Edson **ELECTRIC POWERED DIAPHRAGM PUMP MODEL 134ES**

Installation and Operations Manual

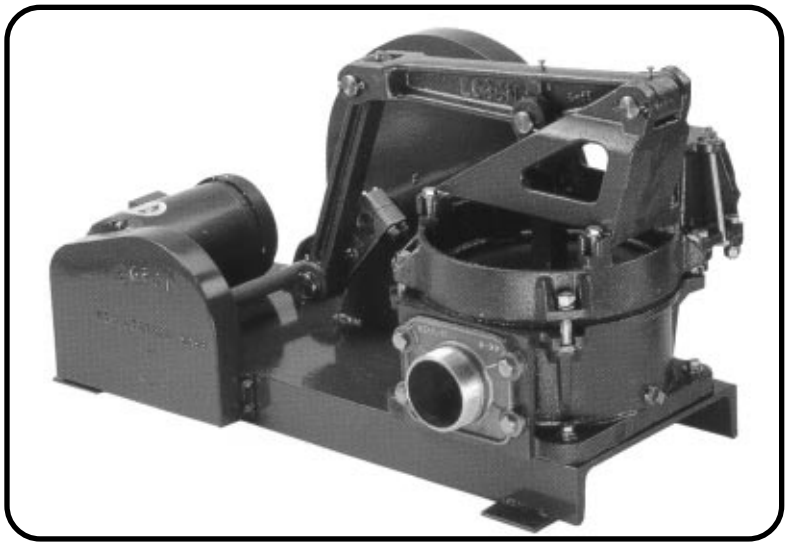
Index:

The Pump

A Model 134ES is built with different options that effect performance and service.

- Make sure the pump received is the pump ordered. Compare the pump with the packing list.
- Make sure the parts list attached to this manual is the one for your pump.
- Fill in the important pump information below.

Turn to Page 6, Pump Construction Information, for details on comparing the pump with the Order #.



Enter Pump Data Here

Pump Serial #: _____

From Packing Slip & On Edson Serial # Sticker Attached to Pump Frame

Pump Drive: _____

From Motor Legend Plate ie... 2hp, 3 ph, 208-230/460 volt, 60 hz, 1725, 145T frame, TEFC Motor

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Performance & Specifications

Pump Performance Is Dependent On Cycle Rate & Installation Head:

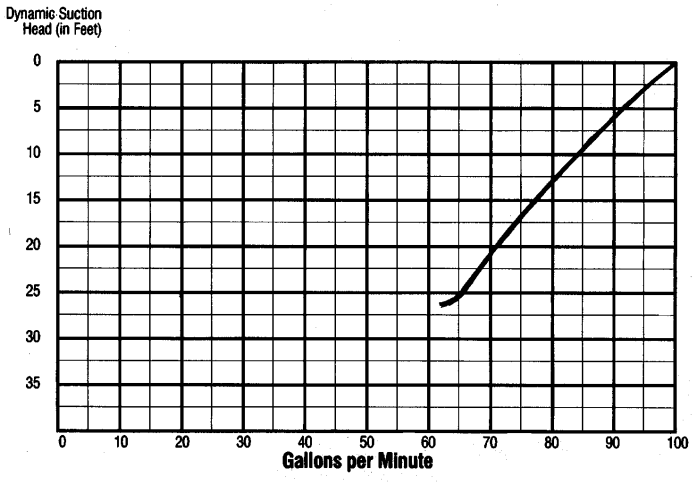
- A 2 HP motor through a series of RPM reducing spur gears, drives a rocker arm assembly that raises and lowers the pump diaphragm at a speed that can not exceed 60 cycles per min.. The magnesium bronze crank arm is equipped with three mounting positions that adjusts the volume output of the pump by reducing the stroke of the rocker arm on the diaphragm. Each reduction lowers the volume output of the pump by approximately 25%.
- Volume is expressed in GPM (gallons per minute) and LPM (liters per minute)
- Cycle Rate is the rpm of the motor divided by the ratio of the reduction. 1725 rpm / 31= 56
- Head conditions are determined by the height, length and size of the installation plumbing to and from the pump and the viscosity of the liquid.

General Specifications:

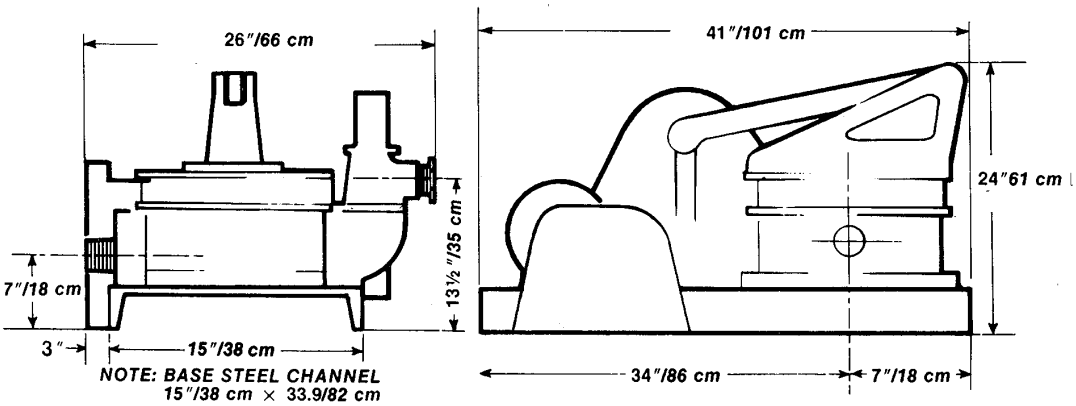
- Static Suction Head: 25 ft. / 7.62 m. Discharge Head: 25 ft / 7.62 m.
- Dry Suction (actual height): 20 ft. / 6.1 m.
- Continuous Duty Discharge Heads: Should be Limited to 10 ft. / 3m
- Performance: Maximum Volume: 130 GPM / 492 LPM at 56 cycles/min. at 4 ft Suction Lift and 0 Discharge at 56 Cycles per Min. w/ 4" Pipe

Pump Curve:

- Use this as a guide to determine the performance to expect from the pump you are installing. Volumes are based on the suction height, discharge height and speed while pumping water through 4" pipe. Actual performance will vary based on length of the plumbing and the viscosity of the liquid being pumped.



Dimensions



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Installation Guidelines

WARNING

Motors Must Be Wired By A Licenced
Factory Installed Motors Do Not Come Wired.

Motors Must Be Wired By A Licenced Electrician In Compliance With Standard Industrial Electrical Codes and Local Electrical Codes.
Failure to Do So Can Result In Bodily Injury, Fire And Damage To The Pump

First Things First:

- Check All Bolts - Make sure that all bolts on the pump are tight. See Parts Drawing pgs.10 & 11
- Check Spur Gear Alignment - See Maintenance & Parts Drawings pgs. 7, 10 &11
- Check and grease gears and bearings as required - See Maintenance & Parts Drawings pgs. 7, 10 &11
- Plumbing Fittings - Use only large radius elbows, See fig 2.. See Plumbing pgs. 4 & 5.
- Install for Maintenance - Install the pump in a manner that allows easy access for inspection & maintenance. Connect plumbing to the pump using unions or easily removed couplings.
- Keep The Pump Horizontal - The pump is designed to be installed on a relatively horizontal surface. If the mounting surface is not horizontal, the discharge should always be higher than the inlet. If not installed accordingly the check valves will not work. The pump base can be rotated 180^0. See Fig 3

Fig.2

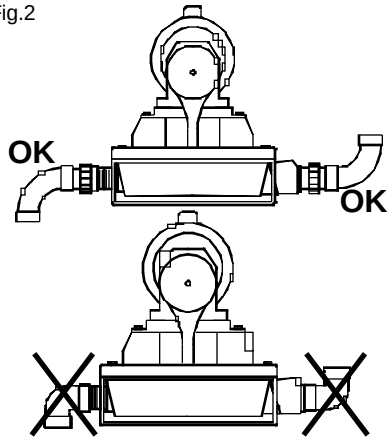
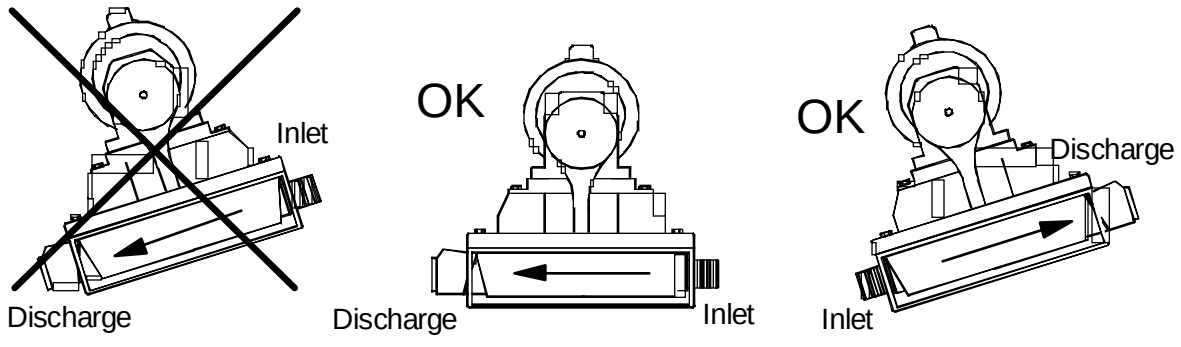


Fig.3



Important Plumbing Do & Don'ts (General for All Pumps)

- DO NOT SHUT OFF DISCHARGE WHEN THE PUMP IS RUNNING. See Fig 4 - Do not place the pump in a situation were the discharge line will be closed while the pump is running.
  BECAUSE the Edson pump is a positive displacement pump and it will continue to try to pump liquid through a closed line. The pressure created will cause damage to the pump.
- DISCHARGE FITTINGS, PIPE AND HOSE SHOULD ALL BE THE SAME SIZE AND NEVER BE SMALLER THAN THE INLET. See Fig. 5
  BECAUSE a smaller discharge line increases work for the pump and increases the possibility of clogging.
- DO NOT INSTALL THE PUMP AND PLUMBING SO AIR WILL BE TRAPPED. See Fig. 6
  BECAUSE trapped air can completely restrict the flow or at the least require more work from the pump resulting in early diaphragm failure. Install pump and plumbing so any air introduced into the plumbing will not be trapped but flow naturally through liquid and out of the system.
- SHOULD NOT INSTALL PUMP WITH POSITIVE HEAD ON THE INLET See Fig. 7 - Under standard operating guidelines the pump should be above the liquid it is being used to transfer.
  BECAUSE of the flow through check valves, stopping the pump will not stop the liquid from flowing. Under the force of gravity liquid will pass right through a diaphragm pump. Also consider a diaphragm pump can not control a siphon condition. They are used many times to start one.

Use Only Non Collapsing Hose and Pipe On the Inlet and Discharge of the Pump

Fig.4

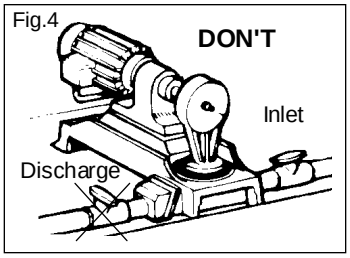


Fig.5

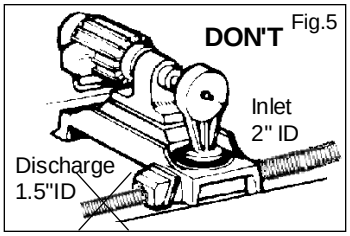


Fig.6

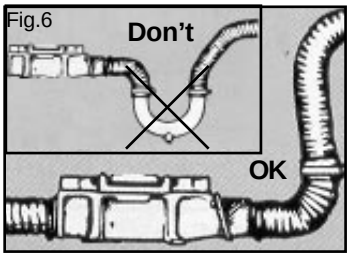
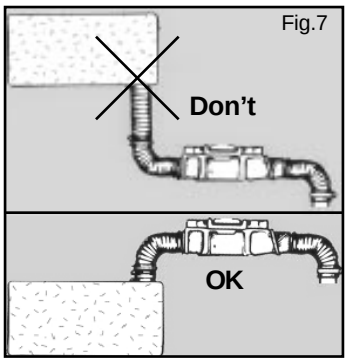


Fig.7



Self Priming:

The 134 Pump will develop a dry start vacuum of 18 to 20 inches of mercury, equal to a height of approximately 20'. After the pump is primed the vacuum pressure will increase to 22" hg or more. The self priming feature depends on:

- An air tight suction line.
- The flapper check valves sealing properly.

Fig.8

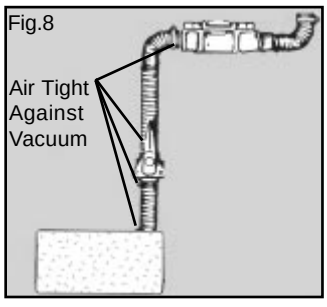


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Fig.9

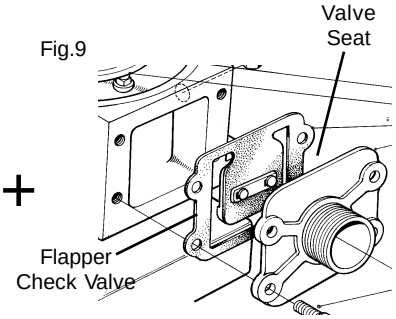

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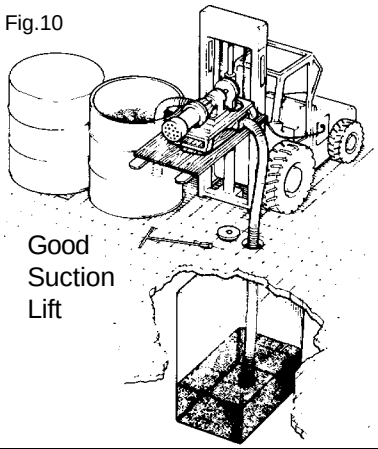
Fig.10



Operation

Running The Pump Dry:

The 134 Pump will run dry indefinitely without damage.

Pumping Liquids with Suspended Solids: (General for All Pumps)

- KEEP SOLIDS IN SUSPENSION- When the pump is used to pump solid matter such as sludge at the bottom of a tank or to dredge out a section of a lagoon make sure the solids have enough liquid mixed in to allow it to flow. Raking or stirring while the pump is pumping will keep solids in suspension. Rule of thumb in pumping viscous liquids or combinations of liquids with solids, "If It Will Not Flow Through A Line Under Gravity, The Pump Will Most Likely Not Pump It." See Fig.11

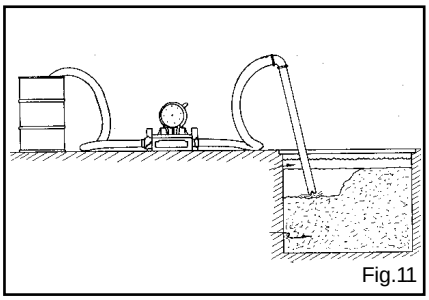


Fig.11

- FLAPPER CHECK VALVES AND SOLIDS - Solids trapped under the check valves will prevent self priming. This is likely to occur when the pump is used in sewage or sump pump out applications . Flushing with water will generally clear out the solid matter. Installing secondary flapper check valves right at the inlet and discharge will improve the dry suction start performance of the pump and make clearing the valves easy.

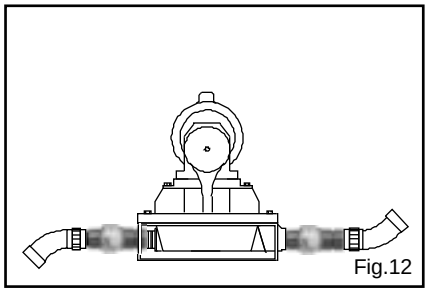


Fig.12

- PUMPING AT THE PROPER SPEED - When pumping liquid with solids the speed may be too slow to keep the solids and the liquid combined. The solids will stop moving and begin to clog the line. Pumping at a faster rate or decreasing the hose size to increase velocity may be the solution. Check With Edson Customer Service.

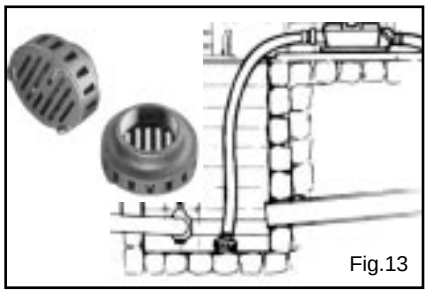


Fig.13

- USING A STRAINER ON THE INLET - If the solids are too large they will block the inlet or get stuck in the suction line. The end of a suction hose can become attached to a flat surface cutting off all flow. Using an Edson strainer will prevent these conditions. Order an Edson Shattedproof Bronze Strainer 111BR - 400
  See Fig.13

- USING A DISCHARGE LOOP - For sewage and sump applications when the discharge drains naturally down and away from the pump, installing a 8” to 10” positive loop right on the discharge port will improve the self priming feature. When you stop pumping the loop traps some liquid against the discharge valve improving the seal. See Fig.14 **Important:Only for Continuous Negative Discharge Conditions**

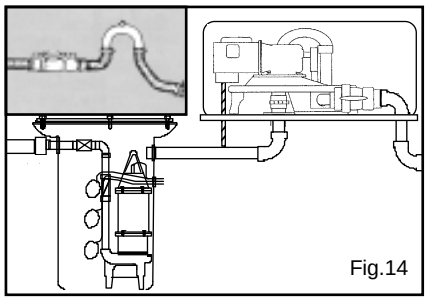


Fig.14

How The Pump Works (General for All Pumps)

- The motor drive the gears and crank arm move the rocker arm up and down.
- The rocker arm raises and lowers the diaphragm.
- Raising the diaphragm creates a vacuum. See Fig.15
- The vacuum pulls the discharge valve assembly closed.
- Atmospheric pressure pushes liquid and/or air up the inlet plumbing to fill the vacuum.
- When the diaphragm is driven down the air and liquid under the diaphragm is compressed closing the inlet check valve and forcing the air and liquid out the discharge.Fig.16
- The closing of the inlet valve assembly also prevents the liquid and air trapped in the inlet line from dropping back down (to atmosphere).

Suction Stroke

Inlet Valve Assembly: opens into the pump.
Discharge Valve Assembly: closes and seals on the valve seat that is part of the pump base under the discharge chamber.

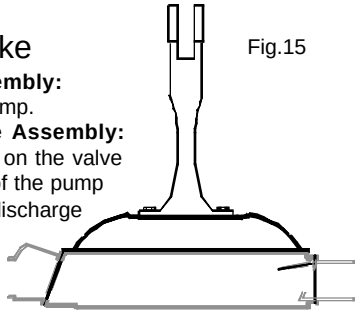


Fig.15

Discharge Stroke

Discharge Valve Assembly: opens away from the pump.
Inlet Valve Assembly: closes and seals on the valve seat that is part of the inlet chamber.

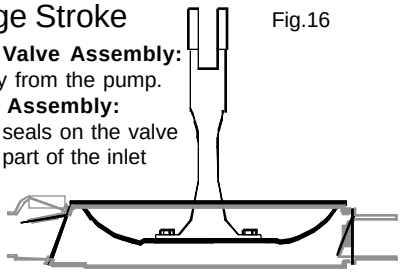


Fig.16

134E Pump Construction:

- Cast Iron pump body mounted on a steel skid.
- Nitrile diaphragm and values.
- Stainless steel hardware.
- Inlet: 4.0" Male NPT - Discharge: 4.0" Female NPT.
- 2 HP TEFC three phase 220/440 Volt motor is standard.
- Options: A Specified Motor ie. Explosion-proof motor, 50 hz etc.

Pump Speed: The following guidelines apply for this pump.

- Maximum Cycle Rate is 60 RPM on the Crank Arm Drive Shaft (Part # 38 page 10).
- Reducing pump speed and / or reducing stroke length as head conditions increase will reduce the shock load to the diaphragm and gears. This will result in longer life for these parts.
- 3” ID plumbing requires pump speeds under 45 RPM.
- Small suction lines under 3” ID should not be used.
- The higher the back pressure the slower the pump RPM.

Maintenance

Warning
Lock Out Electrical Service or Unplug the Pump Electrical Line Before Performing Any Service.
Failure to Do So Will Result In Bodily Injury

Gear Drive: The 134 Pump uses spur gears and drive shafts to reduce the speed of the motor. These gears and the bearings that support the drive shafts require grease. These parts will wear and will require replacement. Use the following guidelines.

- Motor - Use standard industrial practices.
- Check gears for alignment and for grease prior to start up and after 1st 10 hours of operation. Inspection on a regular bases is recommended. For continuous duty application, inspect the pump daily until a life pattern is established. Life expectancy is directly related to head conditions and run time. The higher the suction and discharge pressures the shorter the life.
- Gear Alignment Check - insure electricity to the pump is turned off. Remove the crank arm pin (Part # 33 page 10). Rotate the gear assembly by turning the crank arm (Part # 35a page 10). Listen and feel for smooth movement. New gears make noise that will reduce some with wear.
- Gear Replacement - Use Parts Drawings pages 10 & 11 to identify parts referred to in the instructions.

Warning
Lock Out Electrical Service or Unplug the Pump Electrical Line Before Removing Cover.
Failure to Do So Will Result In Bodily Injury

a. Remove Gear Guard Cover D5A and Gear Guard C-187.
b. The large Spur Gear, D-15, is fixed.
c. Begin alignment with aligning A-221 on counter shaft B-155 to large Spur Gear D-15 by loosening Pillow Block Bearing bolts A-255.
d. installed back lash for A-221 and D-15 Spur Gear is .004 5o .005 measured half way up pitch centerline.
e. Tighten Pillow Block Bearing bolts
f. Loosen electric motor mounting bolts and adjust A-286 Spur Gear to B-140 Spur Gear on opposite end of counter shaft B-155.
g. Installed back lash for A-286 and B-140 Spur Gear is .003 to .004 measured half way up pitch centerline. (See Part Drawing Section IV)
h. Grease gears
i. Install all covers and guards.

Bearings and Bushings: Check for tightness and grease regularly.

- 2 Timken Bearings (Part #s 23 & 25 page 10). Repack the bearing tube periodically. If tightening is required see Installation of D-15 gear below.
- 2 Pillow Block Bearings (Part #s 10 & 40 page 10).
- 4 Bronze Bushings (Part #s 30, 32 & 58 page 10).

Installation of D-15 Gear (Part # 7 page 10):

a. Remove worn or damaged gear by removing wire ties between A-280 Hex Head Lock Screw and spokes of D-15 Gear.
b. Unscrew A-280 Hex Head Lock Screw and remove lockwasher and thick A-286 flat washer
c. Remove gear from drive shaft. Note: 3/8 x 2-1/4" key should be saved for new gear installation.
d. Install new D-15 gear by reversing steps a through c above. Insure gear alignment and make sure to rewire Hex Head Lock Screw to gear spoke.
e. Gear Alignment - if the small Gear A-221 attached to the engine gear box does not mesh per assembly drawing in manual, loosen motor mounting screws and fit small Gear A-221 to large gear and retighten motor mounting screws

Diaphragm: Edson 134 Pumps use a Nitrile Diaphragm and 2 Flapper Valves. these parts wear and will need replacement. The ability to easily and quickly replace these inexpensive parts is one of the major advantages of an Edson diaphragm pump. Edson has packaged these parts as a Spares Kits. See Parts Drawing and Parts List Pages 11 & 12

- Change the diaphragm as required. See Parts Drawing Page 11.
- Inspection and testing on a regular basis is recommended. For continuous duty application, inspect the pump daily until a life pattern is established.
- Look for leaks, cracks or splits on the surface of the diaphragm.
- Life expectancy is directly related to head conditions, run time and diaphragm material. The higher the suction and discharge pressures the shorter the life.

Valve Assemblies & The Valve Seats: The sealing of the flapper valves are what makes the diaphragm pump work. If the valves are not sealing properly, the pump will not be performing to full potential or may not be pumping at all. When you change the diaphragm inspect the valves for cracks and delamination and the valve seats for pitting and build up that will prevent the valve rubber from sealing effectively.

- Change the valve assemblies as required. See Parts Drawing Page 11.

Step 1. Unbolt the Inlet and the Discharge Chamber.	**Step 2.** Inspect Valve Seats. Surfaces should be smooth, flat and free of foreign matter.	**Step 3.** Resurface, if necessary. Use a flat belt sander or medium grade emery cloth wrapped on a flat piece of wood. It is important that the valve seat area remains flat.	**Step 4.** Install New Valves. Insure Valve Weight Screws are Tight and Valves are Oriented Properly.

- Inspection and testing on a regular bases is recommended. For continuous duty application, inspect the pump daily until a life pattern is established.
- See Pump Performance Tests.

Pump Performance Tests:

- **Vacuum Gauge Test** - **Tests the performance of the discharge valve and valve seat.**
  1. Attach a 10' length of non-collapsing hose or pipe with a vacuum gauge installed to the inlet of the pump. Make sure the line is completely sealed and air tight.
  2. Turn on the pump and let it run till the gauge stabilizes. Record the reading.
  3. Turn off the pump and watch the gauge.
  4. If the discharge is working properly the gauge should build and hold at 18" to 20"hg. Do not be concerned if the vacuum pressure slowly returns to 0 within a minute or so.
  5. If you do not get any vacuum reading or if the gauge does not get to 18" hg and drops off to 0 as soon as the pump stops, do the same thing again. Listen for air being sucked in around the diaphragm. If you hear air movement, inspect for loose bolts or worn diaphragm. If you hear no air movement, remove the discharge chamber and inspect the valve assembly and valve seat. Clean or replace the valve and clean or resurface the valve seat.
- **Pressure Gauge Test - Tests the performance of the suction valve and valve seat.**
  1. Attach a 10' length of non-collapsing hose or pipe with a 0 to 15 psi gauge installed to the outlet of the pump. Make sure the line is completely sealed and air tight.
  2. Turn on the pump and let it run till the gauge stabilizes. Record the reading.
  3. If the suction valve is working properly let the pressure build to 10 psi and stop the pump. When the pump is stopped the pressure may hold or slowly returns to 0.
  4. If you do not get any pressure reading or if the gauge does not get to 10 psi and drops off to 0 as soon as the pump stops, clean or replace the suction valve and clean or resurface the valve seat as appropriate.
- **Manual Test - Testing the pump valves and valve seats without the use of a gauge.**
  1. Remove all fittings from the inlet and discharge of the pump.
  2. Turn on the pump.
  3. Put your hand over the inlet. If the discharge valve is working properly, you should feel a very strong pulsing suction. The pulsing coincides with the raising and lowering of the diaphragm. If you do not feel any suction, do the same thing again and listen for air being sucked in around the diaphragm. If you hear air movement, inspect for loose bolts or worn diaphragm. If you hear no air movement, remove the discharge chamber and inspect the valve assembly and valve seat. Clean or replace the valve and clean or resurface the valve seat as appropriate.
  4. Press your hand over the discharge. If the inlet valve is sealing properly, the pressure of the pump down stroke should push your hand away. If it does not and the air is forced out the inlet remove the inlet chamber and inspect the valve assembly and valve seat. Clean or replace the valve and clean or resurface the valve seat as appropriate.

Pivot Pins, Crank Pin Drive Shafts and Bearings Need to Be Greased Regularly:

Edson applies **Mobil Grease HP Multipurpose Premium Grease** during the assembly of the pump. Failure to grease this part will result in early wear and gear damage.

Trouble Shooting

The Edson Electric Powered Diaphragm Pump is very simple and problems are isolated to only the following components:

- **The Motor & Gear Reducer**
- **The Gears & Pivot Pins**
- **The Diaphragm and Valves**
- **Suction and Discharge Plumbing**

1.Problem	Possible Causes	Action
Pump is running, liquid is not moving.	a. Suction line is blocked. b. Suction line has air leak between liquid and inlet of the pump. c. Discharge and/or suction valves are not working. d. Diaphragm has a leak. e. Discharge or suction line is to high.	If the cause is not obvious, isolate the source. Disconnect the inlet and discharge plumbing from the pump and perform the Manual Test page 8. If the cause is not in the pump check for a block or an air leak in the suction line. Suction air leaks can be cumulative and can be as simple as one or two fittings not being sealed properly. Review Plumbing pages 4 to 5

2.Problem	Possible Causes	Action
Motor is not starting.	a. Electrical Supply or wiring problem. b. Motor worn out.	Check electrical switch and/or circuit breaker. If not familiar with electrical problems, call an electrician. **If circuit breaker is tripped for no apparent reason or the motor is worn out way too soon, check the pump and the line for a blockage or restriction. Review the Performance Specifications and installation Guidelines pages 2 to 5.**

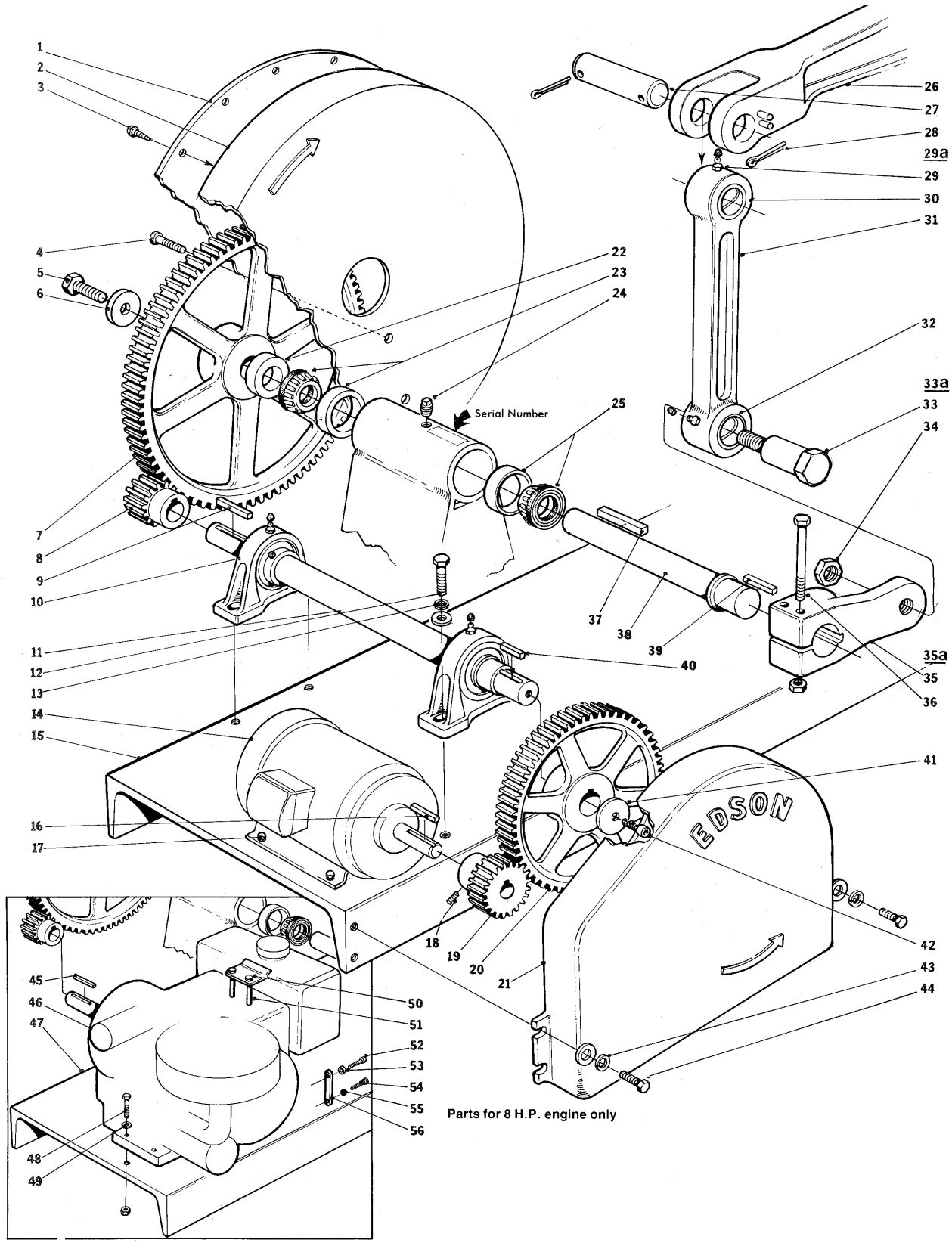
3.Problem	Possible Causes	Action
Gears are grinding	a. No grease b. Gears misaligned c. Bearings worn causing misalignment	Check gears for grease and bearings for wear. Grease and replace as appropriate.

4.Problem	Possible Causes	Action
Diaphragm is wearing out much earlier than expected.	a. Liquid being pumped is not compatible with the diaphragm material. b. Discharge and/or suction back pressure too high.	Consult a chemical resistance chart, review the Installation Guidelines pages 2 to 5. Call Edson Customer Service.

5.Problem	Possible Causes	Action
Pump base and/or lines keep filling with solids	a. Line velocity is too slow to keep the solids in suspen sion. b. The percent of solids is too high.	Speeding up the pump will help increase the velocity. Using a strainer can reduce the size and percent of solids. Diluting the slurry by increasing the amount of liquid or by increasing the agitation of the mix may solve the problem. Review Pumping Liquids with Suspended Solids page 5

Edson

MODELS 134ES-400 PARTS DRAWING DRIVE UNIT



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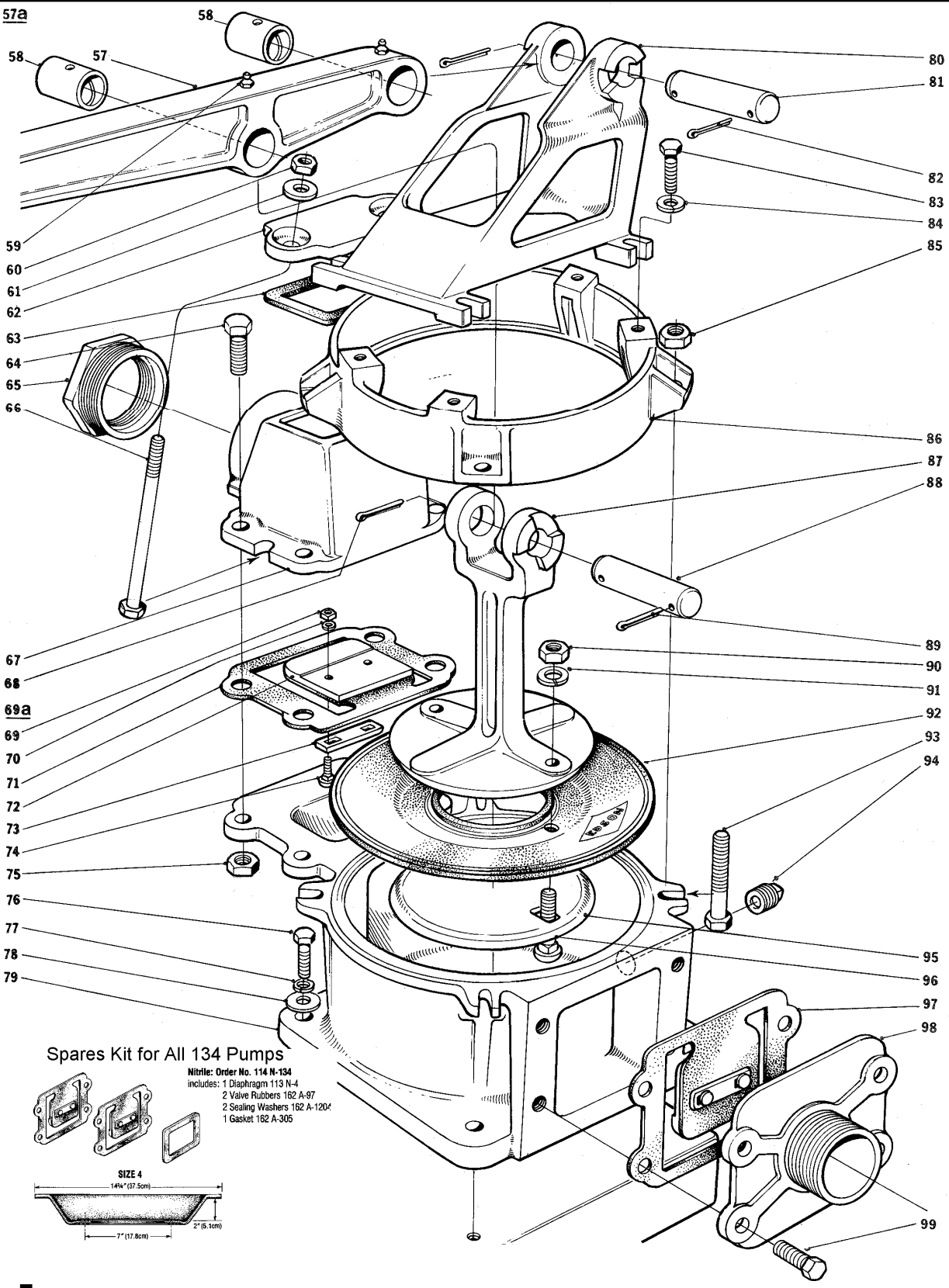
MODELS 134ES-400 PARTS DRAWING PUMP ASSEMBLY



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Edson

MODELS 134ES-400 PARTS LIST

KEY NO.	PART NO.	QTY.	DESCRIPTION
1	D5A	1	Gear Guard Cover
2	D5	1	Gear Guard
3	H22D-10-750	12	Sheet Metal Screw #10 × ¾"
4	H2T-250-1.00	3	Hex Hd. Cap Screw ¼"-20 × 1"
5	A280	1	Hex Hd. Lock Screw
6	A268	1	Flat Washer
7	D15	1	Gear 8G-144
8	A221	1	Pinion 8G-16
9	B171-13	1	Key ¼" sq. × 2"
10	A255	2	Pillow Block Bearing
11	B155	1	Counter Shaft
12	H2T-500-1.500	4	Hex Hd. Cap Screw ½"-13 × 1½"
13	H5T-500	4	Lock Washer — ½"
14	A281	1	2 H.P. Electric Motor
15	C102	1	Skid Assembly
16	B171-22	1	Key ¼" sq. × 1⅞"
17	H2T-312-.750	4	Cap Screw w/Lk Wshr 5/16"-18 × ½"
	H4T-312	4	Hex Nut 5/16"-18"
18	H265-375-.500	1	Set Screw ⅜-16 × ½"
19	A286	1	Gear 10G.30
20	B140	1	Gear 10G-96
21	C187	1	Gear Guard
22	A176	1	Shaft Collar
23	A151	1	Roller Bearing Assembly
24	H15.T-125	1	Pipe Plug ⅛" N.P.T.
25	A151	1	Roller Bearing Assembly
26	C55	1	Rocker Arm
27	A273	1	Rocker Arm Pin
28	H1T-187-1.750	2	Cotter Pin 3/16" × 1¾"
29a	G122	1	Connecting Rod Assembly
	Assembly Includes:		
29	A150	2	Grease Fittings
	A399	2	Grease Caps
30	A282	1	Bushing
31	B170	1	Connecting Rod
32	A282	1	Bronze Bushing
33a	G118	1	Crank Pin Assembly
	Assembly Includes:		
33	A258	1	Crank Pin
34	H4T-750	1	Check Nut ¾"-10
35a	G120	1	Crank Arm Assembly
	Assembly Includes:		
35	A264	1	Crank Arm
36	H17T-375-3.0	2	Hex Hd. Cap Screw ⅜"-16 × 3"
	H4T-375	2	Hex Nut ⅜"
37	B171-19	1	Key ⅜" sq. × 2¼"
38	B149	1	Drive Shaft
39	B171-18	1	Key ⅜" sq. × 1 9/16"
40	B171-23	1	Key ¼" sq. x 1⅜"
41	A206	2	Flat Washer ¼"-20
42	A421	1	Allen Hd. Lock Screw ¼"-20 × ½"
43	H5T-500	4	Lock Washer ¼"-20
44	H2T-500-2.0	4	Hex Hd. Cap Screw ¼"-20 × 1"
45	B171-13	1	Key ¼" sq. × 2"
46	A957	1	Gasoline Engine
47	C-102	1	Skid Assembly
48	H2T-375-1.250	4	Hex Hd. Cap Screws ⅜"-18 × 1¼"
	H4T-375	4	Hex Nut ⅜"-18
49	H5T-312	4	Lock Washer 5/16"
50	H2T-312-5.500	2	Hex Hd. Bolt 5/16"-18 × 5½"
51	A586	2	Spacer
52	H2T-312-.500	2	Hex Hd. Cap Screw 5/16"-18 × ½"
53	A588	2	Spacer
54	H2T-312-5.500	2	Hex Hd. Cap Screw 5/16"-18 × ½"
55	H5T-312	2	Lock Washer 5/16"
56	A587	2	Gas Tank Strap
57a	G100	1	Rocker Arm Assembly
	Assembly Includes:		
57	C55	1	Rocker Arm
58	A282	2	Bushings
59	A150	2	Grease Fittings
	A399	2	Grease Caps
60	H4T-500	2	Hex Nut ½"-13
61	H13T-500	2	Flat Washer ½"
62	B167	1	Hand Hole Plate
63	A305	1	Gasket
64	H17T-625-2.250	4	Hex Hd. Cap Screws ⅝"-11 × 2¼"
65	A270	1	Reducing Bushing 3"
66	H17G-500-7.000	2	Hex Hd. Bolt ½"-13 × 7"
67	D14	1	Discharge
68	H1T-187-1.750	1	Cotter Pin 3/16" × 1¾"
69a	G102	1	Valve Assembly [Discharge]
	Assembly Includes:		
69	H4G-250	2	Galvanized Nut ¼-20
70	H13G-250	2	Galvanized Washer ¼"
71	A97	1	Valve Rubber
72	A583	1	Valve Weight
73	A192	1	Valve Washer
74	H16G-250-1.000	2	Carriage Bolt ¼"-20 × 1"
75	H4T-625	4	Hex Hd. Nut ⅝"-11
76	H2T-500-2.000	4	Hex Hd. Cap Screws ½"-13 × 2"
77	H5T-500	4	Lock Washer ½"
78	H13T-500	4	Flat Washer ½"
79	E8	1	Base
80	D16	1	Fulcrum
81	A273	1	Rocker Arm Pin
82	H1T-187-1.750	2	Cotter Pin 3/16" × 1¾"
83	H2T-500-2.00	4	Hex Hd. Cap Screw ½"-13 × 2"
84	H5T-500	4	Lock Washer ½"
85	(See Key No. 93)	4	Head Ring Nut
86	D13	1	Head Ring
87	C116	1	Standard
88	A273	1	Rocker Arm Pin
89	H1T-187-1.750	1	Cotter Pin 3/16" × 1¾"
90	H4T-625	2	Hex Nut ⅝"-11
91	H5T-625	2	Lock Washer ⅝"
92	113-4 (113N-4)	1	Edson Nitrile Diaphragm
93	H17T-625-2.750	4	Head Ring Bolt ⅝"-11 × 2¾"
94	H15-750	1	Pipe Plug ¾"
95	B153	1	Spider
96	H16G-625-2.000	2	Carriage Bolt ⅝"-11 × 2"
97	G102	1	Valve Assembly (Suction)
	(Same as Discharge Valve • See Key No. 69a for Part Nos.)		
98	C99	1	Suction Waterway
99	H2D-625-1.250	4	Hex Hd. Cap Screws ⅝"-11 × 1¼"

Parts Ordering Information

For parts re-ordering give Pump Model No. and Serial No. Then state the Key No., Part No., description, and quantity required. Order by mail or phone. Edson specializes in "Sudden Service" with most orders being shipped the day they are received.

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