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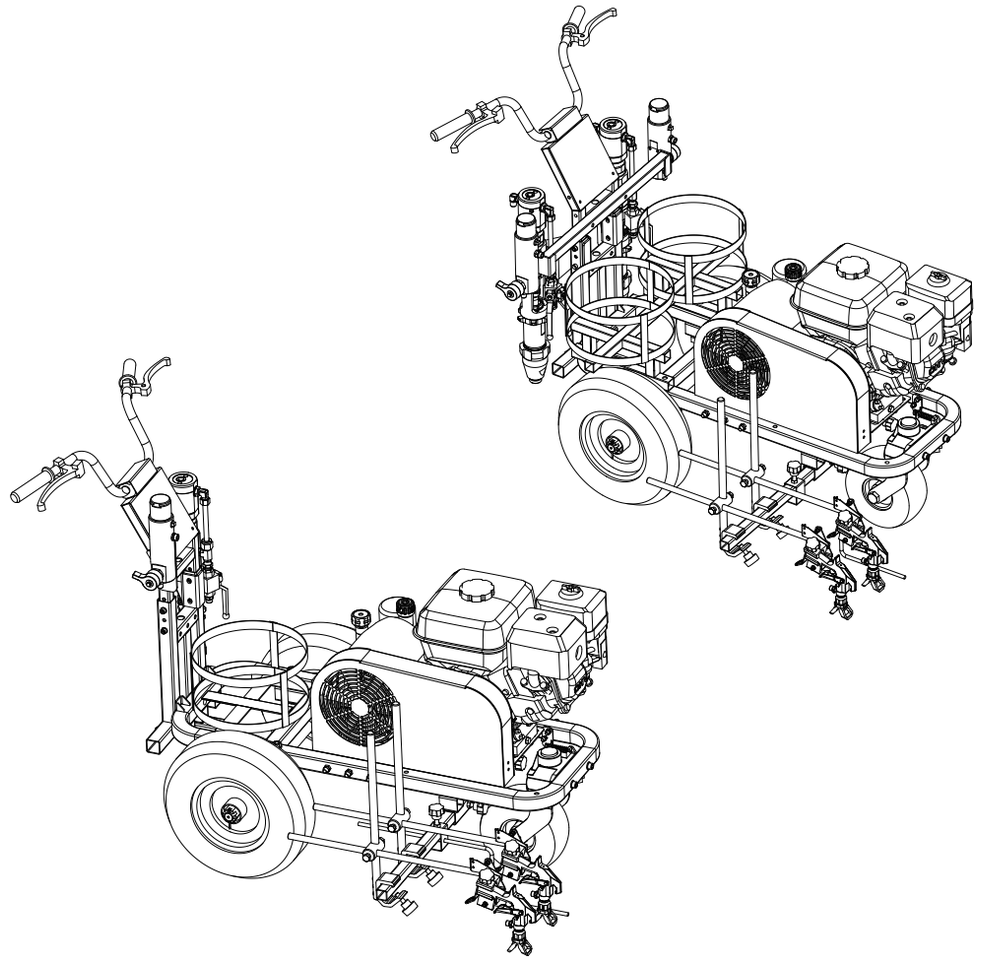
User Manual

HP 1076 / HP 2076 (Dual-Component)

Gasoline-Powered Hydraulic Line Striper

Important Safety Instructions. Read all warnings and instructions in this manual. Save these instructions.



Contents

Warnings

The following warnings apply to the setup, operation, grounding, maintenance, and repair of this equipment. The exclamation mark symbol indicates general warnings, while other hazard symbols indicate specific dangers related to certain procedures. When these symbols appear in this manual, on the equipment, or on warning labels, refer to the related instructions. Additional hazard symbols and warnings not listed in this section may appear in relevant parts of this manual.

Warnings

FIRE AND EXPLOSION HAZARD

Flammable vapors in the work area (such as solvents and paint fumes) can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To avoid fire or explosion:

- Use only in an extremely well ventilated area.
- Do not fill fuel tank while engine is running or hot; shut down the engine and makes it cooler. Fuel is flammable and can ignite or explode if spilled on a hot surface.
- Eliminate all ignition sources;such as pilot lights,cigarettes and plastic drop cloths(static arc hazard).
- Ground equipment and conductive objects in work area. Read Grounding instructions.
- Do not spray or clean solvent under high pressure.
- Keep work area free of debris, including solvent, rags, and gasoline
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold the gun firmly to the side of a grounded pail when triggering into the pail. Do not use pail liners unless they are anti-static or conductive.
- If there is static sparking or you feel a shock, stop operation immediately.Do not use equipment until you identify and correct the problem.
- Keep effective fire extinguisher in work area.

SKIN INJECTION HAZARD

High-pressure spray is able to inject toxins into the body and cause serious bodily injury. In the event that injection occurs, get immediate surgical treatment.

- Never aim the spray gun at yourself, others, or animals.
- Keep hands and body away from the spray stream. Never use any part of your body to check for leaks.
- Always use the spray tip guard. Do not spray without the tip guard properly installed.
- Use HVBAN spray tips.
- Be extremely careful when cleaning or changing the spray tip. If the spray tip becomes clogged, follow the Pressure Relief Procedure to turn off and depressurize the unit before removing and cleaning the tip.
- Even after powering off, the unit may still be pressurized. Do not leave the equipment energized or pressurized when unattended. Always perform the Pressure Relief Procedure before leaving the machine unattended, or before cleaning, servicing, or removing any parts.
- Inspect hoses and components regularly for signs of wear, damage, or leaks. Replace any damaged parts immediately.
- This system can generate working pressures up to 3300 psi. Use HVBAN replacement parts or accessories that are rated a minimum of 3300 psi.
- Always engage the trigger lock when not spraying. Ensure the trigger lock is functioning correctly.
- Make sure all connections are secure before operation.
- Know how to quickly shut off the unit and release pressure. Be thoroughly familiar with all controls.

Warnings

CARBON MONOXIDE HAZARD

Exhaust contains poisonous carbon monoxide, which is colorless and odorless. Breathing carbon monoxide can cause death.

· Do not operate in an enclosed area.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

· Do not use equipment when tired or drinking alcohol.

· Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. Read Technical Data in all equipment manuals.

· Use fluids and solvents that are compatible with equipment's wetted parts. Read Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request SDS from distributor or retailer.

· Do not leave the equipment in power or pressure when unattended.

· Follow Pressure Relief Procedure in this manual, when you stop spraying.

· Check equipment daily. Immediately repair or replace worn or damaged parts, using only original manufacturer's replacement parts.

· Do not alter or modify equipment; may lead to agency certification failure and cause safety hazards.

· Ensure all equipment has been rated and certified and can be available for your work area.

· Use equipment only for its intended purpose. Call your distributor for information.

· Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.

· Do not kink or overbend hoses or use hoses to pull equipment.

· Keep children and animals away from work area.

· Comply with all applicable safety regulations.

PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids containing such solvents in pressurized aluminum equipment can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and/or property damage.

· Do not use 1,1,1-trichloroethane, methylene chloride, and/or other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment.

· Do not use chlorine bleach.

· Many other fluids may react with aluminum. Contact your material supplier for compatibility information.)

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers and other body parts.

· Keep clear of moving parts.

· Do not operate equipment with protective guards or covers removed.

· Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure in this manual. Disconnect power or air supply.

ENTANGLEMENT HAZARD

Rotating parts can cause serious injury.

· Keep clear of moving parts.

· Do not operate with protective guards or covers removed.

· Do not wear loose clothing, jewelry, or long hair when operating this equipment.

· Equipment can start without warning. Before checking, moving, or servicing, follow the Pressure Relief Procedure and disconnect all power sources.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

· Read Safety Data Sheets (SDS) to know the specific hazards of the fluids you are using.

· Store hazardous fluid in approved containers and dispose of it according to applicable guidelines.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns:

· Do not touch hot fluid or equipment.

PERSONAL PROTECTIVE EQUIPMENT

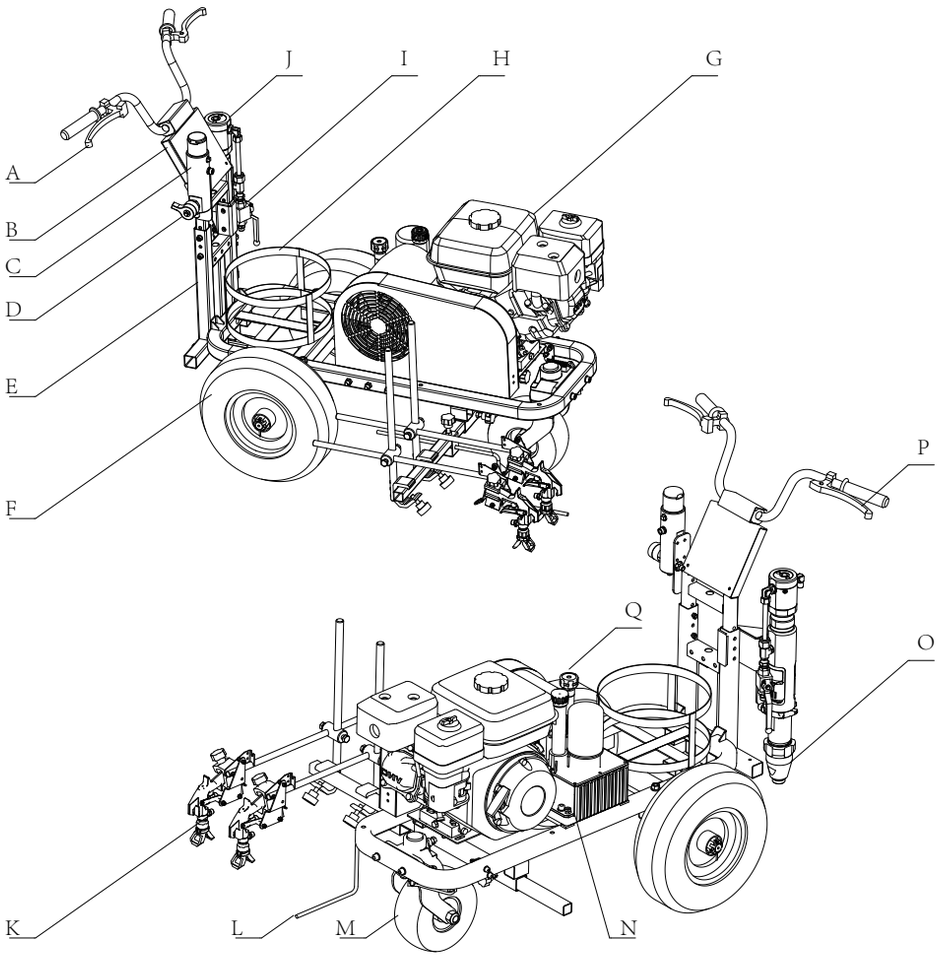
Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

· Protective eyewear and hearing protection.

· Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Components Identification

HP 1076

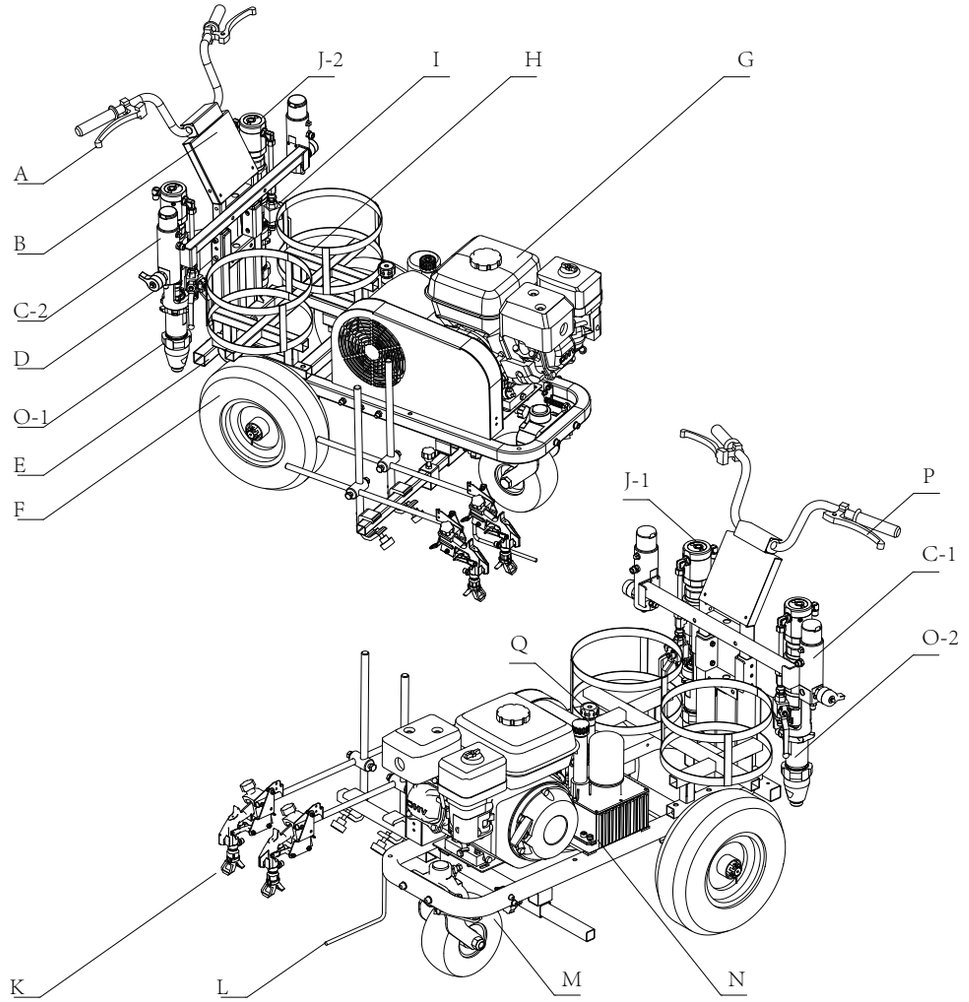


NO.	DISCRIPTION	QTY.
A	Manual Spray Gun Trigger	1
B	Upper Rack	1
C	Manifold	1
D	Prime Valve	1
E	Main Rack	1
F	Wheel	2
G	Engine	1
H	Pail Holder	1

NO.	DISCRIPTION	QTY.
I	Hydraulic Reversing Driven Pump Switch	1
J	Hydraulic Reversing Driven Pump	1
K	Spray Gun	2
L	Line Pointer	1
M	Swivel Wheel	1
N	Hydraulic Oil Tank	1
O	Suction Pump	1
P	Steering Control Handle	1
Q	Hydraulic Pressure Knob	1

Components Identification

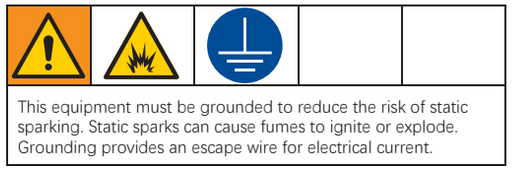
HP 2076



NO.	DISCRIPTION	QTY.
A	Manual Spray Gun Trigger	1
B	Upper Rack	1
C-1	Manifold (A)	1
C-2	Manifold (B)	1
D	Prime Valve	2
E	Main Rack	1
F	Wheel	2
G	Engine	1
H	Pail Holder	2
I	Hydraulic Reversing Driven Pump Switch	2

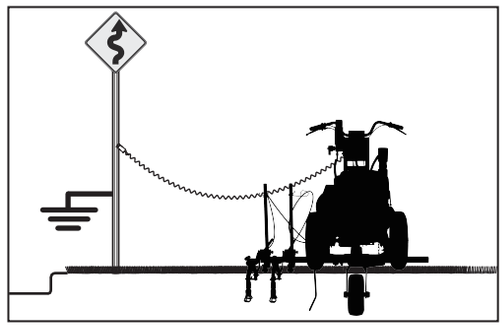
NO.	DISCRIPTION	QTY.
J-1	Hydraulic Reversing Driven Pump (A)	1
J-2	Hydraulic Reversing Driven Pump (B)	1
K	Spray Gun	2
L	Line Pointer	1
M	Swivel Wheel	1
N	Hydraulic Oil Tank	1
O-1	Suction Pump (A)	1
O-2	Suction Pump (B)	1
P	Steering Control Handle	1
Q	Hydraulic Pressure Knob	1

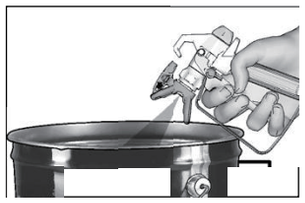
Grounding



This equipment must be grounded to reduce the risk of static sparking. Static sparks can cause fumes to ignite or explode. Grounding provides an escape wire for electrical current.

1. Positioned equipment to prevent tire to the ground.
2. Attach the equipment's grounding damp to metal post connected to earth ground.





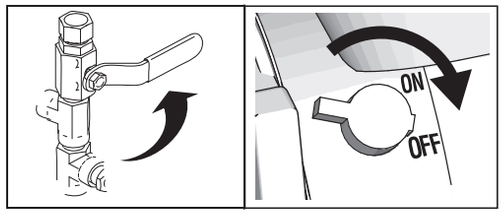
Keep grounding when clean up and do pressure relief.

Pressure Relief Procedure

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid ,such as skin injection, splashing fluid, and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

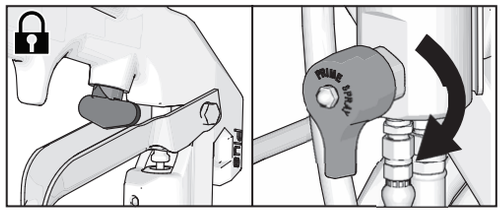
1. Follow the Grounding Procedure if use flammable materials.

2. Set pump switch to OFF. Turn engine OFF.



3. Trigger all guns to relieve pressure.

4. Engage all gun trigger locks and turn prime valve down.



5. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved:

Reverse the spray tip 180°, disengage the trigger lock, and trigger the gun to clear the obstruction; OR, VERY SLOWLY loosen the hose end coupling to relieve pressure gradually, then loosen completely.

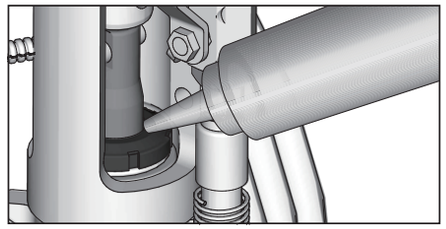
Startup

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

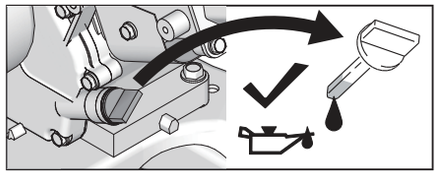
1. Perform Pressure Relief Procedure, page 6.

2. Perform Grounding Procedure (For Flammable Materials Only), page 6.

3. Fill throat packing nut with Throat Seal Liquid (TSL) to decrease packing wear.

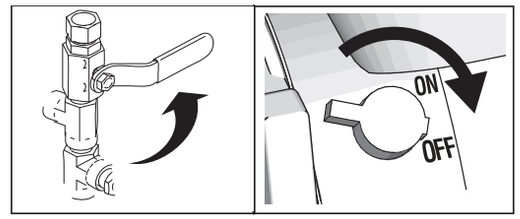


4. Check engine oil level.

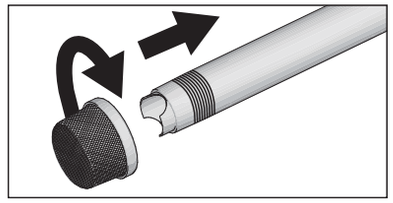


5. Fill fuel tank.

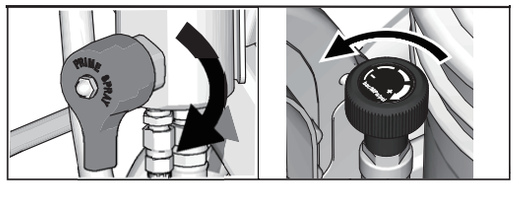
6. Set pump switch to OFF.



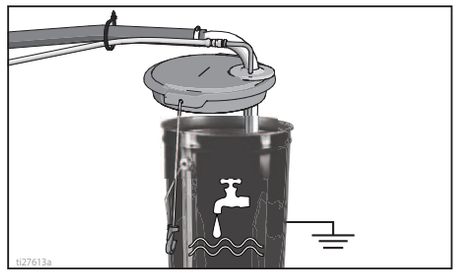
7. If removed, install strainer.



8. Turn prime valve down. Turn pressure control counter-clockwise to lowest pressure.

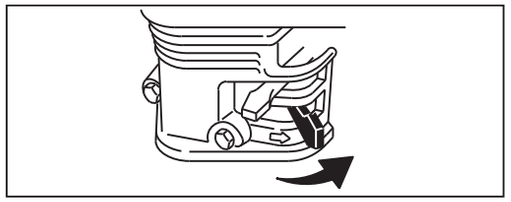


9. Place siphon tube set in grounded metal pail partially filled with flushing fluid. Attach ground wire to true earth ground. Use water to flush water-base paint and mineral spirits to flush oil-base paint and storage oil.

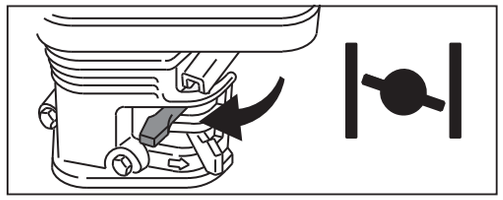


10. Start engine:

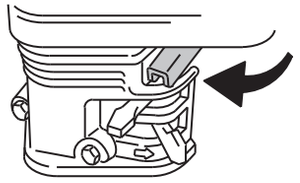
a. Move fuel valve to open.



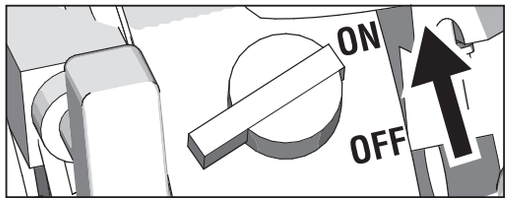
b. Move choke to closed.



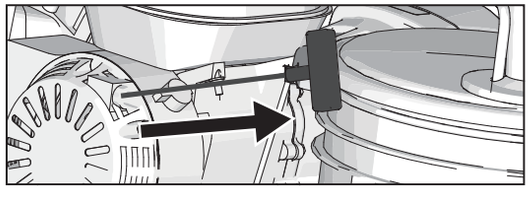
c. Set throttle to fast.



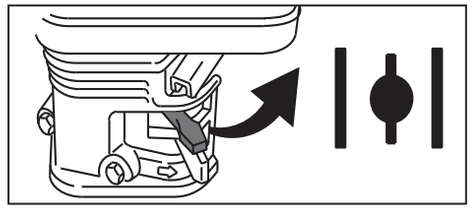
d. Set engine switch to ON.



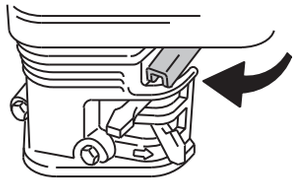
e. Pull starter rope.



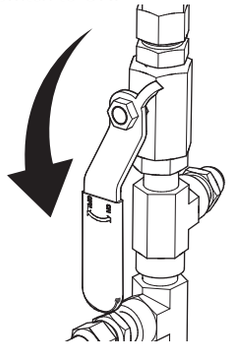
11. After engine starts, move choke to open.



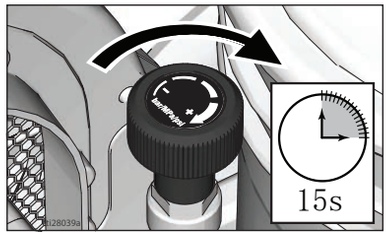
12. Set throttle to desired setting.



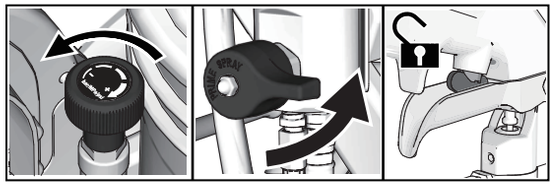
13. Set pump switch to ON.



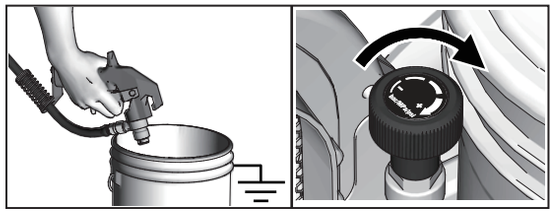
14. Increase pressure enough to start pump. Allow fluid to circulate for 15 seconds.



15. Turn pressure down, close the prime valve by turning it horizontal. Take spray gun trigger safety OFF.



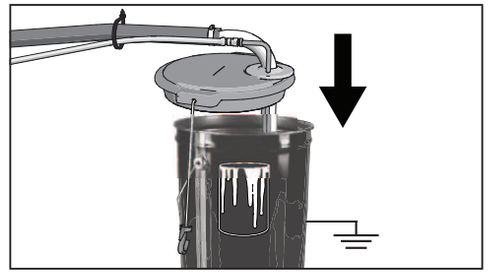
16. Hold gun against grounded metal flushing pail. Trigger gun and increase fluid pressure slowly until pump runs smoothly.



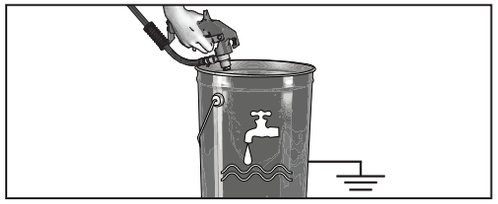
High-pressure spray is able to inject toxins into the body and cause serious bodily injury. Do not stop leaks with hand or rag.

17. Inspect fittings for leaks. If leaks occur, turn sprayer OFF immediately. Perform Pressure Relief Procedure. Tighten leaky fittings. Repeat Startup,steps 1-17. If no leaks, continue to trigger gun until system is thoroughly flushed. Proceed to step 18.

18. Place siphon tube in paint pail.

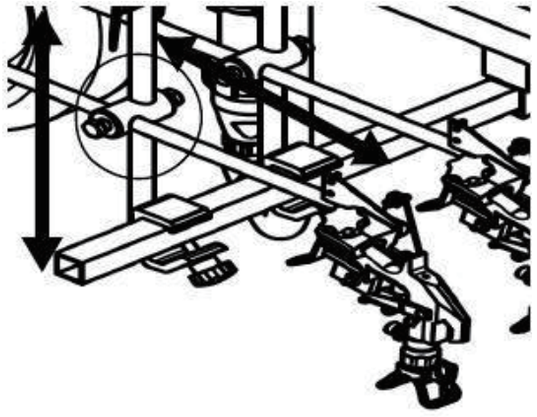


19. Trigger gun again into flushing fluid pail until paint appears. Assemble tips and guards.

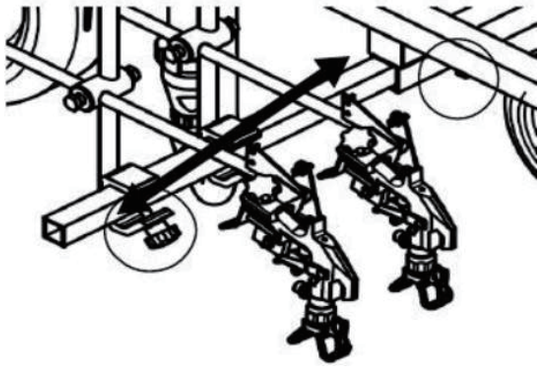


Position Gun

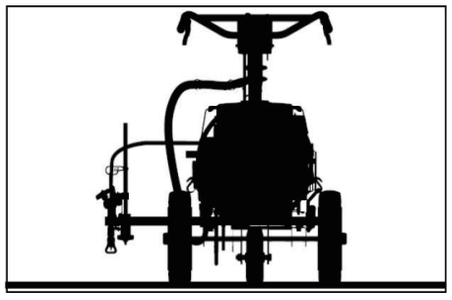
1. Position gun up/down and forward/reverse.



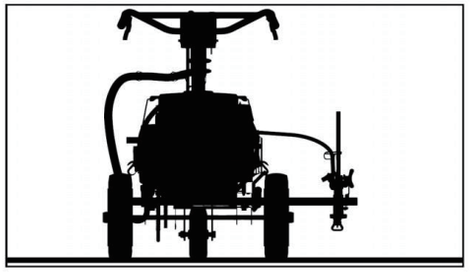
2. Position gun left/right.



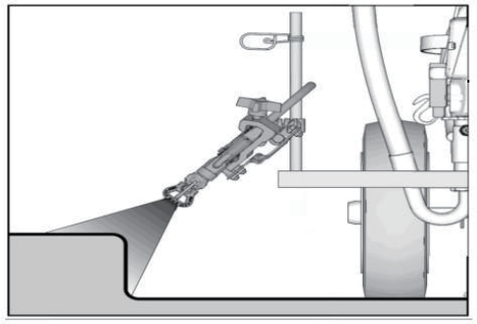
a. Right-side gun position: Place gun and related hardware on right-hand side.



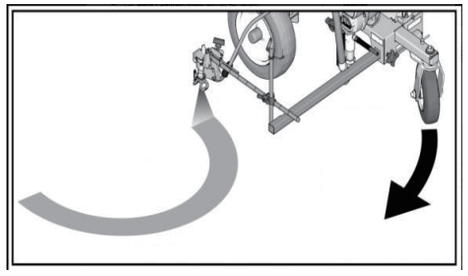
b. Left-side gun position: Place gun and related hardware on left-hand side.



3. For Curb Position, place gun at 45° angle.

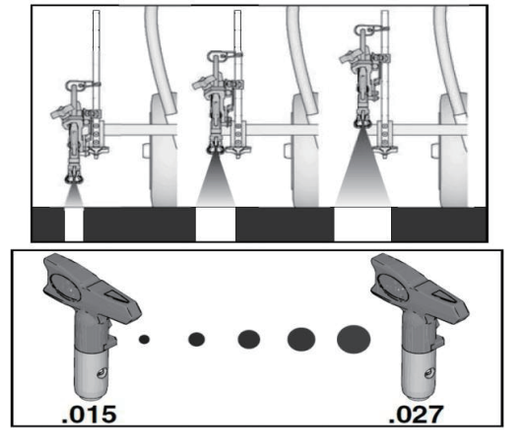


4. For Gun Arc Spray Position, place gun at rear of striper. Rear position improves arc quality.



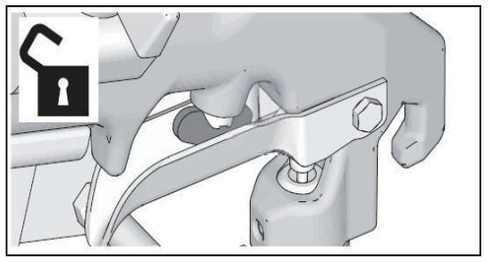
Paint Stripe Width

1. Adjust gun up or down to change paint stripe width. If desired width can't be attained, change tip.

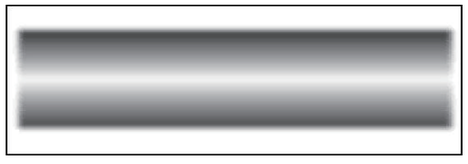


Spray Test Stripe

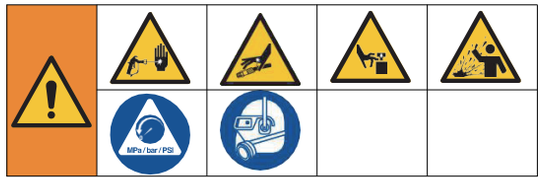
1. Disengage trigger lock.



2. Trigger gun and spray test pattern. Slowly adjust pressure to eliminate heavy edges. Use smaller tip size if pressure adjustment can not eliminate heavy edges.

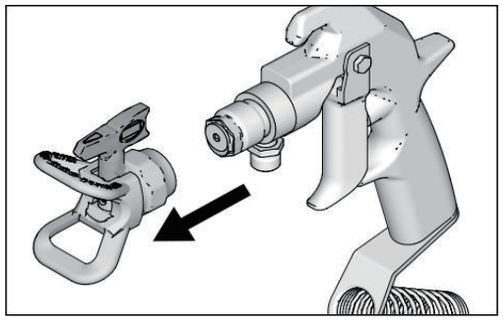


Cleanup

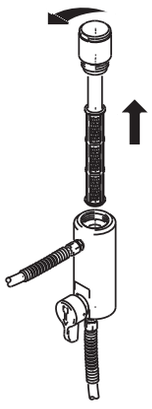


1. Perform Pressure Relief Procedure (see page 6).

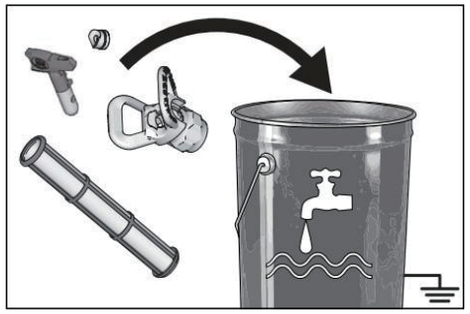
2. Remove the two Guards and Tips.



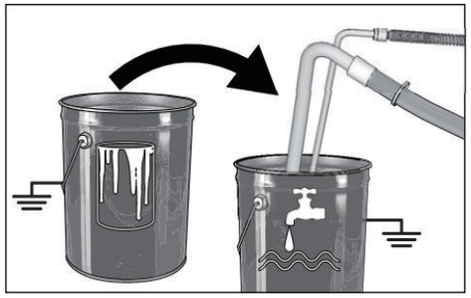
3. Unscrew the caps in turn, remove the filters. Assemble without filters. Clean the filters.



4. Clean the gun filter, guard, and tip in flushing fluid.

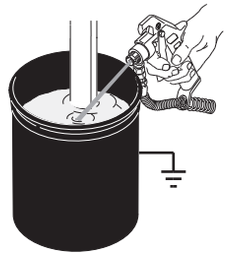


5. Remove the siphon tube set from the paint pail and place it in the flushing fluid. Use water or pump conditioner for water-based paint and mineral spirits solvent for oil-based paint.



6. Perform Startup steps 10-16 (see pages 8-9) to flush out paint in sprayer. Use water to flush water-based paint and mineral spirits solvent to flush oil-based paint.

7. Hold the gun against paint pail and pull trigger until water or solvent appears.



8. Refill the throat packing nut with TSL to decrease packing wear (see page 7).

Cleaning and Maintenance Recommendations

If you are going to	Flush with	Prime with	Clean with	Store with
Spray with new sprayer or sprayer that has been stored	Compatible solvent such as water or mineral spirits	Compatible paint, such as water-base or oil-base	Compatible solvents such as water or mineral spirits	Mineral spirits
Spray water-base paint	Warm, soapy water, then clean water	Water-base paint	Warm, soapy water, then clean water	Mineral spirits
Spray oil-base paint	Mineral spirits	Oil-base paint	Mineral spirits	Mineral spirits
Change water-base to oil-base paint	Warm, soapy water, then clean water	Mineral spirits	Mineral spirits	Mineral spirits
Change oil-base to water-base paint	Mineral spirits, soapy water, then clean water	Water-base paint	Warm, soapy water, then clean water	Mineral spirits
Change colors, same base	Compatible solvent such as water or mineral spirits	——	——	Mineral spirits

Periodic Maintenance

DAILY: Check engine oil level and fill as necessary.

DAILY: Check hose for wear and damage.

DAILY: Check gun safety for proper operation.

DAILY: Check prime/spray drain valve for proper operation.

DAILY: Check and fill gas tank.

DAILY: Top off TSL level in displacement pump packing nut to help prevent material buildup on piston rod and early wear of packing.

AFTER THE FIRST 20 HOURS OF OPERATION:

Drain engine oil and refill with clean oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

WEEKLY:

Remove engine air filter cover and clean element, replace if necessary. If operating in an unusually dusty environment, check filter daily. For replacement filters, consult your local Honda dealer.

AFTER EACH 100 HOURS OF OPERATION:

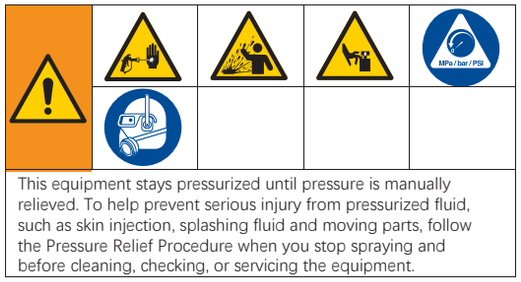
Change engine oil. Reference Honda Engines Owner's Manual for correct oil viscosity.

SPARK PLUG:

Gap plug to 0.028 to 0.031 in (0.7 to 0.8 mm). Use spark plug wrench when installing and removing plug.

Hydraulic Oil / Filter Change

Removal

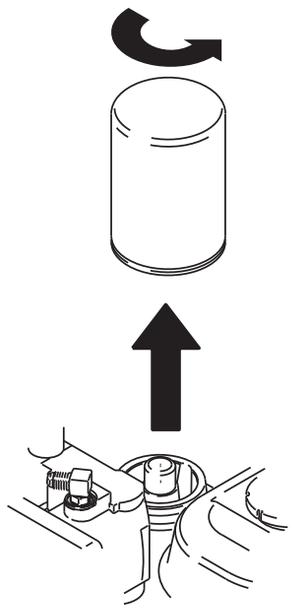


This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Perform Pressure Relief Procedure, page 6.
2. Place drip pan or rags under sprayer to catch hydraulic oil that drains out.
3. Remove drain plug. Allow hydraulic oil to drain.
4. Unscrew filter slowly - oil runs into groove and drains

Installation

1. Apply a light film of oil on filter gasket. Install drain plug and oil filter. Tighten oil filter 3/4 turn after gasket contacts base.
2. Properly fill with hydraulic oil.
3. Check oil level.



Hydraulic Pump Assembly Replacement

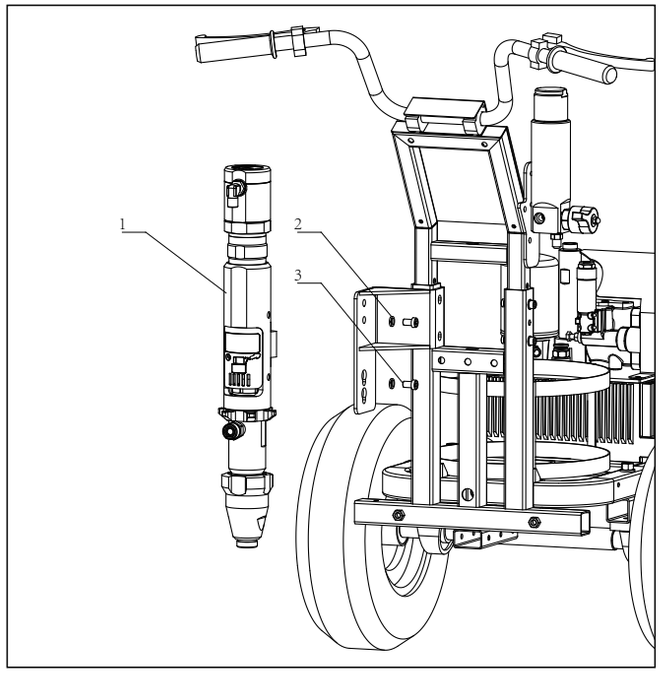
Removal

Follow the Pressure Relief Procedure on page 6.

1. Disconnect the hoses and suction tube connected to the hydraulic pump.
3. Remove the two connecting bolts (3) and washers (2).
4. Remove the hydraulic pump assembly (1).

Installation

1. Align the mounting holes of the new hydraulic pump assembly (1) with the holes on the rack.
2. Secure the hydraulic pump assembly (1) to the rack using the two connecting bolts (3) and washers (2).
3. Reconnect all hoses and the suction tube, and tighten all fittings securely.
4. Installation of the hydraulic pump assembly is complete.



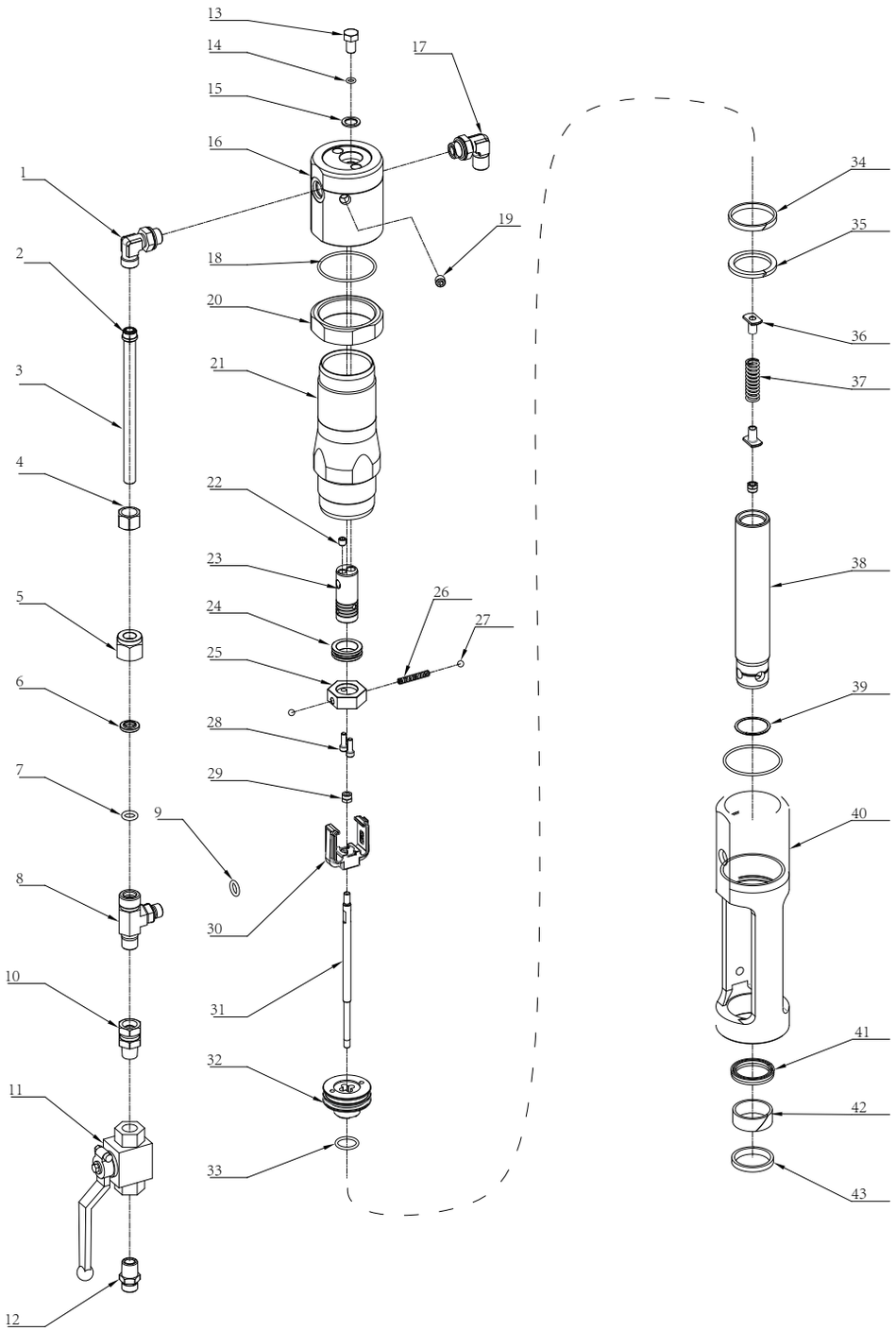
Troubleshooting

Follow the Pressure Relief Procedure on page 6.

Problem	Cause	Solution
Gas engine pulls hard (won't start).	Hydraulic pressure is too high.	Turn hydraulic pressure knob counterclockwise to lowest setting.
Engine won't start.	Engine switch is OFF.	Turn engine switch ON.
	Engine is out of gas.	Refill gas tank.
	Engine oil level is low.	Replenish oil.
	Spark plug is disconnected or damaged.	Connect spark plug cable or replace spark plug.
	Cold engine.	Use choke.
	Fuel shutoff lever is OFF.	Move lever to ON position.
	Oil is seeping into combustion chamber.	Remove spark plug, Pull starter 3 to 4 times, Clean or replace spark plug, Start engine.
Displacement pump operates, but output is low on upstroke.	Piston ball is not seating.	Service piston ball.
	Piston packings are worn or damaged.	Replace packings.
Displacement pump operates, but output is low on down stroke and/or on both strokes.	Strainer is clogged.	Clean Strainer.
	O-ring in pump is worn or damaged.	Replace o-ring.
	Intake valve ball is not seating properly.	Clean intake valve.
	Engine speed is too low.	Increase throttle setting.
	Suction tube air leak.	Tighten suction tube.
	Pressure setting is too low.	Increase pressure.
	Fluid filter, tip filter or tip is clogged or dirty.	Clean filter.
	Large pressure drop in hose with heavy materials.	Use larger diameter hose and/or reduce overall length of hose.

Problem	Cause	Solution
Pump is difficult to prime.	Air in pump or hose.	Check and tighten all fluid connections. Reduce engine speed and cycle pump as slowly as possible during priming.
	Intake valve is leaking.	Clean intake valve. Be sure ball seat is not nicked or worn and that ball seats well. Reassemble valve.
	Pump packings are worn.	Replace packings.
	The paint is too thick.	Thin down the paint
	The speed of the engine is too high.	Before suctioning the material, adjust the throttle valve and lower the set value of the throttle valve.
Fluid is spitting from gun.	Air in pump or hose.	Check and tighten all fluid connections. Reprime pump.
	Tip is partially clogged.	Clean or replace tip.
	Fluid supply is low or empty.	Refill fluid supply. Prime pump. Check fluid supply often to prevent running pump dry.
Excessive paint leakage into throat packing nut.	Throat packings are worn or damaged.	Replace packings.
The sprayer overheats.	Paint buildup on hydraulic components.	Clean.
	Hydraulic oil level is low.	Add hydraulic oil.
Excessive hydraulic pump noise.	Low hydraulic oil level.	Shut off sprayer. Add hydraulic oil.

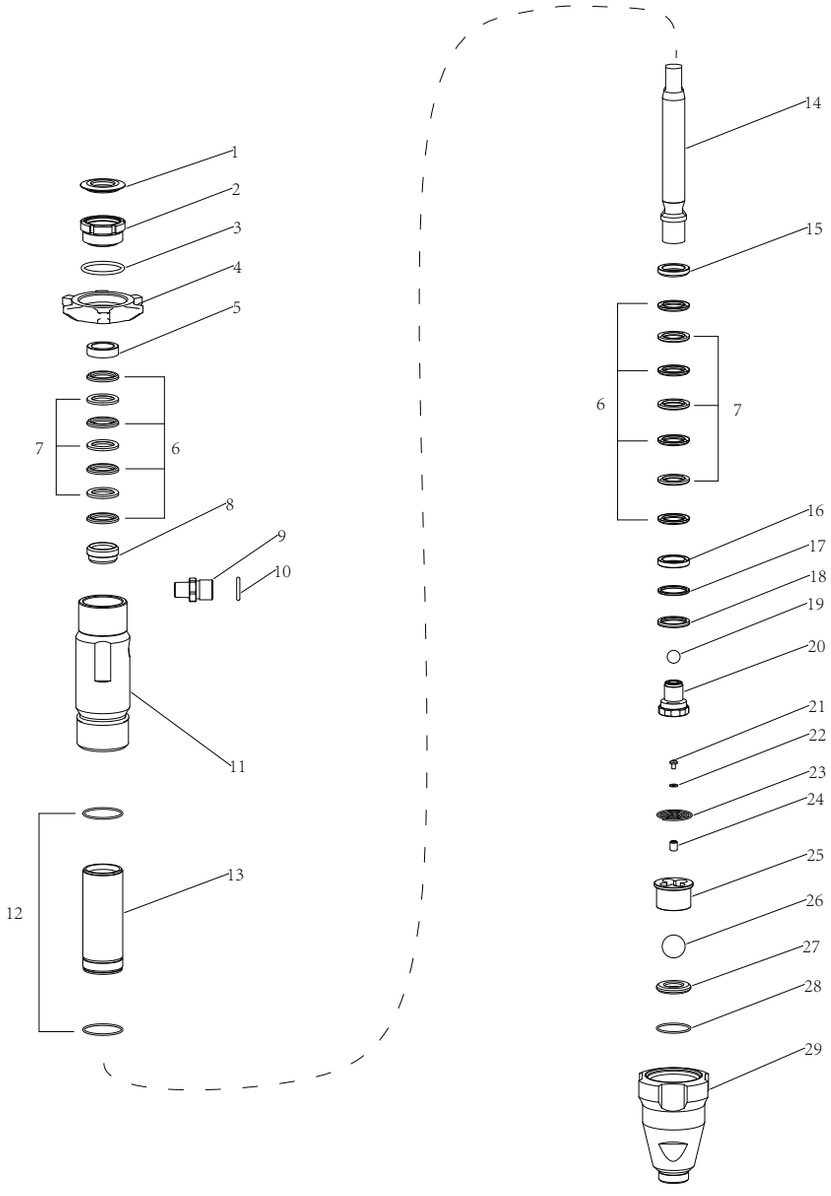
HP1076 / HP2076 Hydraulic Reversing Driven Pump Assembly



NO.	Name	Quantity
1	Adjustable Screw	1
2	Ferrule	1
3	Steel Tube	1
4	Ferrule Nut	1
5	Sealing Nut	1
6	Nylon Washer	1
7	O-ring	1
8	Triple Connector	1
9	Rubber O-ring	1
10	Connecting Nut	1
11	Ball Valve (3/8-NPT)	1
12	Filter Connector	1
13	Screw 3/8-24UNF L16	1
14	O-ring (10-2)	1
15	Washer	1
16	Stationary Cylinder Block	1
17	Adjustable Screw	1
18	O-ring (FKM)	2
19	Fixing Screw 1/8-27-NPT	1
20	Retaining Nut	1
21	Cylinder	1
22	Fixing Screw	1

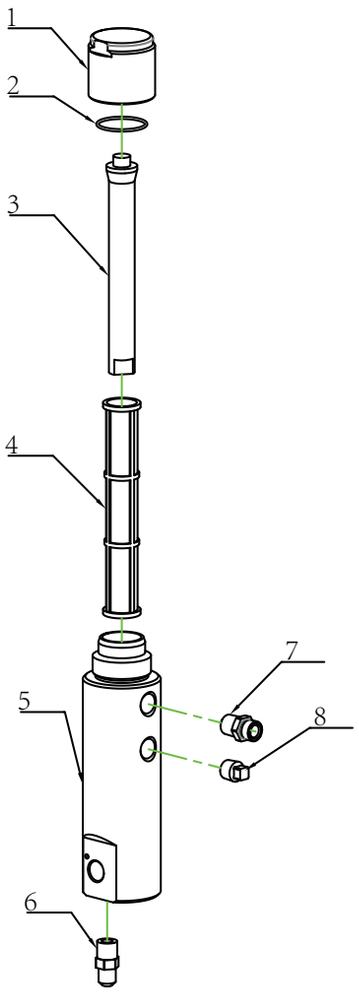
NO.	Name	Quantity
23	Piston Rod	1
24	Seal Ring	1
25	Fixed Block	1
26	Spring	1
27	6.35 Tungsetn Steel Ball	2
28	Screw #10-24UNC L15	2
29	1/4-28 Lock Nut	1
30	Reversing Fork	1
31	Connecting Rod	1
32	Sealing Screw	1
33	O-ring 24.5-2.65	1
34	Guiding Belt 5.5*2.5	1
35	Parker Ring	1
36	Fixing Seat	2
37	Piston Rod Spring	1
38	Piston Rod	1
39	Circlip	1
40	Cylinder	1
41	Seal Ring	1
42	Guide Belt	1
43	Dust-proof Ring	1

HP1076 / HP2076 Suction Pump Assembly



NO.	Name	Quantity
1	Dust-proof Seal	1
2	Lock Nut	1
3	O-ring	1
4	Nut	1
5	Upper Seal Ring	1
6	V-ring	8
7	Leather	6
8	Ring	1
9	Cylinder Screw	1
10	Gasket	2
11	Cylinder	1
12	O-ring	1
13	Sleeve	1
14	Piston Rod	1
15	Ring	1
16	Ring	1
17	Gasket	1
18	Oil Seal	1
19	Tungsten Steel Ball 14.3	1
20	Piston Valve	1
21	Screw	1
22	Flat Gasket	1
23	Spring	1
24	Nut	1
25	Ball Guide	1
26	Tungsten Steel Ball 25.4	1
27	Inlet Valve	1
28	O-ring	1
29	Intake Housing	1

HP1076 / HP2076 Manifold Filter Assembly



NO.	Name	Quantity
1	Filter cap, manifold	1
2	O-ring	1
3	Filter core	1
4	Filter	1
5	Mainfold case	1
6	Nipple, stainless steel	1
7	Nipple, stainless steel	1
8	Plug	1

Technical Data

HP1076 / HP2076 Gasoline-Powered Hydraulic Line Striper		
Model No.	**HP1076**	**HP2076**
Model Type	Standard Line Striper	Two-Component Line Striper
Power Type	Gasoline Engine & Hydraulic	Gasoline Engine & Hydraulic
Engine Type	Honda GX270	Honda GX270
Dynamic Power	6700W/9HP	6700W/9HP
Max. Working Pressure	23 Mpa, 3336 psi	23 Mpa, 3336 psi
Max. Delivery	9.8 L/min	9.0 L/min
Max. Tip Size	(1 Gun) 0.053" (2 Guns) 0.038"	(1 Gun) 0.053" (2 Guns) 0.038" (3 Guns) 0.032" (4 Guns) 0.028"
Noise Level	85 dB	
Wetted Parts	Stainless steel, PTFE, leather, nickel-tungsten carbide, UHMWPE, NBR	
Suction Filter	12 mesh (250 micron)	12 mesh (250 micron)
Manifold Filter	30 mesh	30 mesh
Pump Inlet Size	1 inch 5/16-12 UN	1 inch 5/16-12 UN
Fluid Outlet Size	3/8 inch	3/8 inch
Gross Weight	135 kgs	193 kgs
Package Size	192*83*91 cm	192*83*91 cm

Warranty and Limitations

Warranty General:

HVBAN products have a one year guarantee from the invoice date, unless otherwise stated in writing. The warranty covers all manufacturing faults and material defects. Any spare part replacement or repair operations are covered only if they are carried out by our authorized distributors. This warranty covers when the equipment is installed, operated and maintained in accordance with HVBAN written recommendations. HVBAN shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of Non-HVBAN component parts. This warranty is conditioned upon the CARRIAGE PAID return of the equipment claimed to be defective to an authorized HVBAN distributors for verification of the claim. If the claimed defect is verified, HVBAN will repair or replace free of charge any defective parts. 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.

The Warranty does not cover:

- Damage or breakdown caused by improper use or assembly.
- Damage or breakdown caused by the use of spare parts that are different from the original or recommended ones.
- Damage or breakdown caused by bad preservation.
- Components subject to wear (described in parts list).

Warranty Forfeiture:

- In case of delayed payment or other contractual defaults.
- Whenever changes or repairs are carried out on our equipment without prior authorization.
- When the serial number is damaged or removed.
- Whenever the damage is caused by improper use or functioning, or if the equipment falls, is bumped or by other causes not due to the normal working conditions.
- Whenever the unit is disassembled, tampered with or repaired without the authorization of HVBAN.