



SGF SEAT GRINDER

PURCHASER'S WARRANTY

KW Products Inc. guarantees all parts of its equipment, to the original purchaser, for one full year from date of recorded warranty (except as provided below) against defects in material or workmanship when the equipment is installed in strict accordance with pertinent specifications and procedures.

KW Products Inc. will repair and/or replace free of charge all such defective parts *only* when returned to the factory in Marion, with shipping charges *prepaid*.

This warranty *does not cover* damage caused by accident, abuse or improper installation, nor repair or replacement of parts worn or consumed in normal operation of the machine.

Additionally, this warranty does not cover such items as dresser diamonds, ball bearings, grinding wheels, belts, carbide tool bits and other accessory items, except at the discretion of the company. The warranty on electric motors or electrical component parts is for a period of ninety days from date of delivery.

This warranty is at no time intended to mean the entire machine.



SGF SEAT GRINDER

RECEIVING SHIPMENT

Upon taking delivery of your machine, carefully inspect the assembly before removing the crating and packing materials.

If evidence of damage exists, contact the shipper and *KW Products Inc.* immediately. Although *KW Products Inc.* is not responsible for damage incurred during transit, you will be provided assistance in preparation and filing of any necessary claims.

CAREFULLY READ THIS MANUAL BEFORE ATTEMPTING TO SET-UP OR OPERATE THIS MACHINE.

Important Note:

Always have your serial number ready when communicating with *KW Products Inc.* regarding parts or service.

Keep this manual in a safe place.

DATE RECEIVED: _____

SERIAL #: _____



SAFETY FIRST

This manual has been prepared for the owner and those responsible for the maintenance of this machine. Its purpose aside from proper maintenance and operations, is to promote safety through the use of accepted practice. **READ THE SAFETY AND OPERATING INSTRUCTIONS THOROUGHLY BEFORE OPERATING THE MACHINE.**

In order to obtain maximum life and efficiency from your machine, follow all the instructions in the operating manuals carefully.

The specifications put forth in this manual were in effect at the time of publication. However, owing to KW Products' policy of continuous improvement, changes to these specifications may be made at any time without obligation.



SAFETY INSTRUCTIONS

1. Read, understand and follow the safety and operating instructions found in this manual. Know the limitations and hazards associated with operating the machine.
2. Eye Safety: Wear an approved safety face shield, goggles or safety glasses to protect eyes when operating the machine.
3. Grounding the Machine: Machines equipped with three prong grounding plugs are so equipped for your protection against shock hazards and should be plugged directly into a properly grounded three-prong receptacle in accordance with national electrical codes and local codes and ordinances. A grounding adapter may be used. If one is used, the green lead should be securely connected to a suitable electrical ground such as a ground wire system. Do not cut off the grounding prong or use an adapter with the grounding prong removed.
4. Work Area: Keep the floor around the machine clean and free of tools, tooling, stock scrap and other foreign material and oil, grease or coolant to minimize the danger of tripping or slipping. Kwik-Way recommends the use of anti-skid floor strips on the floor area where the operator normally stands and that each machine's work area be marked off. Make certain the work area is well lighted and ventilated. Provide for adequate workspace around the machine.
5. Guards: Keep all machine guards in place at all times when machine is in use.
6. Do Not Overreach: Maintain a balanced stance and keep your body under control at all times.
7. Hand Safety: NEVER wear gloves while operating this machine.
8. Machine Capacity: Do not attempt to use the machine beyond its stated capacity or operations. This type of use will reduce the productive life of the machine and could cause the breakage of parts, which could result in personal injury.
9. Avoid Accidental Starting: Make certain the main switch is in the OFF position before connecting power to the machine.
10. Careless Acts: Give the work you are doing your undivided attention. Looking around, carrying on a conversation and horseplay are careless acts that can result in serious injury.
11. Job Completion: If the operation is complete, the machine should be emptied and the work area cleaned.
12. Disconnect All Power and Air to Machine before performing any service or maintenance.
13. Replacement Parts: Use only Kwik-Way replacement parts and accessories; otherwise, warranty will be null and void.
14. Misuse: Do not use the machine for other than its intended use. If used for other purposes, KW Products Inc. disclaims any real or implied warranty and holds itself harmless for any injury or loss that may result from such use.

SGF SEAT GRINDER

SAFETY GUIDE FOR SEAT GRINDER WHEELS

(Read before installing the Wheel)

Importance of Proper Machine Maintenance

The most common cause of wheel breakage is due to improper mounting and abusive and/or careless operation. Only through proper use, regular machine maintenance, service and inspection procedures can wheel breakage be prevented.

It is the responsibility of the user to inspect, at regular intervals, to be certain that mounting flanges are in usable condition, are of proper size and shape and that no damage has occurred to the wheel or the machine.

The following **DO'S** and **DONT'S** should be used as a guide to safer grinding

DO	DON'T
1) CHECK all wheels for CRACKS or other DAMAGE before mounting.	1) DON'T USE wheels WHICH HAVE BEEN DROPPED or otherwise damaged.
2) USE MOUNTING BLOTTERS when supplied with wheels	2) DON'T USE EXCESSIVE PRESSURE WHEN MOUNTING wheel. Tighten nut only enough to hold wheel firmly.
3) Be sure WHEEL HOLE, threaded or unthreaded, FITS machine arbor PROPERLY and that flanges are clean, flat and of the proper type for the wheel you are mounting.	3) DON'T USE HEAVY GRINDING PRESSURE
4) Always RUN WHEEL WITH GUARD IN PLACE at least one minute before grinding (wheel dresser).	4) DON'T USE MACHINE FOR ANY PURPOSE OTHER THAN GRINDING VALVE SEATS.
5) Always WEAR PROTECTIVE SAFETY GLASSES or proper face shield.	
6) Wear a DUST RESPIRATOR, as dust conditions are present in most grinding operations	

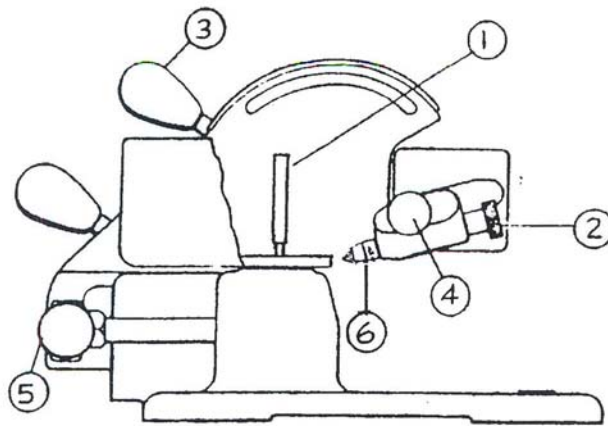
WARNING:

IMPROPER USE MAY CAUSE BREAKAGE AND SERIOUS INJURY

SGF SEAT GRINDER

WHEEL DRESSER SET-UP

1. Loosen handle #3 and rotate the pointer line until it aligns to the index angle desired and retighten.
2. After attaching the correct grinding wheel to the grinder unit, carefully lower the grinder unit onto the dresser arbor item #1
3. Loosen item #5 and raise or lower the arbor until the face of the wheel is in relative position to the diamond (#6). Retighten # 5
4. Adjust the diamond #6 by turning the knurled knob #2 until the diamond is nearly in contact to the face of the grinding wheel.
5. Start the motor and begin dressing the wheel using handle #4 and slowly sweeping the face. (Follow the directions below)



6. Slowly feed the diamond in while moving it across the face of the grinding wheel while moving it with handle #4.

WARNING: Take the lightest cut possible – never jam the diamond into the grinding wheel.

SGF SEAT GRINDER

DRESSING OR TRUING THE VALVE SEAT WHEEL

It is necessary to true or dress seat wheels that have become dull or loaded, or have lost their form (angle). To obtain the best possible dress, observe the following.

1. Feed the diamond into the wheel very slowly until the diamond just touches the wheel.
2. Move the diamond across the face of the wheel beginning from the bottom and sweep up.
A slow sweep will provide a smoother finish while a rapid sweep will provide a coarse finish.

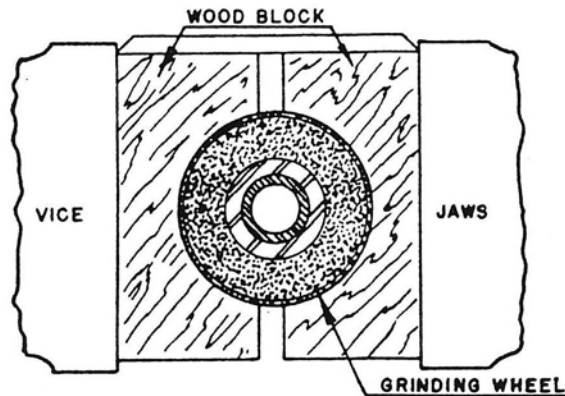
NOTE: How the wheel is dressed will directly influence the finish of the valve seat. Take care when dressing the seat wheels, this will improve valve seat finish and increase diamond life. Check the dress of the wheel frequently during the seat grinding operation. It is better to dress frequently and remove a slight amount of wheel than to wait too long and have a necessity to remove an excessive amount to correct the wheel

Changing a valve seat stone angle is only advised if it is to increase the stone angle, i.e., taking a 15-degree angle wheel and making it a 30-degree.

It is not cost effective to attempt to reduce an angle, too much abrasive and diamond is required to perform this operation.

WHEEL TIGHTENING

In case the grinding wheel should stick on the grinder unit, take the wooden blocks from the box and use them as shown below. In doing this, be sure to place the blocks up close to the wheel (within 1/8") so the pressure will be taken by the bearing area of the unit rather than by the thin wall in the center. This will avoid any possible damage to the unit.



After gripping the unit tightly, you should be able to unscrew the wheel with the hand. If this cannot be done, the strap-type wrench furnished will loosen the wheel.

CAUTION: Never grip either the grinding unit or grinding wheel directly in a vise. The body of the grinding unit could easily be damaged by doing so or the wheel very likely broken.

SEAT GRINDING

In preparation for grinding valve seats the following should be observed:

1. Select the correct arbor for the valve guide. The correct arbor should extend approximately 2 3/4" above the valve seat.
2. Pass the stem end of the arbor through an oily shop towel. DO NOT squirt oil into the valve guide.
3. Insert the arbor into the valve guide. Care should be taken to insure the valve guide is clean and in good repair.

NOTE: Worn guides will not allow correct reseating of the valve.

4. Select the correct size wheel and angle to grind the valve seat angle. The wheel should be trued prior to attempting to service the seat. Always true the wheel to the manufacturers recommended angle for the valve seat to be serviced. (See dressing the wheel)

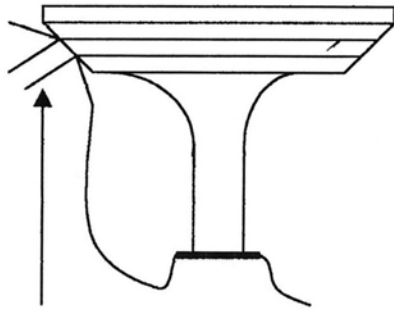
Helpful Hint: Place a piece of fine sandpaper between the face of the grinding wheel and the seat (Abrasive facing the valve seat). Turn the stone holder by hand, this will remove any excess carbon and place it into the sandpaper and not into the wheel. This increases the life of the wheel by reducing excess dressing to remove carbon from the face of the wheel.

5. Hold the grinding motor up and support its weight, do not push down with the motor during the grinding operation. Try to maintain as high a RPM as possible while grinding. Run the stone for approximately 45 seconds then stop and evaluate the seat.

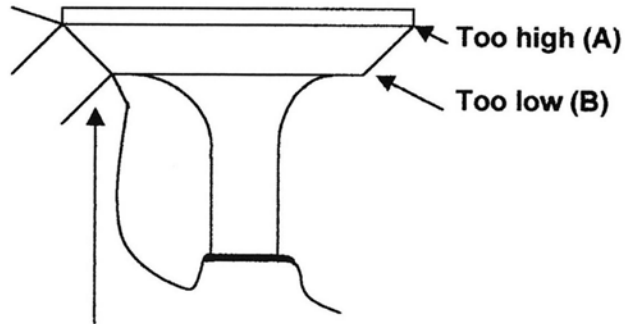
EVALUATION: Seat run-out and surface finish is very critical. Seat width should be to manufacturer specification and runout generally MUST be below .002 for seats over 1.50" in diameter and .0015 for seats smaller in diameter than 1.50".

6. Top angle and throat angle should be ground only when necessary to obtain the correct location of valve seat to valve face. It is also used to narrow a seat angle that is too wide.

VALVE PRINTS

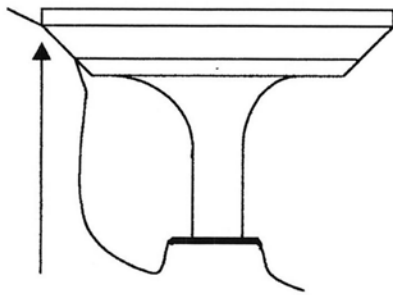


Correct Valve Seat Location



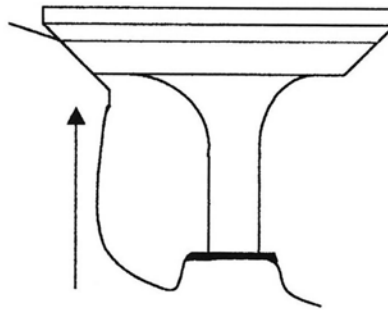
Valve Seat Too Wide

Requires: A) Top angle to lower top
B) Throat angle to narrow seat from bottom



Valve Seat Too High

Requires: Top Angle Lower



Valve Seat Too Low

Requires: Throat Angle Higher

The above illustrations provide guidelines to correct seat width and location. Seat width should be to manufacturer specifications and seat run-out should be as close to 0 as possible. Maximum not to exceed .002 on 1.5" seats or larger and .0015 on seats below 1.5"

SGF SEAT GRINDER

MAINTENANCE

Your Kwik-Way SGF Seat Grinder is designed to require minimal maintenance. However, some basic maintenance assures the unit will continue to operate in a satisfactory manner.

1. The motor features permanently sealed bearings that require no routine oiling.
2. The gears located in the nose housing may require lubrication on a yearly basis. (depending on use) We recommend the following:
 - a. Remove the four cap screws and two pan head screws holding the nose to the motor housing.
 - b. Keep the motor armature in place by holding against the fan with a screwdriver (prevents armature from slipping out of the brushes) and remove the nose housing.
 - c. Once removed, add approximately one teaspoon of grease to the gear cavity of the housing.

CAUTION: Do not overfill, excess grease will cause the gears to run hot.

3. Brushes should be removed and inspected for wear every 3 months or sooner depending on use, replace them as required.

HELPFUL HINTS

A. PRELIMINARY

1. Be sure to remove the carbon from the valve seats, the ports, and be sure to clean the valve stem guides.
2. It is good practice to pass the stem of the arbor through an oily cloth both before and after use. **DO NOT SQUIRT OIL IN THE VALVE GUIDE.**
3. Care should be taken on some aluminum heads. Forcing the arbor to a very tight fit may distort the guide. Valve seats ground under these conditions may not end up being concentric. (Check seats for looseness).
4. Use an arbor that will extend approximately 2-3/4" above the valve seat when properly set in the guide. Using an arbor that does not extend above the valve seat is likely to allow the inner key of the grinder unit to continually disengage and engage. This will break the key and cause premature wear in the sleeve of the guide unit as well as cause considerable difficulty in grinding accurate valve seats.

B. DRESSING THE WHEEL

1. Feed the diamond to the wheel to take a very light cut; then move it across the wheel face until the wheel is entirely trued up. (Never jam the diamond into the wheel nor the wheel against the diamond).
2. Dress the wheel only after the wheel face becomes "worn" or "loaded" by contact with the seat.

C. GRINDING (USE A TAPPING MOTION WHEN GRINDING TO KEEP THE WHEEL CLEAN)

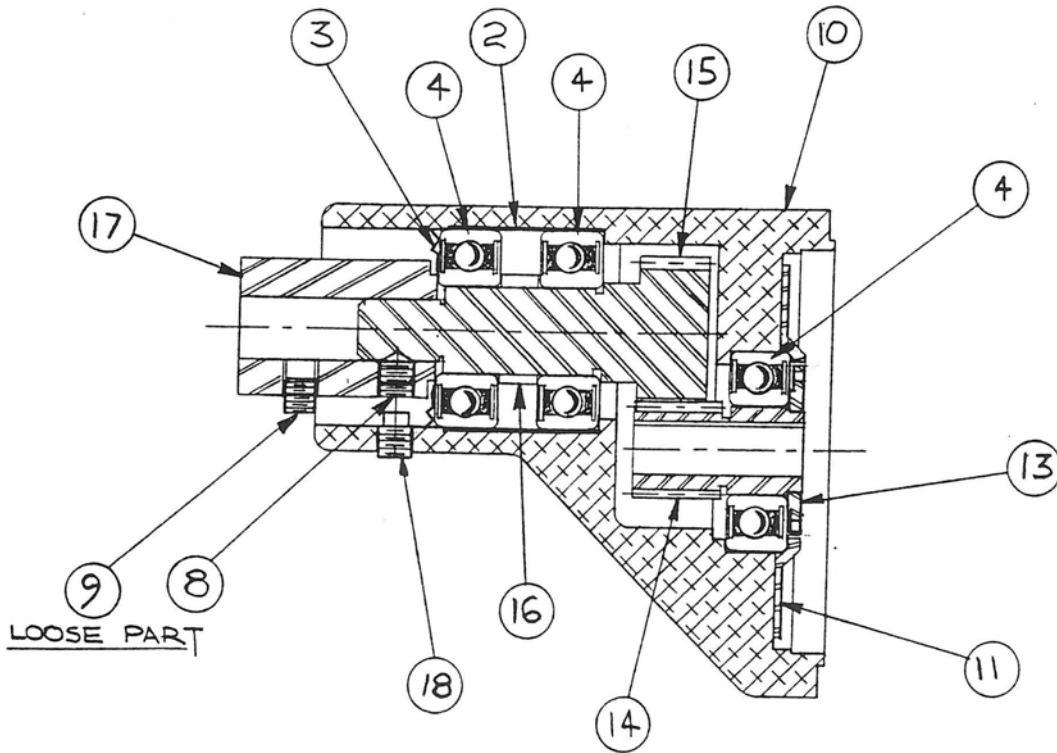
1. Before starting the motor, **LOWER THE UNIT CAREFULLY ON THE ARBOR UNTIL THE WHEEL ALMOST CONTACTS THE SEAT.**
2. The motor should be held directly in line with the grinder unit, so as to exert a minimum of side pressure against the arbor.

D. TIGHT WHEEL

1. If the grinder wheel should stick on the grinder unit, it can usually be removed by gripping the body with the wood block provided, clamped lightly in a vise and unscrewing the wheel by hand. If stuck too tightly to be unscrewed by hand, it can always be loosened by using the strap-type wrench furnished.
2. **CAUTION:** Never grip either the grinding unit or grinding wheel directly in a vise. The body of the grinding unit: could easily be distorted by doing so or the wheel very likely broken.

SGF SEAT GRINDER

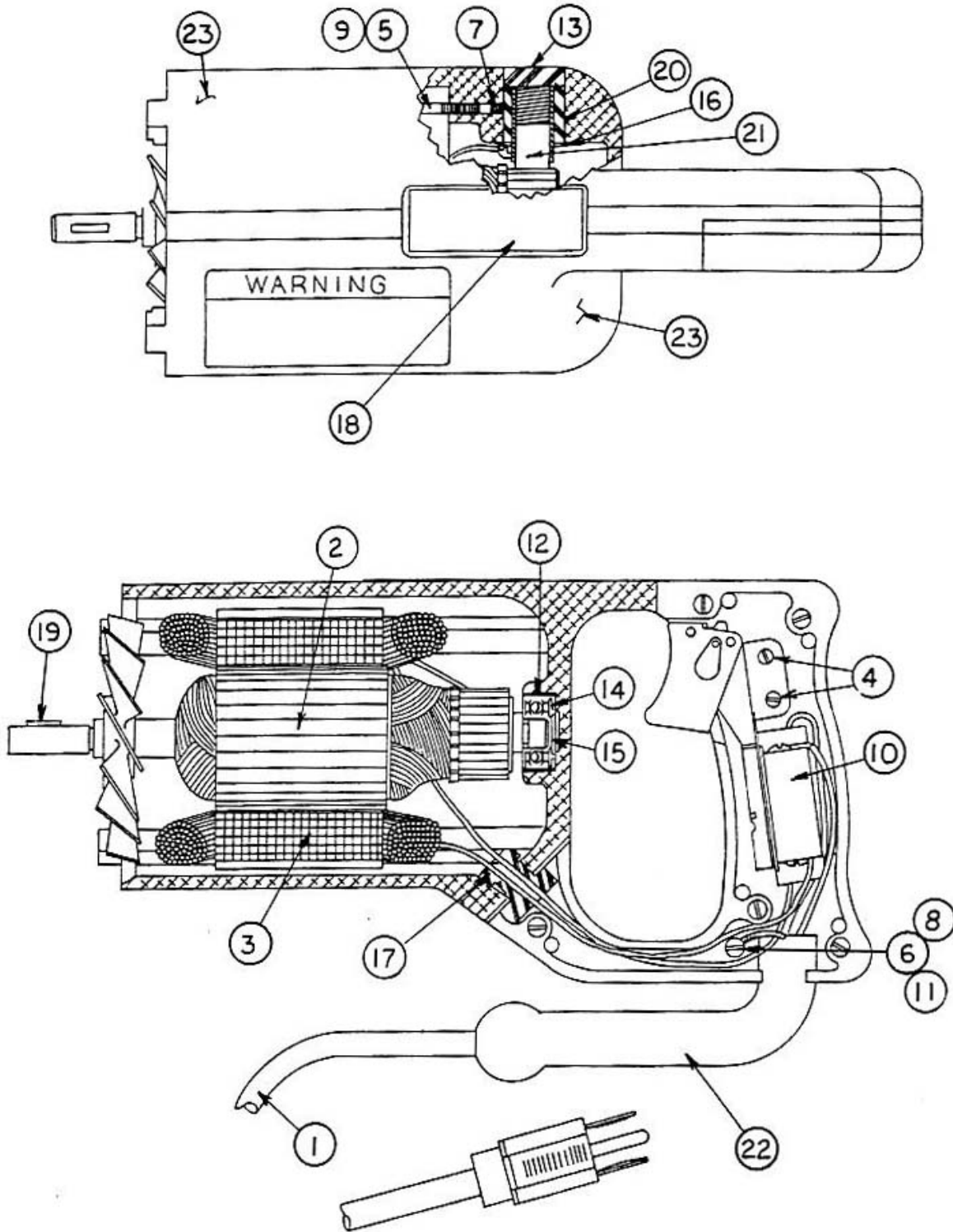
STRAIGHT DRIVE ASSEMBLY



REF#	PART #	DESCRIPTION	REQ'D
1	000-0342-74	6-32 x 5/16 Round Head Machine Screw – N.S.	2
2	000-1400-23	Tolerance Ring	1
3	000-1820-44	Loading Spring	1
4	000-1605-39	Bearing	3
5	000-7300-25	#2 Woodruff Key – N.S.	1
6	000-0245-89	10-24 x 1 Fillister Head Machine Screw	4
7	000-1180-36	3/16 Split Lockwasher – Medium Z.P.	4
8	000-0566-26	5/16-24 x 5/16 Cone Point Socket Set Screw	1
9	000-0590-21	Tool Bit Screw	1
10	031-3005-09	Drive Housing	1
11	031-3006-06	Bearing Retainer	1
12	001-0150-44	Type H Locktite (.01 ox.) – N.S.	1
13	031-3008-00	Pinion Nut	1
14	031-3009-32	Drive Pinion	1
15	031-3011-30	Driven Gear	1
16	031-3014-08	Bearing Spacer	1
17	031-3019-04	Drive Coupling	1
18	000-0590-56	5/16-18 x 3/8 SS – Special	1

SGF SEAT GRINDER

MOTOR HOUSING ASSEMBLY



SGF SEAT GRINDER

MOTOR ASSEMBLY

REF#.	PART #	DESCRIPTION	115V 9,500 RPM	115V 11,500 RPM	230V 9,500 RPM	230V 11,500 RPM
1	000-1261-01	16-3 SJO Cord Set (8'-6") (115V	1	1		
1	000-1261-28	16-3 SJO Cord Set (8'-6") (230V)			1	1
2	000-1412-59	Rotor (With Shaft)	1			
2	000-1412-70	Rotor (With Shaft)		1		
2	000-1412-67	Rotor (With Shaft)			1	
2	000-1412-30	Rotor (With Shaft)				1
3	000-1412-08	Stator Assembly	1			
3	000-1412-20	Stator Assembly		1		
3	000-1412-16	Stator Assembly			1	
3	000-1412-25	Stator Assembly				1
4	000-0202-65	6-32 X 1/4 Round Head Machine Screw	2	2	2	2
5	000-0245-97	10-24 X 2-1/2 Fil. Head Machine Screw	2	2	2	2
6	000-0361-45	6-32 X 3/16 Pan Head Brass Machine Screw	1	1	1	1
7	000-0482-67	10-24 X 3/16 C. P. Socket Set Screw	2	2	2	2
8	000-1170-13	External Locking Washer	1	1	1	1
9	000-1180-01	#10 Split Lock Washer-Med. Z.P. N.S	2	2	2	2
10	000-1201-20	C-H Switch	1	1	1	1
11	000-1247-02	Eye Terminal	1	1	1	1
12	000-1400-15	Tolerance Ring	1	1	1	1
13	000-1425-06	Brush Holder Cap	2	2	2	2
14	000-1604-82	Bearing	1	1	1	1
15	000-1820-79	Loading Spring	1	1	1	1
16	000-2005-49	21/32 I.D. X 1-1/8 O.D. X .010 Fish Paper	2	2	2	2
17	000-2800-38	Insulator Bushing	1	1	1	1
18	000-6602-30	Nameplate	1			
18	000-6602-28	Nameplate		1		
18	000-6602-27	Nameplate			1	
18	000-6602-29	Nameplate				1
19	000-7300-25	#2 Woodruff Key	1	1	1	1
20	003-0062-04	Brush Holder	2	2	2	2
21	003-0072-43	Motor Brush	2	2	2	2
22	031-0198-42	Cord Protector	1	1	1	1
23*	031-3001-52	Housing Assembly	1			
23*	031-3001-50	Housing Assembly		1		
23*	031-3001-53	Housing Assembly			1	
23*	031-3001-51	Housing Assembly				1
24**	031-3000-10	SGF Motor Assembly, Complete – N.S.	1			
24**	031-3000-15	SGF Motor Assembly, Complete – N.S.		1		
24**	031-3000-29	SGF Motor Assembly, Complete – N.S.			1	
24**	031-3000-35	SGF Motor Assembly, Complete – N.S.				1

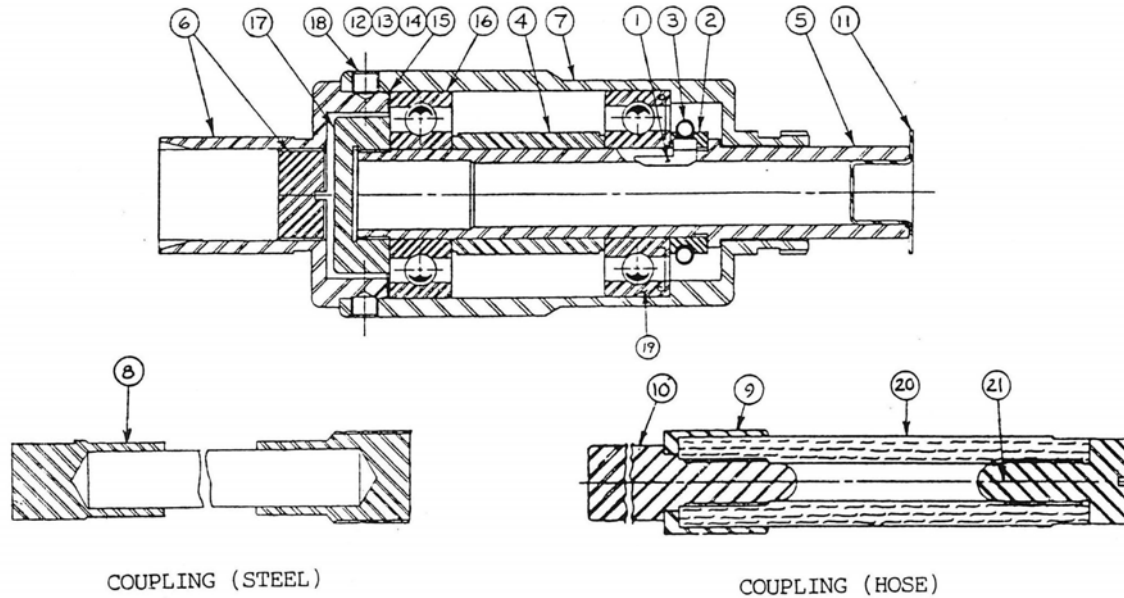
* Includes Motor Housing, Handle Plate & Screws Only

** Includes Motor Assembly & Angle Drive Assembly

N.S. = Not Shown

SGF SEAT GRINDER

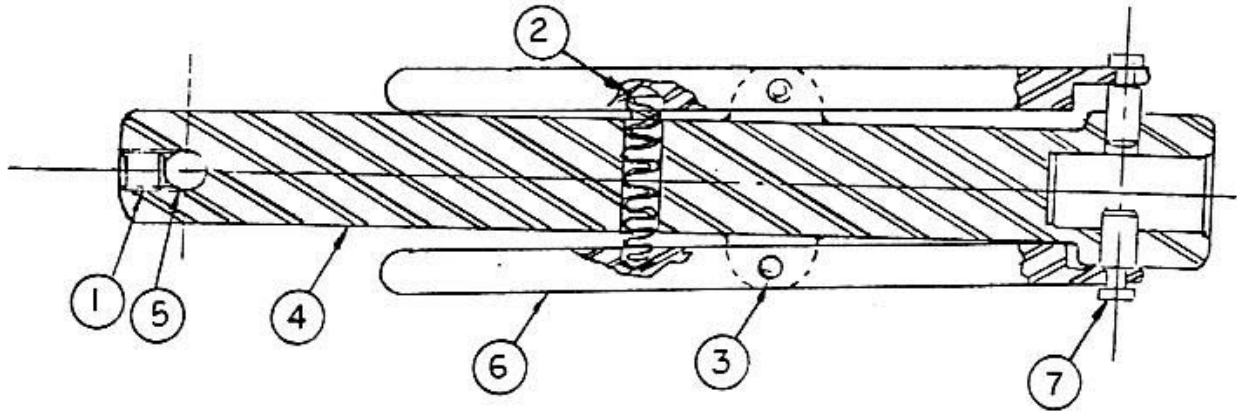
FLEX GRINDER UNIT WITHOUT STABILIZER



REF#	PART #	DESCRIPTION	REQ'D
1	031-0317-53	Inner Sleeve Key	1
2	031-0315-83	Spring Retainer	1
3	031-0315-16	Garter Spring	1
4	031-0315-08	Inner Bearing Spacer	1
5	031-0312-22	Ball Bearing Sleeve	1
6	031-0302-77	Grinder Body Cap Assembly	1
7	031-0301-02	Seat Grinder Body	1
8	031-0304-10	Flex Coupling (Steel)	1
9	031-0124-22	Coupling Sleeve	1
10	031-0121-39	Motor Coupling Shank	1
11	004-0018-34	Plastic Closure	1
12	031-1005-42	.010 Thick Steel Shim	As Req'd
13	031-1005-34	.005 Thick Steel Shim	As Req'd
14	031-1005-26	.003 Thick Steel Shim	As Req'd
15	031-1005-18	.002 Thick Steel Shim	As Req'd
16	000-1602-10	Bearing	1
17	000-1135-06	Bearing Locknut	1
18	000-0402-90	10-32 UNF x 1/8 Long Cup Point Socket Set Screw	2
19	000-1600-83	Bearing	1
20	031-0125-70	Coupling (HOSE)	1
21	031-1121-09	Coupling Screw	1

SGF SEAT GRINDER

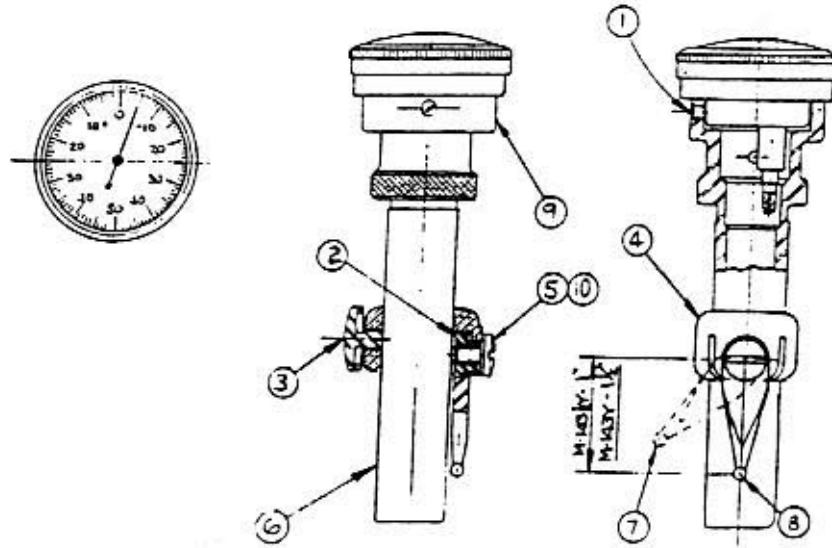
ARBOR PULLER ASSEMBLY – 7/16 & 13/32



REF #	PART #	DESCRIPTION	REQ'D
1	000-0485-18	1/4-20 x 1/4 Socket Cup Point Set Screw	1
2	000-1802-46	Compression Spring	1
3	000-7204-70	1/8 x 5/8 Roll Pin	2
4	049-0401-05	Arbor Pulley Body	1
5	049-0402-02	Pilot Pullout Pin	1
6	049-0403-00	Puller Arm	2
7	049-0405-04	Puller Pin	2

SGF SEAT GRINDER

ECCENTRIMETER ASSEMBLY

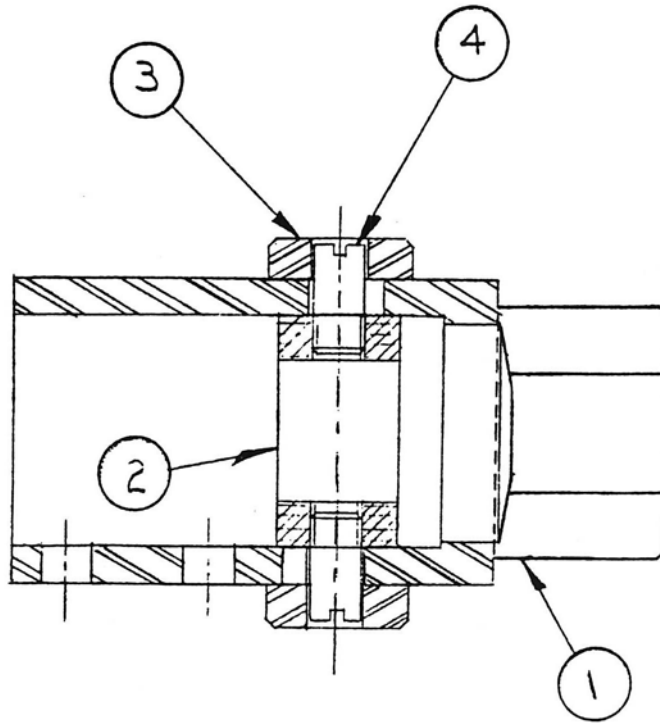


REF #	PART #	DESCRIPTION	REQ'D
1	000-0400-10	8-32 X 1/8 Headless Set Screw	3
2	049-0145-20	Finger Nut	1
3	000-0760-40	Thumb Screw	1
4	049-0342-61	Finger Holder	1
5	000-0205-75	10-32 x 1/4 Round Head Machine Screw Z.P	1
6	049-0341-21	Eccentrimeter Body (7/16)	1
7	049-0143-84	Short Finger- 1"	1
8	049-0143-25	Long Finger - 1 1/2"	1
9	001-0036-15	Indicator	1
10	000-1180-36	3/16 Lock washer – Medium – Z.P.	1

NOTE: Either length finger is available.

SGF SEAT GRINDER

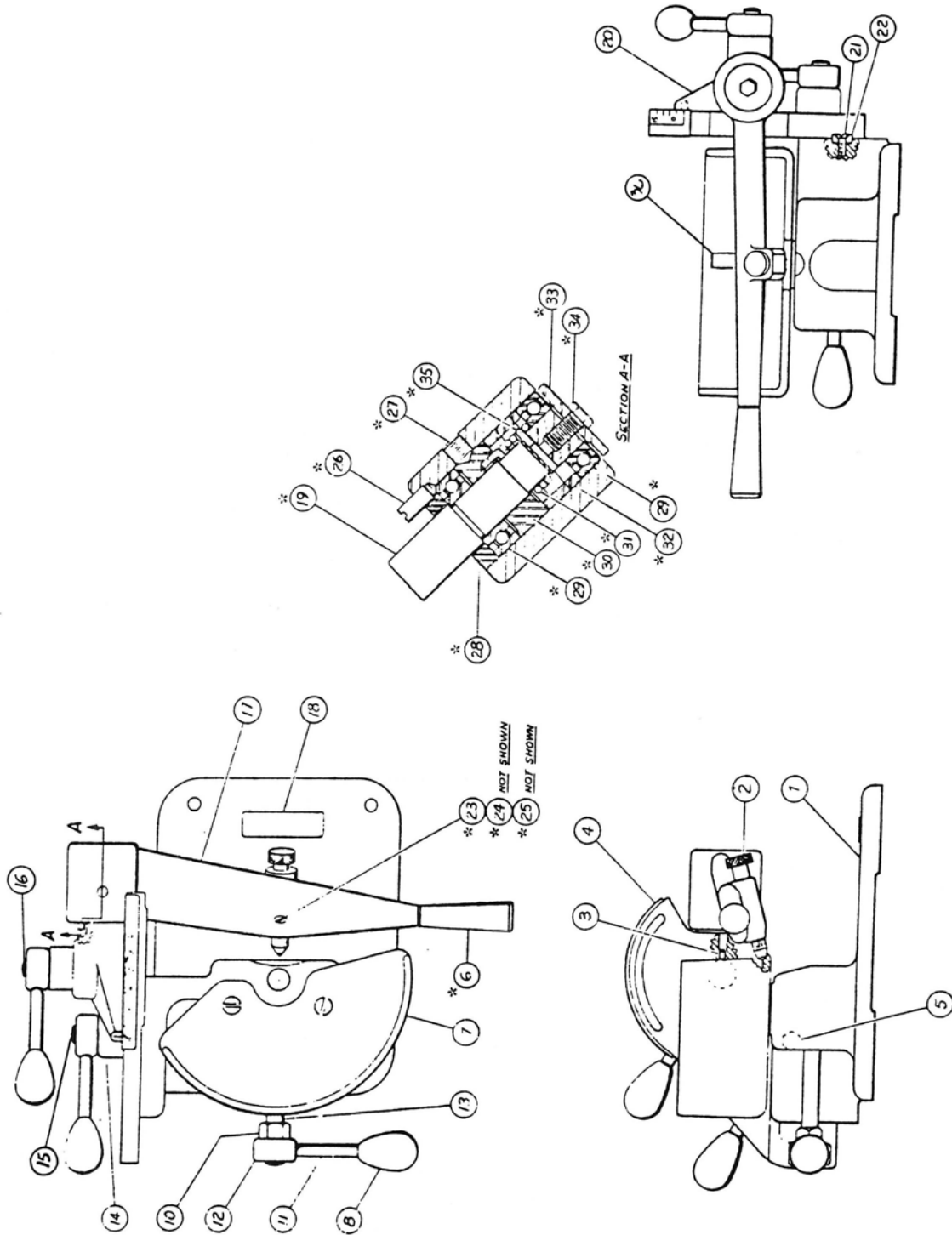
BRAKE ASSEMBLY



REF #	PART #	DESCRIPTION	REQ'D
1	031-3017-00	End Cap Sleeve	1
2	031-0189-35	Inner Brake Ring	1
3	031-3018-07	Outer Brake Collar	1
4	031-0190-36	Brake Pin	2

SGF SEAT GRINDER

HEAVY DUTY WHEEL DRESSER ASSEMBLY (031-1900-02)



NOTE: Part numbers marked (*) are part of Item #17 and are listed for service only.

SGF SEAT GRINDER

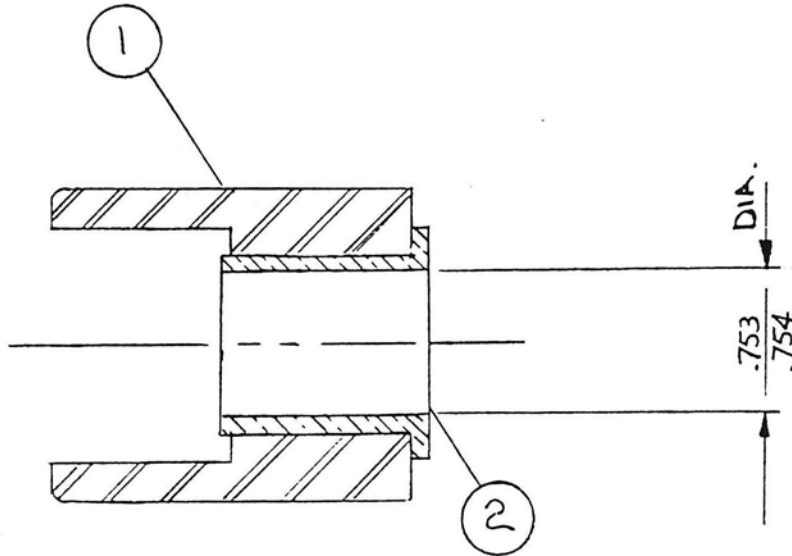
HEAVY DUTY WHEEL DRESSER ASSEMBLY

R#FNO.	PART #	DESCRIPTION	REQ'D
1	031-1901-00	Base	1
2	031-1916-10	Diamond Holder Assembly	1
3	000-0485-18	1/4-20 x 1/4 Cup Point Socket Set Screw	1
4	031-1908-00	Diamond Swivel Plate	1
5	000-1070-18	1/2-20 Hex Finish Jam Nut	1
6	004-0015-40	Handle	1
7	031-1909-83	Wheel Guard - 4"	1
8	000-4500-22	5/16-18 Ball	3
9	000-0228-02	1/4-20 x 3/4 Flat Head Machine Screw	2
10	000-1047-60	1/4-13 Hex Finish Jam Nut	1
11	031-1905-09	Lock screw Handle	3
12	031-0204-41	Lock screw Head	3
13	031-1903-80	Arbor Lock screw	1
14	031-1922-00	Lock screw Collar	1
15	031-1921-02	Swivel Plate Lock screw	1
16	031-1906-06	Pivot Pin	1
17	031-1912-03	Diamond Carrier Arm Assembly (Includes Items *)	1
18	000-6601-40	Nameplate	1
19*	031-1912-54	Diamond Carrier Shaft	1
20	031-1910-09	Carrier Clamping Plate	1
21	000-0225-35	10-24 x 1/2 Flat Head Machine Screw	2
22	031-1911-06	Swivel Plate Key	1
23*	065-0315-07	Spring Tension Screw	1
24*	000-1800-92	Compression Spring (Not Shown)	1
25*	031-1917-00	Plug (Not Shown)	1
26*	031-1920-05	Carrier Stop Pin	1
27*	000-0487-63	5/16-18 x 5/16 Cup Point Socket Set Screw	1
28*	031-1919-04	Carrier Stop Collar	1
29*	000-1600-67	Bearing	2
30*	031-1913-00	Spacer	1
31*	000-1850-78	Torsion Spring	1
32*	000-1803-86	Compression Spring	1
33*	031-1917-85	End Washer	1
34*	000-0100-14	1/4-20 x 1/2 Hex Head Cap Screw	1
35*	000-7203-72	1/8 x 3/8 Roll Pin	1
36	031-0202-80	Wheel Truing Arbor 7/16 Top – N.S.	1

NOTE: Parts Marked () are Part of Item 17 and are listed for service

SGF SEAT GRINDER

STABILIZER ASSEMBLY



REF #	PART #	DESCRIPTION	REQ'D
1	031-0126-78	Stabilizer	1
2	031-0127-67	Stabilizer Bushing	1

SGF SEAT GRINDER

TROUBLE SHOOTING

CONDITIONS	POSSIBLE CAUSES
Rough finish on grinding wheel	Truing cut too heavy or travel of diamond too quick
	Damaged diamond
Frequent redressing of grinding wheel necessary	Carbon residue on valve seats
	Wrong type grinder wheel for valve seat material
Valve seat finish (rough or chatter) and/or vibration	Rough finish on grinder wheel
	Loose arbor in guide
	Not using Kwik-Way grinder wheels
	Worn inner sleeve of grinder body
	Worn arbor
	Worn bearings in grinder unit
Valve seat not concentric	Worn arbor
	Loose arbor in guide
	Side pressure
	Bent arbor

KWIK-WAY®

KW Products Inc.

500 57th St., Marion, IA 52302 USA

319/377-9421

319/377-9101 (FAX)

800/553-5953

www.kwik-way.com

service@kwik-way.com