



MetalSafe™ Spray Equipment HVLP 2000 Guide

The HVLP 2000 is a high volume, low pressure pump system consisting of a 5.5 Honda GX 160 5.5 HP gas engine (electric version also available) and two Comet diaphragm pumps. The pumps are belt driven and calibrated by pressure with tip sizes to give the correct ratio. The pump is capable of delivering 1.5 GPM and is designed to run up to two guns at once depending on the size of the project and the time frame.

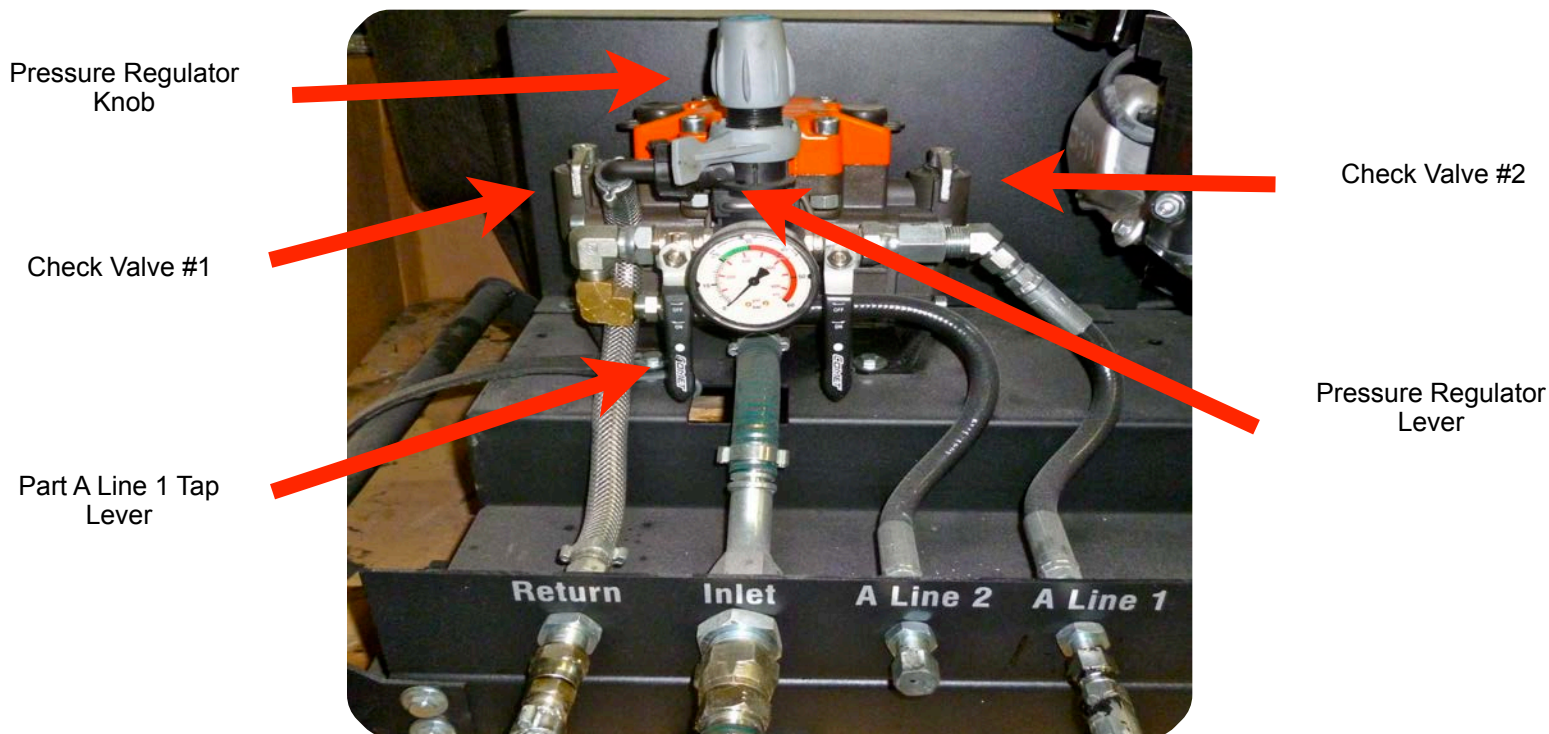
The lightweight R-08 Gun features a strong urethane coated handle with a comfortable trigger grip. The system is fully tested and comes ready to spray with a 200' roll of welded dual hose, 6 spray tips, 1 pump rebuild kit and 1 gun valve repair kit.



HVLP 200 Spray Unit

STARTING PROCEDURES - THE PUMP

1. Ensure both pressure regulators are set to minimum pressure by turning the regulator knob counterclockwise until it stops.
2. Ensure that the grey pressure regulator levers are both in the off position facing left.
3. Check that the oil levels in the motor and pumps are at the proper level. The oil fill cups are on the left and right sides of the pump. The oil filler cap on the engine is on the bottom right. Use 20W/40 oil for the pumps and 10W/30 oil for the engine.
4. Connect the larger clear hoses to the return outlets, the larger green hoses to the inlet outlets, the smaller black hose to the A Line 1 outlet and the small blue hose to the B Line 1 outlet.
5. Connect the black and blue hoses to the spray the gun.
6. Connect the Part A (MetalSafe™ product) inlet hose (green) to the plastic intake pipe.
7. Connect the Part B (Salt water side) inlet hose (green) to the filter. **Inlet hoses must be in the proper material.**
8. Start the engine. You should see or feel the liquids circulating through the inlet and return hoses on both sides.
9. For the Part A (MetalSafe™ product) side:
 - Shift the grey Pressure Regulator lever from the left to right into the ON position.
 - Pressurize Part A pump by turning the grey pressure regulator clockwise to set the pressure between 200-300 psi.
 - Turn the black lever for the Part A Line 1 (on the right side of the pressure gauge) to the ON position, moving it from pointing down to pointing to the right.
 - Point the spray gun into a pail without the tip and pull the trigger on the gun for the black hose until product flows through.
10. For the Part B Side (**Salt Solution**) side:
 - Shift the grey pressure regulator lever from the left to right into the ON position.
 - Pressurize the Part B pump by turning the grey pressure regulator knob clockwise to set the pressure between 50-100 psi. The ratio of Part A to Part B should be 3:1.
 - Turn the black lever for the Part B Line 1 (on the left side of the pressure gauge) to the ON position, moving it from pointing down to pointing to the left.
 - Point the spray gun into a pail with the tip and pull the trigger on the gun for the blue hose until product flows through.
11. Turn the spray gun valves off. Install the 4015 or 4008 tip on the emulsion side (black) of the spray gun and the 4001E on the salt side (blue). Ensure that the tips are matched with the proper side of the hose.



SPRAY TECHNIQUES

Spray techniques will be demonstrated during training. Below are some important factors must be understood:

- Avoid spraying salt solution directly to the substrate.
- The spray pattern must be perpendicular to the substrate.
- Do not spray excess material into internal/external corners of angles.
- For vertical applications, always begin by spraying from the lowest point and working up to the highest point.
- When spraying into a breeze, the salt solution needs to be facing into the wind.
- Extra precaution must be taken to avoid over-spray.
- DO NOT SPRAY in high wind conditions.

PUMP MAINTENANCE DURING OPERATION

Regular checks of the pump should be made during operation. When not in use, return the pump to a pressure off position with the pressure regulator lever left/closed and spray line lever down/closed. During operation, ensure the following:

- Sufficient material is in the drums for both Parts A & B.
- Pressures are consistent at levels of 200-300 psi for Part A & 50-100 psi for Part B.
- The filter system is not blocked up.
- There is sufficient gas in the motor and the oil is checked.

DAILY CLEANING PROCEDURES

- Shut down the pump by shifting the Part A & B Line 1 tap levers to closed/down and the pressure regulator to closed/left.
- Placing the drum lid on the ground, remove the Part A Inlet and Return hoses from the drums and drain as much product as possible from the hose. It helps to have the spray unit higher than the hoses.
- Place the Inlet hose into a 5G pail of mineral spirits.
- Start the engine to circulate the mineral spirits through the Part A pump for 5 minutes. Be sure not to open the Part A Line 1 lever or pressure regulator because you will contaminate the rubber in the lines. The spray hoses should be flushed with mineral spirits at the end of the season and rinsed with clean water.
- Shut off the engine and gravity drain the mineral spirits back into the 5G pail. The mineral spirits can be re-used several times.
- Sludge will begin to accumulate on the bottom of the pail holding the mineral spirits. If too much sludge accumulates, pour the liquid mineral spirits into a new pail and continue flushing.
- Remove the check valves from Part "A" pump (4 valves and 4 O-rings), disassemble and clean with mineral spirits. Be sure not to soak the rubber O-rings in mineral spirits.
- Remove the Part A tip from the spray gun and

DO'S

- Follow the pump maintenance schedule.
- Protect hoses from damage due to high vibration.
- Keep spare parts clean and ready to use.
- Clean and flush the pump system at the end of a work day.

DON'TS

- Don't switch drums while the pump is operating.
- Don't contaminate Part A material with Part B or mineral spirits.
- Don't leave hoses in mineral spirits for a long period of time or dispose of waste in an irresponsible manner.
- Don't leave the pump unattended while operating.

Common TroubleShooting Tips

SYMPTOM	COMMON CAUSE	REMEDY
The pump does not prime	1) Dirty or worn check valves 2) Air inlet is blocked	1) Change or clean check valves 2) Check that the intake hoses and fittings are tightly connected 3) Check inlet for blockage and clean.
The pump does not reach the desired pressure	1) Dirty or worn check valves 2) Insufficient RPMs	1) Change or clean check valves 2) Increase motor speed
Pressure irregular or with pulse	1) Dirty or worn check valves 2) Dirty or clogged screen	1) Change or clean check valves 2) Check screen on Part A intake pipe and clean
The products are not instant setting	1) The salt level is incorrect 2) The wands on the spray gun are not aligned properly	1a) Check the Inlet and return hoses on the Part B side for blockages and clean 1b) Check the salt filter 1c) Check the check valves 2) Adjust the wands so that the product and salt solution meet appx 18 inches from the tips of the wands
Uneven fan when spraying	The tip is clogged	Clean or replace tip
Excessive consumption of oil and/or is whitish in colour or sudden lack of oil	Rupture of one or more diaphragms.	Replace the diaphragm
Diaphragm vibrations	Pressure accumulator discharged or there is incorrect air pressure	Charge to the correct pressure of 70 psi for the A side 30 psi of the B side

Suggested Accessory Material When Using the HVLP 2000

The following items are commonly available at most hardware stores:

- WD 40 spray can
- Roll of metal window screen
- 1 x 25 pc pack of 12" standard cable ties
- Box of disposable rubber gloves
- 4" paint brushes and masonry brushes
- Diesel oil (20W40) – Diaphragm Pumps - Small funnel
- Sheer nylon socks
- Baby oil/mineral oil & Vasaline
- Shop towels/rags
- 2 x 10" crescent wrenches
- 2 x 12" crescent wrenches
- A 5 gallon container of Varsol
- Large scissors
- Utility knife
- Rubber mallet
- 2 x broom handles
- Metric Allen keys (8 mm & 4 T handle, 6 mm L-type)
- Regular gas for Honda engine
- Dental pick set
- Garbage bags
- Safety glasses
- Pair of two-way radios
- Extra pails