

Mi-T-M[®] CORPORATION

8650 Enterprise Drive, Peosta IA 52068-0050
319-556-7484 / Fax 319-556-1235

PARTS LIST FOR HSP-2403-1MGH

(After Serial #22654)

ENGINE OIL GRADE:	SAE 10W-30
HONDA OIL CAPACITY:	20 OZ.
PUMP OIL GRADE:	MI-T-M PUMP OIL #AW-4085-0016
PUMP OIL CAPACITY:	11.83 OZ.
FUEL NOZZLE:	1.25 60°B DELAVAN
BTU INPUT:	205,000 / HOUR
PRESSURE NOZZLE SIZE:	3.0

This Parts Listing has been compiled for your benefit. You can be assured your Mi-T-M hot water pressure washer was constructed and designed with quality and performance in mind. Each component has been rigorously tested to insure the highest level of quality.

The contents of this Parts Listing are based on the latest product information available at the time of publication. Mi-T-M reserves the right to make changes in price, color, materials, equipment, specifications or models at any time without notice.

WARNING

THIS IS A PROFESSIONAL HIGH PRESSURE, HOT WATER PRESSURE WASHER. CAUTION SHOULD BE OBSERVED WHEN USING OR REPAIRING THIS UNIT! READ AND FOLLOW THE SAFETY WARNINGS LISTED BELOW BEFORE ATTEMPTING ANY REPAIRS ON THIS PRESSURE WASHER!

SAFETY WARNINGS

1. NEVER alter or modify the equipment. Be sure any accessory items and system components being used will withstand the pressure developed. Use only genuine Mi-T-M parts for repair of your pressure washer. Failure to do so can cause hazardous operating conditions and will VOID warranty.
2. NEVER make adjustments on machinery while the unit is connected to the engine without first removing the ignition cable from the spark plug. Turning over the machinery by hand during adjustment or cleaning might start the engine and machinery with it, causing serious injury to the operator.
3. Know how to stop and bleed pressures quickly. Be thoroughly familiar with controls.
4. Before servicing the unit, turn unit off, relieve the water pressure and allow the unit to cool down. Do not make repairs while the unit is running. Service in a clean, dry, flat area. Block the wheels to prevent the unit from moving. Be especially careful to properly dispose of any flammable materials.
5. After testing the machine, DO NOT leave the pressurized unit unattended. Shut off the unit and release trapped pressure before leaving.

Table of Contents

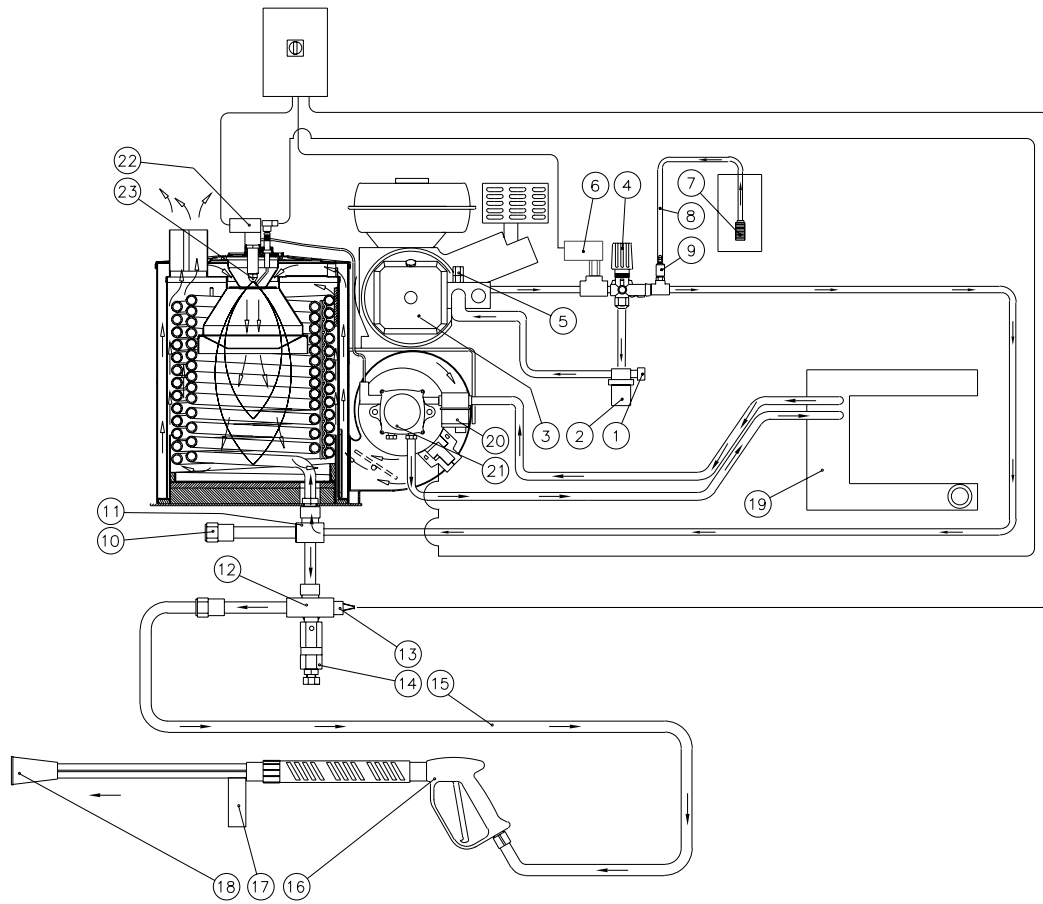
SPECIFICATIONS	3
FLOW CHART	4
EMF SYSTEM	4
GENERAL THEORY OF OPERATION	5
DECAL PLACEMENT	6
FRAME	8
ENGINE/PUMP ASSEMBLY	10
HIGH PRESSURE PUMP (3-0143)	12
PUMP SERVICE GUIDE	14
UNLOADER/MANIFOLD ASSEMBLY	16
UNLOADER (850-0252)	18
PRESSURE SETTING & TROUBLESHOOTING THE UNLOADER	19
PRESSURE SWITCH (850-0173)	20
DETERGENT INJECTOR (50-0052)	21
COIL DRAIN PLUG (850-0218)	21
HEAT EXCHANGER/EMF SYSTEM	22
BOILER ASSEMBLY (850-0224)	24
GUN (850-0179) & ADJUSTABLE PRESSURE DUAL LANCE (850-0185)	26
FUEL TANK (850-0214)	28
FUEL PUMP (3-0129)	30
FUEL SOLENOID (44-0098)	31
EMF SYSTEM (850-0239)	32
WIRING SCHEMATIC	34
WIRING DIAGRAM	35

SPECIFICATIONS

HSP-2403-1MGH

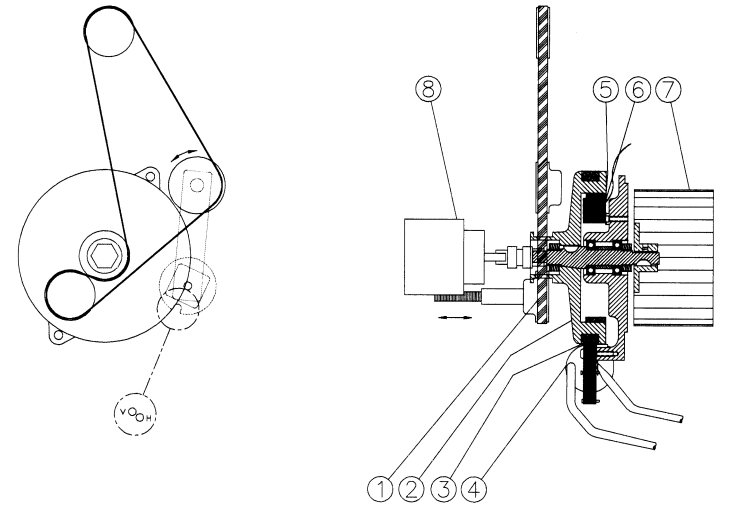
MODEL NUMBER	HSP-2403-1MGH
Operating Pressure (PSI/Bar):	2400/ 165 (+/- 5%)
Water Volume (GPM/lpm):	2.3/8.7(+/- 5%)
Outlet Water Temperature (F/C):	130°F/ 54°C (+/- 20°F) rise above inlet ambient (210°F/ 99°C maximum)
Engine:	Honda
Horsepower	6.5
Engine Type	Four Stroke, Overhead Valve, Single Cylinder
Oil Type	SAE10W-30
Oil Capacity (oz./liter)	20/6
Low Oil Protection	Oil Alert™
Fuel Type	Unleaded Gasoline 86 Octane Minimum
Fuel Capacity (gal./liter)	.95/ 3.6
Starting	Recoil Rope
Maximum No Load RPM	3600 (+/- 100)
High Pressure Pump:	Direct Driven, Oil Bath, Triplex Piston
Oil Type	Mi-T-M Pump Oil #AW-4085-0016
Oil Capacity (oz./liters)	11.83/35
Plungers	Ceramic
Manifold	Forged Brass
Valves	Stainless Steel
Unloader	Preset
Inlet Water Strainer	Removable Clear Bowl for inspection and cleaning of Stainless Steel Screen
Heat Dump Valve	Relieves heated water during unloader bypass stage
Pressure Gauge	Glycerine filled indicating pressure gauge
Detergent Injector:	Adjustable Low Pressure downstream from pump
Burner Fuel System:	
Fuel Type	No.1 or No.2 Fuel Oil, Diesel or Kerosene
Fuel Capacity (gal./liters)	4/15
Fuel Filter/ Water Separator	Spin on (10 micron) filter/ E-Z water drain
Fuel Pump	Two Line, Single Stage
Fuel Pressure (PSI/ BAR)	145/10
Fuel Nozzle	1.25 60° B Delavan
Fuel Consumption (GPH/ LPH)	1.48 GPH Continuous Burning
Electro Magnetic Firing (EMF) System:	Belt Driven (Patent Pending)
Ignition	Transistorized Magneto
Control Voltage	12 Volt DC
Blower	Forced Air
Heat Exchanger:	Vertical, Top fired, Dual Spiral Coil
BTU Input	205,000
Efficiency	80-83% with #2 Fuel Oil/ Diesel
Smoke Density	0-3 per ASTM D2156
Controls:	
On/ Off Switch	Industrial grade cam switch
Pressure Switch	Shuts off burner fuel supply upon trigger release
High Limit Switch	Shuts off burner fuel supply when outlet water temp. exceeds 210°F/ 99°C
Fuel Solenoid:	12 Volt
Safety Relief:	Relieves excess system pressure
Unit Net Weight (Lbs/kg):	269/122
Unit Shipping Weight (Lbs/kg):	385/175
Unit Net Dimension (In/cm):	37.5L x 29.5W x 37.5H/ 95L x 75W x 95H
Unit Shipping Dimension (In/cm):	46.5L x 31.5W x 48.5H/ 118L x 80W x 123H

FLOW CHART



OMHSP027-052099-BAR

EMF SYSTEM



OMHSP008-012494-BAR

GENERAL THEORY OF OPERATION

WATER FLOW: Connect a pressurized water source to the INLET GARDEN HOSE CONNECTION (1) and turn on the water supply. The water will flow through a WATER STRAINER (2) which has a clear inspection bowl.

The water then travels into the TRIPLEX HIGH PRESSURE PUMP (3) which has an UNLOADER (4) that bypasses the water when the trigger gun is closed. To protect the pump from heated water during this bypass stage, a HEAT DUMP VALVE (5) will open at 140°F/60°C allowing the heated water to escape. The Heat Dump Valve automatically resets when the water cools. The PRESSURE SWITCH (6) controls the fuel supply to the burner.

When using detergents, the solution passes through the DETERGENT STRAINER (7) located on the DETERGENT HOSE (8). The detergent solution then travels into the ADJUSTABLE LOW PRESSURE DETERGENT INJECTOR (9).

From there, the water may be allowed to flow out of the DRAIN PLUG (10) or through the HEAT EXCHANGER INLET (11) where it is heated when the burner is on. As the water exits the HEAT EXCHANGER OUTLET (12), it enters a safety system which protects the operator from danger. The safety system contains a HIGH TEMPERATURE LIMIT SWITCH (13) which senses the water temperature and shuts off the fuel supply to the burner if it gets too hot. If the unloader fails to by pass the water or the burner remains on when the trigger gun is closed, the SAFETY RELIEF (14) will relieve and allow water to exit safely.

The heated water then flows through the HIGH PRESSURE HOSE (15) and to the TRIGGER GUN ASSEMBLY (16) which allows the operator to control the water spray. When the trigger gun is open, the water flows through the ADJUSTABLE PRESSURE DUAL LANCE (17) and exits the NOZZLE (18).

FUEL FLOW: The Fuel Pump draws fuel from the FUEL TANK (19) through a replaceable FUEL FILTER/WATER SEPARATOR (20) and into the FUEL PUMP (21). Fuel exits the fuel pump, into a FUEL SOLENOID VALVE (22) which controls fuel flow to the FUEL NOZZLE (23) where it ignites and burns in the heat exchanger.

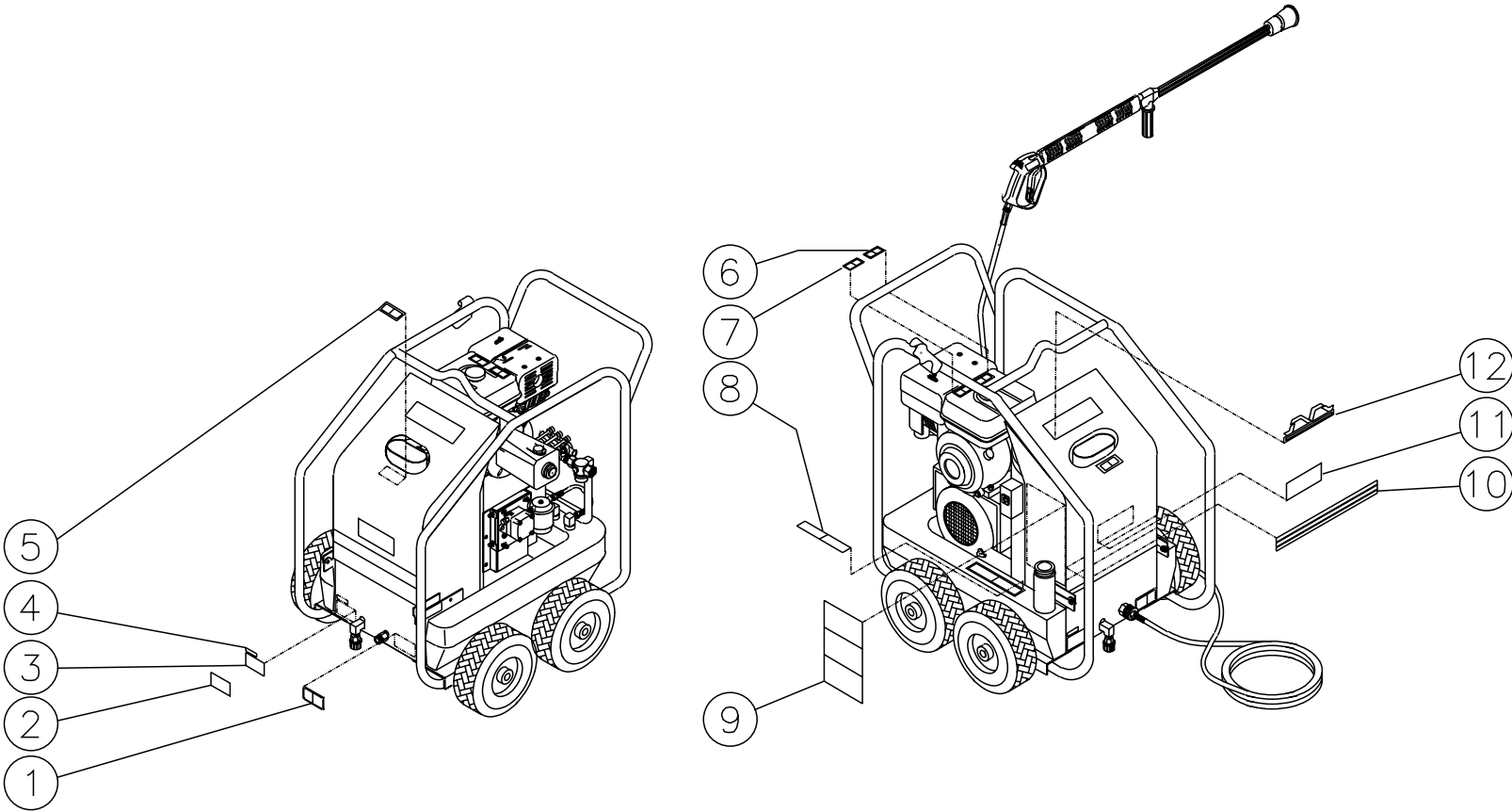
EMF SYSTEM: The patent pending Electro Magnetic Firing (EMF) System is an integrated system which gives all the requirements for combustion.

The BELT (1) from the power source turns the HUB (2) which has two EXTERIOR MAGNETS (3) attached. As these magnets spin past the IGNITION MODULE (4), a magnetic flux is created from which the ignition module produces a high voltage. This voltage arcs across the electrodes giving the spark that is needed for ignition.

This hub has an INTERNALLY MOUNTED MAGNET (5) which spins past a STATOR (6) that produces the voltage that controls the fuel supply to the heat exchanger. In addition to this, the hub also spins the BLOWER FAN (7) that forces the air into and through the heat exchanger.

The FUEL PUMP (8) is also connected the hub by means of a flexible coupler.

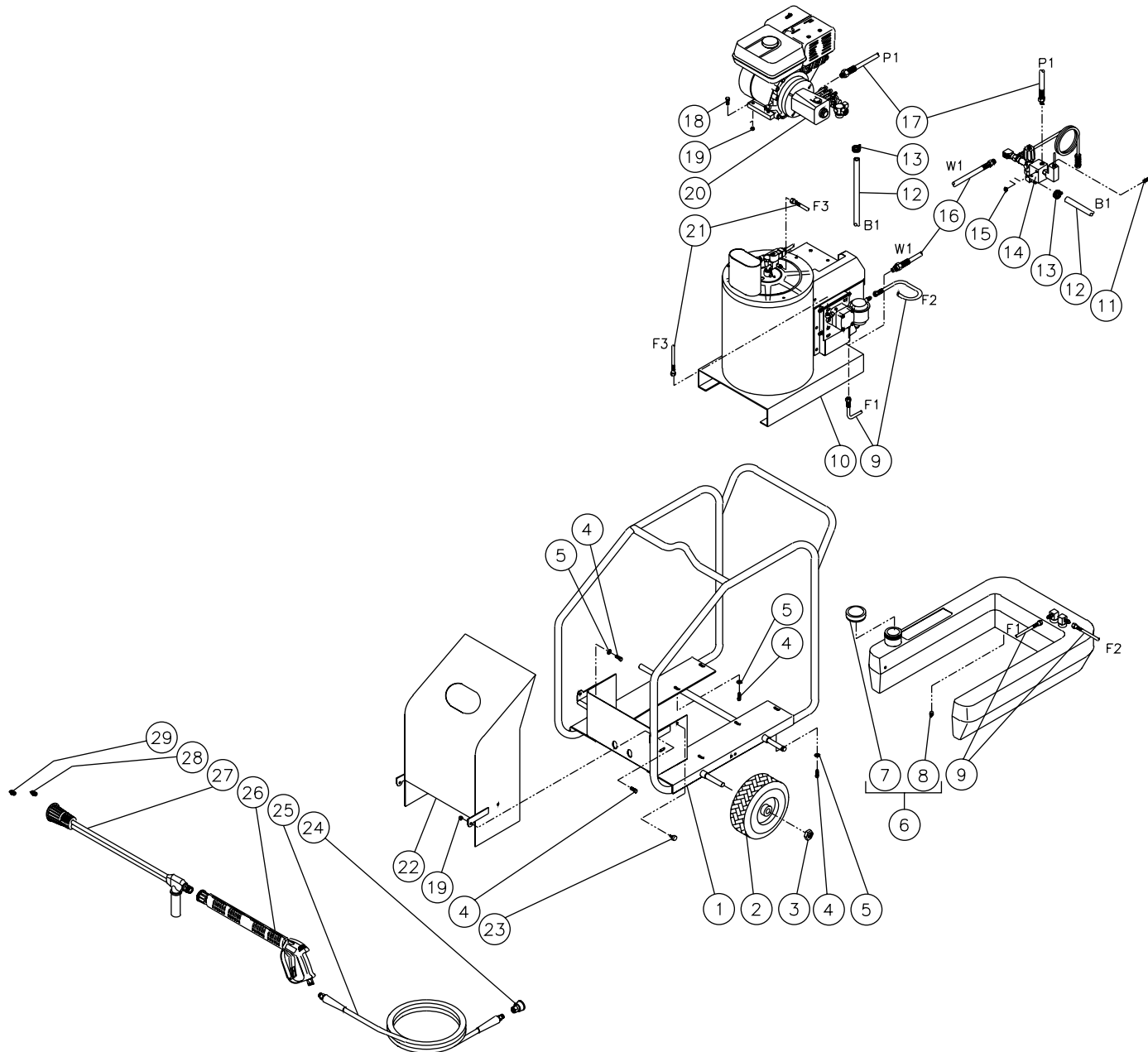
DECAL PLACEMENT



HSP-2403-IMGH-031099-BAR

DECAL PLACEMENT			
REF. #	DESCRIPTION	PART #	QTY.
1	Decal- Warning: Don't Modify Plumbing (E/S)	34-0852	1
2	Decal- Clear Laminate	N/A	1
3	Decal- Data Plate	N/A	1
4	Serial Number	N/A	1
5	Decal- Warning: Hot Coil Exhaust (E/S)	34-0808	1
6	Decal- Allow to Cool (E/S)	34-0599	1
7	Decal- Hot Surface (E/S)	34-0598	1
8	Decal- Risk of Fire (E/S)	34-0806	1
9	Decal- Warning/ Caution/ Operation (E/S)	34-0847	1
10	Decal- Stripe	34-0560	1
11	Decal-White Die Cut	34-0711	1
12	Plastic Mi-T-M Logo	62-0087	1

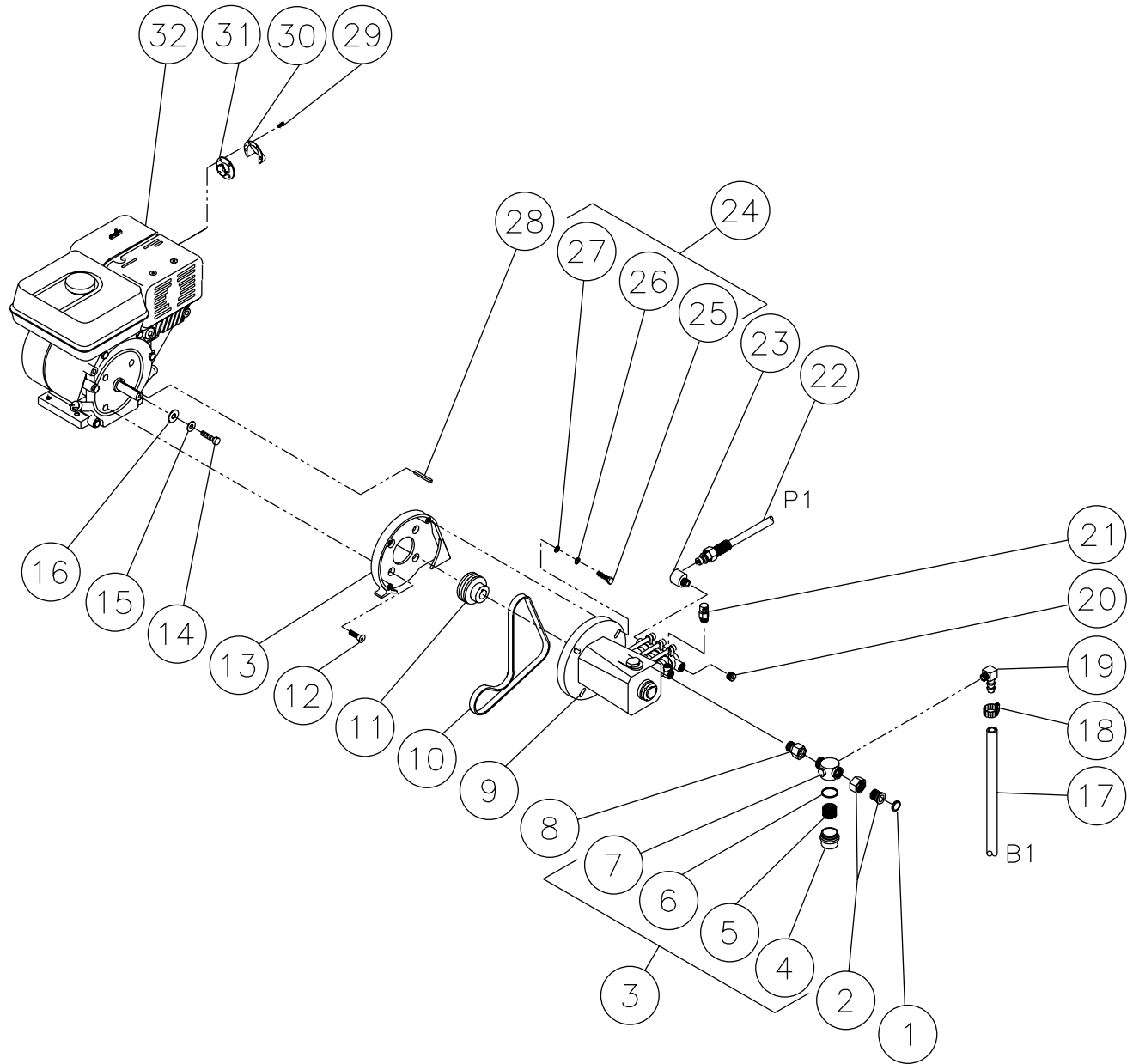
FRAME



0181P18R03.00221497A1R

FRAME								
REF. #	DESCRIPTION	PART #	QTY.		REF. #	DESCRIPTION	PART #	QTY.
1	Frame Assembly	5-9002A01	1		16	High Pressure Hose Assembly	15-0199	1
2	Wheel	14-0017	4		17	High Pressure Hose Assembly	15-0194	1
3	Jam Nut	30-0117	4		18	Bolt	27-9525	4
4	Bolt	27-9524	12		19	Hex Nut	30-3023	6
5	Flatwasher	28-0022	10		20	Engine/Pump Assembly (See exploded drawing)	N/A Sep.	1
6	Fuel Tank Assembly (Includes 7, 8)	850-0214	1		21	Fuel Line Hose	33-0217	1
7	Fuel Cap	12-0033	1		22	Hood Assembly	850-0164	1
8	Plug	23-0296	1		23	Screw- Cover	62-0057	1
9	Fuel Hose	15-0147	2		24	Screw Connect	17-0035	1
10	Heat Exchanger/ EMF System Assembly (See exploded drawing)	N/A Sep.	1		25	Hose Assembly	15-0146	1
11	Bolt	27-0526	2		26	Gun/Lance Assembly	850-0179	1
12	Hose	15-0007	2		27	Dual Lance Assembly	850-0185	1
13	Hose Clamp	42-0011	2		28	Nozzle- 1503	18-0053	1
14	Unloader/Manifold Assembly (See exploded drawing)	N/A Sep.	1		29	Nozzle- 4060	18-0110	1
15	Hex Nut	30-0157	2					

ENGINE/PUMP ASSEMBLY

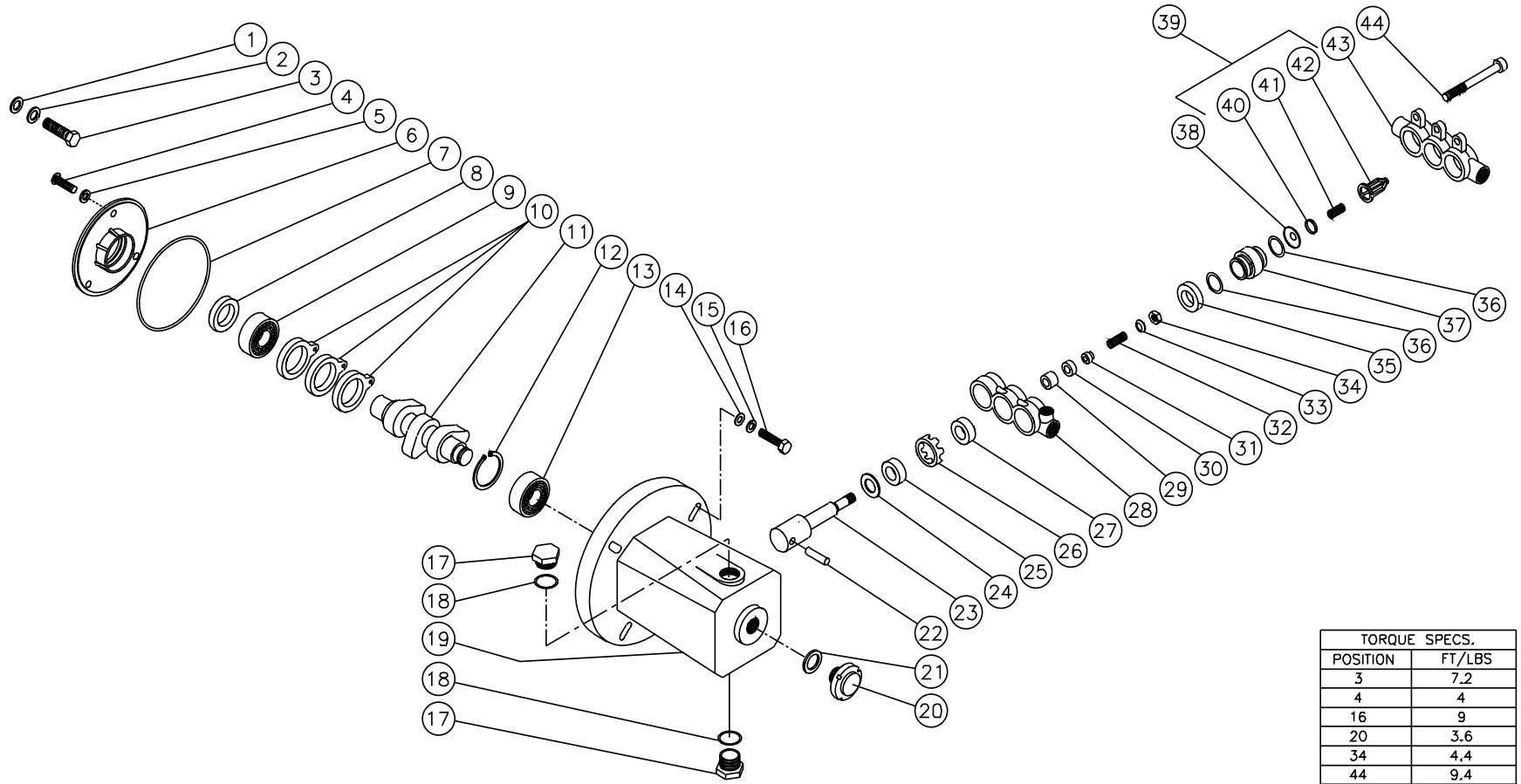


HPS103-030999-BAR

ENGINE/PUMP ASSEMBLY

REF #	DESCRIPTION	PART #	QTY		REF #	DESCRIPTION	PART #	QTY
1	Gasket	26-0001	1		17	Hose	15-0007	2
2	Hose Swivel	23-0095	1		18	Hose Clamp	42-0011	1
3	Filter Assembly (Includes 4-7)	19-0096	1		19	Elbow	23-0119	1
4	Strainer Bowl	19-0103	1		20	Plug	23-0244	1
5	Stainless Steel Screen	19-0104	1		21	Thermo Valve	22-0208	1
6	Strainer Gasket	25-0056	1		22	High Pressure Hose Assembly	15-0157	1
7	Strainer Cap	19-0105	1		23	Elbow	23-0242	1
8	Reducer	23-0243	1		24	Bolt Mount Kit (Includes 25-27)	70-0096	1
9	Pump	3-0143	1		25	Bolt w/Pump (See 70-0096)	N/A Sep.	3
10	Belt	11-0037	1		26	Split Lockwasher	46-0488	3
11	Sheave	10-0076	1		27	Flatwasher	46-0491	3
12	Bolt	27-0418	4		28	Keystock	43-0073	1
13	Adapter Plate	38-0044	1		29	Screw- Honda	27-3093	2
14	Bolt	27-0091	1		30	Muffler Deflector- Honda	45-0053	1
15	Lockwasher	46-0483	1		31	Muffler Guide- Honda	21-0099	1
16	Flatwasher	28-0003	1		32	Engine- 5.5 H.P. Honda	1-0088	1

HIGH PRESSURE PUMP (3-0143)



TORQUE SPECS.	
POSITION	FT/LBS
3	7.2
4	4
16	9
20	3.6
34	4.4
44	9.4

OMPMP035-110498-BAR

HIGH PRESSURE PUMP (3-0143)								
REF #	DESCRIPTION	PART #	QTY		REF #	DESCRIPTION	PART #	QTY
1	Flatwasher	28-0003	4		25	Oil Seal	26-0156	3
2	Lockwasher	46-0483	4		26	Seal Retainer	46-0303	3
3	Bolt	27-0091	4		27	Low Pressure Seal (See 70-0129)	N/A Sep.	3
4	Bolt	46-0318	3		28	Manifold Inlet	46-0304	1
5	Flatwasher	26-0159	3		29	Plunger	46-0305	3
6	Cover-Rear	46-0297	1		30	Valve Inlet	46-0306	3
7	O-ring	25-0308	1		31	Spacer	46-0307	3
8	Oil Seal	26-0155	1		32	Spring	49-0064	3
9	Bearing-Inner	48-0027	1		33	Washer	46-0316	3
10	Connecting Rod, Bronze	46-0681	3		34	Nut	46-0317	3
11	Crankshaft	46-0680	1		35	Seal-High Pressure (See 70-0129)	N/A Sep.	3
12	Snap Ring	46-0300	1		36	O-ring (See 70-0129 or 70-0167)	N/A Sep.	6
13	Bearing-Outer	48-0028	1		37	Discharge Valve Adapter	46-0683	3
14	Flatwasher (See 70-0096)	N/A Sep.	4		38	Valve Seat	46-0682	3
15	Lockwasher (See 70-0096)	N/A Sep.	4		39	Valve Assembly (Inc. 39-41) (See 70-0167)	N/A Sep.	3
16	Bolt (See 70-0096)	N/A Sep.	4		40	Discharge Valve (See 70-0167)	N/A Sep.	3
17	Plug	39-0057	2		41	Valve Spring (See 70-0167)	N/A Sep.	3
18	O-ring	25-0199	2		42	Valve Spring Retainer (See 70-0167)	N/A Sep.	3
19	Crankcase	46-0301	1		43	Manifold Outlet	46-0311	1
20	Oil Level Gauge	22-0123	1		44	Bolt	46-0315	6
21	Gasket	26-0139	1			Bolt Mount Kit (4 each 14-16)	70-0096	
22	Piston Rod Pin	43-0063	3			Seal Kit (3 each 27, 35, 36)	70-0129	
23	Piston Rod	46-0684	3			Valve Kit (6 each 36, 3 ea. 37-39)	70-0167	
24	Washer	46-0314	3			Inlet Valve Kit (3 ea. 30-34, 36)	70-0160	

PUMP SERVICE GUIDE

Fig. A

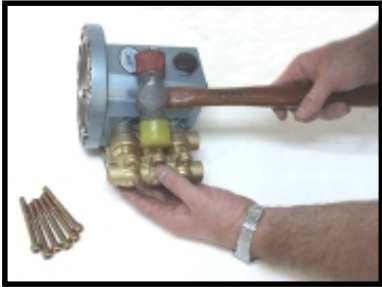


Fig. B

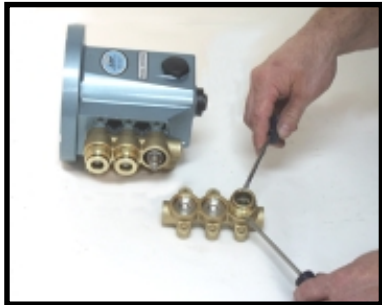


Fig. C

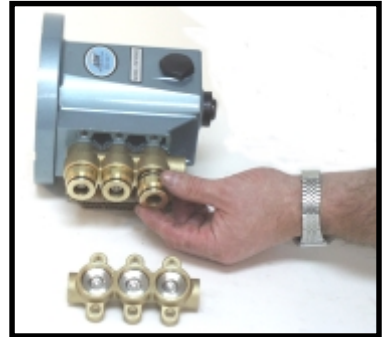


Fig. D



Fig. E

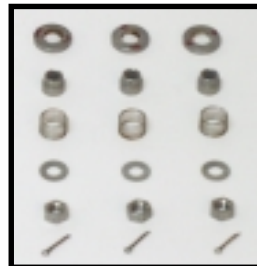


Fig. F

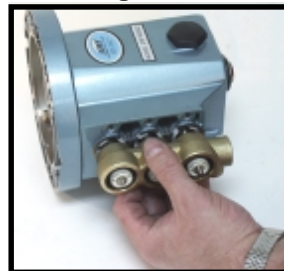


Fig. G



Fig. H



DISASSEMBLY OF THE DISCHARGE VALVE ASSEMBLY

1. Disconnect all plumbing for ease in servicing.
2. Inspect oil for proper level, presence of water or discoloration and replace as needed.
3. With a standard M6 allen wrench remove the six (6) socket head screws from the manifold. Remove the outer screws first, then the center screws.
4. With a soft mallet tap the back side of the Discharge Manifold from alternate sides to maintain alignment and avoid damage to the plungers (Fig. A).
5. Grasp the Discharge Manifold from the underside and gradually lift manifold while you pull away from the crankcase.
6. The Discharge Valve Spacers may stay with either the discharge or inlet manifold. By inserting two opposing screwdrivers between spacer and manifold you can easily pry them out of the discharge manifold (Fig. B). If they stay in the inlet manifold, gently work them up and down as you pull away from the inlet manifold (Fig. C).
7. The valve assemblies are in the discharge manifold ports and will fall out when manifold is turned over. A complete valve assembly includes: retainer, spring, valve and seat (Fig. D).

DISASSEMBLY OF THE SEAL ASSEMBLY

1. Next remove the Inlet Valve Assembly from the exposed plunger rod ends. Including: cotterpin, nut, washer, spring, spacer and inlet valve (Fig. E).
2. Grasp the Inlet Manifold from the front and underside and pull to remove from plunger rods (Fig. F).
3. Carefully examine back side of Lo-Pressure Seal before removing from manifold as it will be damaged during removal. If worn, insert screwdriver into I.D. of seal and pry out. Exercise caution to avoid damage to the inlet manifold (Fig. G).
4. Next press the ceramic Plunger with a thumb or soft tool from the **back side of inlet manifold**. The Hi-Pressure Seal may stay with the plungers or remain in the inlet manifold. If on the plungers, slide off by hand. If in the manifold, use a reverse pliers to remove.
5. Then remove Seal Retainers from crankcase by grasping tab with pliers and pulling out the high and low pressure section.
6. Examine crankcase oil seal to determine if crankcase servicing is needed (Fig. H).

Fig. I



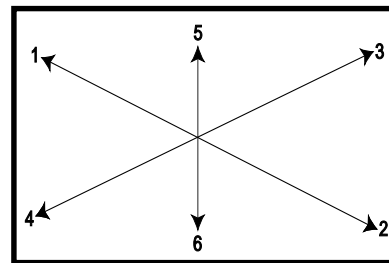
Fig. J



Fig. K



Fig. L



REASSEMBLY OF SEAL ASSEMBLY

1. Examine Seal Retainers and replace if worn or damaged. Install on Plunger Rod and press into crankcase with **tab out**.
2. Place Inlet Manifold on work surface with **small I.D. ports up**.
3. Lubricate new Lo-Pressure Seal and press into position with **garter spring down**. Be certain the seal is seated squarely on the shoulder on the inlet manifold chamber (Fig. I).
4. Place Inlet Manifold on work surface with **larger I.D. ports up**.
5. Carefully examine the plungers for scoring or cracks and replace if worn.
6. Lubricate ceramic Plungers and new Hi-Pressure Seals. Press the plunger into the seal and position seal in middle of plunger (Fig. J).

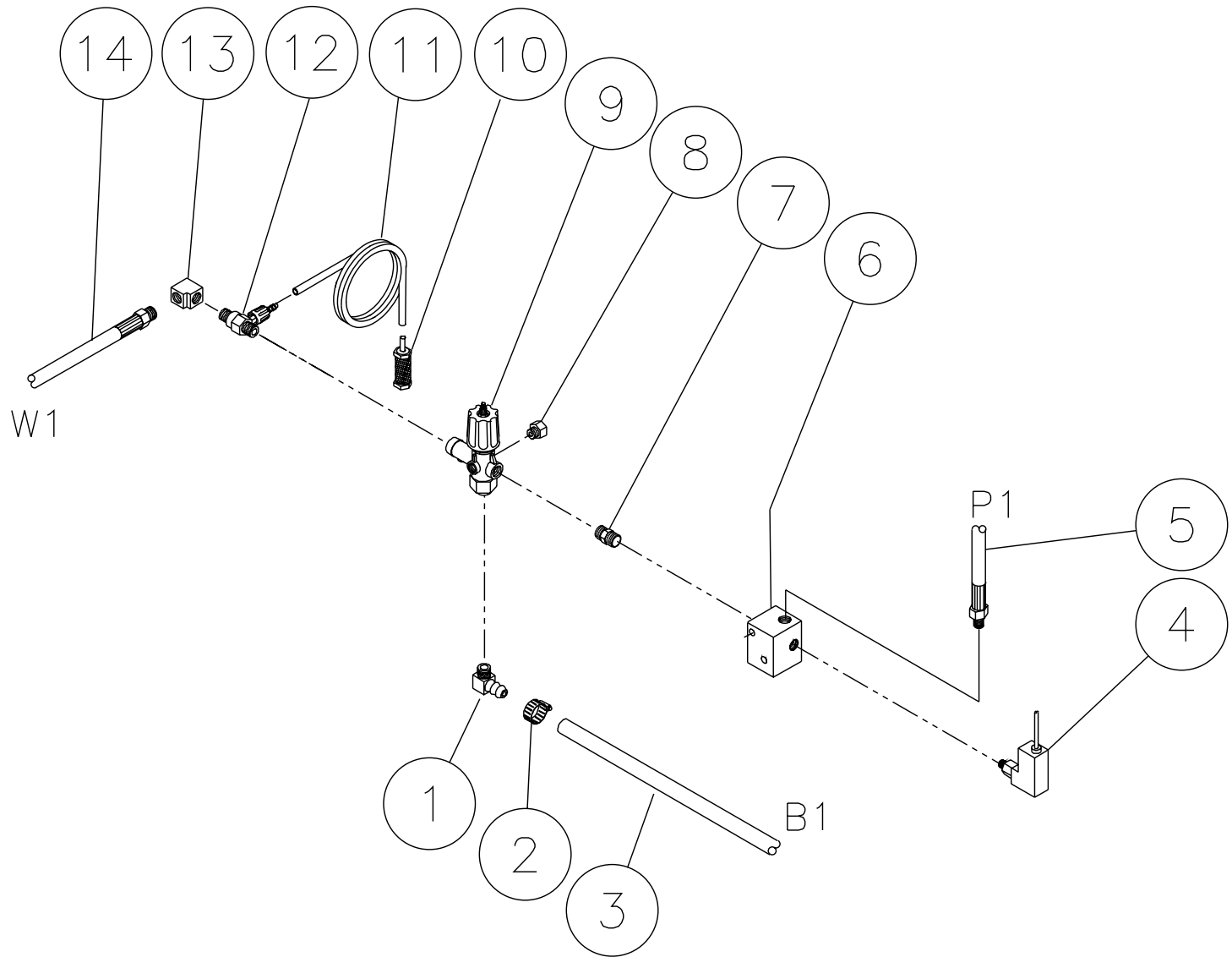
NOTE: Place the **deeper recessed end** of the plunger into the seal from the **metal back side** (Fig. K).

7. Insert the Plungers into the manifold ports. Press into position using the **larger I.D. end of Discharge Valve Spacer**.
8. Carefully install Inlet Manifold over Plunger Rod ends and slowly press into crankcase.
9. Examine Inlet Valve and replace if worn. Inlet Valve cannot be lapped or reversed if worn. Install nylon Inlet Valve with **ridged side towards the discharge**. Stainless steel valves with **square edges towards the plungers** (round edges towards the discharge).
10. Examine Spacers for wear and replace as needed. Install Spacer on each plunger rod with **smaller O.D. towards inlet valve**.
11. Examine Springs for damage or fatigue and replace as needed. Place on plunger rods.
12. Install washer next with **concave side towards inlet manifold**.
13. Next install nuts and torque to 4.4 Ft/lbs (53 in/lbs).

REASSEMBLY OF THE DISCHARGE VALVE ASSEMBLY

1. Examine Discharge Valve Spacer O-rings and replace if worn. Lubricate and install o-rings **on both front and rear of Discharge Valve Spacer**.
2. Install Valve Retainers into each Discharge Manifold port with tab down.
3. Replace worn or damaged Springs and place into Retainers.
4. Examine Valve and Seats for pitting, grooves or wear and replace as needed.
5. Place Valves over Springs with **concave side down**.
6. Place Valve Seats on Valves with **smaller I.D. down**.
7. Lubricate O.D. of Discharge Valve Spacer and **insert smaller I.D. into discharge manifold ports**. Snap into position.
8. Carefully guide Discharge Manifold with Spacer over Plunger Rod ends and press into Inlet Manifold.
9. Replace bolts and torque to 9.4 Ft/lbs (113 in.lbs). Torque diagonally in order shown (Fig. L).
10. If oil was not changed, be certain oil is to mark on oil gauge before resuming operation.

UNLOADER/MANIFOLD ASSEMBLY

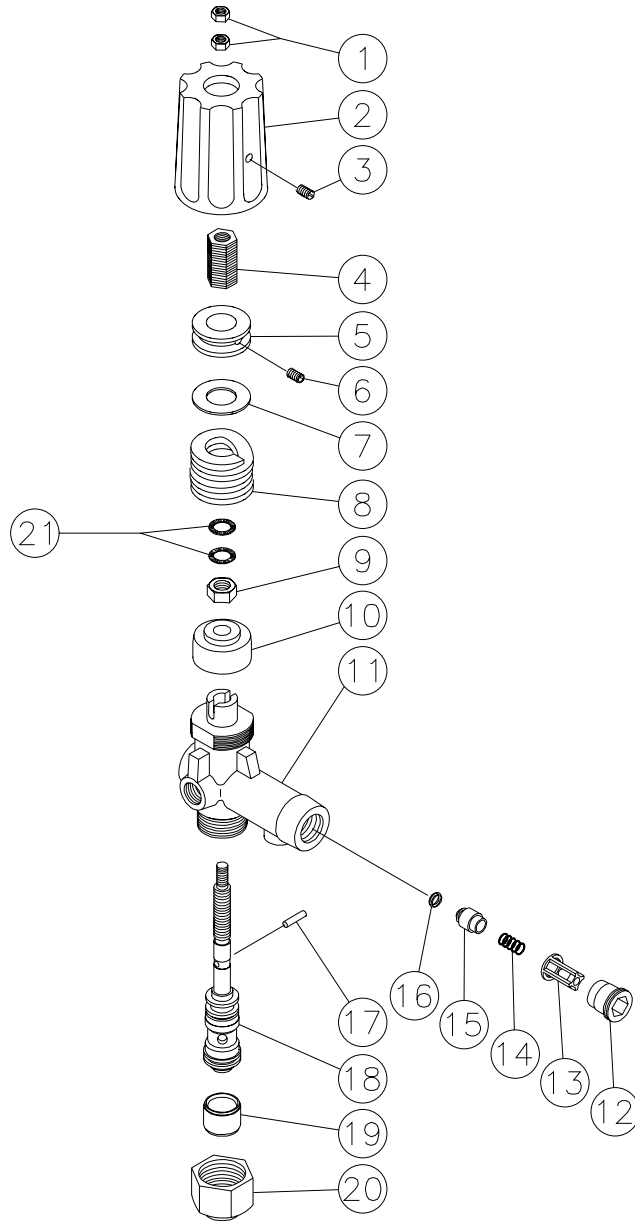


OMHSP088-031099-BAR

UNLOADER/ MANIFOLD ASSEMBLY			
REF. #	DESCRIPTION	PART #	QTY.
1	Elbow	23-0119	1
2	Hose Clamp	42-0011	1
3	Hose *(Two Feet Required)	15-0007	2
4	Pressure Switch	850-0173	1
5	High Pressure Hose Assembly	15-0157	1
6	Manifold Block	51-0025	1
7	Hex Nipple	24-0010	1
8	Plug	23-0238	1
9	Unloader Assembly	850-0252	1
10	Detergent Stainer	19-0050	1
11	Detergent Hose *(Six Feet Required)	15-0021	1
12	Detergent Injector	50-0052	1
13	Elbow	23-0307	1
14	High Pressure Hose Assembly	15-0199	1
*Must Order in One Foot Lengths			

UNLOADER (850-0252)

OMGEN163-101298-BAR



UNLOADER (850-0252)			
REF. #	DESCRIPTION	PART #	QTY.
1	Hex Nut	8-0362	2
2	Cover	7-0098	1
3	Set Screw	27-4280	1
4	Adjusting Insert- Brass	8-0363	1
5	Adjustment Nut	8-0364	1
6	Set Screw	8-0365	1
7	Glide Ring	8-0366	1
8	Spring	49-0104	1
9	Hex Nut	8-0367	1
10	Bushing	8-0368	1
11	Unloader Body	8-0369	1
12	Retainer	8-0269	1
13	Valve Housing	8-0104	1
14	Spring	49-0023	1
15	Valve	8-0105	1
16	O-ring	25-0036	1
17	Cylinder Pin	8-0372	1
18	Piston Repair Kit	70-0243	1
19	Spacer	8-0371	1
20	Stop Nut	8-0157	1
21	Washer	29-0154	2
	Check Valve Repair Kit (Includes 13-16)	70-0244	
	Unloader Complete	850-0252	

OMGEN163-101298-BAR

PRESSURE SETTING & TROUBLESHOOTING THE UNLOADER

TOOLS NEEDED:

5000 PSI gauge
2.5mm Allen Wrench
Small Flathead Screw Driver
Adjustable Wrench

TO SET MAXIMUM SPRAY PRESSURE AND BYPASS PRESSURE:

Refer to Parts Listing on pg.18. Install the test gauge in the auxiliary port on unloader or in discharge line after the unloader valve. With the pump operating but the trigger gun off, loosen the SET SCREW (3) and remove the COVER (2). Remove both HEX NUTS (1) and set aside. Using the 2.5 mm Allen wrench, loosen the SET SCREW (6) and turn the ADJUSTING NUT (5) with adjustable wrench **counterclockwise** so that it is flush with top of the ADJUSTING INSERT (4). Tighten the SET SCREW (6). With adjustable wrench, turn the ADJUSTING NUT (5) **clockwise** until the ADJUSTING INSERT (4) bottoms out against the HEX NUT (9). Loosen the SET SCREW (6) with 2.5 mm Allen wrench, so that the ADJUSTING NUT (5) turns freely but does not turn the ADJUSTING INSERT (4). With proper nozzle installed in spray gun, squeeze trigger and turn ADJUSTING NUT (5) **clockwise** to desired maximum spray pressure. Then tighten the SET SCREW (6) securely and release the trigger on the trigger gun. Squeeze and release trigger several times to verify consistency of spray pressure setting. Turn the ADJUSTMENT NUT (5) **counterclockwise** two full turns and then **clockwise** again until tight. Squeeze trigger and verify desired pressure setting. Spray pressure should fall within 5% of original setting. Bypass pressure (the reading on the gauge when the trigger is released) should exceed the spray pressure by approximately 15-20%. If valve fails to repeat within specifications, repeat the steps above and assure all final settings are tight. Install one HEX NUT (1) and tighten against the ADJUSTING INSERT (4). Install the second HEX NUT (1) and tighten securely against the first. Insert the COVER (2) and tighten the SET SCREW (3).

TROUBLESHOOTING:

SYSTEM WILL NOT COME UP TO FULL DESIGNATED PRESSURE:

- * Spray nozzle worn or nozzle orifice is too large in relation to pump flow rate.
- * Adjusted improperly. Refer to pressure adjustment section for proper procedures.
- * Bypass valve (within unloader) is obstructed or leaking. Remove and clean bypass cartridge or replace. Replace with #850-0252.
- * Flow rate of pump inadequate. Assure designated flow rate of pump is adequate in relation to spray nozzle size.

PRESSURE SPIKES IN DISCHARGE LINE DURING BYPASS MODE:

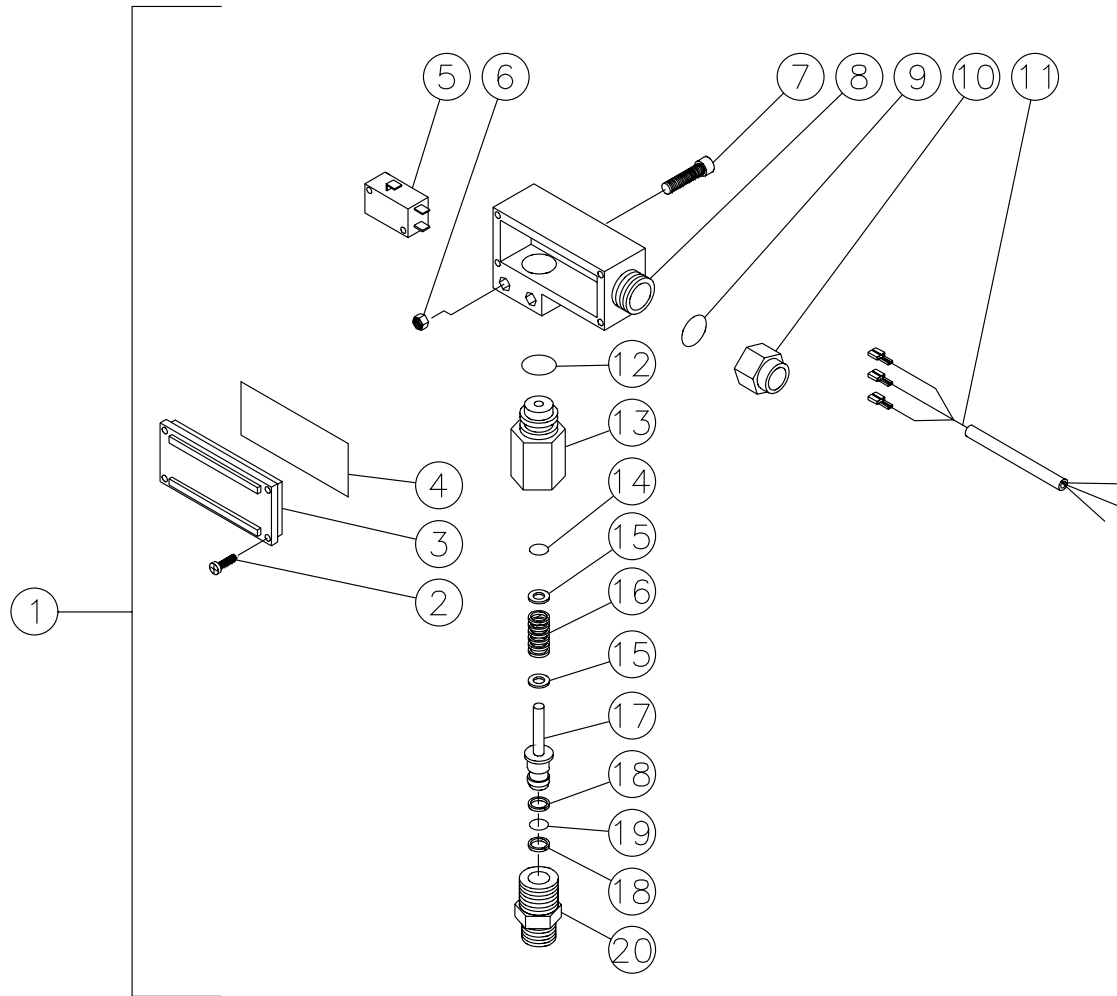
- * Pressure adjustment too tight. Refer to pressure adjustment section for proper adjustment procedures.

UNLOADER CYCLES WHILE IN BYPASS MODE:

- * External leak on unloader or in downstream fittings. Inspect all high pressure lines (including gun and hose) for any signs of leakage and repair as necessary.
- * Non-return valve. (within the unloader) damaged, obstructed or worn. Inspect and replace as necessary. Replace with #70-0244.

PRESSURE SWITCH (850-0173)

850-0173-051497-BAR

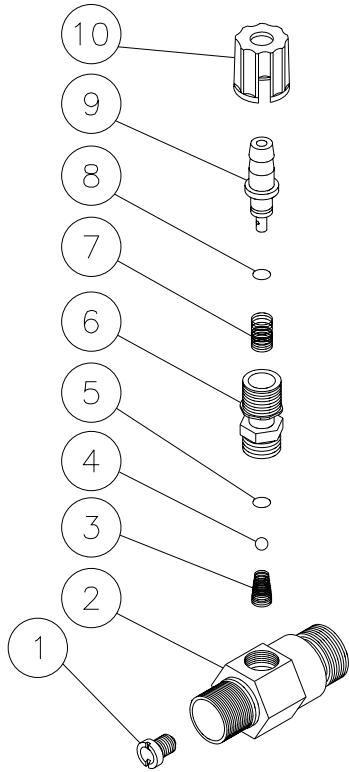


PRESSURE SWITCH (850-0173)			
REF #	DESCRIPTION	PART #	QTY
1	Pressure Switch Complete (Inc. 2-20)	850-0173	1
2	Screw	N/A	4
3	Cover	N/A	1
4	O-ring	N/A	1
5	Micro Switch	N/A	1
6	Hex Nut	N/A	2
7	Screw	N/A	2
8	Housing	N/A	1
9	O-ring	N/A	1
10	Bushing Nut	N/A	1
11	Wire Assembly	N/A	1
12	O-ring	N/A	1
13	Spring Housing	N/A	1
14	O-ring (See 70-0007)	N/A Sep.	1
15	Washer Spacer	28-0218	2
16	Spring	49-0107	1
17	Piston	N/A	1
18	Back-up Ring (See 70-0007)	N/A Sep.	2
19	O-ring (See 70-0007)	N/A Sep.	1
20	Hex Nipple	N/A	1
	O-ring Kit (1 each 14, 18-19)	70-0007	

850-0173-051497-BAR

OMGEN284-052898-DCE

DETERGENT INJECTOR (50-0052)

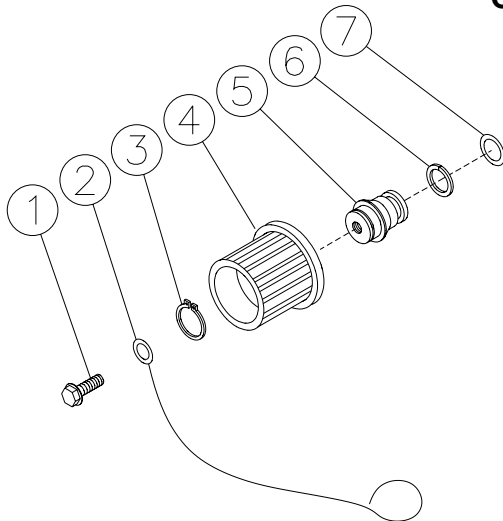


OMGEN284-052898-DCE

DETERGENT INJECTOR (50-0052)			
REF. #	DESCRIPTION	PART #	QTY.
1	Orifice (2.1mm)	50-0057	1
2	Injector Body	N/A	1
3	Spring (See 852-0056)	N/A Sep.	1
4	Ball (See 852-0056)	N/A Sep.	1
5	O-ring (See 852-0056)	N/A Sep.	1
6	Piston Retainer	50-0156	1
7	Spring	49-0056	1
8	O-ring (See 852-0056)	N/A Sep.	1
9	Adjustable Shutter Barb	50-0157	1
10	Adjustment Knob	50-0158	1
	Injector Repair Kit (Includes 3-5, 8)	852-0056	

850-0218-041597-BAR

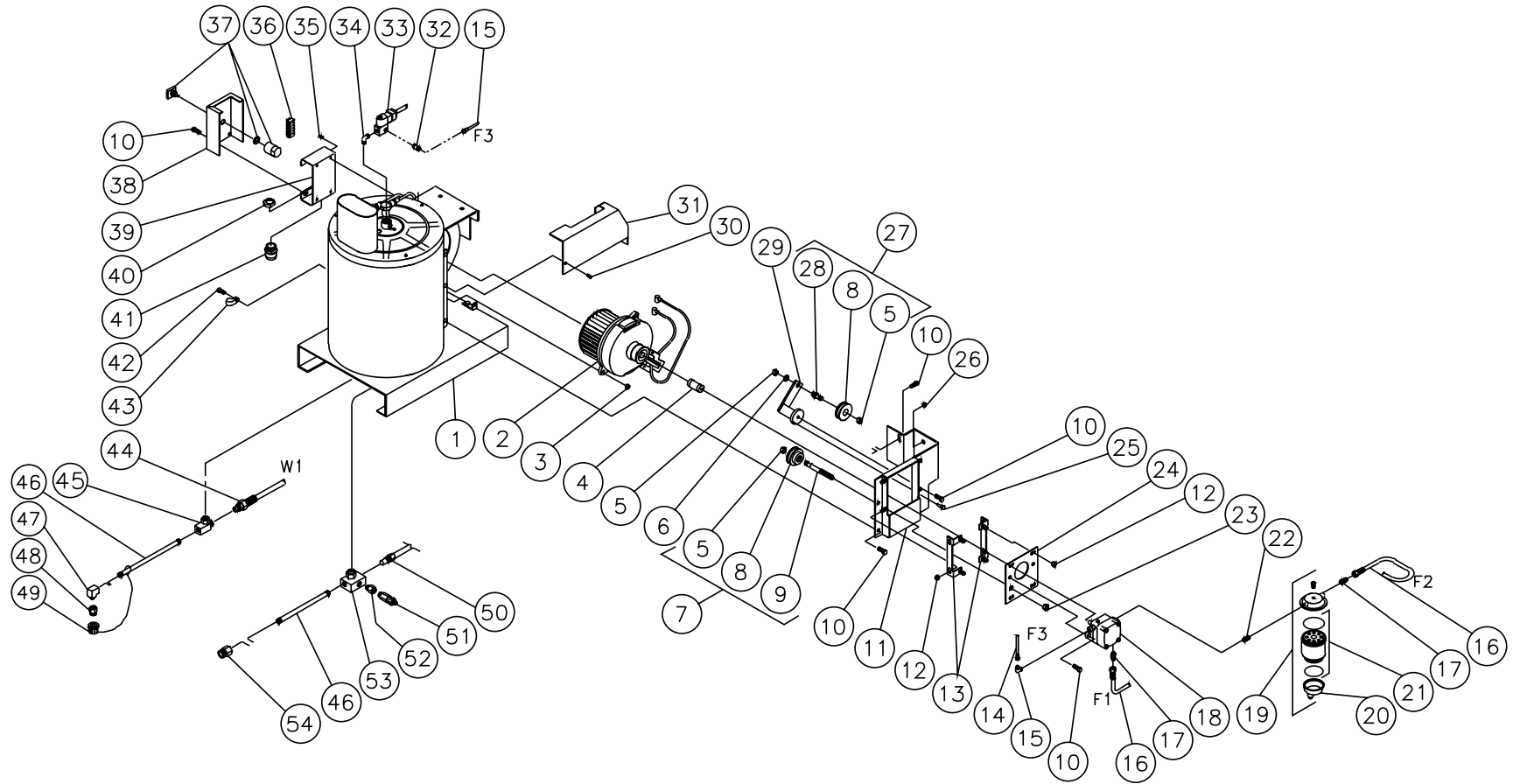
COIL DRAIN PLUG (850-0218)



850-0218-041597-BAR

COIL DRAIN PLUG (850-0218)			
REF. #	DESCRIPTION	PART #	QTY.
1	Bolt	27-9526	1
2	Retaining Cable	33-0260	1
3	Snap Ring	33-0261	1
4	Hand Wheel	16-0239	1
5	Plug	24-0147	1
6	Back-up Ring	25-0424	1
7	O-ring	25-0423	1

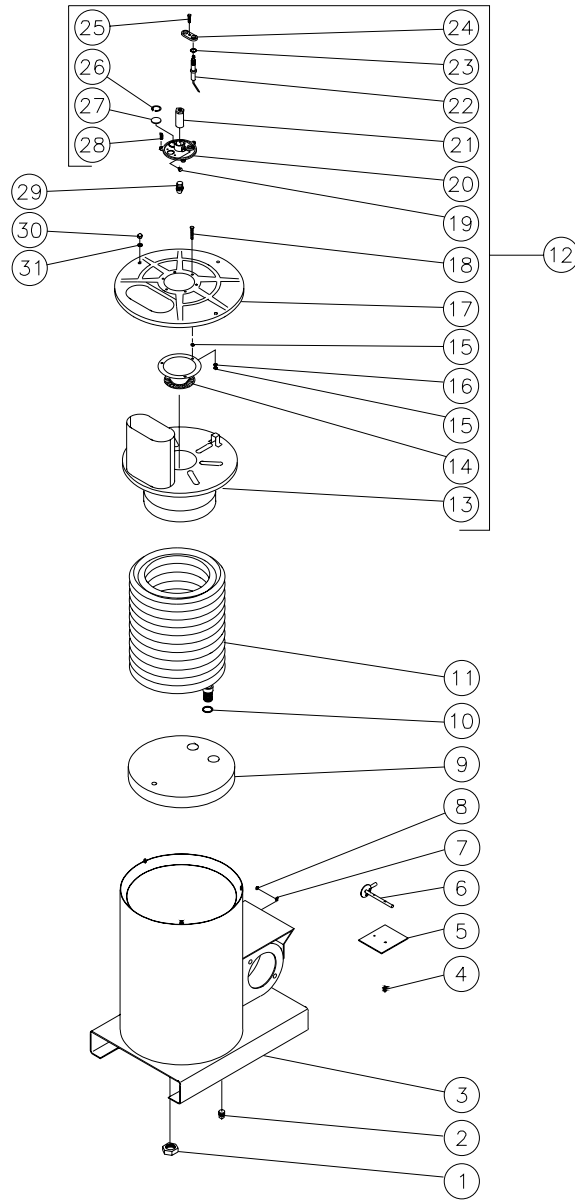
HEAT EXCHANGER/EMF SYSTEM



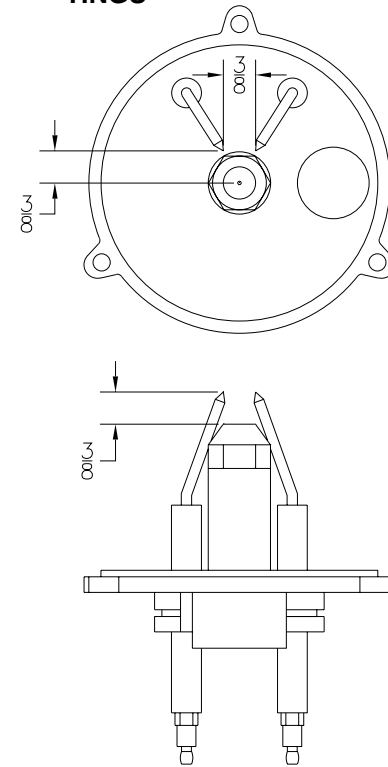
OMHSP086-011599-BAR

HEAT EXCHANGER/ EMF SYSTEM								
REF. #	DESCRIPTION	PART #	QTY.		REF. #	DESCRIPTION	PART #	QTY.
1	Boiler Assembly Complete	850-0224	1		29	Tensioner Base	10-0071	1
2	EMF Assembly	850-0239	1		30	Bolt	27-9526	2
3	Hex Nut	30-3022	2		31	Beltguard- Black	20-0366A01	1
4	Fuel Pump Coupler	33-0225	1		32	Connector	23-0291	1
5	Nut	30-0159	3		33	Solenoid- 12 Volt	44-0098	1
6	Flatwasher	28-0022	1		34	Elbow	23-0249	1
7	Adjustable Sheave Shaft Assembly (Inc. 5, 8, 9)	850-0167	1		35	Bolt	27-9528	4
8	Sheave Assembly	850-0177	2		36	Terminal Stripe *(One Foot Required)	32-0394	1
9	Pulley	33-0221	1		37	Switch Cam	32-0399	1
10	Bolt	27-9524	11		38	Cover Electric Box- Black	20-0357A01	1
11	Bracket/ Fuel Pump- Black	20-0353A01	1		39	Backplate Electric Box- Black	20-0356A01	1
12	Hex Nut	30-3023	8		40	Electrical Locknut	32-0292	1
13	Bracket- Black	20-0360A01	2		41	Strain Relief	9-0046	1
14	Fuel Line	33-0217	1		42	Screw	27-3062	1
15	Elbow	23-0248	1		43	Cable Clamp	32-0428	1
16	Fuel Hose	15-0147	2		44	High Pressure Hose Assembly	15-0199	1
17	Connector	23-0247	2		45	Coil Inlet Connector Assembly	850-0225	1
18	Fuel Pump	3-0129	1		46	Nipple	24-0122	2
19	Filter Fuel Water Seperator	19-0070	1		47	Elbow	23-0306	1
20	Fuel Water Seperator Replacement Bowl	19-0071	1		48	Adapter	23-0279	1
21	Fuel Water Seperator Replacement Filter	19-0053	1		49	Drain Plug Assembly	850-0218	1
22	Hex Nipple	23-0250	1		50	High Limit Switch Probe	32-0421	1
23	Hex Nut	30-0010	1		51	Pressure Relief Valve	22-0273	1
24	Plate- Black	20-0363A01	1		52	Adapter Coil Outlet	23-0369	1
25	Pin	33-0211	1		53	Coil Outlet Assembly	850-0251	1
26	Hex Nut	30-0157	2		54	Hex Reducer	23-0197	1
27	Tensioner Sheave Shaft Assembly (Inc. 5, 8, 28)	850-0166	1		*Must Order in One Foot Lengths			
28	Shaft	33-0212	1					

BOILER ASSEMBLY (850-0224)

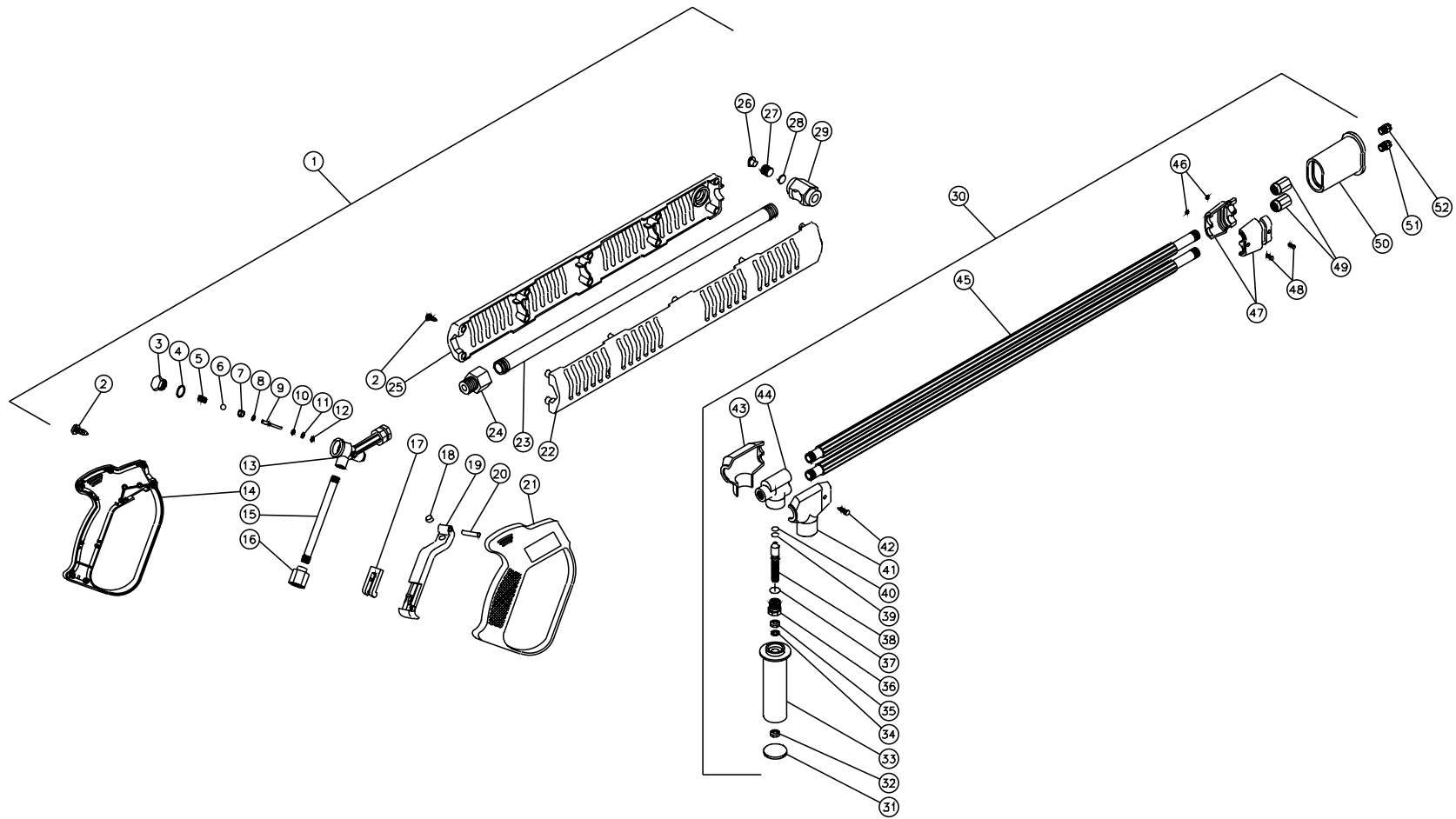


ELECTRODE GAP SETTINGS



BOILER ASSEMBLY (850-0224)								
REF. #	DESCRIPTION	PART #	QTY.		REF. #	DESCRIPTION	PART #	QTY.
1	Hex Nut	30-6004	2		17	Top Pan	20-0323	1
2	Plug	24-0034	1		18	Bolt	27-8806	3
3	Heat Exchanger Assembly- Black	20-0348A01	1		19	Bolt	27-8805	1
4	Bolt Hex Head	27-8879	2		20	Support Plate	33-0183	1
5	Air Diverter Plate- Black	20-0454A01	1		21	Nozzle Holder	33-0182	1
6	Air Diverter Stem Assembly- Black	20-0377A01	1		22	Electrode	32-0377	2
7	Lockwasher	28-1009	1		23	Washer	28-1007	2
8	Nut	30-6001	1		24	Electrode Mounting Plate	33-0180	1
9	Insulation	33-0267	1		25	Bolt	27-8807	1
10	Washer	28-0521	2		26	Snap Ring	25-0290	1
11	Heat Exchanger Coil Assembly	66-0010	1		27	Sight Glass	33-0179	1
12	Pan Assembly (Includes 13-28)	70-0184	1		28	Bolt	27-8803	3
13	Exhaust Pan	20-0324	1		29	Fuel Nozzle	18-0310	1
14	Heat Deflector	20-0325	1		30	Nut	30-6002	3
15	Nut	30-6001	6		31	Washer	28-1028	3
16	Lockwasher	28-1009	3			Boiler Assembly Complete	850-0224	1

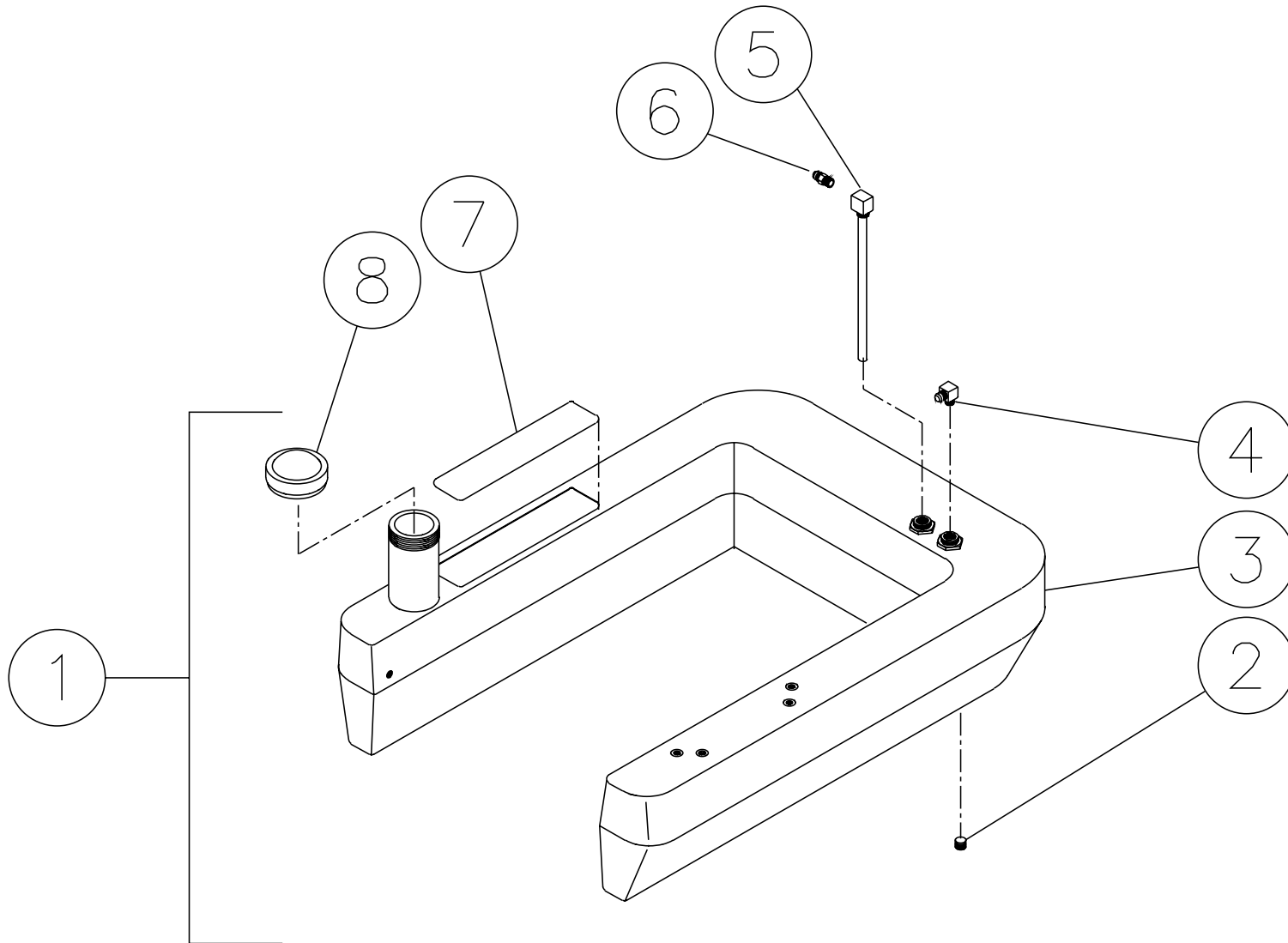
GUN (850-0179) & ADJUSTABLE PRESSURE DUAL LANCE (850-0185)



OMGEN256-022399-BAR

GUN (850-0179) & ADJUSTABLE PRESSURE DUAL LANCE (850- 0185)							
REF. #	DESCRIPTION	PART #	QTY.	REF. #	DESCRIPTION	PART #	QTY.
1	Gun w/Lance Assembly (Includes 2-29)	850-0179	1	28	Spacer	16-0282	1
2	Screw	27-8382	13	29	Lance Holder (See 850-0179)	N/A Sep.	1
3	Plug (See 70-0057)	N/A Sep.	1	30	Adjustable Dual Lance Assembly (Includes 31-51)	850-0185	1
4	O-ring (See 70-0057)	N/A Sep.	1	31	Handle Plug	16-0312	1
5	Spring (See 70-0057)	N/A Sep.	1	32	Hex Nut	30-3002	1
6	Ball (See 70-0057)	N/A Sep.	1	33	Handle	16-0313	1
7	Seat (See 70-0057)	N/A Sep.	1	34	Washer	28-1021	1
8	O-ring (See 70-0057)	N/A Sep.	1	35	Hex Nut	30-3010	1
9	Pin (See 70-0057)	N/A Sep.	1	36	Hex Adapter	23-0271	1
10	Washer (See 70-0057)	N/A Sep.	1	37	O-ring	25-0351	1
11	O-ring (See 70-0057)	N/A Sep.	1	38	Piston Stem	16-0314	1
12	Back-up Ring (See 70-0057)	N/A Sep.	1	39	Back-up Ring	25-0352	1
13	Housing	23-0295	1	40	O-ring	25-0353	1
14	Plastic Housing (Left Side)	16-0336	1	41	Screw	27-8862	1
15	Pipe	21-0095	1	42	Upper Protector	16-0315	1
16	Nipple	23-0174	1	43	Lower Protector	16-0316	1
17	Trigger Safety Lock	16-0332	1	44	Body	23-0272	1
18	Trigger Rest	16-0333	1	45	Lance w/Protective Cover	16-0328	2
19	Trigger	16-0335	1	46	Hex Nut	30-3060	2
20	Trigger Pin	43-0069	1	47	Pipe Clamp	16-0318	2
21	Plastic Housing (Right Side)	16-0334	1	48	Screw	27-8861	2
22	Guard Lance (Right Side)	16-0279	1	49	Nipple	24-0127	2
23	Pipe	16-0277	1	50	Nozzle Protector	16-0319	1
24	Adapter	16-0283	1	51	Nozzle-4060	18-0110	1
25	Guard Lance (Left Side)	16-0278	1	52	Nozzle-1503	18-0053	1
26	Plug	39-0076	1		Gun Repair Kit (Includes 3-12)	70-0057	
27	Screw	49-0103	1		O-ring Kit (Includes 37, 39, 40)	70-0143	

FUEL TANK (850-0214)

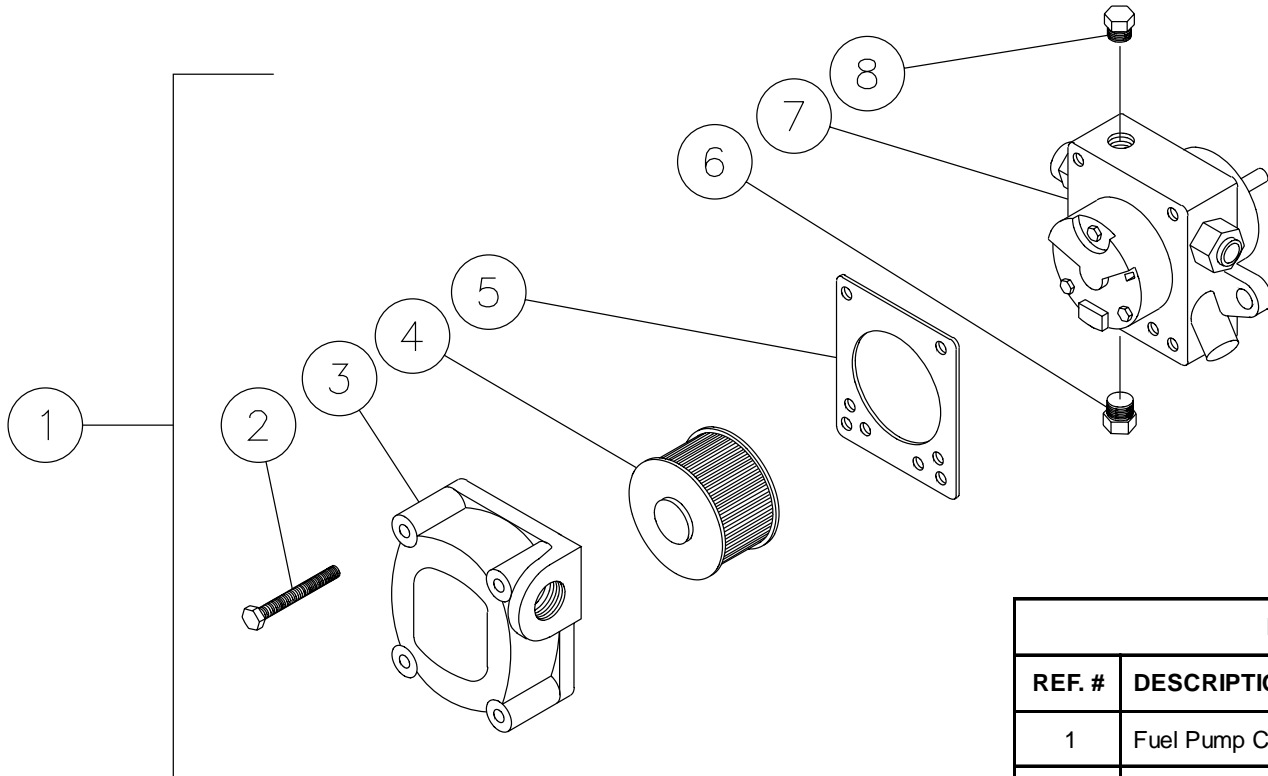


850-0214-121797-BAR

850-0214-121797-BAR

FUEL TANK (850-0214)			
REF. #	DESCRIPTION	PART #	QTY.
1	Fuel Tank Assembly (Inc. 2-8)	850-0214	1
2	Plug	23-0296	1
3	Fuel Tank (See 850-0214)	N/A Sep.	1
4	Elbow	23-0237	1
5	Fuel Pick-up Line	33-0270	1
6	Flare	23-0247	1
7	Decal-Warning-Risk of Fire (E/S)	34-0806	1
8	Fuel Cap-Vented	12-0033	1

FUEL PUMP (3-0129)

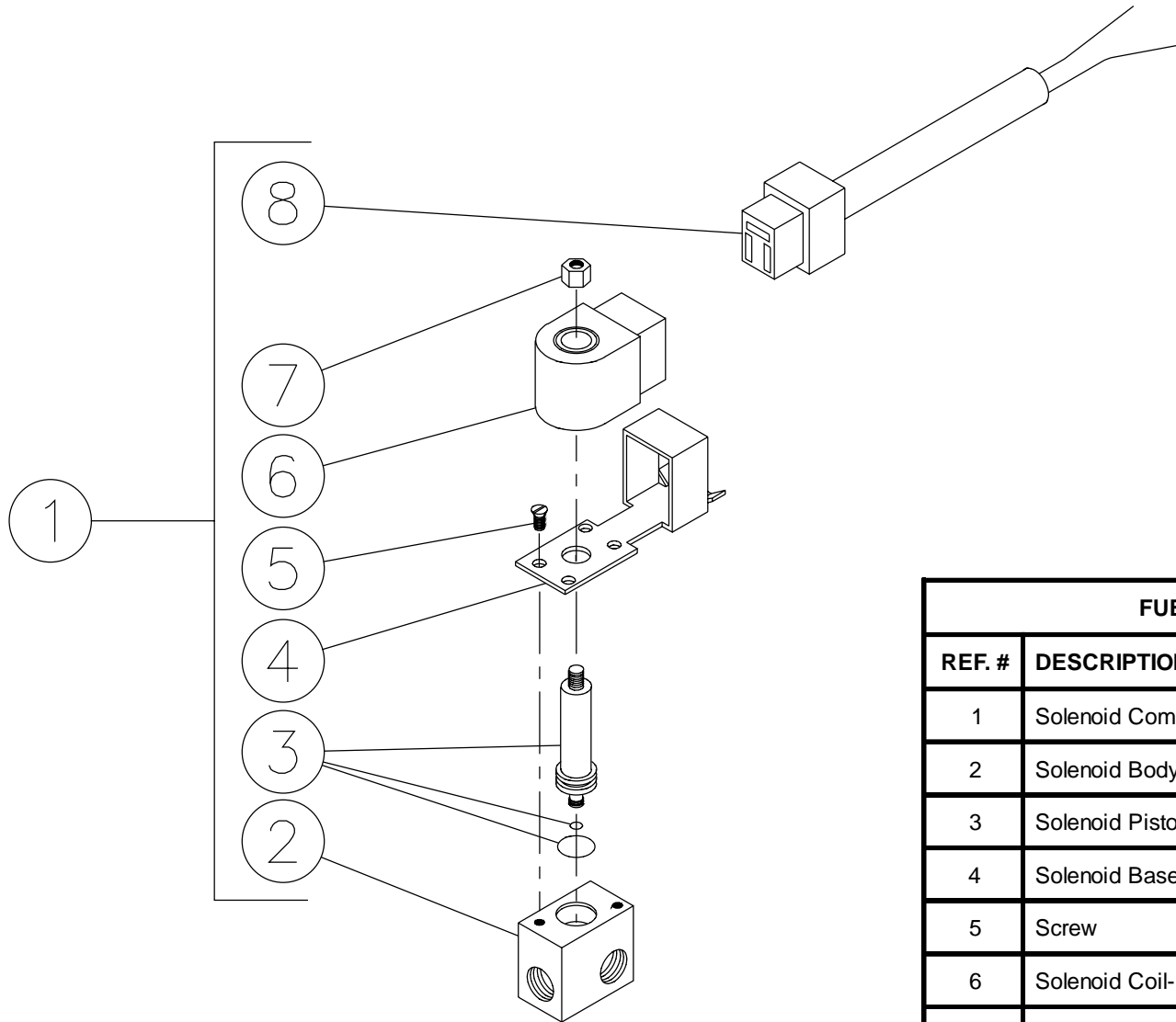


OMHSP018-041597-BAR

FUEL PUMP (3-0129)			
REF. #	DESCRIPTION	PART #	QTY.
1	Fuel Pump Complete (Includes 2-8)	3-0129	1
2	Cover Screw	46-1006	4
3	Cover-Left Hand	46-1018	1
4	Strainer	19-0034	1
5	Cover Gasket	26-0109	1
6	Plug	24-0044	3
7	Body	N/A	1
8	Plug	24-0082	1

OMHSP018/040694/BAR

FUEL SOLENOID (44-0098)

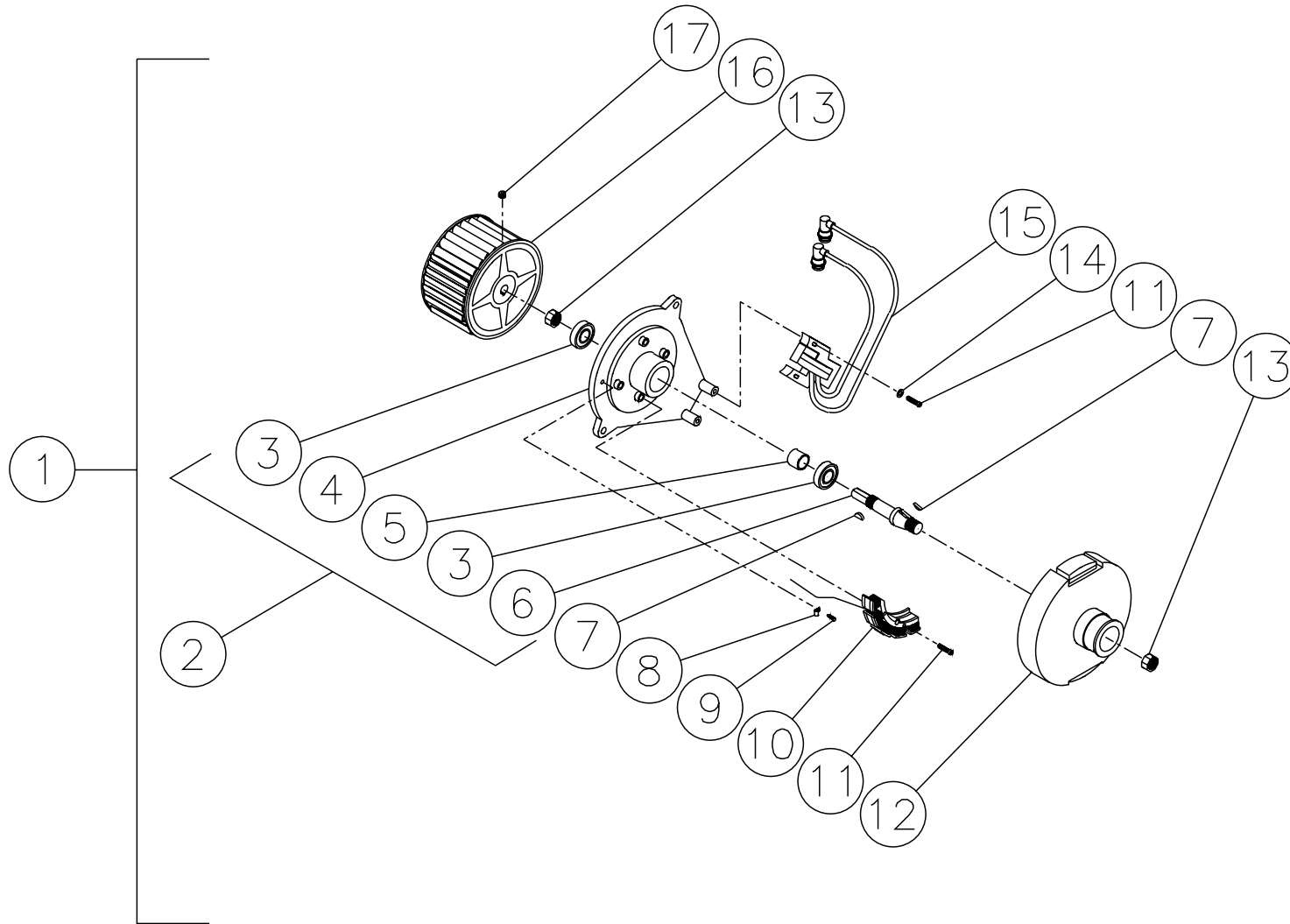


0MHSP013A-041597-BAR

FUEL SOLENOID (44-0098)			
REF. #	DESCRIPTION	PART #	QTY.
1	Solenoid Complete- 12 Volt (Inc. 2-8)	44-0098	1
2	Solenoid Body	46-1013	1
3	Solenoid Piston	46-1012	1
4	Solenoid Base	46-1014	1
5	Screw	N/A	2
6	Solenoid Coil- 12 Volt	46-1015	1
7	Piston Nut	46-1016	1
8	Din Connector Cord	32-0443	1

0MHSP013A-041597-BAR

EMF SYSTEM (850-0239)

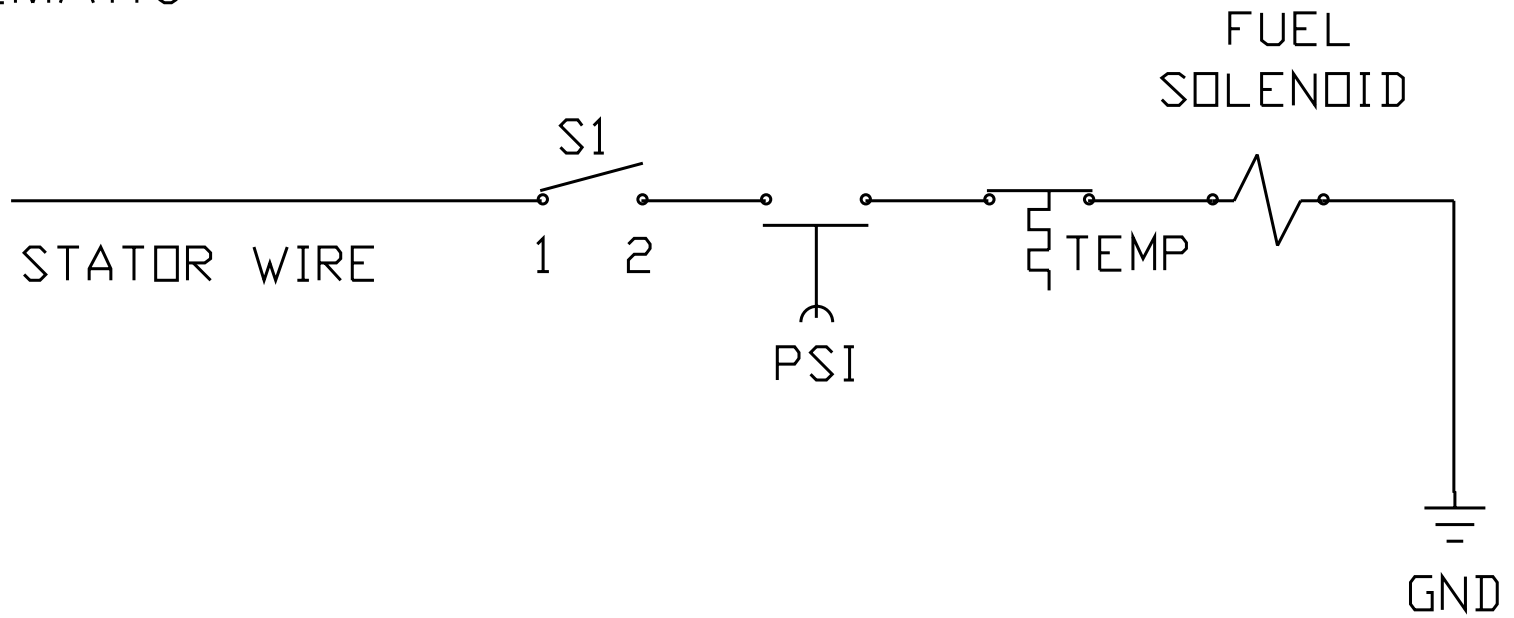


850-0239-022498-BAR

EMF SYSTEM (850-0239)			
REF. #	DESCRIPTION	PART #	QTY.
1	EMF Assembly Complete (Inc. 2-17)	850-0239	1
2	Blower Flange Assembly (Inc. 3-6)	850-0162	1
3	Sealed Bearing	48-0041	2
4	Blower Flange	38-0040	1
5	Spacer	33-0206	1
6	Blower Shaft	20-0347	1
7	Woodruff Key	43-0080	2
8	Cable Clamp	32-0403	1
9	Screw	27-2070	1
10	Stator Coil	850-0189	1
11	Screw	27-0740	4
12	Flange Magnet Hub	38-0041	1
13	Hex Nut	30-0177	2
14	Flatwasher	28-0010	2
15	Ignition Coil Assembly	850-0161	1
16	Blower Fan	44-0105	1
17	Set Screw	30-3021	1

WIRING SCHEMATIC

SCHEMATIC



OMHSP014A-072996-JTR

WIRING DIAGRAM

- BLACK -----
- BROWN -----
- GREEN -----
- ORANGE -----
- RED -----
- WHITE -----

WIRE DIAGRAM

