



HVLP-006 Fine Finish Sprayer

Instruction Manual

For your personal safety,
READ and UNDERSTAND before using.

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

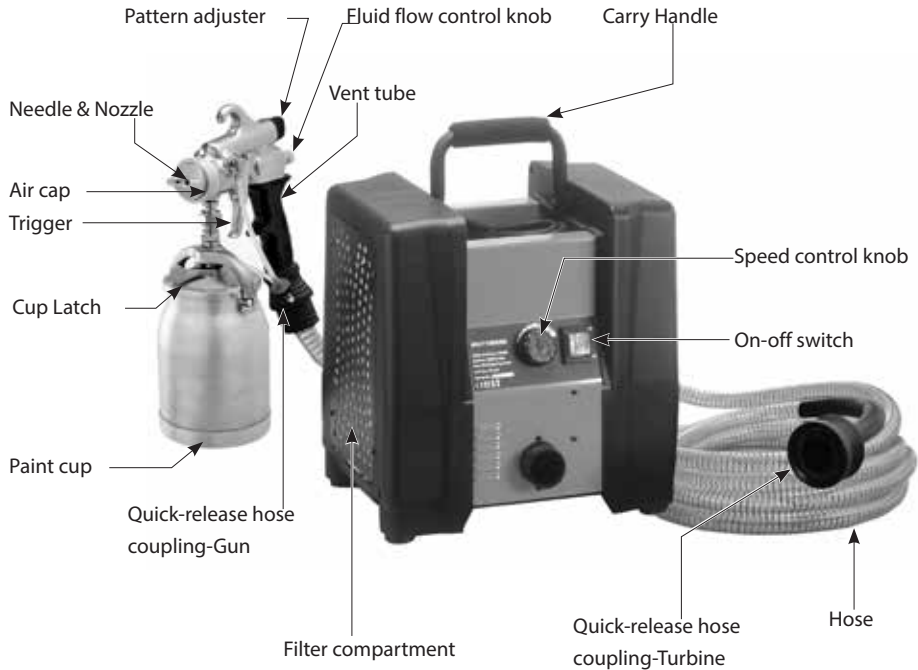


Three-Stage **CE CB**
HVLP Turbine Sprayer

Voltage	See machine nameplate
Power Input	1400W
Turbine	3 stage
Airflow	2800 l/min
Max Working Pressure	0.41 bar (6 psi)
Turbine Dimensions (LxWxH)	325mm x 250mm x 325mm
Net Weight	8.5 kg (18.7 Lbs)

Material Applications:

- * Automotive refinish
- * Architectural
- * Marine
- * Industrial
- * Aerospace
- * Wood
- * Plastic



GENERAL SAFETY RULES



WARNING! Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire and / or serious personal injury. The term “power tool” in all of the warnings listed below refers to your mains-operated (corded) power tool.

SAVE THESE INSTRUCTIONS.

WORK AREA

- 1. Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- 2. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquid, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- 3. Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

ELECTRICAL SAFETY

- 1. Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce the risk of electric shock.
- 2. Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
- 3. Avoid body contact with grounded**

surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.

- 4. Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- 5. Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep the cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged or entangled cords increase the risk of electric shock.
- 6. When operating a power tool outdoors, use an outdoor extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

PERSONAL SAFETY

- 1. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- 2. Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- 3. Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
- 4. Remove adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the tool may result in personal injury.
- 5. Do not overreach. Keep a proper footing and balance at all times.** This enables better control of the power tool in unexpected

situations.

- 6. Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- 7. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust-related hazards.

POWER TOOL USE AND CARE

- 1. Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- 2. Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- 3. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- 4. Store idle tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- 5. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- 6. Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- 7. Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking**

into account the working conditions and the work to be performed. Use of the power tool for operations different from intended could result in a hazardous situation.

SERVICE

Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

If the supply cord of this power tool is damaged it must be replaced by a specially prepared cord available through the service organization.

Symbols used in this manual

V.....volts
A.....amperes
Hz.....hertz
W.....watt
~.....alternating current
 n_0no load speed
 min^{-1}revolutions or reciprocation
per minute



.....warning of general danger



.....class II tool



.....with electrical earth



.....read these instructions



.....always wear eye protection



.....always wear a dust mask.



.....always wear hearing protection



.....wear safety-approved hard hat



do not dispose of electric tools,
accessories and packaging together
with household waste material

SPECIFIC SAFETY RULES FOR HVLP SPRAYERS

OBSERVE ALL WARNINGS!

WARNING: Do not use guns for spraying flammable materials.

WARNING: Be aware of any hazards presented by the material being sprayed, and consult the markings on the material container or the information supplied by the manufacturer of the material to be sprayed.

WARNING: Do not spray any material where the hazard is not known.

WARNING: Do not clean guns with flammable solvents with a flash-point below 55°C.

NOTE: A non-flammable solvent is here defined as one which has a flash-point above 55°C.

WARNING: This appliance cannot be used by children under 18 years old or persons with reduced physical, sensory or mental capabilities or lack of experience or knowledge of the safe operation of the appliance.

WARNING: Children may not play with this appliance.

WARNING: Cleaning and user maintenance shall not be made by children.

WARNING: This appliance shall be disconnected from its power source during service and when replacing parts. The plug must remain removed, and must be removed in such a way that an operator can check from any of the points to which he has access that the plug remains removed.

This equipment is for professional use only.

WARNING: FIRE AND EXPLOSION HAZARD. Take all precautions to avoid sources of sparks and ignition when spraying. Keep the machine at least 8 meters away from the spraying operation.

Wear Protective Equipment At All Times. Always use a respirator, eye protection and protective clothing and gloves.

CAUTION:

- Do not use the sprayer with flammable paint.
- Do not use guns for spraying flammable materials.
- Do not clean guns with flammable solvents.
- Beware of any hazards presented by the material being sprayed and consult the markings on the container or the information supplied by the manufacturer of the material to be sprayed, including requirements for the use of personal protective equipment.
- Do not spray any material where the hazard is not known

The appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction and children being supervised not to play with the appliance.

EXPLOSION RISK FROM HALOGENATED HYDROCARBON SOLVENTS

Never use halogenated hydrocarbon solvents in this machine. Contact with aluminum parts may cause an explosion. Some of the most common of these solvents are: Carbontetrachloride, Chlorobenzene, Dichloroethane, Dichloroethyl Ether, Ethylbromide, Ethylchloride, &

Tetrachloethane.

PREVENT STATIC SPARKING FIRE/ EXPLOSIONS

Vapors created when spraying can be ignited by sparks. To reduce the risk of fire, always locate the turbine at least 20 feet (6 m.) away from spray area. Do not plug in or unplug any electrical cords in the spray area. Doing so can cause sparks which can ignite any vapors still in the air. Follow the coating & solvent manufacturers safety warnings and precautions.

WARNING: Keep the turbine away from areas with hazardous concentrations of flammable vapors. NEVER operate with the turbine inside a spray booth.

- **NEVER** point the spray gun at anyone or any part of the body.
- **NEVER** put your hand or fingers over the fluid nozzle.
- **NEVER** try to stop or deflect leaks with your hand, body, or rag.
- **NEVER** alter equipment in any manner.
- **NEVER** smoke while in spraying area.
- **NEVER** spray highly flammable materials.
- **NEVER** use around children.
- **NEVER** allow another person to use sprayer unless he is thoroughly instructed on its safe use and given this operator's manual to read.
- **ALWAYS** wear a spray mask/respirator, gloves and protective eye wear while spraying.
- **ALWAYS** ensure fire extinguishing equipment is readily available and properly maintained.

ALWAYS INSPECT SPRAYING AREA

- Keep the spraying area free from obstructions.
- Make sure the spraying area has good ventilation to safely remove vapors and mists.
- **NEVER** keep flammable material in spraying area.

- **NEVER** spray in vicinity of open flame or other sources of ignition.
- The spraying area must be at least 20 ft. away from spray unit.

TOXIC FLUID HAZARD

- Hazardous fluid or toxic fumes can cause serious injury or death if splashed in eyes or on skin, inhaled or swallowed. Know the hazards of the fluid you are using. Store & dispose of hazardous fluid according to manufacturer, local, state & national guidelines.
- **ALWAYS** wear protective eyewear, gloves, clothing and respirator as recommended by fluid manufacturer.

HOSES

Do not allow kinking or crushing of hoses or allow it to vibrate against rough, sharp or hot surfaces.

- **NEVER** use a damaged hose. Before each use, check entire hose for cuts, leaks, abrasions, or bulging. If any of these conditions exist, replace the hose immediately.

GROUNDING

- Ground the sprayer & other components in the system to reduce the risk of static sparking, fire or explosion which can result in serious bodily injury and property damage. For detailed instructions on how to ground, check your local electrical code.
- **ALWAYS** ensure switch is in OFF position before plugging unit in.

ALWAYS GROUND ALL OF THESE COMPONENTS

1. **Turbine:** plug the power supply cord, or extension cord, each equipped with an undamaged three-prong plug, into a properly grounded outlet. **DO NOT USE AN ADAPTER.** Use only a 3 wire extension cord that has a grounding plug, and a receptacle that will accept the grounding plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. If in doubt, use the next heavier gauge.
 2. **Hose:** use only grounded hoses.
 3. **Spray gun:** grounding is obtained through connection to a properly grounded hose and turbine.
- **NEVER** use cleaning solvents with flash points below 140 degrees F. Some of these are: acetone, benzene, ether, gasoline, naphtha. Consult your supplier to be sure.

FUNCTIONAL DESCRIPTION

This HVLP (High Volume, Low Pressure) turbine uses a controlled cone of high volume, low pressure air created by the gun which can spray with very little waste and overspray. This high efficiency delivery absolutely minimizes air pollution emissions associated with paint spraying. Media which are traditionally sprayed by high pressure compressor driven paint sprayers can be sprayed by this new technology. The paint drying times are even quicker because the air from the turbine is naturally warm.

UNPACKING AND ASSEMBLY

1. Remove all parts from the carton.
2. Check for any damage.

3. Attach the hose to the turbine.
4. Attach the hose to the gun.

PREPARATION

Prepare the paint solution

Strain the paint and all other media components before you spray

Remember to use a slower drying reducer than you would normally use with a conventional air sprayer. The warm air of the turbine causes faster drying times. Usually one step slower will do.

For Automotive finishes, reduce and catalyze according to the paint manufacturer's instructions, just remember to use one step slower reducer.

For Industrial finishes, reduce and catalyze according to the paint manufacturer's instructions. If there are no reduction instructions, add reducer step by step until the proper consistency is found. Droplets off the stir stick should be about one second apart.

WARNING:

Universal motors, like the one used in this turbine, by their nature create sparks at the commutator. Whenever spraying flammable media, keep the turbine at least 6 meters (20 feet) away from the spraying area.

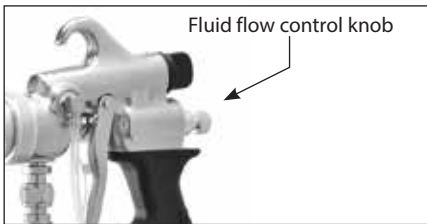
OPERATION

1. Ensure that all protective clothing and safety devices are in place and Fill the paint cup.
2. Allow the turbine to warm up by turning it on for a few minutes before beginning spraying. (This will make adjusting the gun easier).
3. Adjust the gun on a test surface, then begin spraying

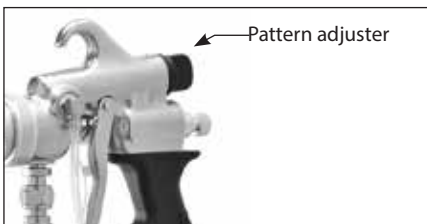
ADJUSTING THE GUN

The gun will normally need to be adjusted before each use. This is similar to tuning a musical instrument before playing it.

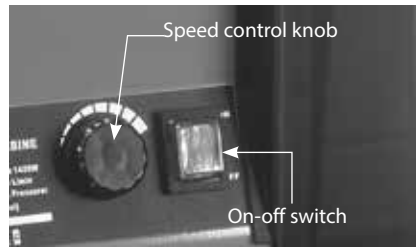
1. First adjust the Fluid Flow Control Knob. Turn anti-clockwise for more fluid, clockwise for less fluid. A good starting point would be about 2-1/2 turns out from closed.



2. Test the spray pattern and atomization on a test piece. Hold about 20cm (8 inches) away. Turn the Pattern Adjuster knob for the desired pattern.



3. Adjust the Speed Control knob on the turbine to control the air volume. Generally, it is best to use the minimum air volume which will achieve satisfactory atomization. The point is to get the droplet size as small as possible while still having the desired coverage. Too much air will only cause overspray mist and waste paint. If the Speed Control knob is at maximum and the atomization is still not satisfactory, the atomization can also be controlled by thinning the paint. One can also use a different fluid set (the needle, nozzle and air cap).



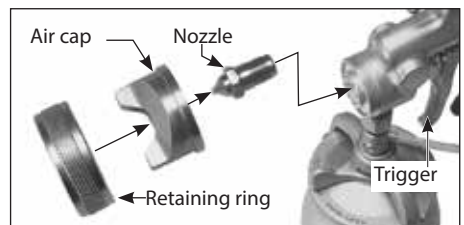
CHOOSING FLUID SETS

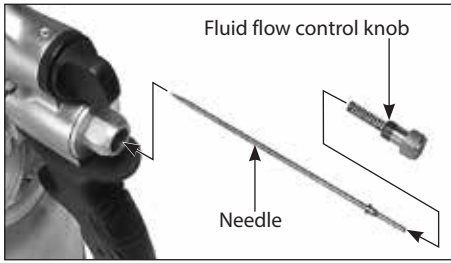
The fluid set includes a Needle, a Nozzle and an Air Cap. These parts are a matched set. Do not mix parts from other sizes. The standard fluid set which comes with the gun is a 1.3mm, which will work well for most applications.

Different sizes of fluid set will give different flow rates. A more viscous fluid will need a larger size. A thinner fluid will need a smaller size.

TO CHANGE TO A DIFFERENT FLUID SET

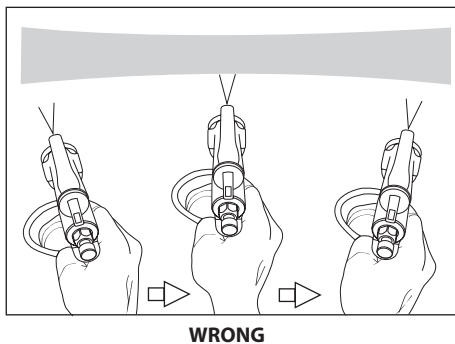
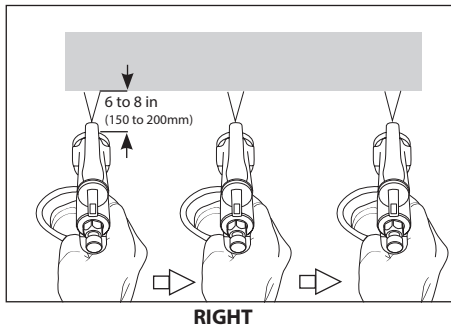
1. Loosen and remove the Air Cap.
2. Unscrew and remove the Nozzle. Whenever tightening or loosening the nozzle, pull the trigger all the way and hold it to prevent damage to the seating surfaces of the Needle and Nozzle.
3. Unscrew the Fluid Control Knob all the way and remove it, together with the spring.
4. Pull out the Needle through the back of the Gun.
5. Replacement is the opposite of removal.





SPRAYING TECHNIQUE

Keep the gun about 150 to 200mm away from the surface. Do not swing the arm in an arc. Rather, keep the gun perpendicular to the surface and move in a parallel motion. Make sure the gun is already in motion before triggering and release the trigger while the gun is still in motion. Overlap 50% with each stroke.



CLEAN-UP

Always clean the gun at the end of the day or between colors

1. Using a rag moistened with a compatible solvent, clean the cup and the outside of the gun.
2. Remove the Air Cap, Baffle and Nozzle and clean with a cleaning brush. Take care to avoid damage to the air cap holes.
3. Remove the needle and clean. Clean the paint carrying orifices of the gun. Do not allow solvent to enter the air carrying orifices of the gun. Therefore point the gun down while cleaning the paint orifices.

Never soak the entire gun in solvent.

USING OPTIONAL REMOTE PRESSURE POTS

The standard set-up of this gun is as an HVLP turbine cup-feed gun. It is also possible to use this gun and turbine with a remote pressure pot (pressure feed set-up). All that is necessary is to convert the gun. To convert:

1. Use an appropriate wrench to loosen the nut to remove the paint cup.
2. Connect the hose from the pressure pot.
3. Use an appropriate wrench to unscrew the nipple for the vent tube from the gun body.
4. Use a bolt with the correct thread to plug the hole from the nipple.

PRESSURE RELIEF PROCEDURE

When using a pressure pot, the pot must always be relieved of pressure before opening. To relieve pressure:

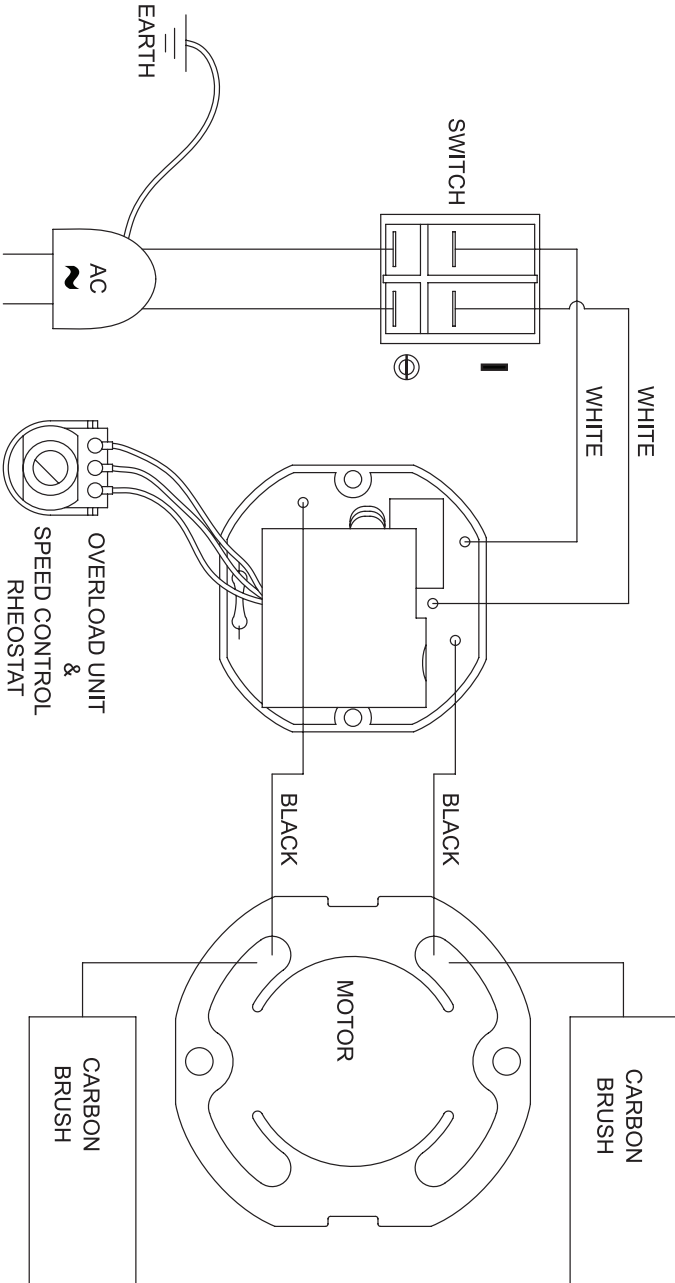
1. Shut off the air supply to the pot.
2. Open the pressure relief valve on the pot.

MAINTENANCE

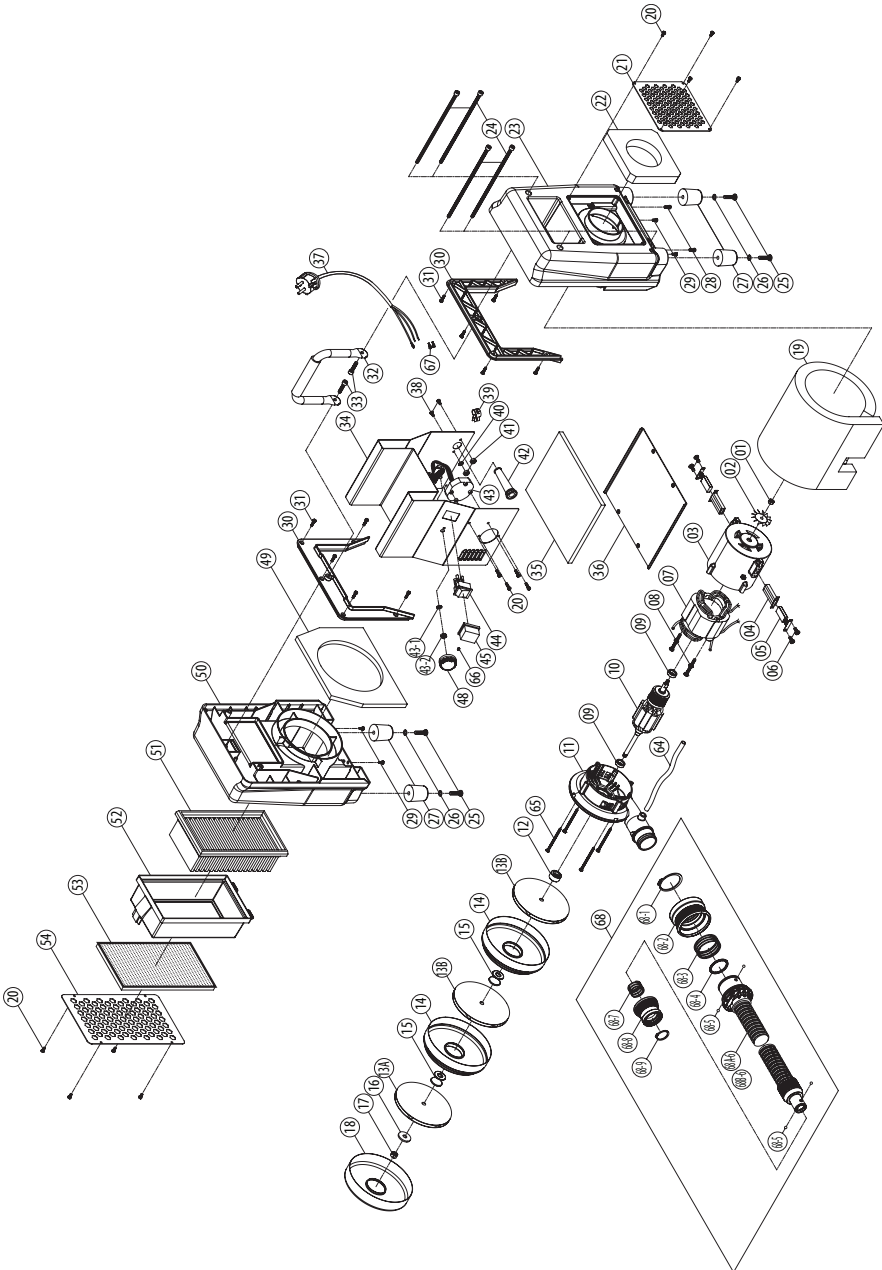
1. Keep the gun clean
2. Keep the inlet filters of the turbine clean.

Entrust repairs to a qualified service technician

WIRING



HVLP TURBINE EXPLODED VIEW



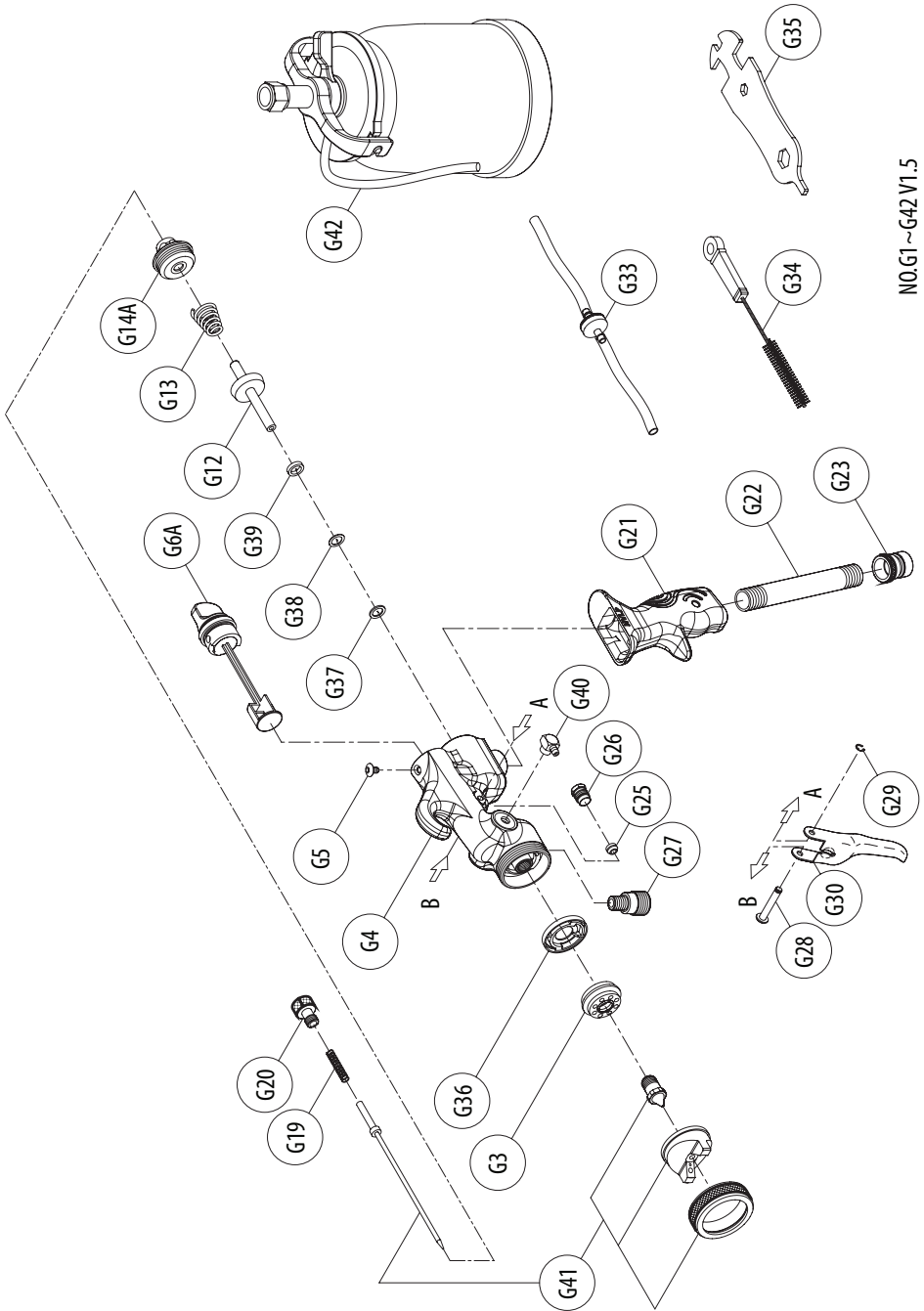
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HVLP TURBINE PARTS LIST

NO.	Parts Name	Q'TY	NO.	Parts Name	Q'TY
1	HEX NUT-LEFT HAND THREAD M6	1	37	POWER SUPPLY CORD	1
2	FAN 70 x 6	1	38	SCREW M4 x 16	2
3	MOTOR HOUSING	1	39	CORD CLIP	1
4	BRUSH HOLDER	2	40	SUN WASHER M5	1
5	CARBON BRUSH 7 x 12	2	41	NUT M4 x 8	2
6	SCREW M4 x 12	4	42	CORD ARMOR	1
7	STATOR	1	43	OVERLOAD UNIT	1
8	STATOR SCREW M5 x 60	2	43-1	FLAT WASHER Ø7 x Ø12 x 0.5	1
9	BEARING 6200 LLU	2	43-2	NUT 9.9 x Ø6.3 x 2	1
10	ARMATURE	1	43	OVERLOAD UNIT	1
11	MOTOR FRONT COVER	1	43-1	FLAT WASHER Ø7 x Ø12 x 0.5	1
12	SPACER-LARGE	1	43-2	NUT 9.9 x Ø6.3 x 2	1
13A	TURBINE IMPELLER	1	44	SWITCH	1
13B	TURBINE IMPELLER	2	45	SWITCH BOOT	1
14	EXHAUST HOUSING	2	46~47	N/A	-
15	SPACER	2	48	SPEED CONTROL DIAL	1
16	FLAT ALUMINUM WASHER 8 x 23 x 2	1	49	SOUND DEADENING-LH 10 x 180 x 220	1
17	HEX NUT M8	1	50	CASING-LH	1
18	INTAKE HOUSING	1	51	PLEATED MAIN FILTER	1
19	SOUND DEADENING-MOTOR 10 x 190 x 580	1	52	FILTER FRAME	1
20	SCREW M4 x 10	12	53	FOAM FILTER 20 x 160 x 260	1
21	MOTOR VENT	1	54	FILTER VENT	1
22	SOUND DEADENING-RH 20 x 130 x 140	1	55~63	N/A	-
23	CASING-RH	1	64	BLEEDER TUBE 5 x 8 x 150mm	1
24	SCREW M6 x 200	4	65	SCREW M4 x 55	4
25	SCREW M6 x 25	4	66	SET SCREW M4 x 4	1
26	FLAT WASHER Ø6 x Ø13 x 1	4	67	TERMINAL	2
27	FOOT	4	68B	AIR HOSE ASSY. -TRANSPARENT	1
28	SCREW M4 x 16	2	68-1	EXTERNAL CIRCLIP S-48	1
29	SCREW M5 x 8	4	68-2	QUICK RELEASE COLLAR	1
30	HANDLE BRACKET	2	68-3	SPRING Ø2.2 x Ø49 x 4T x 40L	1
31	SCREW M4 x 16	10	68-4	SPRING SEAT Ø36.5 x Ø40.5 x 2	1
32	CARRY HANDLE	1	68-5	CHECK BALL Ø5	4
33	SCREW M6 x 20	2	68B-6	HOSE - CLEAR 6M	1
34	BODY	1	68-7	SPRING Ø1.7 x Ø26 x 5T x 25L	1
35	SOUND DEADENING-LOWER 10 x 170 x 215	1	68-8	QUICK RELEASE COLLAR	1
36	BOTTOM PLATE	1	68-9	EXTERNAL CIRCLIP S-26	1

GUN ASSY. (w/ 1.3 NOZZLE)	1
GUN ASSY. (w/ 1.8 NOZZLE)	1
GUN ASSY. (w/ 2.0 NOZZLE)	1
GUN ASSY. (w/ 0.8 NOZZLE)(PLASTIC CUP)	1

HVLP GUN EXPLODED VIEW



NO.G1~G42 V1.5

HVLP GUN PARTS LIST

No.	Parts Name	Q'TY
G1~G2	N/A	-
G3	NOZZLE PLATE	1
G4	GUN BODY	1
G5	SOCKET SET SCREW	1
G6A	PATTERN ADJUSTING ASSEMBLY	1
G6~G11	N/A	-
G12	NEEDLE SPINDLE	1
G13	SPRING	1
G14A	SEAL ASSEMBLY	1
G14~G18	N/A	-
G19	NEEDLE SPRING	1
G20	FLUID CONTROL KNOB	1
G21	GRIP	1
G22	AIR PIPE	1
G23	AIR INLET NIPPLE	1
G24	N/A	-
G25	PACKING	1
G26	PACKING NUT	1
G27	FLUID INLET	1
G28	TRIGGER STUD	1
G29	E-CLIP	1
G30	TRIGGER	1
G31~32	N/A	-
G33	VENT TUBE ASSEMBLY	1
G34	CLEANING BRUSH	1
G35	MULTI-PURPOSE WRENCH	1
G36	NOZZLE PLATE SEAL	1
G37	WASHER	1
G38	GASKET	1
G39	GASKET	1
G40	L-FITTING	1
G41	AIR NOZZLE SET 0.5mm	1
G41	AIR NOZZLE SET 0.8mm	1
G41	AIR NOZZLE SET 1.0mm	1
G41	AIR NOZZLE SET 1.2mm	1
G41	AIR NOZZLE SET 1.3mm	1
G41	AIR NOZZLE SET 1.8mm	1
G41	AIR NOZZLE SET 2.0mm	1
G41	AIR NOZZLE SET 2.5mm	1
G42	PAINT CUP ASSEMBLY	1

