

# **W.S. DARLEY & CO.**

## **ELECTRIC PRIMING PUMP REPAIR**

**Refer to Drawings DVC0108 & DVC0109**

### **DISASSEMBLING**

1. Disconnect electrical and plumbing from pump and water.
2. Remove 2 inner 5/16" x 1" cap screws (12) and lock washers (39).
3. Remove cylinder head (9) and cylinder (11).
4. Check vanes for length if larger than 2.985". Replace with new set.
5. Loosen coupling set screw (4) that holds rotor shaft key (29) and flexible coupling (3) onto rotor shaft (7).
6. Pull out rotor (14) and rotor shaft (7).
7. To remove cylinder head (28), remove hex nut (49), hex jam nut (50), and 2 lock washers (40). Remove cylinder head (28) from motor (1).

### **ASSEMBLING**

1. Check all o-rings. Replace if necessary.
2. Place cylinder head (28) onto motor (1). Secure cylinder head (28) with lock washers (40), hex nut (49), and hex jam nut (50). Torque nuts to 90 in.lb.
3. Slide rotor (14) and rotor shaft (7) into place. Tighten coupling set screw (4) that holds rotor shaft key (29) and flexible coupling (3) onto rotor shaft (7).
4. Lubricate internal components with DOW Corning Compound #111 Silicone or equivalent. Required for fluid less primer, optional for lubricated primer.
5. Place cylinder (11) and cylinder head (9) onto rotor (14). Secure cylinder head (28) with lock washers (39) and 2 - 5/16" x 1" cap screws (12).
6. Connect electrical and plumbing to pump and water.

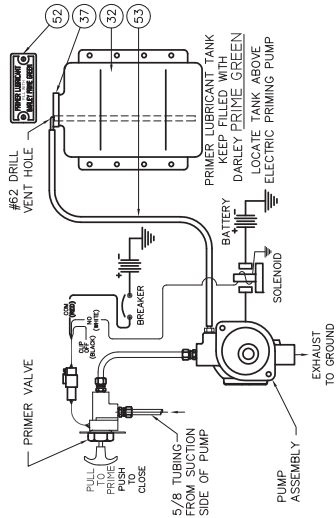
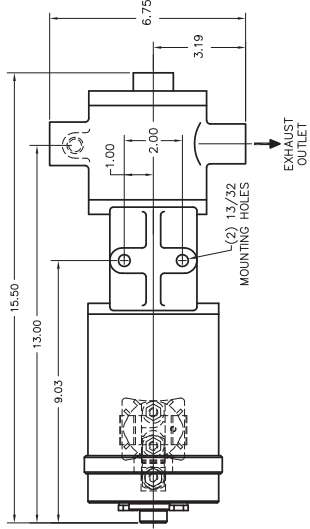
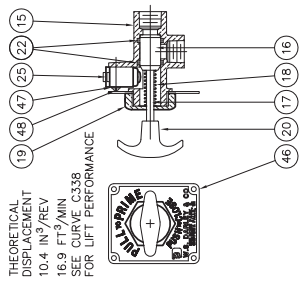
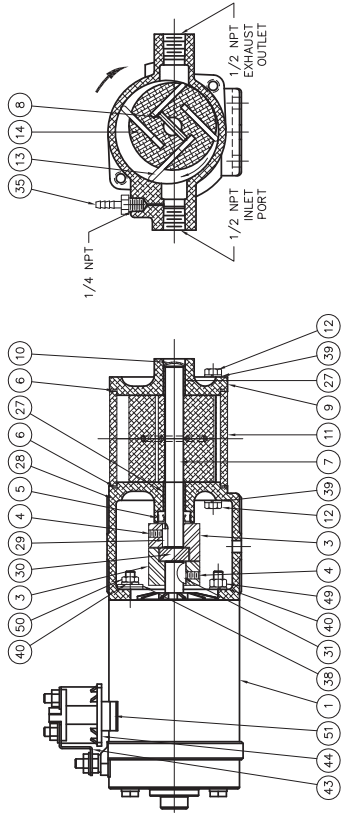
### **TOOLS REQUIRED:**

- 1/8" Allen Wrench
- 1/2" Wrench
- 9/16" Wrench

**IF FURTHER INFORMATION IS NEEDED, CALL W.S. DARLEY & CO.,  
CHIPPEWA FALLS, WI. AT 800-634-7812 or 715-726-2650**

LT#	DESCRIPTION	REVISIONS	DATE	LOG NO.	APP'D
A	REARRANGED AND MIRRORED VIEWS		9 JUL 2004	2004-184	UDAP

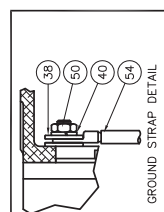
REP. NO.	DESCRIPTION	QTY.
1	DC MOTOR	1
3	FLEXIBLE COUPLING	1
4	SET SCREW	1
5	OIL SEAL	1
6	ROTOR SHAFT	2
7	DRIVE LOCK PIN	1
9	END CAP	1
10	FREEZE PLUG	1
11	CYLINDER	4
12	HHCS - 5/16-18 NC	4
13	ROTOR VANES	4
14	ROTOR - 4 VANE	1
15	VALVE BODY	1
16	VALVE PLUG	1
17	STEM	1
18	SPRING	1
19	PANEL VALVE NUT	1
20	PLASTIC KNOB - T HANDLE	1
22	Q-RING	2
25	MICROSWITCH	1
27	BUSHING	2
28	CYLINDER HEAD	1
29	ROTOR SHAFT KEY	1
30	CLEANER LOCK RING	1
31	WASHER LOCK RING KEY	1
32	PRIMER TANK	1
35	BARB FITTING	1
37	CAP - PRIMER TANK	1
38	FLAT WASHER	2
39	LOCK WASHER	4
40	LOCK WASHER	2
43	CONDUCTOR	2
44	SOLENOID	1
45	SOLENOID	1
46	SOLENOID	1
47	SOLENOID	2
48	RD HD MACH SCREW	1
49	HEX NUT - 5/16-18 NC	2
50	HEX NUT - 5/16-18 NC	1
51	TRUSS HD SCREW	2
52	LUBRICANT PLATE	1
53	TUBING	1
54	GROUND STRAP	1



POSITIVE LEAD WIRE SIZE FOR 12V PRIMERS:  
 UP TO 5' .....#6 COPPER  
 5' TO 8' .....#4  
 8' TO 12' .....#2  
 12' TO 16' .....#1  
 16' TO 20' .....#0  
 20 TO 25' .....#00 DOUBLE RUN LENGTH

WEIGHT = 27 LB [12.1 KG]

NOTE:  
 MOUNT WITH EXHAUST OUTLET DOWN.  
 CONNECT #54 4 GA. COPPER GROUND STRAP TO CLEAN, PAINT FREE GROUNDING SURFACE IF SUPPLIED GROUND STRAP #54 IS REMOVED FROM ASSEMBLY. RETIGHTEN CYLINDER HEAD ADAPTER RETAINING NUTS #49 & #50 EQUALLY TO 30 INCH.



W.S. DARLEY & C  
 DORSEY ELECTRIC PRIMER, 4 VANE  
 CROSS SECTION  
 DATE JUN17/03  
 SCALE 1/2

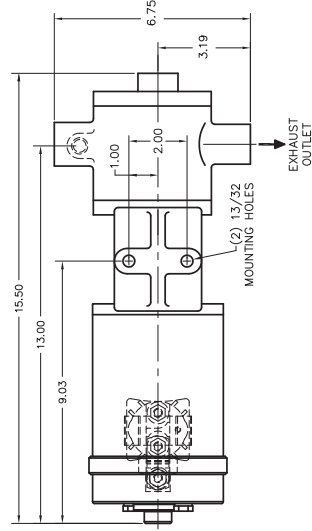
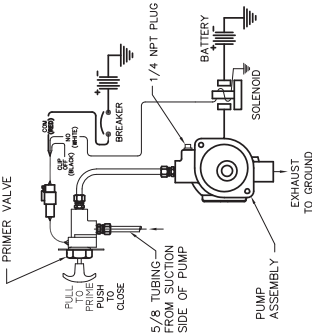
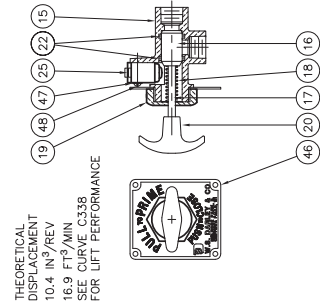
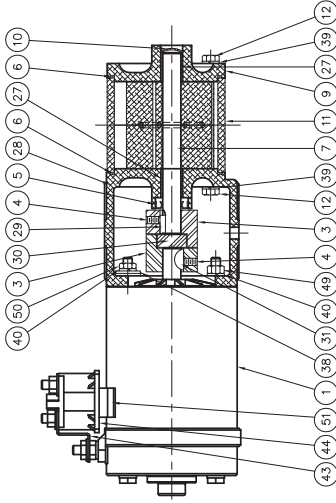
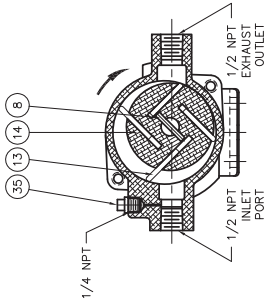
TOLERANCE  
 AS NOTED  
 UNLESS OTHERWISE SPECIFIED  
 FINISH  
 UNLESS OTHERWISE SPECIFIED

OLD PART NO. — PATERN NO. — MATERIAL NO. —  
 ALL DIMENSIONS IN INCH UNLESS OTHERWISE NOTED  
 DO NOT SCALE PRINT

INCH [MILLIMETERS]

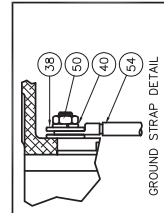
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A	REARRANGED AND MIRRORED MEANS	9 JUL 2004	2004-194	DAB

REP. NO.	DESCRIPTION	QTY.
1	DC MOTOR	1
3	FLEXIBLE COUPLING	1
4	SET SCREW	1
5	OIL SEAL	1
6	ROTOR SHAFT	2
7	DRIVE LOCK PIN	1
8	END CAP	1
9	FREEZE PLUG	1
10	CYLINDER	1
11	HHCS - 5/16-18 NC	4
12	ROTOR VANES	4
13	ROTOR - 4 VANE	1
14	VALVE BODY	1
15	VALVE PLUG	1
16	STEEL SPRING	1
17	PANEL VALVE NUT	1
18	PLASTIC KNOB - T HANDLE	1
19	Q-RING	2
20	MICROSWITCH	2
21	BUSHING	2
22	CYLINDER HEAD	1
23	ROTOR SHAFT KEY	1
24	FLEXIBLE COUPLING	1
25	ROTOR SHAFT KEY	1
26	1/4 NPT PLUG	1
27	FLAT WASHER	2
28	LOCK WASHER	2
29	CONDUCTOR	2
30	SOLENOID	1
31	LOCK WASHER	2
32	RD HD MACH SCREW	1
33	HEX NUT, 5/16-18 NC	2
34	TRUSS HD SCREW	2
35	GROUND STRAP	1



NOTE:  
 MOUNT WITH EXHAUST OUTLET DOWN.  
 CONNECT #54 4 GA. COPPER GROUND STRAP TO CLEAN, PAINT FREE GROUNDING SURFACE.  
 IF SUPPLIED GROUND STRAP #54 IS REMOVED FROM ASSEMBLY, RETIGHTEN CYLINDER HEAD ADAPTER RETAINING NUTS #48 & #50 EQUALLY TO 90 INCH.  
 LUBRICATE INTERNAL COMPONENTS WITH DOW CORNING COMPOUND #111 SILICONE

REMOVE SHARP EDGES



W.S. DARLEY & C  
 1000 W. 10th St., Des Moines, IA 50319  
 PHONE: 515-281-1111 FAX: 515-281-1112  
 TOLL FREE: 1-800-338-2828  
 DATE: JUN 17, 2003  
 SCALE: 1/2"

DCP PART NO. \_\_\_\_\_ PATERN NO. \_\_\_\_\_  
 MATERIAL NO. \_\_\_\_\_  
 TOLERANCE: AS NOTED  
 UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE  
 DO NOT SCALE PRINT

REV.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	REWORKED FOR 12V	4/13/72	SSV		

REV.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	REWORKED FOR 12V	4/13/72	SSV		

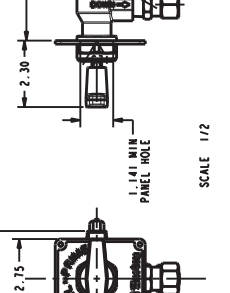
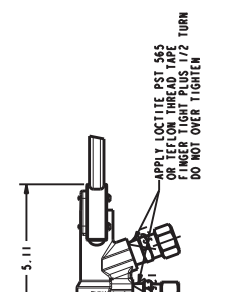
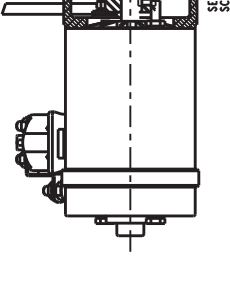
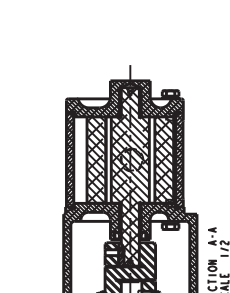
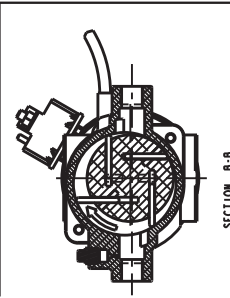
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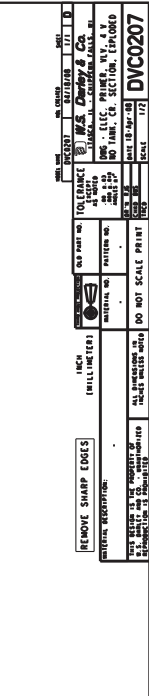
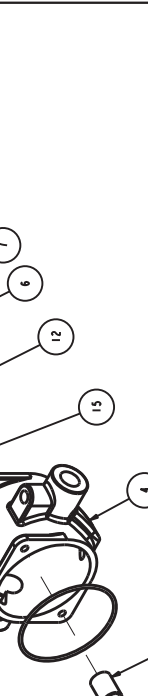
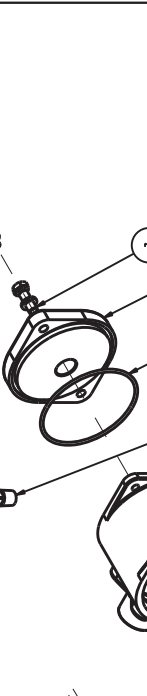
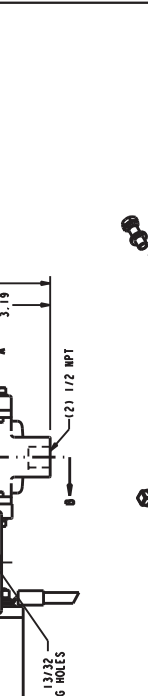
REV.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	REWORKED FOR 12V	4/13/72	SSV		

REV.	DESCRIPTION	DATE	BY	CHKD.	APP.
1	REWORKED FOR 12V	4/13/72	SSV		

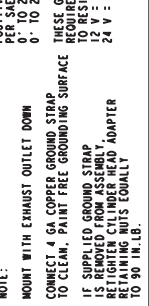
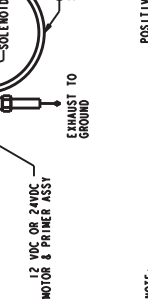
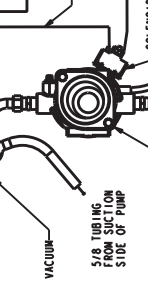
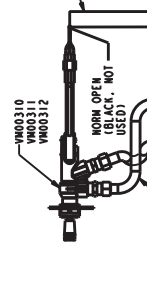
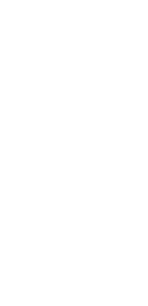
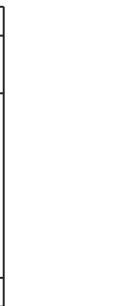


NOTE:  
 - FOR CROSS SECTION AND EXPLODED VIEW DRAWING  
 SEE DIMENSIONS FOR THIS VALVE WITH  
 THIS NEW VERSION. BUSHING 1162500 CAN BE USED TO RETROFIT  
 IT TO THE EXISTING PANEL.

APPLY LOCKWASHERS AND WASHERS TO ALL MOUNTING HOLES AND FINGER TIGHT PLUS 1/2 TURN DO NOT OVER TIGHTEN



NO.	DESCRIPTION	PART NO.	QTY.
1	ASSEMBLY - PRIMER, ROTOR	4420105	1
2	BEARING - OILITE, 0.626 ID	1760023	2
3	COUPLING - 844093	2404500	1
4	CYLINDER - VACUUM PUMP	1020800	1
5	HEAD - CYLINDER INBOARD	2808904	1
6	HEAD - CYLINDER OUTBOARD	2808800	1
7	WASHER - 312-18 x 1.00, SST	5400810	4
8	WASHER - 312-18 x 1.00, SST	5400810	4
9	WASHER - 312-18 x 1.00, SST	5400810	4
10	WASHER - 312-18 x 1.00, SST	5400810	4
11	WASHER - 312-18 x 1.00, SST	5400810	4
12	O-RING - 3.50 x 3.49 x 0.09	3601101	2
13	O-RING - 0.625 ID x 1.128 OD	3600505	1
14	STRAP - GROUND, 12V PRIMER	2400504	1
15	STRAP - GROUND, 12V PRIMER	2400504	1
16	STRAP - GROUND, 12V PRIMER	2400504	1
17	WASHER - ELEC. PRIMER	4421601	4
18	WASHER - FLAT, 5/16, STEEL	3603802	2
19	WASHER - LOCK, 0.313 ID	3603502	6



NOTE:  
 - CONNECT WITH EXHAUST OUTLET DOWN  
 - TO CLEAN, PAINT FREE GROUND SURFACE  
 - IF SUPPLIED GROUND STRAP  
 - IS REMOVED FROM ASSEMBLY,  
 - RETAINING CYLINDER HEAD ADAPTER  
 - TO 90 INCHES.

POSITIVE LEAD WIRE SIZES FOR 12 V & 24 V PRIMERS:  
 PER STANDARD 117 (MINIMUM WIRE VOLTAGE DROPS)  
 0' TO 25' ..... 12 (24V), 12 (24V) COPPER  
 0' TO 25' ..... 12 (24V), 12 (24V) COPPER

THESE GAGE WIRES CORRESPOND WITH AMP DRAW  
 RESISTANCE FOR EACH MOTOR AS WELL AS IN RELATION  
 TO RESISTANCE OVER GIVEN LENGTH.

12 V - 240 AMP  
 24 V - 140 AMP

WEIGHT : 27 LB (12.1 KG)

REMOVE SHARP EDGES  
 ALL DIMENSIONS IN  
 INCHES UNLESS NOTED  
 DO NOT SCALE PRINT

DESIGNED BY: J. M. Dwyer & Co.  
 DRAWN BY: J. M. Dwyer & Co.  
 CHECKED BY: J. M. Dwyer & Co.  
 DATE: 10-29-68

SCALE: 1/2

SCALE: 1/2

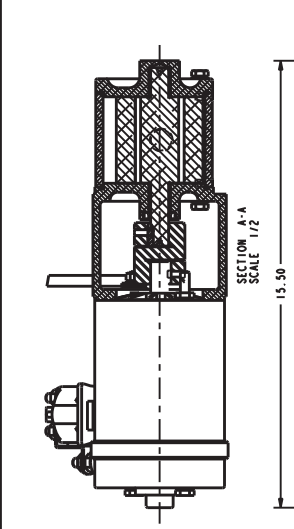
SCALE: 1/2

SCALE: 1/2

SCALE: 1/2

DVC0207

REV. NO.	DESCRIPTION	DATE	BY	CHKD.	APP'D.
1	REVISED FIRST TIME	7/15/59	375	375	375



SECTION A-A  
SCALE 1/2

APPLY LOCTITE PST 665 ON ALL THREADS. FINGER TIGHT PLUS 1/2 TURN. DO NOT OVER TIGHTEN.

1.141 MIN PANEL HOLE

3.03  
2.75  
3.12

5.11  
2.30

15.50  
9.10  
12.75  
6.76  
3.19

(2) 1/2 MPT MOUNTING HOLES

SECTION B-B

NOTE: FOR CROSS SECTION AND EXPLODED VIEW DRAWING SELECT DRAWING BEING REPLACED. THE OLD VERSION OF THIS VALVE WITH THIS NEW VERSION. BUSHING 7162500 CAN BE USED TO RETROFIT IT TO THE EXISTING PANEL.

WEIGHT - 27 LB (12.1 KG)

REMOVE SHARP EDGES

REWORK DESCRIPTION

DO NOT SCALE PRINT

DATE REVISION 25 SEP 1959

REV. NO. 1

DATE 7/15/59

BY 375

CHKD. 375

APP'D. 375

SCALE 1/2

DO NOT SCALE PRINT

DATE REVISION 25 SEP 1959

REV. NO. 1

DATE 7/15/59

BY 375

CHKD. 375

APP'D. 375

SCALE 1/2

DO NOT SCALE PRINT

NO.	DESCRIPTION	PART NO.	QTY.
1	ASSEMBLY - PRIMER, ROTOR	4420105	1
2	BEARING - OILITE, 0.625 ID	1760023	2
3	COUPLING - 44493	2404500	1
4	CYLINDER - VACUUM PUMP	1028000	1
5	HEAD - CYLINDER THROAT	2808904	1
6	HEAD - CYLINDER, OUTBOARD	2808800	1
7	WKS - .313-18 x 1.00, SST	5400610	4
8	RET. SO., 0.19 x 0.62 GR2	3402425	1
9	RET. WOODRUFF, 60S	3402200	1
10	MOTOR - PRIMER, 24V	4223500	1
11	WASHER - .313-15, SST	5403024	2
12	WASHER - .313-15, SST	5403024	2
13	O-RING - 3.50 x 3.69 x 0.09	3801101	2
14	OIL SEAL - 0.625 ID x 1.128 OD	3400505	1
15	TUBE FITTING - STR., .25 x .19	3500021	1
16	STRAP - GROUND, 12V PRIMER	2400516	1
17	WASHER - ROTOR, ELEC PRIMER	4407601	4
18	WASHER - FLAT, 5/16, STEEL	3403802	2
19	WASHER - LOCK, 0.313 ID	3403502	6

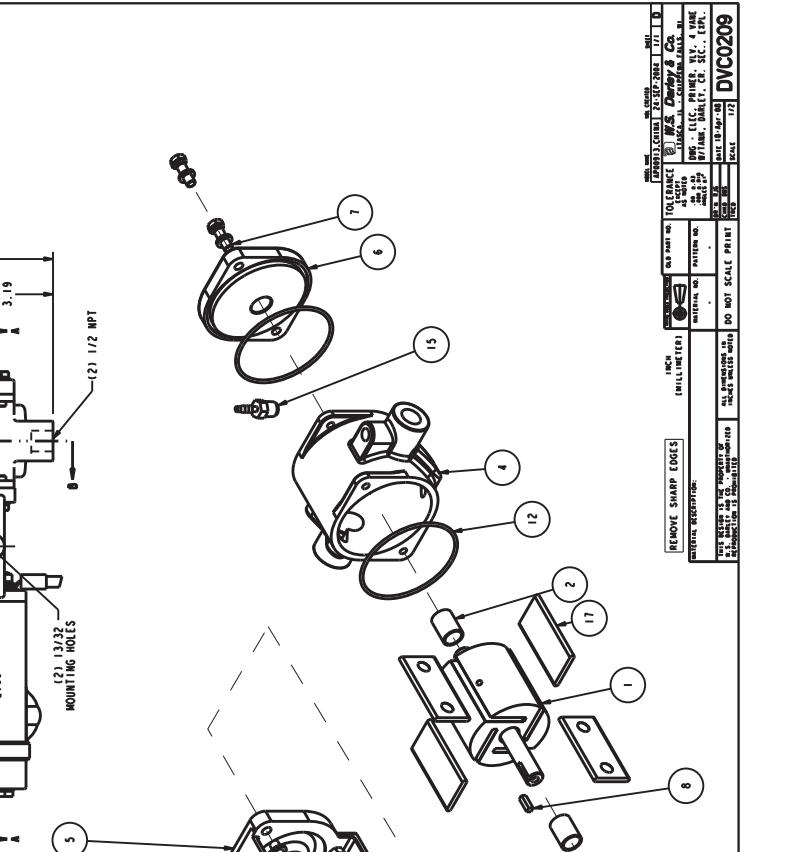


PLATE - FOR LUBRICANT TANK 462 DRILL - VERT HOLE

PRIMER LUBRICANT TANK (BLACK, NOT USED) WITH DARTLET PRIME GREEN LOCATE TANK ABOVE ELECTRIC PRIMING PUMP

24 VDC POWER (RED)

HORN OPEN (BLACK, NOT USED)

HORN CLOSED (WHITE)

SOLENOID

GROUND STRAP

EXHAUST TO GROUND

VACUUM

5/8" TUBING FROM SUCTION SIDE OF PUMP

24 V PRIMER & DC MOTOR ASST

WIND0313

NOTE: POSITIVE LEAD WIRE SIZES FOR 24 V PRIMERS: PER STANDARD WIRE SIZES STARTING MOTOR VOLTAGE DROPS: 0' TO 25' ..... 18 COPPER 0' TO 25' ..... 18 COPPER THESE GAGE WIRES CORRESPOND WITH AMP DRAW REQUIREMENTS FOR EACH MOTOR AS WELL AS IN RELATION TO RESISTANCE OVER GIVEN LENGTH. 24 V = 140 AMP

NOTE: MOUNT WITH EXHAUST OUTLET DOWN

CONNECT 4 GA COPPER GROUND STRAP TO CLEAN, PAINT FREE GROUNDING SURFACE

IF SUPPLIED GROUND STRAP IS REMOVED FROM ASSEMBLY, RETAINING CYLINDER HEAD ADAPTER TO 30 IN. LB.

WEIGHT - 27 LB (12.1 KG)

REMOVE SHARP EDGES

REWORK DESCRIPTION

DO NOT SCALE PRINT

DATE REVISION 25 SEP 1959

REV. NO. 1

DATE 7/15/59

BY 375

CHKD. 375

APP'D. 375

SCALE 1/2

DO NOT SCALE PRINT

DVC0209

7.13

1200031