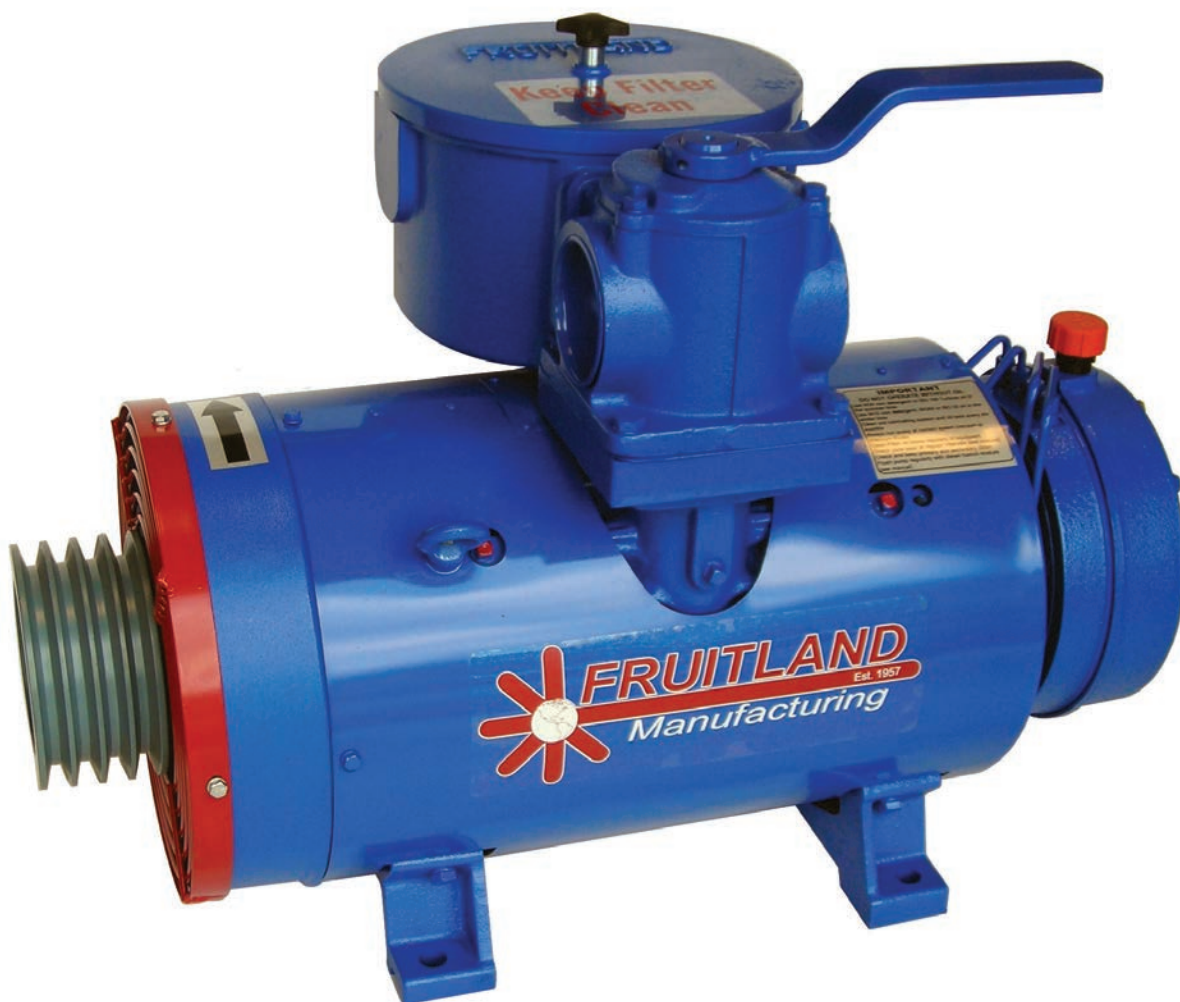


FRUITLAND VACUUM PUMP

Operation and Maintenance

RCF 250, 370, 500 & 870



Attention:

**Read owner's manual fully before operating pump.
Failure to do so can result in severe pump damage and may void warranty.**

CONTENT

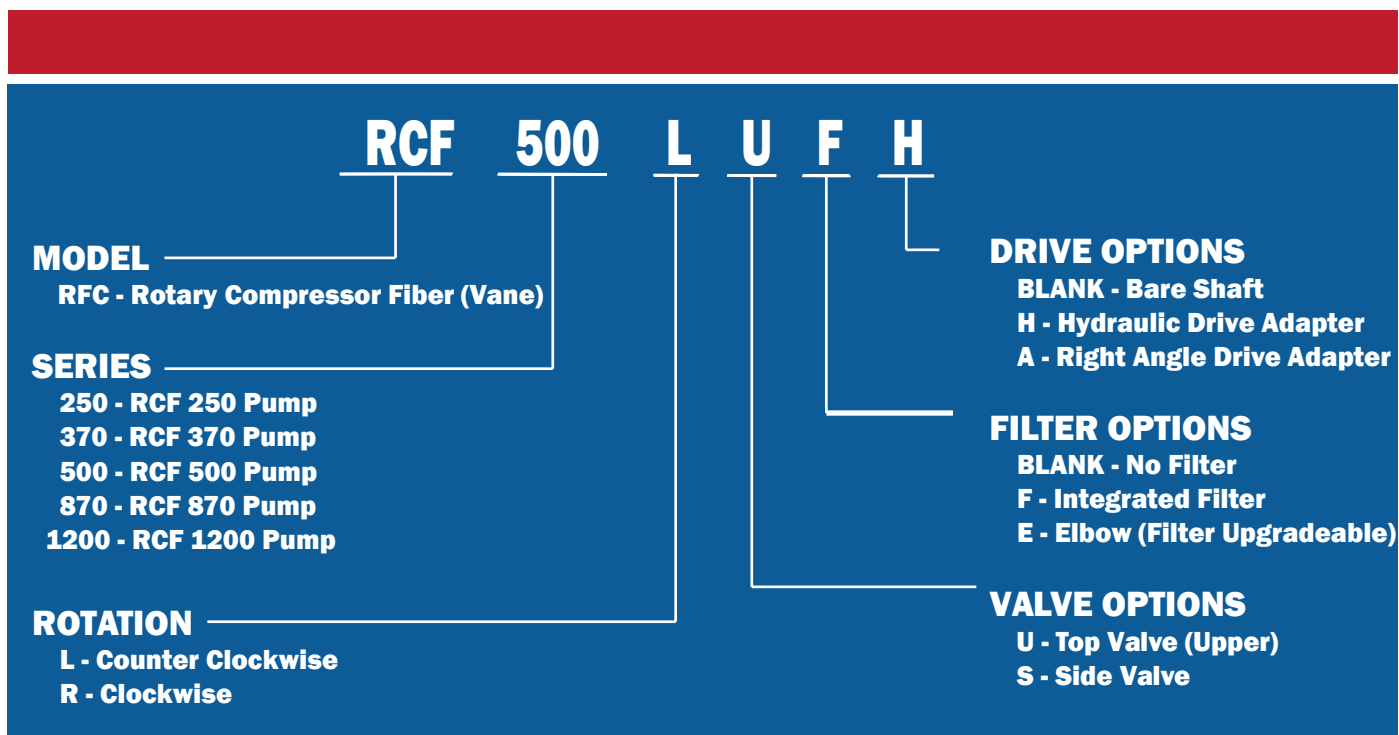
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RCF Model Nomenclature:



Ordering Information:

1. Choose Rotation L or R
2. Choose diverter valve location U or S
3. Choose filtered or nonfiltered model
4. Choose drive line option A or H; OR specify belt drive or pulley

Sample Model Code:

RCF500LUFH – Rotary Compressor Fiber Vane Pump model 500 series pump with left hand rotation, four-way valve on top, Integrated filter, and Hydraulic Drive Adapter.

Model 870



Model 500



Model 370



Model 250



PUMP OPERATION & MAINTENANCE





WARNING

Read Operations and Maintenance Manual fully before operating the vacuum pump. Failure to do so may result in severe system damage that may cause severe injury, death, and void the pumps warranty.

INSTALLATION & ADJUSTMENTS

Lifting

Lift pump by eye bolts, if provided, or with slings around body of pump close to legs.

Mounting

Secure pump unit to flat sturdy surface with four bolts, washers and lock washers, through holes in the base of the pump legs.

RPM

Fruitland Vacuum Pumps should never exceed the RPM stated on the plate tag (pump damage is possible). Pump may be run 20% slower than the stated RPM on the tag if required.

*Vacuum-Pressure Gauge:

Required to SAFELY operate and monitor the systems performance. Locate this gauge at an Operational location and or after the primary and secondary shut-offs/scrubbers to prevent failure due to foreign material.

*Pressure & Vacuum Relief Valves:

Regulates the operating Pressure & Vacuum levels within the system. There should be a minimum of two of each relief valve within your system. One set of reliefs upon the tank and one set of reliefs near the pump. All Relief Valves are rated per CFM (cubic feet per minute) and must be sized accordingly to your vacuum pump system and as recommended by the vacuum tank manufacturer.



WARNING

Always verify the correct Relief valve settings with the tank manufacturer. Failure to do so may cause catastrophic failure, injury and/or death.

Vacuum & Pressure Relief Adjustment



*Fruitland Pressure Relief - PART # PRV2"

Release the anti-rotation screw (1) - turn the upper ring (3) - rotate clockwise - CW - to increase pressure OR rotate counter clockwise - CCW - to decrease pressure in vessel.

When the desired pressure in the vessel is achieved, slightly turn the upper ring (3) until the flattened spot upon the wheel's shaft is achieved. Tighten the anti-rotation screw and the pressure relief is now set.

Fruitland suggests this procedure and verification of your pressure reliefs operation within your system are re-checked and or set during your routine maintenance schedule for the tank and truck.

*Fruitland Vacuum Relief - PART # VB

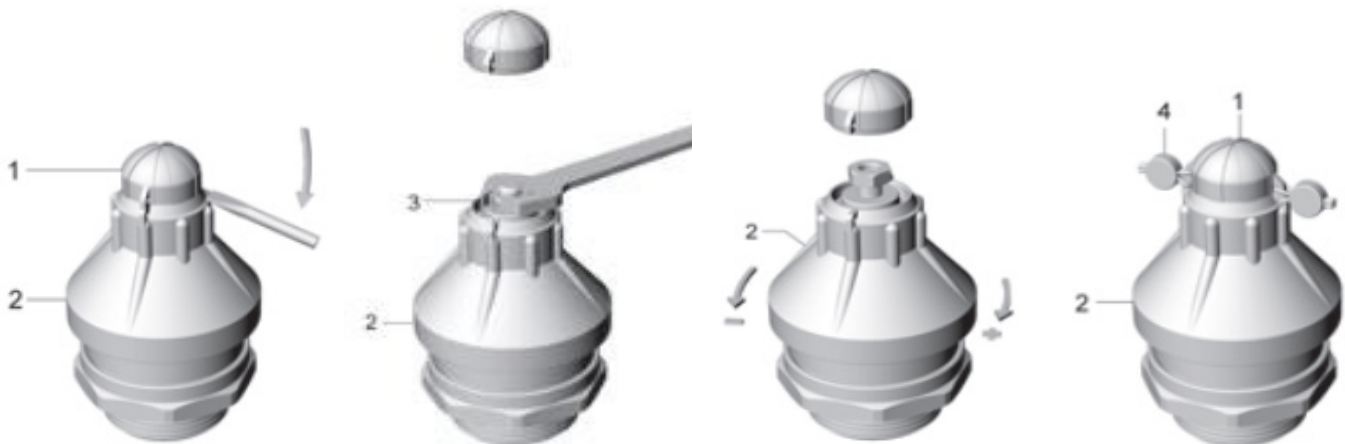
Remove the setting screw cover (1) - insert a flat tip screwdriver into the incision and pry off the cover carefully. Loosen the stop set nut (3) - hold firm the vacuum relief bell (2) - Turn the bell clockwise - CW - to increase pressure and turn the bell counter clockwise - CCW - to reduce pressure in the vessel.

During this adjustment it is not necessary to hold the set nut stem (3) with a screwdriver.

When desired pressure in the vessel is achieved, tighten the stop set nut (3) - hold firm the vacuum relief bell (2). Install the setting screw cover (1) - and the vacuum relief is now set.

To eliminate tampering with the adjusted setting of the vacuum relief - insert wire through the screw cover (1) and then into bell (2) and connect wire with a permanent seal.

Fruitland suggests this procedure and verification of your pressure reliefs operation within your system to be re-checked and or re-set during your routine maintenance schedule for the tank and truck.



In addition to the incorporation of vacuum & pressure reliefs the outside of these valves, vacuum pump housing, pump shroud and pumps cooling fan blades should, at all times be kept clean of all debris to allow proper pump & system cooling.

Failure to allow air to be conveyed through your vacuum pump & system may result in severe system damage that may cause severe injury, death, and void the pumps warranty.



ATTENTION

All Fruitland Vacuum pumps should never run for a prolonged period of time without air passing through the pump & system itself. Incorporating vacuum & pressure relief valves is highly recommended

SERVICE NOTE

USE GENUINE FRUITLAND PARTS ONLY!

If you have any questions, or require further information on installing, operating and or the maintenance of your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

*** If you require these components, please contact your supplier or Fruitland Manufacturing (They may not be included in the pump or package you acquired)**

LUBRICATION & APPROVED OILS

Lubrication: If the suction temperature is >50°F (summer conditions), a SAE-40 non detergent motor oil or an ISO 150 compressor oil can be used. If the suction temperature is <50°F (Winter Conditions) a SAE-30 non detergent motor oil or an ISO 100 compressor oil is recommended. **Always check oil level before starting unit.**



NEVER ALLOW OIL RESERVOIR TO GET LOW!!!

Vacuum pumps dispose of and or consume oil during operation and do not have a return within the system. **All vacuum pumps will have an oil sight glass, tube or dipstick. If a remote reservoir is used, verify that this reservoir has oil. Always use the manufacturer's recommended oil. The oil level needs to be checked on a routine basis during the vacuum pumps operation.**

All Pump Models

Oil Tank - Important! During routine cleaning & freezing weather, drain possible condensation build-up in the bottom of the oil tank. Water can enter oil tank and be ingested into the oil pump, this could cause the oil pump to freeze and damage the internal gears of the oil pump. If you suspect water is present within the oil tank reservoir, drain and clean the oil tank with diesel fuel.

Oil Consumption - approximate:

	RCF250	RCF370	RCF500	RCF870
1 Litre	12 hr	4.4 hr	4.4 hr	4.4 hr
1 Imp. Gal.	55 hr	20 hr	20 hr	20 hr
1 US Gal.	45 hr	16.6 hr	16.6 hr	16.6 hr

Oils Approved for use in Fruitland Vacuum Pumps

OIL TYPE	WINTER WEIGHT	SUMMER WEIGHT
FRUITLAND® GREEN™ OIL (100% Biodegradable)	SAME	SAME
¹ SHELL TURBO T OIL	32	68 or 100
¹ ISO COMPRESSOR OIL	100	150
MONOLEC COMPRESSOR OIL*	SAME	SAME
MOBIL SHC 525 (Synthesized Hydrocarbon)	SAME	SAME
¹ MOBIL DTE	LIGHT OR	HEAVY MEDIUM
ANDEROL 497	MEDIUM SAME	SAME
¹ CHEVRON GST	32	68
¹ PENNZOIL PENNZBELL TO OIL	32 or 46	68
¹ TEXACO REGAL R & O OIL	32	68
¹ SAE NON DETERGENT OIL	10 or 20	30 or 40
SHELL ROTELLA 15W-40 MOTOR OIL	SAME	SAME

These oils have been approved for use in Fruitland Vacuum Pumps. Use of these oils will maintain the vacuum pump warranty as well as extend the life of the vacuum pump and ensure proper performance and lubrication.

When operated properly, Fruitland vacuum pumps will run cooler, use less oil and provide much longer service than any other rotary vane vacuum pump.

*Monolec Compressor Oil is colored red and should not be confused with transmission fluid.

¹ Recommended for the best performance and lubrication at all temperature levels.

Oils & Fluids That Are Not Approved For Use In Fruitland Vacuum Pumps

OIL TYPE	OIL TYPE	OIL TYPE
BRAKE FLUID	HYDRAULIC FLUID	TRANSMISSION FLUID
DEF FLUID	POWER STEERING	VEGETABLE OIL
GEAR OIL	FLUID SCENTED OIL	USED OIL

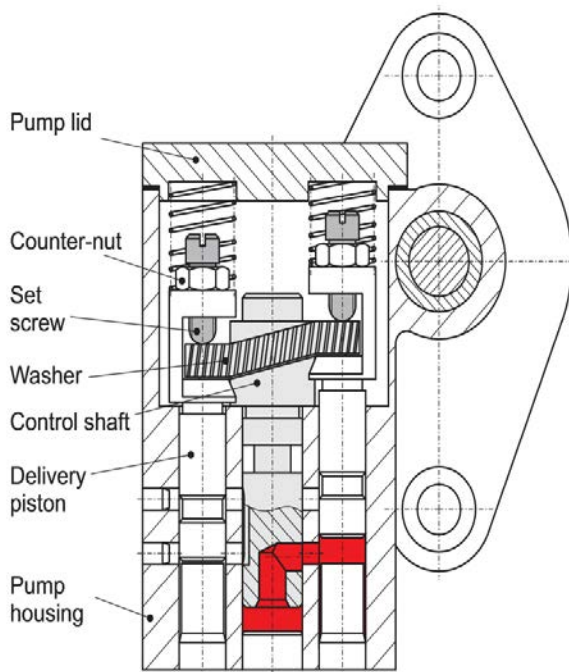


WARNING

Always check oil level before starting pump. Fill if necessary. Operating your Fruitland vacuum pump with the incorrect oil can result in misuse of this product that may result in severe injury, death, severe system damage, and or void the pump's warranty.

OIL PUMP ADJUSTMENT

Fruitland vacuum pump's oil pump comes pre-adjusted from the factory and rarely requires any adjustment during their life time. However if a need arise, the following procedure should be followed to adjust the oil flow rate.



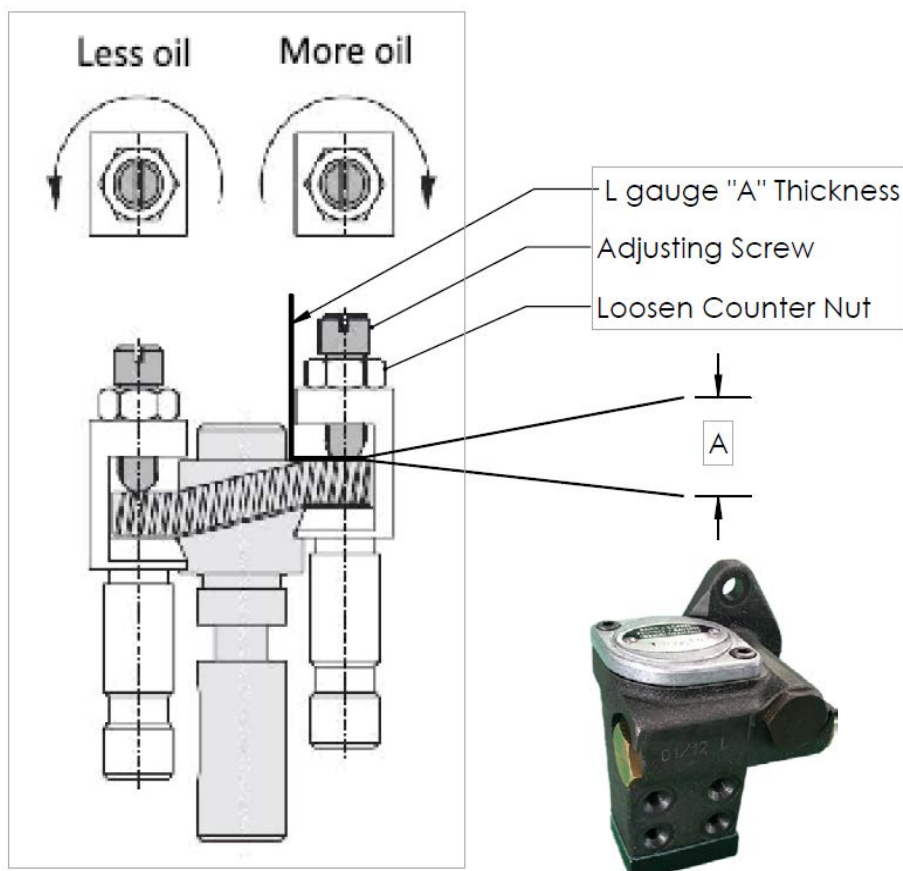
Oil Rate Adjustment:

The oil rate can be adjusted in two ways:

- 1- Using a feeler gauge of thickness "A" to adjust the gap.
- 2- Turning the adjusting screw by specified turns from fully closed position.

Use the following table for reference.

	RCF250	RCF370	RCF500	RCF870
1 Litre	12 hr	4.4 hr	4.4 hr	4.4 hr
1 Imp. Gal.	55 hr	20 hr	20 hr	20 hr
1 US Gal.	45 hr	16.6 hr	16.6 hr	16.6 hr



Note:

- Due to space limitations, a custom designed small L shaped feeler gauge of "A" thickness can be used to adjust the gap.
- One full turn of adjusting screw is 0.030" (0.75mm) and one counter clockwise turn reduces the oil output by 1/3 of the total oil delivery volume.

VACUUM PUMP FLUSHING PROCEDURE

Flush the Pump

During your routine scheduled service of your tank truck and vacuum system perform the manufactures suggested Pump Flushing Procedure. This will remove the caked oil and carbon build-up from within the vacuum pump and the oil catch muffler system expelling this carbon & debris build-up out of the oil catch muffler's drain valve. Flushing the system on a routine basis will also help in reducing smoke due to the fact of eliminating varnish and or carbon build-up from within the oil catch muffler and vacuum pump.

Pump Flushing Procedure

1. Stop the pump and remove ¼ " npt plug located on the pump diverter valve.
2. Connect a brass fitting, rubber hose, ball valve and flushing fluid bottle to this port.
3. Run the Pump, switch to vacuum and slowly open the ball valve.
4. Pass approximately 2 to 3 liters of the flushing fluid through the pump while restricting/controlling the flushing fluid flow through the ball valve.
5. Close the ball valve and run the pump for an additional minute to remove all the flushing fluid from the pump.
6. Drain the oil catch muffler or oil separator.
7. If you remove the Pump flushing fittings from the pump, make sure to re-install the ¼ " NPT plug back into the port.
8. Resume pumping operation.

For ease of operation, Fruitland recommends installing our Pump Flushing Kit (Part #FK500) to assist in this procedure.



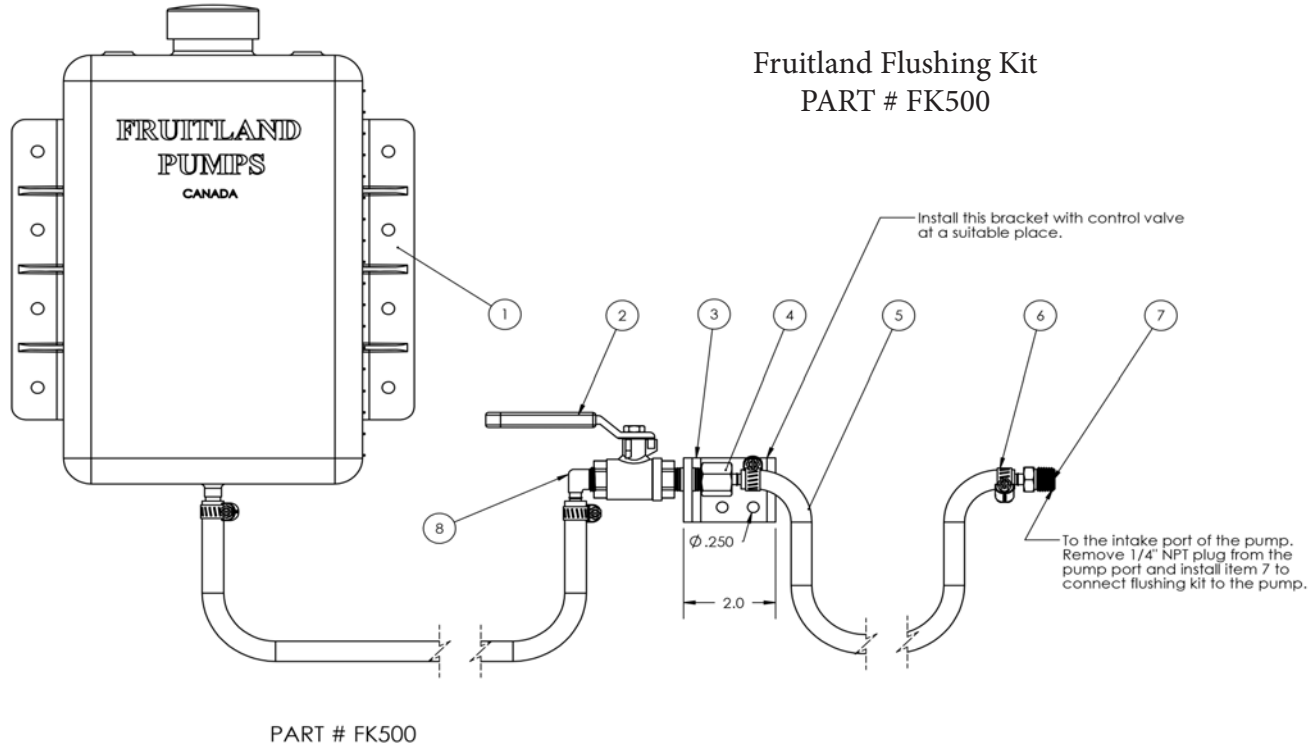
WARNING

Flushing your Fruitland vacuum pump with the incorrect fluid type can result in misuse of this product that may result in severe injury, death, severe system damage, and or void the pump's warranty.

If you have any questions or require further information on installing, operating, and or flushing your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

Fruitland Vacuum Pump Flushing Kit



ITEM #	PART #	DESCRIPTION	QTY
1	OR11-A-01	6QT. PLASTIC TANK WITH BREATHER CAP	1
2	FK500-A-01	BALL VALVE, 1/4"	1
3	FK500-01	ANGLE BRACKET FOR REMOTE VALVE INSTL. SEE DWG. FK500-01	1
4	FK500-A-02	STRAIGHT BRASS FITTING, 1/4" NPT FEMALE TO 1/4" ID HOSE BARB	1
5	OR11-A-02	Ø1/4" ID FUEL LINE RUBBER HOSE	10 ft
6	OR11-A-03	HOSE CLAMP 7/32"-5/8" (SAE 4)	4
7	FK500-A-03	STRAIGHT BRASS FITTING 1/4" NPT MALE TO 1/4" ID HOSE BARB	1
8	OR11-A-04	ELBOW 1/4" NPT MALE TO 1/4" ID HOSE BARB FITTING BRASS	1

Flushing Fluid: $\frac{3}{4}$ of diesel fuel mixed with $\frac{1}{4}$ of pump oil by volume

SERVICE NOTE

USE GENUINE FRUITLAND PARTS ONLY!

If you have any questions, or require further information on installing, operating and or the maintenance of your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

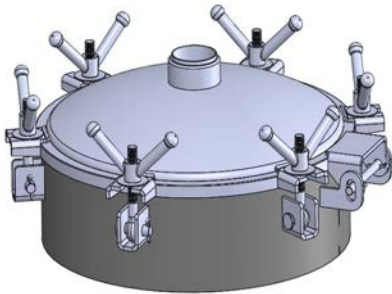
VACUUM PUMP & SYSTEM MAINTENANCE



Secondary Shutoff

Drain the secondary moisture trap Before Every Pump Operation!!

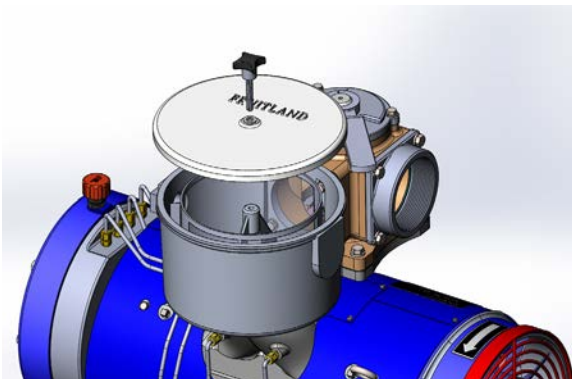
If the secondary moisture trap is full and or starts to fill, you will lose the ability to create pressure and or vacuum. Check the secondary shut-off before every use by opening the drain valve upon the bottom of this moisture trap. If the secondary trap has any substance within it, this could end up running through the vacuum pump and causing catastrophic pump failure. If any substance is within the secondary shut-off, this indicates the tank is full, over-filled and or the primary shutoff upon your vacuum system is not working correctly.



Primary Shutoff

Check the primary shutoff Daily

The primary shut-off is the first stopping point within the vacuum tank system for the product being loaded into your vacuum tank. This primary shut-off must work correctly every time or the pump & system will fail quickly, and you will certainly have a catastrophic pump failure. Verify each day, before starting, the rubber seat is in proper shape and form, the ball appears to be free of any debris, holes and is operational. The cage in which the ball rests, or sits within must be attached to the primary shut-off assembly correctly.

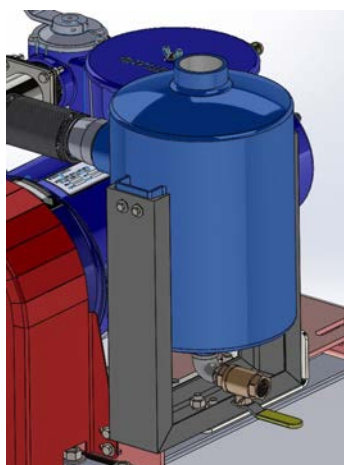


Pump Air Filter

Clean the Pump Air Filter Daily

Every vacuum pump system should contain a vacuum pump air filter somewhere between the primary shut-off and the vacuum pump. This filter will prevent any foreign objects from being sucked into the vacuum pump through the tank during normal operation. This air filter must be cleaned each day before the operation of the vacuum system. Remove the stainless-steel mesh filter daily from the air filter canister and clean with either soapy water and or diesel fuel.

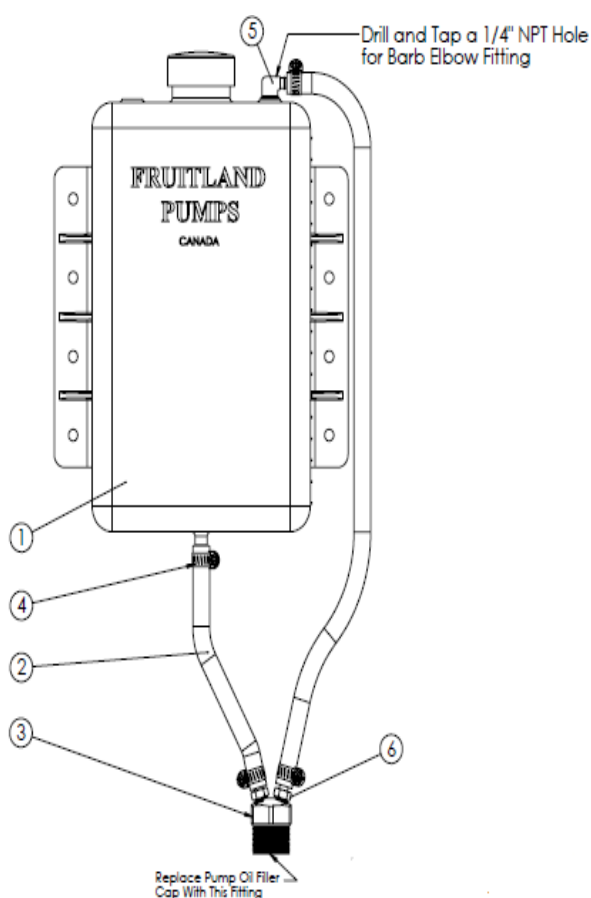
Muffler



Drain the oil catch muffler Daily

If the oil catch exhaust muffler starts to expel oil, you will lose vacuum performance. This overflow of oil may backfill into the pump. When draining the muffler system, pay attention to the material being expelled from the muffler's drain valve, this is a good way to spot any water and/or debris that may have entered the vacuum pump system.

Fruitland Oil Reservoir Kit



Fruitland Part # OR11 Oil Reservoir Kit includes:

PART #	DESCRIPTION	QTY
OR11-A-01	6 QT. PLASTIC TANK WITH BREATHER CAP AND STRAIGHT 4\" BARB FITTING AT BASE	1
OR11-A-02	Ø1/4\" ID FUEL LINE RUBBER HOSE 10 FT.	10 ft
OR11-01	3/4\" NPT ADAPTER WITH BARB FITTINGS, FTM MACHINED	1
OR11-A-03	HOSE CLAMP 7/32\"- 5/8\" (SAE 4)	4
OR11-A-04	ELBOW 1/4\" NPT TO 1/4\" ID HOSE BARB FITTING BRASS	1

Vacuum Pump Storage

It is recommended to complete the Pump Flushing Procedure upon page 12th prior to the pump being put into storage and not operational for an extended amount of time (2 or more months).

Following the Pump Flushing Procedure when storing the vacuum pump for an extended amount of time will prolong the vacuum pumps life exponentially.

VACUUM PUMP DRIVE SYSTEMS

Do not Over-speed or Under-speed the Vacuum Pump

The Drive System must be sized and calculated correctly. Either over and/or under speeding the vacuum pump drive shaft speed will cause catastrophic pump failure and possibly damage the entire vacuum pump & system.

The Power Take Off - PTO - must allow for the vacuum pump drive shaft to slowly engage. Incorrectly configured and or installed PTO's will deteriorate all drive system components prematurely and may cause damage to the vacuum pump.

The tank truck drive system must be set up or dialed into the correct optimal operational input rpm of the vacuum pump during system & pump installation.

Every vacuum pump model has a different optimum operational rpm. Contact the factory for the correct operational rpm for your vacuum pump model & system.

Fruitland Vacuum Pump RPM & Power Requirements

The table below provides the recommended input speeds and correlating power requirements for each Fruitland Vacuum Pump Model's optimal overall performance.

	HP Requirements													Torque ft-lbf											
	Pressure (psi)							Vacuum (inch Hg)						Pressure (psi)							Vacuum (inch Hg)				
RCF	25	20	15	10	5	0	5	10	15	20	25	28	Input	25	20	15	10	5	0	5	10	15	20	25	28
Pump Model	Engine BHP (30% uprated from actual)												RPM	Torque ft-lbf											
800	60	52	43	35	27	18	19	20	22	23	24	26	1000												
870	57	53	51	47	44	40	38	36	38	39	40	42	1375	218	204	194	181	169	154	144	139	144	149	154	159
500	42	39	36	34	31	30	29	27	25	24	23	22	1375	160	149	138	130	118	115	111	103	95	92	88	84
370	36	32	28	23	20	16	15	14	13	13	12	11	1375	138	122	105	88	76	61	57	53	50	48	46	42
344	X	X	19	16	13	11	11	12	13	15	15	X	1375	X	X	73	61	50	41	43	45	49	56	58	X
250	18	17	15	13	12	10	10	9	8	8	8	7	1375	69	63	57	50	46	38	36	34	31	29	29	27
172	X	X	12	9	7	6	6	7	8	8	9	X	1375	X	X	44	35	27	22	24	26	29	29	34	X
RCF	25	20	15	10	5	0	5	10	15	20	25	28	Input	25	20	15	10	5	0	5	10	15	20	25	28
Pump Model	Actual HP												RPM	Torque ft-lbf											
800	46	40	33	27	21	14	15	15	17	18	18	20	1000												
870	44	41	39	37	34	31	29	28	29	30	31	32	1375	168	157	149	139	130	118	111	107	111	115	118	122
500	32	30	28	26	24	23	22	21	19	18	18	17	1375	123	115	106	100	91	88	85	79	73	71	68	65
370	28	25	21	18	15	12	12	11	10	10	9	8	1375	106	94	81	68	59	47	44	41	38	37	35	32
344	X	X	15	12	10	8	9	9	10	11	12	X	1375	X	X	56	47	38	32	33	34	38	43	45	X
250	14	13	12	10	9	8	7	7	6	6	6	5	1375	53	48	44	38	35	29	28	26	24	22	22	21
172	X	10	9	7	5	4	5	5	6	6	7	X	1375	X	X	34	27	21	17	18	20	23	23	26	X



ATTENTION

Fruitland Vacuum Pumps should never exceed the input RPM stated on the vacuum pump's plate tag - severe pump & system damage will occur & the pumps warranty will be void.

The largest contributing factor limiting a Fruitland Vacuum Pumps performance is continued heat generation due to operating the pump above and or below the recommended input speed. This additional heat produced due to incorrect RPM Input speed will negatively impact the overall life of your Fruitland pump.

Check the Drive Components of the Vacuum Pump

If using a Fruitland right-angled gearbox verify the gear oil level within the gearbox and clean the vent cap upon the top of the gearbox case during your routine service.

If using a belt and pulley to operate the vacuum pump, check the belts for wear and verify the belt's tension during your routine service.

When incorporating hydraulics ensure the fluid is replaced on a routine basis as the viscosity deteriorates in the same fashion as your engine oil.

Contact the factory for the optimum hydraulic circuit, gearbox and belt specifications for your vacuum pump system.

Fruitland pumps may be run up to 20% slower than the stated RPM on the tag if required.



ATTENTION

Vacuum pump & drive system direction of rotation must be determined and verified prior to procurement of the vacuum pump and all correlating drive system components.



WARNING

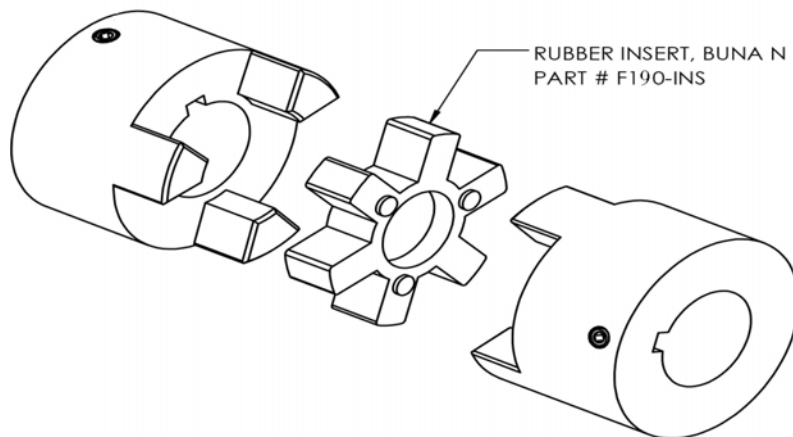
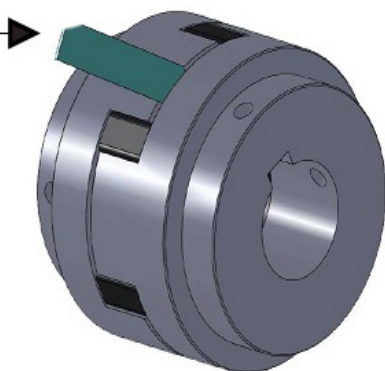
Operating your Fruitland vacuum pump without installing the correctly sized drive components can result in misuse of this product that may result in severe injury, death, severe system damage, and or void the pump's warranty. If you have any questions or require further information on installing and or operating your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

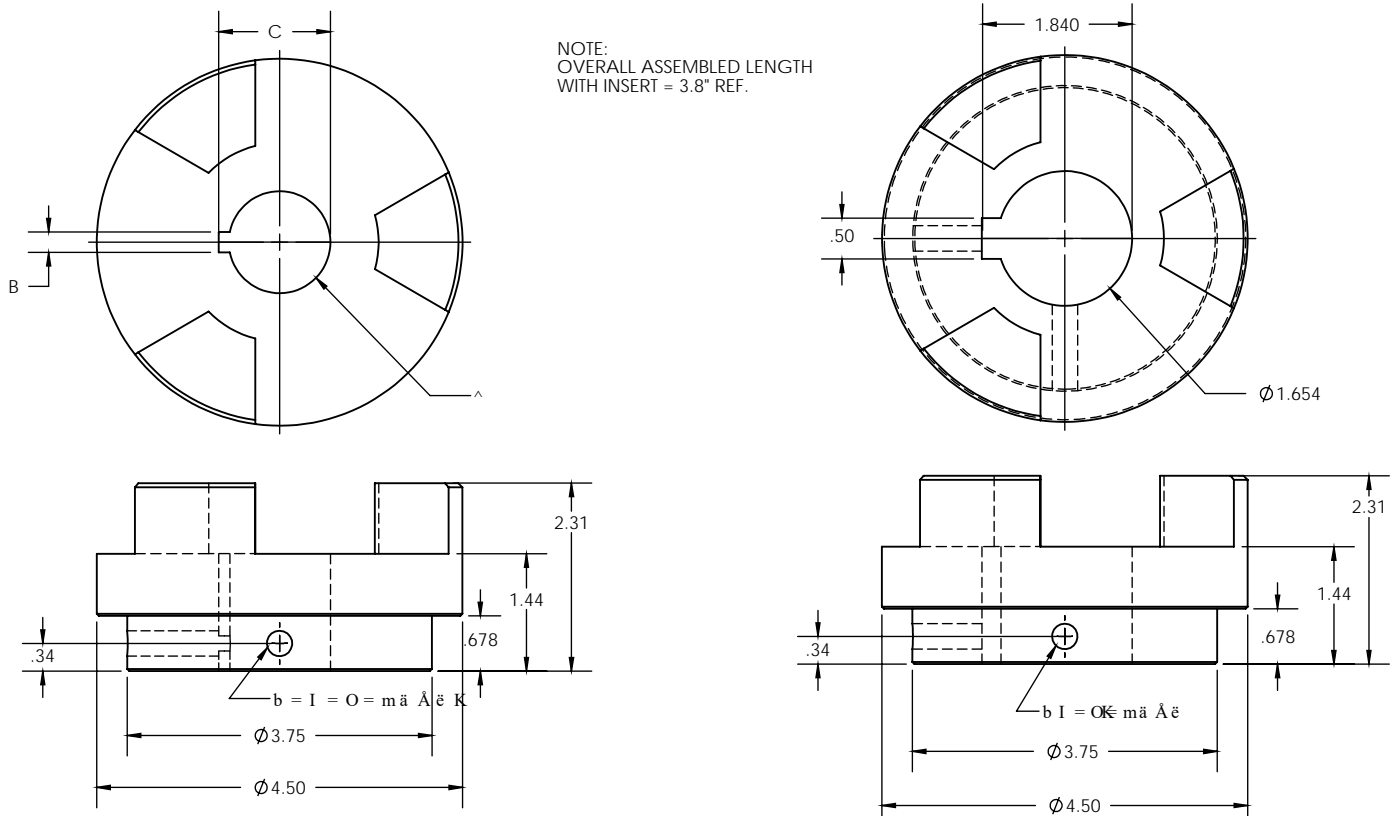
Fruitland Drive Couplings - F190 Couplings

PART #	"DIM "A" BORE Ø +0.0003 +0.0013"	DIM "B" KEY WIDTH +0.002 -0.0	DIM "C" KEY ACROSS BORE +0.01 -0.0	DIM "E" SET SCREW SIZE
F 190-1255	1.250	5/16	1.406	3/8-16 X 3/4
F 190-1250	1.250	1/4	1.375	3/8-16 X 3/4
F 190-1125	1.125	1/4	1.250	3/8-16 X 3/4
F 190-1000	1.000	1/4	1.125	3/8-16 X 3/4
F 190-42	1.654 (42MM)	1/2	1.840	3/8-16 X 3/4
F 190-1500	1.500	3/8	1.687	3/8-16 X 3/4
F 190-875	0.875	1/4	1.000	3/8-16 X 3/4
F 190-1375	1.375	5/16	1.530	3/8-16 X 3/4
F 190-55	2.166 (55MM)	.630 (55MM)	2.323 (59MM)	3/8-16 X 3/4

Feeler Gauge



It is very important to maintain a gap of 0.070" to 0.100" between the two halves of the coupling to achieve proper pump operations and avoid any pump failures. Please use a feeler gauge as shown in the picture to maintain this gap.



When installing a Fruitland vacuum pump that is to be driven by a hydraulic motor or angle gearbox, the coupling on the pump shaft should be properly aligned and have a sufficient gap clearance of .070" between the two halves of the coupling to allow the rotor to expand lengthwise due to heat. If sufficient clearance is not given, the rotor in the pump will not stay centered in the housing and severe pump damage will occur.



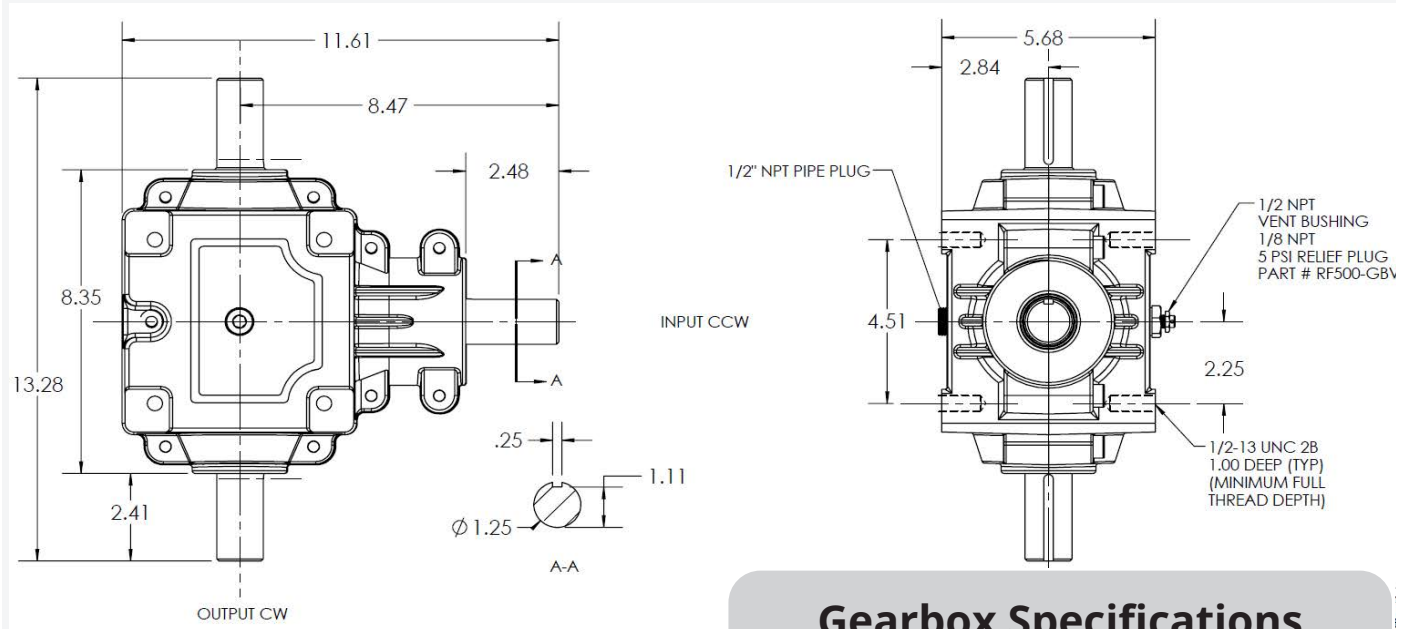
ATTENTION

Do not attempt to install nor service any type of rotating shaft when engine is running or operational. You can snag clothes, skin, hair, hands, etc. This can cause serious injury and or death!

- Do not go under the vehicle when the engine is running
- Do not work near an exposed rotating shaft when the engine is running
- Never work alone while under a vehicle.

FRUITLAND RIGHT ANGLE GEARBOX

Part # RF500-GB400



Gearbox Specifications

- Ratio - 1:1
- Input = 1400rpm / 75hp MAXIMUM
- Oil capacity = .775L or 26.2oz
- Weight = 30lbs

Lubrication

All Fruitland Gearboxes are filled with the correct amount of oil. Shaft bearings are splash lubricated and partially submerged in oil when the gear drive is mounted horizontally. The gearbox oil level should be maintained at approximately half the depth of the gearbox housing or to the shaft centerlines.

Lubricants

- Mobilube HD 80W-90 or equivalent in an ambient temperature of 15 to 125 degrees Fahrenheit
- Mobilube synthetic SHC 75W-90 or equivalent in an ambient temperature below 15 degrees Fahrenheit
- Do not combine synthetic and non-synthetic oils
- Average oil temperature should not exceed 200 degrees Fahrenheit

Gearbox Maintenance

Routinely inspect all mounting hardware, drive couplings and any other power transmitting components to ensure all correlating parts are correctly anchored and lubricated. Routine oil change intervals vary depending on the severity of the operational environment. Normal oil change to occur every 250 hours of operation.

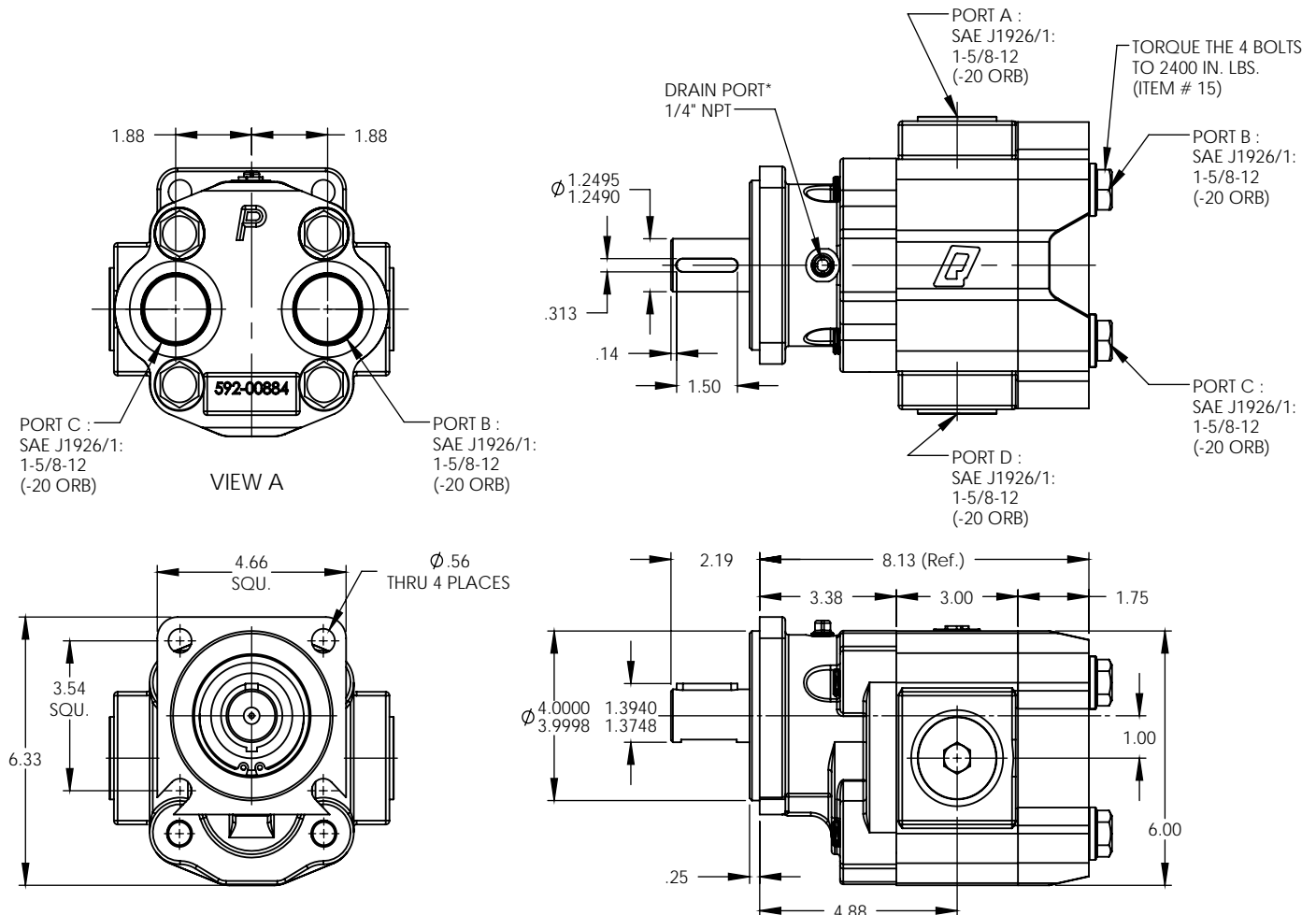


ATTENTION

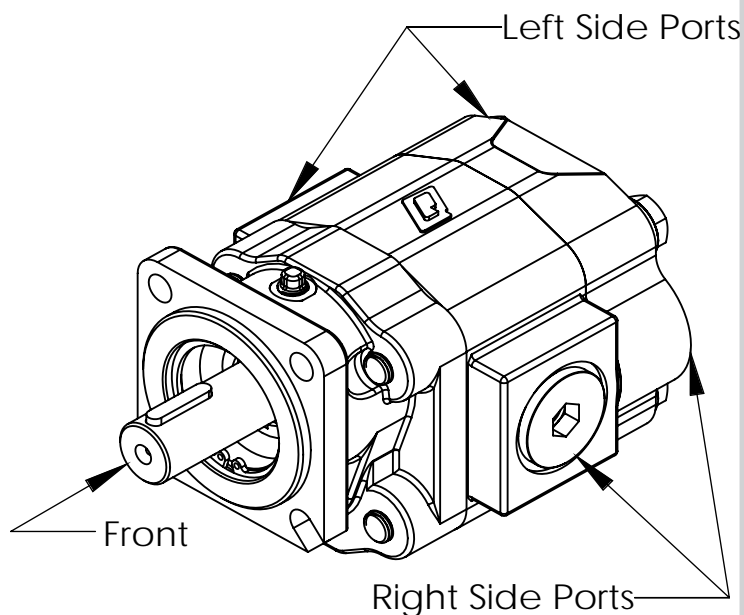
Disconnect power prior to any maintenance and do not bypass or inactivate any safety or protective device. Lock out and tag the main power supply to prevent unexpected application of power. Failure to disconnect power can result in severe injury, death, severe system damage and or void the pumps warranty.

FRUITLAND HYDRAULIC MOTOR

Part # P500-HMBOS



* It is recommended to connect the drain port to the hydraulic oil return line Failure to do so will cause premature seal failures.



Hydraulic Motor Drive Shaft

SAE C KEYED

KEY : 5/16" (W) X 15/32" (H) X 1-1/2" (L)

ANSI B17.1

**The motor is bi-directional
Looking from front,:**

Oil in from left side ports will turn shaft
CW

Oil in from right side ports wil turn shaft
CCW.

Hydraulic Motor Requirements:

- RCF370 Hyd. Pump Req.= 33GPM (min.) for 1337 RPM @2000 Psi.
- RCF500 Hyd. Pump Req.= 33GPM (min.) for 1337 RPM @2000 Psi.
- RCF870 Hyd. Pump Req.= 33GPM (min.) for 1337 RPM @2300 Psi.



ATTENTION

Disconnect all hydraulic lines prior to any maintenance and do not bypass or inactivate any safety and or protective device. Lock out and tag the engine or main power supply to prevent unexpected application of power. Failure to do so can result in severe injury, death, severe system damage and or void the pumps warranty.

SERVICE NOTE

USE GENUINE FRUITLAND PARTS ONLY!

If you have any questions, or require further information on installing, operating and or the maintenance of your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

DRIVE SHAFT INSTALLATION & PHASING

If your vacuum pump's drive system utilizes a drive-shaft between the PTO and your vacuum pump it is extremely important to verify your angularity and phasing of your drive-line and yokes. Check your drive-shaft angularity and ensure the drive-shaft falls within all the recommendations on the chart below.

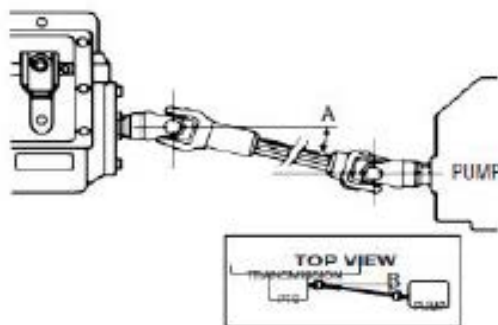
It is imperative the PTO shaft is parallel within 1.5 degrees of the pump shaft and or auxiliary drive shaft or driven unit. Drive-lines must be in phase, that is, the yoke ears on the PTO and the pump shafts must be in alignment as illustrated below.

Maximum Operating Speed - By Tube Size & Solid Shaft Size

(For Speeds below 500 RPM or over 2500 RPM, contact your PTO Manufacturer)

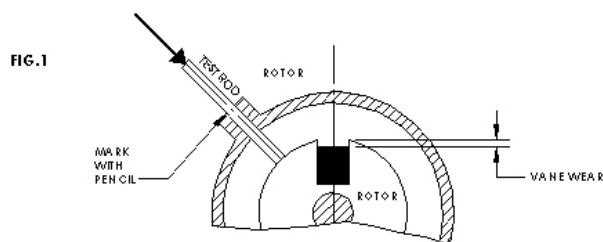
WARNING - Always verify below specifications with your PTO Manufacturer					
Tubing Dia. & Wall Thickness Joint & Shaft (W-Welded S-Seamless)	Max. Installed Length in Inches for Given RPM Centerline to Centerline of Joints for a Two Joint Assembly or Centerline of Joint to Centerline of Center Bearing for a Joint & Shaft RPM - Revolutions per Minute				
	500 RPM	1000 RPM	1500 RPM	2000 RPM	2500 RPM
1750"x.065"W	117"	82"	67"	58"	52"
1250"x.095"S	91"	64"	52"	45"	40"
2500"x.083"W	122"	87"	70"	62"	55"
3000"x.083"W	-	-	-	85"	76"
Solid Shaft Diameter					
0.750"	60"	42"	35"	30"	27"
0.812"	62"	44"	36"	31"	28"
0.875"	65"	46"	37"	32"	29"
1.000"	69"	49"	40"	35"	31"
1.250"	77"	55"	45"	39"	35"

Max. Speed (RPM)	Max. TJA "A"
3500*	5°
3000*	5°
2500	7°
2000	8°
1500	11°
1000	12°

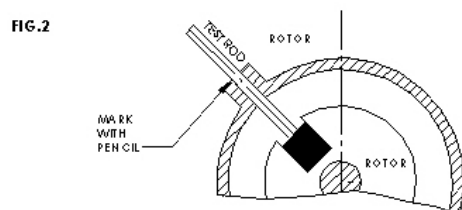


TJA = True Joint Angle - Incorporate this formula to calculate your drive-lines
 True Joint Angle TJA = Square Root of A Squared + B Squared

VANE WEAR MEASUREMENT



Note: Be extra careful not to bend the checking rod.



Vane wear (see diagram above) should not exceed 1/4" in pump models 172, 250, 344, 370, 500 and 870. Fruitland pumps have at least two orifices for checking vane wear, some models have four. These orifices are located on the housing at both ends of the vacuum pump, and are marked with red. A 3/16" diameter test rod is supplied with the pump. We recommend checking the vanes on both ends, as they can wear in a tapered fashion because of excess heat or contamination.

To measure vane wear, remove the plug from the orifice and insert the test rod until the rod touches the rotor. Mark the rod with pencil as shown in diagram (fig.1). Turn the pump shaft until the rod drops into the vane slot in the rotor. Mark with pencil again (fig.2). Distance between the pencil marks is the amount of wear you have on the vane. If the vane is tapered from end to end, take the largest measurement as the amount the vane is worn.

Replace the complete set of vanes when worn to the maximum recommended amount for your pump model. Failure to replace the vanes at the recommended time can result in pump failure. Vane wear and subsequent damage are not covered under warranty. Instructions for replacing vanes are given on page 26.

The Recommended first check of vane wear is after approximately 10 hours of operation; next check after 50 hours of operation; thereafter, check every 200 hours or once a month if no significant wear has been detected on the 2 initial checks.

Type	RCF172	RCF 250	RCF344	RCF 370	RCF 500	RCF 870	RCF 1200
Size of Hoses	2"	2"	2"	3"	3"	4"	4"
Max. Operating Speed	1400 RPM	1400 RPM	1400 RPM	1400 RPM	1400 RPM	1400 RPM	1200 RPM
Lubrication (Oil Pump)	Auto	Auto	Auto	Auto	Auto	Auto	Auto
Vanes	4 (fibre)	4 (fibre)	4 (fibre)	8 (fibre)	8 (fibre)	8 (fibre)	8 (fibre)
Fan Cooling Cont. Duty	NO	YES	NO	YES	YES	YES	YES
Approx. Net Pump Weight	128 lbs	255 lbs	182 lbs	385 lbs	450 lbs	525 lbs	1400 lbs
Free Air Flow	127 CFM	166 CFM	218 CFM	272CFM	338 CFM	501 CFM	716 CFM

Vane Wear

Life expectancy of Fruitland fiber vanes is hundreds of working hours. It greatly depends on the cleanliness of the intake air. Any contamination that enters your pump (e.g. sand, rust or soil particles) will shorten their life expectancy. It is the owner's responsibility to keep contamination out of the pump. Keep filters clean.

Many factors can contribute to rapid or premature vane wear:

1. Overheating of the pump (check overheating in trouble shooting page 27.)
2. Contamination entering the pump, or anything that can affect the action of the oil such as abrasives, fumes and or chemicals.
3. Running the pump too fast (over and or under speeding) (check rpm of pump drive shaft)
4. Wrong oil or no oil.
5. Oil pump failure.
6. Pump housing damage.
7. Rotor slots worn. If contamination has gotten into the pump and has caused the rotor slots to wear unevenly, extra force is required to return the vanes into the slots as the rotor turns. This extra load can cause housing wear, vane wear and increase the pump temperature.

Vane Replacement

Refer to pump rebuild video at: www.fruitlandmanufacturing.com

- Disconnect drive/power source from pump - Turn engine off !! Put Keys in your pocket !!
- Drain oil from oil tank - inspect for debris & water
- Remove oil tank cover by removing the hex bolts and aluminum sealing washers
- Disconnect all oil lines and remove oil pump. (Held on by two bolts and lock washers).
- Do not lose the oil pump coupling
- Remove the seal housing by removing hex bolts and aluminum sealing washers
- Remove the hex bolts and lock washers from the housing end cap
- Slide the end cap off the rotor shaft.
- The rotor bearing, shims, wave spring, & seals should be kept in order.
- Note their positioning if you remove the bevel springs/washers for replacement
- Remove old vanes and replace with new vanes that have been dipped/soaked in oil
- Inspect housing bore, interior finish & bearings
- We recommend replacing all seals and all related gaskets during this process
- Reassemble in reverse order
- The housing end cap bolts should be tightened evenly to 22 ft./lbs. torque
- Fill oil tank with correct oil & hook up drive/power source
- Resume Operations

Note: Special attention is to be given that the oil pump coupling is engaging the roll pin in the rotor shaft. Turn rotor by hand, it should turn freely.

**Since there are many factors that cause rapid vane wear, we do not warranty vanes or any related damage from vanes worn beyond the recommended amount, unless a defect in material or workmanship caused the vanes to wear prematurely.*

SERVICE NOTE

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1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

TROUBLE SHOOTING PUMP & SYSTEM MALFUNCTIONS

Verify Before Starting:

Visually Inspect the entire system – Each day before use, make a visual inspection and verify your vacuum pump system has no kinked hoses and or loose connections. Verify all components appear to be in safe operating condition. Verify all drive components appear to be free of any visual defects and or debris. Clean all debris from the vacuum pump, drive system, air filter, and vacuum system shut-off tank components within the tank truck and or tank trailer prior to any operation.

Vacuum Pump does not vacuum:

- Verify vacuum tank and ALL tank components are sealed.
- Verify ALL Hose connections and or Hose collapsed and or clogged.
- Vacuum pump back up valve assembly has debris within assembly, also causes pump to rotate backwards after stopping.

Pump not turning:

- Damaged/Broken Vane.
- Drive System Failure - Inspect all pump drive system components.
- Foreign material in vacuum pump.
- Pump is FROZEN - Winter Conditions - Avoid vacuum pump FREEZING Problems by dispensing a small amount of diesel fuel into the pump after completion of daily operations.

Vacuum Pump Overheating:

- Lack of Oil and or incorrect type of oil - Also - verify oil pump operation.
- Input speed - verify pump shaft speed during operation - To High and or To Low.
- Clean all exterior surfaces & air filter of vacuum pump.
- Exhaust Outlet Reduction or Blockage.
- Overall air flow system plumbing sized incorrectly.
- Collapsed or Clogged hose.
- Filter body needs to be cleaned
- Empty the Oil Catch Muffler.
- Empty the Secondary Scrubber/Shut-off.
- Worn vacuum pump vanes.

VACUUM ACTUATED COOLING SYSTEM (VACS)

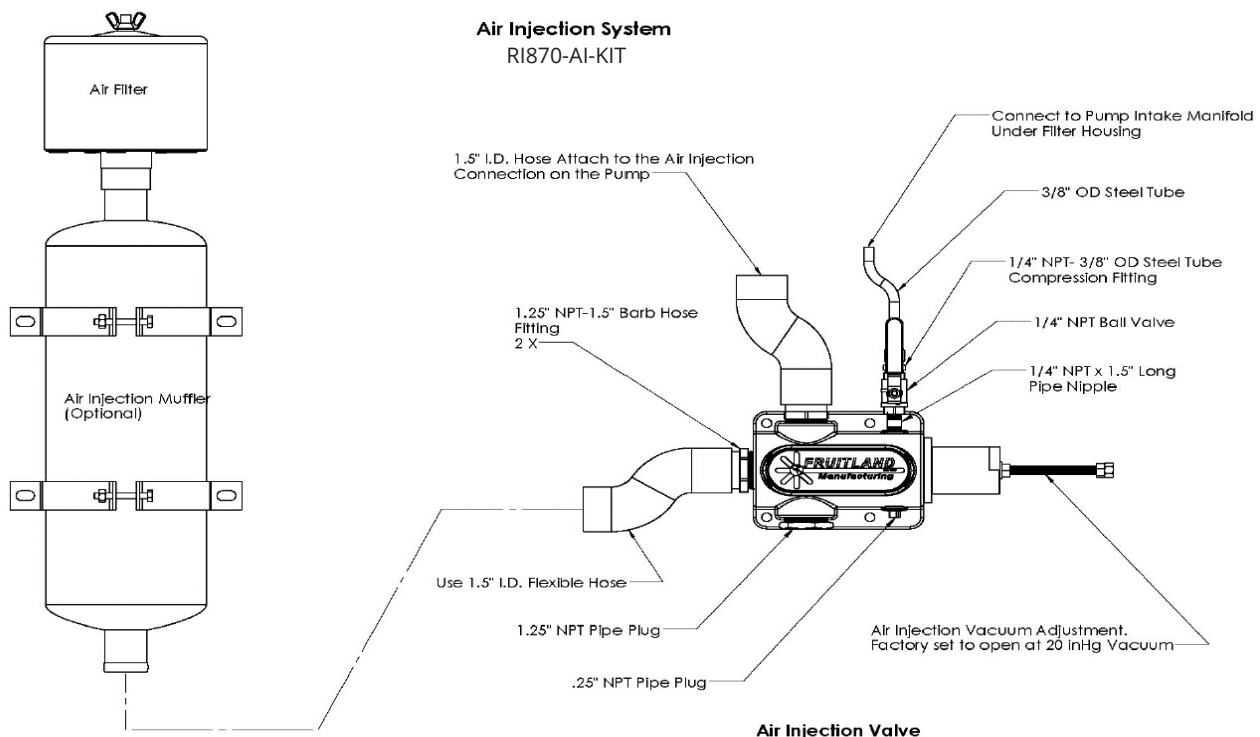
Under high vacuum (above 20"hg) very little air moves through a rotary vane vacuum pump. This may result in heat buildup which reduces the duty cycle and under extreme conditions can cause the pump and correlating components to fail prematurely. The Fruitland VACS System allows the pump to remain cool under high vacuum through extended periods of operation. The air injection system for the RCF 344 & 870 vacuum pumps, whether installed at the Fruitland factory or by one of our many rig up companies, should be installed with an in-line ball valve shut off.

The ball valve should be installed between air injection valve and the filter pod. If a vacuum truck operator chooses to leave vacuum (negative pressure) or pressure in the vacuum tank (vessel) while dis-engaging the Power Take Off (PTO), the operator needs to shut the air injection ball valve off prior to dis-engaging the PTO. Failure to do so may cause the vacuum pump to spin backwards at very high RPM.

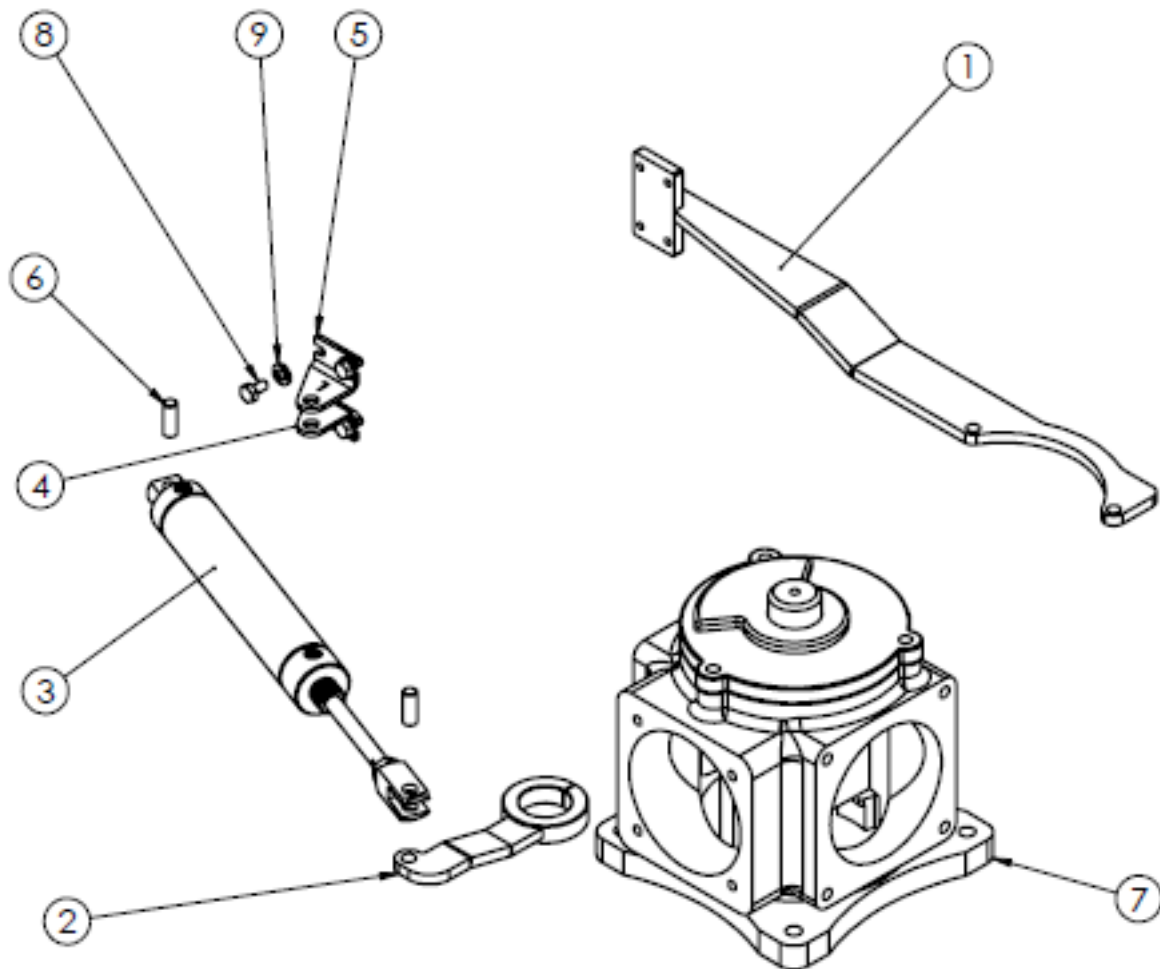
Here is how it works:

We take a small pilot air line from the filter pod of the pump directly to the VACS valve. The VACS valve is controlled by the amount of vacuum created by the pump. The valve is factory set at 20" hg but can be adjusted in the field. When the VACS valve starts to open under high vacuum it allows ambient air to enter the pump just ahead of the exhaust port. This will keep the pump operating at a safe temperature in normal operating environments.

The VACS System consists of the air injection valve, 3/8" pilot control tube, 1.5" air injection hose, air filter (optional muffler) and mounting hardware. The valve can be remotely mounted and is extraordinary quiet.



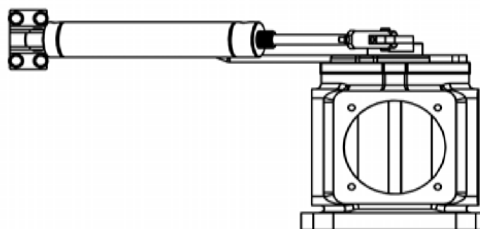
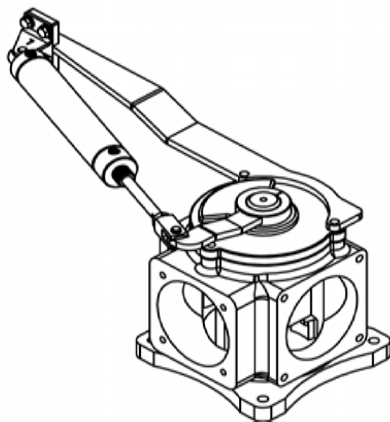
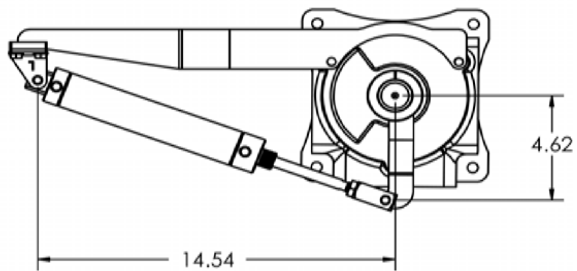
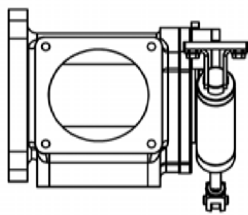
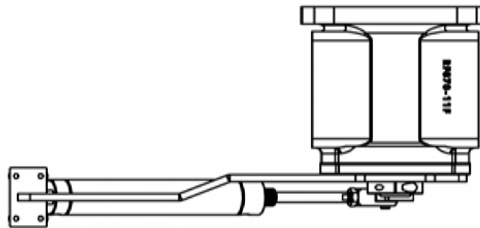
CYLINDER MOUNTING ARM & LEVEL (BOM) (FOR 6" STROKE 1.5" CYLINDER)



ITEM#	PART #	DESCRIPTION	QTY
1	RF870-CMA RF500-CMA	Cyl. Mounting Arm for RF870, Dwg# RF870-PDA Cyl. Mounting Arm for RF500, Dwg# FTM-399B	1
2	RF500-13M	Lever Arm Assy, , Dwg# RF870-PDA	1
3	CYL1.5-6	1-1/2" Bore 6" Stroke Cyl. C/W Pivot Bracket, Clev- is & Nut	1
4		Pivot Bracket D-229 (Right)	1
5		Pivot Bracket D-229 (Left)	1
6		Pin .0375 Dia. X 1.00	2
7	RF870-11F	RF870 Diverter Housing	1
8		1/4"-NC x 1/2" Hex Bolt	4
9		1/4" Lock Washer	4

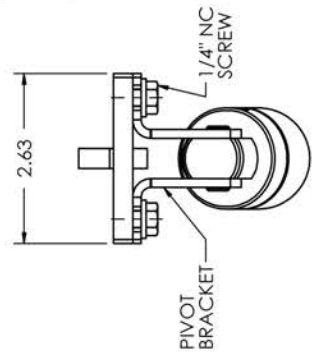
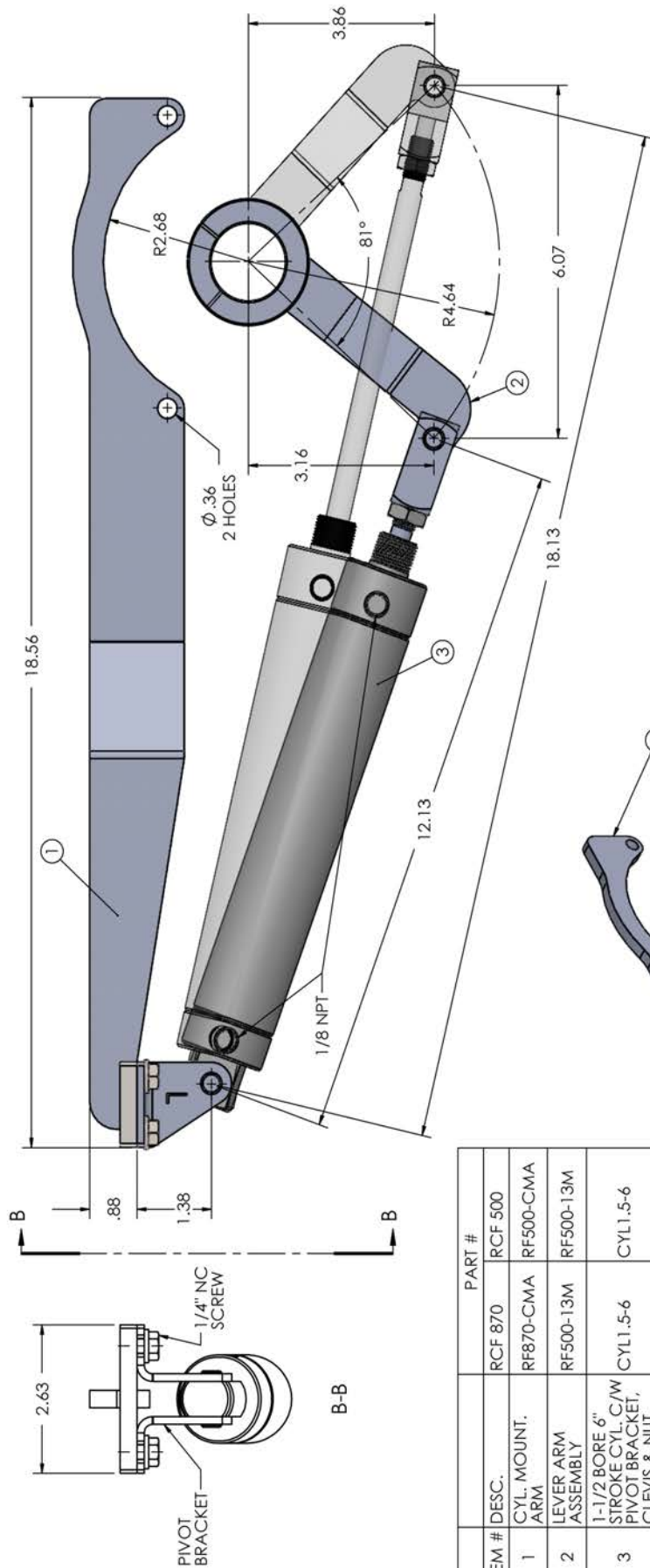
CYLINDER MOUNTING ARM & LEVEL (DIMENSIONS)

ASSEMBLY PART #
RF870-PDA FOR RCF870 PUMP
RF500-PDA FOR RCF500 PUMP



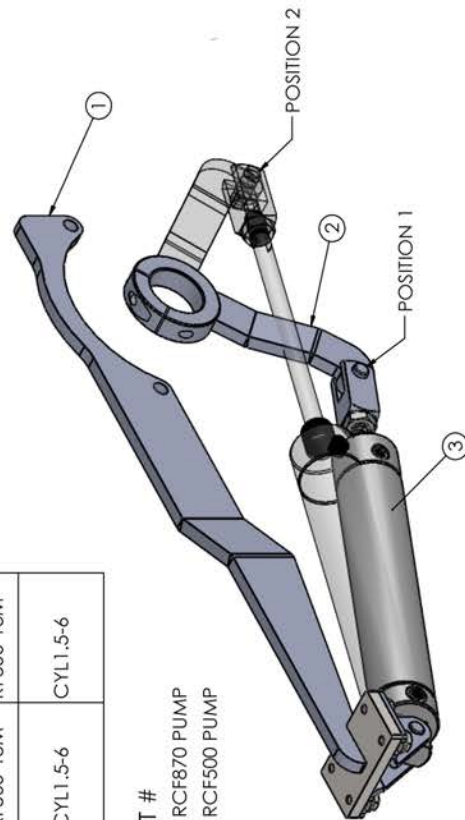
NOTE:
RCF870 DIVERter SHOWN

PNEUMATIC DIVERter HANDLE ASSEMBLY FOR RCF 870 AND RCF 500 PUMPS



ITEM #	DESC.	PART #	
		RCF 870	RCF 500
1	CYL. MOUNT. ARM	RF870-CMA	RF500-CMA
2	LEVER ARM ASSEMBLY	RF500-13M	RF500-13M
3	1-1/2 BORE 6" STROKE CYL. C/W PIVOT BRACKET, CLEVIS & NUT	CYL1.5-6	CYL1.5-6

ASSEMBLY PART #
RF870-PDA FOR RCF870 PUMP
RF500-PDA FOR RCF500 PUMP



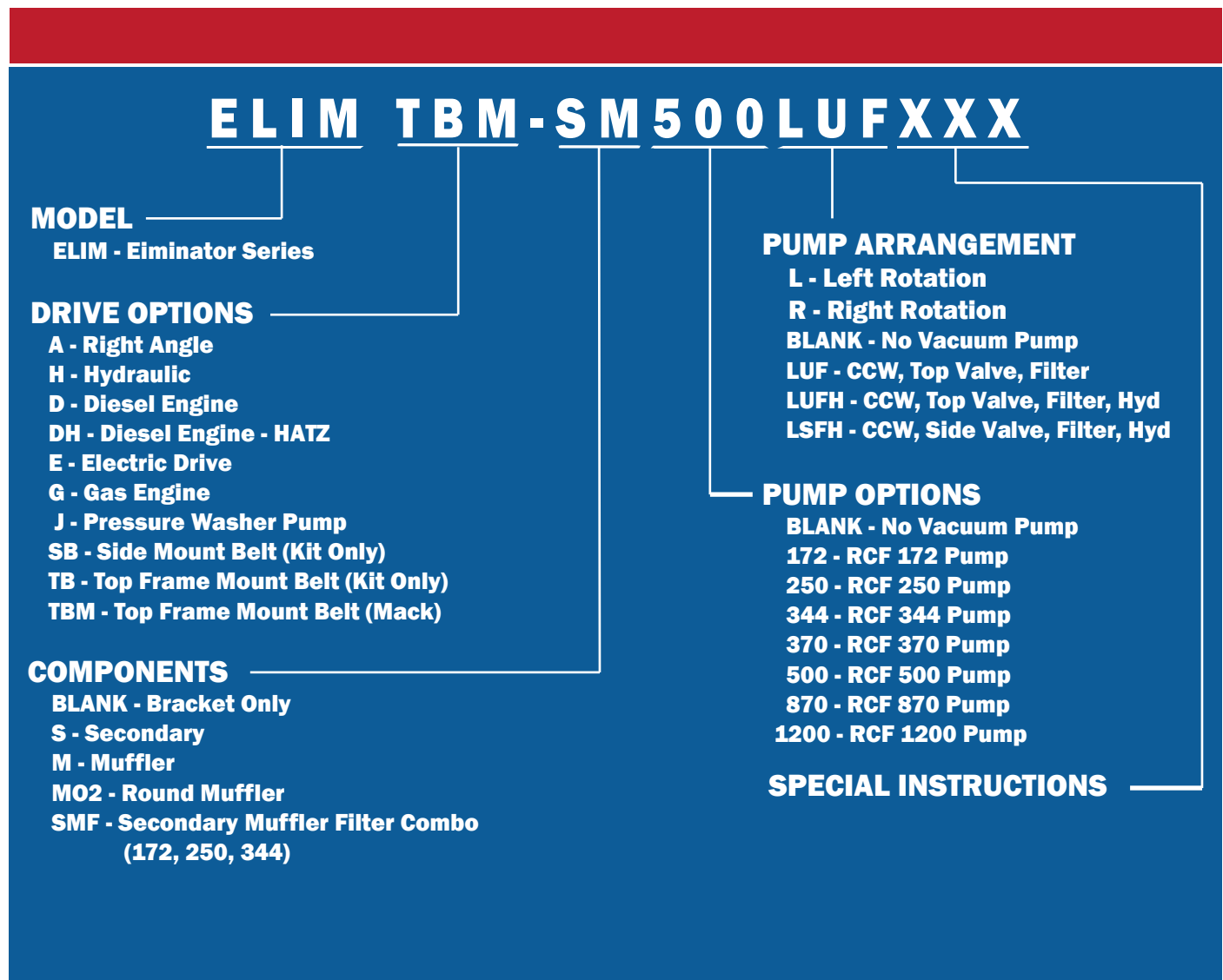
DWG IS FOR REFERENCE ONLY
WE RESERVE THE RIGHTS TO
MAKE CHANGES

REF. DWG# RF870-PDA



FRUITLAND PUMP MOUNTS DESIGNATIONS

ELIM Model Nomenclature:

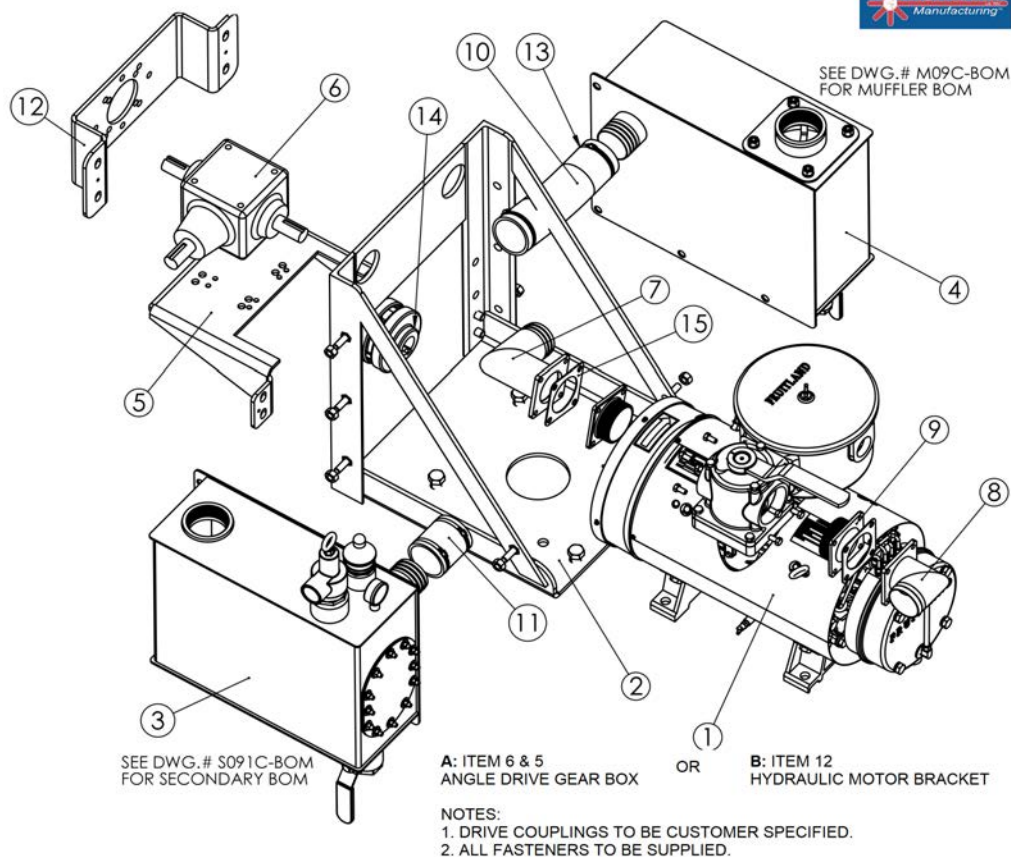


The Fruitland® Eliminator Series offers the reliability of the Fruitland® Pump, combined with the ease and simplicity of our “Ready2Rig” Pump Mounts. We offer several design options including heavy duty pump stands, secondary shutoffs, mufflers, angle drive, hydraulic drive and belt drive options. Tailor your Eliminator package to your specific needs and enjoy effortless installation combined with the power and durability of Fruitland®.

The Following is an example of Eliminator with its basic components:

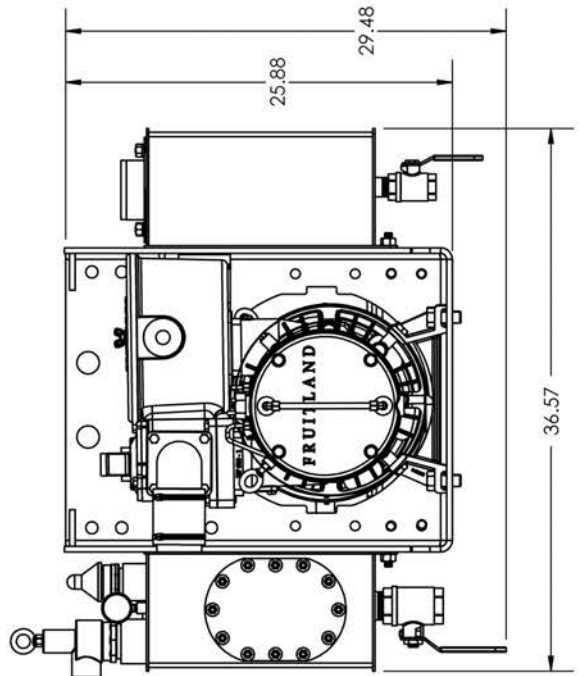
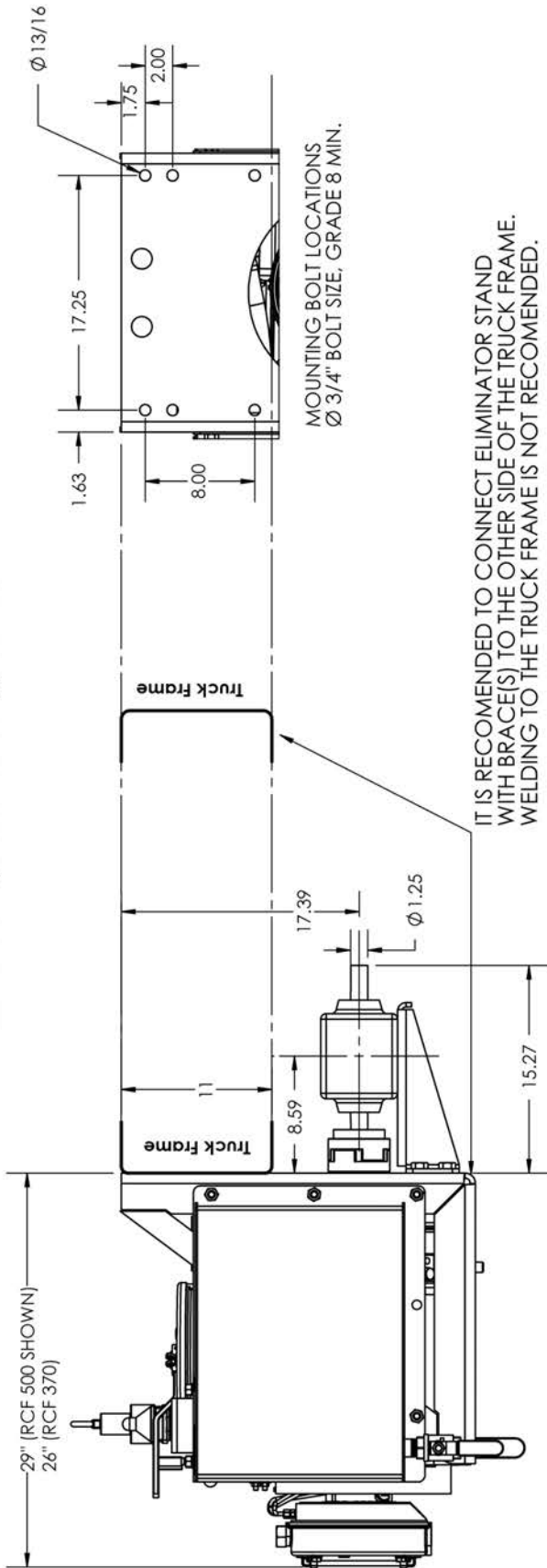
DWG IS FOR REFERENCE ONLY
WE RESERVE THE RIGHTS TO
MAKE CHANGES

REF. DWG# ELIM-BOM



ITEM#	PART #	DESCRIPTION	QTY
1	500-LUF	VACUUM PUMP	1
2	RF500-S	PEDESTAL FRAME	1
3	RF500-S091C	SECONDARY SHUT-OFF	1
4	RF500-M09C	MUFFLER	1
5	ADM09	ANGLE DRIVE MOUNT	1
6	RF500-GB400	RIGHT ANGLE GEAR BOX	1
7	FAM09	FLANGE MUFFLER SIDE	1
8	FAS09	FLANGE SECONDARY SHUT-OFF SIDE	1
9	FA-3NPT-M	3" NPT FLANGE FOR DIVERTER	2
10	FAM09-03	Ø3" RUBBER HOSE	1
11	FAS09-03	Ø3" RUBBER HOSE FOR SECONDARY	1
12	HDM09	HYDRAULIC MOTOR MOUNT	1
13	FAM09-04	SUPER CLAMP SCS 86-91	4
14	F-190	42 MM X 1-1/4" COUPLING	1
15	RCF 500-57	PUMP FLANGE GASKET	2

Truck Mounting Instructions for Eliminator System with Angle Drive



DWG IS FOR REFERENCE ONLY
WE RESERVE THE RIGHTS TO
MAKE CHANGES

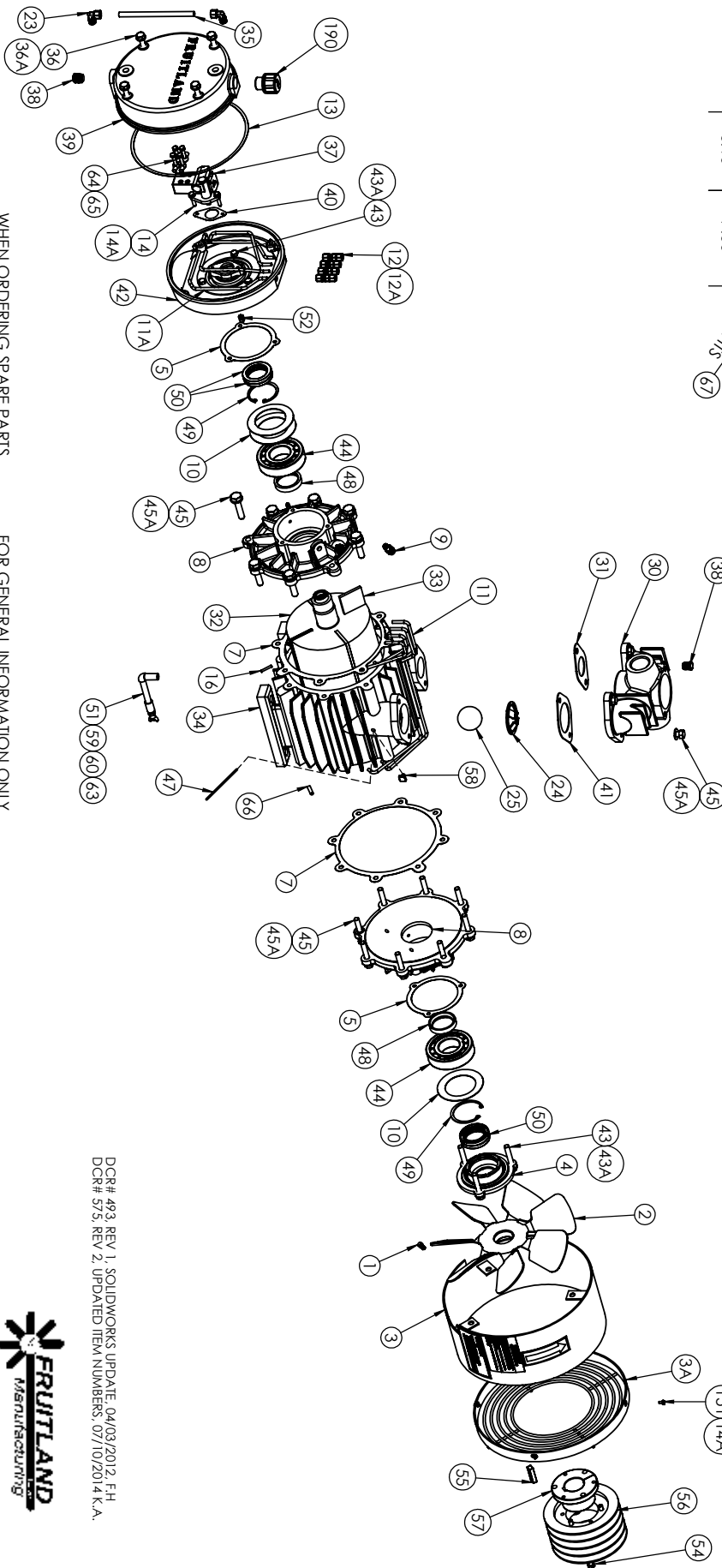
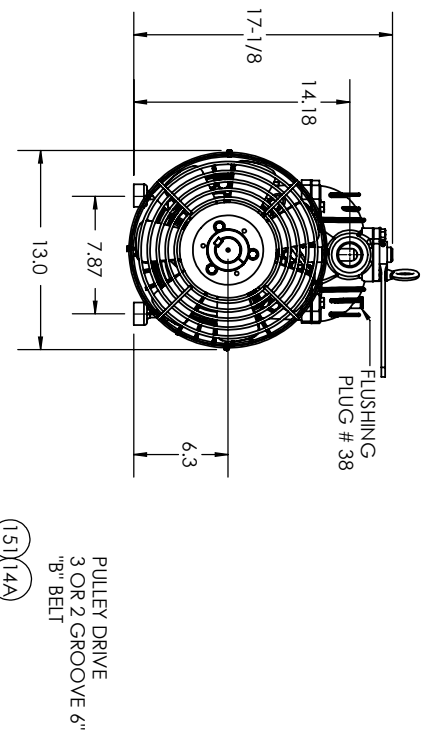
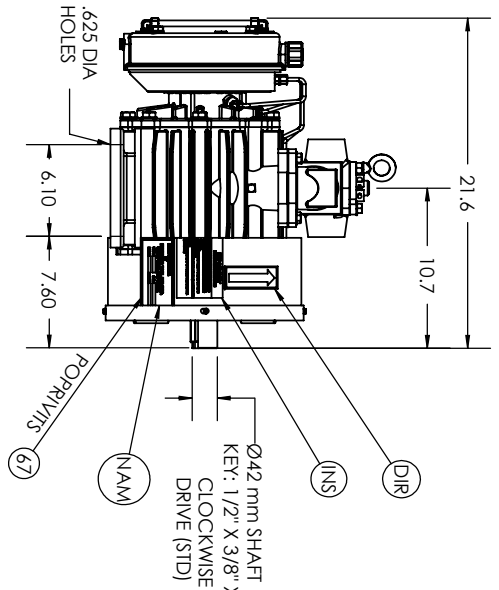
REF. DWG# ELIM-INST



RCF 250 PUMP PARTS & DIMENSIONS



RCF 250



WHEN ORDERING SPARE PARTS
ALWAYS STATE MODEL AND
SERIAL NUMBER OF PUMP.

FOR GENERAL INFORMATION ONLY
WE RESERVE THE RIGHT TO MAKE
CHANGES

DCR# 493 REV 1, SOLIDWORKS UPDATE, 04/03/2012, F.H.
DCR# 575, REV 2, UPDATED ITEM NUMBERS, 07/10/2014 K.A.



RCF 250 Parts List

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
1	RF500-48B	S.H.C.SCREW - 5/16-16NF X 7/8	1
2	RF500-33 *	FAN ASSY	1
3	RF250-34 *	FAN SHROUD	1
3A	RF250-30	FAN GUARD - (MODIFIED RF500-30)	1
4	RF500-15	SEAL HOUSING DRIVE END	1
5	RF500-70	GASKET - SEAL HOUSING	2
6	RF250-248	GASKET DIVERter CAP	1
7	RF500-140	GASKET HOUSING END CAP	2
8	RF250-3	HOUSING END CAP	2
9	RF500-50A	1/8" NPT - 1/4" TUBE COMPRESSION FITTING	4
10	RF500-20A	BELLEVILLE SPRING	4
11	RF250-51A *	SET OF OIL LINES - NO FITTINGS	1
11A	RF00-51S	OIL PUMP LINES SET	1
12	RF500-52A	BULKHEAD FITTING	4
12A	U-SEAL	U-SEAL WASHER FOR OILTANK BULKHEAD	4
13	RF500-26	OILPUMP COVER GASKET	1
14	RF500-28A	HEX BOLT M6 X 16	5
14A	RF500-280A	LOCKWASHER M6	5
16	RF500-72A	ROTOR SHAFT ROLL PIN - 5/32 X 1-1/4	1
17	RF250-250	DIVERter VALVE LEVER	1
18	RF500-130A	S.H.C. SCREW 1/4" -28 X 3/4	1
19	RF250-241	DIVERter VALVE CAP	1
20	RF250-246	DIVERter VANE SPRING	1
21	RF250-247A	5/16 x 5/8 DIVERter VANE SPRING PIN	1
22	RF250-243	DIVERter VANE	1
23	RF500-32A	SIGHT TUBE ELBOW FITTING	2

RCF 250 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
24	RF250-249A	BALL RETAINER	1
25	RF250-252A	2" DIA. VALVE BALL	1
27	RF250-244A	DIVERTER OIL SEAL	1
28	RF500-59A	HEX BOLT M10 X 25 MM	1
30	RF250-240	DIVERTER HOUSING	1
31	RF250-238	DIVERTER INTAKE FLANGE GASKET	1
32	RF250-4	250 ROTOR ASSEMBLY	1
33	RF250-6A	VANES	1
34	RF250-1	HOUSING	1
35	RF500-25A	SIGHT TUBE CLEAR 3/8" O.D	1
36	RF500-24A	HEX BOLT M8 X 90	4
36A	RF500-221A	ALUM.WASHER M8	4
37	RF500-29 *	OIL PUMP *	1
38	RF500-69A	PIPE PLUG 1/4 NPT	1
39	RF500-23	OIL PUMP COVER	1
40	RF500-27	GASKET - OIL PUMP	1
41	RF250-251	DIVERTER EXHAUST FLANGE GASKET	1
42	RF500-22 *	SEAL HOUSING NON DRIVE END	1
43	RF500-48A	HEX BOLT M8 X 25	6
43A	RF120-96A	M8 LOCKWASHER	3
44	RF500-19A	ROLLER BEARING	2
45	RF500-67A	HEX BOLT M10 X 30	20
45A	RF120-94A	M10 LOCK WASHER	22
47	RF500-81	VANE WEAR TEST ROD	1
48	RF500-8	ROTOR COLLAR	2
49	RF500-35A	SNAP RING	2

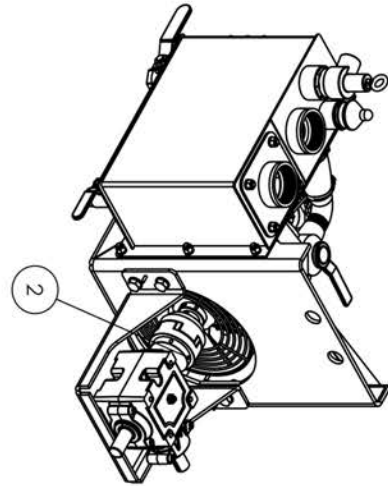
RCF 250 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
50	RF500-225A	OIL SEAL	4
51	RF250-32A	90° STREET ELBOW 1/4" NPT BRASS	1
52	RF500-80A	OIL PUMP COUPLING (TDM)	1
53	RF500-37A	EYEBOLT	1
53A	RF500-137A	HEX NUT M-10	1
54	RF500-0	BOLT 5/16" NC X1-1/2 & LW incl. w. item 57	3
55	RF500-74	KEY 3/8 "x 1/2"x 2" incl. w. item 57	1
56	RF250-39A	SHEAVE 6",3 GROOVE (MACHINED FROM 4 GROOVE)	1
57	SK 42	TAPER BUSHING SK 42MM	1
58	RF250-69A	PIPE PLUG 1/8"	4
59	RF250-30A	NIPPLE 4 1/2" Length	1
60	RF250-73A	PIPE COUPLING -1/4"	1
63	RF500-82A	DRAIN COCK VALVE 1/4" NPT	1
64	250-6A	HOLLOW BOLT M 6	4
65	250-6	SOLDER FITTING (OUTLET)	4
66	RF500-72B	ROLL PIN 1/4 X 3 FOR OIL PUMP	1
151	RF120-102A	BOLT M 6 X 10MM	4
190	RF500-190P	BREATHER FILLER CAP FOR RESERVOIR	1
INS	RF500-INS	INSTRUCTION TAG	1
MAN	RF500-MAN	MANUAL	1
DIR	RF500-DIR	DIRECTION TAG	1

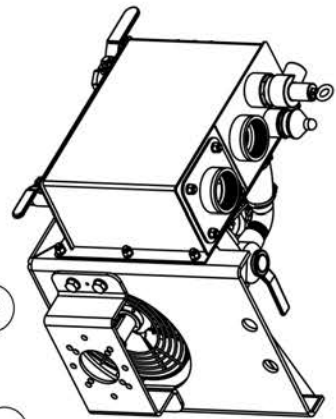
* SPECIFY PUMP ROTATION "L" OR "R" AND MOUNTING DIRECTION SIDE OR UPRIGHT.

OPTIONS:

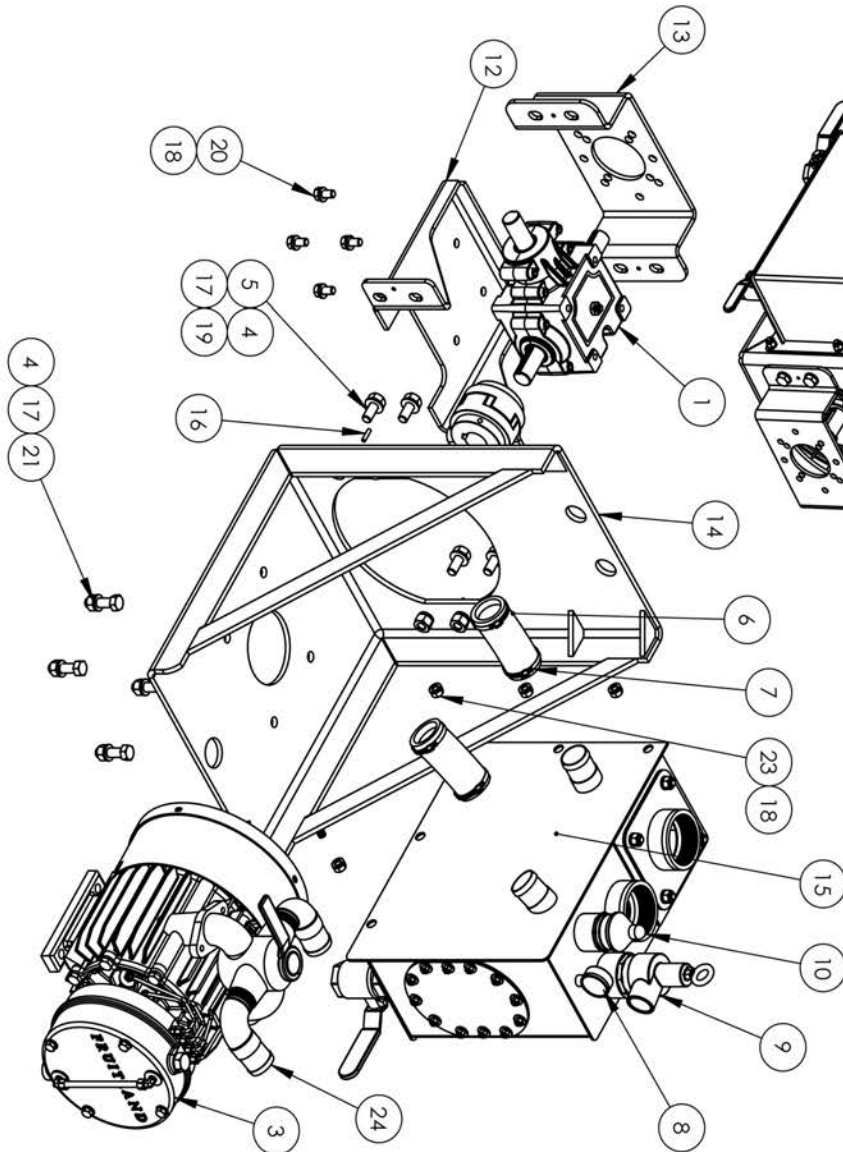
A: ELIM A250
WITH ITEM 1 & 12
ANGLE DRIVE GEAR BOX



B: ELIM H250
WITH ITEM 13
HYDRAULIC MOTOR MOUNT



COUPLING TO BE
CUSTOMER SPECIFIED



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REF: DWG# ELIM-250



RCF ELIM 250 Parts List

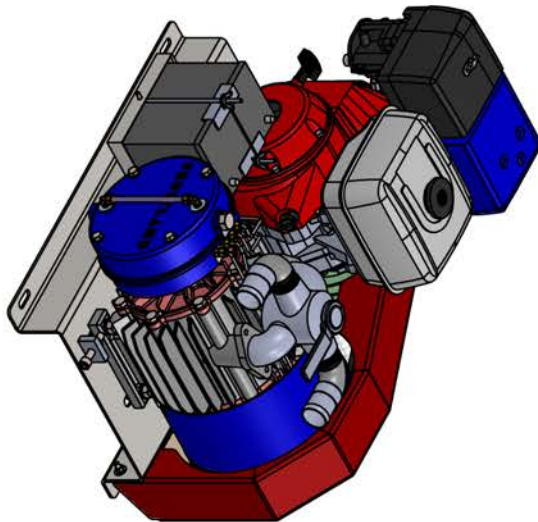
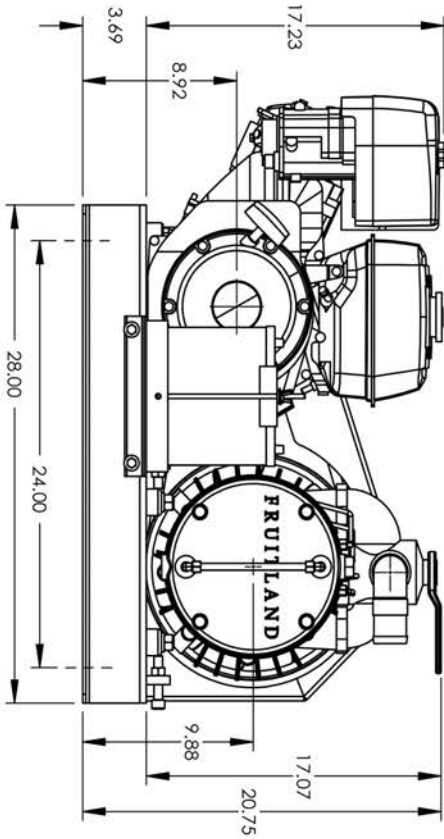
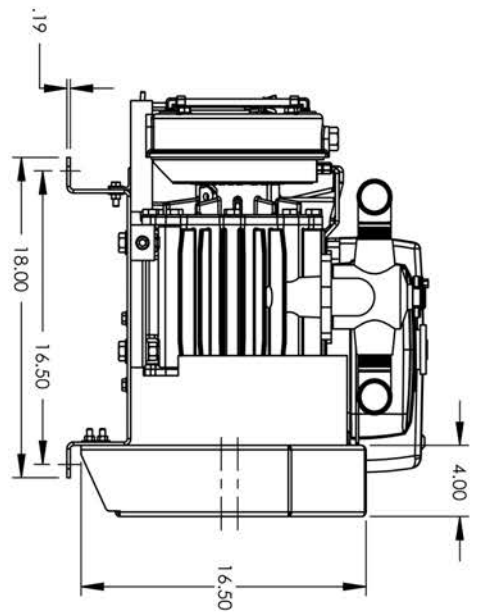
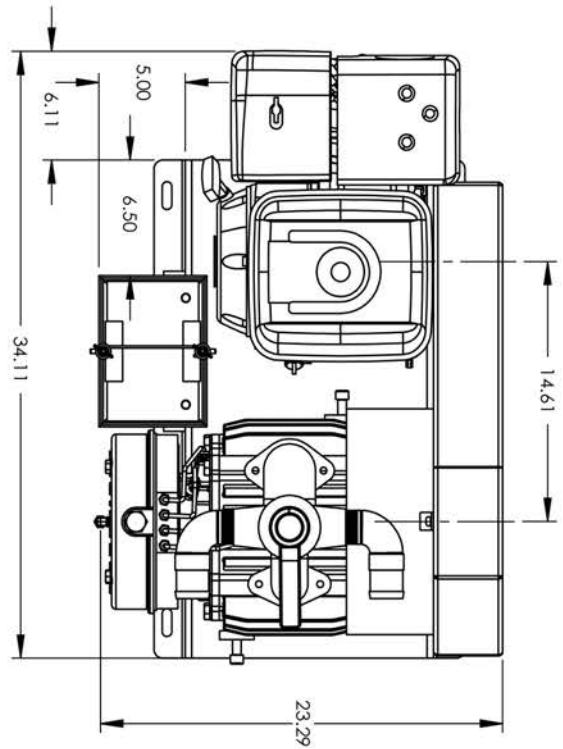
ITEM#	PART #	DESCRIPTION	QTY PER PUMP
1	RF500-GB400	RIGHT ANGLE GEAR BOX	1
2	F190C-1250	DRIVE COUPLING	1
3	250L	VACCUM PUMP	1
4	5/8" NUT	5/8" ZINC PLATED NC HEX NUTS	8
5	5/8" X 2" HEX HEAD	5/8" NC 2" LONG ZINC PLATED HEX	4
6	2" HOSE	Ø2" RUBBER HOSE 6.5" LG.	2
7	2" HOSECLAMP	CLAMPS FOR RUBBER HOSE	4
8	PVG-2.5	PRESSURE VACCUM GAGE	1
9	2" PRV	PRESSURE RELIEF VALVE 2" NPT	1
10	VB	VACCUM RELIEF VALVE 1-1/2" NPT	1
12	ADM12C	250 ANGLE DRIVE MOUNT	1
13	HM12C	250 HYDRAULIC MOTOR MOUNT	1
14	RF250-SC	250 PEDASTAL FRAME	1
15	SM12-250C	250 SECONDARY MUFFLER ASSM	1
16	1/4" X 1" LG SPLIT PIN	0.25 X 1" ROLL PIN	2
17	5/8" L/W	5/8" LOCKWASHER	8
18	1/2" L/W	1/2" LOCKWASHERS ZINC PLATED	8
19	5/8" F/W-USS	5/8" ZINC PLATED FLAT WASHERS	4
20	1/2" X 1-1/2"	1/2" NC 1.5" LONG ZINC PLATED HEX HEAD BOLTS	4
21	5/8" X 2-1/4" HEX HEAD	5/8" NC 2.25" LONG ZINC PLATED HEAD	4
23	1/2" NUTS	1/2" NC NUTS ZINC PLATED	4
24	FA250C	DIVERTER ELBOW DWG# SM12-FA	2



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RCF ELIM G250 Parts List

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
1	RCF250LU	VACCUM PUMP	1
2	GX390	ENGINE GX390	1
3	ELIM-G250-01	ELIM G250 BASE FRAME ASSEMBLY DWG# ELIM G250	1
4	ELIM-G250-02	ELIM G250 BELT GUARD DWG#ELIM G250 BELT GUARD	1
5	FA250C	DIVERTER ELBOW DWG# SM12-FA	2
6	SF42	TAPER PUMP BUSHING - 42mm BORE	1
7	2B12.4L	SHEAVE 12.4 SF 2 GROOVE B SECT.	1
8	SK1.0	SK 1" BUSHING	1
9	2B6.0	6" SHEAVE 2 GROOVE B SECT.	1
10	ELIM-G250-03	B57 V-BELT	2
11	ELIM-G250-04	BATTERY	1
12	ELIM-G250-06	BATTERY FRAME	1
13	Elim-G250-05	BATTERY HOLD DOWN CLAMP KIT	1
F1	5/8" NUT	5/8" ZINC PLATED NC HEX NUTS	4
F2	5/8" X 2" HEX HEAD	5/8" NC 2" LONG ZINC PLATED HEX HEAD BOLTS	4
F3	5/8" F/W-USS	5/8" ZINC PLATED FLAT WASHERS LARGE	4
F4	5/8" L/W	5/8" LOCKWASHERS	4
F5	3/8" NYLOCK NUTS	3/8" NC NYLOCK HEX NUT	4
F6	3/8" X 2"	3/8" NC 2" LONG ZINC PLATED HEX HEAD BOLTS	4
F7	3/8" F/W-USS	3/8" ZINC PLATED FLAT WASHERS LARGE	8
F9	5/16" NYLOCK NUTS	5/16" NC NYLOCK HEX NUT	6
F10	5/16"X1" HEX BOLT	5/16" NC 1" LONG ZINC PLATED HEX HEAD BOLTS	6
F11	5/16"WASHER	5/16" ZINC PLATED FLAT WASHERS	12



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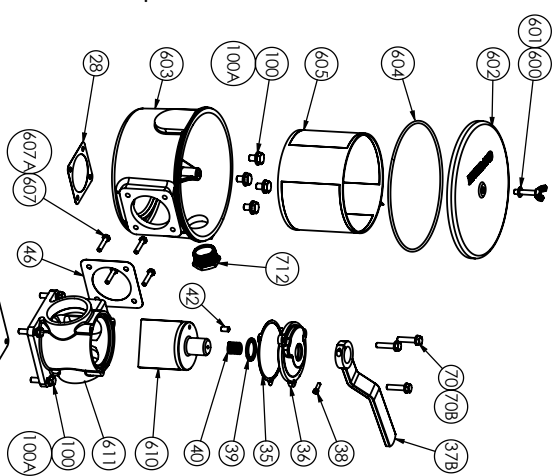
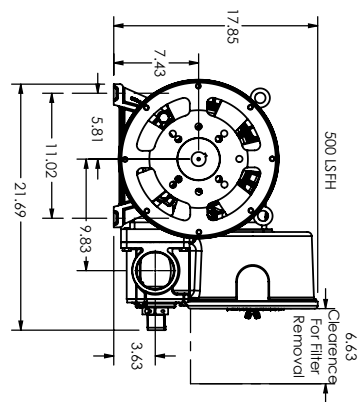
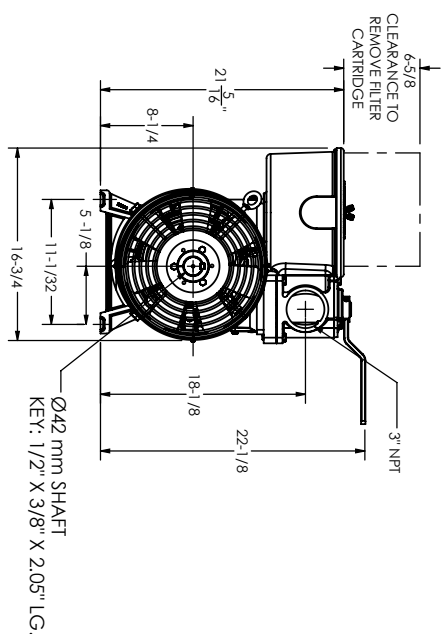
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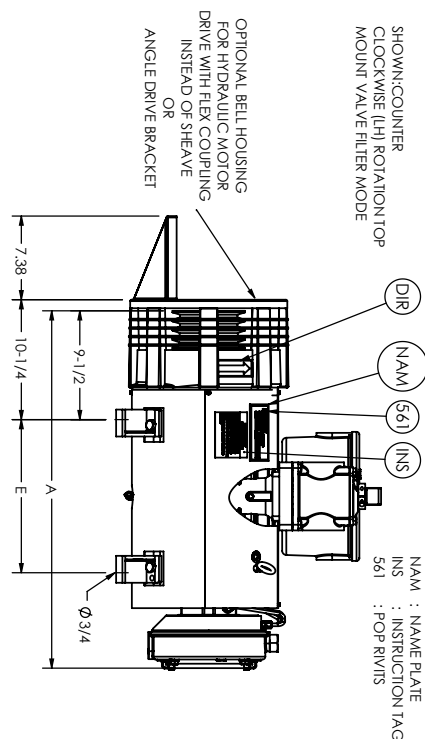
RCF 370 & 500 PUMP PARTS & DIMENSIONS



RCF 370LUF & 500LUF (RCF 370LUFH & 500LUFH) (RCF 370LUF A & 500LUF A)



Model	A	E
RCF500F	31-1/2"	13-1/2"
RCF370F	28-1/2"	10-1/2"



IMPORTANT - WHEN ORDERING SPARE PARTS ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF PUMP

ON UPRIGHT PUMPS NO SPRING (IT, 47) IS USED IN THE BACK-UP VALVE ASSY.

OPTIONAL FOR HYDRAULIC DRIVE SETUP OR ANGLE DRIVE SETUP

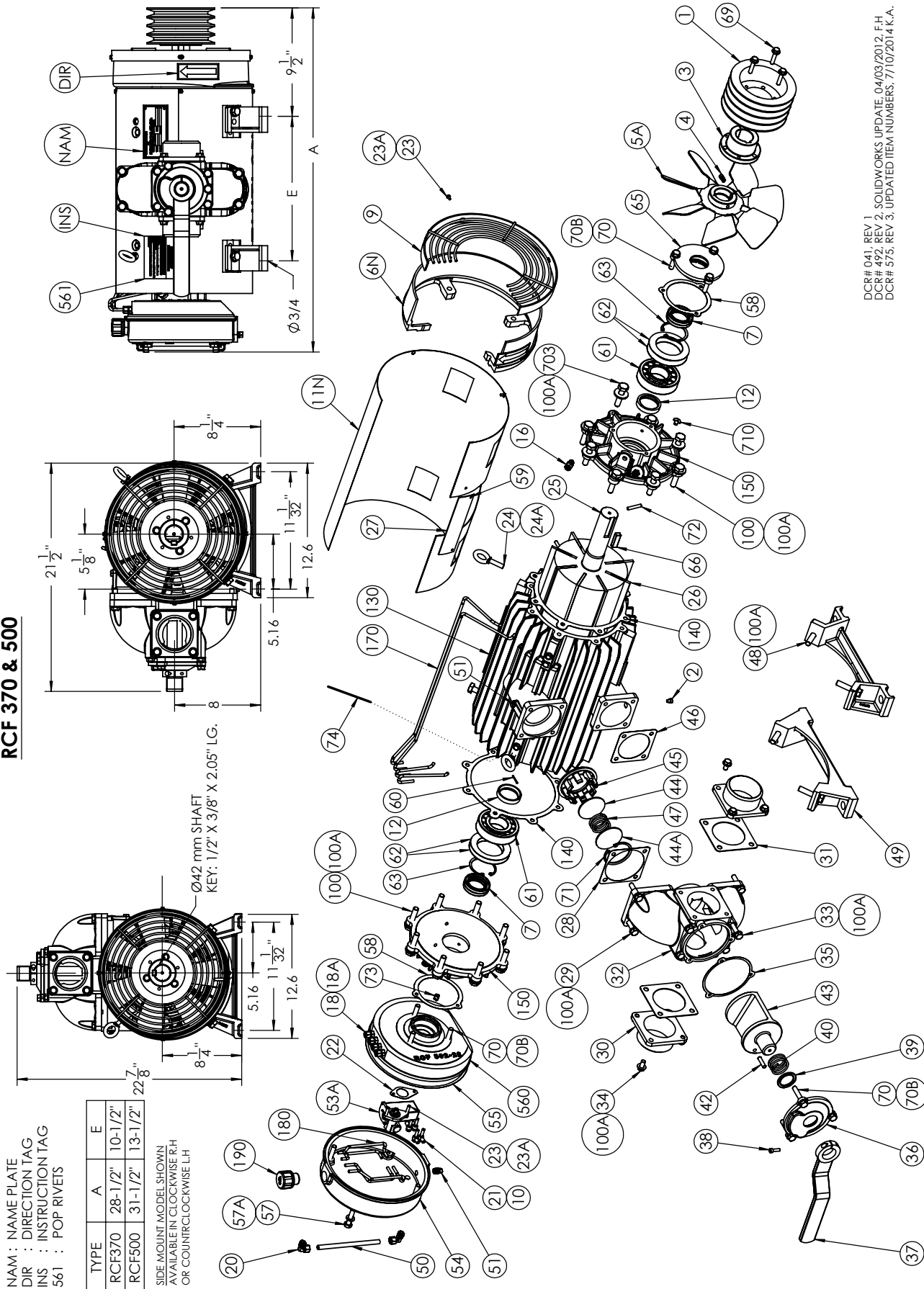


RCF 370 & 500

NAM : NAME PLATE
DIR : DIRECTION TAG
INS : INSTRUCTION TAG
561 : POP RIVETS

TYPE	A	E
RCF370	28-1/2"	10-1/2"
RCF500	31-1/2"	13-1/2"

SIDE MOUNT MODEL SHOWN
AVAILABLE IN CLOCKWISE R.H.
OR COUNTERCLOCKWISE L.H.



DCR# 041, REV 1
DCR# 492, REV 2, SOLIDWORKS UPDATE, 04/03/2012, F.H.
DCR# 575, REV 3, UPDATED ITEM NUMBERS, 7/10/2014 K.A.

THIS LAY-OUT IS FOR GENERAL
INFORMATION ONLY & MAY BE
UPDATED BY FM AT ANYTIME
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IMPORTANT : WHEN ORDERING SPARE
PARTS ALWAYS SPECIFY MODEL AND
SERIAL NUMBR OF PUMP.

RCF 370 & 500 Parts List

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
1	RF500-38	6" SHEAVE 4 GROOVE B SECTION	1
2	RF500-82A	DRAIN PLUG VALVE- 1/4" NPT	1
3	SK 42	SHEAVE BUSHING SK 42 MM	1
4	RF500-48B	5/16"NF X 7/8"LG.SHCS PLAIN	1
5	RF500-33L *	FAN ASSY - L.H.	1
5A	RF500-33R	FAN ASSY - R.H.	1
6N	RF500-34N	FAN SHROUD (NEW STYLE)	1
7	RF500-225A	SEAL (1 PC.)	4
9	RF500-30	FAN GUARD	1
10	250-6	SOLDER FITTING OIL PUMP OUTLET	4
11N	RF500-46U * RF370-46U *	HOUSING SHROUD - LUF	1
12	RF500-8	COLLAR (FINISH GRIND)	2
16	RF500-50A	1/8" NPT COMPRESSION FITTING	4
18	RF500-52A	BULKHEAD FITTING	4
18A	U-SEAL	U-SEAL WASHER (OILTANK BULKHEAD)	4
20	RF500-32A	SIGHT TUBE ELBOW FITTING	2
21	250-6A	HOLLOW BOLT M-6	4
22	RF500-27	GASKET - OIL PUMP	1
23	RF500-28A	HEX BOLT M6 X 16MM	6
23A	RF500-280A	LOCKWASHER M6	9
24	RF500-37A	EYEBOLT	2
24A	RF500-137A	M10 HEX NUT	2
25	RF500-4 RF370-4	ROTOR ASSEMBLY	1
26	RF500-6A RF370-6A	VANES	8
27	RF500-47	PLATE (7.5" X 3.4") SHROUD PLATE	1

RCF 370 & 500 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
28	RF500-55	GASKET PUMP INLET	1
29	RF500-56A	S.H.C.S. M10 X 30	4
30	RF500-18	END CAP	2
31	RF500-57	GASKET-END CAPS DIVERTER	2
32	RF500-11	DIVERTER HOUSING	1
33	RF500-58A	S.H.C. SCREW M10 X 150MM	4
34	RF500-59A	HEX BOLT M10 X 25MM - PLAIN	8
35	RF500-60	GASKET - VALVE CAP	1
36	RF500-12	DIVERTER VALVE CAP	1
37	RF500-13	DIVERTER LEVER ASSEMBLY	1
37B	RF500-13F	LEVER ASSEMBLY-FILTER PUMP	1
38	RF500-130A	S.C.H. SCREW 1/4"-28 X 3/4	1
39	RF500-62A	OIL SEAL	1
40	RF500-14A	DIVERTER VANE SPRING	1
42	RF500-64A	SPLIT PIN 5/16"X1-1/4"	1
43	RF500-10	DIVERTER VANE	1
44	RF500-17BP	BACK-UP VALVE BOTTOM PLATE	1
44A	RF500-44B	BACK-UP VALVE TOP PLATE	1
45	RF500-17C	BACK-UP VALVE SEAT	1
46	RF500-65	GASKET PUMP OUTLET	1
47	RF500-66A	BACK-UP VALVE SPRING	1
48	RF120-48A	HEX BOLT M10 X 40MM - PLAIN	4
49	RF500-9	BASE	2
50	RF500-25A	SIGHT HOSE	1
51	RF500-69A	PIPE PLUG 1/4" NPT BLACK SQ.HD.	7

RCF 370 & 500 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
53	RF500-29 *	OIL PUMP	1
53A	RF500-29R*	OIL PUMP - R.H.	1
54	RF500-23SG	500 OIL PUMP COVER	1
55	RF500-26	GASKET - PUMP COVER	1
57	RF500-24A	HEX BOLT M8 X 90MM - PLAIN	4
57A	RF500-221A	ALUM. FLAT WASHER	4
58	RF500-70	GASKET - SEAL HOUSING	2
59	RF500-71A	SELF DRILLING SCREW	8
60	RF500-72A	ROLL PIN FOR OIL PUMP 5/32 X 1-1/4	1
61	RF500-19A	ROLLER BEARING	2
62	RF500-20A	BELLEVILLE SPRING	4
63	RF500-35A	SNAP - RING	2
64	ELBOW 45 DEG	45 DEGREE ELBOW	1
65	RF500-15	SMALL SEAL HOUSING	1
66	RF500-74	KEY 3/8" x 1/2" x 2"	1
67	NIPPLE 1/4" x 10"	NIPPLE 1/4" NPT 10" LONG FOR 500 PUMP ONLY	1
67A	NIPPLE 1/4" x 8"	NIPPLE 1/4" NPT 8" LONG FOR 370 PUMP ONLY	1
68	RF250-32A	1/4" NPT BRASS 90 DEGREE ELBOW	1
69	RF500-0	BOLT 5/16" NC X 1-1/2 & LW incld w item 3	3
70	RF500-48A	HEX BOLT M8 x 25	9
70B/607A	RF120-96A	M8 LOCKWASHER	9
71	RF500-78A	SNAP - RING	1
72	RF500-72B	ROLL PIN FOR ROTOR SHAFT 1/4 X 3	1
73	RF500-80A	OIL PUMP COUPLING	1
74	RF500-81	VANE WEAR TEST ROD	1
75	A270-5	1/4" NPT X 1-1/2 NIPPLE	1

RCF 370 & 500 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
100	RF500-67A	M10 X 30MM HEX BOLT	20
100A/705	RF120-94A	10MM LOCK WASHER	32
130	RF370-1 RF500-1	PUMP HOUSING	1
140	RF500-140	GASKET HOUSING CAP	2
150	RF250-3	HOUSING END CAP	2
170	RF500-51A *	OIL LINE SET FOR 500 PUMPS	1
180	RF500-51S	OIL PUMP LINES SET	1
190	RF500-190P	BREATHER FILLER	1
560	RF500-22 *	SEAL HOUSING - LARGE	1
600	RF500-F00	STAR KNOB FOR FILTER BOX LID	1
601	RF500-F01	COPPER WASHER	1
602	RF500-FL	FILTER BOX LID	1
603	RF500-FB	FILTER BOX	1
604	RF500-04	FILTER LID 'O' RING	1
605	RF500-FC	S.S MESH FILTER CARTRIDGE	1
607	RF500-F07	HEX BOLT M8 X 30MM	4
607A	RF120-96A	LOCK WASHER M8	4
608	RF502-TP	TRANSITION PLATE	1
609	RF500-65F	GASKET TRANS. PLATE	1
610	RF500-10F	DIVERTER VANE - FILTER	1
611	RF500-11F	DIVERTER HOUSING	1
700	RF500-BH	HYD. DRIVE BELL HOUSING	1
701	RF500-MP	MOUNTING PLATE	1
702	RF500-GR	GUARD RINGS (1 PCS.)	4
703	RF500-703	HEX BOLT M10 X 50MM ZINC PLATED	4

RCF 370 & 500 Parts List Continued

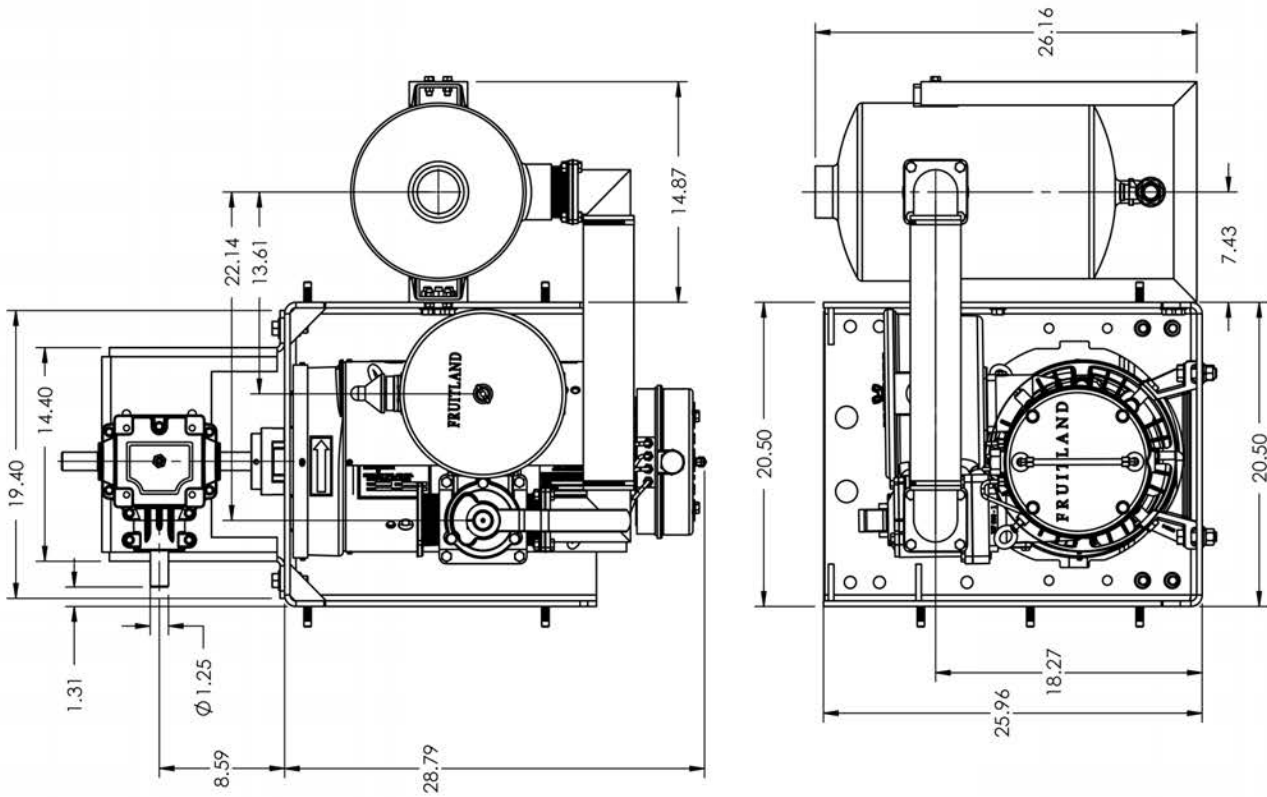
ITEM#	PART #	DESCRIPTION	QTY PER PUMP
704	M8X35HEX	BOLT M8 X 35 MM	8
705	M8 F/W	M8 FLAT WASHER ZINC PLATED	8
706	F190-XXX	F190 FLANGES 42 MM & SPECIFY OTHER	2
707	F190-INS	F190 COUPLING INSERT	1
708	RF120-134	SET SCREW 1/8" NC x 1/2	2
710	RF250-69A	PIPE PLUG 1/8" NPT BLK SQ. HD	4
712	RF500-240	PIPE PLUG – 1-1/2 NPT	1
713	RF500-ADA2	ANGLE DRIVE ADAPTOR PLATE	1
INS	RF500-INS	INSTRUCTION TAG OIL	1
MAN	RF500-MAN	MANUAL	1
DIR	RF500-DIR	DIRECTION TAG	1
NAM	RF500-NAM	NAME PLATE	1

SERVICE NOTE

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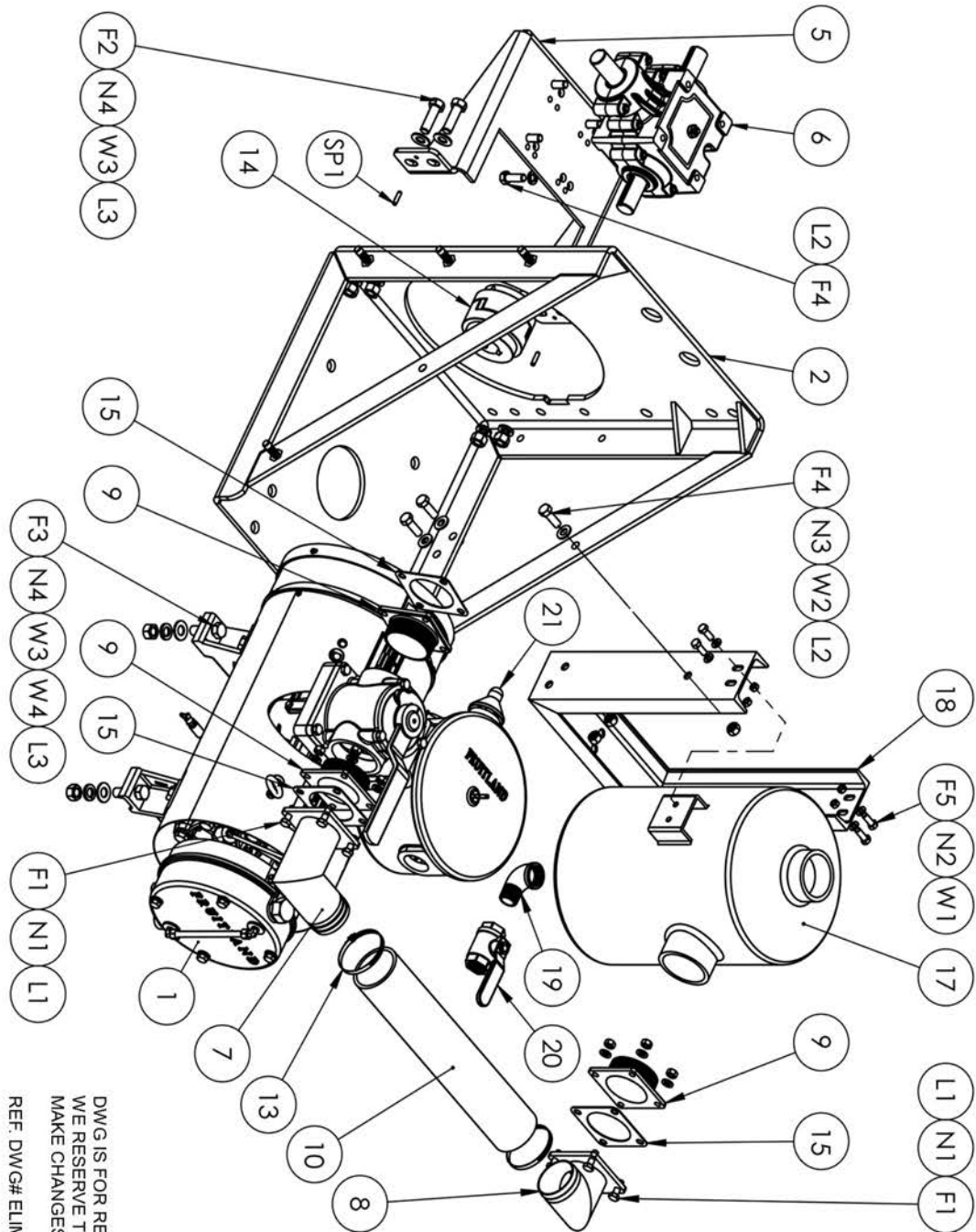
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REF. DWG# ELIM A-M02-500LUF DIMS





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REF: DWG# ELIM A-M02-500LUF



ELIM A-M02-500LUF Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	500LUF	Vacumm Pump	1
2	RF500-SC	Pedestal Frame	1
4	RF500-M09C	Muffler	1
5	ADM09C	Angle Drive Mount	1
6	RF500-GB400	Right Angle Gear Box	1
7	FAM09C	Flange Muffler Side	2
8	FAS09C	Flange Secondary Shut-Off Side	1
9	FA-3NPT-M	3" NPT Flange For Diverter	3
10	FAM09-03	Ø3" Rubber Hose (20" Long)	1
13	FAM09-04	Super Clamp SCS 86-91	2
14	F190C-1250	F190 Coupling C/W 42mm Bore Flange-1/4" Key & Insert	1
15	RF500-57	Pump Flange Gasket	3
17	M02	Muffler M02	1
18	TFMJ-15-02	Pipe Muffler Bracket C	1
19	CVSP-3100-1"FM90	Elbow 1" Street	1
20	M09-A-07	1" NPT Ball Valve	1
21	VB	Vacuum Relief Valve 1-1/2" NPT	1
Hex Bolts			
F1	RF500-67A	10mm Hex Head Bolt 10x1.5x30	8
F2	5/8"x2" HEX HEAD	5/8" NC 2" Long Zinc Plated Hex Head Bolts	4
F3	5/8"x2-1/4" HEX HEAD 5/8" NC		4
F4	1/2 X 1-1/2	1/2" NC X 1.5" LG Zinc Plated Hex Bolt	7
F5	5/16"x1"-BOLT	5/16" NC 1" Long Zinc Plated Hex Head Bolts	4
Hex Nuts			
N1	RF500-137A	10mm Hex Nut	8
75	A270-5	1/4" NPT X 1-1/2 NIPPLE	1

ELIM A-M02-500LUF Parts List Continued

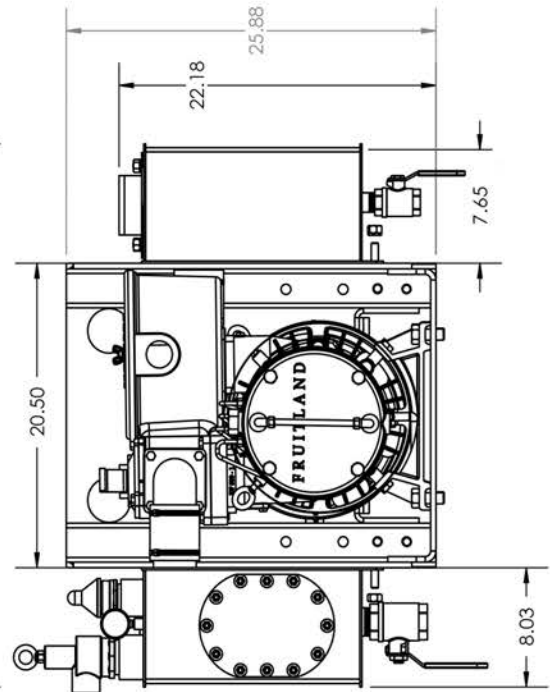
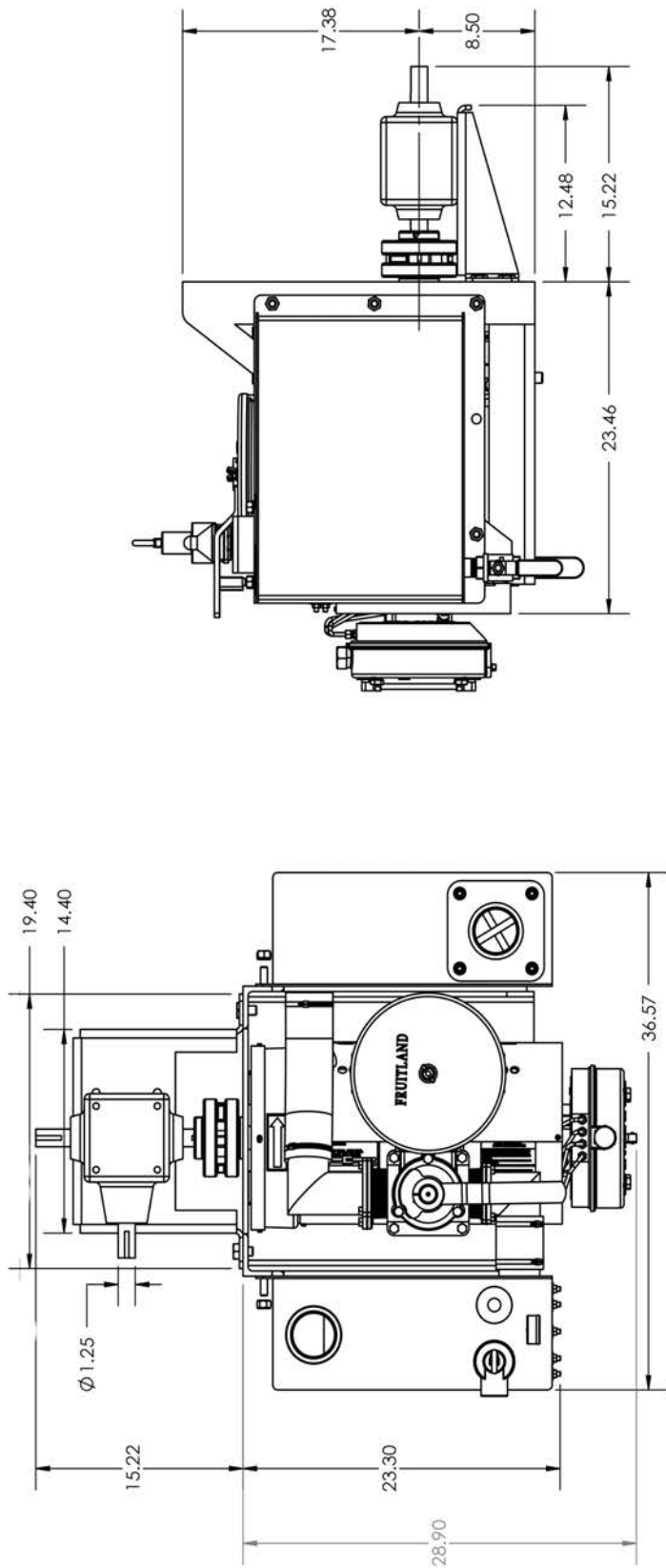
ITEM#	PART #	DESCRIPTION	QTY
N2	5/16" Nylock Nuts	5/16" Nylon Insert Locknut	4
N3	1/2" NUT	1/2" Zinc Plated NC Hex Nuts	3
N4	5/8" NUT	5/8" Zinc Plated NC Hex Nuts	8
Flat Washers			
W1	5/16" F/W	5/16" Zinc Plated Flat Washer	4
W2	1/2" Flat Washer	1/2" Zinc Plated Flat Washer	3
W3	5/8" F/W-SAE	5/8" Zinc Plated Flat Washer, Small	8
W4	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	4
L1	RF120-94A	10mm Lock Washer	8
L2	1/2" L/W	1/2" Lock Washer	7
L3	5/8" L/W	5/8" Lock Washer	8
Spring Pins			
SP1	1/4" X 1" LG SPLIT PIN	1/4" x 1" LG Split Pin	2

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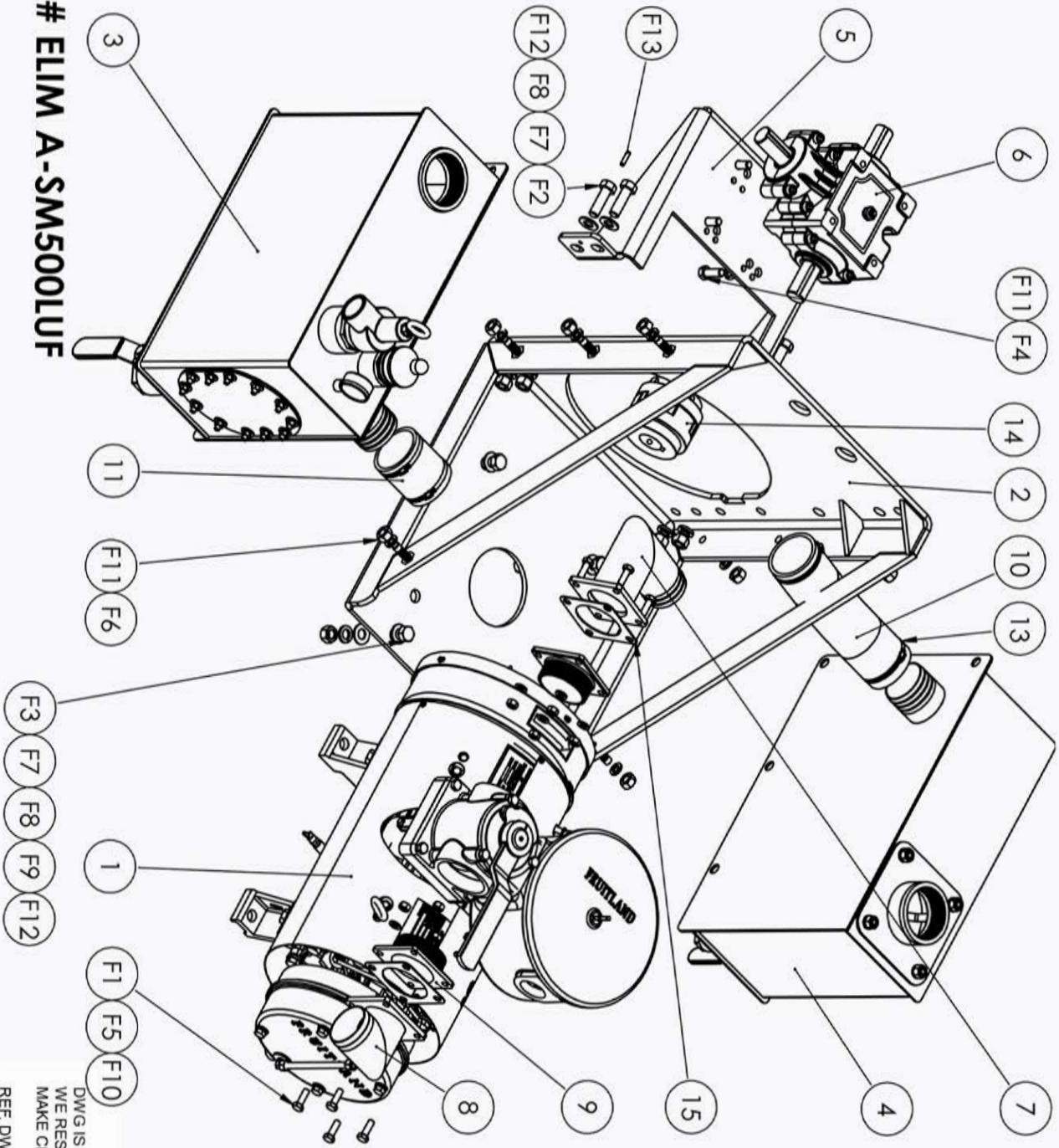


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REF: DWG# ELIM A-SM-500LUF



PART # ELIM A-SM500LUF



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REF. DWG# ELIM A-SM 500LUF



ELIM A-SM500LUF

ITEM#	PART #	DESCRIPTION	QTY
1	500LUF	Vacumm Pump	1
2	RF500-SC	Pedestal Frame	1
3	RF500-S09R1C	Secondary Shut-Off	1
4	RF500-M09C	Muffler	1
5	ADM09C	Angle Drive Mount	1
6	RF500-GB400	Right Angle Gear Box	1
7	FAM09C	Flange Muffler Side	1
8	FAS09C	Flange Secondary Shut-Off Side	1
9	FA-3NPT-M	3" NPT Flange For Diverter	2
10	FAM09-03	Ø3" Rubber Hose	1
11	FAS09-03	Ø3" Rubber Hose For Secondary	1
13	FAM09-04	Super Clamp SCS 86-91	4
14	F190C-1250	Coupling C/W 42mm Bore Flange -1/4" Key & Insert	1
15	RF500-57	Pump Flange Gasket	2
Hex Bolts			
F1	RF500-67A	10mm Hex Head Bolt 10x1.5x30	8
F2	5/8"X2" HEX HEAD	5/8" NC 2" Long Zinc Plated Hex Head Bolts	4
F3	5/8"X2-1/4" HEX HEAD	5/8" NC 2.25" Long Zinc Plated Hex Head Bolts	4
F4	1/2 X 1-1/2	1/2" NC X 1.5" LG Zinc Plated Hex Bolt	4
Hex Nuts			
F5	RF500-137A	10mm Hex Nut	8
F6	1/2" NUT	1/2" Zinc Plated NC Hex Nuts	8
F7	5/8" NUT	5/8" Zinc Plated NC Hex Nuts	8
Flat Washers			
F8	5/8" F/W-SAE	5/8" Zinc Plated Flat Washer, Small	8
F9	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	4
Lock Washers			

ELIM A-SM500LUF Continued

ITEM#	PART #	DESCRIPTION	QTY
F10	RF120-94A	10mm Lock Washer	8
F11	1/2" L/W	1/2" Lock Washer	12
F12	5/8" L/W	5/8" Lock Washer	8
Spring Pins			
F13	1/4" X 1" LG SPLIT PIN	1/4" x 1" LG Split Pin	2

SERVICE NOTE

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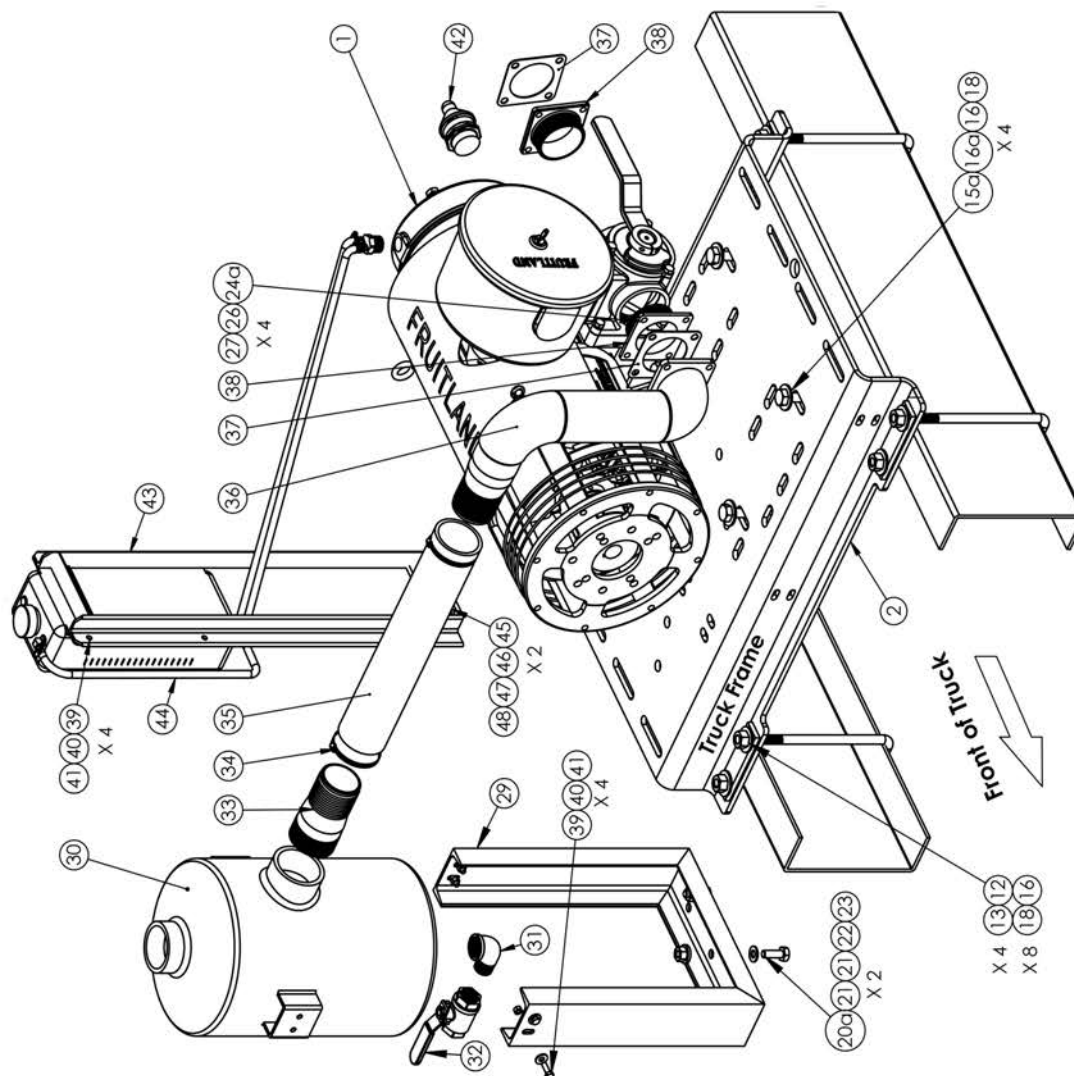
FRUITLAND
Manufacturing™

ELIM TBRM500LUF-BOM Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	500-LUF	Vacuum Pump (SOLD SEPERATELY)	1
2	TFM-11-01	Top Frame Mount Base	1
3	TFM-11-02v2	Top Mount Shaft Bracket Ver. 2	1
4	TFM-11-BG	Top Mount Belt Guard	1
5	TFM-11-08	Jack Shaft, Ø 1 3/4", 3/8" keyway	1
6	TFM-11-A1	1 3/4" Pillow Block Bearings w collar	2
7	TFM-11-A2	B78 (or BX78) V Belt	4
8	RF-500-38	4 Groove, 6" Sheave	2
9	SK1.75	1-3/4"Ø SK BUSHING	1
14	TFM-11-07	Shaft Adjustment Bracket	2
15	5/8"x2" HEX HEAD	5/8" NC 2" Long Zinc Plated Hex Head Bolts	4
15a	5/8"x2-1/4" HEX HEAD	5/8" NC 2.25" Long Zinc Plated Hex Head Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	4
16a	5/8" F/W-SAE	5/8" Zinc Plated Flat Washer, Small	8
17	5/8" L/W	5/8" Lockwasher	12
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	12
19	5/8"x2-1/2" HEX HEAD	5/8" NC 2.5" Long Zinc Plated Hex Head Bolts	4
20	1/2"x 3-1/4" Hex HEAD	1/2" NC 3.25" Long Zinc Plated Hex Head Bolts	2
20a	1/2"x 1-1/2"	1/2" NC 1.5" Long Zinc Plated Hex Head Bolts	4
21	1/2" Flat Washer	1/2" Zinc Plated Flat Washer	12
22	1/2" L/W	1/2" Lockwasher	6
23	1/2" NUT	1/2" Zinc Plated NC Hex Nuts	6
24a	RF500-67A	10mm Hex Head Bolt M10 X 30mm	8
25	RF500-308	10mm Plain Washer	8
26	RF500-137A	10mm Hex Nut	8
75	A270-5	1/4" NPT X 1-1/2 NIPPLE	

ELIM TBRM500LUF-BOM Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
27	RF120-94A	10mm Lock Washer	8
28	SK 42	Taper Bushing 42mm	1
29	TFMI-15-02	M02 Muffler Bracket	1
30	M02	Muffler	1
31	CVSP-3100-1"FM90	Elbow 1" Street	1
32	M09-A-07	1" NPT Ball Valve	1
33	TFMJ-15-03	3" Hose Barb to NPT Nipple	1
34	FAM09-04	Hose Clamp 3" (Super Clamp SCS 86-97)	2
35	TFMJ-15-04	3" I.D. Rubber Hose	7 in
36	FAM09C	Flange 500 Muffler Side	1
37	RF500-57	Pump Flange Gasket	2
38	FA-3NPT-M	3" NPT Flange for Diverter	2
39	5/16"x1"-BOLT	5/16" NC 1" Long Zinc Plated Hex Head Bolts	4
40	5/16" F/W	5/16" Zinc Plated Flat Washer	4
41	5/16" Nylock Nuts	5/16" Nylon Insert Locknut	4
Part # TFM-11R, Regular Installation Kit			
10	TFM-11-A3	3-1/2" U Bolt, Ø5/8-11 NC	4
11	TFM-11-09	Tie Bar Plates for 3-1/2" U Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
17	5/8" L/W	5/8" Lockwasher	8
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	8
Part # TFM-11M, Mack Truck Installation Kit			
13	TFM-11-A5	Tie Bar Plates for 4-3/16" U Bolts Mack Only	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
12	TFM-11-A4	4-3/16" U Bolt Ø5/8-11 NC for Mack Only	4
17	5/8" L/W	5/8" Lockwasher	8
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	8



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REF. DWG# ELIM THRM500LSFH-OR-BOM



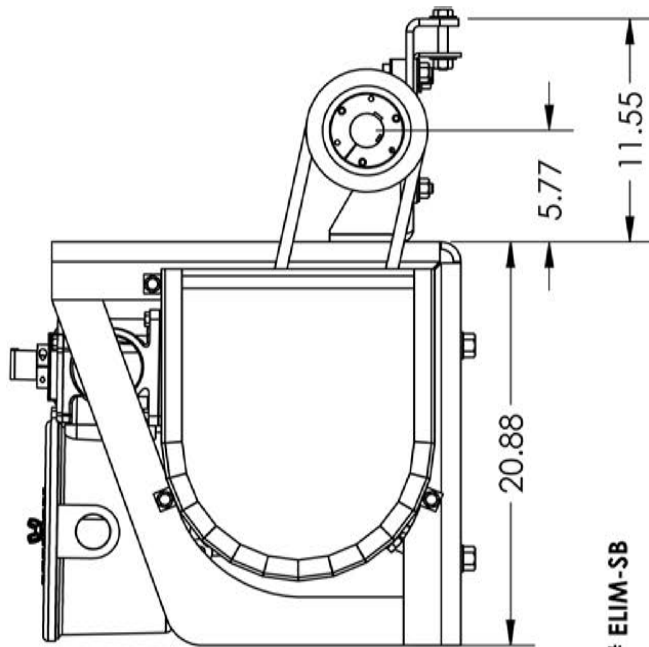
PART # ELIM THRM500LSFH-OR
(Regular Installation Kit)

ELIM THRM500LSFH-OR Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	500LSFH	Vacuum Pump (SOLD SEPERATELY)	1
2	TFM-11-01	Top Frame Mount Base	1
15a	5/8"x2-1/4" HEX HEAD	5/8" NC 2.25" Long Zinc Plated Hex Head Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	4
16a	5/8" F/W-SAE	5/8" Zinc Plated Flat Washer, Small	4
18	5/8" Nylock Nut	5/8" NC Nylock Hex Nuts	4
20a	1/2"x 1-1/2"	1/2" NC 1.5" Long Zinc Plated Hex Head Bolts	4
21	1/2" Flat Washer	1/2" Zinc Plated Flat Washer (Grade 8 SAE)	2
22	1/2" L/W	1/2" Lockwasher	2
23	1/2" NUT	1/2" Zinc Plated NC Hex Nuts	2
24a	RF500-67A	10mm Hex Head Bolt M10 X 30mm	4
26	RF500-137A	10mm Hex Nut	4
27	RF120-94A	10mm Lock Washer	4
29	TFMJ-15-02	Pipe Muffler Bracket C	1
30	M02	M02 Muffler (3"NPT)	1
31	CVSP-3100-1"FM90	Elbow 1" Street	1
32	M09-A-07	1" NPT Ball Valve	1
33	TFMJ-15-03	3" Hose Barb to NPT Nipple	1
34	FAM09-04	Hose Clamp 3" (Super Clamp SCS 86-97)	2
35	THM-03	3" I.D. Rubber Hose 19" Long	1
36	THM-01	500 Elbow Flange (Muffler Side)	1
37	RF500-57	Pump Flange Gasket	2
38	FA-3NPT-M	3" NPT Flange for Diverter	2
39	5/16"x1"-BOLT	5/16" NC 1" Long Zinc Plated Hex Head Bolts	4
40	5/16" F/W	5/16" Zinc Plated Flat Washer	4
41	5/16" Nylock Nuts	5/16" NC Nylock Hex Nuts	4
42	VB	Vacuum Relief Valve 1-1/2" NPT	1

ELIM THRM500LSFH-OR Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
43	THM-02	Oil Reservoir Bracket	1
44	OR11	Oil Reservoir Kit	1
45	3/8" X 1-1/4"	3/8"NC 1-1/4" Long Zinc Plated Hex Head Bolts	2
46	3/8" F/W-USS	3/8" Zinc Plated Flat Washer, Large	2
47	3/8" F/W-SAE	3/8" Zinc Plated Flat Washer, Small	2
48	3/8" NYLOCK NUTS	3/8" NC Nylock Hex Nut	2
Part # TFM-11R, Regular Truck Installation Kit			
10	TFM-11-A3	3-1/2" U Bolt Ø5/8-11 NC	4
13	TFM-11-09	Tie Bar Plates for 3-1/2" U Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
18	5/8" Nylock Nut	5/8" NC Nylock Hex Nuts	8



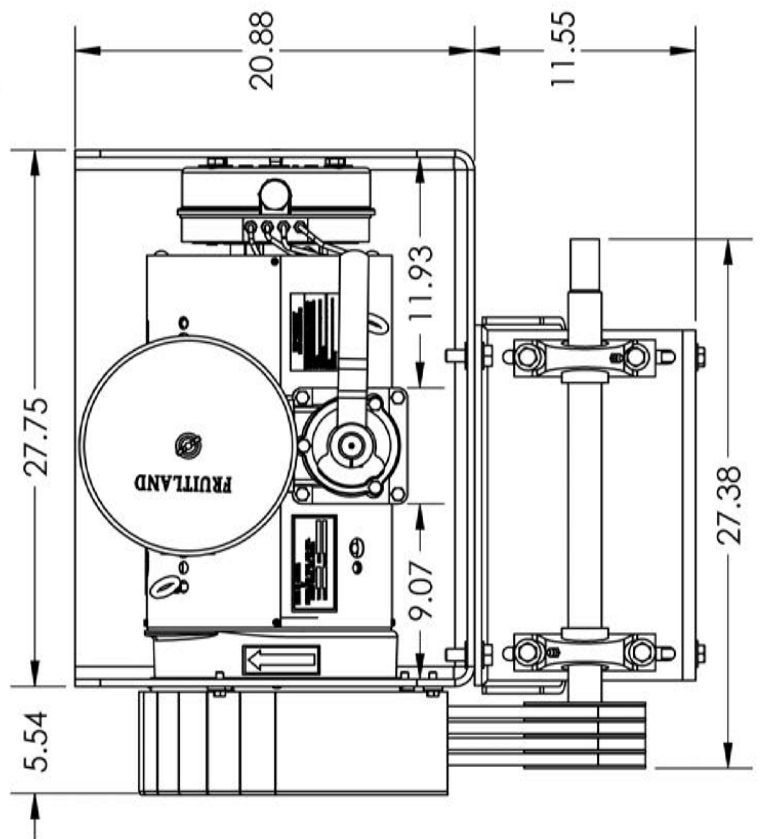
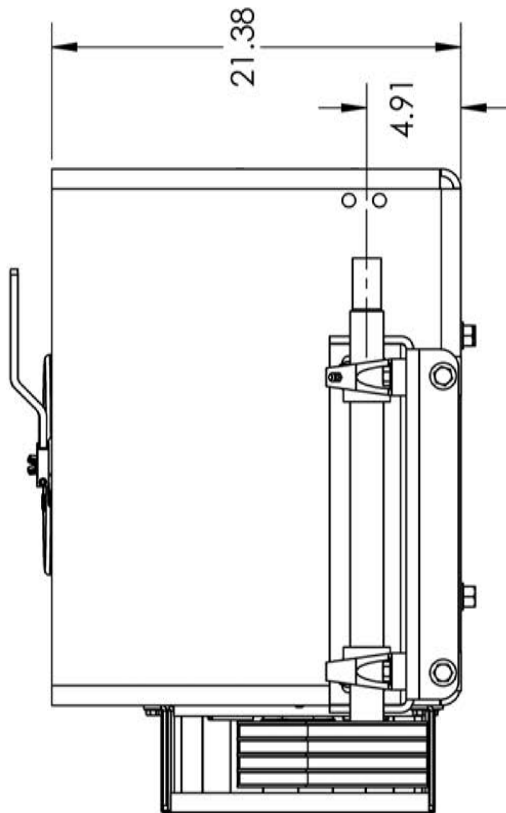
PART # ELIM-SB

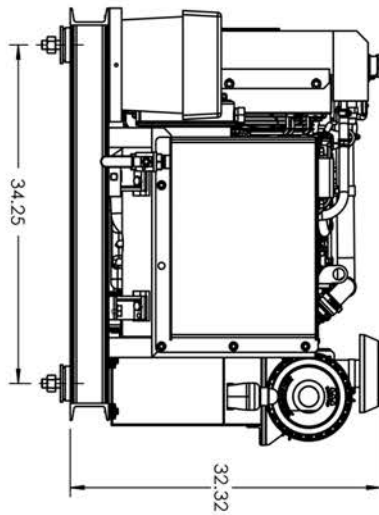
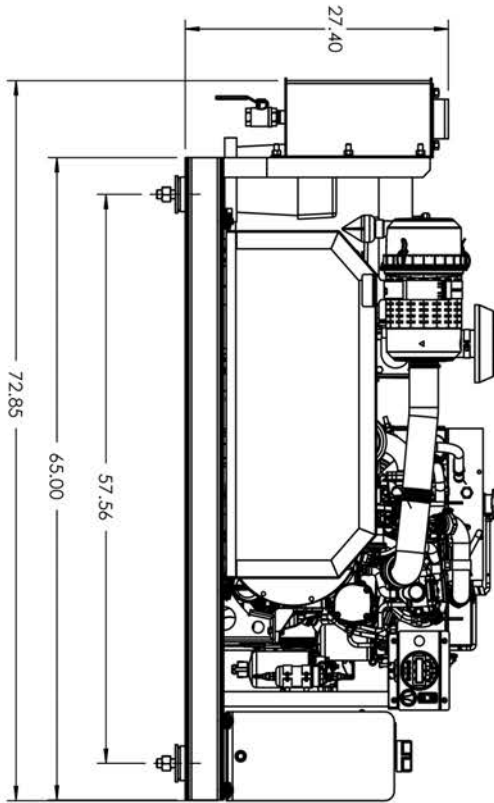
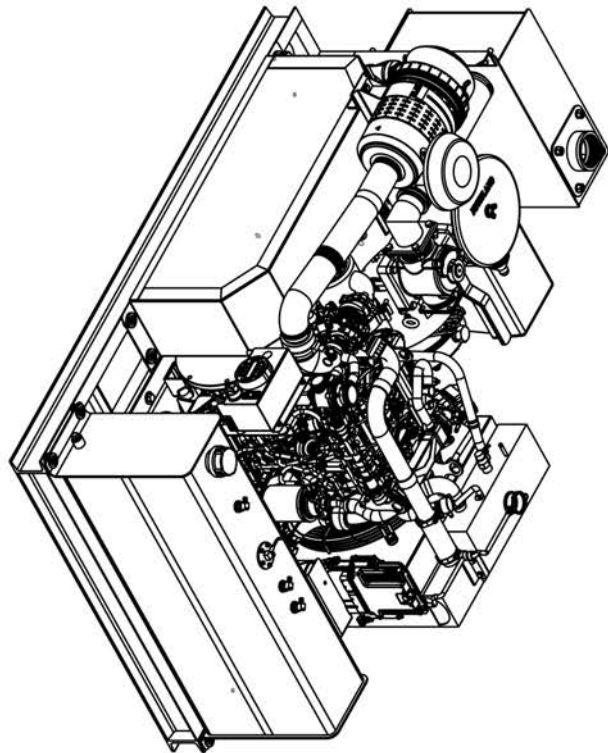
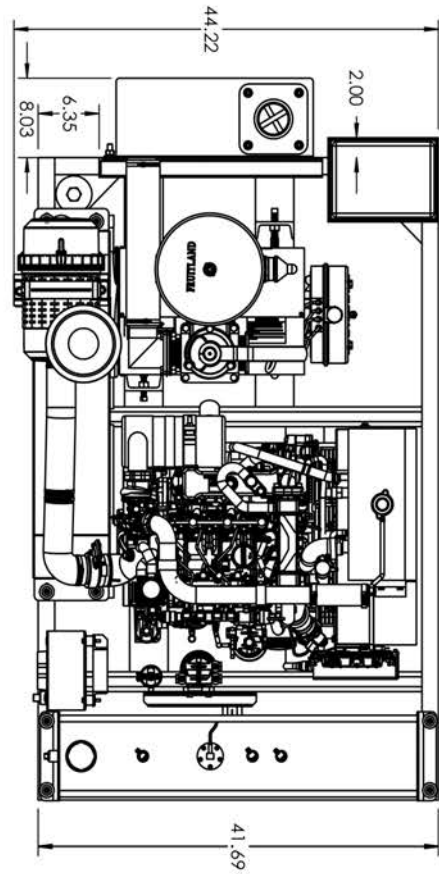
NOTE: SHOWN WITH RF500LUF PUMP
OTHER OPTIONS AVAILABLE

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INCLUDE ALL COMPONENTS SHOWN

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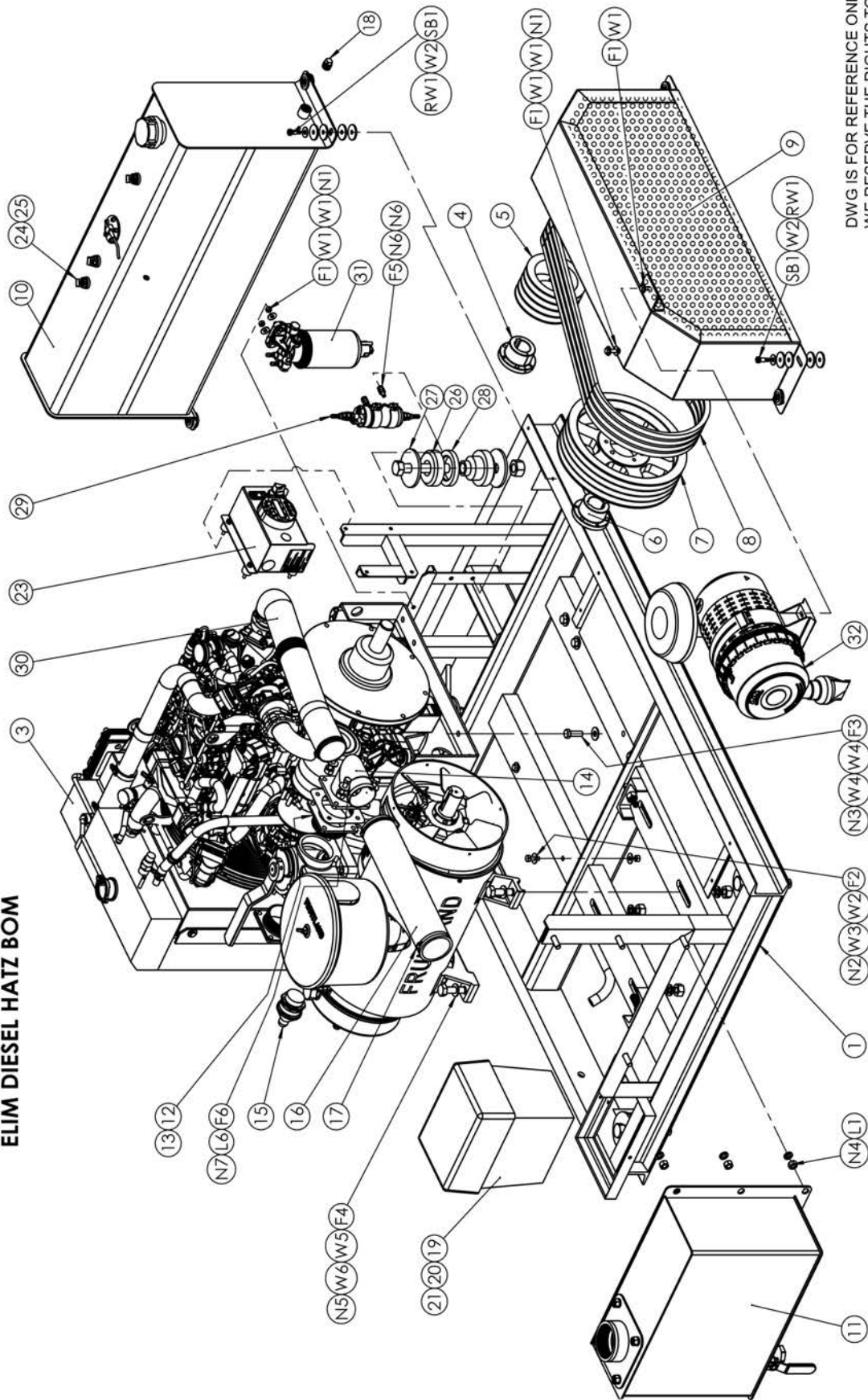


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REF. DWG# ELIM DH500LUF



ELIM DIESEL HATZ BOM



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REF. DWG# ELIM DH500LUF BOM

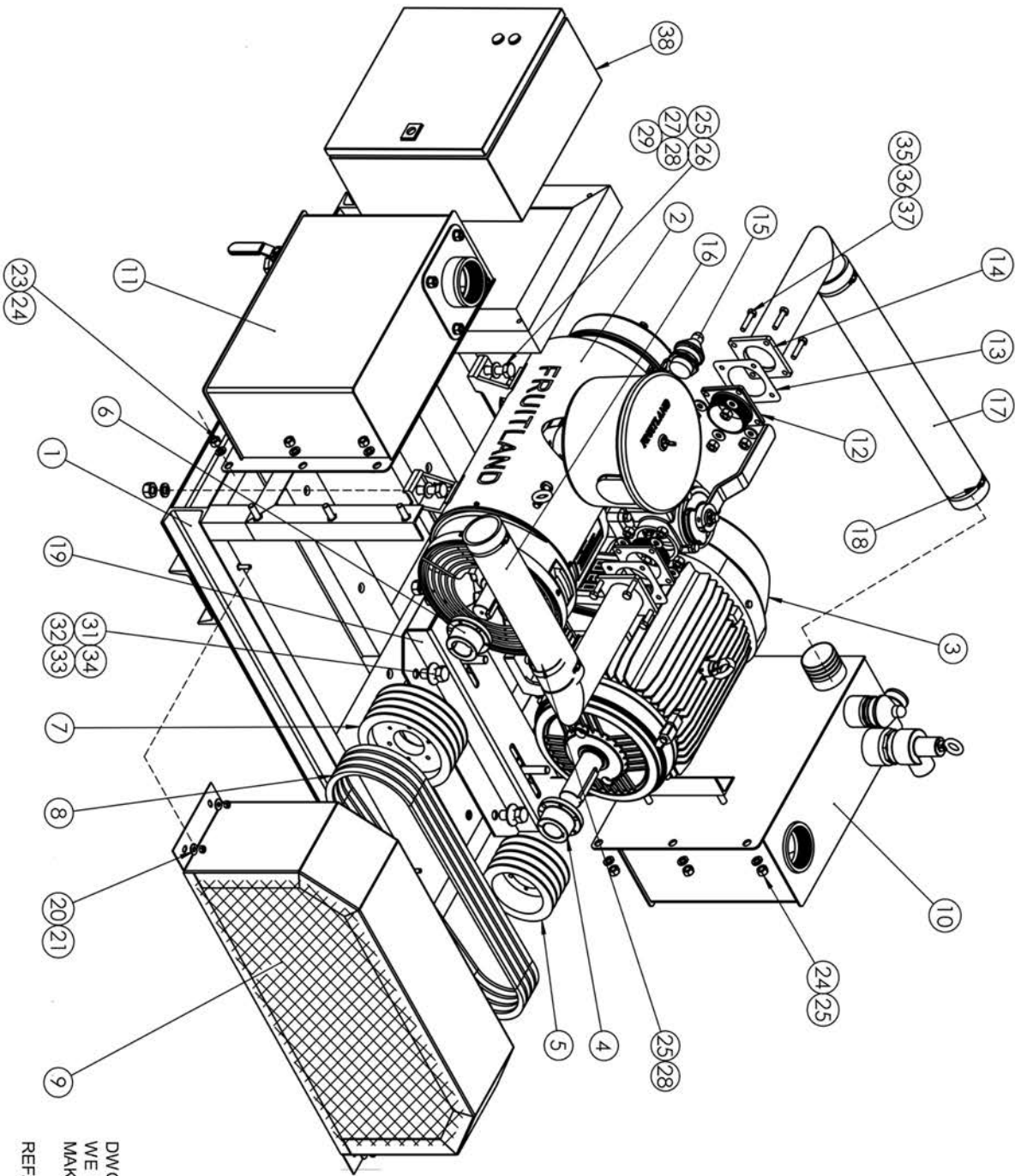


ELIM DH500LUF Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	ED-19-01C	ELIM DIESEL HATZ FRAME (DWG.# ED-19-01)	1
2	500LUF	VACUUM PUMP	1
3		HATZ DIESEL ENGINE	1
4	ED-12-A4	SK 1.5" BUSHING	1
5	RF500-38	6" SHEAVE 4 GROOVE B SECT.	1
6	SF42	TAPER PUMP BUSHING - 42mm BORE	1
7	5B12.4L	SHEAVE 12.4 SF 4 GR. B SECT.	1
8		B74 V-BELT	4
9	ED-19-02C	BELT GUARD (DWG.# ED-19-02)	1
10	EDF-14C	DEISEL FUEL TANK (DWG.# EDF-14)	1
11	RF500-M09C	MUFFLER M09 (DWG.# M09C-BOM)	1
12	FA-3NTP-M	3" NPT THREADED FLANGE (DWG.# FA-3NPT-M)	2
13	RF500-57	DIVERTER VALVE FLANGE GASKET	1
14	FAM09C	FLANGE MUFFLER SIDE	1
15	VB	1-1/2" VACUUM RELIEF VALVE	1
16	3" RUBBER HOSE	3" RUBBER MUFFLER HOSE, 16.75" LG.	16.75"
17	FAM09-04	3" HOSE CLAMP	2
18		0.5" SQUARE PIPE PLUG	1
19	ED-12-A5	BATTERY	1
20	BATTERY BOX	BATTERY BOX	1
21	ED BATTERY CLAMP	BATTERY HOLD DOWN CLAMP KIT	1
23		CONTROL PANEL	1
24	EDF-12-A11	5/16" I.D. DIESEL FUEL HOSE 2FT	3
25	EDF-12-A12	5/16" HOSE CLIP	5
26	ED-16-01	ED FRAME VIBRATION MOUNT (DWG# ED-870-VBM-INST)	4
27	ED-16-02	ED FRAME VIBRATION MOUNT REBOUND WASHER	8
28	ED-870-03	ED FRAME VIBRATION MOUNT SPACER	4

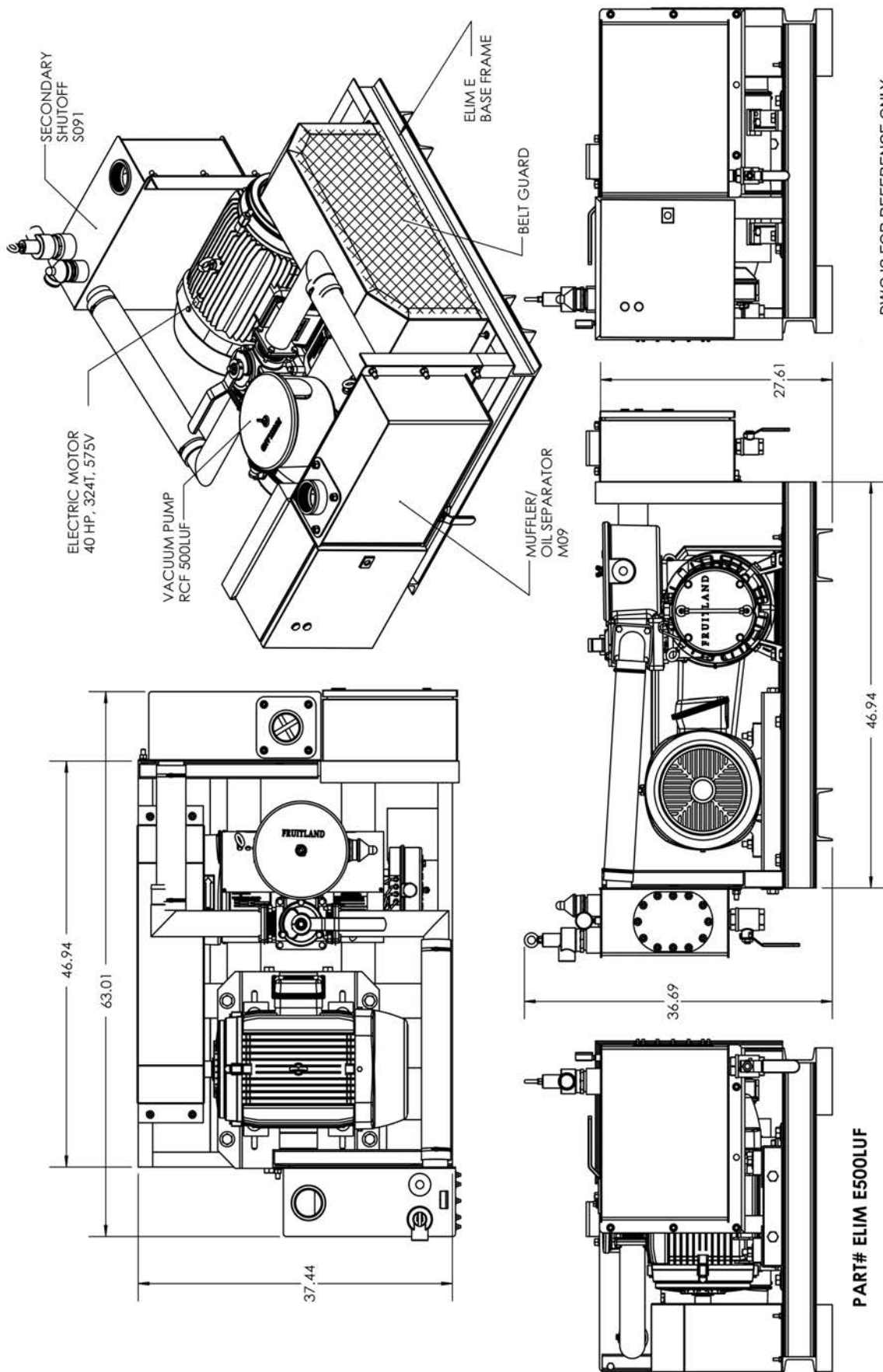
ELIM DH500LUF Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
29		ELECTRIC FUEL PUMP	1
30		FILTER HOSE (2 PCS. WITH AL. CONNECTOR AND FOUR 3" HOSE CALMPS)	1
31		FUEL PREFILTER	1
32		AIR FILTER HOUSING	1
FASTENERS			
F1	5/16" X .75 HEX BOLT	5/16" NC x 3/4" LG. Z.P. HEX BOLT	4
W1	5/16" WASHER	5/16" Z.P. FLAT WASHER	7
N1	5/16" NYLOCK NUTS	5/16" NC NYLOCK HEX NUT	3
F2		3/8" NC HEX HEAD BOLT, 1.25" LG.	2
W2	3/8"F/W-USS	3/8" Z.P. FLAT WASHER - LARGE	10
W3	3/8"F/W-SAE	3/8" Z.P. FLAT WASHER - SMALL	2
N2		3/8" NC NYLOCK HEX NUT	2
F3	1/2X2-1/2"	1/2" NC x1-1/2" LG. Z.P. HEX BOLT	4
W4	1/2" FLAT WASHER	1/2" Z.P. FLAT WASHER	8
N3	1/2" NY-LOCK NUTS ZP	1/2" Z.P. NYLOCK HEX NUT	4
N4	1/2" NUTS	1/2" ZINC PLATED NC HEX NUT	4
L1	1/2" L/W	1/2" LOCKWASHER	4
F4	5/8"X2-1/4" HEX HEAD	5/8" NC x 2-1/4" LG. Z.P. HEX BOLT	4
W5	5/8" F/W-USS	5/8" Z.P. FLAT WASHER - LARGE	4
W6	5/8" F/W-SAE	5/8" Z.P. FLAT WASHER - SMALL	4
N5	5/8" NYLOCK NUT	5/8" NC NYLOCK HEX NUT	4
F5		8mm HEX HEAD BOLT, 8x1.25x	2
N6		8mm HEX NUT	4
F6	RF500-67A	10mm HEX HEAD BOLT, 10x1.5x30	4
L2	RF120-94A	10mm LOCK WASHER	4
N7	RF500-137A	10mm HEX NUT	4
SB1		3/8" x 1" WITH 5/16"-18 NC SHOULDER BOLT	8
RW1	ED-16-03	ED FRAME RUBBER WASHER	32



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REF. DWG# ELIM E



ELIM E500LUF Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	EE-13-01C	ELIM E BASE ASSEMBLY (DWG.# EE-13-01)	1
2	500LUF	VACUUM PUMP	1
3	EE-13-A1-575	575V ELECTRIC MOTOR 40HP, 324T	1
4	EE-13-A3	SK 2.125" BUSHING	1
5	RF500-38	6" SHEAVE 4 GROOVE B SECT.	1
6	SK42	TAPER PUMP BUSHING - 42mm BORE	1
7	EE-13-A4-8	SHEAVE 8" SK, 4 GR. B SECT.	1
8	EE-13-A5	B61 V-BELT	4
9	ED-12-02C	BELT GUARD (DWG.# ED-12-02)	1
10	RF500-S091	SECONDARY SHUTOFF SO91 (DWG.# S091-ASSM)	1
11	RF500-M09C	MUFFLER MO9 (DWG.# M09C-BOM)	1
12	FA-3NTP-M	3" NPT THREADED FLANGE (DWG.# FA-3NPT-M)	2
13	RF500-57	DIVERter VALVE FLANGE GASKET	2
14	FAM09C	90° FLANGED ELBOW (DWG.# FAM09)	2
15	VB	1-1/2" VACUUM RELIEF VALVE	1
16	3" RUBBER HOSE	3" RUBBER MUFFLER HOSE, 16.75" LG.	1
17	3" RUBBER HOSE	3" RUBBER SHUTOFF HOSE, 25.50" LG.	1
18	FAM09-04	3" HOSE CLAMP	4
19	EE-13-A2	MOTOR SLIDE BASE KIT (MTA-BASE-W324T)	1
38	EE-13-02	CONTROL PANEL C/W COMPONENTS	1
FASTENER			
20	5/16" WASHER	5/16" Z.P. FLAT WASHER	4
21	5/16" NYLOCK NUTS	5/16" NC NYLOCK HEX NUT	4
22	1/2" FLAT WASHER	1/2" Z.P. FLAT WASHER	8
23	1/2" L/W	1/2" Z.P. LOCK WASHER	8
24	1/2" NUTS	1/2" NC Z.P. HEX NUT	4
25	5/8" F/W-USS	5/8" Z.P. FLAT WASHER - LARGE	8

ELIM E500LUF Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
27	5/8" L/W	5/8" Z.P. LOCK WASHER	8
28	5/8" NUT	5/8" NC Z.P. HEX NUT	8
29	5/8"x2-1/2" HEX HEAD	5/8" NC x 2-1/2" LG. Z.P. HEX BOLT	4
30	5/8"x1-1/2" HEX HEAD	5/8" NC x 1-1/2" LG. Z.P. HEX BOLT	4
31	3/4" WASHER	3/4" Z.P. FLAT WASHER	4
32	3/4" LOCK WASHER	3/4" Z.P. LOCKWASHER	4
33	3/4" NUT	3/4" NC Z.P. HEX NUT	4
34	3/4"x1-1/2" HEX HEAD	3/4" NC x 1-1/2" LG. Z.P. HEX BOLT	4
35	RF500-67A	10mm HEX HEAD BOLT, 10x1.5x30	8
36	RF120-94A	10mm LOCK WASHER	8
37	RF500-137A	10mm HEX NUT	8

SERVICE NOTE

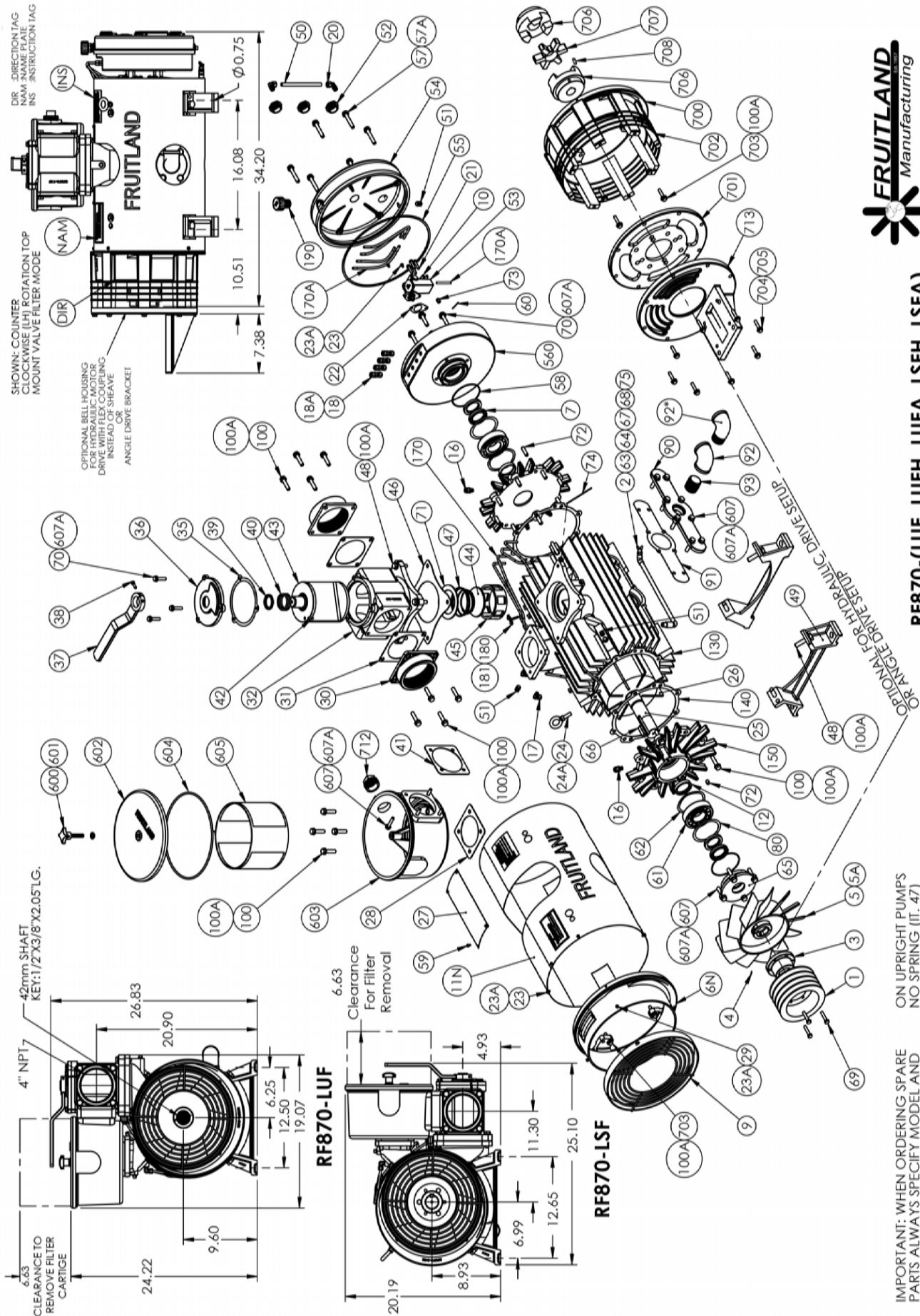
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RCF 870 PUMP PARTS & DIMENSIONS





RF870-(LUF, LUFH, LUFA, LSFH, LSFA)

RCF 870 Parts List

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
1	RF500-38	6" SHEAVE 4 GROOVE B SECTION	1
2	RF500-82A	DRAIN PLUG /VALVE 1/4" NPT	1
3	SK 42	SHEAVE BUSHING SK 42 MM	1
4	RF500-48B	5/16"NF X 7/8"LG.SHCS PLAIN FOR FAN	1
5	RF500-33L *	FAN ASSY - L.H.	1
5A	RF500-33R	FAN ASSY - R.H.	1
6N	RF870-34N	FAN SHROUD (NEW STYLE)	1
7	RF500-225A	OIL SEAL	4
9	RF500-30	FAN GUARD	1
10	250-6	SOLDER FITTING OIL PUMP OUTLET	4
11N	RF870-46U *	HOUSING SHROUD - LUF	1
12	RF500-8	COLLAR (FINISH GRIND)	2
16	RF500-50A	COMPRESSION FITTING 1/8" NPT FOR 1/4" TUBE	4
17	RF870-72A	BRASS ELBOW COMPRESSION 1/8" NPT - 1/4" TUBE COMPRESSION	2
18	RF500-52A	BULKHEAD FITTING	4
18A	U-SEAL	U-SEAL WASHER (OIL TANK BULKHEAD)	4
20	RF500-32A	SIGHT TUBE ELBOW FITTING	2
21	250-6A	HOLLOW BOLT M-6 FOR OIL PUMP	4
22	RF500-27	GASKET - OIL PUMP	1
23	RF500-28A	HEX BOLT M6 X 16MM	7
23A	RF500-280A	LOCKWASHER M6	11
24	RF500-37A	EYEBOLT	2
24A	RF500-137A	M10 HEX NUT	2
25	RF870-4	870 ROTOR ASSEMBLY	1
26	RF870-6A	VANES	8

RCF 870 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
27	RF870-47	PLATE (10" X4") SHROUD PLATE	1
28	RF870-61	GASKET – PUMP (INTAKE FL. GASKET)	1
29	RF120-102A	HEX BOLT M6 X 10, FAN GUARD	4
30	RF870-4NPT	END CAP (DIVERTER 4" NPT FLANGES)	2
31	RF870-65	GASKET-DIVERTER FLANGE (4" NPT FL)	2
32	RF870-11F	DIVERTER HOUSING	1
35	RF120-127	GASKET - DIVERTER HOUSING CAP	1
36	RF120-12	DIVERTER HOUSING CAP	1
37	RF500-13F	LEVER ASSEMBLY-FILTER PUMP	1
38	RF500-130A	S.H.C. SCREW 1/4"-28 X 3/4	1
39	RF500-62A	OIL SEAL	1
40	RF500-14A	DIVERTER VANE SPRING	1
41	RF870-64	GASKET, DIVERTER-FILTER	1
42	RF500-64A	SPLIT PIN 5/16"X1-1/4"	1
43	RF870-10F	DIVERTER VALVE VANE	1
44	RF870-BUVD	BACK-UP VALVE PLATE (DISC)	1
45	RF870-BUVC	BACK-UP VALVE SEAT (CAGE)	1
46	RF870-62	GASKET, PUMP OUTLET (EXHAUST FLANGE GASKET)	1
47	RF870-66A	BACK-UP VALVE SPRING	1
48	RF120-48A	HEX BOLT M10 X 40MM - PLAIN	8
49	RF870-9	HOUSING BASE	2
50	RF800-25A	SIGHT HOSE	1
51	RF500-69A	PIPE PLUG 1/4" NPT BLACK SQ.HD.	7
52	RF500-25SG	GLASS SIGHT	3
53	RF500-29 *	OIL PUMP	1
54	RF800-189	800 OIL PUMP (RESERVOIR) COVER	1

RCF 870 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
55	RF800-191	GASKET- OIL RESERVOIR COVER	1
57	RF500-24A	HEX BOLT M8 X 90MM - PLAIN	6
57A	RF500-221A	ALUM. FLAT WASHER	6
58	RF870-22A	SEAL HOUSING O-RING	2
59	RF500-71A	SELF DRILLING SCREW	9
60	RF500-72A	ROLL PIN 5/32 X 1-1/4 FOR OIL PUMP	1
61	RF500-19A	ROLLER BEARING	2
62	RF870-20A	BEARING PRELOAD SPRING	2
63	ELBOW 45 DEG	45 DEGREE ELBOW 1/4" NPT	1
64	RF250-73A	BLK. MAL.PIPE COUPLING-1/4"	1
65	RF870-15	SEAL HOUSING DRIVE END	1
66	RF500-74	KEY 3/8" x 1/2" x 2"	1
67	NIPPLE 1/4" x 11"	NIPPLE 1/4" NPT x 11" STD. BLK	1
68	RF250-32A	1/4" NPT FEM.90 BLK MAL ELBOW	1
69	RF500-0	BOLT 5/16" NC X 1-1/2 & LW included with item 3	3
70	RF500-48A	HEX BOLT M8 x 25	7
71	RF870-BUVR	BACK-UP VALVE RING	1
72	RF870-32A	DOWEL PIN 3/8" X 2" Long	4
73	RF500-80A	OIL PUMP COUPLING	1
74	RF500-81	VANE WEAR TEST ROD	1
75	A270-5	1/4" NPT X 7/8" NIPPLE	1
80	RF870-21	BEARING SHIMS SET .003" X 3 .005" x 1	1
90	RF870-16	BALLAST AIR PORT COVER	1
91	RF870-63	GASKET-BALLAST COVER	1
92	AI-870-5A	1-1/4" NPT ELBOW FEMALE x FEMALE	1

RCF 870 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
92*	AI-870-71A	1-1/4" NPT STREET ELBOW	1
100	RF500-67A	M10 X 30MM HEX BOLT	24
100A	RF120-94A	10MM LOCK WASHER	36
130	RF870-1	870 HOUSING	1
140	RF870-60	GASKET HOUSING CAP	2
150	RF870-3	HOUSING END CAP	2
170	RF870-51A *	OIL LINE SET FOR 870 PUMPS	1
170A	RF870-51S	OIL PUMP LINES SET	1
190	RF500-190P	BREATHER FILLER	1
560	RF870-22	SEAL HOUSING NO DRIVE END	1
600	RF500-F00	STAR KNOB 55mm	1
601	RF500-F01	COPPER WASHER	1
602	RF500-FL	FILTER BOX LID	1
603	RF870-7-FB	FILTER BOX	1
604	RF500-04	'O' RING	1
605	RF500-FC	ST.ST. FILTER CARTRIDGE	1
607	RF500-F07	HEX BOLT M8 X 30MM	16
607A	RF120-96A	LOCK WASHER M8	23
700	RF870-BH	HYD. DRIVE BELL HOUSING	1
701	RF500-MP	MOUNTING PLATE	1
702	RF500-GR	GUARD RINGS (1 PCS.)	4
703	RF500-703	HEX BOLT M10 X 50MM ZINC PLATED	4
704	M8X35HEX	BOLT M8 X 35 MM	8
705	M8 F/W	M8 FLAT WASHER ZINC PLATED	8
706	F190-XXX	F190 FLANGES 42 MM & SPECIFY OTHER	2
707	F190-INS	190 COUPLING INSERT (FRUITLAND)	1

RCF 870 Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY PER PUMP
708	RF120-134	SET SCREW 3/8" NC	2
712	RF500-240	PIPE PLUG – 1-1/2 NPT	1
713	RF500-ADA2	ANGLE DRIVE ADAPTOR PLATE	1
INS	RF500-INS	INSTRUCTION TAG OIL	1
MAN	RF500-MAN	MANUAL	1
DIR	RF500-DIR	DIRECTION TAG	1
NAM	RF500-NAM	NAME PLATE	1

* SPECIFY PUMP ROTATION "L" OR "R" AND 4-WAY VALVE LOCATION — UP OR SIDE.

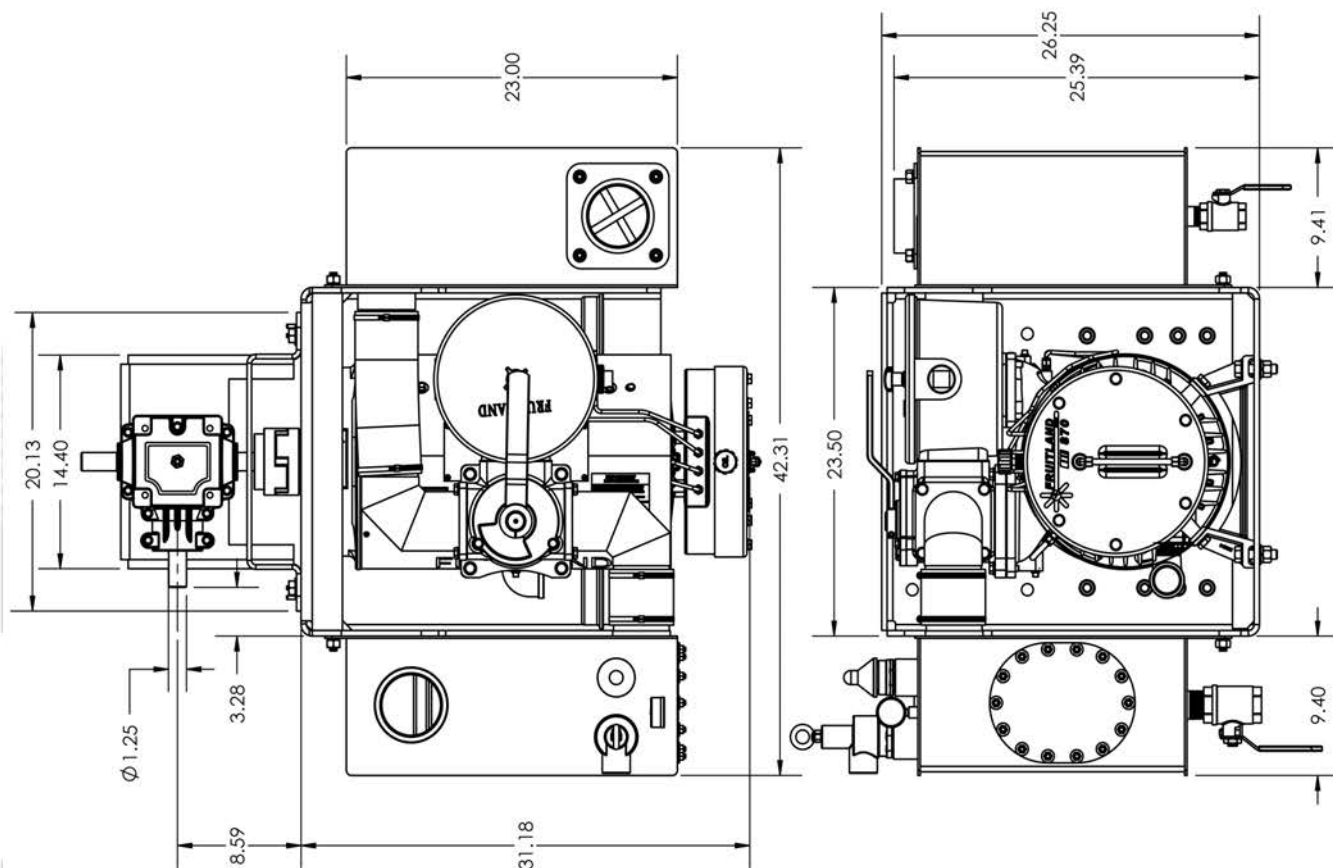
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NOTE: SHOWN WITH RF870LUF PUMP
OTHER OPTIONS AVAILABLE

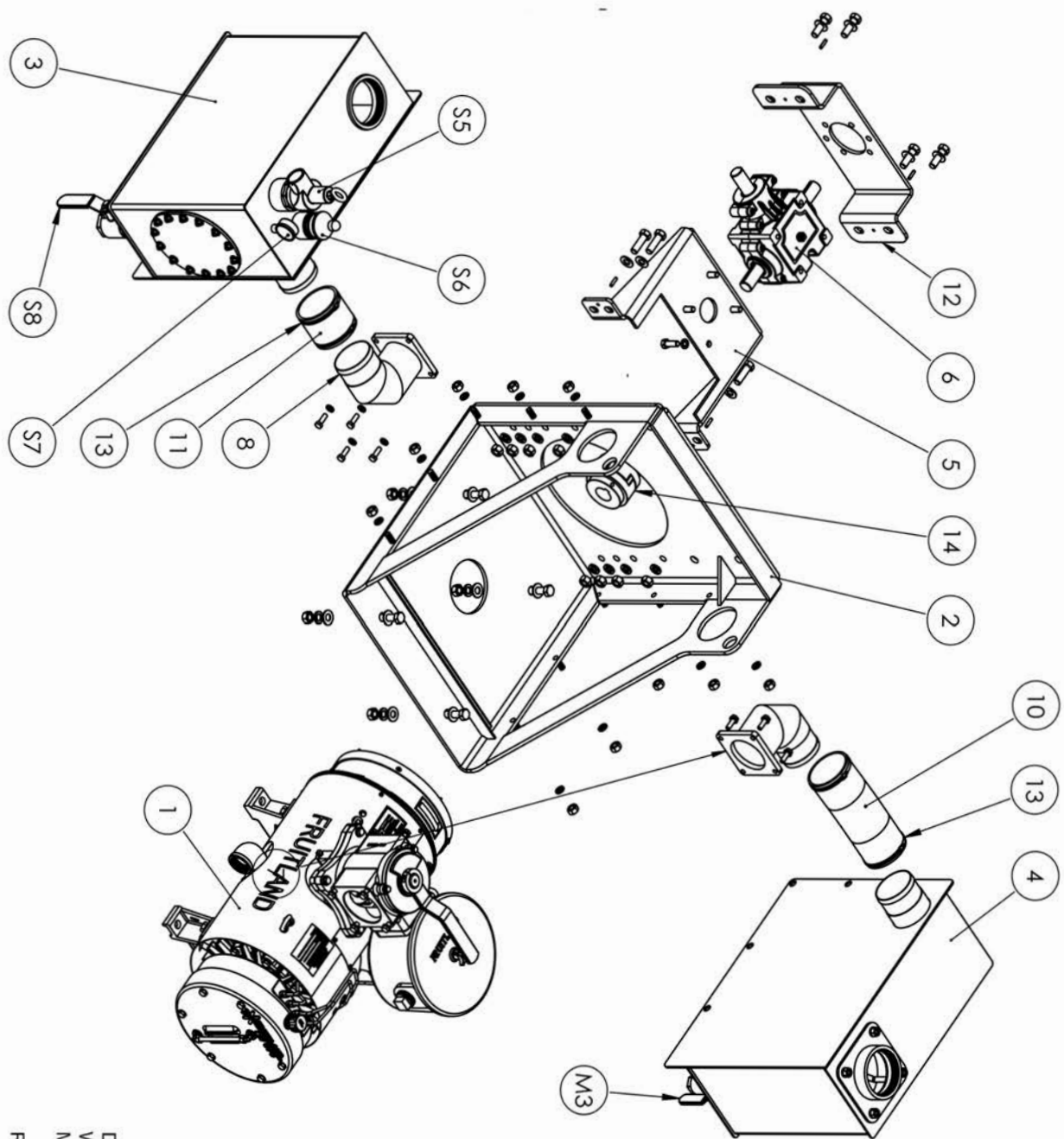


PART#: ELIM870-A-SM DIMENSIONS

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REF DWG# ELIM870-A-SM DIMENSIONS



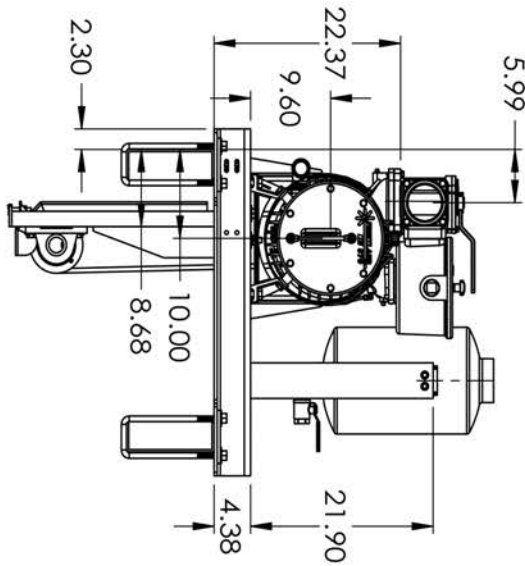
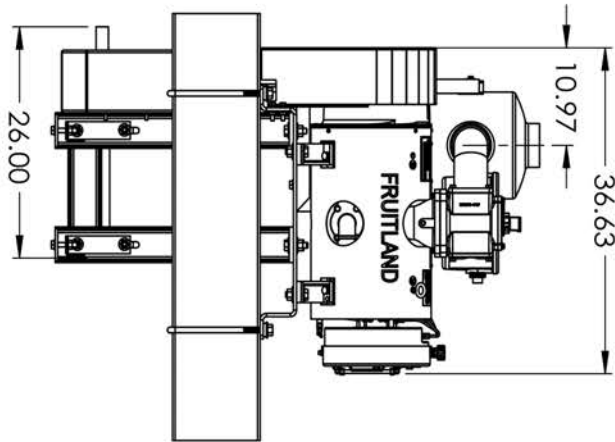
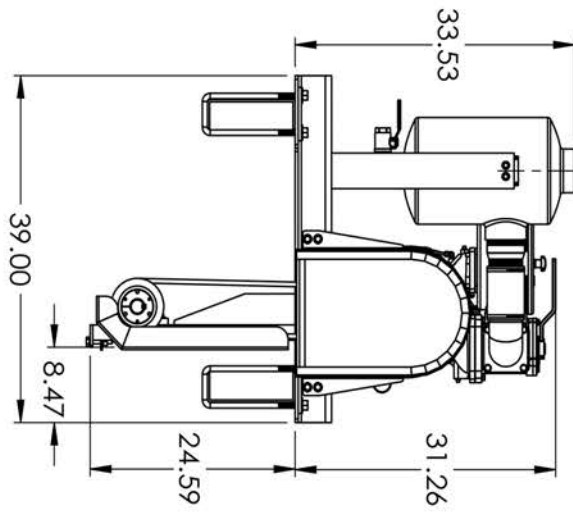
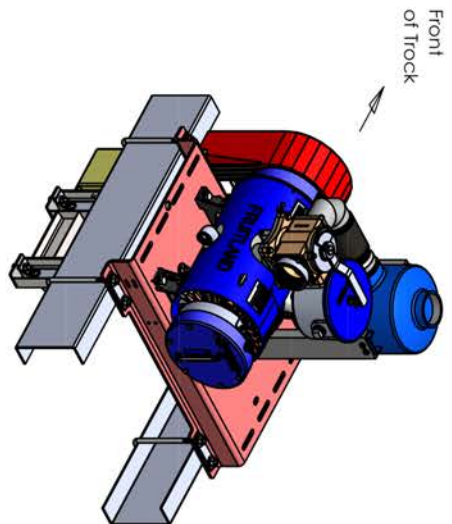
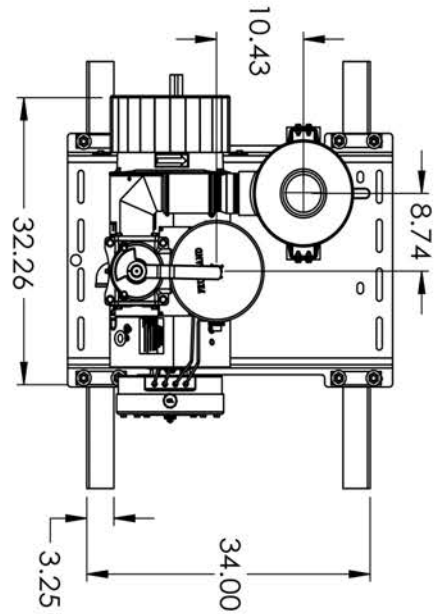
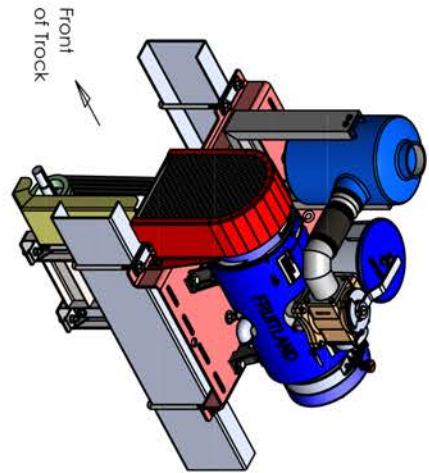


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REF. DWG# ELIMA - SM 870 LUF



ELIM A-SM870LUF Parts List Continued

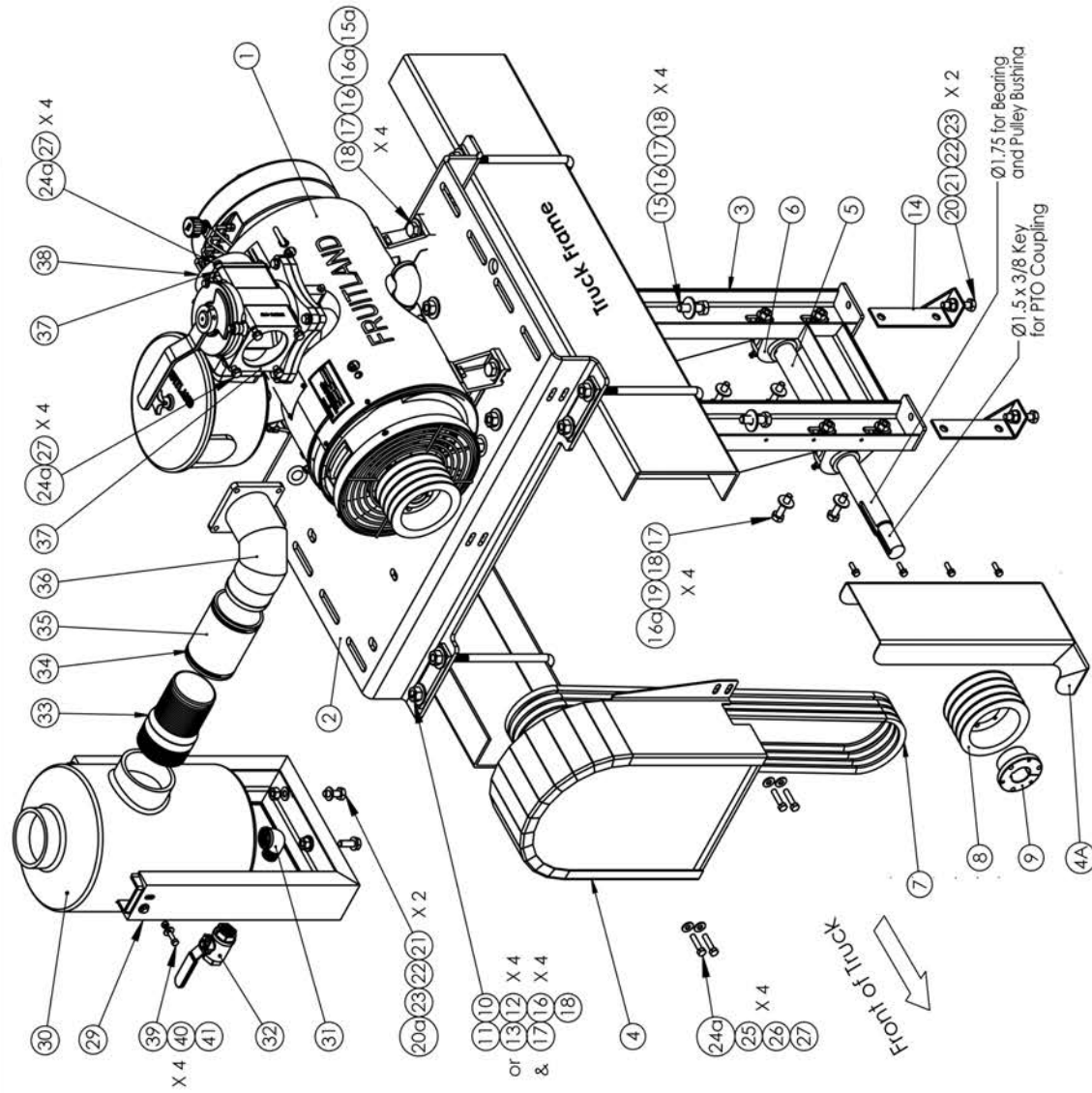
ITEM#	PART #	DESCRIPTION	QTY
1	870LUF	Vacumm Pump	1
2	RF870-SC	Pedestal Frame	1
3	RF870-S14	Secondary Shut-Off (See Parts Below)	1
4	RF870-M14	Muffler (See Parts Below)	1
5	ADM14	Angle Drive Mount	1
6	RF500-GB400	Right Angle Gear Box	1
7	F14	Flange Muffler Side	1
8	F14	Flange Secondary Shut-Off Side	1
10	4" Rubber Hose	Ø4" Rubber Hose	1
11	4" Rubber Hose	Ø4" Rubber Hose For Secondary	1
12	HDM14	Hydraulic Motor Mount	1
13	Maxi-Clamp	Maxi-Clamp	4
14		Customer To Specify Coupling Size	1
Secondary Shut-Off Parts			
	S14-A-04	6" Stainless Steel Ball (Internal)	1
	S14-A-12	Rubber Seat For Ball (Internal)	1
	S14-A-13	Rubber Gasket For Ball Cover (Internal)	1
	S14-A-20	3"-5" Hose Clamp For Ball Seat (Internal)	1
S5	PRV-2"	Pressure Relief Valve 2" NPT	1
S6	VB	Vacuum Relief Valve 1-1/2" NPT	1
S7	PVG-2.5	Compound Gauge 2.5' 30"VAC-30PSI	1
S8	S09-A-14	1 1/2" Ball Valve	1
Muffler Parts			
	M14-07	Exhaust Plate Gasket (Internal)	1
	M09-F1	"Filter Mesh - Washable Filter Cartridge	1
M3	M09-A-07	1" NPT Ball Valve	1



PART # ELIM-TBRM870LUF
(Regular Installation Kit)
ELIM-TBMM870LUF
(Mock Installation Kit)

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REF. DWG# ELIM-TBRM870LUF





PART # ELIM-TBRM870LUF
(Regular Installation Kit)

ELIM-TBMM870LUF
(Mack Installation Kit)

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REF. DWG# ELIM TBRM870LUF-BOM

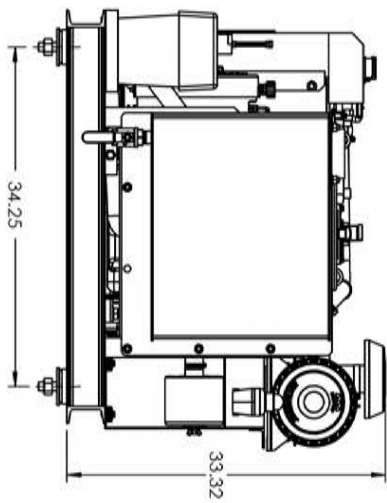
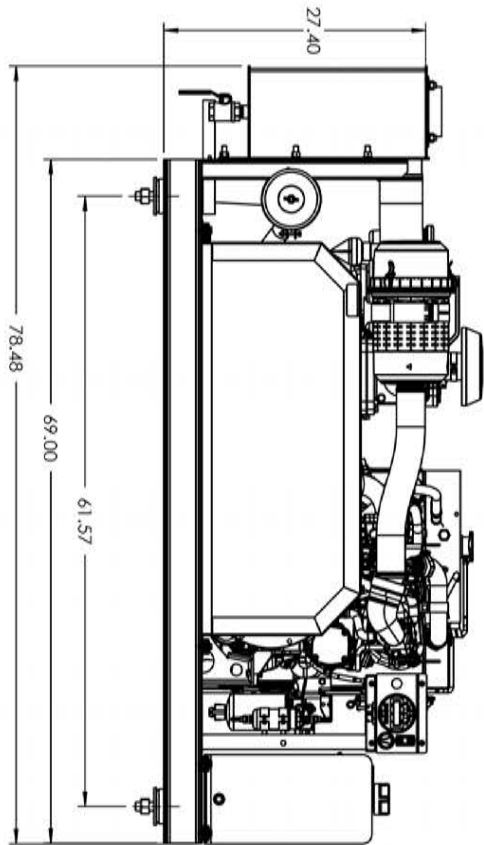
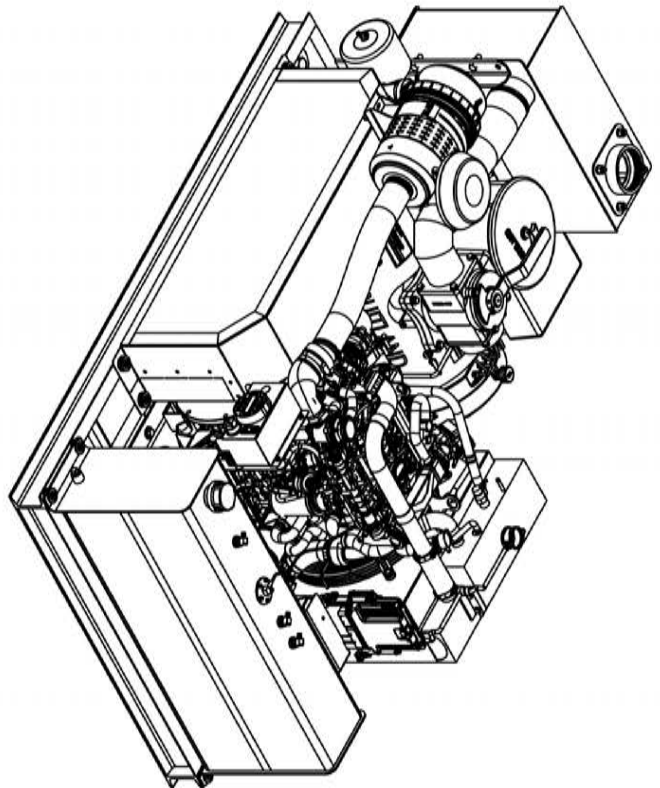
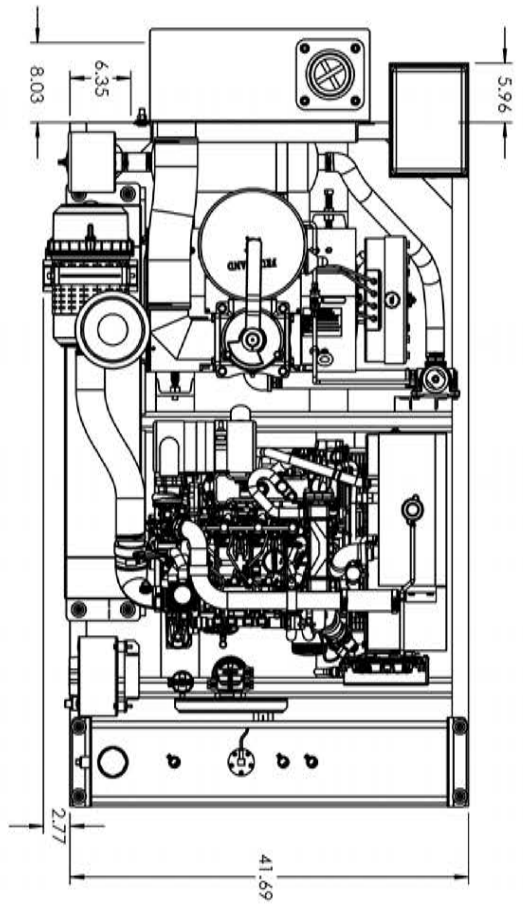


ELIM TBRM870LUF Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	870-LUF	Vacuum Pump (SOLD SEPERATELY)	1
2	TFM-870-01	Top Frame Mount Base	1
3	TFM-11-02v2	Top Mount Shaft Bracket Ver. 2	1
4	TFM-870-BG	Top Mount Belt Guard 870	1
4A	TFM-LG	TFM Lower Belt Guard	1
5	TFM-11-08	Jack Shaft, Ø 1 3/4", 3/8" keyway	1
6	TFM-11-A1	1 3/4" Pillow Block Bearings w collar	2
7		B81 (or BX81) V Belt	4
8	RF-500-38	4 Groove, 6" Sheave	2
9	SK1.75	1-3/4"Ø SK BUSHING	1
14	TFM-11-07	Shaft Adjustment Bracket	2
15	5/8"x2" HEX HEAD	5/8" NC 2" Long Zinc Plated Hex Head Bolts	4
15a	5/8"x2-1/4" HEX	5/8" NC 2.25" Long Zinc Plated Hex Head Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
16a	5/8" F/W-SAE	5/8" Zinc Plated Flat Washer, Small	8
17	5/8" L/W	5/8" Lockwasher	12
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	12
19	5/8"x2-1/2" HEX	5/8" NC 2.5" Long Zinc Plated Hex Head Bolts	4
20	1/2"x 3-1/4" Hex	1/2" NC 3.25" Long Zinc Plated Hex Head Bolts	2
20a	1/2"x 1-1/2"	1/2" NC 1.5" Long Zinc Plated Hex Head Bolts	2
21	1/2" Flat Washer	1/2" Zinc Plated Flat Washer	4
22	1/2" L/W	1/2" Lockwasher	4
23	1/2" NUT	1/2" Zinc Plated NC Hex Nuts	4
24a	RF500-67A	10mm Hex Head Bolt M10 X 30mm	12
25	RF500-308	10mm Plain Washer	8
27	RF120-94A	10mm Lock Washer	12
28	SK 42	Taper Bushing 42mm	1

ELIM TBRM870LUF Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
29	TFMJ-870-02	TFMJ Mafler Bracket 870	1
30	M02-4	Muffler	1
31	CVSP-3100-	Elbow 1" Street	1
32	M09-A-07	1" NPT Ball Valve	1
33	4"NPT BARB	4" Hose Barb to NPT Nipple	1
34	Maxi-Clamp	Maxi-Clamp	2
35		4" I.D. Rubber Hose	6 in
36	F14	Elim870 4" Flange	1
37	RF870-65	Pump Flange Gasket	2
38	RF870-4NPT	4" NPT Flange for Diverter	1
39	5/16"x1"-BOLT	5/16" NC 1" Long Zinc Plated Hex Head Bolts	4
40	5/16" F/W	5/16" Zinc Plated Flat Washer	4
41	5/16" Nylock Nuts	5/16" Nylon Insert Locknut	4
Part # TFM-11R, Regular Installation Kit			
10	TFM-11-A3	3-1/2" U Bolt, Ø5/8-11 NC	4
11	TFM-11-09	Tie Bar Plates for 3-1/2" U Bolts	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
17	5/8" L/W	5/8" Lockwasher	8
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	8
Part # TFM-11M, Mack Truck Installation Kit			
13	TFM-11-A5	Tie Bar Plates for 4-3/16" U Bolts Mack Only	4
16	5/8" F/W-USS	5/8" Zinc Plated Flat Washer, Large	8
12	TFM-11-A4	4-3/16" U Bolt Ø5/8-11 NC for Mack Only	4
17	5/8" L/W	5/8" Lockwasher	8
18	5/8" Nut	5/8" Zinc Plated NC Hex Nuts	8

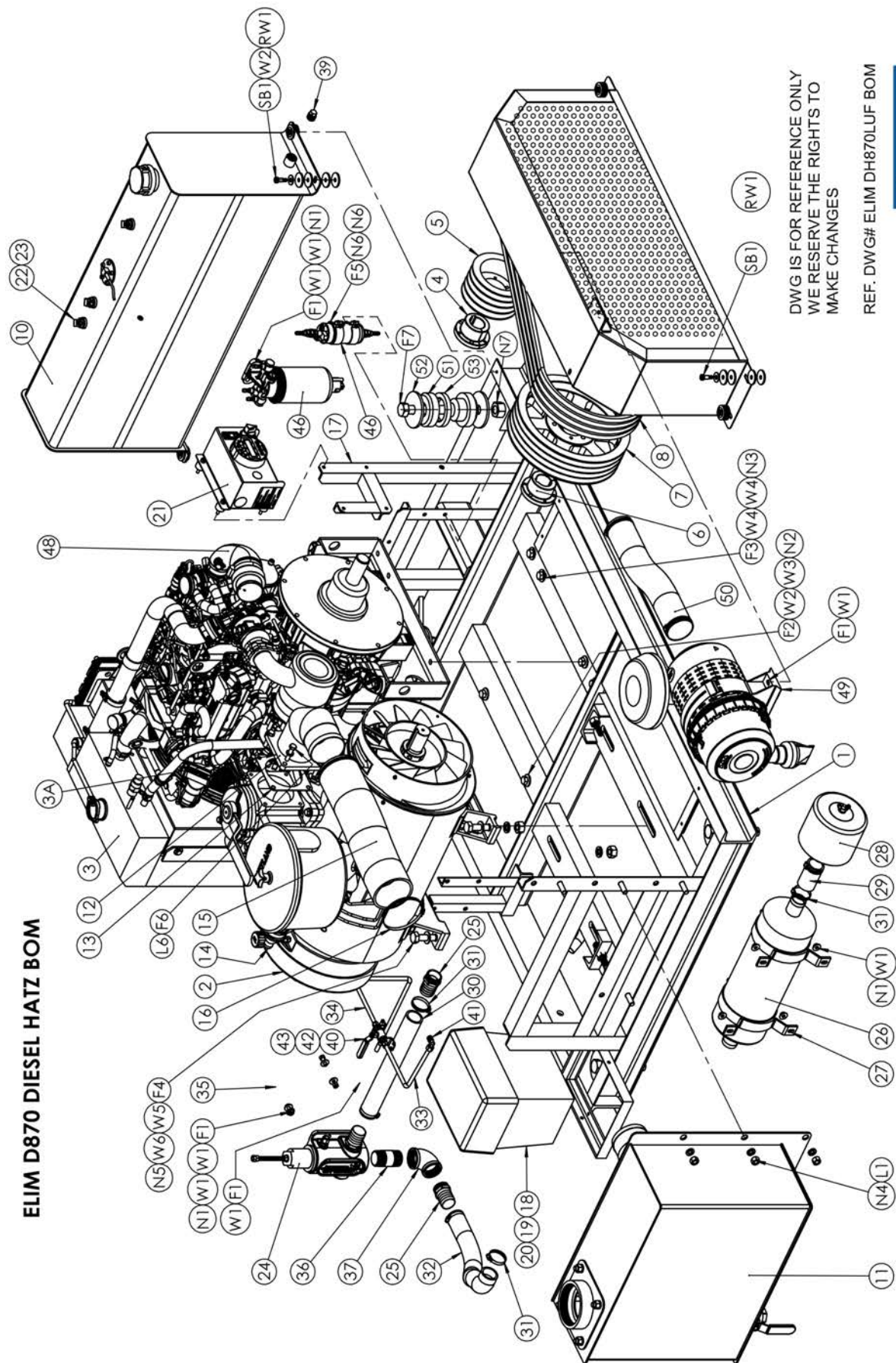


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REF. DWG# ELIM DH870LUF



ELIM D870 DIESEL HATZ BOM



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REF. DWG# ELIM DH870LUF BOM



ELIM D870 Hatz Parts List

ITEM#	PART #	DESCRIPTION	QTY
1	EDJ870-01C	ELIM DJ870 HATZ BASE FRAME	1
2	870LUF	870 VACUUM PUMP	1
3		HATZ DIESEL ENGINE	1
3A		ELIM D (HATZ) MUFFLER EXTENTION	1
4	ED-12-A4	SK 1.5" BUSHING	1
5	RF500-38	6" SHEAVE 4 GROOVE B SECT.	1
6	SF42	TAPER PUMP BUSHING - 42mm BORE	1
7	5B12.4L	SHEAVE 12.4 SF 4 GR. B SECT.	1
8	ED-870-A1	B70 V-BELT	4
9	ED-19-02	BELT GUARD	1
10		DIESEL FUEL TANK	1
11	RF870-M14	MUFFLER M14	1
12	FL14	ELIM 870 4" FLANGE	1
13	RF870-65	DIVERter GASKET FOR RF870	1
14	VB	1-1/2" VACUUM RELIEF VALVE	1
15	4" BLOWER HOSE	SRL-64 4" TANK HOSE (BLACK WITH BLUE STRIPE) , 15.25"	1
16	MKL-121-SP	4" HOSE CLAMP, MIKALOR M8 113-121MM	2
17	ED-12-07	ED CONTROL PANEL BRACKET	1
18	ED-12-A5	BATTERY	1
19	ED-19-01	BATTERY BOX	1
20		BATTERY HOLD DOWN KIT	1
21	ED-12-CP	CONTROL PANEL FOR AN ELIM DIESEL	1
22	EDF-12-A11	5/16" I.D. DIESEL FUEL HOSE 2FT	3
23	EDF-12-A12	5/16" HOSE CLIP	5
24	RF870-AI	AIR INJECTION VALVE ASSEMBLY (FOR 870 PUMP)	1
25	1.25" NPT-BRB	BARBED FITTING 1.25 NPT -1.5 BARB HOSE	2
26	M14-AI	AIR INJECTION MUFFLER	1

ELIM D870 Hatz Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
27	M14-AI-B	AIR INJECTION MUFFLER BRACKET	2
28	AI-870-F	AIR INJECTION FILTER	1
29	1.5" HOSE EXFL	1.5" HOSE GOODYEAR PLICORD EXTREMEFLEX, 4" LG	1
30	1.5" HOSE EXFL	1.5" HOSE GOODYEAR PLICORD EXTREMEFLEX, 13" LG	1
31	1.5" HOSE CLIP	1.5" HOSE CLAMP,M8 HEX BOLT, 52-55mm	8
32	1.5" HOSE EXFL	1.5" HOSE GOODYEAR PLICORD EXTREMEFLEX, 26" LG.	1
33	AI-870-83	SS BRAIDED HOSE 1/4" NPT 14" LONG	1
34	AI-870-84	SS BRAIDED HOSE 1/4" NPT, 23" LONG	1
35	ED-20-05	AI VALVE BRACKET	1
36		NIPPLE 1-1/4" NPT 3.0" LG.	1
37	AI-870-5A	ELBOW 90 DEG. 1.25" NPT (FIMALE X FIMALE)	1
39	1/2" NPT PIPE PLUG	1/2" NPT PIPE PLUG	1
40	DBV31-B	1/4" BALL VALVE	1
41	RF250-32A	90° BRASS ELBOW 1/4" NPT MF	1
42	AI-870-81	BALL VALVE HOLDER HEX	1
43	AI-870-82	BALL VALVE HOLDER ROUND	1
46		ELECTRIC FUEL PUMP	1
47		FUEL PREFILTER	1
48		RUBBER ELBOW FOR AIR FILTER HOUSING (HANZ)	1
49		AIR FILTER HOUSING (HANZ DIESEL)	1
50		FILTER HOSE (HANZ)	1
51		ELIM D MOUNTS, TWO PIECE (DWG# ED-870-VBM-INST)	4
52		ELIM D MOUNT REBOUND WASHER	8
53		SPACER FOR VIBRATION MOUNT ELIM-Ds	4

ELIM D870 Hatz Parts List Continued

ITEM#	PART #	DESCRIPTION	QTY
FASTENERS			
F1	5/16" X 1" HEX BOLT	5/16" NC x 1" LG. Z.P. HEX BOLT	10
W1	5/16" WASHER	5/16" Z.P. FLAT WASHER	20
N1	5/16" NLYOCK NUTS	5/16" NC NYLOCK HEX NUT	8
F2		3/8" NC HEX HEAD BOLT, 1.25" LG.	2
W2	3/8"F/W-SAE	3/8" Z.P. FLAT WASHER - SMALL	10
W3	3/8"F/W-USS	3/8" Z.P. FLAT WASHER - LARGE	2
N2	3/18" NLYOCK NUTS	3/8" Z.P. NYLOCK HEX NUT	2
F3	1/2" X 1-1/2"	1/2" UNF x 1-1/2" LG. Z.P. HEX BOLT	4
W4	1/2" FLAT WASHER	1/2" Z.P. FLAT WASHER	8
N3	1/2" NY-LOCK NUTS ZP	1/2" Z.P. NYLOCK HEX NUT	4
F4	5/8"X2-1/4" HEX HEAD	5/8" NC x 2-1/4" LG. Z.P. HEX BOLT	4
W5	5/8" F/W-USS	5/8" Z.P. FLAT WASHER - LARGE	4
W6	5/8" F/W-SAE	5/8" Z.P. FLAT WASHER - SMALL	4
N5	5/8" NYLOCK NUTS	5/8" Z.P. NYLOCK HEX NUT	4
F5		8mm HEX HEAD BOLT, 8x1.25x??	2
N6		8mm HEX NUT	4
F6	RF500-67A	10mm HEX HEAD BOLT, 10x1.5x30	4
L7	RF120-94A	10mm LOCK WASHER	4
SB1		3/8" x 5/8" WITH 5/16"-18 NC SHOULDER BOLT	8
RW1	ED-16-03	ED FRAME RUBBER WASHERS	32
F7		7/8"-14 NF x 5.5" LG. HEX BOLT GRADE 8	4
N7		7/8"-14 NF NYLOCK HEX NUT	4

PUMP WARRANTY

1. **WARRANTY POLICY — WHAT WE COVER:** Subject to the terms of this warranty (the “WARRANTY”), vacuum pumps (the “PRODUCT”) manufactured by R.T. Hamilton and Associates Ltd. (FRUITLAND MANUFACTURING) are warranted to be free from defects in material and workmanship for a maximum period of two (2) years from the date of shipment to Buyer. THIS IS THE SOLE AND EXCLUSIVE PRODUCT WARRANTY GIVEN BY FRUITLAND MANUFACTURING TO BUYER AND IS IN LIEU OF, AND EXCLUDES, ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. COMPONENTS WHICH MAY BE SUPPLIED AS PART OF AN ASSEMBLY, OR SPARE PART(S), AND NOT MANUFACTURED BY FRUITLAND MANUFACTURING ARE LIMITED ONLY TO THE WARRANTY EXTENDED BY THE MANUFACTURER(S) OF THE COMPONENT(S).
2. **WARRANTY CLAIMS — HOW WE RESPOND TO WARRANTY ISSUES:** In the event of a defect in a PRODUCT covered by this WARRANTY, FRUITLAND MANUFACTURING shall repair or replace the affected PRODUCT, or components of the affected PRODUCT, at its sole discretion. This is the BUYER'S sole and exclusive remedy. BUYER shall comply with FRUITLAND MANUFACTURING's WARRANTY Claims Process in order to enforce this WARRANTY.
3. **WARRANTY EXCLUSIONS — THINGS THAT WILL RESULT IN LOSS OF WARRANTY COVERAGE OR WHICH ARE NOT COVERED:**
 - a. This WARRANTY shall be void if:
 - i. BUYER fails to maintain the PRODUCT through proper care and maintenance procedures;
 - ii. BUYER fails to operate and/or use the PRODUCT in the manner in which it was intended, and in accordance with the PRODUCT manual(s), or otherwise misuses or abuses the PRODUCT;
 - iii. BUYER fails to notify FRUITLAND MANUFACTURING of a PRODUCT defect covered under this WARRANTY within 72 hours of discovery of the defect, or fails to cooperate with FRUITLAND MANUFACTURING in investigating the PRODUCT defect;
 - iv. Personnel who have not been approved by FRUITLAND MANUFACTURING make repairs or modifications to the PRODUCT;
 - v. Replacement parts that have not been approved by FRUITLAND MANUFACTURING are used in the PRODUCT; or
 - vi. BUYER fails to pay for the PRODUCT in full.
 - b. Damage to the PRODUCT arising from extreme weather conditions or affixing equipment or materials to the PRODUCT that have not been approved by FRUITLAND MANUFACTURING, is not covered by this WARRANTY. LIMITATION OF DAMAGES: FRUITLAND MANUFACTURING SHALL HAVE NO LIABILITY TO BUYER OR OTHERWISE ARISING FROM, OR IN ANY WAY CONNECTED TO, THE PRODUCT, INCLUDING ITS SALE, USE OR OPERATION, EXCEPT AS EXPRESSLY SET OUT HEREIN. IN NO EVENT SHALL FRUITLAND MANUFACTURING BE LIABLE FOR LOST PROFITS OR FOR SPECIAL, CONSEQUENTIAL, EXEMPLARY OR INCIDENTAL DAMAGES OF ANY KIND WHETHER ARISING IN, CONTRACT, TORT, PRODUCT LIABILITY, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF FRUITLAND MANUFACTURING WAS ADVISED OF THE POSSIBILITY OF SUCH LOST PROFITS OR DAMAGES. IN NO EVENT SHALL FRUITLAND MANUFACTURING BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE TOTAL PRICE PAID BY BUYER FOR THE PRODUCT. BUYER HEREBY WAIVES ANY CLAIM THAT THE EXCLUSIONS OR LIMITATIONS IDENTIFIED HEREIN DEPRIVE IT OF AN ADEQUATE REMEDY OR CAUSE THIS OR ANY OTHER AGREEMENT WITH FRUITLAND MANUFACTURING TO FAIL OF ITS ESSENTIAL PURPOSE.



NOTICE - WARRANTY CLAIM

In the event of pump failure while the pump is still under warranty, pumps are to be returned to factory without dismantling or other alterations for warranty assessment. Violation of this condition will void warranty. All shipping costs are the customer's responsibility.

Model Number

Thank you for purchasing a Fruitland Rotary Vane Vacuum Pump. Our quality control program has been developed to ensure this vacuum pump and its components are free from defects in materials and workmanship. With proper maintenance and operation your Fruitland pump should give many years of trouble free use.

Please read the owner's manual completely before operating your new Fruitland pump.

SERVICE NOTE

USE GENUINE FRUITLAND PARTS ONLY!

If you have any questions, or require further information on installing, operating and or the maintenance of your vacuum pump contact:

1-800-663-9003 - info@fruitland-mfg.com - sales@fruitland-mfg.com

Warranty Registration

Please fill out this page, make a copy and send to the factory at *sales@fruitland-mfg.com* to register this pump for warranty.

This is the Serial Number of your Pump:

Preface

This Manual is given with your pump to help operators and owners understand the working and maintenance of your newly acquired unit.

Please familiarize yourself and any operator with the contents of this booklet. Keep a record of the serial number handy, in case you need any parts or information in the future.

We at Fruitland are committed to quality, reliability, and guaranteed performance.

Purchased From: (Dealer’s Stamp)

Date:

.....

MM / DD / YY

Notes



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**Attention: Read owner's manual fully before operating pump.
Failure to do so can result in personal injury, severe pump damage and may
void warranty.**

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www.fruitlandmanufacturing.com