SIOUX TOOLS INC.
2901 FLOYD BOULEVARD ■ P.O. BOX 507 ■ SIOUX CITY, IOWA 51102 ■ E.D. 3/81

Form No. A360D Rev.
Dated 3/81
Supplements Form No. A360D
Dated 5/80

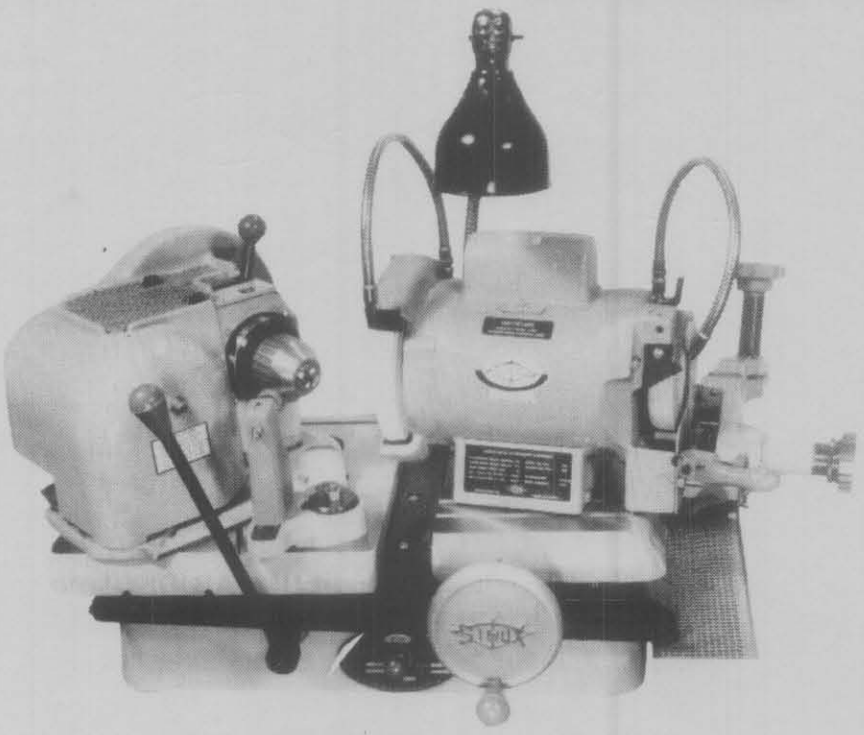
PARTS LIST

INSTRUCTIONS

Sioux Valve Face Grinding Machines

No. 680

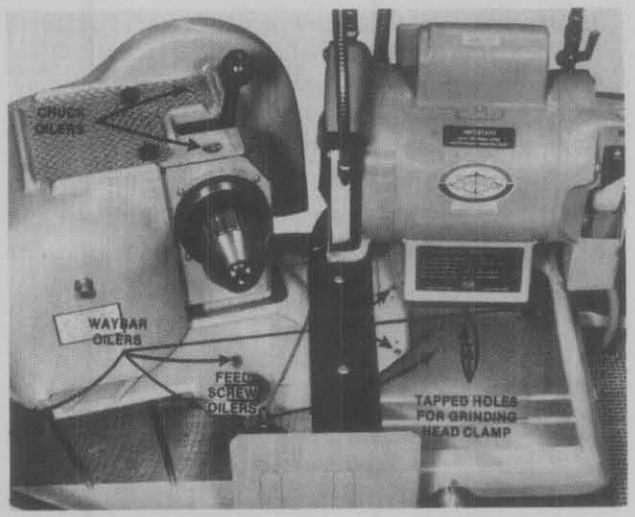
For Serial D



No. 680

Prepare Machine For Operation

1. Wipe off shipping grease, clean thoroughly.
2. Remove the hex nut which locks the chuck carriage plate during shipping.
3. **Lubrication:** Put a few drops of SAE 20 oil in each oiler every three months or 50 hours of operation. See illustration for oiler locations. Grinding motor is permanently lubricated and sealed. Oil pump motor and chuck motor every six months. See illustration for location of oilers.
4. **Coolant:** Use Sioux grinding oil No. 250 which comes ready for use — do not dilute. Coolant tank capacity: 3 qts.
5. Run the machine for a while, with chuck motor and pump motor on to warm up and distribute lubricant.
6. Attach dressing tool as shown. (SEE INSTRUCTIONS FOR DRESSING WHEELS.)



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Grounding Instructions

This tool should be grounded while in use to protect the operator from electric shock.

1. Cord-Connected Tools

   The tool is equipped with an approved three-conductor cord and a three-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts it has a plug like that shown in Figure A. If it is for use on 150-250 volts, it has a plug like that shown in Figure D. An adapter, Figures B and C, is available for connecting Figure "A" plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. No adapter is available for a plug as shown in Figure D.

   Use only three-wire extension cords that have three-prong grounding type plugs and three-pole receptacles that accept the tool plug.

   Replace or repair damaged or worn cord immediately.

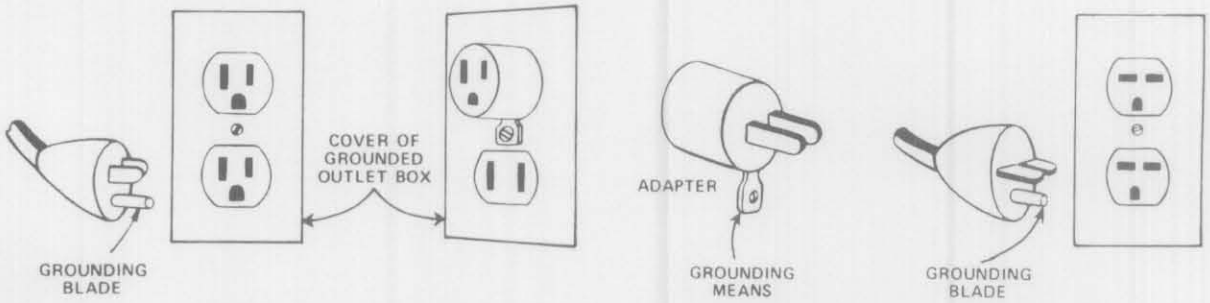

Figure A Figure B Figure C Figure D

ADAPTER FOR THREE-PRONG GROUNDING TYPE PLUG, AS SHOWN IN FIGURES "B" AND "C", IS NOT APPLICABLE IN CANADA.

Safety Instructions

1. Always handle grinding wheels carefully. Do not use a wheel which has been dropped.
2. Visually inspect all wheels for possible damage before mounting. Replace cracked wheel immediately.
3. Use only wheel flanges and flange screws furnished with this grinder: (Left flange screw has left hand thread); (Right flange screw has right hand thread).
4. Remove adjusting keys and wrenches before turning on.
5. Allow newly mounted wheels to operate at least one full minute before using. Do not stand in front of wheel during this period.
6. Use safety glasses when dressing the wheel or grinding.
7. Do not operate the machine without belt guard.
8. Keep machine and work area clean. Cluttered areas invite accidents.

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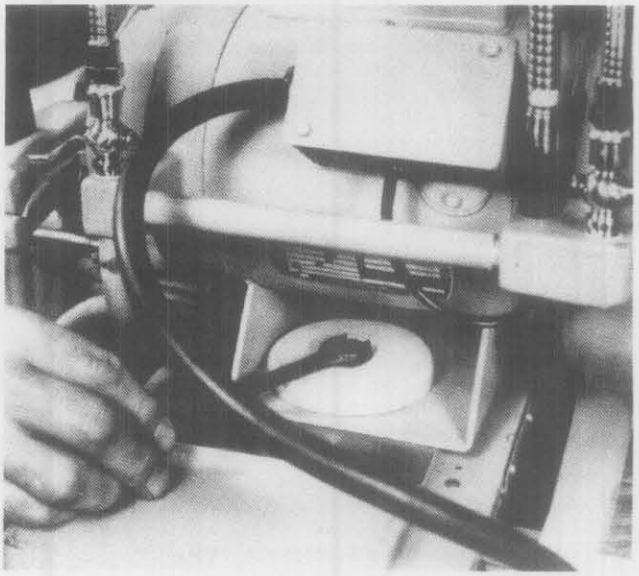
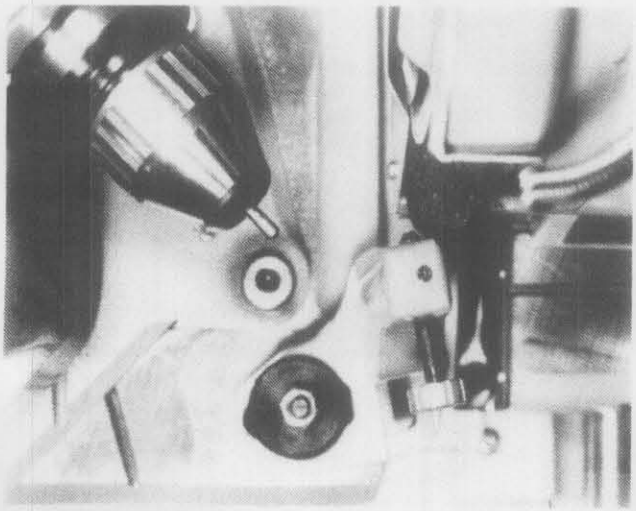
Form No. A360D Rev.
Dated 10/80
Supplements Form No. A360D
Dated 10/79
E.D. 10/80

INSTRUCTIONS

Dressing Left Wheel (Cat. No's. 182 & 177)

Position chuck carriage to extreme left. Adjust diamond holder in post so that the diamond has about 3/8" overhang in front of post. Place attachment with diamond slightly clearing the wheel periphery, perpendicular to the wheel face and about 1/8" to the left of the wheel. Firmly tighten the attachment to the chuck carriage plate. The amount of diamond overhang should be kept to a minimum in order to maintain as rigid a support as possible. The rubber chuck shields (631B) should be used to protect the chuck from wheel grit while dressing or grinding. Start the machine and advance the grinding wheel carefully to prevent gouging. See illustration. The chuck Motor can be turned off with the switch mounted on the chuck hood.



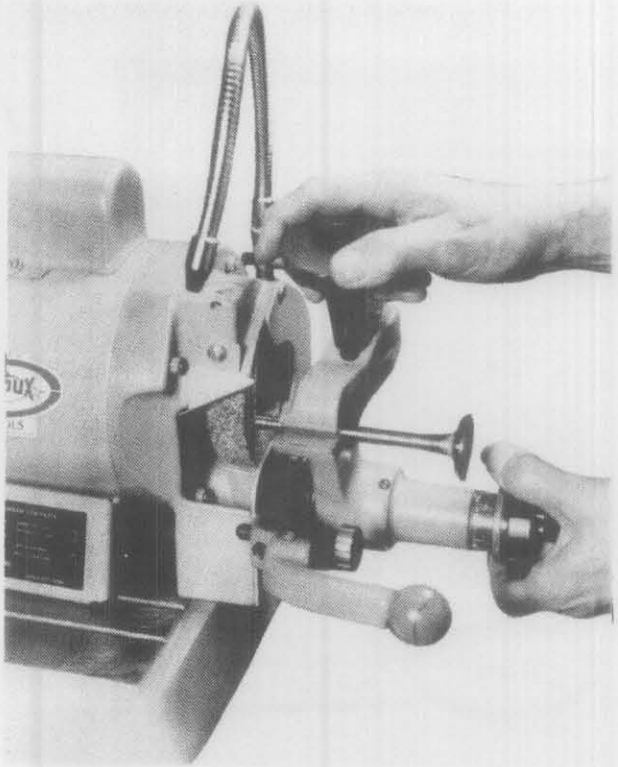


After adjusting diamond for dressing, apply coolant. Pass the diamond over the wheel while feeding cuts of .0005" or less per pass. Feed screw micrometer thimble is graduated in increments of .001". The diamond should occasionally be rotated slightly to present a new cutting edge. A rapid traverse of the diamond will result in a rough condition which is excellent for fast stock removal but poor for finish, but is sometimes used to make a hard wheel cut more freely. However, if this is continually necessary, the softer grade wheel (Cat. No. 177) should be used.

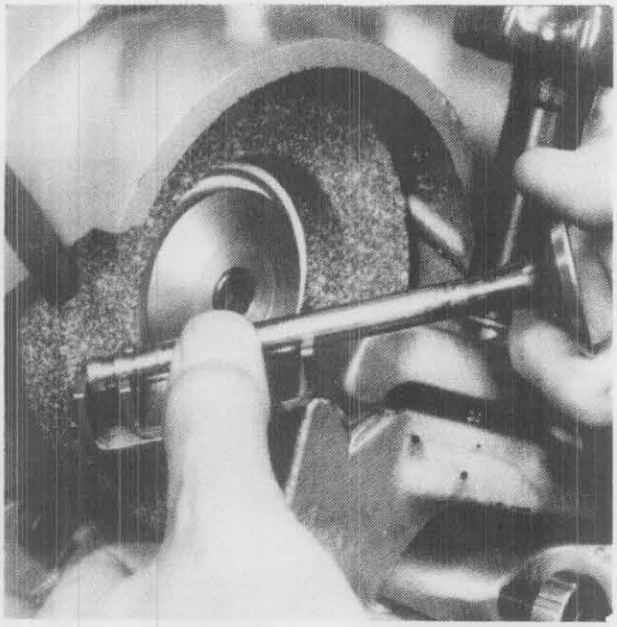
Dress wheel to clean up each time the grinding head is repositioned or when a new wheel is installed. Be sure the grinding head clamp is securely tightened before dressing or grinding. See illustration at top of next column.

Valve Reconditioning

1. **True Valve Stem Ends:** To insure proper valve operation, square valve stem ends after dressing right grinding wheel and renew chamfer with chamfering vee. The chamfer need not exceed 1/32" inch. See illustrations.



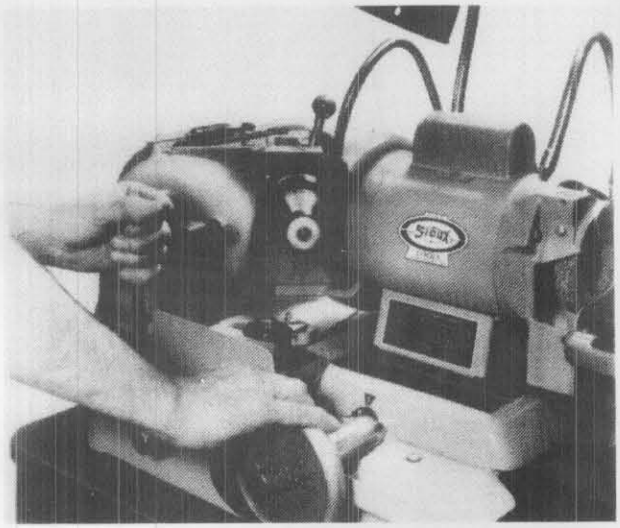
INSTRUCTIONS



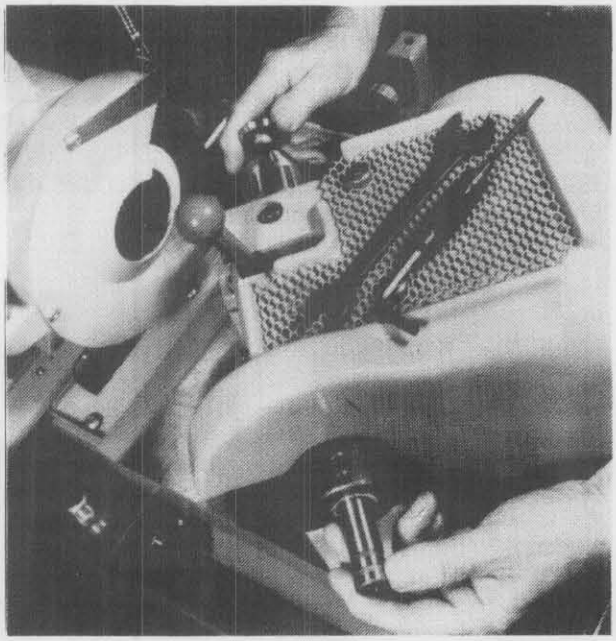
Chamfering Vee

2. Dress left grinding wheel. See instructions.

3. Locate chuck head at the exact angle you wish to refinish valve, then lock chuck head clamp. Chuck head is calibrated precisely from 0° to 45° including 44° and 29° interference angles. See illustration for grinding head position for 0° setting.



4. **Chuck Valve:** Open chuck sleeve and insert valve so that rollers will engage the stem just above the worn area. Close chuck sleeve to contact stem. Adjust aligner to contact end of stem. Pull lever back and close chuck sleeve, then back sleeve off slightly. Press valve firmly back into aligner with slight rotary motion and release lever. The chuck will now accept all valves of same size without further adjustment. With roller sleeve type chuck, tighten by hand to desired tension.



5. **Grind Valves:** Position grinding head so that valve face will traverse the full width of the wheel. Please note that the grinding head may assume an angular position on its cross slide so that the valve face may pass to the right without touching the throat of the valve on the left side of the wheel and provide clearance between chuck sleeve and wheel guard. Tighten grinding head clamp. See illustration top of column next page.

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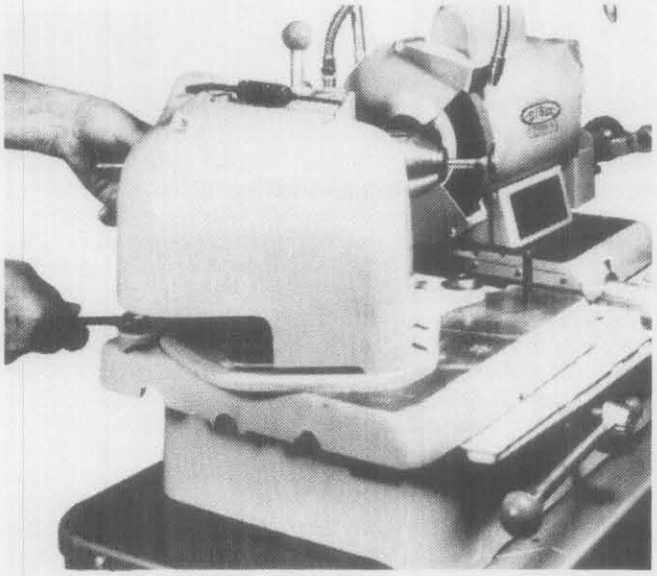
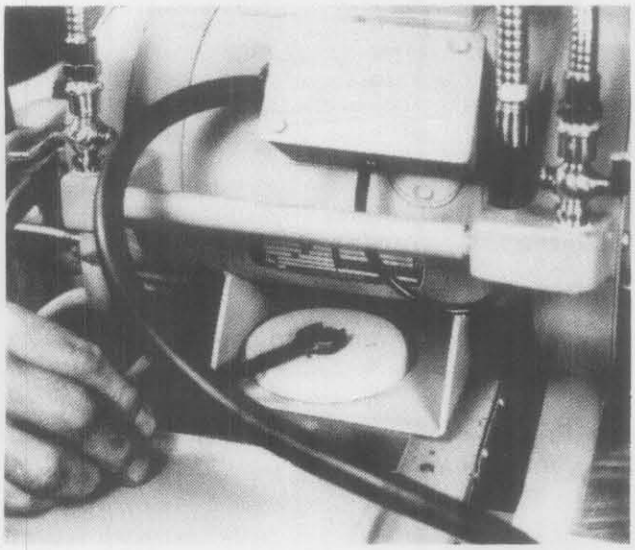
INSTRUCTIONS

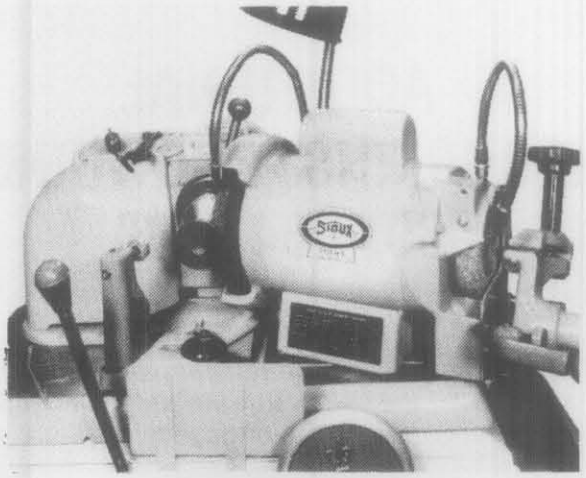


Set the chuck carriage plate stop nut, located under the left skirt, so that the valve face will just reach the right edge of the grinding wheel but never go beyond. Dress grinding wheel to clean up. (SEE INSTRUCTIONS FOR DRESSING). Advance grinding wheel towards valve until wheel just touches valve. Set micrometer thimble at zero. Begin grinding at left side of wheel, moving valve slowly and steadily, right and left, across the wheel.



DO NOT ALLOW VALVE AT ANYTIME TO PASS BEYOND EITHER EDGE OF THE GRINDING WHEEL WHILE GRINDING. Take light cuts by feeding the wheel up to the valve about .001"-.002" at a time. Remove just enough material to make a clean smooth face. When valve face is trued, advance to right until top edge of valve is flush with right edge of grinding wheel. Pause a second, then back grinding wheel away from valve, **NOT VALVE AWAY FROM WHEEL.** Keep valves in numbered storage rack to make sure you return them to their own guides.

On large diameter and hard faced valves, it may be necessary to make a finish dress of the grinding wheel for a finish grind. **Do not remove the valve from the chuck.** Position the dressing tool between valve and wheel so that a complete traverse of the grinding wheel can be made without contact of valve to grinding wheel. Again, as noted in dressing instructions, for hard faced valves, use the softer grade wheel (Cat. No. 177).



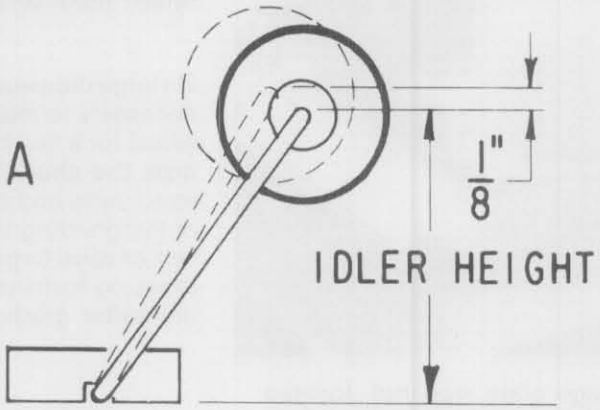
Good housekeeping is essential to keep any precision tool in condition. Use the rubber shields (No. 631B) when grinding or dressing to keep grit and coolant out of chuck. The chuck on your machine has been factory adjusted to grind valves within .001" T.I.R. concentrically. Keep it that way.

Instructions

Adjusting or Replacing Belt

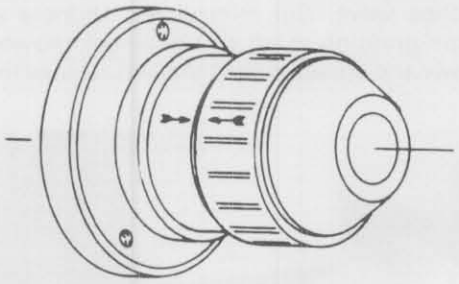
1. Loosen (3) three motor mounting screws.
2. Slide motor to rear of machine.
3. Replace belt if needed at this time.
4. Slide motor to the front of the machine until the idler arm has been depressed approximately 1/8". Note the height of the arm and record on card (See Fig. A).
5. Secure bolts and replace cover.
6. Check idler height every 3 months or 50 hours of operation. Adjust motor position to take up belt stretch whenever the height of the idler is not correct.
7. Should belt slip when properly adjusted clean both pulleys and replace belt.

FIG. A



Your machine was designed as a precision machine. Keep it that way with proper lubrication and maintenance.

ADDITIONAL CHUCK INSTRUCTIONS 680, 684, 689



The chucks on the valve refacers are accurately adjusted at the factory. This accuracy can be lost if the chuck threads are dis-engaged, and the same threads of the multiple thread screw are not re-engaged.

The chuck parts are now marked with arrows to allow re-engagement in the same thread.

Align the arrows before the threads are re-engaged. Press on the chuck body until the threads touch and then turn the chuck re-engaging the threads.

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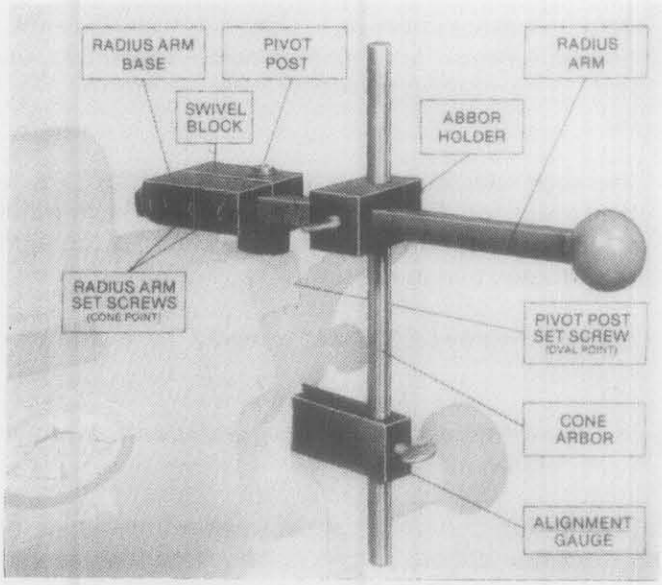
Form No. A360D Rev.
Dated 10/79
Supplements Form No. A360D
Dated 1/79

No. 656G Rocker Arm Attachment Assembly and Operating Instructions

GRINDING ROCKER ARMS

Dress wheel with built-in dressing tool on right side of machine before mounting the SIOUX Rocker Arm Attachment



ASSEMBLY AND OPERATION

The grinding wheel should be properly dressed before mounting the Rocker Arm Attachment.

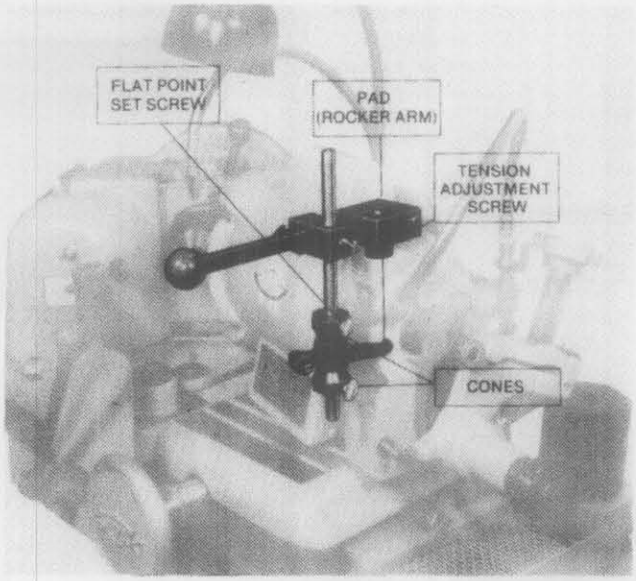
Place the pivot post, with its swivel block base and the radius arm base, in the 3/8" diameter hole in the top of the right wheel guard, the flat on the post facing forward. Seat the post firmly and secure with the oval point set screw.

Place arbor holder on radius arm, cone arbor in the arbor holder and alignment gage on arbor. Place radius arm in the radius arm base. **Do not tighten the two cone point set screws.** Adjust height of alignment gage to the horizontal center of the grinding wheel and position the arbor holder to allow the recessed pad of the alignment gage to make full contact with the face of the grinding wheel. Hold recessed pad of alignment page against face of grinding wheel while tightening three thumb screws. Hold alignment gage firmly against wheel face and tighten the two cone point set screws locking the radius arm.

Remove alignment gage.

Install the cone on arbor, small end down. Place rocker arm on arbor and adjust upper cone position to bring rocker arm pad to horizontal center of wheel. Place lower cone on arbor to firmly hold rocker arm. Position arbor holder to grind full pad area.

Wet grind rocker arms by lightly pressing arm pad against grinding wheel. Swivel attachment left and right until desired surface is attained. The radius arm can be swung upward to facilitate loading and unloading. Proper adjustment of the tension screw will allow the operator to move the radius arm up or down — but not drop accidentally.



CORRECTION OF UNEVEN GRINDING PRESSURE ON 680 VALVE GRINDING MACHINE

When pressure is heavier in one direction than the other while dressing the grinding wheel or grinding a valve, it is most generally caused by wear on the carriage plate waybars (24201) or (54611), improper adjustment of the clamps (53572) or lack of lubrication. See pages 1, 18 and 20.

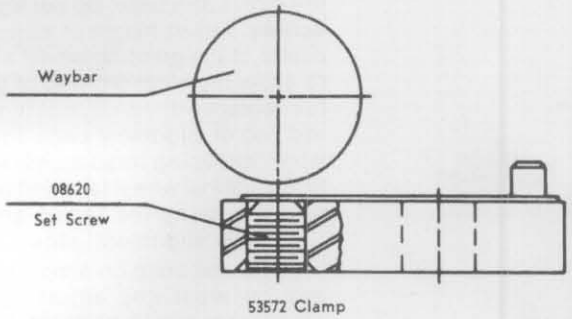
The proper adjustment of the clamps (53572) is very important. If one or both of the front clamps are too tight, the pressure on the grinding wheel will be heavier when moving the carriage plate to the left. If the rear clamp is too tight, the pressure will be heavier when moving the carriage plate to the right.

Loosen the three (08620) set screws. There are two (53572) clamps on the front waybar and one on the rear.

1. Screw the rear set screw in until contact is made with the waybar, then unscrew it at least 1/4 turn.

2. Tighten one front set screw at a time while moving the carriage plate. Contact with the waybar should be very light so that the traverse action will remain smooth. Repeat this adjustment with the remaining front clamp.

Check grinding pressure by dressing the wheel with a light, slow cut of the diamond. The first cut should show a bright steady spark. Without advancing the wheel or diamond, bring the diamond back across the wheel. A faint but steady spark should be noticable and subsequent passes over the wheel should not remove any material until the diamond is again advanced.



53572 Clamp

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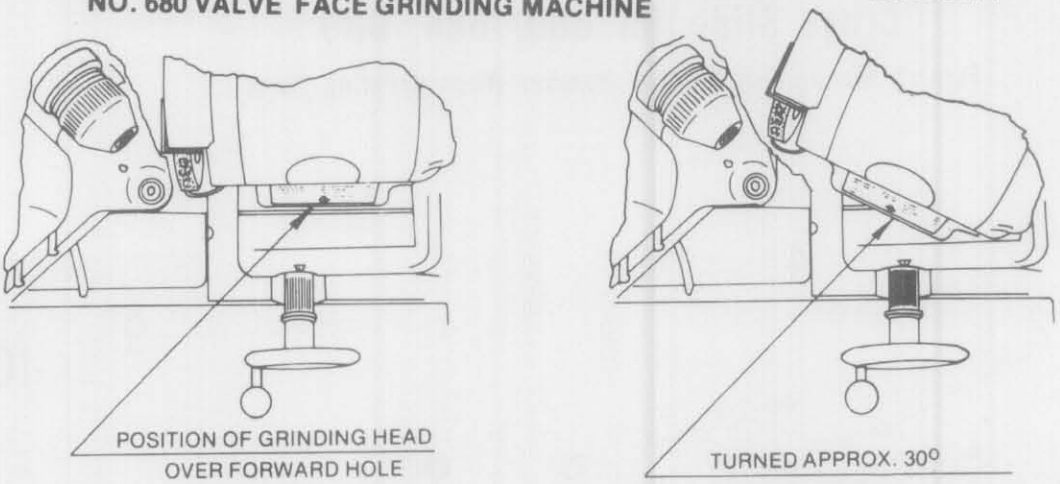
GRINDING 15°, 30° and 45° SMALL DIAMETER VALVES ON THE NO. 680 VALVE FACE GRINDING MACHINE

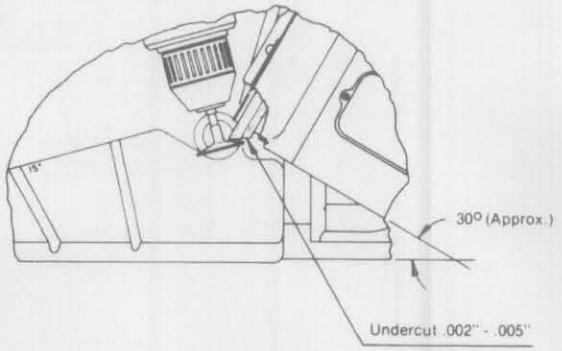


The position of the grinding head is adjustable to grind any size valve head with stem diameters within the chuck capacities of .230" to .750" and any face angle from 0° to 45°.

The grinding head is held in position by a round clamp plate and screw, located under the motor housing and accessible from the rear. See illustration top of page 3. There are three tapped holes in the cross slide, any one of which can be used for clamping the grinding head. There are two set screws furnished to plug the unused holes. See illustration bottom of page 1.

The following proceedure will explain how to place the grinding head in a position which will grind 15°, 30°, and 45° valves of small to medium size:

1. Remove clamp screw and round clamp plate.
2. Push grinding head back to expose the three tapped holes.
3. Place set screws in the two rearward holes, screwing them down below the top surface of the cross slide.
4. Position grinding head over the foremost unplugged tapped hole.
5. Replace clamp plate and screw. DO NOT TIGHTEN.
6. Swing the grinding head foreward and to the left about 30° as shown.
7. Tighten the clamp screw securely.
8. Dress the wheel to clean up as described on page 3.



Small valves, of any angle, may not be of sufficient size to be traverse ground across the full width of the grinding wheel. This condition tends to create an interference shoulder where the traverse stops, which will impair the finish without repeated dressing.

The illustration shows a 1-3/4"-15° valve which may be considered an extreme condition.

Position grinding head as previously described, dress wheel and position valve in front of grinding wheel in right hand end of traverse. Start grinder and mark grinding wheel with pencil just inside of top edge of valve face. Dress off .002"-.005" from pencil mark to right edge of grinding wheel. Grind valve on the high area of the wheel periphery.

Cross Slide for 680, 684, 689

Furnish Machine and Serial Number When Ordering Parts

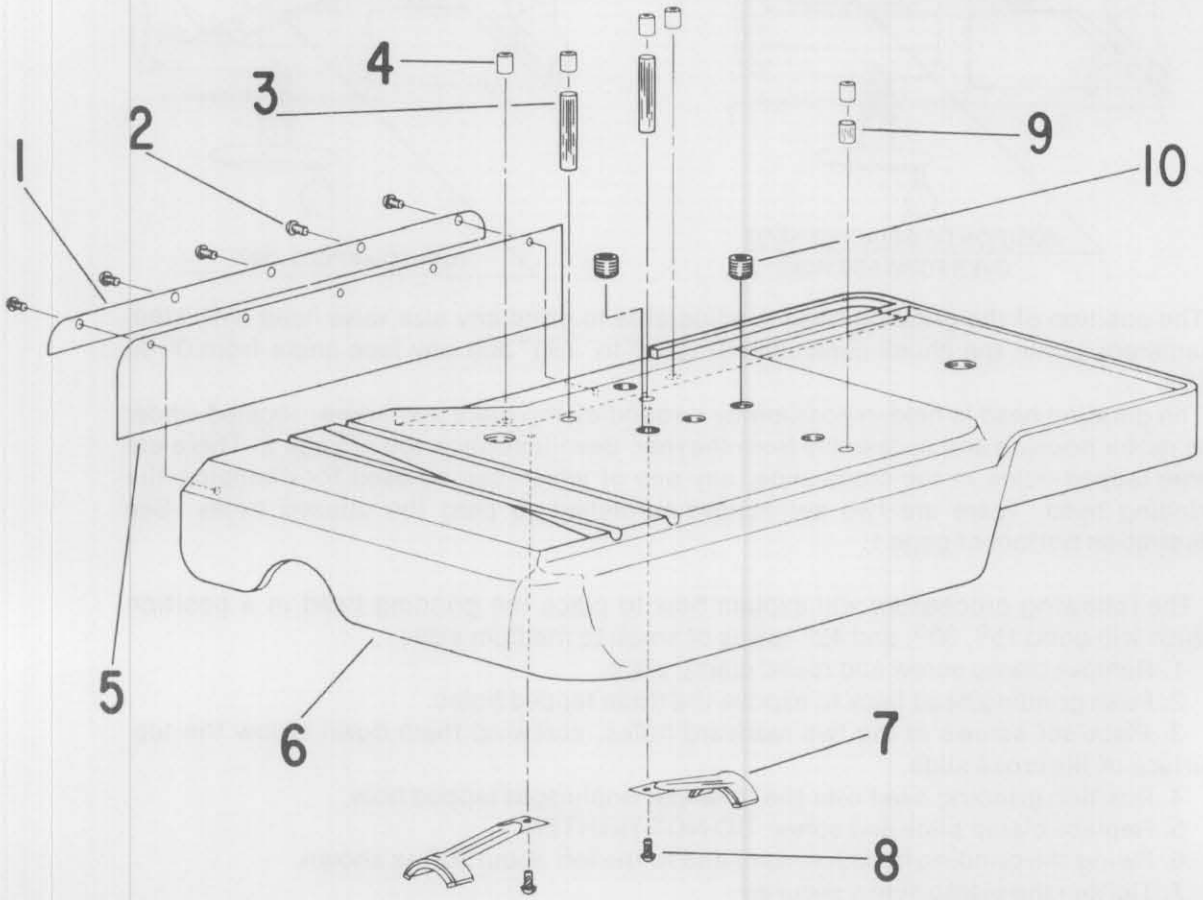


Figure	Part No.	Name
1	25193	Strip—Guard
2	06361	Screw—Self Tap (5)*
3	05015	Wick—Felt (2)*
4	30073	Cup—Oil (5)*
5	14214	Seal—Guard
6	53532	Assy.—Cross Slide (Includes Figs. 1 thru 10)
7	23158	Assy.—Oil Dispenser (2)*
8	09951	Screw—Drive (2)*
9	14685	Wick—Felt
10	09013	Screw—Socket (4)*

*Order Quantity As Needed

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Form No. A360D Rev.
Dated 10/80
Supplements Form No. A360D
Dated 10/79
E.D. 10/80

649 Dressing Tool

Furnish Machine and Serial Number When Ordering Parts

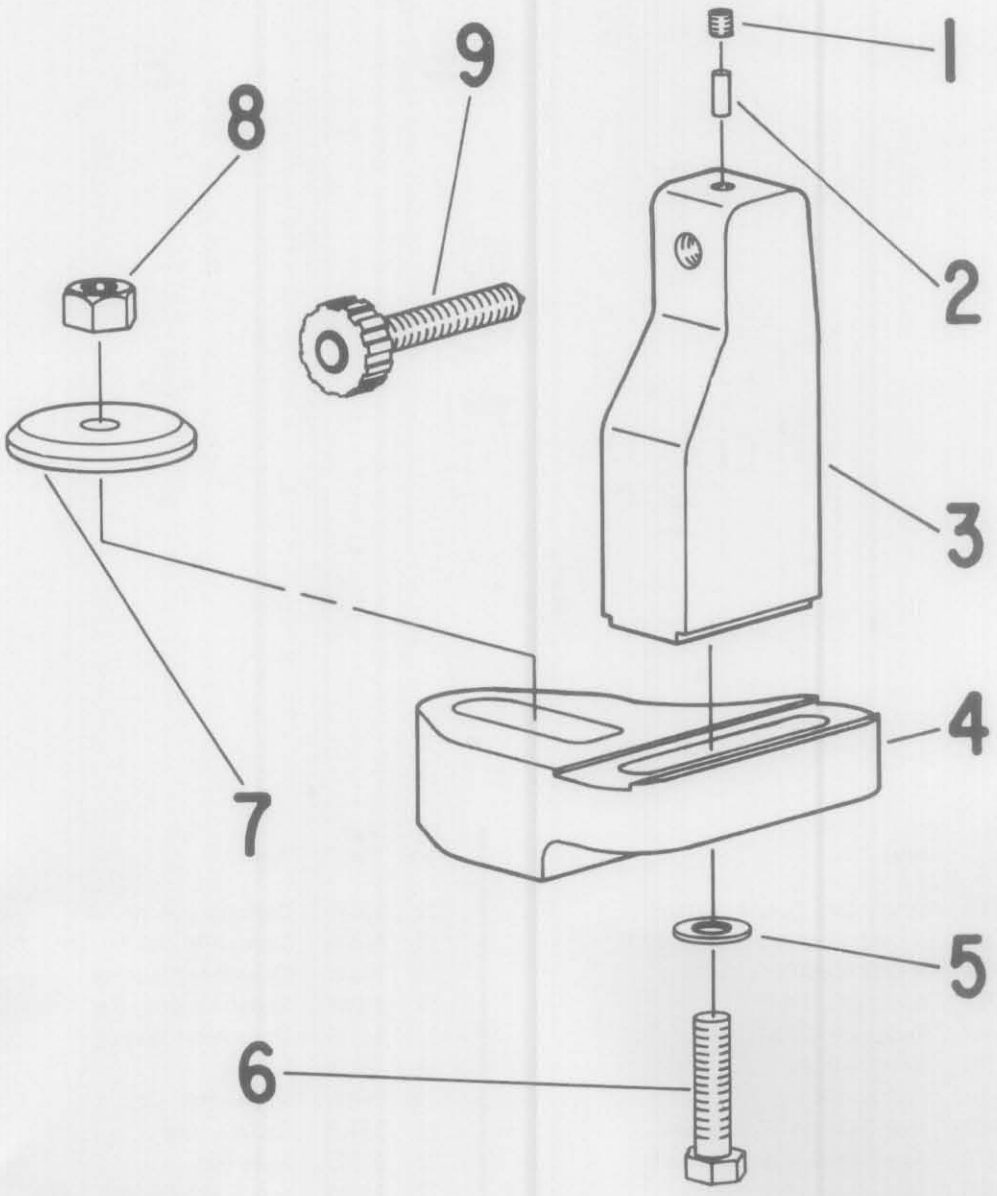

Figure	Part No.	Name
1	08001	Screw—Set
2	04253	Slug—Friction
3	11427	Post—Diamond Holder
4	11421	Base—Dressing Tool
5	25154	Washer
6	09106	Screw—Hex Hd. Cap
7	54443	Washer
8	09590	Nut—3/8"
9	1715-M	Diamond—Dressing

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Junction Box for 680, 684 & 689
115V. & 230V.
Single Phase

Serial No's. Starting With "D"

Furnish Machine and Serial Number When Ordering Parts

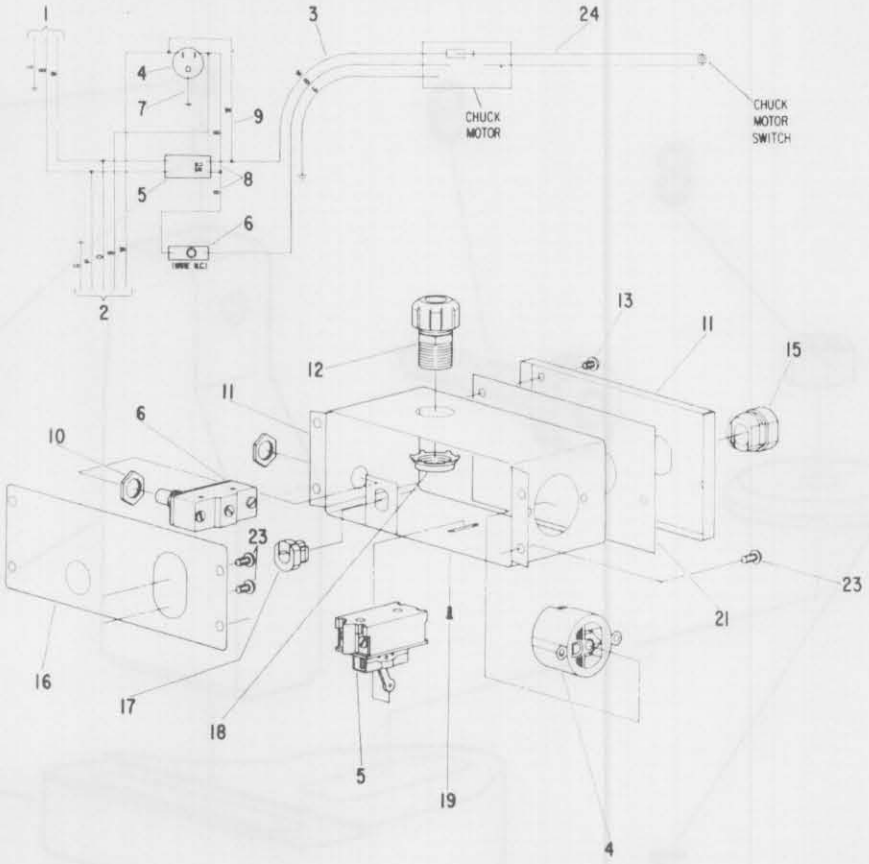

Figure	Part No.	Name
1	18505	Supply Cord (Specify Voltage)
2	18867	5 Cond. Cord (Grinding Head)
3	28098	3 Cond. Cord (Chuck Motor)
4	18799	Receptacle (115V)
	18877	Receptacle (230V)
5	18190	Switch—Toggle
6	18203	Switch—Limit
7	18872	Assy.—Ground Wire (Green)
8	18874	Assy.—Lead Wire (2)* (Black)
9	18873	Assy.—Lead Wire (White)
10	30690	Nut—Lock (2)*
11	53617	Assy.—Junction Box & Cover (Incl. Figs. 13 & 21)
12	18659	Connector—Strain Relief
13	07200	Screw—Phil. Rd. Hd. (2)*
15	14848	Strain Relief Bushing
16	05009	Gasket—Junction Box
17	14853	Strain Relief Bushing
18	18658	Locknut
19	06095	Screw—Phil. (2)*
21	05010	Gasket—Cover
23	07205	Screw (6)*
24	28099	Assy.—Motor Cord & Switch
25	25533	Washer (2)*

*Order Quantity As Needed

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Form No. A360 Rev.
Dated 10/81
Supplements Form No. A360D
Dated 10/77

Junction Box for 680, 684, & 689
208-220V.
3 Phase

Serial No's. Starting With "D"

Furnish Machine and Serial Number When Ordering Parts

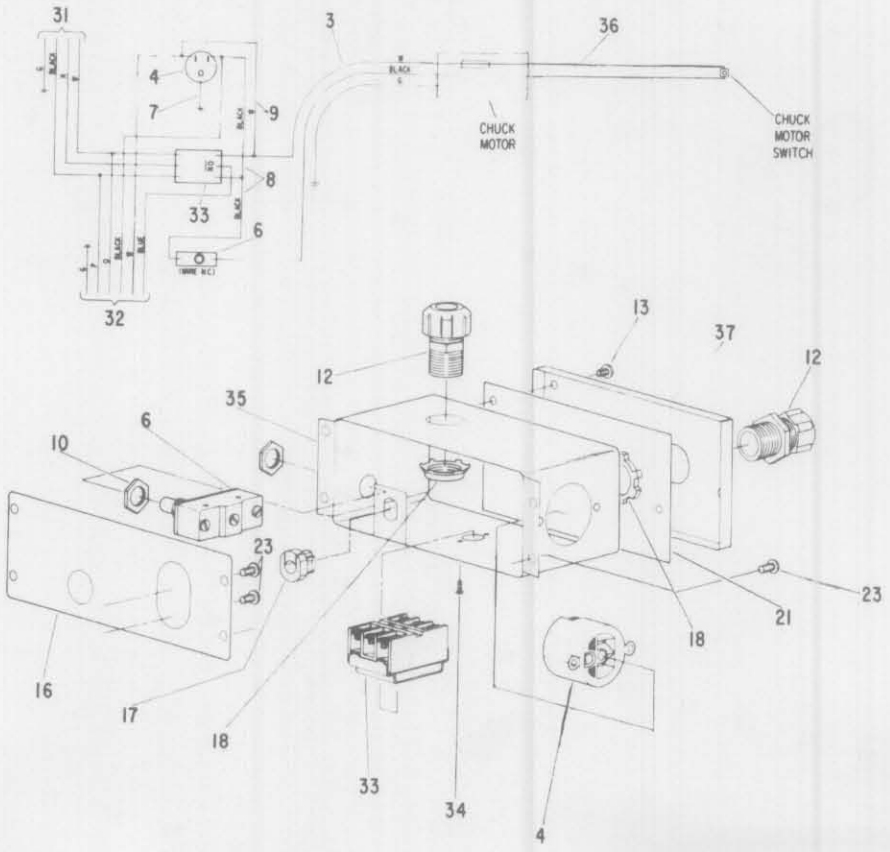

Figure	Part No.	Name
3	28098	3 Cond. Cord (Chuck Motor)
4	18877	Receptacle
6	18203	Switch—Limit
7	18872	Assy.—Ground Wire (Green)
8	18874	Assy.—Lead Wire (2)* (Black)
9	18873	Assy.—Lead Wire (White)
10	30690	Nut—Lock (2)*
12	18662	Connector—Strain Relief
13	07200	Screw—Phil. Rd. Hd. (2)*
16	05009	Gasket—Junction Box
17	14853	Strain Relief Bushing
18	18658	Locknut (2)*
21	05010	Gasket—Cover
23	07205	Screw (6)*
31	18879	Supply Cord
32	18880	6 Cond. Cord (Grinding Head)
33	18199	Switch—Toggle
34	06235	Screw—Phil. (2)*
35	53618	Assy.—Junction Box & Cover (Incl. Figs. 13 & 21)
36	28099	Assy.—Motor Cord & Switch
37	14848	Bushing—Strain Relief

*Order Quantity As Needed

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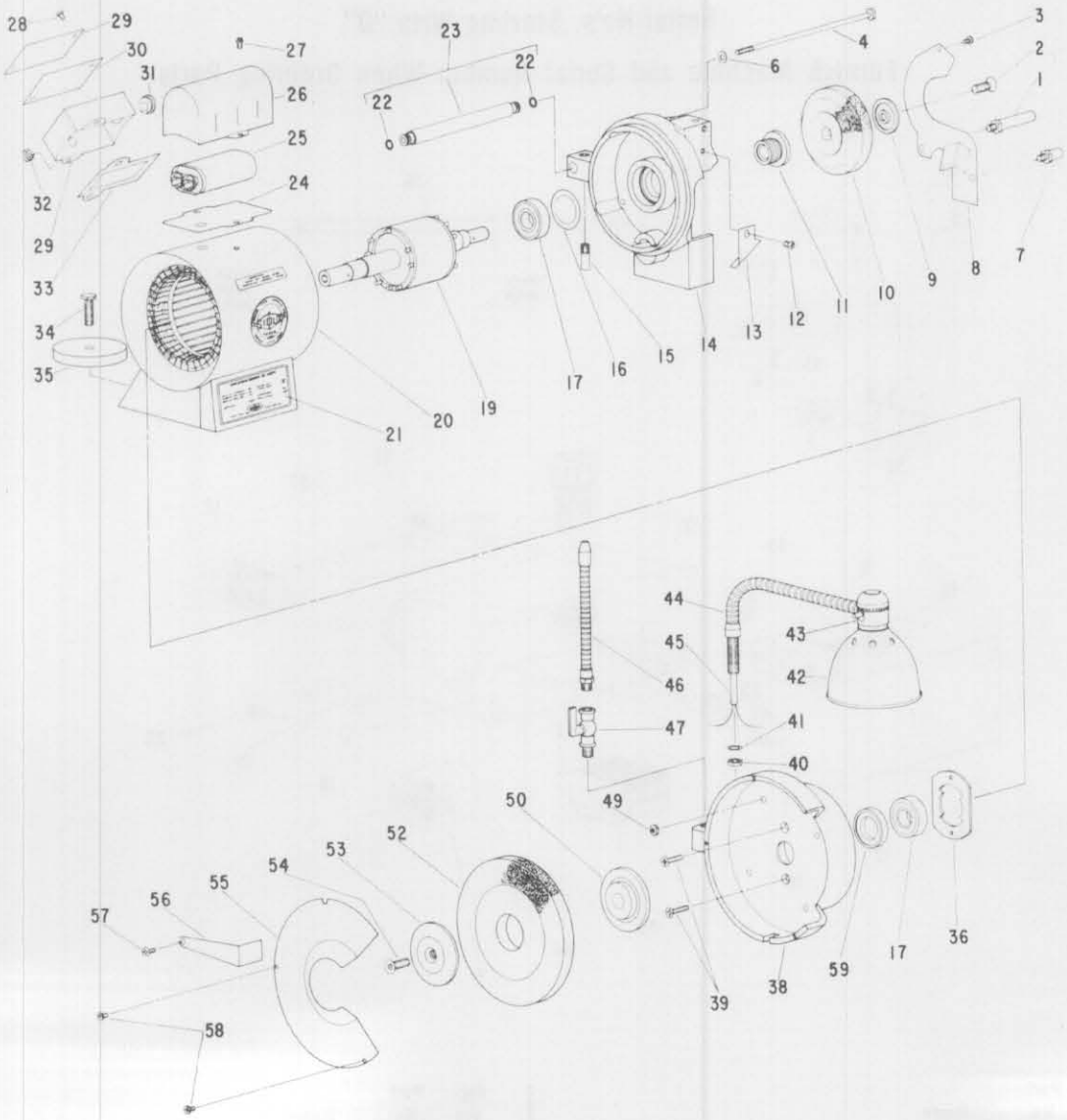
Grinding Head for 680, 684 & 689

Serial No's. Starting With "B", "C" & "D"



Furnish Machine and Serial Number When Ordering Parts

SIOUX TOOLS INC.

2901 FLOYD BOULEVARD ■ SIOUX CITY, IOWA 51102 ■

SIOUX TOOLS INC.

2901 FLOYD BOULEVARD ■ SIOUX CITY IOWA 51102 ■

Grinding Head for 680, 684 & 689

Serial No's. Starting With "B", "C" & "D"

Furnish Machine and Serial Number When Ordering Parts

Figure	Part No.	Name
1	54437	Stop—Long
2	09095	Screw—Flat Hd. Socket
3	07225	Screw—Phil. Pan Hd.
4	07199	Bolt—Thru (4)
6	25210	Washer (4)
7	54438	Stop—Short
8	35350	Cover—Right End
9	24171	Flange—Grinding Wheel
10	81	Wheel—Grinding
11	54530	Flange—Inner
12	08275	Screw—Phil. Rd. Hd.
13	35357	Deflector
14	11422	End Shield (Right End)
15	30734	Adaptor—Tube
16	41298	Washer—Thrust
17	10281	Bearing—Ball (2)
19		Rotor & Shaft (Information Available Upon Request)
20		Assy.—Stator & Base (Information Available Upon Request)
21	20929	Plate—Parts List
22	04252	Ring—"O" (2)*
23	53578	Assy.—Coolant Tube
24	05013	Gasket—Capacitor Case
25	18876	Capacitor
26	35372	Case—Capacitor
27	06410	Screw (2)*
28	06673	Screw (2)*
29	35316	Box—Conduit
30	05014	Gasket—Conduit Cover
31	14855	Bushing—Strain Relief
32	14856	Bushing—Strain Relief
33	05012	Gasket—Conduit Box
34	09106	Screw—Hex Hd.
35	11426	Clamp—Grinding Head
36	35373	Lockplate
38	11423	End Shield (Left End)
39	08176	Screw—Flat Head (2)*
40	09635	Nut—Hex Jam
41	09804	Washer—Lock
42	18964	Reflector—Plastic
43	18965	Socket—Bulb
44	18798	Assy.—Flexible Light (Incl. Figs. 40, 42, 43 & 45)
45	14854	Tubing—Insulation
46	53509	Assy.—Coolant Tube (2)*
47	30731	Valve (2)
49	09462	Nut (4)*
50	54531	Flange—Inner
52	176	Wheel—7" Grinding (For General Grinding)
	177	Wheel—7" Grinding (For Grinding Stellite)
53	54407	Flange—Outer
54	09096	Screw—Flat Hd. Socket
55	35351	Cover—Left End
56	35352	Shield—Air
57	08279	Screw—Phil. Rd. Hd.
58	07225	Screw—Phil. Pan Hd. (2)*
59	54532	Spacer—Outer (Early Models)
	18911	Bulb—Light (115V)
	18988	Bulb—Light (230V)
		COMPLETE ASSY.
	53523	Assy.—Grinding Head (Everything except Light Bulb, 34 & 35) (Specify Voltage & Phase)
	53290	Assy.—Grinding Head (Incl. Figs. 4-6, 14, 16-30, 33, 36-39, 49) (Specify Voltage & Phase)

*Order Quantity As Needed

Revised
Dated 6/18/80

Chuck for 680 Machine (Cap. .230" to 11/16")
Chuck for 684 Machine (Cap. 5/16" to 3/4")
Special Small Capacity Chuck

Serial No's. Starting With "D"

Furnish Machine and Serial Number When Ordering Parts

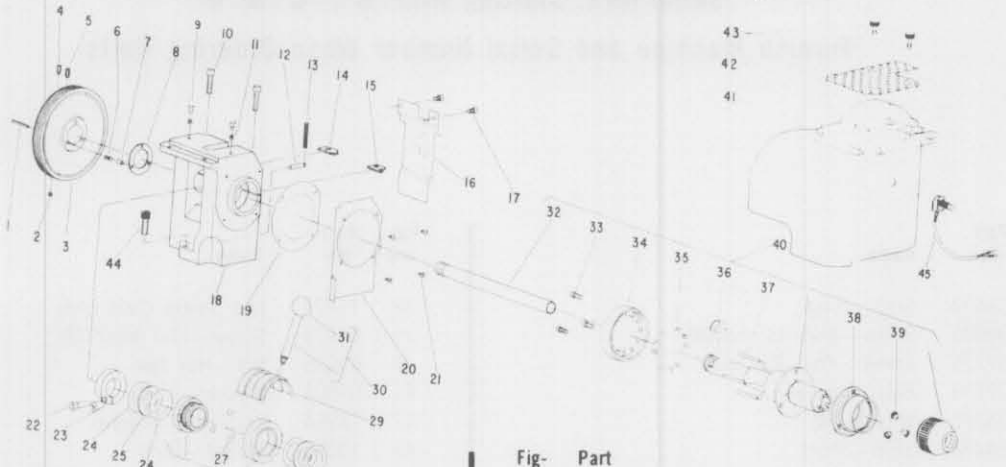


Figure	Part No.	Name
1	24829	Key—Chuck Collar
2	08021	Screw—Set (1/4" Cup Point)
3	11434	Pulley—Chuck Spindle
4	08032	Screw—Set (1/4" Dog Point)
5	08605	Screw—Set (5/16" Dog Point)
6	21315	Spring (3)*
7	54329	Rod—Push (Puliey) (3)*
8	35321	Washer—Thrust
9	30052	Cup—Oil (2)*
10	08798	Screw—Socket Hd. Cap (5/16") (2)*
11	14685	Wick—Felt (2)*
12	54401	Post—Spring
13	41290	Spring
14	14766	Shim—Chuck Head (Rear)
15	05003	Shim—Chuck Head (Front)
16	35325	Plate—Cover
17	08287	Screw—Socket Hd. Cap (1/4") (2)*
18	53566	Head—Chuck (Incl. Figs. 10, 14 & 15)
19	04245	Gasket—Dust Shield
20	35342	Shield—Chuck Head Dust (680)
	35343	Shield—Chuck Head Dust (684)
21	06673	Screw (#8) (4)*
22	08794	Screw—Socket Hd. Cap (5/16")
23	54333	Clamp
24	10058	Race—Needle Thrust (4)*
25	10057	Bearing—Needle Thrust (2)*
27	53555	Assy.—Ball (Set of 3)
29	35341	Shield—Chuck Cam
30	54319	Handle—Lever
31	14008	Grip—Ball
32	24953	Aligner (680 & 684)
33	08232	Screw—Socket Hd. Cap (1/4") (3)*
34	24951	Retainer—Spring
35	53615	Spring (Set of 9)
36	24957	Key—Thrust
37	54322	Rod—Push (4)*
38	24950	Ring—Adjustment
39	24185	Roller—Chuck (680 & 684) (Set of 3)
40	53559	Assy.—Chuck & Aligner (680)
	53560	Assy.—Chuck & Aligner (684)
	53561	Assy.—Chuck & Aligner (680-4AE)
41	12400	Hood—Chuck Head
42	04281	Mat
43	08293	Screw—Thumb (2)*
44	09074	Screw—Socket Hd. Cap (3/8") (3)
	09789	Washer—Lock (2)*
45	28099	Assy.—Switch
46	53933	Assy.—Chuck Cam
		COMPLETE ASSY.
	53845	Assy.—Chuck (Incl. Figs. 1 thru 40) (680) (Cap. .230" to 11/16")
	53847	Assy.—Chuck (Incl. Figs. 1 thru 40) (684) (Cap. 5/16" to 3/4")

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Form No. A360D Rev.
Dated 1/82
Supplements Form No. A360D
Dated 10/79

Chuck for 689 Machine (Cap. .230" to 5/8")

Serial No's. Starting With "D"

Furnish Machine and Serial Number When Ordering Parts

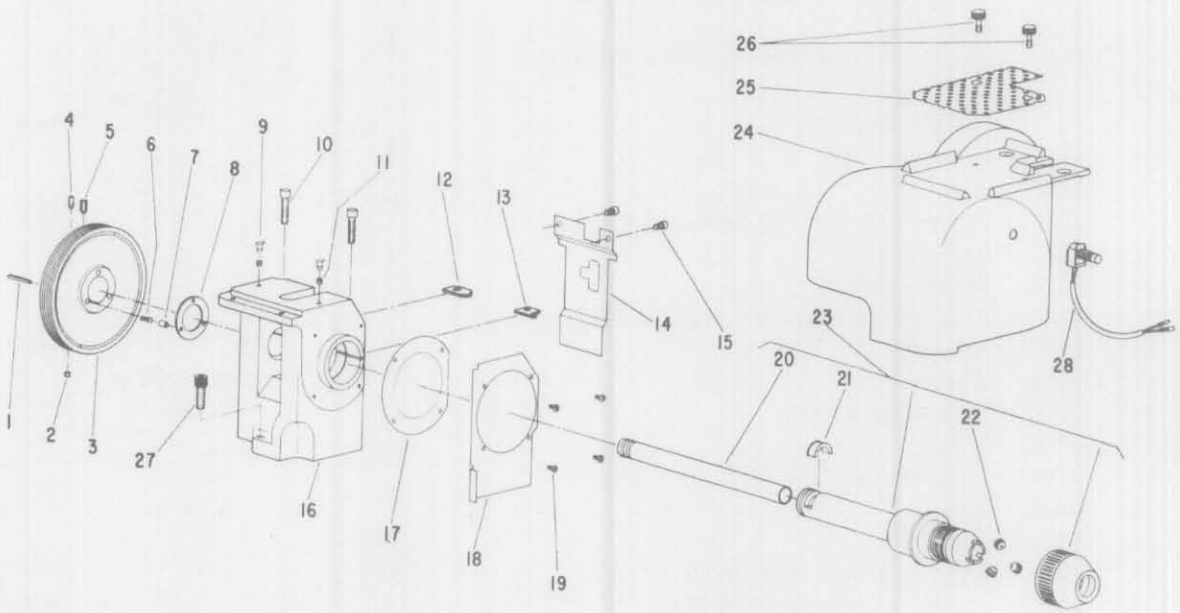


Figure	Part No.	Name
1	24829	Key—Chuck Collar
2	08021	Screw—Set (1/4" Cup Point)
3	11434	Pulley—Chuck Spindle
4	08032	Screw—Set (1/4" Dog Point)
5	08605	Screw—Set (5/16" Dog Point)
6	21315	Spring (3)*
7	54329	Rod—Push (Pulley) (3)*
8	35321	Washer—Thrust
9	30052	Cup—Oil (2)*
10	08798	Screw—Socket Hd. Cap (5/16") (2)*
11	14685	Wick—Felt (2)*
12	14766	Shim—Chuck Head (Rear)
13	05003	Shim—Chuck Head (Front)
14	35325	Plate—Cover
15	08287	Screw—Socket Hd. Cap (1/4") (2)*
16	53566	Head—Chuck (Incl. Figs. 10, 12 & 13)
17	04251	Gasket—Dust Shield
18	35369	Shield—Chuck Head Dust
19	06673	Screw—Phil. (4)*
20	24953	Aligner
21	24957	Key—Thrust
22	24185	Roller—Chuck (Set of 3)
23	53570	Assy.—Chuck & Aligner
24	12400	Hood—Chuck Head
25	04281	Mat
26	08293	Screw—Thumb (2)*
27	09704	Screw—Socket Hd. Cap. (3/8") (3)*
	09789	Washer—Lock (2)*
28	28099	Assy.—Switch
		COMPLETE ASSY.
	53848	Assy.—Chuck (Incl. Figs. 1 thru 23) (Cap. .230" to 5/8")

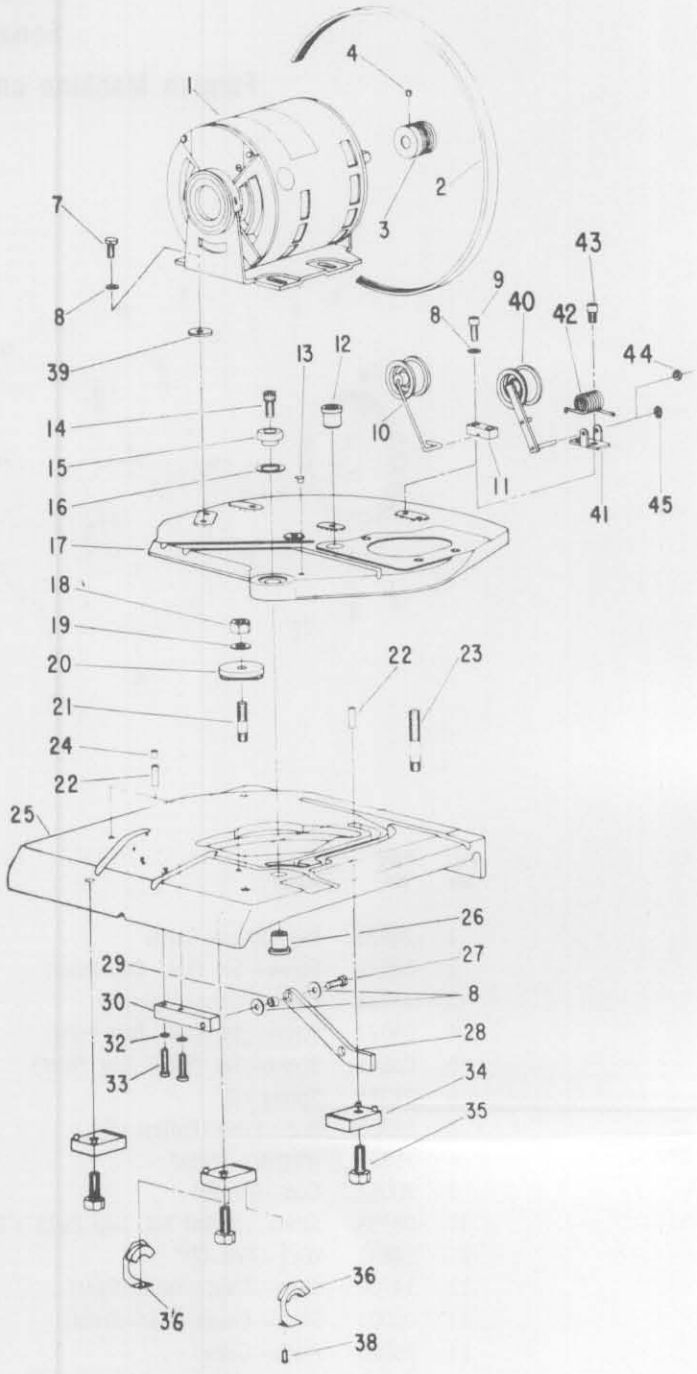
*Order Quantity As Needed

Carriage Plate & Motor Assy. for 680, 684 & 689

Serial No's. Starting With "D"

Furnish Machine and Serial Number When Ordering Parts

Figure	Part No.	Name
1	15106	Motor (Specify Voltage)
2	14471	Belt
3	54608	Pulley—Chuck Motor
4	07188	Screw—Set #10-24 x 5/16''
7	08245	Screw—Hex. Hd. Cap. ¼''-20x½'' (3)*
8	25069	Washer (6)*
9	08229	Screw—Soc. Hd. Cap. ¼''-20 x ¾'' (2)*
†10		Assy.—Idler
†11		Clamp—Idler
12	54465	Protector—Cord
13	30052	Oiler
14	08835	Screw—Soc. Hd. Cap 5/16''-18 x 5/8''
15	44570	Cap—Swivel
16	25379	Washer—Spring
17	53840	Assy.—Base Plate (Incl. Figs. 12 & 13)
18	09590	Nut—Hes. 3/8''-16
19	25053	Washer
20	11058	Lock—Chuck Head
21	24196	Stud
22	14773	Wick—Felt (3)*
23	54444	Stud
24	30073	Oiler (2)*
25	53839	Assy.—Carriage Plate (Incl.) Figs. 21, 22, 23, 24 & 26)
26	44569	Lock—Swivel
27	08250	Screw—Hex. Hd. Cap. ¼''-20 x 1''
28	44571	Link—Connecting
29	24311	Sleeve
30	44576	Post—Connecting Link
32	09750	Washer—Lock ¼'' (2)*
33	08288	Screw—Soc. Hd. Cap ¼''-20x7/8'' (2)*
34	53572	Assy.—Carriage Plate Clamp (3)*
35	09104	Screw—Hex. Hd. Cap 3/8''-16 x 1'' (3)*
36	53897	Assy.—Left Hd. Wiper (5)*
38	06582	Screw—Phil. Fil. Hd. #8-32 x 3/8'' (10)*
39	54664	Spacer—Motor (3)* (Req'd. on Some Units)
40	63108	Assy.—Idler (Incl's. Fig's. 41, 42, 45)
41	35586	Bracket—Idler
42	41311	Spring—Idler
43	08287	Screw—Soc. Hd. Cap ¼''-20x3/8'' (2)*
44		Retainer (Not Available)
45	21809	Ring—Retainer



†Not Available—Order Part No. 53985 Idler Pulley Replacement Set (Incl's. Fig's. 40, 41, 42, 43, 45)

*Order Quantity As needed

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Form No. A360D Rev.
Dated 10/79
Supplements Form No. A360D
Dated 10/77

Valve End Attachment for 680, 684 & 689 Valve Face Grinding Machines

Furnish Machine and Serial Number When Ordering Parts

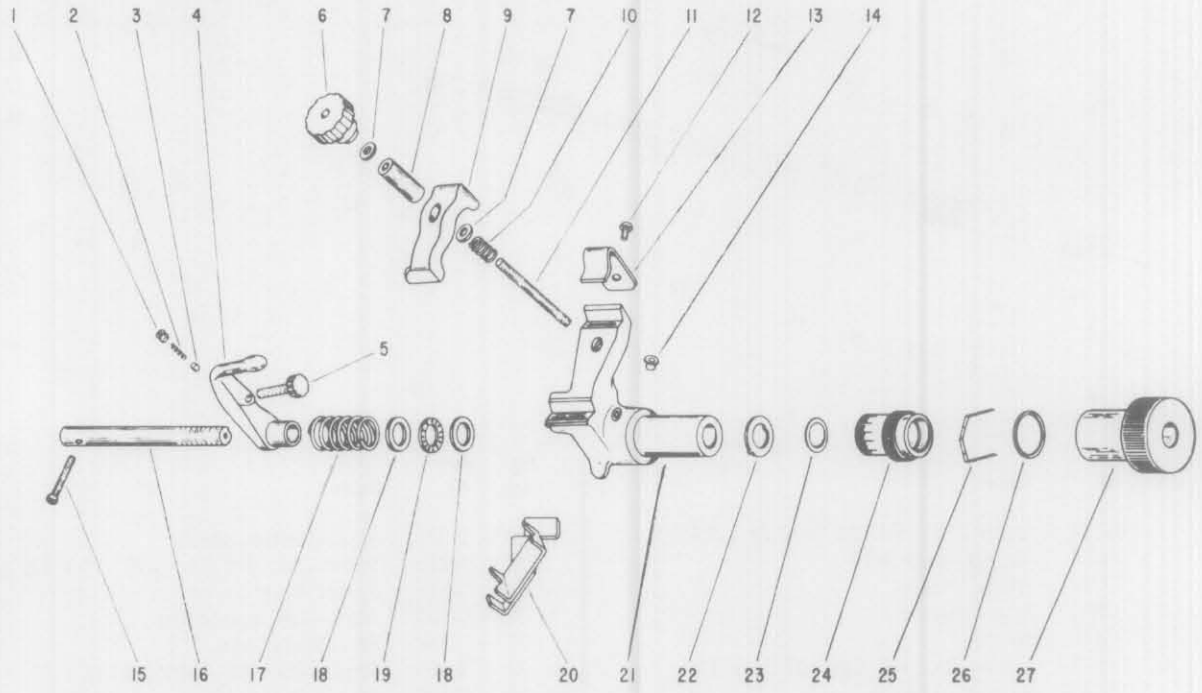

Figure	Part No.	Name
1	09275	Screw—7/16"
2	04261	Spring—Friction Slug
3	13020	Slug—Friction
4	11442	Arm—Dressing
5	1715	Diamond—Dressing
6	11403	Knob
7	25154	Washer (2)*
8	44661	Sleeve—Handle
9	11308	Clamp—Valve
10	21344	Spring—Lift
11	34362	Stud—Handle
12	06672	Screw—1/4"
13	25874	Clip—Valve Clamp
14	30073	Cup—Oil
15	08836	Screw—5/16"
16	54463	Stud—Swivel
17	21220	Spring—Valve Holder
18	25871	Washer—Thrust (2)*
19	10321	Bearing—Thrust
20	53589	Assy.—Chamfering Vee
21	43480	Assy.—Valve Holder & Plates
22	25657	Washer—Thrust
23	25155	Washer—Bearing
24	24162	Thimble
25	21224	Spring—Friction
26	25153	Washer—Crimped
27	24163	Knob—Adjusting
		COMPLETE ASSY.
	643	Attachment—Valve End Grinding (Minus Fig. 20)

*Order Quantity As Needed

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Form No. A360D Rev.
Dated 6/80
Supplements Form No. A360D
Dated 5/80

Base for 680, 684 & 689

Furnish Machine and Serial Number When Ordering Parts

Serial No's. Starting With "D"

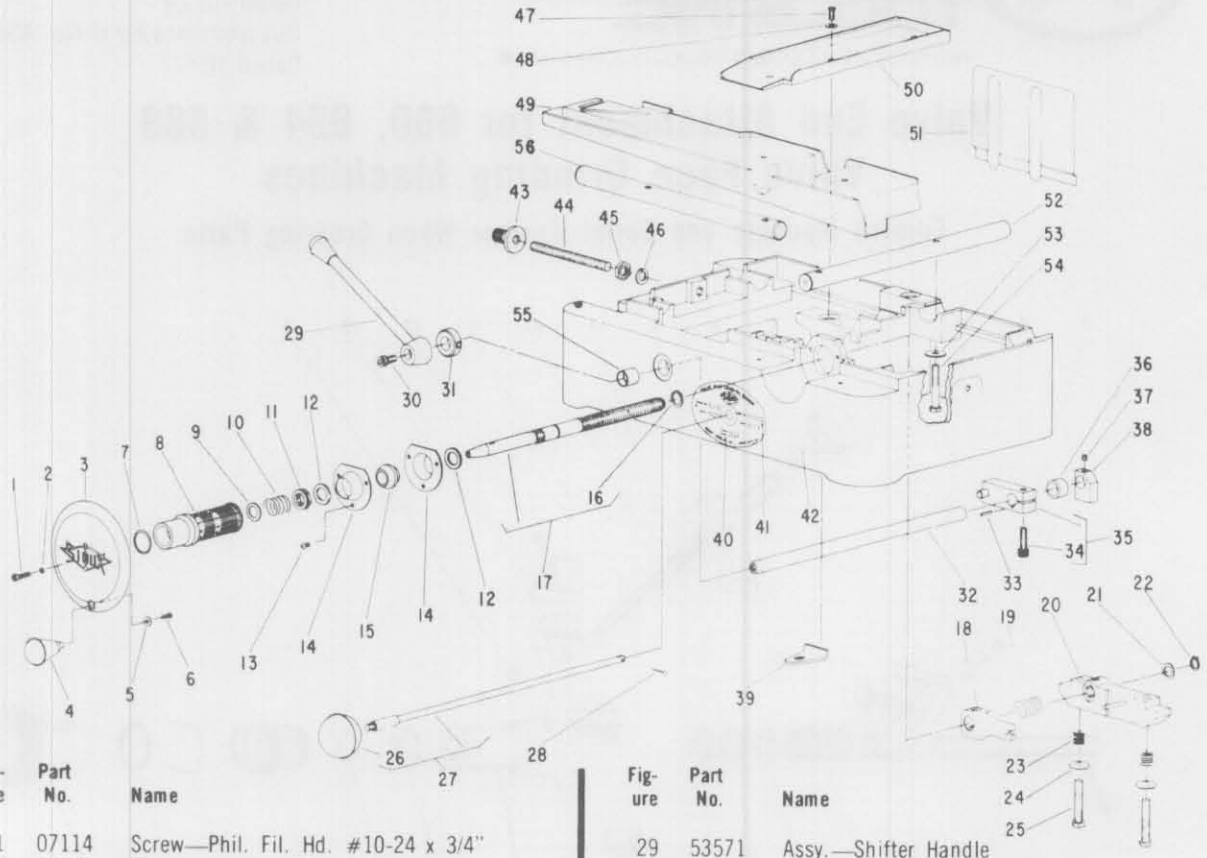

Figure	Part No.	Name
1	07114	Screw—Phil. Fil. Hd. #10-24 x 3/4"
2	09724	Washer—Lock #10
3	12222	Wheel—Hand
4	53853	Assy.—Handle
5	25196	Washer
6	06608	Screw—Soc. Hd. Cap. #8-32 x 3/8"
7	25155	Bearing—Washer
8	54440	Thimble—Micrometer
9	35375	Washer
10	21303	Spring
11	09653	Nut—Lock 5/8"-18
12	25860	Washer (2)*
13	07205	Screw—Phil. Rd. Hd. #10-24 x 3/8" (3)*
14	35348	Retainer—Feed Screw Bearing (2)*
15	10435	Bearing—Feed Screw
16	21793	Ring—Retaining
17	54399	Screw—Feed
18	11395	Dog—Auxiliary Feed Screw
19	21245	Spring—Tension
20	11396	Clamp—Cross Slide
21	25921	Washer
22	21787	Ring—Retaining
23	21316	Spring—Tension (2)*
24	34824	Washer (2)*
25	09126	Screw—Hex. Hd. Cap 3/8"-16 x 2" (2)*
26	14027	Knob
27	53537	Assy.—Switch Control Rod
28	30006	Pin—Cotter
29	53571	Assy.—Shifter Handle
30	08835	Screw—Soc. Hd. Cap 5/16"-18 x 5/8"
31	34619	Spacer & Set Screw
32	44605	Shaft—Carriage Shifter
33	34359	Key—Shifter Arm
34	08775	Screw—Soc. Hd. Cap 5/16"-18 x 1"
35	43380	Assy.—Shifter Arm
36	44644	Spacer—Switch Cam
37	08001	Screw—Set 1/4"-20 x 1/4"
38	44642	Cam—Switch
39	53588	Assy.—Base Stop (Set of 4)
40	20439	Plate—Name
41	09955	Screw—Drive #4 (2)*
42	53849	Base (Incl. Figs. 52 (4), 53 (8), 54 (8) & 55 (2).
43	54436	Nut—Adjusting
44	34912	Stud—Carriage Stop
45	09613	Nut—Hex 7/16"-14
46	09796	Washer—Lock 7/16"
47	08120	Screw—Truss Hd. 1/4"-20 x 1/2" (6)*
48	04246	Washer (5)*
49	14153	Tray—Drain (Front)
50	14149	Tray—Drain (Top)
51	53564	Assy.—Splash Shield
52	54611	Bar—Way (3)*
53	09770	Lock Washer 5/16" (8)
54	08841	Screw—Soc. Hd. Cap 5/16"-18 x 1 3/4" (8)*
55	14152	Bushing (2)*
56	54778	Bar—Way (Carriage Plate—Front)

*Order Quantity As Needed

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Form No. A360D Rev.
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Dated 10/77

Assy.—Coolant Pump for 680, 684 & 689

Furnish Machine and Serial Number When Ordering Parts

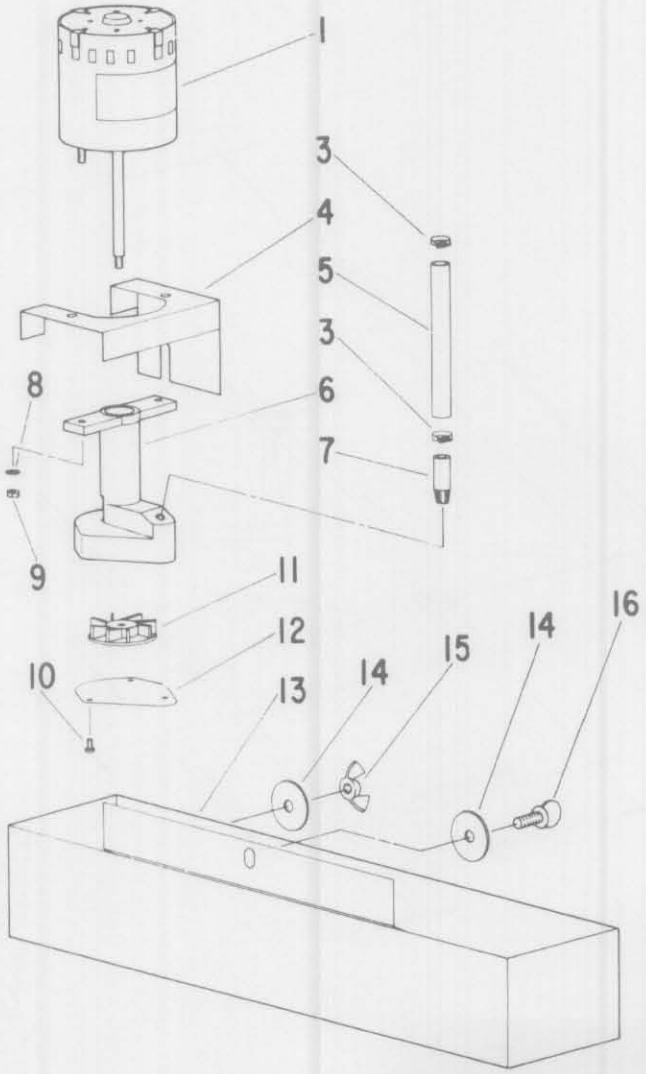
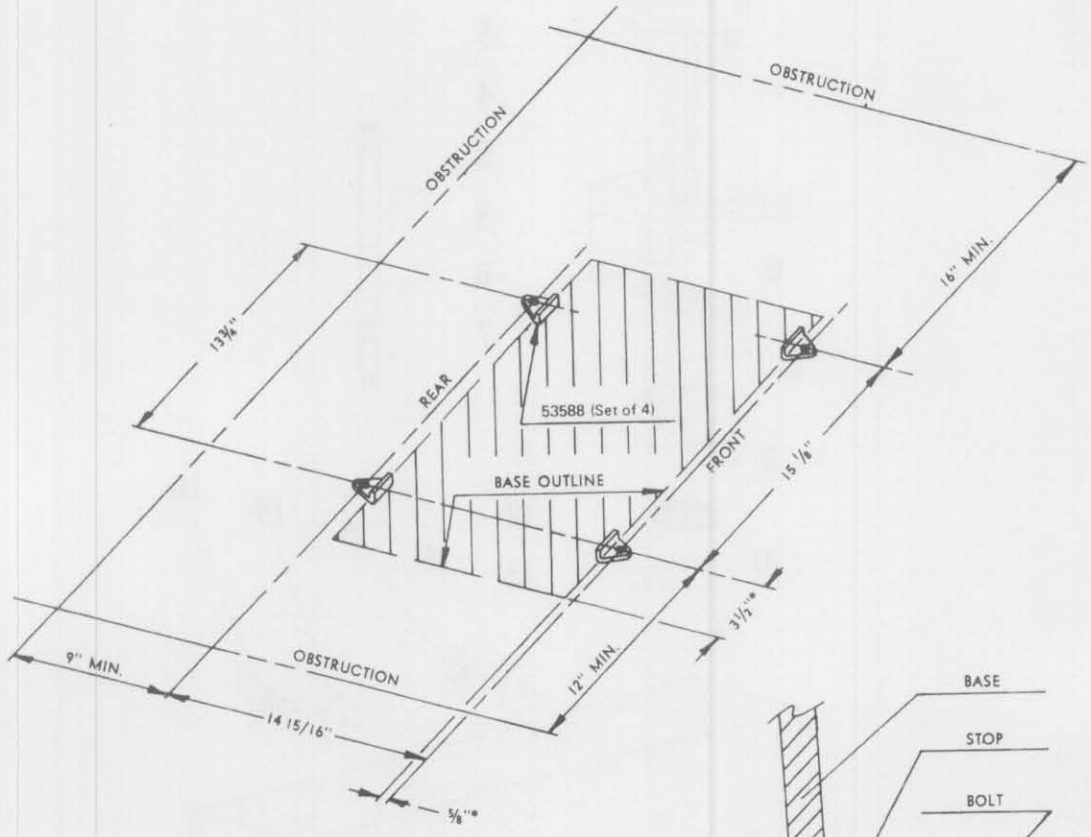


Figure	Part No.	Name
1	15124	Motor (Specify Voltage & Cycle)
3	30744	Clamp—Hose (2)*
4	35361	Mount—Pump
5	04248	Hose—Coolant
6	12385	Housing—Pump
7	30734	Tube—Adaptor
8	09712	Washer—Lock (2)*
9	09450	Nut—Steel Hex. (2)*
10	06235	Screw—Phil. Rd. Hd. (3)*
11	12386	Impeller
12	35368	Cover—Pump
13	53484	Tank—Coolant
14	25366	Washer (2)*
15	09571	Nut—Wing
16	08764	Screw—Thumb
	30698	Screen—Tank
		COMPLETE ASSY.
	53568	Assy.—Coolant Pump (Incl. Figs. 1, 4, 6 thru 12) (Specify Voltage & Cycle)

*Order Quantity As Needed

INSTRUCTIONS

Location Diagram for Base Stops
For 680, 684 and 689 Valve Grinding Machines



Slide Outward Until
Stop Strikes Base

*Base To Bolt Center Location

Locate position for 3/8" Dia. Hold Down Bolts (not provided) as shown above. Make certain that minimum clearances are observed. Locate base so that the bolts will start 3 1/2" to the right from the left side of the base and the front of the base will be 5/8" behind the front bolts. Place vertical flanges of the stops inside of the base casting. Pull the stops out until they strike the base and bolt into place.

SIOUX TOOLS INC.
FACTORY SERVICE

2901 FLOYD BOULEVARD ■ PHONE (712) 252-0525 ■ SIOUX CITY, IOWA 51102 ■

Factory Owned and Operated

Phone (712) 252-0525

Telex 48-0120

"SIOUX Tool Factory Service" is a fully equipped and staffed facility operated in conjunction with the Sioux City Factory for the repair, rebuilding, warranty service and sale of replacement parts for all SIOUX Products.

AUTHORIZED SIOUX SERVICE CENTERS

Atlanta, Georgia 30313	249 Alexander St. N.W.	Tool Service Company
Birmingham, Alabama 35233	1113 4th Avenue So.	Power Tool Service, Inc.
Charlotte, North Carolina 28208	4010 N. Graham St.	Power Tool Service of Charlotte
Chicago, Illinois 60607	835 W. Washington Blvd.	Master Electric Service Co.
Dallas, Texas 75207	2777-G Irving Blvd.	Commercial Parts, Inc.
Denver Colorado 80223	2000 South Acoma	Automotive Equipment Service
Detroit, Michigan 48223	13541 Auburn	Nu-Matic Tool Repair and Parts Co.
Fresno, California 93721	337 "M" Street	Kimmerle Bros.
Greensboro, North Carolina 27405	807 Huffman St. P.O. Box 6544	Power Tool Service of Greensboro
Hanover, Pennsylvania 17331	West Chestnut St.	C & E Pneumatic Service
Honolulu, Hawaii 96813	842 Ilaniwai St.	Air & Hydraulic Service
Houston, Texas 77002	1021 N. San Jacinto	Hydraulic Equipment Service
Kansas City, Missouri 64108	1615 Oak Street	Becker Electric & Tool Service
Los Angeles, California 90007	2300 So. Hill	Kimmerle Bros.
Memphis, Tennessee 381	812 Porter St.	Southern Electric Company
Miami, Florida 33137	274 N.W. 54th Street P.O. Box 370712	Air/Electric Tool Service
Minneapolis, Minnesota 55415	1117 Washington Ave. South	Deko Factory Service
Nashville, Tennessee 37211	1333 Foster Ave.	Charles M. Stone Company
New Orleans, Louisiana 70150	2021 Thalia St. P.O. Box 53432	Beerman Precision Machine Works
Oklahoma City, Oklahoma 73125	515 So. Brodway	Hydraulic Equipment Co.
Phoenix, Arizona 85014	4036 North 13th Way	Glenn's Tool Service
Portland, Oregon 97214	602 S. E. 11th	Charles H. Day Company
Raleigh, North Carolina 27604	2407 Alwin Court	Power Tool Service of Raleigh
Richmond, Virginia 23230	3201 Norfolk St.	Roy's Electric Motor Service
Rock Island, Illinios 61201	7920 14th St., W.	Willco Division
St. Louis, Missouri 63103	3200 Chouteau Ave.	Equipment Service Co.
Salt Lake City, Utah 84119	2395 South 2570 West	Electric Motor and Supply Co.
San Francisco, California 94103	226-11th St.	Kimmerle Bros.
Sioux City, Iowa 51102	417 Floyd Blvd.	Sioux Tool Service Co.
Spokane, Washington 99210	W. 217 Cataldo Avenue	K & N Electric Motors, Inc.
Tulsa, Oklahoma 74110	2423 East Admiral Blvd.	J. and L. Equipment Co.
Winston-Salem, North Carolina 27105	150 Kapp St.	Power Tool Service of Winston-Salem

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AUTHORIZED SIOUX SERVICE CENTERS

The authorized SIOUX Service Centers listed below use only genuine SIOUX parts. They are equipped with factory jigs and fixtures and workmen are factory trained. They render warranty services and are so located that they are no more than 12 hours from any locality in Canada. Satisfaction guaranteed.

Calgary, Alberta, Canada	3816 7th St. S.E	Air Electric Services Ltd.
Edmonton, Alberta, Canada	6739 76 Ave	Air Electric Services Ltd.
Montreal, Quebec, Canada	2185 Hampton Ave	Instrument Sales & Service
Saskatoon, Saskatchewan, Canada	1402 Quebec Ave	Western Warehouse Distributors
Toronto, Ontario, Canada	7 Gilead Place	Bill's Air & Electric Tool & Repair Ltd.
Vancouver, B.C., Canada	275 West 4th Ave	Armature Electric Company
Winnipeg, Manitoba, Canada	665 Erin St	Piston Ring Service

SIOUX TOOLS CANADA LTD.

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