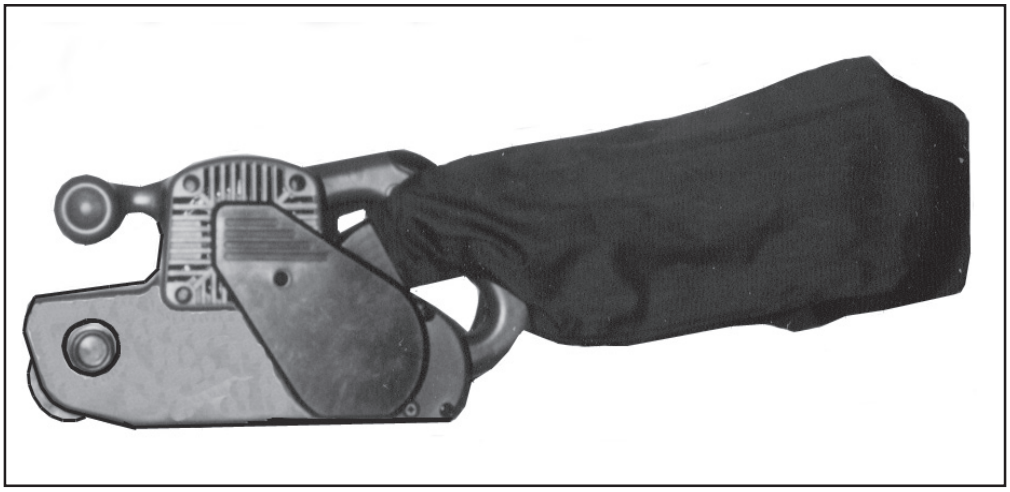
CHICAGO
Electric Power Tools

BELT SANDER

3” x 21”

Model 90045

ASSEMBLY AND OPERATING INSTRUCTIONS



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HARBOR FREIGHT TOOLS®

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For technical questions, please call 1-800-444-3353.

PRODUCT SPECIFICATIONS

Item	Description
Electrical Requirements	120 V / 60 Hz / 7.5 Input Amps / 900 Watts. Double Insulated Motor / 1,250 Belt FPM.
Belt Size	3” x 21”.
Power Switch Type	Trigger w/Lock “ON” Button.
Base Plate Dimensions	6” L x 3-5/8” W.
Overall Dimensions	13-1/8” L x 5-3/8” W x 5-7/8” H.
Accessories	Dust Bag (Qty. 1) / 120 Grit Belt (Qty. 1).
Weight	7.90 Pounds.

SAVE THIS MANUAL

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this 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 INSTRUCTIONS

WORK AREA

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

2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable 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.

ELECTRICAL SAFETY

4. **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.

5. **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.

6. **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.

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

8. **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.

9. **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

10. **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.

11. **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.

12. **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.

13. **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.

14. **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.

15. **Use safety equipment. Always wear eye protection.** Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

TOOL USE AND CARE

16. **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.

17. **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.

18. **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.

19. **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.

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

21. **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with a sharp cutting edge are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.

22. **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.

23. **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

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

25. **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

1. **Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.**

2. **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 the Belt Sander in areas near flammable chemicals, dusts, and vapors.

3. **Maintain labels and nameplates on the Belt Sander.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

4. **Keep this product and all other tools away from children and animals. Do not allow spectators around the work area.**

5. **To avoid damage to the Belt Sander, do not use this tool on material that may have nails, staples, tacks, or any other metal objects imbedded within.**

6. **Always wear safety impact eye goggles and hearing protection when using this product.** Safety impact eye goggles and hearing protection are available from Harbor Freight Tools.

7. **Keep all guards in place and working properly.**

8. **Whenever possible, secure the workpiece in a vise or using clamps.**

9. **When using the Belt Sander, always maintain a firm grip on the tool with <u>both</u> hands and keep hands and fingers away from the sanding area and Sanding Belt (46).**

10. **Keep your body positioned to either side of the Sanding Belt (46), but not in line with the Sanding Belt.**

11. **Always remove all adjusting keys and wrenches from the Belt Sander before starting.**

12. **Do not pull or carry the Belt Sander by its Power Cord (14), or pull the Cord around sharp corners or edges.** Do not unplug the Belt Sander by pulling on the Cord. Keep the Cord away from heated surfaces.

13. **Do not force the tool.** This Belt Sander will do the work better and safer at the speed and capacity for which it is designed.

14. **Check for damaged parts.** Before using this product, carefully check that it will operate properly and perform its intended function. Check for damaged parts and any other conditions that may affect the safe operation of this product. Replace or repair damaged or worn parts immediately.

15. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Only use accessories intended for use with this product.

16. **Use the right product for the right job.** There are certain applications for which this product was designed. Do not use small equipment, tools, or attachments to do the work of larger industrial equipment, tools, or attachments. Do not use this product for a purpose for which it was not intended.

17. **Stay alert. Watch what you are doing at all times.** Use common sense. Do not use this product when you are tired or distracted from the job at hand.

18. **Do not operate this product when fatigued or under the influence of alcohol or drugs.**

19. **Always turn off the Belt Sander and unplug it from its electrical outlet before changing accessories or performing any inspection, maintenance, or cleaning procedures.**

20. **⚠ WARNING!** The warnings and cautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be under stood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied the operator.

21. **WARNING!** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are: lead from lead-based paints, crystalline silica from bricks and cement and other masonry products, arsenic and chromium from chemically treated lumber. Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals work in a well ventilated area, and work with approved safety equipment such as those dust masks that are specially designed to filter out microscopic particles. (California Health & Safety Code § 25249.5 *et seq.)*

22. **WARNING!** People with pacemakers should consult their physician(s) before using this product. Operation of electrical equipment in close proximity to a heart pacemaker could cause interference or failure of the pacemaker.

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. 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: TOOLS WITH THREE PRONG PLUGS

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, <u>next page</u>.)**

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 that in the following illustration. **(See Figure A.)**

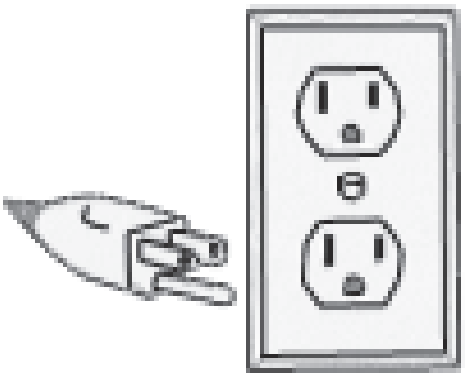


FIGURE A

DOUBLE INSULATED TOOLS: TOOLS WITH TWO PRONG PLUGS

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

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

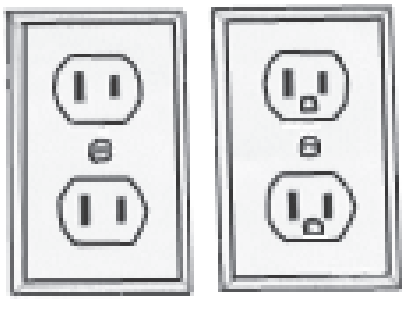


FIGURE B

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 Figure C, <u>next page</u>.)**

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 Figure C.)**

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 Figure C.)**

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 Figure C.)**

6. If you are using an extension cord outdoors, make sure it is marked with the suffix 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. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

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	18	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.**

<u>FIGURE C</u>

SYMBOLOGY

	**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 all the parts shown on the **Parts List on page 14** are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

ASSEMBLY INSTRUCTIONS

NOTE: For additional information regarding the parts listed in the following pages, refer to the **Assembly Diagram on page 15**.

WARNING! Always make sure the Power Cord (14) of the Belt Sander is unplugged from its electrical outlet *prior* to assembly, adding any accessories, or making any adjustments to the tool.

To Remove/Install A Sanding Belt:

1. Pull out on the Tension Lever of the Front Wheel Frame (53), and slide the Sanding Belt (46) out. **(See Figure D, next page.)**

2. Slide a new Sanding Belt (46) on. Then, push in on the Tension Lever of the Front Wheel Frame (53). **(See Figure D.)**

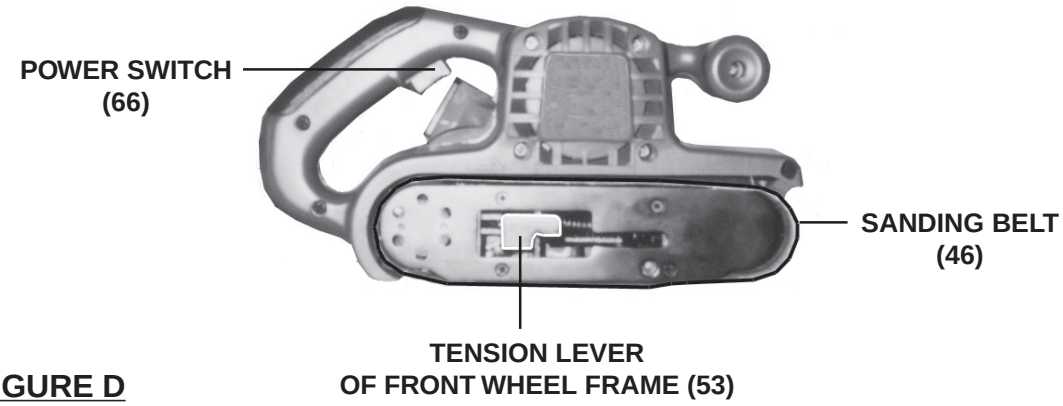


FIGURE D

3. Plug the Power Cord (14) into the nearest 120 volt, grounded, electrical outlet.

CAUTION: The machined parts near the Tension Adjuster (29) may be sharp. Wear work gloves when adjusting the tension.

4. Grip the Belt Sander firmly with both hands. Lift the tool and squeeze the Power Switch (66). As the Sanding Belt (46) turns, observe the Sanding Belt to see if it is turning on-center and not moving to the right or left. If the Sanding Belt moves to the right or left, while wearing heavy work gloves, turn the Tension Adjuster (29) right or left until the Sanding Belt turns on-center. Then, turn off the Belt Sander. **(See Figures D, and E.)**

FIGURE E

To Attach The Dust Bag:

To attach the Dust Bag (69), simply clip the opening of the Dust Bag onto the Dust Port located on the Left Housing (18). **(See Figures E, and F.)**

FIGURE F

OPERATING INSTRUCTIONS

The Power Switch:

1. To start the Belt Sander, depress the Power Switch (66). To stop the tool, release pressure on the Power Switch. **(See Figure E.)**

2. To lock the Power Switch (66) in the **"ON"** position for continuous operation, depress the Power Switch and push in on the Switch Lock. The tool will continue to run. To turn off the tool, squeeze and release the Power Switch once. **(See Figure E.)**

3. **WARNING!** Prior to using the Belt Sander (each time), make sure the Switch Lock mechanism is working properly. Always release the Switch Lock mechanism before disconnecting the Belt Sander from its electrical outlet. Failure to do so will cause the tool to start immediately the next time it is plugged into an electrical outlet, resulting in possible injury or property damage. **(See Figure E.)**

Proper Operation During The Sanding Process:

1. **WARNING!** When sanding a workpiece, always push and pull the Belt Sander over the workpiece with both hands firmly gripping the tool. Never pass hands or fingers directly in front of, to the rear, or below the Sanding Belt (46).

2. Make sure the workpiece is free from nails and any other foreign objects which could damage the Sanding Belt (46).

3. Make sure the workpiece is supported at all times. Whenever possible, secure the workpiece in a vise or with clamps (not included). If necessary, use a roller stand (not included) with larger workpieces.

4. Plug the Power Cord (14) into the nearest 120 volt, grounded, electrical outlet.

5. Firmly grip the Belt Sander with both hands. Then, squeeze the Power Switch (66) to turn on the tool. If desired, use the Switch Lock to run the Belt Sander in its continuous mode.

6. Allow the Sanding Belt (46) to turn up to full speed before feeding the Sanding Belt into the workpiece.

7. To avoid damaging the workpiece, always sand **parallel** to the grain of the wood.

8. Do not force the Belt Sander to remove material faster than it is designed to cut. Push and pull the Sanding Belt (46) *gradually* along the surface of the workpiece.

9. Once the sanding job is completed, turn off the Belt Sander and wait until the Sanding Belt (46) stops turning. Then, unplug the Power Cord (14) from its electrical outlet.

INSPECTION, MAINTENANCE, AND CLEANING

1. **WARNING!** Make sure the Power Switch (66) of the Belt Sander is in its **"OFF"** position and that the tool is unplugged from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

2. **BEFORE EACH USE,** inspect the general condition of the Belt Sander. Check for loose screws, misalignment or binding of moving parts, damaged electrical wiring, dull or damaged Sanding Belt (46), and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use.
Do not use damaged equipment.

3. **CARBON BRUSH:** To maintain peak efficiency of the Belt Sander's Motor it is recommended that every two to six months the Carbon Brush (27) be examined. The Carbon Brush should be free of dust and dirt. The Carbon Brush should be replaced when it has worn down to 3/16" in length. The Carbon Brush should slide freely in and out of the Brush Holder (25) without sticking. To check the Carbon Brush, remove the Brush Holder Cover (28) located at the front of the Belt Sander. Lift out the Carbon Brush to inspect. If cleaning is necessary, rub the Carbon Brush thoroughly with a pencil eraser. Next, clean the Brush Holder opening with compressed air or a clean cloth. Then, replace the Carbon Brush and Brush Holder Cover.
(See Figure G.)

4. **TO CLEAN:** The ventilation openings should be kept clean and free of sawdust and debris. The most effective way to clean the ventilation openings is with compressed air. The outer body may be cleaned with a clean cloth and a mild detergent. Do not use solvents. Do not immerse the Belt Sander in liquid.

FRONT VIEW

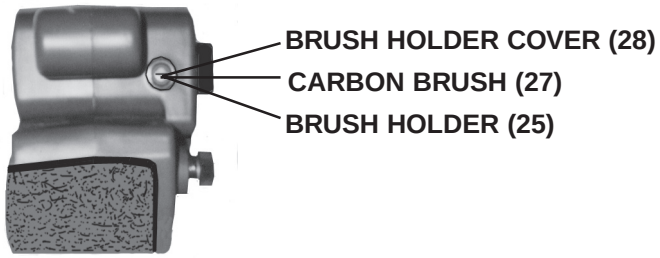


FIGURE G

PLEASE READ THE FOLLOWING CAREFULLY

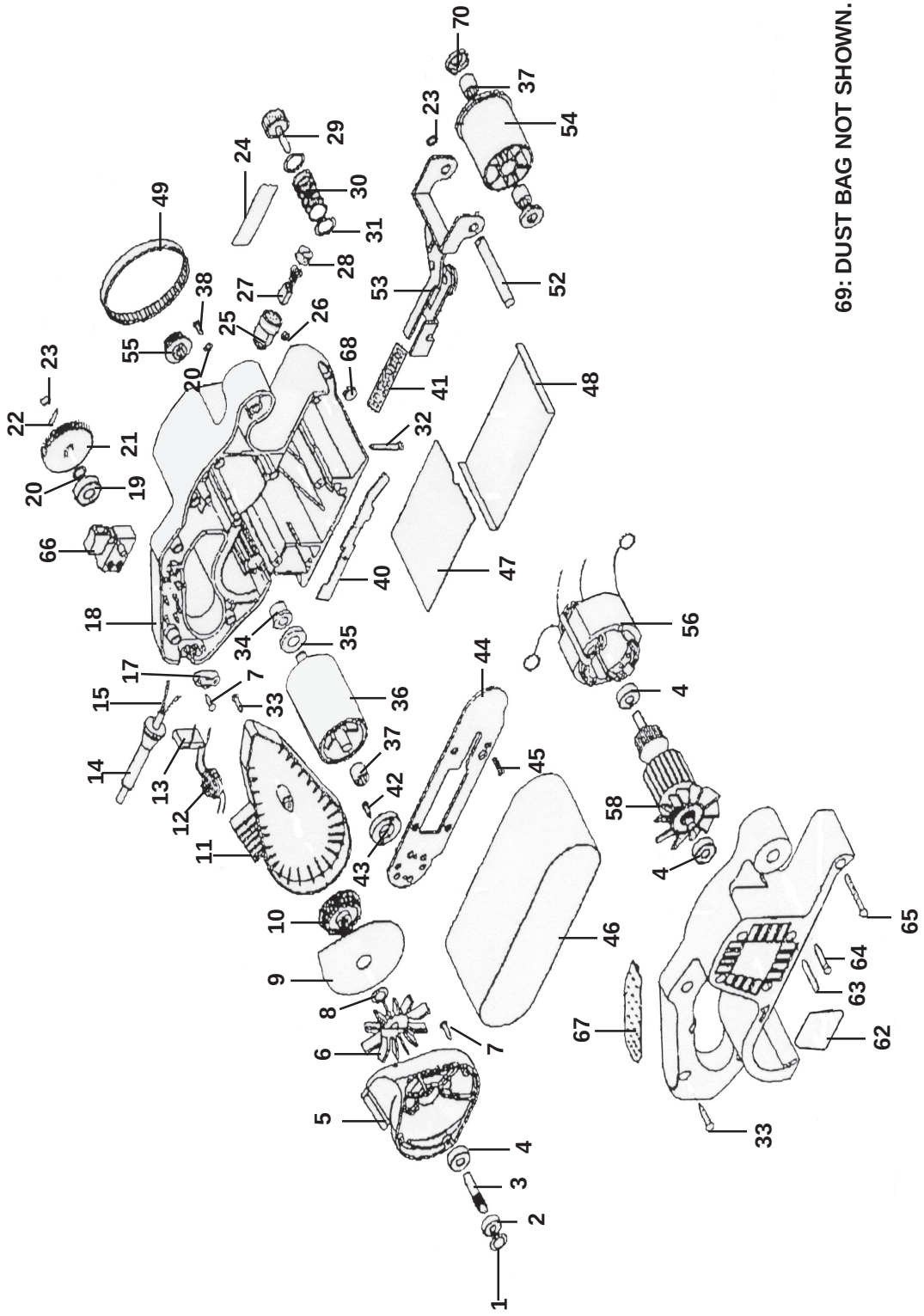
THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE 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.

PARTS LIST

Part #	Description	Part #	Description	Part #	Description
1	Close Cover (18)	25	Carbon Brush Holder	49	Belt
2	Bearing (626)	26	Nut (M5)	50	----------
3	Shaft Gear	27	Carbon Brush	51	----------
4	Bearing (608)	28	Brush Holder Cover	52	Front Wheel Drive Axis
5	Dust Suction Cover	29	Tension Adjuster	53	Front Wheel Frame
6	Fan	30	Adjust Spring	54	Front Wheel
7	Screw (ST3.8 x 16)	31	Plain Washer (16)	55	Small Belt Wheel
8	Plain Washer (8)	32	Orientation Pin	56	Stator
9	Cover Board	33	Screw (ST4.8 x 20)	57	----------
10	Large Belt Wheel	34	Oil Bearing	58	Rotor
11	Belt Cover	35	Ring Washer	59	----------
12	Inductor	36	Rear Wheel	60	Right Housing
13	Capacitor	37	Needle Bearing	61	----------
14	Power Cord	38	Screw (M5 x 10)	62	Nameplate
15	Cable Plug	39	----------	63	Screw (ST4.8 x 40)
16	----------	40	Baffle	64	Screw (ST4.8 x 25)
17	Pressure Cable	41	Spring	65	Screw (M5 x 40)
18	Left Housing	42	Screw (M4 x 10)	66	Power Switch
19	Bearing (6000)	43	Bearing Seat	67	Soft Grip
20	Plain Washer (10)	44	Front Cover	68	Adjust Nut
21	Large Gear	45	Screw (ST4.8 x 18)	69	Dust Bag (not shown)
22	Column Pin (3)	46	Sanding Belt	70	Roller Bearing
23	Retainer (10)	47	Cushion	---------	----------
24	Nameplate	48	Bottom Plate	---------	----------

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

ASSEMBLY DIAGRAM



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