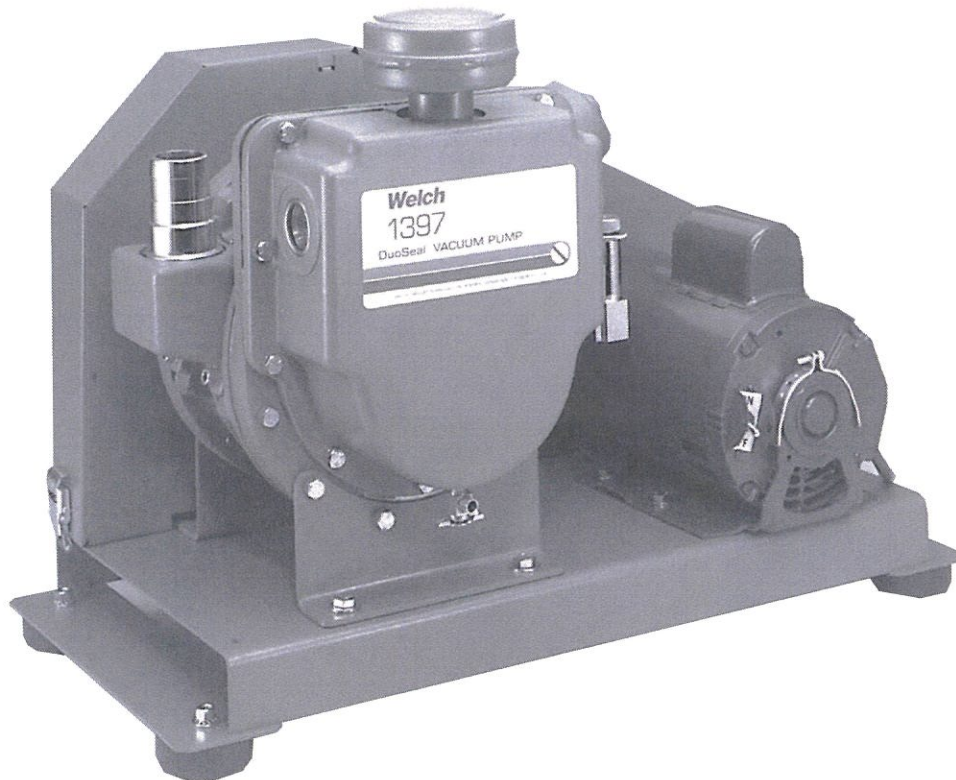


WELCH-ILMVAC

OWNER'S MANUAL FOR
DUOSEAL® VACUUM PUMP MODELS:
1374, 1374B-01, 1374B-10, 1374M-01, 1397, 1397B-01, 1397B-10,
1397B-80, 1397C-03, 1397J-01, 1397M-01, 1397W-01, 3Z657



WARNING

Never Block the Exhaust Port

If the exhaust is blocked, pressure will build up in the pump with the potential of the oil reservoir bursting and causing possible injury to personnel in the area

SAVE THESE INSTRUCTIONS

Welch-Ilmvac
5621 W. Howard Street
Niles, IL 60714
Phone: (847) 676-8800 (Technical Support)
Fax: (847) 677-8606
E-Mail: gdwelchvacuum@gardnerdenver.com
Web-Page: www.welchvacuum.com

Part No. 67-2076
Printed in USA

Section 5: QUICK REFERENCE CHARTS

Motor Options	1374	1397
Wired for 115V, 60Hz, 1Ph	1374B-01	1397B-01
Wired for 230V, 60Hz, 1Ph	N/A	N/A
Wired for 230V, 50Hz, 1Ph	N/A	1397C-03
Wired for 230V, 60Hz, 3Ph	1374M-01	1397M-01
Wired for 230V, 50Hz, 3Ph	N/A	N/A

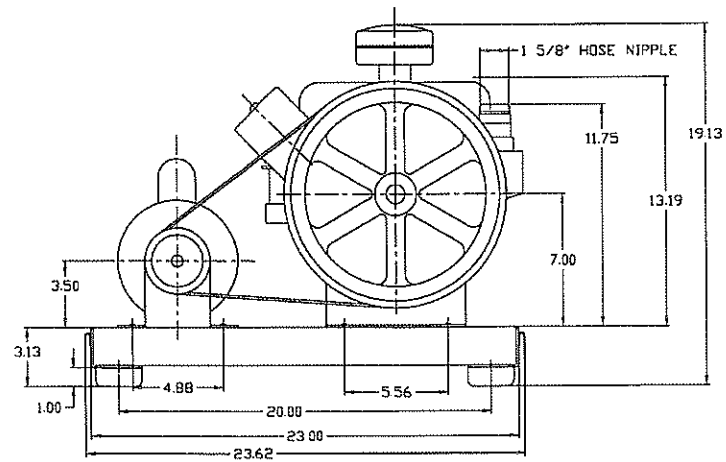
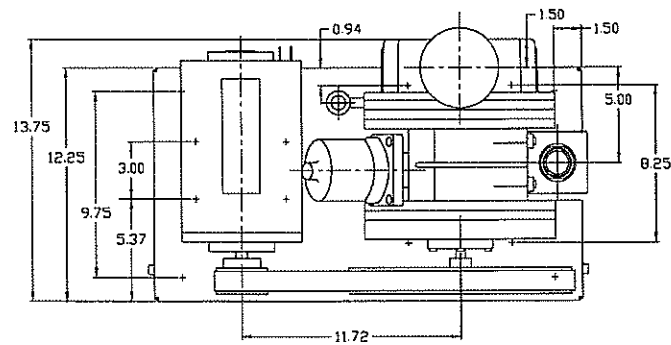
Repair Kits	
Minor Repair Kit	1397K-07
Major Repair Kit	1397K-08
Base and Belt Guard Kit	1371F

Replacement Parts	Part No.
Shaft Seal: Lip Seal	1401F-01
Shaft Seal: Mechanical Seal	1401F
Dust Cap for Exhaust	41-1501
Air Filter Screen	41-0937
Intake Chamber Cover Gasket	41-1495
Oil Case Gasket	41-1496
Drain Plug	61-2278
Oil Window	41-3453
Large Vane	41-1477
Small Vane	41-1487
Large Vane Spring	41-1488
Small Vane Spring	41-1304
Large Vane Spring Holder	41-1489

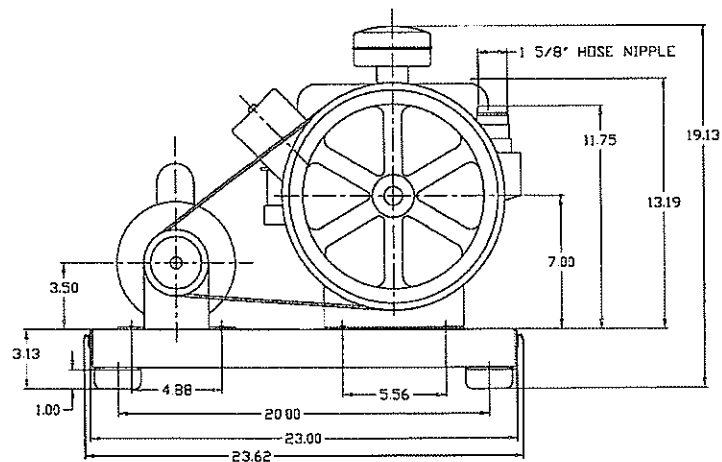
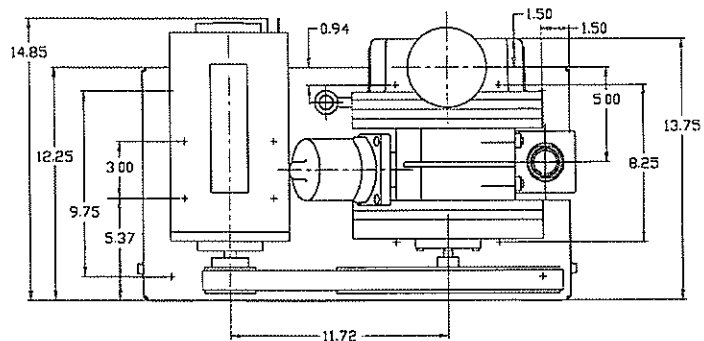
Replacement Parts	Part No.
Small Vane Spring Holder	41-0696
Shaft	41-1484
Upper Exhaust Valve	41-2161
Lower Exhaust Valve	N/A
Pressure Release Valve	41-0992
Optional Exhaust Filter	1417P-10
Optional Exhaust Filter Element	1417G
Pump Pulley	41-2074
Standard Belt	1405A
Standard Hose Barb Fitting	1393K
Standard Flange Adapter Fitting	1393G

Specifications	1374B-01	1397B-01
Free Air Displacement, L/M (CFM)	650 (23)	500 (17.7)
Gas Ballast	Yes	Yes
Ultimate Pressure, Torr (mbar)	1 (1.3)x10 ⁻⁴	1 (1.3)x10 ⁻⁴
Rotational Pump (RPM)	510	400
Oil Capacity, quarts (Liters)	1.25 (1.2)	1.25 (1.2)
Net Wt. Unmounted Pump, lb (Kg)	138 (63)	138 (63)
Net Wt. Mounted Pump, lb (Kg)	218 (100)	206 (93)
Tubing Needed (I.D. Inches)	1 5/8"	1 5/8"
Standard Flange Size	NW40	NW40
Intake Thread Size	1 3/4"-20	1 3/4"-20
Exhaust Thread Size	1 3/4"-20	1 3/4"-20
Electrical Requirements 1	115/230V	115/230V
Electrical Requirements 2	60Hz	60Hz
Electrical Requirements 3	1 Phase	1 Phase

Section 6: DIMENSIONAL DRAWING 1374B-01



1397-01



Section 7: PUMPING SPEED CURVES

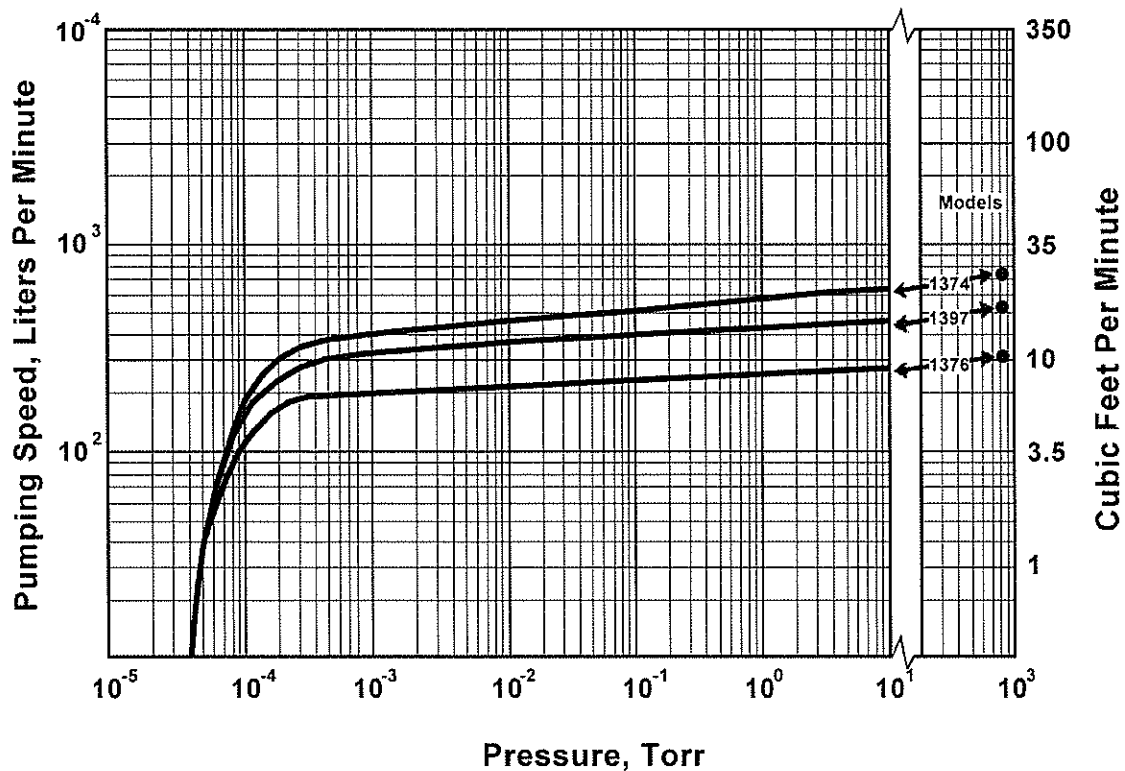
HIGH EFFICIENCY PUMPING CHARACTERISTIC OF DUOSEAL® PUMPS

The low RPM design of DuoSeal vacuum pumps makes it possible to maintain high pumping efficiencies into the low micron range. High RPM direct drive vacuum pumps, on the other hand, experience a rapid fall off of pumping speed below 100 microns.

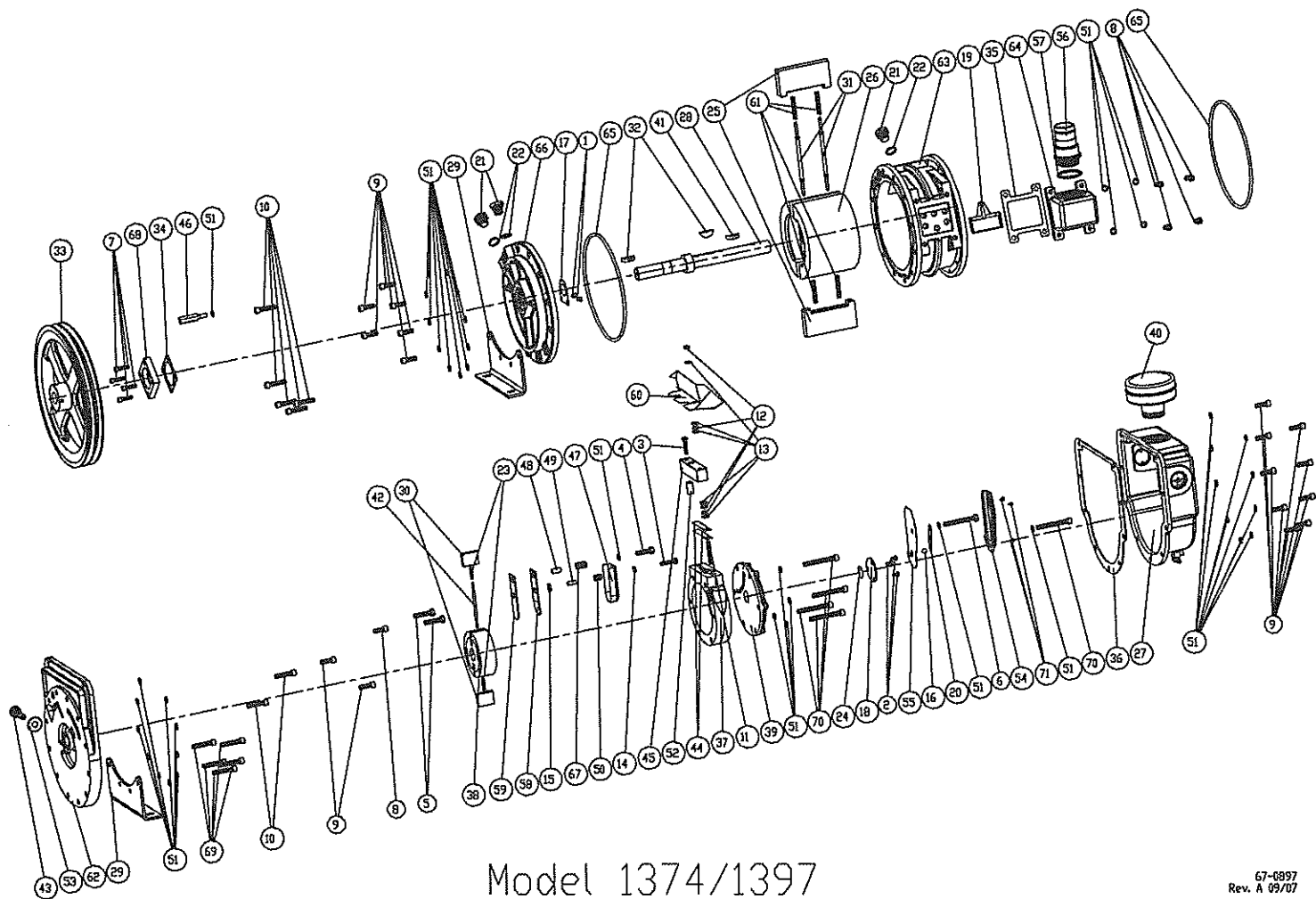
A comparison of the DuoSeal pumping speed curves shown below, versus high RPM pump speed curves conclusively illustrates the superior performance of the DuoSeal pump.

What does that mean for the vacuum pump user?

DuoSeal pumps provide considerable faster pump down time in the low micron range.



Section 8: EXPLODED VIEW



Model 1374/1397

67-6897
Rev. A 09/07

PARTS LIST FOR MODEL 1397/1374

ITEM	QTY	P/N	A*	B*	DESCRIPTION
1	2	2-00-2704			SCREW PAN HD 10-32 x 1/4" LG.
2	3	2-00-2706			SCREW PAN HD 10-32 x 3/8" LG.
3	2	2-01-0120			SCREW HEX HD 1/4-20 x 1-1/4" LG.
4	1	2-01-0320			SCREW HEX HD 5/16-18 x 1-1/4" LG.
5	2	2-01-0324			SCREW HEX HD 5/16-18 x 1-1/2" LG.
6	1	2-01-0344			SCREW HEX HD 5/16-18 x 2-3/4" LG.
7	4	2-01-6116			SCREW SOCKET HD 1/4-20 x 1" LG.
8	5	2-01-6314			SCREW SOCKET HD 5/16-18 x 7/8" LG.
9	17	2-01-6316			SCREW SOCKET HD 5/16-18 x 1" LG.
10	7	2-01-6324			SCREW SOCKET HD 5/16-18 x 1-1/2" LG.
11	1	2-01-8132			HEX NUT 1/4-20, STEEL
12	4	2-31-0112			WASHER, STEEL 3/16
13	5	2-61-0000			WASHER, LOCK 1/4" MEDIUM
14	1	2-63-0193			WASHER, S.S.
15	1	2-69-7007			STEEL BALL 3/8" DIA.
16	1	4-40-1200			SPACER
17	1	41-0055			SHAFT END PLATE
18	1	41-0672			INTAKE SCREEN FILTER
19	1	41-0937			PRESSURE RELEASE VALVE
20	1	41-0992			VENTED EXHAUST PLUG
21	3	41-1136			WASHER
22	3	41-1137			VANE SPRING
23	2	41-1304			SPACER DISK
24	1	41-1469			LARGE METAL VANE
25	2	41-1477			INTAKE ROTOR LARGE, MACHINED
26	1	41-1478			OIL CASE ASSEMBLY
27	1	41-1482			SHAFT AND COLLAR
28	1	41-1484			PUMP LEG
29	2	41-1486			VANE, SMALL
30	2	41-1487			SPRING HOLDER FOR LARGE VANES
31	2	41-1489			WOODRUFF KEY #809
32	2	41-1490			PULLEY, 2-A GROOVES, 12"OD
33	1	41-1492			GASKET, SEAL HOLDER
34	1	41-1494			GASKET, INTAKE CHAMBER
35	1	41-1495			GASKET, OIL CASE
36	1	41-1496			EXHAUST RING SMALL, MACHINED
37	1	41-1497			EXHAUST ROTOR SMALL
38	1	41-1499			

ITEM	QTY	P/N	A*	B*	DESCRIPTION
39	1	41-1500			END PLATE SMALL, MACHINED
40	1	41-1501			WOODRUFF KEY
41	1	41-1516			SPRING HOLDER
42	1	41-1685			GAS BALLAST VALVE
43	1	41-1736			VALVE, PRESSURE RELEASE
44	2	41-2161			VALVE COVER
45	1	41-2164			GUARD STUD FOR 1397
46	1	41-2165			DISCHARGE COVER, VALVE
47	1	41-2253			LARGE SLEEVE FOR BYPASS VALVE
48	1	41-2257			SMALL SLEEVE FOR BYPASS VALVE
49	1	41-2258			VALVE SPRING
50	1	41-2259			WASHER 5/16 ID x 1/2 OD
51	42	41-2363			SPACER
52	1	41-2553			LOCK NUT
53	1	41-2757			PRESSURE RELEASE TUBE #1
54	1	61-8309B			PRESSURE RELEASE TUBE #2
55	1	61-8310A			HOSE ADAPTER 1-5/8"ID
56	1	61-8469A			O-RING #224
57	1	61-8475			VALVE, BACKER
58	1	61-8538A			VALVE, FLAPPER
59	1	61-8539A			BAFFLE ASSEMBLY S.S. 1374N
60	1	61-8595B			VALVE SPRING
61	4	61-8609A			CENTER PLATE, FINISHED
62	1	61-8689			INTAKE RING, LARGE
63	1	61-8691			INTAKE CHAMBER
64	1	61-8693			O-RING # 372
65	2	61-8712			END PLATE w/BEARING
66	1	61-8770			VANE SPRING
67	1	61-8918			SHAFT SEAL ASSEMBLY
68	1	61-9240A			SCREW SOCKET HD 5/16-18 x 1-3/4" LG
69	5	62-0213			SCREW SOCKET HD 5/16-18 x 2-3/4" LG
70	5	62-0222			SCREW #6-1/4, SELF-TAPPING
71	3	62-0259			SEALANT, 6 cc
		1-99-5282			MECHANICAL SEAL OPTION**
		1401F			

** 1401F is mechanical seal includes mechanical seal, gasket and 4 screws

*** Minor Repair Kit Cat# 1397K-09 for

refrigeration pumps use neoprene seals

A* : MAJOR REPAIR KIT CAT# 1397K-08

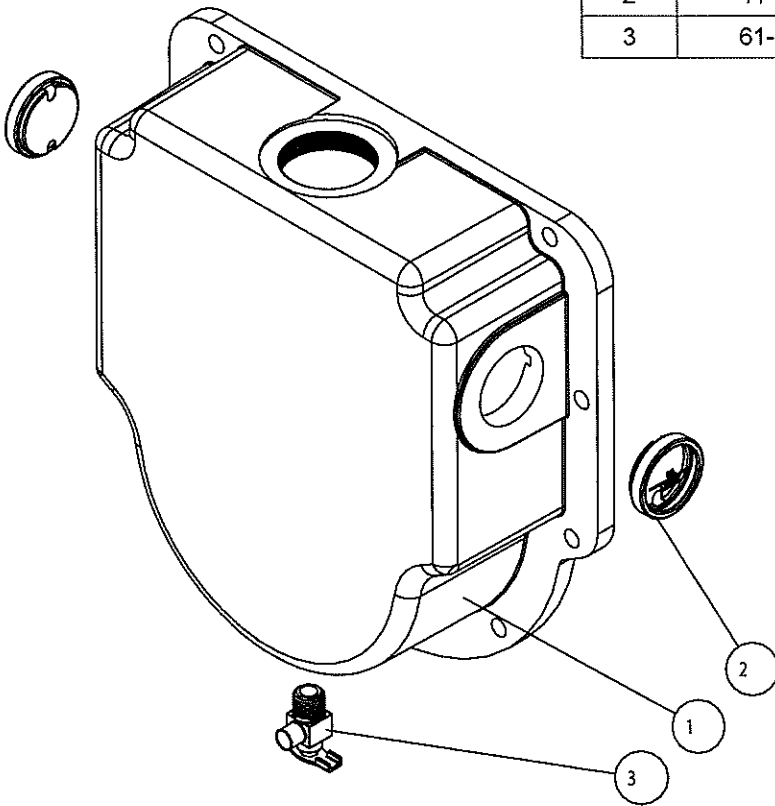
B* : MINOR REPAIR KIT CAT# 1397K-07

67-0897
Rev. A 09/07

PARTS LIST

VIEW AND PARTS LIST FOR MODEL 41-1482

ITEM	PART NUMBER	QTY	DESCRIPTION
1	41-1482	1	OIL CASE, MACHINED FOR 1397
2	41-3753	2	WINDOW, OIL CASE
3	61-2278	1	DRAIN VALVE



Section 9: ACCESSORY SECTION

Exhaust Filter

Filters oil mist from pump exhaust / Easy Replacement
Reduces pump noise / Filters to 0.3 micron particle size

Standard Exhaust Filter				
Use with pump model	Dimension		Catalog Number	
	Diameter	Height	Filter	Replacement Element
1392, 1399, 1400	2.5	2.5	1417	1417L
1376,1380, 1402,1400	5	6.25	1417P-10	1417G
1397,1374	5	9	1417P-20	1417H-01

Directional Exhaust Filter

Large, high capacity / Screw-in type / 360 Swivel outlet with tubing connector

Directional Exhaust Filter				
Use with pump model	Dimension		Catalog Number	
	Diameter	Height	Filter	Replacement Element
1392, 1399, 1400	2.5	2.5	1417L	1417L
1376,1380, 1402,1400	5	6.25	1417G	1417G
1397,1374	5	9	1417H-01	1417H-01

Exhaust Mist Eliminator

Exhaust oil recyclers capture oil mist expelled from the pump, separated air from oil, and return collected oil to the pump via a line connected to the gas ballast inlet. This process effectively reduces oil consumption and minimizes maintenance requirements by extending the time between oil changes.

Catalog Number	Use with pump model
1416H-01	1400
1416C-01	1405, 1376, 1380, 1400

Requires gas ballast connection kit: Cat. No. 141601 - For models 1400,1405,1376,1380,1402

Coaxial Traps

Reduces oil back streaming / Stainless steel construction / Easy Replacement of Element

ISO Size	Capacity	Diameter	Height	A2	Cat.No.1
NW16	to 4 CFM (140 L/min)	3.75	5.25	8.25	541001
Stainless Steel Element for ISO NW 16 Trap 1					541921
Stainless Steel Element for ISO NW 25 and NW 40 Traps1					541922

Cat. No.1. Element must be ordered with trap.

A2. Distance between ISO NW inlet and outlet connections

Dry Ice Cold Traps

Removable 3 quarter center well for dry ice/alcohol slurry (do not use acetone) / Visible trapping surface
Cold temperature up to 12 hours depending on vapor / Available with straight tube connections

ISO Size	Diameter	Height	A1	I/O Offset	Cat. No	Replacement Seal Cat. No.
Straight Tube						
1/2 O.D.	10.00	8.25	10.75	3.5	1420H-14	545200

A1. Distance between ISO NW inlet and outlet connections