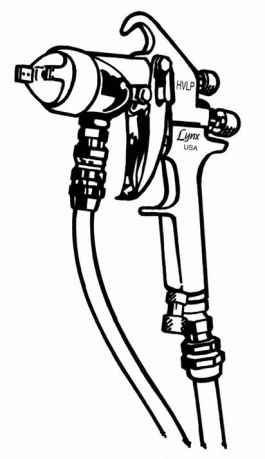
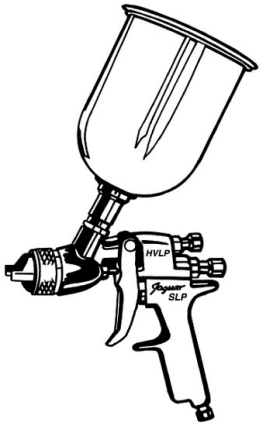
C.A. TECHNOLOGIES

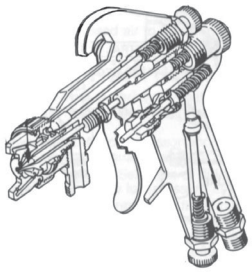
SPRAY GUIDE

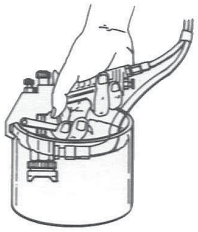
&

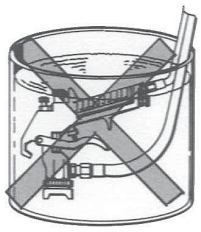
TRAINING MANUAL











C.A.Technologies

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Atomization Methods

Choosing the correct application method requires review of paint characteristics, product to be painted, and facilities.

When choosing a spray gun, consider the following list of atomization methods:

- **Air Atomization:**

  Used when the quality of finish is of utmost importance and when versatility is also a large factor (i.e. many different materials are to be sprayed).

- **Airless:**

  Used for large-scale applications not requiring a fine finish. Over-spray and rebound are limited due to absence of atomizing air. Heavy film thickness is possible with fewer strokes.

- **Air-Assisted Airless:**

  Fluid is delivered to the gun at a low, airless pressure, and is then pre-atomized at the airless tip. Atomization is completed by introducing air into the airless pattern. Air-assisted airless is highly transfer-efficient, delivering a high quality finish resembling that of air atomization.

- **High Volume Low Pressure (HVLP):**

  Used for high transfer efficiency to minimize over-spray and fog, and achieve compliance with regulatory air quality requirements. Normal operating pressures at the air nozzle are 10 PSI and below, creating a soft spray and delivering a fine finish.

Spray Guns

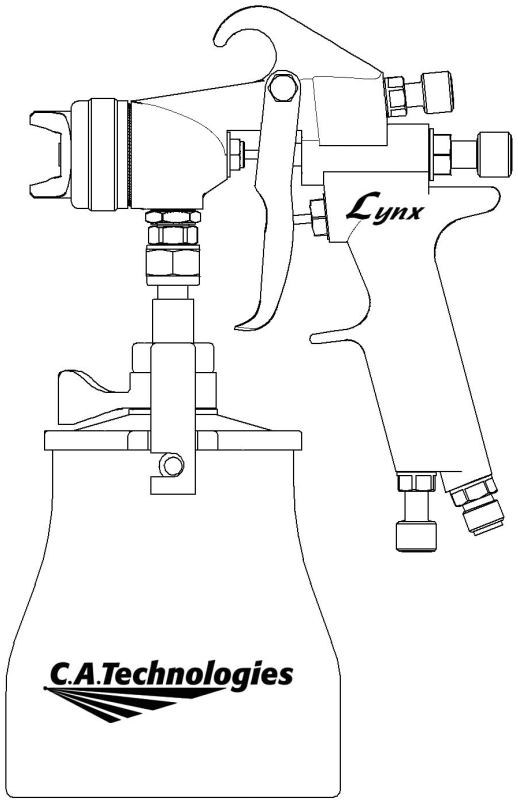
The spray gun is one of the key components in a finishing system. It is a precision engineered and manufactured instrument.

Types of Air Spray Guns

Air spray guns can be classified in a variety of ways. One way is by the location of the container. Another is by the type of material feed system.

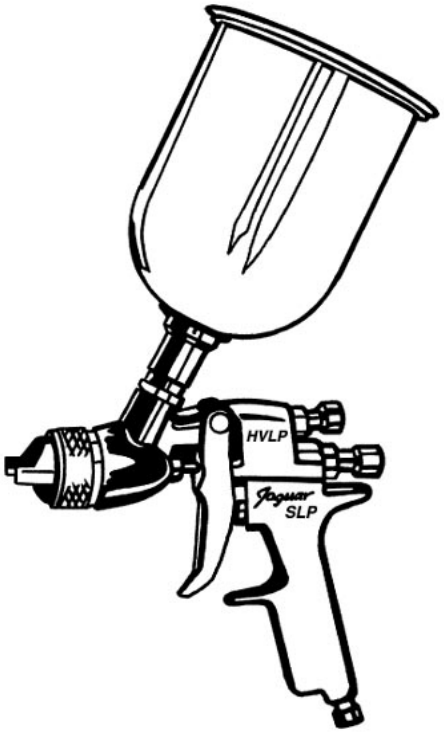
Siphon Feed Guns

- Material is pulled into the gun by suction



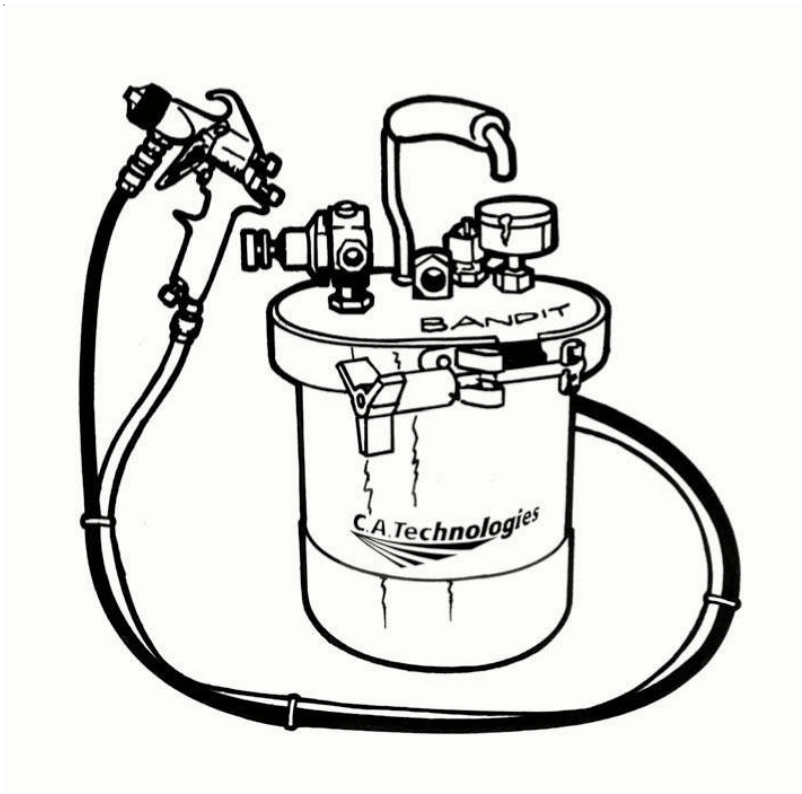
Gravity Feed Guns

- The material moves down into the gun, carried by its own weight
- Requires less air than suction feed guns
- Usually has less over-spray than suction feed guns



Pressure Feed Guns

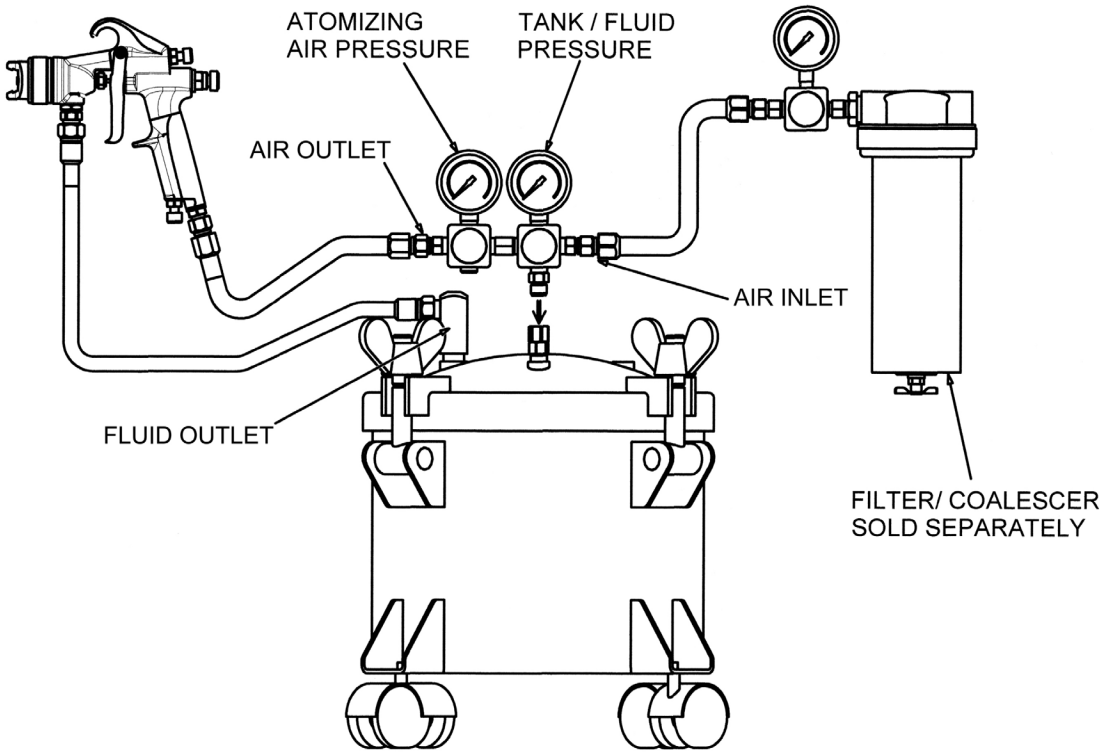
- The material is pushed into the gun by positive pressure.
- Normally used when large quantities of material are to be applied, when material is too heavy to be siphoned from a container, or when fast application is required.



Pressure Feed Tank Set Up

This is a highly efficient method for portable painting operations. Atomizing air and fluid pressures may be adjusted by their respective air regulators on the tank. Individual air and fluid lines are required for this system.

C.A. Technologies Pressure Pot Setup

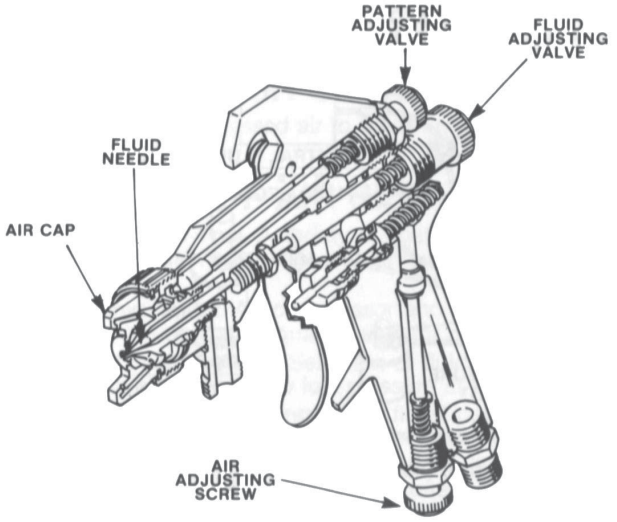


PRESSURE TANK SETUP (CAT 51-202)

Air At Gun Adjustment

There are two means of adjusting air at the gun. The Pattern Adjusting Valve and the Air Adjusting Valve.

Air and fluid adjustments

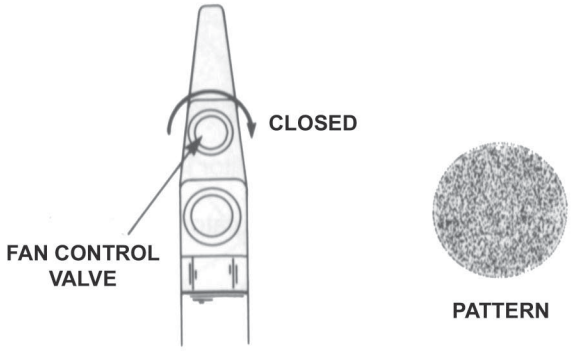


Pattern Adjusting Valve

The pattern-adjusting valve regulates air to the "horns" of the gun air cap. Horn air controls the shape of the spray pattern.

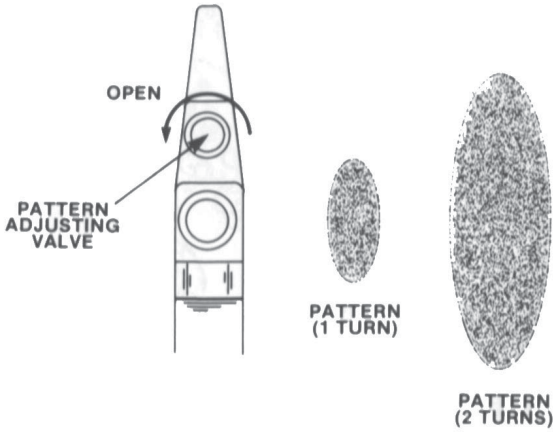
1. When the pattern adjusting valve is closed (turned completely clockwise), a round pattern results.

Round Pattern



2. Opening the pattern adjusting valve (turn counter clockwise) produces an increasingly wider and flatter fan pattern.

Fan Pattern

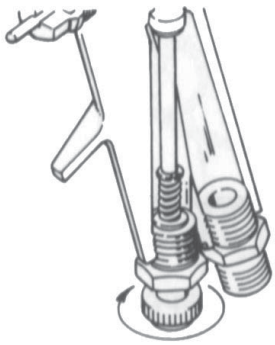


3. When the maximum spray pattern (widest fan) is achieved, additional turns will not affect the pattern.

Air Adjusting Valve

The air adjusting valve controls only the flow of air (CFM) to the air cap and has no effect on air pressure (PSI). The valve is often referred to as the "cheater" valve as it is used to restrict air without adjusting the air regulator.

Air Adjusting Valve



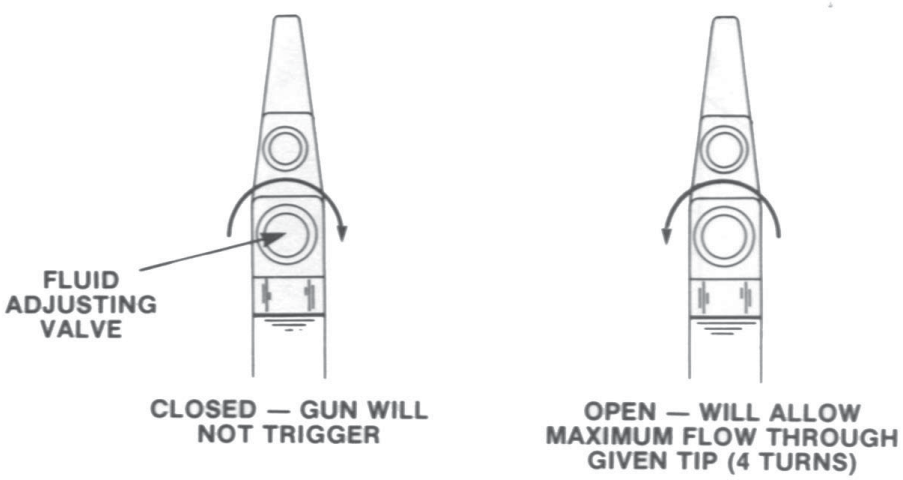
1. Closing the air-adjusting valve (turn counter-clockwise) restricts the air flow.
2. Opening the valve (clockwise) increases the volume (flow) of air. This will affect the degree of atomization, but will not change the spray pattern.
3. The air cap (CFM) specification will determine the (CFM) requirements of the gun.

Fluid At Gun Adjustment

Fluid Adjusting Valve

The fluid adjusting valve controls the volume of fluid by restricting fluid flow. It does not affect the pressure (PSI) of the fluid.

Fluid Adjusting Valve



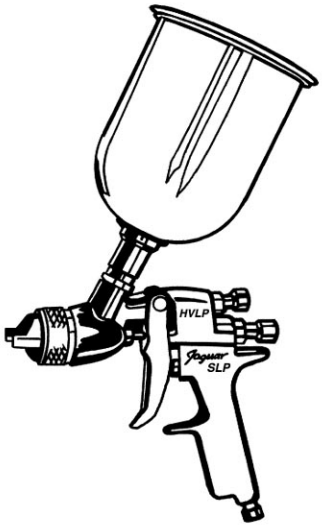
1. Closing the valve (turn clockwise) restricts the volume of fluid.
2. Opening the valve (turn counter clockwise) increases the volume of fluid. Trigger travel and tension will increase as the valve is opened.

NOTE: When fluid regulation is possible (pressure feed systems) it is best to regulate pressure and use the correct fluid orifice size rather than restricting material flow with the needle.

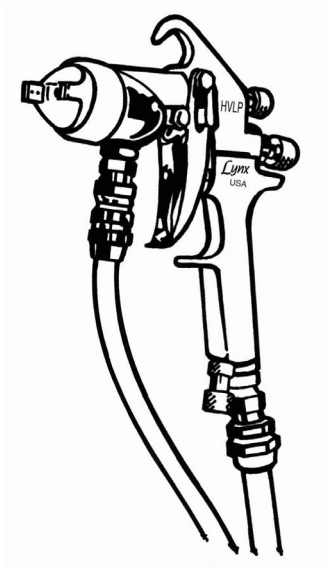
High Volume / Low Pressure Spray Guns

High Volume/Low Pressure or HVLP uses a high volume of air (usually between 15 and 22 CFM) delivered at low pressure (10 psi or less) to atomize paint into a soft, low-velocity pattern of particles. Regardless of the type of gun, when low pressure can be used to apply paint to a surface, approximately 50% greater transfer efficiency will be achieved.

- HVLP guns lose far less material due to over spray, bounce-back, and blowback than in standard guns.



HVLP (GRAVITY FEED)



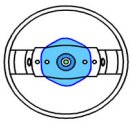
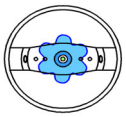
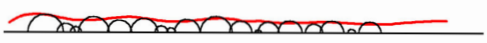
HVLP (PRESSURE FEED)

High Volume / Low Pressure Spray Guns (continued)

- Fluid control is very similar to that used in standard gravity feed guns- with the proper fluid tip size, almost all HVLP guns can be easily adjusted to deliver the amount of fluid desired.

Q: Why do C.A.T. 300, CPR and SLP series nozzles atomize so much better than the competition?

A: Our Patented12-Point Balanced Plenum

C.A.T.	COMPETITION
	
The atomizing air hits our 12-point fluid nozzle behind the air cap and is diffused. It surrounds the fluid in a uniform shroud of atomizing air as it leaves the air cap.	Without 12-point diffusion, high and low spikes or hot spots exist as the air leaves the air cap and surrounds the fluid.
	
This results in more uniform SMALL particles.	This results in very small and very LARGE particles.
The end result: 	The end result: 
A flatter more uniform finish is achieved.	Orange peel finish.

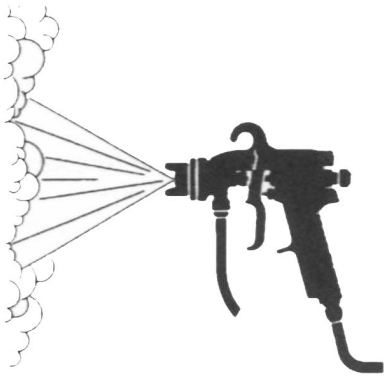
HVLP (continued)

HVLP Uses a High Volume of Air at Low Pressure to Spray Paint Droplets

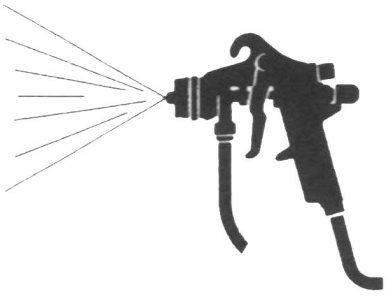
Advantages

- Cleaner paint jobs
- Requires less paint to do the same job
- Less over-spray
- Less spray booth maintenance
- Improved environmental conditions

Conventional high pressure spray transfer efficiency = 20% to 30%



HVLP low pressure spray transfer efficiency = 65% to 90%



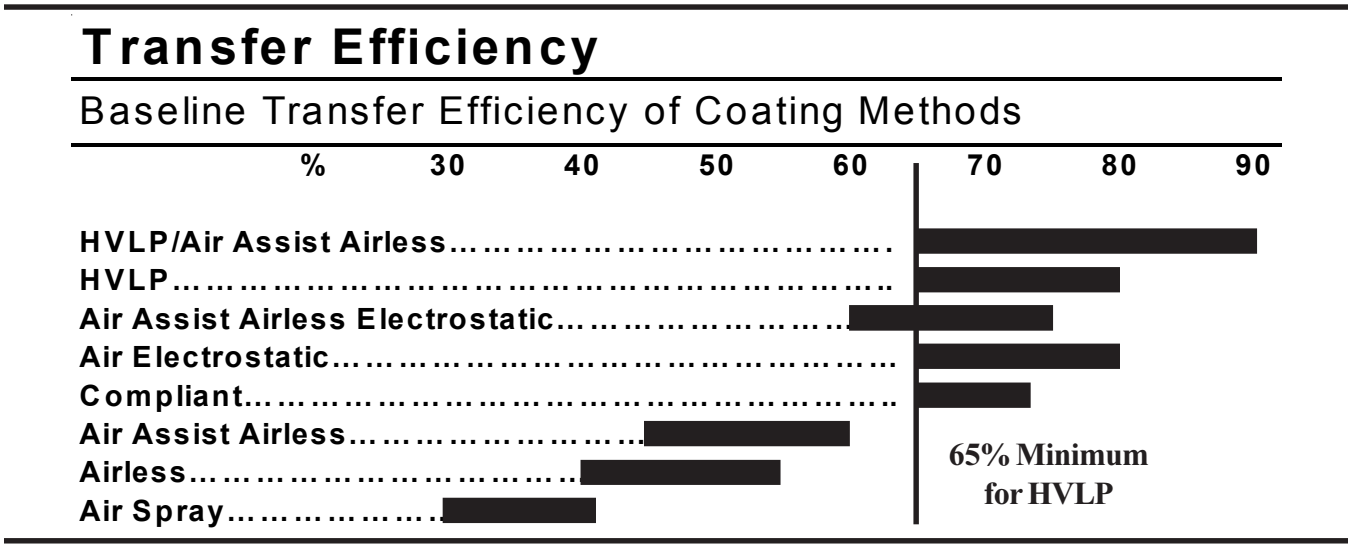
Transfer Efficiency of HVLP Spray Guns

Regardless of the type of spray gun being used, any time low pressure can be employed to apply paint to a surface you can expect to get approximately 50% better transfer efficiency.

HVLP's reduced velocity compared to conventional guns (10 psi instead of 40 to 70 psi) yields a more controlled spray pattern with less over-spray and bounce-back from the surface being coated. Over-spray and bounce-back result in increased costs for both coatings and booth filters. Normal operating nozzle pressures range from 3 to 10 PSI, with air consumption from 8 to 22 CFM. Lower viscosity materials can be atomized from 3 to 5 PSI, while heavier materials and higher fluid deliveries require the higher air settings, upwards of 10 PSI.

Factors that affect transfer efficiency:

- Surface – flat surfaces are much easier to paint than curved or spherical ones
- Type of paint – viscosity and particle-shear characteristics affect the amount of air needed to split the paint resin apart
- Paint droplet size – colors and clears, which require high air pressure to shear them apart create more over-spray and lower transfer efficiency



(Note: Actual transfer efficiencies may vary)

Quality Air and Airflow

- HVLP equipment requires clean dry air – moisture in the air lines can cause a reaction with the isocyanate hardeners used in most clears.

- HVLP equipment needs adequate air pressure to do a good job – although some newer HVLP guns require as little as 7.5 cfm (known as LVLP) to operate properly, most need 10 to 20 cfm. A 20 cfm gun will use all the air from an average 5hp compressor. If someone else starts using air while your HVLP gun is operating, the HVLP gun will begin fluctuating and atomizing poorly, resulting in a less-than-perfect finish. A **bigger compressor** is the best solution also using a smaller fluid tip and /or air cap on the gun will also minimize the problem.

HVLP Operator's Checklist

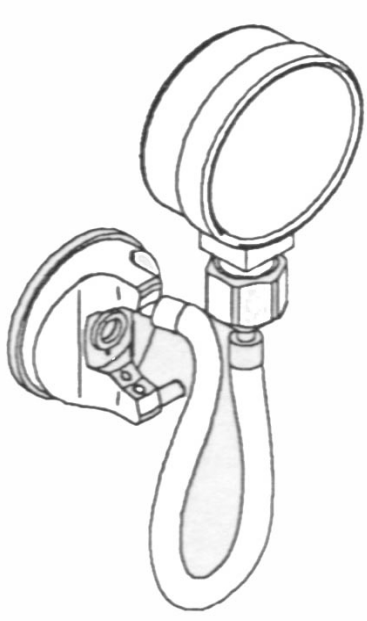
- Is your compressed air source large enough?

- What is the length and inside diameter (I.D.) of the air hose?

- Are you using quick disconnects on your air hose?

- Have you selected the proper air and fluid nozzle?

- Check your atomization air pressure with an air nozzle test gauge assembly.



TEST GAUGE

Using the HVLP Spray Gun

- Try moving the HVLP gun about half as fast as you would a normal gun; painters accustomed to standard spray guns usually move the gun about two feet per second; one foot per second could be a better choice for some HVLP guns.

- Some newer HVLP guns use less air pressure to achieve lower air pressure at the cap (maximum 10 psi) for compliant areas – these guns can be moved at approximately the same speed as conventional guns.

- Hold the gun closer to the surface – if you normally hold the gun 8 to 12 inches away from the surface, try 4 to 6 inches for HVLP – moving the gun more slowly and holding it closer may seem unnatural at first, but with a bit of practice, you will become accustomed to the new technique.

- Some HVLP manufacturers recommend moving closer to the surface, passing across the panel more quickly (with an overlap of 70% to 80%) and moving down the panel more slowly.

- Because they can end up drying rough when applied with HVLP guns, "tack" coats are not always recommended. The reason for the roughness has to do with the amount of air required to atomize the paint and the resulting droplet size – droplets tend to land further apart when applied dry and larger droplets with lower pressure behind them will not flatten out as much when they hit the surface.

- Instead of a "tack" coat, it is recommended that HVLP users apply a medium wet coat and then follow manufacturer's recommendations to get the finish to level out.

- Use of proper tip/cap combination is most important – e.g. 1.0 to 1.3 for basecoats etc.

Factors In Selecting the Right Air Cap

- The type and volume of material to be sprayed
- The size and nature of the object or surface to be sprayed

  Larger orifices or a greater number of orifices increase the cap's ability to atomize more material for faster spraying of large objects.

  Caps with smaller orifices or fewer of them usually require less air, produce smaller spray patterns and deliver less material – these caps are designed for painting smaller objects and/or by using slower speeds.

- The material feed system used: pressure, suction or gravity

- The size of the fluid tip to be used—most air caps work best with certain fluid tip/needle combinations

- The volume of air (in cubic feet per minute-CFM) and air pressure (in pounds per square inch – PSI) which is available

The Fluid Tip and Needle

- The fluid tip and needle restrict and direct the flow of material from the gun into the air stream – the fluid tip forms an internal seat for the tapered fluid needle, which reduces the flow of material as it closes

- The amount of material which leaves the front of the gun depends upon the viscosity of the material, the material fluid pressure and the size of the fluid tip opening provided when the needle is unseated from the tip

- Fluid tips are available in a variety of sizes to properly handle material of various types, flow rates and viscosities

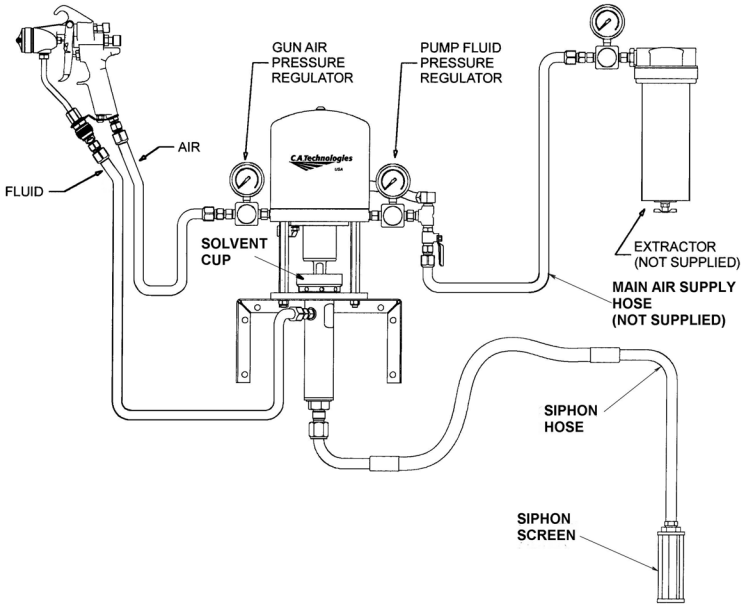
The Nozzle Combination

- The nozzle combination refers to the unit which is comprised of the air cap, the fluid tip and the needle – since these three components work together to produce a given quality of spray pattern and finish, they are usually selected together as a nozzle combination

Air Assist Airless

Air Assist Airless combines airless and conventional or HVLP air atomization technologies to produce a very soft yet highly atomized spray pattern suitable for fine finish and high production work. The soft spray pattern has minimal over spray and results in excellent material transfer efficiency.

Superfine soft atomization is achieved with precise geometry of the airless fluid tip and low volume air cap that mix at the locus of atomization. Air is blended with the fluid at the optimum point which delivers desired finishes at production speeds, for fine finish spraying of wood or other applications. With other systems, the air is injected beyond the optimum point for atomization creating excessive turbulence, over-spray, coarse particles, and a very uneven film build requiring additional finishing steps.



SETUP

1. Back the pump pressure regulator completely off (counterclockwise) and close the ball valve.
2. Attach the main air supply hose to ball valve on the pump fluid pressure regulator.
3. Attach fluid hose at pump outlet and gun fluid inlet.
4. Attach gun air hose to ball valve at gun pressure regulator and to air inlet on gun. Ball valve should be closed and regulator backed off.
5. Attach siphon hose to the pump inlet and insert siphon hose strainer into material to be sprayed.

BE SURE ALL CONNECTIONS ARE TIGHT

AIR ASSIST AIRLESS (continued)

General safety

The *C14 AAA* system is intended to be used by professional personnel only. Everyone using this equipment should read and understand all safety warnings. Do not exceed the maximum working pressure of this equipment. MAXIMUM WORKING PRESSURE IS 1500 PSI FLUID PRESSURE (107 psi to air motor). Do not modify this equipment. Always relieve fluid pressure to 0 psi before performing maintenance.

Make sure all fluid connections are tight before operating this equipment. Operate this equipment only in a well-ventilated area to prevent build up of toxic and or flammable fumes.

Fluid injection hazard

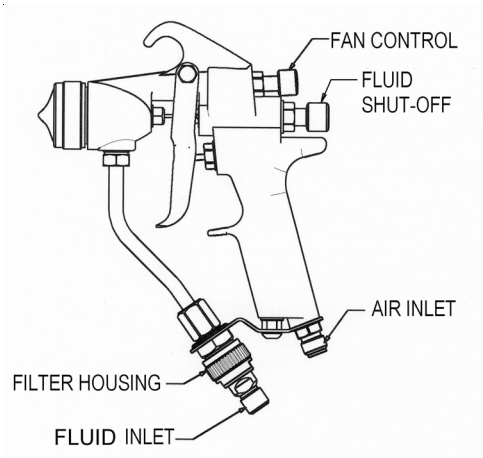
- High fluid pressure can cause serious injury if injected into skin.
- NEVER aim the spray gun at part of the body or towards anyone.
- NEVER put hands or fingers on or near a leaking hose, hose connection or the gun spray tip.
- ALWAYS use gun fluid shut off knob when not spraying.

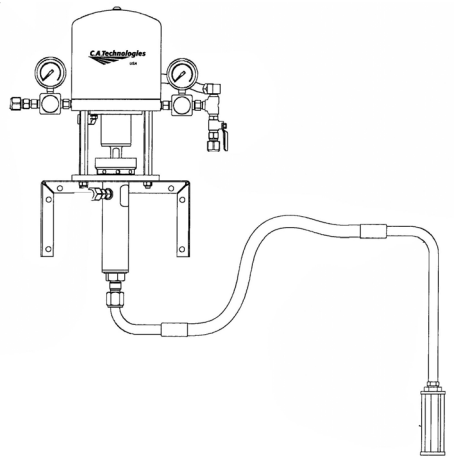
IF FLUID INJECTION SHOULD OCCUR, SEEK MEDICAL ATTENTION IMMEDIATELY

Possible Fire or Explosion Hazard

- Static sparks can cause fire or explosion.
- The *C14 AAA* system is equipped with a grounding wire. Connect this wire to an appropriate earth ground source. Also ground objects being sprayed.
- DO NOT operate this equipment near pilot lights, open flames or anyone smoking.
- Keep spray area clear and free of combustible debris.

C.A.T. AAA COUGAR GUN & PUMP





C.A.T. AAA TIP CHART

Part #	Orifice Size	Spray Angle (Degrees)	Pattern Width
36-207	0.007	20	4"
36-407	0.007	50	8"
36-309	0.009	30	6"
36-409	0.009	40	8"
36-509	0.009	50	10"
36-609	0.009	70	14"
36-211	0.011	20	4"
36-311	0.011	30	6"
36-411	0.011	40	8"
36-511	0.011	50	10"
36-611	0.011	60	12"
36-711	0.011	70	14"
36-213	0.013	20	4"
36-313	0.013	30	6"
36-413	0.013	40	8"
36-513	0.013	50	10"
36-613	0.013	60	12"
36-713	0.013	70	14"

Part #	Orifice Size	Spray Angle (Degrees)	Pattern Width
36-315	0.015	30	6"
36-415	0.015	40	8"
36-515	0.015	50	10"
36-615	0.015	60	12"
36-715	0.015	70	14"
36-815	0.015	80	16"
36-317	0.017	30	6"
36-417	0.017	40	8"
36-517	0.017	50	10"
36-617	0.017	60	12"
36-717	0.017	67	14"
36-419	0.019	40	8"
36-619	0.019	60	12"
36-621	0.021	60	12"
36-721	0.021	70	14"
36-425	0.025	40	8"
36-625	0.025	60	12"

Air Systems

Air Compressors

- The compressor is the "lifeline" of the spray-refinish industry.

- It serves one main purpose; it "compresses air."

Selecting an Air Compressor

- A quality two-stage, piston type compressor will typically deliver about four cubic feet per minute per horsepower. (4CFM per Horsepower)

- Choose an air compressor that is capable of delivering a non-varying air supply.

    1. Pressure fluctuation or drop can adversely affect the application of top coat material, especially metallic paint's appearance.
    2. Failure to achieve correct gun atomizing pressure will contribute to an undesirable effect known as "orange peel" (a paint defect that resembles the skin of an orange.)

- Choose a compressor that is big enough for all the requirements of the shop – compressors that run more than 50% of the time are considered undersized. As a rule-of –thumb, allow at least 15 minutes spread over each hour as down time to allow the compressor to cool down.

Using the Right Air Hose

NOTES:

Compressor-Gun Distance ↑ = Hose Diameter ↑

As the distance from the compressor to the gun increases, so should the diameter of the Air Hose.

Because HVLP guns require more CFMs, a 5/16" hose or larger should be used.

See the below charts to select the proper size of hose for different distances.

Type	Length	Size
General Purpose	0' - 15'	1/4"
	15' - 25'	5/16"
	25' - 50'	3/8"
	50' - 100'	1/2"
HVLP	0' -25'	5/16"
	25' - 50'	3/8"
	50' - 100'	1/2"
Recommended Air Hose Sizes		

Air Hose Pressure Loss				
	15 CFM	**18 CFM**	**20 CFM**	**25 CFM**
1/4" x 20'	20 psi	26 psi	28 psi	34 psi
5/16" x 20'	7 psi	10 psi	12 psi	20 psi
3/8" x 20'	2.8 psi	4 psi	4.8 psi	7 psi
Loss in pressure with different hose diameters at different flow rates.				

Air Pressure & Orange Peel

Loss of air pressure in a system is most likely the cause of *orange peel*, a finish disaster that is a time-consuming redo or polishing repair.

Troubleshooting Drops in Air Pressure

- Is the air hose large enough in diameter?
- **Check**✓ See the chart on page 20 for length of hose vs. diameter rules.
- Is the air hose too long, or longer than necessary?
- Are there too many quick disconnects in the system?
- Are you using restrictive, non High Flow quick disconnects?
- Does your regulator pass enough CFM?
- Are you using a large enough air compressor?
- **Check**✓ Most compressors get 4 CFM per horsepower—Do you have enough horsepower for your gun?
- Are you using cheater valves at gun?

Compressed Air Piping

- The diameter should always be the recommended size or larger. Piping that is too narrow increases the turbulence of the compressed air and causes it to flow inefficiently. This, in turn causes the compressed air pressure to drop.

- Piping should slope toward the compressor air receiver or a drain leg installed at the end of the main line or at the end of the branch. The piping is sloped so that water will gather at low points in the system for easy drainage on a daily basis.

- Piping can be made from black iron, galvanized steel, copper or plastic. Note that plastic piping will not cool the air the same way steel or iron piping can. Plastic piping can also lose its shape over time, developing sags where moisture can collect.

- Piping must be rated and approved for high pressure and should meet local codes as applicable.

- The main air line and the outlet lines should run through the center of the shop ceiling or around the shop's inside wall.

- Piping should **not** be run near anything that could change the temperature of the compressed air inside it; moisture accumulation due to condensation could result.

- Piping should be large enough to keep the total piping pressure loss below 1 psi.

- The piping layout should follow a "full loop" design **(see CAT Inline Filter Diagram on pg 23).**

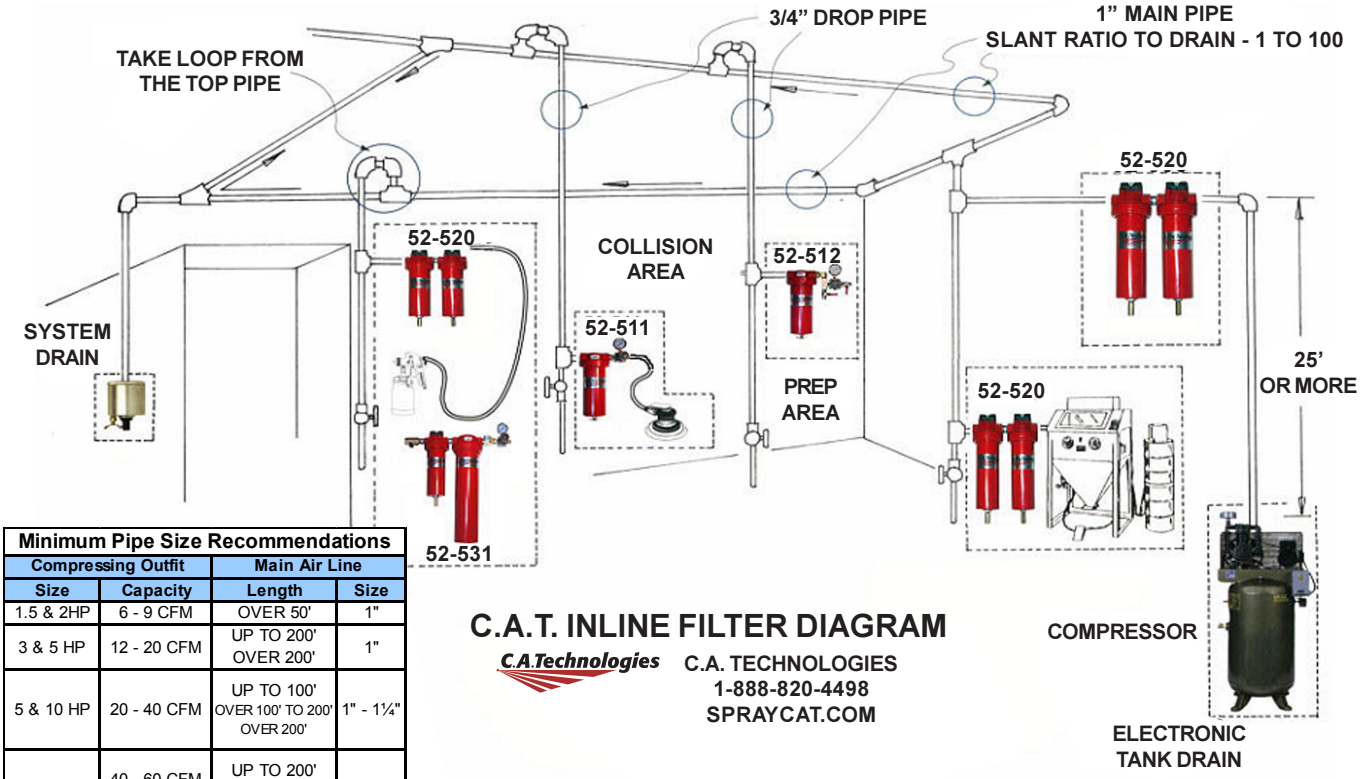
- The compressed air in the piping should be run at high pressure and regulated to the desired pressure at the point of use.

- Piping should always have drops taken from the top of the header pipe.

- Piping should be joined with tees so that drops can be added easily at a later date.

CAT INLINE FILTER DIAGRAM

Air is moved from the compressor or holding tank to the tools and the equipment via piping. Here are some points to consider when selecting and installing piping for your shop:



Minimum Pipe Size Recommendations			
Compressing Outfit		Main Air Line	
Size	Capacity	Length	Size
1.5 & 2HP	6 - 9 CFM	OVER 50'	1"
3 & 5 HP	12 - 20 CFM	UP TO 200' OVER 200'	1"
5 & 10 HP	20 - 40 CFM	UP TO 100' OVER 100' TO 200' OVER 200'	1" - 1¼"
10 & 15 HP	40 - 60 CFM OVER 200'	UP TO 200' OVER 100' TO 200' 1" - 1/2"	1" - 1¼"

*Piping should be direct as possible. If a large number of fittings are used, large size pipe should be installed to help overcome excessive pressure drop.

Air Dryers

Air dryers lower the dew point by reducing moisture and removing other contaminants of raw, untreated air. These contaminants can clog and damage downstream equipment and cause costly product rework and downtime.

Optimum efficiency and maximum productivity can only be achieved by using proper moisture and air treatment equipment.

Water in compressed air causes:

- Loss of surface gloss
- Surface blemishes
- Poor adhesion of finishing materials
- Rust scale to form on the inside of iron piping, ultimately resulting in damage to tools and equipment

Dry air saves redoing paint jobs.

Desiccant Air Dryers & Filters/Coalescers

C.A.T. offers a complete line of Filters, Dryers and Coalescers to keep compressed air lines, dirt, water, oil and moisture free.

Tools for drying and cleaning air are:

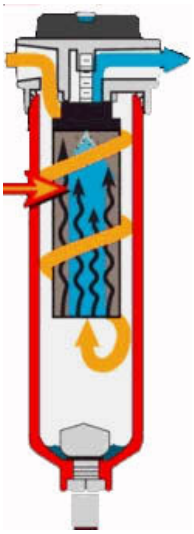
Filter removal of water and contaminants.

Coalescer removal of oil and sub-micronic particles down to .01 microns.
(1 micron is 1/25,400 inch)

Desiccant Dryer removal of uncondensed moisture.

For highest quality paint finish, use C.A.T.'s superior filtration systems (Filter/Coalescer, Main Line Combo, Filter/Dryer) and mount unit as near as possible to spray gun.

FILTER/COELESCER (CAT 52-523)

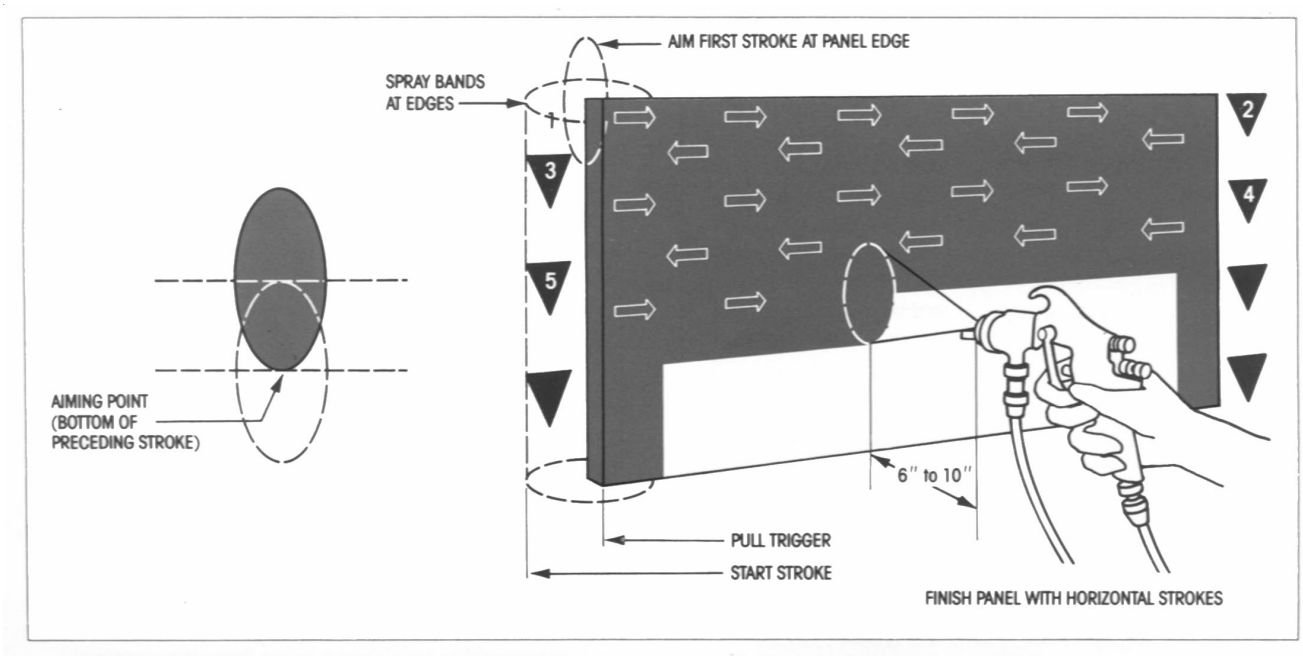


FILTRATION PATH

Application & Spray Gun Maintenance

Flat Surfaces

The technique of spraying a flat surface is shown in the diagram below. Every stroke is triggered. The stroke is started off the work and the trigger is pulled when the gun is opposite the edge of the material. The trigger is released at the other edge of the panel but the stroke is continued for a few inches before reversing for the second stroke. Triggering is the key to good spray technique. The goal is to time your triggering to hit the exact edge of the work. This maintains full coverage while minimizing over-spray.



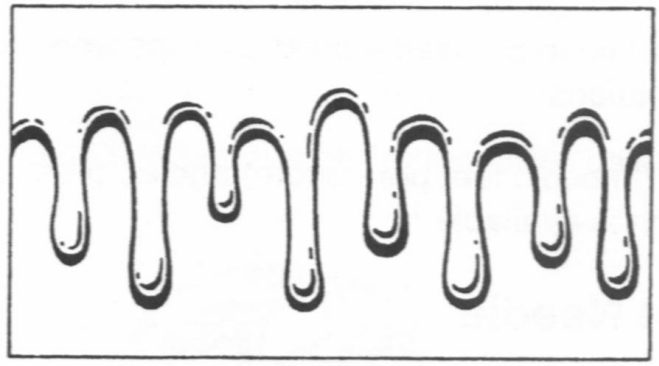
Paint Spraying Pointers

Proper handling of the gun is critical for the results that will produce a professional finish. The gun should be held perpendicular to the surface being covered, and moved parallel across the surface. It is important to begin the stroke before the gun is triggered so as not to build up paint at the beginning of the stroke. Also, release the trigger before the stroke has ended so you keep an even film build. The distance between the gun and the surface must be held even throughout the stroke, between 6 to 12 inches, depending on the material and atomizing pressure; HVLP spraying is usually sprayed closer than Conventional. Overlap each stroke by approximately 50% to achieve an even film build.

Initial Setup

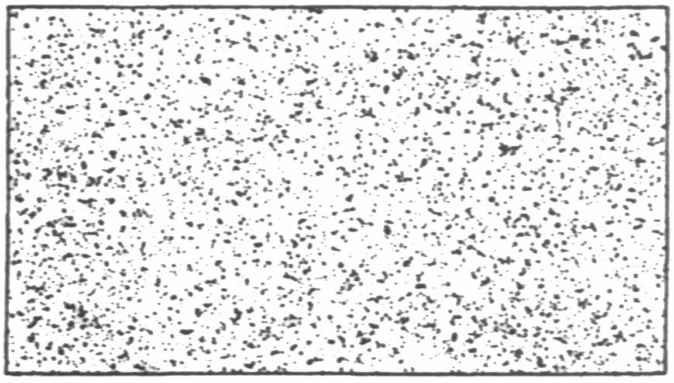
1. Spray a horizontal test pattern (air cap horns in a vertical position). Hold the trigger open until the paint begins to run. There should be even distribution of the paint across the full width of the pattern (see illustration below). Adjust with fan pattern adjustment. If distribution is not even, there is a problem with either the air cap or the fluid tip. If the pattern produced by the above test appears normal, rotate the air cap back to a normal position and begin spraying. (A normal pattern will be about nine inches long when the gun is held eight inches from the surface.)

"Horizontal test pattern with even material distribution."

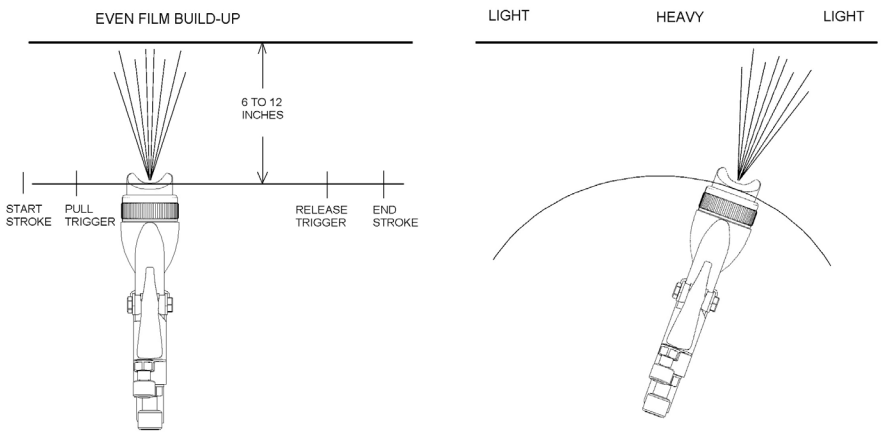


2. With the fluid adjusting screw open to the first thread, and the air pressure set at approximately 20% lower than recommended psi, make a few test passes with the gun on some clean paper. If there are variations in particle size – specks and or large globs – the paint is not atomizing properly. See below.

"Pattern with uneven particle size"

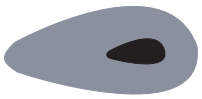
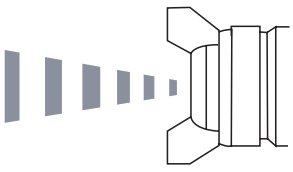


Spray Technique



GOOD TECHNIQUE POOR TECHNIQUE

TROUBLE SHOOTING SPRAY PATTERNS

TYPICAL FAULTY AIR NOZZLE SPRAY PATTERNS		
Pattern	**Cause**	**Correction**
	1.Dried paint in one of the side port holes of air nozzle.	1. Dissolve paint in side port hole with thinner; do not probe in any of the holes with a tool harder than brass.
	1. Fluid build up on side of fluid nozzle. 2. Damaged fluid nozzle because spray gun was dropped.	1. Remove air nozzle and wipe off fluid nozzle. 2. Replace damaged fluid nozzle.
	1. Air pressure too high. 2. Spray pattern too wide. 3. Fluid pressure too low.	1. Reduce air pressure. 2. Reduce fan width. 3. Increase fluid supply.
	1. Air pressure too low. 2. Excessive fluid velocity or too much fluid.	1. Increase air pressure. 2. Use smaller fluid nozzle orifice, lower fluid pressure.
 SPITTING	1. Air entering the fluid supply could be caused by: a. Loose fluid nozzle, or not seating properly. b. Loose, damaged or worn fluid seal. c. Fluid connection loose.	a. Tighten fluid nozzle, or clean fluid nozzle seat area. b. Tighten or replace worn needle seal assembly. c. Tighten all fluid supply connections leading to spray gun.

Spray Gun Maintenance

Maintenance of an Air Spray Gun

A spray gun is a precision tool and will perform best if kept cleaned and lubricated. Fluid passageways should be cleaned as follows:

- ### Siphon Spraying

Wash off the siphon tube with solvent. Dip the siphon tube into a container of clean solvent and spray. Trigger repeatedly to thoroughly flush the passageway and clean the fluid nozzle and needle. A rag held tightly over the air nozzle will forcibly eject fluid backwards through the dip tube when the gun is triggered. This backwashing is sometimes useful in cleaning guns quickly.

- ### Pressure Spraying

Replace the paint in the pot or cup with clean solvent and flush through the paint lines using low fluid pressure (no atomizing air is necessary). Trigger the gun repeatedly to permit the solvent to rinse out all passageways. Do this until clean.
Wipe off the gun body with a cloth saturated with solvent compatible with the coating used. Your equipment supplier can indicate points on his equipment that should be lubricated periodically. To avoid “fish eyes” and other surface defects never use oils or lubricants containing silicones.

Preventive Maintenance

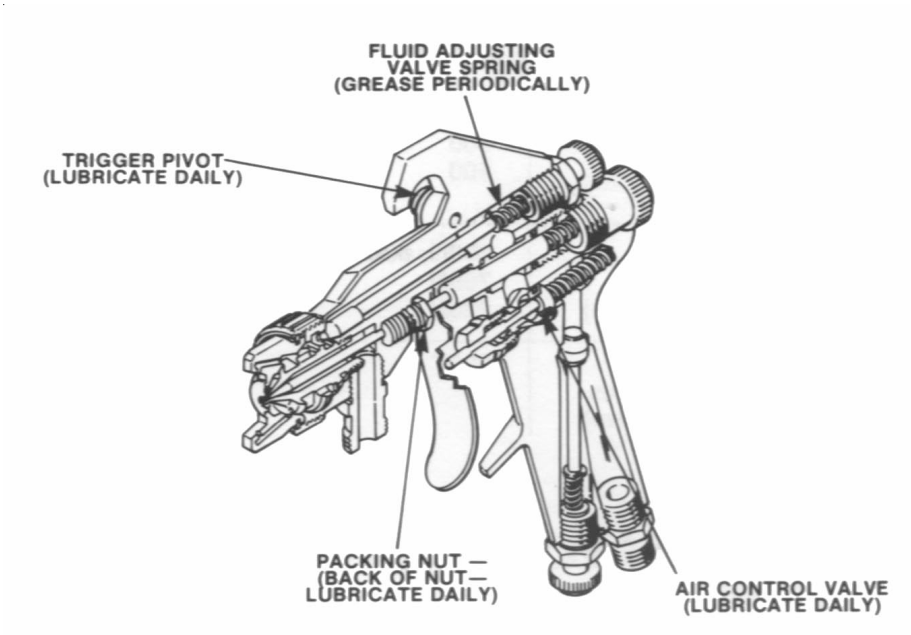
WARNING!!!

Always shut off air and fluid supply to gun and relieve pressure before attempting any service.

An air spray gun is a precision finishing tool manufactured to close engineering tolerances. The gun must be kept clean and lubricated. The following data is the daily operator maintenance required to keep the gun in good operating condition.

Start-Up

1. With a lightweight oil, lubricate the air spray gun daily at the points shown in the figure below. Periodically lubricate the fluid needle spring with a lightweight grease or petroleum jelly.



2. Keep the system air filter as clean as possible. Drain the air filter daily.
3. Remove the gun from the solvent cup and clean the air cap. Be certain the solvent used is compatible with the paint being sprayed.

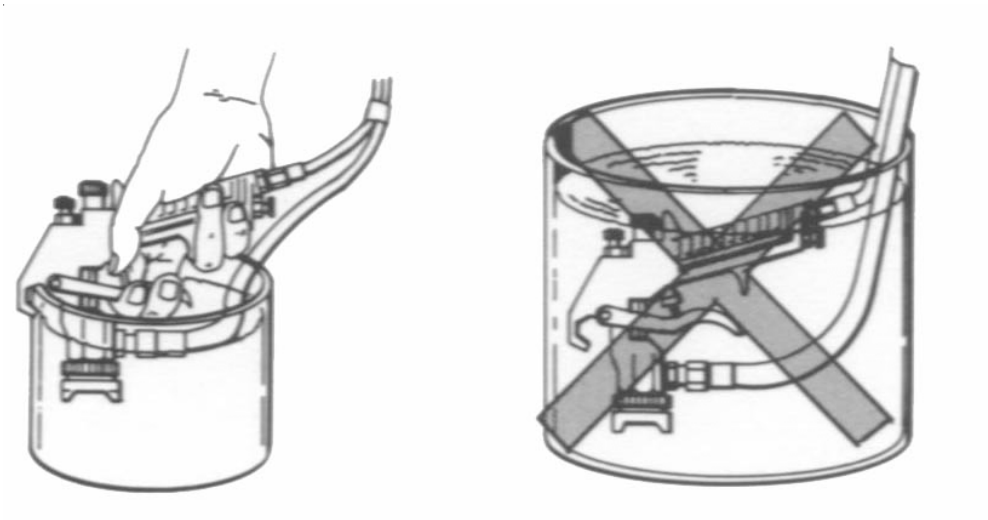
Shut Down

Shut down both the fluid handling and air supply of the air spray system. Relieve both air and fluid pressure at the gun. Immerse only the fluid tip and air cap of spray gun in a compatible solvent.

CAUTION

Do not submerge the entire gun in the solvent. This causes scale deposits and other foreign material to form in the air passages, which later could either clog the air cap or be sprayed onto the surface of the part.

Cleaning Fluid tip and air cap.



Booth Contamination Management

The spray booth is subject to contamination in the following ways. Here's what you can do about them:

Air Leaks

- Install proper seals for door frames, light openings, and panel seams and replace them when they begin to leak
- Use caulking for panel joints and OEM replacement seals to keep contamination out of the clean air stream
- Turn booth lights off and check for holes in booth doors etc. from the outside

Housekeeping

- Sweep or vacuum the booth floor on a daily basis. Make sure the booth is running (air is flowing) to minimize airborne particles of dirt
- Periodically wipe down the booth walls, doors, any wall mounted air controls to remove dust and paint
- Store parts and paint outside the booth
- Locate work benches and trash cans outside the booth
- Never do sanding or blowing off in the spray booth – the resulting dust will not only ruin the present job but many future jobs as well
- Spray a strippable coating (one which can be removed with water) on the booth walls on a regular basis

Exhaust Air

- Change paint arrestor filters when testing with the balancing gauge or manometer indicates it is time – clogged filters reduce air movement and increase the presence of over-spray particles in the air. Always do your test with the booth running

Reference Material

[1] BINKS Manufacturing Company, Air Spray Manual. (Printed in the USA, 1976).

[2] Southern Alberta Institute of Technology, DuPont Paint Application Management Course.
(Printed in Canada, 1998).

[3] BINKS Training Division, High Volume Low Pressure – HVLP. (Franklin Park, IL. TD 10-4).

[4] RUST-OLEUM CORPORATION, Mixing, Thinning and Application. (Printed in USA, 1995), Form # 1011.

[5] Graco Inc., Air Spray Training Series: Air Spray Techniques. (Printed in USA, 1988), Form #300-068R3.