

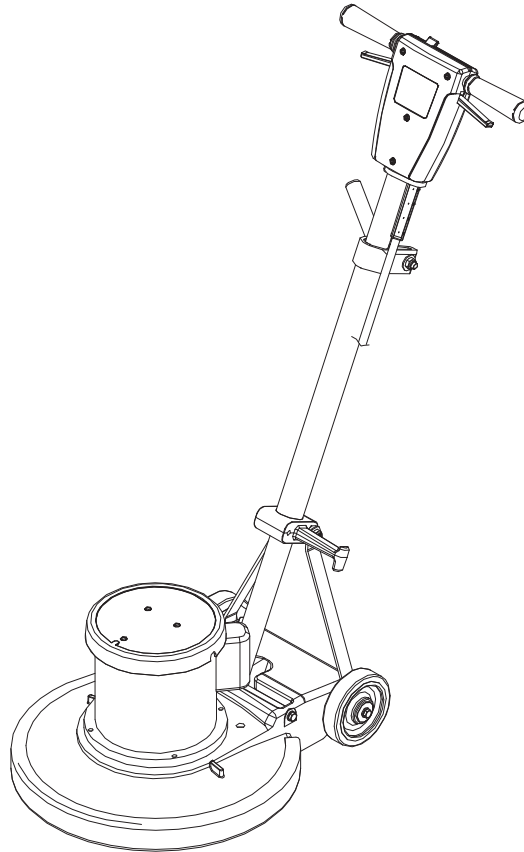


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# FLOOR POLISHER



**MODELS:**

U17X-10090590	SP13-10090220	SP13IE-10090770
U20X-10090610	SP15-10090230	SP20IE-10090780
UDS20-10090630	SP17X-10090280	SP17IE-10090270
	SP20X-10090320	SP17IA-10090260
	SPDS20-10090350	SP17XIE-10090300
	SPT20X-10090380	SP17XIA-10090290
		SPDS17IE-10090340
		SPDS17IA-10090330
		SP17HDIE-10090250



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*Operating Instructions (ENG)*



## MACHINE DATA LOG/OVERVIEW

Model: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Sales Representative: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

### Warranty Registration

Thank you for choosing our product. Warranty registration is quick and easy.  
Your registration will allow us to serve you better over the lifetime of the product.

To register your product go to:

<http://warranty.karcherna.com/warrantyregistration.aspx>

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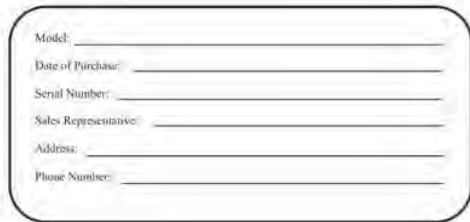
## HOW TO USE THIS MANUAL

This manual contains the following sections:

- HOW TO USE THIS MANUAL
- SAFETY
- OPERATIONS
- MAINTENANCE
- PARTS LIST

The HOW TO USE THIS MANUAL section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.



A rectangular box with rounded corners containing six horizontal lines for text entry. Each line is preceded by a label: 'Model:', 'Date of Purchase:', 'Serial Number:', 'Sales Representative:', 'Address:', and 'Phone Number:'.

The SAFETY section contains important information regarding hazard or unsafe practices of the machine. Levels of hazards are identified that could result in product or personal injury, or severe injury resulting in death.

The OPERATIONS section is to familiarize the operator with the operation and function of the machine.

The MAINTENANCE section contains preventive maintenance to keep the machine and its components in good working condition. They are listed in this general order:

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF** – column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **PRV NO.** - Reference No.
- **QTY** – column lists the quantity of the part used in that area of the machine.
- **DESCRIPTION** – column is a brief description of the part.
- **SERIAL NO. FROM** – If this column has an (\*) and a Reference number, see the SERIAL NUMBERS page in the back of your manual. If column has two asterisk (\*\*), call manufacturer for serial number. The serial number indicates the first machine the part number is applicable to. The main illustration shows the most current design of the machine. When a boxed illustration is shown, it displays the older design.
- **NOTES** – column for information not noted by the other columns.

**NOTE:** If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.

**NOTE:** The number on the lower left corner of the front cover is the part number for this manual.

**IMPORTANT SAFETY INSTRUCTIONS**  
**When using an electrical appliance, basic precaution must always be followed, including the following:**

**READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE.**

** WARNING:** To reduce the risk of fire, electric shock, or injury:

**Use only** indoors. Do not use outdoors or expose to rain.

**Use only** as described in this manual. Use only manufacturer's recommended components and attachments.

If the machine is **not working properly**, has been dropped, damaged, left outdoors, or dropped into water, return it to an authorized service center.

**Do not** operate the machine with any openings blocked. Keep openings free of debris that may reduce airflow.

**Machine can cause a fire** when operating near flammable vapors or materials. Do not operate this machine near flammable fluids, dust or vapors.

**This machine is suitable for commercial use, for example in hotels, schools, hospitals, factories, shops and offices for more than normal housekeeping purposes.**

Maintenance and repairs **must be done** by qualified personnel.

**During operation**, attention shall be paid to other persons, especially children.

**The machine shall only** be operated by instructed and authorized persons.

**When leaving unattended**, unplug the machine.

**Do not** handle the plug or machine with wet hands.

**Do not** unplug machine by pulling on cord. To unplug, grasp the plug, not the cord.

**Do not** use with damaged cord or plug. Follow all instructions in this manual concerning grounding the machine.

**Do not** pull or carry by cord, use cord as a handle, close a door on cord, or pull cord around sharp edges or corners.

**Do not** pull/run machine over cord. **Keep** cord away from heated surfaces.

Connect to a **properly** grounded outlet. See Grounding Instructions.

**SAVE THESE INSTRUCTIONS**

# CONSIGNES IMPORTANTES DE SÉCURITÉ

## L'utilisation d'un appareil électrique demande certaines précautions :

LISEZ BIEN L'ENSEMBLE DES CONSIGNES AVANT D'UTILISER CET APPAREIL.

 **AVERTISSEMENT** Pour réduire les risques d'incendie, d'électrocution ou de blessure : :

**Utilisez-le exclusivement** dans des endroits fermés. Ne l'utilisez pas en plein air et ne le laissez pas sous la pluie.

**Utilisez-le exclusivement** de la manière décrite dans ce manuel. Utilisez exclusivement les composants et les fixations recommandés par le fabricant.

Si l'appareil **ne fonctionne pas correctement**, s'il est tombé par terre, s'il est endommagé, s'il a été laissé dehors ou s'il a été plongé dans l'eau, veuillez le renvoyer à un centre d'entretien agréé.

**Ne faites pas** fonctionner l'appareil si des ouvertures sont bouchées. Dégagez des ouvertures tous débris susceptibles d'entraver le passage de l'air.

**L'appareil peut déclencher un incendie** s'il se trouve à proximité de vapeurs ou de matériaux inflammables. Ne faites pas fonctionner cet appareil à proximité de fluides, de poussières ou de vapeurs inflammables.

**Cet appareil est adapté à un usage commercial : par exemple dans les hôtels, les établissements scolaires, les hôpitaux, les usines, les magasins et les bureaux, à des fins plus étendues qu'un simple entretien de la maison.**

Les travaux de maintenance et de réparation **doivent absolument être effectués** par du personnel qualifié.

Lorsque vous laissez la machine sans surveillance, débranchez-la.

**Pendant le fonctionnement**, il est nécessaire de faire attention aux autres personnes autour de soi, surtout aux enfants.

**L'utilisation de l'appareil** est exclusivement réservée à des personnes formées et autorisées.

**Ne manipulez pas** la fiche ou l'appareil les mains mouillées.

**Ne débranchez pas** l'appareil en tirant sur le cordon. Pour le débrancher, empoignez la fiche, non pas le cordon.

**N'utilisez pas** l'appareil si le cordon ou la fiche est endommagé(e). Observez toutes les consignes figurant dans ce manuel au sujet de la mise à la terre de l'appareil.

**Ne tirez pas** sur le cordon, ne portez pas l'appareil par le cordon, n'utilisez pas le cordon comme poignée, ne fermez pas une porte sur le cordon, ne tirez pas sur le cordon dans des angles ou des coins pointus.

**Ne faites pas passer** l'appareil par-dessus le cordon. **Maintenez** le cordon à l'écart de surfaces chauffées.

Raccordez l'appareil à une prise **adéquatement** reliée à la terre. Voir les Consignes de mise à la terre.

## CONSERVEZ CES CONSIGNES

The following symbols are used throughout this guide as indicated in their descriptions:

## HAZARD INTENSITY LEVEL

There are three levels of hazard intensity identified by signal words – **WARNING** and **CAUTION** and **FOR SAFETY**. The level of hazard intensity is determined by the following definitions:



**WARNING** – Hazards or unsafe practices which COULD result in severe personal injury or death.



**CAUTION** – Hazards or unsafe practices which could result in minor personal injury or product or property damage.

### ***FOR SAFETY: To identify actions which must be followed for safe operation of equipment.***

Report machine damage or faulty operation immediately. Do not use the machine if it is not in proper operating condition. Following is information that signals some potentially dangerous conditions to the operator or equipment. Read this information carefully. Know when these conditions can exist. Locate all safety devices on the devices on the machine. Please take the necessary steps to train the machine operating personnel.

### ***FOR SAFETY:***

**DO NOT OPERATE MACHINE:**

Unless Trained and Authorized.

Unless Operation Guide is Read and Understood.

In Flammable or Explosive areas.

In areas with possible falling objects.

### ***WHEN SERVICING MACHINE:***

**Avoid moving parts. Do not wear loose fitting clothing, jackets, shirts, or sleeves when working on the machine. Use approved replacement parts.**



# DEGRÉS DE RISQUES EN CAS DE DANGER

Les symboles ci-dessous sont utilisés à travers ce manuel comme illustré dans leurs descriptions :

## DEGRÉS DE RISQUES EN CAS DE DANGER

Il existe trois degrés de risques identifiés par les termes signalétiques –**AVERTISSEMENT** et **ATTENTION** et **POUR VOTRE SÉCURITÉ**. Le degré de risque est défini de la manière suivante :

### **AVERTISSEMENT**

**AVERTISSEMENT** - Dangers ou méthodes dangereuses qui **POURRAIENT** provoquer de graves blessures ou entraîner la mort.

### **ATTENTION**

**ATTENTION** - Dangers ou méthodes dangereuses qui pourraient provoquer des blessures légères ou une détérioration du produit ou des biens immobiliers.

**POUR VOTRE SÉCURITÉ : ce signe permet d'identifier les mesures de précaution à prendre pour assurer un bon fonctionnement du matériel.**

Rendre compte immédiatement d'une défaillance ou d'une détérioration de la machine. Ne pas utiliser la machine si celle-ci ne fonctionne pas correctement. Lire soigneusement les informations ci-dessous signalant certains dangers potentiels pour l'opérateur de la machine. L'opérateur doit être absolument au courant de ces dangers potentiels. Localiser tous les dispositifs de sécurité sur la machine. Il est conseillé de prendre les mesures nécessaires pour former le personnel opérateur.

#### **POUR VOTRE SÉCURITÉ :**

**NE PAS MANOEUVRER LA MACHINE :**

Lorsqu'on n'est pas expérimenté ou qualifié.

Lorsque le guide d'utilisation n'est pas été lu ou compris.

Dans des zones inflammables ou explosives.

Dans des zones où des objets peuvent tomber.

#### **LORS DE L'ENTRETIEN DE LA MACHINE :**

**Éviter les parties amovibles. Ne pas porter de vêtements amples, tels que des vestes, des chemises ou des vêtements avec manches lors de l'utilisation de la machine. Utiliser les pièces détachées homologuées.**

## GROUNDING INSTRUCTIONS 120V

**THIS PRODUCT IS FOR COMMERCIAL USE ONLY.**

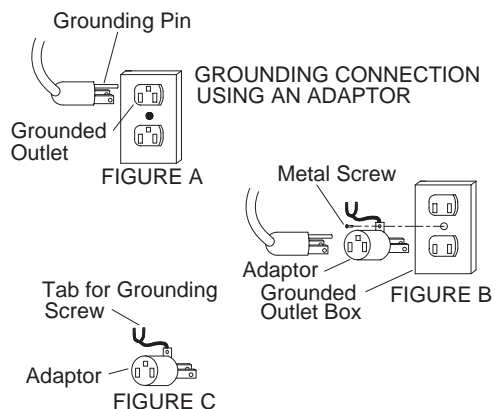
### ELECTRICAL:

In the USA this machine operates on a 15 amp nominal 120V, 60 hz, A.C. power circuit. The amp, hertz, and voltage are listed on the data label found on each machine. Using voltages above or below those indicated on the data label will cause serious damage to the motors.

### GROUNDING INSTRUCTIONS:

This appliance must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

This appliance is for use on a nominal 120-volt circuit, and has a grounded plug that looks like the plug in "Fig. A". A temporary adaptor that looks like the adaptor in "Fig. C" may be used to connect this plug to a 2-pole receptacle as shown in "Fig. B", if a properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet (Fig. A) can be installed by a qualified electrician. The green colored rigid ear, lug, or the like extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet box cover. Whenever the adaptor is used, it must be held in place by a metal screw.



Note: Adaptors are not allowed in Canada.

### ⚠ WARNING:

**Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.**

### ⚠ AVERTISSEMENT:

**Le raccordement incorrect du conducteur de terre d'équipement peut entraîner des risques d'électrocution. Vérifiez auprès d'un électricien qualifié ou d'un responsable de l'entretien si vous avez quelque doute que ce soit quant au raccordement à la terre de votre prise murale. Ne modifiez pas la fiche fournie avec l'appareil: si elle ne correspond pas à la prise murale, faites installer une prise adéquate par un électricien qualifié.**

## **SAFETY**

### **GROUNDING INSTRUCTIONS-230V**

***THIS PRODUCT IS FOR COMMERCIAL USE ONLY.***

#### ***ELECTRICAL:***

The amp, hertz, and voltage are listed on the data label found on each machine. Using voltages above or below those indicated on the data label will cause serious damage to the motors.

#### ***EXTENSION CORDS:***

If an extension cord is used, the wire size must be at least one size larger than the power cord on the machine, and must be limited to 50 feet (15.5m) in length.

#### ***GROUNDING INSTRUCTIONS:***

This appliance must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This appliance is equipped with a cord having an equipment-grounding conductor and grounding plug. The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

#### **⚠ WARNING:**

***Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance - if it will not fit the outlet, have a proper outlet installed by a qualified electrician.***

#### **⚠ AVERTISSEMENT:**

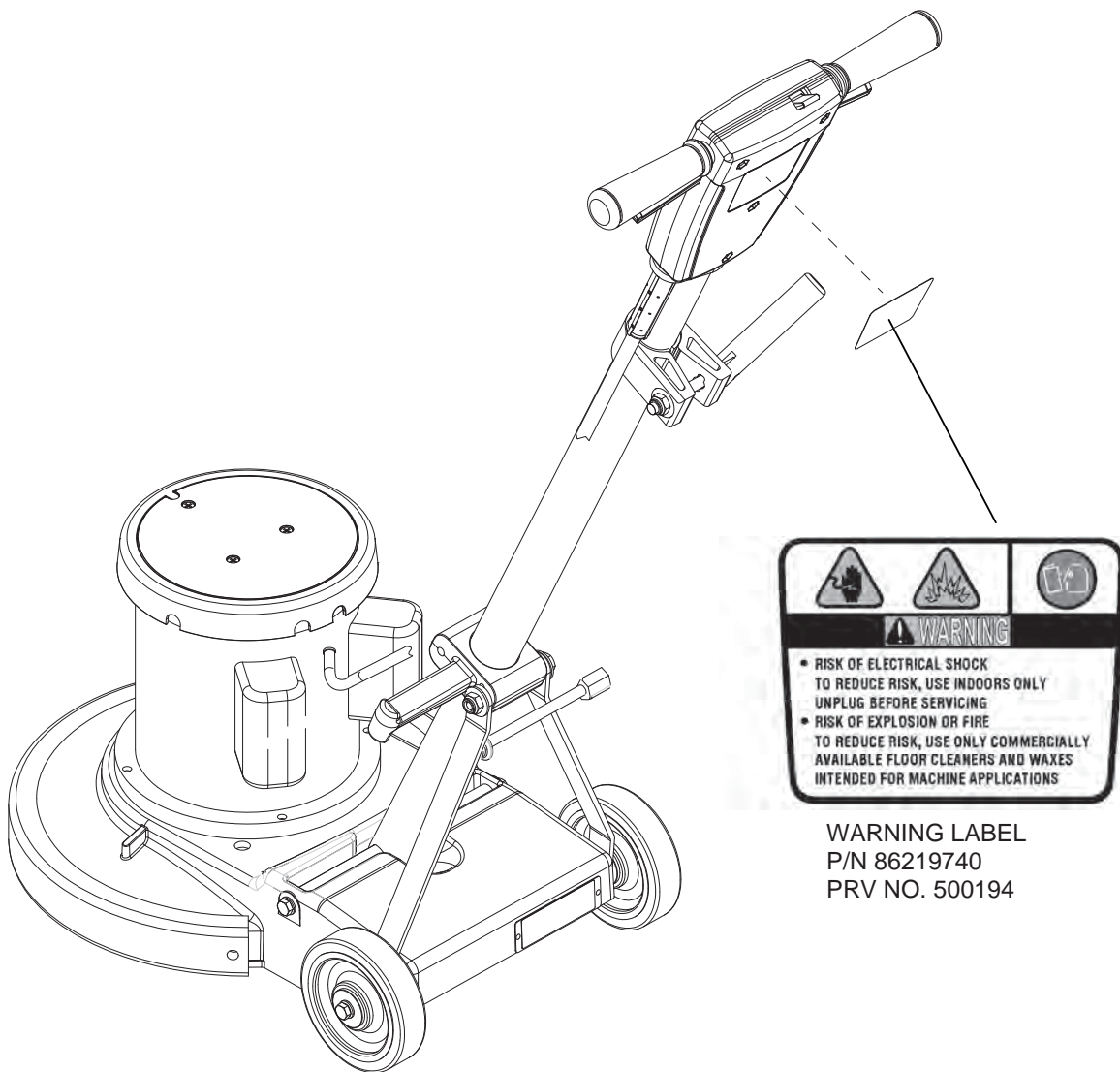
***Le raccordement incorrect du conducteur de terre d'équipement peut entraîner des risques d'électrocution. Vérifiez auprès d'un électricien qualifié ou d'un responsable de l'entretien si vous avez quelque doute que ce soit quant au raccordement à la terre de votre prise murale. Ne modifiez pas la fiche fournie avec l'appareil : si elle ne correspond pas à la prise murale, faites installer une prise adéquate par un électricien qualifié.***

## SAFETY LABEL LOCATION

**NOTE:** These drawings indicate the location of safety labels on the Machine. If, at any time, the labels become illegible contact your authorized representative for prompt replacement.

## EMPLACEMENT DE L'ÉTIQUETTE DE SÉCURITÉ

**REMARQUE :** Ces dessins indiquent l'emplacement des étiquettes de sécurité sur la machine. Si, à tout moment, les étiquettes deviennent illisibles, contactez votre représentant autorisé pour un remplacement rapide.

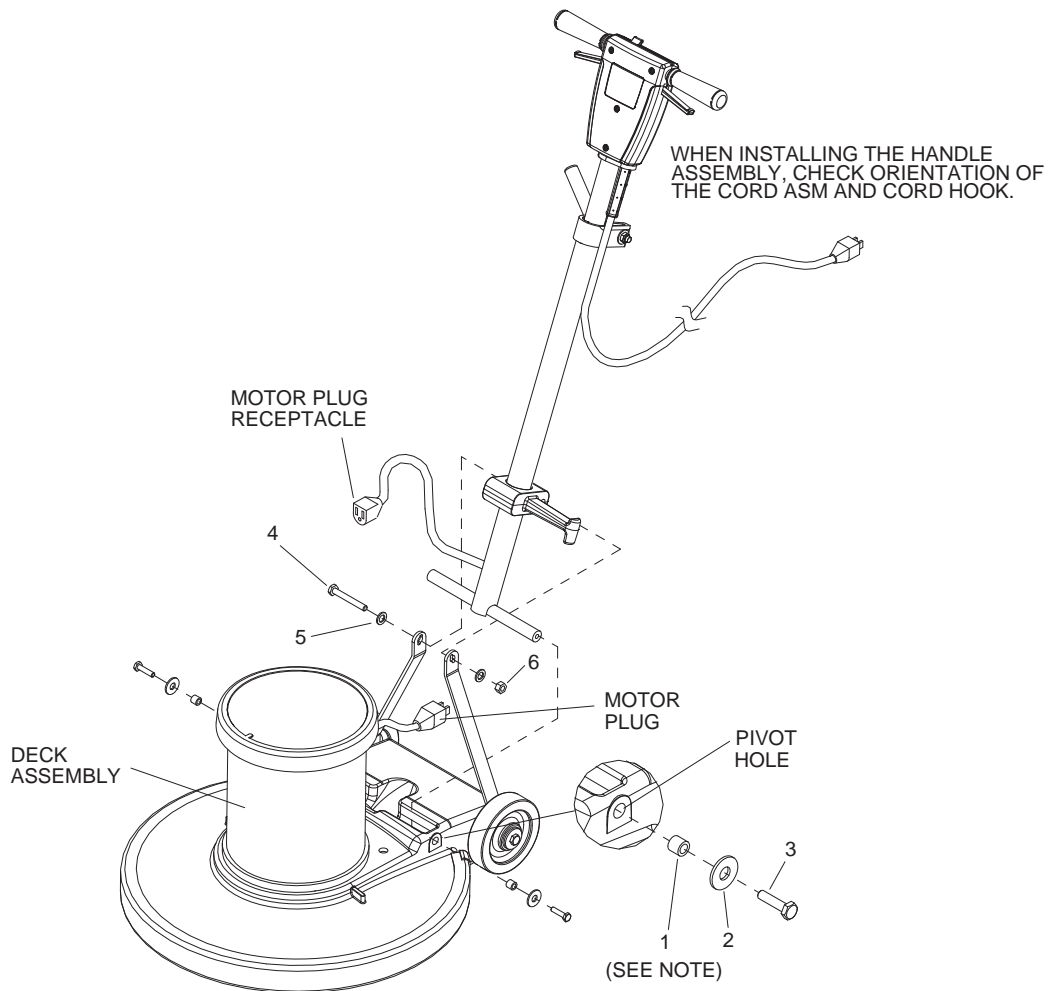


WARNING LABEL  
P/N 86219740  
PRV NO. 500194

## TECHNICAL SPECIFICATIONS

ITEM	DIMENSION/CAPACITY/MODEL
<b>CONSTRUCTION</b>	Heavy-duty die cast aluminum deck with heavy-duty rubber bumper, tubular steel adjustable handle with die cast aluminum handle housing
<b>MOTOR</b>	
1HP 115V induction	SP13, SP15, SP20
1.5HP 115V induction	SP17X, U17X, SPT20X, SP20X, U20X
1.75 HP 115V 175/300RPM	SPDS20, UDS20
1HP 230V induction	SP13IE, SP17IA, SP17IE, SP20IE
1.5 HP 230V induction	SP17HDIE, SP17XIA, SP17XIE
1.75 HP 230V 175/300RPM	SPDS17IA, SPDS17IE
<b>BRUSH/PAD SPEED</b>	
175 rpm	SP13, SP15, SP17X, U17X, SPT20X, SP20X, U20X
146 rpm 230V	SP13IE, SP17HDIE, SP17IA, SP17IE, SP17XIA, SP17XIE, SP20IE
175/300 rpm	UDS20, SPDS20, SPDS17IA, SPDS17IE
<b>ELECTRICAL SYSTEM</b>	
115 volts, 60 Hz	SP13, SP15, SP17X, U17X, SPT20X, SP20X, U20X, SPDS20, USD20
230 volts, 50Hz	SP13IE, SP17HDIE, SP17XIA, SPX17IE, SPDS17IE, SP17IA, SP17XIA, SPDS17IA, SP20IE
<b>CABLE</b>	
50' (15 m), 14/3, built in cord wrap	SP13, SP15, SP17X, U17X, SPT20X, SP20X, U20X, SPDS20, USD20
75' (22.9) 1.5mm <sup>3</sup> , built in cord wrap	SP13IE, SP17HDIE, SP17XIA, SPX17IE, SPDS17IE, SP17IA, SP17XIA, SPDS17IA, SP20IE
<b>SWITCHES</b>	Dual levers with safety lock
<b>WHEELS</b>	Two 5" (12.7 cm) dia., 1.25" (3 cm) wide, non-marking tread
<b>HANDLE</b>	1.5" (4 cm) tubular steel, adjustable, easy to use thumb activated safety lock
<b>DIMENSIONS (L X W X H)</b>	
13" (33 cm) model	21.0" (53 cm) x 14" (36 cm) x 47" (119 cm)
15" (38 cm) model	22.0" (56 cm) x 16" (41 cm) x 47" (119 cm)
17" (43 cm) model	23.0" (58 cm) x 18" (46 cm) x 47" (119 cm)
20" (51 cm) model	24.5" (62 cm) x 21" (53 cm) x 47" (119 cm)

## HANDLE INSTALLATION



**WARNING:** The handle must be installed by qualified personnel. Read all instructions thoroughly. The machine is shipped with handle unassembled.

**AVERTISSEMENT:** La poignée doit être installée par du personnel qualifié. Lisez toutes les instructions attentivement. La machine est livrée avec la poignée démontée.

The machine is shipped with handle unassembled.

Follow these steps for installation:

1. Remove handle and deck assembly from carton.
2. Attach handle assembly to base using hardware kit (**86219680-PRV NO. 47331**) (attached to handle in a plastic bag) items 1, 2, and 3.

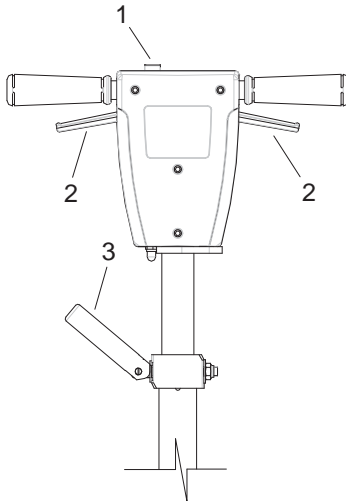
**NOTE:** The spacers (items 1) are required for the correct operation of the handle. The spacers are positioned completely inside the pivot holes in the casting, and are held in place by tightening the bolts and washers (items 2 and 3) against the spacer.

3. Remove bolt, nut and washers (items 4, 5 and 6) from lower block on handle assembly. Attach links as shown. Tighten bolt and nut securely, then back off 1/4 to 1/2 turn.
4. Check handle for movement up and down.
5. Plug motor cord into handle cord receptacle.

# OPERATION

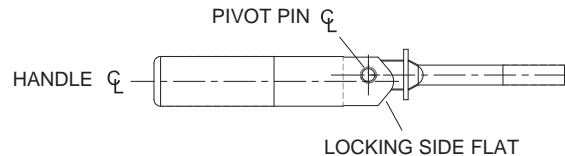
## CONTROLS

1. **Safety Lock** – Prevents unintended operation of the machine.
2. **Switch Levers** – Turns machine on/off.
3. **Adjustment Handle** – Allows the handle to be adjusted to a comfortable operating position.



**NOTE:** It is incorrect to make it lock opposite from the way it was assembled by applying more force to the nut.

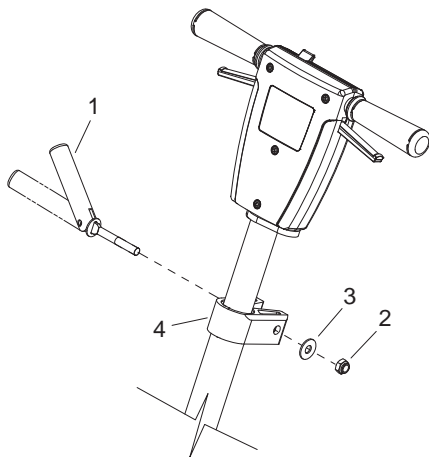
The pivot pin is off center in relationship to the axis of the handle. To adjust handle, tighten nut on handle while in the locked position. The handle is locked when the screw is to the outside of the machine and the flat on the opposite side of the handle is flush to the bracket.



---

## HANDLE HEIGHT ADJUSTMENT

**NOTE:** The handle is in the up, locked position from the factory.



The handle adjust bar (1) for the polishers are individually preset at the factory for optimum locking efficiency and minimum effort of engaging. It should not be necessary to adjust the handle adjust bar unless the handle adjustment bar (1) the washer (3) and nut (2) have been disturbed.

## MACHINE OPERATION

### **⚠ CAUTION:**

For indoor use only.

### **⚠ ATTENTION:**

Pour utilisation à l'intérieur seulement.

### **⚠ CAUTION:**

When using the pad, always keep the machine moving when in contact with the floor.

### **⚠ ATTENTION:**

Lorsque vous utilisez le coussin protecteur, gardez toujours la machine en mouvement lorsqu'elle est en contact avec le sol.

### **⚠ WARNING:**

High starting torque. Hold machine firmly with both hands.

### **⚠ AVERTISSEMENT:**

Couple de démarrage élevé. Tenez la machine fermement à deux mains.

1. Ensure that the pad driver is in good shape. Install or change pad if necessary.
2. Plug the machine into a wall outlet as described in the grounding instructions.
3. Lower the handle by unlocking the adjustment handle and moving the handle into position. Relock the handle when it is in a comfortable position.

### **⚠ WARNING:**

*Insure that handle is locked in position before starting machine.*

### **⚠ AVERTISSEMENT:**

*Assurez-vous que la poignée est bloquée en position avant de démarrer la machine.*

4. Push the safety lock forward, unlocking the switch levers.
5. With the safety lock forward, squeeze one or both of the switch levers, turning the machine on. (These levers can be operated independently of each other). The safety lock will not re-engage until both levers are released.
6. To stop the machine, release the switch levers.
7. Do not let machine rest on pad. When finished with the machine, return handle to the storage position.

**NOTE:** *The machine is equipped with a circuit breaker to protect the motor in the event an overload condition occurs. The circuit breaker is located on the handle. Push the reset button to restart the machine. If the breaker trips again, correct the cause of overloading before proceeding.*

## DAILY MAINTENANCE

1. Inspect power cord for wear. To prevent electrical shock replace cords with frayed or cracked insulation immediately.
2. Place machine in the storage position.
3. Check pad condition. Change if soiled or torn.

## PAD DRIVER/ BRUSH INSTALLATION

1. Lay machine back, exposing the under side.
2. Place pad driver on the motor lug and rotate counter-clockwise until engaged. To remove, turn clockwise.



**NOTES:**

## SCRUB BRUSHES

*NOTE: All original equipment brushes are equipped with "Perform Alert®". This feature will tell the operator when it is time to replace the scrub brushes. "Perform Alert®" brushes have pre-trimmed bright yellow tufts to indicate the length of a worn out brush. When the tufts in the scrub brush wear to a length equal to the yellow tufts, the scrub brushes should be replaced.*

There are five different types of brushes available to cover applications from cleaning heavily soiled floors to polishing. A pad driver is also available to take advantage of the many cleaning pads on the market and further add to the flexibility of the machine.

Please refer to the following to assist in selecting the proper brush or pad for the work at hand.

## UNCOATED FLOORS

**Aggressive Grit** is a nylon fiber impregnated with silicone carbide grit. It grinds away stain, soil, and removes surface material.

**Mild Grit** is a less aggressive silicone carbide grit suitable for cleaning medium soil conditions. Advantages are faster ground speed than nylon bristles on light solid applications.

**Nylon** is a general-purpose scrub brush with stiff bristles. Polypropylene works well for maintaining concrete, wood and tile floors.

## FINISHED FLOORS

**Nylon Polish** is the softest brush. It will gently clean finished tile or terrazzo floors without removing floor finish or floor material. Used for washing highly polished or burnished floors.

**Nylon** bristles are used in a variety of applications on coated or uncoated surfaces.

**White Pads** (Polishing) are used for dry polishing to achieve a high-gloss appearance, or surface washing on highly polished or burnished floors.

**Red Pads** (Buffing) are used for light-duty scrubbing. When used with a mild detergent they will provide surface cleaning without removing the finish.

**Blue Pads** (Scrubbing) are used for heavy-duty scrubbing and light stripping. The blue pads remove less finish than brown stripping pads, yet will remove black marks, stains and dirt.

**Brown Pads** (Stripping) are used for easy and complete removal of old floor waxes/finishes. They will quickly remove ground in dirt, black heel marks, and spills. When used with the proper stripper, this pad leaves the floor clean and ready for finishing.

The scrub brushes should be checked before each days work for wire, string, wear and damage. The scrub brushes should be replaced if brush bristles are missing or if yellow Perform Alert ® indicates minimum brush length.

## SERVICE SCHEDULE

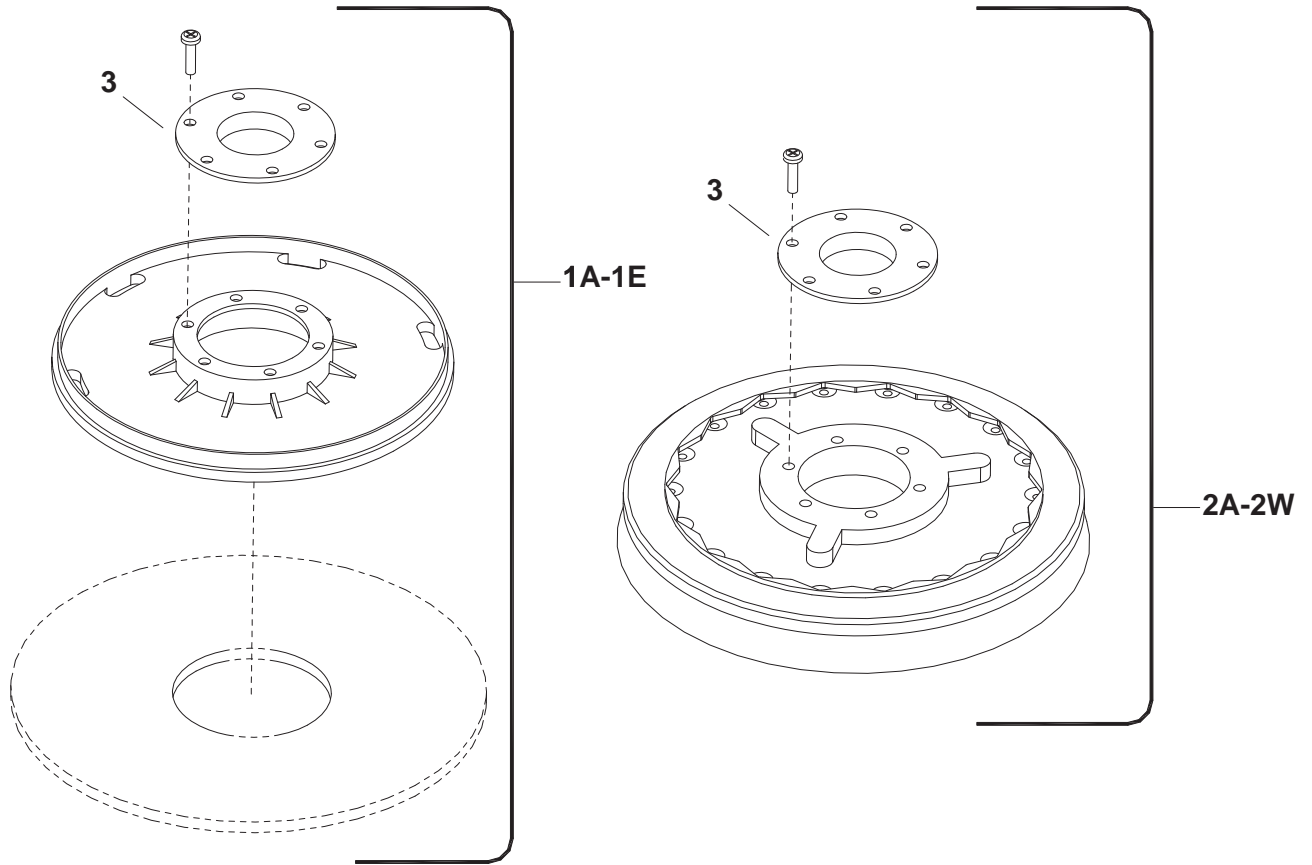
MAINTENANCE	DAILY	MONTHLY
Check pad wear to prevent buildup of chemicals	*	
Check pad driver system for damage	*	
Check handles, switches, and knobs for damage	*	
Store with pad off the floor	*	
Check all bearings for noise		*
Check skirt/bumpers for damage and replace as necessary		*
Check overall performance of machine		*

## MACHINE TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Machine will not run	Circuit breaker tripped in building.	Check and reset.
	Power switch failure	Test switch for continuity and replace if necessary.
	Tripped circuit breaker	Reset.
	Faulty power cord	Replace.
	Fuse in motor blown (Dual speed only)	Replace CAUTION: To reduce the risk of electrical shock, unplug the machine before opening fuse holder. Fuse will only open under extreme conditions. Investigate cause before replacing.
Electrical shock	Equipment not grounded	Follow grounding instructions exactly.
	Receptacle not grounded	Have an electrician inspect building's wiring.
	Internal wiring problem	Ensure that the machine wiring matches the appropriate wiring diagram. Replace any wires or components that are short circuiting.
Repeated circuit breaker tripping	Mechanical problem	Higher amp draws indicate a mechanical problem. Find the problem before using the machine.
	Faulty circuit breaker	Test circuit for continuity. Replace circuit breaker if necessary.
Excessive vibration	Pad not centered	Re-center pad.
	Damaged or unevenly worn pad	Replace pad. Do not rest machine on pad when not in use.
	Damaged pad driver	Replace.
Pad does not turn but motor is running	Sheer coupling has failed	Replace coupling.

**NOTES:**

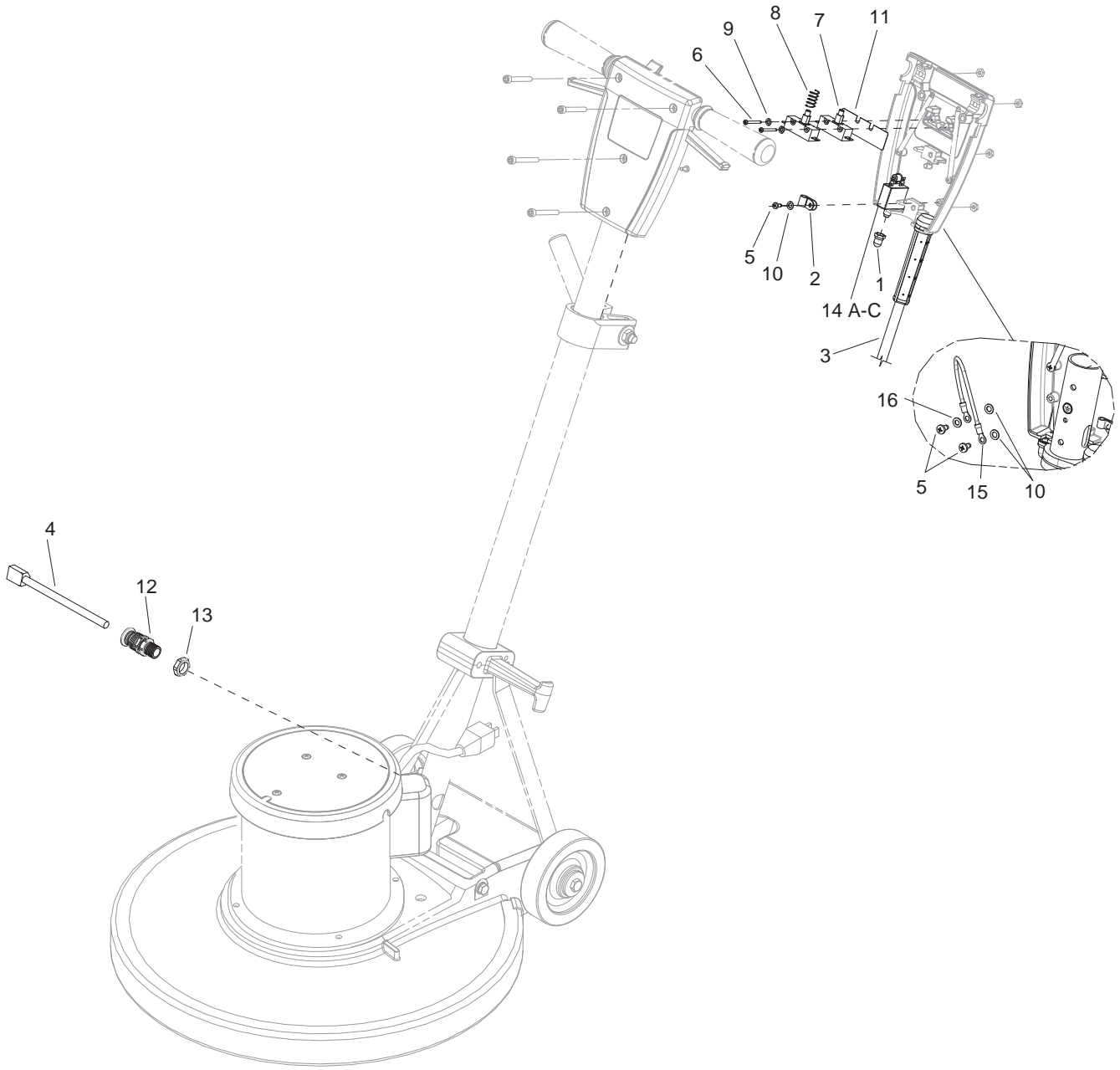
# BRUSH/PAD DRIVER



**BRUSH/PAD DRIVER**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1A	86284280	02216	-	PAD DRIVER, 13" POLISHER		
1B	86284330	02396	-	PAD DRIVER, 15" POLISHER		
1C	86000120	02218	-	PAD DRIVER, 17" POLISHER		
1D	86284290	02217	-	PAD DRIVER, 19" HS		
1E	86284300	02219	-	PAD DRIVER, 20" POLISHER		
2A	86283720	02232	-	BRUSH, 13" NYL.POL. W/CLT.PLT		
2B	86283730	02233	-	BRUSH, 13" NYL.SCRUB W/CLT.PLT		
2C	86283740	02234	-	BRUSH, 13" MILD GRIT W/CLT.PLT		
2D	86283750	02235	-	BRUSH, 13" AGG. GRIT W/CLT.PLT		
2E	86283760	02236	-	BRUSH, 13" POLYPRO W/CLT. PLT		
2F	86230480	02447	-	BRUSH, 15" NYL.POL. W/CLT.PLT		
2G	86230490	02448	-	BRUSH, 15" NYL. SCRUB W/CLT.PLT		
2H	86230460	02445	-	BRUSH, 15" MILD GRIT W/CLT.PLT		
2J	86230450	02444	-	BRUSH, 15" AGG.GRIT W/CLT.PLT		
2K	86230470	02446	-	BRUSH, 15" PLOYPRO W/CLT.PLT		
2L	86000140	02242	-	BRUSH, 17" NYL. POL. W/CLT.PLT		
2M	86283800	02240	-	BRUSH, 17" NYL.SCRUB W/CLT.PLT		
2N	86000130	02241	-	BRUSH, 17" MILD GRIT W/CLT.PLT		
2P	86283710	02205	-	BRUSH, 17" AGG. MALGRIT W/C.P		
2Q	86000110	02206	-	BRUSH, 17" POLYPRO W/CLT. PLT		
2R	86283790	02239	-	BRUSH, 20" NYL.POL.W/CLT.PLT.SFT		
2T	86283770	02237	-	BRUSH, 20" NYL.SCRUB W/CLT.PLT		
2U	86283780	02238	-	BRUSH, 20" MILD GRIT W/CLT.PLT		
2V	86283690	02202	-	BRUSH, 20" AGG. MALGRIT W/C.P.		
2W	86283700	02203	-	BRUSH, 18" POLYPRO W/CLT. PLT		
3	86284350	02220	-	PLATE, PAD CLUTCH		

# ELECTRICAL-120V



**ELECTRICAL-120V**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86002010	14942	1	BOOT, 3/8 CIRCUIT BREAKER		
2	86198450	20005	1	CLAMP, 5/16 NYLON		
3	86234150	23167	1	CORD SET, 14/3 ST X 50FT, YLW		
4	86216920	23206	1	CORDSET, 14/3 X 52 IN, SJT, BLK		
5	86288450	70689	3	SCR, M4.8 X 10 HHTF TYPE B		
6	86136780	70801	2	SCR, M3.5 X 40 PHTF		
7	86007110	72123	2	SWITCH, 25A SPST 125-250V SNAP		
8	86224750	73993	1	SPRING, COMP, .48OD X .91		
9	86137290	87057	2	WASHER, M4 LOCK		
10	86137330	87208	3	WASHER, M5 LOCK		
11	86215140	140674	1	BARRIER SHEET		
12	86224930	730012	1	STRAIN RELIEF, 14/3 STRAIGHT		
13	86224300	730021	1	SPACER, POLISHER HANDLE		
14A	86291460	-	1	BREAKER, 11A VDE CIRCUIT		SP13, SP15
14B	86312500	-	1	BREAKER, CIRCUIT, 13A VDE		SP17X, U17X, SPT20X, SP20X, U20X
14C	86312460	-	1	BREAKER, 14A, VDE CIRCUIT		SPDS20, UDS20
15	86352480	-	1	WIRE, 14AWG, #10R X #10R, YLW W/GRN		
16	86173250	-	1	WASHER, M5, FLAT, ISO7089, SS		

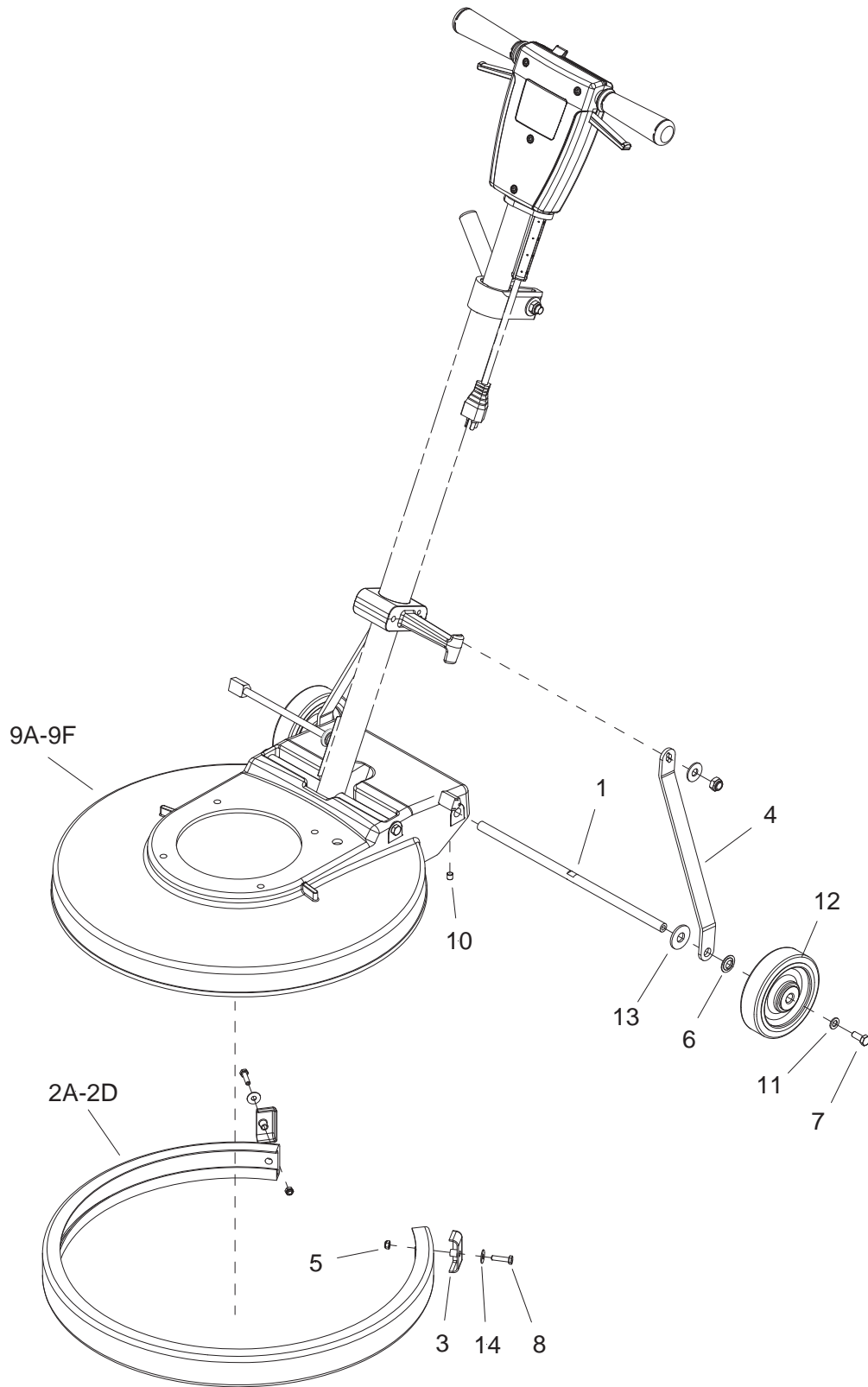




**ELECTRICAL-230V**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86002010	14942	1	BOOT, 3/8 CIRCUIT BREAKER		
2	86198450	20005	1	CLAMP, 5/16 NYLON		
3A	86216950	23212		CORD SET, EURO 1.5MM X 75 BLK		SP13IE, SP17HDIE, SP17IE, SPX17IE, SPDS17IE, SP20IE
3B	86216970	23217		CORD SET, SAA33 1.5MM X 75		SP17IA, SP17XIA, SPDS17IA
4	86216920	23206	1	CORDSET, 14/3 X 52 IN, SJT, BLK		
5	86288450	70689	3	SCR, M4.8 X 10 HHTF TYPE B		
6	86136780	70801	2	SCR, M3.5 X 40 PHTF		
7	86007110	72123	2	SWITCH, 25A SPST 125-250V		
8	86224750	73993	1	SPRING, COMP, .48OD X .91		
9	86137290	87057	2	WASHER, M4 LOCK		
10	86137330	87208	3	WASHER, M5 LOCK		
11	86215140	140674	1	BARRIER SHEET		
12	86224930	730012	1	STRAIN RELIEF, 14/3 STRAIGHT		
13	86224300	730021	1	SPACER, POLISHER HANDLE		
14A	86312470	-	1	BREAKER, 3A, VDE CIRCUIT		SP13IE, SP17IA, SP17IE, SP20IE
14B	86215710	141046	1	BREAKER, 5A VDE CIRCUIT		SP17HDIE, SP17XIA, SP17XIE
14C	86312530	-	1	BREAKER, CIRCUIT 10A, VDE		SPDS17IA, SPDS17IE
15	86217770	23213	1	EMC FILTER ASSY, MB2000I		SPDS17IA, SPDS17IE
16	86352480	-	1	WIRE, 14AWG, #10R X #10R, YLW W/GRN		
17	86173350	-	1	WASHER, M5, FLAT, ISO7089, SS		

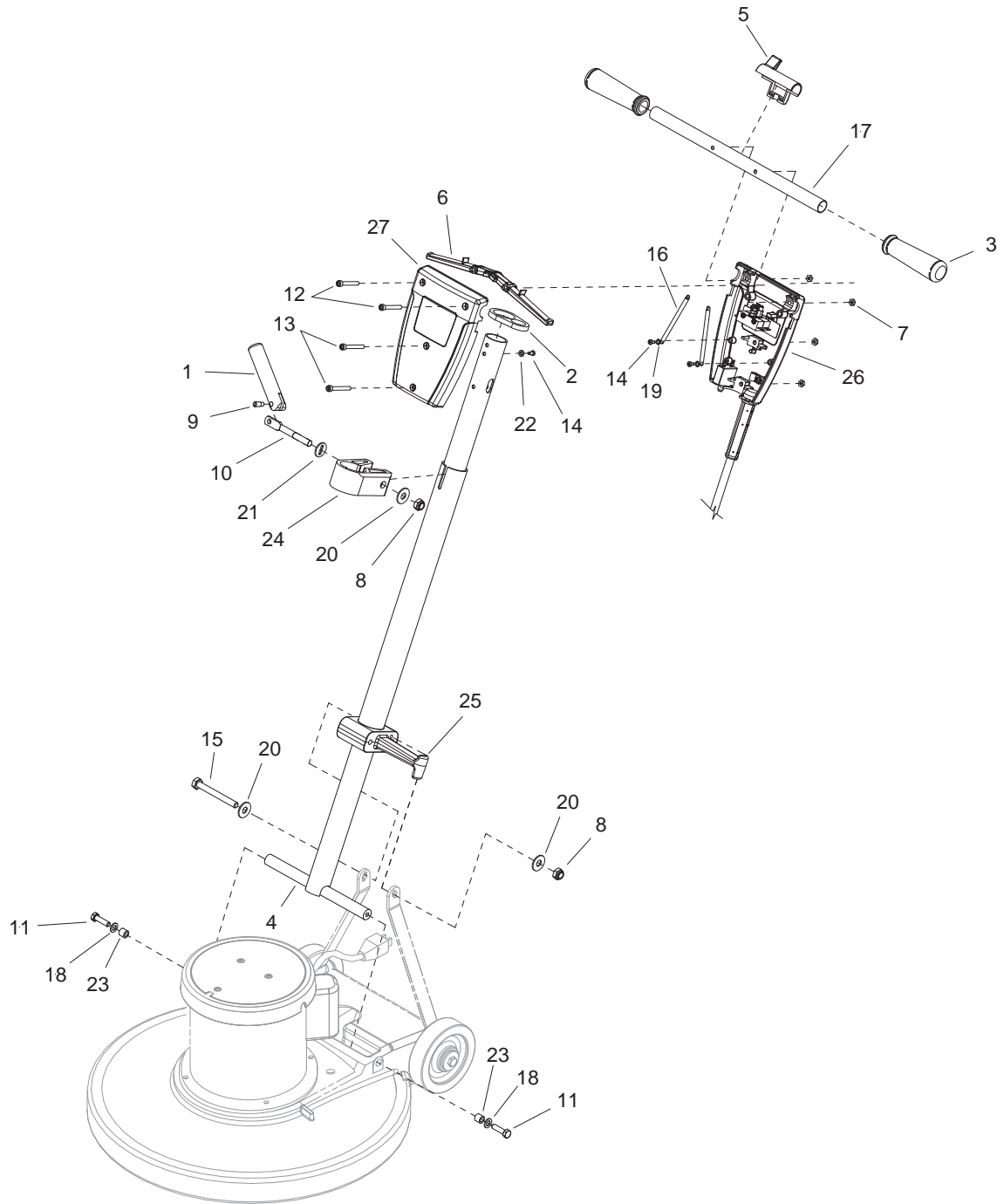
**DECK**



**DECK**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86214930	03111	1	AXLE, MAIN POLISHER		
2A	86216320	14341	1	BUMPER, EXTRUSION 28.7 IN.		SP13, SP13IE
2B	86216330	14371	-	BUMPER, EXTRUSION 35.0"		SP15
2C	86216340	14372	-	BUMPER, EXTRUSION 41.0"		U17X, SP17X, SP17HDIE, SP17IA, SP17IE, SP17XIA, SP17XIE, SPDS17IA, SPDS17IE
2D	86216350	14373	-	BUMPER, EXTRUSION 50.8"		U20X, UDS20, SPT20X, SP20X, SPDS20, SP20IE
3	86216600	27871	2	CAP, EXTRUSION		
4	86221860	51328	2	LINK, HANDLE ADJUST		
5	86271550	57220	2	NUT, M6 X 1 NYLOCK		
6	86222270	57276	2	NUT, PUSH FLAT RD .51 ID		
7	86133340	70262	2	SCR, M8-1.25 X 20 HHMS PLTD		
8	86276570	70691	2	SCR, M6 X 25 HHCS		
9A	86288430	29211	1	DECK, 13 IN POLISHER, BLUE		SP13, SP13IE
9B	86288440	29212	1	DECK, 15 IN POLISHER, BLUE		SP15
9C	86217600	29213	1	DECK, 17 IN POLISHER, BLUE		SP17X, SP17HDIE, SP17IA, SP17IE, SP17XIA, SP17XIE, SPDS17IA, SPDS17IE
9D	86288960	29213GRY	1	DECK, 17 IN POLISHER, GRAY		U17X
9E	86217620	29214BLU	1	DECK, 20 IN POLISHER BLUE		SPT20X, SP20X, SP20IE
9F	86288970	29214GRY	1	DECK, 20 IN POLISHER, GRAY		U20X, UDS20
10	86288740	70709	1	SET SCR, 8MMX1.25X8MM CUP PT		
11	86137280	87054	2	WASHER, M8 FLAT DIN125A PLT		
12	86226020	89206	2	WHEEL, 5D X 1.25 X 13MMID GRY		
13	86225720	87203	2	WASHER, 14MMID X 36MMOD		
14	86137340	87211	2	WASHER, M6 FLAT BLK		

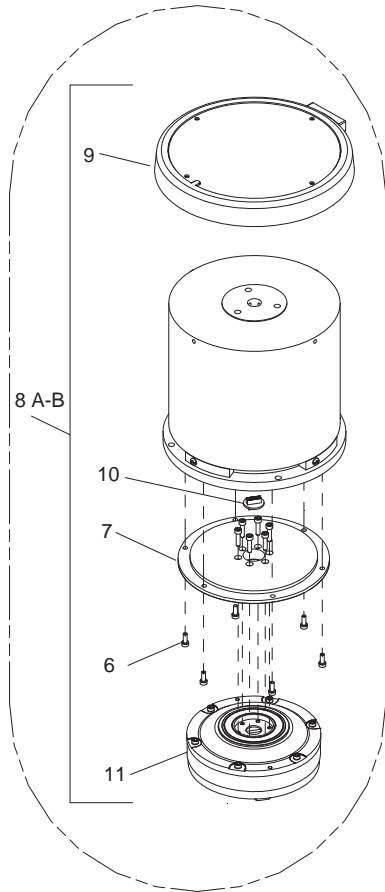
# HANDLE



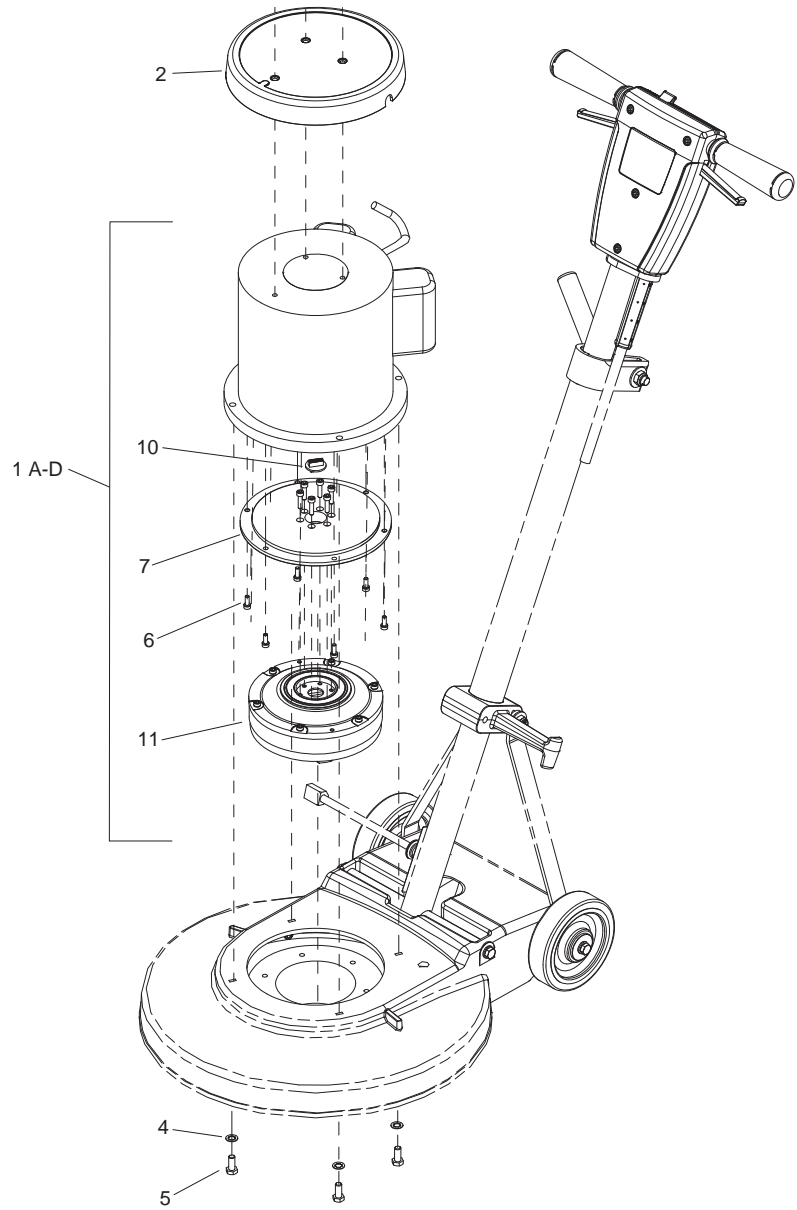
**HANDLE**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1	86215130	14344	1	BAR, HANDLE ADJUST		
2	86216370	14434	1	BUMPER, BURNISHER HANDLE		
3	86004070	36196	2	GRIP, POLISHER HANDLE		
4	86218440	38290	1	HANDLE, POLISHER		
5	86005150	51326	1	LOCK, SAFETY HANDLE		
6	86005160	51327	2	LEVER, SWITCH		
7	86136350	57274	4	NUT, M6 HEX FINISH		
8	86136360	57275	2	NUT, M10 X 1.5 HEX NYLOK PLTD		
9	86222560	66334	1	PIN, PIVOT, HANDLE ADJUST		
10	86223550	67430	1	ROD, HANDLE ADJUST		
11	86274230	70135	2	SCR, M8 X 30 HHMS		
12	86136670	70686	2	SCR, M6 X 45 SHCS, BLK		
13	86136680	70687	2	SCR, M6 X 50 SHCS, BLK		
14	86288450	70689	3	SCR, M4.8 X 10 HHTF TYPE B		
15	86136720	70701	1	SCR, M10 X 1.50 X 90 HHCS PLTD		
16	86224740	73990	2	SPRING, EXT, .50D X 3.5L		
17	86225370	78437	1	TUBE, GRIP HANDLE		
18	86137280	87054	2	WASHER, M8 FLAT DIN15A PLT		
19	86279080	87058	2	WASHER, M4 FLAT DIN125A PLT		
20	86010720	87086	3	WASHER, M10 X 30 PLTD		
21	86225710	87202	1	WASHER, BEARING (HANDLE ADJ)		
22	86137330	87208	1	WASHER, M5 LOCK SHAKEPROOF PLTD		
23	86224290	730008	2	SPACER, .317ID X .50D X .44LG		
24	86310950	-	1	CLAMP, HANDLE		
25	86311800	-	1	TUBE ASSY, HANDLE ADJ.		
26	86311810	-	1	HOUSING, POLSHR HANDLE RR, CB		
27	86311820	-	1	HOUSING, POLSHR HANDLE FRT,CB		

# MOTOR



DUAL SPEED ONLY

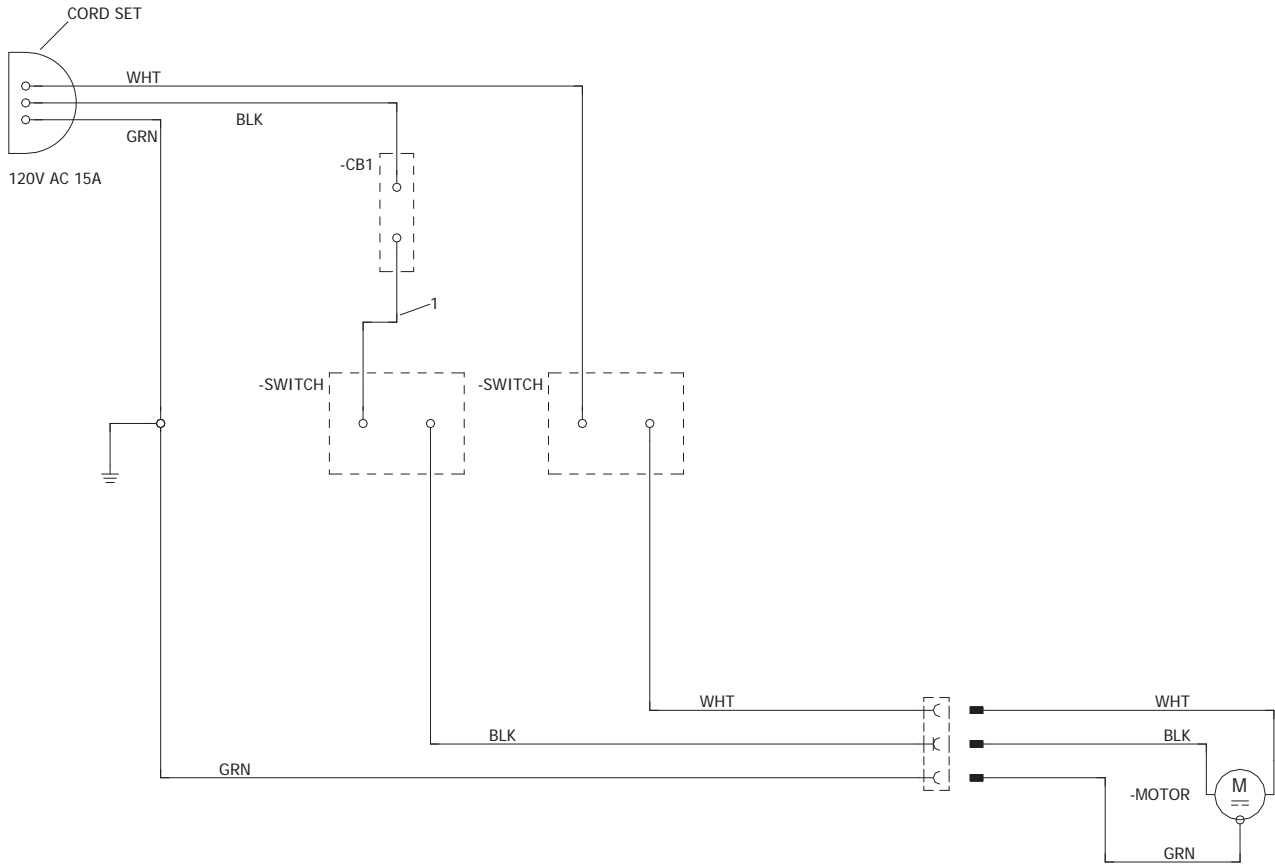


**MOTOR**

REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES
1A	86312270	-	1	MOTOR, 1HP 115V INDUCTION		SP13, SP15
1B	86312280	-	1	MOTOR, 1.5HP 115V INDUCTION		SP17X, U17X, SPT20X, SP20X, U20X
1C	86312300	-	1	MOTOR, 1HP 230V INDUCTION		SP13IE, SP17IA, SP17IE, SP20IE
1D	86312310	-	1	MOTOR, 1.5 HP 230V INDUCTION		SP17HDIE, SP17XIA, SP17XIE
2	86217490	27884	1	COVER, MOTOR		SP13, SP13IE, SP15, SP17X, U17X, SPT20X, SP20X, U20X, SP17IA, SP17IE, SP17HDIE, SP17XIA, SP17XIE, SP20IE
3	86223690	70702	3	SCR, M5 X .8 X 15MM BLK		
4	86136710	70698	4	SCR, 5/16-18 X 3/4 HHCS GR5 BLK		
5	86279090	87067	4	WASHER, 5/16 LOCK INT STAR PLT		
6	86223700	70723	6	SCR, M5 X .8 X 15MM SHCS BLK		
7	86223030	62917	1	PLATE, ADAPTER POLISHER MOTOR		
8A	86312290	-	1	MOTOR, 115V, 1.75HP 175/300RPM		SPDS20, UDS20
8B	86312320	-	1	MOTOR, 230V, 1.75HP 175/300RPM		SPDS17IA, SPDS17IE
9	86217500	27892	1	COVER ASM, MOTOR		SPDS20, UDS20, SPDS17IA, SPDS17IE
10	86135540	27352	1	COUPLING, MTR/GEAR BOX PLSHER		
11	86348280	-	1	GEARBOX, POLISHER		

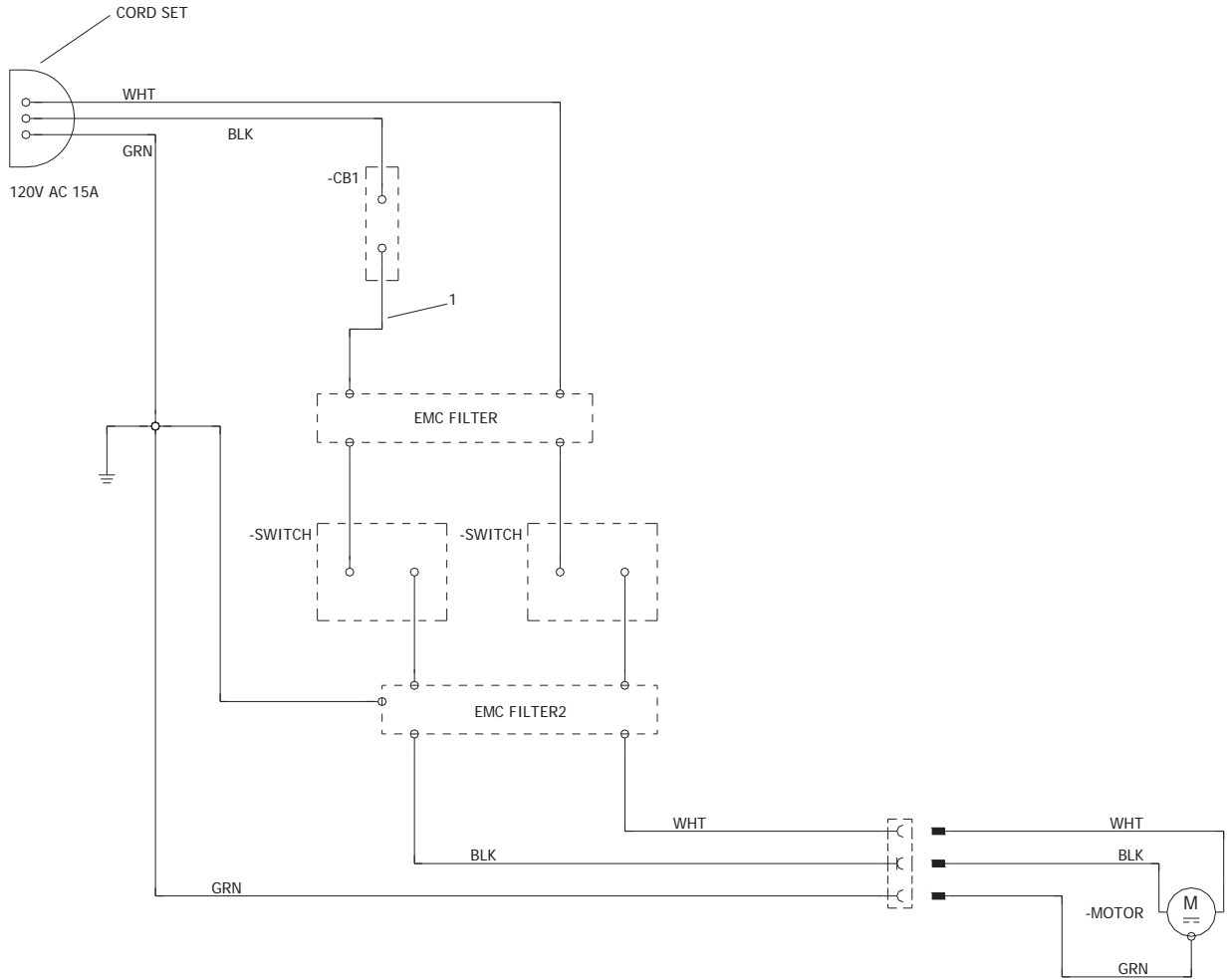


# WIRING-120V



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86311830	-	1	WIRE, 125MM, BLK/14, 76029X76029		

# WIRING -230V



REF	PART NO.	PRV NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	86311830	-	1	WIRE, 125MM, BLK/14, 76029X76029		

## SUGGESTED SPARE PARTS

PART NO.	PRV NO.		SERIAL NO. FROM	NOTES:
86225710	87202	WASHER, BEARING (HANDLE ADJ)		
86224740	73990	SPRING, EXT .5 OD X 3.5L		
86224750	73993	SPRING, COMP .48 OD X .91 L		
86007110	72123	SWITCH. 25A SPST 125-250V SNAP		
86215130	14344	BAR, HANDLE ADJ		
86222560	66334	PIN, PIVOT, HANDLE ADJ		
86223550	67430	ROD, HANDLE ADJ		
86003660	34378	FUSE		SPDS17IA, SPDS17IE, SPDS20, UDS20
86003670	34379	FUSE HOLDER		SPDS17IA, SPDS17IE, SPDS20, UDS20
86135540	27352	COUPLING, MTR/GEAR BOX PLSHER		
86223390	67488	RECTIFIER, 50A 600V BRIDGE		SPDS20, UDS20
86291460	-	BREAKER, 11A VDE CIRCUIT		SP13, SP15, SP17, SP20
86312500	-	BREAKER, CIRCUIT, 13A VDE		SP17X, U17X, SPT20X, SP20X, U20X
86312460	-	BREAKER, 14A, VDE CIRCUIT		SPDS20, UDS20
86312470	-	BREAKER, 3A, VDE CIRCUIT		SP13IE, SP17IA, SP17IE, SP20IE
86215710	141046	BREAKER, 5A VDE CIRCUIT		SP17HDIE, SP17XIA, SP17XIE
86312530	-	BREAKER, CIRCUIT 10A, VDE		SPDS17IA, SPDS17IE
86223460	67499	RECTIFIER 50A 1000V		SPDS17IA, SPDS17IE

**NOTES:**