

# W.S. DARLEY & CO.

## OPERATING INSTRUCTIONS - ELECTRIC PRIMING PUMP

The Darley electric primer will develop up to 25 in. Hg. in an air tight pumping system.

The Primer is activated by a combination spring return on-off valve and electric switch. Pulling the valve out opens the valve and closes the electrical circuit to start the motor.

Before the pump can be primed, booster line valves, drain valves, cooling line valve, and all other openings into the pump must be closed and absolutely air tight. The discharge side of the pump is sealed by a check valve, therefore the main discharge valves need not be closed.

When operating from draft, suction hose connections must be tight and free of air leaks.

Make certain the suction hose strainer is properly submerged and free of foreign material.

The main pump drive should remain disengaged until priming is complete to prevent possible damage to impeller seal rings by running "dry".

Pull the primer shutoff valve all the way out to start priming and hold open until water discharges from primer pump exhaust port. Push valve all the way in to shut off primer motor and seal tight.



### **CAUTION:** FOR PRIMING UP TO 10' OF LIFT:

If water does not discharge from the primer exhaust within about 30 seconds (45 seconds with 2 – 20' lengths of hose) stop the primer pump, check for air leaks and make sure primer pump is receiving lubricant from its reservoir, if one is present. **MAX PRIMER OPERATION TIME = 90 seconds every 5 minutes. DO NOT EXCEED 90 SECONDS OF PRIMER OPERATION.**



### **CAUTION:** FOR PRIMING 10' OF LIFT AND HIGHER:

If water does not discharge from the primer exhaust within 90 seconds stop the primer pump, check for air leaks and make sure primer pump is receiving lubricant from its reservoir, if one is present. **DO NOT EXCEED 90 SECONDS OF PRIMER OPERATION.**



**CAUTION:** The primer pump and motor will begin to generate heat as soon as operation begins. Extended run times (up to 90 seconds) and repeating priming cycles consecutively or within short time periods may lead to premature failure of the primer pump assembly: such failures include but are not limited to: overheating of the motor, seizure of the rotor, and cracking of primer vanes. To avoid this, after your first priming attempt, thoroughly inspect the pump system for air leaks, check that the primer is

**receiving lubricant from its reservoir if such is present, and resolve the issue before attempting re-prime.**

Engage “Pump” shift to start pumping water.

When pumping from hydrants, the primer is not needed and must be kept closed.

It may be necessary to use the primer momentarily when pumping from a booster tank when the suction head is insufficient to force all the air out of the pump.

## **LUBRICATING SYSTEM - ELECTRIC PRIMING PUMPS WITH FLUID RESERVOIR**

The electric motor rotary van primer pump creates a high vacuum by continuous lubrication of rotor and vanes. Therefore the primer lubricant supply tanks (4 quarts) should be kept full at all times. Recommended primer system lubricant is Darley PRIME GREEN. PRIME GREEN is an environmentally safe, non-toxic, biodegradable lubricant. Its use assures proper primer vane lubricant while minimizing environmental effects.

After the main pump is drained, run the primer motor to drain primer lines and re-lubricate the primer pump.

The vent hole on the lubricant tank cap should be kept open at all times to prevent siphoning lubricant from the tank after the pump is stopped. Do not increase the size of the hole.

Locate the lubricant tank where it may be conveniently inspected and filled.

Should water appear in the lubricant supply tank, the primer valve is leaking. Check and replace valve plug seal o-ring if necessary.

## **ELECTRIC PRIMING PUMPS WITHOUT FLUID RESERVOIR**

The fluidless electric-motor rotary-vane primer pump creates a high vacuum by using a special material for the vanes and an initial factory applied lubricant film. This film must be present in order for the primer to operate properly and to provide maximum life for the primer components.

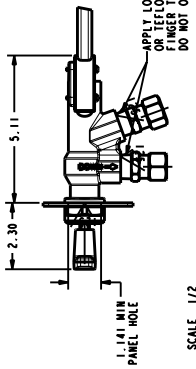
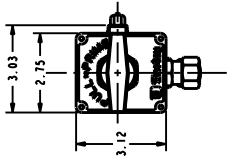
This film should not wash away completely if the pump is used to pump clean water. If the priming pump is disassembled for any reason, all internal surfaces of the housing and end caps must be cleaned and coated completely with Dow Corning #111 Silicone valve lubricant prior to operating the primer. If a degradation of performance is noticed, performance may be restored by re-applying the film in this manner. It is recommended to service the primer annually to clean and re-apply the silicone film to the inside of the primer housing and end caps. Do not apply grease to the rotor slots, or the sides of the vanes.

After the main pump is drained, run the primer motor to drain primer lines.

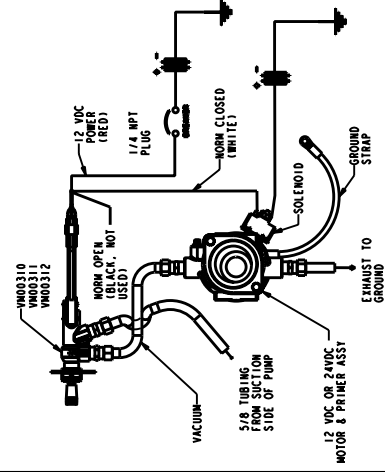
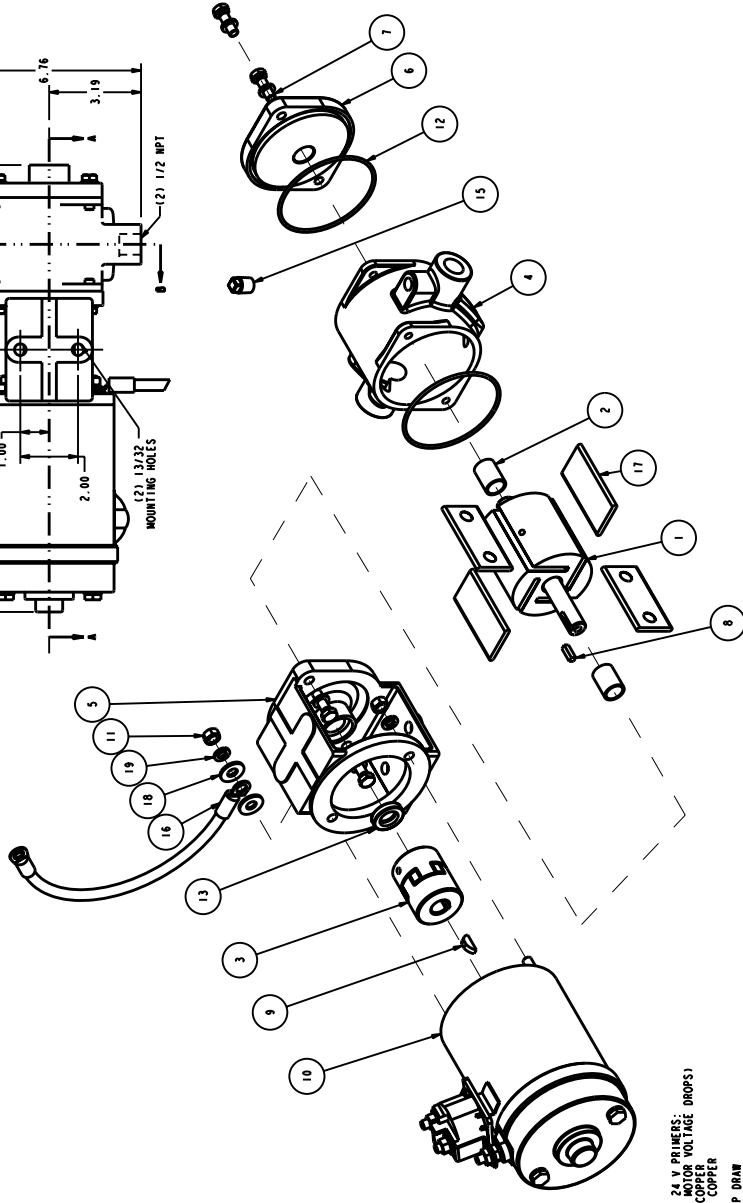
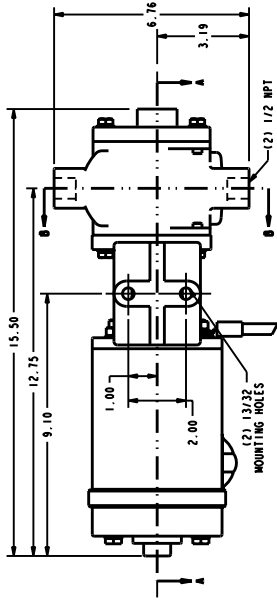
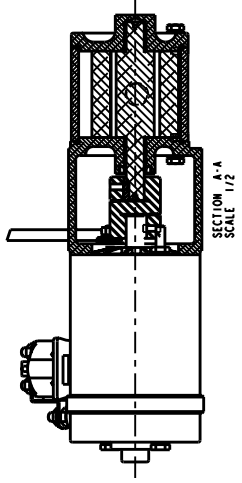
AM	DESCRIPTION	PART NO.	QTY.
1	ASSEMBLY - PRIMER, MOTOR	4220105	1
2	BEARING - OILITE, 0.625 ID	1760023	2
3	COUPLING - 844093	2404500	1
4	CTL PRMR - VACUUM PMP	020800	1
5	HEAD - CYLINDER INBOARD	200800	1
6	HEAD - CYLINDER, OUTBOARD	200800	1
7	SHCS - 313-18 x 1.00, SST	540610	4
8	WET - SO., 0.19 x 0.62 GR2	3602425	1
9	WET - WOODRUFF, 606	3602200	1
10	MOTOR - PRIMER, 12V	4223400	1
11	WET - HEAT, 313-15, SST	5403024	2
12	O-RING - 3.50 x 3.69 x 0.69	3801101	2
13	OIL SEAL - 0.625 ID X 1.128 OD	3800305	1
14	PLUG - PIPE, 0.250, BR, 50, 10	080204	1
15	STRAP - GROUND, 12V PRIMER	0805116	1
16	WASHER - FLAT, 5/16, STEEL	3403802	2
17	WASHER - LOCK, 0.313 ID	3403502	6

REVOLUTIONS

NO.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	ISSUED FOR CONSTRUCTION	11/15/08	W. J. WILSON	W. J. WILSON	



NOTE:  
 - FOR CROSS SECTION AND EXPLODED VIEW DRAWING SEE OVERHEAD PROJECTOR & DIMENSIONS OF THIS VALVE WITH THIS NEW VERSION. BUSHING 7162500 CAN BE USED TO RETROFIT IT TO THE EXISTING PANEL.



NOTE:  
 MOUNT WITH EXHAUST OULET DOWN  
 TO CLEAN, PAINT FREE GROUNDING SURFACE  
 IF SUPPLIED GROUND STRAP IS REMOVED FROM ASSEMBLY, RETIGHTEN CYLINDER HEAD ADAPTER TO 90 IN. LB.

POSITIVE LEAD WIRE SIZES FOR 12 V & 24 V PRIMERS:  
 0 - 10 AMP STANDARD (12V), 12 (24V) COPPER  
 0 - 10 25' ..... 800 (12V), 82 (24V) COPPER

THESE GAGE WIRES CORRESPOND WITH AMP DRAIN REQUIREMENTS FOR EACH WIRE AS WELL AS IN RELATION TO RESISTANCE OVER GIVEN LENGTH.

12 V = 240 AMP  
 24 V = 140 AMP

WEIGHT = 27 LB. (12.1 KG)

REV.	DATE	BY	CHKD.	APP.
1	11/15/08	W. J. WILSON	W. J. WILSON	

REMOVE SHARP EDGES

DO NOT SCALE PRINT

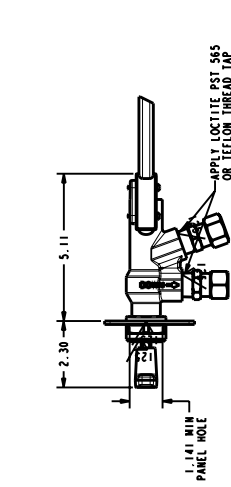
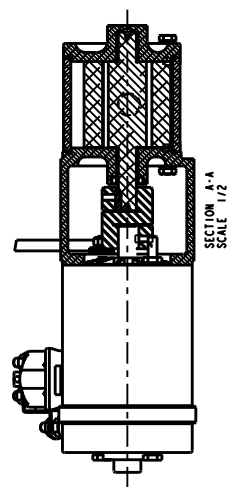
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DVC0207

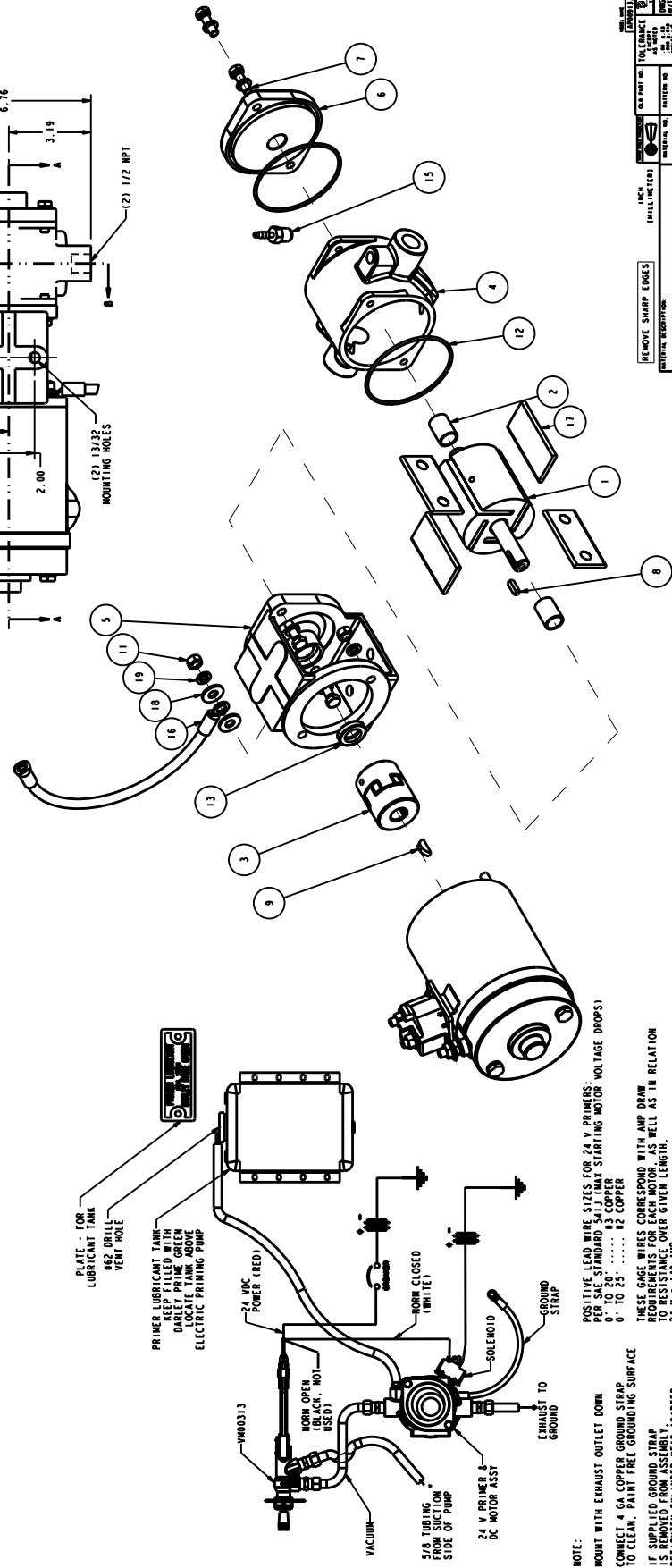
NO.	DESCRIPTION	PART NO.	QTY.
1	ASSEMBLY - PRIMER, MOTOR	425105	1
2	BEARING - OILITE, 0.625 ID	176023	2
3	COUPLING - 844093	2404500	1
4	CYLINDER - VACUUM PUMP	1024800	1
5	HEAD - CYLINDER IMBOARD	200904	1
6	HEAD - CYLINDER, OUTBOARD	200900	1
7	NUCS - 313-18 X 1.00, SST	5408610	4
8	KEY - SO. 0.19 X 0.62 GR2	3602425	1
9	KEY - WOODRUFF, 606	3602200	1
10	MOTOR - PRIMER, 24V	4225500	1
11	MUT - MET. 313-15, SST	5403024	2
12	O-RING - 3.50 X 3.69 X 0.09	3601101	2
13	OIL SEAL - 0.625 ID X 1.128 OD	3600905	1
14	TUBE FITTING - STR. .25 X .19	3300021	1
15	STRAP - GROUND, 12V PRIMER	2600516	1
16	WASHER - FLAT, 5/16, STEEL	400760	4
17	WASHER - LOCK, 0.313 ID	3603502	2
18	WASHER - LOCK, 0.313 ID	3603502	2
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100	WASHER - LOCK, 0.313 ID	3603502	2

REVISIONS

NO.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	REVISED FOR USE				



NOTE:  
 FOR CROSS SECTION AND EXPLODED VIEW DRAWING  
 SEE DRAWING DVC0203  
 ALSO, WHEN REPLACING THE OLD VERSION OF THIS VALVE WITH  
 THE NEW VERSION, THE NEW VERSION 1762500 CAN BE USED TO RETROFIT  
 IT TO THE EXISTING PANEL.



NOTE:  
 MOUNT WITH EXHAUST OUTLET DOWN  
 CONNECT 4 GA COPPER GROUND STRAP  
 TO CLEAN, PAINT FREE GROUNDING SURFACE  
 IF SUPPLIED GROUND STRAP  
 RETIGHTEN CYLINDER HEAD ADAPTER  
 RETAINING NUTS EQUALLY  
 TO 90 IN. LB.

POSITIVE LEAD WIRE SIZES FOR 24 V PRIMERS:  
 PER SAE STANDARD 541J (MAX STARTING MOTOR VOLTAGE DROPS)  
 0 TO 20' ..... #3 COPPER  
 0 TO 25' ..... #2 COPPER

THESE GAGE WIRES CORRESPOND WITH AMP DRAW  
 REQUIREMENTS FOR EACH MOTOR, AS WELL AS IN RELATION  
 TO 24 V = 140 AMP

WEIGHT : 27 LB (12.1 KG)

REMOVE SHARP EDGES

INCH DIMENSIONS

DO NOT SCALE PRINT

DVC0209