



SPRAYFINE

SPRAYFINE™ OPERATOR'S MANUAL

Thank you for choosing Sprayfine™ HVLP (High-Volume Low-Pressure) sprayers for your spraying needs. At Turbine Products Inc., we take pride in our precision-engineered products and want you to obtain all the benefits that your Sprayfine™ sprayer has to offer.

To ensure the proper use and maintenance of your Sprayfine™ sprayer, please carefully read the information contained in this manual before using your system. Should you require any further information, please contact your nearest Sprayfine™ distributor, or Turbine Products Inc. directly for assistance - we will be pleased to assist you.



IMPORTANT: READ BEFORE USING

SAFETY PRECAUTIONS

EXPLOSION AND FIRE HAZARD - Solvent and paint fumes can explode or ignite causing property damage and/or severe injury.

- Spray area must be well ventilated and free from flames, hot objects, cigarettes, pilot lights and sparks (sparks can occur from static electricity, operating light switches, operating power equipment, and connecting/disconnecting power cords).
- Keep turbine maximum possible distance from spray area.
- Power cord must be connected to a grounded outlet.
- Fire extinguishing equipment must be present and in working order.
- Follow safety precautions and warnings on paint and solvent containers.

EXPLOSION HAZARD – Incompatible materials may cause property damage and/or severe injury.

- Do not use bleach
- **DO NOT** use halogenated hydrocarbon solvents such as methylene chloride and 1,1,1 Trichlorethane. These materials are not compatible with aluminum and may cause an explosion. Contact your coatings supplier to ensure all solvents used are compatible with aluminum
- **DO NOT** leave solvents in a sealed aluminum paint cup

SKIN BURN HAZARD – Hot parts can cause severe skin burn injury.

- Metal fittings on the turbine unit and air hose can become hot during use. Avoid skin contact with metal fittings when they are hot.

ELECTRIC SHOCK HAZARD – May cause severe injury or death

- To reduce the risk of electric shock, do not expose turbine unit to rain or water. Store indoors.

RISK OF BURSTING – May cause property damage or severe injury

- Use only authorized parts that are rated for pressure not less than 10 psi.

HAZARDOUS VAPORS – Paints, solvents and other materials may be harmful if inhaled causing severe illness, fainting or poisoning.

- Use a respirator when operating the turbine. Read all instructions to ensure the respirator will provide the necessary protection against the inhalation of harmful vapors.

GENERAL – May cause property damage or severe injury.

- Read all instructions and safety precautions before operating any equipment.
- Comply with all appropriate local, state and national codes governing ventilation, fire prevention, and operation.
- United States Government Safety Standards have been adopted under the Occupational Safety and Health ACT (OSHA). These standards, particularly Part 1910 of the General Standards and Part 1926 of the Construction Standard should be consulted.
- This equipment is designed to be used with authorized parts only. When using this equipment with parts that do not comply with the minimum specifications and safety devices of the equipment manufacturer, the user assumes all risks and liabilities
- Check all hoses for cuts, leaks, abrasion or bulging, as well as damage or movement of fittings before each use. If any of these conditions exist, replace the hose immediately. Do not repair a hose.
- Never aim the spray gun at any part of the body.

IMPORTANT OPERATING TIPS

- Most sprayable coatings must be thinned (diluted) to be sprayed. Always follow the paint or coating manufacturer's instructions regarding thinning solvents and dilution ratios when preparing the coating to be sprayed.
- Select the appropriate needle, nozzle and air cap based on the coating being sprayed, the film thickness required, and the application speed and finish required.
- For optimum results, always test spraying distance, pattern size, coating thickness, needle/nozzle/air cap combination and finish, on a sample of the surface to be coated.
- When using a cup gun, do not turn the gun upside-down. The tube that pressurizes the paint cup is internal and if blocked, will prevent the pressurization of the paint cup.
- Make sure you clean your spray gun after each use as outlined in this manual. Proper cleaning is essential to ensure the smooth operation of your system.

GETTING STARTED

TESTING THE TURBINE

With the power switch in the OFF position, place the turbine as far away from the spray area as comfortably possible and plug into a standard (110-120 volt) power outlet. Verify that the turbine foam air filters are properly covering the motor air vents on either side of the turbine cabinet. Turn the turbine ON and ensure that air is blowing out the air outlet.

All Sprayfine™ systems are equipped with a 15-amp fuse. If the turbine is not functioning properly, check your power supply and/or replace the fuse.

NOTE: Due to the high speed of the turbine (18,000 to 24,000 RPM) and the frictional forces this causes, it is normal for the turbine, hose and gun to heat up slightly during operation. Generally, the system will heat up and then remain at a constant temperature during use.

CONNECTING THE HOSE TO THE TURBINE

With the power switch in the OFF position, uncoil the air hose and screw it hand-tight to the turbine air outlet.

Although the hose is designed for industrial use, it is not crushproof. Do not stand on the hose for extended periods. The hose should never be used to pull the turbine or form a sharp angle at the air outlet – this can cause premature wear of the hose, restriction of the airflow and/or overheating of the hose.

CONNECTING THE SPRAY GUN AND TEST SPRAY

Always ensure that the gun is clean prior to being used. Any paint residue and/or particles left in the paint cup and/or fluid tubes from previous use can spoil a finish and possibly affect the performance of your sprayer.

Using the information provided on pages 5 and 6 of this manual, determine whether the needle, nozzle and air cap combination in the gun is suitable as a starting point for your application. If not, refer to page 6 of this manual for needle, nozzle and air cap selection, and page 13 for instructions on changing the needle, nozzle and air cap.

To install the hose on the gun, pull back the ring on the quick disconnect coupler to connect it to the male tailpiece on the end of the gun handle.

For proper testing prior to spraying, refer to page 8 of this manual.

GENERAL OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS AND PAINTING TIPS

The following general instructions are meant to be a guideline for success with your Sprayfine™ sprayer. Although practice makes perfect, there are a number of books, videos and courses available on the market to help you further refine your knowledge and skills of spraying in general, should you wish to do so.

PAINT PREPARATION AND VISCOSITY CHART

Most coatings must be thinned (diluted) to be sprayed. Always follow the paint or coating manufacturers' instructions regarding thinning solvents and dilution ratios when preparing the coating to be sprayed. Always mix and store your thinned material in a separate container, and label your containers based on original coating, thinning solvent used and percent dilution.

The thickness of a coating is defined by its "viscosity in seconds": "viscous coatings" are thicker materials; "non-viscous coatings" are thinner materials. To properly measure the viscosity of a coating, use a viscosity cup.

Completely submerge the viscosity cup in the coating to be measured

Lift the viscosity cup out of the coating and begin timing.

Measure the time in seconds until the first break in the stream of coating

The time lapsed will determine the viscosity of the coating, i.e.: 25 seconds.

Once you have prepared the estimated quantity of coating required, select an appropriate needle/nozzle/air cap combination for use with the coating.

Once you have selected and installed the appropriate size needle, nozzle and air cap, detach the paint cup from the gun, pour the diluted material (paint, coating, etc.) through a cone filter into the cup, and re-attach it to the gun.

For optimum results, always test coating viscosity, spraying distance, pattern size, film thickness, needle/nozzle/air cap combination and finish, on a sample of the surface to be coated.

Viscosity Chart

Properties and thickness of coatings vary from one manufacturer to another. The following chart is **a guideline only**. Use these times as a guideline in determining the appropriate viscosity based on your spraying technique and finish standards. Some high solids coatings may exceed a reasonable viscosity and still be sprayable.

<u>Material To Be Sprayed</u>	<u>Time To First Break In Stream</u>
Acrylic Finishes	10-15 seconds
Acrylic Metallic	10-15 seconds
Acrylic Primer	20-40 seconds
Adhesives	40-60 seconds
Automotive Lacquer	20-30 seconds
Chromates	20-25 seconds
Dyes	10-20 seconds
Enamel	25-50 seconds
Hammer Finishes	30-40 seconds
Hard Gloss Synthetics	30-40 seconds
Imron	30-45 seconds
Lacquer	10-30 seconds
Latex	30-45 seconds
Marine Paint	30-45 seconds
Masonry Paint	30-50 seconds
Oil-bound Heavy-bodied	35-40 seconds
Primers	20-40 seconds
Polyurethane Paint	10-20 seconds
Stains	20-25 seconds

NEEDLE, NOZZLE AND AIR CAP SELECTION

The proper needle, nozzle and air cap combination is critical to the optimal performance of any spraying system. Needles and nozzles are sized together – when changing the needle, the nozzle must be changed as well. Air caps are sized separately and can be changed without necessarily changing the needle and nozzle. Turbine Products Inc. manufactures five different sizes of needles/nozzles/air caps ranging from 1.0mm to 2.0mm

Selecting The Proper Needle, Nozzle, And Air Cap Combination

To select the proper needle and nozzle, start with the needle and nozzle selection chart below. Needles and nozzles range in size and should be selected based on the viscosity of the coating being applied and the finish and application speed required. For non-viscous materials (thin viscosity), select a smaller size needle and nozzle. For viscous materials (thick viscosity), select a larger size needle and nozzle. For best results, use the needle and nozzle that performs best with the trigger of the gun fully engaged.

To select the proper air cap, consider the size of the needle and nozzle, and finish required. The size of the air cap is determined by the size of its center hole. In order for the air to atomize the coating, the hole in the center of the air cap must be large enough to allow air to flow freely around the nozzle. Depending on the size of the nozzle, you may have a choice of air caps: using a larger size air cap may eliminate more overspray (mist), however using a smaller size air cap may produce a finer finish.

Needle And Nozzle Selection Chart

Material	Viscosity	Needle and Nozzle
Wood Stains, Lacquers, Automotive, Cellulose, Synthetics, Acrylic, Oil	0-20 sec	1.00mm
Polyurethane, Glitter Paints, Cellulose, Acrylics, Synthetics, Lacquers, Fluorescents, Wood Stains, Creosote, Wood Primer	20-30 sec	1.30mm
Oil Base, Oxides, Primers, Marine Paint, Varnish, Enamels, Multi-Color, Industrial Synthetics	30-35 sec	1.50mm
Emulsions, Oxides, Chlorinated Rubber, Zinc Rich Primers	35-40 sec	1.80mm
Hammers, Latex, Oil Base Primers, Enamels, Marine, Masonry Paints, Texture Coatings, Heavy Primers, Water and Solvent Based Adhesives	40+ sec	2.00mm

SURFACE PREPARATION

Ensure that the surface you are spraying is clean, dry, and free from dust, oil, grease or any other contaminant. A dirty or greasy surface will affect adhesion, can spoil a finish and is very difficult to correct once sprayed. If possible, always clean the surface with a tack rag to remove any dust or lint. Do not wipe the surface with your hand – body oil may stay on the part and ruin the surface preparation.

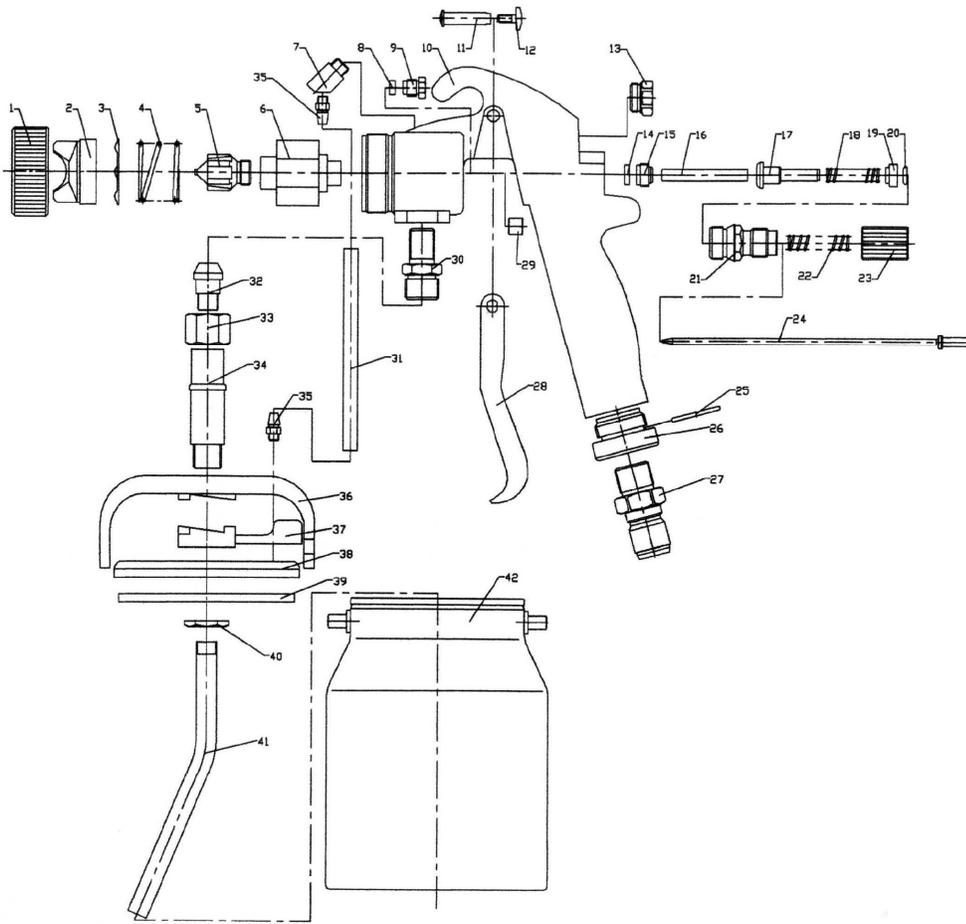
OPERATING THE TURBINE

All Sprayfine™ turbines are equipped with a lighted On/Off rocker switch. If power is available to the unit, the rocker switch will be illuminated

All Sprayfine™ turbines are equipped with a 15-amp fuse. If the turbine is not functioning properly, check your power supply and/or replace the fuse.

NOTE: Due to the high speed of the turbine, and the compression of air, the turbine, hose and gun will heat up slightly during operation. The system will heat up and then remain at a constant temperature during use.

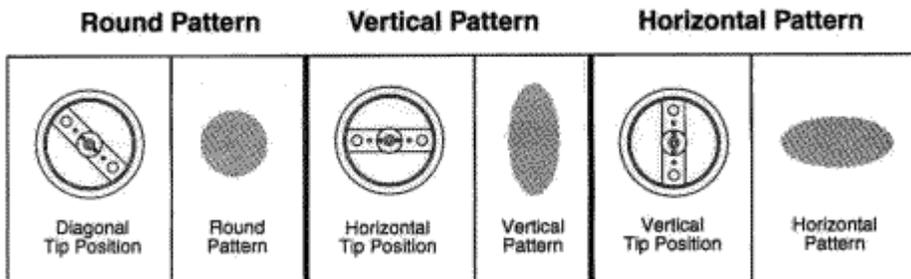
SPRAY GUN PARTS LIST



No.	Description
1	air cap ring
2	air cap
3	spring plate
4	spring
5	nozzle
6	breech block
7	air tube fitting
8	needle packing
9	packing nut
10	gun body
11	trigger pin
12	trigger pin screw
13	end cap
14	needle gasket
15	needle gasket nut
16	needle bushing
17	needle sleeve set
18	needle sleeve spring
19	seat
20	o-ring
21	needle guide
22	needle spring
23	needle adjusting knob
24	needle set
25	o-ring
26	air inlet adapter
27	quick connector
28	trigger
29	needle seal ring
30	fluid inlet
31	air tube
32	fitting
33	nut
34	cup outlet tube
35	air tube inlet fitting
36	bail
37	cup locking lever
38	lid
39	cup gasket
40	fluid tube screw
41	fluid tube
42	cup

Spray Pattern Selection

To select the desired spray pattern, rotate the air cap at the front of the gun. When the air cap is in the diagonal position, the spray pattern will be round; when in the horizontal position, the spray pattern will be vertical; and when in the vertical position, the spray pattern will be horizontal.



To adjust the size of the pattern, screw the air cap ring in or out accordingly. Turning the ring clockwise will make the pattern bigger, and will decrease the atomization. Turning the ring counterclockwise will make the patterns smaller and will increase the atomization. **CAUTION:** When adjusting the size of the spray pattern, moving the air cap too close to the nozzle may cause an undesirable figure-8 pattern; moving the air cap too far from the nozzle will eventually prevent spraying altogether.

To Begin Spraying

Switch the turbine power switch to the ON position.

To control the thickness of the coat being applied, slowly turn the material flow adjustment screw (at rear of gun) counter-clockwise while squeezing the trigger of the gun. Continue turning the screw until the appropriate material flow has been achieved to provide the desired coating thickness and finish. For best results, select the needle, nozzle and air cap combination that allows you to have the trigger fully engaged.

Maintain a consistent distance of 6-8 inches from the surface and spray in a smooth continuous motion.

The direction of the spraying motion should be based on the spray pattern chosen: when spraying a horizontal pattern, the direction should be up and down; when spraying a vertical pattern, the direction should be left to right or right to left; when spraying a round pattern, the direction can be either.

CAUTION: Once you have filled the spray gun, it is important to keep the gun upright. You may tilt the gun as necessary to spray a ceiling or tabletop for example, but note that the tube that pressurizes the paint cup is internal. Do not turn the **gun on its side or upside down** when there is paint in the cup as the paint may block the air holes and prevent the pressurization of the paint cup. If you will be spraying with the gun in a non-upright orientation, use the optional **remote cup assembly**.

TESTING PRIOR TO SPRAYING

- For optimum results, always test coating viscosity, spraying distance, pattern size, film thickness, needle/nozzle/air cap combination and finish, on a sample of the surface to be coated.
- **To test the proper application speed** (speed of your hand), spray one pass on a sample of the surface to be coated at a consistent speed. Examine the sprayed coating: if there appears to be space between the droplets of paint, slow down your application speed; if individual droplets are not visible and the film seems even, note the application speed and maintain it throughout use.
- **To test the Needle/Nozzle/Air Cap combination and to ensure even film thickness** (coat of material being applied), use the horizontal spray pattern test:

Horizontal Spray Pattern Test

1. Turn the air cap to the vertical position – this will spray a horizontal pattern.
2. Maintaining the distance of 6-8" from the surface, squeeze the trigger and spray a horizontal pattern on the same spot until the material has built up enough to sag.
3. Release the trigger and point the gun away from the surface.
4. Repeat steps 1-3 about three to five times in different areas of the test piece.

Watch the material sag and see if it runs (drips) evenly across the spray pattern. If so, your needle, nozzle and air cap combination are correct. If not, identify a common problem with all the test patterns sprayed and refer to the following troubleshooting chart:

<u>Problem</u>	<u>Solution</u>
<ul style="list-style-type: none"> Coating is running/dripping from the center of the pattern 	<ul style="list-style-type: none"> Air cap may be too large: try smaller size air cap
<ul style="list-style-type: none"> Coating is running/dripping from the extremities of the pattern 	<ul style="list-style-type: none"> Air cap may be too small: try larger size air cap
<ul style="list-style-type: none"> Pattern is in the form of a figure 8 	<ul style="list-style-type: none"> Air cap may be too small: try larger size air cap Air cap may be too close to the nozzle: turn the air cap ring slightly to move air cap further from nozzle

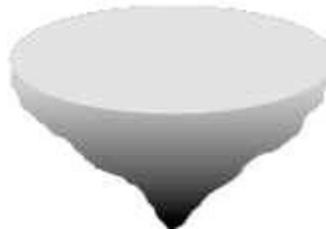
Even Drip



Even Drip Figure 8



Running/Dripping From Extremities

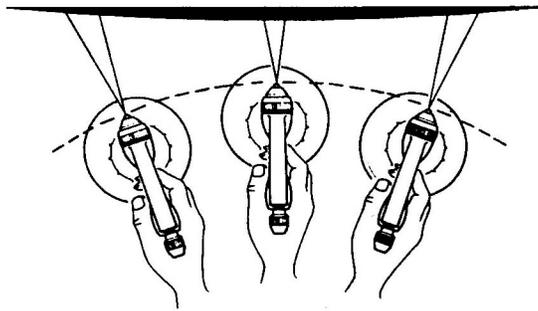


Running/Dripping From Center

BASIC SPRAYING TECHNIQUES

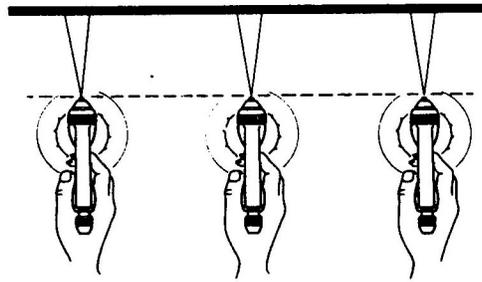
For applications where thicker coats are required and finish quality is critical, consider applying two thinner coats. The reduction in paint consumption and drying time when spraying with Sprayfine™ systems often justifies the additional step.

- Hold the gun perpendicular to the surface being sprayed, maintain a consistent distance from the surface (approx. 6-8"/15-20cm), and spray with a smooth continuous motion.



WRIST NOT FLEXIBLE
ARCHING GUN GIVES UNEVEN COATING

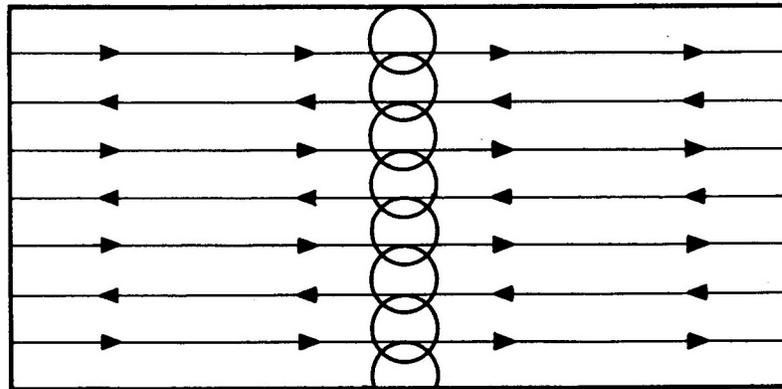
WRONG



WRIST FLEXIBLE
GUN TRAVELS STRAIGHT LINE EVEN COATING

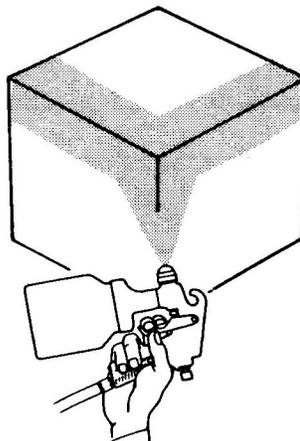
CORRECT

- Overlap strokes up to 50% to ensure proper coverage and avoid streaks.



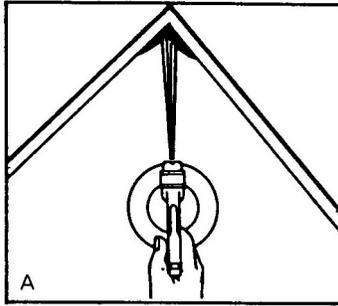
Overlap successive strokes

- Select the needle and nozzle that performs best with the trigger of the gun fully engaged.
- When spraying odd shaped objects, spray hard to reach areas, curved surfaces, and corners and edges first, spray flat surfaces second.
- When spraying an outside edge or corner, split the center of the spray pattern on the corner or edge so that each side receives 50% of the spray pattern and equal amounts of paint.



Spraying an outside edge or corner

- When spraying an inside corner, turn the air cap to 45° and apply a direct spray into the corner.



Spraying an inside corner

CLEANING AND MAINTENANCE

BASIC CLEAN UP

If you are taking a break or plan to spray the same material again within a reasonable time:

1. Turn off the turbine and disconnect the gun from the hose.
2. Turn the material flow adjustment screw at the back of the gun clockwise until it stops and clean any excess coating remaining on the nozzle. This will ensure that the needle closes the nozzle air tight, allowing you, depending on the coating, to leave the material in the cup for extended periods.

When you are finished your spraying project:

1. Remove the paint cup from the gun. While removing the cup, squeeze the trigger on the gun to release all the paint from the siphon tube back into the cup.
2. Empty the excess material from the paint cup and clean the paint cup with an appropriate cleaning solvent.
3. Pour some cleaning solvent in the clean paint cup and spray it with the gun into a bucket until the spray is clear.
4. To clean the underside of the paint cup top, either shake the gun while spraying the cleaning solvent, or use a paintbrush with cleaning solvent and brush it clean.
5. Clean the air cap and the outside of the gun as necessary with a rag and cleaning solvent.

MAINTAINING THE TURBINE AIR FILTERS

The motor inside the turbine cabinet draws large amounts of air volume. It is therefore very important to check the turbine foam air filters after every use. Depending on the location of the turbine, these filters may require some form of cleaning after every use.

The turbine foam air filters can be easily removed from the sides of the turbine and are washable. Once the pores are permanently blocked or begin to visibly deteriorate, the filters should be changed.

When re-installing filters, be sure they properly cover the motor air vents visible from either side of the turbine cabinet.

WARNING: Do not put wet filters in the turbine - this may cause electrical shock and/or premature wear of the turbine. Do not operate your turbine without the foam air filters.

COMPLETE DISASSEMBLY AND CLEANING OF SPRAY GUN

Periodically, especially after spraying an adhesive, a catalyzed coating, or any other material that is known to be difficult to clean, Turbine Products Inc. recommends that you completely disassemble your gun and clean each part individually.

To Clean And Disassemble The Gun:

1. Remove the paint cup from the gun. While removing the cup, squeeze the trigger on the gun to release all the paint from the siphon tube back into the cup.
2. Empty the excess material from the paint cup and clean the paint cup with an appropriate cleaning solvent.
3. Pour some cleaning solvent in the clean paint cup and spray it with the gun into a bucket until the spray is clear. Remove the paint cup from the gun.
4. Completely unscrew the material flow adjustment screw at the back of the gun and remove the spring and needle – if necessary, squeeze the trigger to help remove the needle.
5. Using the opened end of a 7/16" combination wrench, remove the gland nut located directly in front of the trigger, and remove the gland seal.
6. Completely unscrew the air cap ring on the barrel of the gun and remove the air cap, spring plate, and spring.
7. Using a needlenose pliers, remove the nozzle.

To Clean Parts Individually And Replace Gaskets:

1. Soak all dirty parts in clean cleaning solvent (nozzle, tip of needle, siphon tube extension, etc.). If necessary, soak the entire gun body.
2. Using the gun cleaning brush, clean the inside of the siphon tube, siphon tube extension, and all fluid passages.
3. Remove the cup top gasket. Using the gun cleaning brush, a paintbrush (if necessary), and cleaning solvent, clean the underside of the paint cup top, and install a new cup top gasket.
4. When re-assembling the paint cup top assembly, be sure that the air tube protruding from the gun body is not blocked, and install a new cup top washer between the cup top and the gun body.
5. Before re-installing the gland nut, install a new gland seal to seal the fluid passage – ensure that the gland seal is seated properly before installing the gland nut. If not properly installed, this may cause leaking between the gland nut and the needle directly in front of the gun trigger.

Do not use hardened needles or picks to clean the holes of the nozzle or the air cap. This may enlarge the holes of these critical parts and affect the performance of your system when used.

When re-assembling the gun, it is recommended to apply **a little** white grease or petroleum jelly on all threaded and tight tolerance parts: material flow adjustment screw and spring; spring plate; air cap ring; tip of needle.

CHANGING THE NEEDLE, NOZZLE AND AIR CAP

Select the needle, nozzle and air cap combination based on the coating being sprayed, the application speed and finish required. Select the combination that performs best with the trigger fully engaged.

Needles and nozzles are sized together – when changing the needle, the nozzle must be changed as well. Air caps are sized separately and can be changed without changing the needle and nozzle:

1. **To Change The Needle:** Completely unscrew the material flow adjustment screw at the back of the gun and remove the spring and needle – if necessary, squeeze the trigger to help remove the needle.
2. **To Change The Nozzle:** Completely unscrew the air cap ring on the barrel of the gun and remove the air cap, spring plate, and spring. Using a needlenose pliers, remove the nozzle.
3. **To Change The Air Cap:** Completely unscrew the air cap ring on the barrel of the gun and remove the air cap.
4. **To re-install the Spring plate** To re-install the spring plate after changing the nozzle and/or air cap:
 1. Place the spring in the barrel of the gun.
 2. Place the spring plate on the spring with the recessed side inward, and the ball guide lined up with the groove in the housing.
 3. Press the spring plate into the housing, making sure that the ball guide is sliding into the groove in the housing, and hold it in place.
 4. Slide the air cap over the spring plate, and hold it in place.
 5. Place the air cap ring on your index finger. Use the tip of the same index finger to hold the air cap on the spring plate and screw the air cap ring in place.

REPLACING THE CUP TOP GASKET

The cup top gasket on the underside of the cup top should be replaced periodically as part of preventive maintenance. A worn cup top gasket can be the cause of material leaking from the paint cup and/or bubbling under the paint cup top when the gun is in use.

To Replace The Cup Top Gasket:

1. Remove the paint cup from the gun.
2. Remove the cup top gasket using a pointed object or screwdriver.
3. Replace with a new gasket, making sure it is placed flat and properly pressed in place.

REPLACING THE GLAND SEAL

The gland seal is located behind the gland nut directly in front of the gun trigger and should be replaced periodically as part of preventive maintenance. A worn gland seal can be the cause of leaking between the gland nut and the needle directly in front of the trigger. If leaking occurs, try tightening the gland nut before changing the gland seal.

To Replace The Gland Seal:

1. Remove the material flow adjustment screw, spring and needle from the back of the gun.
2. Using the opened end of a 7/16" combination wrench, remove the gland nut.
3. Being careful not to damage the threads of the gland nut chamber, remove the gland seal using a hardened needle or pick.
4. Replace the gland seal and re-install the gland nut.
5. Re-install the needle, spring and material flow adjustment screw.

Tighten the gland nut as much as possible without restricting the free movement of the trigger. If the gun continues to spray after the trigger is released, the gland nut is too tight. If material leaks out between the gland nut and the needle directly in front of the trigger, the gland nut is too loose. Adjust accordingly.

BASIC TROUBLESHOOTING CHART

<u>Problem</u>	<u>Probable Cause</u>	<u>Solution(s)</u>
Turbine not working at all	<ul style="list-style-type: none"> A. No power to the turbine B. Fuse is blown 	<ul style="list-style-type: none"> A. Check power outlet/socket B. Replace fuse
Low Air Flow	<ul style="list-style-type: none"> A. Filters are blocked B. Turbine air vents are obstructed C. Kink in hose D. Broken or damaged hose E. Motor outlet leaking air: gasket is worn 	<ul style="list-style-type: none"> A. Clean or replace filters as necessary B. Allow air to flow freely around turbine C. Remove kink and straighten hose D. Inspect hose: repair or replace if necessary E. Open turbine cabinet and inspect: replace if possible or contact Turbine Products Inc.
Turbine/Hose/Gun Overheating	<ul style="list-style-type: none"> A. Ambient air is hot B. Turbine foam filters are blocked C. Turbine air vents are obstructed D. Due to speed of turbine motor, system normally gets warm 	<ul style="list-style-type: none"> A. Use in cooler environment if possible B. Clean or replace filters as necessary C. Allow air to flow freely around turbine D. Additional lengths of hose will reduce heat build-up in gun E. Wear gloves

<p>Uneven Spray Pattern</p>	<ul style="list-style-type: none"> A. Air cap holes plugged B. Dry paint on nozzle C. Incorrect needle/nozzle/air cap combination D. "Figure 8": air cap too close to nozzle 	<ul style="list-style-type: none"> A. Clean or replace air cap as necessary B. Clean nozzle and continue spraying C. See page 6 for proper selection and testing D. Turn air cap ring counter-clockwise to move air cap away from nozzle
<p>Fluid Leaking From Paint Cup and/or Bubbling In Paint Cup</p>	<ul style="list-style-type: none"> A. Cup top gasket not sealing properly 	<ul style="list-style-type: none"> A. Tighten cup or replace cup top gasket
<p>Fluid Leaking Between Gland Nut And Needle Directly In Front Of Trigger</p>	<ul style="list-style-type: none"> A. Gland nut too loose B. Gland seal worn 	<ul style="list-style-type: none"> A. Tighten gland nut B. Replace gland seal
<p>Not Spraying At All or Inconsistent Material Flow (spitting) With A Cup Gun</p>	<ul style="list-style-type: none"> A. Air cap too far from nozzle B. Dry paint on end of nozzle C. Coating is too thick: not enough pressure to pump from cup to nozzle D. Foreign/unwanted particles in the coating E. Air tube blocked: preventing pressurization of paint cup F. Cup top gasket not sealing properly G. Not enough paint in cup 	<ul style="list-style-type: none"> A. Turn air cap ring clockwise to move air cap closer to nozzle B. Clean nozzle and continue spraying C. Add more thinning solvent if possible D. Empty cup; clean gun properly filter material when pouring back into cup E. Disassemble and clean spray gun F. Tighten cup or replace cup top gasket G. Check level and add
<p>Not Spraying At All or Inconsistent Material Flow (spitting) With A Pressure-Fed Gun</p>	<ul style="list-style-type: none"> A. Air cap too far from nozzle B. Dry paint on end of nozzle A. Insufficient pressure in paint cup B. Fluid line blocked 	<ul style="list-style-type: none"> A. Turn air cap ring clockwise to move air cap closer to nozzle B. Clean nozzle and continue spraying C. Increase pressure in paint cup D. Disconnect fluid line

	<ul style="list-style-type: none"> C. Fluid line kinked D. Paint cup not properly sealed E. Not enough paint in cup 	<p>from gun and increase air pressure in cup to flush hose.</p> <ul style="list-style-type: none"> E. Remove kink and straighten as necessary F. Tighten wing nuts on paint cup or replace gasket if necessary G. Check level and add
Paint Leaking From Nozzle	<ul style="list-style-type: none"> A. Damaged needle and/or nozzle B. Gland nut too tight 	<ul style="list-style-type: none"> A. Check and replace if necessary B. Loosen gland nut
Excessive Overspray	<ul style="list-style-type: none"> A. Too much air volume for the coating being sprayed B. Spraying too far from the surface 	<ul style="list-style-type: none"> A. Use variable speed controller to reduce air volume output of turbine B. Spray 6-8" from the surface to be coated

TROUBLESHOOTING FINISH PROBLEMS

<u>Problem</u>	<u>Probable Cause</u>	<u>Solution(s)</u>
Runs or Sags	<ul style="list-style-type: none"> A. Coating has been over-diluted B. Application speed too slow C. Improper overlapping D. Needle and Nozzle too large E. Film thickness is too thick for one coat F. Gun too close to surface G. Insufficient atomizing air 	<ul style="list-style-type: none"> A. Add undiluted material and mix thoroughly; flush gun with new mixture B. Increase application speed C. Overlap passes by up to 50% D. Check material viscosity E. Consider spraying too thinner coats F. Spray 6-8" from the surface to be coated G. Use larger air cap

<p>"Orange Peel": Finish has the texture of an orange peel. A dimpled appearance, often very glossy.</p>	<ul style="list-style-type: none"> A. Insufficient dilution B. Incorrect thinning solvent: solvent is evaporating too fast C. Gun too far from surface D. Film thickness is too thin E. Incorrect amount of atomizing air F. Ambient air temperature too high 	<ul style="list-style-type: none"> A. Check viscosity; add thinning solvent B. Use slower thinning solvent or retarder C. Spray 6-8" from the surface D. Apply a "wetter" coat E. Use larger air cap F. Reduce air temperature in spray area and/or add retarder to coating being applied
<p>"Fish Eyes": Small round depressions in the paint film. Normally form as soon as part is sprayed.</p>	<ul style="list-style-type: none"> A. Contaminant on the surface (oil, moisture, or silicone) preventing the coating from adhering to the surface in certain spots 	<ul style="list-style-type: none"> A. Ensure that surface is clean, dry and free from any contaminants prior to spraying, add anti-crater (fisheye eliminator) to material being sprayed
<p>"Dry Spray": Surface is dull and rough. Dry paint particles protruding from, or sitting on surface. Unlike orange peel, dry spray is always low in gloss.</p>	<ul style="list-style-type: none"> A. Gun too far from surface B. Incorrect amount of atomizing air C. Incorrect thinning solvent: solvent is evaporating too fast D. Film thickness is too thin E. Application speed too fast 	<ul style="list-style-type: none"> A. Spray 6-8" from the surface B. Use larger air cap C. Use slower thinning solvent (reducer) or add retarder D. Apply a "wetter" coat E. Slow down speed of motion
<p>"Blushing": Large whitish areas in the finish</p>	<ul style="list-style-type: none"> A. High humidity in the spray area: moisture has condensed in the coating as it was being sprayed. B. Incorrect thinning solvent: solvent is evaporating too fast 	<ul style="list-style-type: none"> A. Reduce humidity in spray area and/or add retarder to coating being sprayed B. Use slower thinning solvent (reducer)

OPTIONS AND ACCESSORIES

CUP-FED SYSTEMS

Cup-fed systems include a turbine, air hose and cup-fed spray gun. The guns with these systems are supplied with a 1 Qt/L paint cup and are ideal for spraying applications where versatility and portability are essential.

NEEDLES, NOZZLES AND AIR CAPS

The proper needle, nozzle and air cap combination is critical to the optimal performance of any spraying system. Needles and nozzles are sized together – when changing the needle, the nozzle must be changed as well. Air caps are sized separately and can be changed without necessarily changing the needle and nozzle.

Turbine Products Inc. manufactures five different sizes of needles/nozzles/air caps ranging from 1.0mm – 2.0mm. For more information about needles, nozzles, and air caps, and how to select the proper combination for your application, refer to pages 5 and 6 of this manual.

ACCESSORIES

Remote Cup Assembly

For maximum portability and control, and to keep the weight of the paint cup off of your wrist, a 40" remote cup assembly is available. This will allow you to operate the Sprayfine™ gun in any orientation, including upside-down.

2 Qt/L Paint Cup

When the 1Qt/L cup on the cup-fed gun is too small, a remote 2 Qt/L cup can be installed on any Sprayfine™ gun. The 2 Qt/L cup can be pressurized by the turbine or by a compressor – the possibility of pressurizing with the turbine is dependent on the coating being sprayed. Remote 2 Qt/L cups are supplied with a gun conversion kit.

REPLACEMENT PARTS AND TECHNICAL SPECIFICATIONS

For up-to-date parts breakdowns of any Sprayfine™ product and/or technical specifications other than those listed in Sprayfine™'s literature, please contact Turbine Products Inc. directly – we will be pleased to assist you.

WARRANTY INFORMATION

LIMITED WARRANTY

Turbine Products Inc. warrants to the original purchaser that the Sprayfine™ equipment described in this manual will be free of defects in materials and workmanship for a period of TWO (2) YEARS from the date of purchase as outlined by the Turbine Products Inc. warranty. Turbine Products Inc.'s only obligation shall be to repair or replace, at Turbine products Inc.'s option, such product proved to be defective during the warranty period.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

All statements, technical information and recommendations enclosed are based upon tests that Turbine Products Inc. considers reliable. However, neither the seller nor the manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising from the use of the product or the inability to use the product. Before use, users shall determine the suitability of the product for his/her intended use. The user assumes all risk and liability whatsoever in the use or failure to use the product, whether due to a product defect or not. Turbine Products Inc.'s only obligation shall be to replace or repair, at its option, the quantity of product proved to be defective and any consequential damages shall be limited to the value of the Sprayfine™ equipment purchased.

For further information, please contact Turbine Products Inc. directly at:

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