

W/Imp. MTR. 1100-1500-2000

- OPERATION
- SERVICE
- PARTS
- CARE

*with Imperial
Motors*

Hako Minuteman

Burnishers
Model 1100
Model 1500
Model 2000



OPERATING INSTRUCTIONS

INSPECTION

Carefully unpack and inspect your floor machine for shipping damage. Each unit is tested and thoroughly inspected before shipment and any damage is the responsibility of the delivering carrier who should be notified immediately.

WARNING

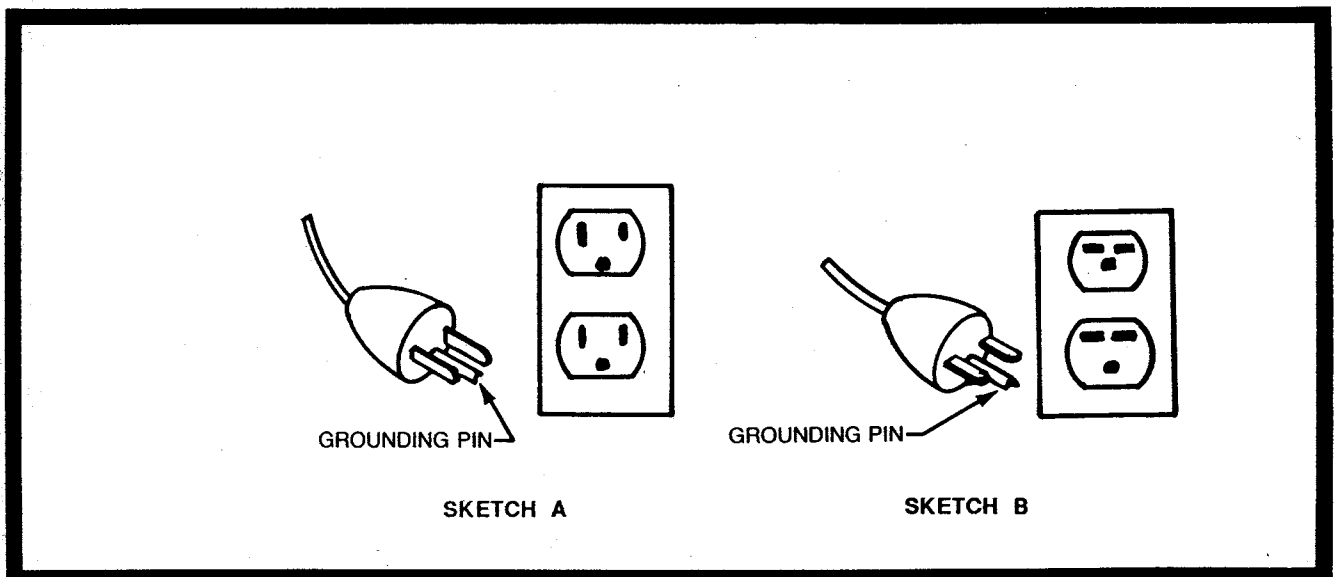
- Read Instruction Manual before operating this piece of equipment.
- To reduce the risk of fire use only commercially available floor cleaners and waxes intended for machine application.
- To reduce the risk of electrical shock, do not expose to rain. Store indoors.
- Electrical motors and components can cause an explosion when operated near volatile materials and vapors. Do not use this machine near flammable materials such as solvents, thinners, fuels, grain dust, etc.

ELECTRICAL

This floor machine is designed to operate on a standard 15 amp, 115 volt, 60 hz, AC circuit. Voltages below 105 volt AC or above 125 volts AC could cause serious damage to the motor.

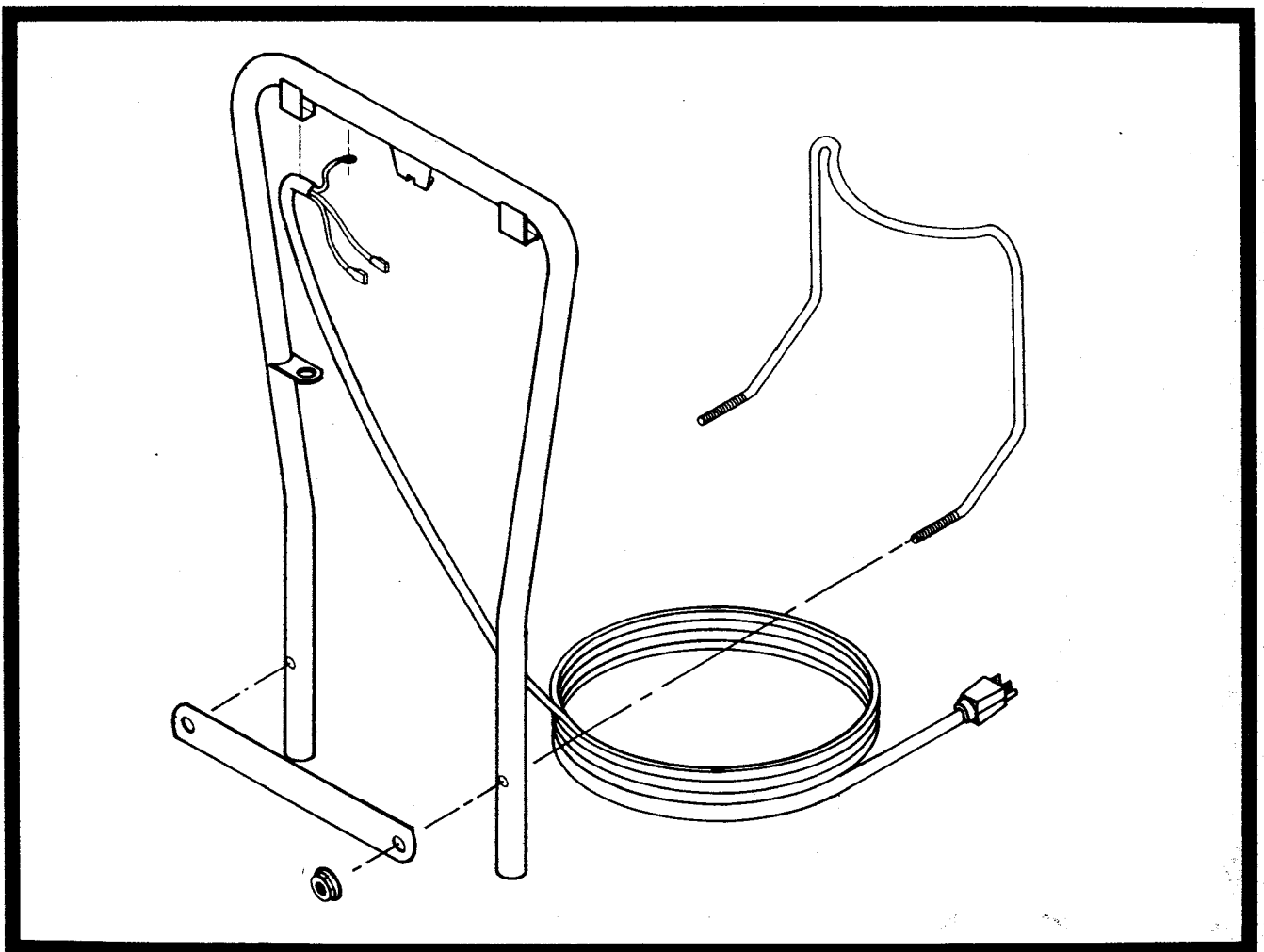
GROUNDING INSTRUCTIONS

- This floor finishing machine should be grounded while in use to protect the operator from electric shock. The machine is equipped with a three-conductor cord and a three-prong grounding type attachment plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect this wire to other than the grounding blade.
- Floor Finishing Machines Rated 150-250 Volts -- If the machine is provided with an attachment plug as shown in sketch B, it is intended for use on a 240 volt (nominal) circuit.



UNPACKING

- Remove 2 flange nuts from cord wrap, leave 2 flange nuts (one each side) on cord wrap.
- **TOP HANDLE & CORD WRAP ASSEMBLY**--Assemble top handle over outside of bottom handle struts. Select the desired handle height using mounting holes in bottom of handle. Assemble cord wrap through handle and attach bar 833518 to either side. Cord wrap may be assembled on either side of handle.
- Handle is of free floating design for operator ease of use. Handle height from floor when in operating position is adjustable. Two 5/16" cap screws located under frame between rear wheels can be screwed up or down to adjust handle stop position as required. Handle is set from factory to lower to 30" from floor.
- **LOWERING HANDLE**--To lower handle, step down on handle release lever on back of the machine. Pull handle backward as you step on release lever. To lock handle in straight-up position, bring handle up to 90°. The locking mechanism automatically locks the handle in position.
- **PAD DRIVER & HOLDER**--The driver comes pre-installed on this machine by means of six screws located around the inner diameter of the pad driver. When installing the polishing pad, center the pad onto the drive. Install the pad holder cup by snapping the cup into the center of the drive. Make sure the cup is completely pushed into the center on all sides.



OPERATION

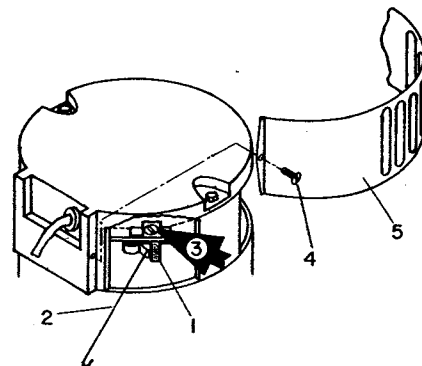
- Plug the machine into a standard 115 volt grounded wall outlet. If an extension cord is to be used it must be a 3-wire cord. The machine is equipped with a 3-wire, 14 gauge cord, 50 feet long. If the extension cord to be used is more than 25 feet a larger wire size cord should be used, preferably a 12 gauge or 10 gauge cord. Failure to use a larger size cord may result in reduced performance and motor overheating.
- Lower the control handle to the operating position by pushing the handle forward until it stops, and stepping down on the handle release lever at the bottom of the machine. When the release lever has been actuated, pull the handle back into an operating position. NOTE: The machine employs a safety lockout switch which prevents the machine from operating while the handle is in an upright position. The handle must be lowered to operate.
- To start the machine, pull back on the switch lever. **CAUTION:** This machine has a high starting torque. Have both hands on the control handle when starting to ensure complete control.
- Burnish with the machine in a straight line. The pace of the machine should be determined by the condition of the floor. Normally the machine can be operated at a slow to medium walking pace. Overlap with the pad driver approximately 2" to 3" when making a pass. For ease of use, start nearest your wall outlet and work away from this point. **CAUTION:** Do not let this machine sit in one spot for more than 5 to 10 seconds. Due to the high RPM's of this machine and the heat it develops, sitting in one spot for periods longer than this may damage the floor finish and possibly the floor itself.
- The machine employs an adjustable spring loaded center caster directly in the center of the pad driver. This caster is preset at the factory to have the machine operate at 14.0 to 14.5 amps. If the machine circuit breaker trips or if the wall circuit breaker trips, adjust the caster to "decrease" the pad pressure on the floor. If the machine is not properly burnishing the floor with full pad contact, adjust the caster to "increase" the pad pressure to the floor.
- This machine employs a motor carbon brush wear indicator light located on the rear of the motor cover. This will illuminate when the brushes are worn to the point where there is approximately 250 running hours remaining. The carbon brushes should be replaced shortly after this light indicates excessive wear.

CARBON BRUSH REPLACEMENT & SERVICE

If Red Indicator glows, carbon brush service required.

Carbon brushes for the high speed floor machine are rated by the manufacturer at 2000 hours. Wear and tear on the brushes will depend on how long the machine is used and in what way. We suggest that you make it a practice to regularly check the condition of the brushes. Brushes should be replaced when overall length of brush is less than 3/8 of an inch.

1. Remove two screws (4), then remove the motor drip cover (5). Look inside the four ports that circle the top part of the motor.
2. Use a strong light to locate the four carbon brushes (1). Two face in one direction and two face in the opposite direction. Use a long slender screwdriver to loosen the screw holding the metal terminal (3). Back off enough turns to slip the terminal out from under the screw.
3. Lift up the copper springs to remove the carbon brushes. You will find it helpful to lift those springs with a special tool that you can easily make. Take a short length of light but stiff wire (about 8" to 12"). Bend the wire into a handle. Make a right angle hook at the other end.
4. Reach in with this special tool (2)--slide the hook under the spring--lift up gently and slide old carbon brush (1) out of the holder.
5. Replace with a new carbon brush by holding up spring and inserting carbon brush. Then slide metal terminal under the screw and tighten.



Preventive Maintenance

1. Inspect motor carbon brushes approximately every 250 hours. A set of carbon brushes should last as long as 2500 hours. Premature wear may indicate other problems with the motor. These can be inspected by removing the motor cover. Indications for changing carbon brushes would be if the indicator light comes on or if the carbon brushes are flush with or slightly recessed in the brass holder.
2. Check the drive belt for wear and proper tension. Retension the belt by loosening the four motor mount screws, then apply force to the motor toward the rear of the machine. Take out excessive slack. Do not overtighten the belt. This can cause excessive loads to the bearings and reduce the belt life.

Trouble-Shooting

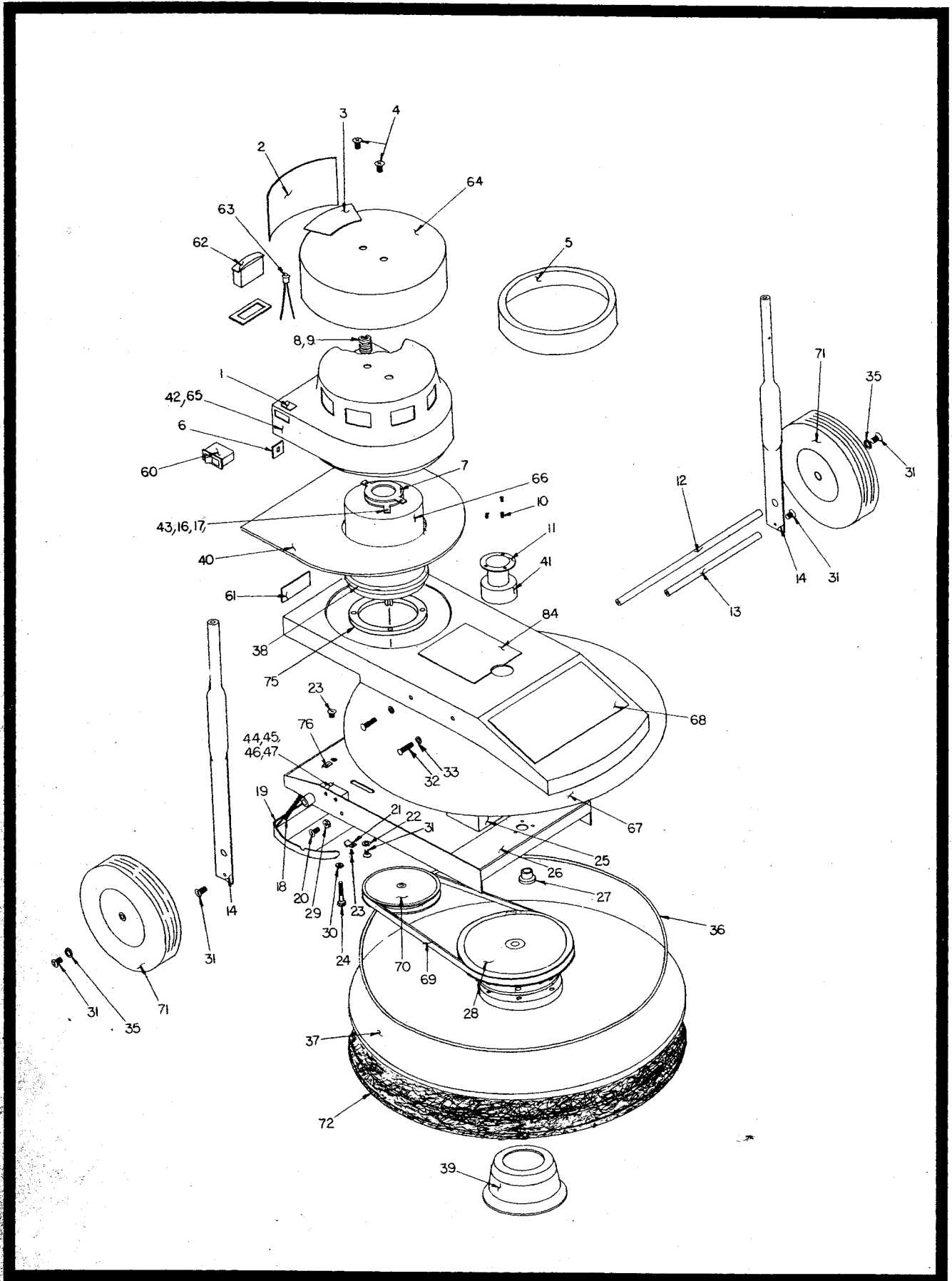
1. Machine will not start —
 - A. Check to see if machine circuit breaker is in the "on" position.
 - B. Check to see if there are any disconnected wires at the motor or switches.
 - C. Check to see if "on/off" switch and safety switch are activating.
2. Motor will not start, circuit breaker trips —
 - A. Check rectifiers in motor for damage.
 - B. Inspect internal wiring for loose connections or direct shorts.
 - C. Inspect carbon brushes for excessive wear.
3. Machine runs short period of time, then circuit breaker trips —
 - A. Check motor carbon brushes for wear.
 - B. Adjust pad pressure to floor to relieve pad pressure.

Basic Floor Preparation

Before burnishing make sure you have a clean floor. Dirt or residue left on the floor when burnishing may be imbedded in the finish after burnishing. The only way to remove it would be to strip the finish from the floor. Dust mop the area to be burnished ahead of time, then clean with a neutral cleaner. The floor is then ready to burnish.

When you notice that the finish does not return to its original lustre or if you notice scratches in the finish are not burnishing out, or if the finish is powdering, you should begin to use a dilutable finish maintaining product. This can be damp mopped and then allowed to dry before burnishing. This will begin to re-plasticize the finish which allows it to flow and repair itself when burnished. This will bring the finish back to its original high lustre.

Regularly scheduled use of the maintainer product will keep the finish at a high lustre and extend the life of the base finish. On a periodic basis it will be necessary to add a coat of your base finish to rebuild it due to wear.



PARTS LIST

Basic Parts

Item No.	Part #	Qty	Description
1	832603	1	Decal Reset
2	831135	1	Decal Filter
3	832627	1	Caution Decal
4	710195	2	Screw 5/16-18 x 1/2
5	832561	1	Filter
6	809443	1	Cord Clip
7	829147	1	Coupling
8	150004	1	Strain Relief
9	832994	1	Strain Relief Nut
10	712829	3	Screw
11	832549	1	Cup
12	832599	1	Axle
13	832581	1	Bottom Handle Lock
14	832579	2	Bottom Handle Strut
15	711142	2	Screw Self Tap 10-24
16	710154	2	Screw 10-32 x 1/2
17	711536	2	Internal Lockwasher
18	832619	1	Spring
19	832609	1	Handle Lock Guard
20	710399	2	Screw 3/8-16 x 1
21	832623	1	Spring Clamp
22	712317	4	Flat Washer
23	712536	1	Screw 10-24 x 5/8
24	711233	2	Cap Screw
25	832626	4	Bottom Dampener
26	832545	1	Base Weldment
27	832554	1	Flange Bushing
28	833212	1	Brush Pulley Assy.
29	711439	2	Lock Nut 3/8-16
30	711379	2	Lock Nut Flange 5/16-18
31	710983	8	Screw 3/8-16 x 5/8 NYL
32	710584	4	Screw 1/4-20 x 3/4
33	712319	4	C-Sink Washer
35	711538	2	Lock Washer
36	833606	1	Shroud Support Ring
37	833201	1	Pad Driver Assy. 833900
38	833006	1	Gasket
39	832950	1	Cup
40	833001	1	Fish Paper
41	832624	1	Dampener
42	833011	1	Shock Pack Motor
43	711505	2	Flat Washer
44	710306	2	Screw 6032 x 7/8
45	711541	2	Lock Washer 6-32
46	711435	2	Nut 6-32
47	829045	1	Switch
48	832784	3	Terminal
49	832629	1	Hex Key
50	833729	1	Diffuser
53	833352	1	Pulley Shaft Assy.
54	833688	1	Carbon Brush Set (Repl.)

Model 1100 115V

Item No.	Part #	Qty	Description
60	832586	1	Circuit Breaker 115V
61	715029	1	Name Plate
62	832552	1	Amp Gauge 115V
63	832859	1	Neon Lite 115V
64	829194	1	Top Cover
65	833206	1	Motor Shroud 115V
66	832780	1	Motor Assy. 115V
67	832547	1	Brush Shroud (White)
68	833079	1	Decal
69	830907	1	V-Belt A-37
70	830904	1	Pulley
71	804452	2	8" Wheel
75	833608	1	Rubber Spacer
84	832594	1	Decal (Pressure Pad) 1

Model 1500 115V

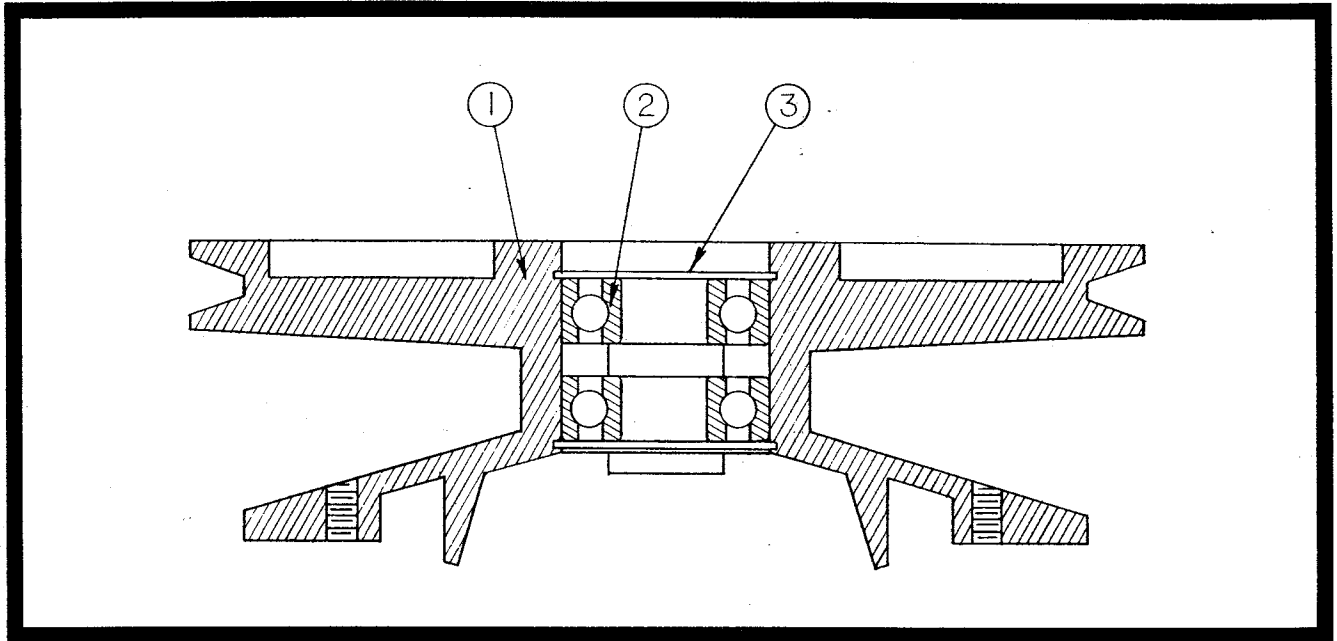
Item No.	Part #	Qty	Description
60	832586	1	Circuit Breaker
61	715029	1	Name Plate
62	832552	1	Amp Gauge
63	832859	1	Neon Lite
64	829194	1	Top Cover
65	833206	1	Motor Shroud
66	832780	1	Motor Assy.
67	832547	1	Brush Shroud (White)
68	833078	1	Decal
69	833074	1	V-Belt A-39
70	833076	1	Pulley AK-46
71	804452	2	8" Wheel
72	832659	1	Natural Pad (Optional)
75	833608	1	Rubber Spacer
84	832594	1	Decal (Pad Pressure)

Model 2000 115V

Item No.	Part #	Qty	Description
60	832586	1	Circuit Breaker 115V
61	715029	1	Name Plate
62	832552	1	Amp Gauge 115V
63	832859	1	Neon Lite 115V
64	829194	1	Top Cover
65	833206	1	Motor Shroud 115V
66	832780	1	Motor Assy. 115V
67	832547	1	Brush Shroud (White)
68	833077	1	Decal
69	832574	1	V-Belt A-40 115V
70	832409	1	Pulley 115V
71	804452	2	8" Wheel
72	832659	1	Natural Pad
84	832594	1	Decal (Pressure Pad)

*760401
 new
 style
 cup
 for above.*

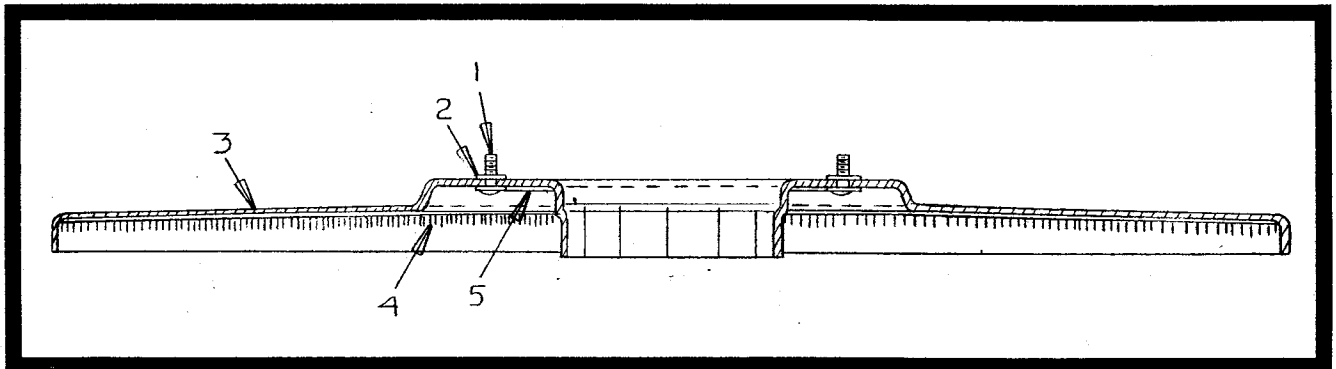
Pulley Assembly 833212



PARTS LIST

Item	Part #	Qty	Description
1	833122	1	Pulley (Machine)
2	881060	2	Bearing
3	881317	2	Snap Ring

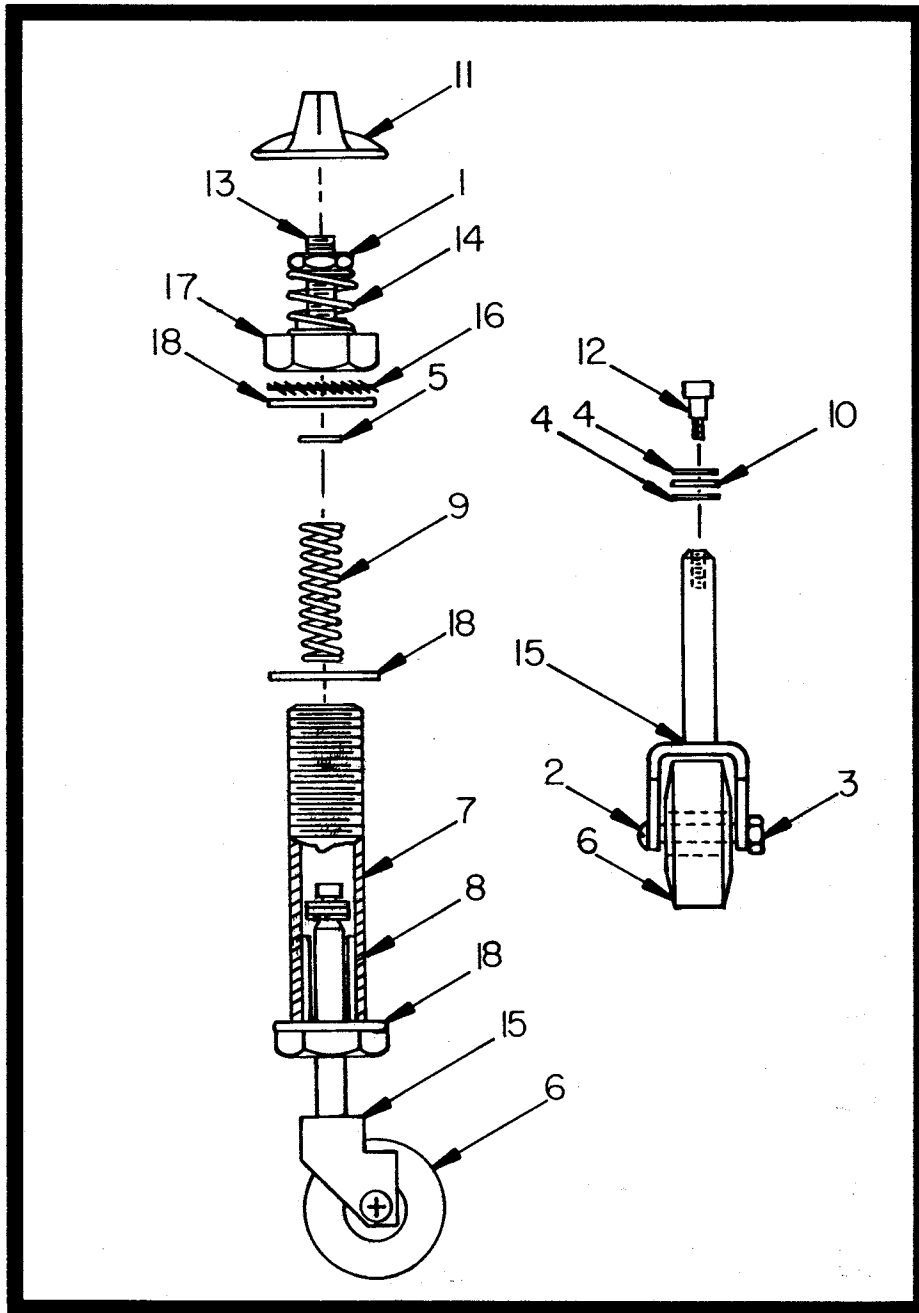
Pad Driver Assembly 833201



PARTS LIST

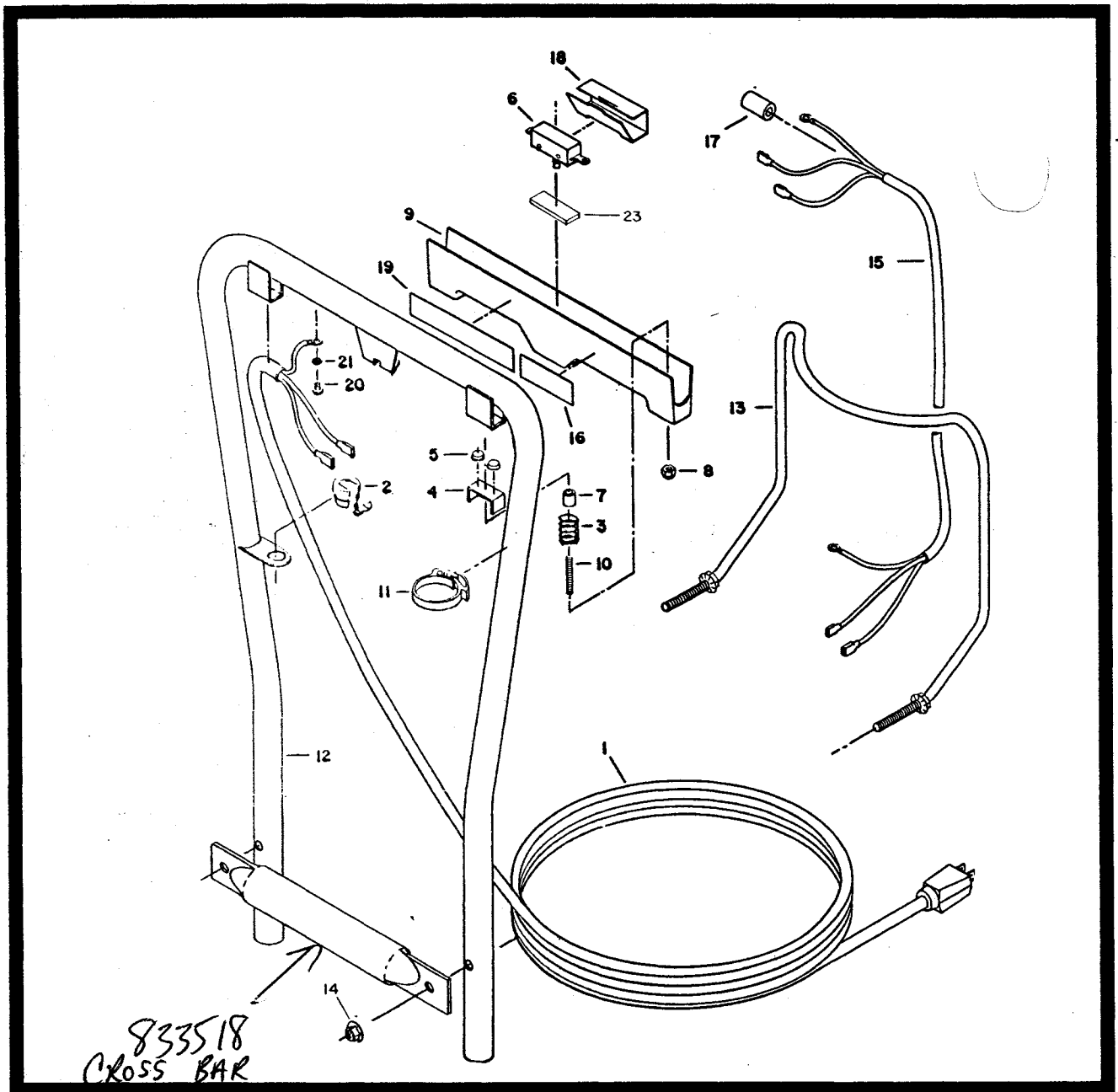
Item	Part #	Qty	Description
1	712550	6	Screw 10-32 x .500
2	833204	6	Bolt Retainers
3	833117	1	Pad Driver
4	833202	1	Pad Holder
5	833723	1	Stress Relief Ring

Caster Tube Assembly 833352



Item	Part #	Qty	Description
1	711319	1	Hex Nut 5/16-18
2	712533	1	Screw 10-24 x 1.25
3	712637	1	Hex Locknut 10-24
4	712763	2	Bearing Race Washer
5	712764	1	#10 Washer
6	762018	1	Soft Tread Wheel
7	787791	1	Caster Tube
8	831089	2	Shaft Bushing
9	831542	1	Spring .31 x .42 x 1.5
10	832186	1	Thrust Bearing
11	832418	1	Adjustment Knob
12	832448	1	Shoulder Screw
13	832453	1	Adj. Screw 5/16-18
14	833102	1	Spring .62 x .75 x 1.75
15	833224	1	Caster Yoke
16	711559	1	Lockwasher .75 I.D.
17	833507PLT	1	Cap Nut
18	712318	3	Flat Washer .75 x 1.12 x .12

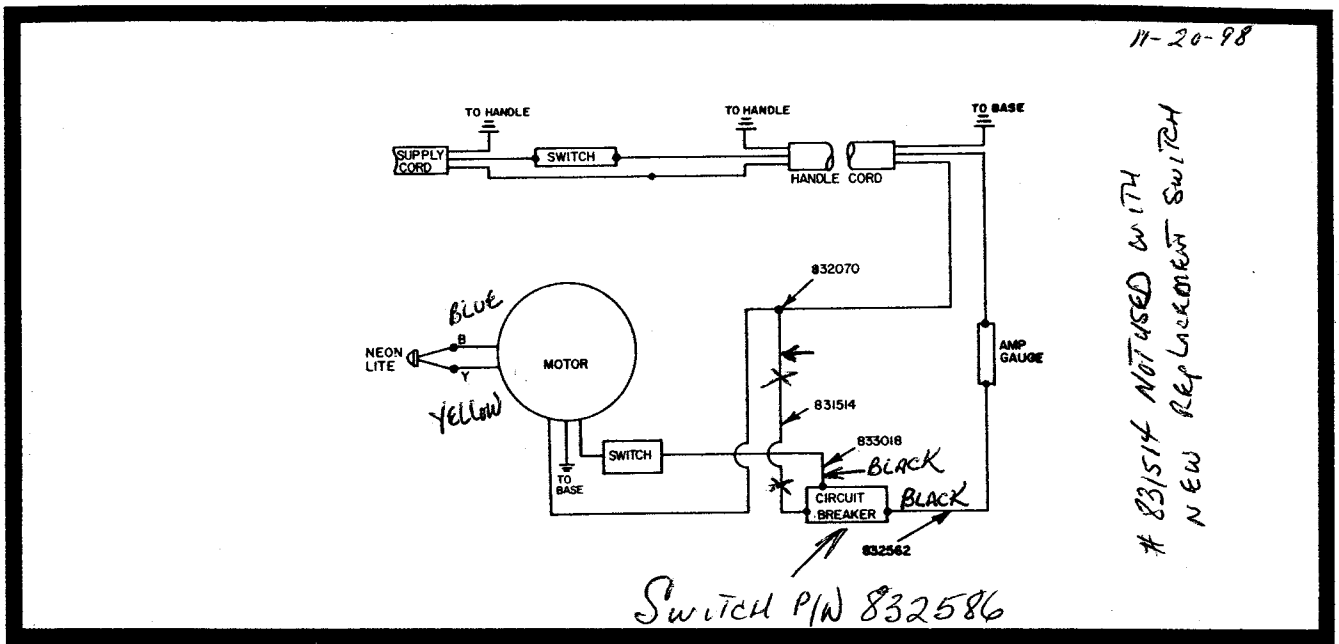
Handle Assembly 833065



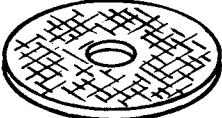
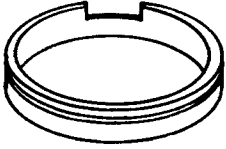

PARTS LIST

Item No.	Part No.	Qty.	Description	Item No.	Part No.	Qty.	Description
1	831948	1	Cord assembly 115V	11	832617	2	Spring clip nylon
2	760145	1	Strain relief 115V	12	833347	1	Handle tube
3	832598	2	Compression spring	13	832551	1	Cord hook
4	832675	2	Clip S.S.	14	711379	2	Flanged wizz nut 5/16-11
5	830453	4	Bumper pads	15	832885	1	Cable assembly
6	740029	1	Switch	17	832993	1	Tubing spacer
7	832576	2	Spacer	18	833505	1	Insulator, handle sw.
8	711360	2	Nut Acorn 1/4-20	19	715073	1	Decal, caution CB
9	832965	1	Switch box cover	20	711142	2	10-24 Self tap
10	711045	2	Screw set 1/4-20 x 1 1/2	21	712307	2	#10 Washers
				23	830557	1	Gasket strip

Wiring Diagram



OPTIONAL ATTACHMENTS

	<p>833220 Buffing Pads, Case of 5</p>
	<p>832643 Air Guard Kit</p>
	<p>832370 Spray Buff Attachment (1100, 1500)</p>