bennett Pump Company.

Pumping Element - 8 Blade Field Rebuild 100mm (115736):

Part No.	Description	Quantity
115737	Instructions	1
115735	Rotor and Shaft Assembly (100mm)	1
111015	Blade	8
115711	Throw Out Ring (100mm)	2
111018	Rotor Cover Lip Seal	1
A199501	Woodruff Key #406	1
111010	Stator Lip Seal	1
111017	Rotor Cover O-Ring	1
113658	Plug (Insertion Tool)	1

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