

Ploog Engineering Co., Inc.

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Crown Point, IN 46307 USA
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Owner / Operator Manual **M280 Filterless Centrifuge** ASTM D1856, AASHTO T164, T170



The Ploog continuous flow Filterless Centrifuge effectively recovers mineral filler fines from bitumen-laden nonflammable solvents from asphalt mix extraction tests. Solvent suspension is fed through a top funnel through a regulating valve into a special aluminum beaker spinning at 11,000 rpm. At this high rpm, the liquid moves up the beaker wall due to centrifugal force and then out the overflow tube, while the solids remain in the beaker. Continuous feeding of the suspension is possible until the capacity of the beaker is reached (500mL). The unit has controlled quiet acceleration and top speed is reached quickly. Dynamic braking controls the stopping of the beaker. The unit has a steel casing and bearing housing. It has an aluminum sieve holder, bowl, and beakers. Two beakers, one #18 sieve and one #200 sieve are included.

Ordering Information

M280, 120V 60 Hz
M280.1, 220V 50/60 Hz

Instructions for M280 Filterless Extractor

INITIAL SET-UP

Set the machine on a firm table. The machine doesn't need to be bolted down. Put a little Vaseline on the o-rings. Install the bowl cover and sieve retainer assembly. Plug the power cord into an electrical outlet. Note that the machine uses a variable frequency drive (VFD) for speed control, and it will not work with a GFCI (ground fault circuit interrupter). The ground fault will trip.

OPERATION

Flip the “power” switch on, which powers the electronics. Flip the “motor” switch to “run” to start the motor and beaker spinning. The acceleration is electronically controlled., and will take about one minute to get up to top speed (11,000 rpm). Flipping the “motor” switch to “stop (reset)” will turn off the motor, and electronic braking will begin. Note that electronic braking is disabled if the “power” switch is flipped off.



ROUTINE MAINTENANCE

The most important thing is to keep the machine clean. Wipe the spinner cup, beaker, and o-rings clean. Vaseline to lubricate the o-rings helps a lot. If the machine gets too noisy over time, the bearings should be replaced.

TO REPLACE BEARINGS

Remove the sieve-retainer/bowl-cover assembly (ref 8, 11) and beaker (ref 42). Loosen the drive belt (ref 30) by pushing it up off the drive pulley (ref 29) and remove the drive belt. Remove the four shoulder screws (ref 26) holding the bearing retainer (ref 17) to the frame of the machine. Lift the spinner cup assembly up and out through the top of the machine as one unit. Hold the bearing retainer (ref 17) in a vise. Remove the retaining nut (ref 23) while holding the spinner cup (ref 16) with your other hand. Bump the shaft end with a soft hammer and carefully slide the shaft out of the housing. Remove the bearings. Install new bearings, and reassemble in reverse order.

Ploog Engineering Co.
Parts List for
M280 and M280.1
starting with machine
serial number M280-3xxxx241

REF.	PART NO.	DESCRIPTION	QTY
1	1087P01	Steel enclosure	1
2	1087P02	Handles	2
3	1087P03	Handle Screws	8
4	1087P04	Handle Screw Nuts	8
8	1087P08	Sieve retainer	1
9	1087P09	Sieve retainer post	2
10	1087P10	Set screw	2
11	1087P11	Bowl Cover	1
12	1087P12.5	Cover Clamps	2
13	1087P13	Cover Clamp Screws	4
14	1087P14.5	Lower Bowl	1
15	1087P15	Spout	1
16	1087P16	Spinner Cup	1
	1087P16A	Complete Cup & Bearing Assy	1
17	1087P17	Bearing Retainer	1
18	1087P18	Top Bearing	1
19	1087P19	Retaining Rings	2
20	1087P20	Lower Bearing	1
20.1	1087P20.1	Pulley Spacer	1
21	1087P21	Driven Pulley	1
22	1087P22	Bearing load Washer	1
23	1087P23	Retaining Nut	1
24	1087P24	Vibration Damper	1
24.1	1087P24.1	Spacer Plate	1
25.1	1087P25.1	Step Bushing	4
26	1087P26	Shoulder Screws	4
27	1087P27	Cap Screws	4
28	1087P28	Motor	1
29	1087P29	Drive Pulley Assembly	1
30	1087P30	Drive Belt	1
32	1087P32	Motor Bolts Button Hd	4
34	1087P34	Cord to Motor	1
35	1087P35	Power Cord	1
36	1087P36	Cord Grip	1
38	1087P38	Toggle Switch	2
39	1087P39.1	Electronic Motor Control 120V	1
39	1087P39.2	Electronic Motor Control 220V	1
40	1087P40	Screws for above	4
41	1087P41	Nuts for above	4
42	M281	Beaker	1
43	1087P43	Decal	1

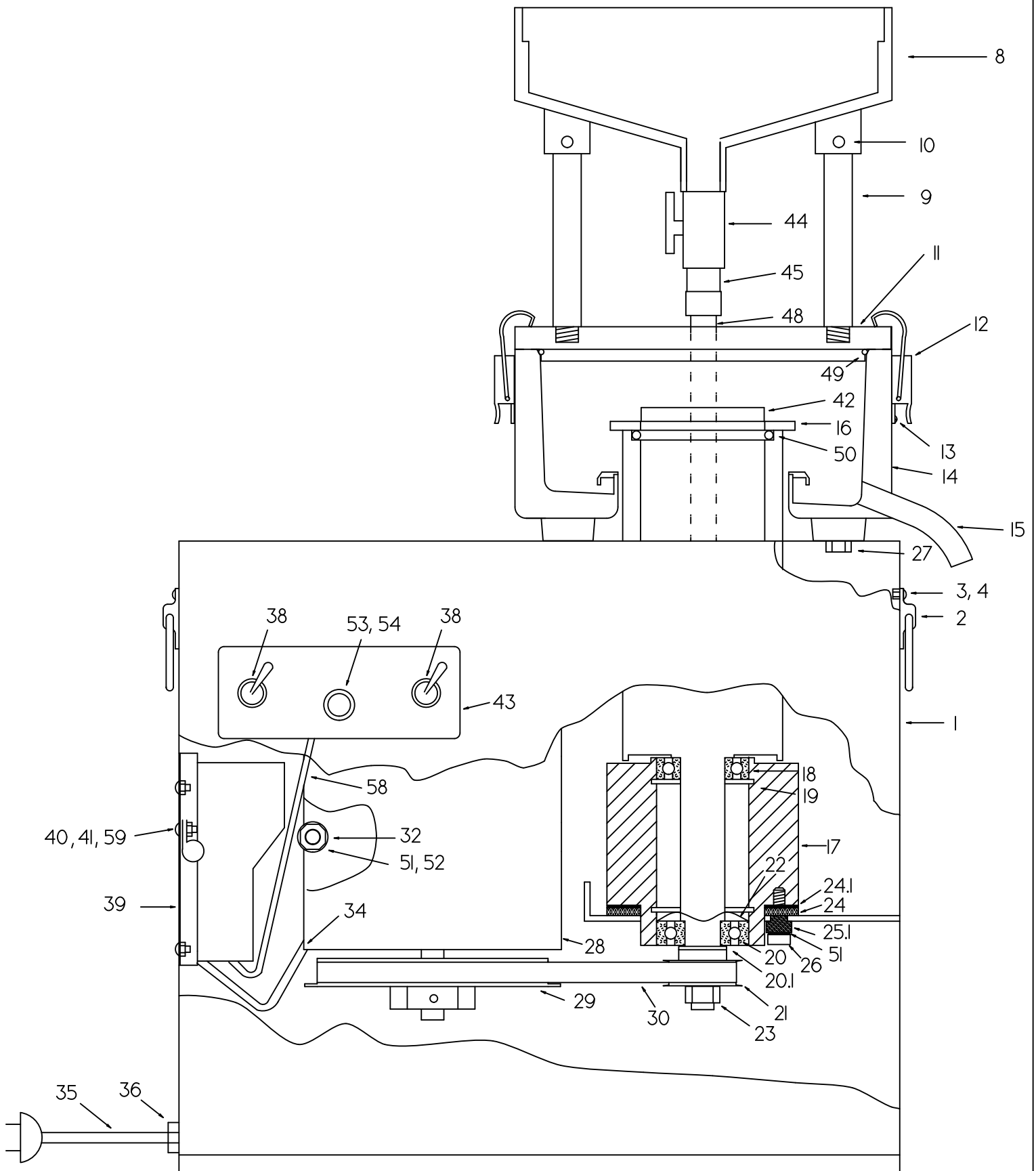
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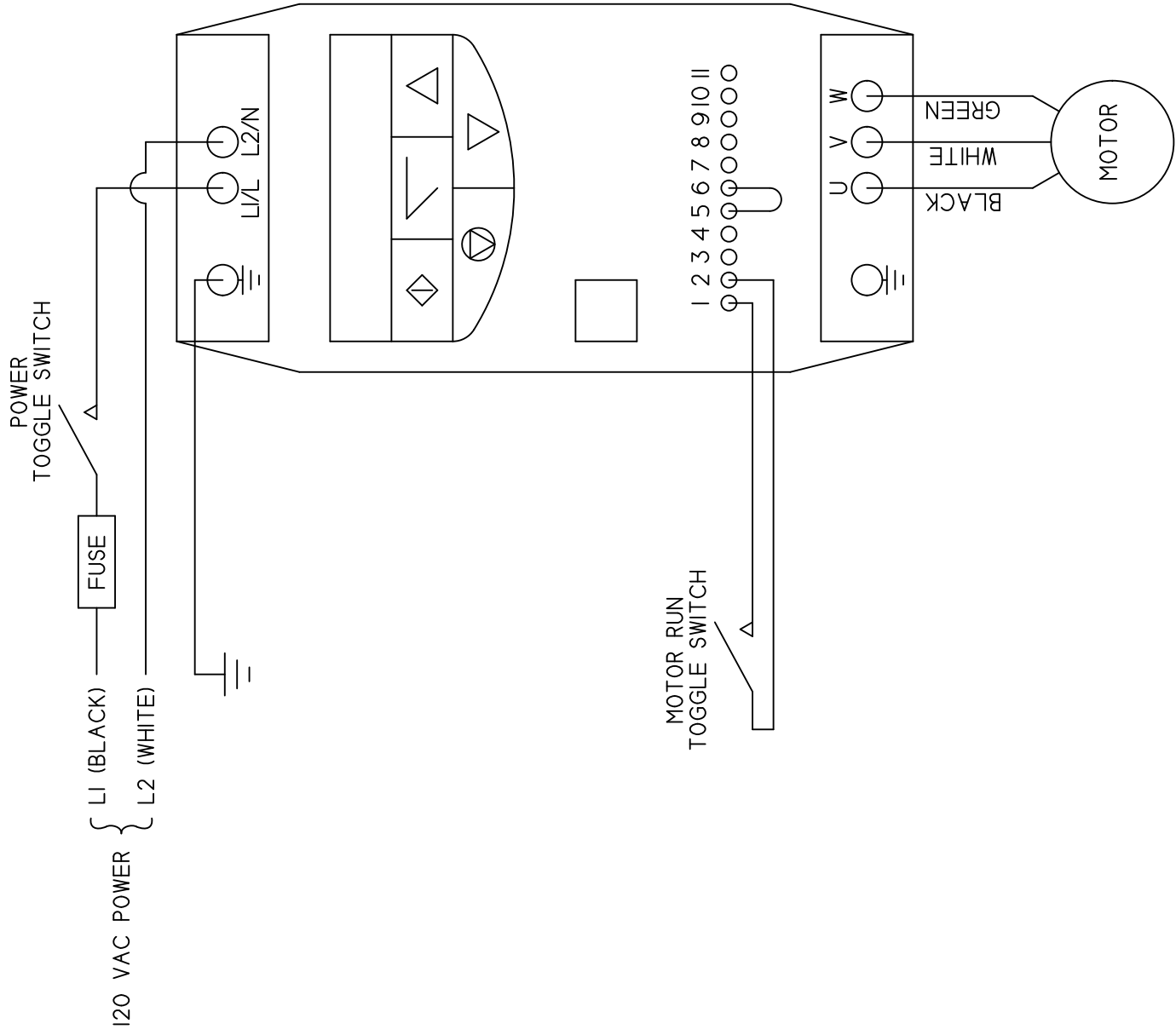
44	1087P44	Valve	1
45	1087P45	Compression Fitting	1
48	1087P48	Feed Tube	1
49	1087P49	O-Ring - Cover	1
50	1087P50	O-Ring - Cup	1
51	1087P51	Washer	1
52	1087P52	Lock-Nut	1
53	1087P53	Fuse Holder	1
54	1087P54	Fuse 110V 6.25A MDL 6-1/4	1
54.1	1087P54.1	Fuse 220V 5A MDL5	1
58	1087P58	Control Cord	1
59	1087P59	Nylon Clip	1

	1087P16A	Complete Cup & Bearing Assy	1
		Consisting of:	
16	1087P16	Spinner Cup	1
17	1087P17	Bearing Retainer	1
18	1087P18	Top Bearing	1
19	1087P19	Retaining Rings	2
20	1087P20	Lower Bearing	1
20.1	1087P20.1	Pulley Spacer	1
21	1087P21	Driven Pulley	1
22	1087P22	Bearing Load Washer	1
23	1087P23	Esna Retaining Nut	1

Always give complete Serial Number when ordering parts.



Filterless Centrifuge		
Scale: NTS	M280-3	Drawn by: RF
Date: 12/12/01		Revised: 2/14/2025
Ploog Engineering Co. Inc		
Crown Point, In.		
Drawing Number		P270



PLOOG ENGINEERING CO., INC.			
Scale:	NTS	Drawn by:	RGF
Date:	04/30/2008	Revised:	
FIL TERLESS EXTRACTOR WIRING			
M280-3 120V			
Drawing Number		P270-100	