

PALMGREN®

6" & 8" COMBINATION GRINDER/BUFFER



Read carefully and follow all safety rules and operating instructions before first use of this product.

DESCRIPTION

Palmgren Combination Grinder/Buffers are equipped with a totally enclosed ball bearing motor. Armature assembly is dynamically balanced for smooth operation. Removable wheel guard allows for easy changing of wheels. Tool rest is adjustable for wheel wear and angle grinding. Grinder/Buffers come complete with spark guard, safety eyeshield and one each grinding wheel, wire wheel and buffing wheel.

UNPACKING

Check for shipping damage. If damage has occurred, a claim must be filed with the carrier immediately. Check for completeness. Immediately report missing parts to dealer.

To be certain the grinding wheels have not been damaged in shipment, strike the edges slightly with a metal object. A ringing sound indicates a good wheel, but a dull noise may signal a fracture.

WARNING: If you suspect a wheel of being fractured, replace it immediately. Fractured wheels may shatter, causing serious injury.

SPECIFICATIONS

82068 - 6" Combination Grinder/Buffer

Horsepower	1/3
Voltage	120/240
Amperes	3.5/1.75
Hertz	60
Phase	Single
RPM	3450
Rotation (viewed from left side)	Clockwise
Wheel diameter	6"
Wheel bore	1/2"

82069 - 8" Combination Grinder/Buffer

Horsepower	3/4
Voltage	120/240
Amperes	7.0/3.5
Hertz	60
Phase	Single
RPM	3450
Rotation (viewed from left side)	Clockwise
Wheel diameter	8"
Wheel bore	5/8"

SAFETY RULES

WARNING: For your own safety, read operating instructions manual before operating tool.

PROPOSITION 65 WARNING: Some dust created by using power tools 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.

WARNING: Your risk from these exposures vary, 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. Always wear OSHA/NIOSH approved, properly fitting face mask or respirator when using such tools.

CAUTION: Always follow proper operating procedures as defined in this manual even if you are familiar with use of this or similar tools. Remember that being careless for even a fraction of a second can result in severe personal injury.

WARNING: Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known 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 vary, 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. Always wear OSHA/NIOSH approved, properly fitting face mask or respirator when using such tools.

BE PREPARED FOR JOB

- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts of machine.
- Wear protective hair covering to contain long hair.
- Wear safety shoes with non-slip soles.
- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are NOT safety glasses.
- Wear face mask or dust mask if operation is dusty.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.

PREPARE WORK AREA FOR JOB

- Keep work area clean. Cluttered work areas and work benches invite accidents.
- Do not use power tools in dangerous environments. Do not use power tools in damp or wet locations. Do not expose power tools to rain.
- Work area should be properly lighted.
- Proper electrical plug should be plugged directly into properly grounded, three-prong receptacle.
- Extension cords should have a grounding prong and the three wires of the extension cord should be of the correct gauge.
- Keep visitors at a safe distance from work area.
- Keep children out of the workplace. Make workshop childproof. Use padlocks, master switches or remove switch keys to prevent any unintentional use of power tools.

TOOL SHOULD BE MAINTAINED

- Always unplug tool prior to inspection.
- Consult manual for specific maintaining and adjusting procedures.
- Keep tool clean for safest operation.
- Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before turning machine on.
- Keep all parts in working order. Check to determine that the guard or other parts will operate properly and perform their intended function.
- Check for damaged parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other condition that may affect a tool's operation.

SAFETY RULES (CONTINUED)

- A guard or other part that is damaged should be properly repaired or replaced. Do not perform makeshift repairs. (Use the parts list to order replacement parts.)

KNOW HOW TO USE TOOL

- Use right tool for job. Do not force tool or attachment to do a job for which it was not designed.
- Disconnect tool from power when changing accessories such as grinding wheels, buffing wheels and the like.
- Avoid accidental start-up. Make sure that the switch is in the off position before plugging in.
- Do not force tool. It will work most efficiently at the rate for which it was designed.
- Keep hands away from moving parts and grinding surfaces.
- Never leave a tool running unattended. Turn the power off and do not leave tool until it comes to a complete stop.
- Do not overreach. Keep proper footing and balance.
- Never stand on tool. Serious injury could occur if tool is tipped over.
- Know your tool. Learn the tool's operation, application and specific limitations.
- Use recommended accessories. Understand and obey all safety instructions supplied with accessories. The use of improper accessories may cause risk of injury to persons.
- Do not over tighten wheel nut. Replace cracked wheel immediately. Use only flanges supplied with the grinder.
- Adjust distance between wheel and tool rest to maintain $\frac{1}{16}$ " or less gap.
- Handle the workpiece correctly. Whenever possible, use tool rest to support workpiece during grinding operation. Turn tool off if it jams.
- Always use guards and eyeshields.
- Clean grinding dust from beneath tool frequently.

ASSEMBLY

Parts to be fastened to the unit should be located and accounted for (See List and Figure 1).

WARNING: Use only cloth buffing wheels on the unguarded shaft end. Grinding wheels and wire wheels may shatter and flying debris may cause serious injury.

IMPORTANT: Do not attempt assembly if parts are missing. Use this manual to order replacement parts.

- A $\frac{3}{8}$ -16 x $\frac{3}{4}$ " Hex head bolt, 2 each
- B $\frac{3}{8}$ " Flat washer, 4 each
- C Tool rest bracket (left & right), 2 each
- D Tool rest (left & right), 2 each
- E $\frac{3}{16}$ " Flat washer, 2 each
- F $\frac{3}{16}$ -18 x 1" Knob, 2 each
- G #10-24 x $\frac{3}{8}$ " Pan head screw, 4 each
- H Upper eyeshield bracket (left & right), 2 each
- I Eyeshield, 2 each
- J Lower eyeshield bracket, 2 each
- K $\frac{1}{4}$ -20 x $\frac{1}{2}$ " Knob, 2 each
- L Spark guard (left & right), 2 each
- M $\frac{3}{8}$ -16 x $\frac{1}{2}$ " Knob, 2 each

TOOL REST ASSEMBLY

- Place tool rest (D) over tool rest bracket and secure in position with $\frac{3}{16}$ -18 x 1" knob (F).

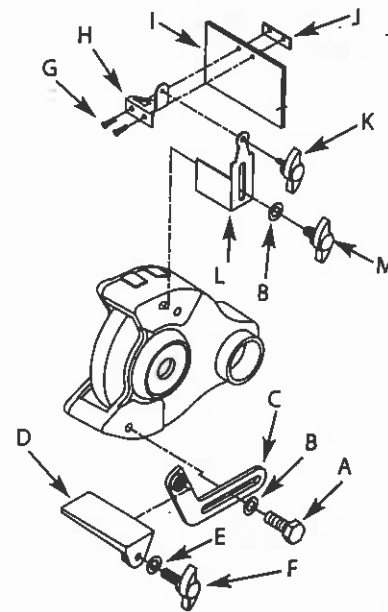


Figure 1 – Left Tool Rest and Eyeshield Assembly

- Attach tool rest bracket to the bottom of the left wheel guard using one $\frac{3}{8}$ -16 x $\frac{3}{4}$ " hex head bolt (A) and one $\frac{3}{8}$ " flat washer (B). Make sure that the slot of the bracket is located over the raised boss on the guard. Tighten bolts finger tight.
- Position tool rest so that distance between tool rest and grinding wheel is less than $\frac{1}{16}$ ". Reposition angle of tool rest if necessary. Secure all knobs and bolts.

EYESHIELD ASSEMBLY

- Attach spark guard (L) to left wheel guard using $\frac{3}{8}$ -16 x $\frac{1}{2}$ " knob (M) and $\frac{3}{8}$ " flat washer (B).
- Mount left upper eyeshield bracket (H) to eyeshield (I) using two #10-24 x $\frac{3}{8}$ " pan head screws (G) and lower eyeshield bracket.
- Slide $\frac{1}{4}$ -20 x $\frac{1}{2}$ " knob (K) through hole at top of left spark guard (L) into upper eyeshield bracket (H) and secure in position.
- Locate eyeshield in desired position for protecting operator and secure all knobs and bolts.

INSTALL BUFFING WHEEL

Refer to Figure 5

To install buffing wheels on the buffer:

- Remove plastic protective sleeves from armature shaft.
- Slide spacer (Ref. No. 41) onto armature shaft.
- Slide inner wheel flange (Ref. No. 5) onto armature shaft.
- Slide in buffing wheel (Ref. No. 40) on the armature shaft and butt it against the inner wheel flange.
- Slide in the outer wheel flange and butt the flat side of the flange against the buffing wheel.
- Tighten hex nut (Ref. No. 39) on to the armature shaft. Make sure the buffing wheel is firmly held in place and the hex nut is snug against the outer wheel flange. Use additional spacers (not supplied) if required.

DANGER: Be sure to empty shop vacuum of all flammable material (flammable liquids and vapors, paper, wood, plastic, etc.) before connecting vacuum to grinder. Hot sparks from grinder may ignite flammable materials in shop vacuum.

INSTALLATION

MOUNT GRINDER

- Mount grinder to a solid horizontal surface (hardware not provided). If mounted to metal pedestal, align mounting holes with corresponding holes in pedestal. Insert a 1/4"-20 x 1 1/4" hex head bolt with flat washer through base of grinder. From bottom of pedestal, place a 1/2" flat washer and 1/4"-20 hex nut onto the bolt. Tighten only until space between grinder base and pedestal is 1/8" (base should be flush for 82101B). Using second nut on each bolt, jam tighten against the first to prevent loosening by vibration.
- To mount grinder to wooden bench top, use 1/4 x 1 1/4" wood screws with flat washers beneath heads. Tighten screws until space between grinder base and bench top is 1/8" (base should be flush for 82101B).

GROUNDING INSTRUCTIONS

WARNING: Improper connection of equipment grounding conductor can result in the risk of electrical shock. Equipment should be grounded while in use to protect operator from electrical shock.

- Check with a qualified electrician if grounding instructions are not understood or if in doubt as to whether the tool is properly grounded.
- This grinder is equipped with an approved 3-conductor cord rated at 300V and a 3-prong, grounding type plug (See Figure 2) for your protection against shock hazards.
- Grounding plug should be plugged directly into a properly installed and grounded 3-prong grounding-type receptacle (See Figure 2).

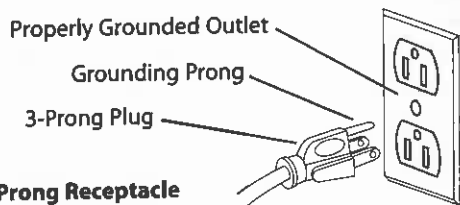


Figure 2 - 3-Prong Receptacle

- Do not remove or alter grounding prong in any manner. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical shock.

WARNING: Do not permit fingers to touch the terminals of plug when installing or removing from outlet.

- Plug must be plugged into matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify plug provided. If it will not fit in outlet, have proper outlet installed by a qualified electrician.
- Inspect tool cords periodically, and, if damaged, have repaired by an authorized service facility.
- Green (or green and yellow) conductor in cord is the grounding wire. If repair or replacement of the electric cord or plug is necessary, do not connect the green (or green and yellow) wire to a live terminal.
- Where a 2-prong wall receptacle is encountered, it must be replaced with a properly grounded 3-prong receptacle installed in accordance with National Electric Code and local codes and ordinances.

WARNING: This work should be performed by a qualified electrician.

- A temporary 3-prong to 2-prong grounding adapter (See Figure 3) is available for connecting plugs to a two pole outlet if it is properly grounded.

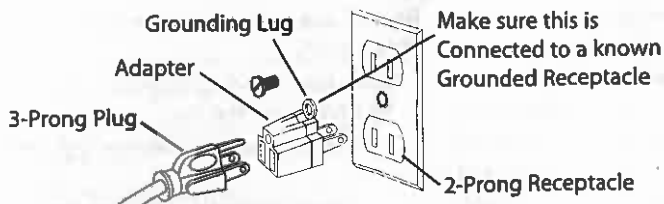


Figure 3 - 2-Prong Receptacle with Adapter

- Do not use a 3-prong to 2-prong grounding adapter unless permitted by local and national codes and ordinances. (A 3-prong to 2-prong grounding adapter is not permitted in Canada.) Where permitted, the rigid green tab or terminal on the side of the adapter must be securely connected to a permanent electrical ground such as a properly grounded water pipe, a properly grounded outlet box or a properly grounded wire system.
- Many cover plate screws, water pipes and outlet boxes are not properly grounded. To ensure proper ground, grounding means must be tested by a qualified electrician.

EXTENSION CORDS

- The use of any extension cord will cause some drop in voltage and loss of power.
- Wires of the extension cord must be of sufficient size to carry the current and maintain adequate voltage.
- Running the unit on voltages which are not within ±10% of the specified voltage may cause overheating and motor burn-out.
- Use the table to determine the minimum wire size (A.W.G.) extension cord.
- Use only 3-wire extension cords having 3-prong grounding type plugs and 3-pole receptacles which accept the tool plug.
- If the extension cord is worn, cut or damaged in any way, replace it immediately.

EXTENSION CORD LENGTH for Model 82068 (120V)

Wire Size	A.W.G.
Up to 25 ft.	18
25 - 100 ft.	16
100 - 150 ft.	14

NOTE: Using extension cords over 150 ft. long is not recommended.

EXTENSION CORD LENGTH for Model 82069 (120V)

Wire Size	A.W.G.
Up to 25 ft.	18
25 - 50 ft.	16
50 - 100 ft.	14
100 - 150 ft.	12

NOTE: Using extension cords over 150 ft. long is not recommended.

INSTALLATION (CONTINUED)**ELECTRICAL CONNECTIONS**

WARNING: All electrical connections must be performed by a qualified electrician. Make sure tool is off and disconnected from power source while motor is mounted, connected, reconnected or anytime wiring is inspected.

- Motor and wires are installed as shown in wiring diagram (See Figure 4, page 5). Motor is assembled with approved, 3-conductor cord to be used at 120/240 volts. Motor is prewired at the factory for 120 volts.
- To use the grinder with a 240V power supply, have a qualified electrician rewire motor and attach a 240 volt, 15A three-prong plug onto grinder line cord.

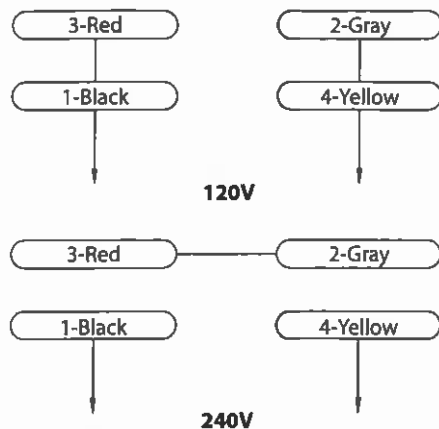


Figure 4 - Wiring Diagram

OPERATION

WARNING: Always wear safety glasses complying with United States ANSI Z87.1 (shown on package) before commencing power tool operation.

WARNING: Only use the grinding and wire wheels on the guarded shaft end (inside wheel guard). Grinding wheels and wire wheels may shatter and flying debris may cause serious injury.

- Keep a steady, moderate pressure on the work and keep it moving at an even pace for smooth grinding.
- Pressing too hard overheats the motor and prematurely wears down the grinding wheels.
- Note the original bevel angle on the item to be sharpened and try to maintain that angle. Sharpening a cutting edge requires removing burrs from edge.
- Deburring edge is done best by using the grinder to pull burr from edge across the bevel angle.
- The grinding wheel should rotate into object being sharpened.
- Dip work into a coolant regularly to prevent overheating. Overheating can weaken metals.

BUFFING

- Keep a steady, moderate pressure on the work and keep it moving at an even pace for smooth buffing.
- Pressing too hard overheats the motor and prematurely wears down the buffing wheels.
- The buffing wheel should rotate into object being buffed.

MAINTENANCE

- As wheels wear, tool rests should be positioned closer to the face of the wheels.
- The gap between the wheel and the tool rest should not be greater than $\frac{1}{16}$ ". When the wheels are worn to the extent that the $\frac{1}{16}$ " maximum gap cannot be maintained, the wheels should be replaced.
- Replacement wheels should have a minimum rated speed of at least 3600 RPM.
- Maximum wheel diameter is 6" for 82068 and 8" for 82069.
- To loosen nuts holding the wheels, disconnect power and push a wood wedge between the tool rest and the wheel to keep the shaft from turning. The threads on the right side of the grinder (facing unit) are right hand; threads on the left side are left hand. Tighten nuts securely before operating the grinder.
- For grinding efficiency, wheels should be dressed periodically, especially if they become clogged from grinding soft metals.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Grinder won't start	<ol style="list-style-type: none"> 1. Blown line fuse or tripped circuit breaker 2. Low line voltage 3. Material wedged between wheel and guard 4. Defective switch 5. Defective, blown capacitor 	<ol style="list-style-type: none"> 1. If fuse is blown, replace with fuse of proper size. If breaker tripped, reset it 2. Check power supply for voltage and correct as needed 3. Turn grinder off and remove material 4. Replace switch 5. Replace capacitor
Excessive vibration	<ol style="list-style-type: none"> 1. Improper mounting of grinder or accessories 2. Grinding wheel out of balance 3. Improper wheel mounting 	<ol style="list-style-type: none"> 1. Remount 2. Dress wheels or replace wheels 3. Remount wheels, but rotate one wheel 90° with respect to its previous position. Other wheel should remain in its original position
Motor overheating	<ol style="list-style-type: none"> 1. Excess pressure required to grind material 2. Grinding on side of wheel 3. Motor not turning freely (without power) 	<ol style="list-style-type: none"> 1. Dress wheel or replace wheel with one of proper grit 2. Grind only on face of wheel 3. Clean around wheels and shaft and/or replace bearings
Fuses are being blown or circuit breakers are being tripped	<ol style="list-style-type: none"> 1. Overloading due to binding 2. Defective plug 3. Defective cord 4. Defective switch 5. Motor wired for different line voltage 6. Faulty internal wiring 	<ol style="list-style-type: none"> 1. Clean around wheels and shaft and/or replace bearings 2. Replace plug 3. Replace cord 4. Replace switch 5. Rewire motor as per wiring diagram, (See Installation, Page 5) 6. Contact your Palmgren distributor
Motor does not develop proper torque	<ol style="list-style-type: none"> 1. Motor wired for different line voltage 	<ol style="list-style-type: none"> 1. Rewire motor as per wiring diagram, (See Installation, Page 5)

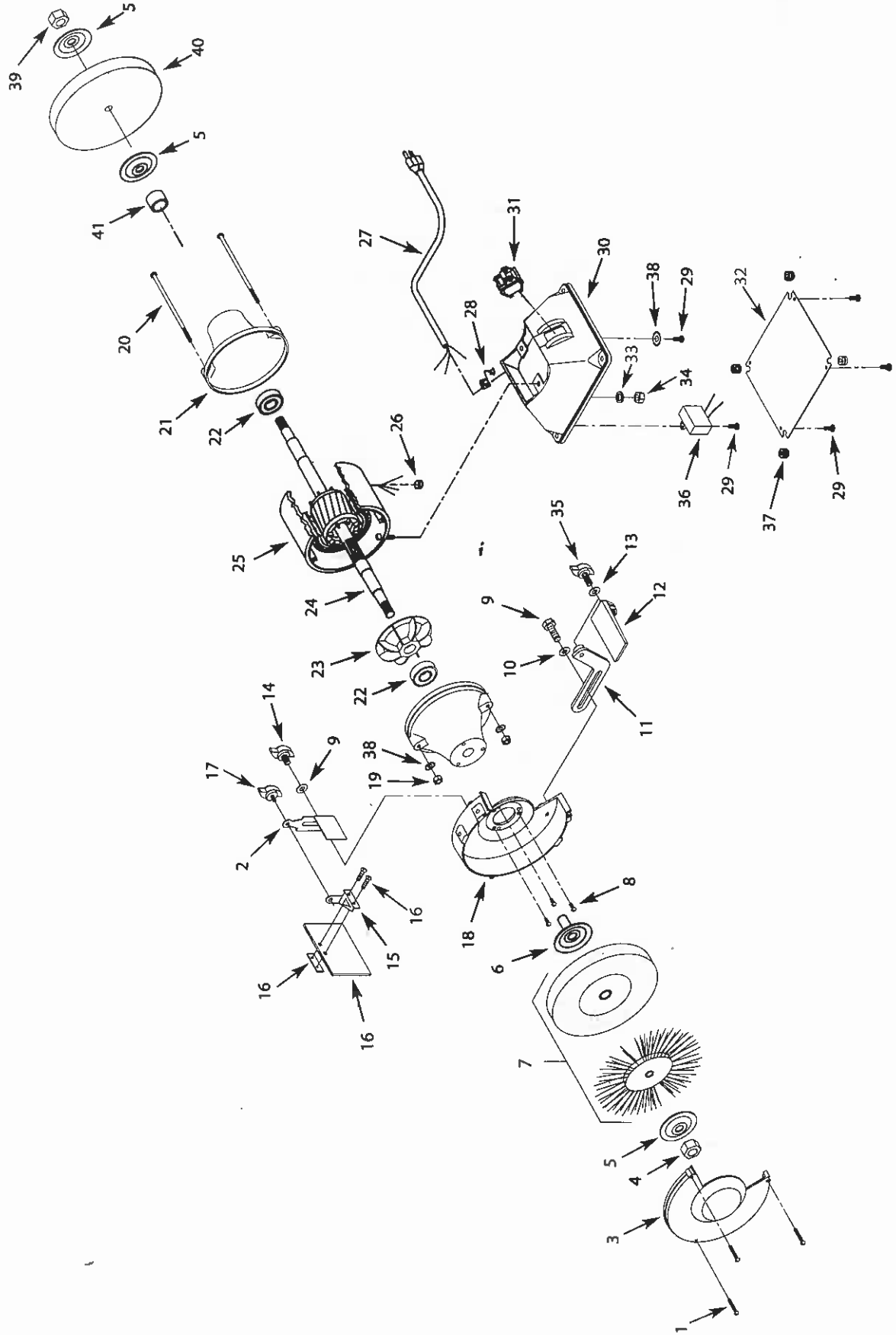


Figure 5 - Repair Parts Illustration for 6" Combination Grinder/Buffer

REPLACEMENT PARTS LIST FOR 6" COMBINATION GRINDER/BUFFER

Ref. No.	Description	Part Number	Qty.	Ref. No.	Description	Part Number	Qty.
1	#10-24 x 1/2" Pan head screw	*	3	24	Armature	†	1
2	Spark guard	36464.00	1	25	Stator with housing	†	1
3	Wheel guard cover	24462.02	1	26	Grommet	01066.00	1
4	1/2-12 Hex nut (LH thread)	00064.00	1	27	Line cord	00067.00	1
5	Flange	18904.00	3	28	Strain relief	04055.00	1
6	Inner wheel flange	17315.00	1	29	#10-24 x 1/4" Flange screw	03210.00	6
7	Wire wheel	36468.00	1	30	Base	23757.02	1
7	Grinding wheel, 36 coarse grit	02034.00	1	31	Switch with key	08066.01	1
8	1/4-20 x 3/8" Flange screw	16670.00	3	32	Cover	23758.00	1
9	3/8-16 x 3/4" Hex head bolt	*	1	33	1/4" Lock washer	*	2
10	3/8" Flat washer	*	2	34	1/4-20 Hex nut	*	2
11	Bracket	25810.00	1	35	5/16-18 x 1" Knob	25812.00	1
12	Tool rest	25813.00	1	36	Capacitor	16908.00	1
13	5/16" Flat washer	*	2	37	Bumper	23991.00	4
14	3/8-16 x 1/2" Knob	25817.00	1	38	#10 Serrated washer	*	3
15	Upper eyeshield bracket	25177.00	1	39	1/2-12 Hex nut (RH thread)	00548.00	1
16	Eyeshield kit	32290.00	1	40	Buffing wheel	36383.00	1
17	1/4-20 x 1/2" Knob	25816.00	1	41	Spacer	36384.00	1
18	Wheel guard	25986.00	1				
19	5-0.8mm Hex nut	*	2				
20	5-0.8 x 200mm Pan head screw	04040.00	2		Recommended Accessories		
21	Endshield	16617.02	2	Δ	Cast iron tool stand	70101	1
22	Bearing 6202z	03878.00	2	Δ	Grinding wheel dresser	82901	1
23	Motor fan	01608.00	1	Δ	Multi-purpose stand	70102	1

Δ Not Shown.

* Standard hardware item available locally.

† Not available as a repair part.

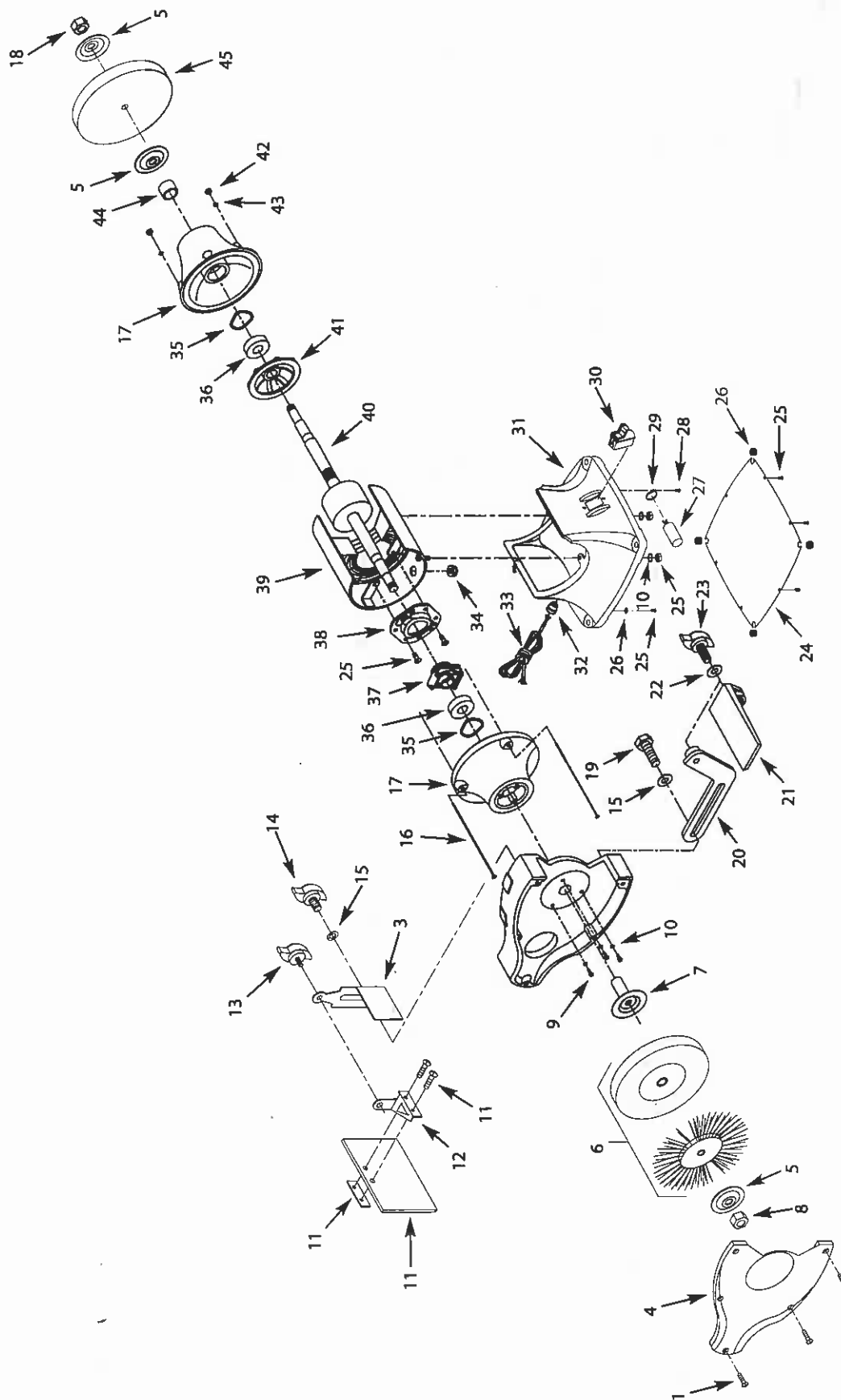


Figure 6 - Replacement Parts Illustration for 8" Combination Grinder/Buffer

REPLACEMENT PARTS LIST FOR 8" COMBINATION GRINDER/BUFFER

Ref. No.	Description	Part Number	Qty.	Part Number	Description	Part Number	Qty.
1	#10-24 x 1/2" Pan head screw	*	5	26	Bumper	23991.00	4
2	Wheel guard	26056.00	1	27	Capacitor	16646.00	1
3	Spark guard	36465.00	1	28	#10-24 x 3/8" Flange screw	03207.00	1
4	Wheel guard cover	24496.02	1	29	Capacitor clamp	16655.00	1
5	Flange	24497.00	3	30	Switch with key	08066.01	1
6	Grinding wheel, 36 coarse grit	02038.00	1	31	Base	24499.02	1
6	Wire wheel	36469.00	1	32	Strain relief	04055.00	1
7	Inner wheel flange	24498.00	1	33	Line cord	00090.00	1
8	5/8-11 Hex nut (LH thread)	00087.00	1	34	Grommet	01066.00	1
9	1/4-20 x 1/2" Hex head bolt	*	3	35	Wavy washer	16640.00	2
10	1/4" Lock washer	*	5	36	Bearing 6204z	00803.00	2
11	Eyeshield kit	32290.00	1	37	Centrifugal switch	25172.00	1
12	Upper eyeshield bracket	25177.00	1	38	Stationary switch	25171.00	1
13	1/4-20 x 1/2" Knob	25816.00	1	39	Stator with housing	†	1
14	3/8-16 x 1/2" Knob	25817.00	1	40	Armature	†	1
15	3/8" Flat washer	*	2	41	Motor fan	22041.00	1
16	5-0.8 x 228mm Pan head screw	16654.00	4	42	5-0.8mm Hex nut	*	4
17	Endshield	16627.02	2	43	5mm Flat washer	*	4
18	5/8-11 Hex nut (RH thread)	00088.00	1	44	Spacer	36466.00	1
19	3/8-16 x 3/4" Hex head bolt	*	1	45	Buffing wheel	36467.00	1
20	Bracket	31447.00	1	Recommended Accessories			
21	Tool rest	25813.00	1	Δ	Cast iron tool stand	70101	1
22	5/16" Flat washer	*	1	Δ	Grinding wheel dresser	82901	1
23	5/16-18 x 1" Knob	25812.00	1	Δ	Multi-purpose stand	70102	1
24	Cover	24500.00	1				
25	#10-24 x 1/4" Flange screw	03210.00	9				

Δ Not Shown.

* Standard hardware item available locally.

† Not available as a repair part.

WARRANTY

Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which it was intended. The warranty does not cover expendable and/or wear parts (i.e. v-belts, coated screws, abrasives), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to one year parts and labor, unless otherwise noted below beginning from the date of delivery to the original user. The Palmgren products carry the following warranties on parts with a 1 year warranty on labor:

- USA Machine vises – Lifetime
- IQ Machine vises – Lifetime
- Bench vises – Lifetime
- Positioning tables – Lifetime
- Bench grinders & buffers – 3 years
- Tapping machines – 2 years
- Drilling machines – 2 years
- Finishing machines – 2 years
- Band saws – 2 years
- Work stands – 2 years
- Arbor presses – 2 years
- Metal forming equipment – 2 years
- Accessories – 1 year

The obligation of Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove deficient. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals. **Failure to follow these instructions will void the warranty.**

This warranty is the purchaser's exclusive remedy against Palmgren for any deficiency in its products. Under no circumstances is Palmgren liable for any direct, indirect, incidental, special or consequential damages including lost profits in any way related to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

SERVICE & REPAIR

1. If a Palmgren product requires a repair or warranty service **DO NOT** return the product to the place of purchase.
2. All warranty related work must be evaluated and approved by Palmgren.
3. Prior to returning any item the user must obtain factory approval and a valid RGA number.
4. For instructions and RGA number call toll free 800-827-3398, fax 800-827-5834.