CHICAGO Electric® Power Tools

POWDER COATING SYSTEM

Model 94244

ASSEMBLY AND OPERATING INSTRUCTIONS



Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed Exclusively by HARBOR FREIGHT TOOLS®

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For technical questions and replacement parts, please call 1-800-444-3353

SPECIFICATIONS

Item	Description
Power Consumption	120 VAC, 60 Hz
Line Cord	6 feet long, 16 AWG, 3-prong grounded plug
Air Supply Pressure	10 to 30 PSI
Cubic Feet Per Minute	3.5 CFM at 30 PSI
Air Inlet Size	¼ inch
Remote Activation Switch	10 feet long
Gun Powder Lead	8 feet, high voltage lead.
Grounding Cable	8 feet long with ground clamp
Control Box Fuse	0.5 amps
Paint Curing Temperature	400 degrees F. for 15 minutes (recommended)
Weight	6.35 lbs.

SAVE THIS MANUAL

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES

⚠ WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.

SAVE THESE INSTRUCTION

Work Area

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.

2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.

3. **Keep bystanders, children, and visitors away while operating a power tool.**

   Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

4. **Use tool in a well ventilated area**. Spray dust can cause injury or explosion hazard.

Electrical Safety

5. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.

6. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

7. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.

8. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation ⧈ eliminates the need for the three wire grounded power cord and grounded power supply system.

9. **Do not abuse the Power Cord. Never use the Power Cord to carry the tools or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.

10. **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These extension cords are rated for outdoor use, and reduce the risk of electric shock.

Personal Safety

11. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

12. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.

13. **Avoid accidental starting. Be sure the Power Switch is off before plugging in.** Carrying power tools with your finger on the Power Switch, or plugging in power tools with the Power Switch on, invites accidents.

14. **Remove adjusting keys or wrenches before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.

15. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.

16. **Use safety equipment. Always wear eye, face, and breathing protection.** Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

Tool Use and Care

17. **Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.

18. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.

19. **Do not use the power tool if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.

20. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.

21. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.

22. **Maintain tools with care.** Properly maintained tools are less likely to clog and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.

23. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool’s operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.

24. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

Service

25. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.

26. **When servicing a tool, use only identical replacement parts. Follow instructions in the *“Inspection, Maintenance, And Cleaning”* section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES FOR THIS PRODUCT

1. **Maintain labels and nameplates on the Powder Coating System.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. **Always wear ANSI approved safety impact eye goggles, respirator, and heavy work gloves when using the Powder Coating System.** Using personal safety devices reduce the risk for injury. Safety impact eye goggles and heavy work gloves are available from Harbor Freight Tools.
3. **Maintain a safe working environment.** Keep the work area well lit. Make sure there is adequate surrounding workspace. Always keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use a power tool in areas near flammable chemicals, dusts, and vapors. Do not use this product in a damp or wet location.
4. **Avoid unintentional starting.** Make sure you are prepared to begin work before turning on the Powder Coating System.
5. **Do not force the Powder Coating System.** This tool will do the work better and safer at the speed and capacity for which it was designed.
6. **Always unplug the Powder Coating System from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.**
7. **Never leave the Powder Coating System unattended while running**. Turn power off if you have to leave the Powder Coating System.
8. **Before each use, check all nuts, bolts, and screws for tightness**. Vibration during mixing may cause these to loosen.
9. **Keep extension cord off the ground and away from water**.
10. **Always connect the Power Cord to a grounded electrical outlet**.
11. **The powder dust is flammable when floating in the air**.
    - Ventilate the area well.
    - Verify that there are no flames or ignition source nearby.
    - Control excess dust by cleaning up after each use.
    - Never vacuum up the dust using a non-explosion proof vacuum cleaner.
    - Never cure coated object in a gas oven as the fumes recreated can be flammable; only use an electric oven.
    - Never smoke while using the Powder Coating System.
12. **Avoid electrical shock!**
    - Never touch the emitter (metal tip) of the Spray Gun. After use (and turned OFF), touch the emitter to the Ground Clip to discharge it.
    - Do not use the Spray Gun if you carry and use any electronic medical devices.
    - Never touch the metal object during coating.

13. **Avoid powder contamination**.
    - Protect your lungs by using an approved dust mask.
    - Never cure objects in an electric oven that is used for food also.
    - Ventilate the area well.
    - Wear an activated charcoal respirator when oven curing the coated object.

14. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker.

⚠ WARNING!

This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)

GROUNDING

⚠ WARNING!

Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool or product. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Grounded Tools with Three Prong Plugs

The Powder Coating System comes with a 3-prong grounded plug.

1. Tools marked with “Grounding Required” have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. (See Figure A on the next page.)
2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool’s grounding system and must never be attached to an electrically “live” terminal. (See Figure A.)

3. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the following illustration. (See Figure A.)

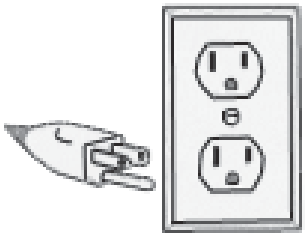


Figure A

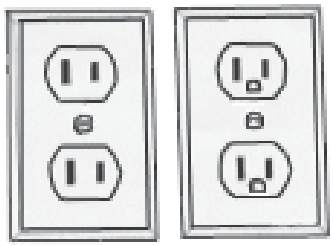


Figure B

Double Insulated Tools with Two Prong Plugs

4. Tools with a polarized plug (one blade is wider than the other) serve as a feature to reduce the risk of electric shock. This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Never use with an extension cord unless plug can be fully inserted. Do not alter the plug."

5. Tools marked "Double Insulated" do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. (See Figure B above.)

6. Double insulated tools may be used in either of the 120 volt outlets shown in the following illustration. (See Figure B above.)

EXTENSION CORDS

1. Grounded tools require a three wire extension cord. Double Insulated tools can use either a two or three wire extension cord.

2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. (See Table A.)

3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. (See Table A.)

4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. (See Table A.)

5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. (See Table A.)

6. If you are using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.

7. Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.

8. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

Table A

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120 VOLT)					
NAMEPLATE AMPERES (At Full Load)	EXTENSION CORD LENGTH				
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	16	14	12	10	-
12.1 – 16.0	14	12	10	-	-
16.1 – 20.0	12	10	-	-	-
* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.					

SYMBOLOGY

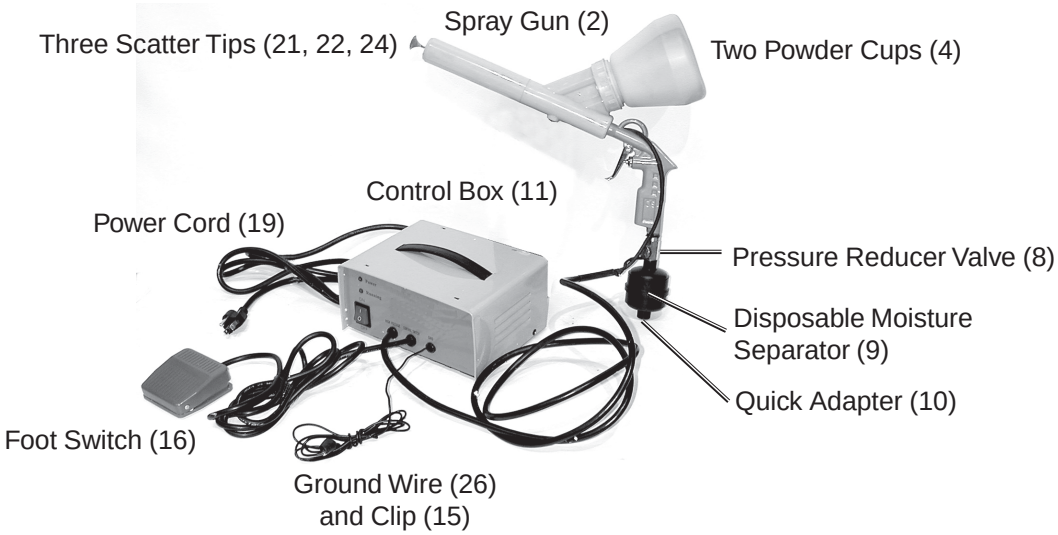
Table B

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
V~	Volts Alternating Current
A	Amperes
n_o xxxx/min.	No Load Revolutions per Minute (RPM)

UNPACKING

When unpacking, check to make sure the following parts are included (Refer to the Parts List and Assembly Drawing at the end of this manual and the photo on the next page.):

If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.



PREPARATION

1. Setup an air supply with an air pressure regulator and moisture trap (do not use an in-line air oiler). The air compressor must provide an air pressure of 10 to 30 PSI.
2. Select a safe location for spraying and curing with:
   - adequate lighting
   - active ventilation
   - no flame or ignition source
   - an area dry, clean, and covered – free of flammable material
3. Have an activated charcoal filter respirator availability for use when curing.
4. Have disposable dust masks available for use when powder spraying.
5. Have a pair of vinyl gloves for use when handling the power and sprayed objects.
6. Use ANSI approved eye safety glasses.
7. If using an extension cord, it must have a ground prong.
8. Setup a dedicated electric oven (not included), with adequate ventilation, for curing the coated objects with a temperature capability from 300 to 500 degrees F.

WARNING: Never use a gas oven, the fumes from curing can be explosive. Never use a home oven that is also used for food. Contamination of food will occur.

9. Clean the object to be powder coated of any old coatings, rust, grease and oil.

OPERATION

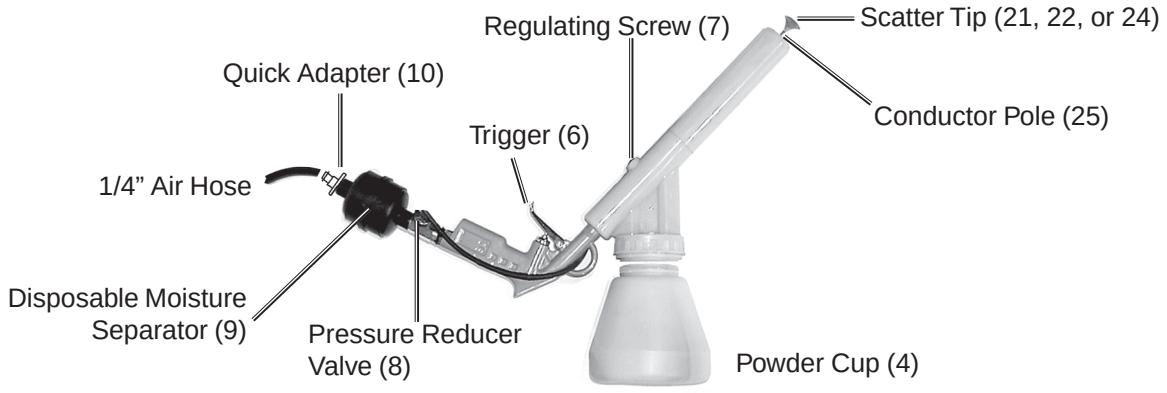
1. Place or hang the cleaned object to be coated near the ventilation system.

   If the object has grooves or recesses, position the object so that gravity assists the powder mist to fall into the grooves or recesses.

2. Connect the Disposable Moisture Separator (9) to the Spray Gun (2).

3. Unscrew the Powder Cup (4) from the Spray Gun (2) and fill with up to two inches of coating powder (not supplied). See photo below, left.

   a. Turn the Cup open side up, and place on a clean piece of paper.
   b. Put on a pair of disposal vinyl gloves.
   c. Open the powder coating container, and using a funnel as a guide, pour the powder into the Powder Cup.
   d. Turn the Spray Gun upside down and screw the Cup back into the Spray Gun.
   e. Reseal powder container.



4. Attach the Quick Adapter (10) to the Disposable Moisture Separator (9).

5. Connect a 1/4 inch air hose (not supplied) to the Quick Adapter (10).

6. Screw in the desired Scatter Tip (21, 22, or 24) to the Conductor Pole (25).

7. Attach the Ground Clip (15) to the metal object being coated.

   Securely attach the Ground Clip to an area which is not being coated. This connection is absolutely necessary to draw the electrically charged (power) particles to the metal object.



8. Press the Control Box Power Switch (14) to the ON (I) position.

9. Turn on the compressor and adjust its air pressure regulator to between 10 and 30 PSI pressure. Minor pressure changes can be made with the Pressure Reducer Valve (8) during operation.

10. Press the Spray Gun Trigger (6) and Foot Switch (16) at the same time and test the spray pattern on a piece of scrap metal.

    The Trigger controls the air and powder flow. The Foot Switch controls the electrical charge. If the pattern is too small or too large, change the Scatter Tip size (Read step 11 first).

    Remember that the pointed end of the Scatter Tip faces toward the Spray Gun and screws on. The spray pattern can also be adjusted using the Regulating Screw (7): loosen to expand the pattern, tighten to reduce the pattern size.



11. When coating, keep the Spray Gun approximately eight inches from the metal workpiece.

    Point the Spray Gun toward the object at different angles to guarantee that all areas are coated. When completed, the object should be completely coated with a dull, opaque coat of powder.

12. When you are finished spraying:

    a. Remove your foot from the Foot Switch (16),

    b. Press the Control Box Power Switch (14) to the OFF (O) position,

    c. Unplug the Power Cord (19) from the electrical outlet.

WARNING: The Spray Gun is still electrically charged. Discharge Conductor Pole (25) tip to ground before touching or you could be shocked.

13. Touch the Conductor Pole (25) to the Ground Clip (15) to discharge any residual electricity.

14. Wipe the Scatter Tip off with a clean cloth.

15. Place the activated charcoal respirator over your face, mouth, and hose.

WARNING: The fumes produced during curing are hazardous to your health. Do not breath. Always use a NIOSH (National Institute for Occupational Safety and Health) approved respirator and safety goggles. Avoid skin exposure. Proper ventilation in the work area is required.

16. With the oven preheated to the desired temperature (300 to 500 degrees F), place the object on the oven rack, close the door, and turn the ventilation system on.

    - Typical curing time is 15 minutes. Check the Powder Coating container for recommended curing time and temperature.
    - If the object is large, curing may take more time.
    - The power coating should melt to a smooth, gloss finish all over the object.
    - Check the curing object often to prevent over-curing which can cause roughness to the surface.

17. When cured, turn the oven off and open the oven door slightly to allow the object to cool gradually before removing. When the object is cooled too rapidly, a dull finish may result.

Process Tips

1. To remove an orange peel effect after curing, wet-sand the object with 400 grit sandpaper, dry, and repeat the coating process. Over-powder coating can cause this effect.
2. Polish with traditional paint polishes.
3. Lightly buff with a loose wheel and white rouge compound to remove imperfections.
4. Thoroughly clean the Powder Cup (4) before changing powders.

   Some powders are made from polyester, while others are made from polyurethane. A mixture of both can cause pitting of the coated object.
5. Porous metal objects may need a thorough cleaning with a brush and pre-painting cleaning solutions.
6. If the powder starts to buildup in one place, blow off with light air pressure. Moisture in the air will cause powder buildup. Replace the Disposable Moisture Separator (9).
7. Poor disbursement can be caused by low air pressure. Adjust the air pressure or replace the Disposable Moisture Separator. The Cup should have at least one inch of powder during coating.
8. Use automotive paint remover to remove a cured coating.

MAINTENANCE

Cleaning the Powder Coating System

1. Wear disposable vinyl gloves.
2. Unplug the Power Cord (19) from the electrical outlet.
3. Discharge the Conductor Pole (25) to the Ground Clip (15).
4. Disconnect the air hose from the Spray Gun (2).
5. Remove the Powder Cup (4) and pour any remaining powder back into it's original container.

WARNING: Powder clouds/mist are explosive. Before cleaning, remove any possible ignition source from the work area .

6. Using compressed air, blow out the Cup and all other parts that have collected powder. Make sure to wear the dust mask first.
7. Uncontaminated powder residue can be stored and reused.
8. Store Powder Coating System in its box. Place the box and powder container in a clean and dry location.

PARTS LIST

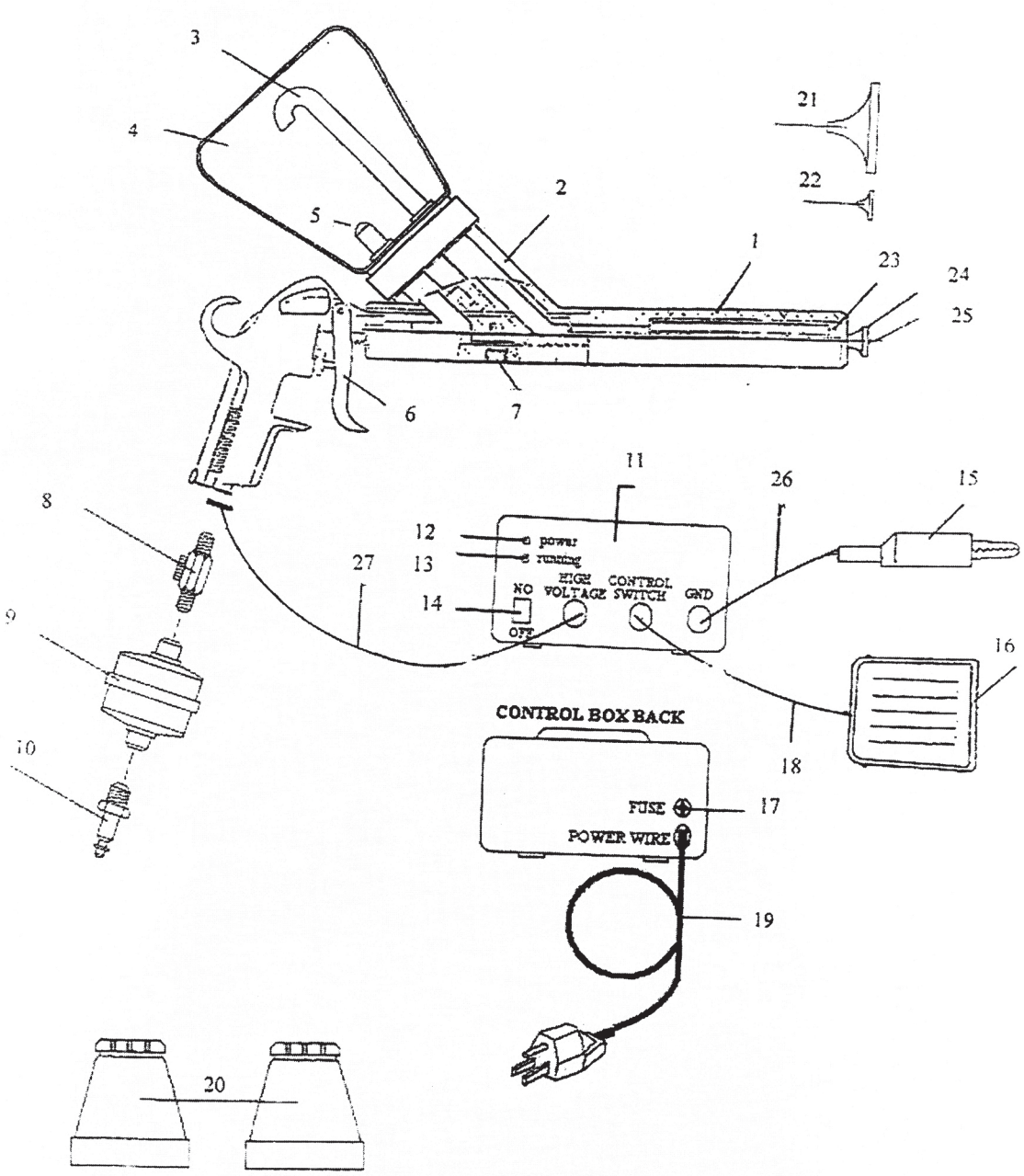
Part #	Description
1.	Spray Gun Pipe
2.	Spray Gun
3.	Air Outlet Pipe
4.	Powder Cup
5.	Air Input Pipe
6.	Trigger
7.	Regulating Screw
8.	Pressure Reducer Valve
9.	Disposable Moisture Separator
10.	Quick Adapter
11.	Control Box
12.	Power Indicator Light
13.	Activation Indicator Light
14.	Power Switch
15.	Ground Clip
16.	Foot Switch
17.	Fuse
18.	Foot Switch Cable
19.	Power Cord
20.	Accessories
21.	Scatter tip (Large)
22.	Scatter Tip (Small)
23.	Emitter
24.	Scatter Tip (Medium)
25.	Conductor Pole
26.	Ground Wire
27.	High Voltage Wire

NOTE: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

ASSEMBLY DRAWING



WARRANTY

CHICAGO
Electric® Power Tools

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of ninety days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

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.

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

3491 Mission Oaks Blvd. • PO Box 6009 • Camarillo, CA 93011 • (800) 444-3353