OWNER'S MANUAL

820-180 Rev A

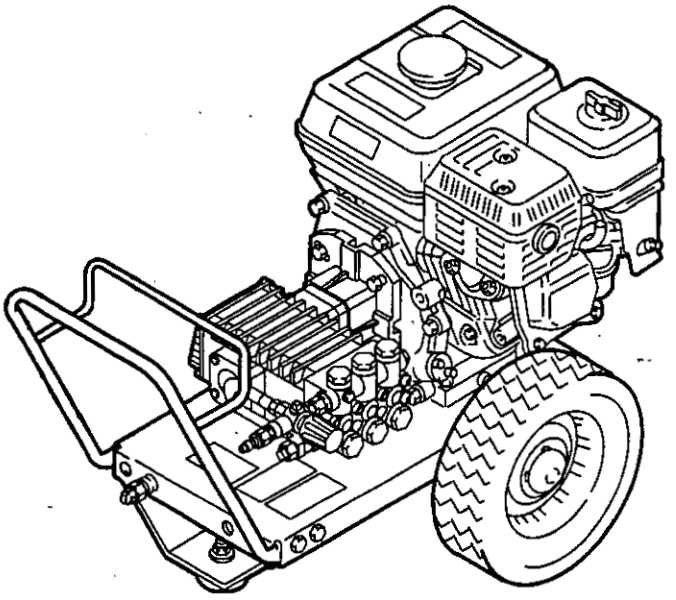
This manual contains Important Warnings and Instructions. Read the manual and keep it for reference.

9 HP ENGINE Model 2800 PRESSURE WASHER

P/N 820-175, Series A

2800 psi (196 bar) OPERATING PRESSURE

3200 psi (224 bar) MAXIMUM WORKING PRESSURE



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The SHERWIN-WILLIAMS COMPANY, CLEVELAND, OHIO 44115

WARNING

**HIGH PRESSURE SPRAY CAN CAUSE SERIOUS INJURY.
FOR PROFESSIONAL USE ONLY. OBSERVE ALL WARNINGS.**

Read and understand all instruction manuals before operating equipment.

FLUID INJECTION HAZARD

General Safety

This pressure washer generates very high fluid pressure. Spray from the gun, leaks or ruptured components can inject fluid through your skin and into your body, and cause extremely serious bodily injury including the need for amputation. Also, fluid injected or splashed into the eyes or on the skin can cause serious damage.

NEVER point the spray gun or wand at anyone or at any part of the body. *NEVER* put hand or fingers over the spray tip.

ALWAYS follow the **Pressure Relief Procedure**, *before* cleaning or servicing any part of the sprayer.

NEVER try to stop or deflect leaks with your hand or body.

Be sure equipment safety devices are operating properly before each use.

Medical Treatment

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL TREATMENT AT ONCE. DO NOT TREAT AS A SIMPLE CUT.** Tell the doctor exactly what fluid was injected.

> **NOTE TO PHYSICIAN:** *Injection in the skin is a traumatic injury.* **It is important to treat the injury surgically as soon as possible.** *Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.*

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection and splashing in the eyes or on the skin, always follow this procedure whenever you stop spraying for more than 10 minutes, when shutting down, and before checking or repairing any part of the system.

1. Engage the trigger safety latch.
2. Turn the sprayer off.
3. Remove the ignition cable from the spark plug.
4. Shut off the water supply.
5. Disengage the trigger safety latch and trigger the gun to relieve pressure, and then engage the trigger safety latch again.
6. Before long-term (overnight) storage or transporting of the unit, disconnect the water supply and turn off the fuel supply valve.

Spray Gun Safety Devices

Be sure all gun safety devices are operating properly before each use. Do not remove or modify any part of the gun; this can cause a malfunction and result in serious bodily injury.

SAFETY LATCH: Whenever you stop spraying for a moment, always set the gun safety latch in the engaged or "safe" position, making the gun inoperative. Failure to properly set the safety latch can result in accidental triggering of the gun.

SPRAY TIP SAFETY: Use extreme caution when cleaning or changing spray tips.

EQUIPMENT MISUSE HAZARD

General Safety

Any misuse of the pressure washer or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in fluid injection, splashing in the eyes or on the skin, or other serious bodily injury, fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction.

CHECK all spray equipment regularly and repair or replace worn or damaged parts immediately.

ALWAYS wear protective eyewear and appropriate clothing. If using a chemical injector, read and follow the chemical manufacturer's literature for recommendations on additional protective equipment, such as a respirator.

System Pressure

This sprayer can develop high operating pressures. Be sure that all spray equipment and accessories are rated to withstand the maximum working pressure of this sprayer. *DO NOT* exceed the maximum working pressure of any component or accessory used in the system.

Chemical Compatibility

BE SURE that all chemicals used in the chemical injector are compatible with the wetted parts of the hose, gun, wand and tip, as given in the Technical Data (inside back cover). Always read the chemical manufacturer's literature before using any chemical in this pressure washer.

HOSE SAFETY

High pressure fluid in the hoses can be very dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the high pressure spray emitted from it can cause a fluid injection injury or other serious bodily injury or property damage.

ALL FLUID HOSES MUST HAVE STRAIN RELIEFS ON BOTH ENDS. The strain reliefs help protect the hose from kinks or bends at or close to the coupling, which can result in hose rupture.

TIGHTEN all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling.

NEVER use a damaged hose. Before each use, check entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately. *DO NOT* try to recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

HANDLE AND ROUTE HOSES CAREFULLY. Do not pull on hoses to move the pressure washer. Do not use chemicals which are not compatible with the inner tube and cover of the hose. *DO NOT* expose Graco hose to temperatures above 200°F (93°C) or below -40°F (-40°C).

FUEL AND EMISSION HAZARDS

NEVER fill the fuel tank while the unit is running or hot. The fuel used in this unit is combustible and when spilled on a hot surface can ignite and cause a fire. *ALWAYS* fill tank slowly to avoid spilling.

NEVER operate the unit in a closed building. The exhaust contains carbon monoxide, a poisonous, odorless, invisible gas which can cause serious injury or death if inhaled.

NEVER alter the throttle setting, which is factory set. Tampering with this adjustment can damage the pressure washer and will void the warranty.

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers or other body parts. *KEEP CLEAR* of moving parts when starting or operating the pressure washer.

NEVER operate the pressure washer without all guards and interlocks installed and functioning. Follow the **Pressure Relief Procedure** before checking or servicing the pressure washer to prevent discharging high pressure fluid from the gun.

TERMS

WARNING: Alerts user to avoid or correct conditions that could cause bodily injury.

CAUTION: Alerts user to avoid or correct conditions that could cause damage to the equipment.

NOTE: Identifies helpful procedures and information.

IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards—particularly the General Standards, Part 1910, and the Construction Standards, Part 1926—should be consulted.

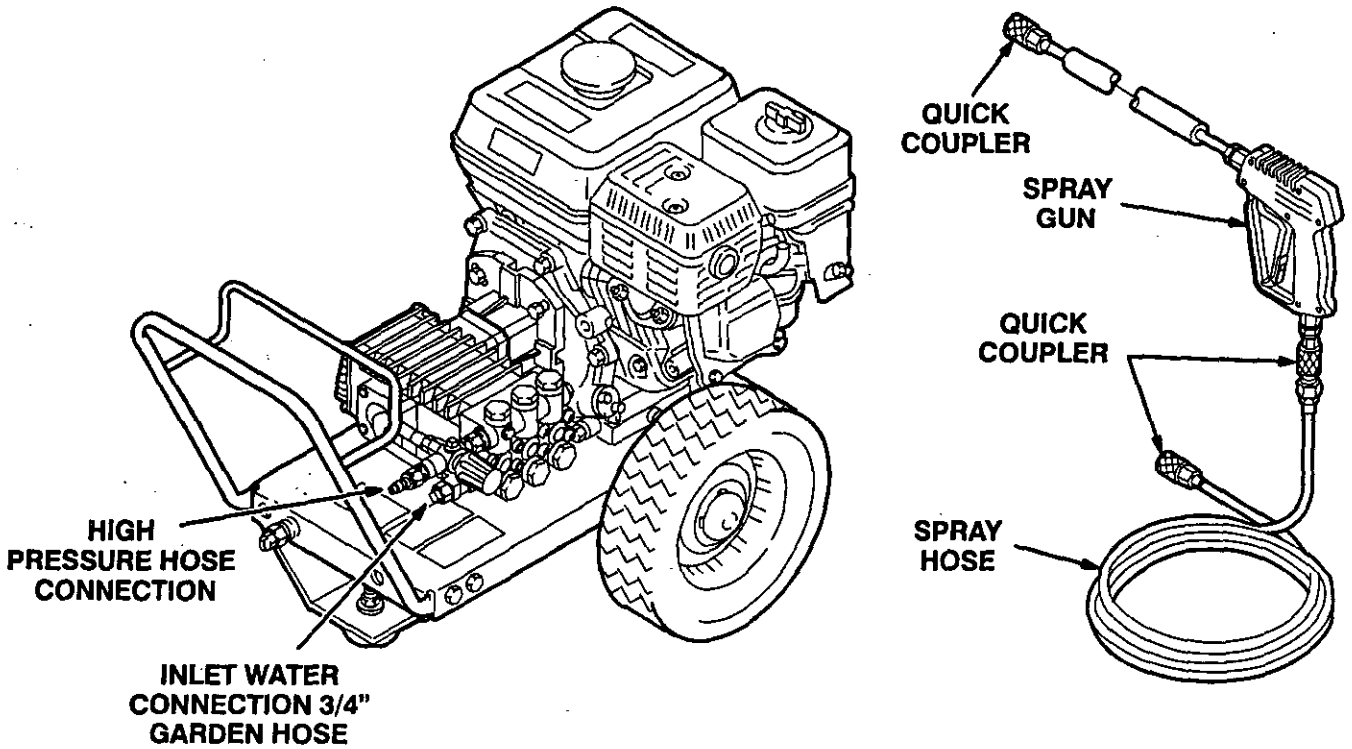


Figure 1

Check for Shipping Damage

Check the unit for any damage that may have occurred in shipping. **Notify the carrier immediately** if there is any damage.

Set Up

If you are using a downstream chemical injector, install it between the pump unloader and the high pressure hose, using the quick couplers provided.

Connect the high pressure hose between the pump (or chemical injector) outlet and the gun inlet. Both of these connections are made with quick couplers.

CAUTION

Up to 100 ft (30 m) of high pressure hose may be used. Longer hoses may affect sprayer performance, and chemical injector performance, if used.

Install the appropriate spray tip on the wand. See Installing and Changing Spray Tips. If you are using a sandblaster kit, see its separate manual for installation instructions.

Connect to Water Supply

CAUTION

Before attaching to the water supply, check your local plumbing code regarding cross- connection to the water supply. A backflow preventer, P/N 801-133, is available to prevent backflow of contaminated water into the fresh water supply. Install it upstream from the pump.

If inlet water pressure is over 60 psi (4.1 bar) a regulating water valve, P/N 800-258, must be installed at the garden hose connection.

Do not exceed 160°F (70°C) inlet water temperature.

Connect a hose with at least a 3/4 inch (19 mm) ID from the water supply to the unit's 3/4 inch garden hose inlet. The supply hose should not be more than 50 ft (15 m) long.

NOTE: The water source at the unit *must* have a minimum flow rate equal to that of the unit (see Technical Data, inside back cover).

STARTUP

Always use this startup procedure to ensure that the unit is started safely and properly.

1. Check oil levels.

Engine: Add SAE 30 or 10W-30 weight detergent oil as necessary.

Pump: Add SAE 20 or 30 weight non-detergent oil as necessary.

NOTE: This unit is equipped with a low-oil sensor that shuts the engine off if the oil level falls below a certain level. If the unit stops unexpectedly, check both the oil and the fuel levels. Check the oil level each time the unit is refueled.

2. Check fuel level.

WARNING

DO NOT refuel a hot engine. Refueling a hot engine could cause a fire. Use only fresh, clean regular or unleaded gasoline. Close the fuel shutoff valve during refueling.

3. Turn on the water supply.

CAUTION

Never run the unit dry. Costly damage to the pump will result. Always be sure the water supply is completely turned on before operating.

4. Trigger the gun until water sprays from the tip indicating that the air is purged from the system.

5. Open the fuel shutoff valve. Be sure the spark plug ignition cable is pushed firmly onto the spark plug. On those units equipped with an ignition shutoff switch, put the switch in the "on" position and put the throttle in the "run" position.

6. Start the engine.

NOTE: For easier starting, have one person start the pressure washer while another person triggers the spray gun.

If the engine is cold, completely close the engine choke. Grasp the starter rope, brace one foot on the pressure washer chassis and pull rope rapidly and firmly. Continue holding the rope as it returns. Pull and return the rope until the engine starts. In cool weather, the choke may have to be kept closed for 10 to 30 seconds before opening it to keep the engine running. Otherwise, open the choke as soon as the engine starts.

If the engine is warm, leave the choke open, or just partly close it. Start the engine as described in the preceding paragraph. When it starts, be sure to open the choke completely.

CAUTION

On recoil start engines, never let the starter rope return by itself. It could jam the recoil system.

7. *ALWAYS* engage the gun's trigger safety latch whenever you stop spraying, even for a moment, to reduce the risk of fluid injection or splashing in the eyes or on the skin if the gun is bumped or triggered accidentally.

8. *ALWAYS* observe the following **CAUTIONS** to avoid costly damage to the pressure washer.

CAUTION

DO NOT allow the pressure washer to idle for more than 10 minutes. Doing so may cause the recirculating water to overheat and seriously damage the pump. Turn off the pressure washer if it will not be spraying or cleaning at least every 10 minutes. If heated inlet water is used, reduce this time further.

DO NOT run the pump dry, which will quickly damage the pump. Be sure the water supply is fully turned on before starting the pump.

DO NOT operate the pressure washer with the inlet water screen removed. This screen helps keep abrasive sediment out of the pump, which could clog or scratch the pump. Keep this screen clean.

DO NOT pump caustic materials; such materials may corrode the pump components.

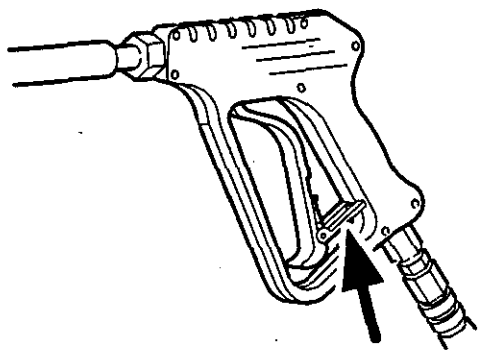
9. See the chemical injector or sandblaster kit manual for detailed cleaning information if these accessories are used.

Trigger Safety Latch

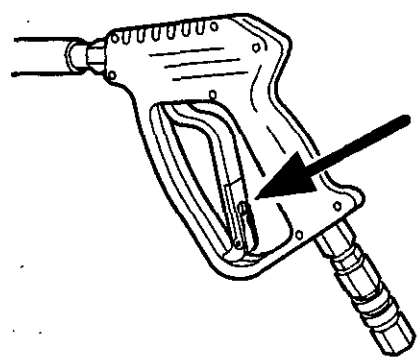
WARNING

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, *ALWAYS* engage the trigger safety latch whenever spraying stops, even for a moment.

In the engaged position, the trigger safety latch prevents the gun from being triggered accidentally by hand or if it is dropped or bumped. Be sure the latch is pushed fully down when engaging it or it cannot prevent the gun from being triggered. See Figure 2.



TRIGGER SAFETY LATCH SHOWN ENGAGED



TRIGGER SAFETY LATCH SHOWN DISENGAGED

Figure 2

Installing and Changing Spray Tips

WARNING

To reduce the risk of serious bodily injury, including fluid injection or splashing in the eyes or onto the skin, use extreme caution when changing spray tips. *ALWAYS* follow the procedure below.

1. Follow the **Pressure Relief Procedure**.
2. Point the gun and wand away from yourself and anyone else.
3. Without holding your hand over the spray tip (A), pull back the quick coupler ring (B). Remove the old tip and/or install a new one, and then release the ring. See Figure 3.
4. Be sure the tip is secure before starting to spray again.
5. Tip holding holes are provided in the chassis.

CAUTION

To avoid blowing the o-ring out of the quick coupler, due to the high pressure in the system, never operate the pressure washer without a tip securely mounted in the quick coupler.

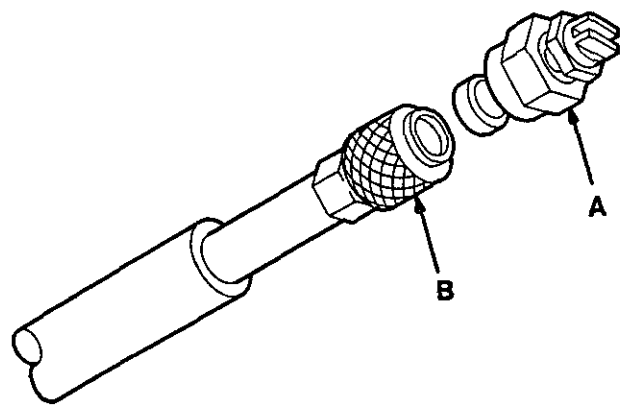


Figure 3

SHUTDOWN, FLUSHING AND STORAGE

WARNING

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection and splashing in the eyes, or on the skin, always follow this procedure whenever you stop spraying for more than 10 minutes, when shutting down, and before checking or repairing any part of the system.

1. Engage the trigger safety latch.
2. Turn the sprayer off.
3. Remove the ignition cable from the spark plug.
4. Shut off the water supply.
5. Disengage the trigger safety latch and trigger the gun to relieve pressure, and then engage the trigger safety latch again.
6. Before long-term (overnight) storage or transporting of unit, disconnect the water supply, and turn off the fuel supply valve.

1. If the pressure washer will be exposed to freezing temperatures, drain all water out of the pump. If it must be stored in freezing temperatures, flush the unit with a 50% anti-freeze solution. Relieve pressure. Flush the pressure washer before using it again to remove the anti-freeze.

NOTE: An anti-freeze flush kit, P/N 802-327, is available to make flushing easier.

CAUTION

If water does freeze in the pressure washer, thaw it in a warm room before trying to start it. *DO NOT* pour hot water on or into the pump; it may crack the ceramic plungers!

2. After each use, wipe all surfaces of the pressure washer with a clean, damp cloth.
3. Perform the appropriate maintenance. See maintenance chart.

MAINTENANCE

Observing regular maintenance intervals helps ensure that you get maximum performance and life from the pressure washer.

There is a break-in period for the engine and pump. After changing the oil in these components following their respective break-in periods, the interval between required changes is longer.

If the unit is operating in dusty conditions, these maintenance checks should be made more often.

WARNING

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin or injury from moving parts, always follow the **Pressure Relief Procedure Warning** before proceeding.

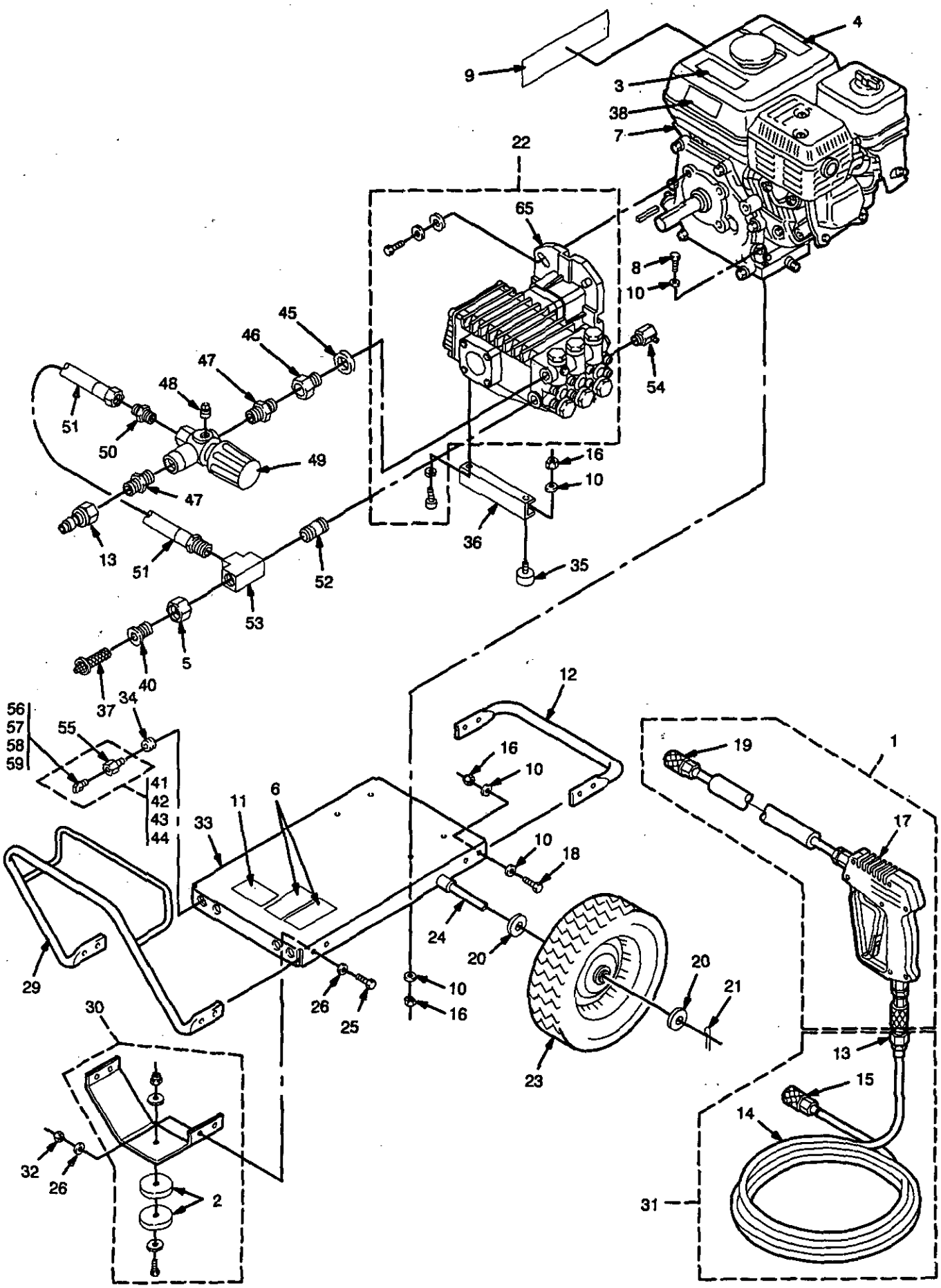
Interval	What to do
Daily	Clean water inlet screen and filter. Check engine and pump oil levels. Fill as necessary. Check gasoline level. Fill as necessary.
After first 5 hours of operation	Change engine break-in oil. Drain oil when warm. Use SAE 30 or 10W-30 detergent oil.
Each 25 hours of operation	Clean and remove air cleaner foam. Wash with water and detergent. Dry thoroughly. Rub with oil and squeeze to distribute oil.
After first 50 hours of operation	Change pump break-in oil. Use SAE 20 or 30 non-detergent oil.
Each 100 hours of operation or 3 months	Clean or replace paper air cleaner cartridge. Tap gently to remove dirt. Change engine oil. Use SAE 30 or 10W-30 detergent oil.
Each 500 hours of operation or 6 months	Change pump oil. Use SAE 20 or 30 non-detergent oil.

TROUBLESHOOTING CHART

WARNING

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin or injury from moving parts, always follow the **Pressure Relief Procedure Warning** before proceeding.

PROBLEM	CAUSE	SOLUTION
Engine will not start or is hard to start	No gasoline in fuel tank or carburetor.	Fill the tank with gasoline, open fuel shut off valve. Check fuel line and carburetor.
	Low oil	Add to proper level.
	Start/Stop switch in Stop position.	Move switch to Start position.
	Water in gasoline or old fuel.	Drain fuel tank and carburetor. Use new fuel and dry spark plug.
	Choked improperly. Flooded engine.	Open choke and crank engine several times to clear out gas.
	Dirty air cleaner filter.	Remove and clean.
	Spark plug dirty, wrong gap or wrong type.	Clean, adjust the gap or replace.
	Spray gun closed.	Trigger spray gun.
Engine misses or lacks power	Partially plugged air cleaner filter.	Remove and clean.
	Spark plug dirty, wrong gap or wrong type.	Clean, adjust the gap or replace.
Low pressure and/or pump runs rough	Worn or wrong size tip.	Replace with tip of proper size.
	Inlet filter clogged.	Clean. Check more frequently.
	Worn packings, abrasives in water or natural wear.	Check filter. Replace packings. See PUMP SERVICE.
	Inadequate water supply.	Check water flow rate to pump.
	Fouled or dirty inlet or discharge valves. Even a small particle can cause the valve to stick.	Clean inlet and discharge valve assemblies. Check filter. See PUMP SERVICE.
	Restricted inlet.	Check garden hose, may be collapsed or kinked.
	Worn inlet or discharge valves.	Replace worn valves. See PUMP SERVICE.
	Leaking high pressure hose.	Replace high pressure hose.
Water leakage from under pump manifold	Worn packings.	Install new packings. See PUMP SERVICE.
Water in pump	Humid air condensing inside crankcase.	Change pump oil.
	Worn packings.	Install new packings. See PUMP SERVICE.
	Oil seals leaking.	Install new oil seals. See PUMP SERVICE.
Frequent or premature failure of the packings	Scored, damaged or worn plungers.	Install new plungers. See PUMP SERVICE.
	Abrasive material in the fluid being pumped.	Install proper filtration on pump inlet plumbing.
	Inlet water temperature too high.	Check water temperature; may not exceed 160°F.
	Overpressurizing pump.	Do not modify any factory-set adjustments. See EQUIPMENT MISUSE HAZARD.
	Excessive pressure due to partially plugged or damaged tip.	Clean or replace tip. See Installing and Changing Spray Tips.
	Pump running too long without spraying.	Never run pump more than 10 minutes without spraying.
	Running pump dry.	Do not run pump without water.
Strong surging at the inlet and low pressure on the discharge side	Foreign particles in the inlet or discharge valve or worn inlet and/or discharge valves.	Clean or replace valves. See PUMP SERVICE.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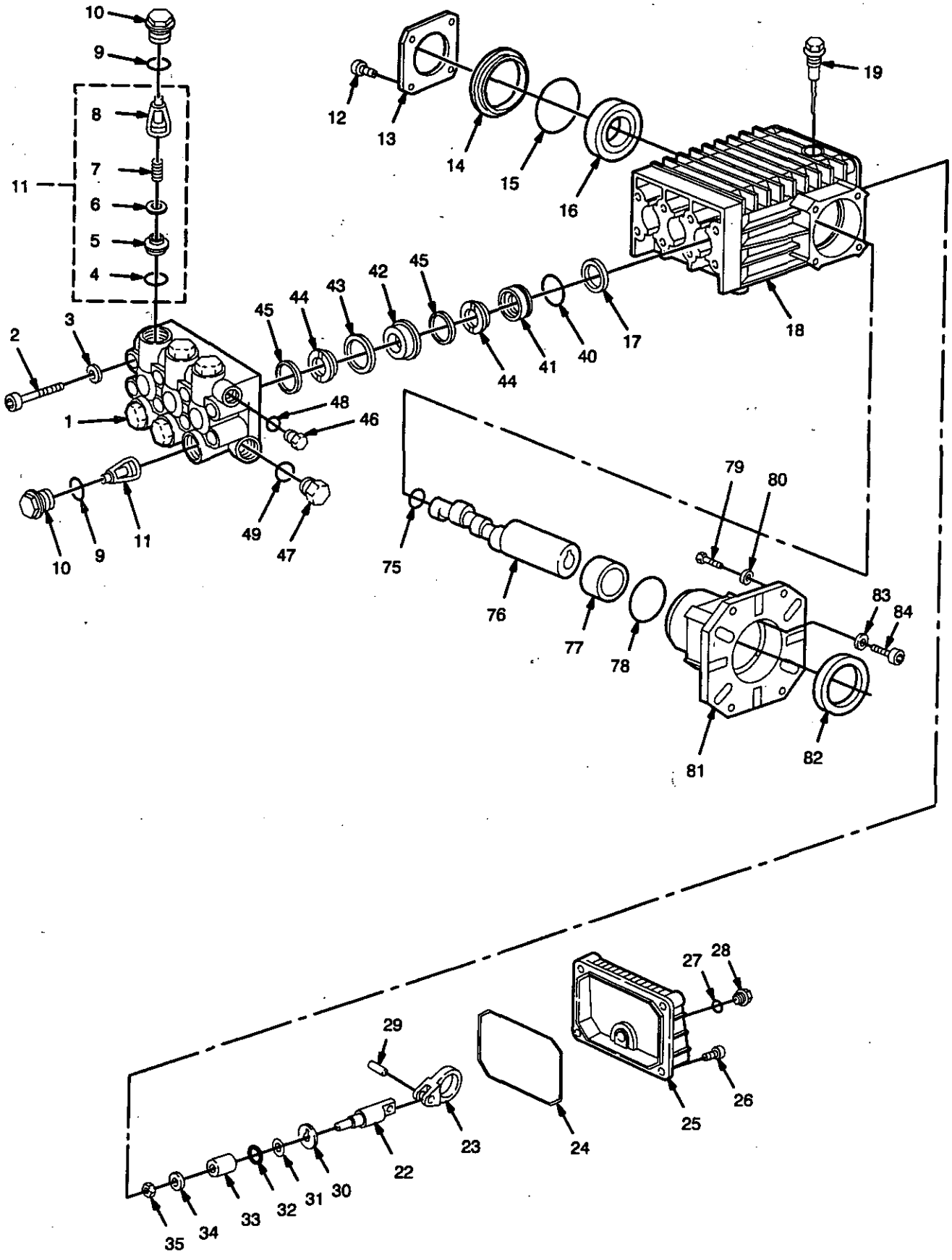
PARTS LIST

820-175 Model 2800 Pressure Washer

REF NO.	PART NO.	DESCRIPTION	QTY
1	800-392	GUN & WAND ASSEMBLY (incl. 17, 19)	1
2	801-504	BUMPER, Rubber	2
3	181-867	LABEL, Warning	1
4	802-363	LABEL, Caution	1
5	801-111	NUT, Garden Hose	1
6	179-885	LABEL, Warning	1
7	803-900	ENGINE, 9 hp, Honda OHV	1
8	802-127	SCREW, Cap, hex hd. 5/16-18 x 1.75	4
9	820-137	LABEL, ID	1
10	100-527	WASHER, Flat, 5/16	14
11	804-391	LABEL, Model 2800	1
12	801-539	BUMPER	1
13	801-568	QUICK COUPLER, 3/8 Male	2
14	802-579	HOSE, High Pressure, 3/8 x 50'	1
15	801-569	COUPLING	1
16	111-040	NUT, Nylon Lock, 5/16-18	10
17	803-350	GUN, Spray (see 308-511)	
18	801-941	SCREW, Cap, hex hd. 5/16-18 x 1	4
19	801-009	QUICK COUPLER, 1/4 Female	
20	154-636	WASHER, Flat, 5/8	4
21	101-545	COTTER PIN	2
22	800-743	PUMP	1
23	803-740	WHEEL & TIRE ASSEMBLY	2
24	803-741	AXLE	1
25	801-546	SCREW, Cap, hex hd. 3/8-16 x 1.25	4
26	100-023	WASHER, Flat, 3/8	8
27	154-494	O-RING, Quick Coupler, 1/4 (not shown)	AR
28	156-082	O-RING, Quick Coupler, 3/8 (not shown)	AR
29	803-925	HANDLE	1
30	800-641	FRONT LEG ASSEMBLY (incl. 2)	1
31	800-377	HOSE ASSEMBLY (incl. 13, 14, 15)	1
32	101-566	NUT, Nylon Lock, 3/8-16	4
33	800-661	CHASSIS	1
34	801-012	GROMMET, Rubber	4
35	801-367	BUMPER, Rubber	2
36	804-398	BRACKET, Pump Support	1
37	804-051	FILTER/STRAINER	1
38	803-083	LABEL, Keep From Freezing	1
40	801-110	ADAPTER, Garden Hose	1
41	800-124	TIP ASSEMBLY, 0004	1
42	800-125	TIP ASSEMBLY, 1504	1
43	800-126	TIP ASSEMBLY, 2504	1
44	800-127	TIP ASSEMBLY, 4004	1
45	801-907	WASHER, Flat	1
46	801-905	ADAPTER	1
47	156-849	NIPPLE, Hex, 3/8 NPT	2
48	801-709	PLUG	1
49	800-745	UNLOADER, Preset, 2800 psi	1
50	802-627	NIPPLE, Hex, 3/8 NPT x 1/4 NPT	1
51	803-869	HOSE, Bypass	1
52	801-523	NIPPLE, 1/2 NPT	1
53	801-106	TEE, 1/2 NPT	1
54	804-397	THERMAL RELIEF VALVE	1
55	801-090	QUICK COUPLER, 1/4 Male	4
56	801-599	TIP, Bare, 0004	1
57	801-600	TIP, Bare, 1504	1
58	801-601	TIP, Bare, 2504	1
59	801-602	TIP, Bare, 4004	1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PARTS LIST
800-743 Pump Assembly

REF NO.	PART NO.	DESCRIPTION	QTY
1	804-405	HEAD, Pump	1
2	801-651	SCREW	8
3	801-652	WASHER	8
4	KIT 123	O-RING	
5	KIT 123	SEAT, Valve	
6	KIT 123	VALVE	
7	KIT 123	SPRING	
8	KIT 123	CAGE, Valve	
9	KIT 124	O-RING	
10	KIT 124	CAP	
11	KIT 123	VALVE ASSEMBLY	
12	803-265	SCREW	8
13	803-266	COVER, Bearing	2
14	804-406	SPACER	1
15	803-268	O-RING	1
16	804-407	BEARING	2
17	KIT 23	SEAL, Oil	
18	804-408	CRANKCASE	1
19	801-659	DIPSTICK	1
22	804-409	GUIDE, Piston	3
23	804-410	ROD, Connecting	3
24	804-411	O-RING	1
25	804-412	COVER, Rear	1
26	803-273	SCREW	5
27	801-488	O-RING	1
28	801-753	SCREW, Cap	1
29	804-413	PIN	3
30	804-414	WASHER	3
31	803-919	RING, Anti-Extrusion	3
32	803-918	O-RING	3
33	804-415	PISTON	3
34	803-921	WASHER	3
35	803-920	NUT	3
40	KIT 130	O-RING	
41	KIT 130	RETAINER, Packing	
42	KIT 130	RING, Intermediate	
43	KIT 130	PACKING	
44	KIT 130	PACKING	
45	KIT 130	RING, Head	
46	801-484	SCREW, Cap	1
47	801-482	SCREW, Cap	1
48	801-485	WASHER	1
49	801-483	WASHER	1
75	804-416	RING, Retaining	1
76	804-417	CRANKSHAFT	1
77	804-418	BEARING	1
78	804-419	O-RING	1
79	804-420	SCREW	4
80	801-469	WASHER	4
81	804-421	FLANGE, Gas	1
82	804-422	SEAL, Oil	1
83	803-278	WASHER	4
84	803-292	SCREW	4

Kit No.	Repair Kit Part No.	Ref. No.	Description	Qty.
23	**801-658** Oil Seal	17	SEAL, Oil	3
123	**804-402** Valve Assembly	4	O-RING	6
		5	SEAT, Valve	6
		6	VALVE	6
		7	SPRING	6
		8	CAGE, Valve	6
		or		
		11*	VALVE ASSEMBLY	6
124	**804-403** Valve Cap	9	O-RING	6
		10	CAP	6
130	**804-404** Packing Assembly	40	O-RING	1
		41	RETAINER, Packing	1
		42	RING, Intermediate	1
		43	PACKING	1
		44	PACKING	2
		45	RING, Head	2

* Item 11 consists of items 4 through 8.
See Pump Assembly illustration on previous page.

WARNING

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow the **Pressure Relief Procedure Warning** before proceeding.

NOTE: The following metric wrenches are needed: M10, M13 and M30. Repair kits are available. Refer to the individual repair sections and the pump parts page for more details. For the best results, use all parts in the kits.

NOTE: There are two different tool kits to aid in servicing the pump. P/N 800-298 is used to ease installation of packings. P/N 800-271 includes the items in 800-298 and tools to aid in the removal of packing retainers.

Valves

NOTE: For a set of six valves, order P/N 801-472.

1. Remove the hex plug from the manifold using an M30 wrench.
2. Examine the o-ring under the hex plug and replace it if it is cut or distorted.
3. Remove the valve assembly from the cavity; the assembly may come apart.
4. Install the new valve. Install the o-ring and hex plug; torque to 75 ft-lb (103 Nm).

NOTE: Retorque the plug after 5 hours of operation.

Pumping Section

1. Remove the eight capscrews and lockwashers from the manifold using an M13 wrench.
2. Carefully separate the manifold from the crankcase.

NOTE: It may be necessary to tap the manifold lightly with a soft mallet to loosen.

CAUTION

Keep the manifold properly aligned with the ceramic plungers when removing to avoid damage to the plunger or seals.

3. Carefully examine each plunger for any scoring or cracking and replace as necessary.

Servicing the Plungers

NOTE: Plunger repair kit, P/N 801-474 is available to replace retainers, o-rings, washers and backup rings for three cylinders.

1. Loosen the plunger retaining screw five to six turns, using an M10 wrench. Push the plunger towards the crankcase to separate the plunger and retaining screw.
2. Remove the screw from the plunger and examine the o-ring, backup ring and copper bearing/gasket washer. Replace these parts, if necessary, using kit 801-474.
3. Remove the plunger and flinger from the plunger shaft. Clean, examine and replace parts as necessary.
4. Inspect the plunger shaft for oil leakage from the crankcase. If leaking is obvious, replace the oil seals. Otherwise, DO NOT remove these seals as they cannot be reused. An oil seal kit is available to replace the seals.
5. Lightly grease the flinger and oil seal, if it is being replaced, and replace them on the plunger shaft. Then install the plunger.
6. Lightly grease the retaining screw and the outer end of the plunger. Place the washer, o-ring and backup ring around the screw and install the screw through the plunger. Torque to 14.4 ft-lb (19.5 Nm).

NOTE: If you plan to replace the packings, refer to Servicing the V-Packings.

7. Lubricate the outside of each plunger. Slide the manifold onto the crankcase, being careful not to damage the seals.
8. Install the capscrews and washers finger-tight. Torque the screws to 21.7 ft-lb (29 Nm) following the tightening pattern (Figure 4). Uneven tightening may cause the manifold to bind or jam.

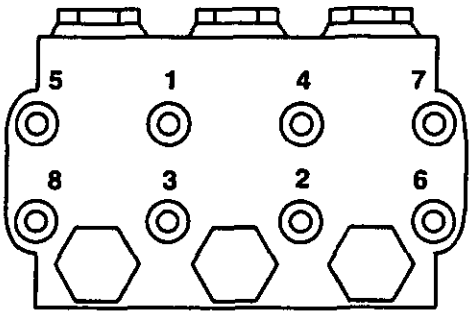

Figure 4

Servicing the V-Packings

NOTE: There are two types of packing kits: one is packings only, the other includes the packings, rings and retainers.

1. Remove the manifold as outlined in the Pumping Section.
2. Carefully pull the packing retainer from the manifold. Examine the o-ring and replace it if it is cut or damaged.
3. Remove the v-packing and head ring. Pull out the intermediate retainer ring. Remove the second v-packing and second head ring.
4. Inspect all parts and replace as necessary.
5. Thoroughly clean the packing cavities and examine for debris and damage.
6. Lightly grease the packing cavities and then replace the packings in the following order: head ring, v-packing, intermediate ring, head ring, v-packing and packing retainer with the o-ring installed in the retainer groove.

CAUTION

Install the parts in the proper order and facing the correct direction. Improperly installed parts will cause a malfunction.

7. Reassemble the manifold as instructed in Servicing the Plungers.

ACCESSORIES

(Must be purchased separately)

DOWNSTREAM CHEMICAL INJECTOR KIT 800-117

For injecting harsh cleaning chemicals downstream from the pump.

UPSTREAM CHEMICAL INJECTOR KIT 800-257

For injecting mild cleaning chemicals upstream into the pump.

BACKFLOW PREVENTOR 801-133

Prevent back-up of contaminated water into fresh supply. Install upstream of pump.

ANTI-FREEZE FLUSH KIT 802-327

For flushing system with 50% anti-freeze solution prior to transporting or storing pressure washer in below freezing temperatures.

INLET PRESSURE REGULATOR 800-258

Regulates inlet water pressure to 60 psi (4 bar) maximum.

TECHNICAL DATA

	Model 800-638
Engine (air-cooled, 4 cycle)	9 hp Honda OHV
Gasoline Tank Capacity	6.2 quarts (6 liters)
Water Pump Maximum Working Pressure	2800 psi (196 bar)
Water Pump Maximum Flow	3.5 gpm (13.2 lpm)
Inlet Hose Connection	3/4" garden hose (f)
Weight	125 lb (57 kg)
Dimensions Length Width Height	 36" (914 mm) 21" (533 mm) 23.5" (597 mm)
Maximum Inlet Water Temperature	160°F (70°C)
Wetted Parts High Pressure Hose Bypass Hose Pressure Washer (including fittings)	 Acrylonitrile and Buna-N cover and tube Synthetic yarn and EPDM Anodized aluminum, Aluminum or bronze alloys, Brass Copper, Nylon-TePTFE composite, Ceramic, Buna-N, Cotton phenolic, 303, 304, and 316 Stainless steel, Polymide-12 thermoplastic, TePTFE irbon steel, Zinc plate, with or without yellow chromate PTFEs a *registered trademark of the DuPont Company.*

THE SHERWIN-WILLIAMS WARRANTY AND DISCLAIMERS

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Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twenty four months from the date of sale, repair or replace any part of the equipment proven defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

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This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claim. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor and transportation.

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