

Designed with the "User" in mind



Operators Manual

Customer Name: _____

Manufactured By:

FlexSpray
Lubrication Systems
Phone: (816) 525-3539
Fax: (816) 525-7182

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Daily Maintenance Schedule

1. **Check the air supply filter** for water and other contaminants. Drain as needed by pressing the relief valve located at the bottom of the bowl.
2. **Check the air supply regulator** for proper adjustment. (25 to 125 P.S.I.). Adjust by rotating the adjustment knob clockwise to increase thrust for higher viscosity lubricants. Rotate counter clockwise to decrease thrust for lower viscosity lubricants.
3. **Check the F.R.L.** oil level to assure proper lubrication of the internal moving parts of the pump(s). Refill with a lightweight hydraulic oil with ISO Grade 32, 150 @ 100 degrees F., SAE 10 weight (i.e. ENLUBE ATL 13 R&O or Mobil DTE 24). To accomplish this, simply apply hand pressure to the bowl cover release, rotate counter clockwise, and pull downward. Refill, then place bowl and cover back into position while holding down the bowl cover release and turn clockwise to lock in place. For proper drip rate (1 drop per 12 cycles of the FlexSpray System), turn the silver adjustment screw (located to the left side) while viewing the drip rate through the sight glass. To increase the drip rate, turn the silver adjustment screw counter clockwise.
NOTE: The drip rate must be reset when the air pressure is changed and/or the cycles per minute of the pumps are changed.
4. **Check the filters in the reservoir** for flow ability. Filters will float sideways when clogged. Clean with soapy water or solvent.
5. **Check spray patterns** for good crisp patterns. Poor spray patterns can be a result of the following:
 - a. Clogged spray tips.
 - b. Dirty strainers behind tips.
 - c. Loose fittings
 - d. Holes in sprayline tubing.
 - e. Worn O-Rings inside of the pump(s).
 - f. Air supply, air pressure set too low.
 - g. Viscosity of lubricant too heavy.

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FlexSpray[®]

Electrical Control Options

- *Programmable Timer
- *Low Lube Float
- *Limit Switch
- *Programmable Counter

* Available on old and new systems.

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FlexSpray In-Die Lubrication System Electrical Installation Instructions

A drawing for each model shows all electrical control parts included in the lubrication system and how they are wired to aid in making the necessary modifications required to connect the FlexSpray unit into your press control system. This wiring is to be performed by your technical personnel.

Timer Operation

Operate the pushbuttons of the thumbwheel switch located at the leftmost position on the front panel of the timer to set the operation mode to “B”. The relay will remain in “Normal” for the time period set on the remaining four dials after power is applied to terminal #2 of the relay and then is energized for the same length of time. The relay will then automatically reset and will continue to repeat the above cycle until power is removed from terminal #2. At this time, the relay will return to “Normal” as shown in the standard drawing.

Operate the pushbuttons of the rightmost thumbwheel to change the time unit.
(Seconds, Minutes, Hours)

Low Lube Level Float Control

The switch is located near the bottom/ center of the reservoir. This switch is closed when the lubrication level is low. To change the direction of operation, remove the float and reinsert it in the opposite direction or position.

Caution: Carefully examine the control circuit of your press when wiring terminal strip – terminal #4 & #5. These terminals are connected to a normally open contact of a relay. This relay will be energized when the level of lubricant in the reservoir drops below the desired level. The contact “1CRB” must be wired into the press control circuit in such a manner that the press will stop at the TOP of the ram stroke when the lubrication level is low.

Solenoid Valve

Energizing this valve will allow air pressure to be applied to the individual pumps. This will cause the pumps lube chamber to fill.

De-energizing this valve will cause the pumps to discharge lubricant.

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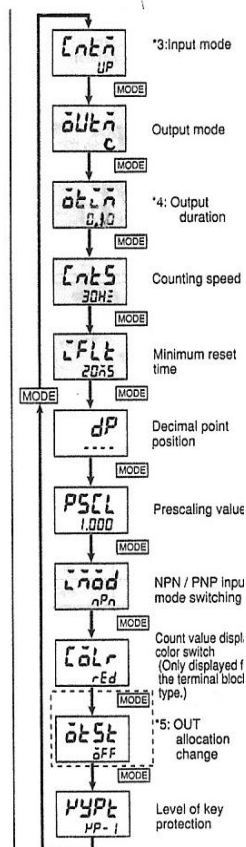
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FlexSpray In-Die Lubrication System Electrical Installation Instructions Continued

Counter Program & Sequencing Instructions

Turn the key protect switch on side of the counter to the off position. Press the mode button to toggle through the modes. Use the up and down buttons to change the functions of each mode. Press and hold the mode button for more than three seconds to return to the display screen. All modes should be set to the program below. Once the program is verified, return the key protect switch to the on position.



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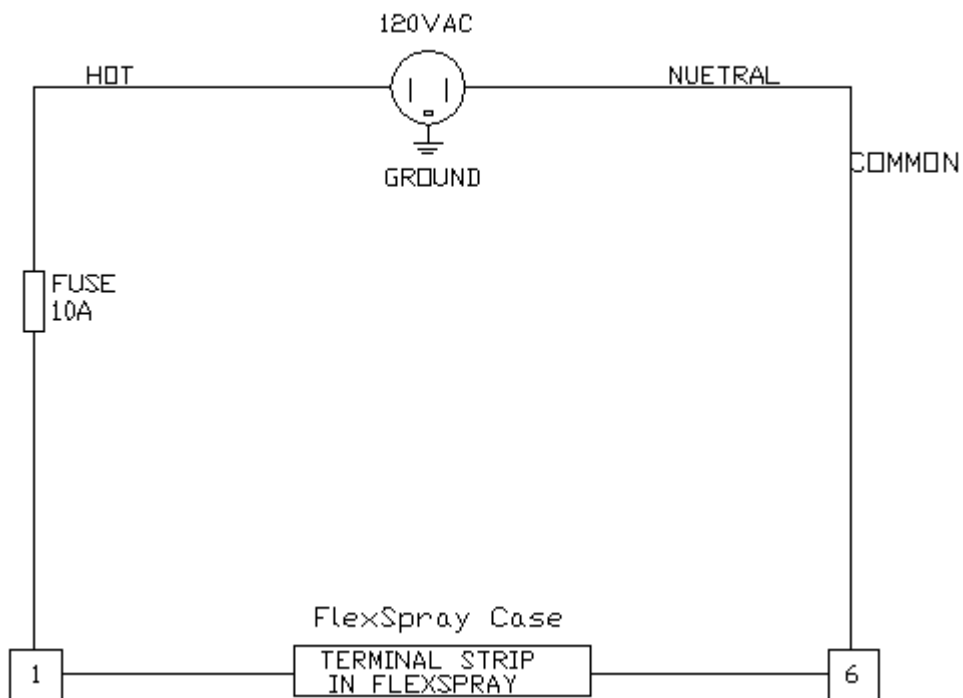
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Electrical Schematics

AC Plug

In Die Lubrication System Electrical Schematic Power Cord and Wiring For All Models



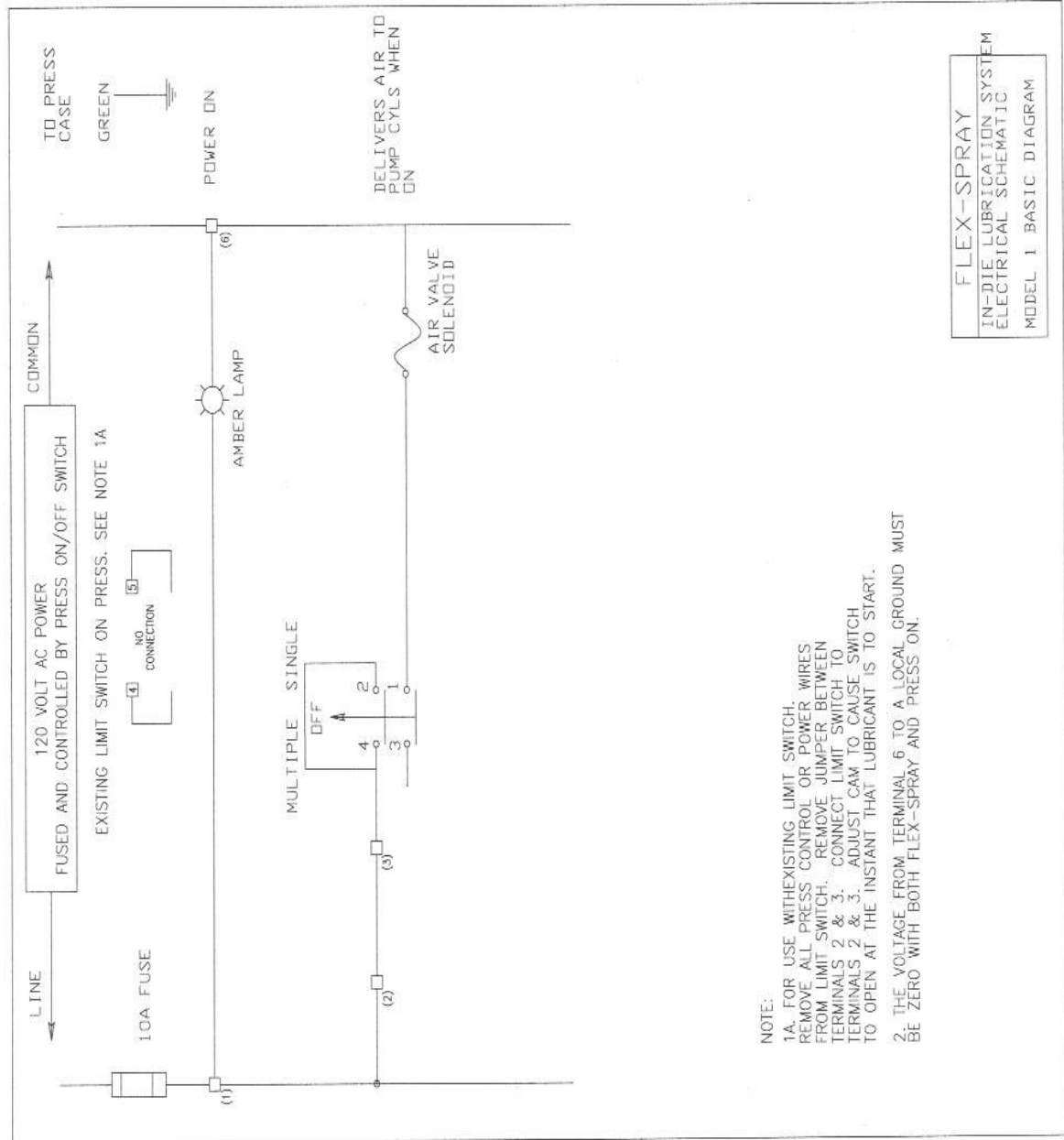
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Basic System



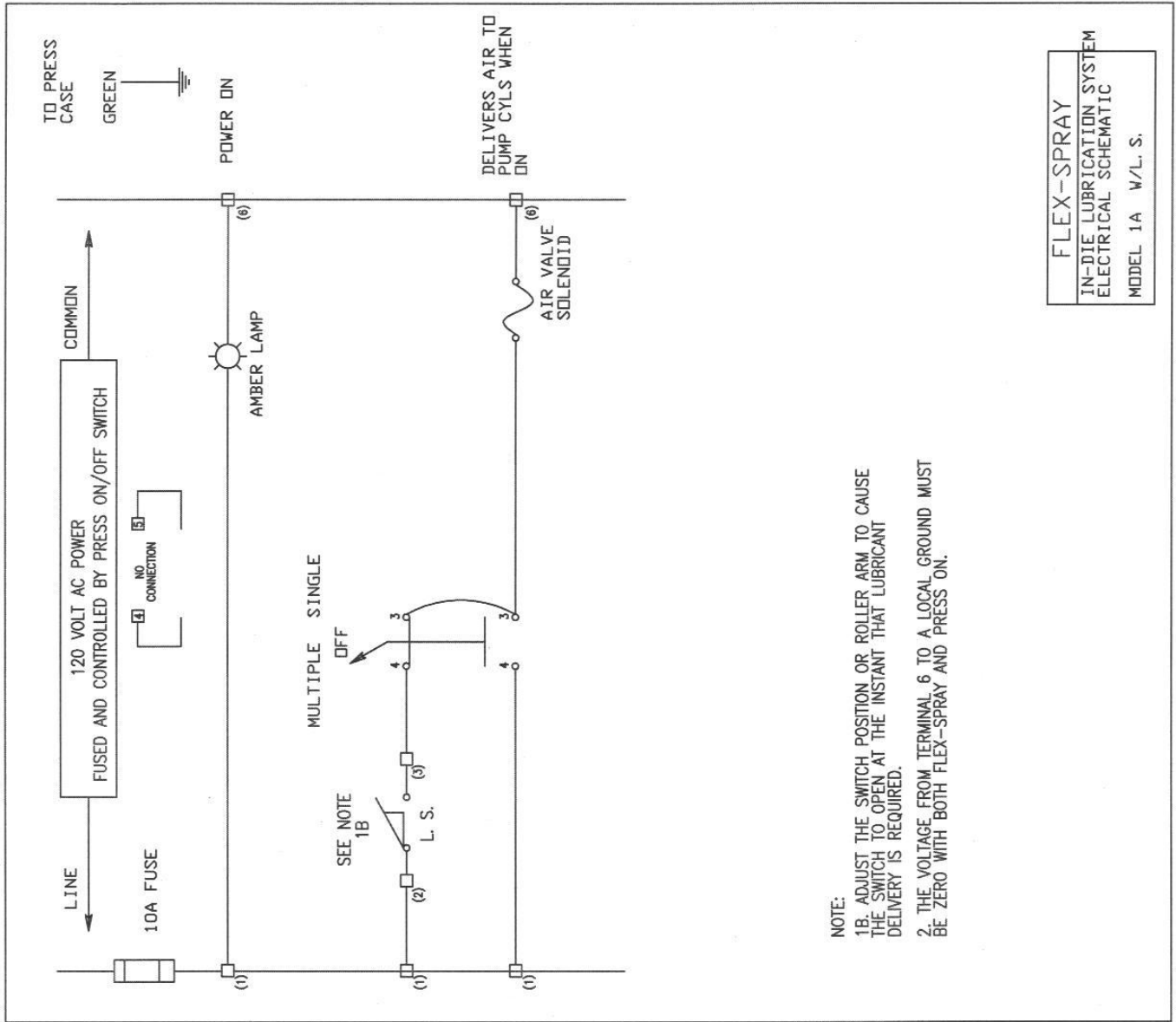
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Basic System with Limit Switch



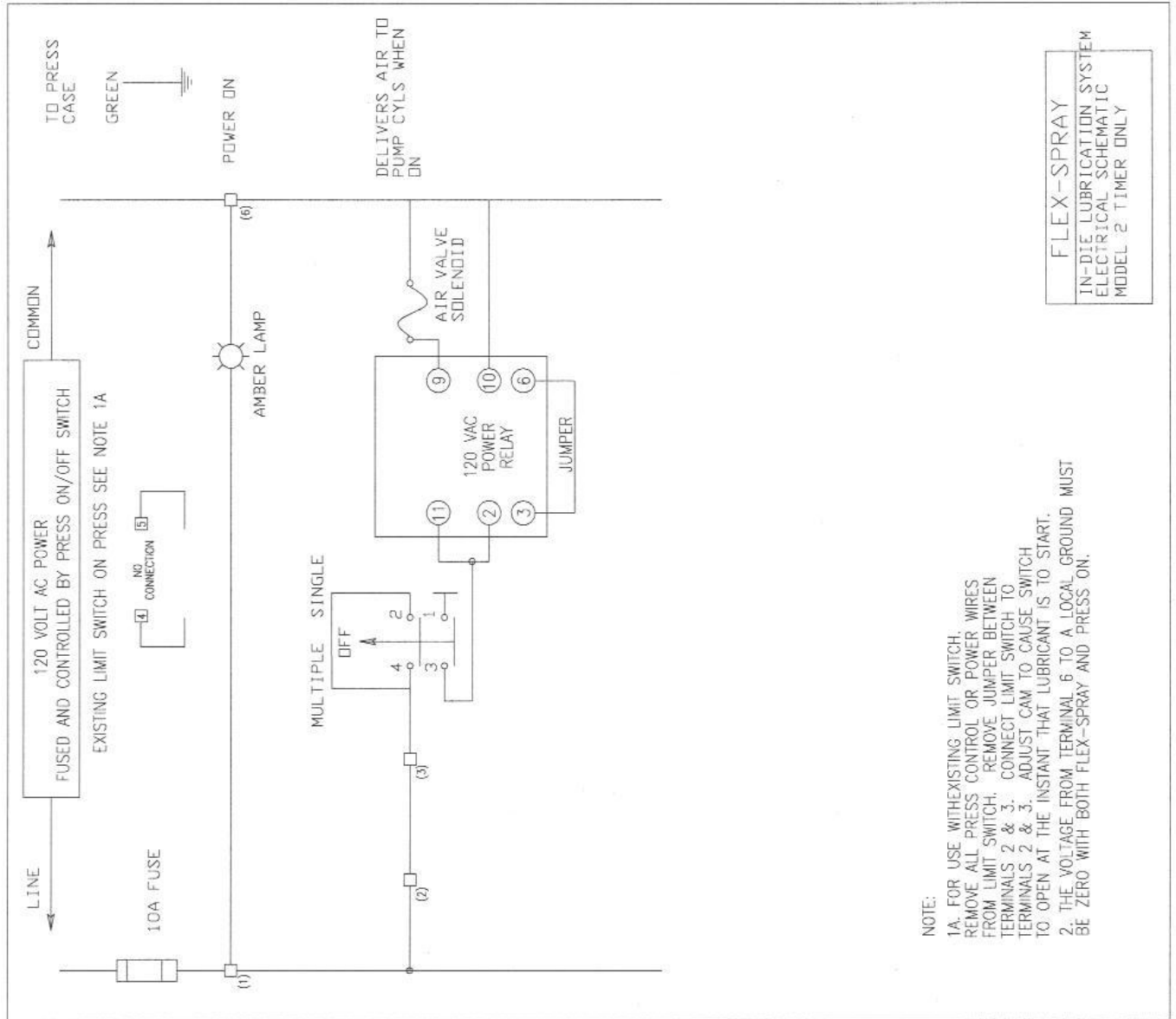
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Basic System with Timer only



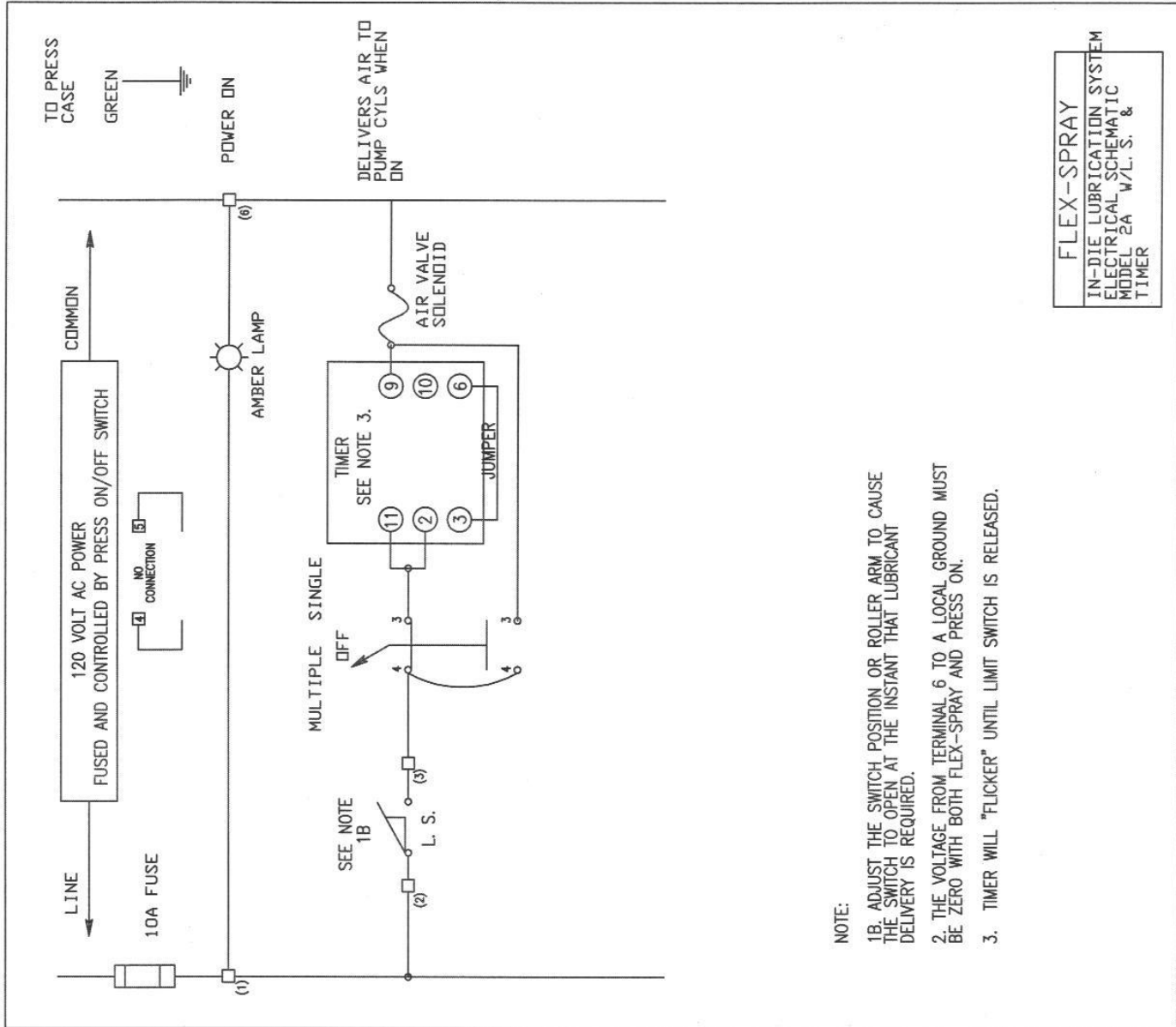
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Basic System with Limit Switch and Timer



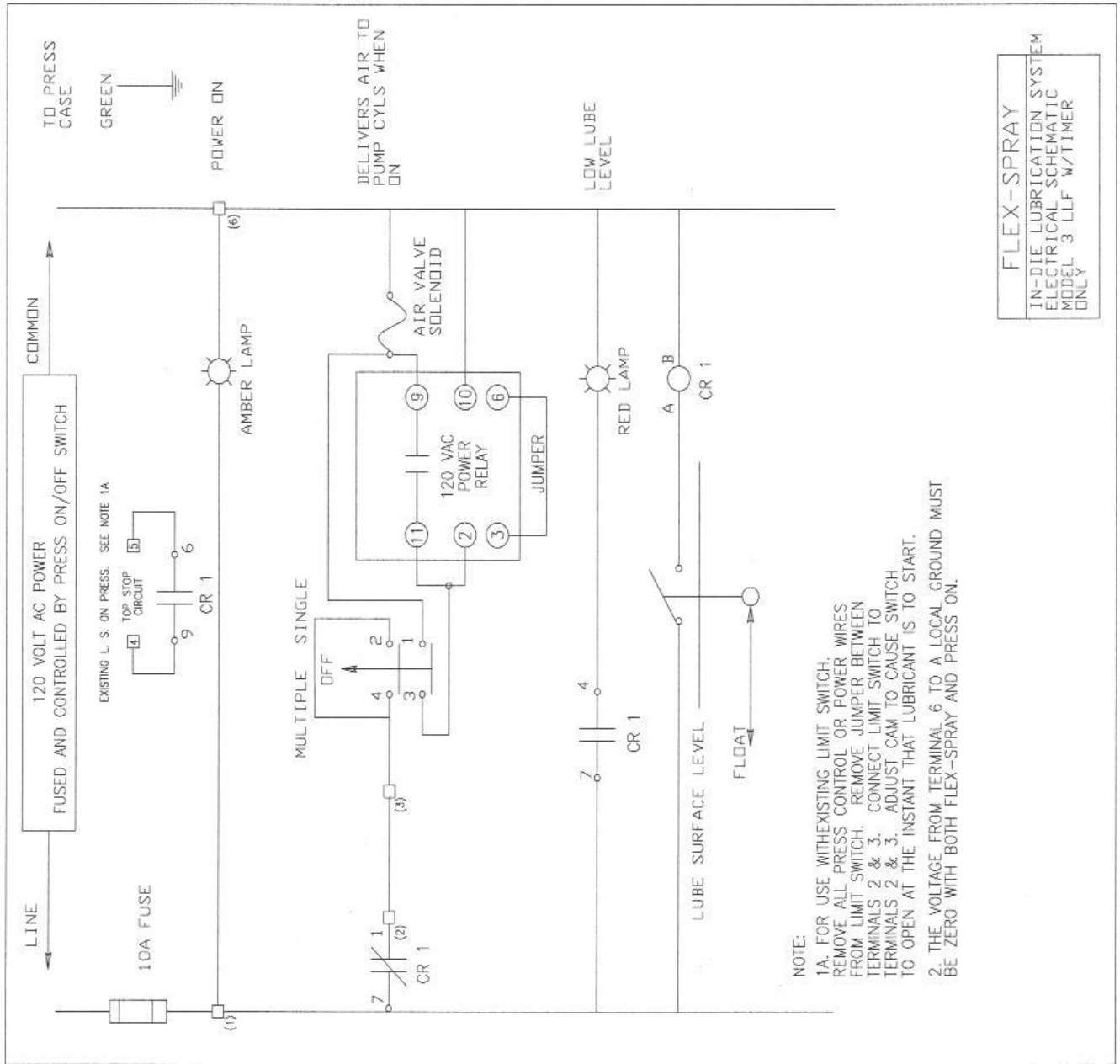
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Basic System with Low Lube Float and Timer



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ELECTRICAL SCHEMATIC
MODEL 3 LLF W/TIMER
ONLY

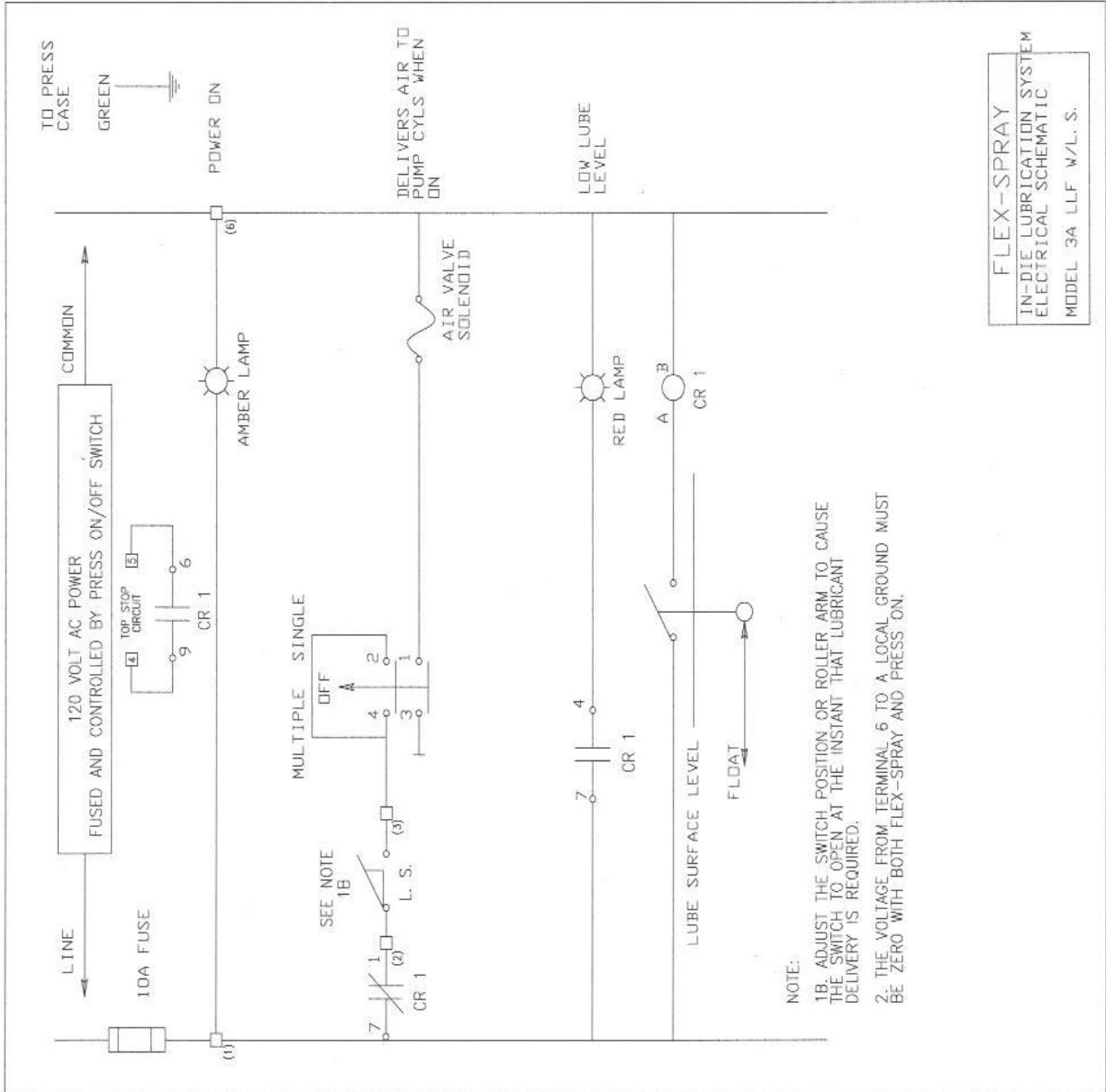
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Basic System with Low Lube Float and Limit Switch



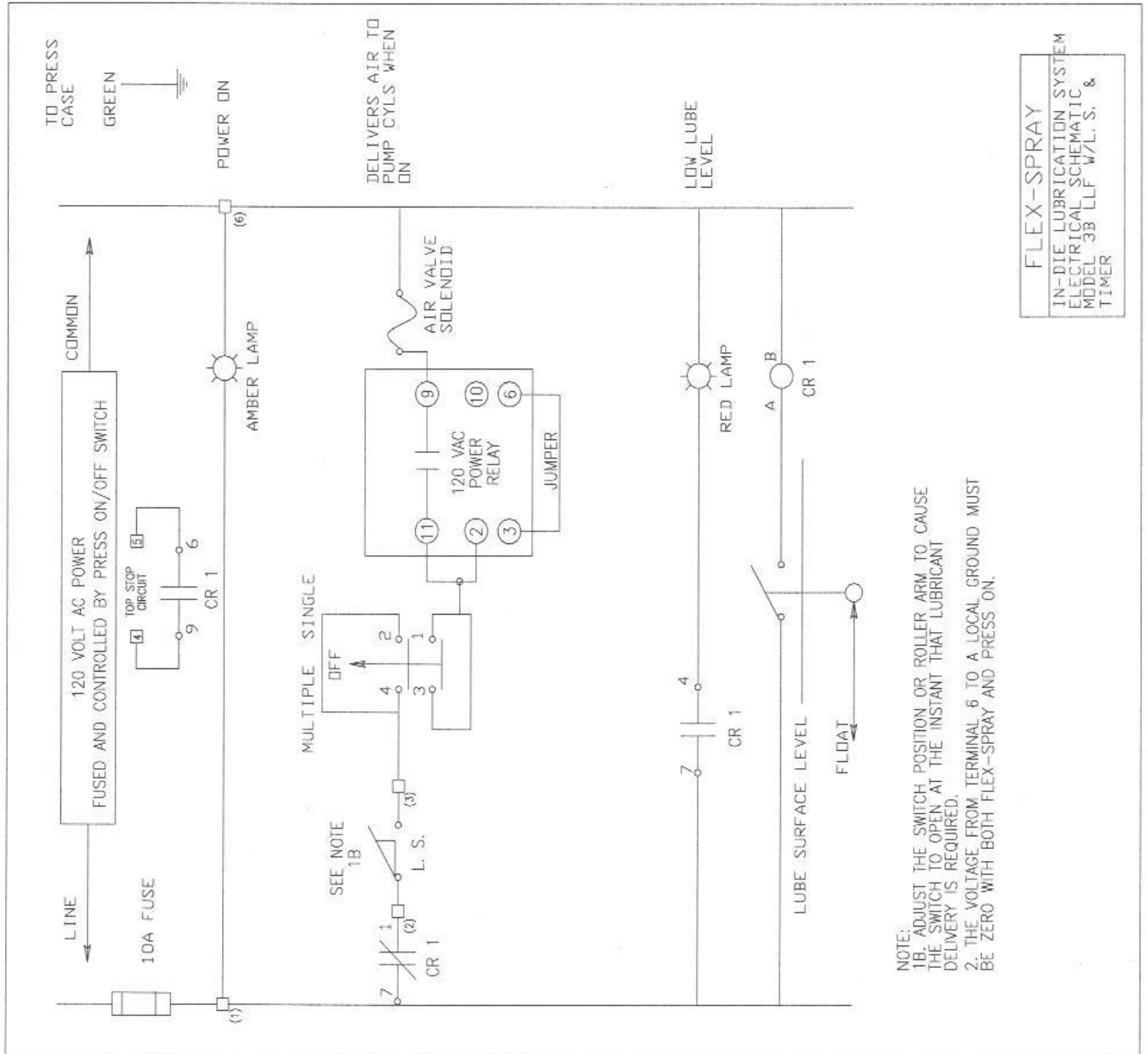
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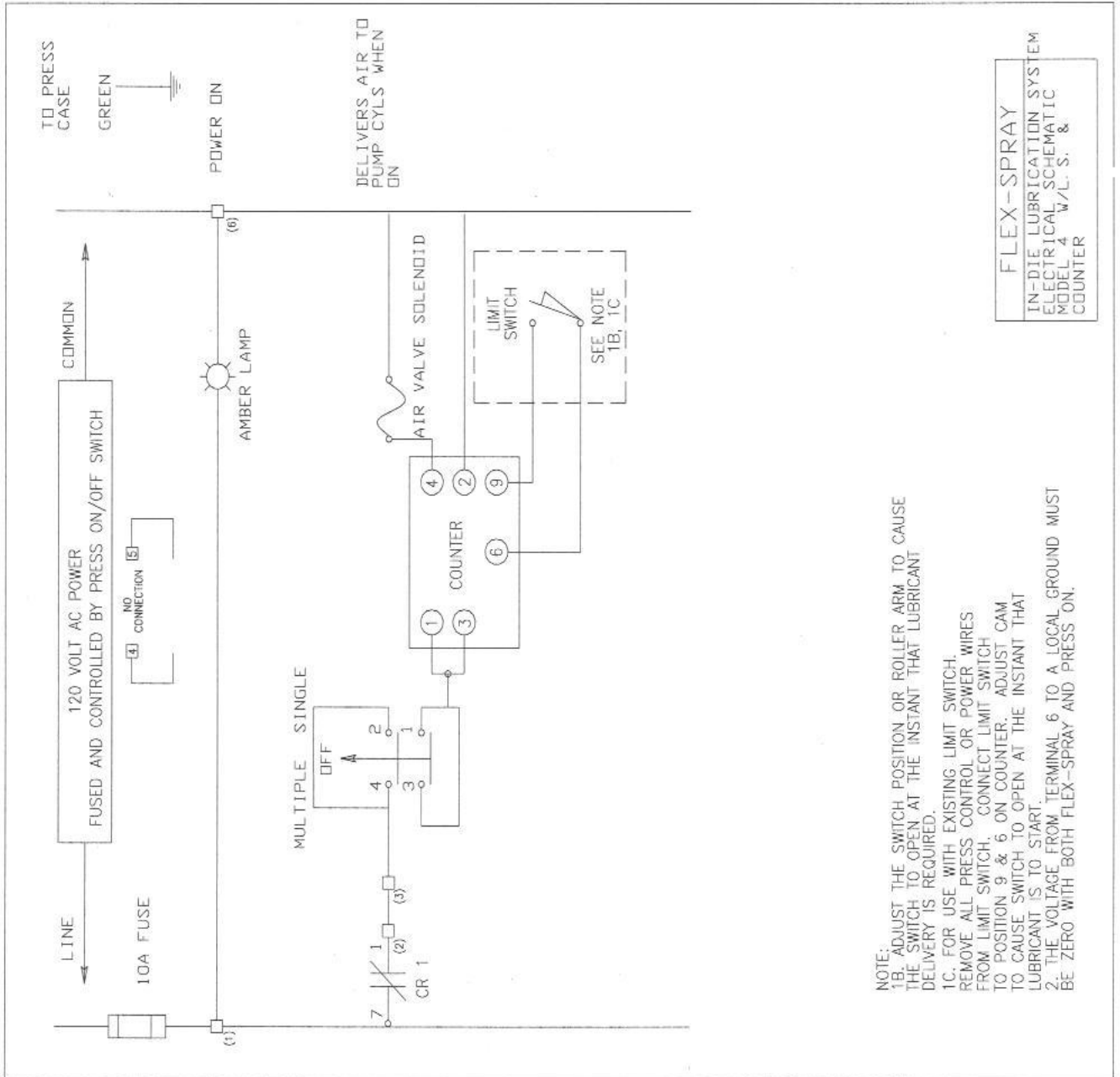
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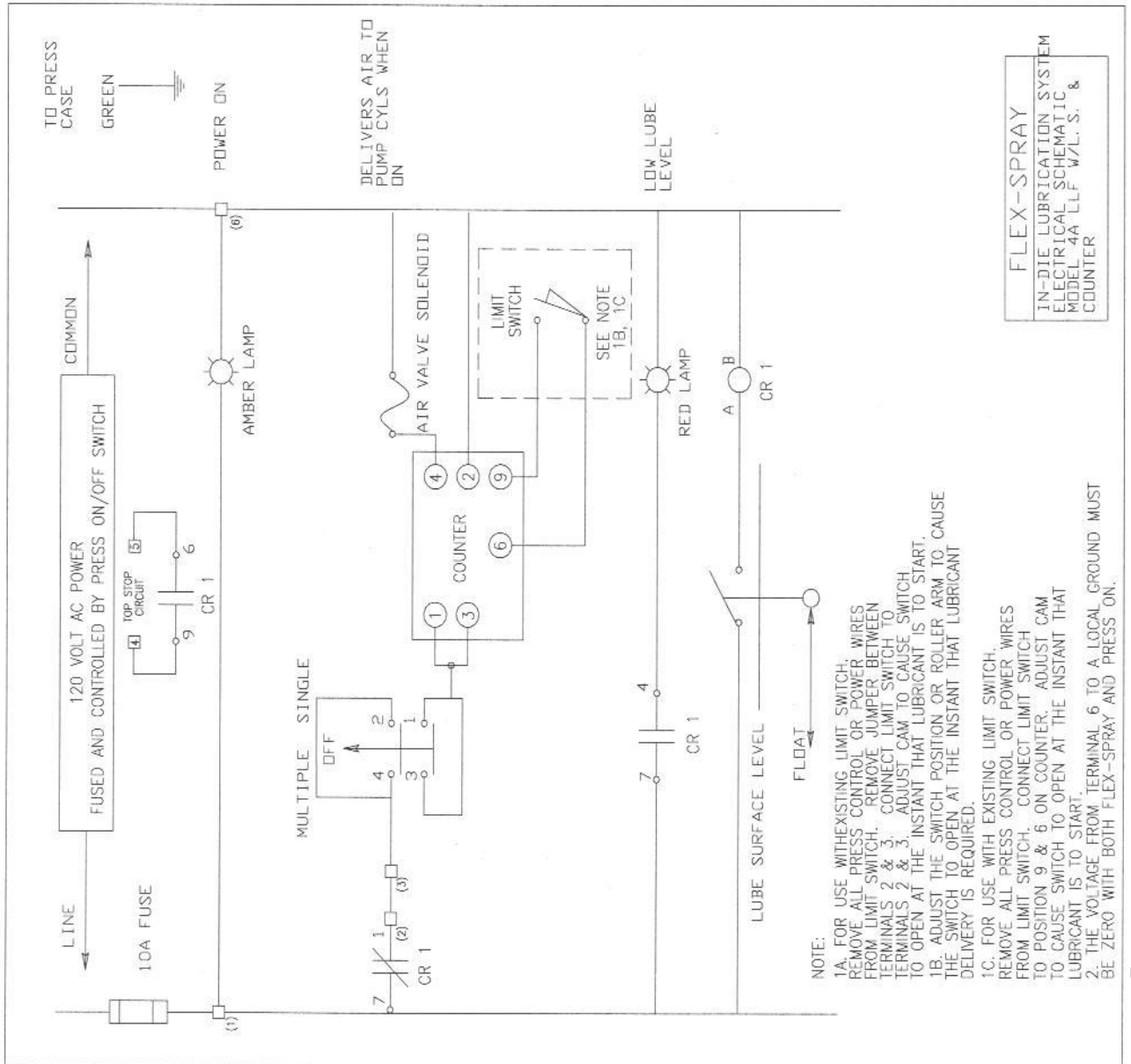
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FlexSpray Airless Spray Stock Lubrication Systems Specifications

	<u>Micro-Flex</u>	<u>Min-Flex</u>
Reservoir Capacity	2.5 gallons	5.0 gallons
Construction	Stainless Steel	Stainless Steel
Drain Plug	Yes	Yes
Lube Return Fitting	Yes	Yes
Floor Anchor Plates	No	No
Number of Pumps Available	1,2,3,4,5,6	1,2,3,4,5,6
Pump Construction	Stainless Steel	Stainless Steel
Pump Cylinder Walls	Burnished Finish	Burnished Finish
Ability to Add Pumps in the Field	Yes – up to 6	Yes – up to 6
Pumps Individually Adjustable (Per Pump)	Yes – 0 - .051 ounces per cycle	Yes – 0 - .051 ounces per cycle
Max. Cycles per Minute at Full Capacity	450 CPM	450 CPM
Max. Cycles per Minute at Less than Full Capacity	600 CPM	600 CPM
O-Ring Seals	Viton	Viton
Filtration in Reservoir	Individual Filters	Individual Filters
Solenoid	“Ross” Single Solenoid Pilot Controlled Air Valve	
Voltage*	115 VAC, 60 HZ	115 VAC, 60 HZ
Fused	5 Amp	5 Amp
Air Supply, F.R.L.	Yes	Yes
Operating Air Pressure	35 Min. 125 Max.	35 Min. 125 Max.
Size Dimensions	15” x 12” x 17”	15” x 10” x 20”
Approximate Weight	30 lbs.	35 lbs.

* Other voltages are available upon request.

All FlexSpray items can be added in the field through the use of knockouts.

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FlexSpray Airless Spray Stock Lubrication Systems Specifications Continued

	<u>Mid-Flex</u>	<u>Mag-Flex</u>
Reservoir Capacity	10 gallons	20 gallons
Construction	Stainless Steel	Stainless Steel
Drain Plug	Yes	Yes
Lube Return Fitting	Yes	Yes
Floor Anchor Plates	No	Yes
Number of Pumps Available	1,2,3,4,5,6,7, 8,9,10,11,12	1,2,3,4,5,6,7, 8,9,10,11,12
Pump Construction	Stainless Steel	Stainless Steel
Pump Cylinder Walls	Burnished Finish	Burnished Finish
Ability to Add Pumps in the Field	Yes – up to 12	Yes – up to 12
Pumps Individually Adjustable (Per Pump)	Yes – 0 - .051 ounces per cycle	Yes – 0 - .051 ounces per cycle
Max. Cycles per Minute at Full Capacity	450 CPM	450 CPM
Max. Cycles per Minute at Less than Full Capacity	600 CPM	600 CPM
O-Ring Seals	Viton	Viton
Filtration in Reservoir	Individual Filters & Pickup Lines	Individual Filters & Pickup Lines
Solenoid	“Ross” Single Solenoid Pilot Controlled Air Valve	
Voltage*	115 VAC, 60 HZ	115 VAC, 60 HZ
Fused	5 Amp	5 Amp
Air Supply, F.R.L.	Yes	Yes
Operating Air Pressure	35 Min. 125 Max.	35 Min. 125 Max.
Size Dimensions	18” x 12” x 29”	
Approximate Weight	55 lbs.	70 lbs.

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FlexSpray Airless Spray Stock Lubrication Systems Specifications Continued

	Max-Flex
Reservoir Capacity	40 gallons
Construction	Stainless Steel
Drain Plug	Yes
Lube Return Fitting	Yes
Floor Anchor Plates	Yes
Number of Pumps Available	1,2,3,4,5,6,7, 8,9,10,11,12
Pump Construction	Stainless Steel
Pump Cylinder Walls	Burnished Finish
Ability to Add Pumps in the Field	Yes – up to 12
Pumps Individually Adjustable (Per Pump)	Yes – 0 - .051 ounces per cycle
Max. Cycles per Minute at Full Capacity	450 CPM
Max. Cycles per Minute at Less than Full Capacity	600 CPM
O-Ring Seals	Viton
Filtration in Reservoir	Individual Filters & Pickup Lines
Solenoid	"Ross" Single Solenoid Pilot Controlled Air Valve
Voltage*	115 VAC, 60 HZ
Fused	5 Amp
Air Supply, F.R.L.	Yes
Operating Air Pressure	35 Min. 125 Max.
Size Dimensions	18" x 18" x 51"
Approximate Weight	90 lbs.

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FlexSpray Item #, Part #, and Description

Item #	Part #	Description	Stock Status
1	710001	Large Enclosure (Mid/Mag/Max) (1-12 Pumps)	
	71001A	Small Enclosure (Micro/Min) (1-6 Pumps)	
2	720002	Manifold - Standard	
	72002S	Manifold - Standard, SS	
	72002A	Manifold - HV	
	72002B	Manifold - One Pump Modular	
	72002C	Manifold - Two Pump Modular	
	72HV2D	Manifold - One HV Pump Modular	
	72HV2E	Manifold - Two HV Pump Modular	
	840071	3/8" Compression Dome Plug	
3	730003	5/16" Lock Washer, SS	
4	730004	5/16-18 x 3/4 Hex Head Bolt, SS	
	740002	Pump Complete - Standard	
	740003	Pump Complete - Draw-P	
	740104	Pump Complete - Micro/LV	
	74HV02	Pump Complete - HV	
5	740005	Pump Body - Standard	
	74005A	Pump Body - Micro/LV	
	74005B	Pump Body - HV	
6	740006	Pump Metering Assembly - Standard or Micro/LV	
	74HV06	Pump Metering Assembly - HV	
	720006	8-32 x 1/4 w/ Nylon Tip (Metering Cap Set Screw)	
7	720007	10-32 x 1-1/4 SHCS (Pump Mounting Screw)	
8	720008	8-32 x 1 SHCS (Metering Cap Mounting Screw)	
9	750009	Poly O-Ring - Small Piston (Draw P) - Standard	
10	740010	Piston - Standard	
	74010A	Piston - Micro/LV	
	74010B	Piston - HV	
11	750011	Viton O-Ring - Large Piston - Standard & Micro/LV	
	75011A	Viton O-Ring - Large Piston - HV	
12	750012	Viton O-Ring - Metering Assembly	
	75H12A	Viton O-Ring - Metering Assembly HV	
13	750013	Viton O-Ring - Oil Inlet & Small Piston - Standard and HV	
14	750014	Viton O-Ring - Air Inlet/Outlet & Small Piston Micro/LV	
15	720015	Pump Cover Plate - Standard	
	72H15A	Pump Cover Plate - HV	

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16	720016	10-32 x 1/2 BHSCS (Pump Cover Plate Mounting Screw)	
17	750017	Viton O-Ring - Oil Outlet Valve Body	
18	740018	Valve Body - Oil Outlet	
19	740019	Ball - Oil Outlet Check	
20	740020	Spring - Oil Outlet Check	
21	740021	Quick Disconnect Coupling (F) - Viton Seals w/ Check	
	7421SS	Quick Disconnect Coupling (F) SS - Viton Seals w/ Check	
22	740022	Spring - Oil Inlet Check	
23	740023	Poppet - Oil Inlet Check	
24	740024	Oil Inlet Valve Seat	
25	740025	90° Elbow - 1/8" MPT x 1/4" Compression	
26	740026	Accumulator Assembly – Obsolete *To Update Your System, order item 740025	
	740027	Pump Rebuild Kit - Standard	
	740028	Pump Rebuild Kit - Draw-P	
	740029	Pump Rebuild Kit - Micro/LV	
	740030	Pump Rebuild Kit - HV	
27	760027	Compression Sleeve - 1/4"	
28	760028	Compression Nut - 1/4"	
29	770029	Grommet, Double Wall	
30	780030	Tubing - PVC Lube Pick-Up (Micro)	
31	780031	Tubing - PVC Lube Pick-Up (Min)	
	78031A	Tubing - PVC Lube Pick-Up (Mid)	
	78031B	Tubing - PVC Lube Pick-Up (Max)	
	78031C	Tubing - PVC Lube Pick-Up (Mag)	
32	760032	Quick Disconnect Coupling (F) - Viton Seals w/o Check	
33	790033	Filter Complete	
	79033A	Filter In Reservoir Only (less Q.D. Coupling)	
34	710034	2.5 Gallon Reservoir, Micro-Flex	
	71034A	5 Gallon Reservoir, Min-Flex	
	71034B	10 Gallon Reservoir, Mid-Flex	
	920003	Mounting Bracket - Mid-Flex (10 Gal. Reservoir)	
	71034C	40 Gallon Reservoir, Max-Flex	
	71034G	20 Gallon Reservoir, Mag-Flex	
	71034M	1.25 Gallon Reservoir, Mod-Flex	
	71034P	Mod-Flex Mounting Plate	
35	810035	Quick Disconnect Plug (M) - 1/8" MPT	
36	810036	Quick Disconnect Plug (M) - 1/4" Compression	
	81036A	Quick Disconnect Plug (M) w/ Check - 1/4"	

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38A	81038A	Flexarm Only - 6"	
38B	81038B	Flexarm Only - 12"	
38C	81038C	Flexarm Only - 18"	
39	810039	Anti-Crimp Spring - FlexArm	
40	810040	Compression Nozzle Adapter	
41	810041	1/8" FPT x 1/4" Compression	
	81041A	1/4" Comp. x 1/4" NPT (M)	
	81041B	1/4" Comp. x 1/8" NPT (M) w/ Check	
	81041C	1/4" Comp. x 1/4" Comp. Coupling	
42	810042	Spray Nozzle Body (M)	
	8142SS	Spray Nozzle Body (M), SS	
43	810043	Check Strainer Assembly	
	81043A	Check Strainer Assembly, SS	
	8143HP	Check Strainer Assembly, High Pressure	
44A	81044A	110* Spray Tip Only, Brass	
	8144AS	110* Spray Tip Only, SS	
44B	81044B	80* Spray Tip Only, Brass	
	8144BS	80* Spray Tip Only, SS	
44C	81044C	50* Spray Tip Only, Brass	
	8144CS	50* Spray Tip Only, SS	
44D	81044D	25* Spray Tip Only, Brass	
	8144DS	25* Spray Tip Only, SS	
44I	81044I	TK1.5 Spray Tip Only, Brass	
	8144IS	TK1.5 Spray Tip Only, SS	
44L	81044L	TG2 Spray Tip Only, Brass	
	8144LS	TG2 Spray Tip Only, SS	
44M	81044M	TG1 Spray Tip Only, Brass	
	8144MS	TG1 Spray Tip Only, SS	
44N	81044N	TG0.7 Spray Tip Only, Brass	
	8144NS	TG0.7 Spray Tip Only, SS	
44P	81044P	TG0.5 Spray Tip Only, Brass	
	8144PS	TG0.5 Spray Tip Only, SS	
44Q	81044Q	TG0.3 Spray Tip Only, Brass	
	8144QS	TG0.3 Spray Tip Only, SS	
44R	81044R	.003 Spray Tip Only, Brass	
	8144RS	.003 Spray Tip Only, SS	
44S	81044S	.001 Spray Tip Only, Brass	
	8144SS	.001 Spray Tip Only, SS	
44T	81044T	Misc. Spray Tip	

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	8144TS	Misc. Spray Tip, SS	
45	810045	Tip Retainer	
	8145SS	Tip Retainer, SS	
46	810046	Magnetic Base Only - Standard	
	810047	Magnetic Base Only - Heavy Duty w/ Release Lever	
	810MLB	L Bracket for Magnet	
47	820047	ROSS Solenoid Valve Complete	
	82047A	ROSS Solenoid Valve - Body Repair Kit - Bottom	
	82047B	ROSS Solenoid Valve - Pilot/ Packing Repair Kit - Top	
	82047C	ROSS Solenoid Valve - Remote Actuator Kit	
	82047D	110 Volt Coil - Standard Ross Valve	
	82047E	24 Volt Coil - Standard Ross Valve	
	82047M	ROSS Solenoid Valve - Modular	
	860103	ROSS Wiring Harness - Modular	
	82047N	110 Volt Coil - ROSS Modular	
	82047O	24 Volt Coil - ROSS Modular	
49	820049	Muffler - 1/8"	
50	820050	Muffler - 1/2"	
51	820051	Adapter - 1/4"	
52	820052	90° Elbow - 1/4" MPTx 3/8" Compression	
53	82052A	"T" Branch - for 3/8" Tubing (for syst. with 7+ Pumps)	
48	820053	Electrical Conduit Kit	
	82053A	1/2" EMT Conduit Compression Connector - Straight	
	82053B	1/2" Conduit - 2"	
54	820054	Spacer (for ROSS Valve)	
	820055	90° EMT 1/2" Conduit Compression - For Ross Valve	
55	730055	3/8-16 x 1-1/2 Hex Head Bolt, SS	
56	730056	3/8-16 Hex Nut, SS	
57	730057	3/8" Lock Washer, SS	
58	780058	Tubing - Manifold Air, #2	
59	780059	Tubing - Manifold Air, #4	
60	780060	Tubing - System Air Supply	
61	780061	Tubing - Manifold Air Supply (for systems with 7+ pumps (or 4+ HV))	
62	770029	Grommet, Double Wall	
63	730063	3/8-16 x 3/4 Hex Head Bolt, SS	
64	730064	3/8" Hex Head Nut, SS	
65	730057	3/8" Lock Washer, SS	
67	730067	1/4-20 x 3/4 Hex Head Bolt, SS	
	73067A	1/4-20 x 1/2 Hex Head Bolt, SS	

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68	730068	1/4" Hex Head Nut, SS	
69	730069	1/4" Lock Washer, SS	
	830069	FRL Mounting Bracket	
70	830070	FRL "L" Bracket	
71	830071	FRL (Filter/Regulator/Lubricator)	
	830072	FRL Replacement Pressure Gauge	
72	840072	Drain/Return Plug - 1/2" (Micro/Min/Mid)	
73	840073	Drain Plug - 1" (Mag/Max)	
74/75	850074	Adaptor/Connector- LLF (Enclosure and Reservoir)	
78	850078	LLF Relay	
79	850079	6-32 x 3/8" Screw (Terminal Strip/LLF Relay)	
	85079A	6-32 Hex Nut (LLF Relay)	
	85079B	6-32 Lock Washer (LLF Relay)	
80	850080	Red Indicator Light (LLF)	
81	850081	Float Switch - LLF - SS	
82	860082	Amber Indicator Light (Power)	
83	860083	Fuse Holder Assembly	
84	860084	Fuse - 5 AMP - AGC	
85	870085	Programmable Repeat Cycle Timer Only	
86	870086	Mounting Bracket Only - Timer/Counter	
87	870087	Contact Block - Timer	
88	870088	Cover, Clear - Timer/Counter	
89	860089	Terminal Strip - 6 Pole	
90	860090	Terminal Strip Marker	
91	880091	3 Position Selector Switch	
92	880092	Contact Block - Selector Switch	
93	770093	Legend Plate - Selector Switch	
94	770094	Legend Plate - Name	
	770095	Legend Plate - Power On	
	770096	Legend Plate - Power On/Low Lube	
95	760095	Compression Sleeve - 3/8"	
96	760096	Compression Nut - 3/8"	
99	870099	Programmable Digital Counter Only	
100	860001	Yellow Electrical Cord x 20'	
101	860101	Oil Tight Fitting Cord Grip	
102	860102	Electrical Plug (M)	
103	890103	Limit Switch Only (no arm)	
	89103A	Limit Switch - Low Torque	
104	890104	Limit Switch Actuator Arm	

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105	890105	Limit Switch Magnet	
	89105A	10-32 x 1-1/2 SHCS (L/S Mounting Screw)	
107	900107	Spray Cabinet - Custom	
108	910108	Nozzle Block - Standard, SS (Spray Cabinet Item)	
	91108S	Set Screw for Nozzle Block (Spray Cabinet Item)	
110	910110	Rod Support Clamp Assembly, SS (Spray Cabinet Item)	
111	910111	Rod, SS - 1/2" x 1' (Spray Cabinet Item)	
	920005	55 Gallon Drum Mount Bracket	
	920006	30 Gallon Drum Mount Bracket	
	910122	Drum Mount Clamp	
	920013	45* Street Angle x 1/8" (for ModFlex Pump)	
	920014	10-32 x 2 SHCS (Modular Valve Mounting Screw)	
	920015	5/16-18 x 3/8 BHSCS (Mod-Flex Reservoir Mounting Screw)	
	920016	5/16-18 x 1-1/2 BHSCS (Mod-Flex Manifold Mounting Screw)	
	92004A	Central Lube Bracket for Small Enclosure (1-6 Pumps ONLY)	
	92004B	Central Lube Bracket for Large Enclosure (1-12 Pumps)	
	BAFF10	Mid-Flex Baffle (10 Gallon Reservoir)	
	BAFF20	Mag-Flex Baffle (20 Gallon Reservoir)	
	BAFF40	Max-Flex Baffle (40 Gallon Reservoir)	
	760098	Adaptor - Pipe 1/4" FPT x 1/8" MPT	
	FRL Lube	Air Line Oil - Pint	
	720001	Manifold Expansion Kit - Standard (customer install)	
	7201HV	Manifold Expansion Kit - HV (customer install)	
	740001	Pump Expansion Kit - Standard	
	740004	Pump Expansion Kit - Draw-P	
	74030M	Pump Expansion Kit - Micro/LV	
	740HVE	Pump Expansion Kit - HV	
	850073	Low Lube Float Control Expansion Kit (customer install)	
	860099	20' Electrical Cord & Plug Expansion Kit (customer install)	
	860100	20' Wiring Harness Expansion Kit (customer install)	
	870084	Timer Expansion Kit (customer install)	
	870098	Counter Expansion Kit (customer install)	
	890101	Magnetic Base Limit Switch Expansion Kit (customer install)	
	890102	Limit Switch Expansion Kit (customer install)	

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7415CT	Tubing - 1/4" Copper x 1'	
780026	Tubing - 1/4" Rigid PVC x 1'	
780027	Tubing - 1/4" Soft PVC x 1'	
780028	Tubing - 3/8" Soft PVC x 1'	
78026A	Tubing - 1/4" Rigid PVC x 10'	
78026B	Tubing - 1/4" Rigid PVC x 100'	
78027A	Tubing - 1/4" Soft PVC x 10'	
78027B	Tubing - 1/4" Soft PVC x 100'	
64116A	Quick Disconnect Coupling (F) Tubing Assembly	
640116	Quick Disconnect Plug (M) Tubing Assembly	
81114A	110* Spray Nozzle Assembly, Brass	
81114B	80* Spray Nozzle Assembly, Brass	
81114C	50* Spray Nozzle Assembly, Brass	
81114D	25* Spray Nozzle Assembly, Brass	
81114I	TK1.5 Spray Nozzle Assembly, Brass	
81114L	TG2 Spray Nozzle Assembly, Brass	
81114M	TG1 Spray Nozzle Assembly, Brass	
81114N	TG0.7 Spray Nozzle Assembly, Brass	
81114P	TG0.5 Spray Nozzle Assembly, Brass	
81114Q	TG0.3 Spray Nozzle Assembly, Brass	
81114R	.003 Spray Nozzle Assembly, Brass	
81114S	.001 Spray Nozzle Assembly, Brass	
81114T	Misc. Spray Nozzle Assembly, Brass	
814ASS	110* Spray Nozzle Assembly, SS	
814BSS	80* Spray Nozzle Assembly, SS	
814CSS	50* Spray Nozzle Assembly, SS	
814DSS	25* Spray Nozzle Assembly, SS	
814ISS	TK1.5 Spray Nozzle Assembly, SS	
814LSS	TG2 Spray Nozzle Assembly, SS	
814MSS	TG1 Spray Nozzle Assembly, SS	
814NSS	TG0.7 Spray Nozzle Assembly, SS	
814PSS	TG0.5 Spray Nozzle Assembly, SS	
814QSS	TG0.3 Spray Nozzle Assembly, SS	
814RSS	.003 Spray Nozzle Assembly, SS	
814SSS	.001 Spray Nozzle Assembly, SS	
814TSS	Misc. Spray Nozzle Assembly, SS	

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62117A	Basic Spray Assembly - 110* Fan Tip	
62117B	Basic Spray Assembly - 80* Fan Tip	
62117C	Basic Spray Assembly - 50* Fan Tip	
62117D	Basic Spray Assembly - 25* Fan Tip	
62117I	Basic Spray Assembly - TK1.5 Deflect Fan Tip	
62117L	Basic Spray Assembly - TG2 Cone Tip	
62117M	Basic Spray Assembly - TG1 Cone Tip	
62117N	Basic Spray Assembly - TG0.7 Cone Tip	
62117P	Basic Spray Assembly - TG0.5 Cone Tip	
62117Q	Basic Spray Assembly - TG0.3 Cone Tip	
62117R	Basic Spray Assembly - .003 Pin Point Tip	
62117S	Basic Spray Assembly - .001 Pin Point Tip	
62117T	Basic Spray Assembly - Misc. Spray Tip	
6306RA	MBSA 6" - 110* Spray Tip	
6306RB	MBSA 6" - 80* Spray Tip	
6306RC	MBSA 6" - 50* Spray Tip	
6306RD	MBSA 6" - 25* Spray Tip	
6306RI	MBSA 6" - TK1.5 Spray Tip	
6306RL	MBSA 6" - TG2 Spray Tip	
6306RM	MBSA 6" - TG1 Spray Tip	
6306RN	MBSA 6" - TG0.7 Spray Tip	
6306RP	MBSA 6" - TG0.5 Spray Tip	
6306RQ	MBSA 6" - TG0.3 Spray Tip	
6306RR	MBSA 6" - .003 Spray Tip	
6306RS	MBSA 6" - .001 Spray Tip	
6306RT	MBSA 6" - Misc. Spray Tip	
6306SA	MBSA H.D. 6" - 110* Spray Tip	
6306SB	MBSA H.D. 6" - 80* Spray Tip	
6306SC	MBSA H.D. 6" - 50* Spray Tip	
6306SD	MBSA H.D. 6" - 25* Spray Tip	
6306SI	MBSA H.D. 6" - TK1.5 Spray Tip	
6306SL	MBSA H.D. 6" - TG2 Spray Tip	
6306SM	MBSA H.D. 6" - TG1 Spray Tip	
6306SN	MBSA H.D. 6" - TG0.7 Spray Tip	
6306SP	MBSA H.D. 6" - TG0.5 Spray Tip	
6306SQ	MBSA H.D. 6" - TG0.3 Spray Tip	
6306SR	MBSA H.D. 6" - .003 Spray Tip	
6306SS	MBSA H.D. 6" - .001 Spray Tip	

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6306ST	MBSA H.D. 6" - Misc. Spray Tip	
6312LA	12" FlexArm Spray Assembly - 110* Spray Tip	
6312RA	MBSA 12" - 110* Spray Tip	
6312RB	MBSA 12" - 80* Spray Tip	
6312RC	MBSA 12" - 50* Spray Tip	
6312RD	MBSA 12" - 25* Spray Tip	
6312RI	MBSA 12" - TK1.5 Spray Tip	
6312RL	MBSA 12" - TG2 Spray Tip	
6312RM	MBSA 12" - TG1 Spray Tip	
6312RN	MBSA 12" - TG0.7 Spray Tip	
6312RP	MBSA 12" - TG0.5 Spray Tip	
6312RQ	MBSA 12" - TG0.3 Spray Tip	
6312RR	MBSA 12" - .003 Spray Tip	
6312RS	MBSA 12" - .001 Spray Tip	
6312RT	MBSA 12" - Misc. Spray Tip	
6312SA	MBSA H.D. 12" - 110* Spray Tip	
6312SB	MBSA H.D. 12" - 80* Spray Tip	
6312SC	MBSA H.D. 12" - 50* Spray Tip	
6312SD	MBSA H.D. 12" - 25* Spray Tip	
6312SI	MBSA H.D. 12" - TK1.5 Spray Tip	
6312SL	MBSA H.D. 12" - TG2 Spray Tip	
6312SM	MBSA H.D. 12" - TG1 Spray Tip	
6312SN	MBSA H.D. 12" - TG0.7 Spray Tip	
6312SP	MBSA H.D. 12" - TG0.5 Spray Tip	
6312SQ	MBSA H.D. 12" - TG0.3 Spray Tip	
6312SR	MBSA H.D. 12" - .003 Spray Tip	
6312SS	MBSA H.D. 12" - .001 Spray Tip	
6312ST	MBSA H.D. 12" - Misc. Spray Tip	
6318RA	MBSA 18" - 110* Spray Tip	
6318RC	MBSA 18" - 50* Spray Tip	
6318SA	MBSA H.D. 18" - 110* Spray Tip	
6318SB	MBSA H.D. 18" - 80* Spray Tip	
6318SL	MBSA H.D. 18" - TG2 Spray Tip	
6406RA	Rigid MBSA - 110* Fan Tip	

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6406RB	Rigid MBSA - 80* Fan Tip	
6406RC	Rigid MBSA - 50* Fan Tip	
6406RD	Rigid MBSA - 25* Fan Tip	
6406RF	Rigid MBSA - 0* Pin Point Tip	
6406RL	Rigid MBSA - TG2 Cone Tip	
6406RP	Rigid MBSA - TG0.5 Spray Tip	
6406RS	Rigid MBSA - .001 Spray Tip	
6406RT	Rigid MBSA - Special Tip	
6406MB	Magnetic Base Only - Rigid	
870123	Post 3/8", SS - Rigid MBSA	
870124	Adjustable Bracket - Rigid MBSA	
870125	1/2" Hex Barrel, Brass - Rigid MBSA	
87125A	1/2" Hex Barrel, SS - Rigid MBSA	
6506NB	Magnetic Base Nozzle Block Spray Assembly	
6506BA	Nozzle Block Spray Assembly - 110* Spray Tip	
6506BL	Nozzle Block Spray Assembly - TG2 Cone Spray Tip	
7415MA	Manifold Block Spray Assembly (Less Copper Tubing)	
7415RC	Manifold Block Spray Assembly	
7415OM	Manifold Block Only	
7415PL	Plug - 1/8" NPT (Spray Manifold Block)	
81115A	110* Recessed Spray Nozzle Assembly, Brass	
81115B	80* Recessed Spray Nozzle Assembly, Brass	
81115C	50* Recessed Spray Nozzle Assembly, Brass	
81115D	25* Recessed Spray Nozzle Assembly, Brass	
81115E	15* Recessed Spray Nozzle Assembly, Brass	
81115F	0* Recessed Spray Nozzle Assembly, Brass	
815ASS	110* Recessed Spray Nozzle Assembly, SS	
815BSS	80* Recessed Spray Nozzle Assembly, SS	
815CSS	50* Recessed Spray Nozzle Assembly, SS	
815DSS	25* Recessed Spray Nozzle Assembly, SS	
815ESS	15* Recessed Spray Nozzle Assembly, SS	
815FSS	0* Recessed Spray Nozzle Assembly, SS	
81043R	Strainer Body for Recessed Nozzle	
810120	Check Strainer Assembly, Recessed	
81119A	110* Recessed Spray Tip Only, Brass	

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	81119B	80* Recessed Spray Tip Only, Brass	
	81119C	50* Recessed Spray Tip Only, Brass	
	81119D	25* Recessed Spray Tip Only, Brass	
	81119E	15* Recessed Spray Tip Only, Brass	
	81119F	0* Recessed Spray Tip Only, Brass	
	819ASS	110* Recessed Spray Tip Only, SS	
	819BSS	80* Recessed Spray Tip Only, SS	
	819CSS	50* Recessed Spray Tip Only, SS	
	819DSS	25* Recessed Spray Tip Only, SS	
	819ESS	15* Recessed Spray Tip Only, SS	
	819FSS	0* Recessed Spray Tip Only, SS	

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Spray Tip Data Sheet

RULE OF THUMB: Spray pattern will decrease with increase in viscosity and surface tension. Pattern quality improves with increase of pressure.

Flat Spray Pattern



110*

17" x 2"

6" away from stock, spraying straight down. If nozzle is angled, pattern is broader. If nozzle is further away, pattern is longer.



80*

10" x 2"

See above.

50*

5.6" x 1 3/4"

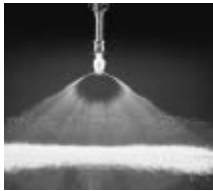
See above.

25*

2.7" x 1"

See above.

Flat Tapered Edge Spray Pattern – Provides a wide angle Flat Spray pattern.



TK1.5 Deflected Fan

90* Fan pattern sprays out the side of the nozzle.



Solid Stream Spray Pattern - Provides a solid stream of lubricant for precise spot spraying



.0003 Pin Point

1/2" round when 6" away from stock with pump at 1/2 or greater lubricant capacity. Orifice opening is .047.

.0001 Pin Point

1/2" round when 6" away from stock with pump less than 1/2 lubricant capacity. Orifice opening is .028.



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Spray Tip Data Sheet Continued

Full Cone Spray Pattern – All Cone Tips will produce a 5" pattern at full lubricant capacity. Adjust pump volume to reduce pattern as small as 1/2" at 2" away from stock (with TG0.3). The smaller the pattern you desire, the smaller the orifice you will need.



TG2 Full Cone	5" round when 6" away from stock with pump at full lubricant capacity . Orifice opening is .047.
TG1 Full Cone	4" round when 6" away from stock with pump at 3/4 lubricant capacity . Orifice opening is .036.
TG0.7 Full Cone	2" round when 6" away from stock with pump at 1/2 lubricant capacity . Orifice opening is .030.
TG0.5 Full Cone	1" round when 6" away from stock with pump at 1/4 lubricant capacity . Orifice opening is .024.
TG0.3 Full Cone	1/2" round when 6" away from stock with pump at 1/8 lubricant capacity . Orifice opening is .020.

Note:

Any cone pattern spray tip should **NOT** be used in an application where a straight oil product is being used. The reason for this, the design of the spray tip does not allow the straight oil to dispense in a swirling motion, leaving it a stream type pattern. Factory recommendation is that a fan pattern spray tip be used with a straight oil product.

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FlexSpray Pump Options

Standard Capacity Pump	"Micro" Low Volume - Pump	"HV" High Viscosity - Pump
.017 to .051 fluid ounce capacity available to the Target Lube Area, per cycle. Covers an extremely wide range of applications for the Medium to Heavy Stamping. Viscosity range up to 500 SUS @ 100 F.	.005 to .017 fluid ounce capacity available to those Target Lube Areas that require "Finger Density" coverage. Such as necessary with vanishing type compounds, intricate and High Speed Stamping. Viscosity range up to 450 SUS @ 100F.	Fluid chamber is identical to the Standard Capacity Pump with the exception of the Low End Range. .025 to .051 fluid ounce, depending on the density of fluid. Designed for use with compounds up to 1200 SUS @ 100 F. THE ULTIMATE CAPACITY RANGE AVAILABLE.

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Piston–Pump Body Guarantee

The Pistons and Pump Bodies on all “FlexSpray” Pumps are guaranteed against failure due to cylinder bore scoring or material defects or workmanship, during normal use, for as long as the pump assembly continues to be in active service under the same application and design criterion initially intended.* Upon submission of either a defective Piston and/or Pump Body, FlexSpray will provide a replacement Piston and/or Pump Body of the same size and specification, without cost to the end user.

* Refer to Daily Maintenance Schedule (pg. 3)

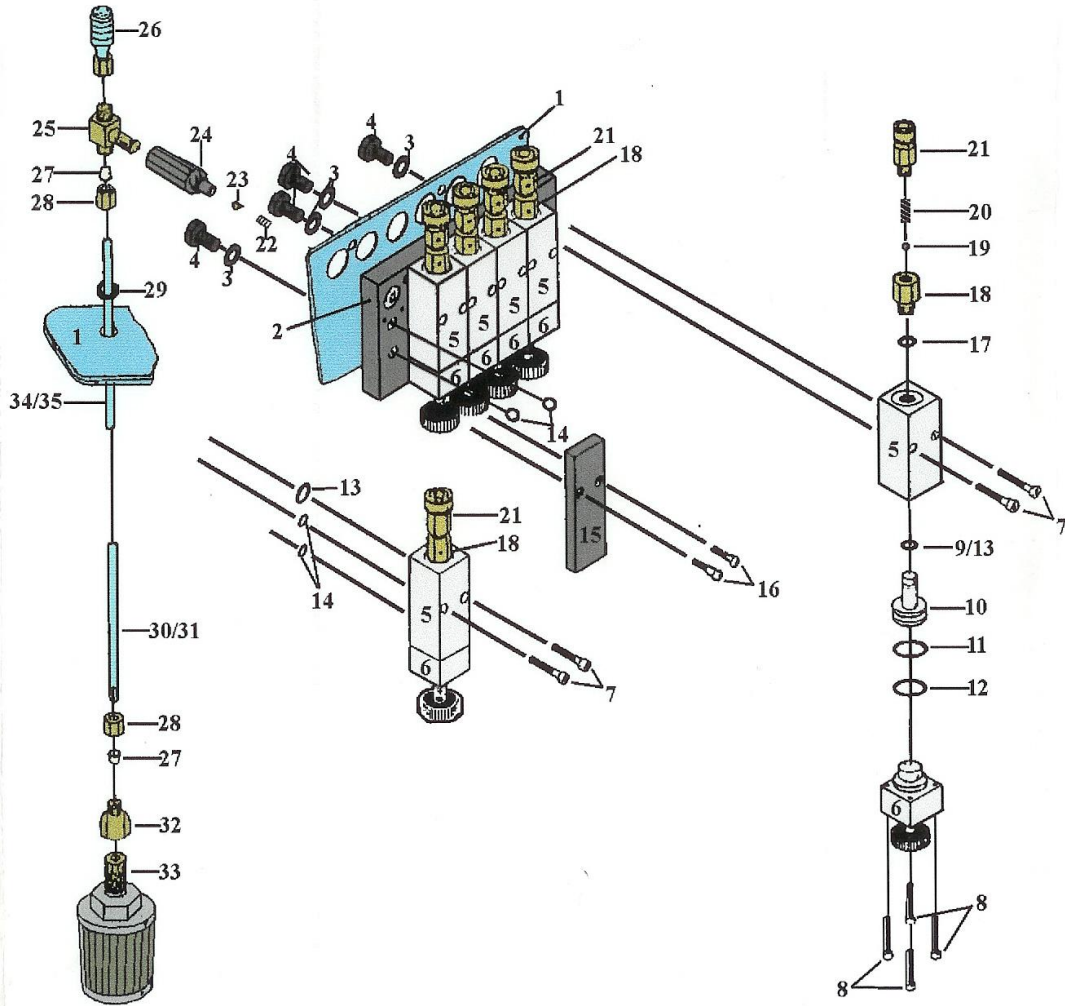
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Pump Break-out



(Item 26 is obsolete. To update, purchase NEW item #740025 - Elbow - 1/8" MPT x 1/4" Comp.)

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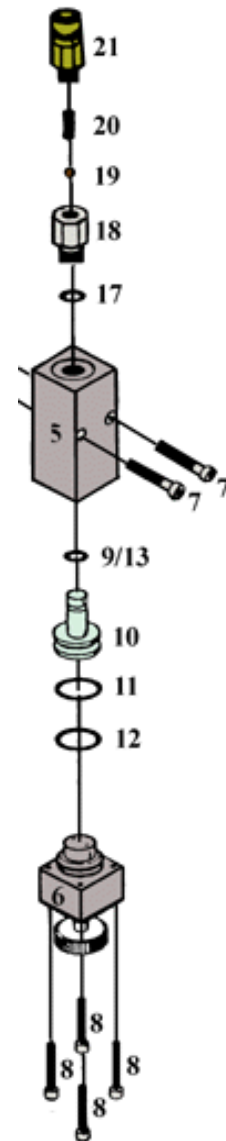
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Pump Rebuild Kit: Assembly Instructions

- 1.) With Pump Metering Assembly (6) upside down, slide O-Ring (12) onto pre-cut groove.
- 2.) Take Piston O-Ring (11) and install it onto pre-cut groove in Piston (10) head. Then apply O-Ring (9/13) onto pre-cut groove at the bottom of the Piston (10) shaft.
- 3.) Place a drop of Enlube or equivalent onto O-ring (11) and push Piston Assembly into Pump Body (5). *Press firmly until O-Ring (12) is in Pump Body (5) cylinder.
- 4.) From underneath Pump Metering Assembly, thread the 4 SHC screws (8) through pre-drilled holes, into threads on Pump Body (5) and tighten thoroughly.
- 5.) With Pump Body (5) turned up, install O-Ring (17) Oil Outlet valve Body in groove. Insert Valve Body (18) (Oil Outlet) and tighten thoroughly.
- 6.) Install Ball (19) first and Spring (20) into Valve Body (18). Thread Quick Disconnect Coupling (21) into Valve Body (18) and tighten thoroughly.
- 7.) Using 2 SHCS Screws (7), attach re-built Pump onto Manifold for operation. *Note: When installing re-built Pump, do not forget Poppet and Spring between Pump and Manifold.



*Note: Some Pump Re-build Kits may vary in parts and assembly. Illustration should cover any application, though Pump model could be different.

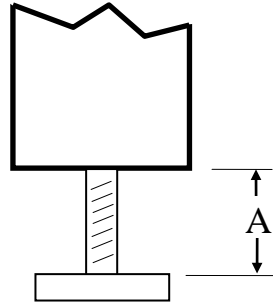
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Standard Pump Spray Volume Adjustment



Ounces Sprayed	Length "A" Inches	Turns
0.051	0.790	0
0.045	0.735	1
0.039	0.680	2
0.034	0.625	3
0.028	0.575	4
0.022	0.515	5
0.017	0.460	6
0.011	0.405	7
0.006	0.350	8

 Typically NOT recommended as less than one-half pump stroke tends to lead to spray pattern distortion

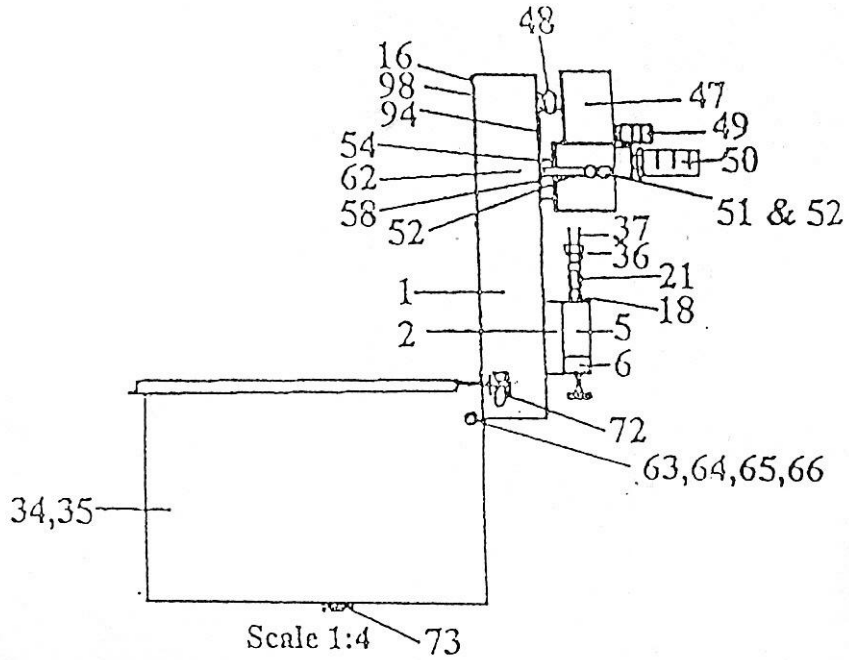
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Standard System Parts Breakdown



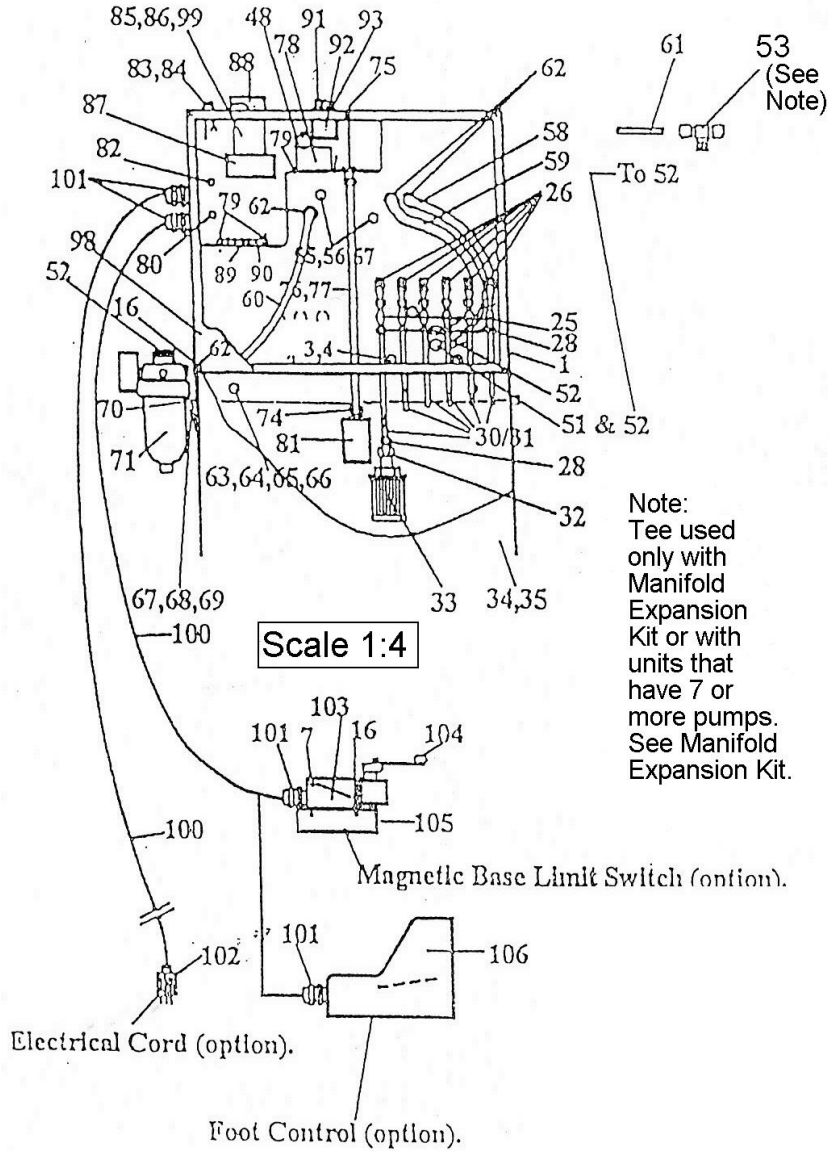
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Standard System Parts Break Down Continued



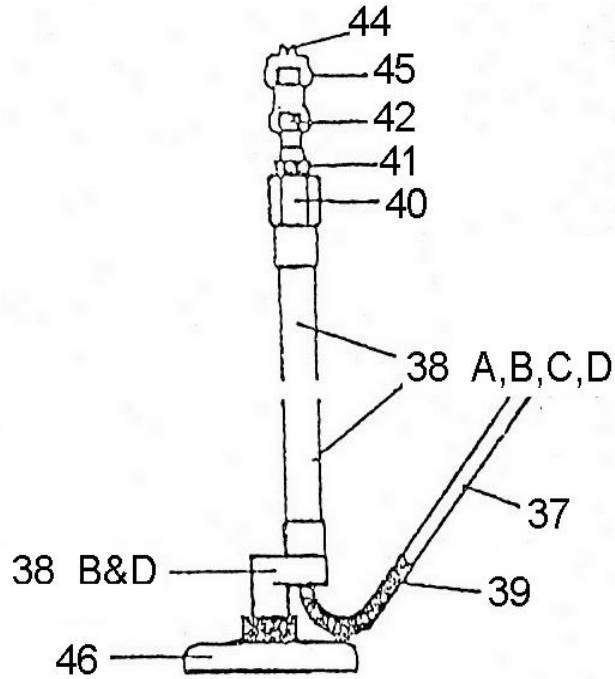
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Magnetic Base Spray Assemblies (Option)



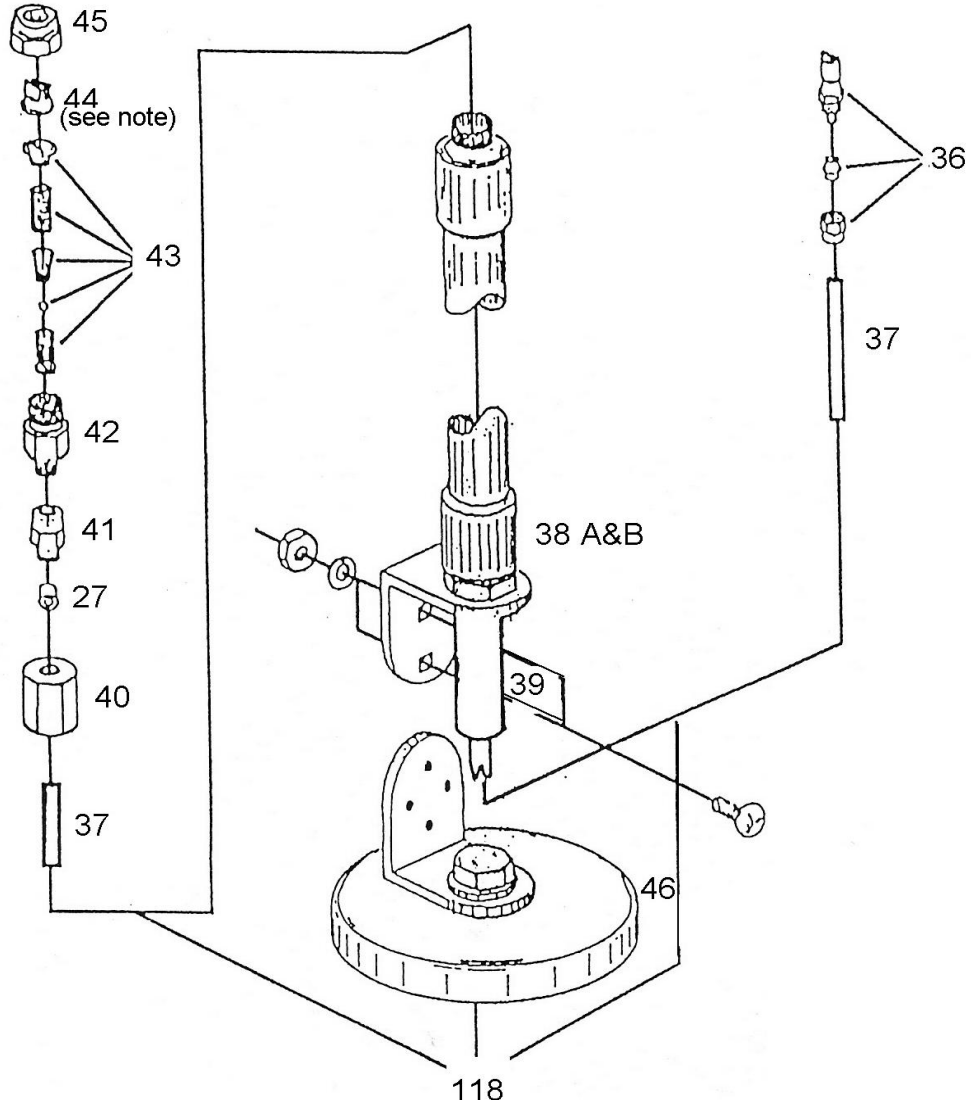
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Magnetic Base Spray Assemblies



Note:

Refer to Spray Tip Data Sheet for proper Tip selection.

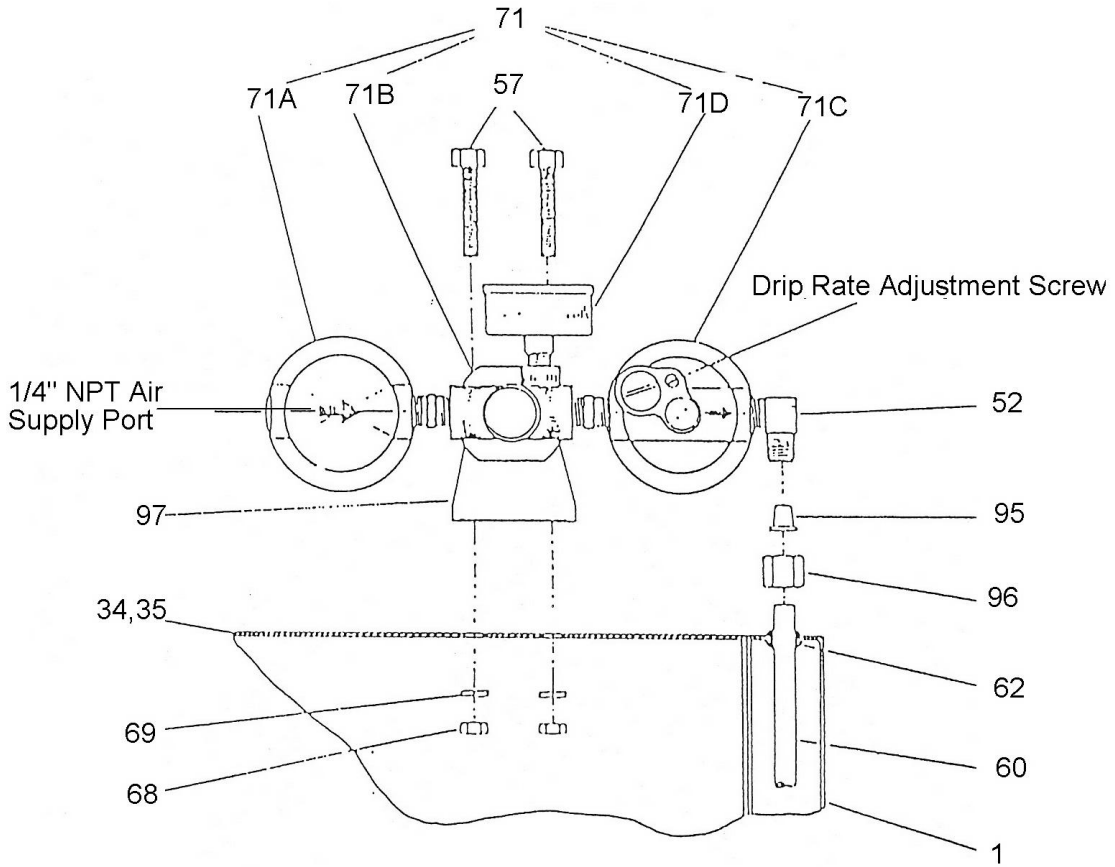
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Lubricator Data Sheet

Company Name _____

Address _____

City / State / Zip Code _____

Contact Name / Title / Telephone _____

1.) Press Data:

A: Type: OBI _____ SS _____ Other _____

B: Tonnage _____

C: Feed: SS _____ Coil _____ Other _____

D: Control: Solid State _____ Conventional _____

2.) Tool Data:

A: Type: Prog _____ Sta= _____ Compound _____ SGL _____

1.) Critical Wear Areas

A: Punch Holder _____

B: Die Holder _____

2.) Progression _____

B: Stock : Minimum Width _____ Maximum Width _____

3.) Lubricant Data

A: Type: Straight Oil _____ Visc= _____

Synthetic _____ Water Soluble _____

4.) Comments: _____

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NOTES: _____

Lined area for taking notes, consisting of approximately 25 horizontal lines.

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