



FALCON® SPRAY

Turbine Instruction Manual



DO NOT USE EQUIPMENT BEFORE READING THIS MANUAL

This manual contains important warnings and instructions.
Please read these instructions carefully and keep for your reference.

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1 Safety

Read all instructions and safety precautions before operating the unit.

⚠ DANGER

Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation that could result in damage to the equipment or other property.

⚠ WARNING

Risk of fire or explosion! Solvent and paint fumes can explode or ignite, causing severe injury and property damage.

Paints and solvents containing HALOGENATED HYDROCARBONS can react explosively with aluminum. Always check the product's label before using these materials in the unit.

Hazardous vapors: Paint, solvents, insecticides and other materials may be harmful if inhaled, causing severe nausea, fainting or poisoning.

Make sure the room is well ventilated. Avoid all ignition sources, such as static electricity, sparks, open flames, hot objects, sparks from connecting and disconnecting power cords, and working light switches.

Follow the material and solvent manufacturers' safety precautions and warnings. Do not use liquids with flash points less than 100° F (38° C).

Static electricity can be produced by HVLP spraying. Make sure any electrically conductive object being sprayed is grounded to prevent static sparking. The sprayer is grounded to prevent static sparking. The sprayer is grounded through the electrical cord.

Use a respirator or mask whenever there is a chance that vapors may be inhaled. Read all instructions with the mask to ensure that the mask will provide the necessary protection against the inhalation of harmful vapors.

Do not carry the turbine while spraying.

Keep the turbine at the maximum distance from the spraying area.



NOTICE

- Tipping the spray gun causes the spray gun to clog. Dried spray material also clogs the pressure delivery tube and fittings. The spray gun does not function when clogging occurs.
- When not in use, be sure to disconnect the hose and place the spray gun into the Handi-Hold™ Docking Station on the turbine to avoid tipping.

⚠ DANGER

Improper installation of the ground plug can result in the risk of electrical shock. If repair or replacement of the plug or cord is necessary, do not connect the ground wire to either flat blade terminal. The wire with green insulation (with or without a yellow stripe) is the grounding wire.

1. For any question regarding proper installation of the ground plug, consult a qualified (licensed or certified) electrician.
2. Do not modify the plug provided. If the plug does not fit the outlet, have the proper outlet installed by a qualified electrician.
3. This product is for use on a nominal 110-volt circuit and has a grounding plug that looks like the plug in Figure 2. Make sure that the product is connected to an outlet having the same configuration as the plug. Do not use adapters with this product.
4. If an extension cord is required, use only a three-wire extension cord that has the same configuration as the unit cord, including the (round) ground terminal. Make sure that the extension cord is plugged into a properly grounded receptacle.
5. When using an extension cord, be sure it is in good condition and heavy enough to meet the specifications in the chart below. If an extension cord is needed the following wire sizes must be used.

25' cord (7.62m)	10, 12, or 14 Gauge
50' cord (15.24m)	10 or 12 Gauge
100' cord (30.48m)	10 Gauge

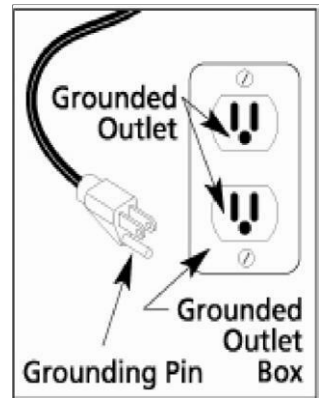


Figure 2

Grounding instructions for all countries using a 2-pronged plug configuration.

⚠ CAUTION

This product must be properly grounded. In the event of an electrical short circuit, grounding reduces the risk of electrical shock by providing an alternate path for the electrical current.

This product is equipped with a cord that has a ground wire and an appropriate ground plug. Plug the unit into an outlet that is properly installed and grounded in accordance with local codes and ordinances.

Safety Note: Users in countries in continental Europe and Australia and anywhere that offers a two-pronged plug must be aware that this configuration does not provide grounding.

2 TrueHVLP™ Spray Finishing Systems

CONGRATULATIONS!! You have just purchased the finest HVLP air turbine system available. You are about to enjoy the great benefits of TrueHVLP™. Our designs are the result of many years' experience in manufacturing HVLP turbine systems, and HVLP spray guns. We have painstakingly worked and consulted with professional spray finishers to bring you this versatile, well-engineered tool.

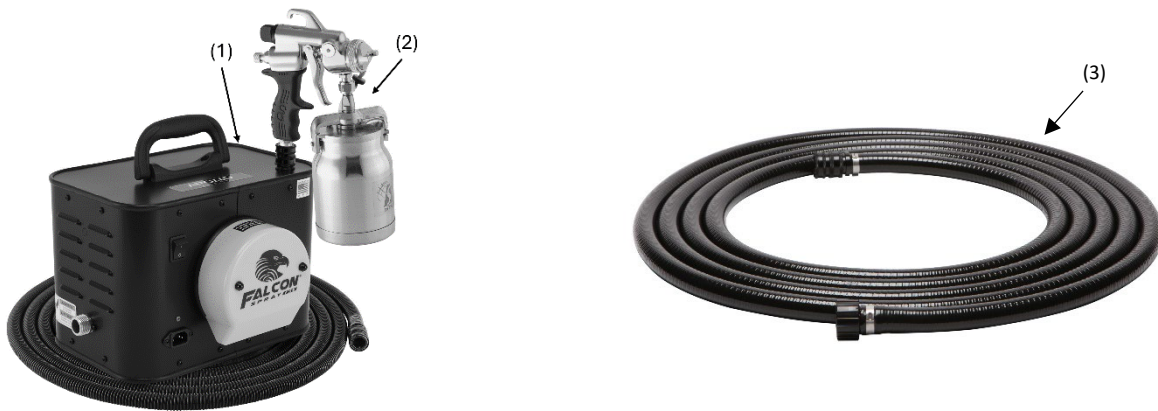
Whether you are new to spray finishing, you have spray finished before, or are just new to HVLP spraying; there are some basic spray finishing guidelines that will help you to achieve the best results and optimum success from your new equipment. Reading this information carefully and following these simple steps will ensure that you get the best performance and results from your new TrueHVLP™ spray system.

Check the contents of your box. The following are included:

- | | |
|--------------------------------|------------------------------------|
| (1) Falcon Spray™ Turbine Unit | (1) Electric Cord |
| (1) TrueHVLP™ Spray Gun | (1) Viscosity Cup |
| (1) Air Hose | (1) Quick Coupler (1x Handi-Hold™) |
| (1) Instruction Manual | |

2.1 How Your HVLP Turbine System Works

Your turbine system has three components: the turbine unit (1), spray gun (2) and air hose (3). The turbine unit, when connected to the correct electrical power supply and with the on/off switch in the "on" position, provides a continuous source of clean, warm, dry, High Volume Low Pressure (HVLP) air. The air hose connects the turbine unit to the spray gun. Air flows through the hose to the nozzle of the specially designed TrueHVLP™ spray gun. Atomization of the coating is achieved when the air mixes with the stream of fluid passing through the tip/nozzle. This low-pressure atomization principle achieves minimum misting (overspray) to the spray environment.



2.2 How Your Spray Gun Works

Apollo offers three types of Turbine Spray Guns. The 5000 series 7000 series and the 7700 series. The 5000 series spray guns are bleeder style. When the turbine unit is turned "ON", air will constantly flow through the air cap in the front of the gun. The 7000 and 7700 series spray guns are non-bleeder style. When the turbine unit is turned "ON", air will only flow through the air cap when the trigger on the spray gun is pulled back. Air also flows through the air feed tube to pressurize the cup and deliver fluid to the tip/nozzle. When the paint flow screw is opened and the trigger pulled back, fluid flows through the tip/nozzle mixing with the air flow delivered from the air cap and projects a fine atomized mist to your work piece. Spray pattern control will vary depending on the spray gun model. Consult your individual spray gun manual for detailed operation and maintenance of your spray gun.

2.3 Preparing To Use Your HVLP Turbine System

Connect the air hose to the turbine. Screw on one end of the hose to the manifold on the side of the Falcon™ Spray turbine. Once screwed all the way down your air hose will be locked into place.



Connect the other end of hose to spray gun, using your fingers to pull back the spring-loaded connector. When pulling the spring back, place the handle end of the gun into the hose and snap into place.

Plug the power cord into an outlet that is properly installed and grounded in accordance with local codes and ordinances.



NOTICE

Do not cover or enclose the turbine. It is important to draw cool/ambient air through the unit for optimum performance. Avoid placing the turbine in a warm environment or in direct sunlight. Do not spray in ambient temperatures above 90 degrees. If you want to be able to spray in hotter temperatures, we recommend placing a fan in front of your turbine to help it pull in cooler air.

2.4 Familiarize Yourself With Your TrueHVLP™ Turbine Spray Gun

Refer to your Spray Gun Instruction Manual for information, setup and operation of your model spray gun.

You are now ready to spray your coating of choice on your work piece. Good quality results with your TrueHVLP™ spray finishing equipment are a combination of careful preparation of your project, a proper spraying environment, a basic knowledge of the coatings you will be using and how these coatings work with your TrueHVLP™ spray equipment.

CAUTION

Pressure will remain in the spray cup when unit is off. If you pull the trigger back, a stream of fluid will flow. To prevent accidents, turn material flow screw clockwise until it is completely closed. The trigger is now locked in the closed position.

***Note:** It is not necessary to empty and clean your spray gun when you pause between applications. Be sure, however, to clean your spray gun thoroughly at the end of your work session. Do not leave material in your spray gun overnight. Extra caution must be taken when spraying coatings that have a catalyst or hardener added. These coatings can harden in your spray gun quickly, making cleaning difficult or impossible. Read manufacturer's coating instructions as to how much time you have before catalyst/hardener begins to set up.*

2.5 Get To Know Your Turbine

Handi-Hold™ Spray Gun Docking Station

Every Falcon™ Spray turbine comes equipped with the Handi-Hold™ Spray Gun Docking Station (A), Apollo's smart innovation. Store, hold or transport your spray gun in a vertical position with no risk of it falling over. Ready to spray when you are. Disconnect hose from spray gun and insert coupler into the Handi-Hold™ Spray Gun Docking Station (A) as shown.



3 Apollo HVLP Turbines

Each TrueHVLP™ Turbine Unit offers the finisher a maximum operating pressure. This pressure is determined by the size and output of the unit you have selected. The maximum available pressure will have a direct bearing upon the viscosity of the fluid that you choose to spray. Atomizing pressure and fluid viscosity directly relate to the efficiency of the equipment operation and the quality of the results that you will achieve.

The available air volume and pressure at the air cap of the spray gun will meet the delivery of fluid coming out of the nozzle to create a fine mist called atomization. This mist travels directly to your work piece where it blends together to form a connected wet film. Achieving a smooth, level surface will depend on the proper relationship between available atomizing pressure, the viscosity of the coating being applied and the properties of the coating and the size of the needle, nozzle and air cap used.

3.1 Apollo Turbine Models FS3, FS4 and FS5

Model FS3

Fan Stages: 3

Sealed Pressure: 7.0 psi (0.48 bar)

Filter type: Dual (pre-filter and main filter)

Watts: 1508

Current: 110 vac - 60 hz or 240 vac - 50 hz

Weight: 23 lbs (10.4 kg)

Height: 10" (25.4 cm)

Width: 14" (35.6 cm)

Length: 14" (35.6 cm)

All 240-volt units shipped



All 110-volt units are tested and certified.



Model FS4

Fan Stages: 4

Sealed Pressure: 9.0 psi (0.62 bar)

Filter type: Dual (pre-filter and main filter)

Watts: 1568

Current: 110 vac - 60 hz or 240 vac - 50 hz

Weight: 24 lbs (10.8 kg)

Height: 10" (25.4 cm)

Width: 14" (35.6 cm)

Length: 14" (35.6 cm)

All 240-volt units shipped



All 110-volt units are tested and certified.



Model FS5

Fan Stages: 5

Sealed Pressure: 9.5 psi (0.66 bar)

Filter type: Dual (pre-filter and main filter)

Watts: 1858

Current: 110 vac - 60 hz or 240 vac - 50 hz

Weight: 25 lbs (11.3 kg)

Height: 10" (25.4 cm)

Width: 14" (35.6 cm)

Length: 14" (35.6 cm)

All 240-volt units shipped



All 110-volt units are
tested and certified



NOTE: All turbine pressures quoted are measured sealed and at the motor outlet. Actual spraying pressures will vary depending on the model and size of the turbine.

4 Know Your Coatings

4.1 Coating Properties

Coatings are a blend of resins and additives to create a product that will provide a protective and beautifying surface to your work piece. Different resins have different properties. It is important to use the correct coating to achieve a desired result. Manufacturers of coatings can control the resin solids content, production viscosity, sheen, color, flow-out enhancement and other properties. Some products offer ways to adjust the coating properties such as speeding up or slowing down the drying time, adding catalysts to strengthen the molecular bond or adding flattening agents to lower the sheen. Manufacturers will often give some guidelines on how to thin their product for spray application. There are many different types of spray equipment in use. Coatings manufacturers cannot address all of them. It is important for the finisher to understand the spray equipment and to use common sense to arrive at the correct fluid viscosity to produce the best possible results with the selected coating and the equipment being used.

4.2 Your Choice of Coatings and Viscosity

Extremely thin, watery or light bodied fluids such as inks, aniline dyes and oil stains can generally be used straight from the can. RTS or Ready to Spray water-based finishing products are formulated to be used straight from the can without thinning with a 3 stage or larger turbine. Most other coating products will need to be thinned anywhere from 10% to 50% depending on the available air pressure of the turbine model and the properties of the coating selected. (see chart below).

Chart A Turbine Performance

Turbine Size	Sealed Air Pressure	Coating Types
3 STAGE	7.0 PSI	Low-Medium Viscosity Materials
4 STAGE	9.0 PSI	Low-High Viscosity Materials
5 STAGE	9.5 PSI	Low-High Viscosity Materials

Using Latex (Emulsion) Paint

Although your turbine spray system is best suited to spray Class A Finish coatings such as lacquers, enamels, urethanes, varnishes, waterborne and water base etc., you can spray latex (emulsion) house paint if you follow a few simple rules. First, it is generally necessary to thin latex (emulsion) paint. This will vary from as little as 10% to as much as 50% depending on the model turbine you are using and the quality of the paint used. Second, it is necessary to use a larger nozzle and needle set in the spray gun (2.0mm or 2.5mm). It is recommended that a latex (emulsion) paint conditioner like Floetrol®, be added to aid flow-out. These products are sold at local paint stores.

Chart B: Viscosity

Coating	Thin/Reduce
Lacquers	25%-50%
Sanding Sealer	20%-30%
Enamels	20%-40%
Stains	use from can
Acrylic Enamel	50%-60%
Catalyzed Polyurethane	10%-30%
Polyurethane's Varnishes	20%-30%
Waterborne Coatings	00%-10%
Latex/Emulsion Paint	10%- 40%

Note: Chart C should be used as a guide to thinning various coatings. Actual reduction will depend upon model turbine used, flow out properties of the coating and the final visual results of the sprayed work piece.

Ford #4: The cup has a specifically shaped hole at the bottom that allows a certain amount of paint to flow through it in a given time. By measuring the amount of time, it takes for a specific volume of paint to flow through the hole, one can determine the viscosity of the paint and make necessary adjustments to achieve the desired consistency. Ford #4 viscosity uses centistokes (cSt) as its measurement unit.

Chart C

Viscosity Cup Chart
FORD # 4
5
8
10
12
15
17
19
21
23
26
29
31
36
41
45
51
56

4.3 Technique

Like any skill, practice makes perfect. Never try to rush the spray finishing process. Learn the characteristics of the coating you will be spraying. Build up layers of material (3-4 applications or more if necessary). Sand between coats and allow proper drying time between applications.

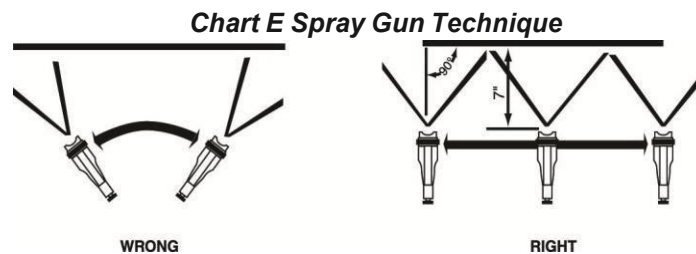
Some rules for effective spray finishing:

1. Remember to always keep the distance between the spray gun and the surface the same when moving across your work, (or up and down) called a "pass". Do not rotate or turn your wrist from side to side.

See Chart E Below

2. Move the spray gun across your work from end to end.
3. Be sure to maintain the same speed of movement. This ensures an even application of coating.
4. At the end of a "pass" always release the trigger. To continue, spray in the opposite direction and overlap your previous coat by 50-75%.
5. When finished you should have an even wet coat on your work. If you have dry spots you have overlapped too wide. If you have heavy or wet spots, you have overlapped too much or sprayed too slowly.
6. When spraying a large or pre-assembled piece, start at the top and work down.
7. Try to spray the hard to reach and underneath surfaces first.

Common sense and some forethought will prevent errors. Remember, that a light wet film will generally produce better results than a heavy wet coat. When spraying a vertical surface, it is advisable to apply a thin/light "tack" coat first, followed by a normal light wet coat. This technique will help prevent "runs" and "sags".



When using your Spray Gun, you control five variables:

1. Fluid flow.
2. Distance of the spray gun from your work. 4"-8" (10-20cm) is average. Closer if necessary.
3. Pattern direction (vertical fan, horizontal fan and round).
4. Speed of application.
5. Fan pattern size. 7700 series with Fan Pattern Control Ring. 5000 series move the spray gun closer to or further away from work piece.

NOTE: Items 1, 2, and 4 directly relate to each other.

Cleaning Your TrueHVLPTM Spray Gun

Refer to your spray gun manual for cleaning and maintenance of your spray gun model.

5 Record of Turbine Use

Record of Turbine Use		
Model	Serial #	Date Purchased
Date	Hours of Use	Total Hours

Turbine Recommended Maintenance: Clean and/or change filters every 10 hours or when necessary. See Accessories Page for appropriate filter replacement for your model.

6 Record of Turbine Maintenance

Record of Turbine Maintenance	
Date	Maintenance Performed

7 Turbine Maintenance and Cleaning

▲ CAUTION

Always unplug your turbine from the main electrical supply before doing any maintenance or repairs.

After Each Use:

Your Apollo turbine system requires very little maintenance. The turbine motor has sealed bearings that are lubricated for life. The only maintenance that you will need to perform is checking, cleaning and replacing your filters as required. You should check your filters every 10 hours and replace them as necessary. It is very important that your motor has cool, clean air to operate efficiently. If you maintain your filters and prefilters well, you will enjoy many years of long service from your turbine motor.

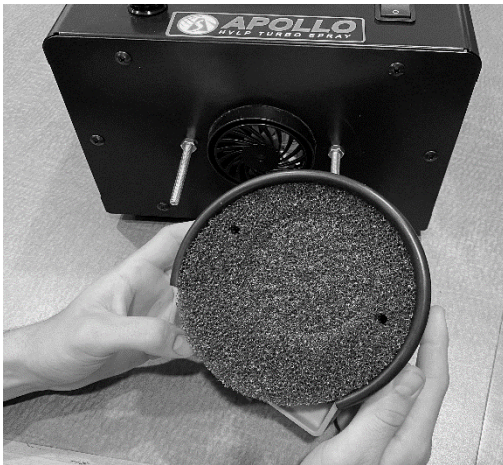
NOTICE

Always use genuine Apollo filters. Other types of filters may prevent proper air flow to the motor, resulting in premature motor failure and voiding your warranty.

7.1 Filter Maintenance

Visually check your filters every 10 hours or when you remove your pre-filters for cleaning. Check for accumulated material in the filter element. If you suspect they may be dirty, or if you can see material building up, don't take a chance, remove the filter and hold it up to the light.

To remove your filters, remove two dome nuts (1) and pull filter cover (2) off. Filter cover can hang up on the threads so make sure you pull it off straight. Remove filter (3). If filter is stuck in the filter cover carefully pull it out without tearing the filter.



To check your filters, hold them up to a light, similar to your car air intake filter. If you cannot see light through more than 50% of the filter, replace filter element or clean it.

NOTICE

Filter element may be damaged if more than 50 PSI of air pressure is used to blow out filter element.

If the filters appear to be dirty, you can tap them gently on a flat surface to remove any debris. If you have compressed air available, you can also blow them off with air. If you use compressed air to clean your filters, make sure you blow the air from the inside out and never use more than 50 PSI or this will damage the filter element.

To reinstall the filters, reverse the instructions above.

8 Genuine Apollo Accessories

Handi-Hold™ Spray Gun Docking Station #A5326



Replacement Filters: Part # E3001-2



Turbine Air Hoses



E1068-25 – 25' (7m) x 5/8" (16mm) flex-air hose

E1068-28 – 28' (7m) x 5/8" (16mm) flex-air hose w/ 3' heat hose

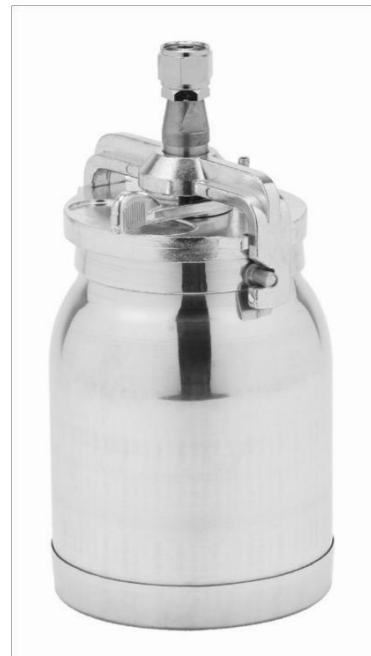


FS1900 – Deluxe Cleaning Kit, Life Time Warranty

FS 1670 - Filter Stand, Fits 1 & 2 Quart (1 & 2 Liter) Cups.



A5251 - 1 Quart (1 Liter) Cup Assembly



A5269 - 8oz (250ml) Cup Assembly



A5033A – non-teflon 250cc cup assembly
A5034A – non-teflon 600cc cup assembly
A7536A - non-teflon 1000cc cup assembly



9 Limited Warranty

Two Year Warranty

The Falcon™ Spray machine and equipment are WARRANTED by APOLLO SPRAYERS INTERNATIONAL, INC. for a total period of TWO YEARS from the ORIGINAL date of purchase by the ORIGINAL PURCHASER. Proof of purchase to be included and all SHIPPING CHARGES to be pre-paid.

APOLLO SPRAYERS INTERNATIONAL INC., upon examination of the machine/equipment will replace or repair at their discretion any defects in material or workmanship.

This WARRANTY does NOT include: misuse, damage, neglect, alterations, disassembled equipment or modifications, lack of maintenance, cleaning, water damage to electrical parts and INCORRECT VOLTAGE CONNECTION.


This Warranty is in lieu of all other express warranties, any WARRANTY implied by law, including but not limited to, implied Warranties of merchantability or fitness, is excluded to the maximum extent permitted by law and, if not excludable, is limited to the duration of the express Warranty.

No representative or person is authorized to extend this Warranty or to create for APOLLO SPRAYERS INTERNATIONAL, INC. any other liability in connection with the sale of any APOLLO SPRAYERS product. APOLLO SPRAYERS INTERNATIONAL, INC. shall not be liable for any consequential, incidental or special damages of any kind directly or indirectly resulting from breach of any express or implied warranty.

Some states do allow the exclusion or limitation of incidental or consequential damages or limitations on the length of any Warranty so that the above limitations and exclusions may not apply to you: however, to the maximum extent permitted under applicable law, the only rights and remedies shall be to obtain a replacement for any defective product.

This Warranty gives you specific legal rights and you may also have other rights which vary from State to State.

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 **WARNING:** This product can expose you to chemicals including Chromium, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.