

DRAMM



Hydra Sprayer

Owners Manual Model HYDRA

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DRAMM

Hydra MultiSpray Hydraulic Sprayer

Model: HYDRA

120 Volt 60 HZ
11.4 AMPS

Serial Number

Limited Warranty

Dramm Corporation warrants, to the extent of the purchase price, that the Hydra Sprayer, model MSO40, will be free from defects in materials and workmanship to the original purchaser for a period of six months. Parts subject to wear are not covered under this limited warranty. Defects or damages due to the misuse, non-observance of safety standards, or non-observance of EPA chemical guidelines are not covered under this limited warranty. Please read and follow the instructions and heed warnings stated in the operating manual and on the Hydra Sprayer, model MSO40.

Dramm Corporation makes no other further warranty, expressed or implied, and all other or further warranties, including any warranties of merchantability or fitness for a particular purpose are expressly excluded.

In no event shall the manufacturer(s) or Dramm Corporation be liable for loss of product, profit or any other special, incidental or consequential damages including, but not limited to, plant damage, property, or persons.

Dramm Corporation makes no warranty, expressed or implied, in regard to the efficacy of any pesticide or other chemical which may be applied using the Hydra Sprayer.

This warranty begins on the date of original purchase. This warranty is void if there is no proof of purchase or warranty registration on file. Mail the warranty registration card to the Dramm Corporation and keep the bill of sale or invoice. If warranty service is required, please include a written description of the equipment malfunction, a return address and telephone number. The Hydra Sprayer, model HYDRA, must be thoroughly cleaned of all chemical residue and sent prepaid to:

Hydra Sprayer Service
c/o Dramm Corporation
2000 North 18th Street
Manitowoc, WI 54220

920.684.0227
information@dramm.com • www.dramm.com

WARNING

Hydra MultiSpray Model: HYDRA

- Use only 120 volt electrical outlets.
- Use only 3-pronged grounded extension cords and receptacle boxes.
- Keep all electrical connections away from liquids.
- Clean after every use with warm soapy water and then rinse with clean water.
- Wear protective clothing; respirator, hood, gloves and boots when mixing and spraying chemicals.
- Do not spray into the wind. Avoid the drift of solution sprays.
- Do not direct the spray or spray gun at yourself or anyone else.
- Be certain all hoses and connections are secure prior to using the Heavy Duty Sprayer.
- Avoid dry operation, since the spray solution acts as a pump lubrication.
- Relieve the pressure before removing the hoses or spray gun.
- Apply all chemicals according to EPA Guidelines.
- Store in a clean, dry location– away from children and unauthorized personnel.
- Remove all hoses and drain the pump prior to storage.
- Do not drag the hoses over sharp objects or bend excessively.
- Repair or replace all damaged or broken hoses before using the Hydra Multispray.
- Before servicing the unit, disconnect the Hydra Multispray from the power source.
- Do not store mixed chemicals. Use all of the chemical mixture immediately.
- Do not adjust the Pressure Regulator Valve past its stop.

Introduction

The Damm Hydra MultiSpray is a hydraulic sprayer that offers a variety of flow rates with a variety of pressures to allow for maximum flexibility. The Hydra can apply all formulations of chemicals including insecticides, fungicides, Insect growth regulators, plant growth regulators, and disinfectants. The Hydra can output all formulations without damage or corrosion to the pump.

The Damm Hydra includes a maneuverable 1.5 hp sealed electric motor and a close-coupled pump capable of 4 gpm and 550psi, 50 gallon tank, and cart featuring rear casters, a convex reel with a separate lock and variable drag system, 150 feet of high pressure spray hose, and a variable pattern trigger spray gun.

Assembly & Preparation

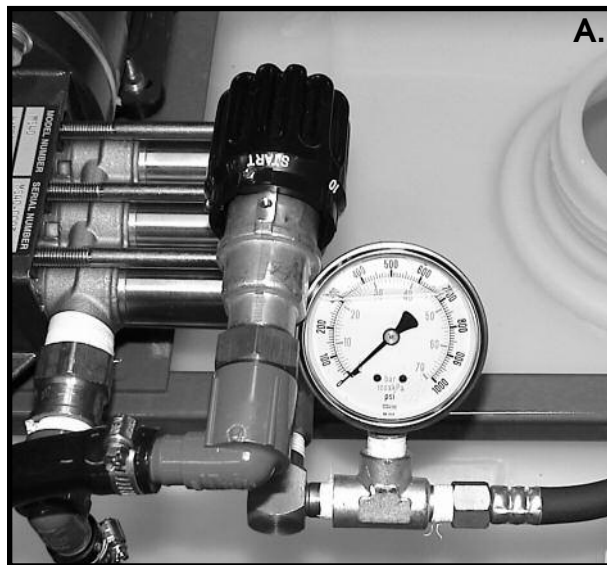
Your MS040 Hydra comes to you ready to spray. After removing the sprayer from the crate, check the tank for any additional parts and accessories. Connect the spray gun to the hose using the quick disconnect. Your machine is now ready for use.

START UP

1. Connect the sprayer to a 120 Volt, 60 HZ, 15 amp, grounded circuit using the cord and plug provided. Keep all electrical connections away from liquids.
2. Fill the sprayer to the desired level. **Do Not** operate the sprayer empty for more than a few seconds. The water acts as a coolant and lubricant for the pump and damage may occur.
3. Start the sprayer with the pressure control knob in the **START** position. (A). **Do Not** attempt to start the sprayer under pressure as this will stall the motor and cause an overload condition.
4. After starting the sprayer allow it to run with the pressure control knob in the start position. This will remove any air from the system, which can harm the pump.

NOTE: If an extension cord is used it should be made of 14 AWG wire or larger and should not exceed 100 Feet in length.

CAUTION: Keep all electrical connections away from liquids. Use only three-pronged grounded receptacles and extension cords.



NOTE

- Always start and shutdown your sprayer with the pressure regulator in the **START** (priming) position.
- Keep inlet filter clean.
- Always rinse the tank and flush the pump with clean water after each use.

Operation

SPRAY OPERATION

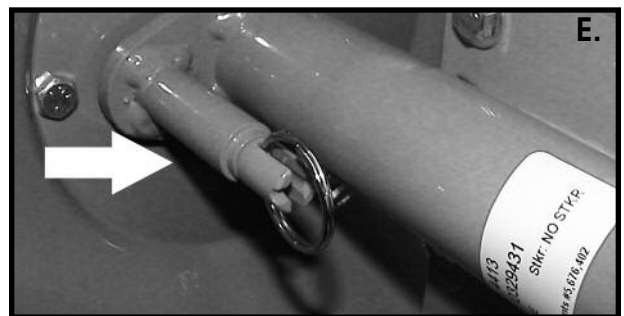
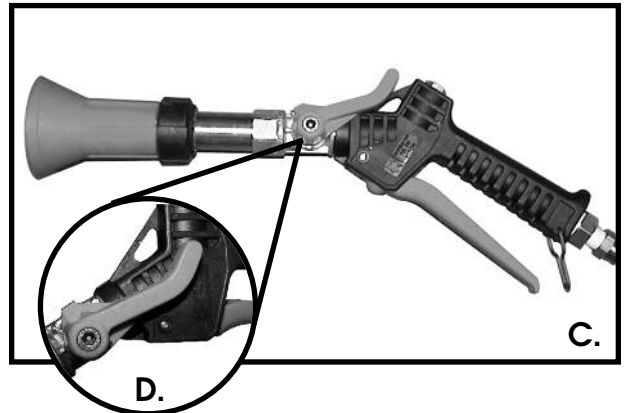
1. After following the start up, to increase the spray pressure, turn the pressure control knob to the desired setting. (B) You may use any of these settings for spraying, as the unit will operate properly at all settings.
2. To begin spraying, pull the lever to the gun. A latch is provided to hold the level open to reduce operator fatigue. (C)

CAUTION: Do not direct the spray at yourself or others, as injury may occur. On higher pressure settings, the spray stream may cut or inject spray under your skin. Always wear proper personal protective gear when spraying.

3. Spray Pattern: Adjustment of the spray pattern is made using the lever on the side of the gun. The pattern will adjust from a straight stream to a fine cone mist. (D)
4. Hose Reel: The Hydra MultiSpray comes standard with a variable drag lockable hose reel. The reel may be locked in position to prevent the hose from unwinding further than wanted. (E) The variable drag on the reel places variable tension on the reel to prevent freewheeling of the reel during unwinding. The drag has a lever to activate it. A nut allows for tension adjustment. (F)

SHUT-DOWN

1. After spraying until the tank is empty, turn the unit off.
2. Add clear water to the tank. Start the machine and spray until empty flushing out the pump hose and gun.
3. Clean any residue from the unit.
4. Return the regulator to the **START** position.
5. Store the unit in a clean dry place.
6. **Do Not** allow the unit to freeze as any water left in the unit will expand and damage the machine.

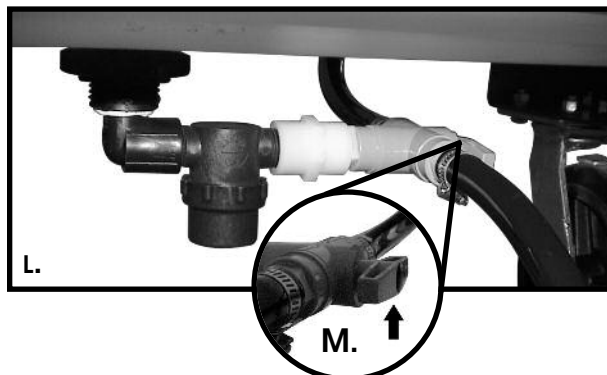
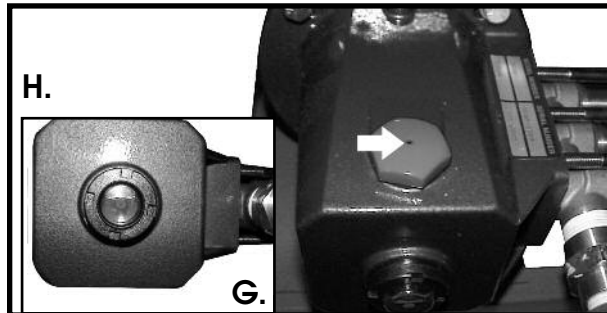


Chemical Mixing Procedure

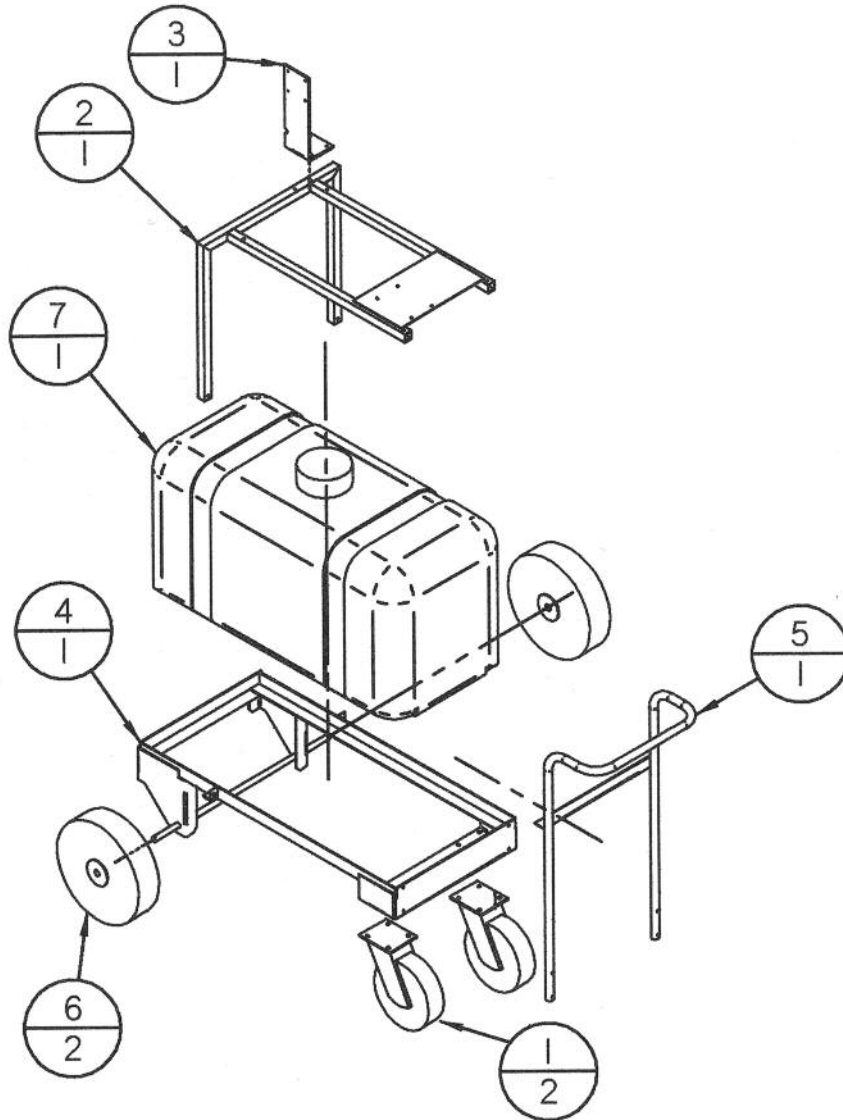
1. Fill the sprayer tank at least 3/4 full with water *ONLY*.
2. Dilute (mixing to dissolve) chemicals with water in a 5 gallon bucket. Never put concentrated chemical formulations directly into the tank without diluting with water.
3. Start sprayer with pressure regulator in **START** (priming) position to begin agitation process prior to adding chemical to sprayer tank.
4. Pour chemical and water mixture (slurry) into the sprayer tank, filled 3/4 full of water, after agitation has begun.

Maintenance & Cleaning

1. **Periodically check the pump oil level (G)** If it is below the indication add oil through the filler (H). Use 10 w 30 oil, preferably non-detergent.
2. **Periodically lubricate the grease fittings on the wheels (I & J)** with a good grade of bearing grease to extend the wheel bearing life.
3. **Replace the spray gun tip every season.** As the hole in the tip gets larger the spray pressure drops and degrades the quality of the spray. (K)
4. **Thoroughly clean the in-line filter, tank and machine on a weekly basis.** (L)
5. To drain tank, rotate the drain valve (M) 180° until the arrow on the valve handle indicates the direction of flow is out the drain hose. ***After draining, turn the valve back to the Spray position. This ensures that upon refilling the tank- the chemical will not drain out of the unit.**

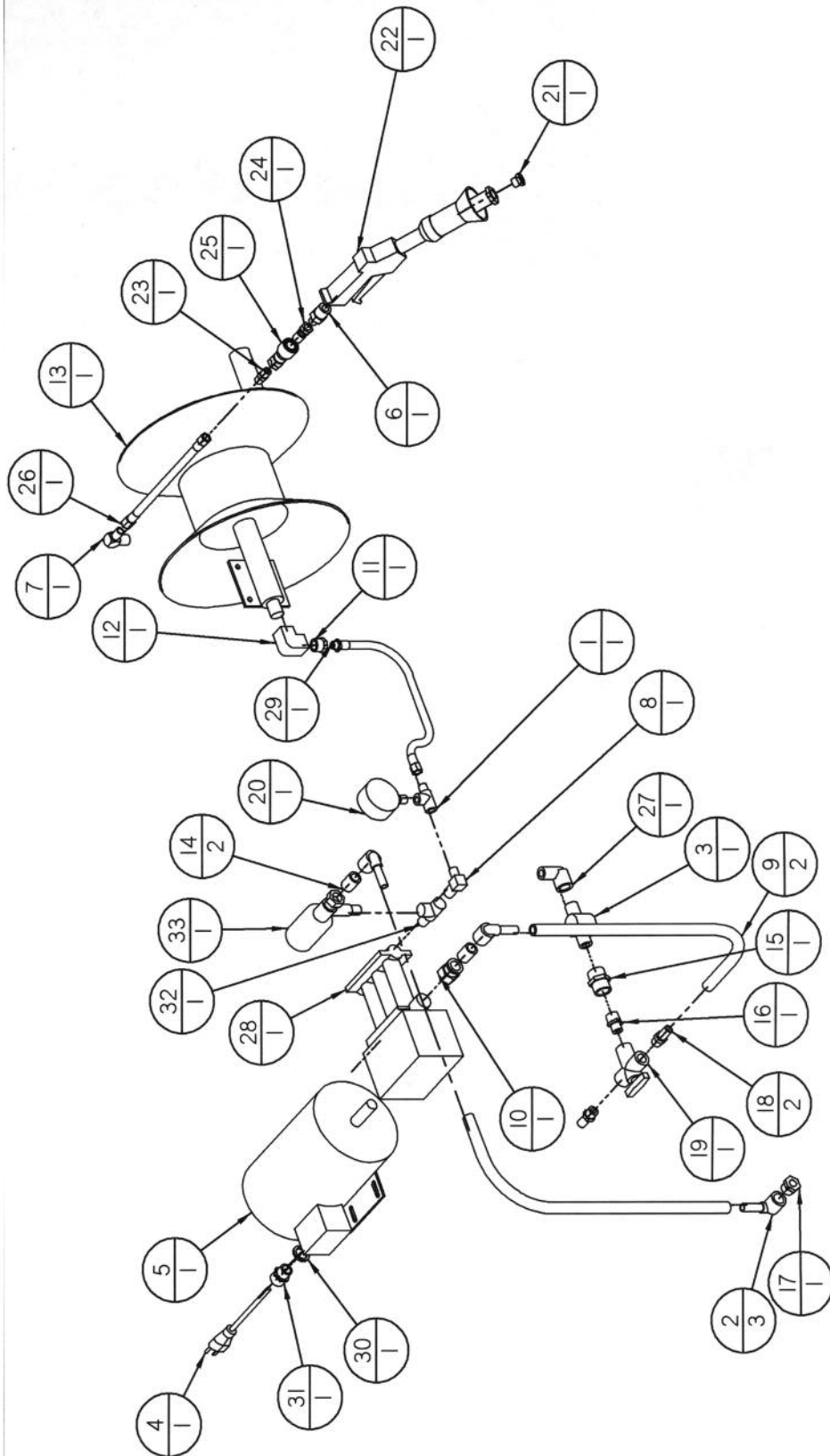


MSO40E Cart Assembly



ITEM #	PART #	DESCRIPTION	QUANTITY
1	30CS820RSWB30	Hood Cap	2
2	D10924	Reel Mount Bracket	1
3	D11150	Reel Mount	1
4	D11191	Cart Frame	1
5	D11194	Handle Assembly	1
6	SN1230	12 X 3 Wheel	2
7	SP0045-AS	40 Gallon Tank	1

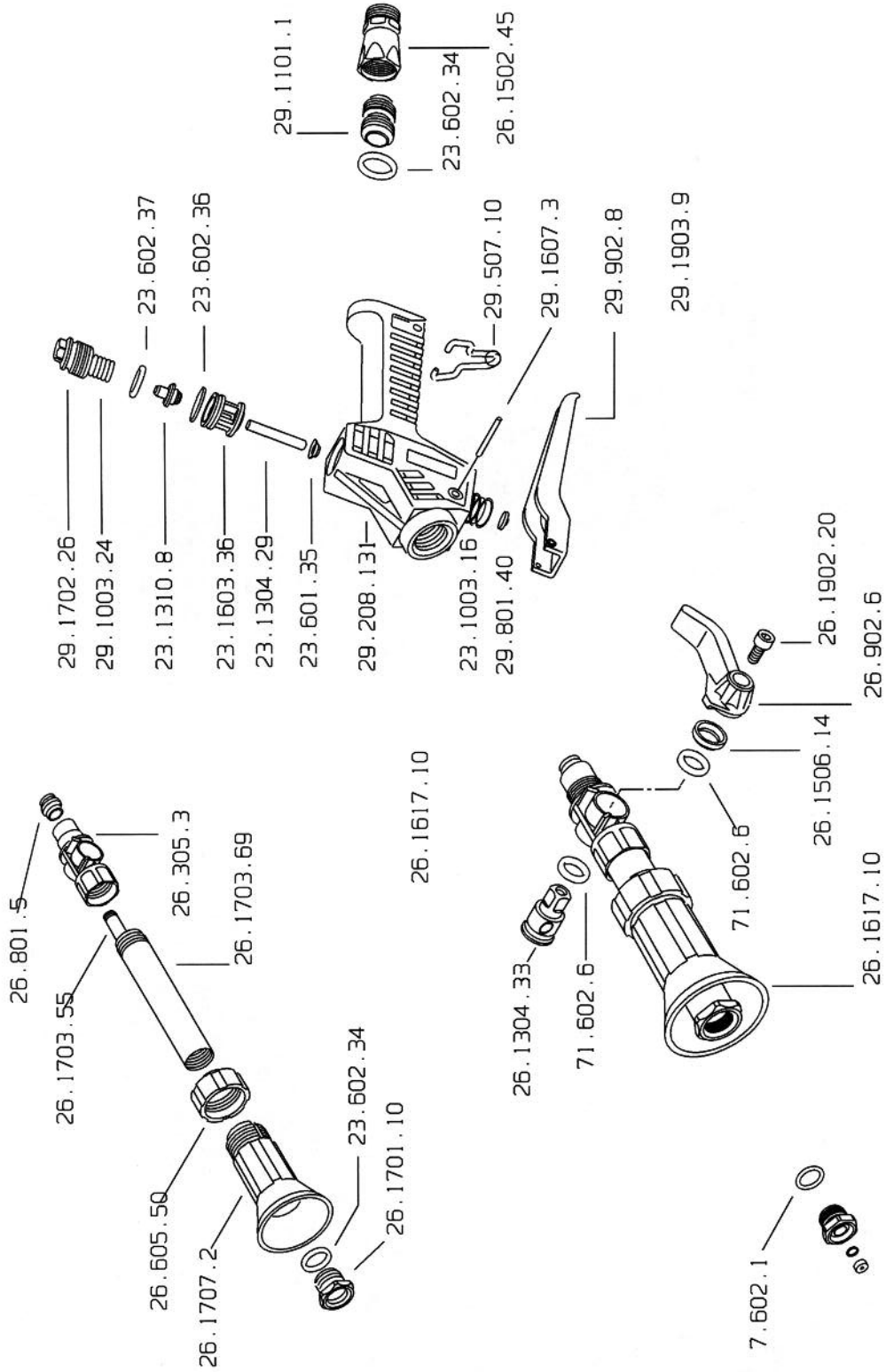
MSO40E Plumbing, Hose Reel, and Spray Gun



Plumbing, Hose Reel, and Spray Gun Parts List Model MSO40

ITEM #	PART #	DESCRIPTION	QUANTITY
1	127-B-04	1/4" Male Run Tee	1
2	1407-005	Elbow 1/2 MNP5 X 1/2 BARB	3
3	14297-1	Filter Housing	1
4	174121913-12'	Beldon Cord Set	1
5	56B17F540	1.5 HP Motor	1
6	24SA 08X04	Reducing Nipple	1
7	25A-06X04	1/4" Elbow	1
8	25A-06X04	3/8 X 1/4 Elbow	1
9	2T05R0812	1/2 ID Hose	2
10	42047	3/4 X 1/2 Coupling	1
11	42060	Bushing 1/2MPT X 1/4 FPT	1
12	42070	1/2 Elbow	1
13	4413-B	Hose Reel	1
14	46971	Nipple 1/2 Brass Close	2
15	48335K142	1/2 X 3/8 Reducing Nipple	1
16	48335K162	Reducing Nipple	1
17	48335K205	Bushing	1
18	5372K124	Reducing Nipple	2
19	629-6F6F6F-B	2 Way PFC Drain Valve	1
20	7211	Gauge - 0-1000 PSI	1
21	8278005	Spray Tip	1
22	8284002	Geo 400 Spray Gun	1
23	896-WM	1/4 M to M Fitting	1
24	FD45--1004-0404 MQD	Quick Disconnect Male	1
25	FD45--1005-0404 FQD	Female Quick Disconnect	1
26	Hose Assy	150' Hose	1
27	M412-005	1/2 Street Elbow	1
28	MSD 40	MSD 40 Pump	1
29	MSO 40 Hose	Hose	1
30	Regal 801	Gasket	1
31	RSP 106	REMKKEY 1/2" ELECTRICAL CONNECTOR	1
32	TEE	Tee	1
33	Unloading Valve	Unloading Valve	1

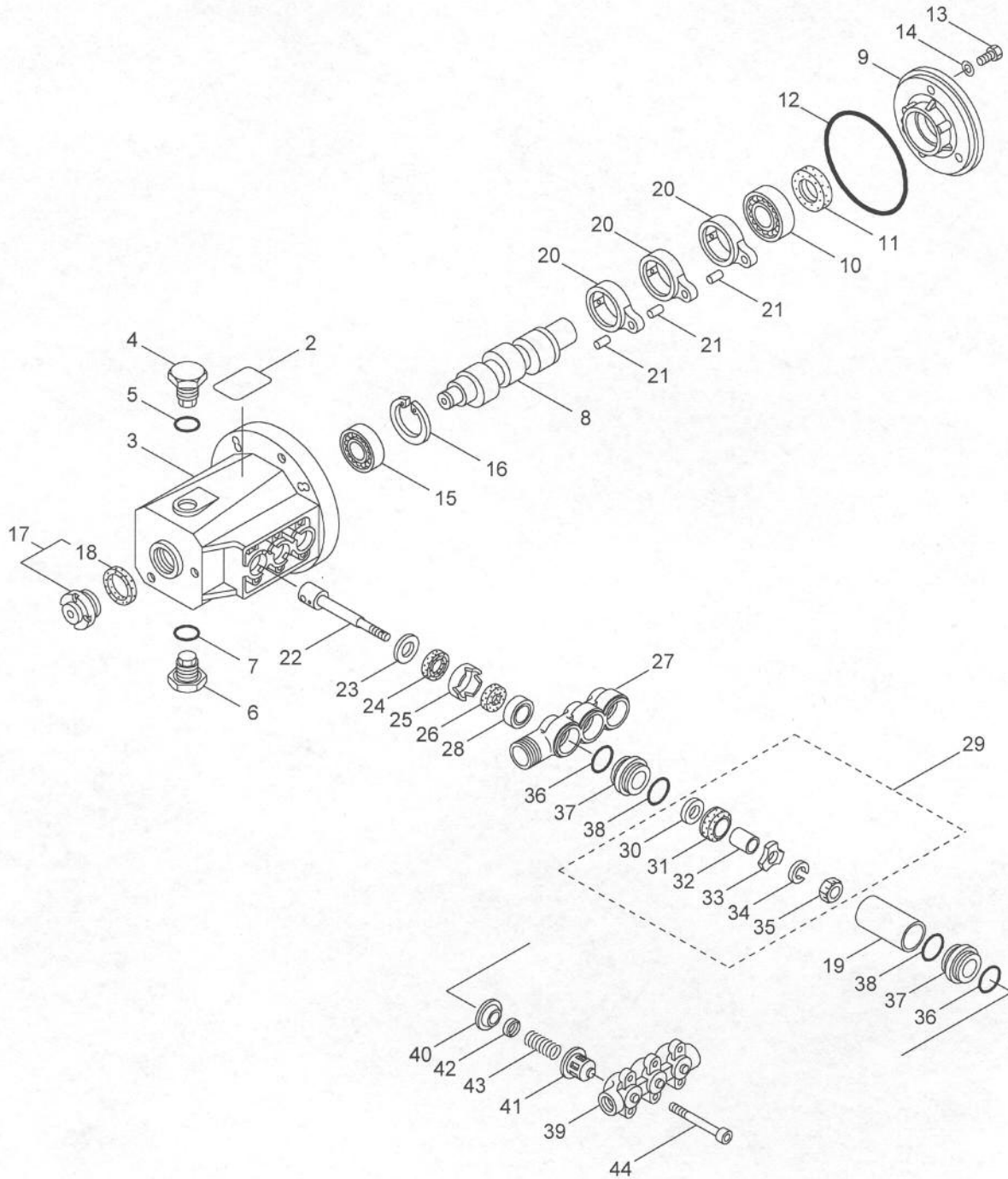
MSO40E Spray Gun



Spray Gun Parts List Model MSO40

PART #	DESCRIPTION	QUANTITY
23.1003.16	Trigger Spring	1
23.1304.29	Push Pin	1
23.1310.8	Plug	1
23.1603.36	Flow Regulator Body	1
23.602.34	O-Ring	2
23.602.36	O-Ring	1
23.602.37	O-Ring	1
26.1304.33	Directional Switch	1
26.1506.14	Spacer	1
26.1617.10	Complete Flow Tube Assembly	1
26.1701.10	Nozzle	1
26.1703.55	Narrow Pattern Tube	1
26.1703.69	Flow Tube	1
26.1707.2	Spray Shield	1
26.1902.20	Screw	1
26.305.3	Spray Pattern Control Body	1
26.605.50	Wing Nut	1
26.801.5	Spacer	1
26.902.6	Spray Pattern Control Valve	1
29.1003.24	Spring	1
29.1101.1	Nipple	1
29.1607.3	Trigger Pin	1
29.1702.26	Plug	1
29.1903.9	Complete Trigger Valve Assembly	1
29.208.131	Valve Body	1
29.507.10	Trigger Locking Clip	1
29.801.40	Stopper	1
29.902.8	Trigger	1
71.602.6	O-Ring	1

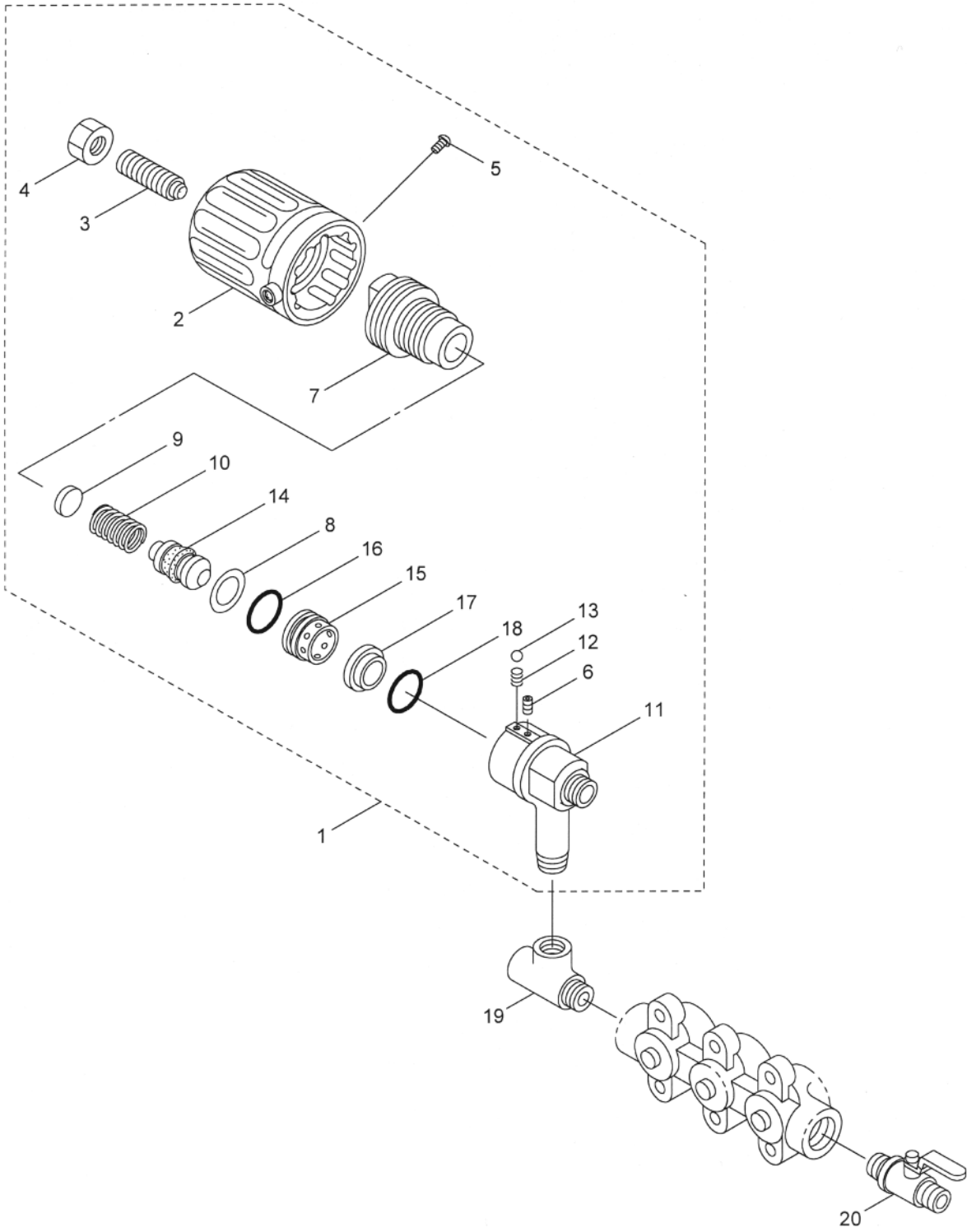
MSO40E Crank Case and Inlet Valve



Crank Case and Inlet Valve Parts List

ITEM #	PART #	DESCRIPTION	QUANTITY
1-1	354040	MSD40(5/8IN)	1
1-2	546000	Label	1
1-3	546041	Crankcase	1
1-4	044839	Oil Filler Cap	1
1-5	014179	O-Ring	1
1-6	044842	Plug	1
1-7	014179	O-Ring	1
1-8	546772	Crankshaft	1
1-9	044857	Bearing Case	1
1-10	014488	Bearing	1
1-11	044859	Oil Seal	1
1-12	014044	O-Ring	1
1-13	089551	Bolt	3
1-14	150810	Seal Washer	3
1-15	015710	Bearing	1
1-16	012385	Snap Ring	1
1-17	092241	Oil Gauge Assembly	1
1-18	044428	Packing	1
1-19	541811	Cylinder Pipe	3
1-20	045876	Connecting Rod	3
1-21	016948	Piston Pin	3
1-22	541809	Piston Pin	3
1-23	020017	Washer	3
1-24	025461	Oil Seal	3
1-25	044869	Seal Retail	3
1-26	011402	Oil Wick	3
1-27	545944	Inlet Manifold	1
1-28	540670	U-Packing13	3
1-29	639503	Inlet Valve Assembly	3
1-30	014122	Inlet Valve Seat	3
1-31	116121	Piston Packing	3
1-32	027348	Spacer	3
1-33	119917	Retainer, Piston	3
1-34	015849	Spring Washer	3
1-35	046365	Nylon Nut	3
1-36	023172	O-Ring	6
1-37	546860	Pipe Receiver	6
1-38	015862	O-Ring	6
1-39	544499	Discharge Manifold	1
1-40	044881	Valve Seat	3
1-41	044565	Retainer	3
1-42	043723	Discharge Valve	3
1-43	541062	Spring	3
1-44	544090	Cap Screw	6

MSO40E Pressure Regulator Valve



Pressure Regulator Valve Parts List

ITEM #	PART #	DESCRIPTION	QUANTITY
2-1	546849	Pressure Regulator Valve	1
2-2	540936	Grip	1
2-3	088913	Cap Screw	1
2-4	081039	Nut	1
2-5	087483	Screw	2
2-6	088912	Cap Screw	1
2-7	106495	Guide	1
2-8	106499	Washer	1
2-9	541769	Retainer	1
2-10	109298	Spring	1
2-11	546500	Body	1
2-12	107221	Spring	1
2-13	106498	Ball	1
2-14	543591	Piston Assembly	1
2-15	103306	Sleeve	1
2-16	019261	O-Ring	1
2-17	543507	Valve Seat	1
2-18	019261	O-Ring	1
2-19	542258	Tee	1
2-20	541796	Cock Assembly	1

Troubleshooting

This power sprayer troubleshooting section shows how to diagnose and resolve problems that may occur in the course of normal operation. If you experience a problem, take the steps indicated for the applicable diagnosis. When you can't determine the cause of a problem or if you have any difficulty, please feel free to contact your nearest dealer or this company's sales office. Please have the following information ready: 1. Model designation 2. Serial number 3. Description of problem (What happened? What were you doing when it happened? What were the conditions when it happened?) For items marked with *, please request adjustment or repair from your nearest dealer or from this company's sales office.

WARNING: Do not change the setting of the screw that is under the cap on the top of the pressure regulator knob. This screw absolutely must not be changed, since that will raise the pressure above rated specifications, damage the machine, and possibly cause injury.

PROBLEM	CAUSE	REMEDY
<ul style="list-style-type: none"> • Suction is Low or Absent <ul style="list-style-type: none"> –Up to Suction Port –Suction & Pressure Parts (Cylinder Part) –Pressure Regulator Part 	<ul style="list-style-type: none"> • Suction strainer is blocked with debris • Suction hose is damaged or crooked • Suction hose connector gasket is bad • Connection is bad • Debris is stuck in inlet or discharge valve • Inlet or discharge valve is assembled improperly • Inlet or discharge valve is damaged or worn • Discharge valve spring is damaged • Piston packing is damaged • O-ring is damaged • Seal & packing are damaged • Pressure regulator valve lever in is RUN position • Pressure regulator is stuck 	<ul style="list-style-type: none"> • Clear and clean • Repair or replace • Repair or replace • Connect properly • Clean • Assemble properly • Repair or replace • Replace • Replace • Replace • Replace • Replace • Return lever to START position • Disassemble & clean
<ul style="list-style-type: none"> • Pressure Will Not Increase <ul style="list-style-type: none"> –Suction & Pressure Part –Pressure Regulator Part 	<ul style="list-style-type: none"> • Insufficient liquid supplied to intake • Pressure regulator valve ball or valve seat damaged • Pressure regulator valve rod is bad • Pressure regulator valve spring bad • Pressure regulator valve spring is damaged or weak 	<ul style="list-style-type: none"> • Diagnose under (1) • Replace • Adjust or replace • Repair or replace • Replace

Troubleshooting

PROBLEM	CAUSE	REMEDY
<ul style="list-style-type: none"> • Pressure Falls When Spray Gun is Opened <ul style="list-style-type: none"> –Nozzle –Power Spray –Hose 	<ul style="list-style-type: none"> • Nozzle is worn • Nozzle sprays too much liquid • Intake liquid amount is too small • Sprayer hose is too long • Sprayer hose it too narrow gauge • Water is leaking at hose connection parts 	<ul style="list-style-type: none"> • Replace • Replace with suitable nozzle • Diagnose under (1) • Make it the proper length • Make it the proper gauge • Repair or replace
<ul style="list-style-type: none"> • Sprayer Hose Vibrates 	<ul style="list-style-type: none"> • Pressure regulator valve works poorly • Faults in intake or pressure assemblies (stopped up, slack) 	<ul style="list-style-type: none"> • Disassemble or adjust • Clean
<ul style="list-style-type: none"> • Noise 	<ul style="list-style-type: none"> • Loose or worn key • Conrod bolt or other bolt is loose • Bearings are damage • Pressure regulator valve is assembled wrong • Air is being drawn in 	<ul style="list-style-type: none"> • Tighten or replace • Tighten • Replace • Adjust • Inspect
<ul style="list-style-type: none"> • Liquid or Oil Leak 	<ul style="list-style-type: none"> • O-rings are damaged • Seal & packing are damaged • Oil seal is damaged • Clamping or assembly are incorrect 	<ul style="list-style-type: none"> • Replace • Replace • Replace • Disassemble or adjust
<ul style="list-style-type: none"> • Motor Will Not Run 		<ul style="list-style-type: none"> • Make sure pressure control knob is in start position • Check electrical connections to unit • Check condition of switch • Check condition of cord • Have all motor or electrical service done by a qualified electrician

Service

The warranty begins on the date of original purchase. The warranty is void if there is no proof of purchase or warranty registration on file. Mail the warranty registration card to the Damm Corporation and keep the bill of sale or invoice. If warranty service is required, please include a written description of the equipment malfunction, a return address and telephone number. The Hydra MultiSpray, model HYDRA, must be thoroughly cleaned of all chemical residue and sent prepaid to:

Hydra Sprayer Service
c/o Damm Corporation
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Manitowoc, WI 54220

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